Replacement Page of
TPB Paper No. 10542
For Consideration by TPB on 14.6.2019

TOWN PLANNING BOARD

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SUBMISSION OF THE DRAFT URBAN RENEWAL AUTHORITY KAI TAK ROAD/SA PO ROAD DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A PREPARED UNDER SECTION 25 OF THE URBAN RENEWAL AUTHORITY ORDINANCE *AND PROPOSED AMENDMENTS TO THE APPROVED MA TAU KOK OUTLINE ZONING PLAN NO. S/K10/24*

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Development Scheme Area	:	31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.), two pieces of Government land, a service lane, a portion of Sa Po Road and portion of surrounding public pavements
Area	:	6,106 m^2
Lease	:	(a) Private land (31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.) (b) Government land (remaining areas)
OZP	:	Approved Ma Tau Kok Outline Zoning Plan (OZP) No. S/K10/24
Zoning	:	"Residential (Group A)2" ("R(A)2") - a maximum plot ratio (PR) of 9 for a building that is partly domestic and partly non-domestic, of which the domestic part should not exceed 7.5 or the PR of the existing building, whichever is the greater - a maximum PR of 9 for non-domestic building - a maximum building height (BH) of 100mPD would be permitted for sites with an area of 400m^2 or more Area shown as 'Road'
Proponent	:	Urban Renewal Authority (URA)
Proposed Amendments	:	(a) To rezone Development Scheme Area to "R(A)" zone (b) To increase building height restriction (BHR) from 100mPD to 120mPD

1. The Proposal

Urban Renewal in Kowloon City

1.1 According to the Urban Renewal Plan for Kowloon City (URP) recommended under the District Urban Renewal Forum (DURF) study in 2014, a site at Kai Tak Road/Sa Po Road was proposed to be rezoned from "R(A)2" to "Comprehensive Development Area" ("CDA") for mixed development with commercial, community and residential uses (**Plan 1**). It could facilitate the transformation of the area to a gateway leading to Kai Tak Development Area (KTDA) with seamless integration with its underground shopping street (USS). The URP also suggested that an entrance plaza connecting with the subway to the USS should be provided to serve as a gateway to create a sense of arrival, and commercial/community facilities and public vehicle park (PVP) should be provided in the future development to meet the local demand. The draft Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) is formulated based on DURF's proposal, and URA proposed to enlarge the site boundary southward to include the southern portion of Sa Po Road and the adjoining amenity areas and to rezone the site to "R(A)" zone.

Kai Tak Road/Sa Po Road DSP

1.2 On 22.2.2019, the URA submitted the draft Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/A for consideration of the Town Planning Board (the Board) in accordance with section 25(5) of the URA Ordinance (URAO). The submission comprises the draft DSP with its Notes and Explanatory Statement (ES), a planning report with technical assessments on traffic, environment, visual, air ventilation, drainage, sewerage, geotechnical aspects and social impact assessment (SIA) (Stage 1) report (**Annex B**). On 4.4.2019, URA further submitted the SIA (Stage 2) report to the Board (**Annex D**).

1.3 The draft DSP is to rezone the DSP area to "R(A)" with a BHR of 120mPD to facilitate a high-density commercial/residential development. A PVP, social welfare/community facilities, and a split-level sunken plaza are proposed in the development.

1.4 In support of the draft DSP, the proponent submitted the following documents:

(a)	URA's letters dated 22.2.2019 and 25.2.2019	**(Annex A)**
(b)	Planning Report (including Stage 1 SIA Report)	**(Annex B)**
(c)	URA's letter dated 4.4.2019	**(Annex C)**
(d)	Stage 2 SIA Report	**(Annex D)**
(e)	URA's letter dated 3.5.2019 providing responses to comments of Government departments and public comments (Stage 1)	**(Annex E-1)**
(f)	URA's letter dated 10.5.2019 providing responses to comments of Government departments and public comments (Stage 2)	**(Annex E-2)**

(g) URA's submission dated 16.5.2019 providing responses to comments of Government departments **(Annex E-3)**

(h) URA's submission dated 31.5.2019 providing responses to comments of Government departments **(Annex E-4)**

(i) URA's submission dated 3.6.2019 providing responses to comments of Government departments **(Annex E-5)**

(j) URA's submission dated 5.6.2019 providing responses to comments of Government departments **(Annex E-6)**

1.5 The purpose of this paper is to invite the Board to consider whether the draft DSP (together with its Notes and Explanatory Statement (ES)), as submitted by URA, is suitable for gazetting under section 5 of the Town Planning Ordinance (TPO).

1.6 The area proposed to be zoned "R(A)" on the draft DSP currently falls within an area mainly zoned "R(A)2" and a section of Sa Po Road partly shown as 'Road' on the approved Ma Tau Kok OZP No. S/K10/24 (**Plan 2**). The area of the DSP covers the "R(A)2" zone on the OZP, including private lots at 31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.), two pieces of government land that are currently used as amenity areas, a service lane, and portion of the surrounding public pavements abutting a portion of Sa Po Road (**Plan 3** and **Annex H-1**). A portion of Sa Po Road is included in the DSP area and is proposed to be closed. A new private road will be provided within the DSP for public use and diverting traffic from Sa Po Road to Kai Tak Road **(Drawing 2a**). URA has included the adjoining pavements along north-south direction of Sa Po Road and Kai Tak Road within the boundary of the DSP as part of the affected buildings overhang the pavement, but it will not be included in the site area for PR calculation.

1.7 According to URA's notional scheme (**Drawings 2b, 3 and 4a**), the proposed development includes three residential towers over a non-domestic podium comprising retail, GIC facilities, private residential clubhouse and podium garden. A sunken plaza is proposed at the southern edge of the DSP to allow for at-grade integration with the existing pavement of Prince Edward Road East and underground connection with the government's subway that links up with the future USS in KTDA. The sunken plaza is proposed to be opened for public use (**Drawings 4a & 4b**). A PVP and some floor space for GIC facilities will be provided within the development. The preliminary design drawings are at **Drawings 2b and 3** and the development parameters are set out in the table below:

Scheme area	6,106m^2
Net site area [(i)] (about)	5,352m^2
Proposed zoning	"R(A)"
Maximum GFA [(ii)] - Domestic - Non-domestic	About 48,168m^2 - About 40,140m^2 - About 8,028m^2

Maximum PR [ii] - Domestic - Non-domestic	9 - 7.5 - 1.5
Maximum BH	120mPD
No. of residential towers	3
No. of storeys - Domestic - Non-domestic - Basement carpark/non-domestic portion connecting to a sunken plaza	38 (about) 30 3 5
Estimated population	1,940
No. of flats [iii]	810 (about)
GIC facilities	About 800m^2 GFA
Parking Facilities - Ancillary parking - Pubic vehicle parking - Loading/unloading (L/UL) bays	 - 120 private car and 14 motor-cycle parking spaces (underground) - 300 private car parking spaces (underground) - 6 heavy goods vehicles (HGV) [iv] and 5 light goods vehicles (LGV) (at grade)
Local Open Space	To be provided in accordance with the requirements of the Hong Kong Planning Standards and Guidelines (HKPSG) (i.e. 1m^2 per person).
Others	A sunken plaza of 1,000m^2
Notes: (i) Net site area to be adopted for PR calculation, subject to survey and detailed design. (ii) The exact GFA is subject to detailed design and prevailing Schedule 1 of the Building (Planning) Regulations (B(P)R). (iii) Subject to detailed design at project implementation stage. (iv) To address Commissioner for Transport (C for T)'s request, 1 more HGV is proposed in addition to the original proposal of 5 HGV and 5 LGV L/UL bays.	

Development Intensity

1.8 The Scheme area of the DSP is 6,106m^2 and the site area is 5,352m^2. The proposed domestic and non-domestic PRs conform to the restrictions for "R(A)" zone under the OZP, i.e. maximum PR of 9 for a building that is partly domestic and partly non-domestic and PR of the domestic part not exceeding 7.5.

Relaxation of BHR

1.9 The area currently zoned "R(A)2" on the OZP is subject to BHR of 100mPD[1]. URA proposed to relax the BHR for the DSP to 120mPD.

Underground PVP

1.10 An underground PVP with 300 private car parking spaces is proposed. The ingress of the PVP is at Kai Tak Road, which is separated from the ingress of the ancillary car park of the proposed development at Sa Po Road. They would share the common egress point at Kai Tak Road (**Drawing 4a**). URA proposed that the PVP is to be under the management and maintenance of URA or its joint venture partner or its assigned agent. To facilitate its implementation, 'Public vehicle park (excluding container vehicle)' is proposed to be included as a Column 1 use that is always permitted within "R(A)" zone. Provision of the underground PVP as required by the government is proposed to be stipulated in the Notes and be exempted from PR calculation (**Annex H-2**).

Closure of a Section of Sa Po Road for Provision of a New Private Road and Sunken Plaza

1.11 URA proposed to realign a section of Sa Po Road running parallel to Prince Edward Road East northward, to form a perpendicular intersection with Kai Tak Road (**Drawing 2b**). The realigned Sa Po Road will be a private road to divert traffic from Sa Po Road to Kai Tak Road and will be open for public use 24 hours daily. The private road will be under the management and maintenance of URA or its joint venture partner or its assigned agent, subject to agreement with relevant Government Departments.

1.12 Upon realignment of Sa Po Road, the enlarged triangular space between the private road (redirected Sa Po Road) and Prince Edward Road East would be converted to a split-level sunken plaza for public enjoyment. The split-level sunken plaza is the landing for a subway (to be constructed by the Government) to connect to the USS in KTDA. URA indicated that the exact opening hours of the sunken plaza will be reviewed at later stage while the proposed linkage with government's planned subway is intended to be opened 24 hours daily for public use.

Sunken Plaza and Connecting Commercial Uses

1.13 URA proposed that in addition to provision of commercial uses on the lowest three floors, commercial uses is also proposed in the non-domestic portion of the building connecting to the sunken plaza to enhance its vibrancy. The standard Notes of the "R(A)" zone is proposed to be modified to permit this (**Annex H-2**).

[1] "R(A)2" sites are subject to BHR of 80mPD as stipulated on the OZP, while sites with an area of 400m^2 or more are subject to a BHR of 100mPD as stipulated in the Notes.

GIC Facilities

1.14 To meet community needs, URA proposed to provide about 800m^2 of non-domestic GFA for appropriate GIC/community use. The provision of GIC facilities as required by the government is proposed to be exempted from PR calculation (**Annex H-2**).

1.15 URA proposed to delete 'Ambulance Depot' use from Column 1 and 'Hospital' use from Column 2 in the Notes of the "R(A)" zone under the DSP (**Annex H-2**) as they have no intention to incorporate these uses into the development (**Annex E-6**).

2. Justifications provided by URA

General

2.1 Under the DSP, old buildings in the area, ranging from 29 to 55 years in 'varied' or 'poor' conditions will be redeveloped into a new modern residential development with commercial/GIC facilities, a sunken plaza to enhance the vibrancy of the landing point for the subway connecting to the USS in KTDA and a PVP to alleviate the acute shortage of car parking spaces in the area. The existing buildings are in poor serviceability and some have suspected unauthorised building structures (UBWs). The redevelopment will help improve living conditions of the existing households in sub-divided flats. The DSP will increase the small to medium-sized flats in the urban area.

Meeting DURF's recommendations in the URP

2.2 The DSP also seeks the opportunity to carry out comprehensive redevelopment to implement DURF's recommendations in the URP, which include:

(a) a comprehensive development to facilitate mixed development with commercial and residential uses to strengthen the connection with KTDA;

(b) provision of a sunken plaza to enhance connection with the USS of KTDA;

(c) provision of GIC/community facility uses; and

(d) provision of a PVP to address the demand for vehicle parking facilities in the Nga Tsin Wai Road Area.

Relaxation of BHR

2.3 URA proposed to relax the BHR from 100mPD to 120mPD. The justifications provided by URA are to provide more design flexibility; to allow a slimmer build-form and wider building separation to enable a visual and spatial relief and better air ventilation for the proposed residential towers and the adjoining existing buildings (i.e. Carlson Court at 51 Sa Po Road and High Place at 33 Carpenter

Road). URA opined that the proposed BHR of 120mPD respects and presents a stepped-building height profile to the developments across Carpenter Road (Billionaire Royale and Le Billionaire at 170mPD and 145mPD respectively). If 100mPD is kept for the proposed development with the sunken plaza and a private road at the south, the residential towers will need to be restricted to the northern part and the buildings will be inevitably bulkier in building form with narrower building gaps between towers and the adjoining existing buildings which would create stressful spatial feeling and it is not desirable from urban design point of view. A visual appraisal (VA) was submitted to demonstrate that the visual impact of relaxing the BHR to 120mPD is visually compatible with the surrounding developments (Appendix 4 of **Annex B** and **Drawings 5a to 5c**). Besides, an air ventilation assessment (AVA) was submitted to demonstrate that the proposed scheme with three residential towers at 120mPD and building gaps of 11m-13m would better enhance air ventilation as compared to a scheme at 100mPD (Appendix 6 of **Annex B** and **Drawings 6a1 and 6a2 and 6b**).

Underground PVP

2.4 The underground PVP is intended to alleviate the insufficient car parking spaces in the Nga Tsin Wai Road Area[2] as recommended in the URP. According to the Traffic Impact Assessment (TIA) in Appendix 2 of **Annex B,** based on the parking survey, URA will provide a PVP with 300 public car parking spaces to serve the eastern part of Nga Tsin Wai Road Area[3]. It may also provide opportunity for pavement widening in the area to improve the walkability by replacing some on-street metered car parking spaces in the area.

Local Road Improvement / Sunken Plaza

2.5 The split-level sunken plaza would enhance vibrancy of the pedestrian connection between Kowloon City and the USS in KTDA. It would also provide more circulation and waiting space for the public at the existing bus stops at Prince Edward Road East.

2.6 The proposed realignment could replace the existing acute angle at the junction of Kai Tak Road/Sa Po Road to eliminate the visibility constraint (see paragraph 4.15 of the TIA in Appendix of **Annex B**). Traffic calming/pedestrian crossing will be provided at the realigned Sa Po Road to enhance pedestrian safety. The design and width of the realigned Sa Po Road will be subject to detailed design and agreement with C for T. Future management and maintenance of the private road is subject to liaison with relevant government departments upon DSP approval and to be stipulated in the land grant and Deeds of Mutual Covenant (DMC) at a later stage.

[2] The "Nga Tsin Wai Road Area" is bounded by Shek Ku Lung Road to the east, Prince Edward Road East to the south, Junction Road to the west and Carpenter Road to the north.

[3] The western part of the "Nga Tsin Wai Road Area" is currently served by a public car park at Kowloon City Plaza, providing not less than 400 public car parking spaces.

3. Background

3.1 The Scheme is included in URA's 17th approved Business Plan (2018/19). On 22.2.2019, URA published the notification of commencement in the Government Gazette for the Kai Tak Road/Sa Po Road Development Scheme under section 23(1) of URAO. On the same day, URA submitted the draft DSP to the Board for consideration.

3.2 According to section 25(6) of the URAO, the Board may deem the draft DSP as suitable for publication, or being suitable for publication subject to amendments as the Board shall specify, or refuse to deem the draft DSP as being suitable for publication. If the Board deems the draft DSP suitable for publication under section 25(7) of the URAO, the DSP shall be deemed to be a draft plan prepared by the Board for the purposes of the TPO and the provisions of the TPO shall apply accordingly. These include exhibition for public inspection, consideration of representations and comments, and submission of the draft DSP to the Chief Executive in Council for approval.

4. Development Scheme Boundary

4.1 According to URA, the Scheme boundary was delineated based on the redevelopment boundary recommended in the URP to address its planning intention, and inclusion of a portion of Sa Po Road. The portion of Sa Po Road within the Scheme area is proposed to be permanently closed to optimize the size and configuration of a proposed sunken plaza at the southern part, and to better integrate with the existing adjoining pavement. The restructuring of land uses and provision of a well-designed sunken plaza would enhance the landing area for the subway and improve the walkability and connectivity to the proposed USS in KTDA. A new private road will be provided for public use within the Scheme area to allow traffic diversion from Sa Po Road to Kai Tak Road.

4.2 The buildings included in the Scheme area are selected mainly based on the URP's recommendation (**Plan 1**), but two relatively new buildings at 51 Sa Po Road (built in 2006) and 33 Carpenter Road (built in 2014) within the same street block are excluded from the Scheme area. According to URA, the tenement buildings, except 31-35 Sa Po Road, within the Scheme are 5 to 10 storeys and built between 1962 and 1990, and only one of them is served by lift (**Plan 6**). These two rows of buildings are mainly residential on upper floors with commercial premises on the ground floors which are primarily engaging in businesses of retail, services, workshops (e.g. car repair and light engineering workshops) and restaurants/cafes. The commercial building at 31-35 Sa Po Road is of 12 storeys high with lift and it was built in 1981. Based on URA's building condition survey carried out in January 2019 (**Drawing 1**), more than 70% of the buildings are in 'varied' or 'poor' conditions and some have suspected unauthorised structures (UBWs) identified and subdivided units. The living condition in the Scheme is considered not satisfactory in general. In addition, a piece of private land (28-30 Kai Tak Road) is currently

used as a carpark, and two pieces of government land are currently used as amenity areas.

5. Social Impact Assessment

5.1 According to section 25(3) of the URAO, an assessment of the likely effect of the implementation of the DSP should be prepared by the URA. In accordance with the guidelines stipulated in the Urban Renewal Strategy, the URA should undertake a Stage 1 SIA before publication of any proposed redevelopment project in the Government Gazette and a Stage 2 SIA after the freezing survey to fully assess the social impact of the proposed project and the social re-housing needs of the residents affected. From 22.2.2019 to 24.2.2019, an SIA survey for the Scheme was conducted by URA to survey the opinions of people for planning purposes together with the freezing survey. Follow-up survey visits by appointments were conducted up to 15.3.2019. The SIA (Stage 1) Report is at Appendix 9 of **Annex B** and the SIA (Stage 2) Report is at **Annex D**.

Domestic Household Impact

5.2 A brief summary of the findings of the two stages of SIA is as follows:

	Development Scheme Area	**Territorial Level[(i)]**
Population and Household Characteristics		
Total population	961	-
Average household size	2.6	2.8
Degree of sharing[(ii)] Total: households (371) / surveyed units or cubicles (288) Breakdown: Household (233) / original units (233) Household (138) / sub-divided units or cubicles (55)	 1.29 1.0 2.51	 1.0 - -
Age group 0-14 15-24 25-64 65 & above	 15% 10% 63% 12%	 11% 11% 62% 16%

	Development Scheme Area	Territorial Level[(i)]
Social-economic Characteristics		
Monthly income (per month/household) Below HK$10,000 Below HK$4,000 Nil response	 13% 5% 38%	 19% 6% -
Seeking job/unemployment	5.4%	2.8% (November 2018 – January 2019)
% of households receiving comprehensive social security assistance (CSSA)	6% (23 households)	About 4% (as at February 2019)[(iii)]
Residing in Hong Kong for less than 7 years	4%	-
Household Type		
Owner-occupiers Tenants (including principal tenants and sub-tenants)	39% (145 households) 61% (226 households)	48%
Groups with Special Needs		
Persons with disability	4% (37 residents)	-
No. of single-parent family	20 (with 30 children)	-

Notes:

(i) Based on the 2016 Population By-census.

(ii) The original number of domestic units within the Scheme area in approved general building plans are 335, including 233 non-subdivided domestic units, 55 sub-divided units and 47 units unsuccessfully surveyed.

(iii) Based on the press release by the Government on CSSA caseload for February 2019 published on 20.3.2019.

5.3 The findings of the survey for the redevelopment project are as follows:

(a) impact on employment – over half (53% and 55% respectively) of the owner-occupier households and tenant households considered that the project would have positive impact or no impact whilst 20 % of owner-occupier households and 21% of tenant households considered that there would be negative impact;

(b) impact on economic conditions – 33% of the owner-occupier households and 35% of the tenant households considered that there would be positive impact or no impact; whilst 37% of the owner-occupier households and 42% of the tenant households considered that there would be negative impact; and

(c) impact on social network – 34% of the owner-occupier households and 43% of the tenant households considered that their current social network would not be affected; whilst 52% of the owner-occupier households and 43% of the

tenant households considered that social network would be affected.

Business Impact

5.4 In terms of business impact, 63 business operators using 85 non-domestic premises were identified in the freezing survey. Among 71 freezing survey responses provided by the occupants of the non-domestic premises, about 47% of them either strongly supported or supported the proposed redevelopment, while about 21% of them did not support.

5.5 According to the SIA (Stage 2) report, the Social Service Team (SST) has successfully contacted 120 domestic owners, 123 domestic tenants, 10 business operators and 40 undisclosed operators with problem or enquiry related to compensation, rehousing and tenancy being identified. Immediately after the SIA survey, URA arranged two public briefing sessions to inform all the stakeholders the details of the Scheme and to obtain public views on the Scheme. Besides, in view of the concentration of Thai residents in the Scheme area, URA arranged a special briefing session for Thai-speakers to brief them on the Scheme information and to answer their enquiries. The URA answered enquiries about freezing survey, planning, acquisition, compensation and rehousing issues at the meetings.

5.6 The URA considers that the prevailing compensation and rehousing policies and arrangements, coupled with the services offered by the STT, will be sufficient to reasonably mitigate the impact on majority of the residents/business operators arising from the proposed redevelopment. The major mitigation measures being pursued include, inter alia, organizing outreach activities, offering assistance in finding public rental housing for eligible persons in need, conducting initial assessment of the elderly with low incomes or disability and other vulnerable groups for eligibility for compassionate housing, providing orientation assistance for those in need after moving home and providing assistance to identify suitable replacement premises for affected businesses.

5.7 The SIA (Stage 1) and SIA (Stage 2) reports were circulated and no adverse comments were received from concerned government departments.

6. Implementation

6.1 As shown in the tentative implementation programme proposed by URA, construction of the project will commence around 2024/25 for completion in around 2030/31.

6.2 The URA does not own or lease any land within the boundaries of the draft DSP and will acquire the property within the Scheme by purchase. Documents detailing URA's principles for acquisition and resumption of affected properties as well as URA's rehousing and ex-gratia payment packages for domestic and non-domestic tenants are in Appendices 12 and 13 of **Annex B**.

7. The Development Scheme and its Surrounding Areas (Plans 2-7, photos in Plans 8-10 and Drawings 1, 4b and 5a to 5c)

7.1 The Scheme is:

(a) located in Kowloon City;

(b) bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north, excluding two buildings at 51 Sa Po Road (built in 2006) and 33 Carpenter Road (built in 2014); and

(c) mainly characterised by tenement buildings that are 5-to-10 storeys in height built between 1962 and 1990, and a 12-storey commercial building built in 1981 (**Plan 6**). The existing building conditions are detailed in paragraph 4.2 (**Drawing 1**).

7.2 The surrounding areas have the following characteristics:

(a) the area is primarily a residential area zoned "R(A)2" dominated with low and medium-rise residential developments with ground floor shops, and sporadically with new high-rise residential developments (**Plan 7**). Kowloon City is one of the renowned specialty dining area in Hong Kong with a variety of restaurants;

(b) separated from the KTDA by Prince Edward Road East. A subway is proposed and to be constructed by the Government to connect the southern portion of the site to the USS in KTDA with further access to the Mass Transit Railway (MTR) stations (i.e. Sung Wong Toi Station and Kai Tak Station) (**Plan 5**);

(c) to the southwest is Tak Ku Ling Road Rest Garden; and to the southeast across Sa Po Road is an amenity area (**Drawing 4b**); and

(d) to the east is Regal Oriental Hotel.

8. Planning Intention

8.1 The area covered by the Scheme is currently partly zoned "R(A)2" and an area partly shown as 'Road' on the approved Ma Tau Kok OZP No. S/10/24. The planning intention of the "R(A)" zone is 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 (**Plan 3**).

8.2 The Scheme area is to be zoned to "R(A)", and the planning intention of the original "R(A)" zone will be retained, and the provision of a sunken plaza and PVP will be added.

9. Comments from Relevant Bureau/ Government Departments

9.1 The following government comments have been consulted and their comments on the draft DSP and URA's responses are in **Annexes E-1 to E-6**. Their major comments are summarised below:

Land Administration

9.1.1 Comments from the Chief Estate Surveyor/Urban Renewal, Lands Department (CES/UR, LandsD):

(a) He will reconsider the whole re-development proposal during the implementation and land grant application stage. There is no guarantee that any proposed resumption of the private lot interests within the site, the implementation of the proposed road works, the future land grant and the proposed development parameters, will be approved. The land grant, if approved, will be subject to the decision of the relevant authority and the lease conditions to be imposed by LandsD. In particular, regarding the car parking spaces and loading/unloading bays proposed in the Scheme, which may exceed the normal provisions under the HKPSG, may be accountable for GFA under lease. Also, covered public parking spaces should be accountable for GFA unless exemption is specially provided in the lease.

9.1.2 Comments from the District Lands Officer/Kowloon East, Lands Department (DLO/KE, LandsD):

(a) the proposed split-level sunken plaza with closure of a portion of Sa Po Road on south portion of the Scheme would provide 1,000m^2 for public use. The provision appears to be public open space with corresponding land grant conditions;

(b) there would be direct underground connection to KTDA. There may be specialized construction adaption to the related basement floors to receive the subway to be incorporated in land grant conditions;

(c) as there are both private car park and PVP to be provided on basement floors, there is a need to have careful design and property management to avoid possible management and maintenance interface problem in future;

(d) regarding the private road available to the public to divert traffic from Sa Po Road to Kai Tak Road in lieu of closure of a portion of Sa Po Road at the southern portion of the Scheme, there is no elaboration on how to make public use of the private road. The land grant shall provide for its formation, management and handover/dedication, if appropriate;

(e) regarding the GIC facilities of 800m^2, the land grant shall provide for its user and GFA countability; and

(f) LandsD will reconsider the whole development at the land grant application stage.

Traffic Aspect

9.1.3 Comments from the C for T:

(a) it is noted that the development would provide 120 ancillary car parking spaces and 300 public vehicle car parking spaces, with two ingresses on Sa Po Road and Kai Tak Road respectively so as to facilitate turn-around of vehicles and efficiency in operation of PVP. It is expected that traffic queue will be contained within the site and there is no expected traffic queue on the public road. In view of the above, we have no further comment on provision of the proposed two ingresses and one egress of the vehicular access provided that it would not result in traffic queue on Sa Po Road, Kai Tak Road and Carpenter Road;

(b) it is expected that there will be high demand of L/UL activities for retail purpose. As such, please review to provide additional 2 HGV and 2 LGV (i.e. a total of 7 HGV and 7 LGV) L/UL bays in the development;

(c) the Government's current policy is to accord priority to considering and meeting the parking demand of commercial vehicles. As such, due consideration should be given on provision of parking spaces for commercial vehicles in the PVP; and

(d) updated TIA report, including traffic impact assessment for construction stage, elaboration on pedestrian accesses, revitalisation renewal initiative report (including assessment on footpaths and review of pedestrian crossing facilities), supplementary information on the calculated queue length upon completion of development and its impacts on the junctions in the vicinity etc.) should be provided at detailed design stage.

9.1.4 Comments from the Chief Highway Engineer/ Kowloon, Highways Department (CHE/K, HyD):

(a) any proposed traffic improvement works as a result of the development shall be carried out by the project proponent and at his own cost;

(b) the proposed private road, if approved, shall be managed and maintained by the project proponent; and

(c) for the purpose of future road maintenance, the remaining carriageway width after the construction of any kerb build-outs shall be at a minimum of 7m.

Building Aspect

9.1.5 Comments from the Chief Building Surveyor/ Kowloon, Buildings Department (CBS/K, BD):

(a) Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-151 on Building Design to Foster a Quality and Sustainable Built Environment and PNAP APP-152 on Sustainable Building Design Guidelines are applicable to the site;

(b) under PNAP APP-2, 100% GFA concession may be granted for underground private carpark and public carpark while only 50% GFA concession may be granted for above ground private carpark;

(c) the Scheme involves extinguishment of existing service lane and portion of Sa Po Road, and formation of a new private road. Buildings will be erected over, under and upon on the said streets and lane, which would contravene section 31 of the Buildings Ordinance (BO);

(d) buildings at the adjoining lot has based on the existing service lane proposed to be included in the DSP for compliance with BO and allied regulations including Building (Planning) Regulations (B(P)Rs) 28, 30, 31 and 41 etc. Accordingly, the proposed extinguishment of existing service lane will adversely affect the adjoining building;

(e) pursuant to B(P)R 23(2)(a), existing street, proposed new private road, existing service lane and diverted service lane (if any) shall not be included in site area for the purpose of site coverage and PR calculations;

(f) the Scheme area is divided into two portions by the proposed new private road. Subject to clarifications of land status of the new

private road, the Scheme area may be regarded as two sites for the purposes of site coverage and PR and calculation under the BO;

(g) the proposed new private road should comply with the Building (Private Streets & Access Roads) Regulation; and

(h) application for the proposed extinguishment of existing street/service land, and inclusion of existing street / existing service lane / proposed new road / new service lane (if any) in site area for the purposes of plot ratio and site coverage calculations and B(P)R will be considered at building plan submission stage. The project proponent is advised to appoint an Authorized Person to submit a pre-submission enquiry under the PNAP ADM-19 to seek determination from the Building Authority at an early stage on the issues raised.

Social Welfare Aspect

9.1.6 Comments from the Director of Social Welfare (DSW):

In view that a GFA of 800m^2 will be available for incorporating non-domestic GIC facilities, he proposed to incorporate some social welfare facilities at the subject site. He will review the proposed welfare facilities with regard to the finalised development scheme, and shall provide the detailed requirement of respective facilities, such as schedule of accommodation, etc. once the proposal is confirmed. Sufficient lead time should be allowed for discussion about designing the layout plans, commenting on the rough indication cost, seeking funding for construction cost, etc.

Environmental Aspect

9.1.7 Comments from the Director of Environmental Protection (DEP):

Both the Environmental Assessment (EA) and Sewerage Impact Assessment (SIA) have demonstrated there is no insurmountable environmental impact associated with the proposed redevelopment.

Connectivity with KTDA

9.1.8 Project Manager (East), Civil Engineering and Development Department (CEDD):

(a) The construction of the proposed pedestrian subway (**Plan 5**) will commence in Q3 2019 for completion in 2024/25 tentatively, during that period, part of Sa Po Road, Kai Tak Road and adjacent amenity areas will be occupied by the contractor of CEDD;

(b) the road and sewerage schemes associated with the proposed subway, realigned Sa Po Road and its junction with Kai Tak Road under CEDD's works were gazetted in November 2018 and authorized in February 2019. URA should follow up with relevant departments/bureaux and arrange gazette amendments if deemed necessary; and

(c) URA is also reminded that pedestrian access to and from the proposed subway should be allowed during the construction and upon completion of the URA project.

Water Supplies Aspect

9.1.9 Comments from the Chief Engineer/Construction, Water Supplies Department (CE/Cons., WSD):

He has no objection to the development. A Water Supply Impact Assessment will be carried out at design stage on consideration that the future population of the development is 1,940.

Fire Safety Aspect

9.1.10 Comments from the Director of Fire Services (DFS):

Detailed fire services requirements will be formulated upon receipt of formal submission of general building plans. The arrangement of emergency vehicular access shall comply with Section 5, Part D of the Code of Practice for Fire Safety in Building 2011 which is administrated by BD.

Urban Design, Visual & Air Ventilation Aspect

9.1.11 Comments from the Chief Town Planner/Urban Design and Landscape, Planning Department (CTP/UD&L, PlanD):

Urban Design

(a) while the proposed spatial arrangement accommodating the permissible PR would confine tower blocks with higher BH to the northern and central portions, it provides opportunities for place making and connectivity with the USS at the KTDA. Such arrangement also enables the residential towers to be receded from the heavily trafficked Prince Edward Road East;

(b) according to the proponent, the increase in BH from 100mPD to 120mPD would facilitate slimmer building design and wider building gaps;

Air Ventilation

(c) having reviewed the AVA and URA's responses to comments, there is no comment on the AVA and proposed DSP from air ventilation perspective;

Landscape

Sunken Plaza

(d) as the sunken plaza will be provided for public use, the extent of open space for public use should be demarcated on plan for reference. Besides, clarification should also be provided for other communal / private open space / landscape areas at separate levels;

Landscape Proposal

(e) inadequate design information is observed for the proposed sunken plaza to demonstrate the viability and overall spatial quality of the functional open space at multi-levels; and

(f) the Scheme area would cover considerable extent of the surrounding public footpaths which is currently proposed as pavement only. It appears that there is room to enhance the streetscape greening effect, e.g. along Sa Po Road and Kai Tak Road. Effective treatments (particularly by means of tree planting) on street level for bringing greenery contribution to the public realm should be considered.

9.2 The following government departments have no comment on the draft DSP/URA's responses to departmental comments (**Annexes B, E-1 to E-6**):

(a) Secretary for Development;
(b) Commissioner of Police;
(c) District Officer (Kowloon City), Home Affairs Development;
(d) Chief Engineer/Mainland South, Drainage Services Department (CE/MS, DSD); and
(e) Head of Geotechnical Engineering Office, CEDD.

10. Public Consultation

10.1 Under the administrative arrangements to enhance transparency in the processing of draft DSP submitted after the commencement of the Town Planning (Amendment) Ordinance 2004, the draft DSP (including Stage 1 SIA report) and the Stage 2 SIA report were made available for public inspection/comments in the Planning Enquiry Counters of PlanD starting from 1.3.2019 to 22.3.2019 (Stage 1) and from 12.4.2019 to 26.4.2019 (Stage 2) respectively.

10.2 During the two inspection periods of the draft DSP and Stage 2 SIA report, a total of 38 comments were received (**Annex G-1** for Stage 1 **and Annex G-2** for Stage 2). 16 of them are comments from the affected individual owners/occupiers, two comments are from the same Kowloon City District Council (KCDC) member who provide views, 12 comments are providing views on the need to protect Thai cultures and rehousing for Thais, the remaining eight comments are from associations in the affected buildings and the management company or employee of the affected buildings. A full set of public comments received are at **Annexes G-1** and **G-2** for Members' reference.

10.3 URA has provided responses to the public comments in **Annexes E-1** and **E-2**, which are similar to those raised at the Housing and Infrastructure Committee (HIC) of the Kowloon City District Council (KCDC) on 21.3.2019 (the minutes of the meeting at **Annex F**), and are summarised below.

Issues/Concerns	**URA's Responses**
Raised by both HIC of KCDC and the public	
(a) The site boundary of the Scheme should be expanded.	At present, the site area of the Scheme is relatively large. There is not much room for further expansion considering the Scheme abuts roads on all side. Existing site boundary of the Scheme has achieved the purpose of urban renewal to cater the needs of the community.
(b) More community facilities (i.e. PVP, community hall, child care centres, activity rooms etc.) within the Scheme area should be provided.	Tung Tau Community Centre is located within 200m from the Scheme. About 800m^2 of non-domestic GFA at the podium of the Scheme is reserved for community use. KCDC and government departments and local community will be consulted again regarding the community facilities to be provided within the Scheme area.
(c) The number of car parking spaces should be increased.	An underground PVP with 300 public car parking spaces is proposed to alleviate issues arising from shortage of car parking spaces. The Scheme is located to the east of Nga Tsin Wai Road. Increasing the number of car parking spaces might impose burden on roads in the surrounding areas. URA will continue to conduct research and analyze with relevant government departments on how to effectively improve the problem of car parking spaces

Issues/Concerns	URA's Responses
	shortage.
(d) Compensation for affected owners of tenanted properties and tenants should be improved.	URA has prevailing compensation and rehousing policies to the affected owners and tenants if the projects are authorized/approved by the Government for implementation. URA has explained to affected owners and tenants about the compensation arrangements.
(e) Support for the affected residents in particular the ethnic minorities residing in the Scheme area should be enhanced.	According to the freezing survey, there are 19 Thai households and 1 Thai owner-occupier being affected by the Scheme (as at 25.3.2019). URA arranged a special briefing session for Thais on 18.3.2019 to brief them on the Scheme information and answer their enquiries with the assistance of a Thai interpreter. The URA will continue to offer assistance to the affected residents.
(f) Whether construction works of sunken plaza and domestic units will be carried out at the same time, and the connectivity with Kai Tak and other areas should be improved. Escalators or travelators are suggested at the pedestrian subway connecting to Kai Tak for better accessibility.	URA will work closely with CEDD to ensure the sunken plaza could dovetail with the USS in Kai Tak and pedestrian subway. Detailed design of the pedestrian subway will be formulated after approval of the Scheme and consultation with relevant government departments.
Raised by the public	
(g) Affected owners had not been consulted about the Scheme. Only about 30 affected owners attended the briefing session on 27.2.2019.	The Scheme area must remain confidential until the Government Gazette for the commencement of the Scheme was published and the freezing survey was conducted on 22.2.2019. The draft DSP was available for public inspection on the same day and the public was invited to make comments to the Board. In addition, URA arranged two public briefing sessions on 27.2.2019 to address questions raised by all stakeholders, including affected owners, tenants and business operators, regarding planning, acquisition, compensation and rehousing

Issues/Concerns		URA's Responses
		issues. All affected owners and stakeholders were invited to attend the briefing session by mail. According to the records, there was a total of 630 participants in the briefing session (of which 460 were affected owners).
(h)	Proposed total floor space for commercial use/ retail/ GIC facilities in the Scheme is insufficient to compensate the loss of commercial floor space at Kam Fai Commercial Building. The Scheme should include commercial buildings to offer replacement premises to affected business operators.	According to the approved building plans of Kam Fai Commercial Building, the total commercial floor space is about 2,450m^2. The proposed non-domestic GFA in the Scheme is about 8,028m^2, which is about three times of the commercial floor space of Kam Fai Commercial Building and should be able to cope with the demand for commercial floor space in the area.
(i)	Owners' rights of selling properties had been deprived and URA has the right lowered the acquisition cost with its own method to calculate market value.	The URA will accord to prevailing policies to issue acquisition offers and compensation to the affected owners and tenants upon CE in C's approval of the draft DSP and the approved DSP is gazetted.
(j)	There was doubt on cooperation model between URA and developers.	Redevelopment model adopted by some existing redevelopment projects by URA are joint venture development. According to Urban Renewal Strategy, URA will continue to uphold the long-term objective of a self-financing urban renewal programme.
(k)	Preservation of unique culture and character in the community should be considered in redevelopment projects. URA should put in more manpower and resources to explain compensation and rehousing arrangements to affected owners and tenants.	URA arranged two public briefing sessions on 27.2.2019 and a special briefing session for Thais on 18.3.2019. A Social Service Team was set up to provide assistance to affected residents and operators and a Project Engagement Programme has been implemented since 2016 to provide direct contact services.

11. Planning Department's Views

11.1 PlanD has no objection to the draft DSP in general taking into account the following:

Development Intensity

(a) The PR restrictions proposed to be stipulated in the Notes are in line with the PR restrictions for "R(A)" zones on the OZP, that is, a maximum PR of 9 for a development that is partly domestic and partly non-domestic and with a maximum PR for the domestic part not exceeding 7.5.

BHR

(b) The "R(A)2" sites in the vicinity are subject to a BHR of 100mPD (for site area of 400m^2 or more). The "R(A)" sites to the immediate north of the site across Carpenter Road are subject to BHR of 140mPD and with existing buildings at 170mPD and 145mPD (i.e. Billionaire Royale and Le Billionaire respectively) (**Plan 2**). URA has proposed to relax the BHR of the DSP from 100mPD to 120mPD for reasons highlighted in paragraph 2.3 above.

(c) The proposed BHR of 120mPD allows gradation of BH between the BHR of 80mPD/100mPD for "R(A)2" sites in Kowloon City and the BHR of 140mPD for the "R(A)" sites to the north. As the southern portion of the site (about 1,000m^2 or 20% of the site is proposed to be a sunken plaza, a higher BH would allow less bulky buildings, wider building gaps in northern and central portions of the site. CTP/UD&L of PlanD has no adverse comment on the proposed BHR of 120mPD.

(d) URA has conducted VA (Appendix 4 of **Annex B**) to assess the possible visual impact of the proposed development. Six viewpoints at entrance of public open space and key pedestrian nodes are selected (**Drawings 5a to 5c**). The VA concluded that the proposed development will not create significant blockage of views. It is stated in the ES that according to the AVA report (AVA 2019) for the proposed development, good design features (i.e. the sunken plaza and 50m setback of domestic tower (at above 15m) from the intersection point of site boundary where Kai Tak Road and Prince Edward Road East meet) were proposed to enhance wind flow penetration. They should be incorporated in the design and layout of future developments in the "R(A)" zone. In addition, other building design elements (including building separation) should be provided in accordance with the Sustainable Building Design Guidelines. In the event that the proposed design features are not adopted in the future design scheme, further AVA study should be conducted by the project proponent in accordance with the joint Housing Planning and Lands Bureau – Environment, Transport and Works Bureau Technical Circular No. 1/06 on Air Ventilation Assessments (or its latest version) for demonstrating that the performance of any future development would not be worse than the scheme adopted in the AVA 2019.

Provision of an Underground PVP and GIC Facilities and Exemption of Floor Area from PR Calculation

(e) The proposals for providing an underground PVP and GIC facilities are supported. These provisions would address local needs and are in line with the recommendation of the URP. URA has proposed to replace some on-street metered car parking spaces in the street blocks near the site to allow opportunities for road/pavement widening/improvement subject to local consultation and agreement by C for T. C for T and DSW have no adverse comments on URA's intention in providing a PVP and GIC facilities respectively. C for T requested URA to provide a total of 7 HGV and 7 LGV (instead of 6 HGV and 5 LGV proposed by URA) L/UL bays in the development and some commercial parking spaces at the PVP. However, due to site constraints and URA has already proposed 5 levels of basements to accommodate the parking facilities within the development, URA considers it is not cost-effective to further provide L/UL bays and parking spaces for commercial vehicles which require higher headroom and larger spaces for ramps. While URA is invited to further liaise with C for T, its design and management mechanism will be dealt with at detailed design stage.

(f) According to the Notes of the OZP for "R(A)" zone, 'Public Vehicle Park (excluding container vehicle)' is a Column 2 use. To facilitate the proposed PVP, PlanD has no objection to include 'Public Vehicle Park (excluding container vehicle)' as a Column 1 use which is always permitted under the DSP. The PVP was recommended in the URP and is subsequently required by C for T to alleviate the shortage of car parking spaces in the area and is supported by TIA. It is stated in the ES that management of the underground PVP will be arranged at the development stage.

(g) For the GIC facilities to be provided within the site, 'Social Welfare Facilities' is a Column 1 use and is always permitted. There is no objection to exempting the floor area of GIC facilities from PR calculation to encourage the provision of more GIC facilities required by the Government within the development. In view of the above, URA is invited to liaise with SWD and consider including more GIC facilities in the development at the detailed design stage where feasible.

Local Road Improvement

(h) URA considered that the proposed road realignment with better design and wider width (from 4.6m to 6.0m) would enhance the traffic and pedestrian safety. C for T has no adverse comment on the proposed closure of the southern portion of Sa Po Road, diversion of traffic from Sa Po Road to Kai Tak Road through the new private road and its traffic impact as detailed in Appendix 2 of **Annex B**. CBS/K, BD's comments that the private road and service lane should not be included in site area for PR calculation can be dealt with at detailed design stage. It is stated in the ES that the new private road will be opened for public use 24 hours daily.

Sunken Plaza and Specifications for Commercial uses that are Always Permitted under the DSP

(i) URA proposed a sunken plaza of 1,000m^2 in the southern portion of the site, that will be connected with the government's pedestrian subway connecting to the USS in KTDA. This requirement is stated in the ES. URA also noted CEDD's comments regarding the pedestrian access to and from the subway should be allowed during the construction and upon completion of the development.

(j) URA also proposed commercial uses connecting to the sunken plaza to enhance its vibrancy. The proposed connection to the pedestrian subway to the USS in KTDA and the provision of adequate commercial floor space in the development are in line with recommendations of the URP. In addition to the standard clause to always permit commercial uses on the lowest three floors of a building, URA further suggested a clause to permit commercial uses in the purpose-designed non-domestic portion of a building connecting to the sunken plaza in the Notes of the DSP (**Annex H-2**). As this would enhance the vibrancy of the landing point at its connection with KTDA and suits the case specific circumstances, there is no objection to the proposal. It is stated in the ES that the linkage between street level/sunken plaza and the proposed pedestrian subway to KTDA will be opened for public use 24 hours daily. The linkage between street level and the proposed subway (via the sunken plaza) should be provided with barrier-free access, and that the sunken plaza is opened for public use at reasonable hours.

Other Technical Matters

(k) The submission has been circulated to relevant bureaux/departments for comments and their comments are highlighted in paragraph 9 above. In gist, comments from government departments have been responded to by URA in **Annexes E-1** to **E-6** and it is anticipated that there is no insurmountable problems arising from the DSP from environmental, traffic, drainage and sewerage impact perspectives. Where appropriate, comments from relevant government departments have been incorporated in the Notes and ES in **Annexes H-2** and **H-3**. The comments from CBS/K, BD and LandsD relating to matters pertaining to general building plan submission and land grant matters may be dealt with at a later stage. In addition, the comments from CTP/UD&L, PlanD regarding the design of the sunken plaza and landscaping proposal may also be dealt with at detailed design stage.

(l) With regards to URA's proposal to delete 'Ambulance Depot' use from Column 1 and 'Hospital' use from Column 2 in the Notes of the "R(A)" zone under the DSP (**Annex H-2**), it is a deviation from the Master Schedule of Notes to Statutory Plans (MSN) endorsed by the Board for preparation of the Notes for statutory plans. Without strong planning justifications provided by URA, it is considered not appropriate to allow a departure from the MSN.

11.2 In respect of the public comments on the draft DSP and comments from HIC of KCDC members mentioned in paragraph 10.3 above, the above assessment is relevant. Regarding the comments on acquisitions, compensation and re-housing, they would be dealt with by URA according to the established policies.

12. Proposed Amendments on the Approved Ma Tau Kok OZP No. S/K10/24

Proposed Amendments to Matters Shown on the OZP **(Annex I-1)**

12.1 If the Board decides to deem the draft DSP as being suitable for publication in accordance with section 25(9) of the URAO, the draft DSP shall, from the date that the exhibition of the draft DSP is first notified in the Gazette, replace or amend according to its tenor, the OZP relating to the area covered by the Scheme. The area covered by the draft DSP will be excised from the OZP.

Technical Amendments to the Notes of the OZP (**Annex I-2**)

12.2 In accordance with the latest amendments to the MSN in relation to the subsuming of 'Market' use under 'Shop and Services' use endorsed by the Board on 28.12.2018, the following amendments to the Notes will be made:

(a) deletion of 'Market' from Column 1 in "Commercial" zone and "Other Specified Uses" ("OU") zone annotated "Commercial Development with Public Vehicle Park";

(b) deletion of 'Market' from Column 2 in "Comprehensive Development Area" zone and Schedule I of "R(E)" zone; and

(c) revising 'Shop and Services' to 'Shop and Services (not elsewhere specified)' in Column 2 of "R(A)" and "Government, Institution or Community" ("G/IC") zones.

12.3 An extract of the relevant pages of the revised Notes for the OZP (with the proposed amendments marked in ***bold and italics*** and deletions ~~crossed out~~) is at **Annex I-2.**

Revision to the ES of the OZP (**Annex I-3**)

12.4 Relevant paragraphs will be inserted in the ES of the OZP to take into account the DSP and the corresponding amendments to the planning scheme area of the OZP and the area of land under the "R(A)" zone on the OZP.

12.5 An extract of the relevant pages of the revised ES for the OZP (with the proposed amendments marked in ***bold and italics*** and deletions ~~crossed out~~) is at **Annex I-3.**

Plan Number

12.6 Upon exhibition for public inspection, the OZP will be renumbered to S/K10/25.

13. Decision Sought

Draft DSP

13.1 The Board is invited to consider whether to retain the 'Ambulance Depot' use in Column 1 and 'Hospital' use in Column 2 in the Notes for the "R(A)" zone in accordance with the MSN or to accede to URA's proposal to delete such uses in Column 1 and Column 2 respectively. Should the Board agree to retain the 'Ambulance Depot' use in Column 1 and 'Hospital' use from Column 2 in the Notes, the draft Notes in **Annex H-2** will be amended accordingly before gazettal.

13.2 If the Board agrees with the DSP approach for the Kai Tak Road/Sa Po Road site and agree that the 'Ambulance Depot' use in Column 1 and 'Hospital' use in Column 2 should be retained in the Notes, the Board is invited to consider the draft DSP with amendments mentioned in paragraph 13.1 and to:

(a) deem the draft Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/A (to be renumbered to No. S/K10/URA1/1 upon exhibition for public inspection) and Notes at **Annexes H-1** and **H-2**, retaining 'Ambulance Depot' use in Column 1 and 'Hospital' use in Column 2 in the Notes, as being suitable for publication as provided for under section 25(6) of the URAO, so that the draft DSP shall be exhibited for public inspection under section 5 of the TPO;

(b) endorse the ES of the draft DSP at **Annex H-3** and adopt it as an expression of the Board' planning intention and objectives of the Plan and agree that the ES as being suitable for public inspection together with the draft DSP;

(c) agree that the draft DSP, its Notes and ES are suitable for submission to the KCDC for consultation/information upon exhibition of the DSP; and

(d) note the Social Impact Assessment (Stages 1-2) reports for the DSP.

13.3 Alternatively, in relation to paragraph 13.2 above, the Board may decide to deem the draft DSP, submitted without any amendment (i.e. deleting 'Ambulance Depot' use from Column 1 and 'Hospital' use from Column 2 in the Notes of the "R(A)" zone) as being suitable for publication. If so, the draft DSP, Notes and ES in **Annexes H-1** to **H-3** will be gazetted without any amendment. Alternatively, the Board may also refuse to deem the DSP as being suitable for publication.

13.4 If the Board does not agree with the DSP stated in paragraph 13.2 above, the Notes and ES of the draft DSP will be revised by URA for the Board's consideration.

Proposed Amendments to OZP

13.5 If the Board agrees to deem the draft DSP, with or without amendment under paragraphs 13.2 and 13.3 above respectively, as being suitable for publication, Members are invited to consider the related amendments to the OZP and to:

(a) agree to the proposed amendments to the approved Ma Tau Kok OZP and that the draft Ma Tau Kok OZP No. S/K10/24A at **Annex I-1** (to be renumbered as S/K10/25 upon exhibition) and its Notes (**Annex I-2**) are suitable for exhibition under section 5 of the TPO; and

(b) adopt the revised ES at **Annex I-3** for the draft Ma Tau Kok OZP No. S/K10/24A as an expression of the Board's planning intention and objectives for the various land use zones of the OZP, and agree that the revised ES as being suitable for public inspection together with the draft OZP.

14. Attachments

Annex A	URA's letters dated 22.2.2019 and 25.2.2019
Annex B	Planning Report (including Stage 1 SIA Report)
Annex C	URA's letter dated 4.4.2019
Annex D	Stage 2 SIA Report
Annex E-1	URA's submission dated 3.5.2019 providing responses to comments of Government departments and public comments
Annex E-2	URA's submission dated 10.5.2019 providing responses to comments of Government departments and public comments
Annex E-3	URA's submission dated 21.5.2019 providing responses to comments of Government departments
Annex E-4	URA's submission dated 31.5.2019 providing responses to comments of Government departments
Annex E-5	URA's submission dated 3.6.2019 providing responses to comments of Government departments
Annex E-6	URA's submission dated 5.6.2019 providing responses to comments of Government departments
Annex F	Extract of Minutes of HIC of KCDC Meeting held on 21.3.2019
Annex G-1	Public Comments (Stage 1)
Annex G-2	Public Comments (Stage 2)
Annex H-1	Draft URA Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/A
Annex H-2	Notes of the Draft URA Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/A
Annex H-3	ES of the Draft URA Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/A
Annex I-1	Draft Ma Tau Kok OZP No. S/K10/24A
Annex I-2	Notes of the Draft Ma Tau Kok OZP No. S/K10/24A
Annex I-3	ES of the Draft Ma Tau Kok OZP No. S/K10/24A
Drawing 1	Scheme Area with Building Condition

Drawings 2a, 2b and 3	Notional Scheme
Drawing 4a	Landscape Proposals
Drawing 4b	Context Plan
Drawings 5a to 5c	Comparison of 100mPD and 120mPD Scheme (Photomontages)
Drawings 6a1, 6a2 and 6b	Comparison of 100mPD and 120mPD Scheme (Layout and Section)
Plan 1	Urban Renewal Plan for Kowloon City
Plan 2	Location Plan
Plan 3	Site Plan
Plan 4	Aerial Photo
Plan 5	Connectivity with KTDA
Plan 6	Building Age Plan
Plan 7	Building Height Plan
Plans 8 to 10	Site Photos

PLANNING DEPARTMENT
JUNE 2019

Annex A of
TPB Paper No. 10542

Our File Ref: PDD/KC-015/19020765

市區重建局
URBAN RENEWAL AUTHORITY

22 February 2019

By Hand

Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

RECEIVED
22 FEB 2019
Town Planning Board

Dear Sir/Madam,

Submission of the Draft Development Scheme Plan for the Urban Renewal Authority Kai Tak Road / Sa Po Road Development Scheme (KC-015)

I am pleased to submit a copy of the draft Development Scheme Plan (DSP) for the Urban Renewal Authority Kai Tak Road / Sa Po Road Development Scheme (KC-015) (the Scheme) for Town Planning Board's consideration in accordance with section 25(5) of the URA Ordinance (URAO).

The Scheme was included in the Urban Renewal Authority (URA)'s 17th Business Plan (2018/19) approved by the Financial Secretary for implementation in 2018/2019. On 22 February 2019, the URA has published the commencement date of the implementation of the Scheme in the Government Gazette under section 23 of the URAO and subsequently in local newspapers.

The submission booklet for the draft DSP of KC-015 includes the Planning Report as Part 1 to summarize the planning proposals; the draft DSP, its Notes and Explanatory Statement as Part 2; the supplementary information to support the DSP submission as Part 3, which includes Preliminary Design, Traffic Impact Assessment (TIA), Preliminary Landscape Design Principles and Tree Survey, Visual Appraisal, Environment Assessment (EA), Air Ventilation Assessment (AVA), Drainage and Sewerage Impact Assessment (DSIA), Desktop Geotechnical Appraisal, Stage 1 Social Impact Assessment (SIA) Reports and the implementation programme and URA's acquisition and compensation policies.

In accordance with the Urban Renewal Strategy, the Stage 2 SIA Report will be included as part of the DSP submission. Based on the Gazette, we will submit the Stage 2 SIA report to the TPB on 4 April 2019. We believe that there will still be sufficient time for TPB's consideration for the aforesaid report together with the submitted DSP.

...../P.2

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26/F COSCO Tower, 183 Queen's Road Central, Hong Kong tel 2588 2222 fax 2827 0176 / 2827 0085 website www.ura.org.hk

Our File Ref: PDD/KC-015/19020765

To facilitate the inspection of the draft DSP by the general public, we are pleased to submit also a copy of the Chinese version of the Notes and the Explanatory Statement of the draft DSP, and the Stage 1 SIA Report for your use and consideration.

Should you have any enquiry on the draft DSP submission, please feel free to contact me or Mable Kwan at [redacted]. Thank you very much.

Yours sincerely,

Mike Kwan
General Manager
Planning & Design Division

Encl.

c.c. (w/o – by fax)

S for Dev	(Attn: Mr. Michael Wong)	(Fax No.: 2151 5303)
AD/M, PlanD	(Attn: Ms. Sally Fong)	(Fax No.: 2576 3266)
DPO/K, PlanD	(Attn: Ms. Johanna Cheng)	(Fax No.: 2894 9502)

Our File Ref: PDD/KC-015/19021181

市區重建局
URBAN RENEWAL AUTHORITY

25 February 2019

By Hand

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

Dear Sir/Madam,

Submission of the Draft Development Scheme Plan for the Urban Renewal Authority Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Extra Copies -

We refer to the captioned draft Development Scheme Plan (DSP) which was submitted to Town Planning Board (TPB) on 22 February 2019 for consideration in accordance with section 25(5) of the URA Ordinance (URAO).

As requested, I am pleased to provide an additional 89 copies of the submission booklet for the draft DSP of KC-015. In addition, 5 extra copies of the Chinese version of the Notes and the Explanatory Statement of the draft DSP, and the Stage 1 SIA Report to facilitate the public inspection process.

Should you have any enquiry, please feel free to contact Ms. Mable Kwan at [redacted]. Thank you very much.

Yours faithfully,

RECEIVED
25 FEB 2019
Town Planning Board

Mike Kwan
General Manager
Planning & Design Division

Encl.

c.c. (w/o – by fax)

PAS(PL)4, DEVB	(Attn: Ms. Jenny Choi)	(Fax No.: 2905 1002)
STP/M&UR, PlanD	(Attn: Mr. Edward Leung)	(Fax No.: 2576 3266)
DPO/K, PlanD	(Attn: Ms. Johanna Cheng)	(Fax No.: 2894 9502)

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Annex C of
TPB Paper No. 10542

Our File Ref: PDD/KC-015/19040510

市區重建局
URBAN RENEWAL AUTHORITY

By Hand

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

4 April 2019

Dear Sir/Madam,

Submission of Stage 2 Social Impact Assessment Report for the Urban Renewal Authority Kai Tak Road / Sa Po Road Development Scheme (KC-015)

We refer to the captioned Development Scheme which was commenced on 22 February 2019 and the draft Development Scheme Plan (DSP) submission was made to Town Planning Board (TPB) on the same date.

In accordance with the Gazette Notice published on 22 February 2019, the URA will submit a Stage 2 Social Impact Assessment (SIA) Report to the TPB as part of the submission.

We enclose an English copy of the Stage 2 SIA Report for the formal submission and a Chinese copy to facilitate public inspection for your consideration. As stated in the Gazette Notice, the Stage 2 SIA Report shall be made for public inspection at the two Planning Enquiry Counters from 12 April 2019. In addition, the report in both Chinese and English is uploaded to URA website at: www.ura.org.hk for public inspection until the TPB considers the draft DSP at its meeting.

Should you have any enquiry on the submission, please feel free to contact me or Mable Kwan at [redacted]. Thank you very much.

Yours sincerely,

Mike Kwan
General Manager
Planning & Design Division

encl.

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

5 years+ 阿心房關懷 caringorganisation

香港皇后大道中183號中遠大廈26樓 電話2588 2222 傳真2827 0176 / 2827 0085 網址www.ura.org.hk
26/F COSCO Tower, 183 Queen's Road Central, Hong Kong tel 2588 2222 fax 2827 0176 / 2827 0085 website www.ura.org.hk

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URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
05/06/2019 14:49

From: "Ho, Clarice" <[redacted]>
To: '"tpbpd@pland.gov.hk"' <tpbpd@pland.gov.hk>,
Cc: [redacted]

Sender	Date	Subject
"Ho, Clarice" <[redacted]>	05/06/2019 14:49	URA Kai Tak Road / Sa Po Road De

Dear Sir/Madam,

Draft Development Scheme Plan for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019. Under Residential (Group A) of the DSP Notes, "Ambulance Depot" is taken out from Column 1 while "Hospital" is taken out from Column 2 of the Master Schedule of Notes. This is to customise the development and it reflects we have no intention for these two uses within the KC-015 DSP.

Thank you.

Yours faithfully,

Clarice Ho
Planning and Design Division
Urban Renewal Authority
[redacted]

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九龍城區議會轄下
房屋及基礎建設委員會第 20 次會議記錄

日　期：　2019 年 3 月 21 日(星期四)
時　間：　下午 2 時 30 分
地　點：　九龍城民政事務處會議室

出席者：

主　席：	何顯明議員, BBS, MH	
副主席：	吳奮金議員	
委　員：	邵天虹議員	
	黎廣偉議員	(於下午 4 時 13 分離席)
	余志榮議員	(於下午 4 時 15 分離席)
	林德成議員	
	鄭利明議員	
	楊振宇議員	
	林　博議員	(於下午 3 時 45 分離席)
	蕭亮聲議員	
	陸勁光議員	(於下午 4 時 52 分離席)
	何華漢議員	(於下午 3 時 39 分離席)
	楊永杰議員	(於下午 3 時 35 分離席)
	勞超傑議員	(於下午 3 時 13 分出席) (於下午 4 時 13 分離席)
	吳寶強議員, MH	
	潘國華議員, JP	
	張仁康議員, MH	
	左滙雄議員, MH	
	李慧琼議員, SBS, JP	(於下午 2 時 57 分出席) (於下午 4 時 32 分離席)
	關浩洋議員	
秘　書：	葉偉剛先生	九龍城民政事務處一級行政主任(區議會)
缺席者：	丁健華議員	
	梁婉婷議員	

列席者：

	蘇銥靜女士	九龍城民政事務助理專員
	黃鑑強先生	九龍城民政事務處高級聯絡主任(大廈管理)
	麥仲恒先生	規劃署高級城市規劃師/九龍 2
	劉正光先生	房屋署高級物業服務經理(西九龍及西貢)
	謝芷穎女士	屋宇署高級屋宇測量師/E3
	馬俊恒先生	水務署工程師/九龍區(客戶服務)視察

應邀出席者：

議程二	關以輝先生	市區重建局規劃及設計總經理
	殷倩華女士	市區重建局社區發展高級經理
	許乃坤先生	市區重建局收購及遷置高級經理
議程三	李聖潑先生	九龍樂善堂主席
	劉愛詩女士	九龍樂善堂總幹事
	李艷明女士	九龍樂善堂項目經理
	符傳富先生	運輸及房屋局局長政治助理
	陳立銘先生	運輸及房屋局項目總監（一）
	李志恒先生	運輸及房屋局高級項目經理
議程四	周嘉慧獸醫	漁農自然護理署高級獸醫師(動物管理)發展
	陶文慧獸醫	漁農自然護理署高級獸醫師(動物管理)行動
	吳海艷獸醫	漁農自然護理署獸醫師(動物管理)九龍
	甄錦榮先生	漁農自然護理署高級行政主任(檢驗及檢疫)
	林耀漢先生	建築署高級工程策劃經理 323
	陳育康先生	建築署工程策劃經理 354
	鍾健勤先生	關善明建築師事務所有限公司董事
	冼汶詠小姐	關善明建築師事務所有限公司建築師
議程五	黎曉樺女士	房屋署屋宇保養測量師(西九龍)
議程六至九	陳寶敏女士	房屋署副房屋事務經理(愛民二)
	周巧芬女士	房屋署副房屋事務經理(愛民三)
議程六、八及九	吳鴻揮先生	領展公共事務助理總經理
	姚漢生先生	領展社區關係經理

開會辭

房屋及基礎建設委員會(下文簡稱「房建會」)主席歡迎各委員、部門代表及旁聽人士出席會議，並表示秘書處於會議前收到梁婉婷議員的書面通知及醫生證明書，表示因產後需要調理身體未能出席今日的會議。在諮詢委員的意見後，**主席**宣布根據《九龍城區議會會議常規》(下文簡稱「《會議常規》」)接納梁婉婷議員缺席今日的會議。此外，**丁健華議員**表示因公務未能出席會議。在部門常任代表方面，水務署工程師/九龍區(客戶服務)視察馬俊恆先生代表水務署出席房建會會議。

2. 在開始商討議程前，**主席**請委員留意申報利益的責任。《會議常規》已列明申報利益制度，若稍後討論的事項與委員的物業業權、職業或投資等個人利益有所衝突，便須在討論前申報，以便他考慮是否須要請有關委員於討論或表決時避席。此外，根據《會議常規》，委員會舉行會議的法定人數為委員數目的一半。由於房建會有22名委員，如在會議期間在座委員人數不足11名，主席會立即中止討論。

通過上次會議記錄

3. **主席**宣布第19次會議記錄無須修訂，並獲委員會一致通過。

市區重建局啟德道／沙浦道發展計劃 (KC-015)
(九龍城房建會文件第12/19號)

4. **市區重建局社區發展高級經理 殷倩華女士**表示市區重建局(下稱「市建局」)已在2019年2月22日的憲報上刊登公告，公布開展啟德道／沙浦道發展計劃。

5. **市建局規劃及設計總經理 關以輝先生**簡介計劃內容，重點如下：

- 項目的地盤面積約6,100平方米，包括啟德道24至82號(雙數)、沙浦道31至49號及55至73號(單數)。受影響樓宇涉及約50個街號的樓宇及約450個業權，初步估計有約670伙住戶及40個地舖受影響，確實數目待第二階段的社會影響評估及凍結人口調查核實。

- 樓宇的總樓面面積約48,100平方米，住宅樓面佔40,100平方米，涉及約810個中小型住宅單位及8,000平方米商業/零售樓面(亦預留800平方米的樓面面積作社區用途)。此外，地下停車場共有420個私家車泊車位，其中約有300個公眾泊車位。

- 項目考慮了「九龍城市區更新地區諮詢平台」在該區所建議的規劃意向，及按2011年公布的《市區重建策略》所訂定的目標，透過重整及重新規劃、設計更有效和更環保的交通及道路網絡、以園林景觀和城市設計美化市容，讓周邊土地用途互相配合，為該區帶來規劃效益，故並非單純為舊樓重建計劃。

- 配合政府規劃，重建項目範圍會連接衙前圍道一帶舊區及啟德發展區，及政府擬議的啟德地下購物街。當中會興建一個約1,000平方米的分層地下廣場，包括餐飲零售，亦有地方作舉行戶外活動及休憩用途，並將九龍城舊區及啟德新發展區連接；而重整項目地盤內的沙涌道走線，將提供更多地面空間改善行人流通情況，及為該處的巴士站提供更多乘客上落車空間，以改善候車環境。

- 公眾停車場可望緩解區內車位不足的問題，長遠而言在泊車位供求平衡下，則希望騰出附近路邊泊車位作行人路，以改善區內步行環境。

- 項目涉及重整及重新規劃，將部分道路空間改為住宅(甲類)用途，故項目需經城市規劃委員會(下文簡稱「城規會」)批准處理。市建局已於2月22日提交規劃報告及發展計劃草圖，並於稍後呈交第二階段社會影響評估報告，公眾可於城規會及市建局網站閱覽有關資料。歡迎公眾、當區議員及受影響人士向城規會提交意見。

- 城規會考慮後，可根據《城市規劃條例》展示草圖並刊憲，屆時將再有2個月諮詢期，然後交予行政長官會同行政會議批核。整個規劃申請程序需約18至24個月，最快至2020年尾完成。完成程序後，市建局才會作出收購建議及賠償安排。

6. **吳寶強議員**感謝市建局於舊區啟動是次重建項目，並提出以下意見/查詢：(一) 周邊街道的居民希望重建規模能夠再擴大；(二)出租物業的業主較自住業主獲得較少賠償，對他們欠缺吸引力；(三) 最近區內已出現租客被迫

遷的情況，希望市建局向業主加強宣傳，解釋不合理解除租約為不合法，及迫租客遷出不會獲得較多賠償；(四) 希望在區內增加社區會堂及提供托兒服務等設施；(五) 若居民選擇「樓換樓」的賠償方案，重建期間或需暫時租住其他單位，以致失去補償資格，建議市建局向受影響人士提供賠償；(六) 2030年的預計完工期太遲，希望能加快興建進度；以及(七) 照顧少數族裔的語言需要，提供足夠的文件翻譯服務。

7. **林博議員**表示支持是項重建項目，並提出以下意見/查詢：(一) 希望土瓜灣區可作整體規劃及發展，更多地點將納入作收購重建範圍，包括土瓜灣道、新柳街及馬頭圍道等主要幹道；(二) 建議增加連接鴻福街通往土瓜灣站的地下隧道，以應對日後人口急升；(三) 現時市建局的賠償政策早於2001年制定，建議作出適度調整；(四) 增加賠償限額，使合資格商戶的經營年期不限於30年；(五) 積極考慮擴大重建範圍；以及(六) 安置條款中有關租客可申請購買居屋，希望市建局詳細解釋申請資格。

8. **邵天虹議員**提出以下意見/查詢：(一) 收購項目的佔地面積雖大，但所興建的中小型住宅單位數目卻較少，查詢是否有空間增加單位數目；(二) 查詢地下停車場預計有多少層及能否增加層數，及希望局方與運輸署聯繫，探討解決道路飽和的問題；以及(三) 連接啟德發展區的地下通道配備能否加快完成，讓一般市民盡早使用。

9. **潘國華議員**歡迎市建局增加區內的重建項目，以配合議員早前於市區更新策略提出的要求，並提出以下意見/查詢：(一) 建議市建局日後考慮小區規劃的意見，善用啟德道旁邊一帶的空間，更進取開展規劃；(二) 於啟德新區設隧道連接城寨公園；(三) 擴大智能停車場300個車位的規模；以及(四) 查詢項目範圍內的非商業社團會所的賠償安排如何。

10. **黎廣偉議員**查詢300個公眾泊位會如何分配予私家車、重型車及旅遊巴等車輛。此外，現時的賠償方案是否已預留單位或舖位作更換，及為數多少。他又建議於住戶搬遷前提供租金援助津貼，加大誘因推動更多人參與「樓換樓」計劃。

11. **林德成議員**提出以下意見/查詢：(一) 希望有關部門增加接聽熱線人手，讓市民能直接查詢相關資料；(二) 地下購物城與重建範圍的興建進度不一，擔心影響銜接及未來發展；以及(三) 停車場泊位會否容許各類型車輛使用，並建議增加停車場面積及以智能方式增加泊位。

12. **余志榮議員**表示項目的停車場泊位預留給住戶的比例較其他屋苑低，擔心會加劇區內車位競爭及推高車位價格，希望市建局能夠調高有關比例。

13. **主席**提出以下意見/查詢：(一) 會否於城規會申請增加收購地段的地積比率；(二) 九龍城區的樓宇密度甚高，會否增加區內綠化地帶；(三) 沙浦道一帶由於車輛流量甚高，建議研究該處是否適合各類型車輛出入；以及(四) 建議於直達廣場的電動樓梯加設上蓋。

14. **鄭利明議員**提出以下查詢：(一) 有關的商業樓面總面積；(二) 現有商戶可否優先租用新舖位或享有優惠政策；以及(三) 因應項目的停車場會增加大量車流，局方會否推出或修改相關措施以解決交通問題及保持道路暢通。

15. **市建局關以輝先生**就規劃事宜作出綜合回應，重點如下：

- 項目的面積達6,100平方米，現在範圍已達到規劃裨益的目標，可擴大的空間不多，惟局方歡迎議員將有關擴大重建範圍的意見提交至城規會。

- 已預留約800平方米樓面面積作社區用途，會適時就有關社區用途再諮詢區議會及相關政府部門，以配合社區需要。

- 項目涉及收購及遷置等工作，需時較長，故預計將於2030年完工，局方會盡量加快有關進度。

- 項目提供約810個住宅單位屬初步估算，確實單位數目有待進一步落實，而現時項目內有約350個單位，重建後所提供的單位數目較現時多超過一倍。而重建後單位的建築面積平均約50平方米，雖有增加單位數目的空間，但現時有不少意見均對面積太細的「納米樓」單位有保留，局方將盡量在可行情況下提供更多單位。

- 啟德新區的購物街及隧道由土木工程拓展署負責，市建局正與該署聯繫協調，期望項目的分層地下廣場能配合啟德地下購物街及其相連的行人隧道啟用。

- 擬興建的地下停車場的420個車位均為私家車泊車位，而當中120個供住戶使用的車位數量已達到《香港規劃標準及準則》所訂明的上限，而由顧問進行的交通影響評估預計道路及附近交通網絡未必能

負荷再增加的泊車位。項目的停車場共有五層，局方已就推行智慧型停車場進行研究。

- 發展參數已遵從九龍區住宅(甲類) 用地的地積比率上限，即住宅及商業類別分別為7.5及1.5，難以再增加有關項目的地積比。

- 視乎近一步設計，項目的整體綠化覆蓋率將不少於20%，惟現時只屬初步規劃階段，將來會盡量提供更多綠化空間。

- 交通影響評估報告已包括改變沙浦道走線的有關技術事宜，如體積較大的車輛如何轉彎等，並會在詳細設計中列出更完整數據。

- 市建局備悉有關在銀漢街道路興建地下行人隧道連接港鐵站，以及進行詳細小區規劃研究的意見。

- 社會影響評估報告建議，若區內有意見及需要，會考慮預留將來發展計劃內的舖位讓當區具特色的商戶優先租用。

- 局方會在原址或同區或適當項目預留單位作「樓換樓」安排。然而，基於各種原因，現時較少業主選擇「樓換樓」安排，而選擇自行購買單位。此外，2001年的賠償準則經過全港的廣泛討論，如有任何更改需交由立法會再作審議。

16. **市建局收購及遷置高級經理 許乃坤先生**就賠償及遷置事宜作出綜合回應，重點如下：

- 所有業主均能獲得等同物業本身市值的補償，當中自住業主可獲得全額「自置居所津貼」，以協助他們購買重置居所，而出租或空置物業的業主本身並不是居住在物業內，故此沒有重置居所的逼切性，因此所獲得物業市值以外的津貼額會與自住業主所獲得的「自置居所津貼」有所不同。有關政策多年來行之有效，在適當時候亦可再作檢討。

- 留意到有租客被業主迫遷的情況，故已不斷提醒業主即使在公布重建計劃後迫令租客遷出，亦不會獲得額外賠償。租客如遇到以上情況可通知市建局，日後會視乎每宗個案給予適當的補償。

- 「樓換樓」計劃是給予業主現金補償及特惠金以外的的另一選擇，在獲得應有補償後，自住業主可選擇「樓換樓」單位。市建局會於業主接受收購建議後，向業主作出補償，惟不會提供暫時出外租住的現金津貼。

- 營商特惠津貼的連續營商年期以30年為上限，有關安排已考慮到大部分店舖經營者的情況，惟日後亦可就營商年期再作檢討。

- 市建局會對住宅及非住宅單位的租客作相應的補償，按照現行政策，市建局會根據非住宅租客的基準向租用住宅單位的社團提供補償。

- 目前沒有提供「舖換舖」的安排，而局方亦沒有向住宅租客提供申請居屋安排。

17. **市建局殷倩華女士**表示完成人口凍結調查後得悉項目內有19戶泰裔家庭及1個泰裔的非住宅物業佔用人。局方於2月27日居民簡報會上已安排泰語傳譯員，及於3月18日特別為受影響的泰裔人士舉行簡報會，當天共有約15位泰裔人士出席。早前進行人口凍結調查時，隨行也有泰語傳譯員一起到訪，局方亦會向泰裔居民派發以泰語編製的賠償政策及規劃程序資訊，照顧他們的需要。

18. **主席**作出總結，表示委員原則上支持市建局啟德道／沙浦道重建計劃，惟希望局方能擴大計劃範圍，協助九龍城舊區的重建。

樂善堂社會房屋計劃 — 改建校舍作「過渡性社會房屋」
(九龍城房建會文件第13/19號)

19. **主席**表示由於樂善堂提出的改建校舍作「過渡性社會房屋」屬市民關心的新計劃，因此根據《會議常規》，批准樂善堂及運輸及房屋局(下文簡稱「運房局」)派代表出席會議及進行簡介。

20. **九龍樂善堂總幹事 劉愛詩女士**簡介計劃內容，重點如下：

- 樂善堂於2013年向勞工及福利局「私人土地作福利用途特別計劃」申請重建樂善堂小學及樂善堂總辦事處為綜合福利大樓。學校將於

Annex G-1 of
TPB Paper No. 10542

日期：2019 年　　月　　日

KC-015

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是[redacted]業主CHAN ~~CH~~ 陳 TSUN WAI，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

3.）在 27-2-2019 年晚市建局委派其收購部人員在民生書院舉行之簡報會(以沙浦道及啟德道合共 46 個街號超過 369 份業權計算)出席此簡報會的只有 30 多位業主，出席人數還小過我們委託的併購代理公司召開的會議一半業權，市建局收購部的代表在當晚表示如下；

a.）市建局代表表明不會和別的發展商合作發展。(此乃獨攬大權)

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c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
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我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

陳俊諱
業主簽名

此信件將抄送給各大各媒體

日期：2019 年　月　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主LI LAI KING FIONA，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

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2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

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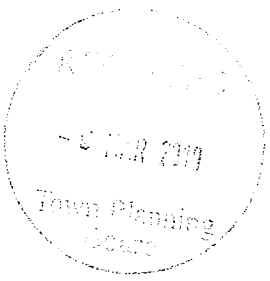
2

此信件將抄送給各大各媒體

業主簽名

日期：2019年　月　日



致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

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3

此信件將抄送給各大各媒體　　業主簽名

日期：2019 年　月　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
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敬啟者：

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b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c .）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
如市建局強行收購，那我們百幾戶的小業主也只可用自身權益以不合作、不配合的態度拒絕。

我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

4

此信件將抄送給各大各媒體

業主簽名

日期：2019 年　月　日



致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 CHEUNG SIU CHUN，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

3.）在 27-2-2019 年晚市建局委派其收購部人員在民生書院舉行之簡報會(以沙浦道及啟德道合共 46 個街號超過 369 份業權計算)出席此簡報會的只有 30 多位業主，出席人數還小過我們委託的併購代理公司召開的會議一半業權，市建局收購部的代表在當晚表示如下；

a.）市建局代表表明不會和別的發展商合作發展。(此乃獨攬大權)

b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
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我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

張小玲

5

此信件將抄送給各大各媒體　　業主簽名

日期：2019 年 3 月 6 日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 YEUNG CHING MAN JULIET.，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

3.）在 27-2-2019 年晚市建局委派其收購部人員在民生書院舉行之簡報會(以沙浦道及啟德道合共 46 個街號超過 369 份業權計算)出席此簡報會的只有 30 多位業主，出席人數還小過我們委託的併購代理公司召開的會議一半業權，市建局收購部的代表在當晚表示如下；

a.）市建局代表表明不會和別的發展商合作發展。(此乃獨攬大權)

b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
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我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

此信件將抄送給各大各媒體

業主簽名 JULIET YEUNG

日期：2019 年　月　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 [redacted]，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

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7

此信件將抄送給各大各媒體

業主簽名

日期：2019 年　　月　　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 葉尚欣 ，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

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如市建局強行收購，那我們百幾戶的小業主也只可用自身權益以不合作、不配合的態度拒絕。

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8

此信件將抄送給各大各媒體

業主簽名

日期：2019 年　月　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 朱嘉年，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

3.）在 27-2-2019 年晚市建局委派其收購部人員在民生書院舉行之簡報會(以沙浦道及啟德道合共 46 個街號超過 369 份業權計算)出席此簡報會的只有 30 多位業主，出席人數還小過我們委託的併購代理公司召開的會議一半業權，市建局收購部的代表在當晚表示如下；

a.）市建局代表表明不會和別的發展商合作發展。(此乃獨攬大權)

b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
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我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

朱　9

此信件將抄送給各大各媒體　　業主簽名

日期：2019 年　　月　　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主蕭錢汉，鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

2.）因我們啟德道一眾業主已經在 2018 年 12 月已委託一間併購代理公司協助一眾業主進行聯合出售至今已經超過 40%或以上業主參與，我們原本預計可於短期內完成，但基於市建局的介入並以政府賦予他的特殊權力和利用《市區重建局條例》法例，令我們一衆業主無所適從和對現屆政府的政策感到極之失望(令全港舊樓業主投訴無門)。

3.）在 27-2-2019 年晚市建局委派其收購部人員在民生書院舉行之簡報會(以沙浦道及啟德道合共 46 個街號超過 369 份業權計算)出席此簡報會的只有 30 多位業主，出席人數還小過我們委託的併購代理公司召開的會議一半業權，市建局收購部的代表在當晚表示如下；

a.）市建局代表表明不會和別的發展商合作發展。(此乃獨攬大權)

b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

在此，我們一眾小業主希望上述政府相關機構部門的局長或署長能夠為我們這 300 幾戶的小業主主持公道，別給市建局強行以大石砸死蟹、強搶民產的形式進行收購。
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我們將以一人一信簽名作出投訴，冀望上述各位局長、主席能夠秉公處理我們的訴求。

10

蕭錢汉

業主簽名

此信件將抄送給各大各媒體

日期：2019 年　月　日

致：發展局局長 黃偉綸先生 / 發展局副局長廖振新先生
城市規劃委員會 甯漢豪女士, J.P.發展局常任秘書長（規劃及地政）（主席）
申訴專員公署；劉燕卿主席 / 競爭事務委員會；胡紅玉主席

敬啟者：

我們乃是九龍[redacted]的業主 CHU CHUN SHING 鑑於市建局在未有全面落區咨詢眾業主及未獲得民意基礎支持下，於 22-2-2019 自行單方面宣布收購沙浦道及啟德道項目，在此我們一眾業主不能接受。

1.）市建局從未試過派人落區咨詢每幢大廈業主的意見，便私下劃圈霸地還通知各大媒體爭相報導及利用其法例欺壓和剝削了我們啟德道一眾業主集體出售給那個發展商的選擇權益。

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b.）市建局的收購部職員表示業主必須要等待 18-24 個月後市建局才會出價給業主，但同時表示在這段期間業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價(在無任何賠償之情況下)可以強制新買家或發展商賣給他們市建局，如此回應即表示我們所有業主唯一只可出售給壟斷市場的市建局。(請問市建局在法例保護下是否可以有違競爭法條例第 21 條，亦即「第二行為守則」)。

c.）請問是否可以打正旗號以市區重建為名便可以為所欲為，市建局建立至今所做的任何收購項目 99%都是賣給發展商建私樓並以分紅形式賺取利益而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。(此乃是否香港特區政府政策一？)

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11

此信件將抄送給各大各媒體

業主簽名

tpbpd

寄件者: 吳石民 <[redacted]
寄件日期: 20日03月2019年星期三 17:38
收件者: tpbpd
主旨: Re: 反對九龍城收購

Dear Sir,
Ref.: 啟德道/沙浦道發展計劃 （KC-015).
曾寶玲。
2019/03/20.

「tpbpd <tpbpd@pland.gov.hk>」在 2019 年 3 月 20 日 週三，下午 4:23 寫道：

先生/女士:

城市規劃委員會(城規會)收到你2019年3月20日的電郵。由於電郵中並沒有提及提交的意見所相關的申請個案編號，請你於2019年3月22日前告知城規會，是否需要把你的來函視作對某申請提出的意見，並提供該申請個案編號。

如有任何查詢，請你致電 2231 4323 與本人聯絡。

城市規劃委員會秘書處

(謝卓恩女士)

From: 吳石民 [mailto:[redacted]
Sent: Wednesday, March 20, 2019 2:39 PM
To: tpbpd@pland.gov.hk
Subject: 反對九龍城收購

Dear Sir,

我是[redacted]因家母得了失智症，本人要暫時離港予以照顧，本人丈夫最近又失業。恐此收購對本人及家庭產生無法彌補的損失，因此提出反對收購申請。

敬希體諒。

[redacted]

曾寶玲。

tpbpd

寄件者: 吳石民 <[redacted]
寄件日期: 20日03月2019年星期三 14:39
收件者: tpbpd@pland.gov.hk
主旨: 反對九龍城收購

Dear Sir,
我是九龍城[redacted]因家母得了失智症，本人要暫時離港予以照顧，本人丈夫最近又失業。恐此收購對本人及家庭產生無法彌補的損失，因此提出反對收購申請。
敬希體諒。

[redacted]
曾寶玲。

tpbpd

寄件者: 吳石民 <[redacted]

寄件日期: 20日03月2019年星期三 14:41

收件者: tpbpd@pland.gov.hk

主旨: Re: 反對九龍城收購

「吳石民 <[redacted]」在 2019 年 3 月 20 日 週三，下午 2:39 寫道：

Dear Sir,

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敬希體諒。

[redacted]

曾寶玲。

2019 年 3 月 20 日.

民建聯 DAB
吳寶強 區議員辦事處
九龍城區議會
Office of District Councilor NG Po Keung

本處檔號:481093

城規會主席暨各委員/規劃署署長:

要求加快九龍城重建、擴大重建範圍
並在重建設計加入停車場、社區會堂及托兒服務設施
(發展計劃草圖名稱: 啟德道/沙浦道)

宣佈九龍城重建，乃回應本處多年爭取的訴求，改善居民居住環境。

現繼續反映市民意見，要求:

1) 擴大重建規模

由於其他街道，如石鼓壟道、啟德道單號、城南道、打鼓嶺道、龍崗道、南角道至衙前塱道、獅子石道、福佬村道都是矮層舊樓林立，極具重建潛力。而私人發展商已積極收購，但牙簽樓缺乏加入社區配套元素，無整體社區規劃概念。希望市建局能盡快及繼續物色上述地盤，加快重建，除能即時解決舊樓居民居住環境惡劣，經常修修補補，負擔巨大維修開支問題; 亦能加入社區需要配套，完善社區規劃。

2) 因區內多長者，希 貴區能投入更多人手及資源，向業主及租客詳細解釋各項賠償及安置方案，讓居民掌握足夠資訊作出適切選擇;

3) 在重建設計上，因本區受交通擠塞之苦，亦是著名的美食街區，每天均有不少人流入區內用膳消費，要求設置更具規模的地下或多層停車場，解決交通擠塞問題;

4) 另外，本區亦沒有社區會堂，市民缺乏參與社區活動的場所; 而區內多舊廈，經常要召開大廈會議。本區亦缺乏活動室供班組活動及大廈開會之用，要求在重建項目上，加入社區會堂及多用途活動室之設計，讓居民能更多機會參與社區文娛活動; 居民亦希望加入能加入托兒服務及設施，讓有小朋友的家庭能減輕壓力，及令有需要的主婦有外出工作的機會。

祈 閣下關注，加快重建，擴大範圍，令更多居民受惠。謝謝

吳寶強
民建聯九龍城區議員

2019 年 3 月 21 日

District Councilor's Office of NG PO KEUNG 吳寶強議員辦事處

(13+14) 13

真誠為香港

九龍城福佬村道2 號C二樓 TEL:23656595 FAX:23656767
1/F., 2C, Fuk Lo Tsun Road, Kowloon City, Kowloon

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-161044-99773
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 16:10:44
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	吳寶強

意見詳情
Details of the Comment :

城規會主席暨各委員/ 規劃署署長 要求加快九龍城重建、擴大重建範圍 並在重建設計加入停車場、社區會堂及托兒服務設施 (發展計劃草圖名稱: 啟德道/沙浦道) 宣佈九龍城重建，乃回應本處多年爭取的訴求，改善居民居住環境。 現繼續反映市民意見，要求: 1) 擴大重建規模由於其他街道，如石鼓壟道、啟德道單號、城南道、打鼓嶺道、龍崗道、南角道至衙前塱道、獅子石道、福佬村道都是矮層舊樓林立，極具重建潛力。而私人發展商已積極收購，但牙簽樓缺乏加入社區配套元素，無整體社區規劃概念。希望市建局能盡快及繼續物色上述地盤，加快重建，除能即時解決舊樓居民居住環境惡劣，經常修修補補，負擔巨大維修開支問題; 亦能加入社區需要配套，完善社區規劃。 2) 因區內多長者，希 貴區能投入更多人手及資源，向業主及租客詳細解釋各項賠償及安置方案，讓居民掌握足夠資訊作出適切選擇; 3) 在重建設計上，因本區受交通擠塞之苦，亦是著名的美食街區，每天均有不少人流入區內用膳消費，要求設置更具規模的地下或多層停車場，解決交通擠塞問題; 4) 另外，本區亦沒有社區會堂，市民缺乏參與社區活動的場所; 而區內多舊廈，經常要召開大廈會議。本區亦缺乏活動室供班組活動及大廈開會之用，要求在重建項目上，加入社區會堂及多用途活動室之設計，讓居民能更多機會參與社區文娛活動;居民亦希望加入能加入托兒服務及設施，讓有小朋友的家庭能減輕壓力，及令有需要的主婦有外出工作的機會。 吳寶強議員辦事處

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-190427-73978
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:04:27
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Jarinya

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

(15)

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185427-34182
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:54:27
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Somphit

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

16

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185147-80709
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:51:47
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Parichat

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

17

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185052-68232
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:50:52
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Gasing

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

18

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185304-98006
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:53:04
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Suwan

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

19

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185346-48775
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:53:46
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Kongvirat

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

20

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-185232-01917
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 18:52:32
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Wornut

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

21

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-191002-03343
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:10:02
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Wanika

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

22

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-190729-93913
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:07:29
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Athid

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

23

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-191055-54212
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:10:55
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Wasana

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

24

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-191129-57321
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:11:29
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Patchalee

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

25

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190322-190654-62325
提交限期 **Deadline for submission:**	22/03/2019
提交日期及時間 **Date and time of submission:**	22/03/2019 19:06:54
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就發展計劃草圖提出意見 Kai Tak Road / Sa Po Road : Making Comments on Development Scheme Plan
「提意見人」姓名/名稱 **Name of person making this comment:**	Malee

意見詳情
Details of the Comment :

市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。

(26)

(KC-015)

Annex G-2 of
TPB Paper No. 10542

24 APR 2019

Town Planning Board

我们的建议—有关九龙城沙埔道重建事宜

1) 由于我们三十年来一直在九龙城办公，工作和生活，一早就习惯了，现在年事已高，突然要在其他区域重新开始，似乎十分残酷，同时由于我们的住所与九龙城十分接近，搬动办公室势必要连拖搬移住所，由于现时楼价和租金均已升到比天高，实在是我们难以负担，希望重建局能体恤九龙城原市民的种之困难，在补赠方面多加顾及大家的困难。此种情况在九龙城比比皆是。

2) 由于原九龙城市民多体弱，在新科技不熟，在找寻新住所或经营场所方面颇多难處，希望重建局和聖雅各会能在这方面多提供一些资讯，功德无量。

由于在重建后，报商方面也不是很容易的（估计应到地产低潮），所以原折原回也是一种选项，对开发商和旧居民均是好事。

3) 建议在通往旧机场的通道，採用手扶式电动自行走道（往来双向），这样可大大增加人流和流量，将九龙城，旧机场住来巴士站，小巴站、地铁各商场连成一片，使此處成為

港九重要的交通枢纽。以有限的空间，高速控制人流和便利市民，将九龙城和油机场有效地连接起来。

沙埔道31-35号佛辉商业大厦

[redacted]市民张贤鸿.

RECEIVED
24 APR 2019
Town Planning Board

香港城市規劃委員會執事先生臺鑒:

敬啟者:

香港郭汾陽崇德總會有限公司是香港九龍城沙浦道 31-35 號錦輝商業大廈[redacted]座的業權擁有者。2019 年 3 月接市區重建局通知，將對錦輝商業大廈拆卸重建。本會獲知消息後，多次召開理監事會，就此項行動對我會將產生的影響進行探討，全體理監事一致認為，必須將此行動對我會所產生的影響及相關情況向貴會反映:

香港郭汾陽崇德總會起源於 1949 年，上世紀六十年代正式註冊成立，至今已逾七十年，是香港郭氏宗親的主要聯誼團體。我會秉持愛國、愛港、愛鄉的宗旨，廣泛團結旅居香港的潮籍鄉親，積極發揮橋樑和紐帶作用，推動香港與內地的文化交流，堅定支持國家、香港和家鄉的發展，成為香港社會最具活力和凝聚力的愛國愛港社團之一。

上世紀四十年代，內地廣東潮陽郭氏一批宗親來港謀生，奉先祖汾陽王郭子儀及列祖列宗香火到港奉祀，祈望先祖靈佑，在異地他鄉安居樂業。最先在西環建一木屋作為年節祭祀之用，後又遷移至東頭村 22 座設臨時祖廳奉祀先祖牌位。上世紀六十年代，旅港宗親生活逐漸改善，為使祖訓家風得以弘揚，先祖牌位得以享祀，經集議，購買黃大仙鳳凰新村一單位作為會址，廿一世紀初遷今址：九龍城沙浦道 31-35 號錦輝商業大廈[redacted]座，作為年節子孫祭祀先祖、追思祖德之用。

我會依據習俗，於遠祖郭子儀公誕辰之日，每年臘月十一日、十二日主辦祭祖典儀，至今已歷 70 屆。每屆於九龍城亞皆老街球場搭設神廠，舉行祭祖大典，演潮州戲，並邀請香港官紳名流、社團首長嘉賓蒞臨觀禮，舉辦敬老聯歡宴會。整個活動，參與人數眾多，規模宏

大，傳統文化底蘊深厚，在香港祭祀先祖的中華傳統文化文化中獨具特色。“九龍城汾陽郭氏祭祖”民俗於 2014 年被香港特區政府列入非物質文化遺產名錄（屬社會實踐、儀式、節慶活動類別，專案編號：3.39）。是香港中華傳統文化的重要組成部分，是研究潮人在港民俗已至中華傳統民俗的重大課題。

作為香港非物質文化遺產“九龍城汾陽郭氏祭祖”的組織單位，本會每年經常接待来之內地及本港大專院校專家學者、學術團體參訪研討，已成為香港非物質文化遺產之中的一處重要傳承和研究基地。

錦輝商業大廈[redacted]座作為香港郭氏宗親祭祀先祖、聯繫鄉誼的場所，陳設有潮州金漆木雕大神龕，為香港現存傳統潮州金漆祭器之精品，價值不菲。門扉為優質實木構造，門神彩繪莊重威嚴，為潮州著名藝匠所繪，當時在潮州訂造運來，所費近五萬港幣。此外，會址中還有用於祭祖大典的木雕祭器、祭具等一批。神龕、門扉、彩繪、祭器等購置於上世紀六十年代，工藝價值極高，如拆卸重裝工匠難尋，也將造成不可逆轉的損失，重置重造價格高昂。

本會址購置至今已將近 20 年，凝聚了香港郭氏宗親的心血。成為宗親們追思祖德、敦厚鄉誼的場所，是香港郭氏宗親的家園！靈魂所依！信仰所在！於 2018 年底花費港幣六十餘萬重新裝修， 於今年 3 月接市建局通知將拆卸重建，全體理監事聞之驚愕。若早知市建局有此計畫，我們也不必花重資修飾。 頓感付出之金錢物力，如付諸東流，深感有負先祖，辜負了全體宗親的信賴及慷慨支持！宗親們驚聞會址面臨拆遷，猶如家園被毀，淒婉之情不禁油然而生！

獲悉家園將毀的變故，理監事會全體成員措手不及，既要面對市建局拆建的具體問題，也要面對眾多宗親對我們信任的問題。謹此具函呈知貴會，望能體察本會實際情況，以便我們更好地配合貴會及市

建局工作！懇請貴會能盡力支持我會的家園重建工作，以期我會不辜負宗親們的寄託與期望！謝謝！此致，

敬祈

春安！

香港郭汾陽崇德總會有限公司

全體理監事

理事長：郭振忠

2019 年 4 月 15 日

聯繫電話：[redacted]

聯繫人：郭振忠

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190425-233614-76503
提交限期 **Deadline for submission:**	26/04/2019
提交日期及時間 **Date and time of submission:**	25/04/2019 23:36:14
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就第二階段社會影響評估報告提出意見 Kai Tak Road / Sa Po Road : Making Comments on Stage 2 Social Impact Assessment Report
「提意見人」姓名/名稱 **Name of person making this comment:**	CHENG MING YEE

意見詳情
Details of the Comment :

本人是在2015年6月，因神學院宣教課程實習而開始認識基督教愛協團契(會址：沙浦道31至35號錦暉商業大廈[redacted]樓)。2017年神學畢業後便在此機構作義務牧養工作，一星期有兩天在會址當值，並在三個互助小組作義工。此機構為一非牟利基督教機構，30年矢志不渝地為精神病康復者提供全人關顧的服務。除了關注康復者身、心、社、靈需要，其獨特性更是全港少數機構能為康復者提供基督教團契小組生活，除了幫助組員在康復路上彼此互助勉勵，更能靈性上作支援。 在實習期間，我見證很多組員隨着年紀增長，因行動不便和長沙灣舊會址需要行走樓梯而被迫放棄參與機構活動。我看見機構縱使資源有限，同工們有感舊會址的限制和不忍心逐步年長的組員被迫一個又一個放棄參與聚會，他們仍憑信心發起尋覓新會址念頭。愛協團契資源有限，平常經費只是倚賴公益金、那打素基金、少數有心的基督教教會和基督徒奉獻，所以深知再要籌募千多萬資金購買新會址當真困難重重。 實習後一直都有留意愛協購買九龍城沙浦道會址的艱苦過程，（可參考網站內“文件庫” 7/3/16和7/4/16購址呼籲信，2016年10月通訊，2/6/17異象分享會及奉獻回應表，2017年6月通訊，2018年1月通訊），這些文章分享讓人得知有不少奉獻都是由愛協組員向家人、親友、教友小數小數地集結起來，所以能搬到現有會址實在是披荊斬棘的挑戰。 現在深感可惜的是大家為找到合宜地方開心和密鑼緊鼓籌劃更多外展活動，讓更多人關注精神健康和復原人士的需要、並期望接觸和協助九龍城區教會牧養這些群體…但市政局重建卻為我們的事工計劃添上更多陰霾： 1. 市政局如何賠償商戶，原址遷徙/現金賠償？ 2. 現時市區樓價高企，愛協這等資源緊絀的機構，如何有資格另覓會址？ 3. 現時愛協仍欠$550萬購址貸款需要償還。舊債未清，如何再籌募新資金？ 4. 在沙浦道會址辛苦申請到的裝修和設施添置費資助因重建很快又付諸流水，就算有新地方這些資金又從何而來？ 5. 組員好不容易開始適應了現在會址，而機構也逐步和附近數間教會建立關係和合作機會，可惜又可能因市區重建、愛協搬遷而告別 面對以上種種不明朗因素，我希望市政局能好好考慮協助愛協面對的困局，並能作出合宜的幫助。希望市區重建不會成為催毀愛協如斯有意義事工的引爆器。 謝謝你們的關注！

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tpbpd

寄件者:	Avery Tsang <[redacted]
寄件日期:	26日04月2019年星期五 17:55
收件者:	tpbpd@pland.gov.hk
副本:	Sunny Ngan; Elly Kwok
主旨:	有關: 市區重建局啟德道沙浦道發展計劃草圖 SK10URAA 意見
附件:	KFCB-L-015-19 市區重建局啟德道沙浦道發展計劃草圖 SK10URAA 意見.pdf

Dear Sir / Madam,

現附上有關"市區重建局啟德道沙浦道發展計劃草圖 SK10URAA 意見"之信件一封及其附件，以供 貴局考慮及跟進。

如有任何查詢，可致電 2396 0770 與顏先生或 2396 0700 與曾小姐聯絡。
謝謝。

Best Regards,

Avery Tsang
Senior Property Officer
Parkland Property Management Limited
E-mail: [redacted]
Tel :(852) 2396 0700
Fax:(852) 2397 5866

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柏齡物業管理有限公司
Parkland Property Management Limited
A joint venture company of Ryoden Development Ltd. & TL Property Consultants International Ltd.

檔號：KFCB/L/015/19

致：城市規劃委員會秘書處　　傳真: 2827 0176 / 2827 0085
香港北角渣華道 333 號
北角政府合署 15 樓

有關：市區重建局啟德道/沙浦道發展計劃草圖 S/K10/URA/A 意見

本公司為九龍城 31-35 號錦輝商業大廈(即屬於沙浦道/啟德道重建區非住宅單位之物業)之物業管理公司，現代表大廈業主立案法團提出以下意見:-

關於補償方案準則簡章中對本大廈之單位業主不公平，所以提出反對重建。

茲因大廈業主已安排於2019年2月下旬更換載客升降機，惟 市建局於2019年2月22日公佈上述之重建計劃，致使大廈之更換載客升降機工程需要擱置，而升降機公司則要求法團繳付80%之工程費用；使業主蒙受損失。

故此我們敬請 貴局能提供補償。

祈望貴局能重新考量補償方案，給予合理補償以達重建目的，業主也能減輕重購的負擔。

PARKLAND 柏齡物業管理有限公司 PROPERTY MANAGEMENT LTD.

柏齡物業管理有限公司
錦輝商業大廈管理處　謹啟
二零一九年四月二十六日

附件

副本呈： 錦輝商業大廈業主立案法團

香港九龍大角咀道38號新九龍廣場1103A室
Room 1103A, New Kowloon Plaza,
38 Tai Kok Tsui Road, Kowloon, Hong Kong
Tel: 2396 3377 Fax: 2736 6990

EXPRESS
捷 運 電 梯

檔案編號 : EL-ME287S/18C
日期 : 2018年4月10日
合約編號 : 51LR1796

錦輝商業大廈業主立案法團
九龍九龍城沙浦道31-35號

敬啟者 :

有關：九龍九龍城沙浦道31-35號-錦輝商業大廈
更換升降機工程建議書標書編號:KFCB/L/005/18

承蒙 貴方邀請於4月9日出席上述工程之會議，使敝司能夠更全面掌握大廈之要。就 貴方提出相關之問題敝司經詳細考慮後作出以下回覆:

[A] 工程期：

海外訂貨時間	:	約90 (由收訖首期款項及確認圖則 / 樣板起計算)
圖則/樣板時間	:	捷運約21日內遞交圖則/樣板給業主立案法團批核
完工日期	:	每部電梯需時45個工作天，另加約14天機電工程署檢驗及發出有關准許使用證書 。

[B] 工程費用：

更新L1升降機工程費用 : HK$ 1,070, 000.00 (原價: ~~HK$ 1,090, 000 .00~~)

[C] 付款細則：

付款細則 (每部電梯計算) :

1. 接受此報價單時，繳付工程總額之百份之三十；
2. 當機器準備出廠時，繳付工程總額之百份之四十；
3. 當遞交 Form 7 予機電工程署時，繳付工程總額之百份之三十。

Room 1101, 11th Floor, Octa Tower, 8 Lam Chak Street, Kowloon Bay, Kowloon, Hong Kong 香港九龍九龍灣臨澤街八號億達廣場11樓1101室
Tel電話：(852) 2889 2727 Fax傳真：(852) 2889 2678 Email電郵：info@expresslift.com.hk Website網址：www.expresslift.com.hk
caringcompany
ISO 14001:2004 Certificate No.: CQ 220
ISO 9001:2008 Certificate No.: CQ 8

EXPRESS
捷運電梯

檔案編號 : EL-ME287S/18C
日期 : 2018年4月10日
合約編號 : 51LR1796

[C] 備註：

1. 不論此合約當中含有任何相反條款，i) 捷運電梯支付客戶的最高賠償，不論其是否包含在本合約（包括但不限於違約金，如適用）、侵權（包括但不限於疏忽）或其他方式，都應僅限於捷運電梯在本合約下所收取之款項；ii) 延誤罰款: 如未能依合約上的完工日期完成工程，每日延誤罰款是 HK$3, 000，上限為合約總價之 5%。 iii) 捷運電梯將不承擔因任何因素引致之任何間接的、衍生性的、特殊的、經濟損失、成本責任、損害或費用 。
2. 取上述條款外，其他合約條款將按照標書編號:KFCB/L/005/18 內容及敝司之信件編號: EL-ME287S/18。

如有任何疑問或需詳情，歡迎致電[redacted]與敝司廖志國先生或[redacted]與本人聯絡。

此致

【本公司】簽署
捷運電梯有限公司

授權人：
何進珊
職位：高級營業經理
日期：2018年4月10日
CHO / LCK / lck

【客戶】簽署及蓋章
錦輝商業大廈業主立案法團

授權人：陳[illegible]
職位：主席
日期：23-4-18

THE INCORPORATED OWNERS OF KAM FAI COMMERCIAL BUILDING 錦輝商業大廈業主立案法團

The Express Lift Company Ltd. 捷運電梯有限公司
Room 1101, 11th Floor, Ocla Tower, 8 Lam Chak Street, Kowloon Bay, Kowloon, Hong Kong 香港九龍九龍灣臨澤街八號傲騰廣場11樓1101室
Tel電話：(852) 2809 2727 Fax傳真：(852) 2809 2670 Email電郵：info@expresslift.com.hk Website網址：www.expresslift.com.hk

caringcompany
ISO 14001:2004 Certificate No: CC 220
ISO 9001:2008 Certificate No: CC 8

致 城市規劃委員會秘書處
香港北角渣華道 333 號北角政府合署 15 樓

市區重建局啟德道/沙浦道發展計劃草圖 S/K10/URA/A 意見

本人於沙浦道/啟德道重建區有出租非住宅單位。關於補償方案準則簡章中對非住宅單位（出租單位）業主不公平，有歧見之態度，所以提出反對重建。

簡章中第十五條：「自用業主可得津貼是物業市值的百分之三十五……。」「出租或空置物業的業主可得非住宅單位（工業樓宇除外）津貼是物業市值交吉價的百分之十。……」
兩者相差百分之二十五津貼比例，不計算自用業主有營商特惠津貼及營商損失申請補償。

1) 對於出租單位業主津貼應以 35%計算，扣除對租客的補償，若有餘額，應歸業主作為補償合併計算。
2) 對於空置單位也應可獲 35%津貼，如果無逼遷及其他理由；都應一視同仁，平等看待。重購單位費用多。空置是不得已。

如果非住宅單位是地舖或寫字樓，重新購置替代原先物業收租匯印費支出鉅額外，即使減免一半也不堪負荷。買賣物業及繳交費用物業稅、差餉等，自用、出租，沒有不同。

祈望貴局能重新考量補償方案，給予合理補償以達重建目的，業主也能減輕重購的負擔。

沙浦道 35 號錦輝商業大廈

單位：[redacted]

姓名：國泰航空公司本地職員工會

簽名：

[illegible] - 林嘉欣

聯絡電話：[redacted]

FAX：[redacted]

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就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190426-155833-35147
提交限期 **Deadline for submission:**	26/04/2019
提交日期及時間 **Date and time of submission:**	26/04/2019 15:58:33
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就第二階段社會影響評估報告提出意見 Kai Tak Road / Sa Po Road : Making Comments on Stage 2 Social Impact Assessment Report
「提意見人」姓名/名稱 **Name of person making this comment:**	基督教愛協團契

意見詳情
Details of the Comment :

城市規劃委員會香港北角渣華道333號北角政府合署15樓 敬啟者： 市區重建局KC-015啟德道/沙浦道發展計劃項目 <意見申述> 本機構全名為「基督教愛協團契有限公司」，是九龍城沙浦道31-35號錦輝商業大廈[redacted]業權擁有者。2019年2月下旬接到市區重建局通知，將會計劃對錦輝商業大廈進行拆卸重建，本機構對於市區重建局啟德道/沙浦道發展計劃項目(KC-015)及其第二階段社會影響評估文件有以下相關意見：
機構歷史 基督教愛協團契為一非牟利慈善服務機構，董事會及顧問團隊成員包括有愛協團契組員、牧師、大學教授、精神科醫生、精神科護士、資深社會工作者及律師。最初由租借院牧事工聯會一張寫字枱進行事工，發展至現時可以擁有一個自置的單位，當中是無數有心人士的心血和對精神病康復者及家屬無私的付出，才能達成！ 於一九八九年初，一位曾患精神病的基督徒康復人士，深感康復後要面對多方的衝激，實需加倍倚靠神及其他肢體的支持。他與院牧商討後，便開始聯絡有同一背景的弟兄；另一方面院牧亦接觸一些精神科基督徒醫療人員，與他們分享異象，他們也深覺有此需要，便一同建立這個以神的愛為基礎的團契，開始每月一次聚會，一九九零年增加為每月兩次，於同年六月二十日，正式定名為「愛協團契」。 於一九九一年十月，愛協團契正式註冊為非牟利有限公司；一九九三年被公益金接納為會員，支持團契部份經費，而團契經濟主要來源是依賴教會信徒、機構及熱心人士的奉獻和支持。一九九四年開始與神學院合辦有關心理健康課程，幫助社會人士認識精神病及其處理方法，至二零零七年則由本團契獨力開辦此課程。一九九六年成立「愛協資源中心」，為組員及社會人士提供有關精神健康的資料、書刊及影音借閱服務。同年八月增設靈牧組，關懷組員在靈性生活上之培育。 於一九九七年愛協團契成為香港社會服務聯會會員，一九九八年成為香港基督教機構協會會員機構，同年五月得蒙世界傳道會／那打素基金慷慨撥款，讓團契能夠購置位於九龍青山道244號達明大廈[redacted]字樓為本團契會址。二零零一年一月成立青少年小組，專為思覺失調及情緒困擾的青少年康復者提供服務。二零零七年四月成立第一個日間家屬小組，協助家屬照顧精神病康復者。二零零八年六月成立名為以利亞的情緒病小組，讓

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情緒病的康復者有效地處理其問題。二零零九年七月成立另一個晚間家屬小組，協助家屬照顧康復者。 於二零一七年十一月，全賴教會弟兄姊妹及熱心人士的慷慨奉獻和愛心支持，使團契能夠搬遷至九龍城沙浦道31-35號錦輝商業大廈[redacted]物業單位，作為本團契新的會址，讓團契有更大的空間和完善的設施去發展及提供服務給組員、家屬及有需要的人士；其中發展項目包括四大中心：資源中心、輔導中心、宣教中心和教育中心。 現時愛協團契共有五百多位組員，二十個互助小組，為復元人士及家屬提供服務及支援。各小組聚會內容包括有專題討論、戶外活動、信仰及生活分享等。此外，愛協團契每年亦會舉辦不同的活動，例如旅行、宿營、行山、讚美操、詩班、親恩頌暨生日會、新春團拜及各類興趣班等，讓組員可以跨組彼此認識，擴闊社交圈子，提升生活質素。除了上述小組工作及推廣身心健康的教育活動外，本團契會為一些組員提供家訪及個人輔導服務，另外，亦會為教會及社會人士提供有關精神健康的諮詢服務，定期應邀到各教會、學校及社團主持有關精神健康講座、短期培訓課程及分享見證等，並協助教會成立康復者或家屬之互助小組。 *機構宗旨及服務範圍* 愛協團契的宗旨是本著基督精神，提供精神病康復者「全人關顧」，為他們建立有效的支持系統，以減低其病發的機會；並協助康復者重投社會及教會生活；同時，亦協助教會牧養精神病康復者及對公眾人士推廣心理健康教育。服務範圍包括以下項目： 1. 個人照顧：注重組員個別需要，幫助其成長及改變，提供輔導及家訪。 2. 小組工作：著重彼此在信仰及生活上的支持，並鼓勵獨立、自助及互相支持。 3. 諮詢訓練：協助教會及社會人士關懷康復者，提供諮詢服務及推廣心理健康教育。 4. 群體活動：提供興趣班，戶外活動以促進組員之社交技巧及提高生活之素質。 5. 資源中心：推廣心理衛生及精神公眾健康教育，以及提供知識和資源，以協助康復者及社會人士 解決個人問題。 6. 輔導中心：為教會弟兄姊妹和其他人士，提供專業的精神心理評估和輔導服務。為神學院及各大 院校的同學提供實習的機會。 7. 宣教中心：與教會交流合作，協助教會成立康復者互助小組。為康復 者舉辦福音性的活動和栽培訓練。 8. 輔助就業：為精神病康復者提供輔助就業訓練及支援，讓他們獲得所需 的技能及支援服務，以便在共融的公開環境中工作。 *機構購址歷程* 隨著愛協團契事工日益發展，董事及同工意識到位於長沙灣一幢超過四十多年舊式商住樓宇大約865呎的會址，實在不勝負荷各類活動及同工工作的發展空間。此外，隨著部分組員年紀老齡化，他們對於應付步行三十多級的樓梯前往會址感到十分吃力及困難，這些情況都使到部份前來使用服務的康復者及家屬感到卻步。故此，我們期盼搬遷到較大的會址，以致能夠繼續提供更多及更好的輔導服務、心理健康教育、培訓工作、朋輩支援、建立網絡和各類型的小組活動，同時亦會擴充團契的資源中心，甚至進一步建立社會企業的業務，以達致能夠建立一個多元化及更趨完善協助精神病康復者的事工。 為著堅守服侍精神病康復者的異象和使命，我們同心決定向前邁進，而本團契董事會於二零一五年四月確定了購置新會址的計劃。經過一年多的禱告和到處尋覓新會址，於二零一六年四月中，我們很不容易終於覓得一個十分合適的地方作為團契新會址，地點位於九龍城沙埔道錦輝商業大廈10樓一個大約2100呎價值1280萬的全層罕有「打通」單位(即是現今的會址)，並且於同年六月，我們與賣家達成了買賣協議，並需要我們按照以下三個階段付款來完成這個樓宇買賣交易，當中經歷極大困難；首先，我們須要一筆過繳付128萬首期，後來，突然發覺須要額外支付96萬的印花稅，並必須在一個月內繳交；當我們感到徬徨失去預算之際，上帝感動一位教會肢體的心，願意為我們免息貸款100萬，讓我們可以渡過第一個難關。 接著，我們為著要支付1,152萬剩餘的樓價，急須賣出長沙灣舊的會址，經歷放盤長達一年多的時間，都只是有人問津，但是無人購買，直至二零一七年一月初，我們仍然未能放售舊會址的單位，這是另一個使我們感到擔憂的問題，再加上同年8至10月期間，我們的經常費遇到不敷的情況，同工薪酬和機構運作的支出都遇到很大的挑戰和壓力，而1280萬的樓價，對於我們小型的機構來說是一個天文數字！ 我們實在感到擔心和憂慮；心情雖然有些沉重，但董事及同工們都一同懷著服侍精神病康復者使命的心，共同策劃籌款事工，向愛協組員、教會、機構及關心愛協事工的支持者，傳達我們購址事工的異象和需要，呼籲眾肢體以禱告、奉獻和免息貸款作回應支持。 直至二

零一七年二月，一位與愛協並不相熟的地產代理，主動與我們接觸，以及快速地安排了客人來視察我們舊會址的單位，意想不到的，客人很快提出購買單位的意向，我們亦很快順利地便達成買賣的協議，而且買家也願意於3月尾前付清樓價所有的費用。但售出了舊會址的單位，只能套現480萬去支付新會址單位大約四成須支付的金額，我們還須支付五百多萬元的樓價費用，我們急需要借貸和籌募。我們嘗試以愛協團契名義向銀行貸款，但以愛協的條件銀行根本不會考慮，面對這個難關，神感動了一些肢體以免息貸款的方式給我們大額的借貸。於二零一七年四月，最終我們於驚濤駭浪中及時地支付了其餘樓價需支付的所有費用，但亦須要於六年內還清現時累積大約570萬元的欠款！ *重建發展計劃對機構的影響* 根據研究顯示推算：每五個人就有一個患有不同程度精神疾患，約有三十多萬重性精神病。預計思覺失調每年約有1,300個新個案。世界衛生組織預測抑鬱症於2020年排行第二（僅次於心臟病），2030年更成為第一號殺手！ 為配合發展事工及回應未來香港社區對精神健康的需要，我們於二零一七年十一月遷入新會址前，共用了大約一百一十萬元裝修及購買相關的設備裝置，而這筆費用是由本團契支付承擔。本團契全體成員皆抱極高期望，眾志成城齊心繼續為香港精神病康復者提供更多元化及更優質的服務，並對公眾人士進行更寬更深地推廣精神健康教育！ 雖然只是遷入一年多，本團契已於九龍城區建立了多個教會的聯繫及關顧精神健康的網絡，計劃以九龍城這優質及具備多重優勢的中心市區位置，作為愛協的基地，因為本團契會址正置於多個人口密集的屋苑附近，另外亦鄰近不同的學校、教會、少數族裔社群組織、醫院(包括新啟用的兒童醫院)及提供不同服務的社會服務機構或社團等，非常有利我們未來為這區不同年齡層和不同類別的人士去提供服務。 再加上本團契會址正正位於啟德新發展區的對面，而啟德新發展區的住宅屋苑、政府、機構、商廈、商舖及社區用地不同的設施很快便會相繼落成，到時必定成為一個具規模及規劃的優質偌大綜合社區網絡，無疑對我們團契發展提供很廣很深的空間及前景。而這個優質而偌大的綜合社區網絡也必定帶來附近物業極好的升值潛力及回報，從而能夠提升本團契經濟上資本的實力，讓本團契能減少因經濟上的困難而阻礙發展精神健康的事工。 此外，本團契選址於九龍城，根據原本計劃，我們不單只會為此區及週邊的群體提供服務，同時亦期望藉此能夠更有效地聯結不同地區的教會、機構及學校等。因為不久將來，會址附近便有港鐵開通，由會址步行至港鐵站(位於南角道)，只需大約5-7分鐘，十分有利本團契同工及組員向外發展精神健康的網絡，同時，對於從各方前來尋求本團契服務的有需要人士也十分方便。 倘若該發展重建計劃項目獲得行政長官會同行政會議核准進行，除了令到九龍城區居民失去使用本團契服務的便利外，重建計劃項目及消息亦會影響本團契未來幾年的籌款額及營運開支，包括員工薪酬開支及還款計劃等。而更重要的影響是，本團契之前部署關於未來發展的一連串計劃無疑地會被打斷，並對本團契帶來重大而深遠的影響，例如本團契的組員、家屬及其他相關的人士需要重新適應團契因發展重建計劃搬遷後新的地點和會址，包括由各地點到新會址及由新會址到各地點。 除上述影響外，本團契甚至有可能因為搬遷面對財政上困難及各種不穩定因素而導致終止服務或倒閉，因為根據現時市區重建局訂定的賠償計算方法，實不足以支持本團契於相同地區購買面積相若的單位、重新裝修及購置相關設備去繼續營運。除非有幸得到政府或相關的部門體恤本團契的艱難及實際情況，希望不局限於只是承擔經濟上的賠償，而是以多元化及創新的思維模式去幫助及支持本團契繼續營運及提供服務，共同謀求對社會有需要人士最大的福祉。感謝垂注！ 此致 城市規劃委員會 基督教愛協團契有限公司 二零一九年四月二十五日 聯絡人：王錦洪先生 或 黎敬章先生 聯絡電話：[redacted]

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190426-191358-53156
提交限期 **Deadline for submission:**	26/04/2019
提交日期及時間 **Date and time of submission:**	26/04/2019 19:13:58
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就第二階段社會影響評估報告提出意見 Kai Tak Road / Sa Po Road : Making Comments on Stage 2 Social Impact Assessment Report
「提意見人」姓名/名稱 **Name of person making this comment:**	吳寶強

意見詳情
Details of the Comment :

檔號: 491048 致: 城規會 要求加快九龍城重建、擴大重建範圍並在重建設計加入停車場、社區會堂及托兒服務設施 市建局宣佈九龍城沙浦道及啟德道重建，乃回應市民多年爭取的訴求，改善居民居住環境。 現繼續反映市民意見，要求: 1) 擴大重建規模由於其他街道，如石鼓壟道、啟德道單號、城南道、打鼓嶺道、龍崗道、南角道至衙前塱道、獅子石道、福佬村道都是矮層舊樓林立，極具重建潛力。而私人發展商已積極收購，但牙簽樓缺乏加入社區配套元素，無整體社區規劃概念。希望市建局能盡快及繼續物色上述地盤，加快重建，除能即時解決舊樓居民居住環境惡劣，經常修修補補，負擔巨大維修開支問題; 亦能加入社區需要配套，完善社區規劃。 2) 在重建設計上，因本區受交通擠塞之苦，亦是著名的美食街區，每天均有不少人流入區內用膳消費，要求設置更具規模的地下或多層停車場，解決交通擠塞問題; 3) 另外，本區亦沒有社區會堂，市民缺乏參與社區活動的場所; 而區內多舊廈，經常要召開大廈會議。本區亦缺乏活動室供班組活動及大廈開會之用，要求在重建項目上，加入社區會堂及多用途活動室之設計，讓居民能更多機會參與社區文娛活動;居民亦希望加入能加入托兒服務及設施，讓有小朋友的家庭能減輕壓力，及令有需要的主婦有外出工作的機會。 祈 貴會關注，加快重建，擴大範圍，令更多居民受惠。謝謝 吳寶強 九龍城區議員 2019年4月26日

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190426-194818-46892
提交限期 **Deadline for submission:**	26/04/2019
提交日期及時間 **Date and time of submission:**	26/04/2019 19:48:18
發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就第二階段社會影響評估報告提出意見 Kai Tak Road / Sa Po Road : Making Comments on Stage 2 Social Impact Assessment Report
「提意見人」姓名/名稱 **Name of person making this comment:**	基督教愛協團契有限公司

意見詳情
Details of the Comment :

城市規劃委員會香港北角渣華道333號北角政府合署15樓 敬啟者： 市區重建局KC-015啟德道/沙浦道發展計劃項目 <意見申述> *** 修訂後的最新版本 *** 本機構全名為「基督教愛協團契有限公司」，是九龍城沙浦道31-35號錦輝商業大廈[redacted]業權擁有者。2019年2月下旬接到市區重建局通知，將會計劃對錦輝商業大廈進行拆卸重建，本機構對於市區重建局啟德道/沙浦道發展計劃項目(KC-015)及其第二階段社會影響評估文件有以下相關意見： *機構歷史* 基督教愛協團契為一非牟利慈善服務機構，董事會及顧問團隊成員包括有愛協團契組員、牧師、大學教授、精神科醫生、精神科護士、資深社會工作者及律師。最初由租借院牧事工聯會一張寫字枱進行事工，發展至現時可以擁有一個自置的單位，當中是無數有心人士的心血和對精神病康復者及家屬無私的付出，才能達成！ 於一九八九年初，一位曾患精神病的基督徒康復人士，深感康復後要面對多方的衝激，實需加倍倚靠神及其他肢體的支持。他與院牧商討後，便開始聯絡有同一背景的弟兄；另一方面院牧亦接觸一些精神科基督徒醫療人員，與他們分享異象，他們也深覺有此需要，便一同建立這個以神的愛為基礎的團契，開始每月一次聚會，一九九零年增加為每月兩次，於同年六月二十日，正式定名為「愛協團契」。 於一九九一年十月，愛協團契正式註冊為非牟利有限公司；一九九三年被公益金接納為會員，支持團契部份經費，而團契經濟主要來源是依賴教會信徒、機構及熱心人士的奉獻和支持。一九九四年開始與神學院合辦有關心理健康課程，幫助社會人士認識精神病及其處理方法，至二零零七年則由本團契獨力開辦此課程。一九九六年成立「愛協資源中心」，為組員及社會人士提供有關精神健康的資料、書刊及影音借閱服務。同年八月增設靈牧組，關懷組員在靈性生活上之培育。 於一九九七年愛協團契成為香港社會服務聯會會員，一九九八年成為香港基督教機構協會會員機構，同年五月得蒙世界傳道會／那打素基金慷慨撥款，讓團契能夠購置位於九龍青山道244號達明大廈[redacted]字樓為本團契會址。二零零一年一月成立青少年小組，專為思覺失調及情緒困擾的青少年康復者提供服務。二零零七年四月成立第一個日間家屬小組，協助家屬照顧精神病康復者。二零零八年六月成立名為

以利亞的情緒病小組，讓情緒病的康復者有效地處理其問題。二零零九年七月成立另一個晚間家屬小組，協助家屬照顧康復者。 於二零一七年十一月，全賴教會弟兄姊妹及熱心人士的慷慨奉獻和愛心支持，使團契能夠搬遷至九龍城沙浦道31-35號錦輝商業大廈[redacted]物業單位，作為本團契新的會址，讓團契有更大的空間和完善的設施去發展及提供服務給組員、家屬及有需要的人士；其中發展項目包括四大中心：資源中心、輔導中心、宣教中心和教育中心。 現時愛協團契共有五百多位組員，二十個互助小組，為復元人士及家屬提供服務及支援。各小組聚會內容包括有專題討論、戶外活動、信仰及生活分享等。此外，愛協團契每年亦會舉辦不同的活動，例如旅行、宿營、行山、讚美操、詩班、親恩頌暨生日會、新春團拜及各類興趣班等，讓組員可以跨組彼此認識，擴闊社交圈子，提升生活質素。除了上述小組工作及推廣身心健康的教育活動外，本團契會為一些組員提供家訪及個人輔導服務，另外，亦會為教會及社會人士提供有關精神健康的諮詢服務，定期應邀到各教會、學校及社團主持有關精神健康講座、短期培訓課程及分享見證等，並協助教會成立康復者或家屬之互助小組。 *機構宗旨及服務範圍* 愛協團契的宗旨是本著基督精神，提供精神病康復者「全人關顧」，為他們建立有效的支持系統，以減低其病發的機會；並協助康復者重投社會及教會生活；同時，亦協助教會牧養精神病康復者及對公眾人士推廣心理健康教育。服務範圍包括以下項目： 1. 個人照顧：注重組員個別需要，幫助其成長及改變，提供輔導及家訪。 2. 小組工作：著重彼此在信仰及生活上的支持，並鼓勵獨立、自助及互相支持。 3. 諮詢訓練：協助教會及社會人士關懷康復者，提供諮詢服務及推廣心理健康教育。 4. 群體活動：提供興趣班，戶外活動以促進組員之社交技巧及提高生活之素質。 5. 資源中心：推廣心理衛生及精神公眾健康教育，以及提供知識和資源，以協助康復者及社會人士解決個人問題。 6. 輔導中心：為教會弟兄姊妹和其他人士，提供專業的精神心理評估和輔導服務。為神學院及各大院校的同學提供實習的機會。 7. 宣教中心：與教會交流合作，協助教會成立康復者互助小組。為康復者舉辦福音性的活動和栽培訓練。 8. 輔助就業：為精神病康復者提供輔助就業訓練及支援，讓他們獲得所需的技能及支援服務，以便在共融的公開環境中工作。 *機構購址歷程* 隨著愛協團契事工日益發展，董事及同工意識到位於長沙灣一幢超過四十多年舊式商住樓宇大約865呎的會址，實在不勝負荷各類活動及同工工作的發展空間。此外，隨著部分組員年紀老齡化，他們對於應付步行三十多級的樓梯前往會址感到十分吃力及困難，這些情況都使到部份前來使用服務的康復者及家屬感到卻步。故此，我們期盼搬遷到較大的會址，以致能夠繼續提供更多及更好的輔導服務、心理健康教育、培訓工作、朋輩支援、建立網絡和各類型的小組活動，同時亦會擴充團契的資源中心，甚至進一步建立社會企業的業務，以達致能夠建立一個多元化及更趨完善協助精神病康復者的事工。 為著堅守服侍精神病康復者的異象和使命，我們同心決定向前邁進，而本團契董事會於二零一五年四月確定了購置新會址的計劃。經過一年多的禱告和到處尋覓新會址，於二零一六年四月中，我們很不容易終於覓得一個十分合適的地方作為團契新會址，地點位於九龍城沙埔道錦輝商業大廈10樓一個大約2100呎價值1280萬的全層罕有「打通」單位(即是現今的會址)，並且於同年六月，我們與賣家達成了買賣協議，並需要我們按照以下三個階段付款來完成這個樓宇買賣交易，當中經歷極大困難；首先，我們須要一筆過繳付128萬首期，後來，突然發覺須要額外支付96萬的印花稅，並必須在一個月內繳交；當我們感到徬徨失去預算之際，上帝感動一位教會肢體的心，願意為我們免息貸款100萬，讓我們可以渡過第一個難關。 接著，我們為著要支付1,152萬剩餘的樓價，急須賣出長沙灣舊的會址，經歷放盤長達一年多的時間，都只是有人問津，但是無人購買，直至二零一七年一月初，我們仍然未能放售舊會址的單位，這是另一個使我們感到擔憂的問題，再加上同年8至10月期間，我們的經常費遇到不敷的情況，同工薪酬和機構運作的支出都遇到很大的挑戰和壓力，而1280萬的樓價，對於我們小型的機構來說是一個天文數字！ 我們實在感到擔心和憂慮；心情雖然有些沉重，但董事及同工們都一同懷著服侍精神病康復者使命的心，共同策劃籌款事工，向愛協組員、教會、機構及關心愛協事工的支持者，傳達我們購址事工的異象和需要，呼籲眾肢體以禱告、奉獻和免

息貸款作回應支持。 直至二零一七年二月，一位與愛協並不相熟的地產代理，主動與我們接觸，以及快速地安排了客人來視察我們舊會址的單位，意想不到的，客人很快提出購買單位的意向，我們亦很快順利地便達成買賣的協議，而且買家也願意於3月尾前付清樓價所有的費用。但售出了舊會址的單位，只能套現480萬去支付新會址單位大約四成須支付的金額，我們還須支付五百多萬元的樓價費用，我們急需要借貸和籌募。我們嘗試以愛協團契名義向銀行貸款，但以愛協的條件銀行根本不會考慮，面對這個難關，神感動了一些肢體以免息貸款的方式給我們大額的借貸。於二零一七年四月，最終我們於驚濤駭浪中及時地支付了其餘樓價需支付的所有費用，但亦須要於六年內還清現時累積大約570萬元的欠款！ *重建發展計劃對機構的影響* 根據研究顯示推算：每五個人就有一個患有不同程度精神疾患，約有三十多萬重性精神病。預計思覺失調每年約有1,300個新個案。世界衛生組織預測抑鬱症於2020年排行第二（僅次於心臟病），2030年更成為第一號殺手！ 為配合發展事工及回應未來香港社區對精神健康的需要，我們於二零一七年十一月遷入新會址前，共用了大約一百一十萬元裝修及購買相關的設備裝置，而這筆費用是由本團契支付承擔。本團契全體成員皆抱極高期望，眾志成城齊心繼續為香港精神病康復者提供更多元化及更優質的服務，並對公眾人士進行更寬更深地推廣精神健康教育！ 雖然只是遷入一年多，本團契已於九龍城區建立了多個教會的聯繫及關顧精神健康的網絡，計劃以九龍城這優質及具備多重優勢的中心市區位置，作為愛協的基地，因為本團契會址正置於多個人口密集的屋苑附近，另外亦鄰近不同的學校、教會、少數族裔社群組織、醫院(包括新啟用的兒童醫院)及提供不同服務的社會服務機構或社團等，非常有利我們未來為這區不同年齡層和不同類別的人士去提供服務。 再加上本團契會址正正位於啟德新發展區的對面，而啟德新發展區的住宅屋苑、政府、機構、商廈、商舖及社區用地不同的設施很快便會相繼落成，到時必定成為一個具規模及規劃的優質偌大綜合社區網絡，無疑對我們團契發展提供很廣很深的空間及前景。而這個優質而偌大的綜合社區網絡也必定帶來附近物業極好的升值潛力及回報，從而能夠提升本團契經濟上資本的實力，讓本團契能減少因經濟上的困難而阻礙發展精神健康的事工。 此外，本團契選址於九龍城，根據原本計劃，我們不單只會為此區及週邊的群體提供服務，同時亦期望藉此能夠更有效地聯結不同地區的教會、機構及學校等。因為不久將來，會址附近便有港鐵開通，由會址步行至港鐵站(位於南角道)，只需大約5-7分鐘，十分有利本團契同工及組員向外發展精神健康的網絡，同時，對於從各方前來尋求本團契服務的有需要人士也十分方便。 倘若該發展重建計劃項目獲得行政長官會同行政會議核准進行，除了令到九龍城區居民失去使用本團契服務的便利外，重建計劃項目及消息亦會影響本團契未來幾年的籌款額及營運開支，包括員工薪酬開支及還款計劃等。而更重要的影響是，本團契之前部署關於未來發展的一連串計劃無疑地會被打斷，並對本團契帶來重大而深遠的影響，例如本團契的組員、家屬及其他相關的人士需要重新適應團契因發展重建計劃搬遷後新的地點和會址，包括由各地點到新會址及由新會址到各地點。 除上述影響外，本團契甚至有可能因為搬遷面對財政上困難及各種不穩定因素而導致終止服務或倒閉，因為根據現時市區重建局訂定的賠償計算方法，實不足以支持本團契於相同地區購買面積相若的單位、重新裝修及購置相關設備去繼續營運。除非有幸得到政府或相關的部門體恤本團契的艱難及實際情況，希望市區重建局可以作最基本賠償及支援給本團契如下列項目： 1）兩年後估計同區市值，應該有升值 2）搬遷費 3）重新裝修費 4）一些因搬遷而必需的添置費 5) 其他相關的費用(例如行政、人手費用和其他雜項費用等‥) 本團契稍後將會於董事會及同工會後，後補呈上相關的補充文件給市區重建局/城規會/相關處理此發展重建項目的部門。期盼市區重建局不局限於只是承擔經濟上的賠償，而是以多元化及創新的思維模式去幫助及支持本團契繼續營運及提供服務，共同謀求對社會有需要人士最大的福祉。感謝垂注！ 此致 城市規劃委員會 基督教愛協團契有限公司 二零一九年四月二十六日 聯絡人：王錦洪先生或黎敬章先生 聯絡電話：[redacted]

就市區重建局發展計劃草圖提出意見
Making Comment on Draft Urban Renewal Authority Development Scheme Plan

參考編號 **Reference Number:**	190426-202628-09883
提交限期 **Deadline for submission:**	26/04/2019
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發展計劃草圖名稱 **Name of Draft Development Scheme Plan:**	啟德道／沙浦道: 就第二階段社會影響評估報告提出意見 Kai Tak Road / Sa Po Road : Making Comments on Stage 2 Social Impact Assessment Report
「提意見人」姓名/名稱 **Name of person making this comment:**	基督教愛協團契有限公司

意見詳情
Details of the Comment :

城市規劃委員會香港北角渣華道333號北角政府合署15樓 敬啟者： 市區重建局KC-015啟德道/沙浦道發展計劃項目 <意見申述> *** 修訂後的最新版本(更新於2019年4月26日8:20 pm) *** 本機構全名為「基督教愛協團契有限公司」，是九龍城沙浦道31-35號錦輝商業大廈[redacted]業權擁有者。2019年2月下旬接到市區重建局通知，將會計劃對錦輝商業大廈進行拆卸重建，本機構對於市區重建局啟德道/沙浦道發展計劃項目(KC-015)及其第二階段社會影響評估文件有以下相關意見： *機構歷史* 基督教愛協團契為一非牟利慈善服務機構，董事會及顧問團隊成員包括有愛協團契組員、牧師、大學教授、精神科醫生、精神科護士、資深社會工作者及律師。最初由租借院牧事工聯會一張寫字枱進行事工，發展至現時可以擁有一個自置的單位，當中是無數有心人士的心血和對精神病康復者及家屬無私的付出，才能達成！ 於一九八九年初，一位曾患精神病的基督徒康復人士，深感康復後要面對多方的衝激，實需加倍倚靠神及其他肢體的支持。他與院牧商討後，便開始聯絡有同一背景的弟兄；另一方面院牧亦接觸一些精神科基督徒醫療人員，與他們分享異象，他們也深覺有此需要，便一同建立這個以神的愛為基礎的團契，開始每月一次聚會，一九九零年增加為每月兩次，於同年六月二十日，正式定名為「愛協團契」。 於一九九一年十月，愛協團契正式註冊為非牟利有限公司；一九九三年被公益金接納為會員，支持團契部份經費，而團契經濟主要來源是依賴教會信徒、機構及熱心人士的奉獻和支持。一九九四年開始與神學院合辦有關心理健康課程，幫助社會人士認識精神病及其處理方法，至二零零七年則由本團契獨力開辦此課程。一九九六年成立「愛協資源中心」，為組員及社會人士提供有關精神健康的資料、書刊及影音借閱服務。同年八月增設靈牧組，關懷組員在靈性生活上之培育。 於一九九七年愛協團契成為香港社會服務聯會會員，一九九八年成為香港基督教機構協會會員機構，同年五月得蒙世界傳道會／那打素基金慷慨撥款，讓團契能夠購置位於九龍青山道244號達明大廈[redacted]字樓為本團契會址。二零零一年一月成立青少年小組，專為思覺失調及情緒困擾的青少年康復者提供服務。二零零七年四月成立第一個日間家屬小組，協助家屬照顧精神病康

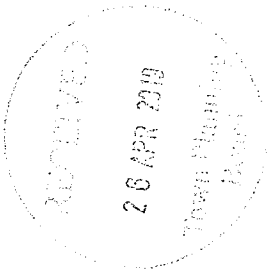
復者。二零零八年六月成立名為以利亞的情緒病小組，讓情緒病的康復者有效地處理其問題。二零零九年七月成立另一個晚間家屬小組，協助家屬照顧康復者。 於二零一七年十一月，全賴教會弟兄姊妹及熱心人士的慷慨奉獻和愛心支持，使團契能夠搬遷至九龍城沙浦道31-35號錦輝商業大廈[redacted]物業單位，作為本團契新的會址，讓團契有更大的空間和完善的設施去發展及提供服務給組員、家屬及有需要的人士；其中發展項目包括四大中心：資源中心、輔導中心、宣教中心和教育中心。 現時愛協團契共有五百多位組員，二十個互助小組，為復元人士及家屬提供服務及支援。各小組聚會內容包括有專題討論、戶外活動、信仰及生活分享等。此外，愛協團契每年亦會舉辦不同的活動，例如旅行、宿營、行山、讚美操、詩班、親恩頌暨生日會、新春團拜及各類興趣班等，讓組員可以跨組彼此認識，擴闊社交圈子，提升生活質素。除了上述小組工作及推廣身心健康的教育活動外，本團契會為一些組員提供家訪及個人輔導服務，另外，亦會為教會及社會人士提供有關精神健康的諮詢服務，定期應邀到各教會、學校及社團主持有關精神健康講座、短期培訓課程及分享見證等，並協助教會成立康復者或家屬之互助小組。 *機構宗旨及服務範圍* 愛協團契的宗旨是本著基督精神，提供精神病康復者「全人關顧」，為他們建立有效的支持系統，以減低其病發的機會；並協助康復者重投社會及教會生活；同時，亦協助教會牧養精神病康復者及對公眾人士推廣心理健康教育。服務範圍包括以下項目： 1. 個人照顧：注重組員個別需要，幫助其成長及改變，提供輔導及家訪。 2. 小組工作：著重彼此在信仰及生活上的支持，並鼓勵獨立、自助及互相支持。 3. 諮詢訓練：協助教會及社會人士關懷康復者，提供諮詢服務及推廣心理健康教育。 4. 群體活動：提供興趣班，戶外活動以促進組員之社交技巧及提高生活之素質。 5. 資源中心：推廣心理衛生及精神公眾健康教育，以及提供知識和資源，以協助康復者及社會人士解決個人問題。 6. 輔導中心：為教會弟兄姊妹和其他人士，提供專業的精神心理評估和輔導服務。為神學院及各大院校的同學提供實習的機會。 7. 宣教中心：與教會交流合作，協助教會成立康復者互助小組。為康復者舉辦福音性的活動和栽培訓練。 8. 輔助就業：為精神病康復者提供輔助就業訓練及支援，讓他們獲得所需的技能及支援服務，以便在共融的公開環境中工作。 *機構購址歷程* 隨著愛協團契事工日益發展，董事及同工意識到位於長沙灣一幢超過四十多年舊式商住樓宇大約865呎的會址，實在不勝負荷各類活動及同工工作的發展空間。此外，隨著部分組員年紀老齡化，他們對於應付步行三十多級的樓梯前往會址感到十分吃力及困難，這些情況都使到部份前來使用服務的康復者及家屬感到卻步。故此，我們期盼搬遷到較大的會址，以致能夠繼續提供更多及更好的輔導服務、心理健康教育、培訓工作、朋輩支援、建立網絡和各類型的小組活動，同時亦會擴充團契的資源中心，甚至進一步建立社會企業的業務，以達致能夠建立一個多元化及更趨完善協助精神病康復者的事工。 為著堅守服侍精神病康復者的異象和使命，我們同心決定向前邁進，而本團契董事會於二零一五年四月確定了購置新會址的計劃。經過一年多的禱告和到處尋覓新會址，於二零一六年四月中，我們很不容易終於覓得一個十分合適的地方作為團契新會址，地點位於九龍城沙埔道錦輝商業大廈10樓一個大約2100呎價值1280萬的全層罕有「打通」單位(即是現今的會址)，並且於同年六月，我們與賣家達成了買賣協議，並需要我們按照以下三個階段付款來完成這個樓宇買賣交易，當中經歷極大困難；首先，我們須要一筆過繳付128萬首期，後來，突然發覺須要額外支付96萬的印花稅，並必須在一個月內繳交；當我們感到徬徨失去預算之際，上帝感動一位教會肢體的心，願意為我們免息貸款100萬，讓我們可以渡過第一個難關。 接著，我們為著要支付1,152萬剩餘的樓價，急須賣出長沙灣舊的會址，經歷放盤長達一年多的時間，都只是有人問津，但是無人購買，直至二零一七年一月初，我們仍然未能放售舊會址的單位，這是另一個使我們感到擔憂的問題，再加上同年8至10月期間，我們的經常費遇到不敷的情況，同工薪酬和機構運作的支出都遇到很大的挑戰和壓力，而1280萬的樓價，對於我們小型的機構來說是一個天文數字！ 我們實在感到擔心和憂慮；心情雖然有些沉重，但董事及同工們都一同懷著服侍精神病康復者使命的心，共同策劃籌款事工，向愛協組員、教會、機構及關心愛協事工的支持者，傳達我們購址事工的異象和需要，呼籲

眾肢體以禱告、奉獻和免息貸款作回應支持。 直至二零一七年二月，一位與愛協並不相熟的地產代理，主動與我們接觸，以及快速地安排了客人來視察我們舊會址的單位，意想不到的，客人很快提出購買單位的意向，我們亦很快順利地便達成買賣的協議，而且買家也願意於3月尾前付清樓價所有的費用。但售出了舊會址的單位，只能套現480萬去支付新會址單位大約四成須支付的金額，我們還須支付五百多萬元的樓價費用，我們急需要借貸和籌募。我們嘗試以愛協團契名義向銀行貸款，但以愛協的條件銀行根本不會考慮，面對這個難關，神感動了一些肢體以免息貸款的方式給我們大額的借貸。於二零一七年四月，最終我們於驚濤駭浪中及時地支付了其餘樓價需支付的所有費用，但亦須要於六年內還清現時累積大約570萬元的欠款！ *重建發展計劃對機構的影響* 根據研究顯示推算：每五個人就有一個患有不同程度精神疾患，約有三十多萬重性精神病。預計思覺失調每年約有1,300個新個案。世界衛生組織預測抑鬱症於2020年排行第二（僅次於心臟病），2030年更成為第一號殺手！ 為配合發展事工及回應未來香港社區對精神健康的需要，我們於二零一七年十一月遷入新會址前，共用了大約一百一十萬元裝修及購買相關的設備裝置，而這筆費用是由本團契支付承擔。本團契全體成員皆抱極高期望，眾志成城齊心繼續為香港精神病康復者提供更多元化及更優質的服務，並對公眾人士進行更寬更深地推廣精神健康教育！ 雖然只是遷入一年多，本團契已於九龍城區建立了多個教會的聯繫及關顧精神健康的網絡，計劃以九龍城這優質及具備多重優勢的中心市區位置，作為愛協的基地，因為本團契會址正置於多個人口密集的屋苑附近，另外亦鄰近不同的學校、教會、少數族裔社群組織、醫院(包括新啟用的兒童醫院)及提供不同服務的社會服務機構或社團等，非常有利我們未來為這區不同年齡層和不同類別的人士去提供服務。 再加上本團契會址正正位於啟德新發展區的對面，而啟德新發展區的住宅屋苑、政府、機構、商廈、商舖及社區用地不同的設施很快便會相繼落成，到時必定成為一個具規模及規劃的優質偌大綜合社區網絡，無疑對我們團契發展提供很廣很深的空間及前景。而這個優質而偌大的綜合社區網絡也必定帶來附近物業極好的升值潛力及回報，從而能夠提升本團契經濟上資本的實力，讓本團契能減少因經濟上的困難而阻礙發展精神健康的事工。 此外，本團契選址於九龍城，根據原本計劃，我們不單只會為此區及週邊的群體提供服務，同時亦期望藉此能夠更有效地聯結不同地區的教會、機構及學校等。因為不久將來，會址附近便有港鐵開通，由會址步行至港鐵站(位於南角道)，只需大約5-7分鐘，十分有利本團契同工及組員向外發展精神健康的網絡，同時，對於從各方前來尋求本團契服務的有需要人士也十分方便。 倘若該發展重建計劃項目獲得行政長官會同行政會議核准進行，除了令到九龍城區居民失去使用本團契服務的便利外，重建計劃項目及消息亦會影響本團契未來幾年的籌款額及營運開支，包括員工薪酬開支及還款計劃等。而更重要的影響是，本團契之前部署關於未來發展的一連串計劃無疑地會被打斷，並對本團契帶來重大而深遠的影響，例如本團契的組員、家屬及其他相關的人士需要重新適應團契因發展重建計劃搬遷後新的地點和會址，包括由各地點到新會址及由新會址到各地點。 除上述影響外，本團契甚至有可能因為搬遷面對財政上困難及各種不穩定因素而導致終止服務或倒閉，因為根據現時市區重建局訂定的賠償計算方法，實不足以支持本團契於相同地區購買面積相若的單位、重新裝修及購置相關設備去繼續營運。除非有幸得到政府或相關的部門體恤本團契的艱難及實際情況，希望市區重建局可以作最基本賠償及支援給本團契如下列項目： 1）兩年後估計同區市值，應該有升值 2）搬遷費 3）重新裝修費 4）一些因搬遷而必需的添置費 5) 其他相關的費用(例如行政、人手費用和其他雜項費用等‥) 本團契將會考慮聽取測量員的專業報告及召開董事會及同工會後，後補呈交相關的補充資料文件給市區重建局/城規會/相關處理此發展重建項目的部門。期盼市區重建局不局限於只是承擔經濟上的賠償，而是以多元化及創新的思維模式去幫助及支持本團契繼續營運及提供服務，共同謀求對社會有需要人士最大的福祉。感謝垂注！ 此致 城市規劃委員會 基督教愛協團契有限公司 二零一九年四月二十六日 聯絡人：王錦洪先生或黎敬章先生 聯絡電話：[redacted]

城市規劃委員會

香港北角渣華道 333 號

北角政府合署 15 樓



敬啟者：

市區重建局 KC-015 啟德道/沙浦道發展計劃項目

<意見申述>

本機構全名為「基督教愛協團契有限公司」，是九龍城沙浦道 31-35 號錦輝商業大廈 [redacted] 業權擁有者。2019 年 2 月下旬接到市區重建局通知，將會計劃對錦輝商業大廈進行拆卸重建，本機構對於市區重建局啟德道/沙浦道發展計劃項目(KC-015)及其第二階段社會影響評估文件有以下相關意見：

機構歷史

基督教愛協團契為一非牟利慈善服務機構，董事會及顧問團隊成員包括有愛協團契組員、牧師、大學教授、精神科醫生、精神科護士、資深社會工作者及律師。最初由租借院牧事工聯會一張寫字枱進行事工，發展至現時可以擁有一個自置的單位，當中是無數有心人士的心血和對精神病康復者及家屬無私的付出，才能達成！ 於一九八九年初，一位曾患精神病的基督徒康復人士，深感康復後要面對多方的衝激，實需加倍倚靠神及其他肢體的支持。他與院牧商討後，便開始聯絡有同一背景的弟兄；另一方面院牧亦接觸一些精神科基督徒醫療人員，與他們分享異象，他們也深覺有此需要，便一同建立這個以神的愛為基礎的團契，開始每月一次聚會，一九九零年增加為每月兩次，於同年六月二十日，正式定名為「愛協團契」。

讚美操、詩班、親恩頌暨生日會、新春團拜及各類興趣班等，讓組員可以跨組彼此認識，擴闊社交圈子，提升生活質素。除了上述小組工作及推廣身心健康的教育活動外，本團契會為一些組員提供家訪及個人輔導服務，另外，亦會為教會及社會人士提供有關精神健康的諮詢服務，定期應邀到各教會、學校及社團主持有關精神健康講座、短期培訓課程及分享見證等，並協助教會成立康復者或家屬之互助小組。

機構宗旨及服務範圍

愛協團契的宗旨是本著基督精神，提供精神病康復者「全人關顧」，為他們建立有效的支持系統，以減低其病發的機會；並協助康復者重投社會及教會生活；同時，亦協助教會牧養精神病康復者及對公眾人士推廣心理健康教育。服務範圍包括以下項目：

1. 個人照顧：注重組員個別需要，幫助其成長及改變，提供輔導及家訪。
2. 小組工作：著重彼此在信仰及生活上的支持，並鼓勵獨立、自助及互相支持。
3. 諮詢訓練：協助教會及社會人士關懷康復者，提供諮詢服務及推廣心理健康教育。
4. 群體活動：提供興趣班，戶外活動以促進組員之社交技巧及提高生活之素質。
5. 資源中心：推廣心理衛生及精神公眾健康教育，以及提供知識和資源，以協助康復者及社會人士解決個人問題。
6. 輔導中心：為教會弟兄姊妹和其他人士，提供專業的精神心理評估和輔導服務。為神學院及各大院校的同學提供實習的機會。
7. 宣教中心：與教會交流合作，協助教會成立康復者互助小組。為康復者舉辦福音性的活動和栽培訓練。

七年一月初，我們仍然未能放售舊會址的單位，這是另一個使我們感到擔憂的問題，再加上同年 8 至 10 月期間，我們的經常費遇到不敷的情況，同工薪酬和機構運作的支出都遇到很大的挑戰和壓力，而 1280 萬的樓價，對於我們小型的機構來說是一個天文數字！ 我們實在感到擔心和憂慮；心情雖然有些沉重，但董事及同工們都一同懷著服侍精神病康復者使命的心，共同策劃籌款事工，向愛協組員、教會、機構及關心愛協事工的支持者，傳達我們購址事工的異象和需要，呼籲眾肢體以禱告、奉獻和免息貸款作回應支持。

直至二零一七年二月，一位與愛協並不相熟的地產代理，主動與我們接觸，以及快速地安排了客人來視察我們舊會址的單位，意想不到的，客人很快提出購買單位的意向，我們亦很快順利地便達成買賣的協議，而且買家也願意於 3 月尾前付清樓價所有的費用。但售出了舊會址的單位，只能套現 480 萬去支付新會址單位大約四成須支付的金額，我們還須支付五百多萬元的樓價費用，我們急需要借貸和籌募。我們嘗試以愛協團契名義向銀行貸款，但以愛協的條件銀行根本不會考慮，面對這個難關，神感動了一些肢體以免息貸款的方式給我們大額的借貸。於二零一七年四月，最終我們於驚濤駭浪中及時地支付了其餘樓價需支付的所有費用，但亦須要於六年內還清現時累積大約 570 萬元的欠款！

重建發展計劃對機構的影響

根據研究顯示推算：每五個人就有一個患有不同程度精神疾患，約有三十多萬重性精神病。預計思覺失調每年約有 1,300 個新個案。世界衛生組織預測抑鬱症於 2020 年排行第二（僅次於心臟病），2030 年更成為第一號殺手！

為配合發展事工及回應未來香港社區對精神健康的需要，我們於二零一七年十一月遷入新會址前，共用了大約一百一十萬元裝修及購買相關的設備

響本團契未來幾年的籌款額及營運開支，包括員工薪酬開支及還款計劃等。而更重要的影響是，本團契之前部署關於未來發展的一連串計劃無疑地會被打斷，並對本團契帶來重大而深遠的影響，例如本團契的組員、家屬及其他相關的人士需要重新適應團契因發展重建計劃搬遷後新的地點和會址，包括由各地點到新會址及由新會址到各地點。

除上述影響外，本團契甚至有可能因為搬遷面對財政上困難及各種不穩定因素而導致終止服務或倒閉，因為根據現時市區重建局訂定的賠償計算方法，實不足以支持本團契於相同地區購買面積相若的單位、重新裝修及購置相關設備去繼續營運。除非有幸得到政府或相關的部門體恤本團契的艱難及實際情況，希望不局限於只是承擔經濟上的賠償，而是以多元化及創新的思維模式去幫助及支持本團契繼續營運及提供服務，共同謀求對社會有需要人士最大的福祉。感謝垂注!

此致

城市規劃委員會

CHRISTIAN OI HIP FELLOWSHIP
基督教
愛協團契
※

基督教愛協團契有限公司

二零一九年四月二十五日

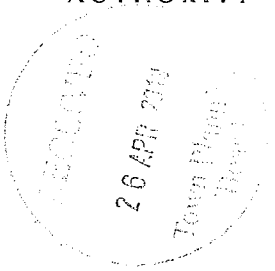
聯絡人：　王錦洪先生 或
黎敬章先生

聯絡電話：[redacted]

市區重建局
URBAN RENEWAL AUTHORITY

本函檔號：PDD/KC-015/19041877

九龍九龍城
沙浦道[redacted]
區陳慧秀 女士



區女士：

市區重建局啟德道／沙浦道發展計劃
(KC-015)

本局於 2019 年 4 月 17 日收到閣下於 2019 年 4 月 17 日的來信，內容是有關對啟德道／沙浦道發展計劃(KC-015) ("該計劃")的意見及要求。

由於該計劃是根據《市區重建局條例》第 25 條，以發展計劃形式進行，所以有關該計劃的意見及要求，均由城市規劃委員會（城規會）考慮。因此，本局現在以副本抄送形式，把整份意見書轉寄城規會跟進。在城規會根據《城市規劃條例》向行政長官會同行政會議呈交經考慮的草圖前，有關該計劃的意見，請直接聯絡城規會秘書處（地址: 香港北角渣華道 333 號北角政府合署 15 樓）。

市區重建局
規劃及設計總經理
關以輝

2019 年 4 月 25 日

附件
副本抄送：城市規劃委員會 (連附件)

9

5 years+ 同心展關懷
caringorganisation
Awarded by The Hong Kong Council of Social Service 香港社會服務聯會頒發

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致：市區重建局

17 APR 2019
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Acquisition & Clearance Div.

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SM(A&C)4	✓	
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M(A&C)13	✓	
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AM(A&C)7		
AM(A&C)11		
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AM(A&C)		

有關市建局收購九龍城沙浦道[redacted]之意見及要求

本人區陳慧秀對市建局收購上述物業一事有以下意見及要求：

(1) 第一、二階段社會影響評估

市建局刊憲公布建議重建項目之前和之後所進行的兩個社會影響評估並沒有包括或提及私人發展商在該項目涉及的部份地段進行了收購行動，並已獲得大多數業主同意出售單位，而部份業主和發展商已簽署法律文件及收取了出售單位之按金。

(見附件一：私人發展商的發展計劃書)

該計劃二零一八年中展開，當中涉及沙浦道七幢大廈，但因市建局刊憲公布重建，發展商引用合約條文通知業主擱置整個計劃，令業主蒙受損失。

本人認為，跟據《市區重建策略》第三十六段(i)與(j)，及第三十七段(m)與(n)，該兩份社會影響評估報告應提及市建局公布重建項目後，私人發展商發展計劃被迫擱置一事，並在報告內提出市建局建議給業主的補償方案及所需的紓緩措施。

(2) 市建局和私人發展商在市區重建當中的角色

《市區重建策略》及《市區重建局條例》沒明確訂明市建局與私人發展商之間在市區重建中擔當的角色和關係。事實上，以上策略及條例並沒有授權市建局在已有私人發展商進行了收購的地段

上再進行收購。在絕對不公平競爭的環境下擊退私人發展商奪取土地進行重建不可能是市建局的法定功能之一。(見《市區重建局條例》第五及六條)

此做法不單擾民，也對私人發展商不公，令業主及私人發展商蒙受重大損失。本人在此保留追究權利，不排除日後就此提出司法覆核或一般的法律索償。

(3) 市建局提出重建計劃對本人的實際影響

本人與發展商在二零一八年十二月二十八日簽署了物業臨時買賣合約及補充合約，同意出售本單位給發展商作重建用途，售價為六千六百八十萬元正，發展商繳附政府釐印費五百六十七萬八千元，成交日為二零一九年五月九日。

(見附件二：物業臨時買賣合約及補充合約)

二零一九年二月二十二日市建局刊憲公佈重建計劃，發展商透過其律師二零一九年三月九日通知本人擱置收購計劃。因此，本人失去了將獲得的全數成交金額作重新投資用途，因而失去了資金增值的機會。事實上，本人早前已計劃利用成交金額投資於一些合適的物業，現因市建局的介入被逼擱置這些計劃。

本人多年前購入本單位作投資，目的是用來觀望其日後增值及期待沙浦道成為九龍城最貴重物業街道之一，繼而收取可觀的租金收入；現因市建局的介入好夢成空。

(4) 本人的要求

本人要求市建局就本單位作出以下安排或補償：

一、在市建局正式出價收購本單位時以市值或私人發展商與本人早前定立的物業買賣價(即六千六百八十萬元，以較高者為準)作為收購本單位的基本市價；

二、因應本單位的特殊狀況，例如閣樓、平台、後園、位置、座向、樓齡等等，在以上提及的基本市價上作出適當調整，然後加上相應的補貼/特惠金/其他紓緩措施，繼而計算出最終收購價；

三、由二零一九年五月十日起至市建局成功收購本單位之成交日為止，支附以六千六百八十萬元為金額之銀行利息，息率由雙方協商釐定，若雙方沒法達成共識，將以法庭息率為準；及

四、其他有關的損失或補償(如有的話)。

盼市建局早日對以上作出實質的書面回覆。

區陳慧秀

區陳慧秀

[redacted]

日期：2019年4月17日

沙浦道[redacted]的情況　　補充意見

本人購買沙浦道的鋪位是看好它的地理環境，升值潛力，並不在乎各方收購其中[redacted]號因業權份數大可以有控制權，故以較高價購入，當時鄰近鋪位最貴也不超過六百萬，我則以六百餘萬買入，作為長線投資。將來遠景無限，我反對收購，不想再找其他我認為次要的鋪位買入，手續繁複來回費用也多，殊屬不智。

~~57號作短暫收租，必要時租約到期可收回自用亦無不可~~

去年夏天有發展商收購沙浦道37—49號七座樓宇，我堅持不賣，後來經紀多次懇求，說全部業主都簽了突出叫我做之好心幫忙，誰住了幾十年的業主改善環境，一年老可以有電梯代步，我不想從中作梗，當做之好事，便簽了出賣的文件，從此我急於找其他鋪位購買以免貨幣貶值，故忙着奔去，議價，終於找到心儀之鋪位，正在準備交訂金之際突然收到市建局提出收購的消息，令我整個計劃破壞了。當時我收了臨時訂金，四月收大訂，五月九日成交收尾數，同時我也準備在鄰近57號向租客商量讓出一些地方白天做物業買卖，如果收了大訂許多人都要找屋搬，故這行生意必定旺盛，同時又可兼做裝修及搬運，怎料市建局在這時發動收購，摧毀了我的計劃。

無論說什麼補償都是物質上的補償，但精神上的損失是很難計算的，這問題有關當局應該設身處地體驗一下。

市建局收購的規矩使人莫明其妙，要收購的物業是市民真金白銀買的，有的也許是用畢生的積蓄買入，市建局收購也得公平些，物業的情況有自用，出租和空置，應用市價向我們購買，原則上要交吉，那便應該用市價計算吹數付錢，市民自用是為賺錢，出租也是賺錢，空置便沒收入，出租的單位的業主可請市建局代為計算賠償給租客，物業被收購的業主多少都有損失，這就是增值止步，要找次級的物業購買費神，價錢也許升了，律師費，經紀費，釐印費都不少，除了炒家之外，很多人都想長期增值，不想樓宇被收購，況且那些凍結的手法令持有物業的業主精神緊張，雞飛狗走，惶之不可終日，那又何必呢？

我和一班曾被市建局收購或旁觀者都認為"三種收購的形式"是不合理的，自用多數是謀利，收租，以九龍城某些舖位的租金簡直是可恥，空置應該是最適合收購者，因為不用清理地方所謂"乾手淨腳"但卻沒有任何獎勵，遇租客剛退租未及取回自用，一聲凍結人口，真是哭也無用，你說這樣的方法硬性要市民出售心愛的物業，諸多限制是一個什麼世界？

私人發展商收購則不同，可議價，你情我願，是寫意的買賣，我想不通市建局為了什麼使業主們這樣不安？有朋友主即搶着說出一個「錢」字，他說不賠給出租業主的原因是：只賠給租客所要費用可省回一大筆錢。

最近風聞某大地產商收購了南角道2—20號，收購價是每間舖位值七千餘萬元，如果是真的，這已經可說是最近的市價了，當然物業有大細，市價當然有多少出入，這是公平的。

南角道一向被人視作聯繫啟德的道路，屋宇很少放售，如有都是天價，小投資者如我們真是沒有插手的能力，只有望汀興嘆，如今地下通道卻在沙浦道，大投資者也"跌眼鏡"真是世事難料！

市建局收購沙浦道我的舖位，使我大失所望，反之我卻羨慕啟德道單號碼的舖位，如今已升了一大截，甚至封盤不賣。

希望市建局的主事人主持公道，使被收購的業主不致損失太大就好了！

沙浦道[redacted]號租客將於本年七月初遷出，我認為到時令收回自用，而在貴局未決定收購與否之際，請將我此舖評為自用，因除此之外我覺得不能租或售。

區陳[illegible]

萬達置業有限公司
Dawn Tech Properties Limited
EAA Licence No. : C - 068516

附件一

九龍城
沙浦道37至49號

物業收購説明書

目錄

物業資料 P.2

物業位置圖 P.3

分區計劃大綱草圖 P.4

土地用途表 P.5 – P.8

發展時間表 P.9

重建投資分析 P.10

鄰近成交 P.11 – P.12

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
This particulars are for reference only. Interested parties should not rely on this particulars but must satisfy themselves by carrying out their own investigation as to all aspects including inspection or otherwise as to their accuracy. Should there be any conflict and/or inconsistency between the English and Chinese versions of the contents, information and/or Property particulars contained herein, the English version shall prevail.

萬達置業有限公司
Dawn Tech Properties Limited

EAA Licence No. : C - 068516

物業資料

物業地址：	九龍城沙浦道37至49號
物業特性：	物業現為 4幢 6層高屬於住宅契大廈，淨地盤面積為 6,520平方呎, 可以 7.5倍 加 1.5倍 地積比率重建成最高約 26層高住宅大廈，最高重建樓面面積共58,680平方尺
地段編號：	NKIL1160RP, NKIL1162RP, NKIL1159, NKIL498RP, NKIL498SDRP, NIL498SCRP, NKIL498SBRP
地契年期：	由1898年7月1日起至2047年6月30日
城市規劃：	按分區計劃大綱草圖編號 S/K10/23，該地段被劃分為住宅（甲類）2用途
地盤類別：	甲類
核准地積比率：	住用 - 7.5倍 或 住用與非住用 - 9倍
最高可重建面積：	約 58,680 平方呎
最高建築物高度：	主水平基準以上 100米（按分區計劃大綱草圖)
最大上蓋面積百份比：	33.33%

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物業位置圖



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分區計劃大綱草圖



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土地用途表

S/K10/23

住宅(甲類)

第一欄 經常准許的用途	第二欄 須先向城市規劃委員會申請，可能在有附帶條件或無附帶條件下獲准的用途
救護站	商營浴室／按摩院
分層住宅	食肆
政府用途(未另有列明者)	教育機構
屋宇	展覽或會議廳
圖書館	政府垃圾收集站
街市	醫院
康體文娛場所	酒店
政府診所	機構用途(未另有列明者)
公共車輛總站或車站(露天總站或車站除外)	香港鐵路通風塔及／或高出路面的其他構築物(入口除外)
公眾停車場(貨櫃車除外)(只限在指定為「住宅(甲類)3」的土地範圍內)	辦公室
住宿機構	加油站
學校(只限設於特別設計的獨立校舍)	娛樂場所
社會福利設施	私人會所
私人發展計劃的公用設施裝置	公廁設施
	公共車輛總站或車站(未另有列明者)
	公用事業設施裝置
	公眾停車場(貨櫃車除外)(未另有列明者)
	宗教機構
	學校(未另有列明者)
	商店及服務行業
	訓練中心

S/K10/23

住宅(甲類)(續)

除以上所列，在(a)建築物的最低三層，包括地庫；或(b)現有建築物特別設計的非住宅部分，而兩者均不包括全層或主要為停車位、上落客貨車位及／或機房的樓層，經常准許的用途亦包括：

食肆
教育機構
機構用途(未另有列明者)
場外投注站
辦公室
娛樂場所
私人會所
公廁設施
可循環再造物料回收中心
學校
商店及服務行業
訓練中心

規劃意向

此地帶的規劃意向，主要是作高密度住宅發展。在建築物的最低三層，或現有建築物特別設計的非住宅部分，商業用途屬經常准許的用途。

備註

(1) 在指定為「住宅(甲類)」、「住宅(甲類)2」及「住宅(甲類)3」的土地範圍內，任何新發展，或任何現有建築物的加建、改動及／或修改，或現有建築物的重建，不得引致建築物在發展及／或重建後的地積比率超過下列規定：整幅為住用建築物的為7.5倍，一幅建築物內住用與非住用各佔部分的為9.0倍，或現有建築物的地積比率，兩者中以數目較大者為準。除非根據本「備註」第(9)及／或(10)段獲准超過該地積比率，否則本段適用的任何建築物的住用部分的地積比率無論如何不得超過7.5倍。

(2) 建於該地盤的任何非住用建築物，其最高地積比率不得超過9.0倍，但根據下文第(9)及／或(10)段獲准超過此地積比率者除外。

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
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土地用途表

住宅(甲類)(續)

除以上所列，在(a)建築物的最低三層，包括地庫；或(b)現有建築物特別設計的非住宅部分，而兩者均不包括全層或主要為停車位、上落客貨車位及／或機房的樓層，經常准許的用途亦包括：

食肆
教育機構
機構用途(未另有列明者)
場外投注站
辦公室
娛樂場所
私人會所
公廁設施
可循環再造物料回收中心
學校
商店及服務行業
訓練中心

規劃意向

此地帶的規劃意向，主要是作高密度住宅發展。在建築物的最低三層，或現有建築物特別設計的非住宅部分，商業用途屬經常准許的用途。

備註

(1) 在指定為「住宅(甲類)」、「住宅(甲類)2」及「住宅(甲類)3」的土地範圍內，任何新發展，或任何現有建築物的加建、改動及／或修改，或現有建築物的重建，不得引致建築物在發展及／或重建後的地積比率超過下列規定：整幅為住用建築物的為7.5倍，一幅建築物內住用與非住用各佔部分的為9.0倍，或現有建築物的地積比率，兩者中以數目較大者為準。除非根據本「備註」第(9)及／或(10)段獲准超逾該地積比率，否則本段適用的任何建築物的住用部分的地積比率無論如何不得超過7.5倍。

(2) 建於該地盤的任何非住用建築物，其最高地積比率不得超過 9.0 倍，但根據下文第(9)及／或(10)段獲准超逾此地積比率者除外。

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
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土地用途表

住宅(甲類)(續)

備註(續)

(3) 為施行上文第(1)段，在指定為「住宅(甲類)」、「住宅(甲類)2」及「住宅(甲類)3」的土地範圍內，任何現有建築物的加建、改動及／或修改，或現有建築物的重建，不得引致整個發展及／或重建計劃超過有關最高住用及／或非住用地積比率，或超過現有建築物的住用及／或非住用地積比率，兩者中以數目較大者為準，但其適用範圍須受到下列限制：

(i) 只有在現有建築物加建、改動及／或修改，或重建為與現有建築物同類的建築物(即住用、非住用或住用與非住用各佔部分的建築物)時，現有建築物的地積比率方會適用；或

(ii) 在現有建築物加建、改動及／或修改，或重建為與現有建築物不同類的建築物(即住用、非住用或住用與非住用各佔部分的建築物)時，則上文第(1)段所述的最高住用及／或非住用地積比率適用。

(4) 在指定為「住宅(甲類)1」的土地範圍內，任何新發展，或任何現有建築物的加建、改動及／或修改，或現有建築物的重建，不得引致整個發展及／或重建計劃的最大住用總樓面面積超過 71 800 平方米，或最大非住用總樓面面積超過 7 870 平方米。在最大非住用總樓面面積內，不少於 770 平方米撥政府、機構或社區設施之用。另外，在地面範圍應該設有一不少於 1 800 平方米的公眾休憩用地。

(5) 任何新發展，或任何現有建築物的加建、改動及／或修改，或現有建築物的重建，不得引致整個發展及／或重建計劃的最高建築物高度(以米為單位從主水平基準起計算)超過圖則訂明的限制，或超過現有建築物的高度，兩者中以數目較大者為準。

(6) 在指定為「住宅(甲類)2」的土地範圍內，面積為 400 平方米或以上的用地，容許的最高建築物高度為主水平基準以上 100 米。

(7) 為施行上文第(1)及(2)段而計算有關最高地積比率時，建於或預算建於該地盤的任何部分(不論是地面或平台)，並且因應政府需要而純粹用於提供政府、機構或社區設施(包括學校)的特別設計的獨立建築物，其所佔面積會從有關地盤的面積中扣除。

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
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土地用途表

S/K10/23

住宅(甲類)(續)

備註(續)

(8) 為施行上文第(1)、(2)及(4)段而計算有關最高地積比率或最大總樓面面積時，任何樓面空間如純粹建造為或擬用作停車位、上落客貨車位、機房和管理員辦事處，或管理員宿舍和康樂設施，而兩者都是供住用建築物或建築物的住用部分的全部擁有人或佔用人使用及使其受益，只要這些用途和設施是附屬於發展或重建計劃及與其直接有關，則可免計算在內。

(9) 遇有《建築物(規劃)規例》第22(1)或(2)條所列的情況而獲准超逾該規例界定的准許地積比率時，在上文第(1)、(2)或(4)段適用的土地範圍內的建築物的地積比率／總樓面面積可提高；提高的幅度為按照上述規例第22(1)或(2)條規定獲准超逾准許地積比率的幅度，縱使提高後地積比率或總樓面面積因而超逾上文第(1)、(2)及(4)段所規定的有關最高地積比率或最大總樓面面積亦可。

(10) 城市規劃委員會如接獲根據《城市規劃條例》第16條提出的申請，可按個別發展或重建計劃的情況，考慮略為放寬上文第(1)、(2)及(4)至(6)段所述的地積比率／總樓面面積／建築物高度限制。

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
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發展時間表

年份	2018	2019				2020				2021				2022				2023			
收購時限	3個月																				
完成交易	4 - 6 個月									發展期預計5年或以上											
土地審裁處		9個月																			
聆訊					3個月																
物業拍賣						3個月															
完成收樓程序							6個月														
拆樓									6個月												
建築期										33 個月											

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重建投資分析

A 項 - 預計重建後價值2

住宅 (連會所)	建築面積	58,680	平方呎					
	75% 銷售面積	44,010	平方呎	X	HK$	27,000	(平均呎價)	
							即共	HK$ 1,188,270,000

B 項 - 5年投資回報率

C 項 / E 項		14.94%
14.94% / 5	每年回報率	2.99%

C 項 - 發展利潤

A 項 - E 項	HK$	154,453,807

D 項 - 發展成本

D1. 建築費	建築面積 58,680	平方呎	X	HK$ 5,500		HK$	322,740,000
D2. 專業顧問費	則師、工程管理、測量	D1 項	X	7.00%		HK$	22,591,800
D3. 雜費支出	銷售佣金 (4%) + 律師費 (0.2%) + 行政及宣傳費 (3%)	A 項	X	7.20%		HK$	85,555,440
D4. 利息支出	D1 + D2 相關費用 (1.75年，年息2.5%)					HK$	15,108,266
D5. 投資風險	D1 + D2 + D3		X	5.00%		HK$	21,544,362
					即共	HK$	467,539,868

E 項 - 投資總成本

D 項 + F 項	HK$	1,033,816,193

F 項 - 預計總地價成本

F1. 物業購入價值 (地價)					HK$	486,139,300
F2. 雜費支出	佣金 (1%) + 律師費 (1.25%) + 醫印費 (4.25%)	F1	X	6.50%	HK$	31,599,055
F3. 利息支出	F1 + F2 相關費用 (3.75年，年息2.5%)				HK$	48,537,971
					即共 HK$	566,276,325

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鄰近成交

EPRC

成交資料 (物業用途: 住宅　地區: 九龍城　簽約日期: 17/01/2018 - 17/07/2018)

註冊編號 大廈名稱 街道 資料 資字 單位備註 成交備註	物業用途	地區 簽約日期 登錄日期	入伙期 層數 性質	單位	面積(G) 呎價(G)	面積(N) 呎價(N)	售價(M)
18071300500021 [redacted] 李凱敏 王敏霞 INCL U PTM16;STUDIO; EXCL BW11	RES 4年	KL-KC 09/07/2018 13/07/2018	24/11/2014 (OP) [redacted] 買賣合約		*D2323778*	182 ft^2 $23626	$4.300
18071202290062 [redacted] 任若春 陳振洲, 鄧少娟 INCL U PTM16;STUDIO; EXCL BW16	RES 4年	KL-KC 29/06/2018 12/07/2018	24/11/2014 (OP) [redacted] 買賣合約		*D2323833*	202 ft^2 $27030	$5.460
18071301350061 [redacted] 王麗絲 鄧修權 INCL BAL22; U PTM16;EXCL BW14	RES 4年	KL-KC 27/06/2018 13/07/2018	24/11/2014 (OP) [redacted] 買賣合約		*D2323581*	280 ft^2 $20893	$5.850
18070501220119 [redacted] 任錦嫦 陳國生 INCL BAL22; U PTM16	RES 4年	KL-KC 19/06/2018 05/07/2018	30/01/2014 (OP) [redacted] 買賣合約		*D2364973*	305 ft^2 $19672	$6.000
18070301710052 [redacted] 譚結誠 高文娟 INCL BAL22; U PTM16;EXCL BW19	RES 6年	KL-KC 19/06/2018 03/07/2018	30/03/2012 (OP) [redacted] 買賣合約		*D2117845*	410 ft^2 $18659	$7.650

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鄰近成交

18071301930024 [redacted] CHEUNG CHING SUM 邵浩鈞, 李淑芬 INCL BAL25; U PTM16;EXCL BW43	RES	KL-KC	06/01/2010 (OP)	*D1758655*			
	12年	18/06/2018 13/07/2018	[redacted] 臨時買賣合約		1014 ft^2 $16963	$17.200
18070501180014 [redacted] 謝凱儀 1/2, 許宇恒 1/2 蕭鄭綺華 INCL BAL22;EXCL BW13	RES	KL-KC	24/11/2014 (OP)	*D2323345*			
	4年	14/06/2018 05/07/2018	[redacted] 買賣合約		264 ft^2 $20379	$5.380
18062702240101 [redacted] 周銘泰 易秉曜 INCL BAL22;UPTM16;COMM AREA232;A/C PTM12	RES	KL-KC	05/2011	*D1817741*			
	7年	12/06/2018 27/06/2018	[redacted] 買賣合約		659 ft^2 $10926	413 ft^2 $17433	$7.200
18070902690225 [redacted] 熊焱 INCL BAL22; U PTM16;EXCL BW21	RES	KL-KC	14/10/2014 (OP)	*D2281793*			
	4年	11/06/2018 09/07/2018	[redacted] 買賣合約		465 ft^2 $16129	$7.500

上述有關該物業之一切資料均只供參考之用，恕不保證絕對無誤，買賣相方請自行研究和了解方可作根據。倘若此文件內的內容、資料及/或物業資料的英文與中文版本有任何抵觸，則以英文版本中之條文為準。
This particulars are for reference only. Interested parties should not rely on this particulars but must satisfy themselves by carrying out their own investigation as to all aspects including inspection or otherwise as to their accuracy. Should there be any conflict and/or inconsistency between the English and Chinese versions of the contents, information and/or Property particulars contained herein, the English version shall prevail.

附件2

稅務局
印花稅署
香港灣仔告士打道5號 稅務大樓3樓

電話號碼 Tel. No.: 2594 3202
傳真號碼 Fax No.: 2519 9025

INLAND REVENUE DEPARTMENT
STAMP OFFICE
3/F, Revenue Tower, 5 Gloucester Road,
Wan Chai, Hong Kong.
網址 Web site : www.ird.gov.hk
電郵 E-mail : taxsdo@ird.gov.hk

印花證明書 STAMP CERTIFICATE

此印花證明書是按《印花稅條例》發出，具有與傳統印花相等的法律地位
This stamp certificate is issued under the Stamp Duty Ordinance and has the same legal status as conventional stamp
(此證明書必須夾附於下列文書上，作為已加蓋印花的證明 • This certificate must be attached to the instrument shown below as evidence of stamping.)

HONG KONG 印花 $5678000 STAMP DUTY PAID 香港

文書編號 Instrument Ref. No.:	2-19-217724-0-0-9
文書性質 Nature of Instrument:	買賣協議 Agreement
文書簽立日期 Date of Instrument:	28/12/2018 (日 Day / 月 Month / 年 Year)
代價款額 Consideration:	$26,143,500.00
取得之權益 Interest acquired:	100.00%
物業地址 Property Address:	[redacted]

有關人士姓名及身份
Name and capacity of parties:

賣方 Vendor(s):
(1) AU CHAN WAI SAU
(2) AU WING HONG WINSTON

買方 Purchaser(s):
(1) GREAT POINT INTERNATIONAL LIMITED

茲證明上述文書已加蓋印花 / 簽註如下:
This is to certify that the above instrument is stamped / endorsed as below:

印花證明書編號 Stamp Certificate No.	: 19-2-0419535-9
加蓋印花日期 Date of Stamping	: 24/01/2019 (日Day/月Month/年Year)
已付印花稅 Stamp Duty Paid	: $5,678,000.00
已付額外印花稅 Special Stamp Duty Paid	:不須徵付 / Not chargeable
已付買家印花稅 Buyer's Stamp Duty Paid	:不須徵付 / Not chargeable
付款方式 Payment Method	:支票 Cheque

HONG KONG 印花 SPECIAL STAMP DUTY NOT CHARGEABLE 香港

HONG KONG 印花 BUYER'S STAMP DUTY NOT CHARGEABLE 香港

印花稅署署長 黃權輝
WONG Kuen-fai
Collector of Stamp Revenue

I.R.C.表格第 3511 號
I.R.C. 3511

你可於 www.gov.hk/estamping 核對此證明書的真確性
You may check the authenticity of this certificate at www.gov.hk/estamping

補 充 合 約

("本補充合約")

賣方 : 區陳慧秀 (AU CHAN WAI SAU) & 區永康 (AU WING HONG WINSTON)

買方 : 浩港國際有限公司 (GREAT POINT INTERNATIONAL LIMITED)

該物業 : [redacted]

基於買賣雙方簽訂有關該物業買賣的《物業臨時買賣合約》(編號：SPR-41-G&C&FR-TA) ("該合約")，買賣雙方現達成本補充合約 如下：-

1. 賣方於2018年 12 月 24 日簽署本補充合約。 買方必須於2018年12月28日或以前接受並簽署本補充合約並將本補充合約正本送回賣方或其代表律師，否則賣方已簽署之本補充合約邀約即被視為已撤銷/無效。

2. 買方於該物業交易完成時(即"該合約"的成交日期)支付港幣 肆仟零陸拾伍萬陸仟伍佰 元正 (HK$40,656,500.00)予賣方作為補償賣方因出售該物業而引致損失的裝修費用 ("裝修補償費用")。

3. 於該物業交易完成(即"該合約"的成交日期)當天，買方須將上述"裝修補償費用" 以銀行本票或律師樓支票 經由買方代表律師送達賣方代表律師樓支付予賣方。

4. 在任何時間內若有關該物業之臨時買賣合約 (編號：SPR-41-G&C&FR-TA) 及/或正式買賣合約被買賣雙方撤銷而終止該物業交易時，則本補充合約即自動宣告無效。 反之，若本補充合約被撤銷或被視為無效，該合約也即自動失效。

5. 基於賣方同意簽訂"該合約"，買方同意簽訂本補充合約。

6. 《合約(第三者權利)條例》(第623章) 的條文在本補充合約中豁除。

7. (a) 本補充合約之從價印花稅及買家印花稅均由買方繳付，而額外印花稅 (SPECIAL STAMP DUTY) (如有) 則由賣方繳付。

   (b) 買方承諾辦理並支付本補充合約所產生之從價印花稅。 買方並同意促使買方代表律師向賣方代表律師提供律師承諾(Solicitor's Personal Undertaking)，將支付本補充合約從價印花稅憑證(包括稅務局收據)，於物業交易完成時或之前提供予賣方代表律師。

日期： 2018 年 12 月 28 日

賣方簽署：
SIGNED by AU CHAN WAI SAU and as the Lawful Attorney of AU WING HONG WINSTON, the Vendor

區陳慧秀
區陳慧秀

賣方: 簽署
簽署人姓名 : 區陳慧秀
香港身份證號碼：[redacted]

買方簽署：
For and on behalf of
Great Point International Limited

Authorized Signature(s)

買方: 蓋章簽署
簽署人姓名 :
公司註冊證號碼：2704828

(TA) (C) Master

Adjudication Fee Paid
印花稅 $ ≈ 050 港幣
Pending Adjudication

HONG KONG STAMP OFFICE 28 1 19

ADJUDICATED NOT CHARGEABLE WITH ANY DUTY
ASST. COLLECTOR

物業臨時買賣合約

(下稱"本合約") 合約編號：SPR-41-G&C&FR-TA

賣　　方　本合約第一方為 區陳慧秀 (AU CHAN WAI SAU) & 區永康 (AU WING HONG WINSTON) [redacted] (以下稱"賣方")

買　　方　本合約第二方為 浩港國際有限公司 (GREAT POINT INTERNATIONAL LIMITED) (公司註冊證號碼：2704828) 地址在 Unit 1102, 11/F., No.118 Connaught Road West, Sai Ying Pun, Hong Kong (以下稱"買方")

代　　理　本合約第三方為 萬達置業有限公司 (DAWN TECH PROPERTIES LIMITED) (持有商業登記證號碼：65136042 及持有地產代理牌照號碼：C-068516) 地址在 20/F., South China Building, Nos.1-3 Wyndham Street, Central, Hong Kong (以下稱"代理")

本合約三方茲同意買賣條件如下:-

買賣物業地址

1. 買賣雙方同意以下列條文出售及購入 [redacted] (以下稱"該物業")。

成交價及付款方式

2. 該物業之成交價為 港幣 貳仟陸佰壹拾肆萬叁仟伍佰 元正 (HK$26,143,500.00) ("成交價")。

買方按下列方式付款予賣方：

誠意金及第一次訂金

(a) 於買賣雙方簽署本合約之前，買方已付予賣方誠意金 港幣 叁拾萬 元正 (HK$300,000.00) ("誠意金")；當買賣雙方簽署本合約之同時，誠意金即成為本合約於該物業買賣之第一次訂金的部份；

(b) 賣方於2018年 12 月 24 日簽署本合約。 買方必須於2018年12月28日或以前接受並簽署本合約並將本合約正本連同下述第一次訂金餘額送回賣方或其代表律師，否則賣方已簽署之本合約邀約即被視為已撤銷/無效。

第一次訂金餘額

(c) 於買方簽署本合約之同時，買方加付訂金 港幣 柒拾萬 元正 (HK$700,000.00) ("第一次訂金餘額 ") 予賣方；

大訂及正式買賣合約日期

(d) 於2019 年 ~~1 月 31 日~~ 3月21日 或以前買方再付訂金 港幣 肆佰貳拾貳萬捌仟柒佰 元正 (HK$4,228,700.00) ("大訂") 予賣方；

(e) 買賣雙方於2019 年 ~~1 月 31 日~~ 3月21日 簽訂正式買賣合約 ("簽署正式買賣合約日期")；

成交日期

(f) 成交價餘款 於完成交易之時，即 2019 年 ~~3 月 14 日~~ 5月9日 或以前 ("成交日期") (但成交日期受制於下列第13條文) 買方將 港幣 貳仟零玖拾壹萬肆仟捌佰 元正 (HK$20,914,800.00) ("成交價餘款") 以律師樓支票或銀行本票交達賣方代表律師樓。

上述(d)項條文所列之大訂須由賣方代表律師以託管人身份託管，在賣方代表律師確保該成交價餘款足夠清還或有之按揭或債務並在買方依下列第12(A)項條文的通知，方可將大訂放行予 B

區 區 (TA)

賣方。買方因應上述(c)、(d)及(f)之各項付款方式均以送達賣方代表律師樓為準。上述(d)項條文及(e) 項條文所訂相關日期均受制於下列第13條文(如有發生)。 賣方須於買賣雙方簽署本合約後的 10 個工作天 (如有按揭者以14個工作天) 內經由賣方代表律師將其持有該物業之全部契據（包括但不限於單與該物業有關的業權文件）送到買方代表律師樓查閱。正式買賣合約由買方代表律師草擬並送至賣方代表律師樓核對。

交易形式

3. 買方同意連同該物業現有租約一起購入，賣方須於簽署正式買賣合約日期前之 7 個工作天內（即第2(d) 項條文或第13條文所指的日期），安排給予買方於該物業與租客核對現有租約。賣方聲明及確保該物業之全部只有下列現有租客，並無任何部份被任何人仕佔用或翻用。

租約及各租客資料：

- 簽署租約日期 2018 年4 月 3 日。租約年期至 2020 年 4 月30 日屆滿。(必需附租約副本)
- 租客姓名：MIRU LIMITED　　B.R. No:36948480-000-07-17-3 身份證號碼
- 每月租金：HK$ 32,200.00　　(包 / 不包* 管理費、差餉、地租)
- 租約按金：HK$ 96,600.00　　原租約有 /沒有* 續租權優先權。

上述租約按金須於成交當日全數(不可作出任何扣減)轉交買方並於成交價餘款內扣除。
賣方不得在現有租約作出任何更改或增加任何條文/或條件或租期。已付厘印費的現有租約正本及表格 CR109 (如適用的話)須於成交日前交予買方。
如租客在成交前將該物業交吉，則買賣雙方將該物業以交吉形式交易。

必買必賣

4. 本合約為必買必賣合約，買賣雙方必須在妥善業權及遵從本合約而完成該物業之買賣，若任何一方未能根據本合約有關條文及有關日期而完成該物業之交易，則守約方有權向違約方追究，倘賣方違約則買方可向法院申請 "強制執行" 以完成交易該物業。唯買方依下列第12(B)項條文而選擇放棄購入該物業除外。

授權書

5. 在買賣雙方簽署正式買賣合約日，賣方須簽署一份不可撤銷授權書 (由買方律師草擬，賣方律師查閱及批核)("該授權書") 授權予買方。當買方將該物業所有成交價餘款支付後，如賣方未能履行本合約相關條文及有關日期而完成出售該物業予買方的有關手續時，則買方可代表賣方簽署有關該物業所有交易契約，並按照本合約有關條文及有關日期完成該物業之交易，該授權書簽署後暫由賣方代表律師保管，在買方要求下，賣方代表律師必須於成交日期將該授權書交予買方代表律師。

代表律師及厘印費

6. (a) 賣方代表律師為 林錫光、陳啟鴻律師行
買方代表律師為 姚黎李律師行
買賣雙方之任何一方如有更換現聘用之代表律師時，必須於5個工作天前以書面通知另一方。 雙方各自負責其律師費，該物業交易所產生的一切從價印花稅及買家印花稅及註冊費均由買方繳付，而額外印花稅(SPECIAL STAMP DUTY) (如有) 則由賣方負責。

(b) 買方承諾辦理並支付本合約所產生之從價印花稅，買方同意促使買方代表律師向賣方代表律師提供律師承諾(Solicitor's Personal Undertaking)，將支付本合約從價印花稅憑證(包括稅務局收據)，於物業交易完成時或之前提供予賣方代表律師。

代理佣金

7. 基於代理在促成該物業買賣中所提供之服務，在該物業完成交易時買方須繳付 HK$261,435.00 予代理，及同時賣方須繳付 HK$0 予代理作為佣金，並於該物業完成交易時，賣方同意由賣方代表律師負責於成交價餘款中扣起佣金款額 HK$0; 並經賣方代表律師負責支付予代理，本條文並須納入正式買賣合約內。倘該物業買賣最終未能完成交易 (如因任何一方違約而引至除外)，即買賣雙方均無須向代理繳付任何佣金或費用。

賣方向買方保證

8. 賣方必須給予買方該物業妥善業權 (Good Title) 及免除一切關於該物業之產權負擔及債項，並以實益擁有人身份簽署該物業的轉讓契，將該物業以完整業權轉讓給買方。

(TA)

* 買方同意給予賣方 HK$500,000.00 作為約定補償。

\# 餘款 **HK$500,000.00**

以現狀出售

9. (a) 賣方並不保證該物業內無任何違例建築物。買方同意根據該物業之現狀買入及不會就該物業之結構狀況提出任何質詢或因此而拒絕完成交易。

(a) 於該物業成交日期之前如屋宇署及/或業主立案法團發出有關修葺大廈公共地方/設施及/或該物業之命令及/或通知 ("該等命令或通知")，需付該等命令或通知之相關費用均由買方負責 (但以買賣雙方完成交易該物業為準)。

住宅/非住宅*

10. 茲證明該物業根據印花稅條例(117章)第29A(1)條定義乃非住宅物業。

取代過往

11. 本合約取代雙方過往所有之口頭談判、聲稱、理解及協議。

特別條件

12. 賣方知悉及同意買賣雙方於簽署本合約之同時，買方亦與下列相關物業的所有業主進行洽

[redacted]

獨立地段及各幢全部業權均達至香港法例第 545 章 [土地(為重新發展而強制售賣)條例] (" 545 條例") 提出相關申請所需要合符法定要求比例的業權份數之妥善業權單位 ("相關物業") 作為發展重建用途，而該物業為相關物業之部份。賣方同意：於 2019 年 ~~1月10日~~ 2月28日 ("該通知期限") 或之前倘買方仍未能與該地址相關物業所有業權人簽妥《物業臨時買賣合約》及/或相關物業之任何部份未具備妥善業權時，買方有權在該通知期限起計 10 個工作天內(即 2019 年 ~~1月22日~~ 3月12日或之前)以書面通知賣方代表律師：

(A) 買方選擇放棄購入該物業，*當賣方或賣方代表律師收到買方確實放棄購入該物業的通知日起計10天內必須退還買方已付的~~所有~~誠意金及訂金（不計利息）#予買方代表律師樓。在此情況發生時本合約隨即自動宣告取消及無效及買賣雙方均不能再向對方作出任何追討損失；或

(B)(i) 買方選擇購入該物業，即買賣雙方依上述第 2(e)項條文或第 13 條文有關日期簽署正式買賣合約及第 2(f)項條文或第 13 條文有關日期完成交易；

(B)(ii) 若賣方代表律師於 2019 年 ~~1月22日~~ 3月12日或之前沒有收到買方通知，即可被視為買方已選擇購入該物業，雙方須按上述(B)(i)條款所訂日期進行交易。

提前簽署正式買賣合約

13. 買賣雙方之各方均同意當買方以書面通知賣方代表律師要求提早與賣方簽署該物業正式買賣合約時，即賣方於此項通知日期起計至 14 個工作天內須與買方簽署該物業正式買賣合約；並同時買方須支付上述第 2(d) 項條文的大訂款額予賣方，及由正式買賣合約日起計至 45 個工作天為該物業之成交日期；上述有關條文的日期均被本條文所訂日期代替。

時間條件

14. 時間為本合約之重要條文。

法律約束

15. 本合約對買賣雙方及其遺產承辦人及繼承人均具有法律約束力。

《物業轉易及財產條例》

16. 本合約納入《物業轉易及財產條例》(第 219 章) 附表 2A 部所列出分別由賣方及買方承擔的條件。倘若本合約與該條例條文有不一致或抵觸時，則以本合約為準。

(TA)

第三者利益　17. 賣方向買方保證：賣方是該物業唯一之合法及實益擁有人，並不存在任何第三者利益，現有承按人（但須於成交日期當天前解除）及/或於上述第三條文所列明的租客除外。

法例第 623 章　18. 買賣雙方同意：《合約(第三者權利)條例》(第 623 章)的條文在本合約及/或任何依據本合約而簽立的文件中豁除。

簽署日期　19. 在不影響上述各條文以及不論由代理人及買賣雙方簽署本合約的時間次序，本合約的日期須為 2018 年 12 月 28 日。

20. 本合約一式參份，由賣方、買方及代理各執一份。

備註 _____

SIGNED by AU CHAN WAI SAU and as the Lawful Attorney of AU WING HONG WINSTON, the Vendor

區陳耀秀
區陳耀秀

賣方：簽署
簽署人姓名：區陳耀秀
香港身份證號碼：[redacted]

For and on behalf of
Dawn Tech Properties Ltd.

DAWN TECH PROPERTIES LIMITED 萬達置業有限公司

代理：蓋章簽署 Authorized Signature(s)
代理牌照號碼：S-086302

For and on behalf of
Great Point International Ltd.

買方：蓋章簽署 Authorized Signature(s)
簽署人姓名：
公司註冊證號碼：2704828

收　據

茲收到買方付來誠意金 港幣 叁拾萬 元正 (HK$300,000.00)
銀行名稱_____銀行有限公司 / 中國　銀行(香港)有限公司　支票號碼 1356
此誠意金在買賣雙方簽署本合約時即成為第一次訂金的部份。

SIGNED by AU CHAN WAI SAU and as the Lawful Attorney of AU WING HONG WINSTON, the Vendor

區陳耀秀
區陳耀秀

賣方簽收：_____

城市規劃委員會
香港北角渣華道 333 號
北角政府合署 15 樓

2019 年 4 月 25 日

執事先生/女士

市區重建局啟德道/沙埔道發展計劃草圖編號 S/K9/URA2/1
意見申述

本人於啟德道 36 號地鋪從事汽車維修工作，亦於啟德道 36 號閣樓居住，為受重建範圍的單位之一，本人對九龍城重建項目 KC-015 有以下意見:

本人在九龍城工作和生活已經有十數載，對九龍城的社區關係密切及感情深厚，是次重建項目影響本人工作及居住地點，這對本人造成很大困擾，期望當局可以安置本人於同區繼續生活，以維持對社區之間的連繫感。

除此之外，當局在規劃九龍城發展計劃時，亦應考慮及保留九龍城社區特有的文化和社區面貌。

另外，是次重建項目亦影響本人的工作地點，以現時市建局所安排的店鋪租戶賠償計算方法，應考慮店鋪搬遷後，重新安置的成本，現時的賠償方案不足以支持店鋪可以重新開業，變相令人失業，期望當局在安排店鋪租客賠償時，慎重考慮有關政策的合適性及提供其他合理而可行的安置方案，以減低店鋪租客對重建的不安及憂慮。

若有任何查詢，可致電 [redacted] 與本人聯絡，懇請城規會關注及考慮九龍城啟德道/沙埔道重建發展計劃，對本人及社區的長遠影響。

簽名: [redacted]

姓名: 梁勝基

Tel: [redacted]

RECEIVED 23 APR 2019 Town Planning Board

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城市規劃委員會
香港北角渣華道333號
北角政府合署15樓

2019年4月25日

執事先生/女士：

市區重建局啟德道/沙埔道發展計劃草圖編號 S/K9/URA2/1
意見申述

本人於啟德道36號地舖開業汽車維修及汽車買賣，為受重建範圍的單位之一，本人對九龍城重建項目 KC-015 有以下意見：

本人在九龍城開業及生活已經有十多年，對九龍城的社區關係密切及有深厚感情，是次重建項目影響本人工作甚多，這對本人造成極大困擾，期望當局可以妥善處理及令本人能繼續生活，以維持對社區之間的連繫感。

除此之外，當局在規劃九龍城發展計劃時，亦應考慮及保留九龍城社區特有的文化和社區面貌。

另外，是次重建項目亦影響本人謀生地點，以現時市建局所安排的店舖租戶賠償計算方法，應考慮店舖搬遷後，重新安置的成本，現時的賠償方案不足以支持店舖可以重新開業，變相令本人失業，期望當局在安排店鋪舖賠償時，慎重考慮有關政策的合適性及提供其他合理而可行的安置方案，以減低本店舖對重建的不安及憂慮。

若有任何查詢，可致電[redacted]與本人聯絡，懇請城規會關注及考慮九龍城啟德道/沙埔道重建發展計劃，對本人及社區的長遠影響。

姓名： 鄧富華

簽名：



致 城市規劃委員會秘書處
香港北角渣華道 333 號北角政府合署 15 樓

市區重建局啟德道/沙浦道發展計劃草圖 S/K10/URA/A 意見

本人於沙埔道/啟德道重建區有出租非住宅單位。關於補償方案準則簡章中對非住宅單位（出租單位）業主不公平，有歧視之態度。所以提出反對重建。

簡章中第十五條：「自用業主可得津貼是物業市值的百分之三十五……。」「出租或空置物業的業主可得非住宅單位（工業樓宇除外）津貼是物業市值交吉價的百分之十。……」
兩者相差百分之二十五津貼比例，不計算自用業主有營商特惠津貼及營商損失申請補償。

1) 對於出租單位業主津貼應以 35%計算，扣除對租客的補償，若有餘額，應歸業主作為補償合併計算。
2) 對於空置單位也應可獲 35%津貼，如果無逼遷及其他理由；都應一視同仁，平等看待。重購單位費用多。空置是不得已。

如果非住宅單位是地舖，重新購置替代原先物業收租厘印費支出鉅額外，即使減免一半也不堪負荷。買賣物業及繳交費用物業稅、差餉等，自用、出租，沒有不同。

祈望貴局能重新考量補償方案，給予合理補償以達重建目的，業主也能減輕重購的負擔。

沙埔道 35 號錦輝商業大廈

單位：[redacted]

姓名：旅港大吉隴鄉華濟堂

簽名：陳永濱

聯絡電話：[redacted]

旅港大長隴鄉 LUI KONG TAI CHEONG LOONG HONG S.W.T.A.L. 華濟堂有限公司

26 APR 2019

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致 城市規劃委員會秘書處

香港北角渣華道 333 號北角政府合署 15 樓

市區重建局啟德道/沙浦道發展計劃草圖 S/K10/URA/A 意見

本人就 2019 年 3 月 26 日去信市建局有關反對啟德道/沙浦道發展計劃(KC-015)的意見，有補充的說明，如下：

本人出租非住宅物業是因為原本的生意日漸式微，所以無奈將[redacted]及錦輝商業大廈[redacted]單位出租補貼開支。現時三個單位（錦輝商業大廈[redacted]）已供完，分別有一個自用和兩個出租。租金收入一樣要合併報稅。我和丈夫兩人年老，依靠租金收入為主要收入來源。如果重建本大廈，我們重購新單位收租首先要付出三間單位很大支出的釐印費，加上銀行對長者購買樓宇及店舖按揭的年期短，金額成數少，甚至銀行有機會不做按揭。另外，我們要計算裝修、地產佣金、律師費、搬遷費、買賣期間的租金損失，才可完成購置新單位自用或收租。若按現時津貼百分之十樓價，扣除釐印 15%樓價根本不足夠支付，若釐印減免一半(7.5%)，只剩下 2.5%樓價津貼，完全不足夠支付之前所提及的費用。無形中我所得的賠償只可重置較細的單位，造成我的損失。所以本人請市建局考慮賠償方案要顧及舊業主開支，出租業主或空置單位也應可獲 35%津貼，這樣市建局收購才合情合理，滿足受重建影響的非住宅業主重購單位，本人才可重購單位收租有收入來源。待本人百年歸老後仍有三個相若大小的單位留給子女。要不然，本人的計劃會破滅。

此外，本人建議發展計劃要有商業樓宇，因為原本用地的錦輝商業大廈是商業用途，裡面有很多各式綜合商業用途正在營運，例如：寫字樓、鄉親會、教會、社福機構、補習社，以幫助區內市民。現時該發展計劃的建議只有建築物平台附設商業/零售/社區用途，不足以補給減少了錦輝商業大廈的綜合商業用途的面積，加上九龍城區內少商業樓宇，錦輝商業大廈內的商戶因重建搬走，難以在區內尋找商業樓宇重置單位。所以，如果發展計劃有商業樓宇，原本在錦輝商業大廈的商戶可有更多機會搬回原址，以及九龍城區的商業用地面積不會因重建減少，更加有利九龍城的綜合發展。

另外，本人建議發展計劃內有的社區用途應包括老人中心和托兒服務，給九龍城區內市民，因為九龍城區內一帶較欠缺長者及托兒設施。以及應包括青年的聯誼中心，增加男女交友的機會。

沙浦道錦輝商業大廈[redacted]室 業主及大廈法團主席

陳碧雲

陳碧雲敬上

聯絡電話 [redacted]

副抄：市區重建局

（香港皇后大道中 183 號中遠大廈 26 樓）

RECEIVED
26 APR 2019
Town Planning Board

26-4-2019

RECEIVED
28 MAR 2019
CENTRAL MAILING

致：市区重建局 FROM 陳碧雲

本人陳碧雲於沙埔道/啟德道重建区有出租非住宅單位。關於補償方案準則簡章中對非住宅單位(出租單位)業主不公平，有歧視之態度。所以提出仅對重建。

簡章中第五条：自用業主可得津貼是物業市值的百分之三十五…。"

"出租或空置物業的業主可得非住宅單位(工業樓宇除外)津貼是物業市值交吉價的百分之十。……"

兩者相差百分之二十五津貼比例，不計算自用業主有營商特惠津貼及營商損失申請補償。

1)、對於出租單位業主津貼应以35%計算，扣除對租客的補償，若有餘額，应歸業主作為補償合併計算。

2)、對於空置單位也应可以獲35%津貼，如果無逼遷及其他理由，都应一視同仁，平等看待。重購單位費用多。空置是不得已。

如果非住宅單位是地舖，重新購置替代原先物業收租，厘印費支出鉅額外，即使減免一半也不堪負荷。買賣物業及繳交費用，物業稅、差飲费等，自用、出租沒有不同。

祈望貴局能重新考量補償方案，給予合理補償以達重建目的，業主也能減輕重購的負担。

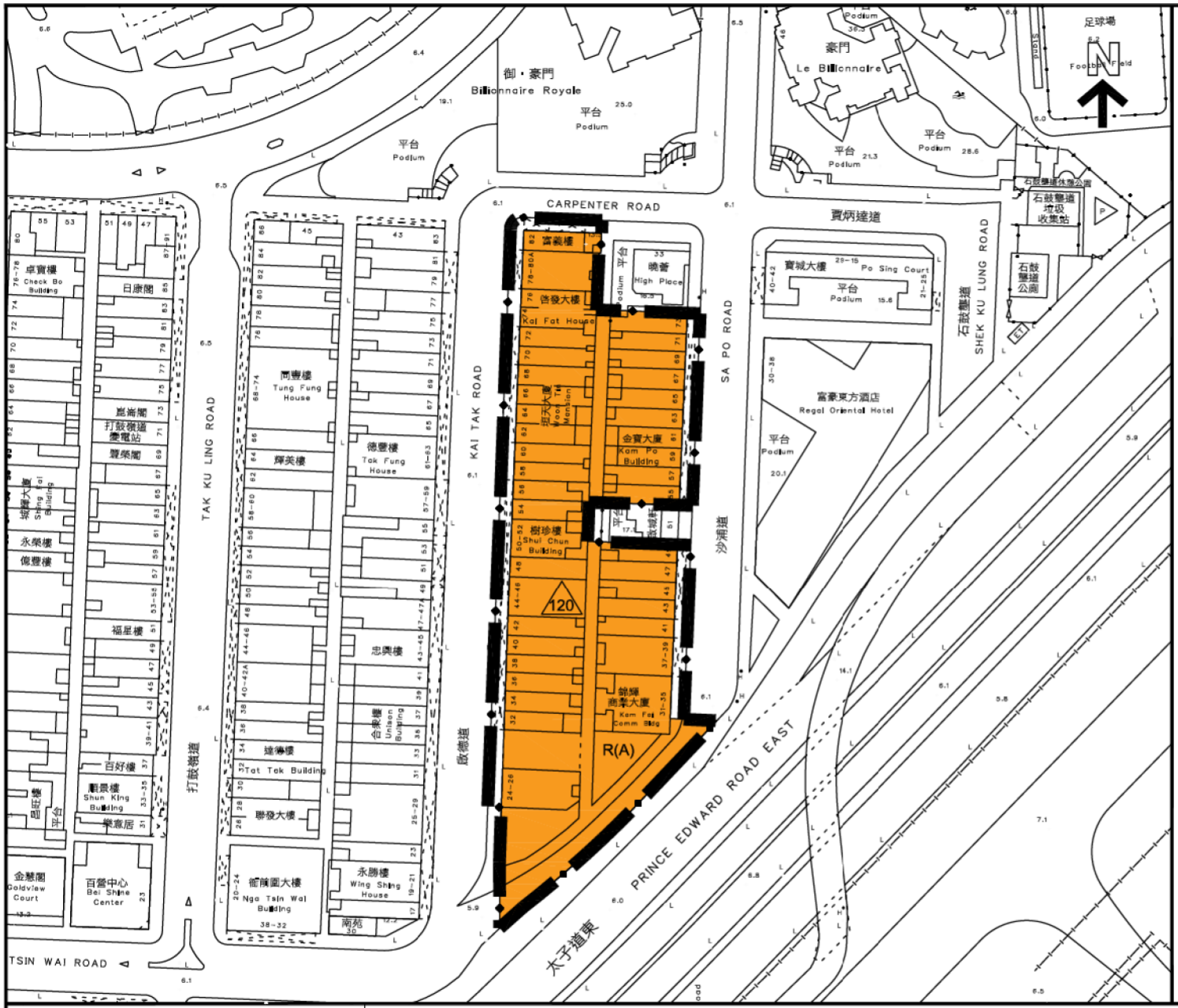
[redacted]業主及太

[redacted]

作主席。

陳碧雲 謹上

26-3-19



圖例
NOTATION

BOUNDARY OF DEVELOPMENT SCHEME ..... 發展計劃範圍界線

RESIDENTIAL (GROUP A) ..... R(A) ..... 住宅(甲類)

MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM) ..... 120 ..... 最高建築物高度(在主水平基準上若干米)

夾附的<<註釋>>屬這份圖則的一部分

THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

2019年 月 日城市規劃委員會根據市區重建局條例第25(6)(a)條認為圖則適宜公布，並於2019年 月 日按照城市規劃條例第5條展示。

PLAN DEEMED SUITABLE BY THE TOWN PLANNING BOARD FOR PUBLICATION UNDER SECTION 25(6)(a) OF THE URBAN RENEWAL AUTHORITY ORDINANCE ON 2019 AND EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON 2019.

SECRETARY, TOWN PLANNING BOARD 城市規劃委員會秘書

香港城市規劃委員會依據城市規劃條例擬備的市區重建局啟德道/沙浦道發展計劃圖則
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD URBAN RENEWAL AUTHORITY KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME PLAN

SCALE 1 : 1000 比例尺

米 METRES 10 0 10 20 30 40 50 METRES米

依據市區重建局條例第25(3)(a)條擬備
PREPARED UNDER SECTION 25(3)(a) OF THE URBAN RENEWAL AUTHORITY ORDINANCE

圖則編號 PLAN No. S/K10/URA1/A

Annex H-1 of TPB Paper No. 10542

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority 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 widths, road junctions and alignments of roads may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or building 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 Schedule of Uses:

(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; and

(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 coordinated or implemented by Government.

(8) Unless otherwise specified, all building, engineering and other operations

incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate permission is required.

(9) 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.

(10) Any development not compatible with the Urban Renewal Authority's Development Scheme for the area is prohibited by virtue of section 25(4) of the Urban Renewal Authority Ordinance.

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

Schedule of Uses

	Page
RESIDENTIAL (GROUP A)	1

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
Flat	Commercial Bathhouse/ Massage Establishment
Government Use (not elsewhere specified)	Eating Place
House	Educational Institution
Library	Exhibition or Convention Hall
Market	Government Refuse Collection Point
Place of Recreation, Sports or Culture	Hotel
Public Clinic	Institutional Use (not elsewhere specified)
Public Transport Terminus or Station (excluding open-air terminus or station)	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Public Vehicle Park (excluding container vehicle)	Office
Residential Institution	Petrol Filling Station
School (in free-standing purpose-designed building only)	Place of Entertainment
Social Welfare Facility	Private Club
Utility Installation for Private Project	Public Convenience
	Public Transport Terminus or Station (not elsewhere specified)
	Public Utility Installation
	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 but excluding floors containing wholly or mainly car parking, loading / unloading bay and / or plant room; or (b) in the purpose-designed non-domestic portion of a building connecting to the sunken plaza:
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 with the provision of a sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

Remarks

(1) 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 exceed under paragraphs (7) and/or (8) 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 (7) and/or (8) hereof.

(3) For the purposes of paragraph (1) above, 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 port ratio(s) or 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) In determining the relevant maximum plot ratio 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, 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. Any floor space that is constructed or intended for use solely as Government, institution or community facilities, as required by the Government, may also be disregarded.

(5) An underground public vehicle park shall be provided as required by the Government.

(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 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.

(7) 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 paragraphs (1) or (2) above 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 the paragraphs (1) or (2) above may thereby be exceeded.

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

Annex H-3 of
TPB Paper No. 10542

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

EXPLANATORY STATEMENT

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

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DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance (the 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 draft Urban Renewal Authority (URA) Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) No. S/K10/URA1/A. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the area covered by the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 In the URA's 17th Business Plan (2018/19) approved by the Financial Secretary in early 2018, the Kai Tak Road/Sa Po Road Development Scheme (KC-015) was proposed to be processed as a Development Scheme under section 25 of the URA Ordinance (URAO).

2.2 On 22 February 2019, pursuant to section 23(1) of the URAO, the URA notified in the Government Gazette the commencement of implementation of the Kai Tak Road/Sa Po Road Development Scheme.

2.3 On the same day of commencement (i.e. 22 February 2019), the URA submitted the draft URA Kai Tak Road/Sa Po Road DSP to the Board under section 25(5) of the URAO.

2.4 On XXXX, the Board, under section 25(6)(a) of the URAO, deemed the draft URA Kai Tak Road/Sa Po Road DSP as being suitable for publication. Under section 25(7) of the URAO, the draft DSP, which the Board has deemed suitable for publication, is deemed to be a draft plan prepared by the Board for the purposes of the Ordinance.

2.5 On XXXX, the draft Kai Tak Road/Sa Po Road DSP No. S/K10/URA1/1 (the Plan) was exhibited under section 5 of the Ordinance. By virtue of section 25(9) of the URAO, the Plan has from the date replaced the Ma Tau Kok Outline Zoning Plan (OZP) in respect of the area delineated and described herein.

3. OBJECT OF THE PLAN

The Plan illustrates that the Development Scheme Area (the Area) is designated as "Residential (Group A)" ("R(A)"). It is planned to be developed by means of the Development Scheme prepared under section 25 of the URAO. The Development Scheme intends to be primarily for a high-density residential development with the provision of a split-level sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building connecting to the sunken plaza.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area in this zone and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and 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.

5. AREA COVERED BY THE PLAN

5.1 The Development Scheme boundary which is shown in heavy broken line on the Plan, covers a total area of about 6,106m^2. The Area is located at the street block bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Area includes two rows of buildings, two pieces of government land and also a portion of existing Sa Po Road in the southern part of the Development Scheme. The Area also includes a government lane between the two rows of buildings, and pavement area.

5.2 On the Approved Ma Tau Kok OZP No. S/K10/24, the Area is zoned "Residential (Group A)2" and an area shown as 'Road' before the exhibition of the Plan.

6. EXISTING CONDITIONS

6.1 The buildings within the Area are predominantly for residential use on the upper floors, and shop use on the ground floors. The only exception is the commercial building on 31 – 35 Sa Po Road, which is permitted for office use on upper floors and shops for ground floor. The residential buildings within the Area are of 5 to 10 storeys high and were built between 1962 and 1990. The commercial building is of 12 storeys high and was built in 1981. The buildings are in a dilapidating condition.

6.2 There is one private vacant site at 28-30 Kai Tak Road, which is currently used as a carpark. There are also two pieces of government land on the southern side within the Development Scheme which are amenity area with landscaping, trees and sitting area.

6.3 The existing Sa Po Road is a one-way southbound local road. It passes by the immediate east of the Area and connects to Nga Tsin Wai Road in the south. The existing southern portion of Sa Po Road is included in the Area for redevelopment.

7 PLANNING AND LAND USE PROPOSALS

7.1 On the Plan, the Area is zoned "R(A)" and the Notes of the Plan indicated broadly the intended land uses within the Area. The area covered by the "R(A)" zone is about 5,352m^2, subject to site survey.

Uses

7.2 The "R(A)" zone is intended primarily for high-density residential developments with the provision of the sunken plaza and underground public vehicle park to serve the community. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

7.3 The maximum plot ratio within the "R(A)" zone is 9.0, or the plot ratio of the existing building(s), whichever is the greater. Except where the plot ratio is permitted to be exceeded under the Notes of the Plan or under Building (Planning) Regulations 22(1) or (2), under no circumstances shall the plot ratio for the domestic part of any development exceed 7.5. The "R(A)" zone is also subject to a maximum building height of 120 metres above Principal Datum (mPD).

7.4 To provide design flexibility, minor relaxation of the plot ratio and building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its individual planning and design merits.

Split-level Sunken Plaza

7.5 A portion of existing Sa Po Road is proposed to be closed to make way for the development of a sunken plaza of 1,000m^2 in the southern side of the Area. It will be connected with the proposed pedestrian subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) to the Kai Tak Development Area (KTDA) and its future underground shopping street (USS). The sunken plaza can serve to strengthen connectivity and walkability between the Area and the KTDA. Commercial space will be provided connecting to the sunken plaza to enable extension of vibrant retail activities from the USS of KTDA. The linkage between street level/the sunken plaza and the proposed pedestrian subway to KTDA will be opened for public use 24 hours daily. The linkage between street level and the proposed subway (via the sunken plaza) should be provided with barrier-free access. The sunken plaza will be opened for public use at reasonable hours to benefit the local community.

7.6 The sunken plaza will be developed with different levels of space on ground floor and basement levels. It will include covered and un-covered area and with hard and soft landscape, commercial / retail components, event space and place-making elements at different levels for enjoyment. The sunken plaza will form part of the development and will be managed and maintained by the URA or its assignee.

7.7 The sunken plaza will also integrate with the existing pavement along Prince Edward Road East to provide more comfortable and spacious connection with the existing pavement and to provide solution space for existing bus queuing, improve pedestrian circulation and enhance walkability.

Vehicular and Pedestrian Circulation

7.8 To rationalise the land uses and to facilitate the creation of the sunken plaza, a portion of existing Sa Po Road will be closed permanently. A new private road will be provided within the Area for public use to divert the one-way vehicular traffic from Sa Po Road to Kai Tak Road. Pavement will be provided on both sides of the new private road to

provide safe and comfortable walking environment. The private road will be opened for public use 24 hours daily. Appropriate pedestrian crossing will be provided at the new private road to allow safe and convenient pedestrian connection between the proposed development and the sunken plaza in the Area.

Underground Public Vehicle Park

7.9 An underground public vehicle park will be provided within the Development Scheme to meet the local parking needs. It is proposed to accommodate about 300 private car parking spaces for public use. The provision of underground public vehicle park may also make way for solution space and create opportunity for pavement widening in the surrounding area. Management of the underground public vehicle park will be arranged at the development stage.

Internal Transport Facilities

7.10 Ancillary car parking spaces for the proposed residential development with non-domestic podium in the Development Scheme will also be provided in an underground car park. Ancillary loading/unloading bays will be provided within the Development Scheme. The number of car parking spaces and loading/unloading bays will be based on the relevant requirements under the Hong Kong Planning Standards and Guidelines (HKPSG) and subject to agreement with Transport Department.

Government, Institution or Community (GIC) Facilities

7.11 Not less than 800m^2 gross floor area (GFA) would be reserved for community use within the non-domestic portion. The facilities can be run by a suitable Non-governmental Organisation (NGO) selected by the URA, or run by the Government, subject to liaison with relevant Government departments. In order to facilitate provision of GIC facilities, in determining the relevant maximum plot ratio of the development and/or redevelopment, any floor space that is constructed or intended for use solely as GIC facilities, as required by the Government, may be disregarded.

Landscaping and Greening

7.12 A cohesive landscaping, tree planting and greening will be designed, where appropriate and applicable, at the sunken plaza to enhance the local environment. To echo with the landscaping at the sunken plaza, greening on the podium edge and pedestrian level of the proposed development will be provided as far as practicable to meet the Sustainable Building Design (SBD) Guidelines and to enhance the local streetscape.

Air Ventilation

7.13 According to the air ventilation assessment report (AVA 2019) for the proposed development, good design features (i.e. the sunken plaza and 50m setback of domestic tower (at above 15m) from the intersection point of site boundary where Kai Tak Road and Prince Edward Road East meet) were proposed to enhance wind flow penetration. They should be incorporated in the design and layout of future developments in the "R(A)" zone. In addition, other building design elements (including building separation) should be provided in accordance with the SBD Guidelines. In the event that the proposed design features are not adopted in the future design scheme, further AVA study should be conducted by the project proponent in accordance with the joint Housing Planning and Lands Bureau – Environment, Transport and Works Bureau Technical Circular No. 1/06 on Air Ventilation Assessments (or its latest version) for demonstrating that the performance of any future development would not be worse than the scheme adopted in the AVA 2019.

8. IMPLEMENTATION OF THE DEVELOPMENT SCHEME

8.1 The proposals set out in the Plan form an integral part of the Development Scheme for the Area.

8.2 The URA does not own or lease any land within the boundaries of the Development Scheme and intends to acquire the properties within the

Area of the Development Scheme. With respect to any of such properties which cannot be acquired by purchase, the Secretary for Development would consider, upon the application of the URA, recommending to the Chief Executive in Council the resumption of properties under the Lands Resumption Ordinance, if necessary.

8.3 All eligible tenants will be offered an ex-gratia payment package in accordance with URA's policy. The URA has already entered into agreement with the Hong Kong Housing Society (HKHS) and the Hong Kong Housing Authority (HKHA) for the purpose of making available rehousing units by HKHS or HKHA to rehouse affected tenants who satisfy the eligibility criteria of HKHS or HKHA.

8.4 Non-domestic tenants of properties acquired by URA whose tenancies are terminated by URA due to implementation of the Development Scheme may be offered an ex-gratia allowance to assist in their business relocation.

8.5 Details of the acquisition, compensation and rehousing policies are subject to the URA's prevailing policies at the time of acquisition. The URA may implement the Development Scheme on its own or in association with one or more partners.

TOWN PLANNING BOARD
[xxxx] 2019



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）
RESIDENTIAL (GROUP E)	R(E)	住宅（戊類）
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

COMMUNICATIONS 交通

RAILWAY AND STATION (UNDERGROUND)	車站 STATION	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)	100	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	8	最高建築物高度（樓層數目）

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 & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	0.40	0.29	商業
COMPREHENSIVE DEVELOPMENT AREA	5.05	3.65	綜合發展區
RESIDENTIAL (GROUP A)	44.45	32.08	住宅（甲類）
RESIDENTIAL (GROUP B)	8.93	6.45	住宅（乙類）
RESIDENTIAL (GROUP E)	3.20	2.31	住宅（戊類）
GOVERNMENT, INSTITUTION OR COMMUNITY	8.83	6.37	政府、機構或社區
OPEN SPACE	21.84	15.76	休憩用地
OTHER SPECIFIED USES	1.46	1.05	其他指定用途
MAJOR ROAD ETC.	43.85	31.66	主要道路等
URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA	0.53	0.38	市區重建局發展計劃圖範圍
TOTAL PLANNING SCHEME AREA	138.54	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

（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馬頭角（九龍規劃區第１０區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KOWLOON PLANNING AREA No. 10 - MA TAU KOK - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺

米 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/K10/24A

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 Use (not elsewhere specified) Hotel Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library ~~Market~~ 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) Recyclable Collection Centre Religious Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project	Broadcasting, Television and/or Film Studio Flat Government Refuse Collection Point 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 shop, services, place of entertainment and eating place, functioning mainly as local shopping centres serving the immediate neighbourhood and hotel development.

(Please see next page)

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
	Ambulance Depot Commercial Bathhouse/Massage Establishment Eating Place Educational Institution Exhibition or Convention Hall Flat Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel House Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library ~~Market~~ 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 Residential Institution Research, Design and Development Centre School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project

(Please see next page)

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)3" 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 E)

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

(Please see next page)

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 Quarantine Centre (in Government building only) Broadcasting, Television and/or Film Studio Cable Car Route and Terminal Building Eating Place (Canteen, Cooked Food Centre only) Educational Institution Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Institutional Use (not elsewhere specified) Library Market Place of Recreation, Sports or Culture 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 School Service Reservoir Social Welfare Facility Training Centre Wholesale Trade	Animal Boarding Establishment Animal Quarantine Centre (not elsewhere specified) Columbarium Correctional Institution Crematorium Driving School Eating Place (not elsewhere specified) Flat Funeral Facility Helicopter Landing Pad Helicopter Fuelling Station Holiday Camp Hotel House 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 Private Club Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Refuse Disposal Installation (Refuse Transfer Station only) Residential Institution Sewage Treatment/Screening Plant Shop and Services ***(not elsewhere specified)*** Utility Installation for Private Project Zoo

Planning Intention

This zone is intended primarily for the provision of Government, institution and 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)

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 "Commercial Development with Public Vehicle Park" only

Ambulance Depot
Commercial Bathhouse/ Massage Establishment
Eating Place
Educational Institution
Exhibition or Convention Hall
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Institutional Use (not elsewhere specified)
Library
~~Market~~
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)
Recyclable Collection Centre
Religious Institution
School
Shop and Services
Social Welfare Facility
Training Centre
Utility Installation for Private Project

Broadcasting, Television and/or Film Studio
Flat
Government Refuse Collection Point
Hospital
Hotel
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 the existing commercial development with public vehicle park, which may include shop, services, place of entertainment and eating place, functioning mainly as local shopping centre serving the immediate neighbourhood.

(Please see next page)

Ordinance. The reference back of the OZP was notified in the Gazette on 17 February 2017 under section 12(2) of the Ordinance.

2.11 On 9 March 2018, the draft Ma Tau Kok OZP No. S/K10/23, incorporating amendments mainly (i) to amend the building height restriction of a "G/IC" site at Lung Kong Road to facilitate a redevelopment proposal for welfare uses, and (ii) to rezone a site at Ko Shan Road mainly from "G/IC" to "R(A)3" for public housing development, was exhibited for public inspection under section 5 of the Ordinance. During the two-month exhibition period, a total of six representations were received. On 18 May 2018, the representations were published for three weeks for public comments and a total of 142 comments were received. After giving consideration to the representations and comments on 28 September 2018, the Board noted the supportive representation, and decided not to uphold the remaining representations and that no amendment should be made to the draft OZP to meet the representations.

2.12 On 8 January 2019, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Ma Tau Kok OZP, which was subsequently renumbered as S/K10/24. On 18 January 2019, the approved Ma Tau Kok OZP No. S/K10/24 ~~(the Plan)~~ was exhibited for public inspection under section 9(5) of the Ordinance.

2.13 On 14 May 2019, the CE in C referred the approved Ma Tau Kok OZP No. S/K10/24 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 24 May 2019 under section 12(2) of the Ordinance.

2.14 On _____ 2019, the draft Ma Tau Kok OZP No. S/K10/25 (the Plan), indicating an area of the Plan replaced by the draft Urban Renewal Authority (URA) Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) No. S/K10/URA1/1, was exhibited for public inspection under section 5 of the Ordinance.

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 can be put under statutory planning control.

3.2 The Plan is to illustrate the broad principles of development. 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 zoning, there would be 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

under the Protection of the Harbour Ordinance (Cap. 531) and the Harbour Planning Principles published by the Harbour-front Enhancement Committee.

6. POPULATION

Based on 2016 Population By-census, the population of the Area was estimated by the Planning Department as about 133,100. It is estimated that the planned population of the Area would be about ~~146,350~~ ***139,900***

7. BUILDING HEIGHT RESTRICTIONS 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 "C", "CDA", "R(A)", "R(B)", "R(E)", "G/IC", and "OU" 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 four main building height bands – 80 metres above Principal Datum (mPD), 100mPD, 120mPD and 140mPD in the Area for the "C", "CDA", "R(A)", "R(B)" and "R(E)" 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 restrictions for the "G/IC" and "OU" 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 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 Government, institution or community (GIC)

co-ordinated and comprehensive redevelopment. In addition, open space and GIC facilities could also be provided within the sites.

8.2.4 According to the AVA by expert evaluation, the area near Mok Cheong Street is a major wind corridor. Future developments at Mok Cheong Street are therefore critical to the local ventilation environment of the Area. Upon redevelopment, a quantitative AVA Study for the "CDA" sites near Mok Cheong Street should be conducted so as to examine the local wind environment and identify any possible opportunity/problem areas for design improvement, in particular measures to extend the wind path from Kai Tak to Ma Tau Kok area.

8.2.5 In drawing up the layout of the proposed "CDA" developments, due consideration should be given to the findings of the AVA. In particular, there should be adequate space between buildings to enhance the air and visual permeability to the surrounding developments. Any adverse impact on the surrounding areas, particularly in terms of air ventilation, should be carefully assessed and mitigated. Moreover, diversity in building mass/form is encouraged within each "CDA" site to achieve a more interesting building height profile in the area.

8.2.6 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 Master Layout Plan (MLP) should be submitted in accordance with the requirements as specified in the Notes 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.

8.2.7 Development and redevelopment within the "CDA" sites are subject to a maximum building height of 100mPD as stipulated on the Plan.

8.2.8 To provide design/architectural flexibility, minor relaxation of the gross floor area/building height restrictions 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 ~~44.92 ha~~ ***44.45ha***

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.

8.3.2 Most of the private and public residential developments in the Area, except those along Argyle Street, Prince Edward Road West and Grampian Road, are covered by this zoning. There are three existing public housing estates in the Area, namely, Ma Tau Wai Estate, Chun

8.8.1 This zoning covers land allocated for specific uses.

8.8.2 The Hong Kong Softball Association Recreation Ground at Tin Kwong Road is zoned "OU" annotated "Sports and Recreation Club". Development and/or redevelopment of this site is subject to a maximum building height of 1 storey as stipulated on the Plan.

8.8.3 The Kowloon City Plaza at Carpenter Road is zoned "OU" annotated "Commercial Development with Public Vehicle Park" to reflect the existing development. Development and/or redevelopment of this site is subject to a maximum gross floor area of 47,858m^2 and a building height restriction of 36mPD as stipulated on the Plan.

8.8.4 To provide design/architectural flexibility, minor relaxation of the gross floor area/building height restrictions may be considered by the Board on application under section 16 of the Ordinance taking into account its own merits.

9. **COMMUNICATIONS**

9.1 Roads

9.1.1 The elevated road passing through the Area above Chatham Road North and Kowloon City Road connecting to the Airport Tunnel is part of the primary distributor road network linking up Central and East Kowloon.

9.1.2 The district distributor network consists of Ma Tau Kok Road, Ma Tau Wai Road, To Kwa Wan Road, Sung Wong Toi Road and Tin Kwong Road.

9.2 Railway

On 27 March 2012, the CE in C authorised the MTR SCL under the Railways Ordinance. The authorised railway scheme shall be deemed to be approved under the Ordinance. The SCL with 10 stations including To Kwa Wan Station and Sung Wong Toi Station, connects the Ma On Shan Line with the West Rail Line. Construction works commenced in 2012 and the Tai Wai to Hung Hom section is expected to be completed by 2019. The To Kwa Wan Station and Sung Wong Toi Station will significantly improve the accessibility of the Area.

10. URBAN RENEWAL AUTHORITY DEVELOPMENT SCHEME PLAN AREA

10.1 An area has been designated as 'URA DSP Area'. The land use zoning of the area is depicted on the relevant URA DSP and it will be implemented by the URA.

10.2 The DSP for Kai Tak Road/Sa Po Road covers an area of about 0.61ha. The site is intended for high-density residential developments with the provision of a sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

11~~0~~. UTILITY SERVICES

The Area is served by piped water supply, drainage and sewerage systems, as well as gas, electricity and telephone services. There is no difficulty envisaged in meeting the future requirements for services and public utilities for the estimated population in the Area. However, upgrading of the existing fresh water and salt water supply systems will be carried out to cope with the increase of water demand for the additional population.

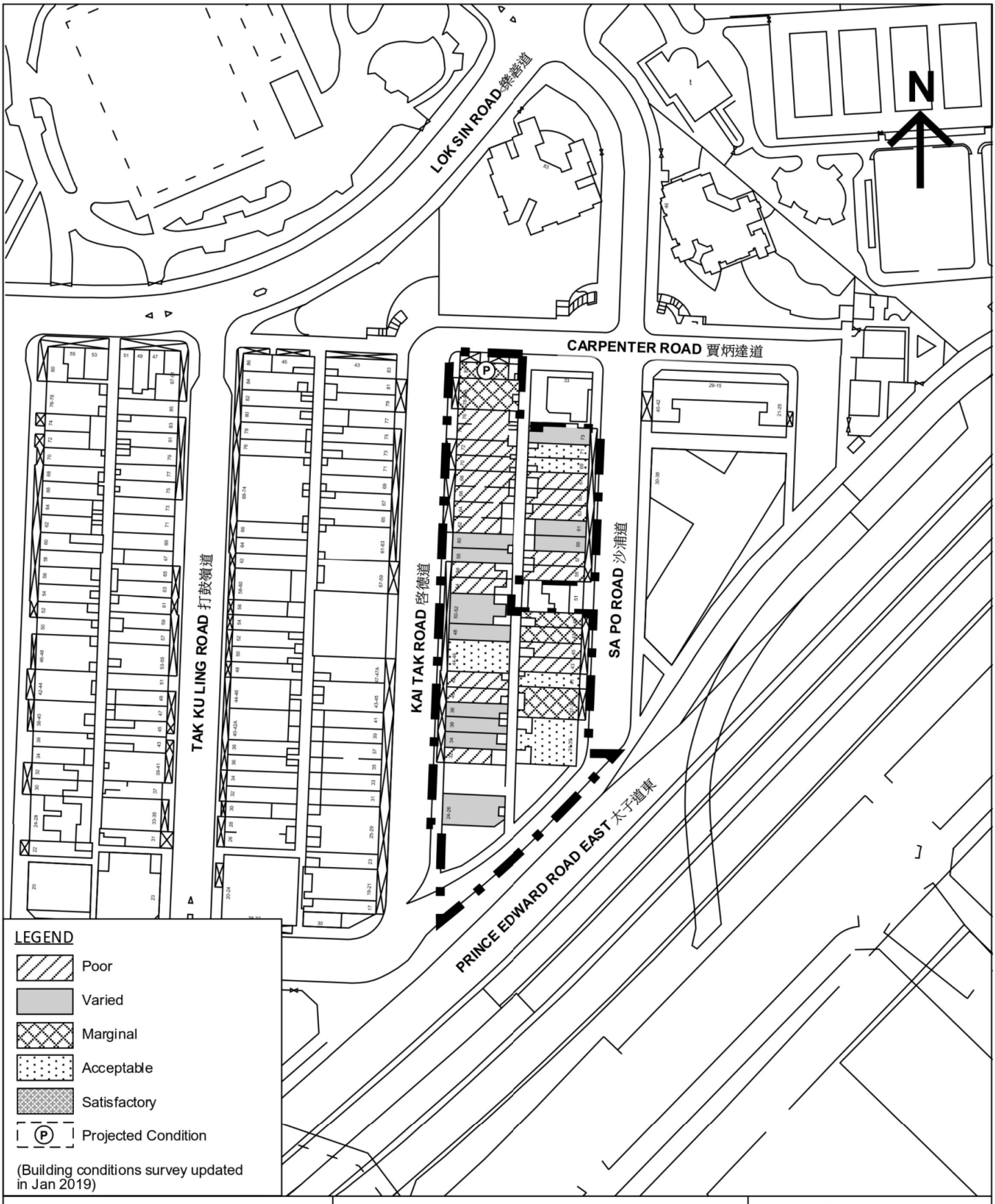
12~~1~~. CULTURAL HERITAGE

12~~1~~.1 The site of archaeological interest, declared monuments, historic buildings/structures graded by the Antiquities Advisory Board (AAB), and Government historic site identified by the Antiquities and Monuments Office (AMO) in the Area include:

(a) Kowloon Walled City (Site of Archaeological Interest);
(b) Remnants of the South Gate of Kowloon Walled City (Declared Monument);
(c) Former Yamen Building of Kowloon Walled City (Declared Monument);
(d) Ma Tau Kok Animal Quarantine Depot, No. 63 Ma Tau Kok Road (Grade 2);
(e) Sheng Kung Hui Holy Trinity Cathedral, No. 135 Ma Tau Chung Road (Grade 2);
(f) Main Building, Heep Yunn School, No. 1 Farm Road (Grade 3);
(g) St. Clare Chapel, Heep Yunn School, No. 1 Farm Road (Grade 3);
(h) Tin Hau Temple, No. 49 Ha Heung Road (Grade 3);
(i) Nos. 1 & 3 Hau Wong Road (Grade 3);
(j) Eastern Cotton Mills Ltd., No. 7 Mok Cheong Street (Grade 3);
(k) No. 65 Ha Heung Road (Grade 3); and
(l) Sung Wong Toi Inscription Rock (Government historic site identified by AMO).

12~~1~~.2 On 19 March 2009, the AAB released the list of 1,444 historic buildings, in which the 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. These items are subject to the grading assessment by the 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.

12~~1~~.3 Prior consultation with the AMO should be made if any development, redevelopment or rezoning proposals that might affect the above site of



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A & 11-NE-11C

BUILDING CONDITION

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 6

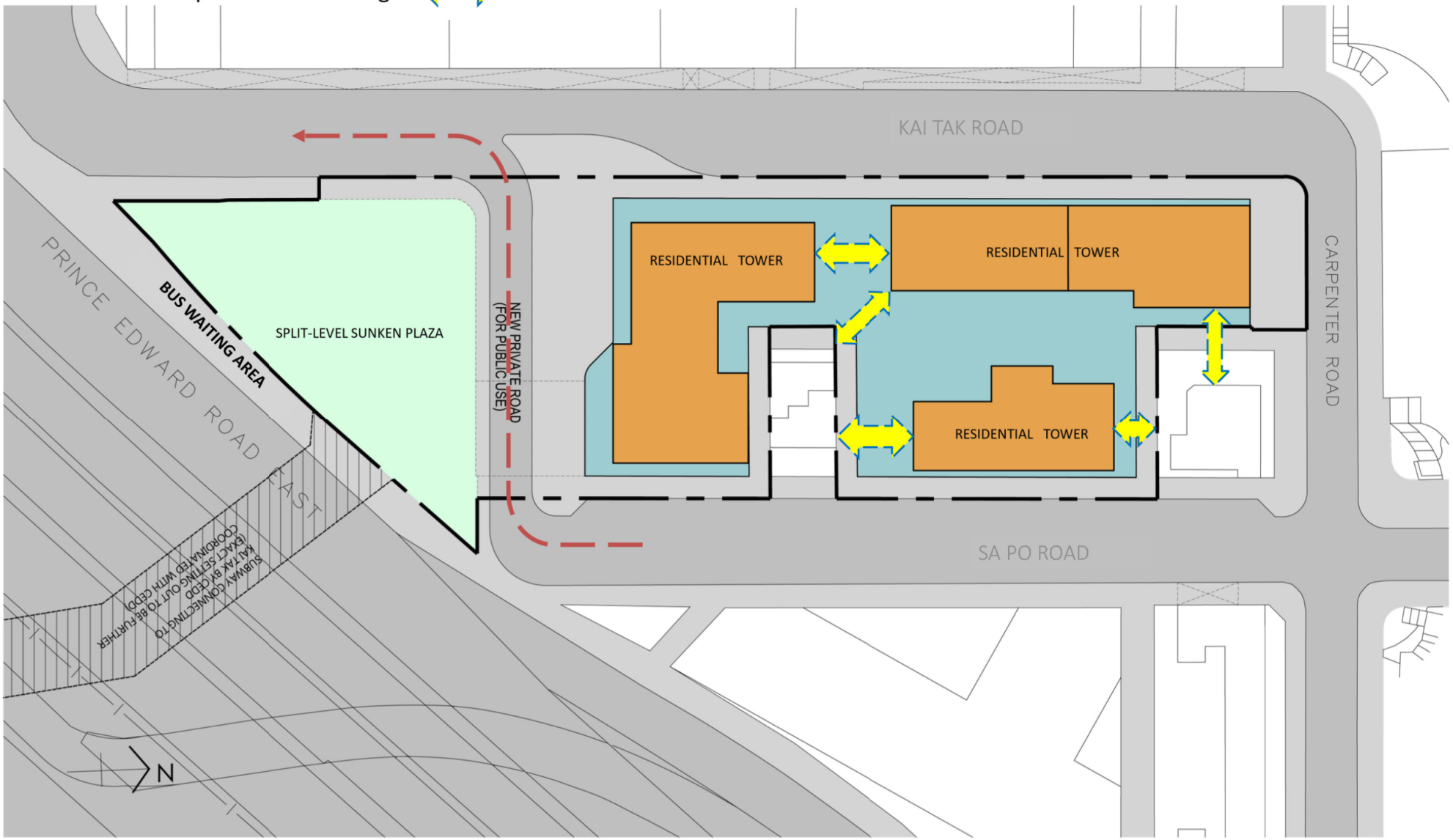
（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	1

New Traffic Circulation

Gap between buildings

(Notional layout subject to detailed design upon DSP approval.)



(Source: Submitted by Urban Renewal Authority)

(資料來源：由市區重建局提交)

參考編號 REFERENCE No. M/K10/19/11

繪圖 DRAWING 2a

市區重建局 URBAN RENEWAL AUTHORITY

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Notional Design – Traffic Circulation

Figure 1.3

Annex 2

(Notional layout subject to detailed design upon DSP approval.)

Notional Design – Overlay of new private street with the existing Sa Po Road and amenity areas

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	2b

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)



(Notional layout subject to detailed design upon DSP approval.)

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Notional Design – Schematic Section

Figure 1.2

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	3

Remarks: Notional design subjected to change in detailed design stage



LEGEND

1 B3 Sunken Plaza
2 B3 Amphitheatre Seating Area
3 B1 Sunken Plaza
4 B1 Amphitheatre Seating Area
5 GF Plaza
6 GF Amphitheatre Seating Area
7 GF Garden
8 GF Pavement
9 Upper Level Plat orm
10 Upper Level Planting Area

FIGURE 2.1 - OVERALL LANDSCAPE PROPOSAL

N

0 5 25M

kola

(Source: Submitted by Urban Renewal Authority)
(資料來源：由市區重建局提交)

參考編號 REFERENCE No. M/K10/19/11

繪圖 DRAWING 4a



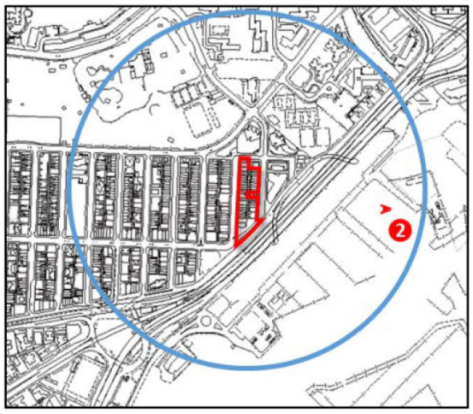
FIGURE 1.1 - CONTEXT PLAN

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	4b





Existing Condition



Base Scheme with 100mPD (without sunken plaza)



Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD

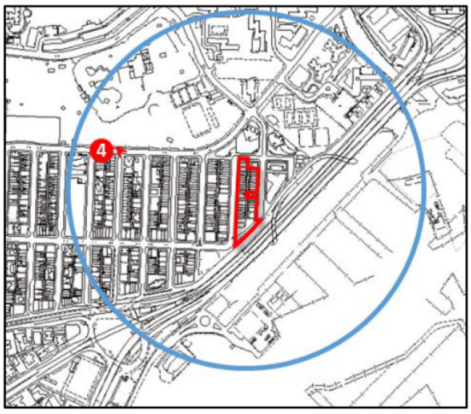
URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Viewpoint - Kai Tak Development Area

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	5a





Existing Condition



Base Scheme with 100mPD (without sunken plaza)



Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD

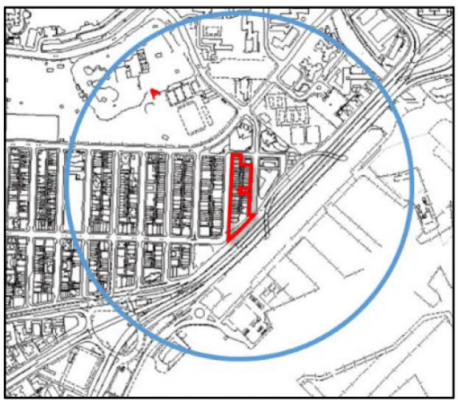
URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Viewpoint - Carpenter Road Park Entrance

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	5b





Existing Condition



Base Scheme with 100mPD (without sunken plaza)



Base Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Viewpoint - Kowloon Walled City Park

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No.	繪圖 DRAWING
M/K10/19/11	5c

CINOTECH 漢槎 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Comparison between Designs of the Baseline and Proposed Schemes

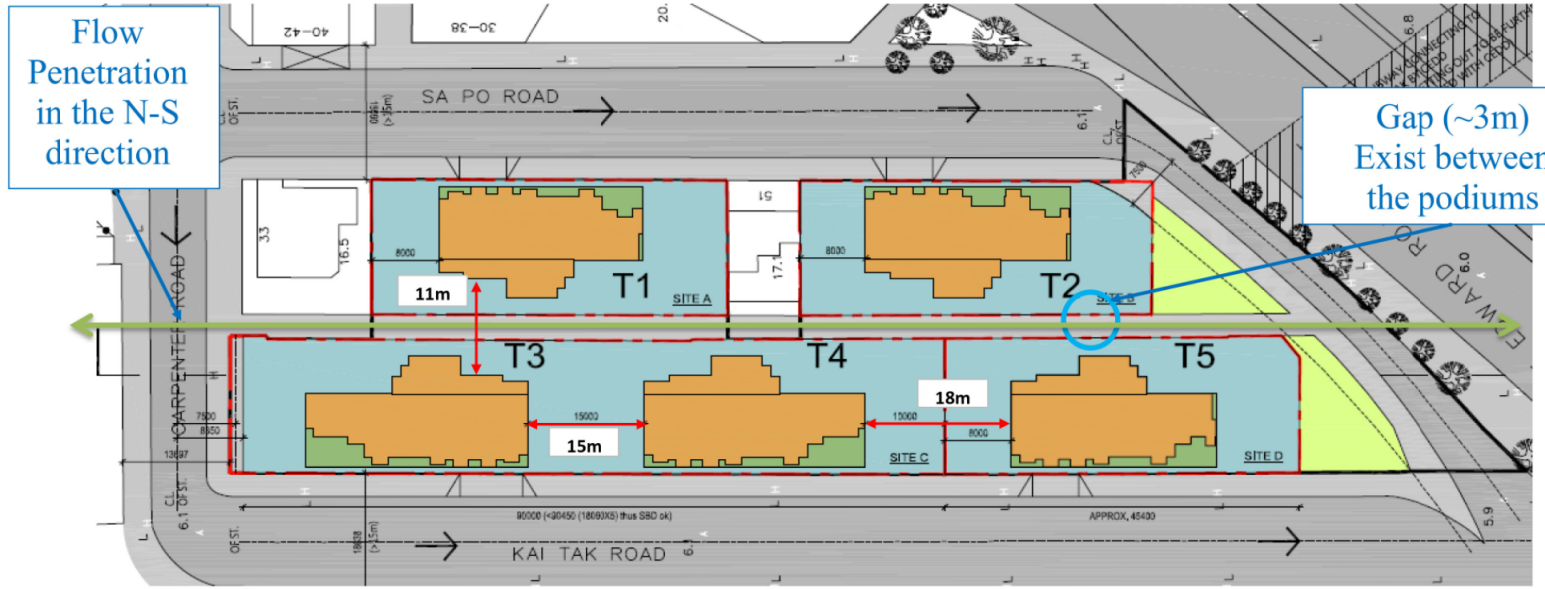
SCALE	N.T.S.	DATE	Feb-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	1.5b	REV. 1

繪圖 DRAWING 6a1

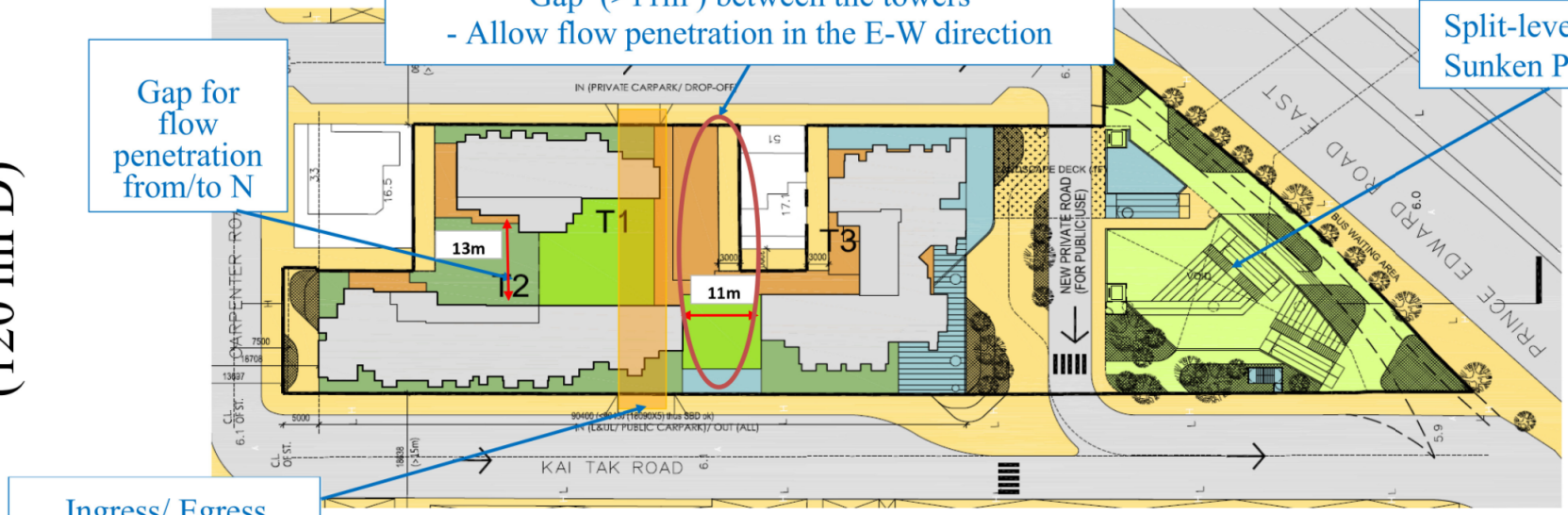
參考編號 REFERENCE No. M/K10/19/11

(資料來源：由市區重建局提交)
(Source: Submitted by Urban Renewal Authority)

Baseline Scheme (100 mPD)

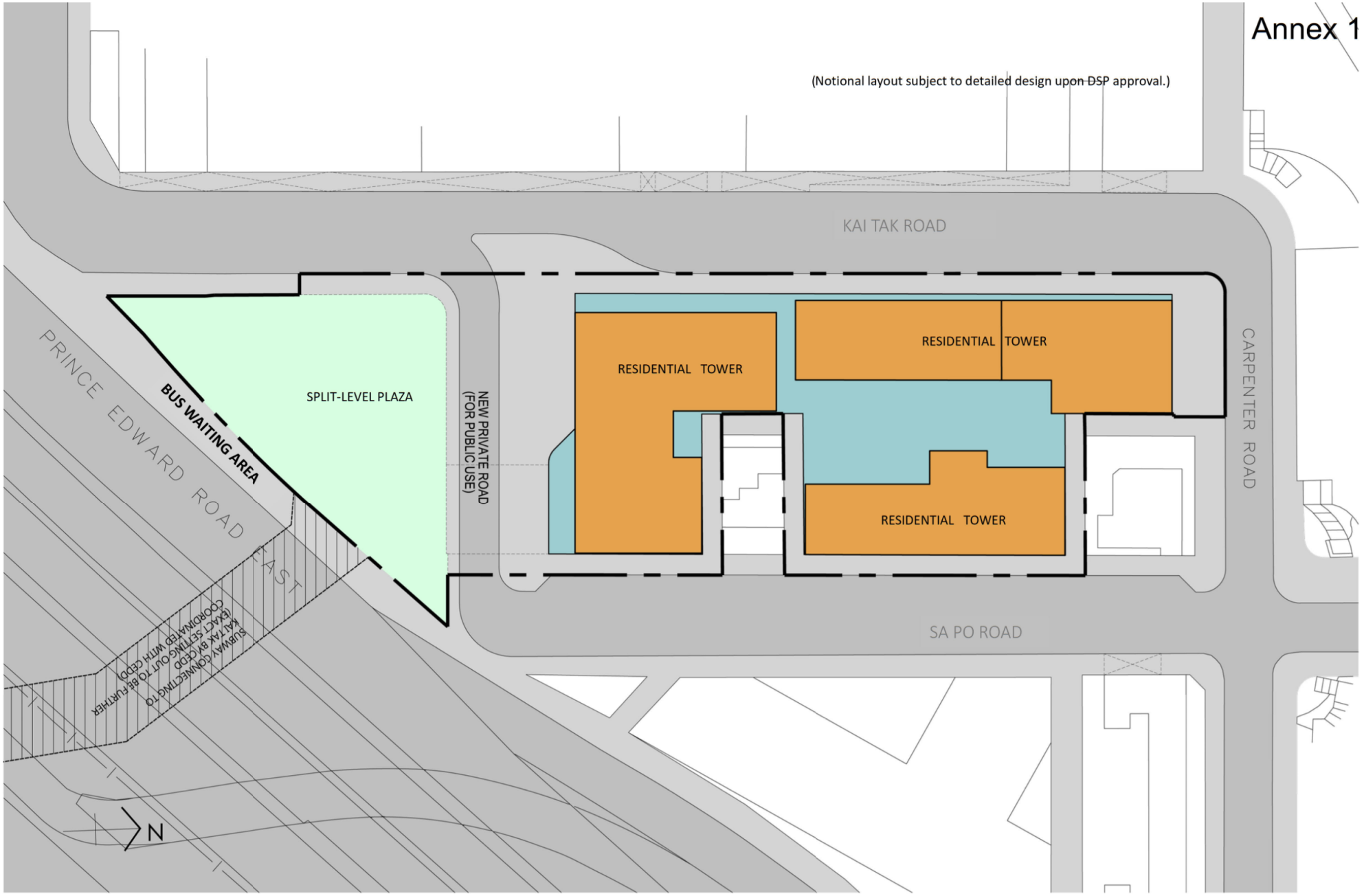


Proposed Scheme (120 mPD)



Note: Notional Design subjected to change

Annex 1



(Source: Submitted by Urban Renewal Authority)
(資料來源：由市區重建局提交)

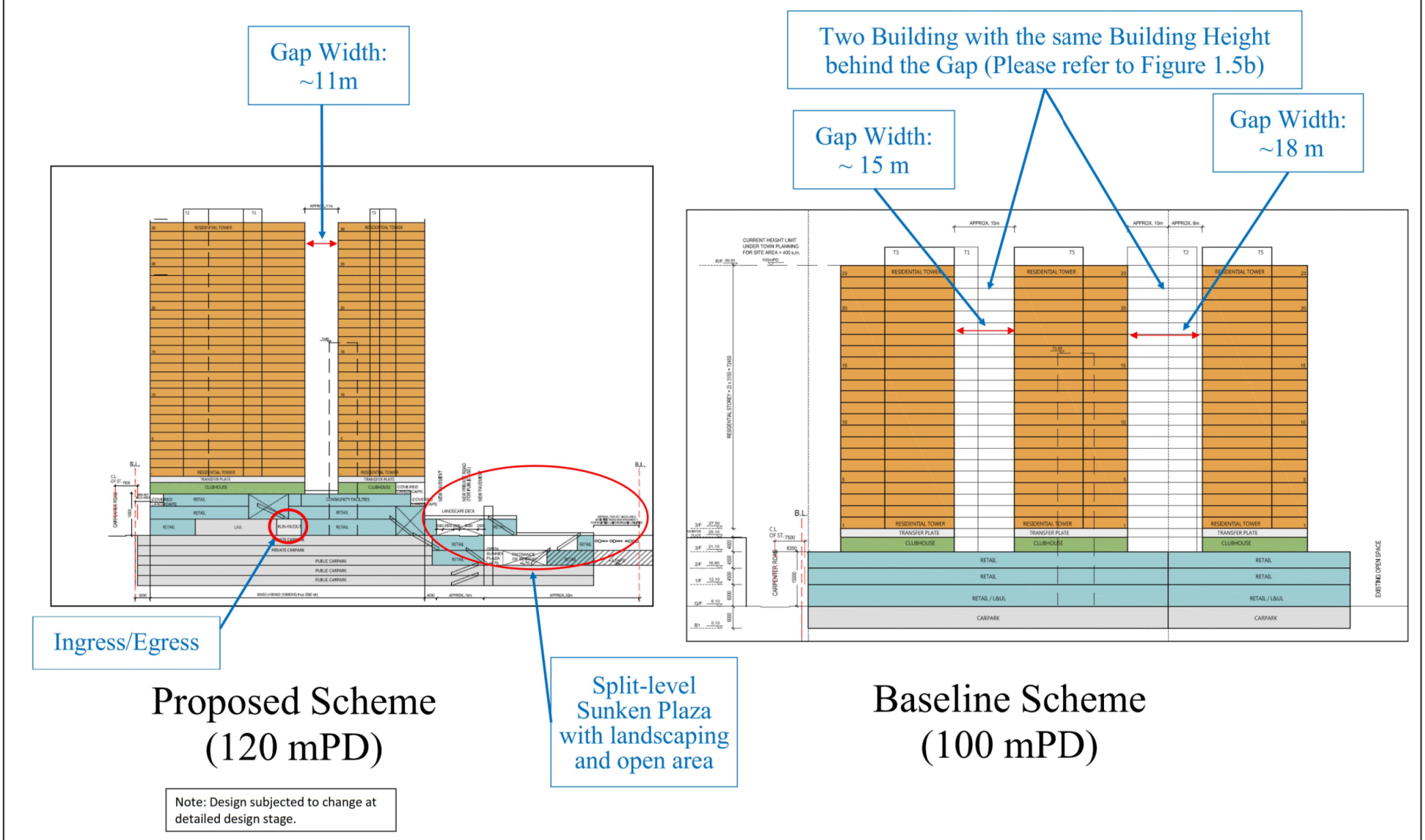
參考編號 REFERENCE No.
M/K10/19/11

繪圖 DRAWING
6a2

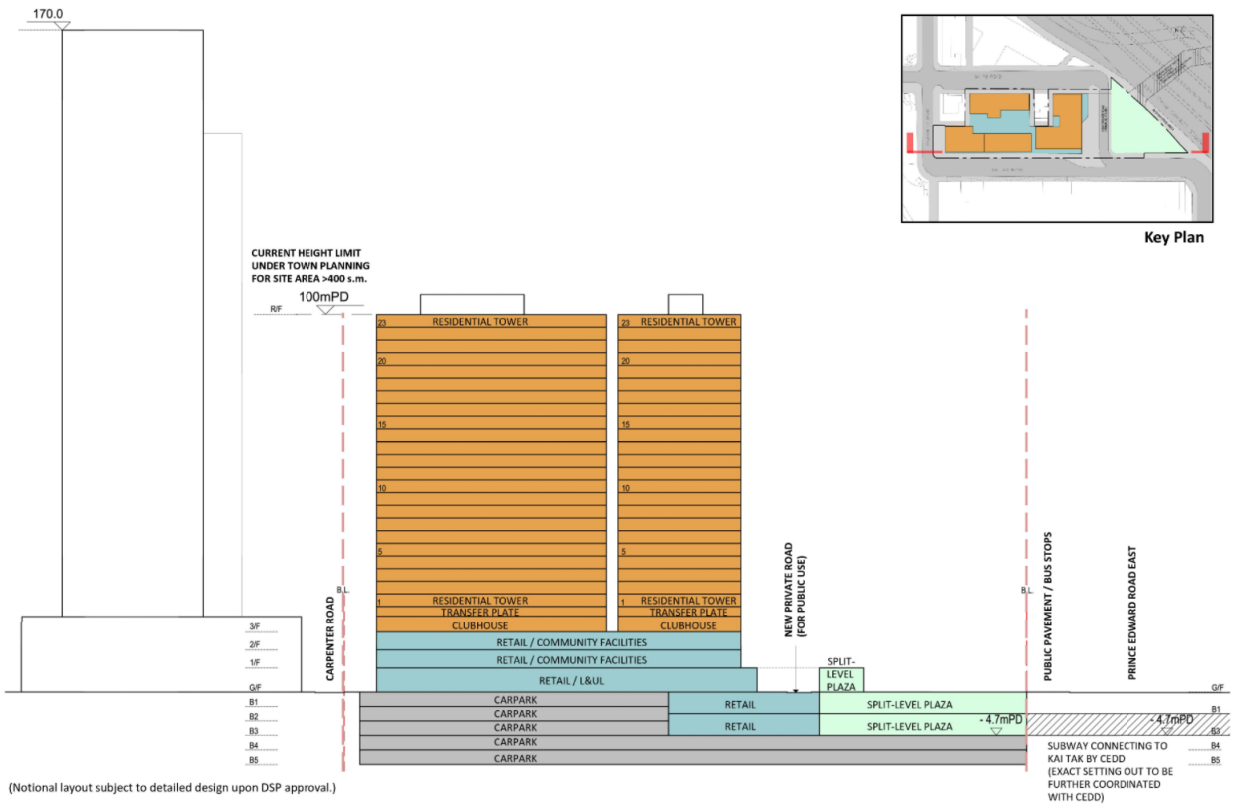
市區重建局 URBAN RENEWAL AUTHORITY

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Scheme 100mPD with Sunken Plaza– Block Plan



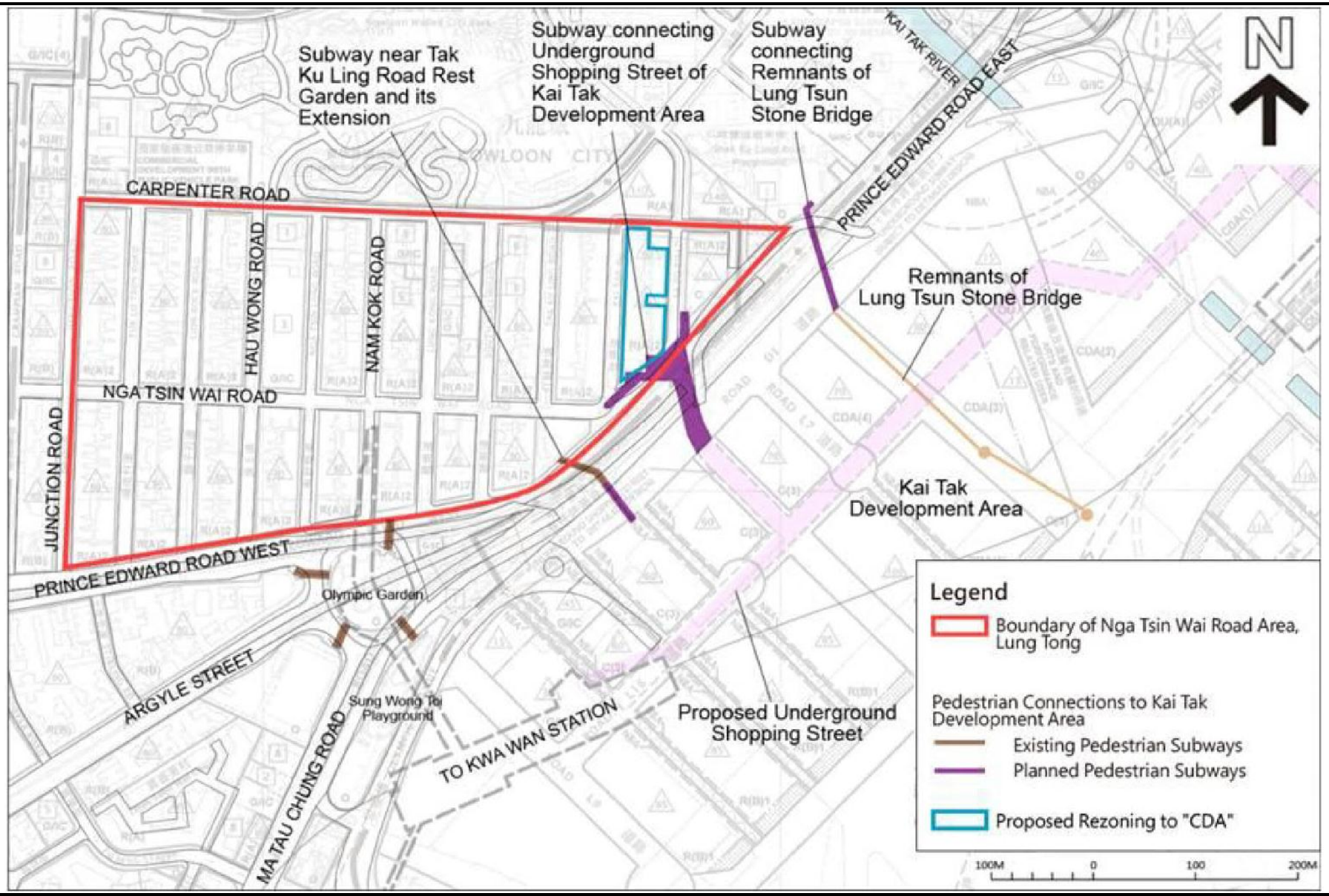
CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Comparison of the Schemes**	SCALE N.T.S. / DATE Feb-18 CHECK KW / DRAWN CC JOB NO. IA17019/K015 / FIGURE NO. 1.5a / REV. 1	



URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Scheme 100mPD with Sunken Plaza – Schematic Section

（資料來源：由市區重建局提交）
(Source: Submitted by Urban Renewal Authority)

參考編號 REFERENCE No. M/K10/19/11	繪圖 DRAWING 6b



資料來源：九龍城市區更新地區諮詢平台
SOURCE : KOWLOON CITY DURF

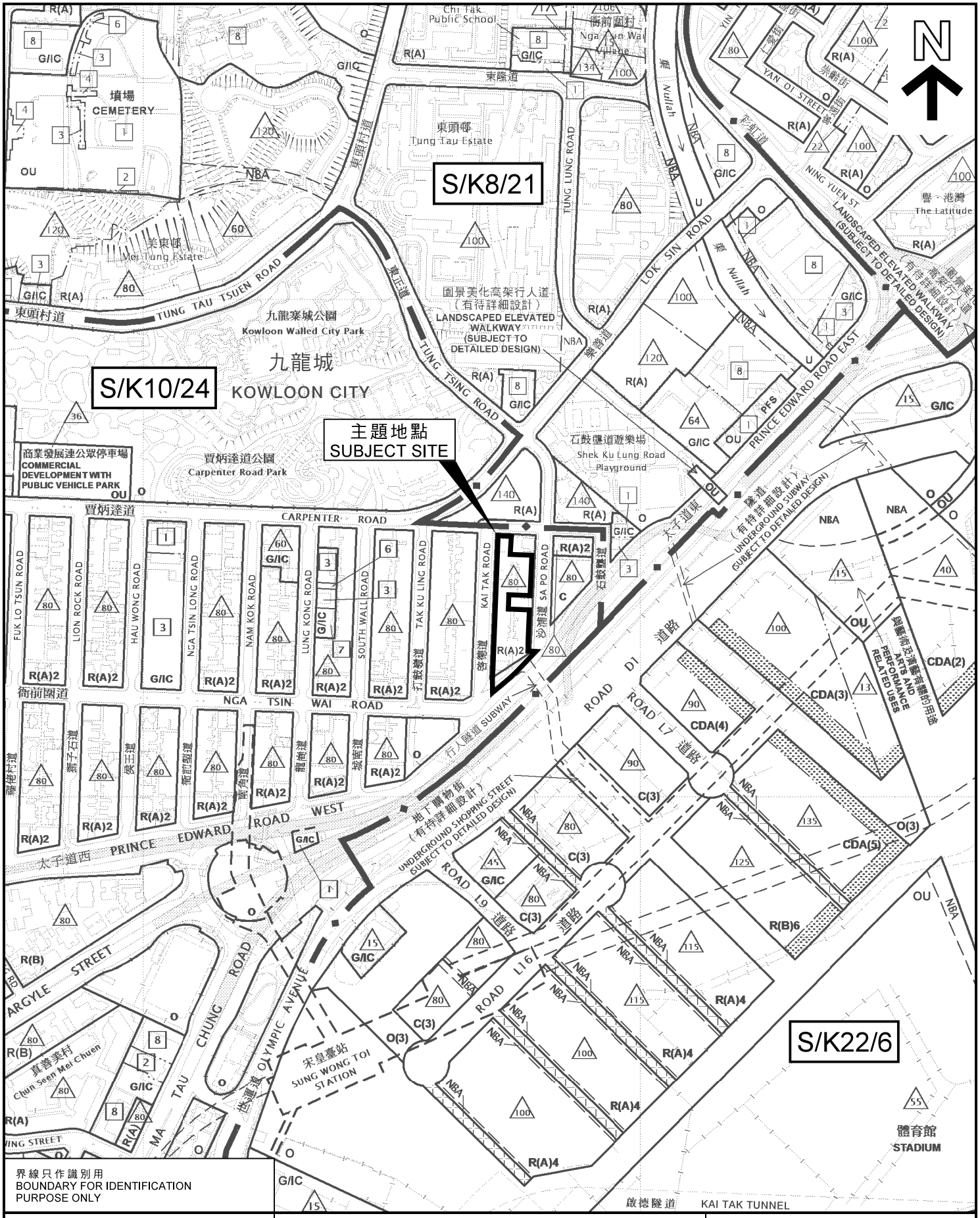
本圖於2019年5月14日擬備
PLAN PREPARED ON 14.5.2019

九龍城市區更新計劃
URBAN RENEWAL PLAN FOR KOWLOON CITY

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
1



界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年5月2日擬備，
所根據的資料為：
於2011年10月4日核准的分區計劃大綱圖編號S/K8/21，於2019年1月8日核准的分區計劃大綱圖編號S/K10/24，以及於2018年5月15日核准的分區計劃大綱圖編號S/K22/6

EXTRACT PLAN PREPARED ON 2.5.2019
BASED ON OUTLINE ZONING PLANS No. S/K8/21 APPROVED ON 4.10.2011, S/K10/24 APPROVED ON 8.1.2019 AND S/K22/6 APPROVED ON 15.5.2018

位置圖 LOCATION PLAN

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

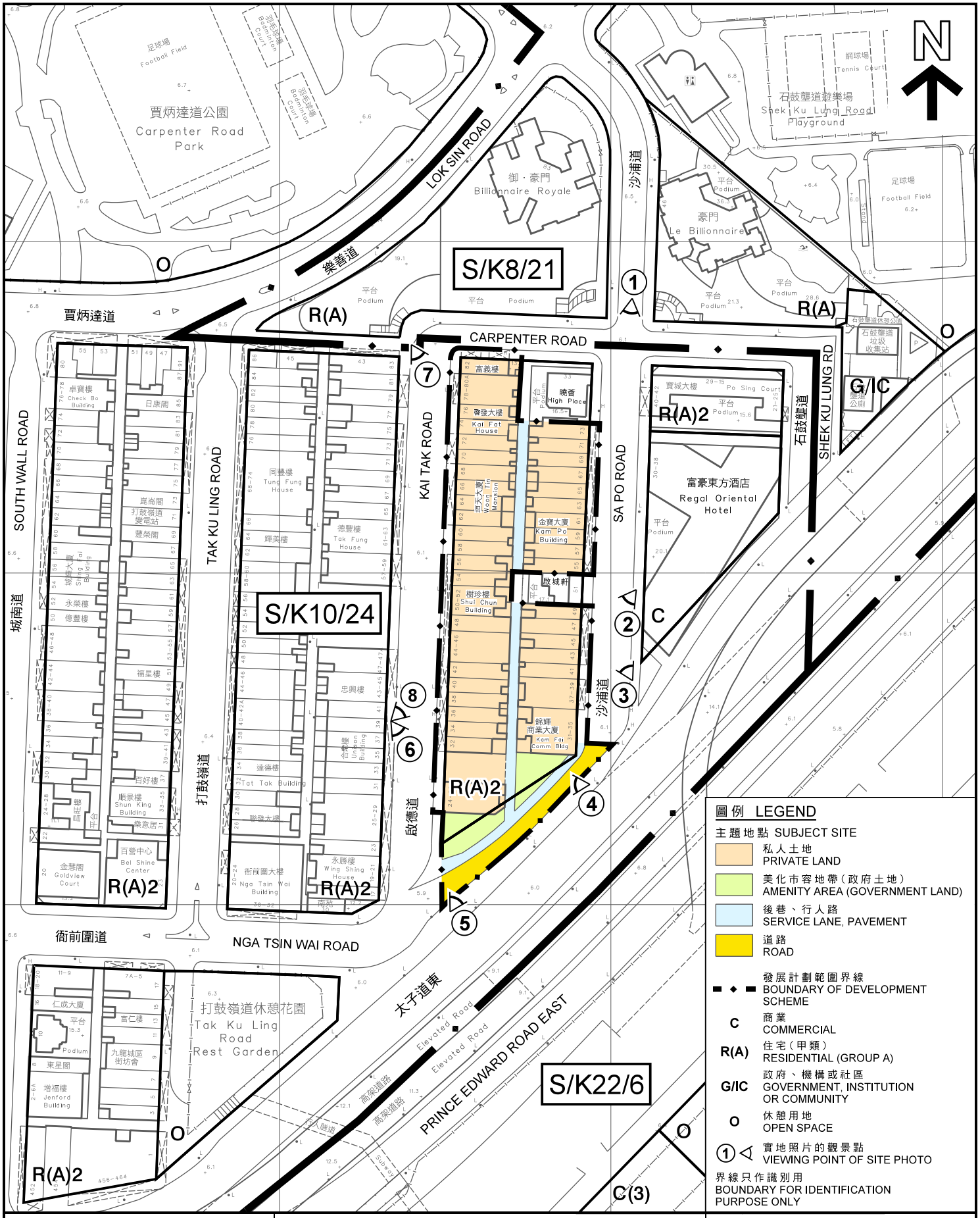
SCALE 1 : 5 000 比例尺

米 METRES 100 0 100 200 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
2



本摘要圖於2019年5月2日擬備，
所根據的資料為測量圖編號
11-NE-11A

EXTRACT PLAN PREPARED ON 2.5.2019
BASED ON SURVEY SHEET No.
11-NE-11A

平面圖 SITE PLAN

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

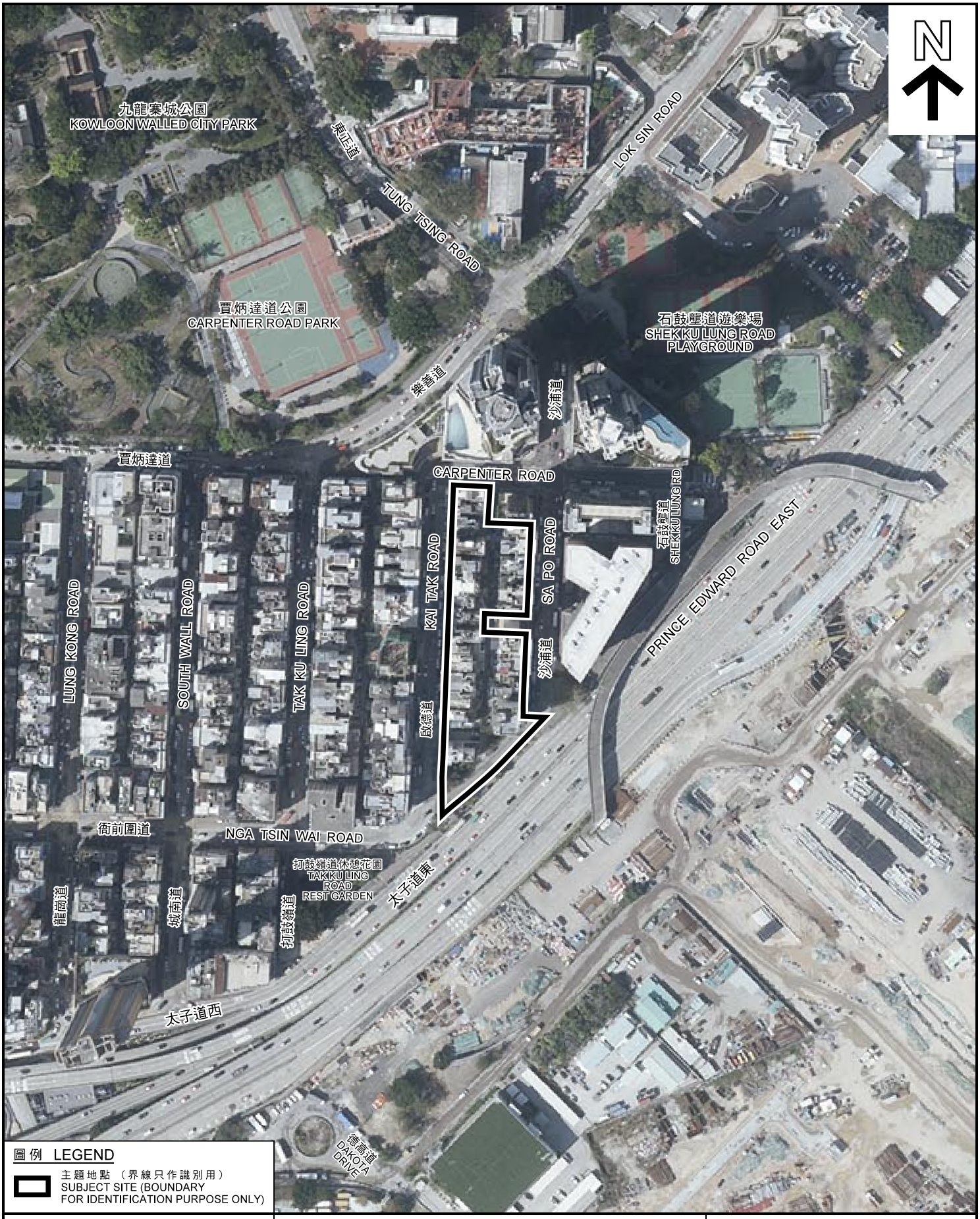
SCALE 1 : 1 500 比例尺

米 METRES 20 0 20 40 60 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
M/K10/19/1
M/K10/19/11

圖 PLAN
3



圖例 LEGEND

主題地點（界線只作識別用）
SUBJECT SITE (BOUNDARY FOR IDENTIFICATION PURPOSE ONLY)

本圖於2019年5月2日擬備，
所根據的資料為地政總署於
2018年3月10日拍得的
航攝照片編號E034169C

PLAN PREPARED ON 2.5.2019
BASED ON AERIAL PHOTO No.
E034169C TAKEN ON 10.3.2018
BY LANDS DEPARTMENT

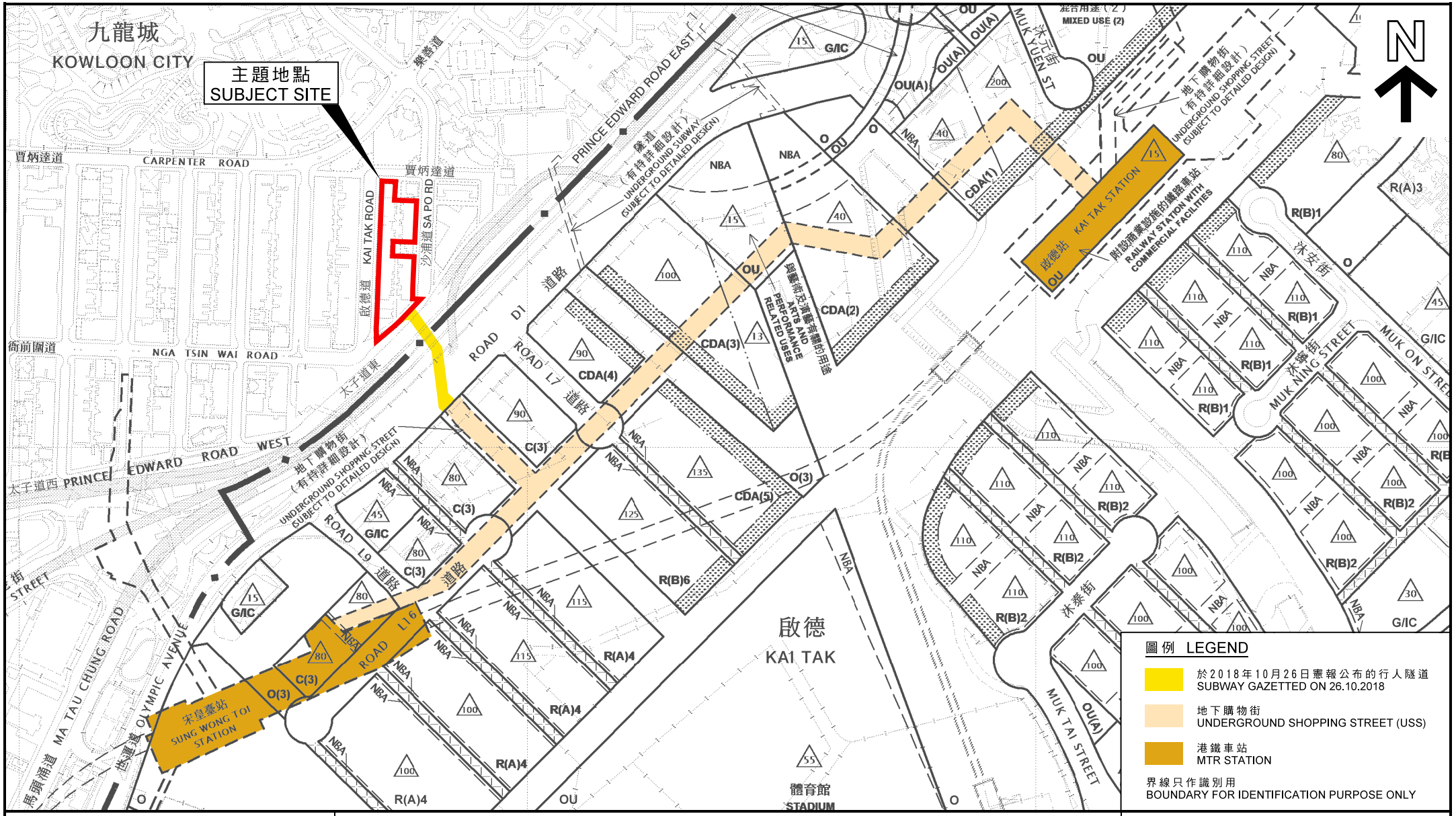
航攝照片 AERIAL PHOTO

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
4



圖例 LEGEND

- 於2018年10月26日憲報公布的行人隧道 SUBWAY GAZETTED ON 26.10.2018
- 地下購物街 UNDERGROUND SHOPPING STREET (USS)
- 港鐵車站 MTR STATION

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年5月2日擬備，
所根據的資料為於2018年5月15日
核准的分區計劃大綱圖編號S/K22/6

EXTRACT PLAN PREPARED ON 2.5.2019
BASED ON OUTLINE ZONING PLAN No.
S/K22/6 APPROVED ON 15.5.2018

位置圖 LOCATION PLAN

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

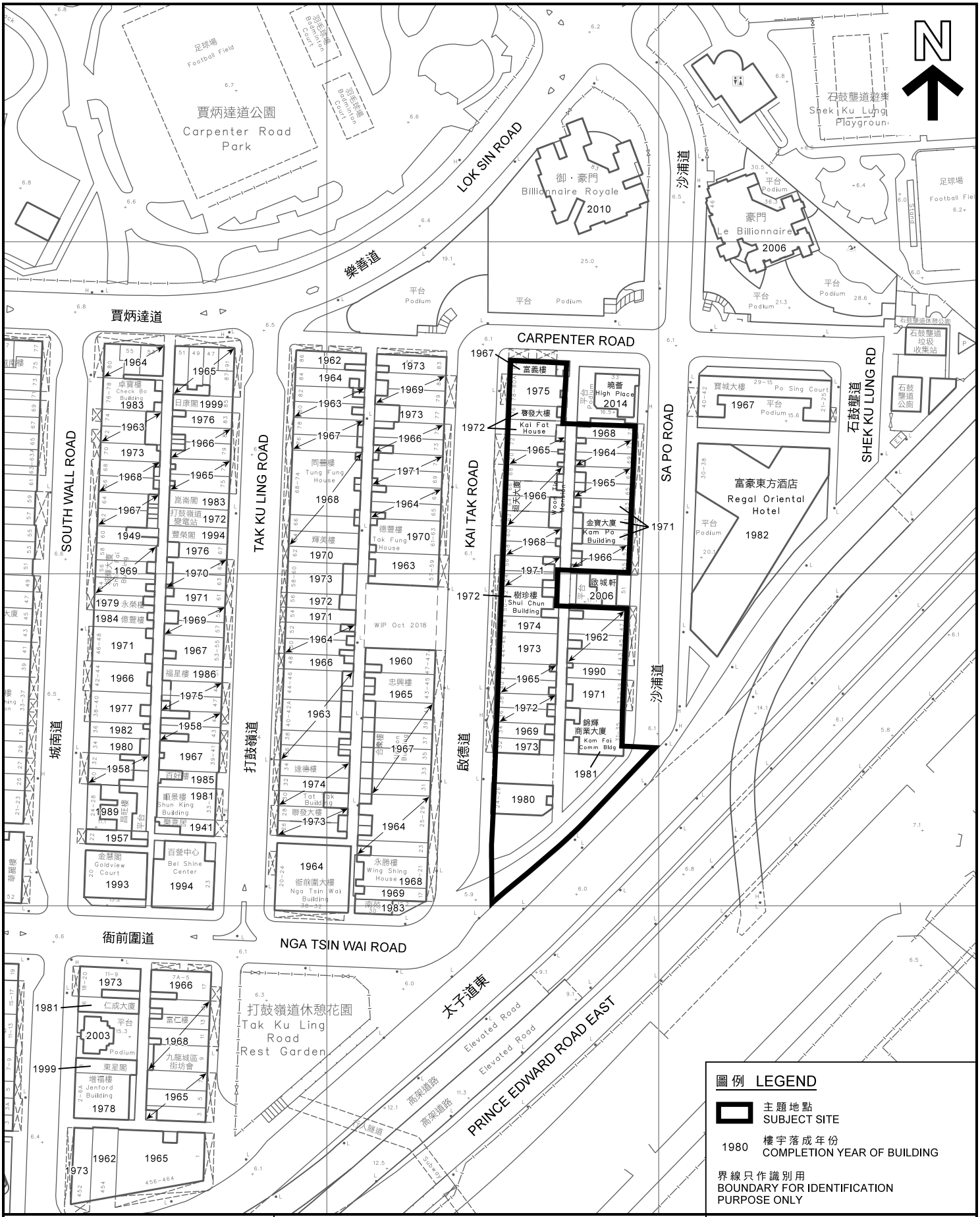
SCALE 1 : 5 000 比例尺

米 METRES 100 0 100 200 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
5



圖例 LEGEND

主題地點
SUBJECT SITE

1980 樓宇落成年份
COMPLETION YEAR OF BUILDING

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年5月2日擬備，
所根據的資料為測量圖編號
11-NE-11A

EXTRACT PLAN PREPARED ON 2.5.2019
BASED ON SURVEY SHEET No.
11-NE-11A

平面圖 SITE PLAN

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

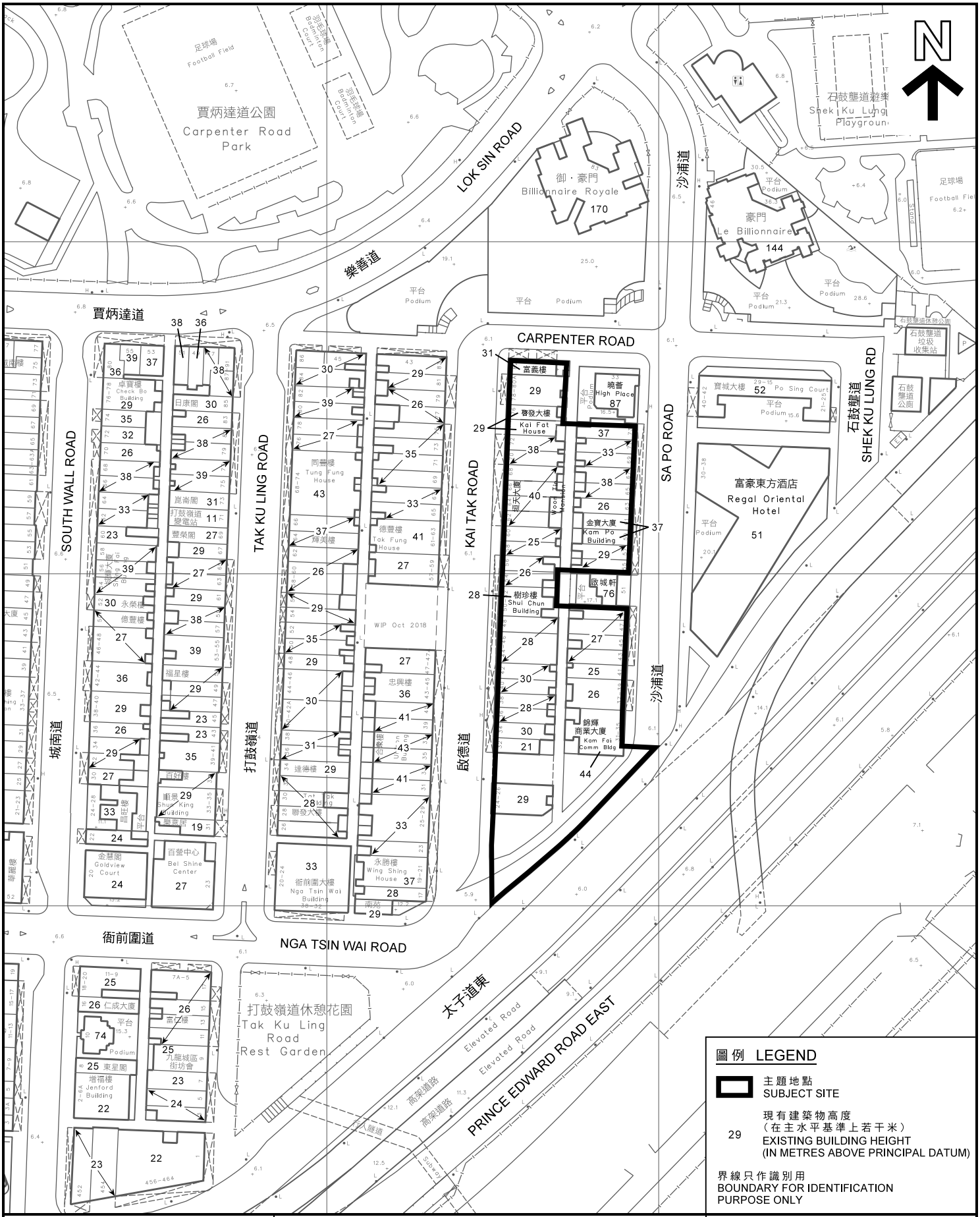
SCALE 1 : 1 500 比例尺

米 METRES 20 0 20 40 60 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
M/K10/19/1
M/K10/19/11

圖 PLAN
6



圖例 LEGEND

主題地點
SUBJECT SITE

29 現有建築物高度（在主水平基準上若干米）
EXISTING BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年5月2日擬備，
所根據的資料為測量圖編號
11-NE-11A

EXTRACT PLAN PREPARED ON 2.5.2019
BASED ON SURVEY SHEET No.
11-NE-11A

平面圖 SITE PLAN

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

SCALE 1 : 1 500 比例尺

米 METRES 20 0 20 40 60 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
M/K10/19/1
M/K10/19/11

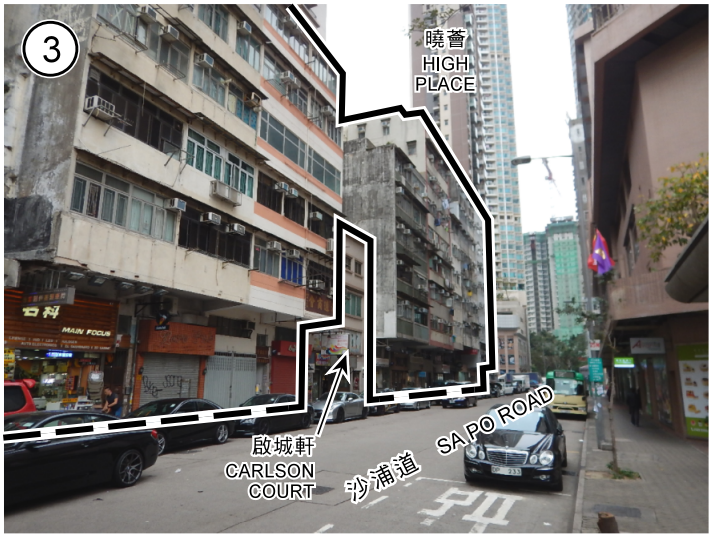
圖 PLAN
7



主題地點
SUBJECT SITE



主題地點
SUBJECT SITE



主題地點
SUBJECT SITE

界線只作識別用
BOUNDARY FOR IDENTIFICATION
PURPOSE ONLY

本圖於2019年5月2日擬備，
所根據的資料為攝於
2019年1月16日的實地照片

PLAN PREPARED ON 2.5.2019
BASED ON SITE PHOTOS
TAKEN ON 16.1.2019

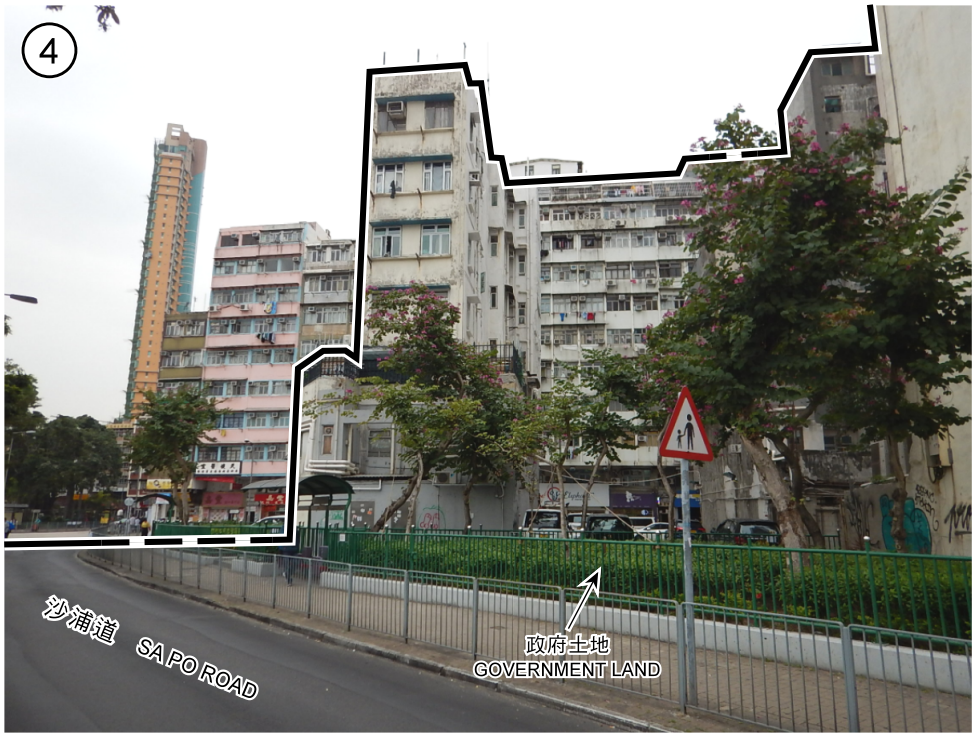
實地照片 SITE PHOTOS

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
8



主題地點
SUBJECT SITE



主題地點
SUBJECT SITE

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本圖於2019年5月2日擬備，
所根據的資料為攝於
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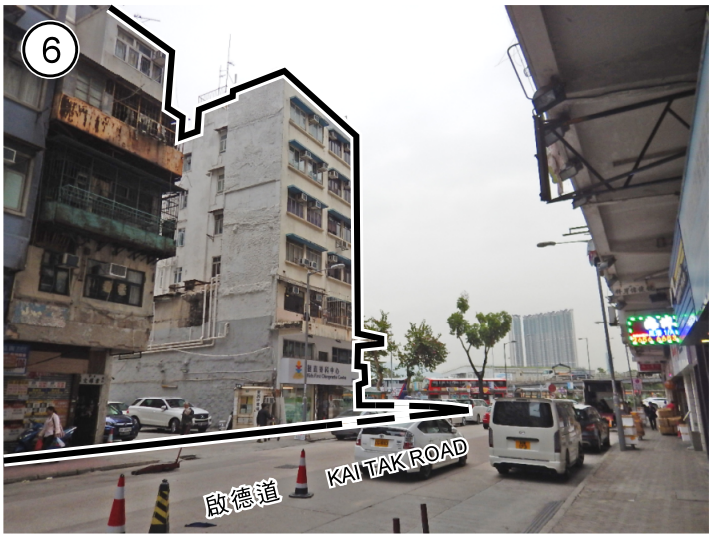
實地照片 SITE PHOTOS

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
9



主題地點
SUBJECT SITE



主題地點
SUBJECT SITE



主題地點
SUBJECT SITE

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2019年5月2日擬備，
所根據的資料為攝於
2019年1月16日的實地照片

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BASED ON SITE PHOTOS
TAKEN ON 16.1.2019

實地照片 SITE PHOTOS

市區重建局啟德道/沙浦道發展計劃
URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K10/19/11

圖 PLAN
10

市區重建局
URBAN RENEWAL AUTHORITY

Kai Tak Road / Sa Po Road
Development Scheme (KC-015)



Stage 2 Social Impact Assessment

April 2019

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Appendix 1 : Non-domestic G/F Premises and Site within the Scheme Area

1. INTRODUCTION

1.1 The new Urban Renewal Strategy (URS) issued by the Government in February 2011 states that the Urban Renewal Authority (URA) will carry out Social Impact Assessment (SIA) studies in the form of "*a Stage 1 social impact assessment ….. before the publication of any proposed redevelopment project in the Government Gazette*"; and *"a Stage 2 social impact assessment …. after the proposed project has been published in the Government Gazette*".

1.2 URA published in the Government Gazette the commencement of the Kai Tak Road/ Sa Po Road Development Scheme KC-015 (the Scheme) by way of development scheme under section 25 of the Urban Renewal Authority Ordinance on 22 February 2019. On the same day the Stage 1 SIA was made available for public inspection. This Stage 2 SIA report is based on the factual data and opinions collected as part of the freezing survey for this Scheme conducted from 22 February 2019 to 24 February 2019, and from the follow-up survey visits by appointments conducted up to 15 March 2019.

1.3 This report covers the elements listed in paragraph 37 of the URS for the affected residents, families and businesses within the Scheme, including:

(a) the population characteristics of the residents affected by the proposed project;
(b) the socio-economic characteristics of the affected residents;
(c) the rehousing needs of the affected tenants;
(d) the relocation needs of the affected shop operators;
(e) the housing preferences of the affected owners and tenants;
(f) the employment status of the affected owners and tenants;
(g) the place of work of the affected owners and tenants;
(h) the social networks of the affected owners and tenants;
(i) the educational needs of children of the affected families;
(j) the special needs of the elderly;
(k) the special needs of the disabled;
(l) the special needs of single-parent families, particularly those with small children;
(m) a detailed assessment of the potential social impact of the proposed project; and
(n) a detailed assessment of the mitigation measures required.

1.4 The St. James' Settlement has been commissioned by the Urban Renewal Fund (URF) to act as the Social Service Team (SST) for this Scheme. They are tasked to provide assistance and advice to residents and business operators affected by the Scheme. Cases requesting assistance and those identified in the course of the SIA analysis as requiring assistance have been referred to the SST for their follow-up actions.

2. BACKGROUND

2.1 Kai Tak Road/ Sa Po Road Development Scheme (the Scheme) is located in Kowloon City District, which is bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north (**Figure 2.1)**. It covers a gross site area of about 6,106 sq.m., involving two rows of buildings and land: 31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.), two pieces of government land in the southern part of the Scheme, a portion of Sa Po Road, a back lane, and portion of the surrounding public pavement. Apart from the residential buildings, there is one commercial building and one private vacant site (currently used as open carpark) within the Site. Two relatively young buildings at No.51 Sa Po Road and No.33 Carpenter Road built in 2006 and 2014 respectively are excluded. Subject to detailed design, the net site area used to calculate the development potential of the Scheme is about 5,352 sq.m..

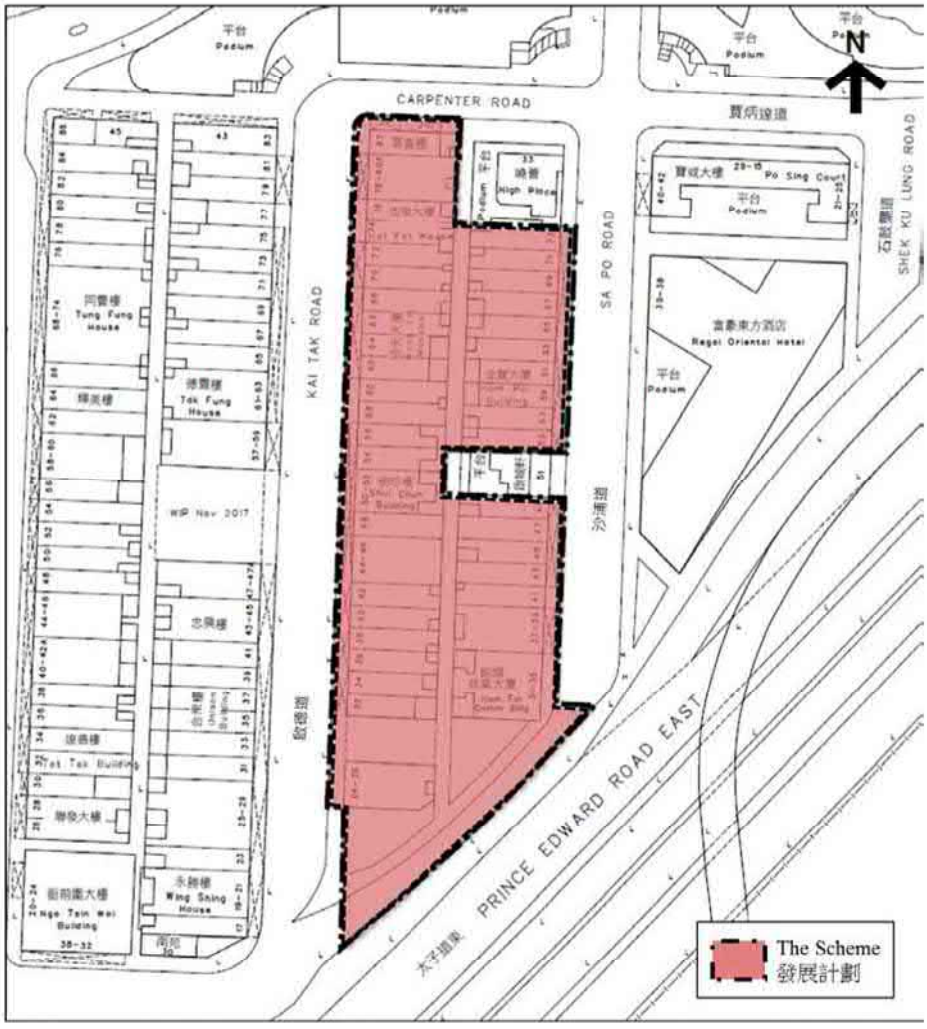


Figure 2.1 Location Plan

Distribution of Units and Households

2.2 The Freezing Survey (FS) successfully surveyed 371 domestic households (up to 15 March 2019). The detailed breakdowns of surveyed and the unsurveyed units will be illustrated in Section 3. **Table 2.1** shows the results of FS and SIA surveys within the Scheme. For those who refused to do the SIA questionnaires and those who refused to answer particular questions in the SIA questionnaire, will be categorized as "Nil Response" in the report.

Table 2.1 Results of FS and SIA surveys within the Scheme

	No. of Households
Total No. of surveyed households	371
Successfully responded to both FS and SIA questionnaire.	340
Only responded to FS but refused to do SIA questionnaire.	31

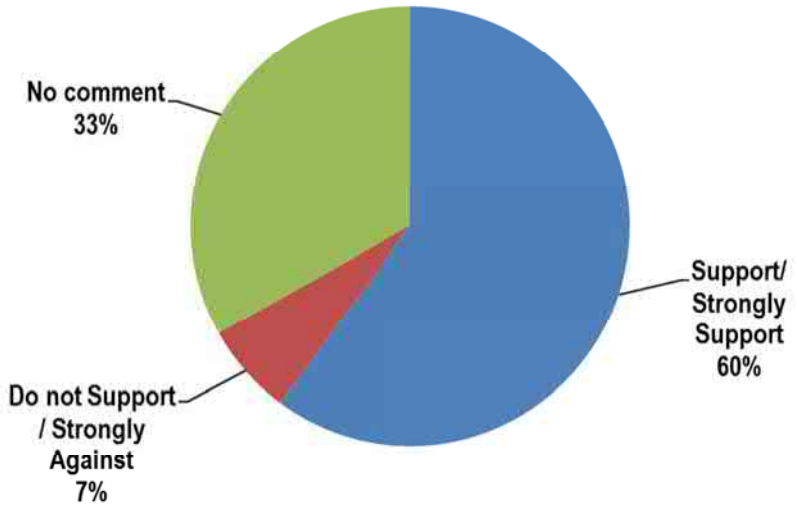
Business Operators and Non-domestic Premises

2.3 Regarding non-domestic uses, the FS successfully surveyed 63 business operators (up to 15 March 2019), occupying 84 premises and 1 vacant site. The details will be illustrated in Section 11.

Views on redevelopment

2.4 **Figure 2.2** shows that out of the total 371 surveyed households, 223 households (about 60%) indicated that they either strongly supported or supported the proposed Scheme.

Figure 2.2 Domestic Households' Views on Redevelopment (371 Households)



3. POPULATION & HOUSEHOLD CHARACTERISTICS

3.1 Except stated otherwise, the territorial average numbers used for comparison in this report are based on the 2016 Population By-census, and the assessments will be based on the latest available information for comparison where appropriate.

3.2 The population and household characteristics in the Scheme is listed in **Table 3.1** below.

Table 3.1 Population and Household Characteristics in the Scheme

Total Number of Households	371 households
Total Population	961 persons
Average Household Size	About 2.6 persons per household; lower than the territorial average of 2.8 persons per household.
Actual Successfully Surveyed Units/ Cubicles	373 units (refer to **Table 3.2** below)
Degree of Sharing	1.0 (371 households/373 surveyed units/ cubicles); similar to the territorial average of 1.0 for private permanent housing.

3.3 However, if the 105 households living in the sub-divided units and 14 households living in the cubicles are considered as "sharing" of these original 47 units, the degree of sharing is about 2.5 (119 households /47 original surveyed GBP units) (Refer to **Figure 3.1 and Table 3.2**).

Figure 3.1 Percentage of Sub-divided Units in 335 Approved GBP Units

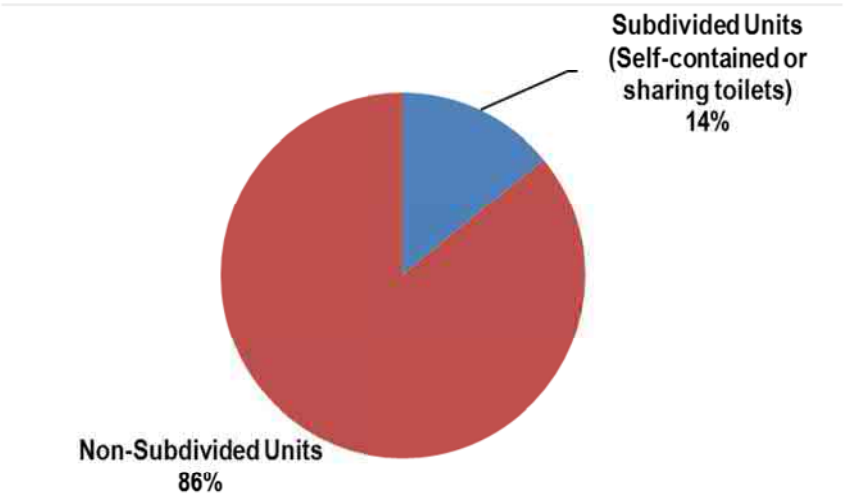


Table 3.2 Sub-Division of Domestic Units

			According to Original GBP	Units or Cubicles Actual Found	Number of Households
Surveyed	**Non-subdivided domestic units**		233	233	233
	Sub-divided domestic units *(self-contained with independent facilities)*	*Surveyed units for domestic use (cubicle)*	47 / 5	14 cubicles	14
		Surveyed units for domestic use (self-contained units with independent facilities)	47 / 42 Note 1	105 subdivided units Note 1	105 Note 1
	Sub-total		**280**	**352**	**352**
	Domestic unit (according to GBP) used for both domestic and non-domestic use (mixed uses)		4	4	2 Note 2
	Domestic unit (according to GBP) used for non-domestic use		4	N/A	N/A
	Non-domestic unit (according to GBP) used for both domestic and/or non-domestic use		N/A	13	13
	Rooftop (not shown in GBP)		N/A	4	4
	Sub-total		**288**	**373**	***371***
	Unsurveyed Domestic Unit		*47*	*N/A*	*N/A*
	Total No. of Units for Domestic Use found in the Scheme		***335***	***373***	***371***

Remarks:

Results are as of 15 March 2019

Note 1 42 domestic units (according to GBP use) are subdivided into 106 subdivided units, which 1 of the 106 subdivided units is used for non-domestic use (refer to Table 11.1 Note 3).

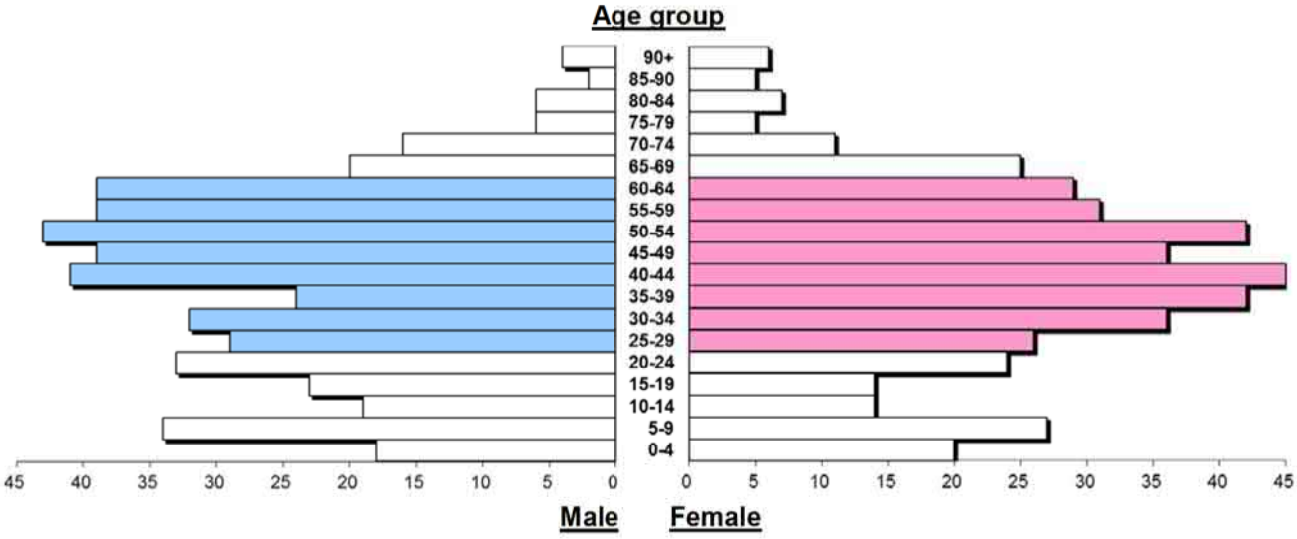
Note 2 There are 2 households/operators occupied 4 domestic units (according to GBP) and used for both domestic and non-domestic use (mixed use), in which 1 household/operator occupied 3 domestic units (according to GBP). The 2 households/operators have completed FS and SIA Forms for both domestic and non-domestic use (refer to Table 11.1 note 4).

3.4 A total of 961 residents were recorded in the Freezing Survey, 490 were male, 461 were female, and 10 residents did not provide any information. The distribution gives a ratio of about 106 male residents to every 100 female residents. **Figure 3.2** and **Table 3.3** shows the age structure of the surveyed population.

Table 3.3 Age Structure of the Population

Age Group	Within the Scheme	Territory wide level	Comparison
0-14 (Children)	15%	11%	Slightly higher
15-24 (Youth)	10%	11%	Similar
25-64 (economically active age group)	63%	62%	Similar
65+ (Elderlies)	12%	16%	Slightly lower
Total	**100%**	**100%**	

Figure 3.2 Age Structure



4. SOCIO-ECONOMIC CHARACTERISTICS

Income Level

4.1 This section will be based on the 371 surveyed households and 961 residents' surveyed up to 15 March 2019. The distribution of household income is shown in **Figure 4.1 and Table 4.1** below.

Figure 4.1 Household Income (HK$ per month)

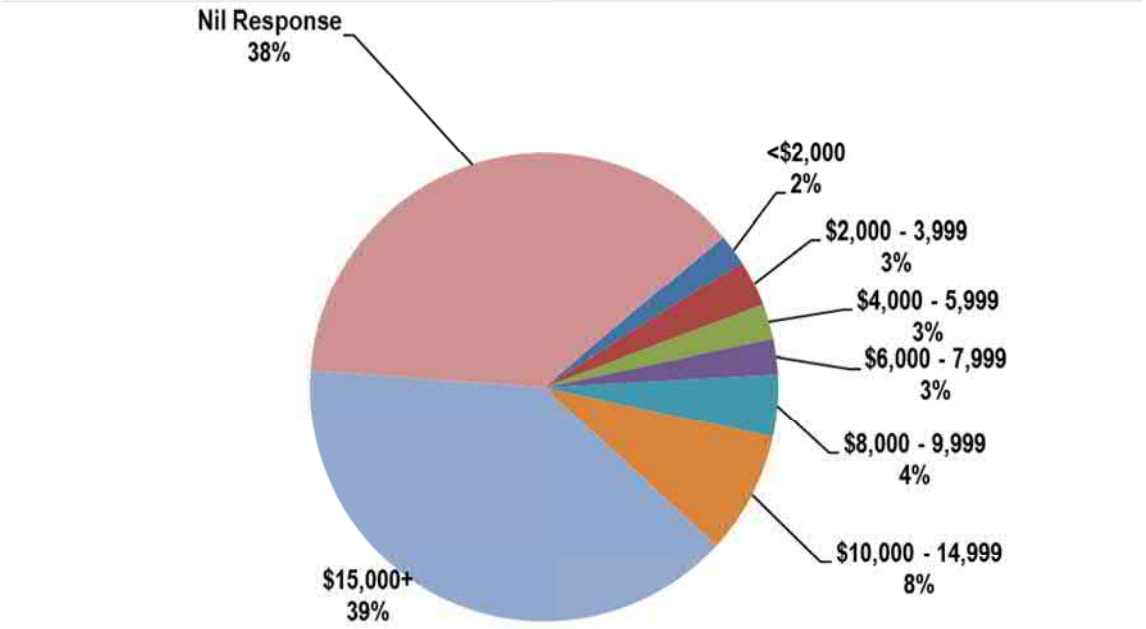


Table 4.1 Distribution of Household Income

	Within the Scheme	Territory wide level	Comparison
Monthly income less than HK$10,000 per month	13%	19%	lower
Monthly income less than HK$4,000 per month	5%	6%	similar
Comprehensive Social Security Assistance (CSSA) Recipients	6% (23 households)	About 4% as at February 2019[1]	higher

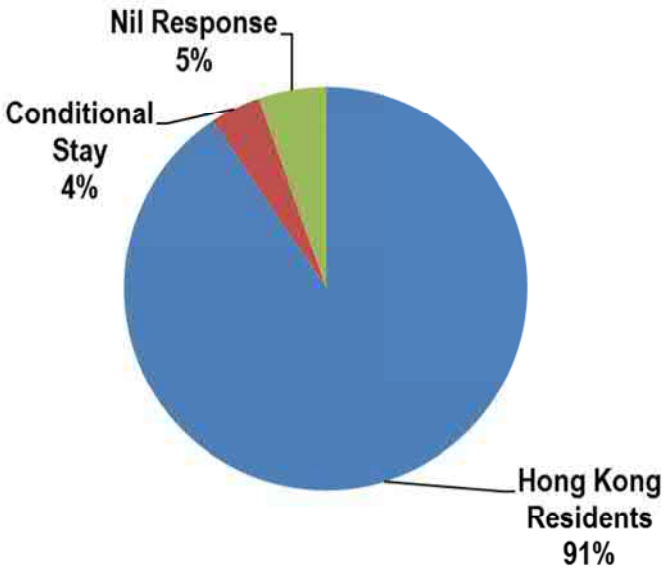
4.2 The URA and the SST will pay particular attention and to offer assistance to those in need of help and refer them to relevant services and practical assistance from various Government Departments and services providers.

[1] *'CSSA caseload for February 2019, 20 March 2019, Press Release The Government of the Hong Kong Special Administrative Region.*

Residence

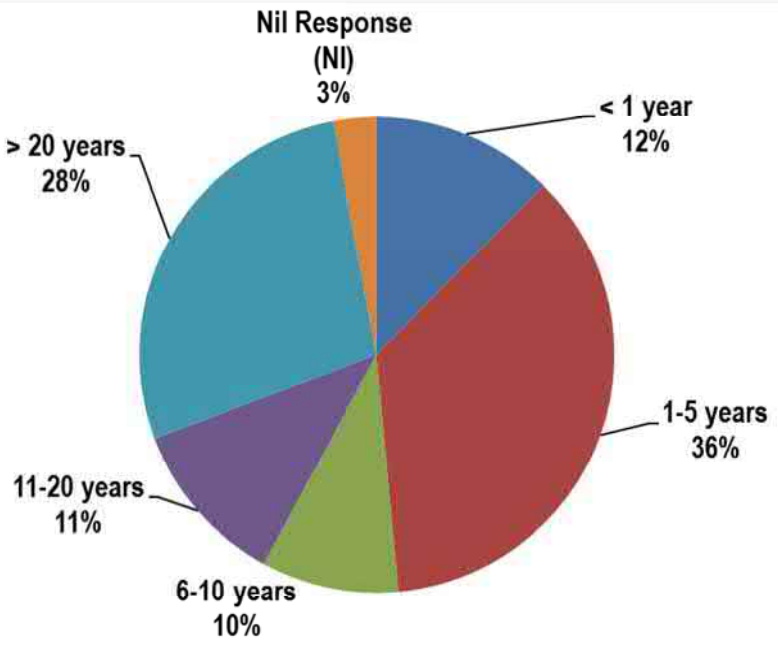
4.3 Thirty-nine (39) residents (about 4%) were subject to conditions of stay in Hong Kong, as shown in **Figure 4.2**. This group of people will not be able to meet the eligibility criteria for public rental housing under the Hong Kong Housing Authority (HKHA) and the Hong Kong Housing Society (HKHS). Subject to the merits of individual cases, some may be considered under special circumstances by the SST and the URA, and rehousing may be offered on genuine compassionate grounds. Assistance will also be provided, if requested, in finding potential suitable premises at affordable rent in the private market.

Figure 4.2 HKSAR Resident Status (Total 961 residents)



4.4 The number of years of residency is shown in **Figure 4.3**. A total of 103 households (28%) have lived within the Scheme continuously for over 20 years. This group might find it more difficult to adjust to a new living environment. The assistance from the SST in providing orientation services and holding community gatherings will be important in helping these residents adapt to their new living environment.

Figure 4.3 Period of Residence at Current Premises (Total 371 Households)



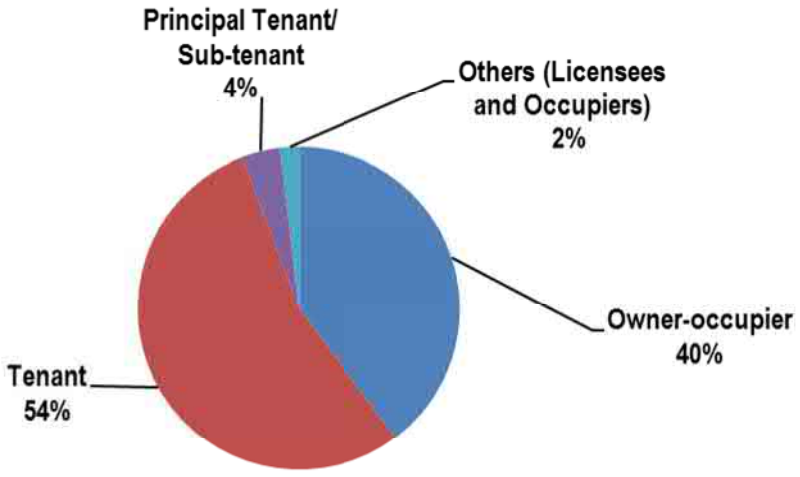
5. HOUSING

Re-housing Needs and Location Preference

5.1 **Figure 5.1** shows the occupancy status of households. There are 145 Owner-occupier households (39%) and 226 tenant households (61%) (all tenant, principal tenants, sub-tenants and others are classified as tenant households for analysis purpose). The tenants in the Scheme may generate a demand for rehousing services should the Scheme be approved by CE in C for implementation and subject to their eligibility for rehousing.

5.2 Four rooftop structures were found within the Scheme. According to the approved GBPs, the roof of all the buildings in the Scheme should be open roofs without approved domestic units. All the rooftop structures are suspected to be unauthorised structures. For rooftop structure occupiers, apart from meeting the eligibility criteria adopted by the HKHA in rehousing, there are other specific criteria[2] that the rooftop structure occupiers have to satisfy in order to be eligible for public rental housings. For rooftop households which are not eligible for rehousing but with genuine needs, they may be considered as special cases and rehousing may be offered on genuine compassionate grounds.

Figure 5.1 Occupancy Status of Households (371 Surveyed Households)

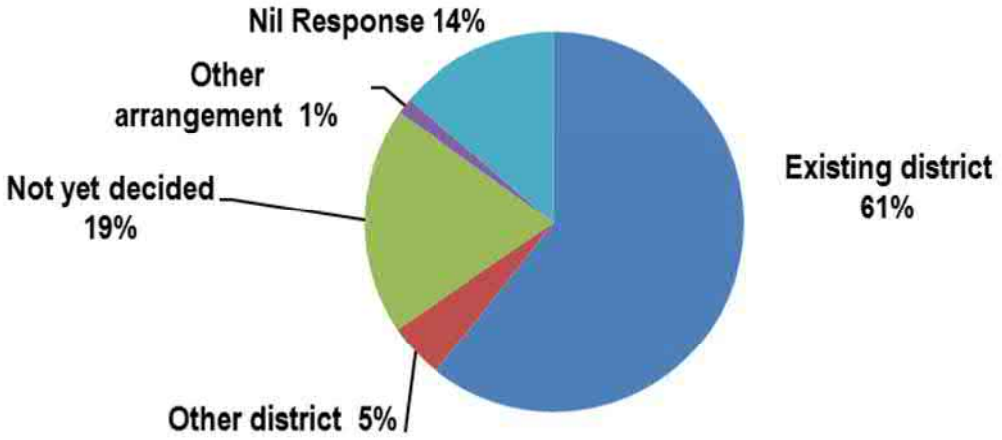


[2] *The relevant specific criteria are listed in the URA website:*
https://www.ura.org.hk/en/redevelopment/tenants-corner/rehousing-and-ex-gratia-allowance-policies

Affected Owner-occupiers (145 Households)

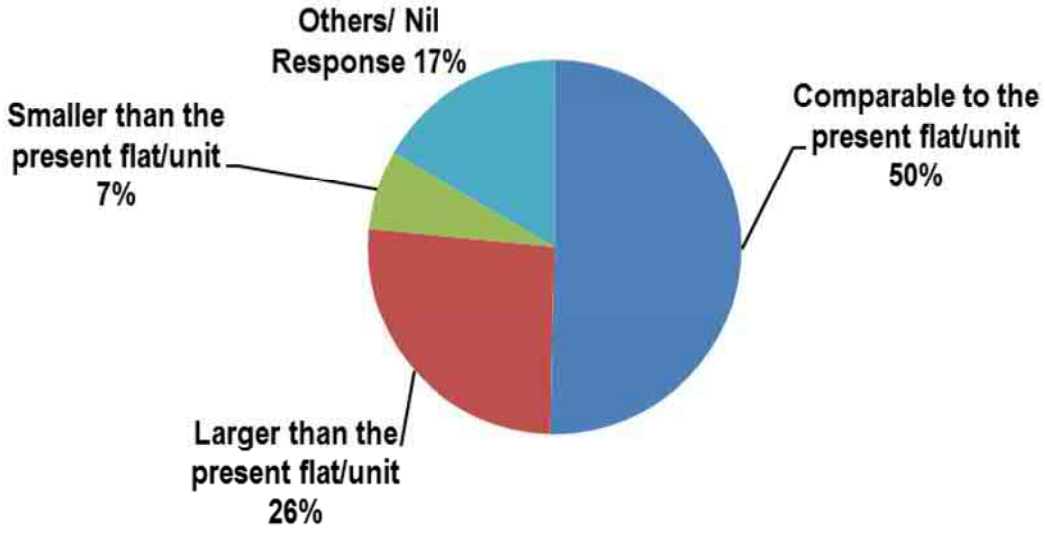
5.3 **Figure 5.2** shows the 145 surveyed owner-occupiers' preference of finding alternative accommodations in the existing district (i.e. Kowloon City) or in other districts.

Figure 5.2 Preference of Alternative Accommodation Location (145 Households)



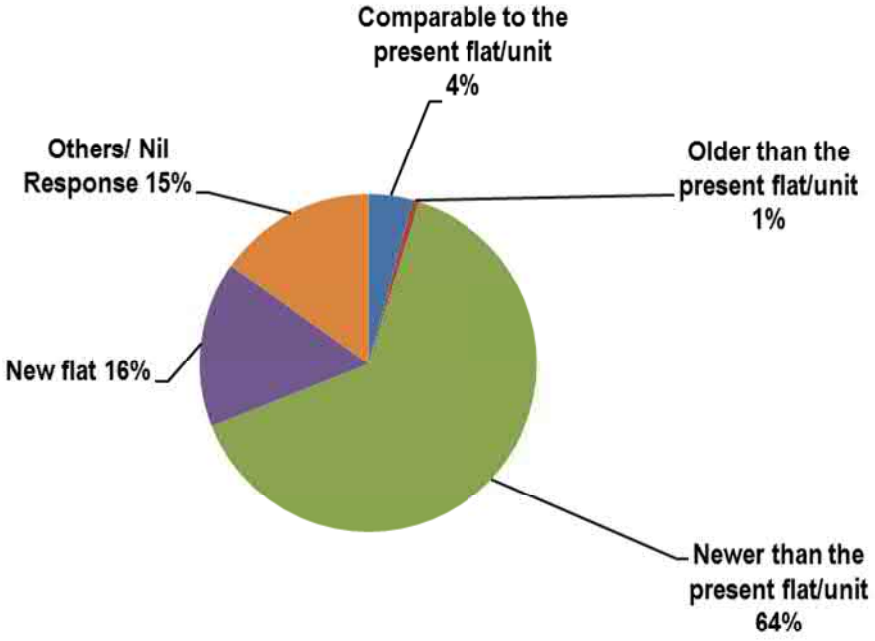
5.4 **Figure 5.3** shows the owner-occupier households' preference on flat size for the new accommodation.

Figure 5.3 Preference of Flat Size (145 Households)



5.5 **Figure 5.4** shows the owner-occupier households' preference on building age for the new accommodation.

Figure 5.4 Preference of Building Age (145 Households)

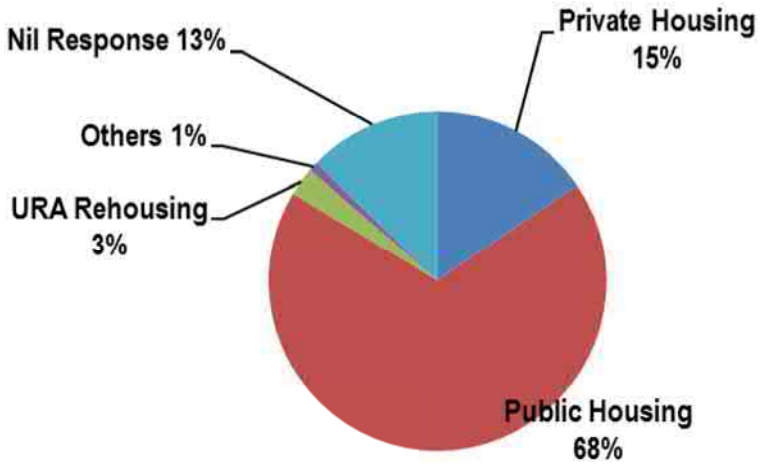


5.6 Subject to the approval by the CE in C to implement the Scheme, the URA will offer an owner-occupier of domestic property the market value, plus an ex-gratia allowance (namely home purchase allowance). It is believed that the affected owner-occupiers will be able to buy a newer flat of similar size in the same district. For those affected owner occupiers expressing their desire to move to a new flat, URA will offer 'Flat-for-Flat' (FFF) option for them (subject to their eligibilities) to choose to buy a new flat in-situ or in the same district or at available site(s), as an additional option to cash compensation.

Affected Tenants (226 Households)

5.7 **Figure 5.5** shows the tenant households' preference. However, as stated in paragraph 4.3 above, those residents who are subject to conditional stay in Hong Kong may not be eligible for public rental housing. Rehousing may only be considered in very special circumstances and on compassionate grounds.

Figure 5.5 Tenant households' Preference on New Accommodation (226 Households)



5.8 According to the agreement made between the URA and the Hong Kong Housing Authority (HKHA) and the Hong Kong Housing Society (HKHS), the HKHA and HKHS will provide flats within their estates for rehousing eligible tenants. The URA will liaise with HKHA and HKHS to reserve flats in available estates to cater for the potential demand. Subject to the availability of rehousing flats, the URA will endeavour to arrange allocation of rehousing flats for the eligible tenants in the same district (e.g. Kowloon City) or in Kowloon as far as practicable.

Affected Rooftop Residents

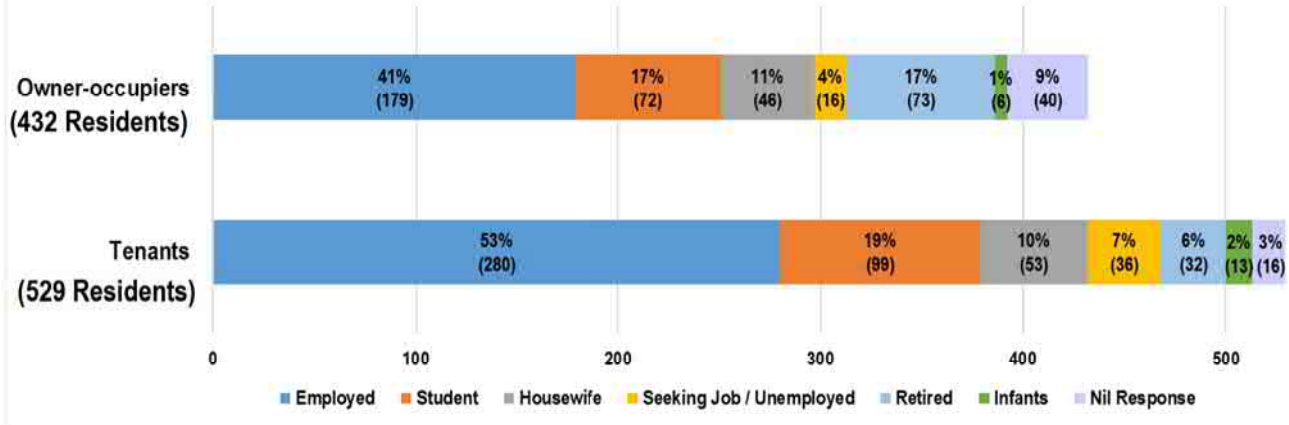
5.9 The surveyed rooftop households should follow the eligibility criteria for public rental housing adopted by the HKHA for illegal rooftop structure occupiers and the specific criteria as stated in paragraph 5.2 above should they be eligible for rehousing under current prevailing policies.

6. EMPLOYMENT STATUS AND PLACE OF WORK

6.1 Out of 961 residents (including 432 owner-occupiers and 529 tenants), 950 residents indicated their employment status and they are analyzed in paragraphs 6.2 to 6.5 below.

6.2 **Figure 6.1** shows details of employment status of the affected residents of owner-occupier households and tenant households respectively.

Figure 6.1 Employment Status of Affected Residents of Owner-occupier households and Tenant households (Total 961 residents)



6.3 **Table 6.1** shows the percentage share of different places of work of the employed persons within owner-occupier and tenant households.

Table 6.1 Percentage share of different places of work of the employed persons within owner-occupier and tenant households

	Employed persons in Owner-occupier Households (179 Residents)	Employed persons in Tenant Households (280 Residents)
Kowloon City	21%	17%
Wong Tai Sin & Kwun Tong	10%	16%
Yau Tsim Mong	13%	16%
Sham Shui Po	3%	2%
Kwai Tsing & Tsuen Wan	5%	3%
Hong Kong Island	16%	15%
New Territories & Outlying Islands	17%	8%
Outside Hong Kong (including Mainland China)	1%	0%
No Fixed District	13%	18%
Nil Response	1%	5%

6.4 For those employed tenants who are working in Kowloon City, there may be economic concerns arising from higher transportation costs if they were to be rehoused/relocated to other districts. The URA will endeavor to meet the locational preferences of residents for public rental housing from the HKHA and the HKHS subject to their eligibilities and the availability of flats at that time. The SST will investigate the needy cases as identified and depending on justifications, may make recommendations for rehousing on compassionate grounds.

6.5 The findings of the survey show that the unemployment rate of the residents of owner-occupier households and tenant households (4% and 7% respectively), are both higher than the territory-wide unemployment rate of 2.8% (seasonally adjusted, for the period from November 2018 to January 2019[3]). There may be financial difficulty for this group of unemployed residents in the Scheme. If the Scheme is to be implemented, the eligible households will be subject to the URA's prevailing compensation policies.

[3] Information from website of Census and Statistic Department as at 20 March 2019

7. EMPLOYMENT AND ECONOMIC IMPACTS

7.1 **Table 7.1** summarizes the impacts of the proposed redevelopment on employment and economic condition as anticipated by the 145 surveyed domestic owner-occupier households and 226 tenant households. For impact on employment, majority (52% and 53% respectively) said there would be no impact. For those expressing negative impacts (20% and 21% respectively), they were concerned about the increase in transport expenditure, longer travelling time to workplace, and difficulties in finding employment, etc. For those expressing negative impacts on economic condition (37% and 42% respectively), they were concerned about the less savings and additional expenditure resulting from the proposed Scheme.

Table 7.1: Anticipated Impacts on Employment and Economic Conditions

ANTICIPATED IMPACTS		Affected Owner-occupiers (145 Households)	Affected Tenants (226 Households)
Employment Condition	Positive Impact	1%	2%
	No Impact	52%	53%
	Negative Impact	20%	21%
	No Response	27%	24%
Economic Condition	Positive Impact	10%	11%
	No Impact	23%	24%
	Negative Impact	37%	42%
	No Response	30%	23%

7.2 After commencement of the Freezing Survey, the URA has organized two public briefings on 27 February 2019 to all affected owners and tenants; and one briefing session for Thai residents on 18 March 2019 to explain the prevailing policies on compensation and rehousing to alleviate their concerns. If the Scheme is to be implemented, the eligible households will be subject to the URA's prevailing compensation policies.

8. SOCIAL NETWORK

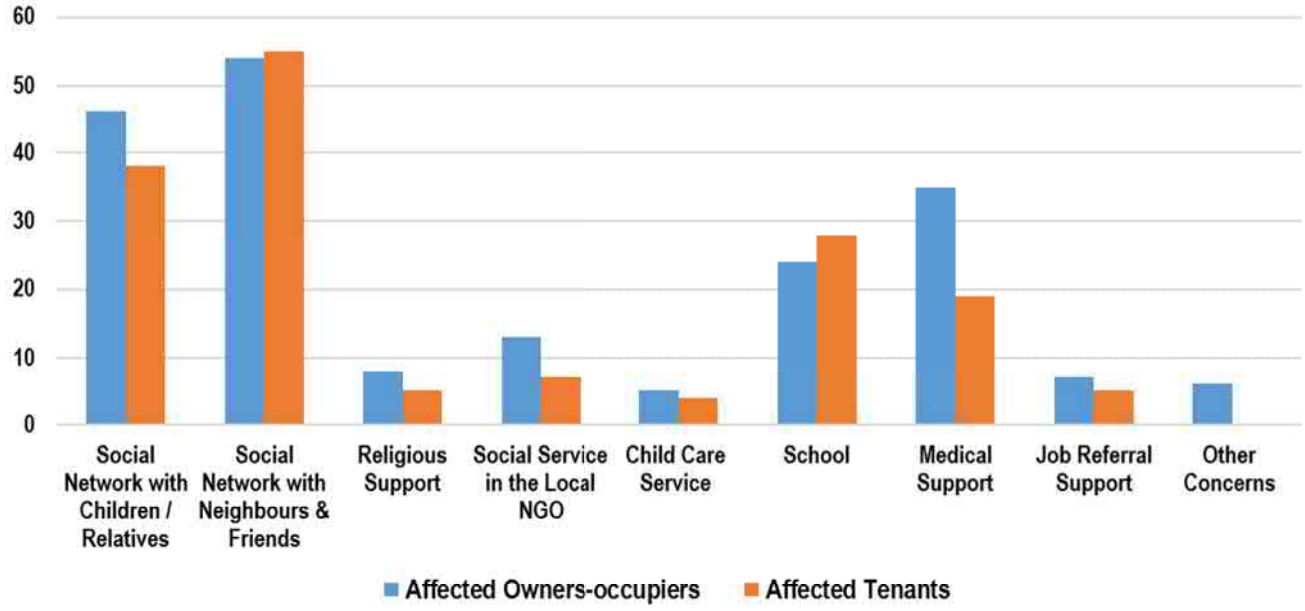
8.1 The likely impacts of the proposed redevelopment on owner-occupiers' and tenants' social network is shown in **Table 8.1**.

Table 8.1 Effects of Redevelopment on Social Network

	Affected Owners-occupiers (145 Households)	Affected Tenants (226 Households)
No Impact	34%	43%
Affected	52%	43%
No Response	14%	14%

8.2 The possible effects of the Scheme on the affected households' social network (each household can choose more than one concern) is shown in **Figure 8.1**.

Figure 8.1 Nature of Effects on Social Network to Affected Households



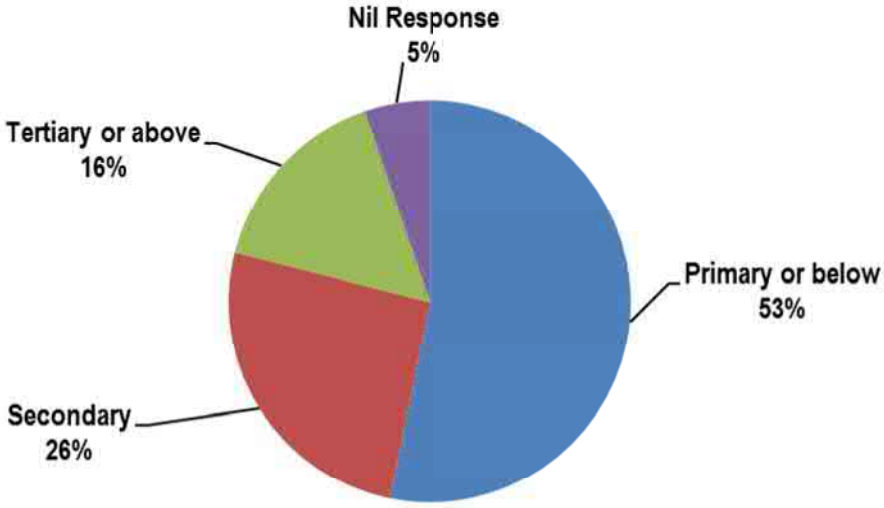
8.3 The SST will provide orientation sessions before and after rehousing to help the affected residents adapt to their new homes and introduce various community resources available in the area, including medical support, NGO services and community facilities. It will help them to identify suitable medical/ social service providers and religious institutions in the new residence setting. However, the social support with children/ relatives and neighbours/friends may take longer to establish/ re-establish in a new environment. If those tenanted households prefer to live close to their relatives to retain social support, the URA will endeavour to arrange rehousing, subject to the availability of public rental flats, and their eligibility for rehousing based on their locational preference as far as practicable. The URA will also offer FFF option (in-situ, in the same district or at available site(s)) for those eligible domestic owner-occupiers to minimize the effect on their intrinsic social networks.

8.4 The URA's Community Service Partnership Scheme has organized "The URA's oUR Amazing Kid Band" in To Kwa Wan District where there is a cluster of URA renewal projects. The Kid Band is targeted at underprivileged children in the District, aiming to provide an opportunity to children in learning musical instruments, and to retain and strengthen community network in the neighbourhood via music performance. Subject to the view of local residents, similar arrangement in this District can be considered.

9. EDUCATION NEEDS OF CHILDREN

9.1 The survey identified 171 students residing in 116 households within the Scheme. Of this, 72 students (42%) were from owner-occupier households and 99 students (58%) were from tenant households. **Figure 9.1** shows the type of schools attended by the students residing in the Scheme.

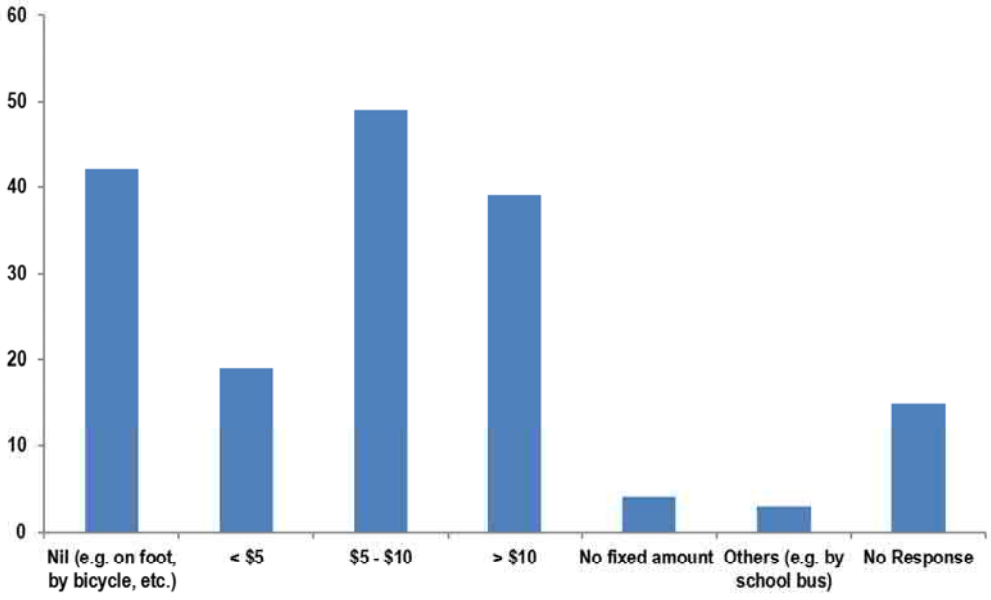
Figure 9.1 Educational Level of Students (171 Students)



9.2 The majority of the students (113 students or about 66%) are studying in schools in Kowloon City and the neighbouring Wong Tai Sin District.

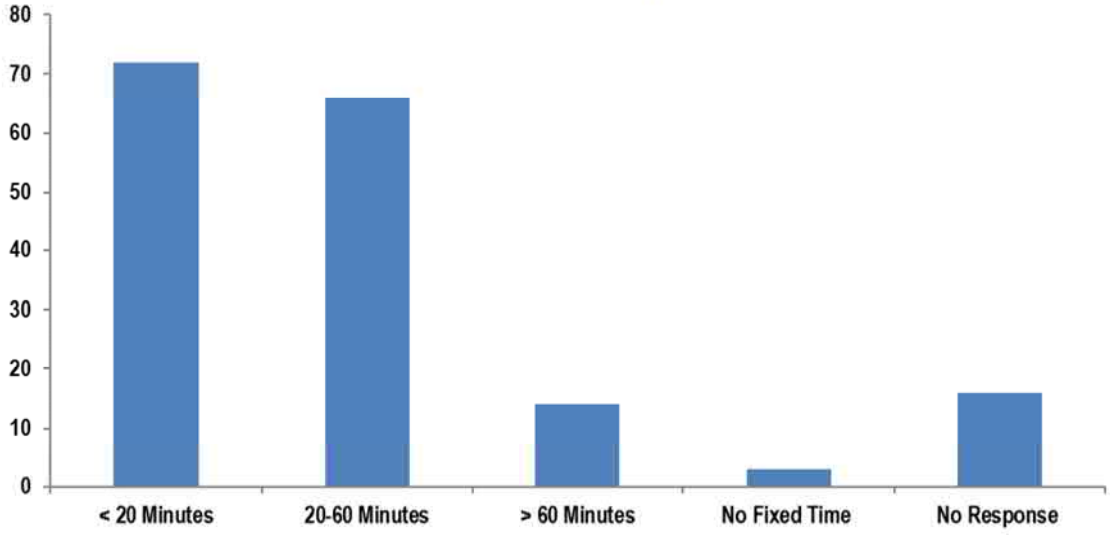
9.3 **Figure 9.2** shows the transport costs of the students in the interviewed households. Since 66% of students within the Scheme were studying locally (in Kowloon City and Wong Tai Sin Districts), it is not surprising that 42 students (about 25%) did not need to pay for transport to school.

Figure 9.2 Travelling Cost to School – Single Trip



9.4 **Figure 9.3** shows the students' travelling time to school.

Figure 9.3 Travelling Time to School – Single Trip



9.5 Of the 171 students, 91 (53%) were studying in primary school or kindergarten. Impact of the Scheme on this group of students may be greater as these students may need to change to another school if their families chose to move to other areas. It is understandable that parents generally wish their children to continue in their present schools. Relocation away from this area may cause inconvenience especially for primary and kindergarten students. The URA with the assistance of the SST, will assist the affected families during the acquisition and rehousing stages to meet the educational needs of their children as much as possible. If necessary, appropriate assistance, resources and services from relevant Government departments will be sought.

10. GROUPS WITH SPECIAL NEEDS

10.1 An assessment has been made on the special needs of the elderly, persons with disability, single-parent families and ethnic minorities identified in the FS questionnaire and SIA survey.

Elderly Persons (Age 65 and above)

10.2 **Table 10.1** shows the distribution of elderly persons in the Scheme.

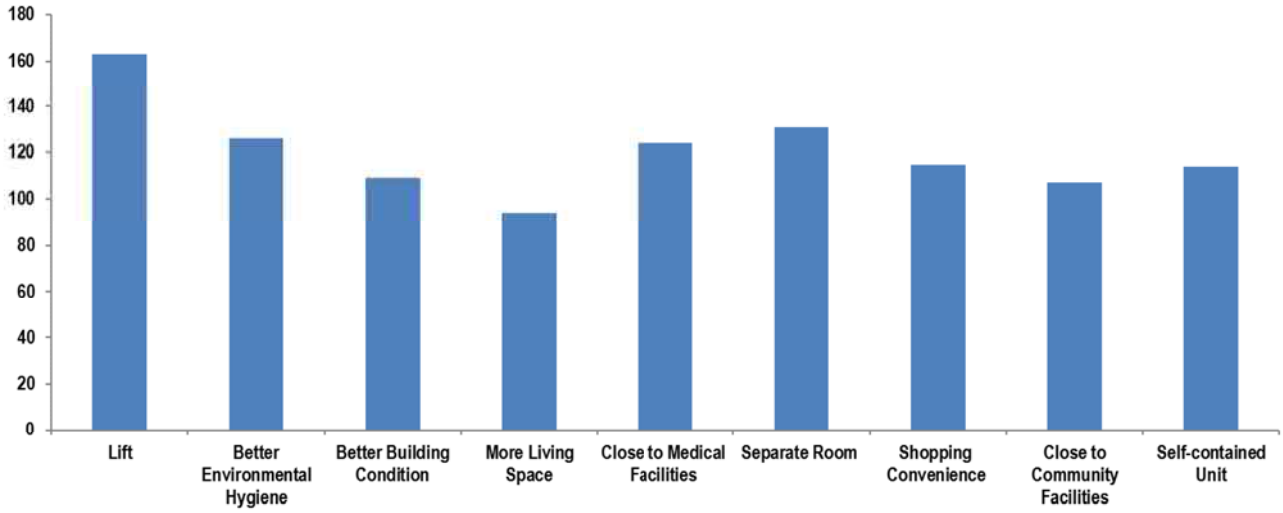
Table 10.1 Distribution of Elderly Persons in the Scheme

Total No. of Elderly and Households	
Total No. of Elderly Residents	109 Elderly residents
Total No. of Households with Elderlies	85 Households
Household Sizes	
Singleton Households	15 Households (15 Elderly Residents)
Doubleton Households	9 Households (18 Elderly Residents)
Others	61 Households (76 Elderly Residents)
Type of Tenure	
Owner-occupiers	55 Households (65%)
Tenants	30 Households (35%)

10.3 The presence of elderly population within the Scheme has implications on the types of re-housing and other age-related concerns such as accessibility to medical facilities. It is generally understood that elderly persons, particularly singletons, may have more difficulty adapting to their new environment once rehoused. The URA and the SST will make an effort to alleviate their anxiety by providing information on the arrangement of rehousing and the new environment surrounding the estate.

10.4 **Figure 10.1** shows the aspirations of the elderly when questioned about the improvements they would like to see in their new home.

Figure 10.1 Elderly Concerns on Living Environment (based on the first three priorities chosen, can choose more than one answer)



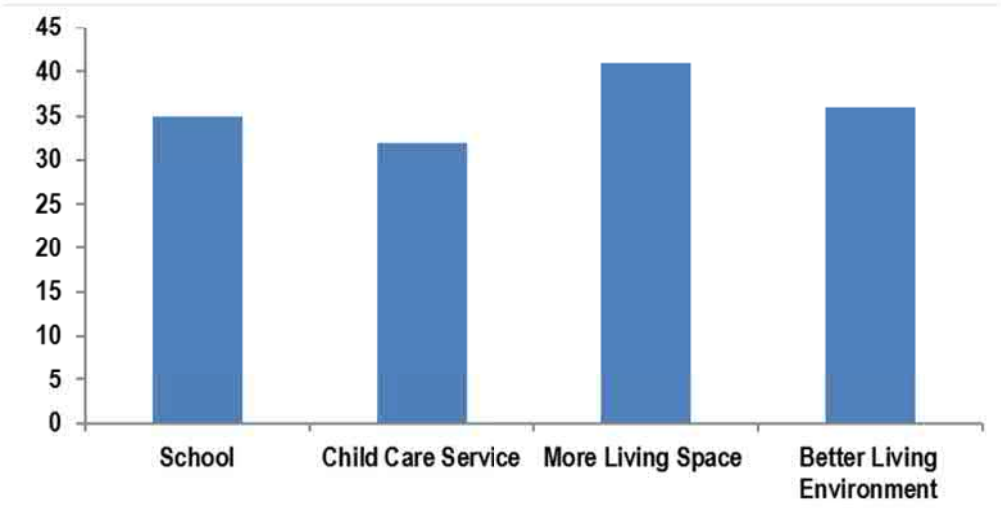
Persons with Disability

10.5 37 residents with disabilities (about 4% of total number of 961 residents) were recorded in the survey. Their disabilities mainly relate to wheelchair access, mental health, or have some kinds of disease. Most residents with disabilities considered medical support, disability access/facilities, and special schools as their primary concerns. Rehousing for disabilities may be considered on compassionate grounds if they are not eligible under the normal eligibility requirement.

Single-parent Families

10.6 Among the 371 surveyed households, 20 single-parent families with 30 children were identified in the survey. Their major concerns are shown in **Figure 10.2**.

Figure 10.2 Major Needs of Single-parent Families (based on the first three priorities chosen, can choose more than one answer)



Ethnic Minority Groups

10.7 Among the 371 surveyed households, 23 households were recorded to be ethnic minority groups, including 16 households from Thailand, 3 households from Pakistan, 1 household from Indonesia and 3 households from other places.

10.8 There were 20 tenant households and 3 owner-occupier households in these ethnic minority households. Over half of the affected ethnic minority households responded there would not have impact on their families in terms of employment, economic, and social network.

10.9 After commencement of the Freezing Survey, the URA has organized two public briefings on 27 February 2019 to the affected residents with English and Thai interpreters. In addition, a separate briefing with an interpreter for Thai residents on 18 March 2019 to explain the prevailing policies on compensation and rehousing to alleviate their concerns. The SST and the URA will also continue to provide assistance to the ethnic households to answer their queries and mitigate any adverse impacts.

11. BUSINESS IMPACT

11.1 According to the FS, there are 63 business operators using 85 premises/site. The details are shown in **Table 11.1.**

Table 11.1 Number of Non-domestic Units and Business Operators identified in the Scheme

			According to Original GBP	Units/ Sub-divided Units Actual Found	Business Operators
GBP Units for non-domestic use	**Non-subdivided**	*Surveyed units for non-domestic use*	52	51	38 Note 1
		Surveyed units for domestic use		1	N/A
		Un-surveyed units	16	16	N/A
	Sub-divided	*Surveyed units for non-domestic use*	15	24 sub-divided units Note 2	17 Note 3
		Surveyed units for domestic use		12 sub-divided units	N/A
		Un-surveyed units		6 sub-divided units	N/A
	Sub-total		**83**	**110**	**55**
GBP Units for domestic use	**Domestic unit (according to GBP) used for non-domestic use**		5	4	4
				1 sub-divided unit Note 4	1
	Domestic unit (according to GBP) used for both domestic and non-domestic use (mixed use)		4	4	2 Note 5
	Vacant site for non-domestic use		N/A	1	1
	Sub-total		**92**	**120**	**63**
	Total Surveyed Units/Site for Non-domestic Use and Total Surveyed Operators			**85** Note 6	**63**

Remarks:

Results are as of 15 March 2019.

Note 1 There are a total of 38 records of operators in which 29 operators occupied 29 units, and 9 particular operators occupied a total of 22 units.

Note 2 There are a total of 24 sub-divided units and 19 records of operators, in which 16 operators occupied 16 sub-divided units and 3 particular operators occupied a total of 8 sub-divided units.

Note 3 2 operators in 19 records (refer to Note 2) are repeated in Note 1 (i.e. same operator as in non-subdivided non-domestic units). Hence, to avoid double counting of the number of operators, there are 17 operators in this field.

Note 4 1 of the 106 sub-divided domestic units is used for non-domestic use. The remaining 105 sub-divided units are used for domestic use (refer to Table 3.2 Note 1).

Note 5 There are 2 households/operators occupied 4 domestic units (according to GBP) and used for both domestic and non-domestic use (mixed use), in which 1 household/operator occupied 3 domestic units (according to GBP). The 2 households/operators have completed FS and SIA Forms for both domestic and non-domestic use (refer to Table 3.2 Note 2).

Note 6 A total of 85 surveyed units/site for non-domestic use include 51 non-subdivided non-domestic units, 24 sub-divided non-domestic units, 4 non-subdivided domestic units for non-domestic use, 1 sub-divided domestic unit for non-domestic use, 4 non-subdivided domestic units for mixed use, and 1 vacant site for car park use.

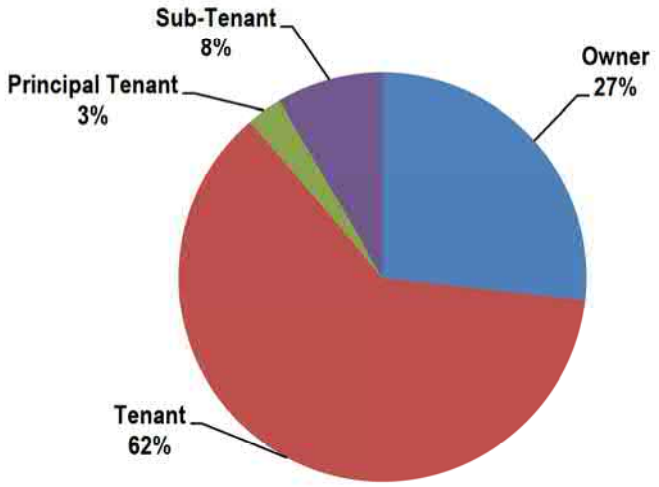
11.2 Of the 63 business operators, 6 operators occupied a total of 14 non-domestic units/ sub-divided units, and they chose to fill in the FS and/ or SIA forms for every unit they occupied. Thus, a total of 71 FS forms and 64 SIA forms were recorded. Those who refused to do the SIA or did not answer particular SIA question will be analyzed as "No Response/ Refuse to Answer" in the following analysis. **Table 11.2** shows the breakdowns of all these 71 records from the business operators.

Table 11.2 Number of FS and SIA Forms from Business Operators

	Nos.
Successfully responded to both FS and SIA	64
Only responded to FS but refused to do SIA questionnaire	7
Total	**71**

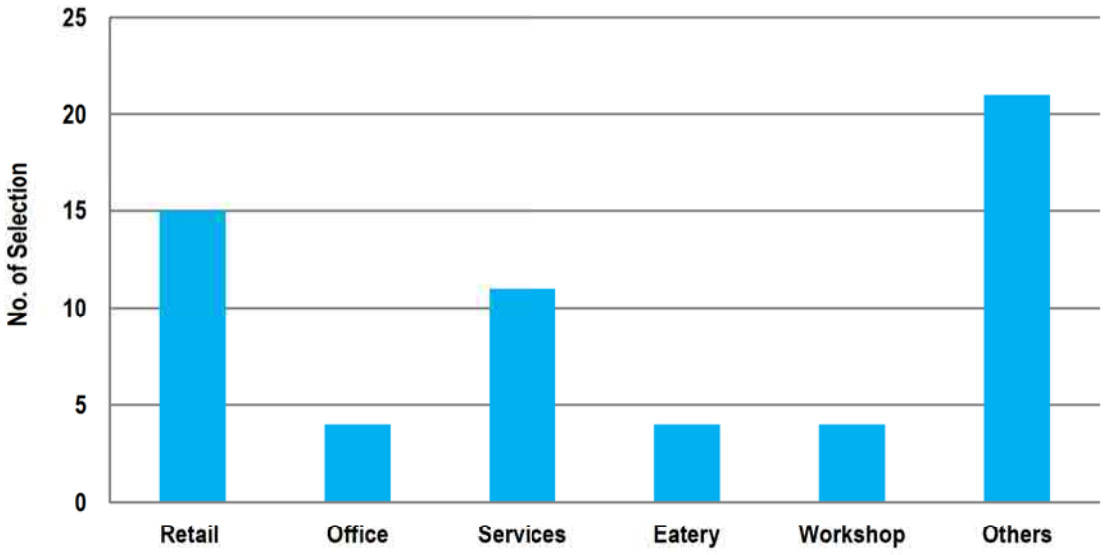
11.3 Out of the 71 survey records regarding the occupancy status of business operators, 19 (about 27%) were owner operators and 52 (about 73%) were tenant operators (including tenants, principal tenants and sub-tenants) (**Figure 11.1**).

Figure 11.1 Occupancy Status of Business Operators



11.4 **Figure 11.2** shows the nature of existing businesses of the interviewed operators. The types of business identified in the Scheme are commonly found in some ground floor premises in the district, e.g. Kowloon City. It is possible for those operators to find a suitable premises in or outside Kowloon City to continue their businesses.

Figure 11.2 Nature of Existing Businesses



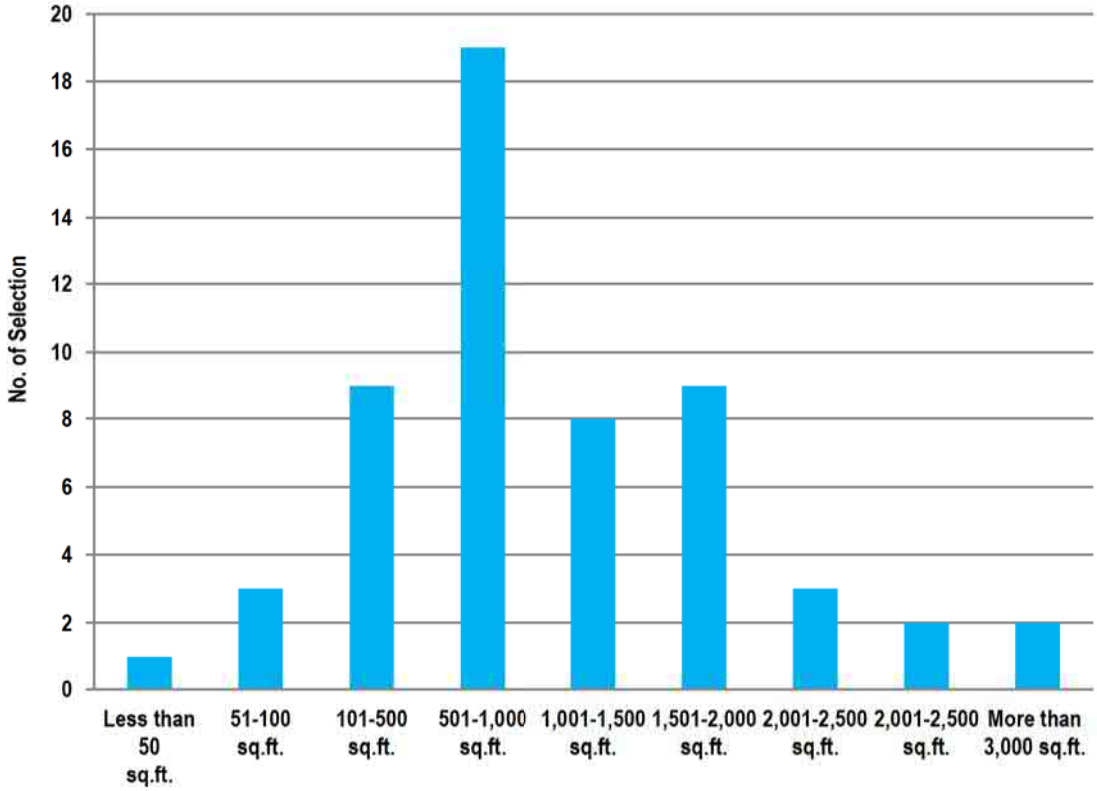
Note: No response in this question in 12 records.

11.5 According to the Freezing Survey, 9 ground floor premises were occupied by car repair services and workshops. These operators may need to find alternative non-domestic premises, which can satisfy its various operational requirements and the respective uses are permissible in both the lease and planning terms, in compliance with the Deed of Mutual Covenant (DMC) of the buildings. Upon request from these operators, the URA can assist to identify suitable premises to enable them to relocate and continue operation in the same district as far as practicable.

11.6 Among the 71 survey records, 11 interviewed business operators indicated that their shops are chain stores or have other branches.

11.7 The size of premises for operators are shown in **Figure 11.3** (The exact size of the premises can only be confirmed subject to detailed survey after CE-in-C approval of the Scheme).

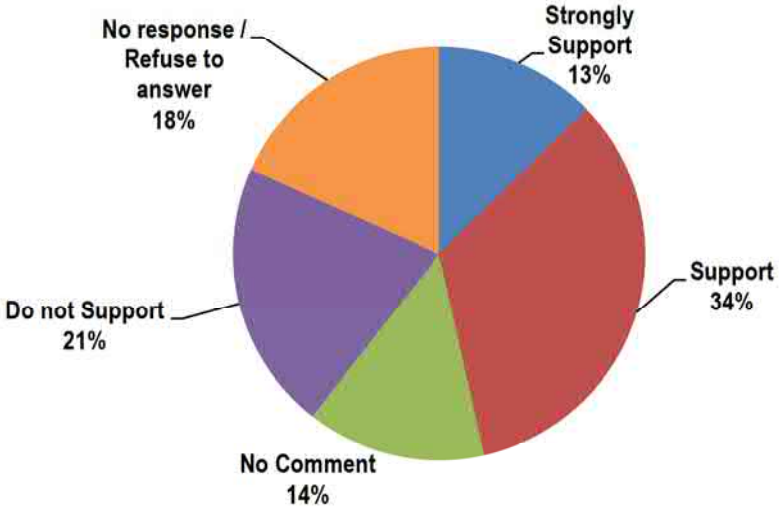
Figure 11.3 Size of Premises as Claimed by Operators



Note: No response in this question in 15 records.

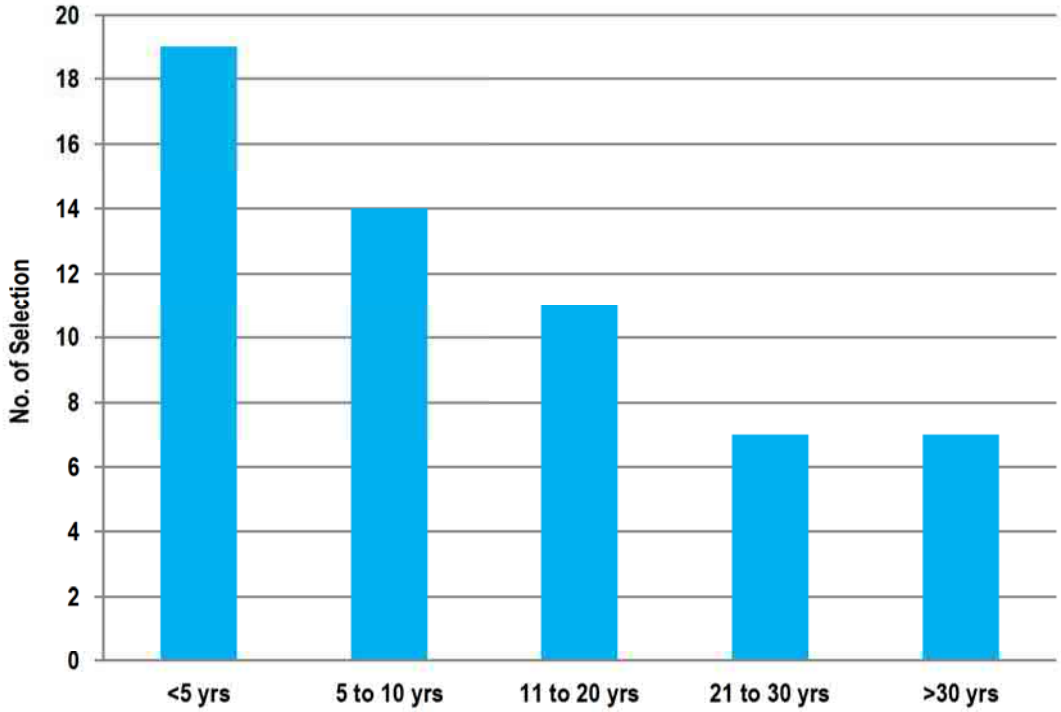
11.8 **Figure 11.4** shows the business operators' views on the proposed redevelopment. Among the 71 survey records, 33 interviewed business operators (about 47%) strongly supported or supported the proposed redevelopment, while 15 interviewed business operators (about 21%) did not support. Majority of those supported the Scheme considered that the building condition was poor; the building should be redeveloped to bring better local environment; the compensation policy is considered reasonable; the relocation would enable shop refurbishment and improvement in business operation. Those not supporting the Scheme responded that the Scheme would affect their business operations and destroy the social network. Some of them would worry about in finding new premises to continue their businesses and the inadequacy of compensation.

Figure 11.4 Business Operators' Views on the Proposed Redevelopment



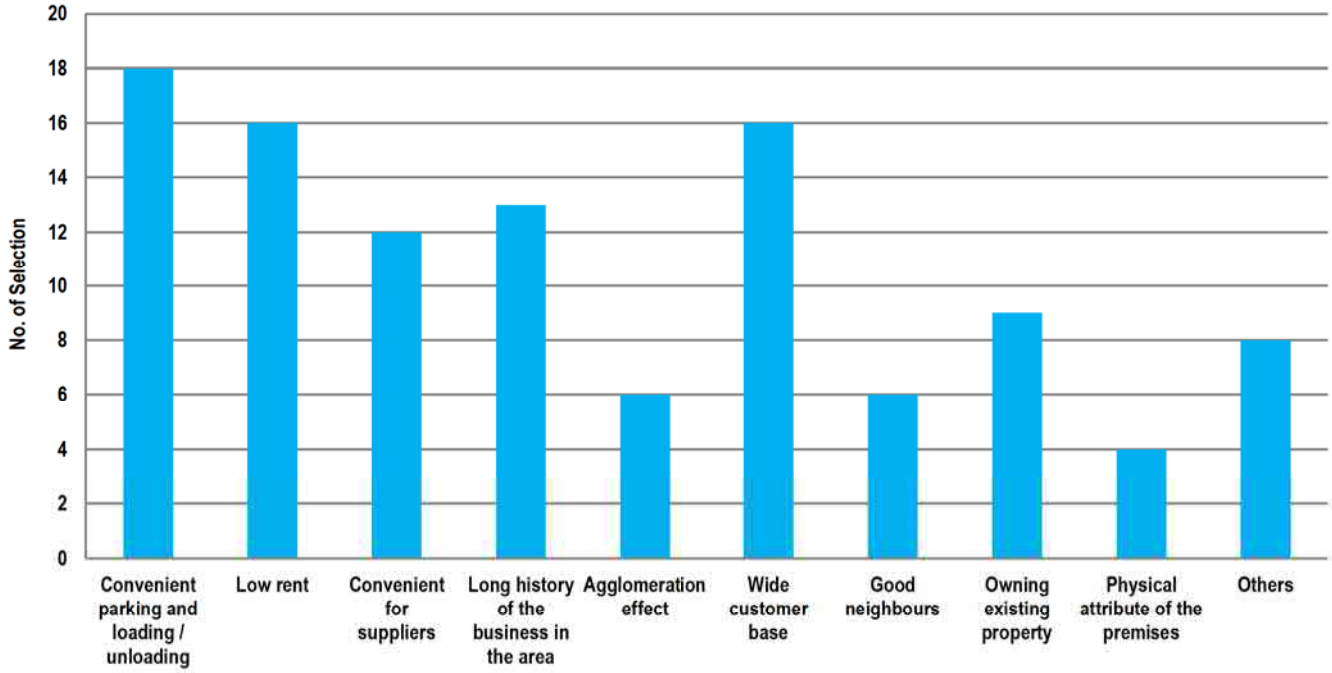
11.9 **Figure 11.5** shows the years of operation of their existing businesses. **Figure 11.6** shows the business operator's main reasons for operating at the existing premises.

Figure 11.5 Years of Business Operation



Note: No response in this question in 13 records.

Figure 11.6 Main Reasons for Operating at the Existing Premises (Respondents can choose more than 1 reason)



11.10 **Table 11.3** summarizes the satisfaction level of their business/ business performance, the opinion of interpersonal relationship and business network established from the existing business.

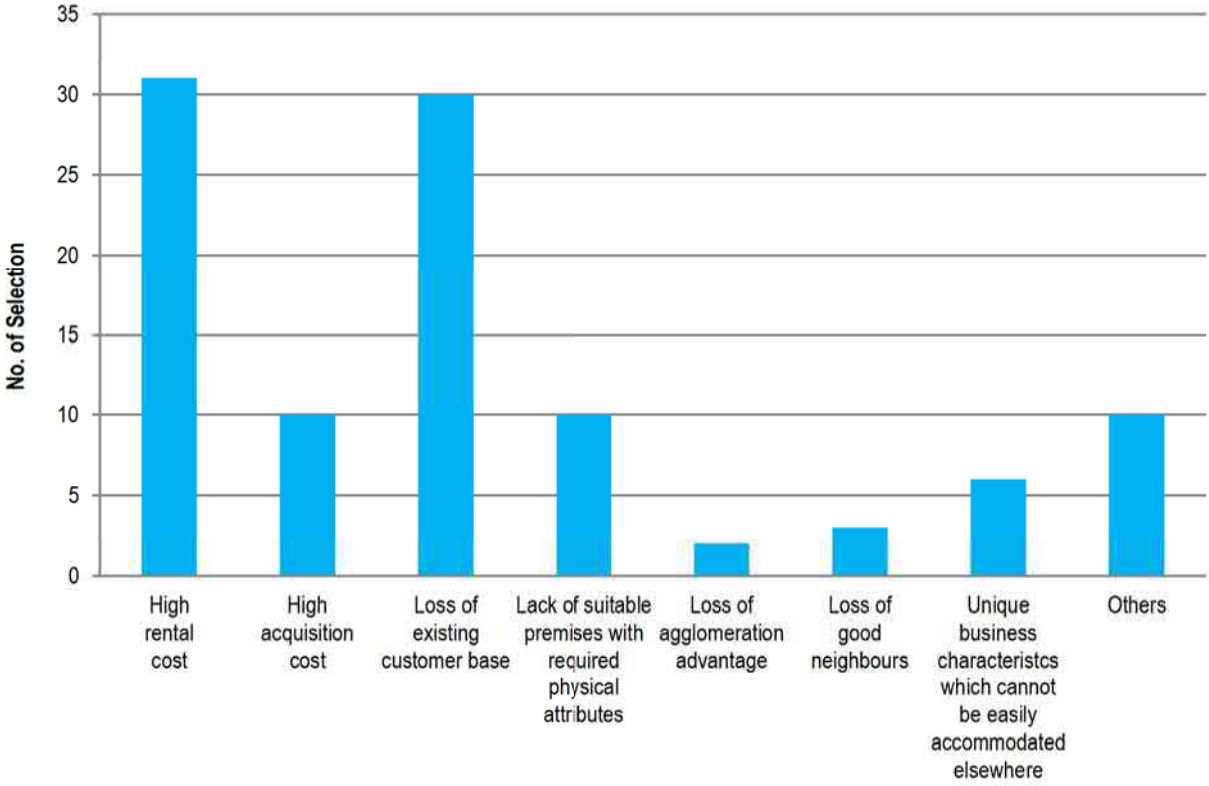
Table 11.3 Satisfaction Level of Operators' Business Performance and Opinion of Interpersonal Relationship and Business Network Established from the Existing Business

		Business Operators
Satisfaction Level of Business Performance	Very Satisfied	17%
	Satisfied	40%
	Neither Satisfied nor Dissatisfied	13%
	Dissatisfied	1%
	Very Dissatisfied	1%
	No Response	28%
Opinion of Interpersonal Relationship	Very Satisfied	21%
	Satisfied	45%
	Neither Satisfied nor Dissatisfied	9%
	No Response	25%
Opinion of Business Network	Very Satisfied	18%
	Satisfied	41%
	Neither Satisfied nor Dissatisfied	10%
	Very Dissatisfied	1%
	No Response	30%

11.11 On the future intention of the operators if the proposed Scheme is implemented, 33 interviewed business operators (about 46%) responded that they would like to continue their businesses nearby.

11.12 **Figure 11.7** shows the interviewed business operators' major concerns on relocation. Among which, high rental cost and loss of existing customer base are the major concerns to the surveyed operators.

Figure 11.7 Main Concerns on Relocation (Respondents can choose more than 1 reason)



11.13 Thirty-four (34) interviewed business operators (about 48%) indicated that they would like the URA to assist them in finding new premises to continue their businesses.

11.14 Nine (9) interviewed business operators (about 13%) expressed that they wanted to meet URA staff and SST for assistance in finding new premises for businesses. Upon request from these operators, the URA will assist to identify suitable premises nearby to the Scheme to enable them to relocate and continue operation in the same district as far as practicable. Six (6) interviewed business operators (about 8%) had expressed that their employees had major concern on the proposed redevelopment, of which they were worry about unemployment and less convenient to come to work after relocation of the business.

12. MITIGATION MEASURES REQUIRED

Social Service Team

12.1 In accordance with the new URS, the URF has been set up to, inter alia, fund the SST who provides assistance to residents and operators affected by URA-implemented redevelopment projects. The SST reports directly to the Board of the URF. The SST is expected to play a co-ordinating role in assisting the residents to access the services they need from relevant Government departments and/ or other service providers. For instance, the help of the HKHA and the HKHS will be sought in the rehousing process, the Education Bureau in providing school places for children affected by home removal, the Social Welfare Department and various social organisations for counseling services, the Hospital Authority and Department of Health in medical assistance, the minor ethnics groups' request for translation services, etc. As at 22 March 2019, the SST has successfully contacted different client groups. A breakdown of the contacts is listed in **Table 12.1**.

Table 12.1 Breakdown of SST Contacts by Client Groups

Client Group	No. of Contacts
Domestic Tenants	123
Domestic Owners	120
Business Operators	10
Undisclosed Occupiers	40

12.2 The nature of the problems identified is summarized as follows:

Table 12.2 Nature of Problems Identified Among the Contacts

Problem or Enquiry Nature	No. of Enquires from Households / Shop Operators*
Domestic Tenants	
a) Unclear on compensation and rehousing policies	45
b) Evicted by owners / outrageous rent rise	4
c) Worry about eviction, termination of tenancy or outrageous rent rise in future	6
Domestic Owners	
a) Unclear on compensation policies	5
b) Worry about compensation not enough to purchase another flat in the same district	46
Business Operators	
a) Unclear on compensation policies	2
b) Worry about compensation not enough to resume their businesses in the same district	2

* Each household / shop operator may lodge more than 1 enquiry

12.3 The SST is expected to adopt a proactive approach to identify individuals at risk early through home and shop visits and to deliver prompt assistance to the residents and operators in need. For residents with no imminent needs, such a proactive approach can also enable the SST to establish a rapport with the clients and facilitate cooperation or engagement in future.

Public Briefing

12.4 The URA has arranged two public briefings on 27 February 2019 to inform all the stakeholders, including owners, tenants and business operators affected, the details of the Scheme, and to obtain public views on the Scheme. Besides, in view of the concentration of Thai residents in the Scheme, the URA has arranged a special briefing session for Thais, with an interpreter, on 18 March 2019 to brief them on the Scheme information and answer their enquiries. The total attendance of the three public briefings was about 650 persons. Questions on Freezing Survey, planning, acquisition and compensation and rehousing issues were addressed at the meeting. Those present were also informed that owners would not get more compensation by evicting tenants identified in the Freezing Survey.

Project Engagement Programme

12.5 From a URA's project/scheme commencement to commencing acquisition and rehousing arrangement after DEVB's authorization or CE in C's approval of Scheme will usually take a long time. With the understanding that the affected residents and operators are likely to experience doubts and worries during the long waiting period, the URA has implemented a "Project Engagement" Programme since October 2016 to provide direct contact services.

12.6 A special team of about 60 URA staff members has taken the initiative to visit every household and business operator affected by the URA projects to explain to them the policies in details, helping them understand the latest progress, compensation and rehousing arrangements, and timeline of the projects. The team also made follow-up visits to the households with special needs, and referred them to SST or the relevant departments for assistance as needed. Simple and easy-to-understand leaflets, in Chinese, English and other languages, if necessary and practicable, for the affected ethnic minorities, may be produced to explain the compensation and rehousing arrangements as well as help them understand their interests.

Enquiries and Hotline Services

12.7 The URA also answers enquiries and provides hotline services to residents within the redevelopment area. About 153 enquiries had been received between 22 February 2019 and 25 March 2019. The subject matters of the enquiries are summarised in **Table 12.3**.

Table 12.3 Nature of Enquiries

Subject Matters of Enquiries	Percentage
Scheme information, progress, timetable and planning procedures of urban renewal	4%
Acquisition Compensation and rehousing policies	35%
Household Survey (e.g. registration arrangement, briefing arrangement)	56%
Others	5%
Total enquiries: 153	**100%**

12.8 Based on past experience with implementation of redevelopment projects, the URA is confident that the prevailing compensation and rehousing policies and arrangements, with the services offered by the SST and the URA will be sufficient to reasonably mitigate the impact on the majority of the residents/ business operators arising from the proposed redevelopment. In summary, the principal mitigation measures being pursued include:-

(i) outreach activities by the SST to ensure that all affected persons potentially in need are identified on top of those who were already identified in the SIA survey;
(ii) assistance in finding public rental rehousing for eligible persons in need;
(iii) conducting initial assessment of the elderly with low incomes or disability and other vulnerable groups for eligibility for compassionate housing;
(iv) providing orientation assistance for those in need after moving home such as familiarisation with new neighbourhood, accommodation and local facilities; and
(v) providing assistance to identify suitable replacement premises for affected businesses.

12.9 The URA will assist displaced elderly owner-occupiers to find replacement flats within Kowloon as far as practicable. Redevelopment will inevitably affect the existing social network of some residents in the Scheme. The SST will follow up their cases for 6 months after their relocation to a new accommodation. In helping "the affected residents in maintaining and rebuilding social support network", the team will also conduct below activities:-

(i) After resettlement, the displaced residents have contacted at least once after

their old acquaintance in Kowloon City, e.g. through organizing a re-union gathering for displaced residents;

(ii) the displaced residents have established connections in their new neighbourhood, e.g. programs on getting to know the local facilities in new community and visitation to the social service providers in the new neighbourhood.

12.10 The URA together with the SST will ensure that the requisite services and practical assistance by relevant Government departments and/ or service providers are made available to the community in need, and that social and livelihood problems relating to the Scheme are resolved in a timely manner.

Prevailing Acquisition, Compensation and Rehousing Policy

12.11 At the public briefings held on 27 February 2019 and 18 March 2019, compensation, rehousing or ex-gratia payment based on the URA's prevailing policy for the affected owners and tenants were fully explained.

Domestic Properties

12.12 The URA will offer an owner-occupier of domestic property the market value (valued on vacant possession basis) of his/ her property plus an ex-gratia allowance, namely Home Purchase Allowance (HPA), for purchase of the property. The assessment of HPA is based on the unit rate of a notional replacement flat, which is defined as a hypothetical seven-year-old flat in a building of comparable quality, situated in a similar locality in terms of characteristics and accessibility, and located at the middle floor with average orientation. The HPA is the difference between the value of the notional replacement flat and the market value of the property being acquired. The URA will offer an owner of tenanted or vacant domestic property the market value (valued on vacant possession basis) of his/ her property plus a Supplementary Allowance (SA), where applicable, up to 50% of the HPA above mentioned. In addition to HPA or SA, URA will offer an incidental cost allowance to owners of domestic properties to assist payment of removal expenses and expenditure relating to the purchase of a replacement property.

12.13 According to the new URS, and as far as relevant legislation allows, the URA will offer "flat-for-flat" (FFF) arrangement to eligible owner-occupiers of domestic properties. Under such arrangement, new flats will be made available in a URA new development in-situ or in the same district or at available site(s) (subject to changes in the relevant legislation and regulations) (as URA may select for the purpose provided that necessary approval/ authorization has been obtained at the time of FFF offer), as an additional option to cash compensation to such owner-occupiers. The amount of cash compensation and ex-gratia payment offered to an owner-occupier will not be changed by his/ her choice of using that amount, or part of it, to join the

flat-for-flat arrangement or otherwise.

12.14 Affected eligible domestic tenants will be re-housed in units provided by the HKHA or the HKHS or the URA. Tenants who are re-housed will be offered an ex-gratia removal allowance. The allowance is in line with the HKHA's rates. The amount receivable will be according to the size of the household and the rates prevailing at the time.

12.15 Tenants who are not allocated re-housing due to various reasons or who decline re-housing, may receive ex-gratia allowances. Details of the ex-gratia allowances for domestic tenants can be obtained from https://www.ura.org.hk/en/redevelopment/tenants-corner/rehousing-and-ex-gratia-allowance-policies.

12.16 According to the new URS, the URA will adopt a compassionate approach in assessing the eligibility of owners of tenanted domestic units for ex-gratia allowance in exceptional circumstances such as elderly owners who rely on the rental income from their properties for a living.

12.17 In case where tenants were notified that their tenancies would not be renewed, the URA will explain to their owners that they would not get more compensation by evicting the tenants. The URA has also introduced the "Domestic Tenants Compassionate Assistance Programme" ("DTCAP") to take care of those domestic tenants whose tenancies commenced before the Freezing Survey of this Scheme and moved out from the properties because they have been required to move out from their properties by their landlords upon expiry or termination of their tenancies and before URA purchases the properties. In general, eligible domestic tenants who meet the criteria under this programme will be offered, after acquisition or Government resumption of the properties concerned, special ex-gratia allowance based on the rateable value of the properties concerned, the ex-gratia allowance is calculated according to the method as listed in **Table 12.4** below subject to a minimum amount of HK$170,000 (for an one-person household) and HK$190,000 (for a two-person or larger household) ("Minimum EGA"). The Minimum EGA for an one-person household and a two-person or larger household were increased from HK$70,000 and HK$80,000 to HK$160,000 and HK$180,000 in 2017 respectively, and adjusted to HK$170,000 and HK$190,000 in 2018 respectively. The Minimum EGA will be reviewed annually in accordance with the Annual Rental Index for Class A Domestic Properties publicized by the Rating and Valuation Department ("RVD") in April each year. Domestic tenants, who undergo the same situation as mentioned above and are not eligible for DTCAP, can apply for the URA's Relocation Assistance.

Table 12.4 Calculation of Special Ex-gratia Allowance for "Domestic Tenants Compassionate Assistance Programme"

Rateable Value (RV)	Special Ex-gratia Allowance
1st HK$10,000	9 times RV
2nd HK$10,000	8 times RV
3rd HK$10,000	7 times RV
4th HK$10,000	6 times RV
5th HK$10,000	5 times RV
6th HK$10,000	4 times RV
7th HK$10,000	3 times RV
8th HK$10,000	2 times RV
9th HK$10,000 and above	1 time RV

Non-domestic Properties

12.18 For owner-occupied non-domestic premises, the market value of the affected property (valued on vacant procession basis) plus an ex-gratia allowance of 4 times the rateable value or 35% of the market value of the affected property, whichever is the higher, will be offered. Owner-occupiers may lodge a claim for business loss in lieu of both the ex-gratia allowance mentioned above and Ex-gratia Business Allowance (EGBA) mentioned in **para. 12.19** below. For owners of tenanted or vacant non-domestic properties, the market value (valued on vacant procession basis) of the affected property plus an ex-gratia allowance of 1 time the rateable value or 10% of the market value of the affected property, whichever is the higher, will be offered.

12.19 For non-domestic tenants of non-domestic premises, an ex-gratia allowance of 3 times the rateable value of the affected premises will be offered. An additional payment of EGBA is also payable to tenants and owner-occupiers who commenced occupying the premises for business before the date of Freezing Survey. In calculating the number of years of continuous operation, the expiry date of continuous operation is 2 years from the date which URA issues initial acquisition offer to property owners. The amount is calculated at a rate of 0.1 times the rateable value for each year that the affected premises has been in operation up to a maximum of 30 years. For an incomplete year, the amount of EGBA is calculated on a pro-rata basis to the nearest month. The amount of EGBA is subject to a maximum amount of HK$700,000 (adjusted from HK$500,000 in 2017) and a minimum amount as described in **Table 12.5** below.

Table 12.5 Calculation of EGBA

Years of Continuous Operation	Minimum EGBA
10 years or less	HK$110,000 (adjusted from HK$70,000 in 2017, and will be reviewed annually in accordance with the Annual Rental Index for Retail Properties publicized by the RVD in April each year)
More than 10 years (maximum of 30 years)	Additional HK$10,000 for each completed year

12.20 According to the new URS, if requested, the URA will help identify suitable premises in the district of the redevelopment project to enable the affected shop operators to relocate and continue operation in the same district as far as practicable. The URA Board has given special approval for a project at Sung Hing Lane / Kwai Heung Street, to assist operators selling the dried seafood businesses to continue their operation in the Central and Western District to preserve the local character. For the shops in this Scheme (KC-015), constitute a recognized local character, subject to the approval by the CE-in-C to implement the Scheme, understand the views of those operators and the approval of the URA Board, similar arrangements can be considered.

12.21 The acquisition, compensation and rehousing policies are subject to prevailing policies at the time of issuing acquisition policies. The policies are published on the URA's website and will be communicated to affected persons when acquisition of property interests for this Scheme commences. Prevailing policies relating to property acquisition, rehousing and ex-gratia allowances will be reviewed by the URA from time to time.

URBAN RENEWAL AUTHORITY
April 2019

Appendix 1: Non-domestic G/F Premises and Site within the Scheme Area

	
The Remaining Portion Of New Kowloon Inland Lot No. 466	Shops A & B, 24 - 26 Kai Tak Road
	
32 Kai Tak Road	34 Kai Tak Road
	
36 Kai Tak Road	38 Kai Tak Road



40 Kai Tak Road



42 Kai Tak Road



44 Kai Tak Road



46 - 48 Kai Tak Road



Shop A, 50 & 52 Kai Tak Road



Shop B, 50 & 52 Kai Tak Road



Shop A, 54, 54A & 56 Kai Tak Road



Shop B, 54, 54A & 56 Kai Tak Road



58 Kai Tak Road



Shops 1 & 2, 60 Kai Tak Road



62 Kai Tak Road



64 Kai Tak Road



66 Kai Tak Road



68 Kai Tak Road



70 Kai Tak Road



72 - 78 Kai Tak Road



80 Kai Tak Road



82 Kai Tak Road



Side Shop, 82 Kai Tak Road



Shop A, 82A Kai Tak Road



Shop B, 82A Kai Tak Road



Shop A, 31 – 35 Sa Po Road



Shop B, 31 – 35 Sa Po Road



Shop C, 31 – 35 Sa Po Road



37 Sa Po Road



39 Sa Po Road



41 Sa Po Road



43 Sa Po Road



45 Sa Po Road



47 Sa Po Road



49 Sa Po Road



55 Sa Po Road



57 Sa Po Road



59 Sa Po Road



61 Sa Po Road



63 Sa Po Road

	
65 Sa Po Road	67 Sa Po Road
	
69 - 71 Sa Po Road	73 Sa Po Road

Annex E-1 of
TPB Paper No. 10542

Our Ref: PDD/KC-015/19042570

市區重建局
URBAN RENEWAL AUTHORITY

By Hand

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

3 May 2019

Dear Sir/Madam,

Draft Development Scheme Plan
for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Responses to Public and Departmental Comments -

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019, the Public Comments received from 1 March to 22 March 2019, and Departmental Comments received via emails dated from 18 March to 29 April 2019. We would like to enclose our responses to comments (R to C) to the Public and Departmental Comments for your necessary action.

Please note no fundamental change has been proposed to the submitted draft DSP under URAO s.25, i.e. no change on the proposed boundaries of the DSP, the site area, the overall development parameters nor planning intention. The information as contained in this letter is mainly technical clarifications to address various comments. We look forward to your prompt processing and consideration on the R to C along with your ongoing preparation work for TPB's consideration.

Should you have any enquiry, please feel free to contact me at [redacted] or our Ms. Mable Kwan at [redacted]. Thank you very much.

Yours sincerely,

Mike Kwan
General Manager
Planning & Design Division

encl.

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

caringorganisation

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Urban Renewal Authority 市區重建局

Kai Tak Road / Sa Po Road Development Scheme 啟德道 / 沙浦道發展計劃 (KC-015)

Responses to Public Comments 回應公眾意見 (Consultation Period 諮詢日期 1.3.2019 – 22.3.2019)

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
1-11	市建局沒有落區諮詢業主的意見，剝削了一眾業主集體出售給那個發展商的選擇權益。	根據 2011 年的市區重建策略，整體市區更新模式的主要目標包括: - 重整及重新規劃有關的市區範圍; - 在有關市區範圍內設計更有效和更環保的地區性交通及道路網絡; - 確保有關市區範圍內的土地用途能互相配合; - 以具吸引力的園林景觀和城市設計美化市容。 為達到市區重建策略的目標，並參考「九龍城市區更新地區諮詢平台」(「諮詢平台」)所編制的「市區更新計劃」所界定的衙前圍道一帶計劃區內，建議將啟德道/沙浦道地盤重建的規劃意向，市建局以《市區重建局條例》第 25 條開展啟德道/ 沙浦道發展計劃(本項目)。 相比區內個別發展商單幢樓宇項目，本項目能有效地藉以透過重整土地用途及重新規劃，連接新舊兩區，提供本區急需的公眾停車位，以及社區設施，為該區帶來規劃效益。 由於市建局開展的重建項目涉及將來對受影響業主及租客的收購及補償的安排，在有關項目公布開展日及進行凍結人口調查前，項目範圍必須保持機密。 市建局在項目公布開展日，已提交有關計劃草圖及規劃書予城市規劃委員會(城規會)考慮，城規會就項目亦作出公眾諮詢以收集市民的意見。市建

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
		局亦於 2019 年 2 月 27 日在區內舉行了兩場居民簡報會，邀請受影響居民及其他持份者出席，解釋項目的規劃、補償、安置政策及解答出席者的提問。有關業主及受影響人士可在諮詢期內向城規會提交對項目的意見。
1-11	啟德道一眾業主，經超過 40%或以上業主參與出售給發展商，但基於市建局的介入並利用《市局重建局條例》法例，令一眾業主無所適從和對現屆政府的政策感到極之失望。	市建局開展該項目不能限制項目內業主就其擁有的物業的自由買賣權；至於由市建局提出的收購建議，市建局需得到行政長官會同行政會議核准該項目的發展計劃草圖後，市建局才會向當時的物業持有人提出收購建議。
1-11	在 27-2-2019 年晚市建局簡報會，出席只有 30 多位業主，出席人數還少過委託的併購代理公司召開的會議一半業權。	市建局在開展日已發信予項目內所有業主通知有關簡報會，邀請受項目影響的持份者出席，以解釋項目內容及解答問題。根據市建局紀錄，於 2019 年 2 月 27 日出席簡報會的人數共約 630 人，當中約 460 人為項目內的受影響業主。
1-11	在收購方面，市建局代表表明不會和個別的發展商合作發展。	由於項目剛開展，仍在規劃階段。如項目得到行政長官會同行政會議批准進行，市建局會展開物業收購。以現行的政策，市建局沒有與指定個別發展商合作發展的安排。
1-11	市建局的收購必須等待 18-24 個月後，才會出價給業主，但同時表示在這段期間，業主雖然有權進行物業買賣，但不論買方是發展商也好或已統一業權也好，市建局有權只用他自己計算方式以當時的市值價值。	項目現正規劃階段，需待行政長官會同行政會議批准，市建局才可展開物收購，約需時 18-24 個月。而市建局的收購政策，是根據 2001 年立法會財務委員會所核准的物業收購基準，作為計算補償的準則。在批准有關項目後，會以協商形式向重建項目內受影響的業主提出物業收購建議，業主有權決定是否將物業出售予市建局。 根據《市區重建條例》第 29 條， 市建局可於項目批准後的 12 個月內，向發展局局長建議根據《收回土地條例》收回為實施該重建項目而未能成功

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
		收購的土地作公共用途。屆時，地政總署亦會向未出售物業予市建局的業主，提出收地賠償方案。
1-11	市建局建立至今所的任何收購項目 99%都是賣給發展商建私樓，並以分紅形式賺取利益，而並非將所有項目交給政府建公屋或居屋，其分別與私人發展商無異，建成後的私樓往往以豪宅的超高價錢賣給市民，令大眾的香港人難以負擔。	市建局現時就重建項目的發展模式，除一些自行重建的項目外，多為與發展商合作發展項目，以分擔市建局在財政及資源上的負擔。根據《市區更新策略》，市建局需要在維持自負盈虧的長遠目標下，進行市區更新工作。 根據現行政策， 市建局並非作為提供公屋或居屋的機構。而被收購的物業原為私人住宅，重建後保持為私人住宅可維持原有公私型住宅的比例。
12	啟德道業主，因家事要暫時離港。有家人最近又失業，恐此收購會對家庭產生無法彌補的損失，因此提出反對收購申請。	本項目希望透過整體市區更新模式，重整土地用途及重新規劃，連接新舊兩區，提供本區急需的公眾停車位，以及社區設施，為該區帶來規劃效益。市建局明白重建會對居民帶來不便及不同程度的影響。市建局根據《市區重建策略》的指引，會在項目開展前及在開展後，分別進行第一階段及第二階段社會影響評估，建議所需的紓緩措施，以盡量減低重建居民帶來的負面影響。 除了市建局職員會在項目開展後，以「夥伴同行」探訪計劃，主動接觸居民以了解其關注及提供協助。此外，「市區更新基金」已委任聖雅各福群會為本發展項目的市區重建社區服務隊（社區服務隊），為受項目影響的居民提供協助及意見。如提意見人有需要尋找相關政府部門的服務，可要求社區服務隊跟進協助。 此外，市建局對受重建項目影響的居民及商戶有既定的收購、補償政策。如項目得到政府批准進行，市建局會向受影響住宅業主以物業市值提出收

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
		購其物業，並加上一筆特惠津貼(即自置居所津貼)及相關津貼以資助業主因購買新居所引致的開支，相信可讓業主在其他地方重置居所。
13-14	擴大重建規模，由於其他街道，如石鼓壟道、啟德道單號、城南道、打鼓嶺道、龍崗道、南角道至衙前塱道、獅子石道、福佬村道都是矮層舊樓林立，極具重建潛力。 私人發展商已積極收購，但牙簽樓缺乏加入社區配套元素，無整體社區規劃概念。希望市建局能盡快及繼續物色上述地盤，加快重建。	本項目希望透過整體市區更新模式，重整土地用途及重新規劃，連接啟德發展區的地下購物街，為新、舊區兩區提供連接點，提供本區急需的公眾停車位，以及社區設施，為該區帶來規劃效益。 本項目的現有範圍，已達至該市區更新的目的，提供區內需要。 市建局會依循《市區重建策略》的指引，以多元化模式，包括重建、復修、活化及保育。市建局會繼續進行可行性研究，以規劃主導的方式，推行市區更新的工作。
13-14	因區內多長者，希貴局能投入更多人手及資源，向業主及租客詳細解釋各項賠償及安置方案	市建局由計劃公告開展起，以不同途徑接觸受影響居民及持份者，講解該計劃的相關事宜，包括規劃、收購、補償及安置等問題，以紓緩對居民的影響及其憂慮。市建局分別為居民於 2019 年 2 月 27 日舉行了兩次簡報會，同時，市建局亦於 2019 年 3 月 18 日為該計劃內的泰藉居民舉行了特別簡報會，在翻譯員的協助下講解該計劃的相關事宜及解答疑問。三次簡報會共約有 650 人出席。在會上市建局向參加者講解凍結人口調查、規劃、收購、補償及安置等問題。 根據《市區重建策略》而成立的「市區更新基金」亦聘請了聖雅各福群會為這計劃的社區服務隊，向受計劃影響的居民及商舖營運者提供協助。 市建局亦自 2006 年起，開展了一個「夥伴同行」探訪計劃， 成立了一支約 60 人的特別團隊對受市建局重建項目範圍內的居民及商戶進行探訪活

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
		動，與居民建立關係，以釋居民的擔憂。這支團隊會主動接觸重建項目/計劃內的每個家庭和商戶，深入解釋政策及項目的最新進展、補償及遷置安排，以及時間表等等。
13-14	在重建設計上，因本區受交通擠塞之苦，要求設置更具規模的地下或多層停車場，解決交通擠塞問題；	項目建議興建一個約有 420 個車位的地下停車場，當中 300 個車位供公眾使用，以紓緩區內因為泊位不足而引致的違例泊車及路面擠塞問題。市建局已聘請了交通顧問就增加泊車位的影響完成評估及將有關報告提交運輸署審批，評估指出現時建議的泊車位數量不會對交通造成負面影響，然而若再增加車位，對附近一帶的道路未必可承受負荷。市建局會繼續進行研究，並與相關部門分析如何有效改善泊車位不足的問題，利用市區更新的概念，提供機遇改善交通及行人環境。
13-14	本區亦沒有社區會堂，市民缺乏參與社區活動的場所；本區亦缺乏活動室供班組活動及大廈開會之用，要求在重建項目上，加入社區會堂及多用途活動室之設計。	距離項目約 200 米範圍，設有「東頭社區中心」。 而項目的平台低層會預留約 800 平方米的非住宅樓面面積，提供空間供社區使用。市建局會在諮詢區內人士、政府及區議會的意見後，決定相關用途以配合社區需要。
15-24, 26	市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。	根據第二階段社會影響評估，項目受訪的 371 個住戶中，有 23 個少數族裔住戶，當中有來自泰國、巴基斯坦、印尼等地。 有鑑於有十多戶泰國籍居民在重建範圍內，市建局於 2019 年 3 月 18 日特別為項目範圍內的泰裔居民舉行了一場簡報會，並安排泰文的即時傳譯，向受影響的泰裔業主及租客解釋現行的補償及安置政策，希望能為他們釋

Ref. Nos. 參考編號	Comments 意見	URA's Responses 回應
		疑。市建局及社區服務隊會盡量向少數族裔住戶提供支援，以紓緩有關的焦慮。 市建局有既定的收購、補償及安置政策。如項目得到政府批准進行，市建局會向受影響而符合安置資格的住宅租客，提供的安置單位。市建局會視乎公共租住房屋單位的供應及受影響居民的安置資格，於切實可行情況下，盡量為他們提供所選擇地區的安置單位。
(N/A)	對非住宅單位(出租單位)業主不公平，“自用業主可得津貼是物業市值的百分比之三十五.....”。“出租或空置物業的業主可得非住宅單位 ，津貼是物業市值交吉價的百分比之十.....”。兩者相差百分之二十五津貼比例，不計算自用業主有營商特惠津貼及營商損失申請補償。	市建局現行的物業收購準則是根據 2001 年 3 月立法會財務委員會通過的物業收購政策作為計算補償的準則，應可視為對受影響業主合理的補償。市建局在收購物業時，不論是自住業主或出租/空置業主，都會給予業主其物業市值交吉價。物業市值是指若業主自願在公開市場出售有關物業，其可合理預期的成交價格。 對於空置/出租的非住宅物業，除物業市值外，市建局會向業主提供等於其應課差餉租值金額或其物業市值交吉價的百分之十的特惠津貼，以較高者為準。因此，市建局的收購價不會低於該物業的市值。 市建局除了給予現金補償予受項目影響業主外，在成功收購物業後，亦會向受影響的租客給予特惠津貼，讓租客可搬遷及租用其他地方繼續經營。 對於受重建影響的業主如購買替代物業時的合理及必須的開支，包括印花稅、律師費等，市建局有既定政策，讓業主可向市建局提出申請發還相關開支，相信可減輕業主的重購負擔。

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Government Department	Comments	Responses
Received via email from TP/K10, DPO/Kowloon dated March 26, 2019		
Highways Department	a) Any proposed traffic improvement works as a result of the captioned development shall be carried out by the Applicant and at his own case. b) Appendix 2, TIA, 4.15 ii. - The proposed private link road, if approved, shall be managed and maintained by the Applicant. c) Appendix 2, TIA, 4.17 - For the purpose of future road maintenance, the remaining carriageway width after the construction of any kerb build-outs shall be minimum 7m.	a) and c): Noted. Upon approval of the DSP by CE in C, detailed design will be carried out and subject to Highways Department's approval to ascertain the improvement works and road width. b) It is the URA's intention to manage and maintain the future private road within the Scheme by URA or its joint venture partner or its assigned agent, subject to agreement with relevant Government Departments.
DLO/KE of LandsD	(a) The proposed spilt-level sunken plaza ("the Plaza") with closure of a portion of Sa Po Road on south portion of the site would provide 1,000sqm for public use. The provision appears to be Public Open Space with corresponding land grant conditions (para. 2.5, 4.10, 4.11, 4.12, Table 4.1 and App. l);	The design intention of sunken plaza is to provide a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road area and is not merely providing an amenity space as public open space. It is a split-level space with shops and services adjoining to serve the public, it will also provide sitting out area and event space to enrich user's experience. It is proposed to be opened for public use under the management and maintenance of URA or its joint venture partner or its assigned agent. The covered area will be accountable for non-domestic GFA.
	(b) There would be direct underground connection to the Plaza with Kai Tak by CEDD. There may be specialized construction adaption to the related basement floor to receive the subway to be incorporated in land grant conditions (para. 3.5 and App. I);	Close liaison will be carried out with CEDD for the construction and connection of Plaza and underground tunnel. Details on the construction and land matters will be discussed with relevant Government departments after CE in C's approval on DSP.

	(c) It is proposed to have both private car park and public vehicle park to be provided on basement floors. There is a need to have careful design and property management to avoid possible management and maintenance interface problems in the future (para 4.19 and Table 4.1);	Noted. According to the TIA, it is proposed to have separated ingress for the private car park and pubic car park to minimize interface problems. Detailed design of car park will be subject to agreement with TD.
	(d) The approving authority for landscaping proposal and tree survey and compensation planting proposal seems to be PlanD (paras. 4.13,4.26 & App. 3);	Noted.
	(e) There would be a private road (traversing the site east-west) available to the public to divert traffic from Sa Po Road to Kai Tak Road in lieu of closure of a portion of Sa Po Road on the south of the site subject to TD's agreement and arrangement for road extinguishment. There is no elaboration on how to make public use of the private road. The land grant shall provide for its formation, management and handover/ dedication, if appropriate (paras. 4.14 & 4.15 and Table 4.1); and	The detailed road scheme, programme, management and maintenance matters will be carried out at detailed design stage and land grant preparation stage with relevant Government Departments including TD, HyD and LandsD.
	(f) It is proposed to reserve 800sqm within the non-domestic portion to provide community facilities to meet community needs as recommended in KC DURF. It is uncertain if SWD should be consulted to have Government Accommodation provided therein. Land grant shall provide for its user and GFA countability (para. 4.20 and Table 4.l).	Noted. The 800sq.m. of GFA is reserved for community use. The facilities can be run by a suitable NGO selected by the URA or run by the Government. If it is run by a NGO selected by the URA, URA will be responsible for designing the space and let appropriate parties for operation upon completion of the project. If it is run be SWD for some social welfare facilities, SWD has to accept bare shell provision of 800sq.m. GFA without Schedule of Accommodation (SoA).
Chief Estate Surveyor/Urban Renewal of LandsD	The Scheme boundary	

	1. Part of the building structure of lot NKIL1105 s.C RP (73 Sa Po Road) appeared to be staircase of the existing building had encroached onto the adjoining private lot (NKIL 1105 RP) which was outside the proposed project boundary. As the said encroachment staircase structure was not included in the current Scheme boundary of KC-015, it is assumed that URA would handle the clearance of the said encroachment by themselves in the future development of the scheme site.	Noted. One of the shared structures left between 73 Sa Po Road and High Place is the shared staircase for the previous building of 73-75 Sa Po Road. Upon CE in C's approval of the draft DSP, URA will carry out liaison works with the owners of High Place to deal with the demolition.
	2. It is noted that a building at No.5l Sa Po Road together with a portion of scavenging lane at its rear was excluded from the Scheme boundary. The land status plan reveals that the said portion of the scavenging lane is Government land. URA should consider including the said portion of scavenging lane into the Scheme for better land management. It is also noted from the report that the said portion of scavenging lane will become part of the future scavenging lane within the Scheme site.	The part of scavenging lane is serving the existing building (51 Sa Po Road which is outside the Scheme) as required under the Buildings Ordinance (BO). Therefore, this part of the scavenging lane will not be included in the Scheme. The boundary of the Scheme has followed the approved BP/CP and LandsD had no comment.
	3. It is noted that a portion of existing pavement along Kai Tak Road at the south western part of the Scheme and adjoining GLA-TNK 1169 is not included in the Scheme boundary. HyD and TD's advice should be sought if any subsequent road/pavement alteration is needed arising from the implementation of the Scheme and whether the said portion of pavement should be included in the Scheme boundary.	Noted. Under the current Scheme, the said portion of pavement is not included in the Scheme boundary. Nevertheless, as stated in para. 4.20 of the TIA report in Appendix 2, if some on-street metered parking spaces can be removed to the underground public vehicle park in future, it may create opportunity for pavement widening in the vicinity in the long term, subject to liaison with HyD and TD. Any improvement works to this portion of pavement could be implemented separately, which Highways Department can vet the proposal and URA will implement separately under revitalization.
	Proposed New Private Road and Road Closures within the Scheme	

	1. Regarding the new private road diverting the traffic from Sa Po Road to Kai Tak Road within the Site, closure of the scavenging lane and closure of part of Sa Po Road to Nga Tsin Wai Road ("the Proposed Road Works"), subject to any other statutory procedural requirement that may have, the proposed road works shall go through the following statutory/gazettal requirements before any proposed land grant can be further proceeded: i The authorization of the Scheme under the Urban Renewal Authority Ordinance (Cap.563); authorization of the proposed road closure and road work under the Roads (Works, Use and Compensation) Ordinance (Cap.370); and ii The approval by the CE in Council for the resumption of those private property interests in the Site under the Lands Resumption Ordinance (Cap.l24) that URA cannot acquire by private agreement.	Noted. Since this is a Section 25 URAO Development Scheme, its approval is also subject to the Town Planning Ordinance (Cap.131).
	2. TD and HyD should be consulted if the New Private Road is to be designated for Public use and be opened 24 hours daily. HyD and TD have to advise if they would like to take back the road for maintenance and management in the future.	Noted. Detailed arrangement, management and maintenance issues will be liaised with TD, HyD and LandsD in detailed design and land grant stage. It is URA's intention to take up the management and maintenance of the private road and to open the road for public use.

	3. Regarding the proposed road closure and road works under Cap. 370, URA as the project proponent, has to reimburse Government all the administrative and gazettal costs and compensation arising from the proposed road project and gazettal. A written agreement will be executed if the gazettal application is to be proceeded. In the event that the proposed road works are not authorised under Cap. 370, URA has to consider the fall-back scenario on the future traffic arrangement.	Noted.
	Sunken plaza - 1,000 sq.m public enjoyment area and the linkage with the proposed pedestrian tunnel to Kai Tak Development area	
	1. It is mentioned in para. 4.12 of the report that a public enjoyment area of about 1,000 sq.m. will be provided within the sunken plaza. URA should clarify the opening hours (and also whether it is free of charge), management and maintenance arrangement of the said area. LCSD's advice should be sought if the said public enjoyment area is regarded as public facilities in private development. URA should also advise if the 1,000 sq.m will be counted towards the non-domestic GFA and Plot Ratio of the Scheme site.	The design intention of sunken plaza is to provide a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road area and is not merely providing an amenity space as public open space. It is a split-level space with shops and services adjoining to serve the public, it will also provide sitting out area and event space to enrich user's experience. It will be owned, managed and maintained by the URA or its joint-venture partner or its assigned agent. URA proposes to open the sunken plaza at reasonable hours for public use. The exact opening hours will be reviewed at detailed design stage and consultation with departments, and may be subject to amendments. The proposed pedestrian link with CEDD's subway to the future Underground Shopping Street in Kai Tak Development Area is intended to open 24 hours for public use.

		The covered area in the sunken plaza is accountable for non-domestic GFA in GBP submission.
	2. It is mentioned in paras.3.5 and 4.11 of the report that the sunken plaza will have direct connection with the proposed pedestrian tunnel to be constructed by CEDD to link up with the future Underground Shopping Street in Kai Tak Development Area, which is outside the subject Scheme boundary. In this respect, comments from PlanD, HyD, TD, CEDD and DLO/KE should be sought".	Noted.
	Public vehicle park	
	Regarding the public vehicle park to be provided on basement floors mentioned in para.4.19 of the report, URA has to clarify the future management and maintenance of the public vehicle park and TD and HyD's comment should be sought.	URA proposed to manage and maintain the public vehicle park by itself or its joint venture partner or its assigned agent. TD and HyD's comments are being sought.
	Community facilities	
	1. It is noted in paras.4.7 and 4.20 that about 800 m^2 community facilities would be provided to meet community needs as recommended in Kowloon City District Urban Renewal Forum. In this respect, SWD's comment should be sought. URA has to advise if the community use has already been counted towards the allowable maximum non-domestic GFA and Plot Ratio for the Scheme site.	Noted. The GFA for community use will be accountable for non-domestic GFA in GBP submission stage. However, we note the provision at the DSP Notes - Remarks (4), "Any floor space that is constructed or intended for use solely as GIC or social welfare facilities, as required by the Government, may also be disregarded." The exact arrangement can be sorted out upon the approval of DSP.

	2. Subject to the aforesaid comments, this Office will reconsider the whole re-development proposal during the implementation and land grant application stage. There is no guarantee that any proposed resumption of the private lot interests within the Site, the implementation of the proposed road works, the future land grant and the proposed development parameters, will be approved. The land grant, if approved, will be subject to the decision of the relevant authority and the lease conditions to be imposed by Lands Department. In particular, regarding the car parking spaces and loading/unloading bays proposed in the Scheme, which may exceed the normal provisions under the HKPSG, may be accountable for GFA under lease. Also, covered public parking space should be accountable for GFA unless exemption is specially provided in the lease.	Noted. According to the Joint Practice Note No.4, "All public carparks should be accountable for GFA unless: i) they are underground; ii) they comply with the relevant criteria laid down in PNAP APP-2 and APP-111 and the design to the satisfaction of the Building Authority (BA); and iii) they are required to be provided as a statutory town planning requirement or are otherwise expressly required by the Commissioner for Transport (C for T)." With Notes prescribed the requirement of public carpark, which was also supported by local District Council to meet the parking need of the district, hence, GFA for underground public car park should be exempted.
Recceived via email from TP/K10, DPO/Kowloon dated March 20, 2019		
Social Welfare Department (SWD)	In view that a GFA of 800 sq. m. will be available for incorporating non-domestic community facilities, we proposed to incorporate some social welfare facilities at the subject site.	Should TPB accepts the proposal and subject to the approval of the DSP by CE-in-C, SWD has to confirm there are committed fundings under RAE within 6 months from CE in C's approval and SWD has to accept bare shell provision of 800sq.m. GFA without Schedule of Accommodation (SoA). Upon issue of CC, URA is willing to coordinate or facilitate fitting out works by SWD or SWD's assigned agent.
	Regarding the Social Impact Assessment Stage 1 Report, we note that Section 7 "Recreational, Amenity & Community and Welfare	Noted.

	Facilities" is relevant. Please note our comments on paragraph 7.3 and Table 7.1 as follows:-	
	Chinese version • Paragraph 7.3 is suggested to be revised as "……，包括安老服務及學前兒童康復~~及醫務社會~~服務~~醫院~~" • Title "B" on Table 7.1 is suggested to be revised as "學前兒童康復~~及醫務社會~~服務"	Noted.
	English version • Paragraph 7.3 is suggested to be revised as "....., services for the elderly and, rehabilitation ~~and medical social~~ services for pre-school children are found in close proximity to the Scheme" • Title "B" on Table 7.1 is suggested to be revised as "Rehabilitation ~~and Medical Social~~ Services for Pre-school Children"	Noted.
CTP/UD&L, Planning Department (PlanD)	Comments for the rezoning proposal Part 3 "Supplementary Information": Appendix 3 "Preliminary Landscape Design Principles and Tree Survey & Compensation Proposal"	Noted.
	Open Space Provision i. With reference to PR (Part 1) (Table 4.1 – Proposed Development Parameters of the Scheme refers), it is noted that 810 no. of flats are proposed. However, there is no information regarding the estimated future population. Hence, the adequacy of open space provision to meet the minimum requirement of 1 m^2 per person in accordance with the Chapter 4 of HKPSG could not be fully ascertained.	Based on the Population By-census 2016, the average domestic household size in Lung Shing District Council Constituency Area is 2.4 persons. The estimated future population for the proposed development would be about 1,944 persons (810 flats x 2.4 persons). The same estimation was provided in the Sewerage Impact Assessment in Appendix 7 of the Planning Report. Upon the approval of the Scheme, detailed design of the proposed development will be carried out and the open space provision as required in HKPSG will be ascertained.

	ii. With reference to Para. 4.12 of PR (Part I), it is stated that the sunken plaza "*will be provided for public use*". The extent of open space for public use should be demarcated on plan for reference. Besides, clarification should also be provided for other communal/ private open space /landscape areas at separate levels.	The design intention of sunken plaza is to provide a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road area and is not merely providing an amenity space as public open space. The sunken plaza is of about 1,000sq.m. in split levels with shops and services adjoining to serve the public, it will also provide sitting out area and event space to enrich user's experience. The location of the sunken plaza is shown in the Preliminary Design drawings in Appendix 1 of the Planning Report. The layout of the sunken plaza will be subject to detailed design in future upon the approval of the draft DSP. Private open space for the residents of the proposed residential development would be separately located at the podium of the residential towers.
	Figure 2.1 – Overall Landscape Proposal ii. The boundary of the Scheme Area with reference to Plan 2 "Scheme Area" of PR (Part I) is not observed on plan. On the other hand, a smaller extent of area bounded by dashed/ dotted line, which appears to be the area currently zoned as "R(A)2", is observed on plan but no legend is noted. The Scheme Area and self-explanatory legends should be clearly indicated on all plans for reference.	The black dashed line shown in Appendix 3 Figure 2.1 – Overall Landscape Proposal indicates the boundary of the net site area, which is also the area currently zoned as "R(A)2". The boundary of the Scheme Area is indicated with black dashed line in Appendix 3 Figure 1.1 – Context Plan.
	iii. Inadequate design information is observed for the proposed sunken plaza to demonstrate the viability and overall spatial quality of the functional open space at multi-levels. Blow-up plans and sections for the split-level sunken plaza should be provided.	Preliminary concept of the sunken plaza is proposed in the Planning Report to demonstrate the planning intention and the broad design concept. Further design development will only be carried out at detailed design stage subject to compliance with the Buildings Ordinance.

	iv. As indicated in Para. 4.3 of PR (Plan 1), the objective of the Scheme is intended to "*strengthen the connectivity with the future Underground Shopping Street (USS) /in Kai Tak Development Area (KTDA)"*, and to "*provide a more comfortable and spacious connection with the existing pavement along Prince Edward Road East to enhance pedestrian circulation*". The accessibility of pedestrian/ open space users and connectivity of the at-grade streetscape with the USS via the sunken plaza is not yet demonstrated. A connectivity plan would be helpful in illustrating the pedestrian linkages within and around the site with indication on routing as well as barrier free access and/ or universal access to the multi-levels public open space.	As stated in para. 4.11 of the Planning Report, "one of the basement levels will have direct connection with the proposed pedestrian subway to be constructed by CEDD." Barrier free access and/ or universal access to the multi-level sunken plaza will be provided. The routing and barrier free access within and around the site will be developed at the detailed design stage and the URA will closely liaise with CEDD in providing such connection with its pedestrian, in order to achieve the objectives of strengthening the connectivity with the future USS and KTDA.
	v. With reference to Plan 2 "Scheme Area" of PR (Part 1), the Scheme area would cover considerable extent of the surrounding public footpaths which is currently proposed as pavement only. It appears that there is room to enhance the streetscape greening effect, e.g. along Sa Po Road and Kai Tak Road. Effective landscape treatments (particularly by means of tree planting) on street level for bringing greenery contribution to the public realm should be considered.	Noted. As stated in para. 4.20 and 5.8 of the TIA report in Appendix 2, URA will, in the long term, with the collaboration with relevant government departments, explore the opportunity to replace certain on-street metered parking spaces for pavement widening to improve walkability and visual comfort (including landscaping) of the area. As stated in executive summary and para. 4.19 of the Planning Report, URA will also explore the opportunity to carry out other urban renewal initiatives including revitalization to bring additional benefits to the neighbouring environment.
	vi. As shown on plan, several pieces of "Upper Level Planting Area" / "Upper Level Platform" are observed. However, no tree and active/ passive recreation facility is observed for the concerned areas. Tree planting opportunities on upper levels should be explored. Besides, if the concerned area is intended to counted as functional and usable open space, reference should be made to Para. 1.10 of Chapter 4 of HKPSG.	The landscape plans and drawings are only indicative purpose to show the overall concept. Detailed design will be carried out in detailed design stage if CE in C approved the draft DSP.

	vii. As indicated in Para. 4.13 of PR (Part 1), it appears that vertical greening (VG) would be provided. However, no VG is observed on Figure 2.1.	Vertical greening will be considered at detailed design stage to suit the overall sunken plaza's design to enhance the visual comfort and relief. The landscape plans and drawings are only indicative purpose to show the overall design concept. Detailed design will be carried out upon CE in C's approval of the draft DSP.
	Comment on draft DSP - Part 2 "The Draft Plan": Item 3 "Explanatory Statement" According to Para. 4.12 of PR (Part 1), the sunken plaza "*will be provided for public use"*. Such information is not observed in Para. 7.5 to 7.7 under "Split-level Sunken Plaza".	In the last sentence of paragraph 7.5 of the Explanatory Statement, it is written "The plaza will be opened for public use to benefit the local community."
Preliminary comments on AVA	• Please check the building height for 31-41 Kai Tak Road and see the mark-up in the appended Figure 1.6. • Please ensure all the major noise barriers, elevated structures, existing, planned and committed developments (in particular the planned development within Kai Tak Development) within the Surrounding Area have been modelled in the simulation appropriately.	The building height in the model has been checked. The building height adopted for the CFD simulations is correct. **Figure 1.6** has been revised accordingly, please find the revised **Fig 1.6** as attached (Annex 5). All the major noise barriers, elevated structures, existing, planned and committed developments (in particular the planned development within Kai Tak Development) within the Surrounding Area has already been included in this AVA study.
CTP/UD&L of PlanD's comments on urban design perspective	2. The proposal is to rezone the site from "R(A)2" to "R(A)" subject to the same permissible maximum PR under the current Ma Tau Kok OZP but a proposed building height (BH) of 120mPD, which is about 20m higher than the maximum BH for the other "R(A)" zone. Our observations / comments will mainly focus on the urban design and visual impact aspects covered in the Planning Report.	Noted.
	3. The DSP is for a development comprising three residential towers above a single podium for non-domestic uses including	Noted.

	retail and community facilities and above a 5-level underground parking. An underground public vehicle park will be provided for addressing the parking problem in the area. One of the key design features is the split-level sunken plaza at the southern end of the site. This area to be dedicated for public use would require closure and realignment of Sa Po Road.	
	4. While the proposed spatial arrangement accommodating the permissible PR would confine tower blocks with higher BH to the northern and central portions, it provides opportunities for place making and connectivity with the underground shopping street at the Kai Tak Development Area. Such arrangement also enables the residential towers to be receded from the heavily trafficked Prince Edward Road East.	Noted.

	5. According to the proponent, the increase in BH would facilitate slimmer building design and wider building gaps. It is worthwhile for the proponent to provide artist renderings for a close-up view of the podium and split-level sunken plaza to illustrate how they relate to the pedestrian realm. The proponent may consider providing more discussions (possibly with illustrations) to show how the design measures allow the URA development respond or relate to the two existing buildings, in particular Carlson Court at 51 Sa Po Road.	A conceptual landscape plan of the sunken plaza is shown in Figure 2.1 of Appendix 3 to illustrate the landscaping concept, as well as the different levels of the sunken plaza and its connection with the podium and the surrounding pavement to enhance walkability. The proposed relaxation of building height of the Scheme has taken into consideration of the height profile of the surrounding. A visual appraisal was conducted in the local context to assess the visual impact and compatibility of the proposed development with the surroundings. In particular, View Point (VP) 2 demonstrated the relationship between Carlson Court (51 Sa Po Road) and High Place (33 Carpenter Road) and the proposed development. Besides, the block plan showed in Figure 1.3 of Appendix 1 demonstrated that building gaps are maintained between the proposed development and the two existing buildings outside the Scheme to allow visual relief and to fulfil relevant requirements, e.g. prescribed windows, under Buildings Ordinance. In addition, photomontages of base scheme 100mPD without sunken plaza, scheme 100mPD with sunken plaza and proposed scheme 120mPD with sunken plaza, are supplemented in Annex 3. The increase in building height from 100mPD to 120mPD would facilitate slimmer building design and wider building gaps.
	6. The viewpoint at Kowloon Walled City Park, included in the pre-submission as VP3, may be added to the application as it would provide an essential viewing direction not covered in this submission. Besides, the presentation and quality of the photomontages should be improved for clearer and more legible visual representation.	Viewpoint from Kowloon Walled City Park is added as attached (Annex 3) for reference. It is showed that the proposed development of 120mPD can generally blend into the surrounding. Viewpoint from Kowloon Walled City Park is added in attached (Annex 3) for reference. It

		is showed that the proposed development of 120mPD can generally blend into the surrounding.
	7. The proponent should ensure that both the baseline (OZP-compliance) and proposed schemes reflected in the relevant photomontages have met the Sustainable Building Design requirements as per PNAP APP-152, so as to ensure a fair presentation and comparison.	It is confirmed that both baseline and the proposed schemes met the SBD Guidelines.
CTP/UD&L of PlanD's comments on air ventilation perspective	2. Definition of LVR (paragraph 3.4.3) - The consultant should clearly state the definition of the LVR. In accordance with the AVA Technical Circular (2006), LVR is the average of all perimeter and overall test points.	The definition for LVR has been included in **Section 3.4.3** as follows: SVR is the average (weighted by the occurrence probability of the wind directions) of the VRs along the Site boundary (i.e. P01-P42), to quantify the air ventilation of the Site. *LVR is the average of the VRs for all perimeter and overall test points*, which quantifies the air ventilation of the local region.
	3. Spatial Averaged VR (SAVR) of Group 20 under the previous AVA (paragraphs 4.1.3 and 4.2.3) - Given that the consultant may have adopted different modelling areas and CFD parameters in the current AVA IS when compared with the previous AVA, it is confusing and meaningless to discuss the SAVR of previous AVA and compare it with the simulation results of the current AVA IS.	Noted and please refer to the responses to comments below.
	4. Paragraph 4.2.2 (lines 3 and 4) -With reference to Table 4.2, the LVRs of both Baseline and Proposed Schemes are 0.18 for annual condition and 0.17 for summer condition. The consultant should revise it appropriately.	Noted and Section 4.2.2 will be revised as follows: "The SVR for both the Baseline and Proposed Scheme are 0.18 for Annual wind conditions. During summer, the SVRs are 0.18 in both Schemes. *The LVRs of both Baseline and Proposed Schemes are 0.18 for annual condition and 0.17 for summer condition.* During summer, the LVRs become 0.14 for both Schemes. A summary of the predicted spatial averaged VRs of the test points are presented in Table 4.2. The detailed simulated VRs at individual test points are listed in Appendix

		4.1. The bar charts for the comparison between the Baseline Scheme and the Proposed Scheme are also illustrated in Appendix 4.1. The contours of VRs at 2m above ground are illustrated in Figures 4.1a to 4.1n."
	5. Directional Analysis (section 4.3) - Rather than solely comparing the SAVR of each focus area, the consultant should provide comprehensive directional analysis in discussing whether the proposed Scheme would create the potential adverse air ventilation on the pedestrian wind environment under all simulated wind directions when compared with the Baseline Scheme. The consultant should also demonstrate how the mitigation measures/ good design features in the Proposed Scheme would benefit the pedestrian wind environment.	**Section 4.3** & **Figure 4.3** (Attached in Annex 5) have been revised to further discuss on the directional analysis and comparisons for the results produced from the Proposed and Baseline Schemes, including how the adopted mitigation measures in the Proposed Scheme could benefit the pedestrian wind environment. The revised text is shown below: " …… *4.3.6 In the Proposed Scheme, the open area provided at the Sunken Plaza (south of the Site) would allow plenty of airflow from the SW direction, the upstream wind flow could travel along the Prince Edward Road East and then reaches the downstream area. However, in the Baseline Scheme, most of the SW wind approaching the residential towers (T4) is forced to go upward or on the Kai Tak Road or Prince Edward Road East before leaving the Site, therefore less wind could reach the roof level of the downstream area, hence the results at Sa Po Road (P27-P37) shows that the wind penetration along the SW direction in the Proposed Scheme has shown advantage over the Baseline Scheme. The streamline of the flow passing through the Site is illustrated in* ***Figure 4.3****.* *4.3.7 Under the easterly winds, the flow penetration in the easterly the overall VRs is higher as indicated by the results at Kai Tak Road's test points. Since the Kai Tak Road is relatively narrow and the buildings in both schemes are much taller than the buildings across the*

		street, a large building height to street width ratio will be created. Therefore, the wind from the upstream will blow across the top of the street with little penetration down to ground level at Kai Tak Road and therefore the wind penetration through the gaps would be critical. The streamline of the flow passing through the Site is illustrated in ***Figure 4.3***. *4.3.8 As the perpendicular blockage area for the easterly winds is smaller and due to the presence of gaps in the east-west direction in the Proposed Scheme, more wind can penetrate the building or the old district. On the other hand, the Baseline Scheme may offer a more uniform flow penetration due to the evenly distributed gaps created between the buildings. An additional opening is provided outside the carriageway at G/F for the Proposed Scheme only (D08-D09), which should also enhance flow penetration. The corner recessions designed for the buildings in the Proposed Scheme could also help direct the wind along its surface horizontally and hence better flow penetration.* *4.3.9 Apart from the easterly and south-westerly winds as discussed above, on the whole, the ventilation performance in both Schemes are similar when considering all simulated wind directions as shown by the SVRs and LVRs, however given that the designs in both schemes are quite different, the results in both schemes would not be consistent at all test points. The directional analysis for the other wind directions are summarised in the following sections.* *4.3.10 Under the north-easterly winds (including NNE and ENE winds), the average VRs is expected to be higher in the Proposed Scheme. The proposed buildings could enhance the flow penetration by directing the wind, which*

		is enhanced by the corner recessions, through the gaps in the east-west direction. However, T3 could block some of the north easterly wind in the upstream from entering the downstream area through the Site. *4.3.11 According to the modelling results, the Baseline Scheme perform better in terms of flow penetration under the upstream south-easterly winds (including the ESE & SSE winds). Apart from Prince Edwards East Road and Sa Po Road, the Baseline Schemes create higher average spatial VRs in general. The south easterly winds penetration through the Proposed buildings to the downstream area (i.e. Kai Tak Road) is partially blocked by T3 (refer to AVA Report Figure 1.5b), however, this effect should be minimised by the presence of the uncovered space from the Sunken Plaza. The downdraft benefits the Sunken Plaza.* *4.3.12 The difference between the impacts from both schemes on the southerly winds is not significant. Although the gap in the north-south direction from the Baseline Scheme may have allow more wind to penetrate through the Site at the pedestrian level, however, as the gap is very narrow, the street areas just outside the gap could be uncomfortably windier due to the Bernoulli effect. On the whole, the average spatial VRs indicate that the difference between the two schemes under the southerly wind is insignificant.* *4.3.13 According to the results, the flow penetration of the westerly winds through the buildings in both schemes shows no significant difference in general.* *4.3.14 The Proposed Scheme has implemented several good design features to enhance the wind conditions in the surroundings at the pedestrian level. The Sunken Plaza in*

		the Proposed Scheme provide more uncovered space within the Site, which enhances openness and flow penetration. The corner recessions adopted in the Proposed buildings could also guide the wind along the surfaces of the buildings, instead of directing the wind to the ground when the wind hits the buildings. In addition, the sunken plaza increases the area with natural ventilation within the Site as compared to the layout design in the Baseline Scheme. Although the building height is higher in the Proposed Scheme, as the building in both schemes are significantly taller than the buildings in the surroundings, the 20% increase in height in the Proposed Scheme should not have significant impact on wind environment in the surroundings."
	6. Conclusion (Section 5) - Considering the above, the consultant should update and revise the conclusion accordingly.	The conclusion has been revised to include the summary of the directional analysis for the CFD simulation as follows: "….. *5.1.3 The models result suggest that the air ventilation performance of the Proposed Scheme is similar to that of the Baseline Scheme thus no further air ventilation mitigation measures would be required for the Proposed Scheme. Analysis for the easterly and south-westerly winds, which are the major wind directions in this area, implies that the Proposed Scheme has a slight advantage in terms of ventilation performance of the downstream street canyons over the Baseline Schemes.* *5.1.4 Apart from the easterly and south-westerly winds, on the whole, the ventilation performance in both Schemes are similar when considering all simulated wind directions as shown by the SVR and LVR, however given that the designs in both schemes are quite different, the*

		results in both schemes would not be consistent at all test points. The directional analysis and comparisons are provided in Section 4.3." The proposed development aims to provide a building set back to create a vital connection with the KTDA, with openness and considerations on major wind directions for providing a good walkable environment.
	7. VR contour plots (Figures 4.1a to 4.1n) - For better illustration, the consultant should provide figures of VR contour plots with better resolution and more distinguishable colour map.	Revised accordingly. Please refer to the revised **Fig 4.1** (attached in Annex 5).
DPO/K's comment related to AVA	• Planned / Committed Developments (paragraph 1.4.3, Figures 1 .7, 3.5 and 3.9) - The project proponent should clarify whether the notional building block layout in Kai Tak Development, which was modelled in the CFD simulation, is OZP-compliant. Please note that on land designated 'Shop and Services 'and 'Eating Place' uses only in the "CDA (3)", "CDA (4)", "CDA(S)" and "R(B)6" zones, buildings note exceeding 2 storeys to accommodate "Shop and Services" and "Eating Place" uses shall be provided.	Refer to Figure 1.7, the adopted heights, as shown in the annotation for the zoned land slots in the KTD area, comply with the allowed maximum building heights as stipulated in the OZP. A 2 storey building was also simulated in the CFD for an area zoned as CDA(3). **Section 1.4.3** has been revised as follows: The Kai Tak Development Area (KTDA) is in the South-East of the Site. Although the land slots in KTDA have already been zoned into different zones by Planning Department (please refer to Approved Kai Tak OZP No. S/K22/6), most of the area near the Site are not yet developed. The zoned but not yet developed land slots in the KTDA near the Site are illustrated in Figure 1.7. As the Proposed Scheme is planned to be completed in year 2030, it is assumed that undeveloped land slots will be occupied during the operation phase of the Development. *Since no detailed scheme are available for those land slots at the moment, the building heights in this CFD simulation has adopted the allowed maximum building heights that are stipulated in the OZP. A 2 storey building was also*

		simulated in the CFD for an area zoned as CDA(3) which is designated for 'Shop and Services 'and 'Eating Place' areas.
	• Proposed Scheme (section 1.2) - It is found that the Proposed Scheme adopted in the AVA is are not exactly the same as the scheme (see Appendix 1 of Planning Statement) adopted in the planning statement and other technical assessments. For example, the building layouts/blockings in Appendix 1 (Preliminary Design) and Appendix 6 (AVA) (in particular Figures 1.3 and 1.5b) are different. For consistency, blockings in the plans to substantiate the proposed development should be identical.	Noted.
	• Plans 1.5a and 1.5b of AVA: According to Figure 3.2 of TIA, there are ingress/egress. Is it also a new private road? If so, please further elaborate. Please be reminded the wording/naming should be consistent.	It is the ingress/egress of the carpark as stated in Figure 3.2 of TIA. Revised Figure 1.5a and 1.5b of AVA as attached in Annex 5.
Received via email from TP/K10, DPO/Kowloon dated March 28, 2019.		
BD	1. comments under Buildings Ordinance (BO)	
	a) The scheme involves extinguishment of existing service lane & portion of Sa Po Road and formation of new private street. Buildings will be erected over, under and upon on the said streets and lane, which would contravene section 31 of the BO.	The concerned existing lane and road will be closed under Cap 370 to become part of the project site. For the new private street, URA will liaise with HyD on whether HyD would take up the management and maintenance responsibilities at the land grant stage.
	b) Building at the adjoining lot has based on the existing service lane proposed to be included in the development scheme for compliance with BO and allied regulations including Building (Planning) Regulations (B(P)Rs) 28, 30, 31, 41…. etc. Accordingly, the proposed extinguishment of existing service lane will adversely affect the adjoining building.	Existing service lanes serving the existing adjoining buildings will be maintained and not form part of the project site. Diversionary lanes would be proposed to the satisfaction of TD to connect with these existing service lanes.

	c) Pursuant to B(P)R 23 (2)(a), existing street, proposed new private road, existing service lane and diverted service lane (if any) shall not be included in site area for the purpose of site coverage und plot ratio calculations.	The concerned existing lane and road will be closed under Cap 370 to become part of the project site and to be dealt with at land grant preparation stage.
	2. Application for the proposed extinguishment of existing street/ service lane, and inclusion of existing street/ existing service lane/ proposed new road/ new service lane (if any) in site area for the purposes of plot ratio and site coverage calculations under B(P)R will be considered at building plan submission stage. In this connection, the applicant is advised to appoint an Authorized person to submit a pre-submission enquiry under the PNAP ADM-19 to seek determination from the Building Authority at an early stage on the issue arisen.	Noted.
	3. In addition, I have the following general comments on the Planning Report:	
	a) PNAP APP-151 on Building Design to Foster a Quality and Sustainable Built Environment and PNAP APP-152 on Sustainable Building Design Guidelines are applicable to the subject site.	Noted.
	b) Under PNAP APP-2, 100% GPA concession may be granted for underground private carpark and public carpark while only 50% GPA concession may be granted for aboveground private carpark.	Noted.
	c) The Scheme Area is divided into two portions by the proposed new private road. Subject to clarification of land status of the new private road, the Scheme Area may be regarded at two sites for the purpose of plat ratio and site coverage calculation under the BO.	Liaison with LandsD will be made in land grant stage. URA proposed to provide a new private street within the Scheme which form part of the whole redevelopment site.
	d) The proposed new private road should comply with the Building (Private Streets & Access Roads) Regulation.	Noted.
	4. Detailed comments under the BO will be offered at the building	Noted.

	plan submission stage.	
EPD	1. The URA submitted the subject DSP together with the Planning Report to the TPB on 22.2.2019. The Scheme covers an area of about 6,106m^2 and bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Scheme is currently zoned "Residential (Group A)2" and an area zoned 'Road' covering a portion of Sa Po Road on the approved Ma Tau Kok Outline Zoning Plan (OZP) No. S/K10/24. URA proposes to rezone the part of the Scheme to "Residential (Group A)" zone and develop into 3 residential towers with community facilities, parking facilities and a sunken plaza with commercial/retail components. The parts relevant to EPD in the DSP include the Planning Report, the Environmental Assessment (EA) (Appendix 5), Sewerage Impact Assessment (SIA) (Appendix 7) and the tentative implementation programme (Appendix 10).	Noted.
	2. Both the EA and the SIA has not demonstrated there is no adverse environmental impact associated with the subject proposed redevelopment. Our comments on the Environmental Assessment (EA) (Appendix 5) and Sewerage Impact Assessment (SIA) (Appendix 7) are enclosed for URA to follow up.	Noted.
	3. Based on the above, we are unable to accept the EA and the SIA at this stage.	EPD's comments on EA and SIA have been addressed below. It is believed that the required assessments are acceptable to EPD at this stage.
Comments on Environmental Assessment (EA) (Appendix 5)	<u>Air Quality</u> 1. <u>S.4.5</u>: Please specify the construction activities that would be involved in the redevelopment e.g. the construction of superstructure. Please clarify if blasting will be involved.	Noted. Section 4.5 was revised. There is no blasting involved for demolition (see 2nd point of Section 4.6). However, construction method is yet to be determined as it is more than 5 years before commencement of any site works. The construction method or environmental

		mitigation measures will comply with the prevailing regulations.
	2. S.4.6: Please refer to Cap. 311R Air Pollution Control (Construction Dust) Regulation, Clause 3C of Part I regarding the handling of stockpiles and its remaining materials, as well as Clause 21 of Part IV regarding the use of vehicles.	Noted. The corresponding measure was added in Section 4.6. However, construction method is yet to be determined as it is more than 5 years before commencement of any site works. The construction method or environmental mitigation measures will comply with the prevailing regulations.
	3. S.4.8: Please revise the sentences: "Operation of Powered Mechanical Equipment (PME) during demolition/ construction work would emit gaseous air pollutants such as nitrogen dioxide (NO_2) via fuel burning" and "Supportive information and document ... to prove that the concerned NRMM is in line with the prescribed emission standards. Since the number of PME expected to be used on-site will be limited and much less than vehicles travelled on surrounding roads (e.g. Prince Edward Road East), no significant impact is anticipated."	Noted, it was revised accordingly.
	4. S.4.11: Please confirm with TD regarding the road types of Carpenter Road, Sa Po Road and Kai Tak Road and report the TD's confirmation in the EA.	TD's view was being sought, pending for the reply.
	5. S.4.13: It is noted there is no active chimeny has been identified. We would like to remind URA that his / her consultants should ensure and confirm that the chimney emission data used in the assessment have been validated and updated by their own survey. lf there are any errors subsequently found in their chimney survey and / or emission data uscd, URA shall be fully responsible and the submission might be invalidated.	Noted. According to EIA Report for Kai Tak Multi-Purposed Sports Complex (Register No.: AEIAR-204/2017), and further supported by site visit on 18 October 2018, no chimney was identified within 200m from the site boundary.

	Noise	
	6. We note that the EA has only introduced a tentative layout, which is subject to changes in later detailed design stage.	Noted. The notional layout will subject to change at the detailed design stage.
	7. In this Stage, without any detailed information in this report. it appears that the consultant has assumed that mitigation measures could be applied on fixed noise sources of nearby developments to mitigate its noise impact. If it is the URA/consultant's intention to demonstate that the proposed development will not be subject to insurmountable noise impact by installing noise mitigation measures on the nearby fixed sources, a detailed implementation plan, including written agreements with the owners of these fixed sources, on the implemenation, maintenance, liability issues, etc. for installing these proposed noise mitigation measures on the surrounding fixed noise sources shall be provided. Alternatively, URA/consultant could also consider accurately assessing the impact from fixed noise sources by carrying out noise measurements. Without concrete information on the predicted noise impact from the fixed sources, it is premature to conclude that there is no adverse/insurmountable noise impact from the fixed sources.	Noted. The noise assessment of fixed noise source is still outstanding.
	8. In addition, the cousultant should explore the feasibility of adopting further measures, e.g. better building orientation/layout design to avoid directly facing Prince Edward Road East, use of acoustic windows/enhanced acoustic balconies with higher noise reduction performance, use of acoustic fins, noise screening structures on the plaza adjoining Prince Edward Road East, etc, to further minimize the traffic noise impact.	Noted. The feasibility of different mitigation measures, such as top-hung windows and acoustic balcony, for the traffic noise were studied, which other design measures such as orientation or layout will be further studied to develop at detailed design stage to comply with the acceptable noise level.
	9. Our other comments on the noisc aspect of the EA are given as f'ollows:	Noted and it was revised accordingly.

	i. S.5.5: For the planning of the residential NSRs of the proposed development against noise impact from existing fixed noise sources, the ANLs under the IND-TM of NCO are relevant. The statement regarding the ANL "*.... and should not be higher than the background*" is inaccurate and should be deleted as below.	Noted and it was revised accordingly.
	Fixed Noise Sources	
	5.5 Acceptable Noise Levels (ANL) shown in Table 2 of the *Techncial Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites* (IND-TM) ~~and should not be higher than the background~~. According to IND-TM, the ANLs for different Area Sensitivity Ratings (ASRs) are given in Table 5.2.	Noted and it was revised accordingly.
	ii. S.5.20 and Appendix 5.2: The TD's endorsement on road traffic data should be included.	Noted and please see the attached (in Annex 4) for TD's endorsement of the traffic forecast.
	iii. S.5.24iii: To mitigate the road traffic noise impact, the consultant has proposed to adopt Enhance Acoustic Balconies which would provide a further noise reduction of -7dB(A). However, in this report, there is no information on their configurations, dimensions, figures, nor any reference to demonstrate that this measure could achieve the suggested noise reduction.	Similar noise mitigation design has adopted HKHA public housing projects, such as the San Po Kong Public Housing Development, which on-site noise verification has been conducted, confirming adequate noise reduction could be achieved. In general, the noise can be reduced by 7 dB(A) with Enhanced Acoustic Balconies. Detailed design on the configurations, dimensions, or figures of the Enhanced Acoustic Balconies will be carried out to ascertain adequate noise reduction could be achieved at detailed design stage upon CE in C's approval of the draft DSP.

	iv. S.5.26: The consultant should seek URA's commitment that they will design and install the fixed noise sources of the proposed development to meet the relevant noise planning requirements under the HKPSG.	Noted. The noise assessment of fixed noise source is still outstanding. Relevant noise mitigation measures will be adopted to meet relevant noise planning requirements under HKPSG.
	v. S.5.27: In assessing the noise impact from the existing fixed sources, the consultant should provide further information to justify why the assumed operation hours of some fixed sources are reasonable, e.g. by obtaining confirmation from the operator, by on-site observation.	Noted. The noise assessment of fixed noise source is still outstanding.
	vi. S.5.29 and Appendix 5.6:	
	a) The consultant should provide information of the identified fixed noise sources and justify why the adopted sound power levels were appropriate for the purpose of the fixed sources noise assessment.	Noted. The noise assessment of fixed noise source is still outstanding.

	b) The consultant should illustrate why they considered it would be appropriatc to apply a noise reduction of 20dB(A) for "full enclosure" for the existing fixed noise sources in Appendix 5.6. They should also provide information such as photos, to clarify whether such "full enclosure" is an existing structure installed on the identified fixed noise sources. If negative, they should provide a detailed implementation plan, including written agreements with the owners of these fixed sources, on the implementation programme, maintenance, liability issues, etc. for installing these proposed noise mitigation measures on the surrounding fixed noise sources.	Noted. The noise assessment of fixed noise source is still outstanding.
	vii. Table 5.7: Some predicted noise impacts (e.g. NSR 5) in this table are inconsistent with those in Appendix 5.6.	Noted. The noise assessment of fixed noise source is still outstanding.
	viii. Appendix 5.5: The consultant should make clear if the predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting thc reduction in noise levels the flat offered by the proposed acoustic window or acoustic balconies.	Noted. The following sentence was added in Appendix 5.5. "The predicted noise reduction is not the actual noise reduction at the external façade after the application of the mitigation measures. Theses predicted noise levels are the equivalent noise level at 1 m from the external façade after accounting the reduction in noise levels inside flats offered by the proposed mitigation measures."
	ix. Traffic Noise Assessment: There are some errors in the traffic noisc assessment, e.g. the adopted barrier data on the Prince Edward Road East Flyover.	The adopted barriers near the Prince Edward Road East are the wall of supporting the Prince Edward Road East Flyover which can reduce road traffic noise on the NSRs from the roads at ground level behind them.

	x. Assessment of Noise from Fixed Sources: It appears that there are also some vehicle repair workshops in the vicinity. The consultant should review if it is necessary to include noise impact from these fixed sources in the assessmcnt.	There are a few vehicle repair workshops in the vicinity, however no fixed noise sources were observed during the site visit (October 2018 and April 2019). Moreover, no outdoor works of vehicle repair workshops were observed and there is no operation of the workshop during night time period. Therefore, the noise impact from these vehicle repair workshops are not anticipated.
	Waste Management	
	10. There is no coverage on land contamination assessment in the EA. In general, the Project Proponent/Consultants should confirm with documentary justifications to substantiate whether there is any potential land contamination issue arising from the past and present land use activities on the proposed site (e.g. site's land use history historical aerial photos, site visit photos, spillage records, potential contamination sources, etc.). If affirmative, appropriate assessment and remediation works should be carried out in accordance with relevant prevailing guidelines.	The land contamination assessment will be conducted in detailed design stage. If potential impact due to land contamination is identified, the Contamination Assessment Plan (CAP) will be prepared and contamination assessment will be carried out.
	11. S.6.1 - 6.2: Please list out the legislation/circulars/guidelines to be followed for the assessment of waste maragement implications.	Noted and the relevant guidelines are listed out in **Section 6.2** to **6.9.** The following legislations/guidelines related to the handling, treatment and disposal of waste in Hong Kong are listed: • 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) • The Buildings Department's Practice Note for Authorized Persons and Registered Structural Engineers (PNAP) No. 243

		• ETWB TCW 19/2005 Environmental Management on Construction Sites • DEVB TCW No. 06/2010 Trip Ticket System for Disposal of Construction and Demolition Materials ProPECC PN2/97 Handling of Asbestos Containing Materials in Buildings
	12. S.6.4 – 6.7: a) 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. Please review the proposed handling arrangement(s).	Section 6.11 and Section 6.28 has emphasised the importance of minimization/reuse/recycling of C&D materials should be considered prior to disposal. "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. Waste minimization measures with reference to The Buildings Department's Practice Note for Authorized Persons and Registered Structural Engineers (PNAP) No. 243 should be adopted during construction phase, such as on-site sorting of C&D materials and recycling of construction materials for on-site use."
	b) Section 6.4: The terms "licensed landfill facilities" and "EPD's required procedure" are confusing. Please clarify.	C&D waste is proposed to be disposed to the closest landfill which is the SENT landfill, see Section 6.16.
	13. Table 6.1: It is mentioned in the footnote that the "Monitoring of solid waste in Hong Kong 2014 is referred. The Consultant should review whether the latest version of report sbould be referred instead.	Noted and the "Monitoring of solid waste in Hong Kong 2017" is referred.
	14. S.6.13 – 6.14:	
	a) Please provide the estimated quantity of the general refuse anticipated from workforce, and address how it is arrived at.	Subject to scope of the actual site works, an estimation of general refuse quantity is provided in Section 6.24, 200 workers with a generation rate of 0.65kg/person/day.
	b) Please elaborate the "effective collection of site wastes" and "good waste management practices" to be adopted.	Example for waste management practices for general refuse are suggested in Section 6.31. "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. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" light materials."
	15. Table 6.2: The Consultant should review whether C&D materials would also be anticipated from mid 2025 to early 2030.	A variety of wastes including inert C&D material, C&D waste, chemical waste and general refuse would be generated during the construction phase.
	16. S.6.17: Please address the control measures to be adopted during inclement weather (e.g. heavy rain).	Section 6.30 is added to address the control measure during inclement weather. "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." However, construction method is yet to be determined as it is more than 5 years before commencement of any site works. The construction method or environmental mitigation measures will comply with the prevailing regulations.
	17. S.6.20: Please clarify whether there are any control measures to be adopted for the chemical wastes expected.	Chemical waste management measures are listed in Section 6.32. However, construction method is yet to be determined as it is more than 5 years before commencement of any site works. The construction method or environmental mitigation measures will comply with the prevailing regulations.

	18. S.6.21: The Consultant should elaborate the assessment "The volumes of wastes…. insignificant" in the last statement.	The section for Waste management for operation phase is revised as Section 6.34-6.35. "Domestic wastes will be expected as the major type of waste from the redevelopment, including food residues, plastic and metal products, and paper. No chemical or hazardous waste is anticipated. 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. As the domestic waste will be collected (at a refuse collection point) and regularly disposed of at landfill or regularly sent to recyclers, adverse impacts due to waste management will not be anticipated."
	19. S.6.22-6.23: The Consultant should clarify the "good management and controls" and "recommended measures and legislation" to be followed.	The section for Waste management for operation phase is revised as Section 6.34-6.35 (See response to comment 18).
	20. Chapter 6: There are quite a number of statements/ paragraphs in the chapter that are incomplete/would cause confusion. It is the Consultant's responsibility to double-check the EA before submission to ensure clarity and consistency. Below are some examples for follow-up:	Chapter 6 has been reviewed and the wordings suggested are clarified as shown above. Please note that the section numbers have been largely revised.
	a) In general, C&D materials comprise inert and non-inert materials. The inert portion, such as soil, rock concrete etc., namely inert C&D materials (or public fills), should be reused on-site as filling materials or off-site as public fill at public fill reception facilities. The non-inert portion such as timber, paper etc., namely non-inert C&D materials (or C&D waste) should be reused or recycled as far as possible. Landfill disposal should only be considered as the last resort for waste handling. Please review and adopt consistent terms, e.g. "inert C&D) materials (or public fills)", "non-	Noted.

	inert C&D materials (or C&D waste)" and "non-recyclable C&D waste", throughout the report.	
	b) S.6.9: Please clarify the guideline(s) to be followed and the submission details for the proposed EMP.	A preliminary estimation of the amount of inert C&D materials arising from the Scheme should be reviewed in the Environmental Management Plan (EMP) in accordance with ETWB TCW 19/2005 Environmental Management on Construction Sites prepared by the Contractor, and should be submitted to Architect/Engineer prior to the commencement of construction works. The construction method is yet to be determined as it is more than 5 years before commencement of any site works. However, the construction method or environmental mitigation measures will comply with the prevailing regulations.
	(c) S.6.10: Please clarify whether the estimated quantity of chemical waste is only for the lubrication oil. If not, please revise the text as appropriate.	It is expected that the approximate quantity of the lubrication oil is about 100L/month and hence approximately 6 m^3 of chemical waste will be generated during construction period of 60 months (general assumption of construction time for URA redevelopment projects adopted but also subject to actual construction period).
	(d) S.6.11: Please clarify the "relevant statutory requirements" for the asbestos wastes identified, and review the meaning of the last statement" ... no adverse environmental impacts are expected."	Noted and please refer to responses in Comment 11.

	(e) S.6.16: Please clarify the proposed control measure to be adopted in the paragraph.	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. Waste minimization measures with reference to the Buildings Department's Practice Note for Authorized Persons and Registered Structural Engineers (PNAP) No. 243 should be adopted during construction phase, such as on-site sorting of C&D materials and recycling of construction materials for on-site use.
	(f) S.6.18: The meaning of the section is confusing. Please review.	Noted.
	(g) S.6.24 & 7.6: Please clarify the meaning of the term "during the occupation of the Scheme".	"during the occupation of the Scheme" refers to the construction and operation phrase of the Scheme.
Comments on Sewerage Impact Assessment (Appendix 7)	1. Please state the population intake year of the proposed development.	The proposed population intake year is Year 2030.
	2. Table 3.1: For those manholes with unknown or doubtful invert level (e.g. for manholes of Pipe 01, 04 and 08), manhole survey may be required to determine the actual invert levels and pipe capacity. Please agree with DSD on the result of manhole survey. The consultant should revise the hydraulic calculation based on the actual invert level of the concerned manholes.	It is a common practice to estimate the unknown invert level using the upstream and downstream known levels at this preliminary stage. Manhole survey would be carried out during detailed design stage to verify the actual invert levels; the hydraulic calculation would be updated in due course, and upgrading works should be advised if any sewerage impact arises. (The SIA is also circulated to DSD.)

	3. Para. 3.6: The proposed average household size is a district-wide figure only. Please adopt the target population intake of the proposed development from project proponent for hydraulic calculation.	The adopted household size for hydraulic calculation is based on the recorded average household size for the Lung Shing Constituency (2.4 persons/household). The estimated future population for the proposed development would be about 1,944 persons (810 flats x 2.4 persons).
	4. Some premises in the concerned sewerage catchment were omitted in the calculation (e.g. Tung Tau Estate Yan Tung House and Tung Tau community centre). Please check and revise the calculation.	The closest manhole of Tung Tau Estate Yan Tung House is FMH4029989 and the catchment is not part of the upstream calculation. The sewage discharge from Tung Tau community centre is collected by FMH4029834 and FMH4029846, therefore half of the population at the community centre would be included in the updated calculation.
	5. It is noted that the discharge points are inconsistent in different paragraphs / figures / appendixes of the report. Please check and correct.	Noted and revised accordingly.
	6. Appendix 3.1:	
	(a) Should Pipe 05 be under Route 2?	Noted and Pipe 05 is under Route 2.
	(b) It is noted that less conservative value of roughness coefficient was adopted. Please adopt the more conservative value of roughness coefficient.	Roughness coefficient for slimed concrete sewer under poor condition is adopted instead of slimed clayware, the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm. (The SIA is also circulated to DSD.)
	7. Appendix 3.3:	
	a) We have doubt on the assumed average household size which seems to be underestimated. Please adopt a more conservative estimation of population.	(a) The adopted household size for the calculation of sewerage discharge from surrounding area is based on the Population by-census 2016 which is a recorded household size for the Lung Shing Constituency (2.4 persons/household), Tung Tau (2.4 persons/household) and Tung Mei (2.6

		persons/household) district; and these numbers are considered conservative. According to the "Baseline review: Population, Housing, Economy and Spatial Development Pattern" by Planning Department (November 2016), the average house hold size of Hong Kong is generally decreasing in recent years. Therefore, adopting the record in 2016 for 2030 estimation is already a conservative approach. As requested scenario testing worst case and to be further conservative, the general household size of whole Hong Kong (2.7 persons/household) which is predicted by the above study by PD, is also adopted in the updated calculation.
	b) Note [g] is missing. Please correct.	Noted and Note [g] is inserted in Appendix 3.3. [g] Po Sing Court: http://www.ricacorp.com/Ricapih09/estate.aspx?type=1&code=UFDOQRFXRV&lang=b5"
	8. Appendix 3.5: The remark is irrelevant with the appendix. Please correct.	Noted and the remark is removed from the appendix.
	9. Please be reminded that the implementation of local sewer connection / upgrading / diversion works shall meet the satisfaction of DSD.	The SIA is also circulated to DSD.
DPO/K's Comments (as at 3.4.2019)	A. General comments	
	Plans	
	1. All relevant plans which would substantiate the proposed scheme should be enclosed to the planning report, and those	Given the relevant plans serve to show the notional design which is subject to changes, indicative block plan and

	should be accurately drawn to scale. It is also applicable to the plans in Appendix 1 (Preliminary Design). (a) Please provide a plan to show the new private street with overlay of the existing Sa Po Road and the amenity areas. The plan should demonstrate the relationship of the realigned-road and existing situation.	section plans are provided in the planning report as Preliminary Design in Appendix 1. Detailed design will only be carried out upon CE in C's approval of the draft DSP. Please refer to the attached (in Annex 2) for the plan showing the new private street with overlay of the existing Sa Po Road and the amenity areas.
	(b) Figure 1.3 of Appendix 1 (Preliminary Scheme): please provide the width of the building gaps in-between the proposed residential towers and the building gaps between proposed towers and existing buildings (i.e. Carlson Court at 51 Sa Po Road and High Place at 33 Carpenter Road).	Given the proposed development is only a notional design which is subject to changes and GBP approval, the width of the building gaps in-between the proposed residential towers and the building gaps between proposed towers and existing buildings is premature/misleading to be provided at this stage.
	(c) Please provide more section drawings of the proposed scheme.	A representative section drawing has provided in Appendix 1 Figure 1.2.
	(d) The building layouts in Appendix 1 (Preliminary Design) and Appendix 6 (AVA) (in particular Figures 1.3 and 1.5b) are different. For consistency, the blockings in the plans to substantiate the proposed development should be the identical.	The plans in Appendix 1 is the conceptual blocking in form of overall block plan showing the disposition and general setting of the proposed scheme. The same blocking, with more articulations with reference to the building outline, are indicated in Appendix 6 for the purpose of AVA modelling.
	B. Specific comments <u>Relaxation of building height restriction (BHR)</u>	
	2. Presumably, the sunken plaza and private road will still be proposed if the BHR is kept at 100mPD; if affirmative, to justify the relaxation of BHR from 100mPD to 120mPD from a visual impact perspective, the comparison of a baseline scheme (OZP-compliance scheme of 100mPD) and the proposed scheme should be on the same basis. Alternatively, if it is URA's view that the sunken plaza and private street will not/cannot be	As mentioned in para. 4.16 and 4.17 of the planning report, a proposed development with sunken plaza under the OZP-compliant BHR will be very restrictive for building layout and block design, which is not preferable from the urban design and planning point of view.

	provided under the OZP-compliant BHR, then there should be corresponding justifications in the report.	If a 100MPD is kept for the proposed development with the sunken plaza and a private road on the south side, the residential towers will need to be restricted to the northern part and the buildings will unavoidably be bulkier and wider in building form to accommodate the permissible GFA, and necessary E/M facilities within the towers. By confining the buildings to the north of the site will also result in a narrower gap between towers and the adjoining existing buildings, creating more stressful spatial feeling, narrower local wind gaps between buildings and is not desirable from urban design point of view.
	3. Please provide more substantial justifications to support the relaxation of BHR in the Planning Report (paragraphs 4.16 to 4.18 of the Planning Report refers). Please also provide the site coverage and floor-to-floor height of the proposed scheme.	The relaxation of maximum building height (from 100mPD to 120mPD) is proposed to allow more design flexibility in building form and layout, which enable a slimmer building form and wider building separation. Under the current notional design, the site coverage will be not more than 40% for domestic use and about 65% for non-domestic use above ground. The floor-to-floor height is about 3.15m for domestic use, and 4m to 6m for non-domestic use under the current notional design.

<table>
<tr>
<td></td>
<td>4. For the baseline scheme, please also provide assumptions on major development parameters to gauge the difference with the proposed scheme, and to better understand the benefits of a relaxation of BHR.</td>
<td>The Baseline Scheme assumes that individual private lots are amalgamated for redevelopment of 4 sites as shown in figure 1.2 of the Visual Appraisal. The total net site area is 4,178 m², which is less than the Proposed Scheme because the amenity areas, services lanes and Sa Po Road portion could not be included. The Baseline Scheme complies with the OZP, B(P)R and SBD guidelines. The major development parameters are tabulated as follows.
<table>
<tr><td></td><td>Baseline: 100 mPD (<u>without</u> sunken plaza and private road)</td><td>Proposed Scheme (120MPD with sunken plaza and private road)</td></tr>
<tr><td>Net site area (m²)</td><td>4,178</td><td>5,352</td></tr>
<tr><td>Total GFA (m²)</td><td>37,602</td><td>48,168</td></tr>
<tr><td>Total PR</td><td>9.0</td><td>9.0</td></tr>
<tr><td>Site Coverage</td><td>Not more than 33.33% (Domestic)</td><td>Not more than 40% (Domestic)</td></tr>
<tr><td>Building height</td><td>100mPD</td><td>120mPD</td></tr>
</table>
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<tr>
<td></td>
<td>5. Please consider to incorporate variations in BH of the proposed residential towers under the proposed relaxed BHR.</td>
<td>The current proposed scheme is a notional design to demonstrate the proposed maximum building height of 120mPD. Variations of building heights of the different towers will be explored at detailed design in future without jeopardising the planning gain of the sunken plaza.</td>
</tr>
<tr>
<td></td>
<td><u>Sunken plaza</u>

6. As mentioned in para. 4.10 of the Planning Report, a split-level sunken plaza would be provided at the southern part of the</td>
<td>Smooth and barrier free landscape transition from the proposed split-level sunken plaza to the adjoining pavement at Prince Edward Road East and the underground shopping street (USS) of the Kai Tak</td>
</tr>
</table>

	Scheme to connect with the existing pavement of Prince Edward Road and the underground shopping street (USS) of the Kai Tak Development Area (KTDA). Please provide illustrations to demonstrate how the split-level sunken plaza could improve the walking environment, pedestrian circulation on Sa Po Road, Kai Tak Road and the bus waiting area along Prince Edward Road East, the connectivity to USS of KTDA, and create visual openness and relief in the area.	Development Area (KTDA) to allow space for bus waiting and enhance walkability, create visual openness and relief in the area. A harmonious green interface along Sa Po Road to create a physical and visual link with the adjacent public open spaces of Tai Ku Ling Road Rest Garden and the smaller Planting Area adjacent to the Regal Oriental Hotel (refer to Appendix 3- Figure 2.1). URA will also explore the opportunity to carry out other urban renewal initiatives including revitalization to bring additional benefits to the neighbouring environment, upon CE in C's approval of the draft DSP and subject to further liaison with government departments.
	7. Please confirm how the area of the sunken plaza of about 1,000m^2 is tabulated.	Subject to detailed design upon CE in C's approval of the draft DSP, the area of the sunken plaza will be of about 1,000 m^2. The covered commercial area in the sunken plaza will be counted as non-domestic GFA of the Scheme site.
	8. For the sunken plaza, please advise if it would be listed under 'Provision of Facilities and/or Open Space required under lease for the use by the public in private developments'.	The design intention of sunken plaza is to provide a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road area and is not merely providing an amenity space as public open space. It is a split-level space with shops and services adjoining to serve the public, it will also provide sitting out area and event space to enrich user's experience. ~~It is proposed to be opened for public use under the management and maintenance of URA or its joint venture partner or its assigned agent.~~ The sunken plaza is proposed to be granted to the URA under the same land grant of the Scheme. URA will open the sunken plaza for public use, and take up the management and maintenance responsibilities by itself or its joint venture partner or its assigned agent. In the future

		land grant, the sunken plaza should not be counted as "public open space".
	Private road 9. Please clarify who will be responsible for the maintenance and management of the private street which will be open for public use.	The private street which will be open for public use is proposed to be under the management and maintenance of URA or its joint venture partner or its assigned agent, subject to agreement with relevant Government Departments.
	Underground public vehicle park 10. Please clarify who will be responsible for the maintenance and management of the public vehicle park.	The public vehicle park is proposed to be under the management and maintenance of URA or its joint venture partner or its assigned agent.
	Interface with existing buildings during construction stage and operation stage 11. Please elaborate what design measures would be taken to minimize impacts on abutting existing buildings (in particular Carlson Court and High Place).	The new buildings would be separated from the existing buildings (Carlson Court and High Place) by service lanes of about 3m. As mentioned in the desktop geotechnical study, the proposed geotechnical works, including foundation works, ELS works are assessed and considered geotechnical safe for the adjoining existing buildings. Comprehensive precautionary monitoring measures would also be provided during construction stage, subject to detailed design, ground investigation and approval from relevant government departments.
	Population and provision of local open space 12. Please indicate that provide sufficient area of local open space will be provided for the future residents in accordance to the HKPSG (i.e. 1m^2 per person). Plans showing the indicative location would be useful. Please provide the estimated population of the proposed development.	Noted. Sufficient local open space for the residents of the proposed residential development would be separately located at the podium of the residential towers. Detailed design will be carried out in later stage upon CE in C's approval of the draft DSP. The estimated population of the proposed development is about 1,944 persons based on average household size of 2.4 as for Lung Shing Constituency.

	Notes - Schedule of notes and planning intention (P. 2 of the Notes) 13. On P.2 of the Notes of the "R(A)" zone, for the commercial uses, we understand that Column 1 of the Notes has been modified from the conventional Master Schedule of Notes and Planning Intention, namely under scenario (b) to allow those uses to be always permitted "in the purpose-designed non-residential portion of *a building*" instead of "an existing building".	Noted and please see Annex 6 as attached for revised DSP Notes.
	14. Our comments on paragraph 13 above will be sent in due course.	Noted.
	Notes - Remarks (8) 15. Please revise to: "…. Any floor space that is constructed or intended for use solely as Government, institution or community facilities as required by the Government may also be disregard."	Noted and please see Annex 6 as attached for revised DSP Notes.
	ES - Area of the "R(A)" zone on the draft DSP 16. Please clarify whether the Net Site Area (5,352m^2) (stated in Table 4.1 of the Planning Report) is equivalent to the area of the "R(A)" zone (area coloured orange) on the Draft DSP Plan No. S/K10/URA1/A.	Yes, exact area is subject to land survey in the land grant preparation stage.
	17. It is recommended to add "The area covered by the "R(A)" zone is x,xxxm^2" in para. 7.1 of the ES. Reference has been made to the ES of the DSP of S/H3/URA3/1, where similar information was incorporated.	Noted and please see Annex 6 as attached for revised ES. .

	ES - Para. 2.1 – the timeframe of the approval of the URA's 17th Business Plan (2018/19) 18. Please include such information as it is stated in both the DSPs in H3 and K9.	Noted and please see Annex 6 as attached for revised ES.
	ES - Para. 2.5 – the Plan No. of K10 OZP 19. Please amend to "… the Plan has from the date replaced the Ma Tau Kok OZP in respect of…."	Noted and please see Annex 6 as attached for revised ES.
	ES - Para. 5.1 20. For consistency, please use "m^2" instead of "sq.m." in the ES.	Noted and please see Annex 6 as attached for revised ES.
	ES - Underground public vehicle park 21. For consistency, please revise to "underground public vehicle park" in paragraph 3 and the sub-title of paragraph 7.9.	Noted and please see Annex 6 as attached for revised ES.
	ES - Government, institution or community (GIC) facilities 22. Please add a paragraph on GIC facilities under paragraph 7, and specify a minimum of 800m^2 floor space is reserved for GIC facilities.	Noted and please see Annex 6 as attached for revised ES.
	ES - Para. 7.5 23. To be consistent with the Urban Renewal Plan for Kowloon City (URP) recommended under the District Urban Renewal Forum (DURF), it should read as 'pedestrian subway' rather than 'pedestrian tunnel'.	Noted and please see Annex 6 as attached for revised ES.
	ES - Implementation of good design features for AVA	Noted.

	24. According to para. 5.1.3 of the AVA, it concludes that no further air ventilation mitigation measures would be required. For the good design features, the following paragraph should be added in the ES.	
	According to the air ventilation assessment (AVA) report for the proposed development, good design features (i.e. split-level sunken plaza and building gaps of xx m to xx m between the tower(s)) were proposed to enhance wind flow penetration. They should be applied as far as practicable in the design and layout of future developments in the "R(A)" zone. In the event that the proposed design features are not adopted in the future design scheme, further AVA study should be conducted by the project proponent to ensure acceptability of the design for its air ventilation environment.	It is uncommon to illustrate the building gaps between towers and the sunken plaza in ES. Given the proposed development is only a notional design which is subject to changes, detailed design will only be carried out upon CE in C's approval of the draft DSP. The width between the sunken plaza and the building gaps of the towers is not available at this stage.
Received via email from STP/K2, DPO/Kowloon dated April 18, 2019.		
STP/K2, DPO/Kowloon's Comments (as at 18.4.2019)	Please consider amending Column 1 of the Notes regarding uses permitted in the lower floors of the development as follows: *In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements, <u>excluding floors containing wholly or mainly car parking, loading/unloading bay and/or plant room;</u> or (b) in the purpose-designed ~~non-residential~~ <u>non-domestic</u> portion of a building~~, both excluding floors containing wholly or mainly car parking, loading/unloading bay and/or plant room~~ <u>connecting to the sunken plaza.</u>*	Noted and please see Annex 6 as attached for revised DSP Notes .

	Furthermore, please also consider revising Remarks (5) of the Notes as follows: An underground public vehicle park shall be provided. ~~The design and provision of car parking spaces to be provided in the underground car park shall be~~ as required by the Government. In determining the maximum plot ratio for purposes of paragraphs....	Noted.
Received via email from TP/K10, DPO/Kowloon dated March 18, 2019.		
Chief Engineer/ Construction of Water Supply Department (WSD)	I refer to your memo referenced above. URA shall submit a Water Supply Impact Assessment assessing the increase in fresh and salt water demand due to the proposed development for our consideration.	Based on the Freezing Survey result and estimates in Social Impact Assessment Stage 2 report, the existing population in the Scheme is about 1,100 persons. The estimated population in the future development of the Scheme is about 1,940 persons (based on 810 units proposed in the notional scheme). The increase of population is about 840 persons upon redevelopment. In view that the water impact is more on technical aspect of which mitigation measures can be proposed if any adverse impact, it is suggested that the assessment can be carried out at the detailed design stage if the Scheme is approved by CE in C, subject to further liaison with WSD.
Received via email from TP/K10, DPO/Kowloon dated April 24, 2019		
WSD	WSD just confirmed that they have no further comments on the consideration that the future population of the development is 1940 (provided by URA on 18.3.2019). Please be reminded that the Water Supply Impact Assessment (WSIA) should be carried out at design stage and be submitted for WSD's consideration.	Noted.

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Received via email from TP/K10, DPO/Kowloon dated April 29, 2019.		
CEDD	According to the information presented in the report, the following observations are noted and recapped :- a) As quoted in Paragraphs 3.5 and 4.11 of the report, a proposed sunken plaza at Sa Po Road will be constructed by URA, which will have a direct connection with the proposed pedestrian tunnel(Subway SB-01) under CEDD's project, namely "Kai Tak development - stage 5B infrastructure works at the former north apron area" (Stage 5B works). b) According to Figure 1.1 in Part 3 of Appendix 1 of the report, the proposed sunken plaza will overlap with the proposed Subway SB-01, including lifts, staircase and escalator, to be constructed by the Stage 5B works. c) According to Figure 1.2 in Part 3 of Appendix 4 of the report, the realigned Sa Po Road and its junction with Kai Tak Road under the Stage 5B works, will be reconfigured by URA to facilitate their construction of sunken plaza. d) According to the tentative implementation programme enclosed in Appendix 10 in Part 3 of the report, it is noted that the commencement of construction of the proposed sunken plaza will be beyond the tentative completion of the proposed Subway SB-01 by the Stage 5B works.	Noted.

	In the light of the above, please find below our comments on URA's planning report for your coordination. 1.The construction of the proposed Subway SB-01 will commence in Q3 2019 for completion in 2024/25 tentatively, i.e. part of Sa Po Road, Kai Tak Road and adjacent amenity area will be occupied by the Contractor of CEDD's Stage 5B works.	Noted.
	2.The road and sewerage schemes associated with the proposed Subway SB-01, realigned Sa Po Road and its junction with Kai Tak Road under CEDD's Stage 5B works were gazetted in November 2018 and authorized in February 2019. Please be reminded to follow up with relevant departments/bureaux and arrange gazette amendments if deemed necessary to suit URA's development.	Noted.
	3.Please be reminded that pedestrian access to and fro the proposed pedestrian Subway SB-01 should be allowed during the construction and upon the completion of the URA project.	Noted.

Departmental Comments on Stage 2 Social Impact Assessment Report

Received via email from TP/K10, DPO/Kowloon dated April 24, 2019		
Social Welfare Department (SWD)	We note that SWD has been mentioned in para. 12.1 of the above Stage 2 Social Impact Assessment Report. Please note our comment on para. 12.1 of the Stage 2 Social Impact Assessment Report as follows: "….the Social Welfare Department and various non-governmental ~~social~~ organisations for welfare ~~counciling~~ services,…".	Noted.

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

URA noted the following Government Departments have no comment:

- Electrical and Mechanical Services Department
- Fire Services Department
- Leisure and Cultural Services Department
- Home Affairs Department

Annex 1



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NW-10D, 11-NW-15B, 11-NW-15D, 11-NE-6C, 11-NE-6D, 11-NE-11A, 11-NE-11B, 11-NE-11C, 11-NE-11D

LOCATION PLAN

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

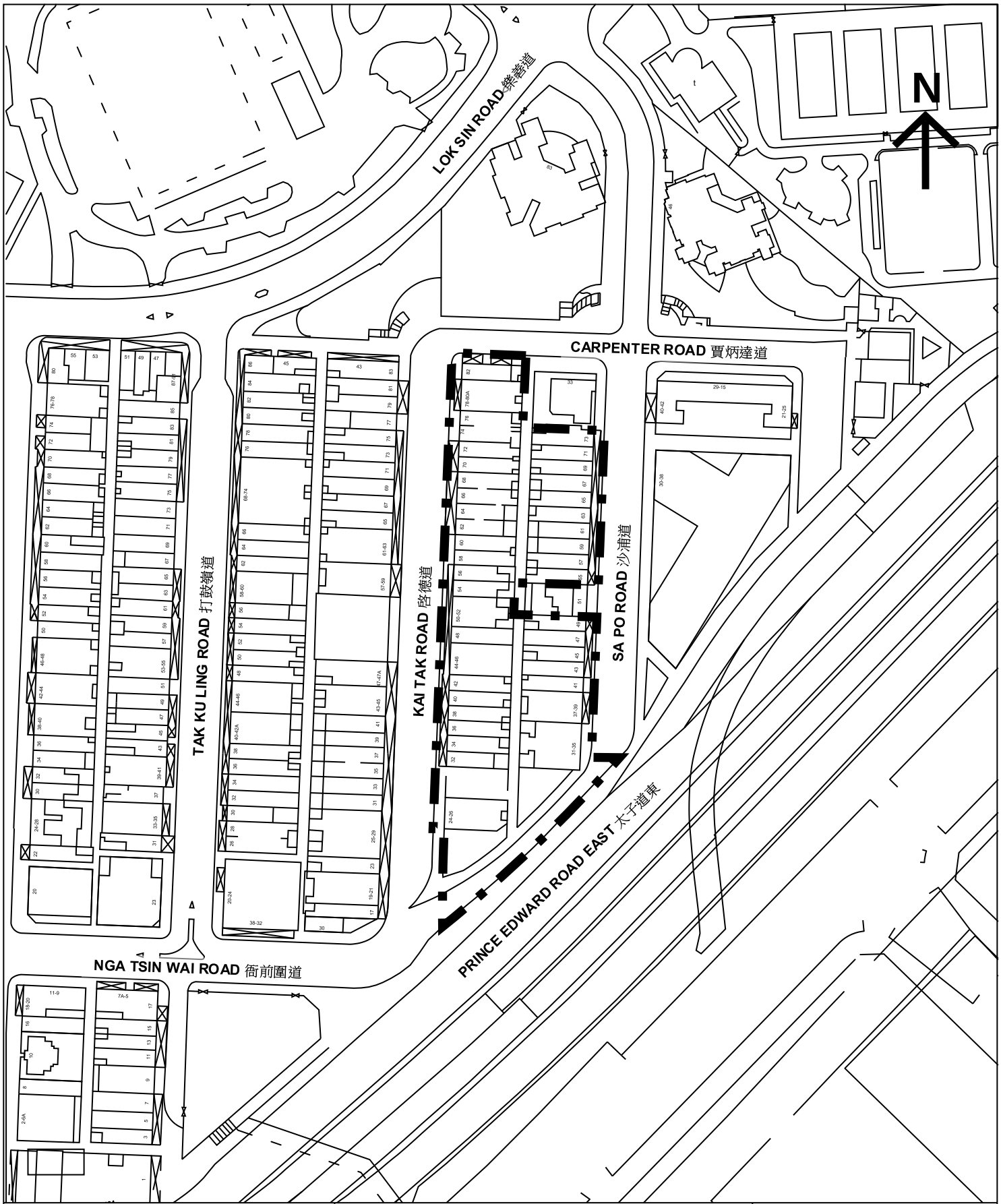
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 1



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

SCHEME AREA

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

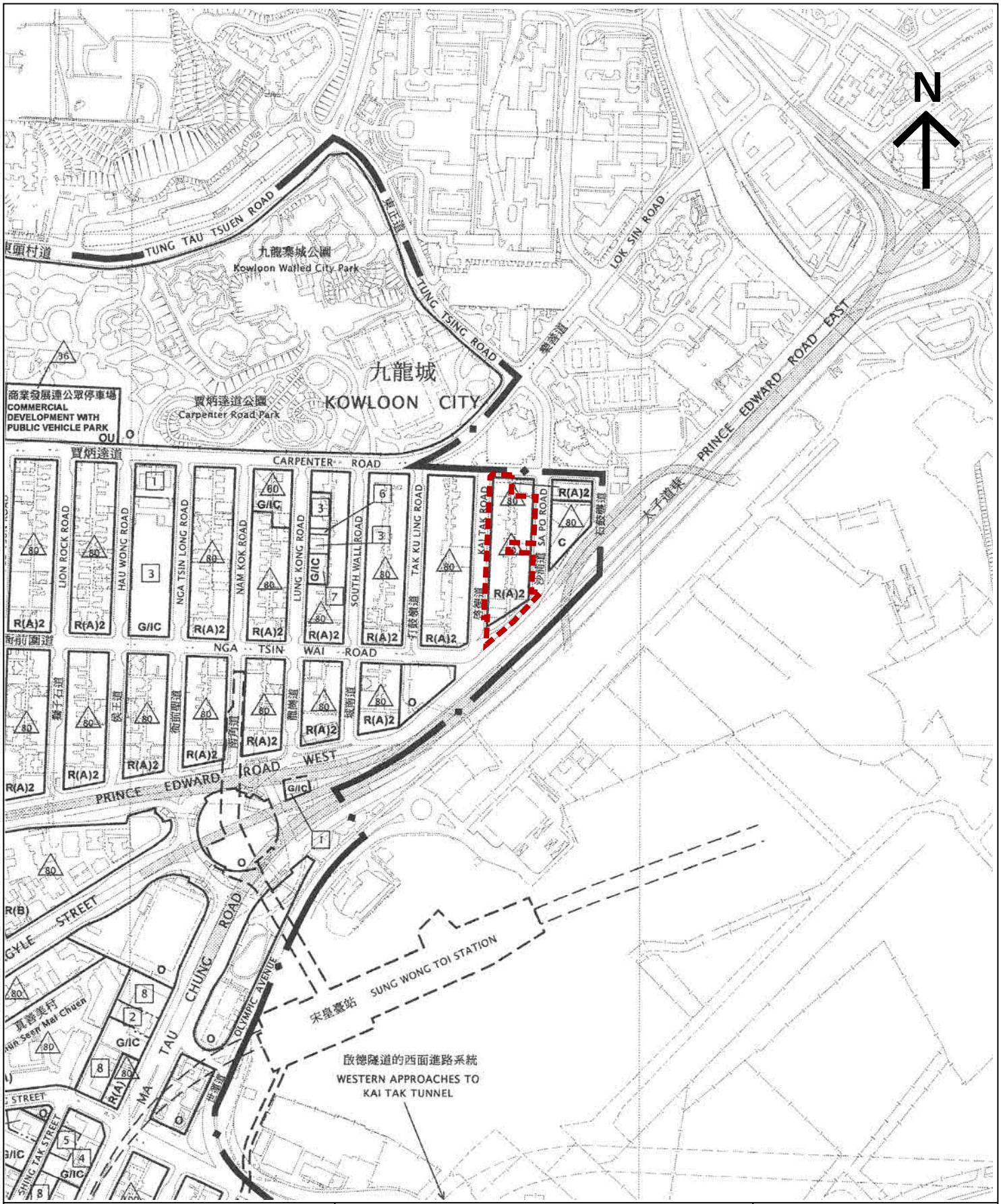
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 2



THE SCHEME

EXTRACT PLAN BASED ON
DRAFT MA TAU KOK OUTLINE ZONING PLAN No.S/K10/24

EXISTING ZONING OF DEVELOPMENT SCHEME

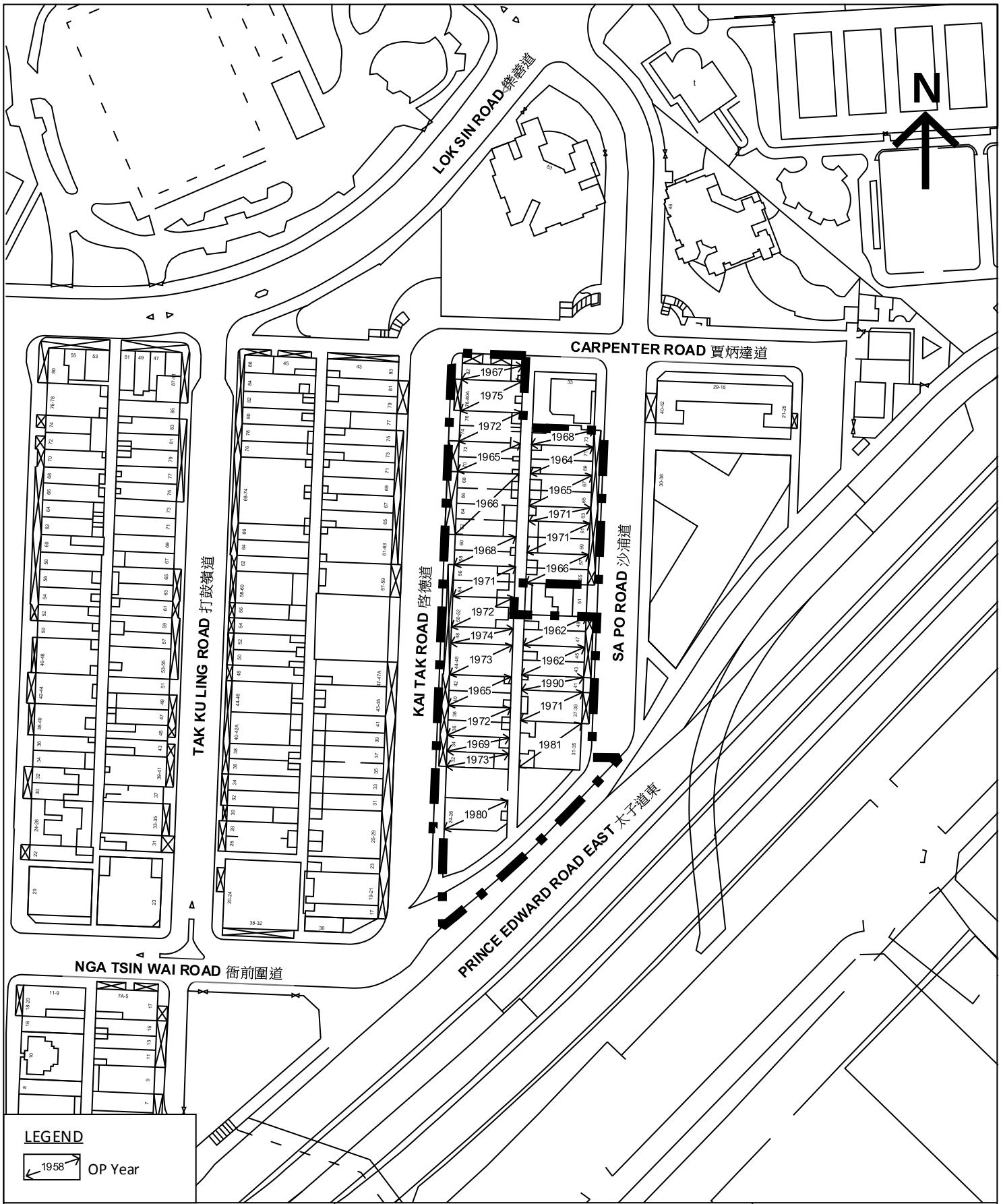
DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD
SCALE 1 : 5000

METRES 100 0 100 200 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 3



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

BUILDING AGE

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

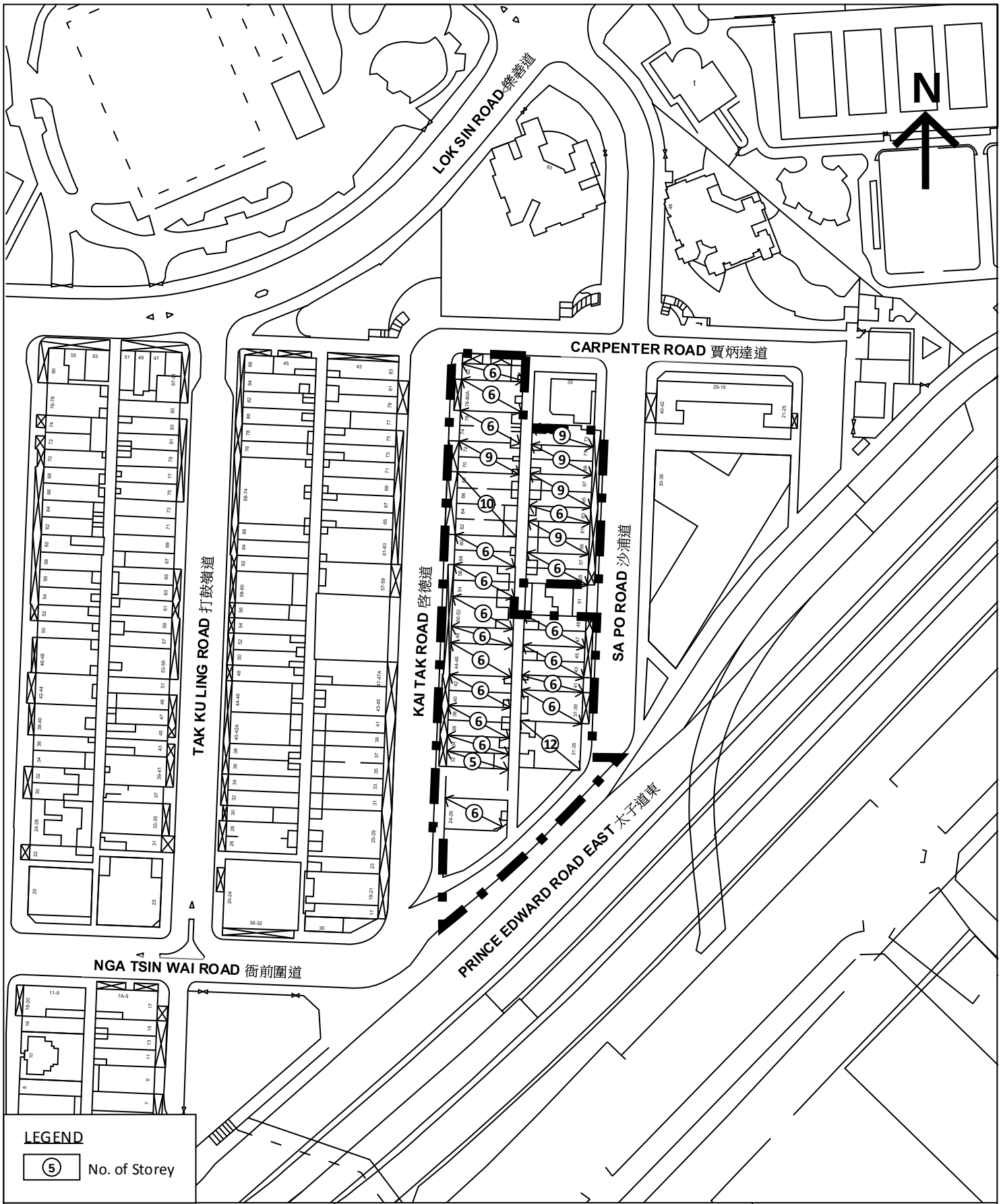
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 4



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

BUILDING HEIGHT

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

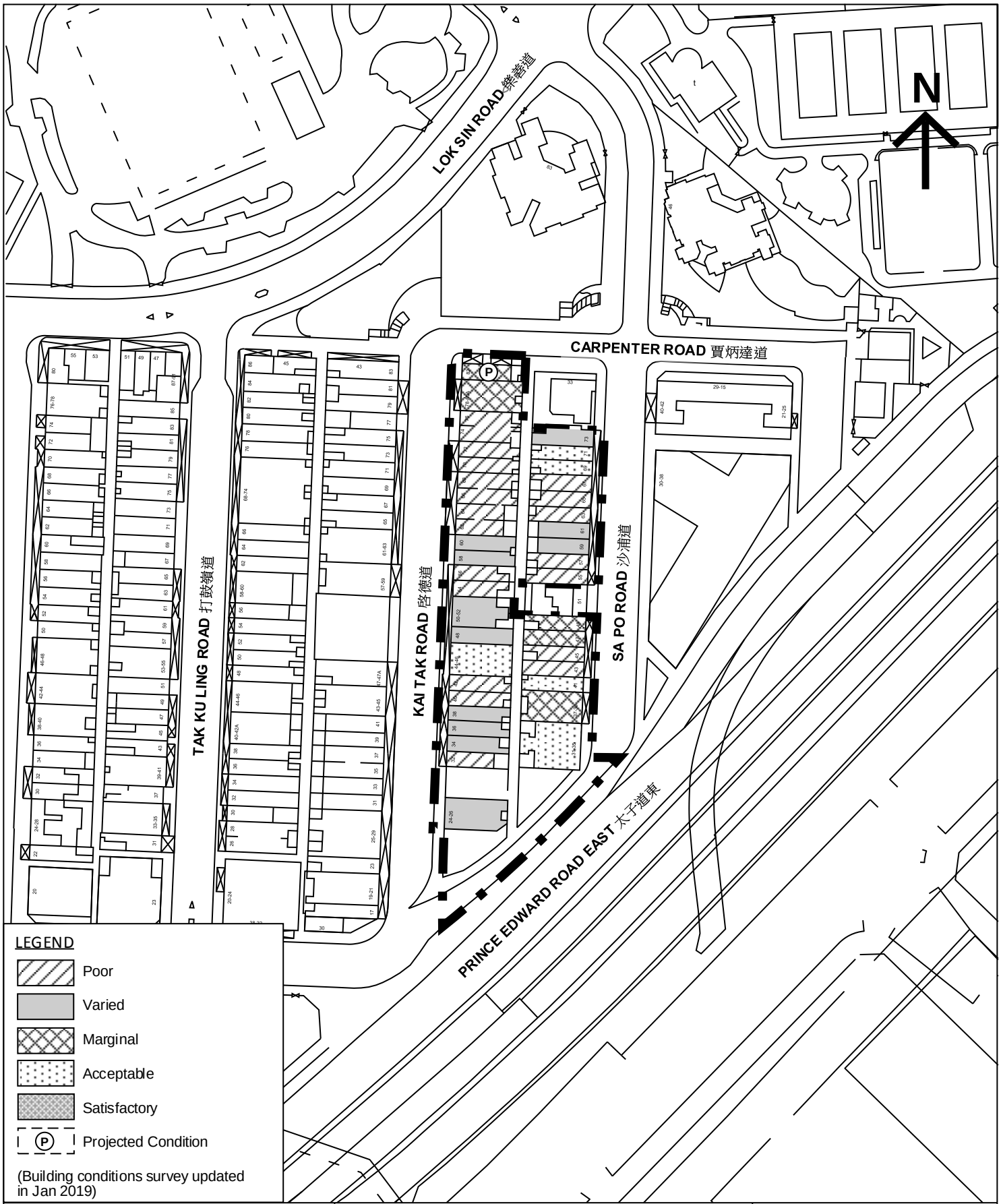
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 5



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A & 11-NE-11C

BUILDING CONDITION

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

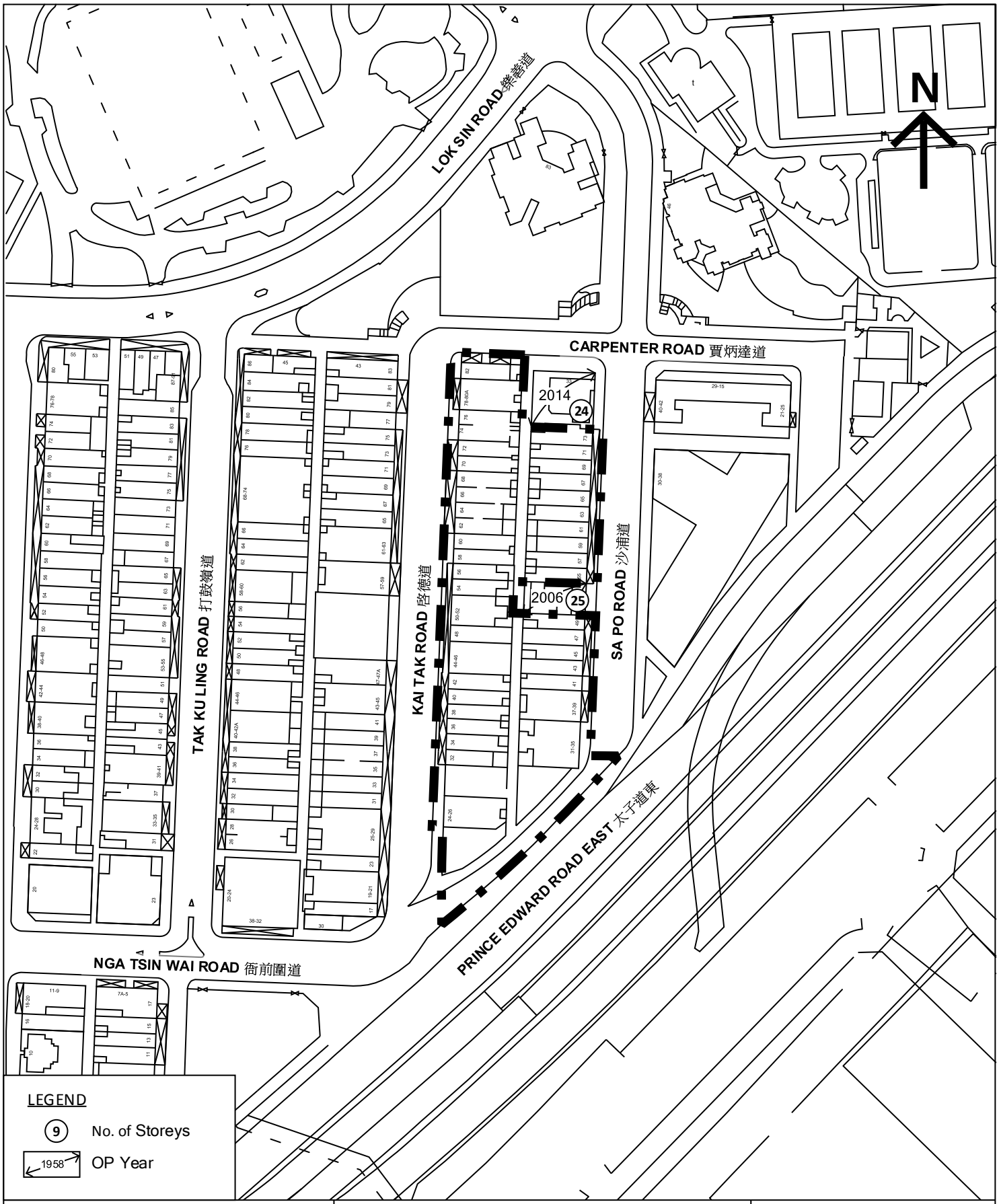
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 6



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A & 11-NE-11C

INFORMATION ON BUILDINGS IMMEDIATELY ADJACENT TO SCHEME AREA

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

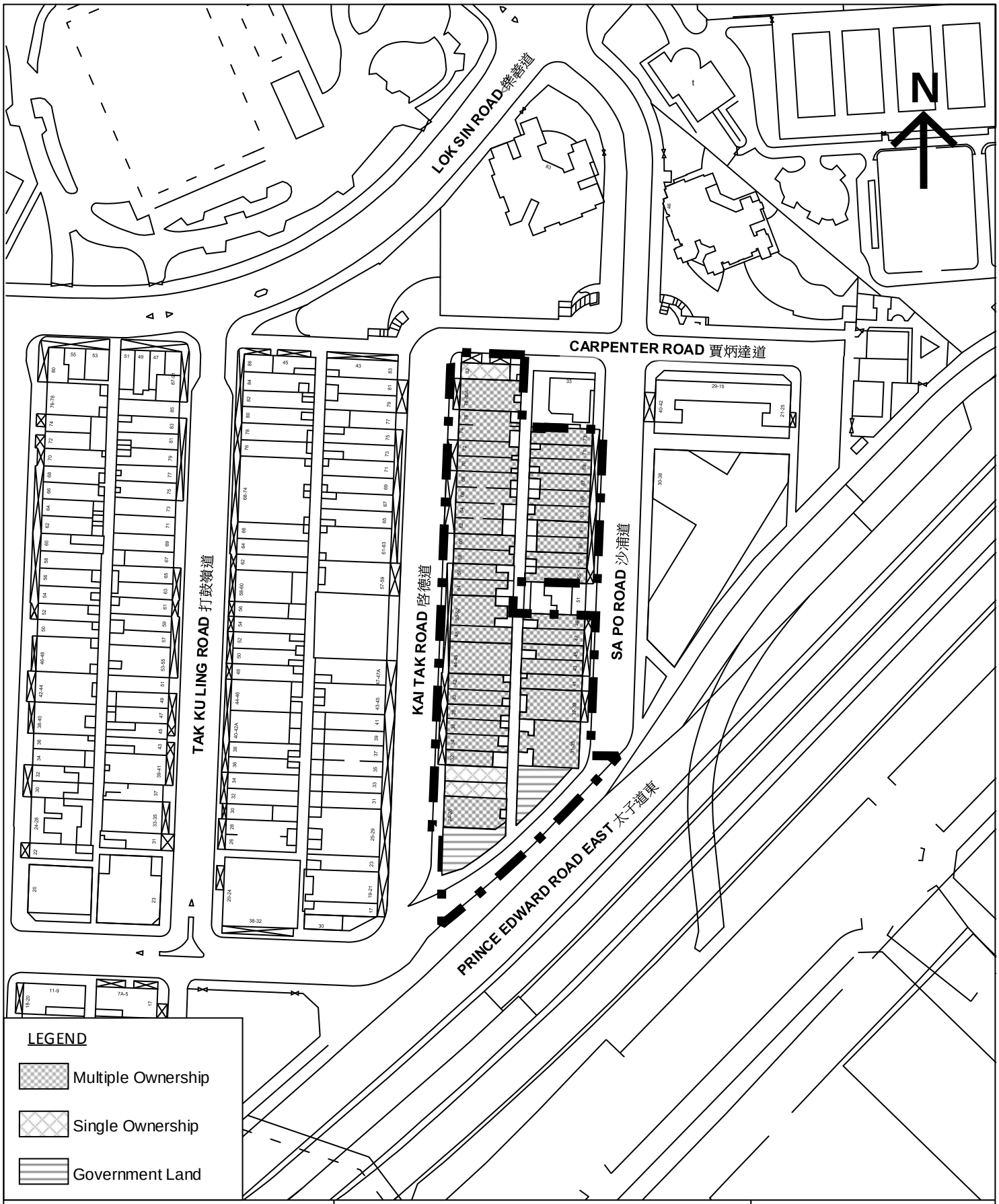
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 7



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

OWNERSHIP PATTERN

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

SCALE 1 : 1500

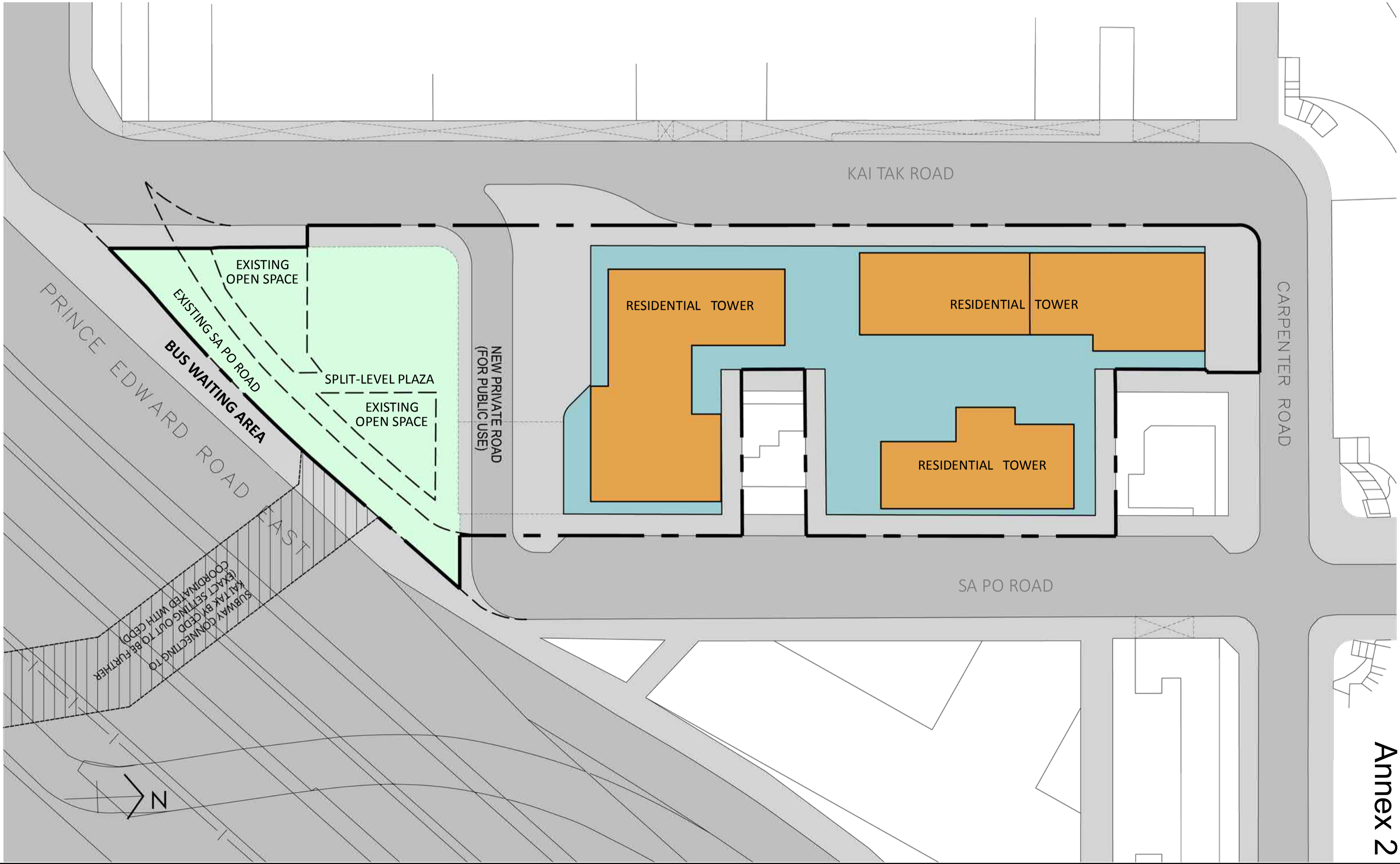
METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 8

(Notional layout subject to detailed design upon DSP approval.)

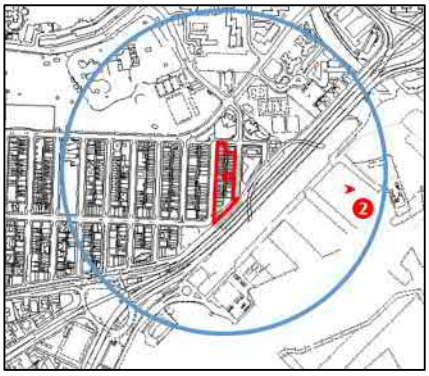


Annex 2

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Notional Design – Overlay of new private street with the existing Sa Po Road and amenity areas





Existing Condition



Base Scheme with 100mPD (without sunken plaza)

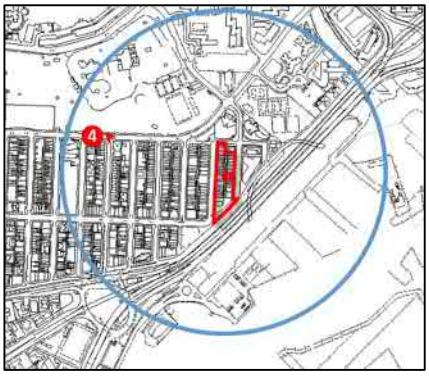


Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD





Existing Condition



Base Scheme with 100mPD (without sunken plaza)

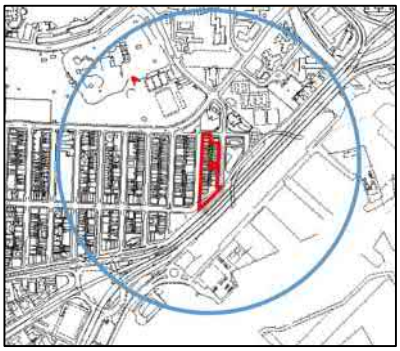


Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD





Existing Condition



Base Scheme with 100mPD (without sunken plaza)



Base Scheme with 100mPD (with sunken plaza)



Proposed Scheme with 120mPD

Annex 4

By Fax
25286343

運輸署
Transport Department

本署檔案 Our Ref. : ( ) in TD KR 182/111-1C
來函檔號 Your Ref. : J6786/1 (TNIA)
電 話 Tel. : 2399 2512
圖文傳真 Fax : 2142 3216
電 郵 Email :

4 April 2019

CKM Asia Limited
21st Floor, Methodist House
36 Hennessy Road
Wan Chai, Hong Kong
(Attn: Mr CHIN Kim Meng)

Dear Sir/Madam,

[CONFIDENTIAL]

URA KC-015 in Kowloon City: Redevelopment of Kai Tak Road/ Sa Po Road

Traffic Forecast for Traffic Noise Impact Assessment Study

I refer to your letter dated 11.1.2019 regarding the captioned.

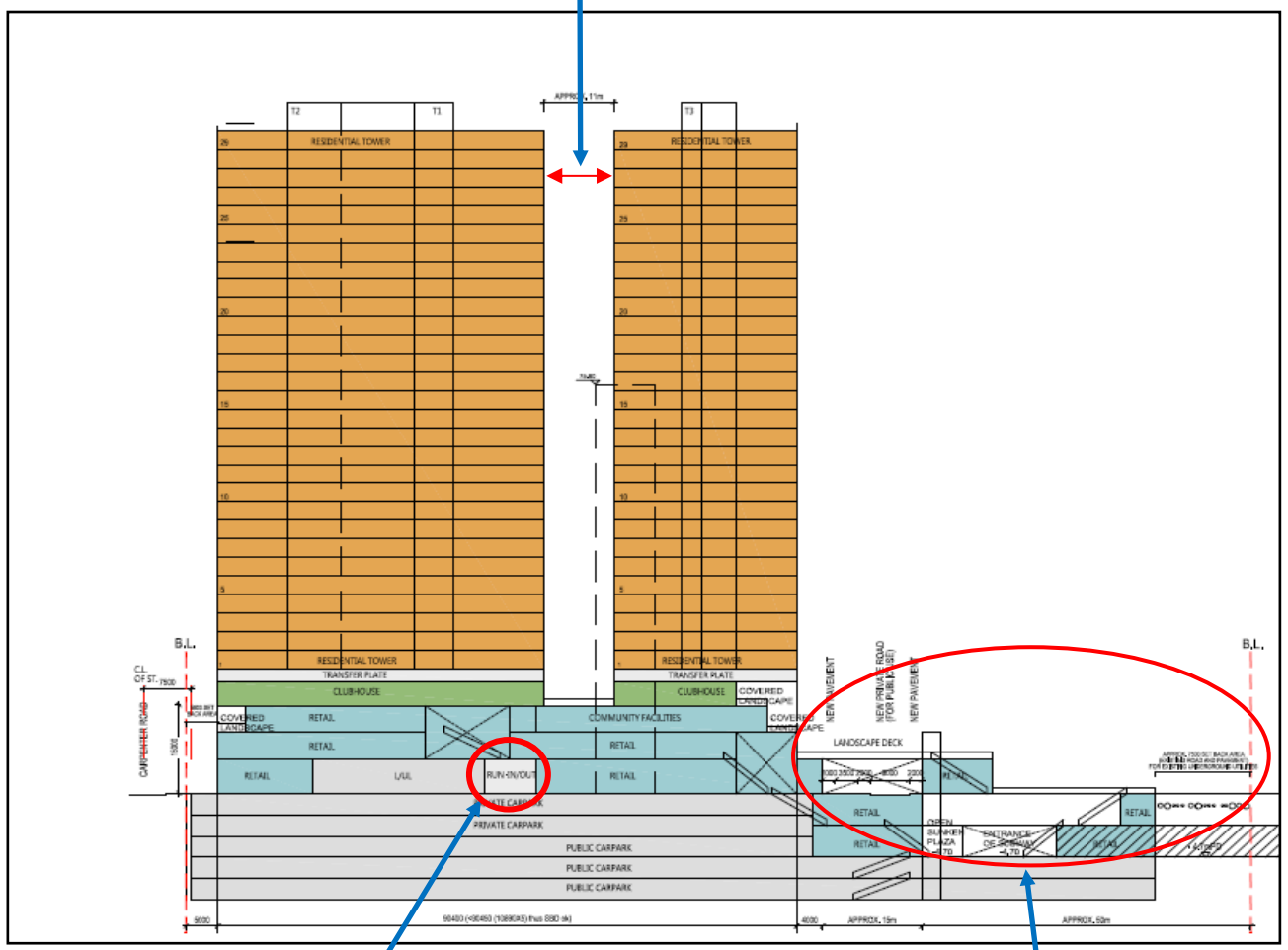
I have no comment on the methodology as detailed in the traffic forecast approach from traffic engineering point of view.

Yours faithfully,

(Ms Christine LUK)
for Commissioner for Transport

市區(九龍)及新界分區辦事處
Urban (Kln.) & NT Regional Office
九龍聯運街三十號旺角政府合署七樓及八樓
7th & 8th Floors, Mong Kok Government Offices, 30 Luen Wan Street, Kowloon.
圖文傳真 Fax No.: 2381 3799 (新界區) (NTRO) 2397 8046 (九龍市區) (U(K)RO)
網址 Web Site: http://www.td.gov.hk

Gap Width:
~11m



Ingress/Egress

Split-level Sunken Plaza with landscaping and open area

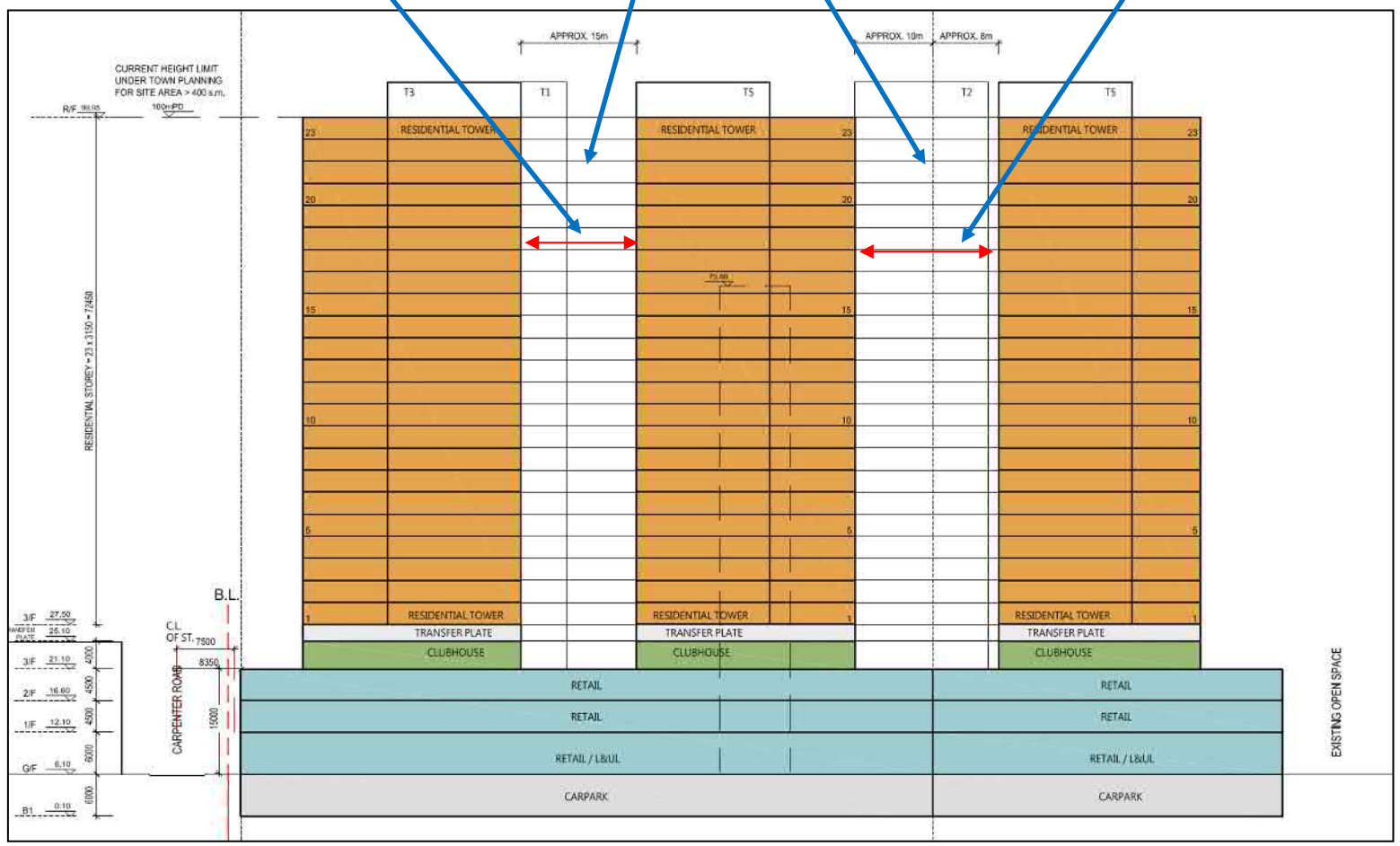
Proposed Scheme (120 mPD)

Note: Design subjected to change at detailed design stage.

Two Building with the same Building Height behind the Gap (Please refer to Figure 1.5b)

Gap Width:
~ 15 m

Gap Width:
~18 m



Baseline Scheme (100 mPD)

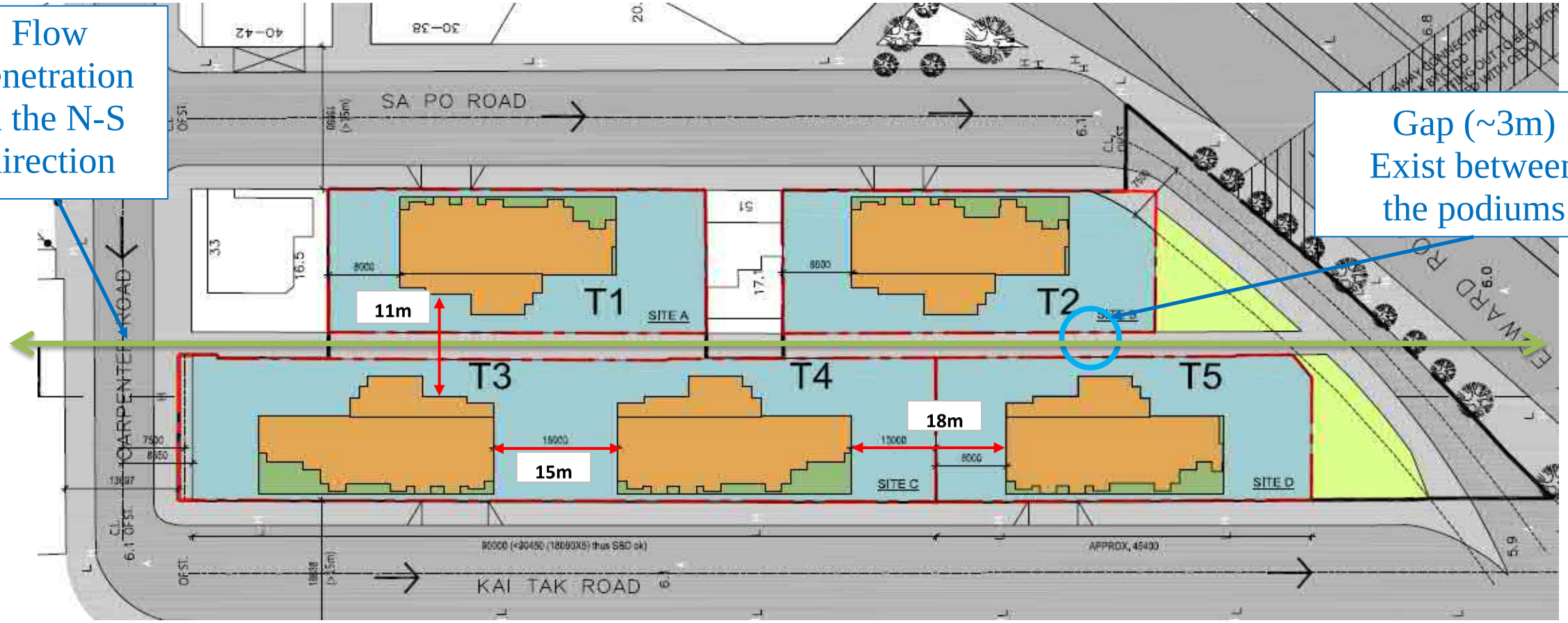
Annex 5

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Comparison of the Schemes**		
		SCALE: N.T.S.	DATE: Feb-18
		CHECK: KW	DRAWN: CC
		JOB NO.: IA17019/KC015	FIGURE NO.: 1.5a
			REV.: 1

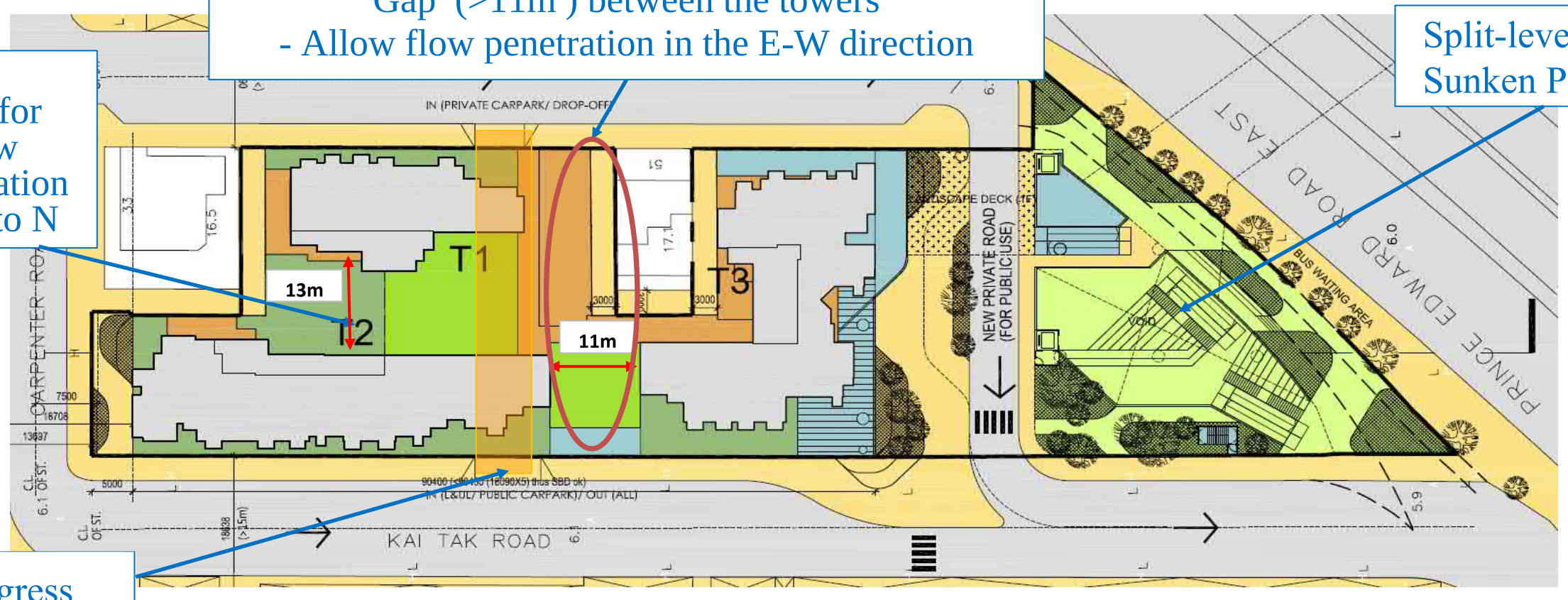
Comparison between Designs of the Baseline and Proposed Schemes

SCALE	N.T.S.	DATE	Feb-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	1.5b	REV.
				1

Baseline Scheme (100 mPD)

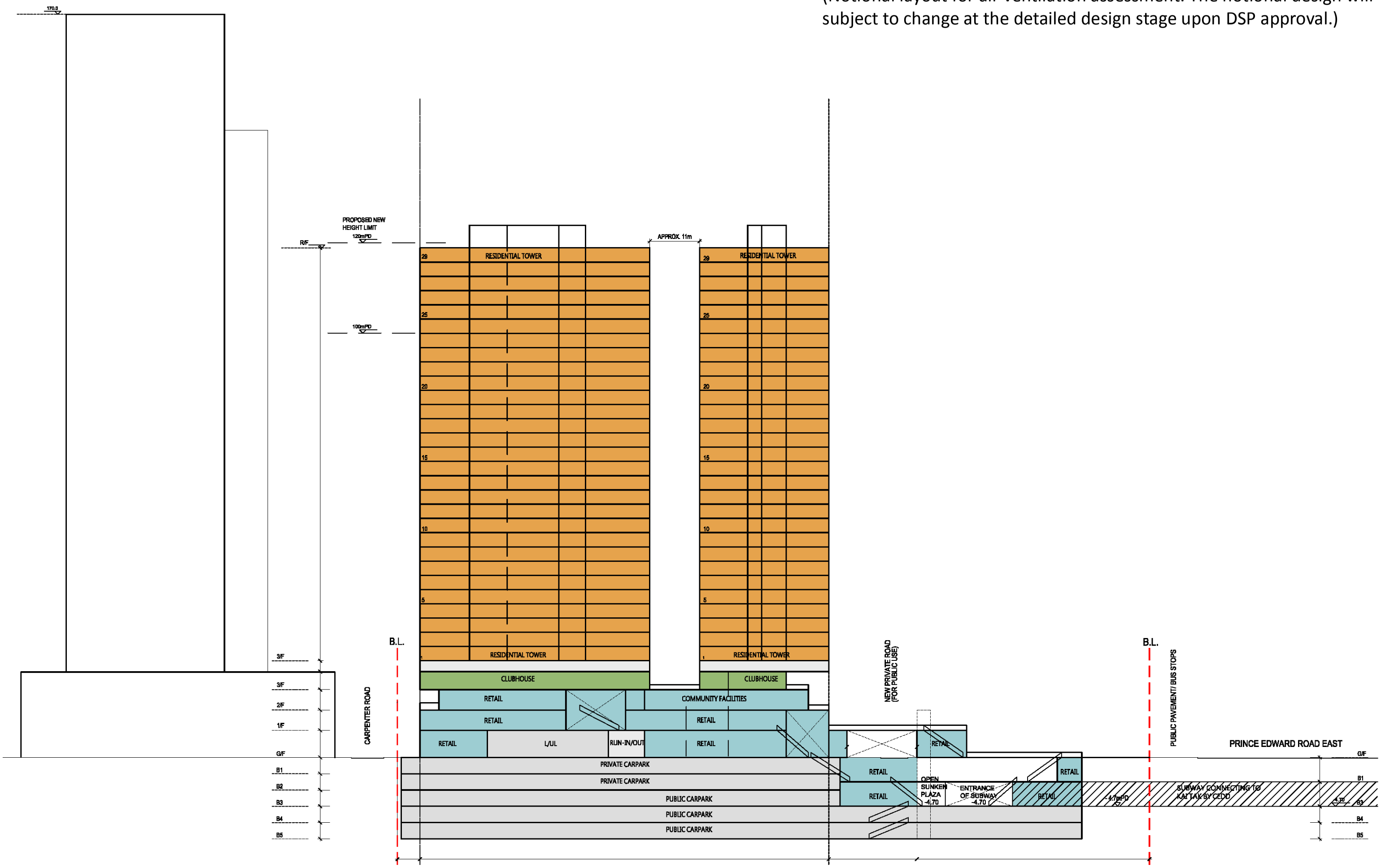


Proposed Scheme (120 mPD)



Note: Notional Design subjected to change

(Notional layout for air ventilation assessment. The notional design will subject to change at the detailed design stage upon DSP approval.)



URBAN RENEWAL AUTHORITY 市區重建局

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Blown-up Plan of the 120mPD Proposed Scheme from AVA Report Fig 1.5a



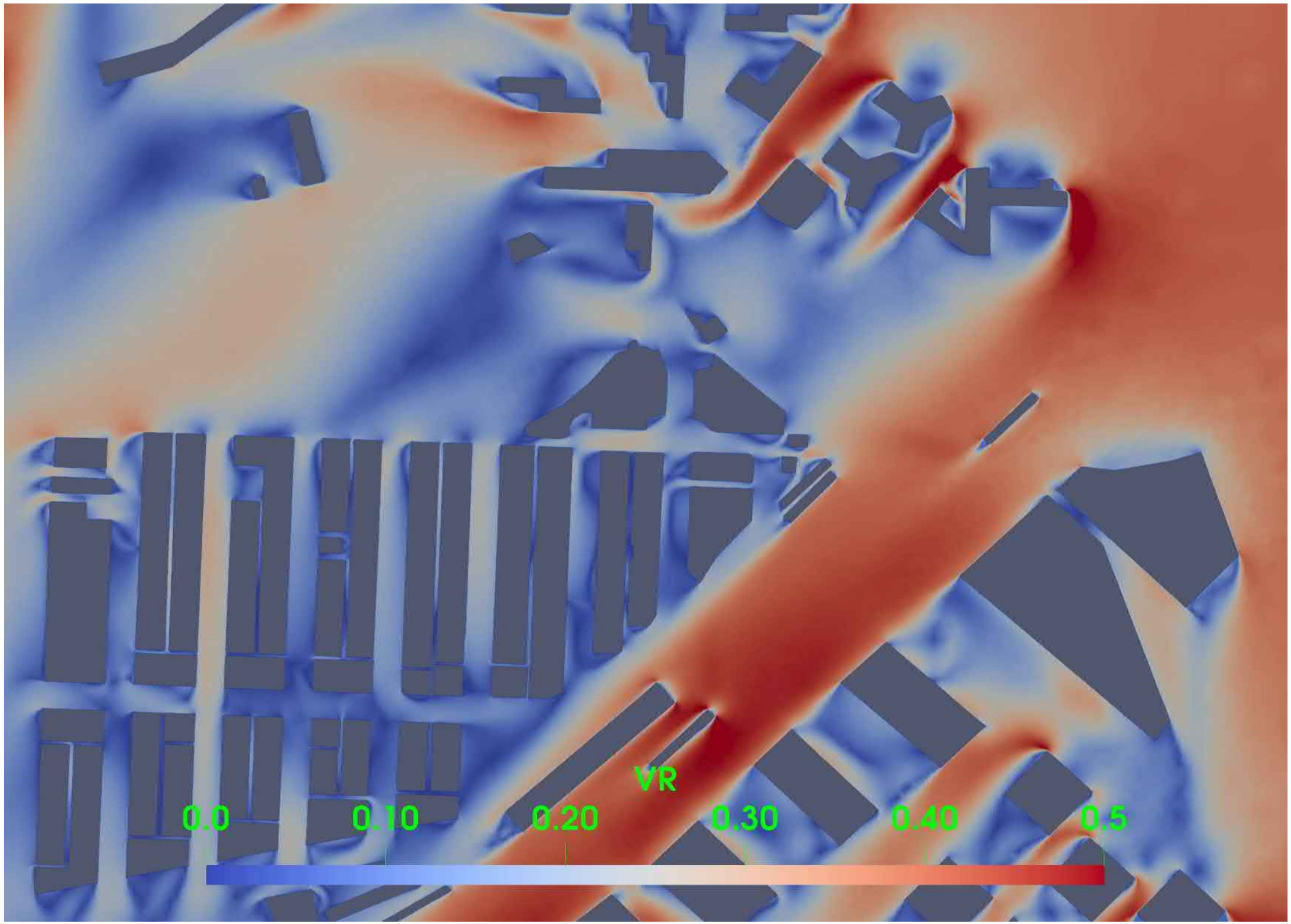
CINOTECH
Cinotech Consultants Limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Building Heights in the Surrounding Area

SCALE	1:1000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	CC
JOB No.	IA17019/KC015	DRAWING No.	1.6
		REV	-

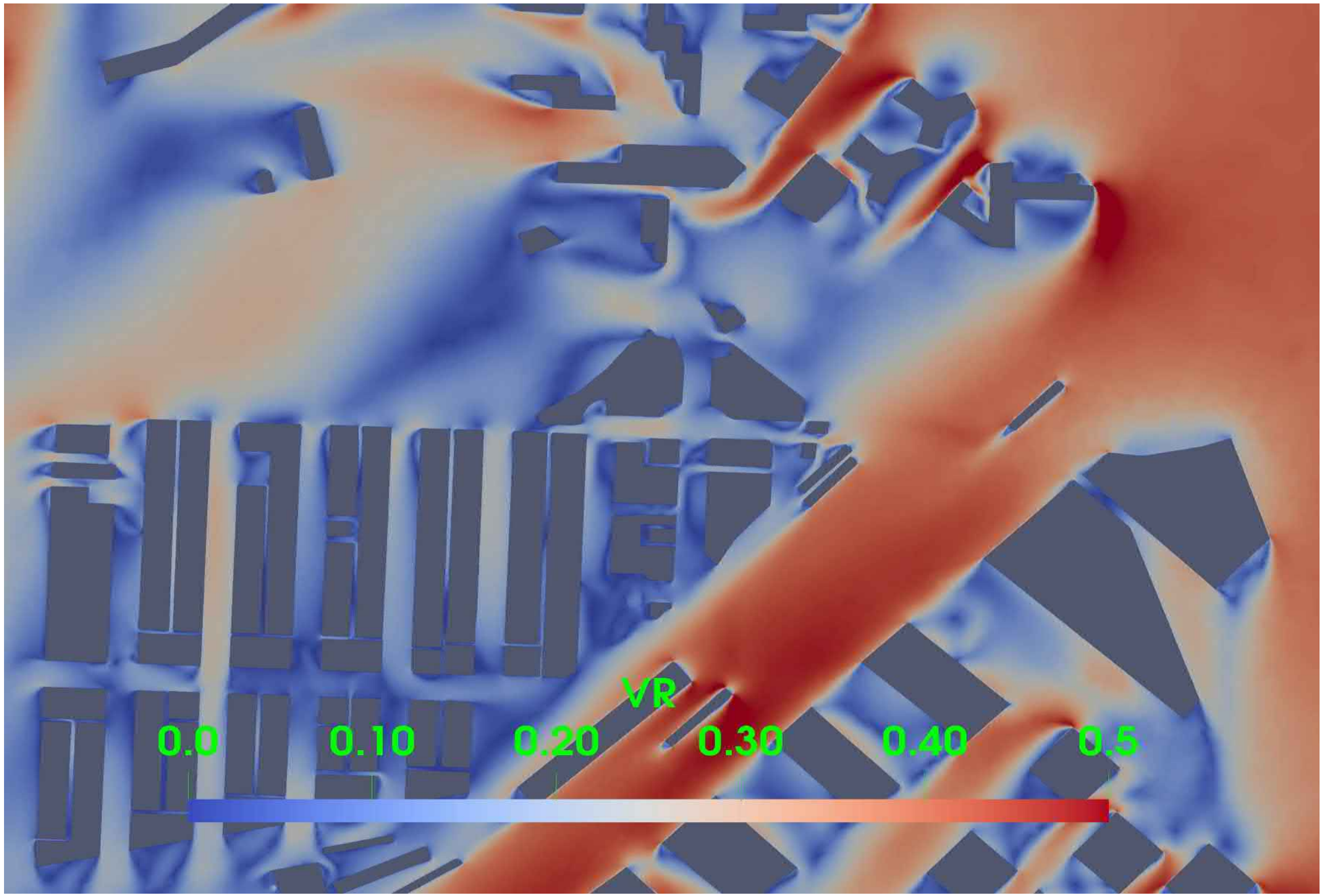
022.5 deg Wind Direction (7m/s at 500m)



Baseline Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1a	REV. 1

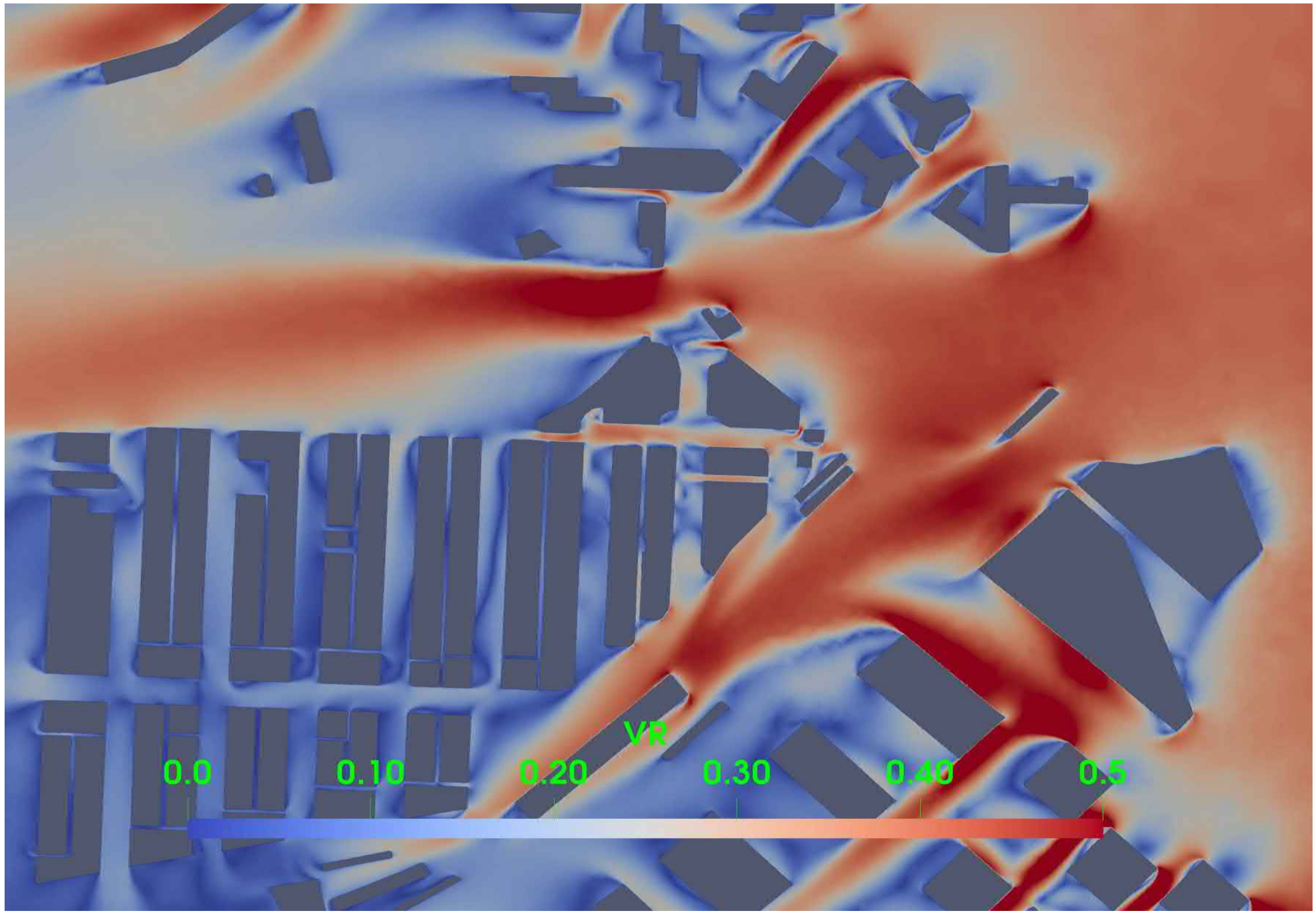
022.5 deg Wind Direction (7m/s at 500m)



Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1a	REV. 1

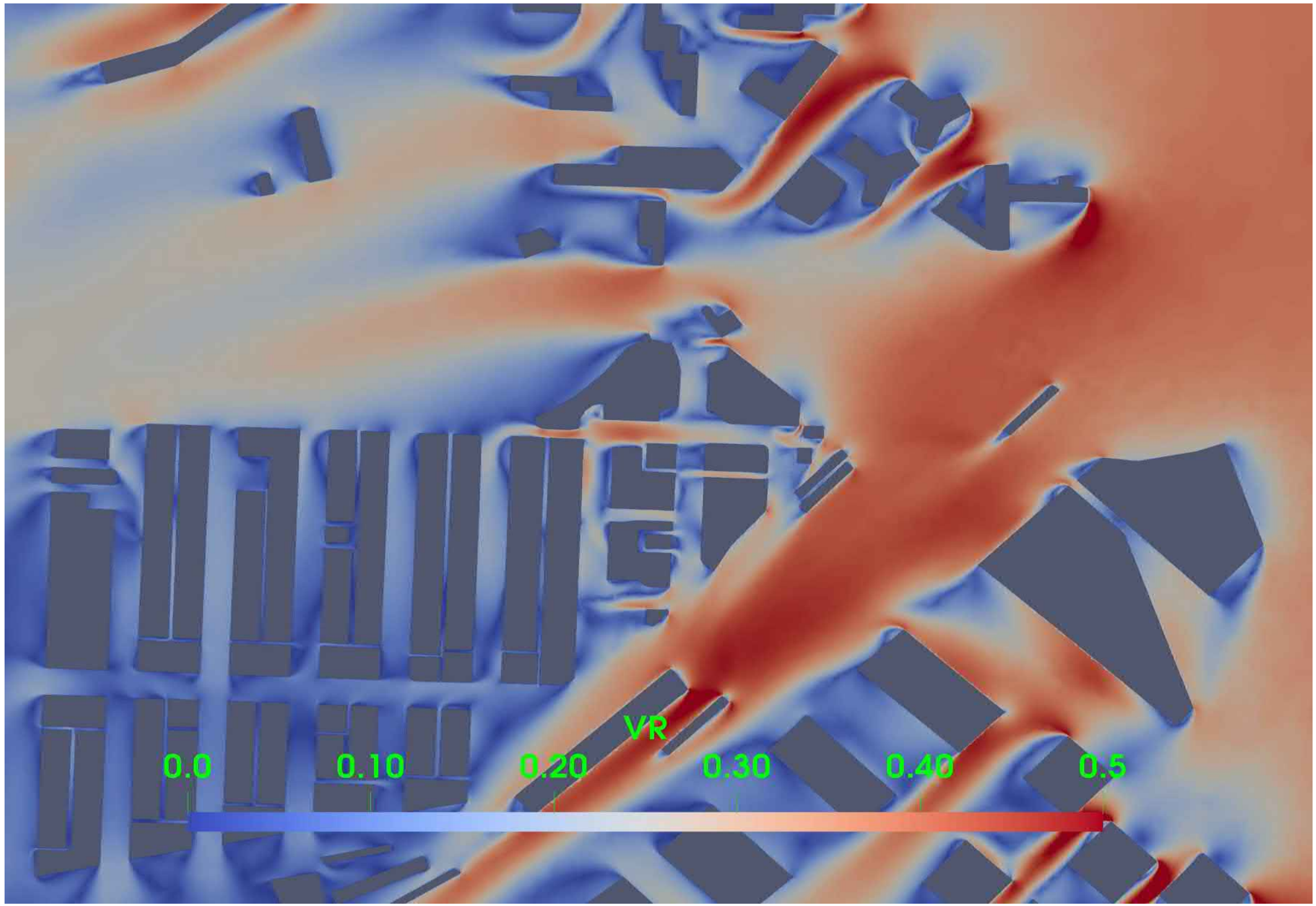
045 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-1
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1b	REv. 1

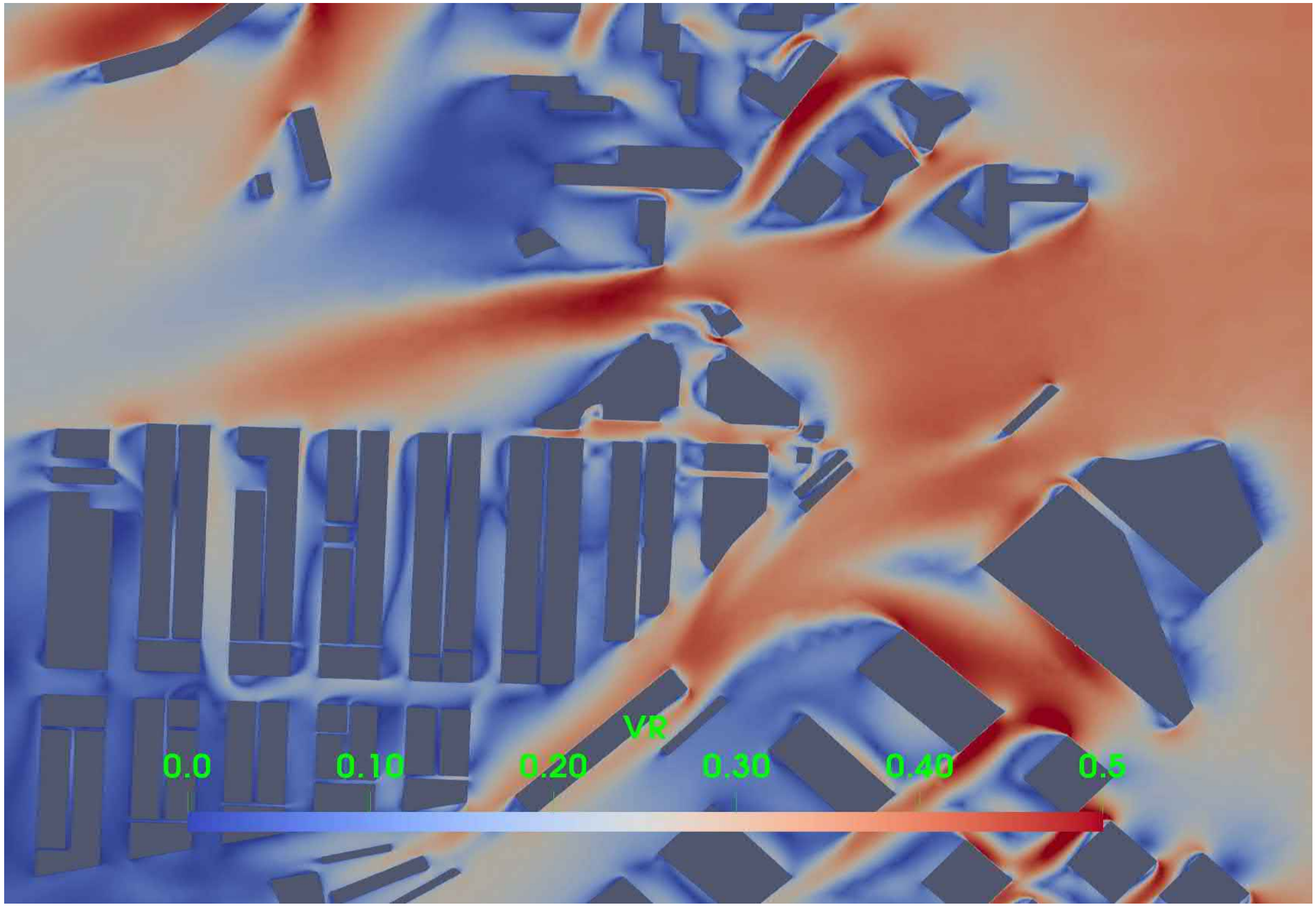
045 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1b	REV. 1

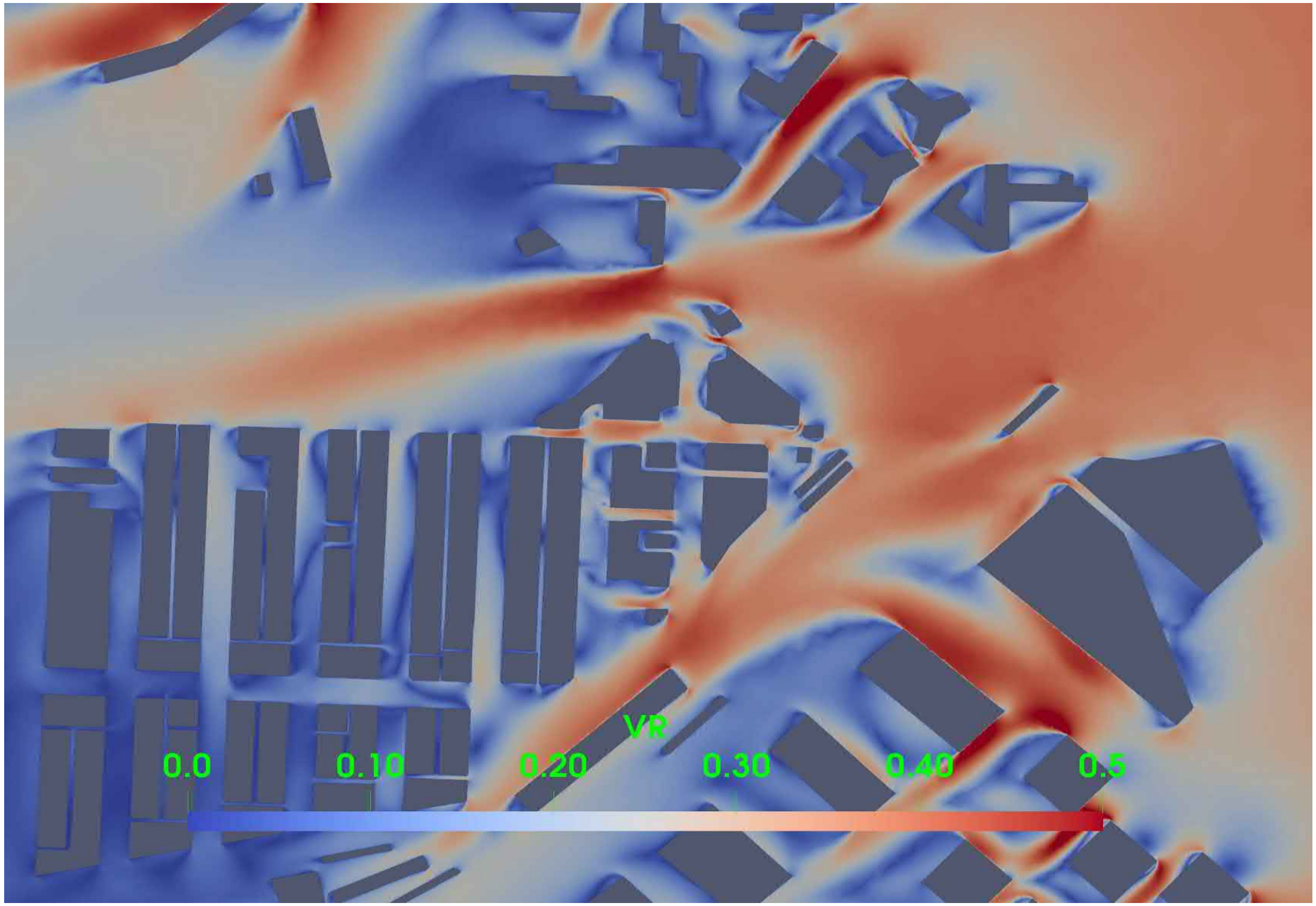
067.5 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH consultants limited 漢驊	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1c	REV. 1

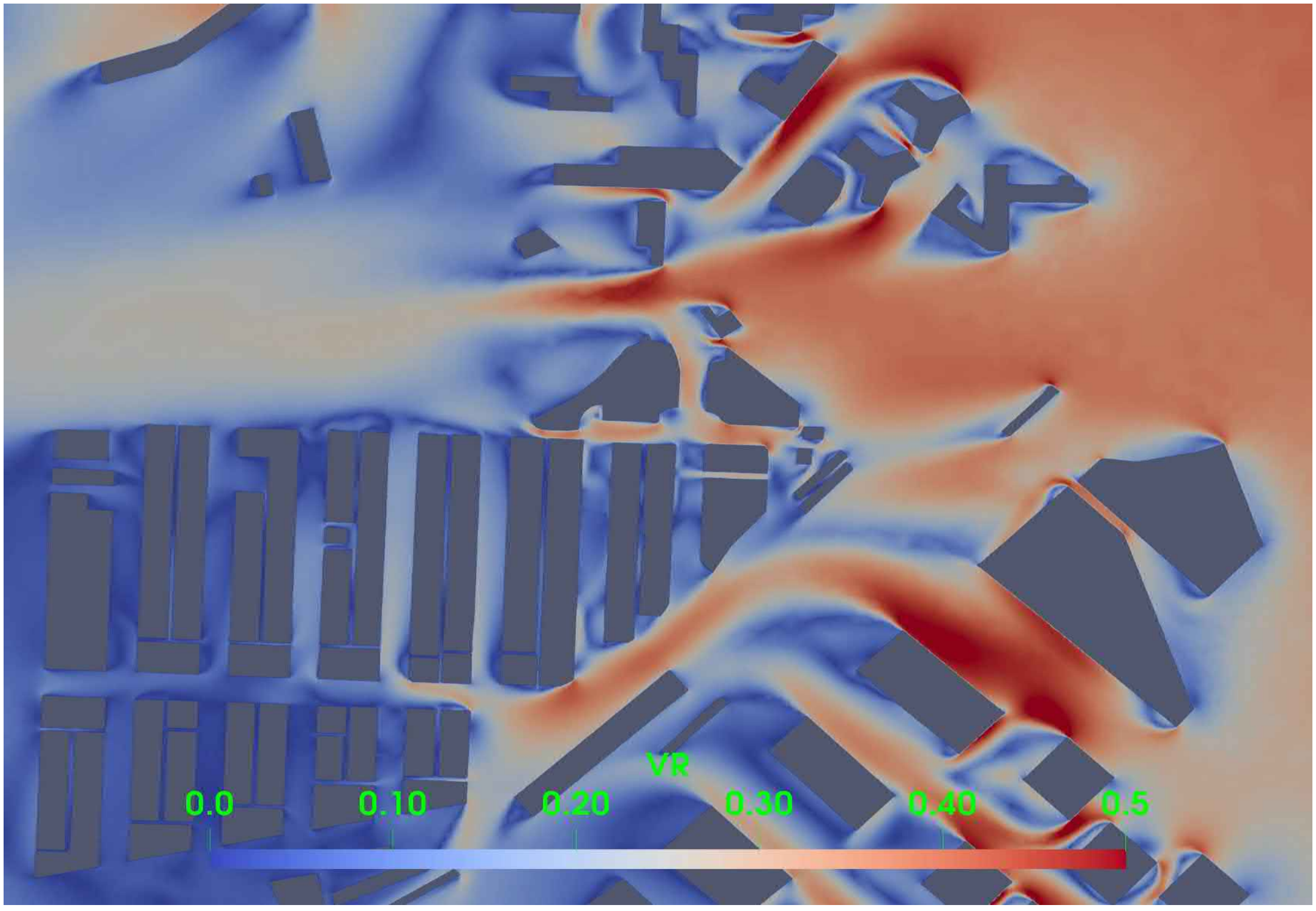
067.5 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢謙 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO. 4.1c		REV.
						1

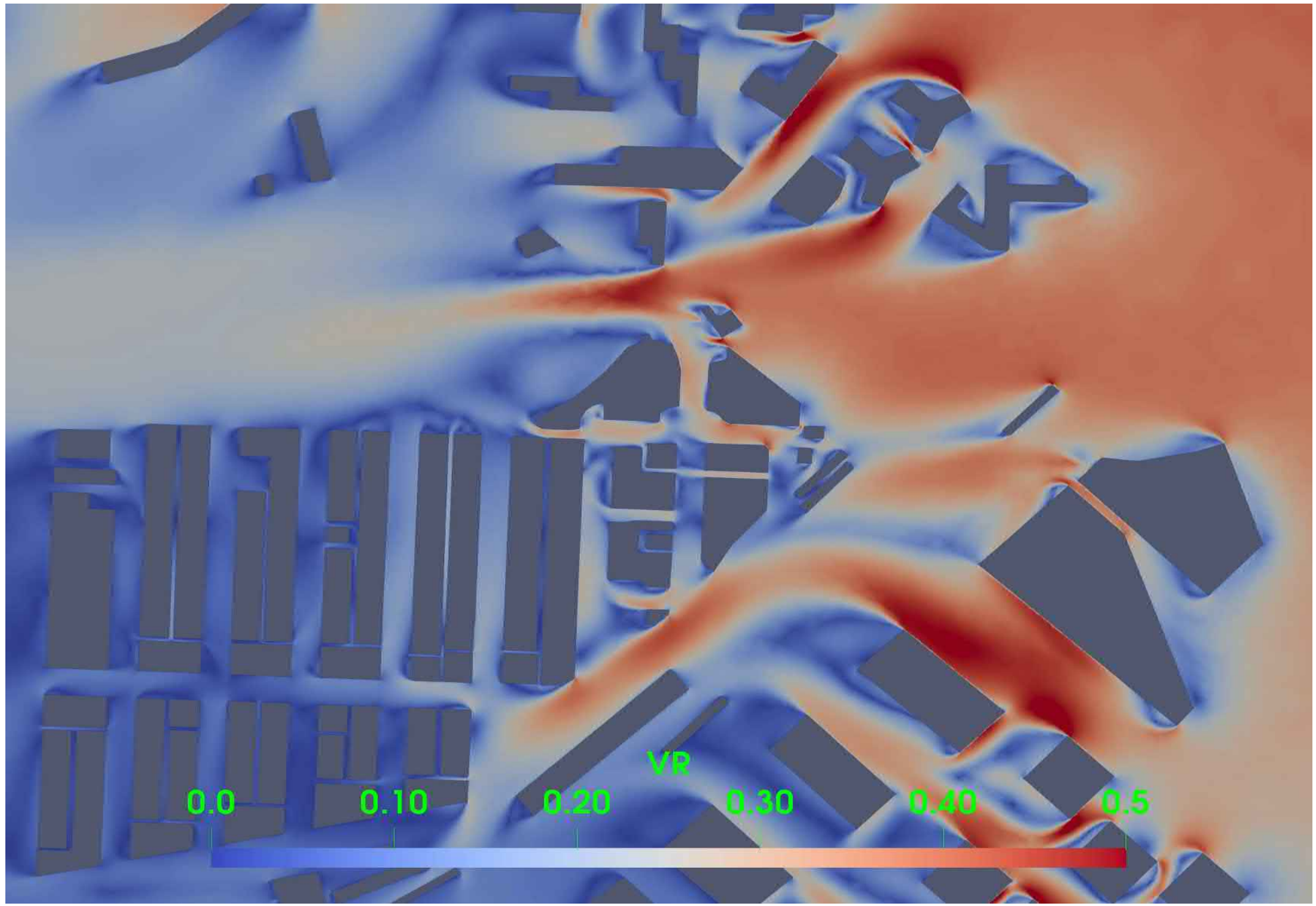
090 deg Wind Direction (7m/s at 500m)



Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1d	REV. 1

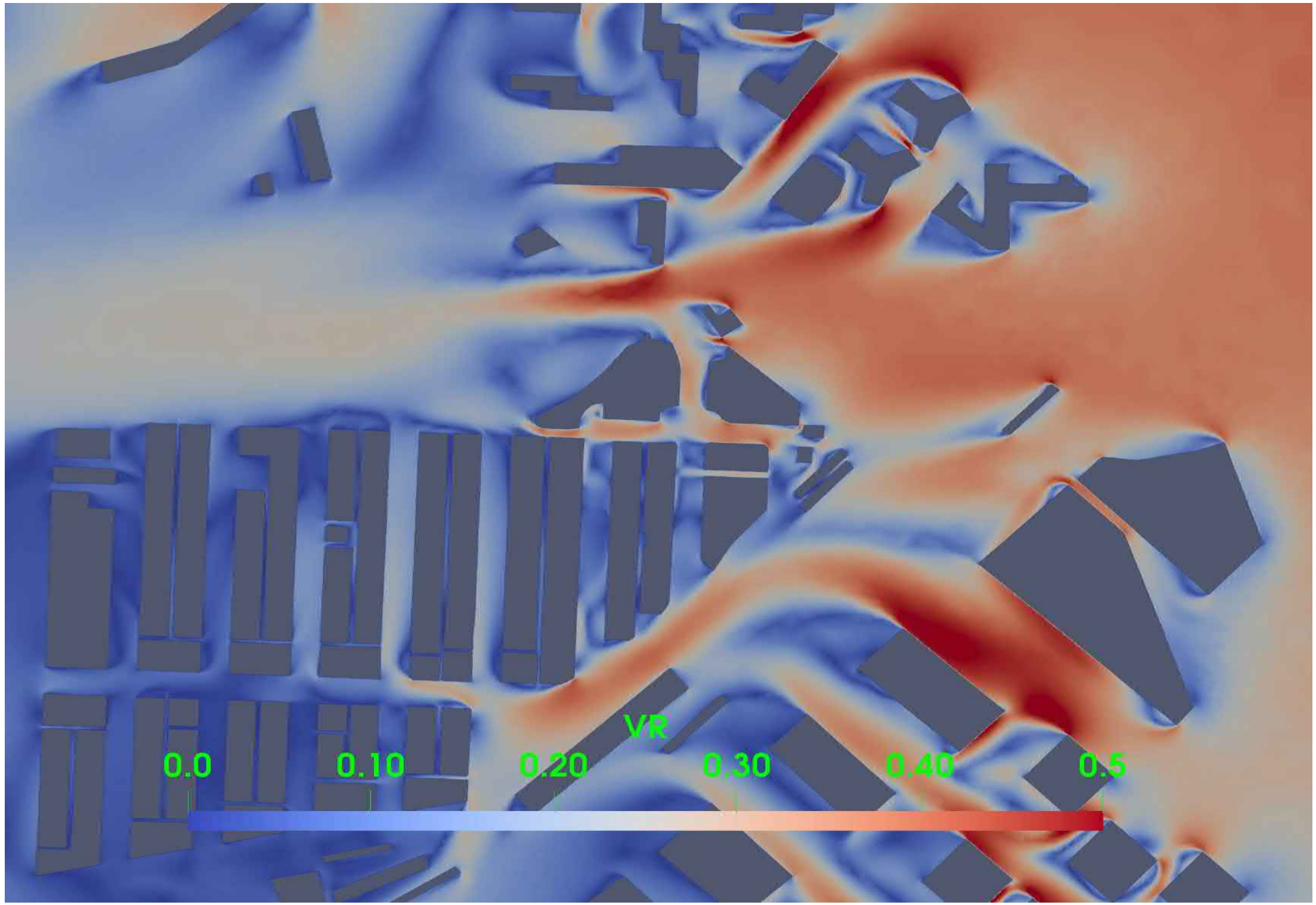
090 deg Wind Direction (7m/s at 500m)



Proposed Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1d	REV. 1

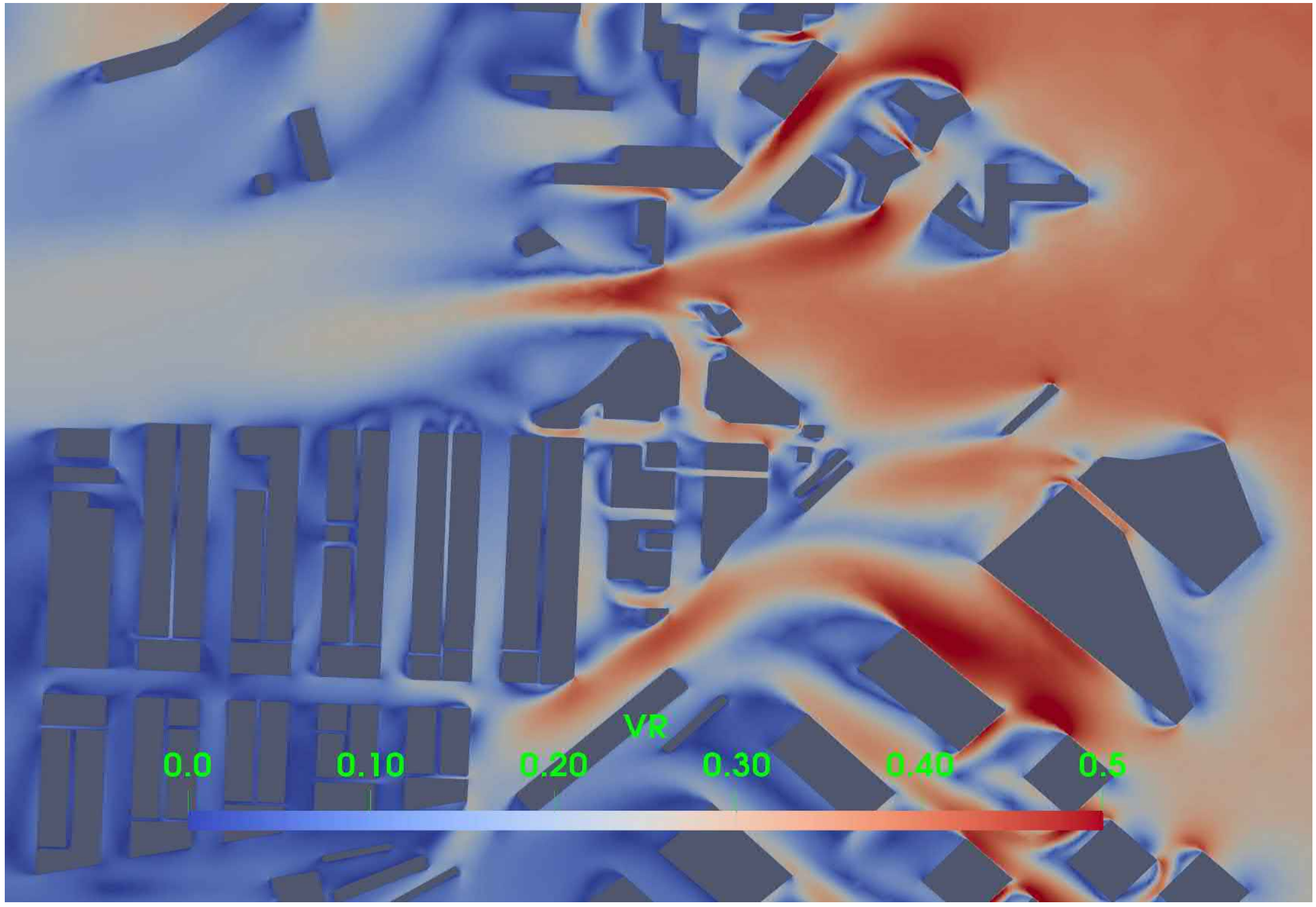
090 deg Wind Direction (8m/s at 500m)



Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1e	REV. 1

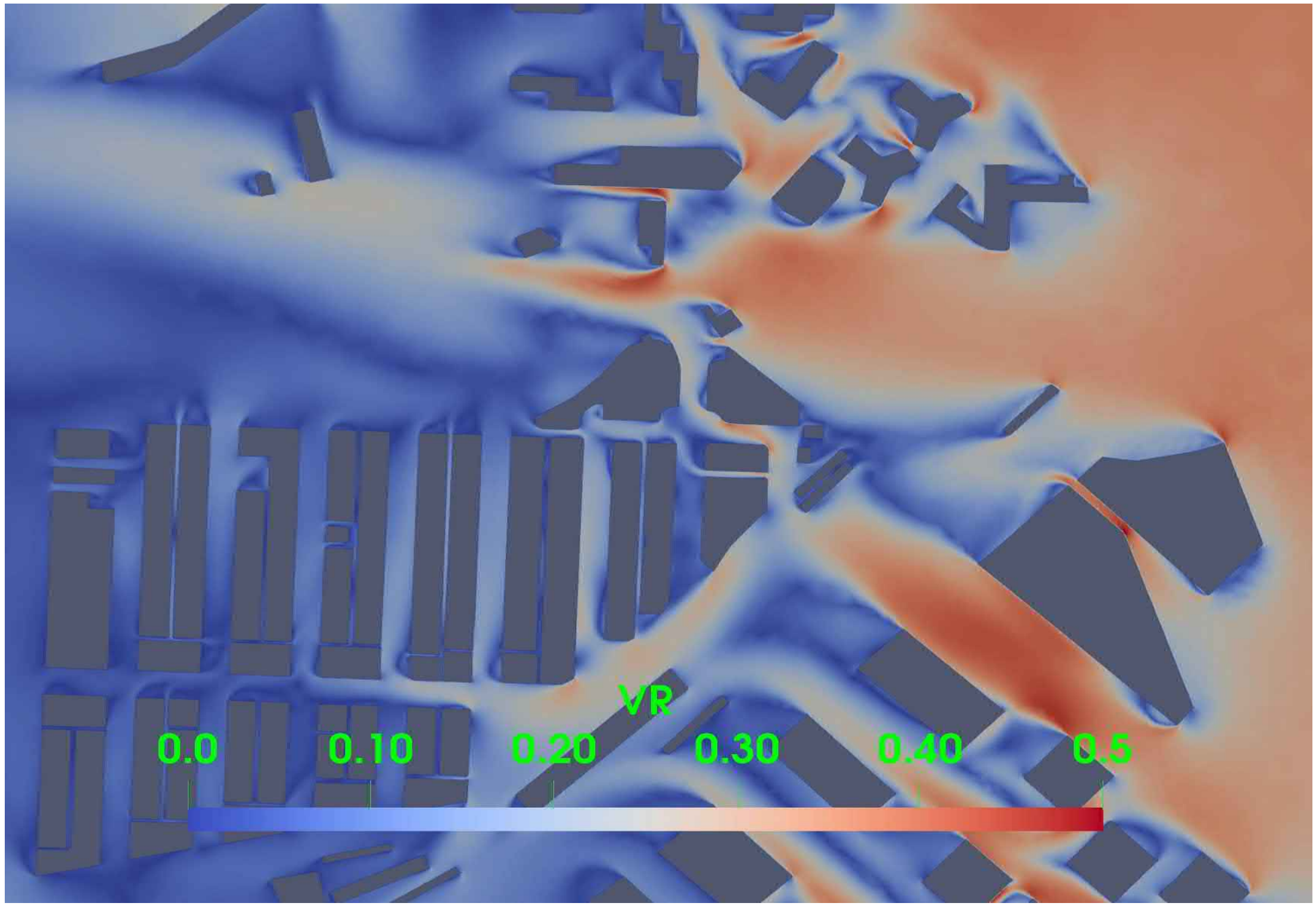
090 deg Wind Direction (8m/s at 500m)



Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1e	REV. 1

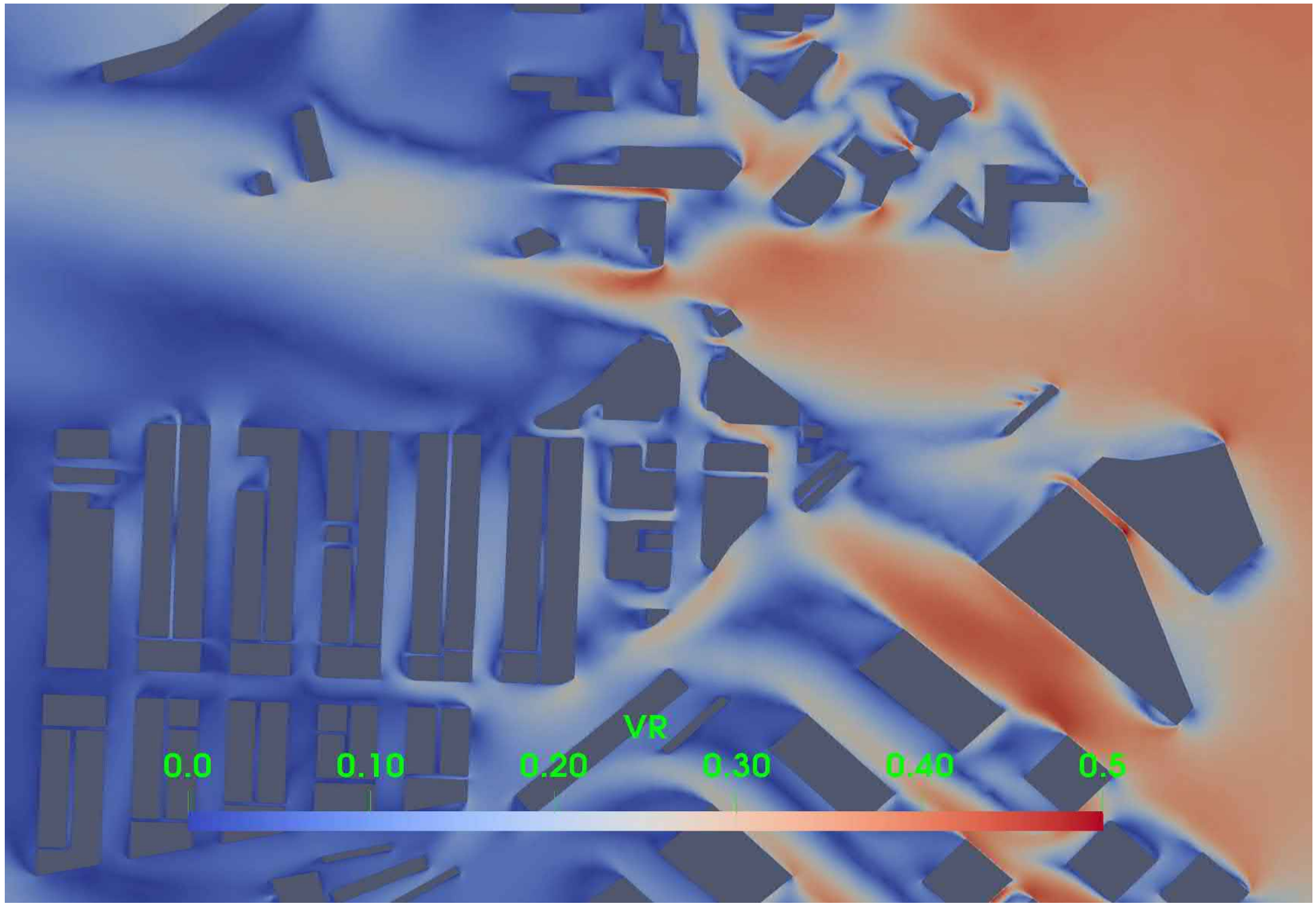
112.5 deg Wind Direction (7m/s at 500m)



Baseline Scheme

CINOTECH 漢謙 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO. 4.1f		REV. 1

112.5 deg Wind Direction (7m/s at 500m)



Proposed Scheme

CINOTECH 漢槎 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1f	REV. 1

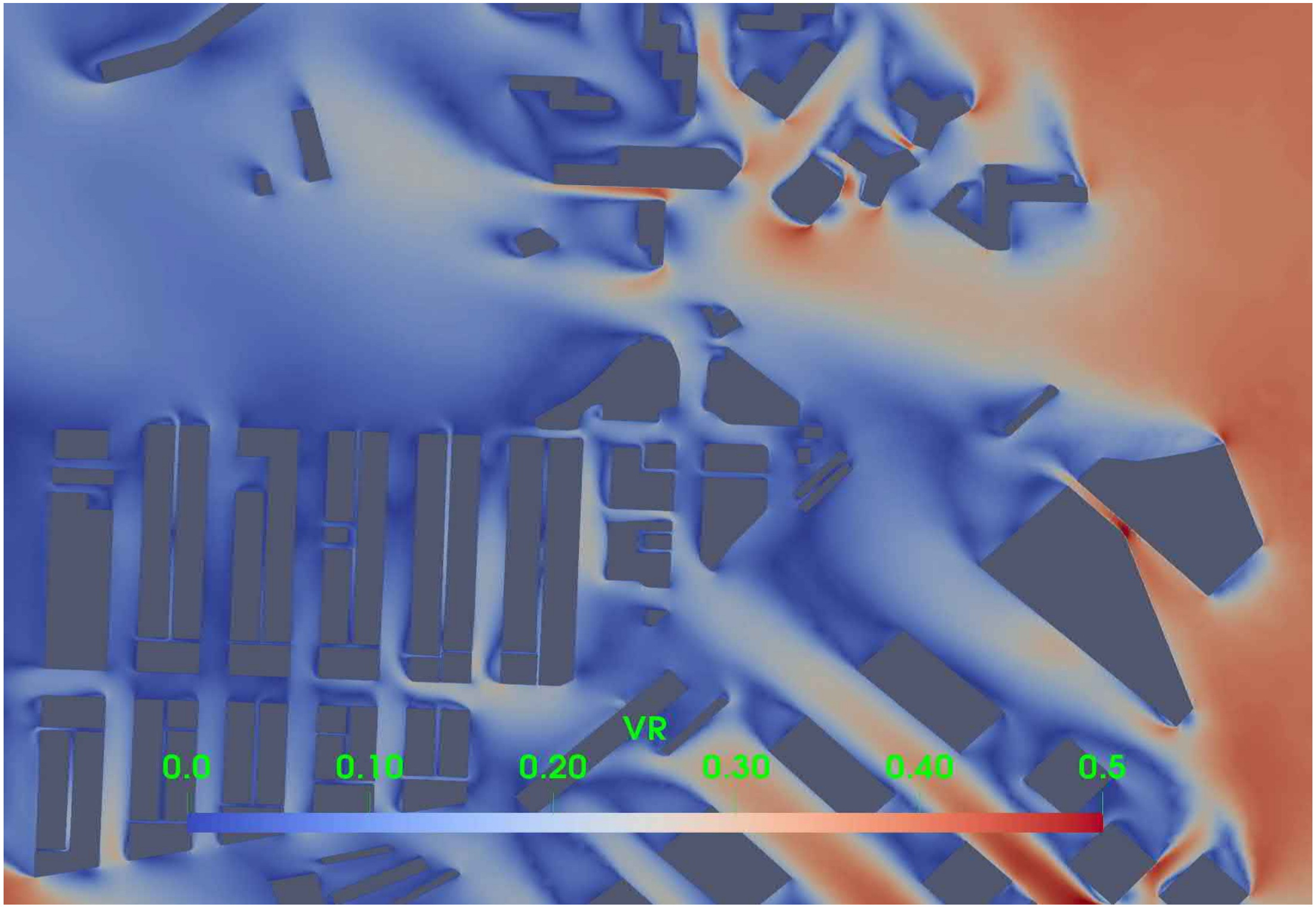
135 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1g	REV. 1

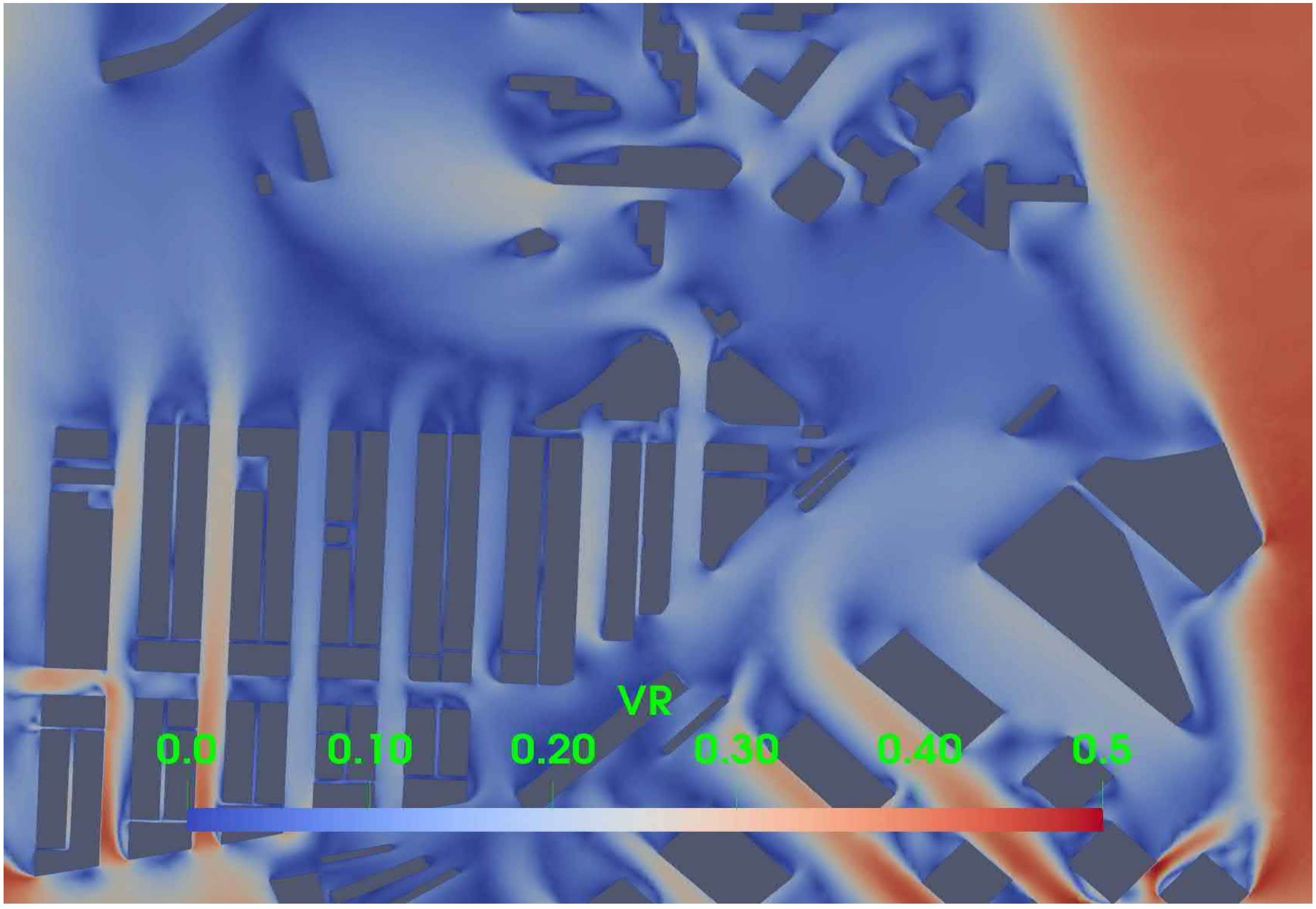
135 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1g	REV. 1

157.5 deg Wind Direction (6m/s at 500m)



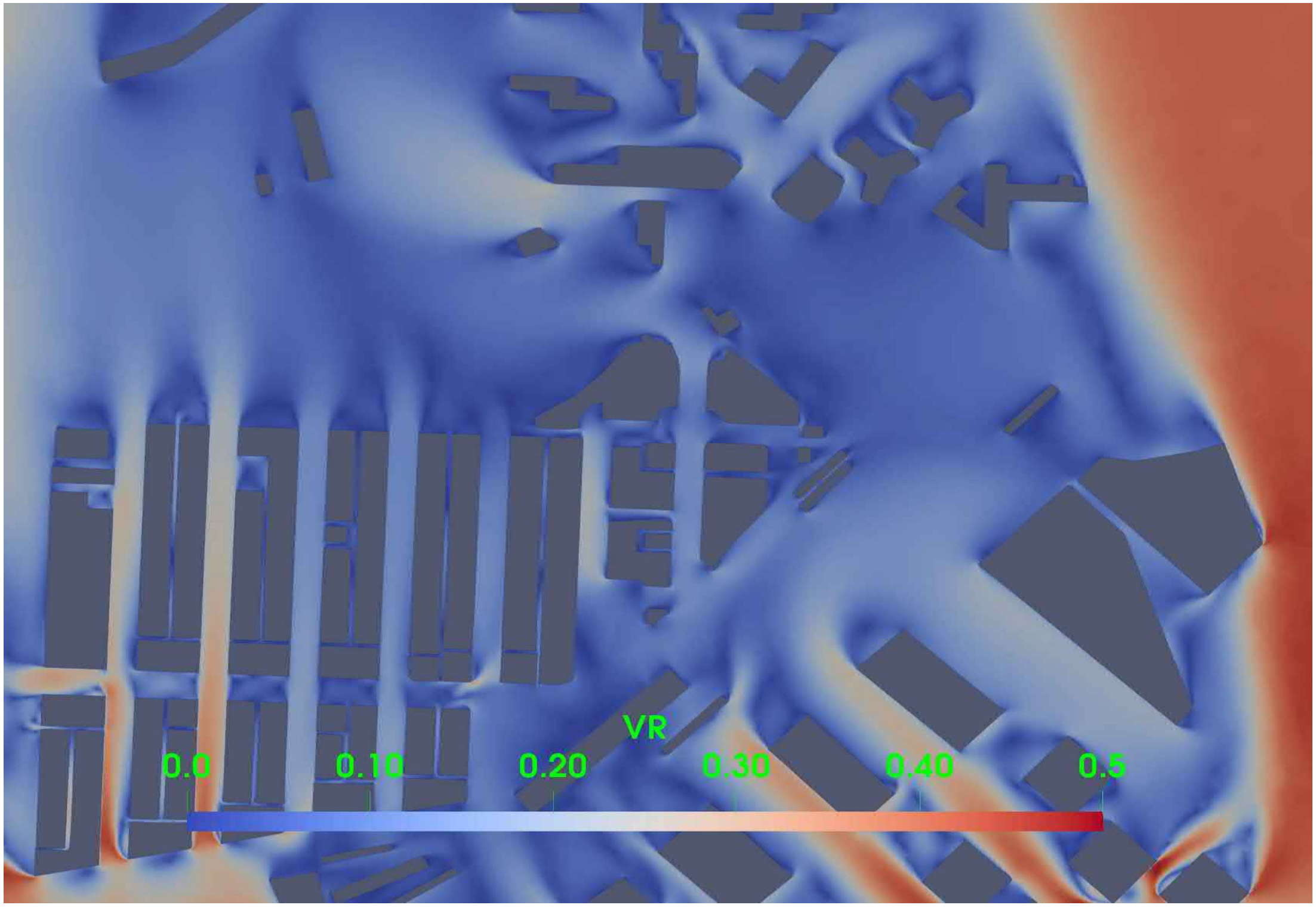
Baseline Scheme

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 4.1h		REV.
				1

157.5 deg Wind Direction (6m/s at 500m)



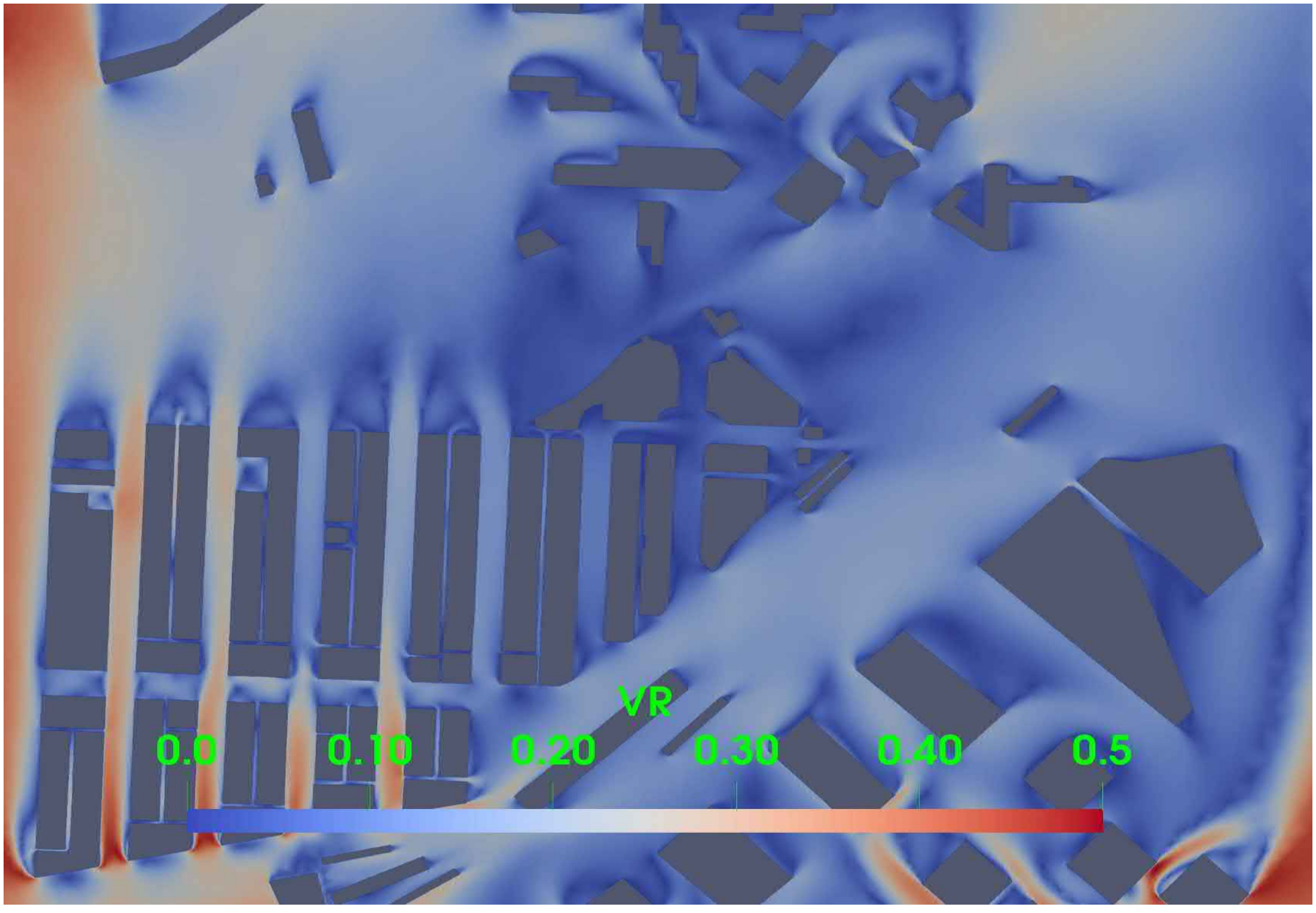
Proposed Scheme

CINOTECH 漢驊 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 4.1h		REV.
				1

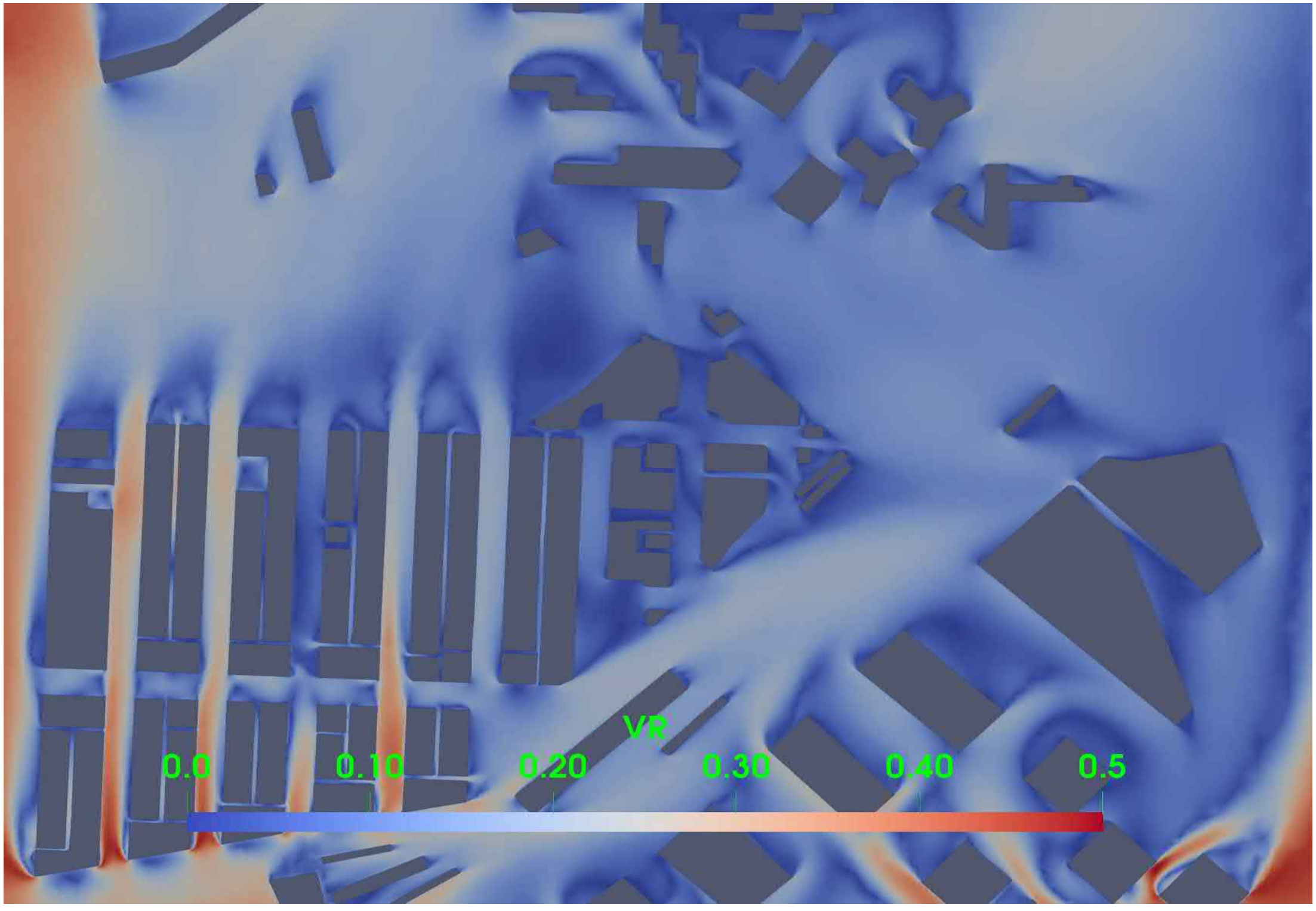
180 deg Wind Direction (5m/s at 500m)



Baseline Scheme

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1i	REV. 1

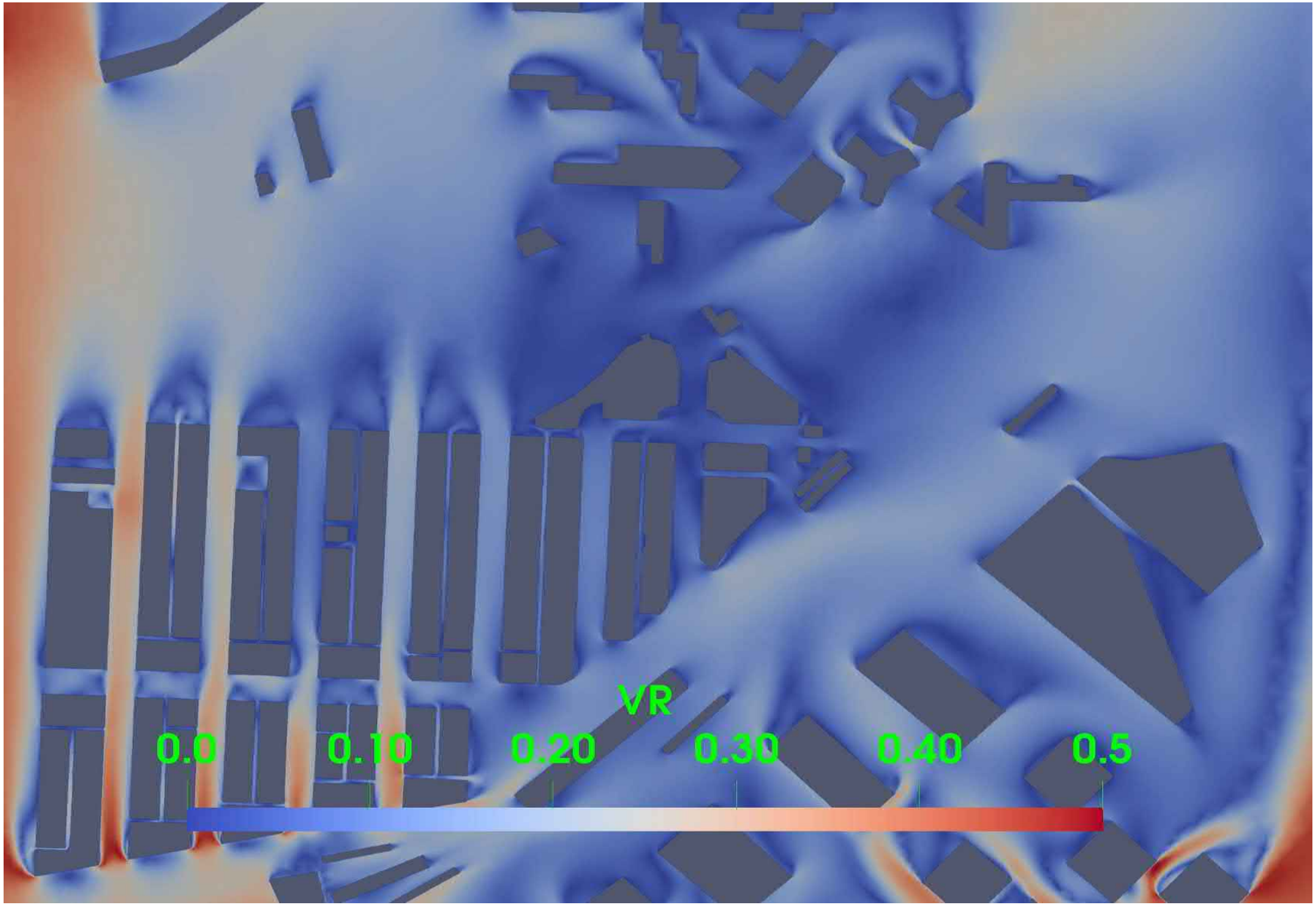
180 deg Wind Direction (5m/s at 500m)



Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1i	REV. 1

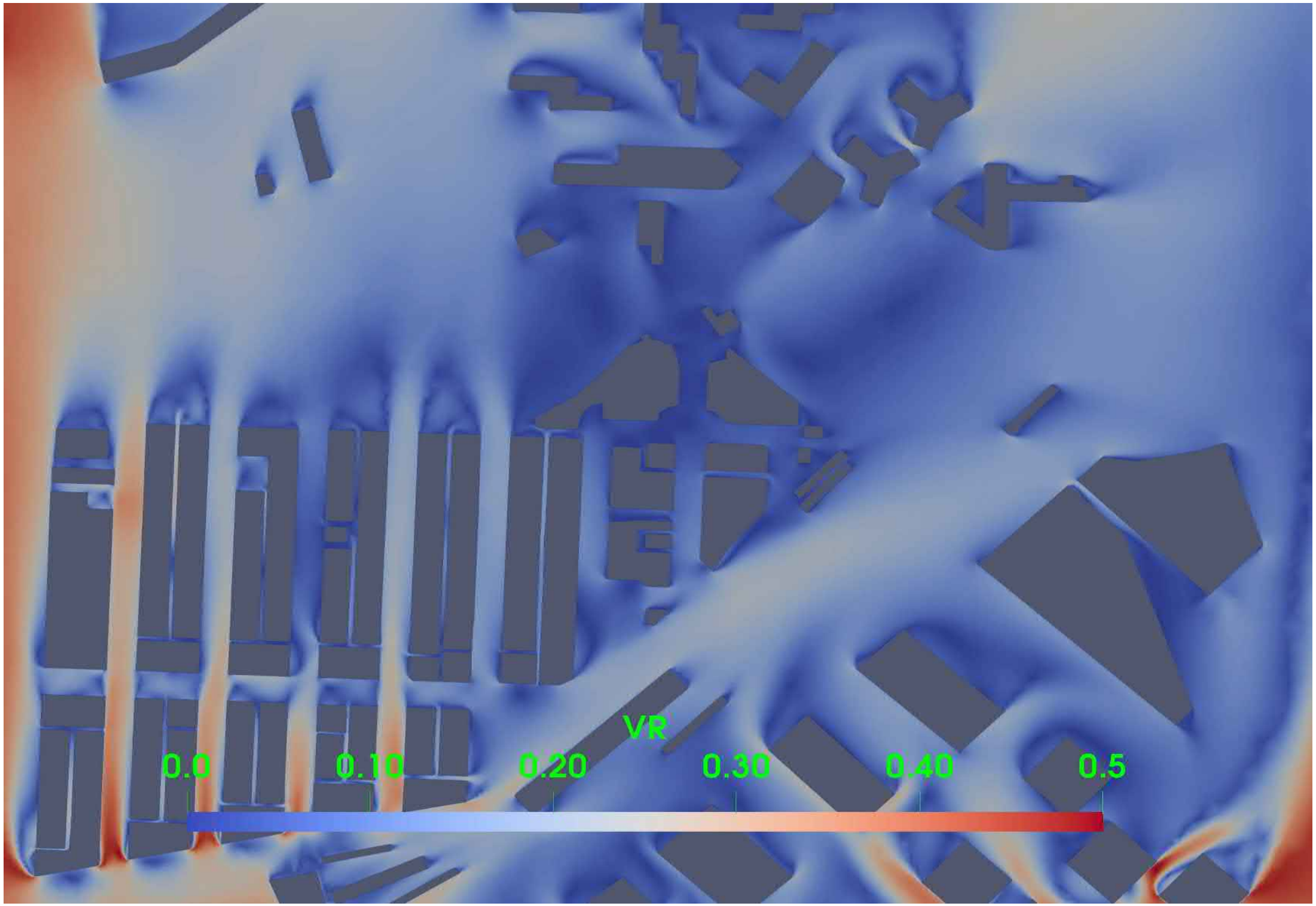
180 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH consultants limited 漢驊	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1j	REV. 1

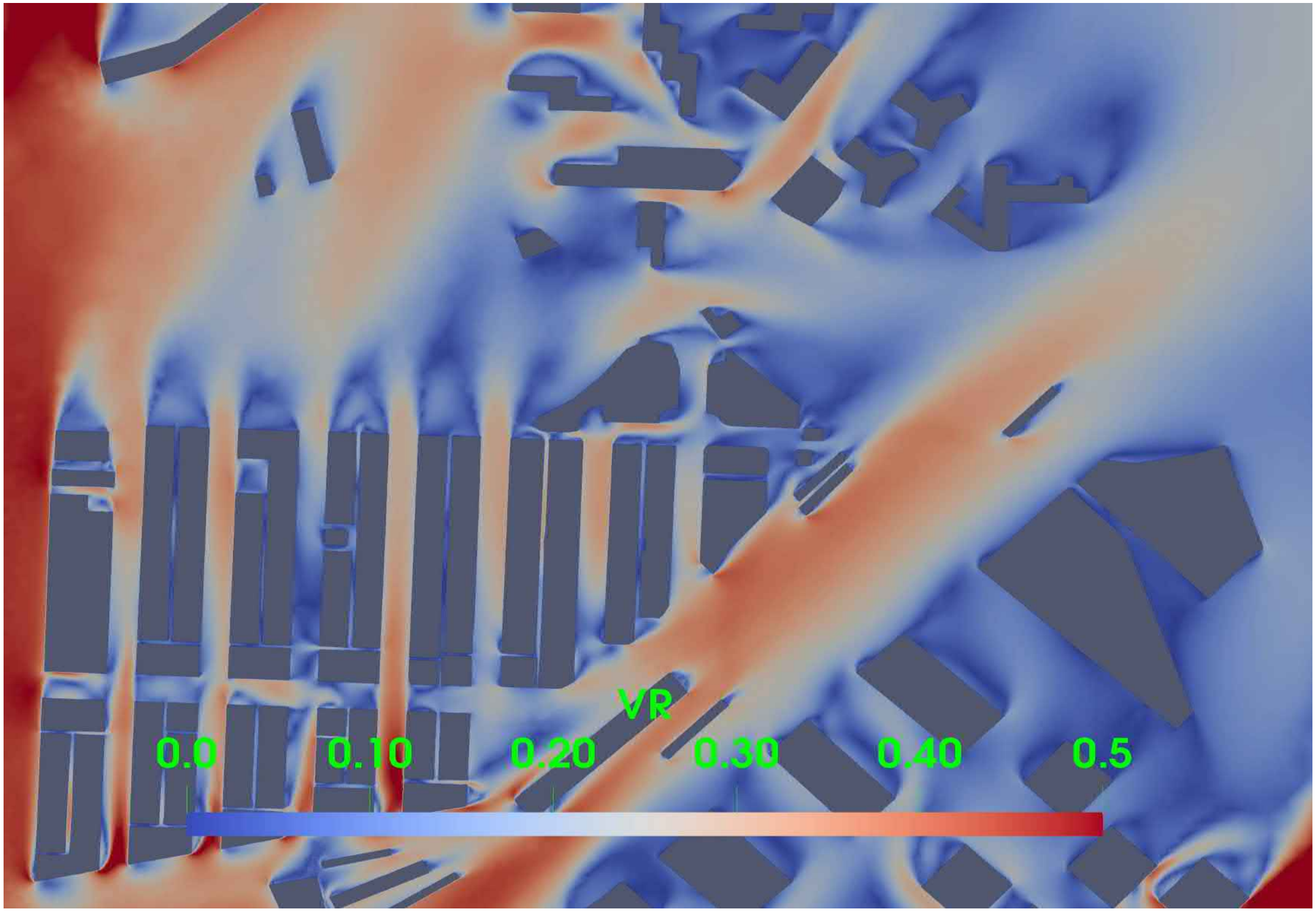
180 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1j	REV. 1

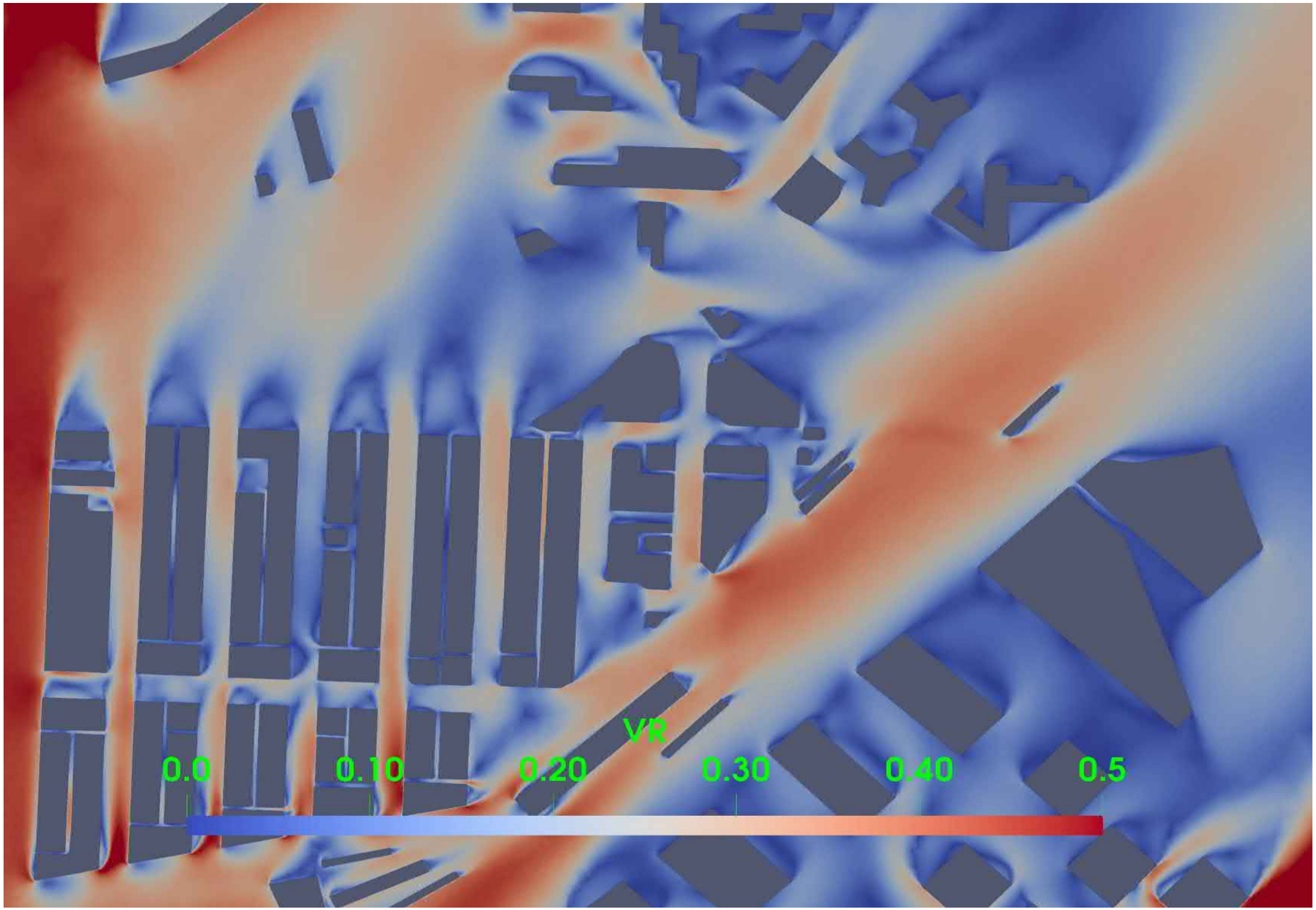
202.5 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1k	REV. 1

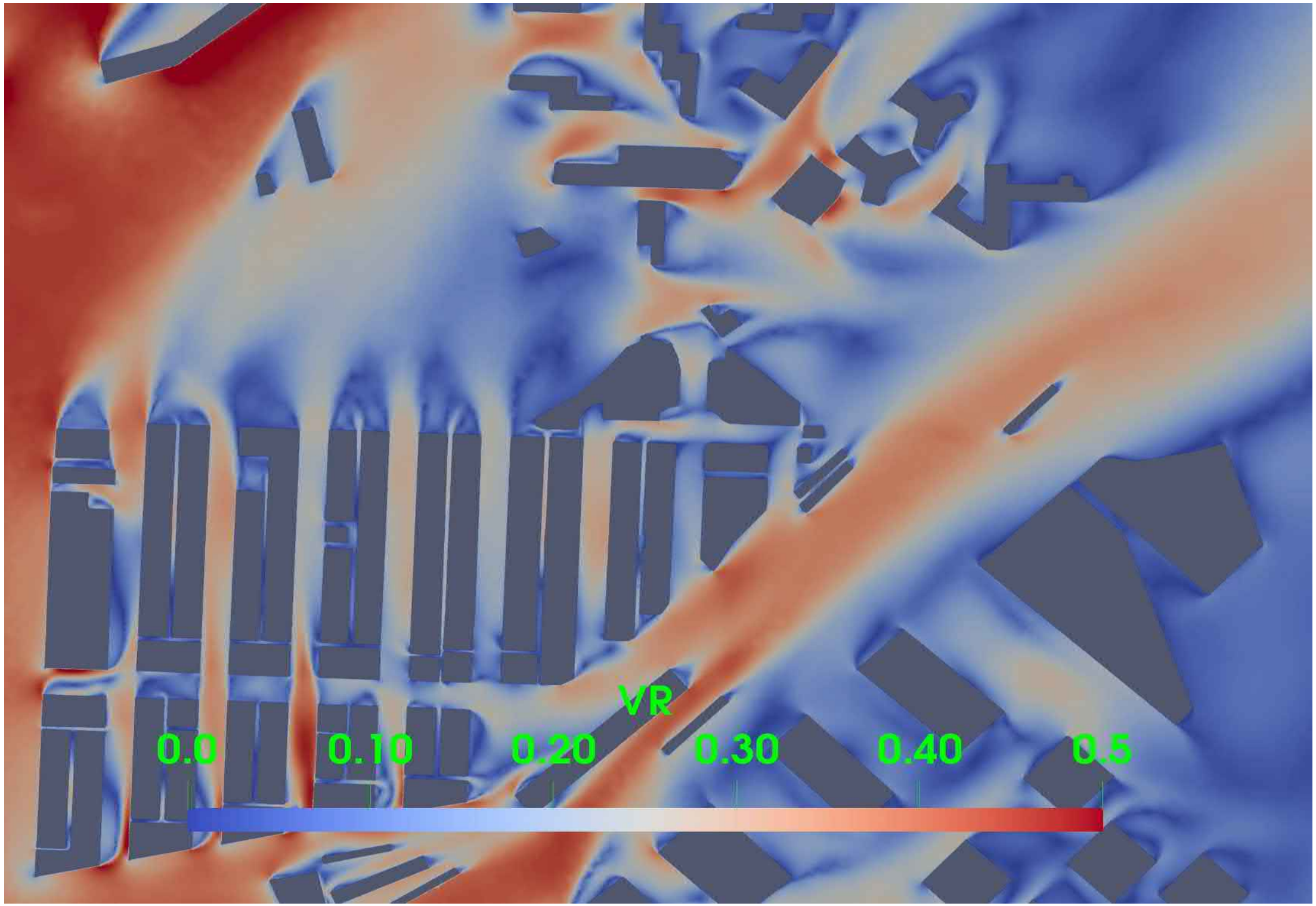
202.5 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO. 4.1k		REV. 1

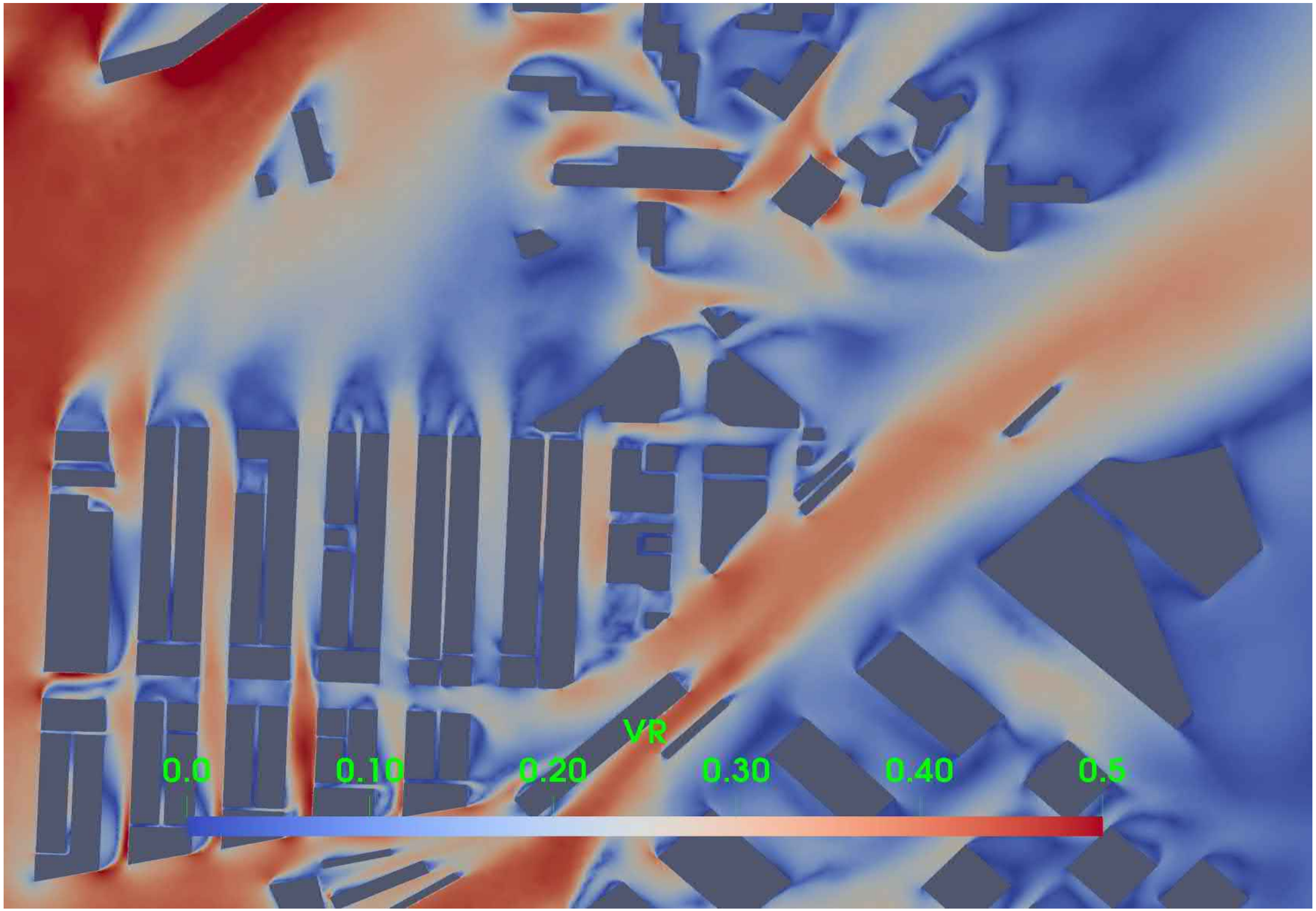
225 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1I	REV. 1

225 deg Wind Direction (6m/s at 500m)



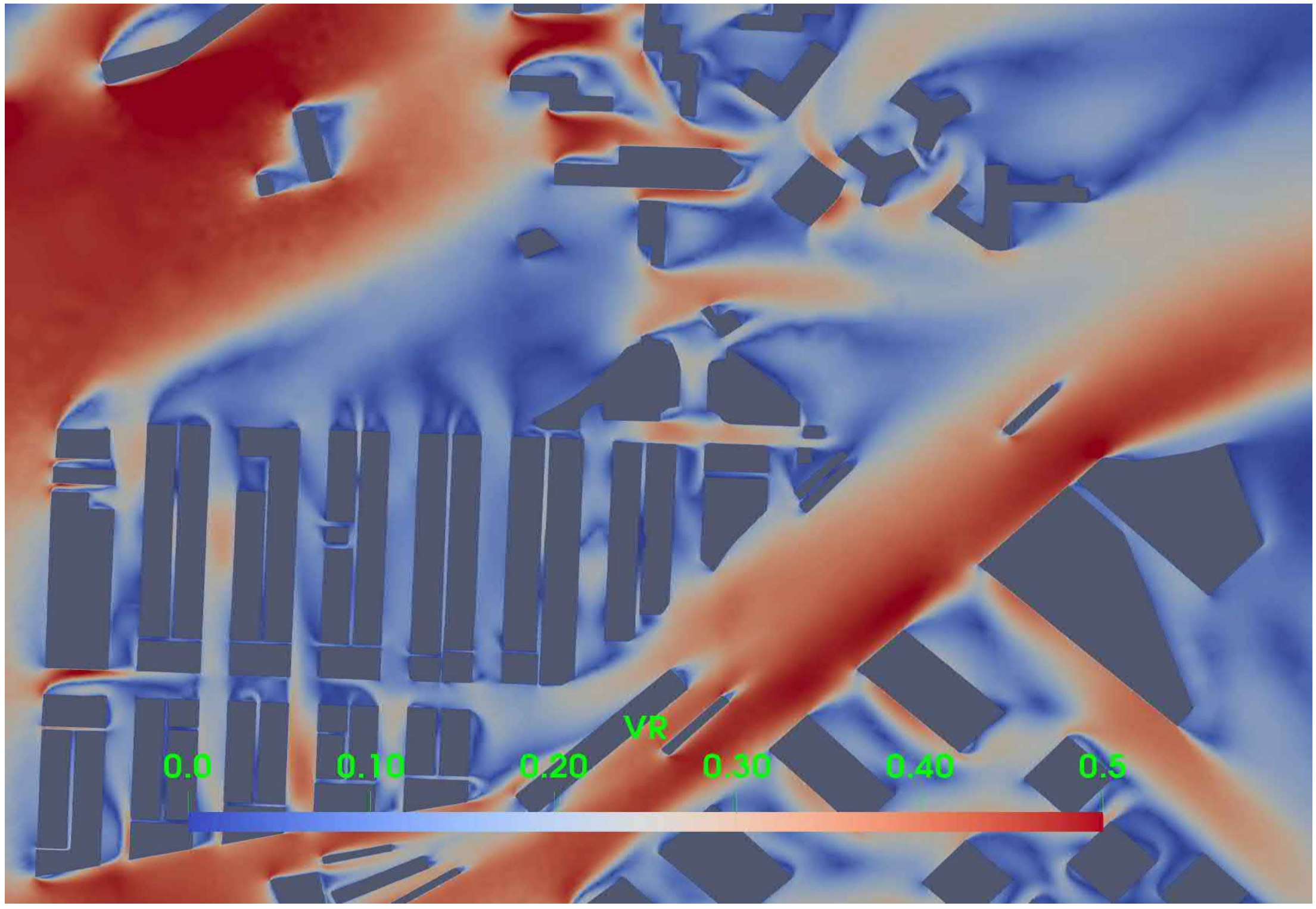
Proposed Scheme

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 4.1I		REV.
				1

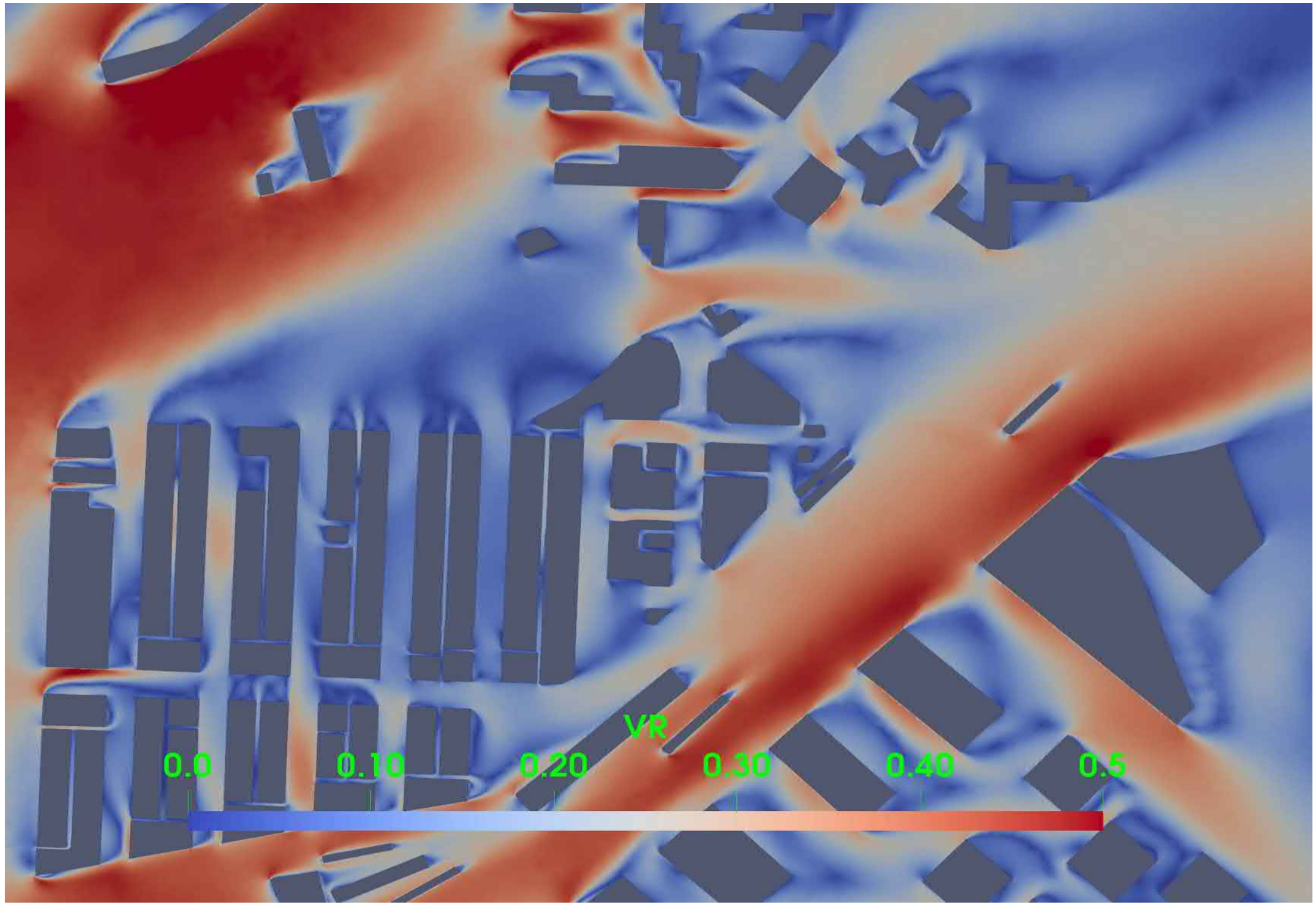
247.5 deg Wind Direction (6m/s at 500m)



Baseline Scheme

CINOTECH 漢驊 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO.	4.1m	REV. 1

247.5 deg Wind Direction (6m/s at 500m)



Proposed Scheme

CINOTECH 漢驊 consultants limited

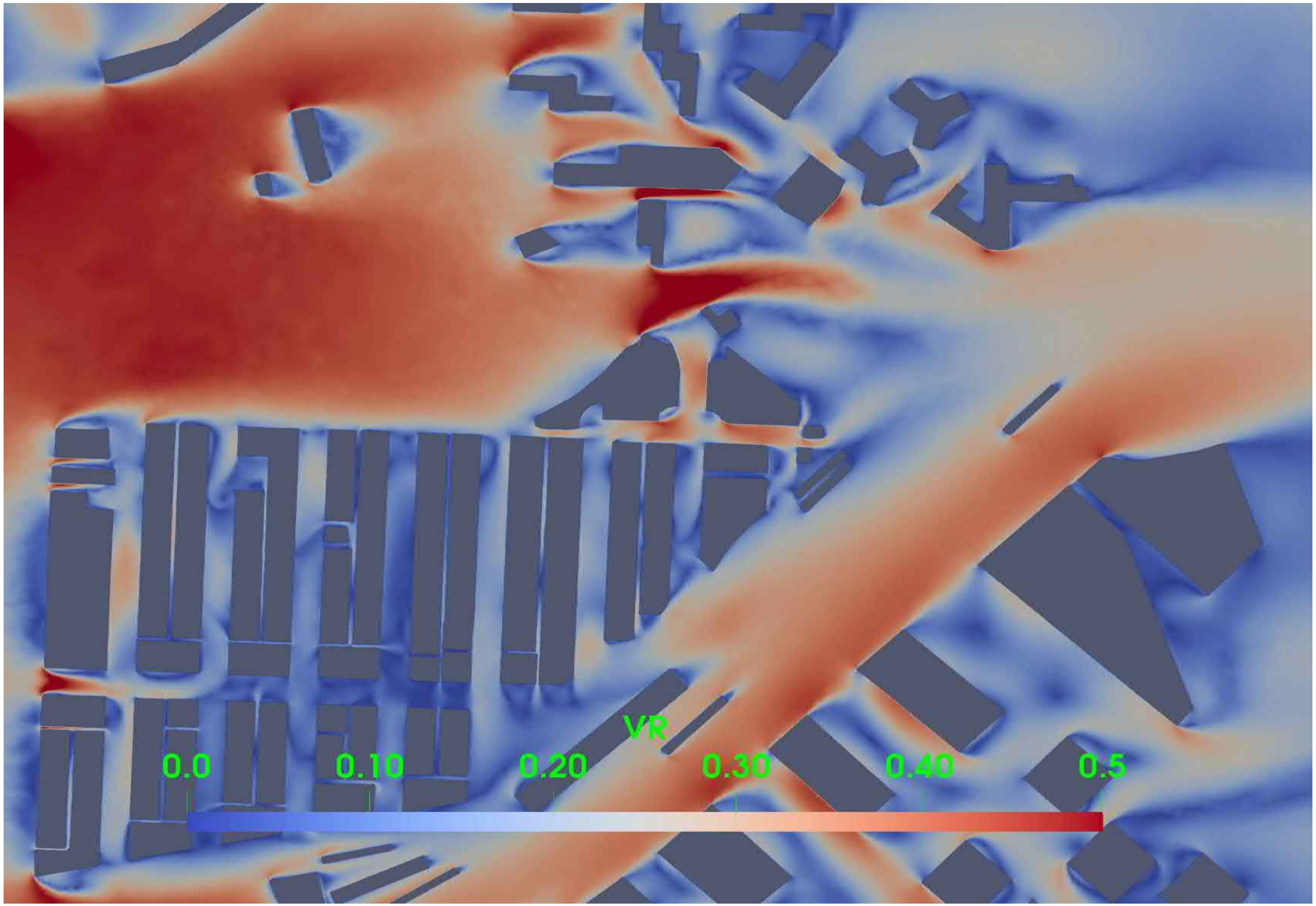
Air Ventilation Assessment

Kai Tak Road / Sa Po Road Project (KC015)

Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 4.1m		REV.
				1

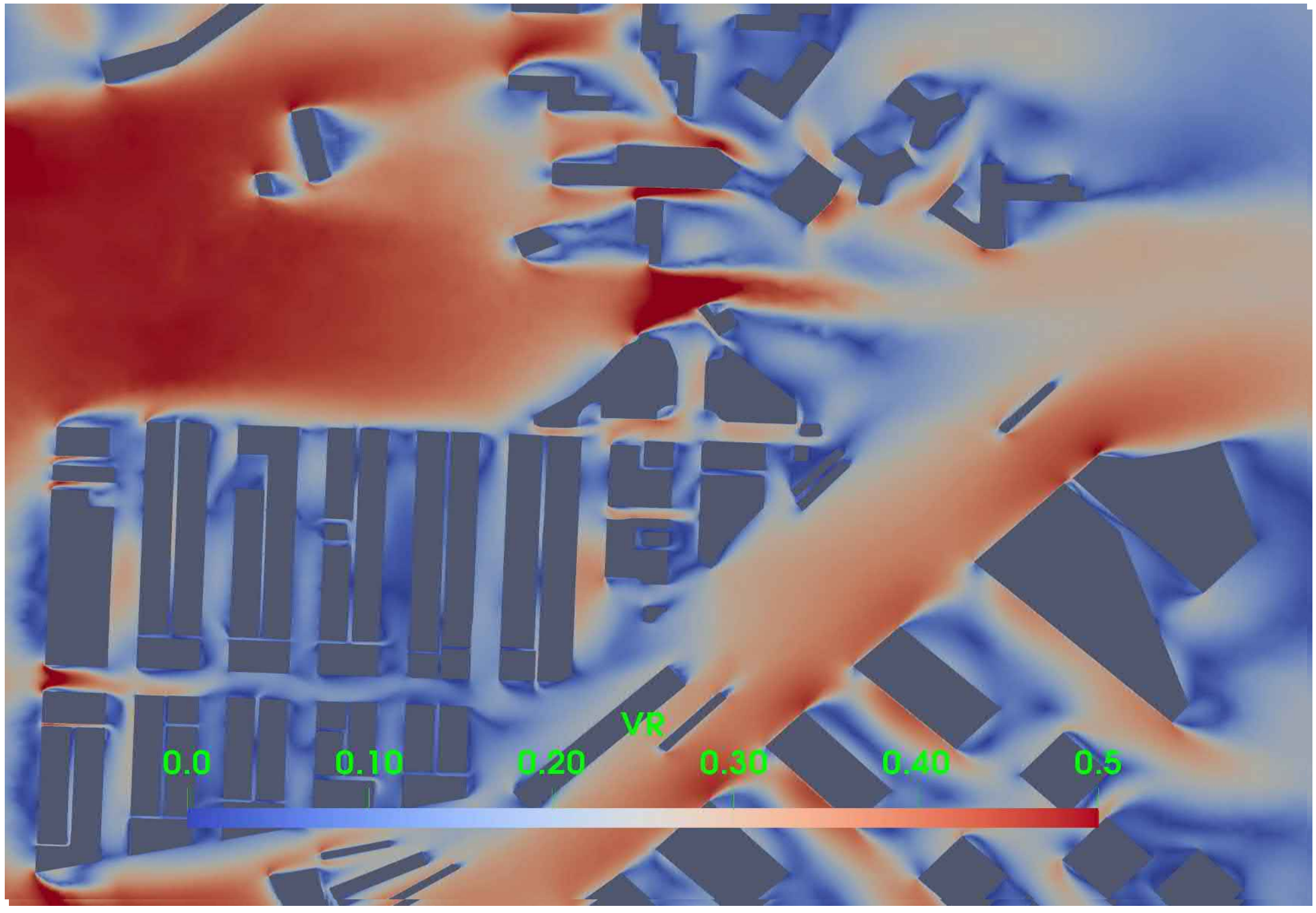
270 deg Wind Direction (4m/s at 500m)



Baseline Scheme

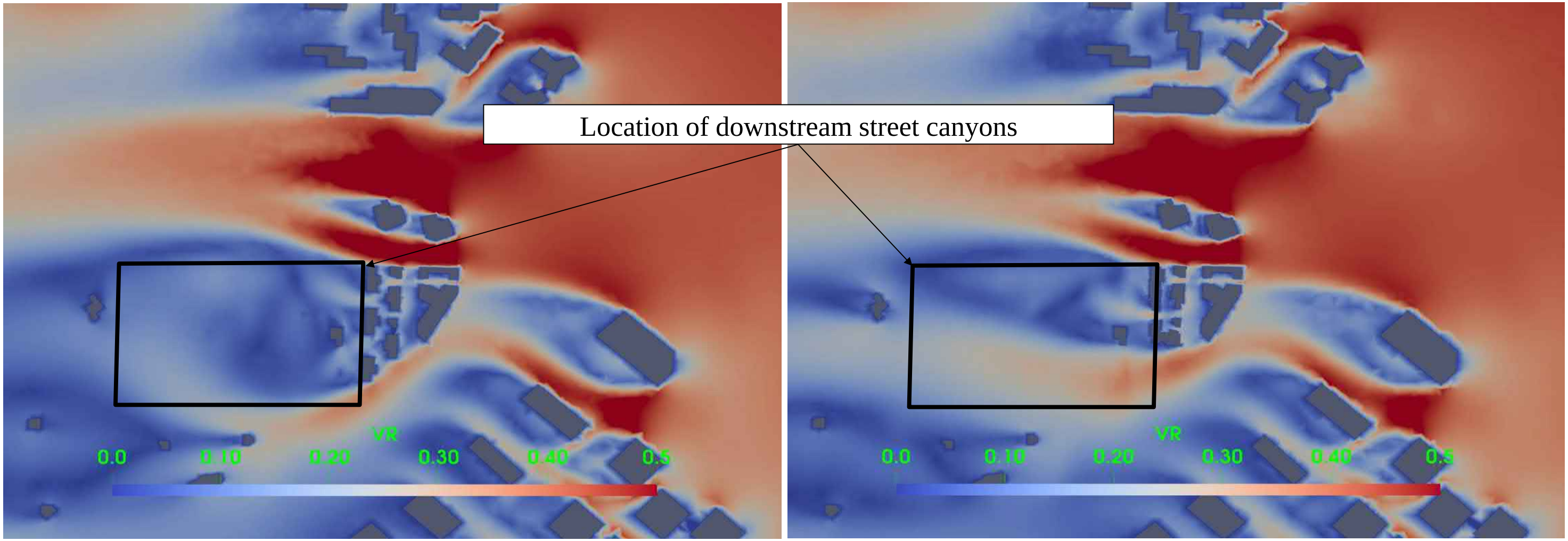
CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4.1n	REV. 1

270 deg Wind Direction (4m/s at 500m)



Proposed Scheme

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Contours of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	Nov-18	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO.	4.1n	REV.
						1



Baseline Scheme

Proposed Scheme

Easterly Wind with 7m/s at 500m

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment

Kai Tak Road / Sa Po Road Project (KC015)

Wind Contours of Wind Velocity Ratio at 40mAG under Easterly Wind

SCALE	N.T.S.	DATE	Apr-19	
CHECK	KW	DRAWN	CC	
JOB NO.	17019/KC0	FIGURE NO.	4.3	REV.
				1

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority 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, S/K10/URA1/A

- 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 widths, road junctions and alignments of roads may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or building 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 Schedule of Uses:

(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; and

(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 coordinated or implemented by Government.

(8) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate

permission is required.

(9) 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.

(10) Any development not compatible with the Urban Renewal Authority's Development Scheme for the area is prohibited by virtue of section 25(4) of the Urban Renewal Authority Ordinance.

S/K10/URA1/A

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

Schedule of Uses

	Page
RESIDENTIAL (GROUP A)	1

S/K10/URA1/A

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
Flat	Commercial Bathhouse/ Massage Establishment
Government Use (not elsewhere specified)	Eating Place
House	Education Institution
Library	Exhibition or Convention Hall
Market	Government Refuse Collection Point
Place of Recreation, Sports or Culture	Hotel
Public Clinic	Institutional Use (not elsewhere specified)
Public Transport Terminus or Station (excluding open-air terminus or station)	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Public Vehicle Park (excluding container vehicle)	Office
Residential Institution	Petrol Filling Station
School (in free-standing purpose-designed building only)	Place of Entertainment
Social Welfare Facility	Private Club
Utility Installation for Private Project	Public Convenience
	Public Transport Terminus or Station (not elsewhere specified)
	Public Utility Installation
	Religious Institution
	School (not elsewhere specified)
	Shop and Services (not elsewhere specified)
	Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd) S/K10/URA1/A

In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements, excluding floors containing wholly or mainly car parking, loading/unloading bay and/or plant room; or (b) in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.	
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 with the provision of a sunken plaza and public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building.

Remarks

(1) 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 exceed under paragraphs (7) and/or (8) 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 (7) and/or (8) hereof.

(3) For the purposes of paragraph (1) above, 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 port ratio(s) or 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, alternation 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) In determining the relevant maximum plot ratio 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, 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. Any floor space that is constructed or intended for use solely as Government, institution or community facilities as required by the Government may also be disregard.

(5) An underground public vehicle park shall be provided as required by the Government. In determining the maximum plot ratio for the purposes of paragraphs (1) or (2) above, any floor space that is constructed or intended for the use solely as the underground public vehicle park may be disregarded.

(6) No new development, or addition, alternation 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 (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(7) 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 paragraphs (1) or (2) above 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 the paragraphs (1) or (2) above may

thereby be exceeded.

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

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

EXPLANATORY STATEMENT

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

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3.	OBJECT OF THE PLAN	2
4.	NOTES OF THE PLAN	2
5.	AREA COVERED BY THE PLAN	3
6.	EXISTING CONDITIONS	3
7.	PLANNING AND LAND USE PROPOSALS	4
8.	IMPLEMENTATION OF THE DEVELOPMENT SCHEME	6

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance (the 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 draft Urban Renewal Authority (URA) Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) No. S/K10/URA1/A. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the area covered by the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 In the URA's 17th Business Plan (2018/19) approved by the Financial Secretary in *[xxxxx]*, the Kai Tak Road / Sa Po Road Development Scheme (KC-015) was proposed to be processed as a Development Scheme under section 25 of the URA Ordinance (URAO).

2.2 On 22 February 2019, pursuant to section 23(1) of the URAO, the URA notified in the Government Gazette the commencement of implementation of the Kai Tak Road / Sa Po Road Development Scheme.

2.3 On the same day of commencement (i.e. 22 February 2019), the URA submitted the draft URA Kai Tak Road / Sa Po Road DSP to the Board under section 25(5) of the URAO.

2.4 On XXXX, the Board, under section 25(6)(a) of the URAO, deemed the draft URA Kai Tak Road / Sa Po Road DSP as being suitable for publication. Under section 25(7) of the URAO, the draft DSP, which the Board has deemed suitable for publication, is deemed to be a draft plan prepared by the Board for the purposes of the Town Planning Ordinance (the Ordinance).

2.5 On XXXX, the draft Kai Tak Road / Sa Po Road DSP No. S/K10/URA1/1 (the Plan) was exhibited under section 5 of the Ordinance. By virtue of section 25(9) of the URAO, the Plan has from the date replaced the Ma Tau Kok Outline Zoning Plan (OZP) in respect of the area delineated and described herein.

3. OBJECT OF THE PLAN

The Plan illustrates that the Development Scheme Area (the Area) is designated as "Residential (Group A)" ("R(A)"). It is planned to be developed by means of the Development Scheme prepared under section 25 of the URAO. The Development Scheme intends to be primarily for a high-density residential development with the provision of a split-level sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building connecting to the sunken plaza.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area in this zone and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission

under section 16 of the Ordinance allows greater flexibility in land use planning and 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.

5. AREA COVERED BY THE PLAN

5.1 The Development Scheme boundary which is shown in heavy broken line on the Plan, covers a total area of about 6,106m^2. The Area is located at the street block bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Area includes two rows of buildings, two pieces of government land and also a portion of existing Sa Po Road in the southern part of the Scheme. The Area also includes a government lane between the two rows of buildings, and pavement area.

5.2 On the Approved Ma Tau Kok OZP No. S/K10/24, the Area is zoned "Residential (Group A)2" and an area shown as 'Road' before the exhibition of the Plan.

6. EXISTING CONDITIONS

6.1 The buildings within the Area are predominantly for residential use on the upper floors, and shop use on the ground floors. The only exception is the commercial building on 31 – 35 Sa Po Road, which is permitted for office use on upper floors and shops for ground floor. The residential buildings within the Area are of 5 to 10 storeys high and were built between 1962 and 1990. The commercial building is of 12 storeys high and was built in 1981. The buildings are in a dilapidating condition.

6.2 There is one private vacant site at 28-30 Kai Tak Road, which is currently used as a carpark. There are also two pieces of government

land on the southern side within the Scheme which are amenity area with landscaping, trees and sitting area.

6.3 The existing Sa Po Road is a one-way southbound local road. It passes by the immediately east of the Area and connect to Nga Tsin Wai Road in the south. The existing southern portion of Sa Po Road is included in the Area for redevelopment.

7 PLANNING AND LAND USE PROPOSALS

7.1 On the Plan, the Area is zoned "R(A)" and the Notes of the Plan indicated broadly the intended land uses within the Area. The area covered by the "R(A)" zone is about 5,352m^2, subject to site survey.

Uses

7.2 The "R(A)" zone is intended primarily for high-density residential developments with the provision of a split-level sunken plaza and underground public vehicle park to serve the community. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

7.3 The maximum plot ratio within the "R(A)" zone is 9.0, or the plot ratio of the existing building(s), whichever is the greater. Except where the plot ratio is permitted to be exceeded under the Notes of the Plan or under Building (Planning) Regulations 22(1) or (2), under no circumstances shall the plot ratio for the domestic part of any development exceed 7.5. The "R(A)" zone is also subject to a maximum building height of 120 metres above Principal Datum (mPD).

7.4 To provide design flexibility, minor relaxation of the plot ratio and building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its individual planning and design merits.

Split-level Sunken Plaza

7.5 A portion of existing Sa Po Road is proposed to be closed to make way for the development of a split-level sunken plaza (the proposed plaza) in the southern side of the Area. It will be connected with the proposed pedestrian subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) to the Kai Tak Development Area (KTDA) and its future underground shopping street (USS). The proposed plaza can serve to strengthen connectivity and walkability between the Area and the KTDA. Commercial space will be provided at the proposed plaza to enable extension of vibrant retail activities from the USS of KTDA. The linkage between street level/sunken plaza and the proposed pedestrian subway to KTDA will be opened for public use 24 hours daily. The linkage between street level and the proposed subway (via the sunken plaza) should be provided with barrier-free access. The plaza will be opened for public use at reasonable hours to benefit the local community.

7.6 The proposed plaza will be developed with different levels of space on ground floor and basement levels. It will include covered and un-covered area and with hard and soft landscape, commercial / retail components, event space and place-making elements at different levels for enjoyment. The proposed plaza will form part of the development and will be managed and maintained by the URA or its assignee.

7.7 The proposed plaza will also integrate with the existing pavement along Prince Edward Road East to provide more comfortable and spacious connection with the existing pavement and to provide solution space for existing bus queuing, improve pedestrian circulation and enhance walkability.

Vehicular and Pedestrian Circulation

7.8 To rationalise the land uses and to facilitate the creation of the proposed split-level sunken plaza, a portion of existing Sa Po Road will be closed permanently. A new private road will be provided within the Area for public use to divert the one-way vehicular traffic from Sa Po Road to Kai Tak Road. Pavement will be provided on both sides of the new private road to provide safe and comfortable walking environment. The

private road will be opened for public use 24 hours daily. Appropriate pedestrian crossing will be provided at the new private road to allow safe and convenient pedestrian connection between the proposed development and the proposed plaza in the Area.

Underground Public Vehicle Park

7.9 An underground public vehicle park will be provided within the Development Scheme to meet the local parking needs. It is proposed to accommodate about 300 private car parking spaces for public use. The provision of underground public vehicle park may also make way for solution space and create opportunity for pavement widening in the surrounding area. Management of the underground public vehicle park will be arranged at the development stage.

Internal Transport Facilities

7.10 Ancillary car parking spaces for the proposed residential development with non-domestic podium in the Development Scheme will also be provided in an underground car park. Ancillary loading/unloading bays will be provided within the Development Scheme. The number of car parking spaces, loading/unloading bays will be based on the relevant requirements under the Hong Kong Planning Standards and Guidelines (HKPSG) and subject to agreement with Transport Department.

Government, Institution or Community Facilities

7.11 About 800 m^2 GFA would be reserved for community use within the non-domestic portion. The facilities can be run by a suitable NGO selected by the URA, or run by the Government, subject to liaison with relevant government departments.

Landscaping and Greening

7.12 A cohesive landscaping, tree planting and greening will be designed, where appropriate and applicable, at the proposed plaza to enhance the local environment. To echo with the landscaping at the proposed plaza,

greening on the podium edge and pedestrian level of the proposed development will be provided as far as practicable to meet the Sustainable Building Design (SBD) Guidelines and to enhance the local streetscape.

Air Ventilation

7.13 According to the air ventilation assessment (AVA) report for the proposed development, good design features (i.e. split-level sunken plaza and 50m setback of domestic tower (at above 15m) from the intersection point of site boundary where Kai Tak Road and Prince Edward Road East meet) were proposed to enhance wind flow penetration. They should be applied as far as practicable in the design and layout of future developments in the "R(A)" zone. In the event that the proposed design features are not adopted in the future design scheme, further AVA study should be conducted by the project proponent to ensure acceptability of the design for its air ventilation environment.

8. IMPLEMENTATION OF THE DEVELOPMENT SCHEME

8.1 The proposals set out in the Plan form an integral part of the Development Scheme for the Area.

8.2 The URA does not own or lease any land within the boundaries of the Development Scheme and intends to acquire the properties within the Area of the Development Scheme. With respect to any of such properties which cannot be acquired by purchase, the Secretary for Development would consider, upon the application of the URA, recommending to the Chief Executive in Council the resumption of properties under the Lands Resumption Ordinance, if necessary.

8.3 All eligible tenants will be offered an ex-gratia payment package in accordance with URA's policy. The URA has already entered into agreement with the Hong Kong Housing Society (HKHS) and the Hong Kong Housing Authority (HKHA) for the purpose of making available rehousing units by HKHS or HKHA to rehouse affected tenants who satisfy the eligibility criteria of HKHS or HKHA.

8.4 Non-domestic tenants of properties acquired by URA whose tenancies are terminated by URA due to implementation of the Development Scheme may be offered an ex-gratia allowance to assist in their business relocation.

8.5 Details of the acquisition, compensation and rehousing policies are subject to the URA's prevailing policies at the time of acquisition. The URA may implement the Development Scheme on its own or in association with one or more partners.

TOWN PLANNING BOARD
[xxxx] 2019

Annex E-2 of
TPB Paper No. 10542

FAX

市區重建局
URBAN RENEWAL AUTHORITY

Our Ref: PDD/KC-015/19050788

By Hand

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

10 May 2019

Dear Sir/Madam,

Draft Development Scheme Plan
for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Responses to Public and Departmental Comments -

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019, Departmental Comment received via email dated on 26 March 2019, and the Public Comments received from 12 April to 26 April 2019. We would like to enclose our responses to comments (R to C) to the Public and Departmental Comments with 90 copies for your necessary action.

Please note no fundamental change has been proposed to the submitted draft DSP under URAO s.25, i.e. no change on the proposed boundaries of the DSP, the site area, the overall development parameters nor planning intention. The information as contained in this letter is mainly technical clarifications to address various comments. We look forward to your prompt processing and consideration on the R to C along with your ongoing preparation work for TPB's consideration.

Should you have any enquiry, please feel free to contact me at [redacted] or our Ms. Mable Kwan at [redacted]. Thank you very much.

Yours faithfully,

Mike Kwan
General Manager
Planning & Design Division

encl. (90 copies of Responses to Public and Departmental Comments)

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

caringorganisation

香港皇后大道中183號中遠大廈26樓 電話2588 2222 傳真2827 0176 / 2827 0085 網址www.ura.org.hk
26/F COSCO Tower, 183 Queen's Road Central, Hong Kong tel 2588 2222 fax 2827 0176 / 2827 0085 website www.ura.org.hk

TOTAL P.01

Urban Renewal Authority 市區重建局

Kai Tak Road / Sa Po Road Development Scheme 啟德道 / 沙浦道發展計劃 (KC-015)

Responses to Public Comments 回應公眾意見 (Reference Nos. 1-13)

(Consultation Period 諮詢日期 12.4.2019 – 26.4.2019)

Ref Nos:	**綜合意見種類及原因:**	**市建局回應：**
***意見類別一： 規劃及設計方面**		
7	擴大重建規模，由於其他街道，如石鼓壟道、啟德道單號、城南道、打鼓嶺道、龍崗道、南角道至衙前塱道、獅子石道、福佬村道都是矮層舊樓林立，極具重建潛力。私人發展商已積極收購，但牙簽樓缺乏加入社區配套元素，無整體社區規劃概念。希望市建局能盡快及繼續物色上述地盤，加快重建。	本項目希望透過整體市區更新模式，重整土地用途及重新規劃，連接啟德發展區的地下購物街，為新、舊區兩區提供連接點，提供本區急需的公眾停車位，以及社區設施，為該區帶來規劃效益。 本項目的現有範圍，已達至該市區更新的目的，提供區內需要。 市建局會依循 2011 年《市區重建策略》的指引，融合多元化模式，包括重建、復修、活化及保育進行市區更新。市建局會繼續以先規劃、後項目的方式進行整區可行性研究，履行市區更新的責任。
7，13	要求加入社區會堂，青年，長者及托兒服務設施	距離本項目約 200 米範圍，設有「東頭社區中心」，本項目的 500 米半徑範圍內亦有長者鄰舍中心。 而本項目會預留約 800 平方米的非住宅樓面面積，提供空間供社區使用。市建局會留意有關政府部門諮詢區議會後的意見，以決定相關用途以配合社區需要。
7	在重建設計上，因本區受交通擠塞之苦，要求設置更具規模的地下或多層停車場，解決交通擠塞問題。	本項目建議興建一個約有 420 個車位的地下停車場，當中 300 個車位供公眾使用，以紓緩區內因為泊位不足而引致的違例泊車及路面擠塞問題。交通顧問就增加泊車位的影響已完成評估及將有關報告提交運輸署審批，評估指出現時建議的泊車位數量不會對交通造成負面影響，然而若再增加車位，附近一帶的道路網絡將承受更大負荷，構成其他問題。市建局會繼續進行研究，利用規劃主導的市區更新概念，創造機遇改善交通及行人環境，並與相關部門分析如何有效改善泊車位不足的問題。
13	項目重建的建議附設商業/零售/社區設施平台不足以補給減少了錦輝商業大廈的商業用途面積，應在發展計劃內加入商業樓宇，讓受影響的商戶有更多機會搬回原址。	根據建築物圖則，錦輝商業大廈的總商業樓面面積約為 2,450 平方米，本項目內建議作非住宅用途的總樓面面積約 8,028 平方米，比原有的商業用途面積約多 3 倍，應可補償區內對商業用途樓面的需求。

註: * 意見類別僅為市建局建議以作參考，目的在有效回應相同類別的意見，並不是意見提出者指定的分類。

Ref Nos:	**綜合意見種類及原因:**	**市建局回應：**
		如重建項目得到政府批准進行，市建局會向受影響的商戶作出收購建議及現金補償，讓商戶可以自行選擇購買或租用區內商鋪繼續經營。
1	建議採用手扶式或電動自行通道連接重建範圍及通往啟德新發展區的通道，以增加人流及便利市民。	本項目希望透過重整土地用途及重新規劃，在本項目範圍內提供一個分層地下廣場，連接啟德發展區的地下購物街，為新、舊區兩區提供連接點，改善地區的行人環境及可達性。有關行人通道的建議在本項目獲批後，會在細部設計時作評估，並與相關政府部門商討落實細節。
***意見類別二: 對社區網絡的影響方面**		
2， 5， 6， 8， 9， 10， 11	• 在項目內的單位為宗親祭祀，聯繫鄉誼的場所，重建令會員擔心徬徨，希望市建局支持重建家園。 • 重建帶來手續繁複及精神損失。 • 作為非牟利團體及主要服務精神病康復者，已在項目範圍建立綜合社區網絡。 • 重建會影響社區網絡及對社區的連繫感。	市建局的宗旨是透過將老舊失修區更新，從而改善區內住屋水平及已建設環境。市建局了解居民會因重建項目而受到不同程度的影響，故在本項目開展後，市建局及由市區更新基金委聘及獨立運作的社區服務隊會向有需要人士提供適切的協助，以解釋項目內容及解答重建相關問題。如本項目得到政府批准進行，市建局除有既定的補償政策外，社區服務隊會為有需要人士提供協助，包括舉辦活動，以協助維持重建受影響居民的原有社區網絡，減少項目對居民的影響。 對受影響的合資格住宅自住業主，市建局亦會在計劃原址或同區或其他適當地盤提供「樓換樓」選擇，作為給住宅自住業主的現金補償以外的額外選擇。因此住宅自住業主如接受市建局的補償方案，相信可讓他們在同區購買較新的的住宅或樓換樓單位居住，以保留在該區的網絡。
10，11	• 重建應考慮及保留社區特有的文化及社區面貌; • 市建局需確保九龍城的泰國社區及文化不受重建影響或破壞，特別安排受重建影響範圍的泰國族裔居民及組織，於九龍城獲得安置。	根據第二階段社會影響評估，本項目受訪的 371 個住戶中，有 23 個少數族裔住戶，當中有來自泰國、巴基斯坦、印尼等地。 鑑於有十多戶泰國籍居民在重建範圍內，市建局於 2019 年 3 月 18 日特別為本項目範圍內的泰裔居民舉行了一場簡報會，並安排泰文的即時傳譯，向受影響的泰裔業主及租客解釋現行的補償及安置政策，希望能為他們釋疑。市建局及社區

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Ref Nos:	綜合意見種類及原因:	市建局回應：
		服務隊會盡量向少數族裔住戶提供支援，以紓緩有關的焦慮。 市建局有既定的收購、補償及安置政策。如項目得到政府批准進行，市建局會向受影響而符合安置資格的住宅租客，提供安置單位。市建局會視乎公共租住房屋單位的供應及受影響居民的安置資格，於切實可行情況下，盡量為他們提供所選擇地區的安置單位。
*意見類別三: 私人發展商在項目內有收購事宜		
5，9	• 市建局在刊憲前，後，及所進行的兩個社會影響評估報告內均沒有包括或提及私人發展商在該項目涉及的部地段進行收購行動，並有大批業主已和發展商簽署法律文件及收取按金。 • 收購計劃在 2018 年中展開，涉及沙浦道 7 幢大廈，因市建局重建，使發展商引用合約條文擱置計劃，令業主蒙受損失。 • 提意見者(地鋪業主)與發展商在 2018 年 12 月 28 日簽署了物業臨時買賣合約及補充合約. • 提意見者(地鋪業主)認為根據市區重策略 36 段(i) 及(j)，及第 37 段第(m)及 (n)，該兩份社會影響評估報告應提及項目內有私人發展商發展計劃被擱置一事，並應在報告內提出市建局建議給業主的補償方案及所需的紓緩措施。	市建局是根據《市區重建策略》第 36 段及 37 段分別所提及的各主要方面進行兩個社會影響評估，本項目的兩份社會影響評估報告已包括了《市區重建策略》內的要求，包括就對建議重建項目對人口特點，社會經濟，居住環境，文化特色等各方面的影響作出評估及提出建議的紓緩措施。然而，社會影響評估不會紀錄一般私人樓宇買賣活動。
5，9	• 《市區重建策略》及《市區重建局條例》均沒有授權市建局在已有私人發展商進行了收購的地段重建。 • 提意見者(地鋪業主)認為市建局利用條例,是在不公平的競爭環境下擊退發展商奪取土地重建，造法擾民，會保留追究權利，司法覆核或一般的法律索償。	市建局是根據《市區重建條例》(《條例》)進行市區更新工作，《條例》第 5 條列明市建局的宗旨，包括 (1) 透過將老舊失修區重建成經妥善規劃，並(如適當的話)設有足夠交通設施、其他基礎建設及社區設施的新發展區，以改善香港的住屋水平及已建設環境，以及已建設區的布局; (2) 更良好利用香港已建設環境中失修地區的土地，以應付各種發展需要。市建局在考慮達致有關宗旨下，可在得到財政司司長批准其業務綱領及業

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Ref Nos:	綜合意見種類及原因:	市建局回應：
		務計劃下，根據《條例》第 25 條或第 26 條開展重建項目。 市建局現時的重建計劃，是透過重整土地用途及重新規劃，連接啟德發展區的地下購物街，為新、舊區兩區提供連接點，提供本區急需的公眾停車位，以及社區設施等社區規劃裨益。有別於由私人發展商單一獨立地盤的重建，未必會提供公眾停車位、廣場及改道等規劃裨益。 在重建項目開展後及在政府未引用《收回土地條例》收回土地作重建用途前，項目內業主可自由買賣其擁有的物業；市建局會在得到行政長官會同行政會議核准本項目的發展計劃草圖後，按既定的政策/時序向當時的物業持有人提出收購建議。
5，9	提意見者(地鋪業主)以下要求: • 市建局要以市值或其物業買賣價(即 6,680 萬，以較高者為準)作收購其地舖單位價錢。 • 因應單位特殊狀況調整相應的特惠金／紓緩措施。 • 市建局要支付提意見者所損失相關利息。 • 其他有關的損失及補償。	市建局現行的物業收購準則是根據 2001 年 3 月立法會財務委員會通過的物業收購政策作為計算補償的準則，對物業的收購建議及補償是有既定的準則。 <u>對非住宅物業（商鋪／商業物業）業主的收購政策</u> 本項目如得到行政長官會同行政會議授權進行，市建局將會向受影響非住宅物業自用業主提出收購，包括其物業市值交吉價、津貼及營商特惠津貼，業主或可選擇就其營業損失申請補償以替代上述兩項津貼。至於出租業主則可獲市值交吉價及津貼。受影響業主相信可以靈活地運用市建局的補償金額。
***意見類別四: 有關市建局補償，收購及安置政策**		
1，3，6，13	• 市建局如何賠償商戶? 原址遷徙/現金賠償? • 現時市區樓價高企，如何另覓重置單位? • 市建局對業主的賠償不足以購回相同地區及面積相若的單位，及不足以補重新購置單位所需的裝修,，地產佣金，律師費，租金費購置設備繼續營運等損失。	市建局現行的物業收購準則是根據 2001 年 3 月立法會財務委員會通過的物業收購政策作為計算補償的準則，對物業的收購建議及補償是有既定的準則。 <u>對非住宅物業（商鋪／商業物業）業主的收購政策</u> 本項目如得到行政長官會同行政會議授權進行，市建局將會向受影響非住宅物業自用業主提出收購，包括其物業市值交吉價、津貼及營商特惠津貼，業主或可選擇就其營業損失申請補償以替代

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Ref Nos:	綜合意見種類及原因:	市建局回應：
		上述兩項津貼。至於出租業主則可獲市值交吉價及津貼。受影響業主相信可以靈活地運用市建局的補償金額。 就商鋪的市價，市建局會委託兩間獨立估價顧問公司為本項目內每個非住宅單位的物業分別提供市值估價，以較高者釐定當時的收購價。市建局會給予非住宅單位的業主其物業的市值交吉價，另加特惠津貼。因此，市建局的收購金額應接近市值及可讓業主購回相若商鋪。 <u>對非住宅物業租戶的補償政策</u> 為協助租戶繼續經營，市建局會向符合資格的租戶提供特惠津貼及營商特惠津貼，租戶亦可選擇就其營業損失申請補償。 <u>對住宅業主的收購政策</u> 本項目如得到行政長官會同行政會議授權進行，市建局將會向受影響住宅業主提出收購，包括物業市值交吉價及自置居所津貼。 自置居所津貼的計算，是以一個面積相近的假設替代單位的價值與被收購物業市值的差價。這假設單位將假定為七年樓齡，位於在特點及交通方便程度方面屬類似地區，並位於中層及擁有一般座向。市建局亦會在計劃原址或在同區或其他適當地盤提供「樓換樓」選擇，作為給住宅自住業主的現金補償以外的額外選擇。 對於受重建影響的住宅業主如購買替代物業時的合理及必須的開支，包括印花稅、律師費等，市建局有既定政策，讓業主可向市建局提出申請發還多付的相關開支，相信可減輕業主的重購負擔。 <u>對住宅租客的安置政策</u> 對於符合安置資格的住宅租客，市建局與香港房屋委員會及香港房屋協會作出特別安排，在其屋邨內提供安置單位予合資格的住戶，有關安排將盡量以市區的屋邨作出安置，但要視乎區內屋邨的資源分配。
2，3，4	• 大廈立案法團因重建而擱置了更換了升降機計劃，導致遭升降機公司向大廈立案法團追討工程合約內要求的工程費用，令業主蒙受損失。	由本項目開展到項目得到批准，收購至清拆重建需要大約 4-5 年，期間住戶的樓宇居住環境安全為首要條件，在住戶搬出前業主應該確保樓宇安全，並進行所需的維修/保養工程。

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Ref Nos:	綜合意見種類及原因:	市建局回應：
	要求市建局提供合理補償以達重建目的，減輕重購的負擔。 • 在項目內擁有的物業在不久前花費巨額裝修及設施添置費用，重建會造成大損失。	市建局設有「發還修葺費用計劃」，向重建項目內的業主提供申請有關津貼，即使他們的樓宇可能會在數年內進行重建，亦鼓勵他們為樓宇進行所需的維修。但有關申請必需符合「發還修葺費用計劃」內的範圍。
5，12	提意見者(非住宅物業業主)認為市建局對自用與出租兩類的非住宅單位有不同的補償方案不公平，所以提出反對重建。	市建局現行的物業收購準則是根據 2001 年 3 月立法會財務委員會通過的物業收購政策作為計算補償的準則，應可視為對受影響業主合理的補償。市建局在收購物業時，不論是自住或自用業主或出租/空置業主，都會給予業主其物業市值交吉價。物業市值是指若業主自願在公開市場出售有關物業，其可合理預期的成交價格。 對於空置/出租的非住宅物業，除物業市值外，市建局會向業主提供等於其應課差餉租值金額或其物業市值交吉價的百分之十的津貼，以較高者為準。因此，市建局的收購價不會低於該物業的市值。 市建局除了給予現金補償予受項目影響業主外，在成功收購物業後，亦會向受影響的租客給予特惠津貼，讓租客可搬遷及租用其他地方繼續經營。
5	市建局的收購形式導致市民要硬性出售物業，不可議價。	市建局會在得到行政長官會同行政會議核准本項目的發展計劃草圖後，按既定的政策/時序向當時的物業持有人提出收購及補償建議,有關收購建議及補償是以協商形式進行。 倘若業主最終不接受市建局的收購建議，而項目需要進入政府收地階段，地政總署會按《收回土地條例》(第 124 章)收回土地，並向前業主及根據在土地註冊處註冊文書而在緊接復歸政府前擁有該土地業權或權益的任何人士，發出補償建議，或邀請有關人士在復歸日期起計的 28 天內，就法定補償提出申索。 因此，業主不存在硬性出售物業，可考慮接受建議或提出申索。
10，11	對店鋪租戶賠償的方案不足以支持店舖重新開業，應提供合理及可行的安置方案。	根據現時政策,市建局向業主成功收購店鋪物業後，亦會向受影響符合資格的租客給予特惠津貼及營商特惠津貼，有關補償可讓租客在市場尋找其他地方繼續經營。

註: * 意見類別僅為市建局建議以作參考，目的在有效回應相同類別的意見，並不是意見提出者指定的分類。

Ref Nos:	**綜合意見種類及原因:**	**市建局回應：**
		根據現時政策，市建局並沒有鋪換鋪的政策，然而， 若有受影響的商鋪營運者提出相關要求，市建局會盡量協助他們在重建項目同區物色合適地方繼續經營。
13	提意見者為商業物業業主，提出自己是長者，並依靠其擁有的 3 間商業物業單位(一個自用和兩個出租)收入為主要收入來源。	對非住宅物業（商鋪／商業物業）業主的收購政策 如得到行政長官會同行政會議授權進行本項目，市建局將會向受影響非住宅物業出租業主提出收購，包括其物業市值交吉價及津貼業主，相信可以靈活地運用市建局的補償金額。 就商鋪的市價，市建局會委託兩間獨立估價顧問公司為項目內每個非住宅單位的物業分別提供市值估價，以較高者釐定當時的收購價。市建局會給予非住宅單位的業主其物業的市值交吉價，另加津貼。因此，市建局的收購金額應接近市值及可讓業主購回相若商鋪。 如提意見者有需要，獨立於市建局的社區服務隊會提供協助，了解受影響業主的情況，以建議紓緩措施及轉介相關部門/機構跟進協助。

註: * 意見類別僅為市建局建議以作參考，目的在有效回應相同類別的意見，並不是意見提出者指定的分類。

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Received via email from TP/K10, DPO/Kowloon dated March 26, 2019		
CTP/UD&L of PlanD's comments on urban design perspective	5. According to the proponent, the increase in BH would facilitate slimmer building design and wider building gaps. It is worthwhile for the proponent to provide artist renderings for a close-up view of the podium and split-level sunken plaza to illustrate how they relate to the pedestrian realm. The proponent may consider providing more discussions (possibly with illustrations) to show how the design measures allow the URA development respond or relate to the two existing buildings, in particular Carlson Court at 51 Sa Po Road.	A conceptual landscape plan of the sunken plaza is shown in Figure 2.1 of Appendix 3 to illustrate the landscaping concept, as well as the different levels of the sunken plaza and its connection with the podium and the surrounding pavement to enhance walkability. The proposed relaxation of building height of the Scheme has taken into consideration of the height profile of the surrounding. A visual appraisal was conducted in the local context to assess the visual impact and compatibility of the proposed development with the surroundings. In particular, View Point (VP) 2 demonstrated the relationship between Carlson Court (51 Sa Po Road) and High Place (33 Carpenter Road) and the proposed development. Besides, the block plan showed in Figure 1.3 of Appendix 1 demonstrated that building gaps are maintained between the proposed development and the two existing buildings outside the Scheme to allow visual relief and to fulfil relevant requirements, e.g. prescribed windows, under Buildings Ordinance. In addition, photomontages of base scheme 100mPD without sunken plaza, scheme 100mPD with sunken plaza and proposed scheme 120mPD with sunken plaza, are supplemented in Annex 3 in R to C submission to the TPB on 3 May 2019. Notional block plan and section plan of scheme 100mPD with sunken plaza are supplemented for illustration (as attached in Annex 1). The increase in building height from 100mPD to 120mPD would facilitate slimmer building design and wider building gaps.

Annex 1

(Notional layout subject to detailed design upon DSP approval.)

KAI TAK ROAD

PRINCE EDWARD ROAD EAST

SUBWAY CONNECTING TO KAI TAK BY CEDD (EXACT SETTING OUT TO BE FURTHER COORDINATED WITH CEDD)

BUS WAITING AREA

SPLIT-LEVEL PLAZA

NEW PRIVATE ROAD (FOR PUBLIC USE)

RESIDENTIAL TOWER

RESIDENTIAL TOWER

RESIDENTIAL TOWER

CARPENTER ROAD

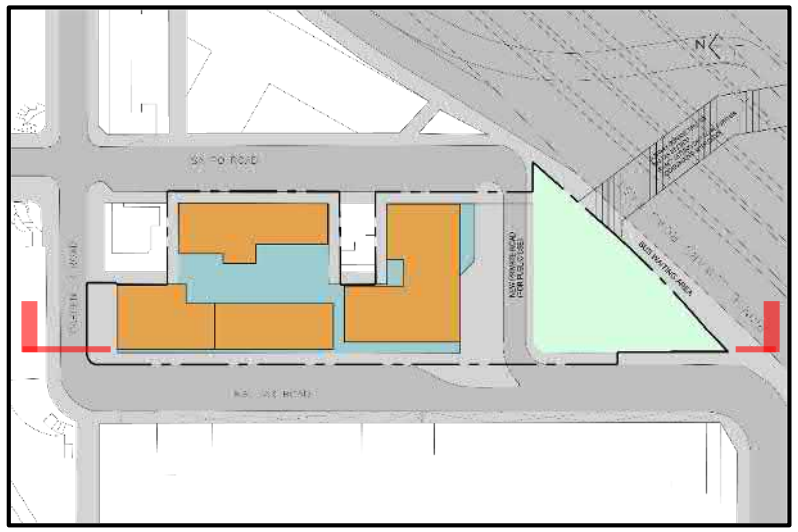
SA PO ROAD

N

市區重建局
URBAN RENEWAL AUTHORITY

URA Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Scheme 100mPD with Sunken Plaza– Block Plan



Key Plan

(Notional layout subject to detailed design upon DSP approval.)

URBAN RENEWAL AUTHORITY 市區重建局

URA Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Scheme 100mPD with Sunken Plaza – Schematic Section

Our Ref: PDD/KC-015/19051175

市區重建局
URBAN RENEWAL AUTHORITY

By Hand

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

21 May 2019

Dear Sir/Madam,

Draft Development Scheme Plan
for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Responses to Departmental Comments -

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019 and Departmental Comments received via emails dated from 6 May 2019 to 16 May 2019. We would like to enclose our responses to comments (R to C) to the Departmental Comments for your necessary action.

Please note no fundamental change has been proposed to the submitted draft DSP under URAO s.25, i.e. no change on the proposed boundaries of the DSP, the site area, the overall development parameters nor planning intention. The information as contained in this letter is mainly technical clarifications to address various comments. We look forward to your prompt processing and consideration on the R to C along with your ongoing preparation work for TPB's consideration.

Should you have any enquiry, please feel free to contact me at [redacted] or our Ms. Mable Kwan at [redacted]. Thank you very much.

Yours faithfully,

RECEIVED
21 MAY 2019
Town Planning Board

Mike Kwan
General Manager
Planning & Design Division

encl.

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

5 years+ 同心展關懷 caringorganisation

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Government Department	Comments	Responses
Received via email from TP/K10, DPO/Kowloon dated May 14, 2019		
EPD	On 30 April 2019, the URA has submitted R-t-C in response to the comments provided by various departments on the DSP for ths subject site. The R-t-C has not included revisions of the Environmental Assessment (EA) nor Sewerage Impact Assessment (SIA) previously submitted together with the DSP. On 3 May 2019, the URA has submitted a revised R-t-C which states the noise assessment of fixed plant noise source is still ourstanding (re. page 27 of the R-t-C).	Noted. For the noise assessment of fixed noise source, the on-site noise measurements were taken on 9 April and 10 May 2019 (please see R-t-C 4 below).
	Taking into account the R-t-C and revised R-t-C, there are still deficiencies in EA and SIA and the environmental accepability of the subject proposed redevelopment has not been demonstrated. We are unable to accept the EA and the SIA at this stage.	EPD's comments on EA and SIA have been addressed below. It is believed that the required assessments are acceptable to EPD at this stage.
R-t-C for Comments on Environmental Assessment (Appendix 5)		
	Air Quality 1. R-t-C 1: It is noted that blasting will not be involved in the demolition work, while the construction method is yet to confirm at the moment. The proponent is reminded to	Noted.

Government Department	Comments	Responses
	observe and comply with the relevant regulations and guidelines relating to environmental protection, mitigation measures shall be implemented to avoid/minimize environmental impacts as far as possible.	
	2. R-t-C 3: Our previous comment stated in the table is misquoted by the consultant. Please refer to our previous comments reproduced below to revise the R-t-C and report accordingly. "Please amend Para 4.8 to read as "Operation of Powered Mechanical Equipment (PMB) during demolition/ construction work would emit gaseous air pollutants such as nitrogen dioxide (NO_2) via fuel burning." and "Supportive information and document…..to prove that the concerned Non-Road Mobile Machinery (NRMM) is in line with the prescribed emission standards. Since the number of PME expected to be used on-site will be limited much less than vehicles travelled on surrounding roads (e.g. Prince Edward Road East), no significant impact is anticipated."	Noted. Paragraph 4.8 of the EA is revised as follows: "Operation of Powered Mechanical Equipment (PME) during demolition/ construction work would emit gaseous air pollutants via fuel burning." and "Supportive information and documents (e.g. third-party emission certificates, model and serial numbers of machines and engines, etc.) for each Non-Road Mobile Machinery (NRMM) would be provided to EPD to prove that the concerned NRMM is in line with the prescribed emission standards. Since the number of PME expected to be used on-site will be limited, no significant impact is anticipated."

Government Department	Comments	Responses
	3. R-t-C 4: Please update the planning statement with confirmation from Transport Department (TD) for the road types of Carpenter Road, Sa Po Road and Kai Tak Road, so as to demonstrate the fresh air intake of buildings can meet the buffer distance requirements as stipulated in Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG).	Noted. TD's confirmation on the road types is being sought and pending his reply. With regard to the buffer distance requirement in Chapter 9 of HKPSG, the specific buffer distance requirement is a guideline for "Open Space Site" instead of "domestic premises". It has to be noted that the site of KC-015 is largely zoned R(A) and with a small part shown as "Road" in the current OZP. The proposed redevelopment of KC-015 is largely similar to the original planning intention for high density residential use, with only proposed diversion of part of the Sa Po Road to contributes to the provision of a split level sunken plaza to enhance connectivity and provide buffer distance of the residential development from the Prince Edward Road East. Under the current OZP as a "R(A)" zone, the site is allowed to be developed for high density residential use without any statutory requirement to submit EA and AQIA to meet the HKPSG requirement. It is of the view that the proposed development in KC-015, with the provision of sunken plaza, which is not a traditional public open space, as a buffer, and the sensitive residential units provided on top of podium in future development, can already improve the environmental condition of the future sensitive residential units. Nevertheless, subject to detailed design and site constraints, the proposed development will follow the guidelines in HKPSG in general, and as far as practicable.

Government Department	Comments	Responses
		For the Air Buffer Zone of the current notional design, please refer to Figure 4.1 of the Environmental Assessment submitted on 22 February 2019.
	Noise	
	4. The submitted R-t-C contains no detailed information (e.g. measurement results, corrected fixed plant noise impact) on the noise impact from the nearby fixed noise sources. Without concrete information on the predicted noise impact from the fixed sources, the consultant could not demonstrate that there is no insurmountable noise impact from the nearby fixed sources as they could not demonstrate that the proposed noise mitigation measures on the nearby fixed sources (i.e. fixed plant at Regal Oriental Hotel) are sufficient and achievable. We have to reiterate that if it is the URA/consultant's intention to provide noise mitigation measures on the nearby fixed sources, a detailed implementation plan, including written agreements with the owners of these fixed sources, on the implementation, maintenance, liability issues, etc. for installing these proposed noise mitigation measures on the surrounding fixed noise sources should be	For the noise assessment of fixed noise source, the on-site noise measurements were taken on 9 April and 10 May 2019 at three locations (refer to Annex 1 as attached). The measurement locations were taken on the roof of the existing buildings which are mostly affected by the identified fixed noise sources. According to the measurement results, the corrected noise level measured at the worst representative NSRs is 64dB(A), which is slightly higher than the night time ANL (60dB(A)). However, there are available noise mitigation measures and there is a feasible development scheme to mitigate the noise at the receiver end to comply with the ANL. By adopting the enhanced acoustic balcony at the NSRs which are adversely affected by the fixed plant noise, there will be no adverse noise impact. This type of enhanced acoustic balcony is proven to have an in-out noise reduction of at least 14 dB(A) in the laboratory test of another URA development project in Kowloon East. Therefore, there is no insurmountable noise impact.

Government Department	Comments	Responses
	provided. Without such information, it is premature to conclude that there is no adverse/insurmountable noise impact from the fixed sources.	As one of the other options to be further explored after DSP approval, subject to Regal Oriental Hotel's consent, URA/future developer could facilitate owner to install noise mitigation measures at the fixed noise sources on the podium of Regal Oriental Hotel (e.g. Barrier with cantilevers / Partial enclosure and silencers which would provide a noise reduction of 5 - 10 dB(A)) to enhance its noise mitigation effectiveness.
	5. Regarding the traffic noise impact, it appears that there are still available measures for further mitigating the traffic noise impact (e.g. better building orientation/layout of noise sensitive facade not directly facing Prince Edward Road East, use of acoustic windows/enhanced acoustic balconies with higher noise reduction performance, use of noise screening structure/barrier to mitigate noise from Prince Edward Road East, etc.). The consultant should explore the feasibility of adopting all practicable noise mitigation designs/measures to further minimize the traffic noise impact.	The design at this early planning stage are notional, upon the approval of DSP and after land grant stage, various design refinement on layout including unit orientation will be carried out to comply with the prevailing regulations including noise control aspects. URA will explore and implement all practicable noise mitigation measures to minimize the traffic noise impact at the detailed design stage.

Government Department	Comments	Responses
	Waste Management & Land Contamination Assessment 6. R-t-C 10: Please note that land contamination assessment and remediation works (if needed) should be completed prior to development works at the proposed site(s) according to prevailing guidelines.	Noted.
	7. R-t-C 11: Please check the relevance of the referred guidelines (e.g. ADV-19), and review whether "Project Administration Handbook for Civil Engineering Works", the two "Code of Practice" for chemical wastes and asbestos waste should also be included.	Noted. The following legislations/guidelines related to the handling, treatment and disposal of waste in Hong Kong are listed: • 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) • The Buildings Department's Practice Note for Authorized Persons and Registered Structural Engineers (PNAP) No. 243 • ETWB TCW 19/2005 Environmental Management on Construction Sites • Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste

Government Department	Comments	Responses
		• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes • Project Administration Handbook for Civil Engineering Works • DEVB TCW No. 06/2010 Trip Ticket System for Disposal of Construction and Demolition Materials • Code of Practice on the Packaging, Handling and Storage of Chemical Waste • Air Pollution Control Ordinance (Control of Asbestos (sections 51 to 84)) • ProPECC PN2/97 Handling of Asbestos Containing Materials in Buildings • Code of Practice on the Handling, Transportation and Disposal of Asbestos Wastes
	8. R-t-C 12: The Consultant should provide the estimated quantities for the reuse/recycling/disposal of Construction and Demolition (C&D) materials on-site and off-site in relevant section(s) of the submission. Relevant section(s) of the Chapter 6 should be revised for consistent descriptions of waste handling.	Noted. Subject to detail design, as a rough estimation, in total approximately 117,820 m^3 of C&D material will be generated; about 15,000 m^3 to be reused on-site, about 100,540 m^3 inert C&D material and 2,280 m^3 non-inert C&D material will be disposed of.

Government Department	Comments	Responses
	9. R-t-C 15: Please double-check the text/arrangement of Table 6.2 to reflect the anticipated waste arising during construction phase.	Noted. Table 6.2 refers to the estimated timing of waste arising from construction period, while the types of waste was mentioned in paragraph 6.3 and the estimated quantities was mentioned in Table 6.1 in the planning report.
	10. R-t-C 18 & 19: Please state clearly in the section that waste recycling would be carried out.	Noted. Waste recycling would be carried out during operation phase.
	11. R-t-C 20(c): As it is mentioned that chemical waste (i.e. lubrication oil and waste battery) are expected, please clarify whether the estimated quantity of 6 cubic meter has already accounted for the anticipated waste battery.	The estimated 6 m^3 has already accounted for the anticipated waste battery (general assumption of construction time for URA redevelopment projects adopted but also subject to actual construction period).

Government Department	Comments	Responses
	12. R-t-C 20(d): i. The Consultant should check that asbestos management may be under the Air Pollution Control Ordinance and the Waste Disposal (Chemical Waste) (General) Regulation. Please revise text as appropriate. ii. The last statement of Section 6.11 appeared incomplete, please be reminded to check the statement to avoid misunderstanding.	(i) Noted. It is revised to "Since the existing structures were mostly built in 1960s and 1970s, asbestos containing materials may be present at the existing structures which would be demolished. Asbestos investigation would be carried out before the commencement of demolition works. Asbestos investigation and asbestos abatement plan will be made in accordance with the relevant statutory requirements Air Pollution Control Ordinance, Waste Disposal (Chemical Waste) (General) Regulation and other Codes of Practice listed in Appendix III in ProPECC PN2/97 Handling of Asbestos Containing Materials in Buildings if any asbestos is found in the Site" in the report. (ii) Noted. The last section of 6.11 is revised to "With the implementation of proper chemical waste management measures listed in Section 6.33 (See RTC 7 above), the impact is anticipated to be insignificant."
	13. R-t-C 20(e): Please list out the control measures to be adopted in the section.	Mitigation measures are listed out as below: Normally, prior to the commencement of the construction works, the contractor will identify the types and amount of waste generated and its associated mitigation measures according to the requirements as stipulated in ETWB TCW No. 19/2005.

Government Department	Comments	Responses
		C&D Waste 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. Waste minimization measures with reference to The Buildings Department's Practice Note for Authorized Persons and Registered Structural Engineers (PNAP) No. 243 should be adopted during construction phase, measures may include: • On-site sorting of C&D materials; • Recycling of construction materials for on-site use; • 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; • Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.

Government Department	Comments	Responses
		The Contractor should adopt good housekeeping practices such as waste segregation 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. 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. *General Refuse* 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. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" light materials. *Chemical Waste*

Government Department	Comments	Responses
		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 stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste collector. Provided that good site practices are strictly followed, there would be no adverse impacts related to waste management during construction phase.
	R-t-C for Comments on Sewerage Impact Assessment (Appendix 7)	
	14. R-t-C 3: The information on target population intake from the project proponent based on the project-specific development parameters should be adopted.	The target population intake of the proposed development is in line with the recorded average household size for Lung Shing Constituency (2.4 persons/household). The estimated future population for the proposed development would be about 1,944 persons (810 flats x 2.4 persons), which is applied and stated in the Sewerage Impact Assessment.

Government Department	Comments	Responses
	15. R-t-C 4: Based on the best available information, sewage from Yan Tung House, Tung Tau Estate and Tung Tau community centre is discharged to the concerned sewerage system. Please revise the hydraulic calculation.	Noted. The sewerage discharge from Yan Tung House, Tung Tau Estate and Tung Tau community centre was also included in the updated hydraulic calculation (as attached in Annex 2). Based on the revised hydraulic calculation, Pipe02 and Pipe03 in Option 1 should be upgrade from 300mm to 375 mm with the same as original gradient while Pipe03 in Option 2 should be upgraded from 300mm to 375 mm with the same gradient.
Received via email from TP/K10, DPO/Kowloon dated May 8, 2019		
Chief Estate Surveyor/Urban Renewal of LandsD	It is assumed that the management and maintenance responsibilities of the public open space would not be passed onto the future individual flat owners. URA is to revert if otherwise.	The design intention of sunken plaza is to provide a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road Area and is not classified as "public open space" and merely providing an amenity space. It is proposed to be opened for public use under the management and maintenance of URA or its joint venture partner or its assigned agent. The management and maintenance responsibilities of the sunken plaza would not be passed onto the future individual residential owners.
Received via email from TP/K10, DPO/Kowloon dated May 10, 2019		

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Government Department	Comments	Responses
TP/K10, DPO/Kowloon's Comment	Local open space (LO) Please confirm if the about 1,000 sqm sunken plaza would be provided in addition to the required LO which is in accordance with the requirements of HKPSG.	About 1,000 sq.m. sunken plaza would be provided in addition to the required LO which is in accordance with the requirements of HKPSG. Sufficient LO for the residents of the proposed residential development would be separately located at the podium of the residential towers. Detailed design will be carried out in later stage upon CE in C's approval of the draft DSP.
Received via email from TP/K10, DPO/Kowloon dated May 6, 2019		

Government Department	Comments	Responses
CTP/UD&L on AVA	**Item 3 of R-to-C** 1. **Spatial Averaged VR (SAVR) of Group 20 under the previous AVA** (paragraphs 4.1.3 and 4.2.3) – Responses of this comment are unclear and it is not sure if the relevant paragraphs have been updated. **[**Ref. from comments dated 26 Mar 2019. **Spatial Averaged VR (SAVR) of Group 20 under the previous AVA** (paragraphs 4.1.3 and 4.2.3) - Given that the consultant may have adopted different modelling areas and CFD parameters in the current AVA IS when compared with the previous AVA, it is confusing and meaningless to discuss the SAVR of previous AVA and meaningless to discuss the SAVR of previous AVA and compare it with the simulation results of the current AVA IS.]	The relevant sections have been removed in the revised version. Please refer to the extract of revised pages (P. 21-23) as attached in Annex 3.

Government Department	Comments	Responses
	Item 5 of R-to-C 2. **Directional Analysis** (section 4.3) ■ Without providing any VR vector plots, we could not ascertain the correctness of the mentioned air flow phenomena. ■ Without providing any indication / annotation on the VR contour plots, it is difficult to comprehend the mentioned air flow phenomena from the simulation results. Considering the above, we are not able to comment on the consultant's responses	VR vector plots (as attached in Annex 4) have been included to show the direction of the flow. Annotation have been added to Figures in Annex 4 to illustrate the flow phenomena. Please refer to the R-t-C below for the directional analysis and the conclusion.
	3. **SW wind** (Paragraph 4.3.6) – With reference the VR contour plots, the mentioned improvement of VR along Sa Po Road under the Proposed Scheme is not obvious when compared with the Baseline Scheme. Rather, the differences of VR between the two schemes in the area around the southern part of the subject site have not been discussed.	Directional analysis on the SW wind have been discussed in the following sections: 4.3.10 Under SW wind (225 degree) (Figures 4.1 as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019 and Annex 4 – Figure 1 as attached), the upstream flow from Prince Edward Road East can reach the Kai Tak Road section and Sa Po Road section in the Baseline Scheme. Similar ventilation performance is identified in those road sections for the Proposed Scheme.

Government Department	Comments	Responses
		4.3.11 Under SSW wind (202.5 degree) (Figures 4.1k as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019 & Annex 4- Figure 2 as attached), higher wind flow is observed at the Sa Po Road in the downstream area and along the Prince Edward Road East as the Sunken Plaza creates a wind path in the Proposed Scheme. In the Baseline Scheme, VR is observed to be slightly higher in the northern part of Kai Tak Road, the wind is forced to go through the Kai Tak Road and enter the street at pedestrian level after the wind is being redirected by the buildings in the Baseline Scheme. However, the wind should be more evenly distributed near the buildings in the Proposed Scheme as more wind paths are available. 4.3.12 Overall, the open area provided at the Sunken Plaza (south of the Site) in the Proposed Scheme would allow plenty of airflow from the SW direction, the upstream wind flow could travel along the Prince Edward Road East and then reaches the downstream area. With reference to VRs obtained in Table 4.2 & Figure 4.1 [k-I](as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019) & Annex 4-Figure 1-2 (as attached), VRs within the Sunken Plaza was assessed in the Proposed Scheme and no wind is expected within the same region in the Baseline Scheme as it is occupied by the building.

Government Department	Comments	Responses
	4. **E wind** ■ Paragraph 4.3.7 – The consultant should clarify whether the mentioned observation would apply to both the Baseline and Proposed Schemes. ■ Paragraph 4.3.7, penultimate sentence – The consultant should clarify whether the mentioned "gaps" are referred to the building gaps within the Project Site. ■ Paragraph 4.3.8 - The VR contour plots show that the Proposed Scheme has better VR along Kai Tak Road and southern part of Sa Po Road when compared with the Baseline Scheme. The consultant should explicitly mention these phenomena in text. ■ The VR contour plots show that the Proposed Scheme has lower VR along the western part of Nga Tsin Wai Road when compared with the Baseline Scheme. However, such phenomenon has not been discussed.	4.3.5 Under NE-E winds (45-90 degrees), the Kai Tak Road section is blocked by the nearby buildings in the Baseline Scheme; on the other hand, the sunken plaza in the southern part of the Site and the vehicle running-in/out in the Proposed Scheme allows more flow penetrating the site and significantly increases the VRs in the Kai Tak Road section (Figures 4.1[b – e] as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019 & Annex 4- Figure 3 as attached). 4.3.6 The flow penetration in the easterly the overall VRs is higher as indicated by the results at Kai Tak Road's test points. Since the Kai Tak Road is relatively narrow and the buildings in both schemes are taller than the buildings across the street, a larger building height to street width ratio will be created. Therefore, the wind from the upstream will blow across the top of the street with little penetration down to ground level at Kai Tak Road and therefore the wind penetration through the building gaps within the Project Site would be critical. As shown in Table 4.2 (Annex 3 as attached), the spatial averaged velocity ratios for the podium on High Place (D05) has shown improvement in the Proposed Scheme when compared with the Baseline Scheme. 4.3.7 In the Proposed scheme, the Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, the VRs have significantly improved at Kai Tak Road. In addition, air at higher level rather than re-

Government Department	Comments	Responses
		entrained aged air, can reach the downstream street canyon and thus higher air flow is expected to reach the pedestrians level of the street canyon. The VR contour for the easterly winds at 35m above ground is shown in Figure 4.3 (as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019). The western part of Nga Tsin Wai Road Area is not the focus of the assessment area. The simulation was computed based on the Baseline/Proposed site area as the centre and the main focus. The slight difference in the VRs between the two schemes can be attributed to a minor fluctuation/distortion as the test points are further away from the centre.
	5. **ESE wind** – The VR contour plots show that the Proposed Scheme has lower VR along the western part of Nga Tsin Wai Road when compared with the Baseline Scheme. However, such phenomenon has not been discussed.	4.3.8 Under ESE-SSE winds (112.5-157.5 degree), the upstream flow can reach the Kai Tak Road and Sa Po Road section in the Baseline Scheme, and similar ventilation performance is identified in those road sections of the Proposed Scheme. The average wind speed i.e. VRs are slightly lower in most cases in the Proposed Scheme more wind paths are available resulting from wider building gaps and the creation of the sunken plaza; the wind can, therefore, travel through the Sunken Plaza and wider building gaps, and is no longer forced to go through narrow road paths (e.g. Kai Tak Road and Sa Po Road). Therefore, it is considered that as a whole,

Government Department	Comments	Responses
		the wind would be more evenly distributed in the Proposed Scheme than the Baseline Scheme.
	6. **SE wind** – The VR contour plots show that the Proposed Scheme has lower VR along Kai Tak Road, Sa Po Road, the western part of Nga Tsin Wai Road and Nga Tsin Long Road when compared with the Baseline Scheme. However, such phenomena have not been discussed.	4.3.8 Under ESE-SSE winds (112.5-157.5 degree), the upstream flow can reach the Kai Tak Road section and Sa Po Road section in the Baseline Scheme, similar ventilation performance is identified in those road sections (Figures 4.1 as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019 & Figure 4.4 f – h in Annex 4 as attached) in the Proposed Scheme. It is found from the VR contour plots that the VR along Kai Tak Road and Sa Po Road are slightly lower in the Proposed Scheme than the Baseline Scheme. The reason is that under Proposed Scheme, more wind paths are available resulting from wider building gaps and the creation of the sunken plaza; the wind can, therefore, travel through the Sunken Plaza and wider building gaps, and is no longer forced to go through narrow road paths (e.g. Kai Tak Road and Sa Po Road). Therefore, it is considered that as a whole, the wind would be more evenly distributed in the Proposed Scheme than the Baseline Scheme. The western part of Nga Tsin Wai Road Area is not the focus of the assessment area. The simulation was computed based on the Baseline/Proposed site area as the centre and the main focus. The slight difference in the VRs between the two schemes can be attributed to a minor fluctuation as the test points are further away from the centre.

Government Department	Comments	Responses
	7. S wind – The VR contour plots show that the Proposed Scheme has higher VR along Tak Ku Ling Road, South Wall Road and Nam Kok Road as well as lower VR along Lung Kong Road when compared with the Baseline Scheme. However, such phenomena have not been discussed.	Most-S-SW wind along the Tak Ku Ling Road, South Wall Road and Nam Kok Road should enter to the roads directly without passing through the assessment building. No major difference can be observed (refer to Annex 4 - Figure 5), therefore any minor difference in the VRs between the two schemes should be attributed to a small fluctuation.
	8. **SSW wind** – The VR contour plots show that the Proposed Scheme has lower VR along Lung Kong Road when compared with the Baseline Scheme. However, such phenomenon has not been discussed.	Most-S-SW wind along Lung Kong Road should be entered to the roads without passing through the assessment building. No major difference can be observed (Refer to Annex 4-Figure 2), therefore any minor difference in the VRs between the two schemes should be attributed to a small fluctuation.
	9. WSW and W winds – The VR contour plots show that the Proposed Scheme has better air movement between Kai Tak Road and Sa Po Road through the building gaps within the Project Site when compared with the Baseline Scheme. However, such phenomenon has not been discussed.	4.3.9 Under WSW-W winds (247.5-270 degree), both the Kai Tak Road section and Sa Po Road section are blocked in the Baseline Scheme. However, in the Proposed Scheme, an increased potential wind paths via the Sunken Plaza and the vehicle running-in/out within the site allow more flow penetrating in the east-west direction. The VR contour plots reflect that the Proposed Scheme has better air movement between Kai Tak Road and Sa Po Road, along Kai Tak Road and Carpenter Road as compared to Baseline Scheme. (Refer

Government Department	Comments	Responses
		to Figure 4.1 as attached in Annex 5 of R to C submitted to the TPB on 3 May 2019 & Annex 4-Figure 6-7).
	10. **Conclusion** – Considering the above, the consultant should update and revise the conclusion accordingly.	5.1.3 The models result suggests that the air ventilation performance of the Proposed Scheme is similar to that of the Baseline Scheme thus no further air ventilation mitigation measures would be required for the Proposed Scheme. Analysis for the easterly winds, which is one of the major wind directions in this area, implies that the Proposed Scheme has a slight advantage in terms of ventilation performance of the downstream street canyons over the Baseline Scheme. The Proposed Scheme has created three wind paths to enhance the ventilation in the surroundings at the pedestrian level in east-west direction. The Sunken Plaza, the building gaps between proposed towers, and the vehicle running-in/out allow the flow penetrating the site in east-west direction. The Sunken Plaza together with building gaps allow fresh air to reach the roof level of the downstream street canyons. Analysis for the south west wind also indicates that the wind performance is better in the Proposed Scheme due to the existence of the Sunken Plaza, which the wind is expected to enter the pedestrian level at the Sunken Plaza after the wind is being redirected by the buildings.

Government Department	Comments	Responses
		Overall, although the building height in the Proposed Scheme is higher, the overall ventilation has not been affected, in fact, the performance in the easterly winds was found to have improvement in the Proposed Scheme.
Received via email from TP/K10, DPO/Kowloon dated May 15, 2019		
CTP/UD&L on AVA	**Item 3 of R-to-C** **SSW wind** (paragraph 4.3.11, last sentence) – The consultant should clarify which scheme is being discussed in the last sentence.	The last sentence of paragraph 4.3.11 is revised to the following: In the Baseline Scheme, VR is observed to be slightly higher in the northern part of Kai Tak Road, the wind is forced to go through the Kai Tak Road and enter the street at pedestrian level after the wind is being redirected by the buildings in the Baseline Scheme. However, the wind should be more evenly distributed near the proposed building as more wind paths are available.
	E wind (paragraph 4.3.7) – The consultant should clarify whether the mentioned "fresh air" is referred to air flow.	4.3.7 has been revised as follows: "…In addition, air at higher level in the atmosphere rather than re-entrained aged air, can reach the downstream street canyon and thus higher air flow is expected to reach the pedestrians level of the street canyon. …."
	ESE, SSE and WSW winds – VR vector plots of ESE, SSE and WSW winds have not been found.	Noted. The VR vector plots of ESE, SSE and WSW are supplemented in Annex 4 as attached.
Received via email from TP/K10, DPO/Kowloon dated May 7, 2019		

Government Department	Comments	Responses
CTP/UD&L on urban design perspective	I refer to your emails of 30.4.2019 and 3.5.2019 regarding the subject. We have the following responses to the Proponent's Response to Comments ('R-to-C') and the Annexes attached thereto :	Noted.
	Para. 5 (a) In our previous comment, we suggested that it would be worthwhile for the proponent to provide artist renderings for a close-up view of the podium and split-level sunken plaza to illustrate how they relate to the pedestrian realm and respond or relate to the two existing buildings (with design measures). The landscape plan (Figure 2.1 – **Appendix 3**) and block plan (Figure 1.3 – **Appendix 1**) referred to by the Proponent are 2-dimensional (2D) plans and do not represent such a close-up view nor effectively illustrate how does the development (with podium and split-level sunken plaza) relate to the pedestrian realm and the two existing buildings.	Noted. The split-level sunken plaza will include covered and uncovered area and with hard and soft landscape, commercial/retail components, event space and place making elements at different levels, which intends for public enjoyment and creates a good pedestrian environment. Barrier free access and/ or universal access to the split-level sunken plaza will also be provided. The split-level sunken plaza will be connected with the existing pavement seamlessly and enable a more comfortable and widen pavement and bus waiting area along this part of Prince Edward Road East. Due to the notional design stage, only 2D conceptual plan can be provided as the proposed development is subject to detailed design upon CE in C's approval.
	Para. 6 (b) It is noted that another photomontage scenario i.e. scheme with 100mPD (with sunken plaza) was illustrated for VPs 2 and 4 and the newly added VP at	A full visual appraisal report comparing an OZP-compliant scheme of 100mPD and the proposed scheme of 120mPD was conducted and submitted with the Planning Report (Appendix 4 refers). The visual appraisal demonstrates that

Government Department	Comments	Responses
	Kowloon Walled City Park. For presentation consistency, the same should be added for the other VPs.	the proposed development in 120mPD is considered visually acceptable to the surrounding environment. As per request from the departmental comment on urban design perspective to demonstrate the de-merits of the 100mPD scheme with sunken plaza, three viewpoints (Kai Tak Development Area, Carpenter Road Park Entrance and Kowloon Walled City Park) of the 100mPD scheme with sunken plaza was submitted to the TPB on 3 May 2019 (R to C Annex 3 refers). Notional block plan and section plan of 100mPD scheme with sunken plaza are also supplemented and submitted to the TPB on 10 May 2019 (R to C Annex 1 refers). The supplement on the 100mPD scheme with sunken plaza is not another photomontage scenario and does not form part of the visual appraisal.
Received via email from TP/K10, DPO/Kowloon dated May 15, 2019		
TD	1. Please submit the traffic impact assessment for construction stage showing clearly on a plan that the haul routes of all construction traffic generated / attracted by various construction works and carry out assessments on the critical junctions along the routes.	It is premature to conduct the construction traffic impact assessment at this early planning stage because the construction traffic generated will depend on the building design and parameters, construction method and programme. The construction traffic impact assessment will be conducted at the detailed design stage.
	2. As shown in Figure 3.2, there is only one proposed	Reference is made to the government press release of 11th

Government Department	Comments	Responses
	pedestrian access connecting to / from Kai Tak Underground Shopping Street. Please advise if there are other proposed pedestrian accesses of this development.	January 2017(website: www.news.gov.hk/en/categories/infrastructure/html/2017/ 01/20170111_123732.lin.shtml), the section of Kai Tak Underground Shopping Street (USS) connecting to KC-015 will link MTR Sung Wong Toi and Kai Tak Stations. Apart from the pedestrian entrances from KC-015 and MTR stations, the USS will *"adjoin or run alongside various development sites"* and *"part of the retail floor area of the development sites will have to be connected with the USS"*. Upon approval of the DSP by CE in C and subject to liaison with relevant government departments to provide a good connection node in this development.
	3. Please add a paragraph to show the planned major transport infrastructure, the planned and committed developments considered in your assessment.	The planned developments in the vicinity of KC-015 are summarised in Table 1 as attached in Annex 5, and their locations are illustrated in Figure 101 as attached in Annex 5.
	4. Please carry out assessment on the footpaths and determine their level of service (LOS). Please review pedestrian crossing facilities so as to cater for the increase in population of the elderly and consider widening the footpaths if feasible.	An assessment on the pedestrian crossing facilities and pavement width of the area will be carried out in a separated revitalisation renewal initiative in the Preliminary Project Feasibility Study (PPFS).
	5. Regarding the Junction A (Tung Tsing Road / Lok	Queue length surveys were conducted on a weekday and

Government Department	Comments	Responses
	Sin Road / Sa Po Road), the R.C. appears to be on high side. On the other hand, the design flow / capacity ratio (DFC) of the Junction Q (Olympic Garden Roundabout) appears to be on the low side. Would you please carry out the queue length survey on these junctions and investigate the cause of traffic congestion? Please advise if any improvement measures can alleviate the problem.	Saturday to review the operational performance of Junction A – Tung Tsing Road / Lok Sin Road / Sa Po Road and Junction Q – Olympic Garden Roundabout. The observed average and maximum vehicle queues are presented in Table 2 as attached in Annex 5. As shown in Figures QL/A/101 – QL/Q/108 as attached in Annex 5, vehicle queues at Junctions A and Q do not block their upstream junctions. From traffic engineering point of view, the survey results concluded that generally Junctions A and Q have no operation issue. During the survey period, the vehicle queues were observed to disperse within a short period of time when some junction approaches experience longer vehicle queues, which were occasional. Nevertheless, possible traffic and pedestrian improvement measures were identified for Junctions A and Q as described in Chapter 5 (i.e. Schemes B1 and C1) of the TIA report for KC-015 [formerly named as KC-AA3-01] submitted to Transport Department on 9th November 2018 for your own consideration to further enhance the traffic and pedestrian conditions in the neighbourhood. These traffic improvement measures may be implemented upon occupation of KC-015 subject to actual site and traffic conditions encountered at the time of implementation.

Government Department	Comments	Responses
		However, it should be noted that these measures are not pre-requisite for KC-015.
	6. Under normal circumstances, only one vehicular access to the car park and / or loading / unloading area would be allowed for one development for the sake of pedestrian safety and to maintain a smooth traffic flow. In view of the above, please advise if there will be any traffic queue back from car park to the public road. If there is no expected traffic queue on the PVP ingress, please explain why the development provides an exclusive ingress / run-in for ancillary car park. Please provide a layout and assessment to demonstrate the situation and add a paragraph in TIA to describe the situation.	The justifications on the provision of 2 ingress points were presented in Paragraphs 3.14 – 3.16 and Figure 3.2 of the TIA in the Planning Report submitted to the TPB on 22nd February, 2019. Further justifications are provided below for your consideration. Apart from the ancillary internal transport facilities for KC-015, i.e. 120 ancillary car parking spaces, 300 public vehicle car parking spaces will be provided for use by the public. In view of the number of car parking spaces provided and the 2 distinctive uses, i.e. private car park and a Public Vehicle Park (PVP), the separation of ingress points could reduce the likelihood of residential vehicles having to wait in the same queue as the PVP vehicles, during the peak periods of the retail use, e.g. weekend, which could lead to traffic congestion and unnecessarily affecting the entry of residential vehicles. The provision of 2 ingress points on 2 different streets agrees with Volume 2 of the Transport Planning and Design Manual (TPDM): *"Normally there should be not more than one run-in and one run-out, combined or separate,* ***on any single frontage****".*

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		Examples of 2 run-in / outs for the large-scale development sites are: i. Lions Rise（現崇山）in Wong Tai Sin – with 1st run-in / out to residential car park at Muk Lun Street and 2nd run-in / out to commercial car park at Chun Yan Street ii. Tsuen Wan Town Lot No. 393 – with 1st run-in / out to residential car park at Yeung Uk Road and 2nd run-in / out to commercial car park at Ma Tau Pa Road iii. Yau Tong Town Lot No. 44 – with 1st run-in / out to residential car park at Yan Yue Wai (section near Tung Yuen Street) and 2nd run-in / out to PVP at Yan Yue Wai (section near Shung Shun Street) iv. Pacifica（宇晴滙）– with 1st run-in / out to residential and commercial car park at Sham Shing Road and 2nd run-in / out to public lorry park at Lai Chi Kok Road v. Liberté（昇悅居）– with 1st run-in / out to residential and commercial car park at Sham Shing Road and 2nd run-in / out to public lorry park at Lai Chi Kok Road vi. Metro Harbour View（港灣豪庭）– with 1st run-in / out to residential car park at Fuk Lee Street and 2nd run-in / out to commercial car park at Chui Yu Road With reference to the above examples, it is considered that the provision of 2 ingress points for KC-015 could facilitate turn-around of vehicles and efficiency in operation of the PVP.

Government Department	Comments	Responses
		The 2 ingress points would also help air ventilation according to the AVA and benefit the proposed pedestrian environment.
	7. In Table 3.3, you have adopted the minimum number of loading / unloading bays for the retail GFA. You are requested to review and consider providing 4 HGV + 7 LGV loading / unloading bays for retail in the development due to its high demand loading / unloading activities.	A sunken plaza of about 1,000 sq.m. in the southern part of the site will be provided as a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road Area. In addition, 300 public car parking spaces will be provided in the proposed development. There is severe limitation to accommodate all internal transport facilities within the subject site. As shown in Figures 3.3 – 3.8 of the TIA in the Planning Report submitted to the TPB on 22nd February, 2019, 5 basement levels are required to accommodate the 120 ancillary car parking spaces (equivalent to upper bound of HKPSG requirements) and 300 public car parking spaces in order to address the car parking demand in Kowloon City. The current provision of L/UL is within HKPSG requirements. If additional loading / unloading bays and commercial vehicle parking spaces are provided on the ground floor, it will highly restrict the layout and disposition of the realigned Sa Po Road and residential towers. It will also restrict the layout and space of the split-level sunken plaza which is proposed for public enjoyment. Additional at-grade loading / unloading bays will limit the ground floor space for providing shops with street frontage to maintain street vibrancy and local culture. Please note that according to Social Impact Assessment (Stage 2) Chapter 11, there are currently 71 business operators within the

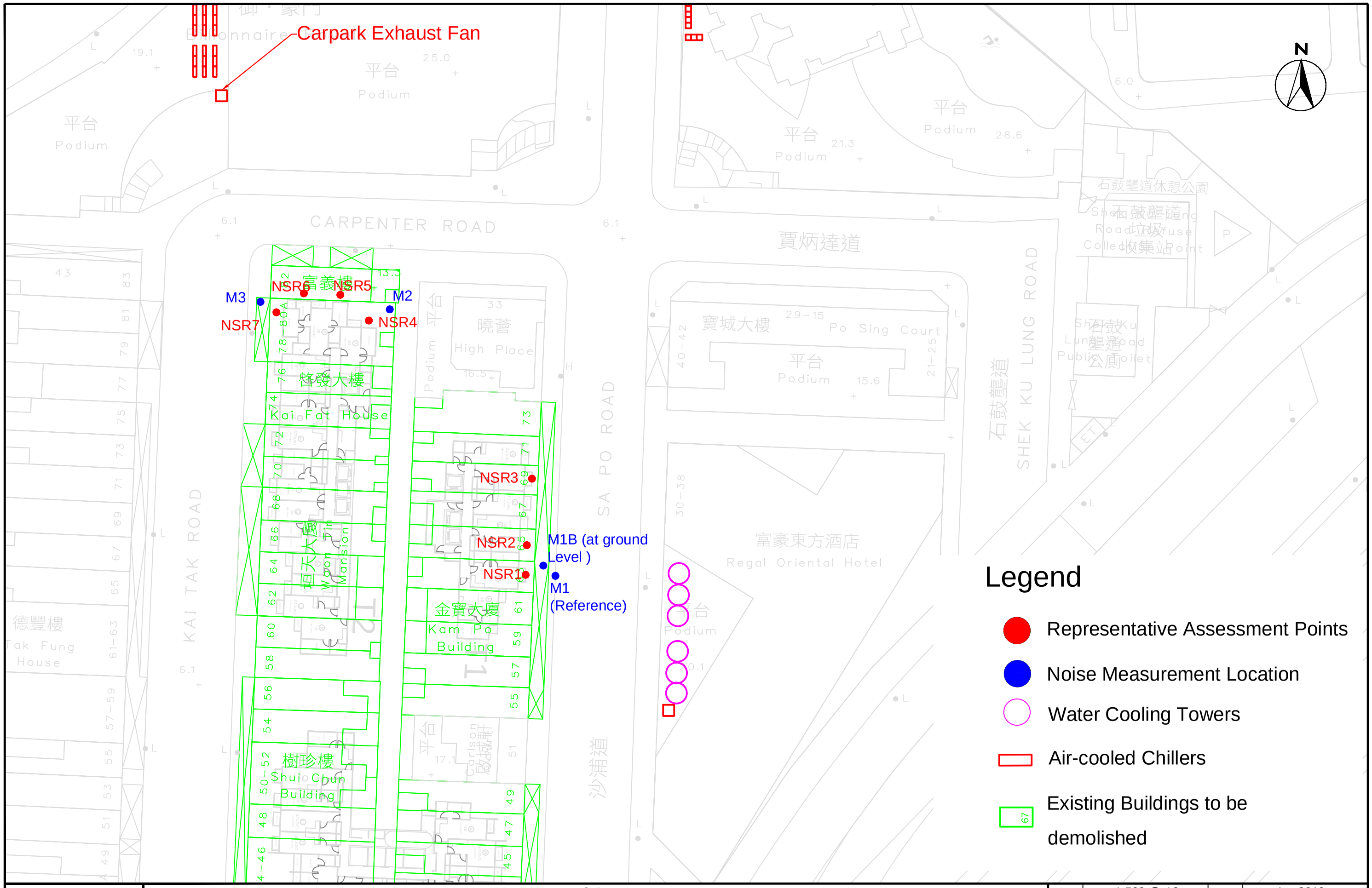
Government Department	Comments	Responses
		Site. It is important to maintain some ground floor shops. Should additional loading / unloading bays and commercial vehicle parking spaces be provided in the basement, there is need to increase the headroom and enlarge the helical ramp, which is not cost-effective and create inefficient use of land. The space taken up by the enlarged helical ramp would result in the reduction in the provision of public car parking spaces in the basement levels, thus, the car park will require more than 5 basement levels. The provision of more than 5 basement levels is considered unacceptable in terms of cost effectiveness, efficiency and environmental sustainability. Taking into the above considerations, the provision of loading / unloading bays within KC-015 is considered acceptable from traffic engineering point of view.
	8. In Paragraph 4.8, please elaborate on how to obtain the traffic flows in the design year of 2033.	**Traffic Forecast Approach** The design year peak hour traffic flows are estimated with reference to the following: i. 2021 peak hour traffic models from the BDTM; ii. estimated traffic growth rates from 2021 to 2033; iii. planned / committed developments located in the vicinity; and iv. traffic generation of KC-015.

Government Department	Comments	Responses
		The *"2014-based Territorial Population and Employment Data Matrix"* produced by Planning Department and latest *"Hong Kong Population Projections"* published by Census and Statistics Department are used to estimate the traffic growth rates from 2021 to 2033. **Traffic Growth** The total traffic growth from 2021 to 2033 is calculated using the following equation with x_1 being the annual population growth rate for 2021 – 2026, x_2 being the annual population growth rate for 2026 – 2033. 2021 to 2033 Total Traffic Growth = $(1+x_1)^5 (1+x_2)^7$ where x_1 is obtained from *"2014-based Territorial Population and Employment Data Matrix"* and x_2 is obtained from the latest *"Hong Kong Population Projections"*. After applying the derived total traffic growths to the trip ends of the BDTM, updated matrices are produced and are used for the model assignment. The peak hour traffic flows are the output from the model assignment.
	9. In the TIA report, you only mentioned on parking spaces or private cars. Considerations should also be put on parking spaces or other types of vehicles	In addition to the considerations mentioned in Item (7), public commercial parking spaces, public light buses and coaches are NOT PROVIDED due to the following reasons:

Government Department	Comments	Responses
	such as commercial vehicles, public light buses and coaches, etc. Please review the type(s) of parking spaces on public vehicle park.	i. For the community benefits of the area, the Site has already provided 300 public vehicle car parking spaces for private cars. It has already posed significant constraints in the development. ii. The supply of on-street goods vehicle parking supply is not affected by KC-015. iii. The public vehicle park in Kowloon City Plaza (KCP) has around 49 public goods vehicle parking spaces, and the occupancy of these spaces during weekday and weekend is around 53% and 65% respectively. Since the public goods vehicle parking spaces within KCP are not fully utilised, provision of public vehicle park for commercial vehicles within KC-015 is not necessary. iv. According to the Legco paper on *"Parking Policy"* [Paper No. CB(4)1021/16-17(09) dated 19th May 2017], it is noted that the number of commercial vehicles in the territory of Hong Kong slightly decreased and the number of commercial parking spaces marginally increased. The consideration on the type(s) of parking spaces on public vehicle park can be revisited in separate Preliminary Project Feasibility Study (PPFS).
	10. Please consider the impact to the capacity of in the vicinity, including Sa Po Road, Carpenter Road and Kai Tak Road due to the heavy loading /	At present, most of the developments along Sa Po Road, Kai Tak Road and Carpenter Road have no internal transport facilities. Hence, the existing parking, pick-up / drop-off and loading /

Government Department	Comments	Responses
	unloading activities. In addition, please further investigate the traffic arrangement in the vicinity of the development after relocation of existing metered parking spaces into the PVP of the development.	unloading activities associated to these developments rely on the kerbside lay-bys and metered parking spaces on public roads. With completion of KC-015 and PVP, parking, pick-up / drop-off and loading / unloading activities would be conducted internally. Hence, frequent on-street kerbside activities are no longer necessary and the impact to the road capacity is anticipated to be alleviated. As mentioned in the TIA in the Planning Report submitted to the TPB on 22nd February, 2019, the surplus in public car park space provision will create an opportunity to replace certain on-street metered car parking spaces within the parking study area for pavement widening to improve walkability within the "*Nga Tsin Wai Road Area*". Appropriate traffic arrangement such as pavement widening through street revitalisation works can be further explored to optimise the opportunity created by KC-015. Details will be provided in a separated revitalisation renewal initiative in the Preliminary Project Feasibility Study (PPFS), in collaboration with relevant stakeholders and government departments.

Annex 1



Environmental Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Measurement for Fixed Noise Sources Impact Assessment

Cinotech Consultants Limited

SCALE	1:500 @ A3	DATE	Apr 2019
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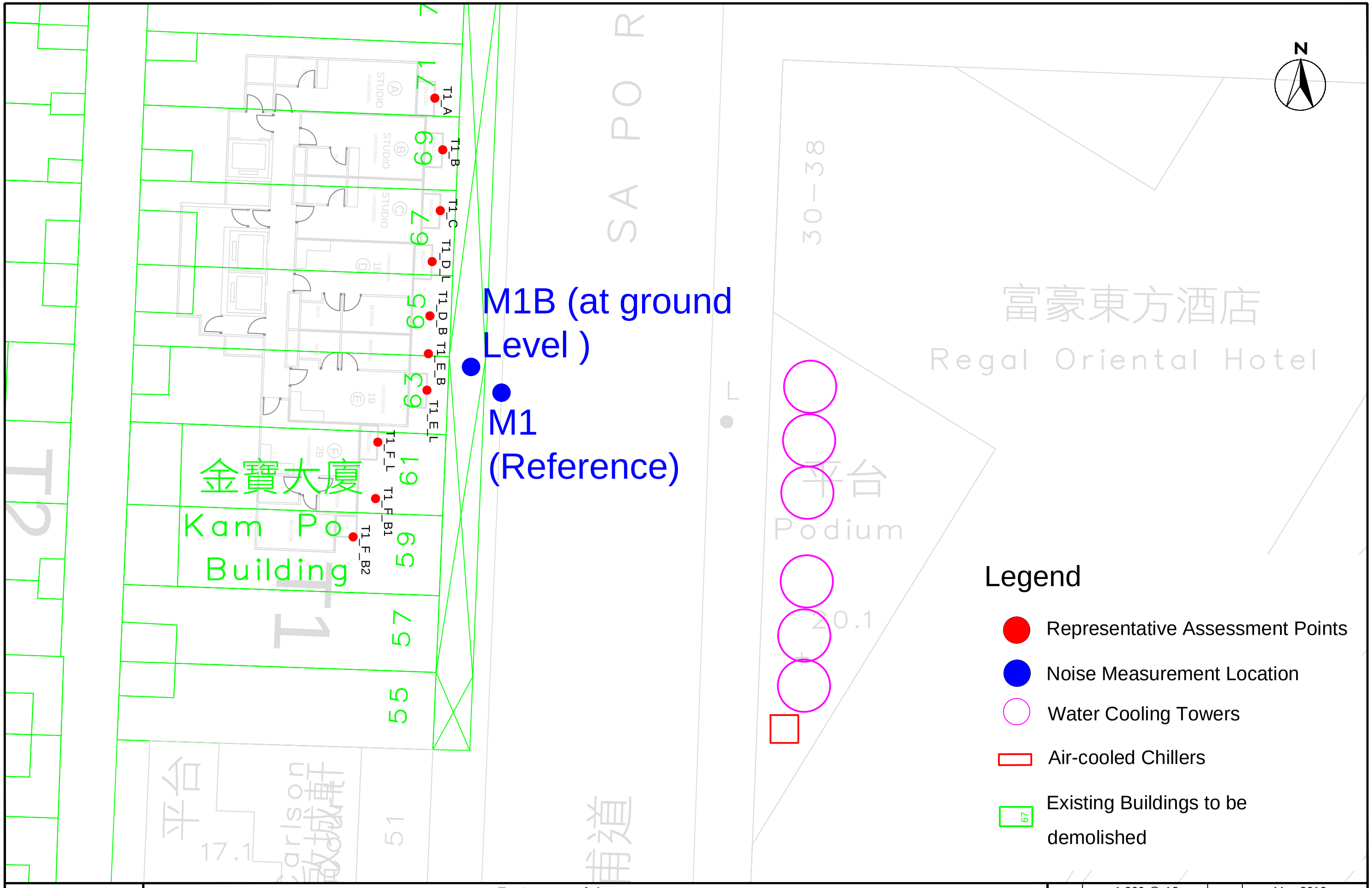
JOB No.	IA17019/KC015	DRAWING No.	5.5
		REV	-



Cinotech Consultants Limited

Environmental Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Measurement for Fixed Noise Sources Impact Assessment

SCALE	1:200 @ A3	DATE	May 2019
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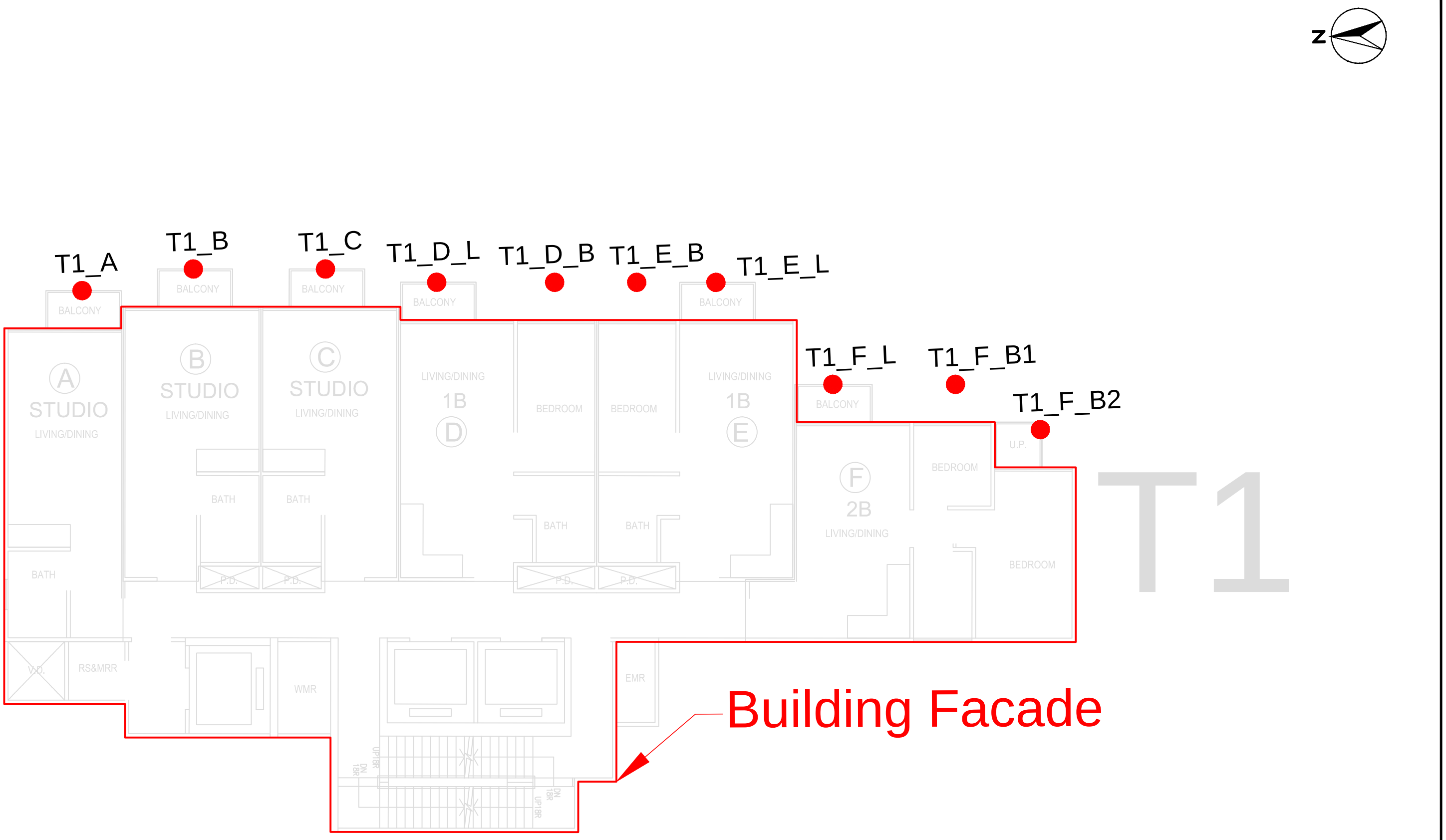
JOB No.	IA17019/KC015	DRAWING No.	5.5a
		REV	-



CINOTECH
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Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Representative Assessment Point - T1

SCALE	1:100 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.2a
		REV	-

Noise Measurement Results

Meeasurement Location	Measurement Date	Measurement Time	$Leq_{(5mins)}$ dB(A)	$Leq_{(30mins)}$ dB(A)	Remark
M1	10 May 2019	03:00-03:05	69.80	69.68	façade measurement
		03:05-03:10	69.67		
		03:10-03:15	69.60		
		03:15-03:20	69.82		
		03:20-03:25	69.56		
		03:25-03:30	69.60		
M1 Background		03:00-03:05	67.59	67.06	Measured on ground Level of M1 and used as background of M1
		03:05-03:10	67.25		
		03:10-03:15	66.70		
		03:15-03:20	67.59		
		03:20-03:25	66.64		
		03:25-03:30	66.45		
M2	9 April 2019	21:15-21:20	58.82	58.92	Measured at M2 for evening time free filed noise measurement
		21:20-21:25	59.33		
		21:25-21:30	58.96		
		21:30-21:35	58.72		
		21:35-21:40	58.68		
		21:40-21:45	59.00		
M3		21:15-21:20	60.50	60.53	Measured at M3 for evening time free filed noise measurement
		21:20-21:25	60.69		
		21:25-21:30	60.41		
		21:30-21:35	60.71		
		21:35-21:40	60.17		
		21:40-21:45	60.67		
M2		00:00-00:30	-	56.23	The fixed noise source was turned off. The measured level was used as background.
M3		23:54-00:24	-	56.15	

Noise Levels corrected with background noise and Façade Correction dB(A)

Period	M1	M2*	M3*	Criteria
Evening Time	66.2	58.6	61.6	70
Night time		-	-	60

Notes:

* façade correction = +3 dB for M2 and M3

Reference Point

Ref. SPL (with façade noise)	66.2	dB (A)
Horizontal Distance to the source	19.5	m
Height of Measurement Point	24	mPD

	Unit (NSR)	T1_A	T1_B	T1_C	T1_D_L	T1_D_B	T1_E_B	T1_E_L	T1_F_L	T1_F_B1	T1_F_B2
Horizontal distance to the source (m)		33.2	30.7	28.4	26.9	25.3	24.3	23.5	25.4	25	26.2
Floor (Residential)	Height (mPD)										
1	28.70	61.5	62.2	62.8	63.3	63.8	64.1	64.4	63.8	63.9	63.5
2	31.85	61.3	62.0	62.6	63.1	63.5	63.9	64.1	63.5	63.6	63.3
3	35.00	61.1	61.7	62.3	62.7	63.2	63.5	63.7	63.2	63.3	62.9
4	38.15	60.9	61.4	62.0	62.3	62.8	63.0	63.2	62.7	62.8	62.5
5	41.30	60.5	61.1	61.6	61.9	62.3	62.5	62.7	62.2	62.3	62.1
6	44.45	60.2	60.7	61.1	61.4	61.8	62.0	62.1	61.7	61.8	61.6
7	47.60	59.8	60.2	60.7	60.9	61.2	61.4	61.6	61.2	61.3	61.1
8	50.75	59.4	59.8	60.2	60.4	60.7	60.8	61.0	60.7	60.7	60.5
9	53.90	59.0	59.4	59.7	59.9	60.1	60.3	60.4	60.1	60.2	60.0
10	57.05	58.6	58.9	59.2	59.4	59.6	59.7	59.8	59.6	59.7	59.5
11	60.20	58.2	58.5	58.7	58.9	59.1	59.2	59.3	59.1	59.1	59.0
12	63.35	57.8	58.0	58.3	58.4	58.6	58.7	58.8	58.6	58.6	58.5
13	66.50	57.4	57.6	57.8	58.0	58.1	58.2	58.3	58.1	58.1	58.0
14	69.65	57.0	57.2	57.4	57.5	57.6	57.7	57.8	57.6	57.7	57.6
15	72.80	56.6	56.8	57.0	57.1	57.2	57.3	57.3	57.2	57.2	57.1
16	75.95	56.2	56.4	56.6	56.7	56.8	56.8	56.9	56.8	56.8	56.7
17	79.10	55.8	56.0	56.2	56.2	56.3	56.4	56.5	56.3	56.4	56.3
18	82.25	55.5	55.6	55.8	55.9	55.9	56.0	56.0	55.9	56.0	55.9
19	85.40	55.1	55.3	55.4	55.5	55.6	55.6	55.6	55.6	55.6	55.5
20	88.55	54.8	54.9	55.0	55.1	55.2	55.2	55.3	55.2	55.2	55.1
21	91.70	54.5	54.6	54.7	54.8	54.8	54.9	54.9	54.8	54.8	54.8
22	94.85	54.1	54.2	54.3	54.4	54.5	54.5	54.5	54.5	54.5	54.4
23	98.00	53.8	53.9	54.0	54.1	54.1	54.2	54.2	54.1	54.1	54.1
24	101.15	53.5	53.6	53.7	53.8	53.8	53.8	53.9	53.8	53.8	53.8
25	104.30	53.2	53.3	53.4	53.4	53.5	53.5	53.5	53.5	53.5	53.5
26	107.45	52.9	53.0	53.1	53.1	53.2	53.2	53.2	53.2	53.2	53.2
27	110.60	52.7	52.7	52.8	52.9	52.9	52.9	52.9	52.9	52.9	52.9
28	113.75	52.4	52.5	52.5	52.6	52.6	52.6	52.7	52.6	52.6	52.6
29	116.90	52.1	52.2	52.3	52.3	52.3	52.4	52.4	52.3	52.3	52.3

Exceed 60dB(A)

Annex 2

Appendix 3.3 Discharge from Surrounding Catchment

Sewage Discharge from Surrounding Catchment

ID	Catchment	No. of Flat	Catchment Area (m^2)	Club House (m^2)		Population			Flowrate (m^3/day) [c]			Total Flowrate / catchment (m^3/day)	Reference
					Household Size [a]	Residential (head) [a]	Retail/Shop (Staff)[b]	Restaurants / Hotel (Staff)[b]	Residential	Retail/Shop	Restaurants / Hotel		
A	High Place	76	355	124	2.7	205.2	8	14	55.4	2.2	22.4	80.1	[d]
B	Carlson Court	76	170		1	76	5	0	20.5	1.3	0.0	21.8	[e]
C	Regal Oriental Hotel					0	0	322	0.0	0.0	508.8	609.7	[f]
	Po Sing Court	132	626		2.7	356.4	17	0	96.2	4.7	0.0		[g]
D	Half of Mei Tung House and Mei Po House	333			2.7	899.1	39	0	242.8	10.9	0.0	3841.1	[h]
	Mei Tak House	990			2.7	2673	0	0	721.7	0.0	0.0		[i]
	Shing Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		Centadata
	Mau Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		
	Yan Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		
	On Tung House	240			2.7	648	0	0	175.0	0.0	0.0		
	Hong Tung House	364			2.7	982.8	0	0	265.4	0.0	0.0		
	Tung Tau (I) Estate (Phase 8)	1033			2.7	2789.1	0	0	753.1	0.0	0.0		[j]
	Wui Yan House	1300				2700	0	0	729.0	0.0	0.0		[k]
	Wui Sum House						0			0.0	0.0		
	Le Billionnaire	212	5252		2.7	572.4	70	210	154.5	19.6	331.9		[l]
						Student (UFF:0.04)	Staff (UFF:0.28)		Student (UFF:0.04)	Staff (UFF:0.28)			
	Bishop Ford Memorial School					406	52		16.2	14.6			[m]
	Po Yan Oblate Primary School					400	50		16	14			[n]
	Tung Tau Community Centre		1207				32			9			-
E	Billionnaire Royale	266	5600		2.7	718.2	75	224	193.9	20.9	353.9	568.7	[o]
F	Bounder by Kai Tak Road, Tak Ku Ling Road, Nga Tsin Wai Road & Carpenter Road	579	7646		2.7	1563.3	102	306	422.1	28.5	483.2	933.9	Centadata

Appendix 3.3 Discharge from Surrounding Catchment

Notes:

[a] The average domestic household size is according to Population By-census 2016. Source from (http://www.bycensus2016.gov.hk/en/bc-dp.html).

[b] For Catchment A, a 50% floor ratio among retail/shop and restaurant/ hotel is assumed, also density of 1 person per 1 m^2 and 1 person per 3 m^2 is assumed respectively. 80% of usable floor area and a staff to customer ratio of 1:10 are assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% × 50% / [10×population density (/m^2)].
For Catchment B-D, a 100% floor ratio of retail/shop is assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% / [10×population density (/m^2)]

[c] The Unit Flow Factors are 0.04, 0.27, 0.28, 1.58 m^3/day/head for students, residential use, industrial/retail/office use, restaurants/hotel respectively.
flat no: https://www.richitt.com/%E6%9B%89%E8%96%88-highplace/

[d] shop area: https://www.highplace.com.hk/data/highplace_web.pdf

[e] Carlson Court: https://sa.hkbu.edu.hk/sas/pg-housing/overview

[f] Regal Oriental Hotel: https://www.regalhotel.com/regal-oriental-hotel/tc/about/about-this-hotel.html#tab_1

[g] Po Sing Court: http://www.ricacorp.com/Ricapih09/estate.aspx?type=1&code=UFDOQRFXRV&lang=b5

[h] Half of 665 flat and 26 shops are adopted. 3 staff per shop is assumed. http://news.rthk.hk/rthk/ch/component/k2/1350123-20170824.htm

[i] Mei Tak house: https://www.housingauthority.gov.hk/en/common/pdf/about-us/housing-authority/ha-paper-library/HA7-16.pdf

[j] Tung Tau Phase 8: http://hk.on.cc/hk/bkn/cnt/news/20170824/bkn-20170824133257720-0824_00822_001.html

[k] HKHA https://www.housingauthority.gov.hk/en/global-elements/estate-locator/detail.html?propertyType=1&id=15020

[l] Le Billionnaire：https://www.richitt.com/%E8%B1%AA%E9%96%80-lebillionnaire/

[m] Bishop Ford Memorial School http://203.198.66.113/information/files/school%20report/18-19/1718schoolreport.pdf

[n] Po Yan Oblate Primary School http://www.poyan.edu.hk/index.html

[o] http://www.billionnaireroyale.com/tch/index.php

Appendix 3.4 Detailed Calculation of Pipe Loading

Proportion of Peak Flow to Full Capacity (Option 1)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4030180	111.0	Scheme	1024.8	3796	6	71.2	64%
PP02	FTMH02	PFMH01	51.9	A	80.1	297	8	7.4	14%
PP03	PFMH01	FMH4051284	51.9	A	80.1	297	8	7.4	14%
PP04	FTMH03	PFMH02	51.9	B	21.8	81	8	2.0	4%
PP05	PFMH02	FMH4029814	51.9	B	21.8	81	8	2.0	4%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	159.3	B & C	631.5	2339	6	43.9	28%
Pipe 02	FMH4030180	FMH4029807	91.6	Scheme & B & C	1656.3	6134	5	95.8	**105%**
Pipe 03	FMH4029807	FMH4029809	44.1	Scheme & B & C	1656.3	6134	5	95.8	**217%**
Pipe 04	FMH4029809	FMH4029808	576.0	Scheme & B & C	1656.3	6134	5	95.8	17%
Pipe 05	FSH4001644	FMH4051283	689.4	D	3841.1	14226	4	177.8	26%
Pipe 06	FMH4051283	FMH4051284	721.3	D & A	3921.1	14523	4	181.5	25%
Pipe 07	FMH4051284	FMH4029801	1022.0	D & A & E	4489.9	16629	4	207.9	20%
Pipe 08	FMH4029801	FMH4029802	704.6	D & A & E	4489.9	16629	4	207.9	30%
Pipe 09	FMH4029802	FMH4029803	817.3	D & A & E	4489.9	16629	4	207.9	25%
Pipe 10	FMH4029803	FMH4029804	1215.1	D & A & E	4489.9	16629	4	207.9	17%
Pipe 11	FMH4029804	FMH4029805	1222.7	D & A & E	4489.9	16629	4	207.9	17%
Pipe 12	FMH4029805	FMH4029806	815.1	D & A & E	4489.9	16629	4	207.9	26%
Pipe 13	FMH4029806	FMH4029785	2040.7	D & A & E	4489.9	16629	4	207.9	10%
Pipe 14	FMH4029785	FMH4029783	1351.0	D & A & E & F	5423.7	20088	4	251.1	19%
Pipe 15	FMH4029783	FMH4029808	1596.7	D & A & E & F	5423.7	20088	4	251.1	16%

Note:

[a] The operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Upgraded Pipes									
Upgraded Pipe 02	FMH4030180	FMH4029807	208.5	Scheme & B & C	1656.3	6134	5	95.8	46%
Upgraded Pipe 03	FMH4029807	FMH4029809	147.0	Scheme & B & C	1656.3	6134	5	95.8	65%

Appendix 3.4 Detailed Calculation of Pipe Loading

Proportion of Peak Flow to Full Capacity (Option 2)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor[a]	Peak Flow (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4029805	111.0	Scheme	1024.8	3796	6	71.2	64%
PP02	FTMH02	PFMH01	51.9	A	80.1	297	8	7.4	14%
PP03	PFMH01	FMH4051284	51.9	A	80.1	297	8	7.4	14%
PP04	FTMH03	PFMH02	51.9	B	21.8	81	8	2.0	4%
PP05	PFMH02	FMH4029814	51.9	B	21.8	81	8	2.0	4%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	159.3	B & C	631.5	2339	6	43.9	28%
Pipe 02	FMH4030180	FMH4029807	91.6	B & C	631.5	2339	6	43.9	48%
Pipe 03	FMH4029807	FMH4029809	44.1	B & C	631.5	2339	6	43.9	**99%**
Pipe 04	FMH4029809	FMH4029808	576.0	B & C	631.5	2339	6	43.9	8%
Pipe 05	FSH4001644	FMH4051283	689.4	D	3841.1	14226	4	177.8	26%
Pipe 06	FMH4051283	FMH4051284	721.3	D & A	3921.1	14523	4	181.5	25%
Pipe 07	FMH4051284	FMH4029801	1022.0	D & A & E	4489.9	16629	4	207.9	20%
Pipe 08	FMH4029801	FMH4029802	704.6	D & A & E	4489.9	16629	4	207.9	30%
Pipe 09	FMH4029802	FMH4029803	817.3	D & A & E	4489.9	16629	4	207.9	25%
Pipe 10	FMH4029803	FMH4029804	1215.1	D & A & E	4489.9	16629	4	207.9	17%
Pipe 11	FMH4029804	FMH4029805	1222.7	D & A & E	4489.9	16629	4	207.9	17%
Pipe 12	FMH4029805	FMH4029806	815.1	D & A & E & Scheme	5514.7	20425	4	255.3	31%
Pipe 13	FMH4029806	FMH4029785	2040.7	D & A & E & Scheme	5514.7	20425	4	255.3	13%
Pipe 14	FMH4029785	FMH4029783	1351.0	D & A & E & Scheme & F	6448.5	23883	4	298.5	22%
Pipe 15	FMH4029783	FMH4029808	1596.7	D & A & E & Scheme & F	6448.5	23883	4	298.5	19%

Note:

[a] Peaking Factor of 4 for contribution population 10,000- 50,000 and peaking factor of 5 for contribution populaton 5,000-10,000 are adopted and the operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Upgraded Pipes									
Upgraded Pipe 03	FMH4029807	FMH4029809	90.4	B & C	631.5	2339	6	43.9	48%

4. ASSESSMENT RESULTS

4.1 Previous Study

4.1.1 Although the result of this report should not directly compare with other AVA study due to the difference in model settings, size of computational domain, the geometry of the buildings in KTD area, wind environment, and etc. as stated in previous sections, the results in previous studies can still be served as validation purpose to ensure the results in the models of this study are not out of order.

4.1.2 Although there are a few AVA studies near the subject Site, not many have considered the increase in development density in KTDA. One suitable AVA study, "*Kai Tak Development Engineering Study Cum Design and Construction of Advance Works - Investigation, Design and Construction - Additional Services for Technical Study on Increasing the Development Density in Kai Tak*" (AVR/G/76) is available in Planning Department (PlanD) website.

4.2 Model Results

4.2.1 2 Scenarios each with 14 wind configurations, as stated in **Table 3.2** have been conducted based on the methodology mentioned in **Section 3**. As the difference between two Schemes has occurred only on superstructures above the podium, whereas the test points are near ground level, it is expected the difference between the two Schemes should be small.

4.2.2 The SVR for both the Baseline and Proposed Scheme are 0.18 for Annual wind conditions. During summer, the SVRs are 0.18 in both Schemes. The LVRs of both Baseline and Proposed Schemes are 0.18 for annual condition and 0.17 for summer condition. During Summer, the LVR become 0.14 for both Schemes. A summary of the predicted spatial averaged VRs of the test points are presented in **Table 4.2**. The detailed simulated VRs at individual test points are listed in **Appendix 4.1**. The bar charts for the comparison between the Baseline Scheme and the Proposed Scheme are also illustrated in **Appendix 4.1**. The contours of VRs at 2m above ground are illustrated in **Figures 4.1a** to **4.1n**.

4.2.3 From the small difference in SVRs and LVRs in two schemes, it is safe to assume that both designs have similar effect to the local wind environment in average. In order to examined the localised ventilation, the spatial averaged VRs have been broken into 12 zones for road sections and 4 zones for open areas. Similar to the SVRs and LVRs, the averaged VRs for each sub-zone also show little variations between the Baseline Scheme and the Proposed Scheme. It further proven that the

design in the Proposed Scheme have little AVA impact to local area in comparison with the Baseline Scheme.

Table 4.2 Summary of Spatial Averaged Velocity Ratios for the Subject Site

Test Points for the Subject Site and Assessment Area	Base		Proposed	
	Annual	Summer	Annual	Summer
Overall				
Site Air Ventilation Assessment (SVR) (All P Points)	0.18	0.18	0.18	0.18
Local Air Ventilation Assessment (LVR) (All P & O Points)	0.18	0.17	0.18	0.17
Road Sections				
Kai Tak Road (P01-P18, O90-O95)	0.15	0.18	0.15	0.17
Prince Edward Road East Section (P19-P26, O21-O46)	0.24	0.21	0.26	0.21
Sa Po Road (P27-P37, O101-104)	0.15	0.15	0.18	0.18
Carpenter Road Section (near Carpenter Road Park) (O01-O04)	0.14	0.13	0.11	0.12
Carpenter Road Section (near Project Site) (P40-P42, O05-O07,O96-O97)	0.24	0.18	0.23	0.17
Shek Ku Lung Road (O08)	0.15	0.11	0.13	0.11
Lok Sin Road Section (O09-O15)	0.20	0.16	0.19	0.16
Nga Tsin Wai Road Section (O16-O20)	0.16	0.16	0.14	0.15
South Wall Road (O17, O47-O54)	0.15	0.19	0.14	0.18
Tak Ku Ling Road (O19, O55-O62)	0.14	0.15	0.14	0.14
Tung Tsing Road (O63-O68)	0.18	0.15	0.17	0.14
Roads in TKD Area (O69-O77)	0.16	0.16	0.15	0.16
Area within Site				
Public Area within the Site (G/F) (D07-D12)	[1]	[1]	0.17	0.13
Public Area within the Site (Landscape Deck on 1/F) (D21-D22)	[1]	[1]	0.17	0.14
New Private Road for the Proposed Development (D13-D15)	[1]	[1]	0.18	0.12
Podium within the Site (D23:D25)	[1]	[1]	0.10	0.09
Sunken Plaza at G/F (D12,D16-D21)	[1]	[1]	0.21	0.17
Public Area outside the carriageway at G/F for the Proposed Development (D08-D09)	[1]	[1]	0.18	0.15
Other Concerned Area				
Podium on Carlson Court (D06)	0.07	0.09	0.07	0.09
Podium on High Place (D05)	0.06	0.06	0.13	0.10
Carpenter Road Park (O78-O88)	0.18	0.12	0.16	0.13
Shek Ku Lung Road Playground (O105-O119)	0.28	0.18	0.27	0.19
Tak Ku Ling Playground (O98-O100)	0.19	0.15	0.19	0.15

Po Yan Oblate Primary School (0107-O111)	0.13	0.14	0.13	0.13
Le Billionaire & Billionaire Royale (D01-D04)	0.23	0.18	0.21	0.17
[1] Those locations are not applicable to Baseline Scenario as those areas are blocked by the building				

4.3 Flow Penetration

4.3.1 The spatial averaged VRs have been examined in previous section and no significant overall difference between the two Schemes has been observed. The major difference between the two Schemes are the arrangement of the buildings and the gaps created between the towers above the podium, therefore it is expected that results at certain test points for both Schemes shall not be identical and the results produced are aligned with the expected. However, this gives little, if any, information to the flow penetration under different wind directions of the Site.

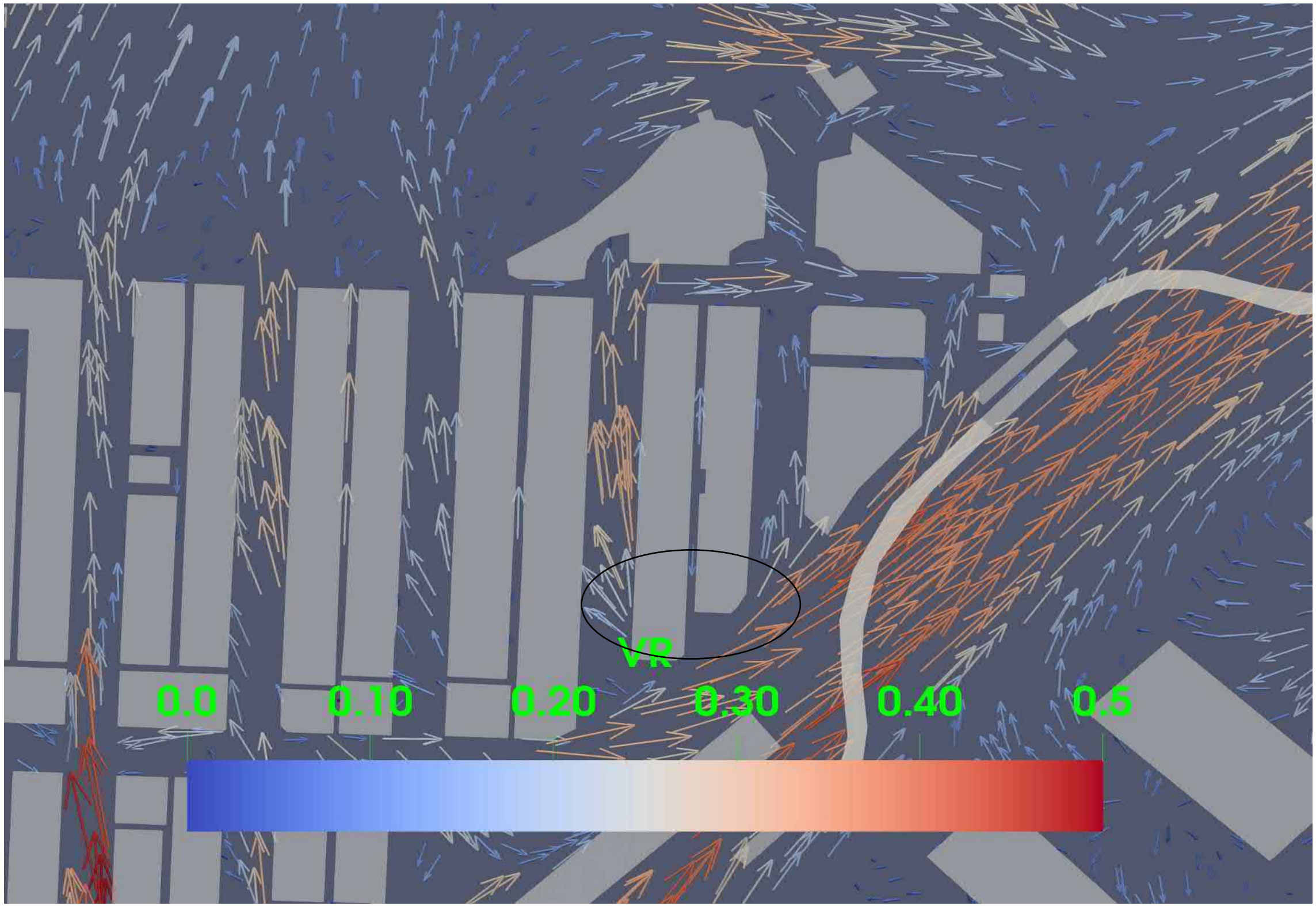
4.3.2 Two major wind directions for the site are the east direction for annual and South-West direction for summer. Under Easterly wind, the site would block the upstream flow reaching the downstream area if no wind paths within the site are available. On the other hand, for the South-Western wind, the upstream wind flow can travel along the existing Prince Edward Road East and then reaches the downstream area.

4.3.3 The design of the Proposed Scheme offers three potential wind paths for the eastern-western wind penetrating the Site. The first is the Sunken Plaza (open area in the southern part of the Site), as no large superstructure in that region and its immediate south and east are roads, it is expected that will become path of the major wind path in future. The second is the vehicle running-in/out located on ground floor. The third potential wind path is the gap between the residential towers which is only available above the podium floor. The road sections adjoining the site are likely affect by the first two potential wind paths only, while the second and third potential wind paths can affect a greater area. With the potential wind paths in the Proposed Scheme, it is expected that the ventilation at the immediately downstream area of the potential wind paths would be improved if it was originally blocked. However, if the area is not originally block, the VR will actually be lower as the wind is no longer forced to go through narrow path.

4.3.4 As shown in **Figure 4.1**, the significant changes only occur at the adjoining road section, especially the Kai Tak road section (P01-P18) and SA Po road section (P27-30 & P32-37). Therefore, the ventilation of those two road sections will be the focus of this analysis.

Annex 4

225 deg Wind Direction (6m/s at 500m)



Remarks for Circled Area: **Wind is blocked by the Baseline Building in the Sunken Plaza area**

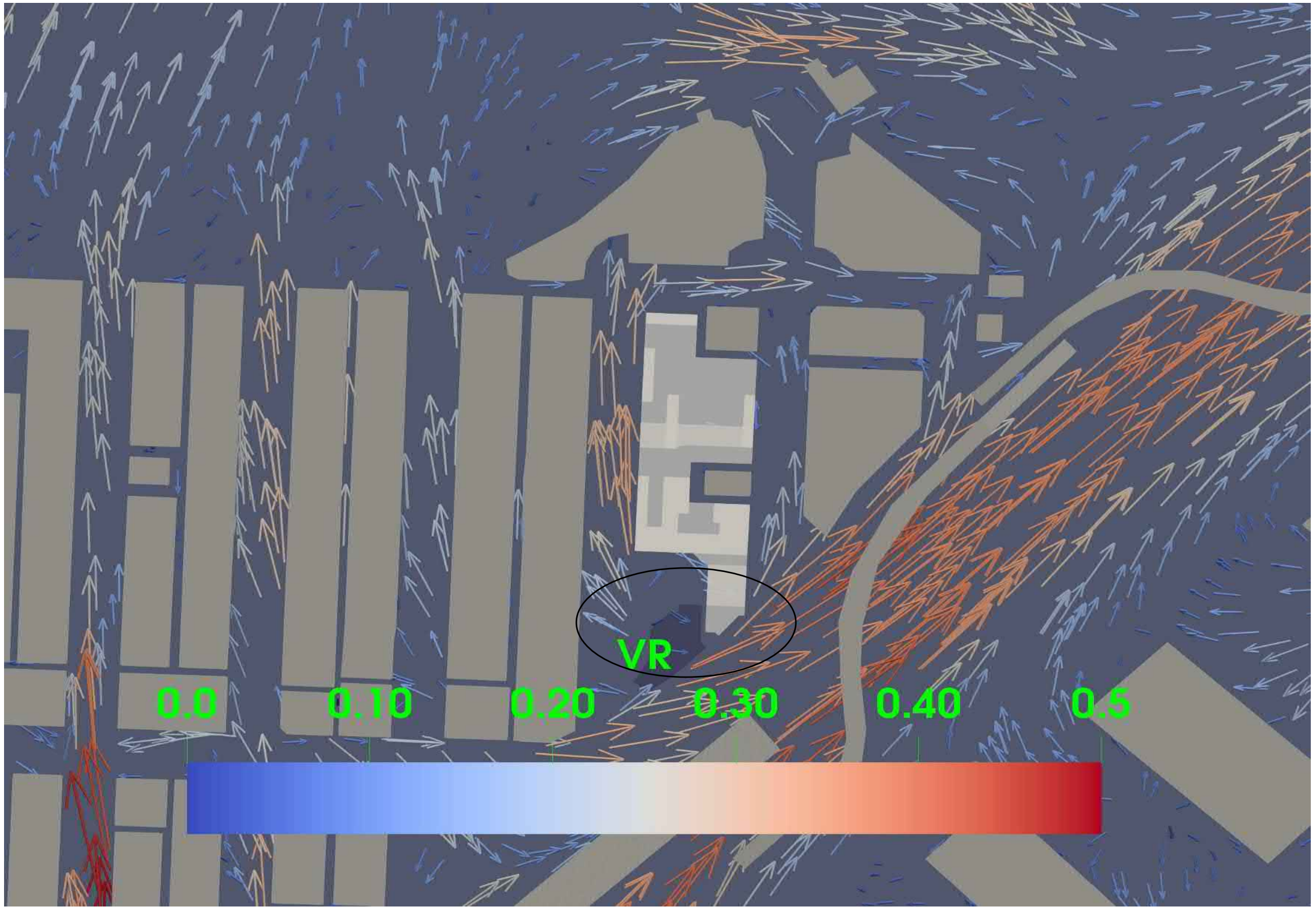
Baseline Scheme

CINOTECH 漢槎 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	CC	DRAWN	KC	
JOB NO.	IA17019/K	FIGURE NO. 1a		REV.
		\		1

225 deg Wind Direction (6m/s at 500m)

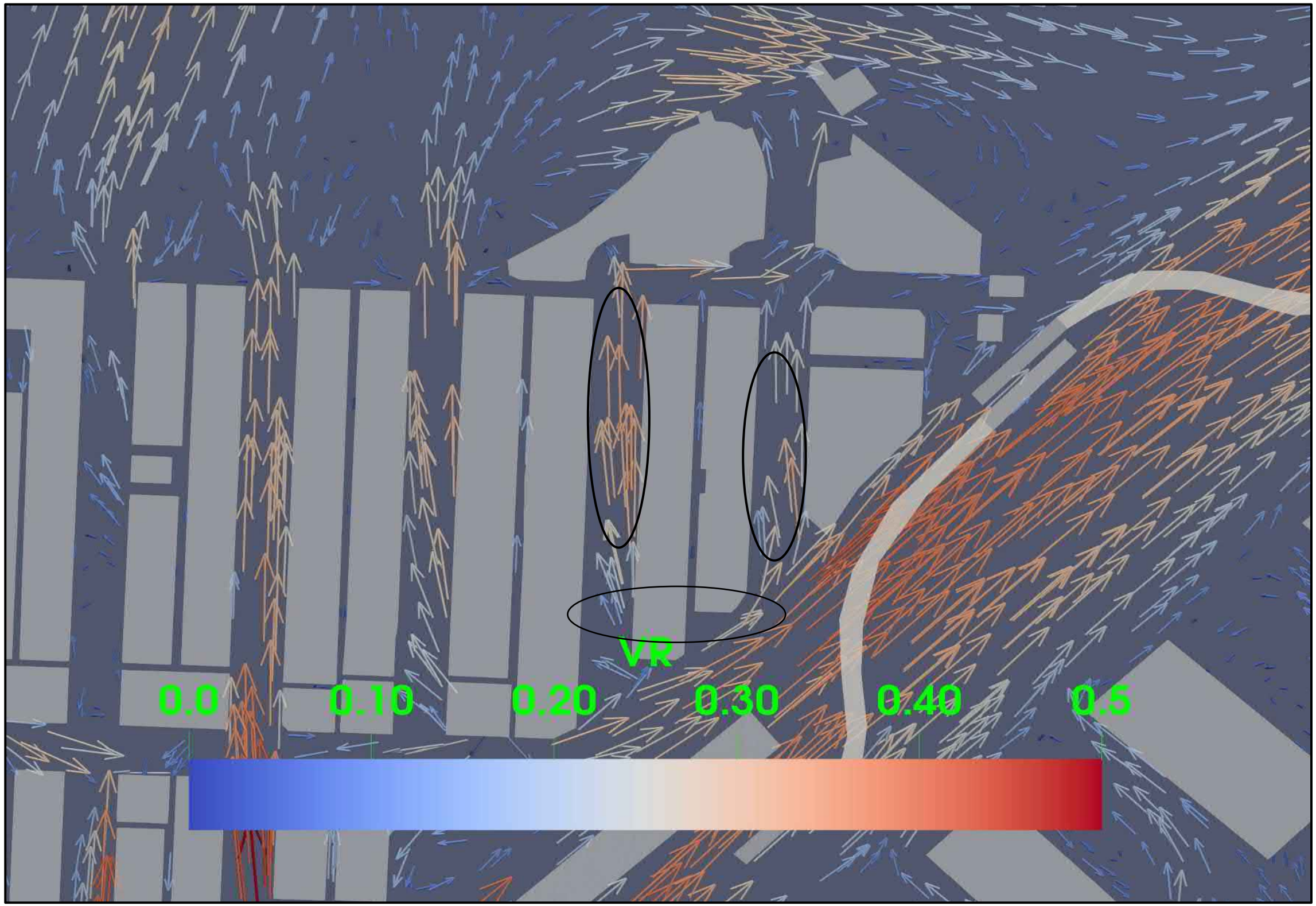


Remarks for Circled Area: **The wind is allowed to penetrate through the Sunken Plaza in Proposed Scheme**

Proposed Scheme

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 1b	REV. 1

202.5 deg Wind Direction (6m/s at 500m)



Remarks for Circled Area: **Wind in the northern part of the Kai Tak Road is redicted to the pedestrian level after the wind is forced into the Road**
Wind is blocked by the Baseline Building in the Sunken Plaza area and the wind is more localised near the Baseline Building

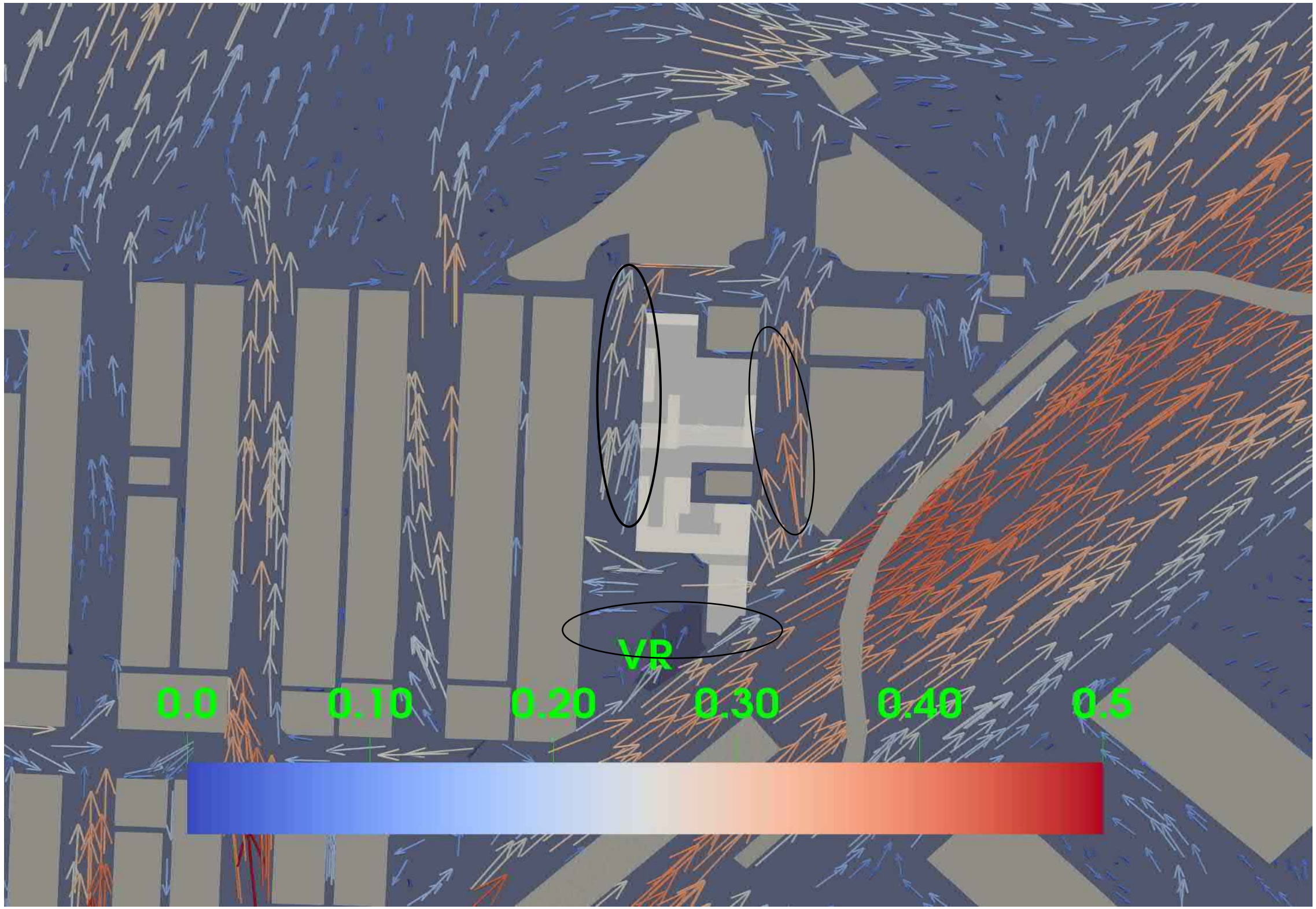
Baseline Scheme

CINOTECH 漢謙 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 2a		REV. 1

202.5 deg Wind Direction (6m/s at 500m)



Remarks for Circled Area: More wind paths are avaliable and the wind able to enter the Sai Po Road through Sunken Plaza, the air flow is more evenly distributed near the Proposed Building

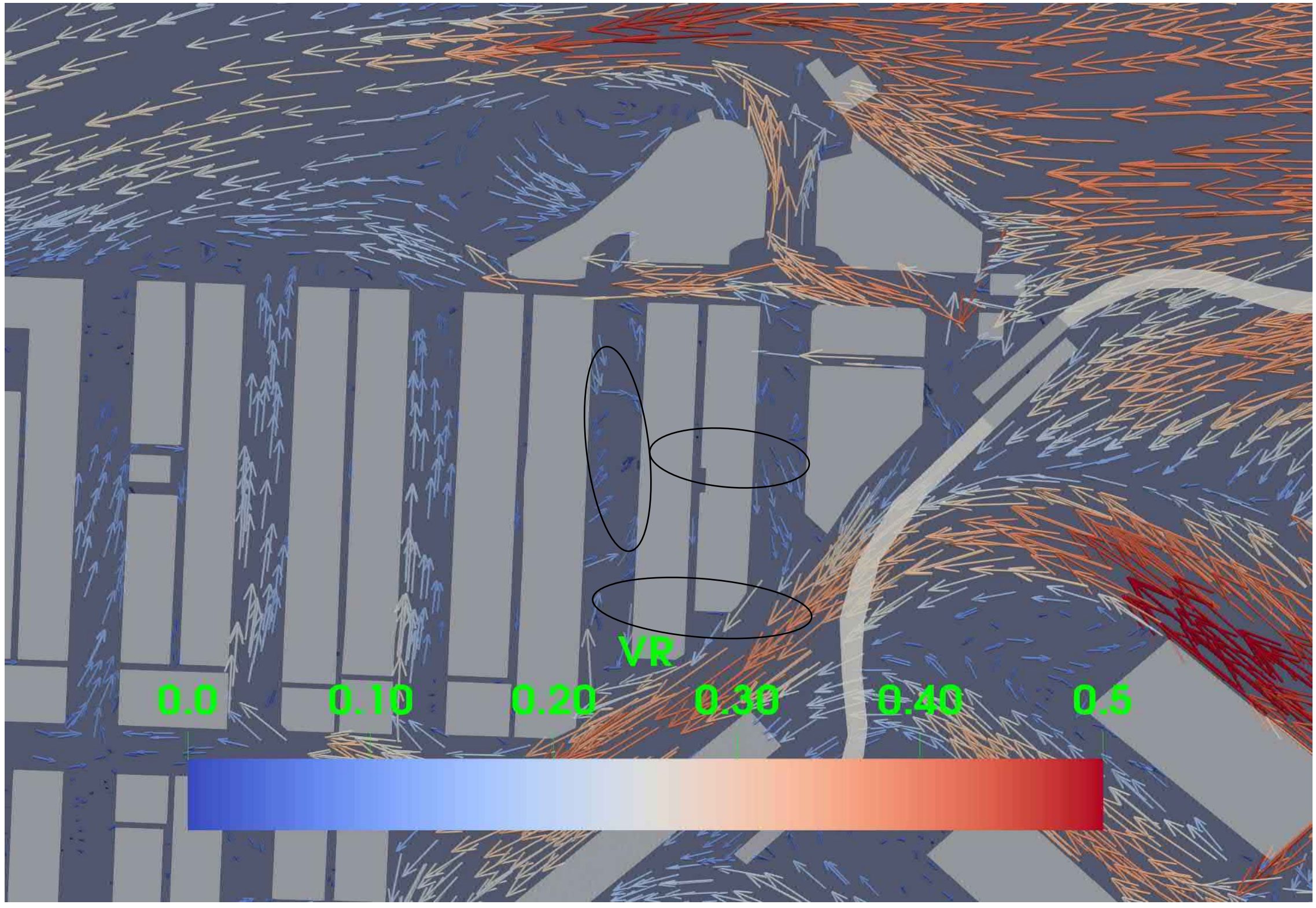
Proposed Scheme

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 2b		REV.
				1

090 deg Wind Direction (7m/s at 500m)

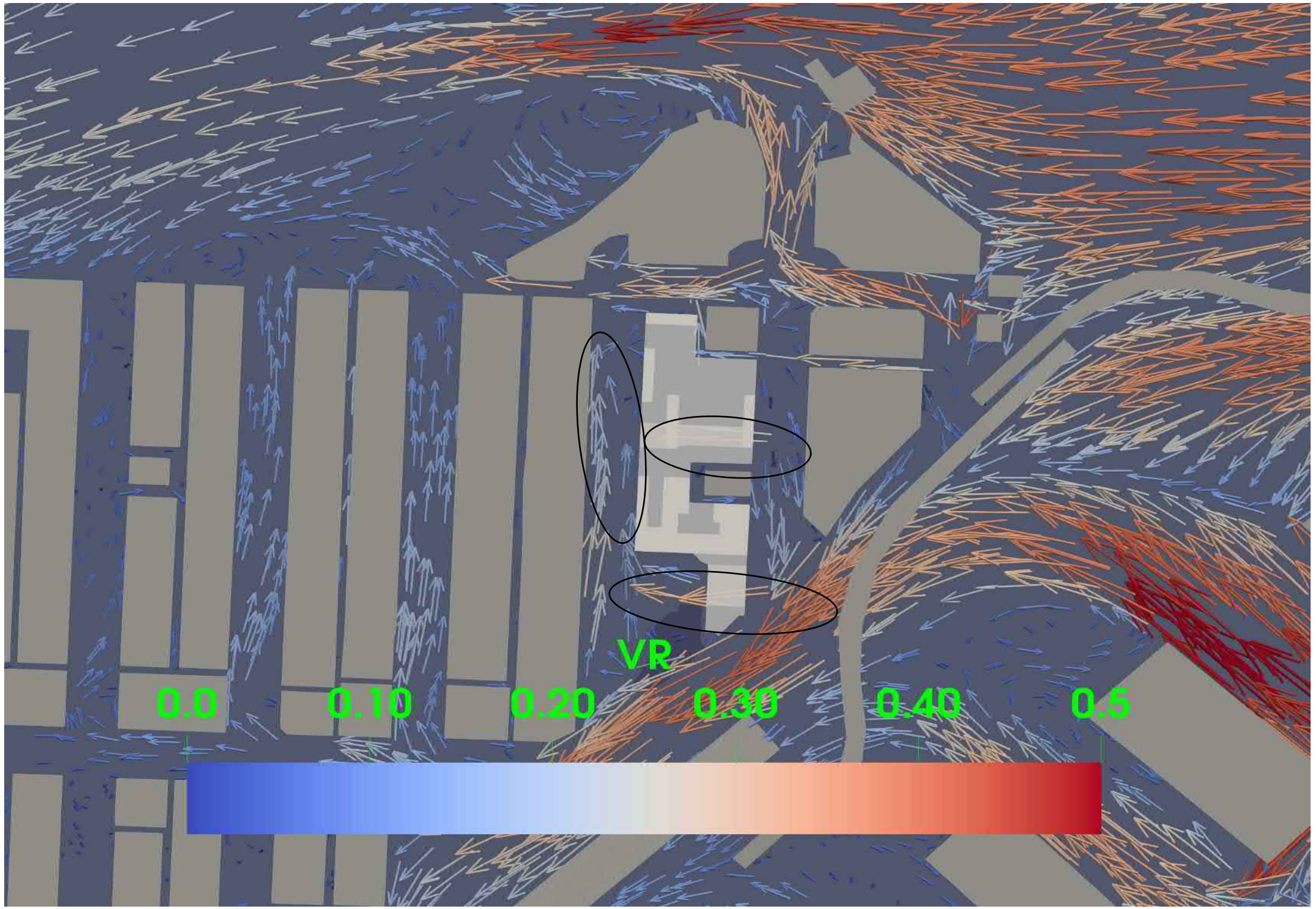


Remarks for Circled Area: low wind flow is expected as the building has partially blocked the wind

Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 3a	REV. 1

090 deg Wind Direction (7m/s at 500m)

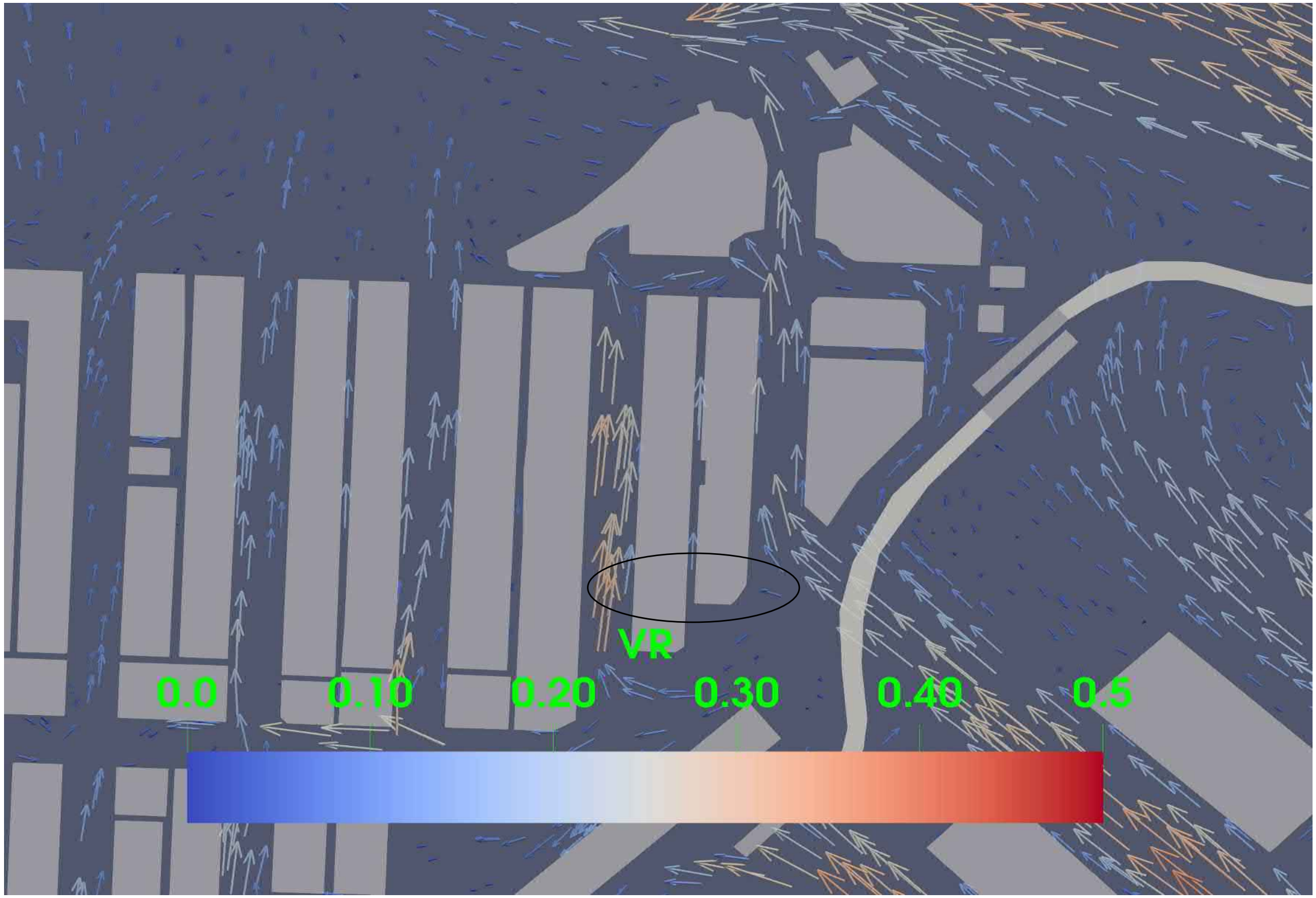


Remarks for the Circled Area: The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza

Proposed Scheme

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19	
		CHECK	KW	DRAWN	CC	
		JOB NO.	IA17019/K	FIGURE NO.	3b	REV.
						1

135 deg Wind Direction (6m/s at 500m)

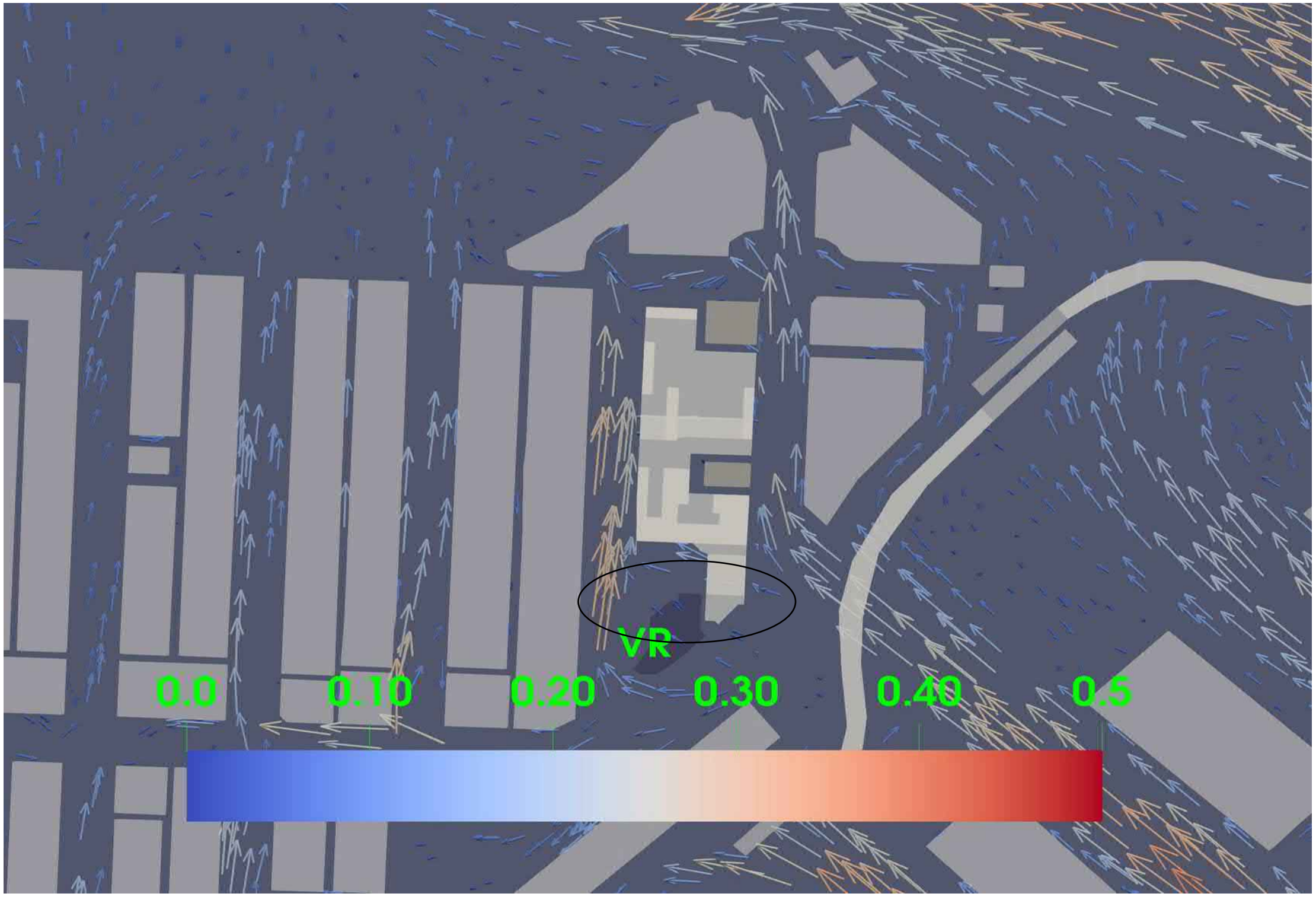


Remarks for Circled Area: **low wind flow is expected as the building has partially blocked the wind**

Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4a	REV. 1

135 deg Wind Direction (6m/s at 500m)

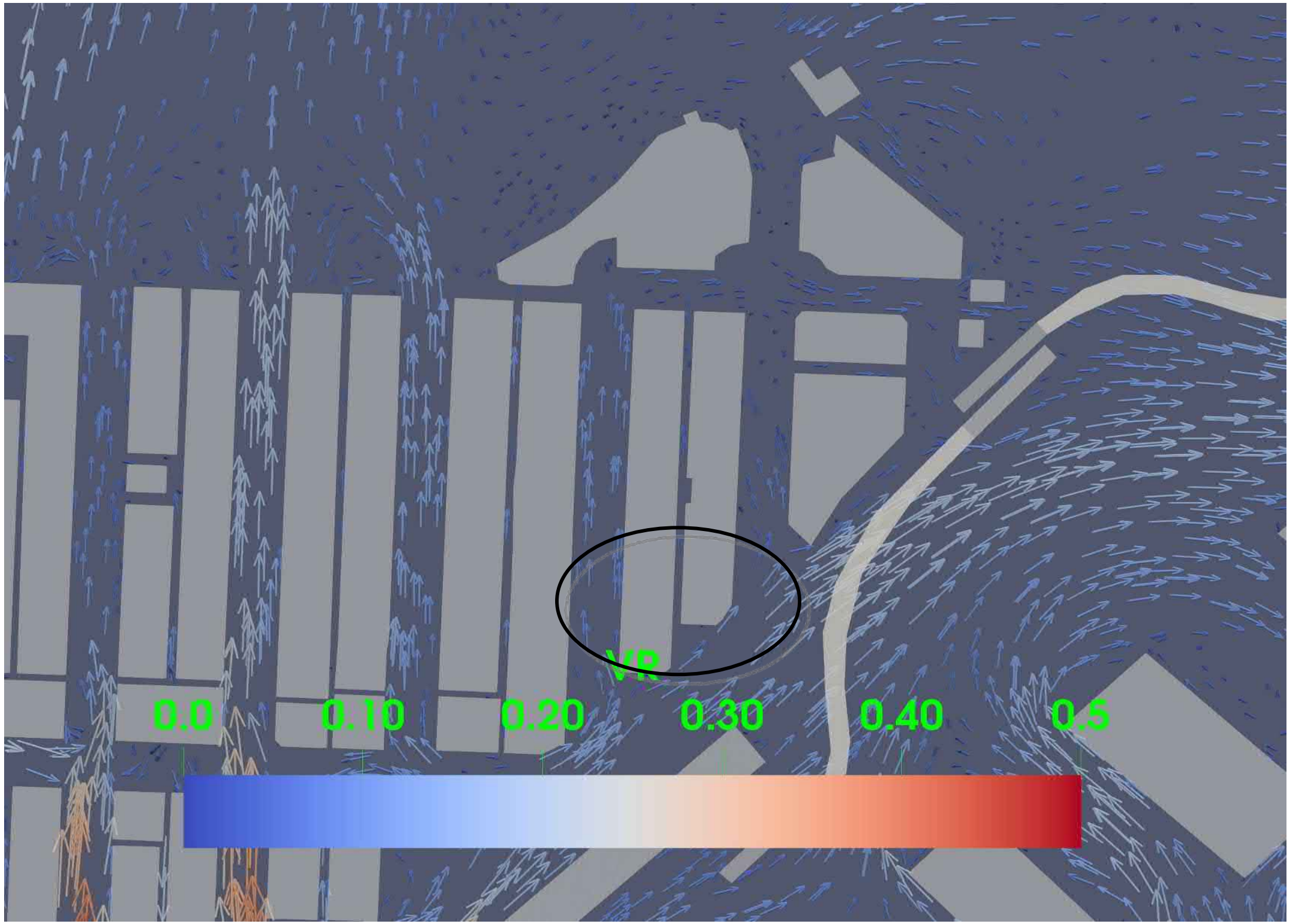


Remarks for the Circled Area: **The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza**

Proposed Scheme

CINOTECH 漢謙 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 4b	REV. 1

180 deg Wind Direction (6m/s at 500m)



Remarks for Circled Area: **Wind is blocked by the Baseline Building in the Sunken Plaza area**

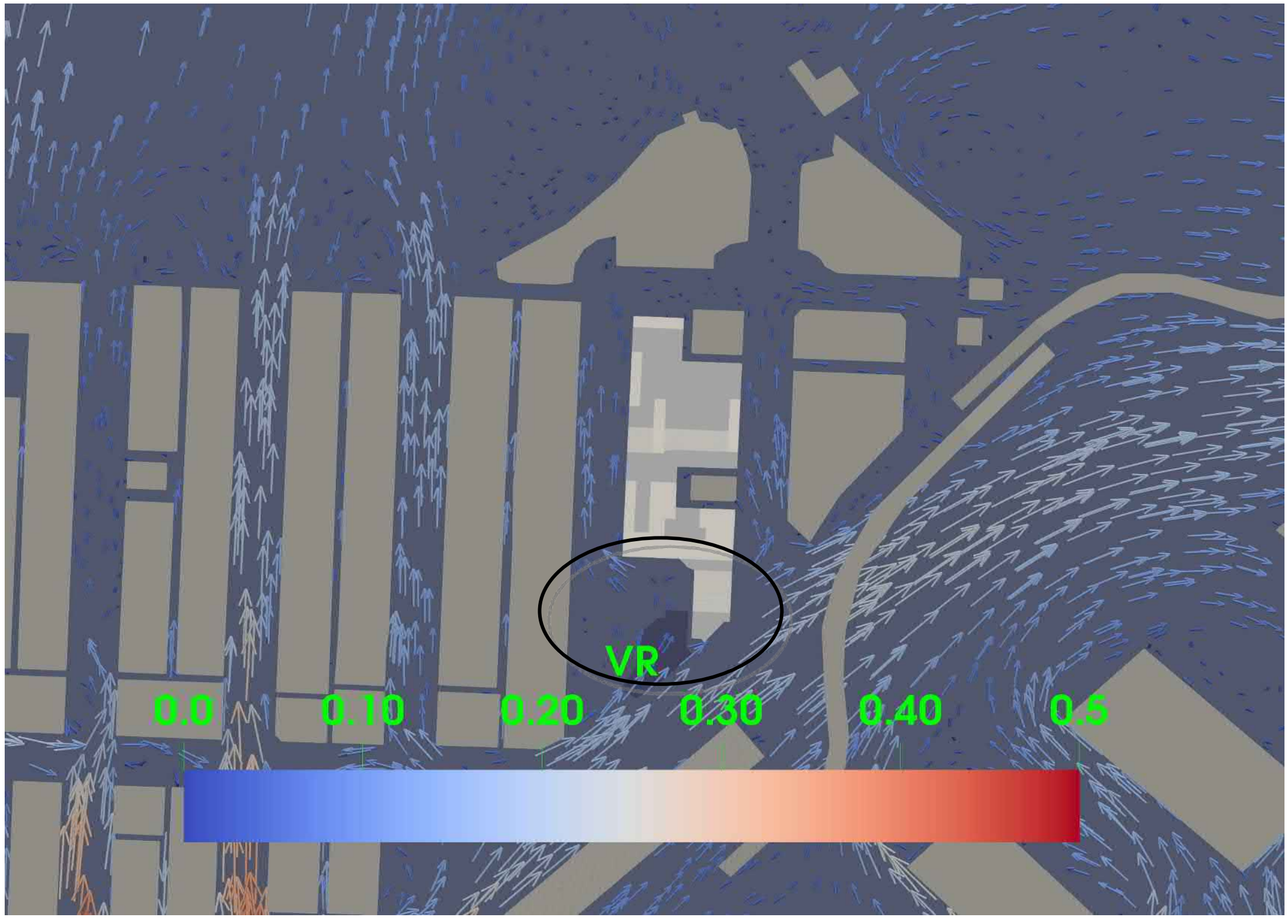
Baseline Scheme

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 5a		REV. 1

180 deg Wind Direction (6m/s at 500m)

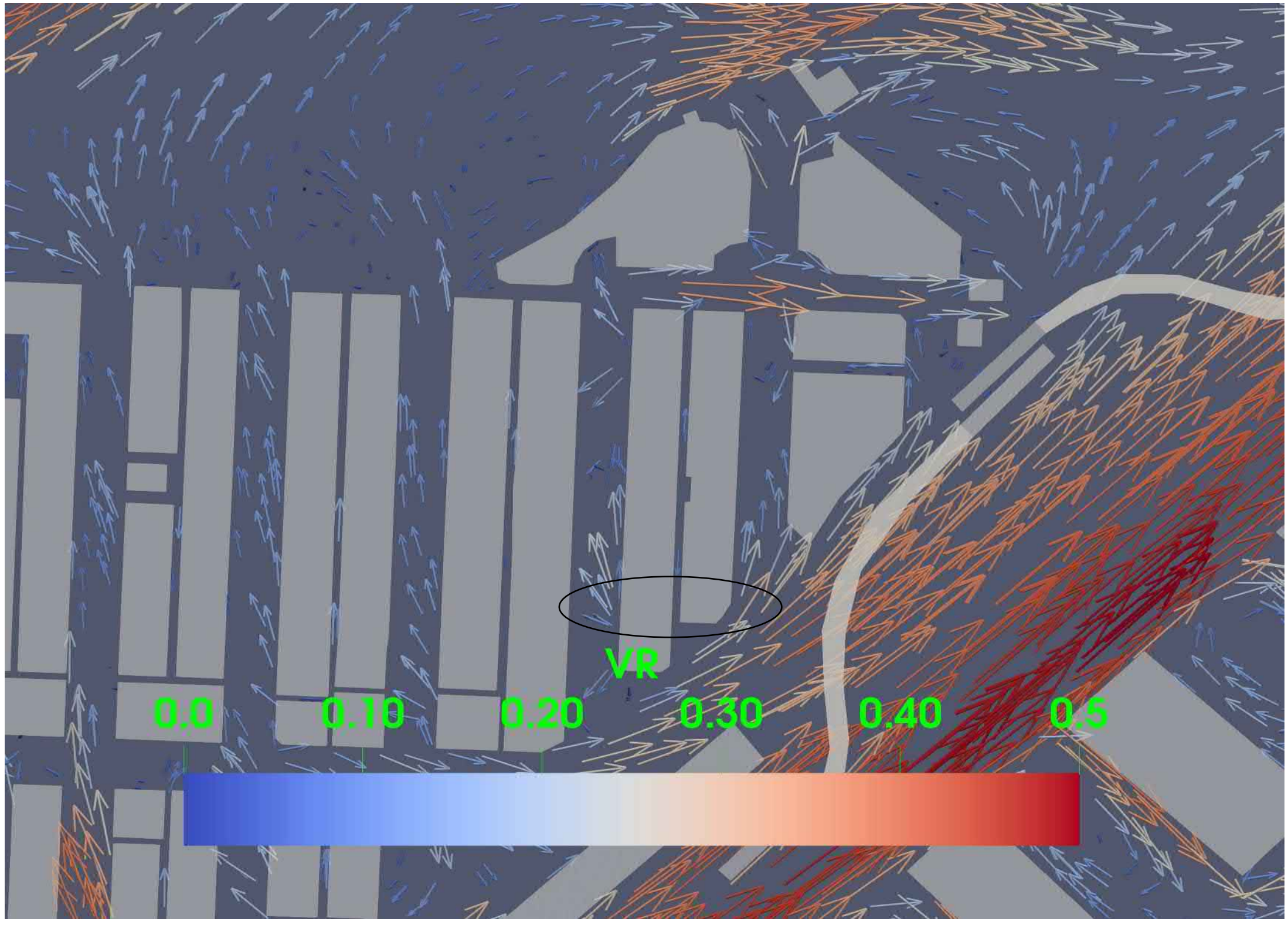


Remarks for Circled Area: **Air is able to enter and through the Sunken Plaza**

Proposed Scheme

CINOTECH consultants limited 漢謙	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 5b	REV. 1

247.5 deg Wind Direction (6m/s at 500m)



Remarks for Circled Area: **Wind is blocked by the Baseline Building in the Sunken Plaza area**

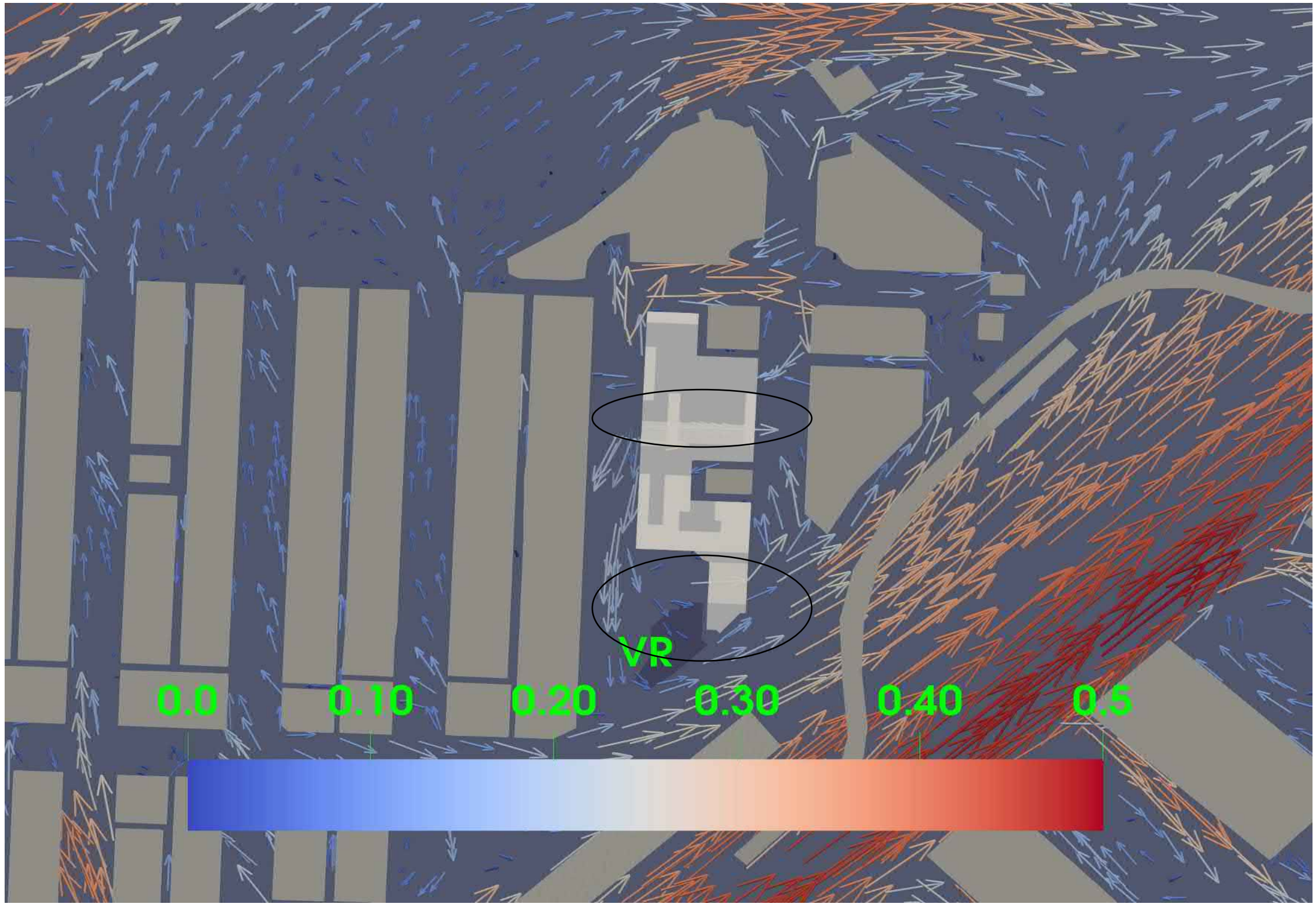
Baseline Scheme

CINOTECH 漢臻 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 6a		REV.
				1

247.5 deg Wind Direction (6m/s at 500m)



Remarks for the Circled Area: **The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza**

Proposed Scheme

CINOTECH consultants limited 漢臻

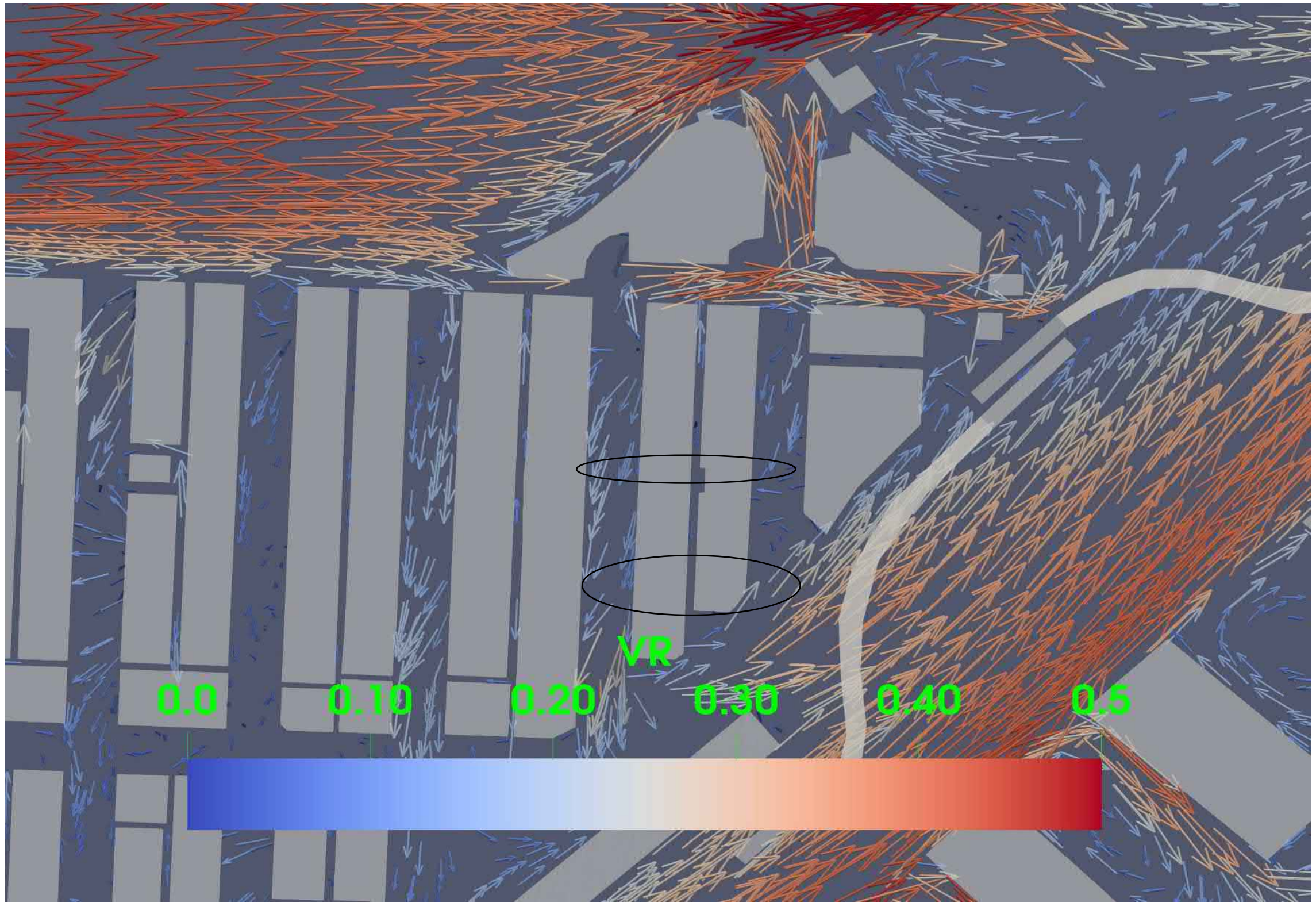
Air Ventilation Assessment

Kai Tak Road / Sa Po Road Project (KC015)

Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	6b	REV.
				1

270 deg Wind Direction (4m/s at 500m)

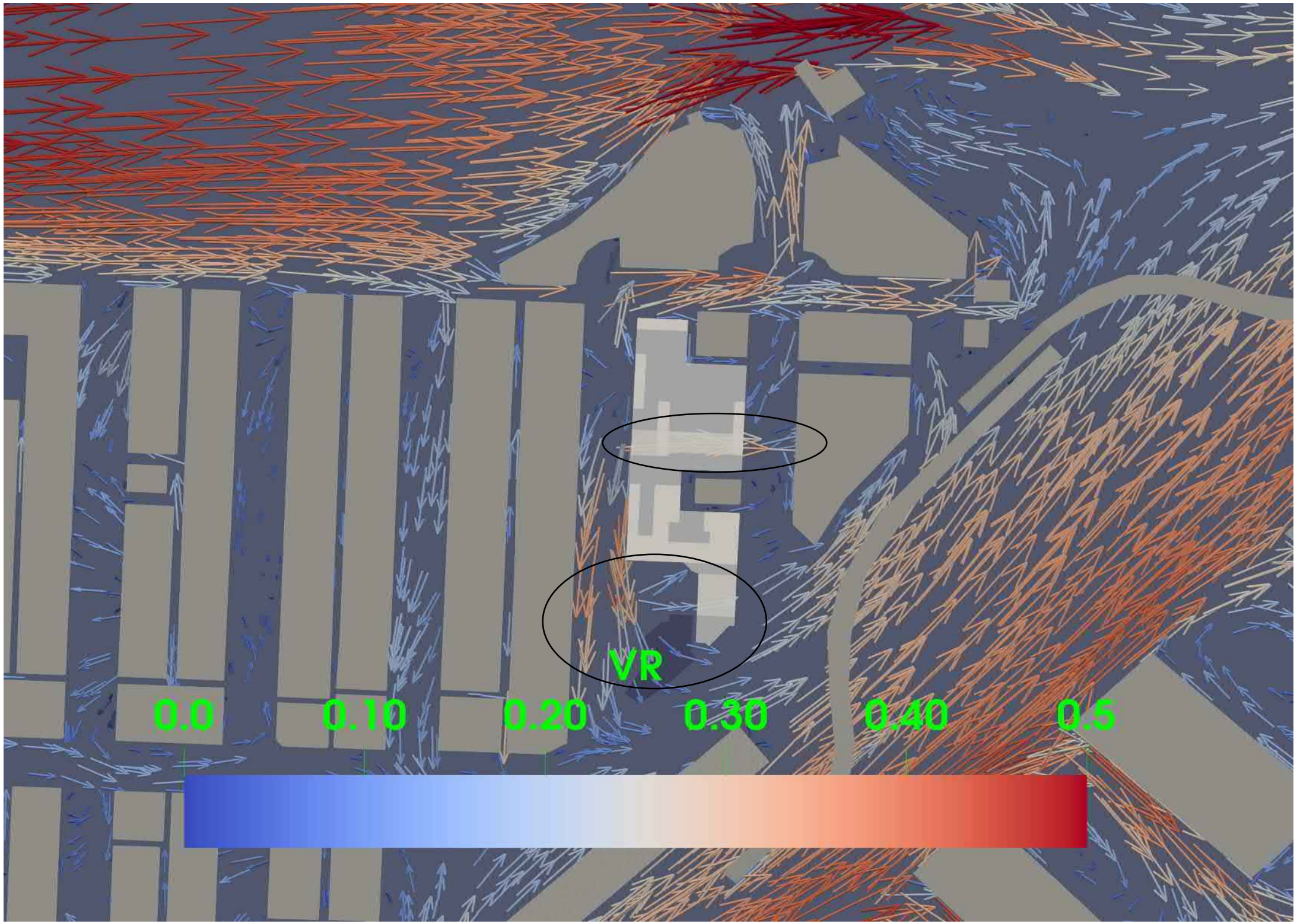


Remarks for Circled Area: **Wind is blocked by the Baseline Building in the Sunken Plaza area**

Baseline Scheme

CINOTECH 漢騰 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 7a	REV. 1

270 deg Wind Direction (4m/s at 500m)



Remarks for the Circled Area: The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza

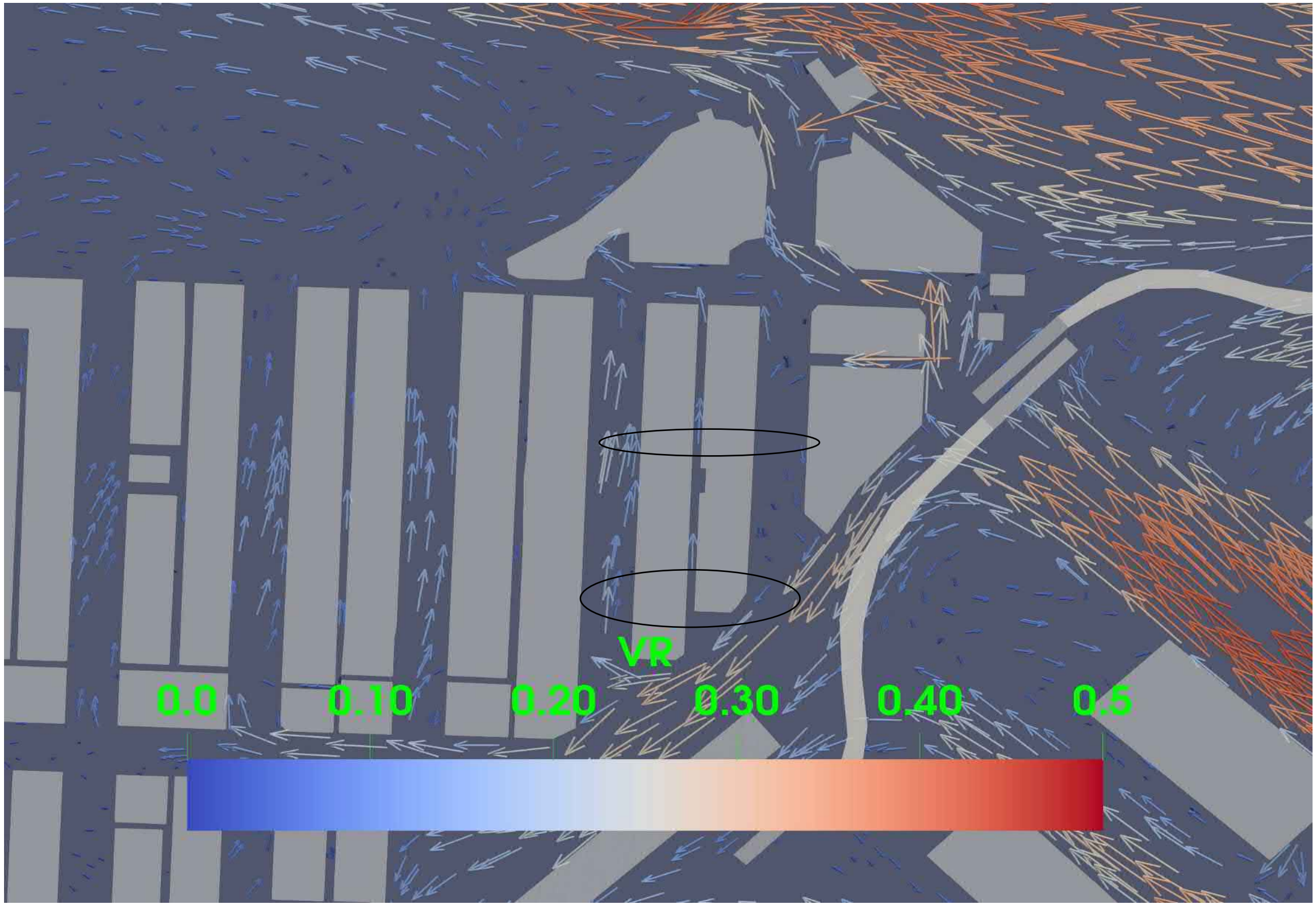
Proposed Scheme

CINOTECH 漢蘇 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	7b	REV. 1

112.5 deg Wind Direction (7m/s at 500m)

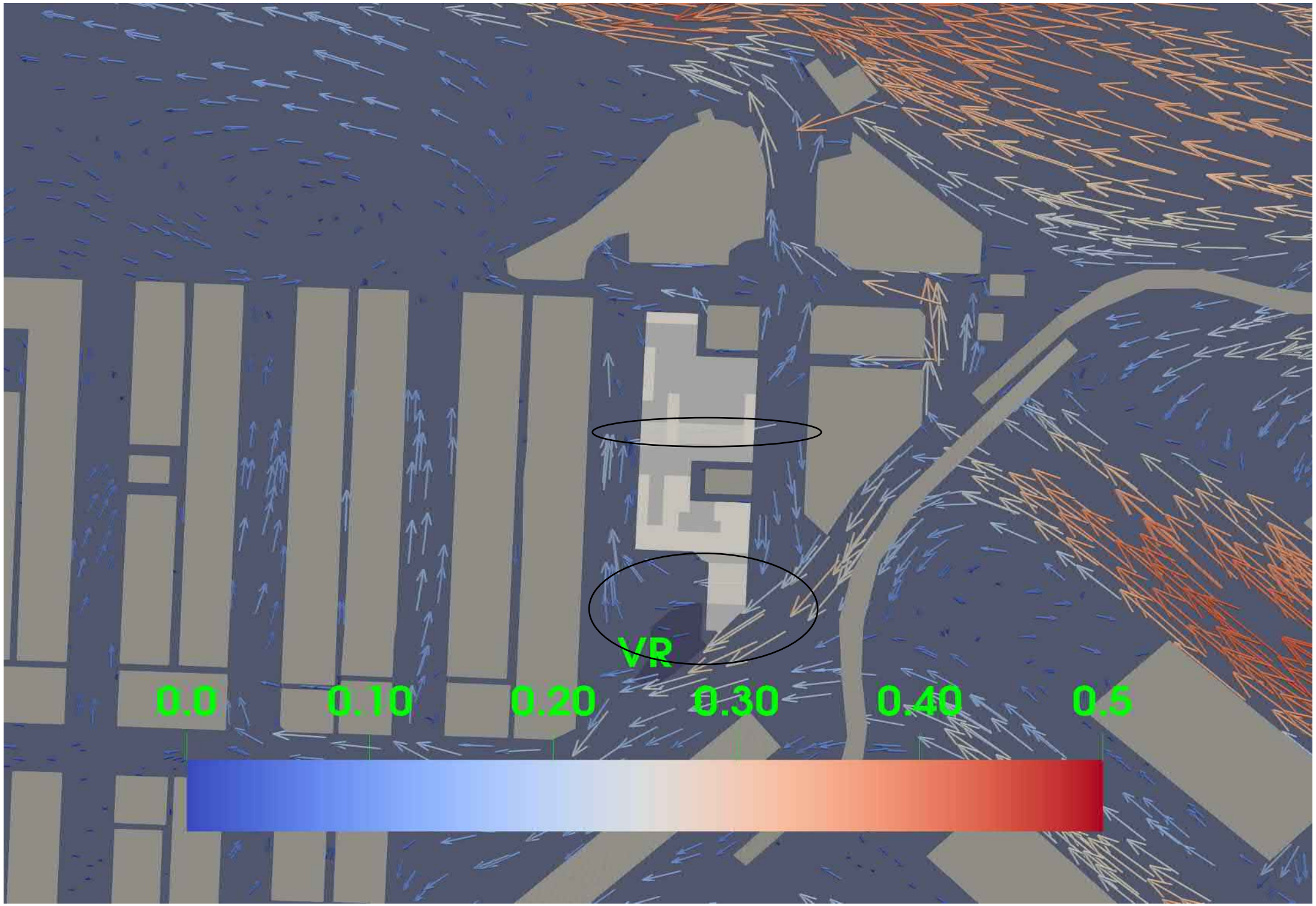


Remarks for Circled Area: Wind is blocked by the Baseline Building

Baseline Scheme

CINOTECH 漢謙 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 8a	REV. 1

112.5 deg Wind Direction (7m/s at 500m)

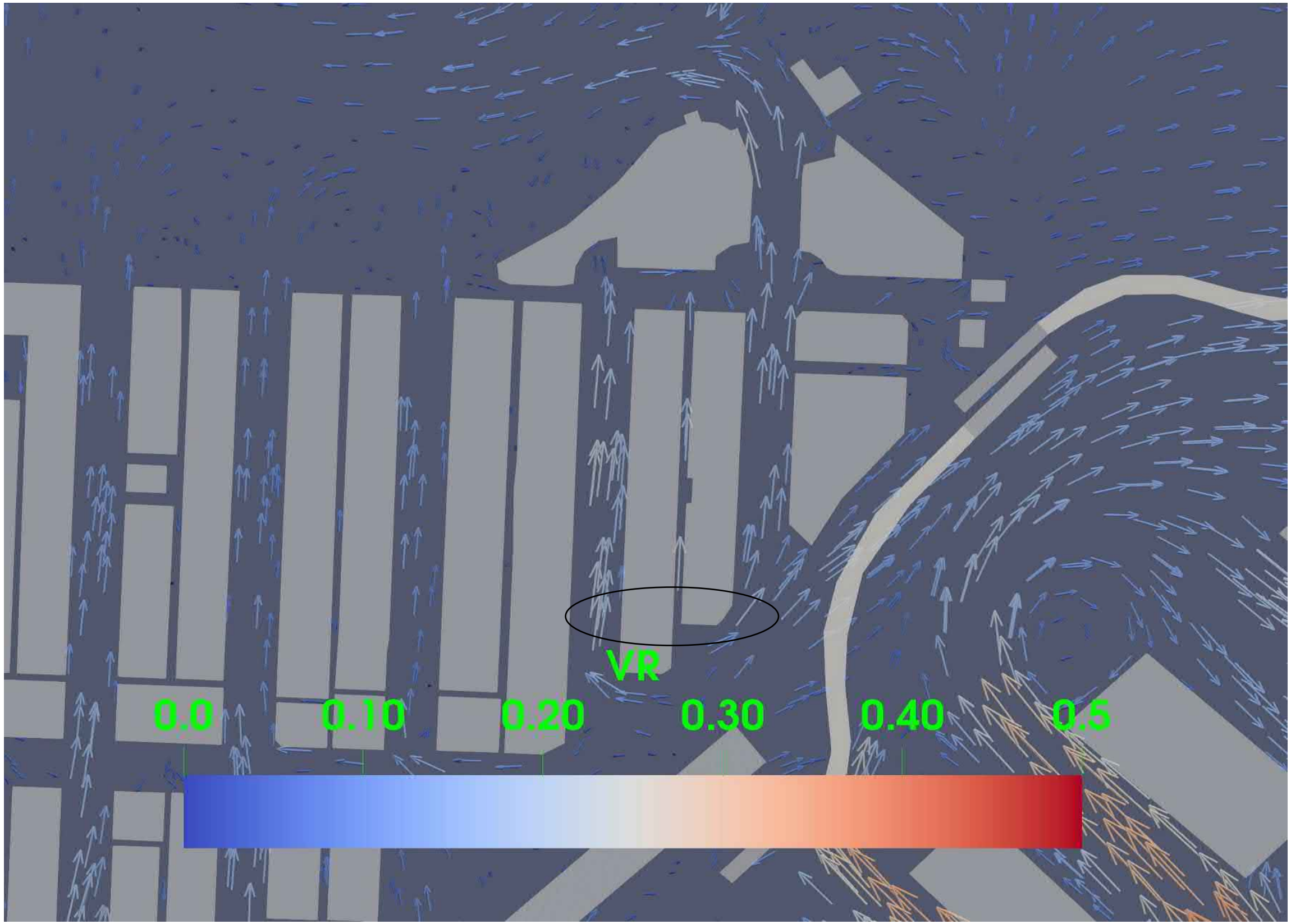


Remarks for the Circled Area: The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza

Proposed Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 8b	REV. 1

157.5 deg Wind Direction (6m/s at 500m)

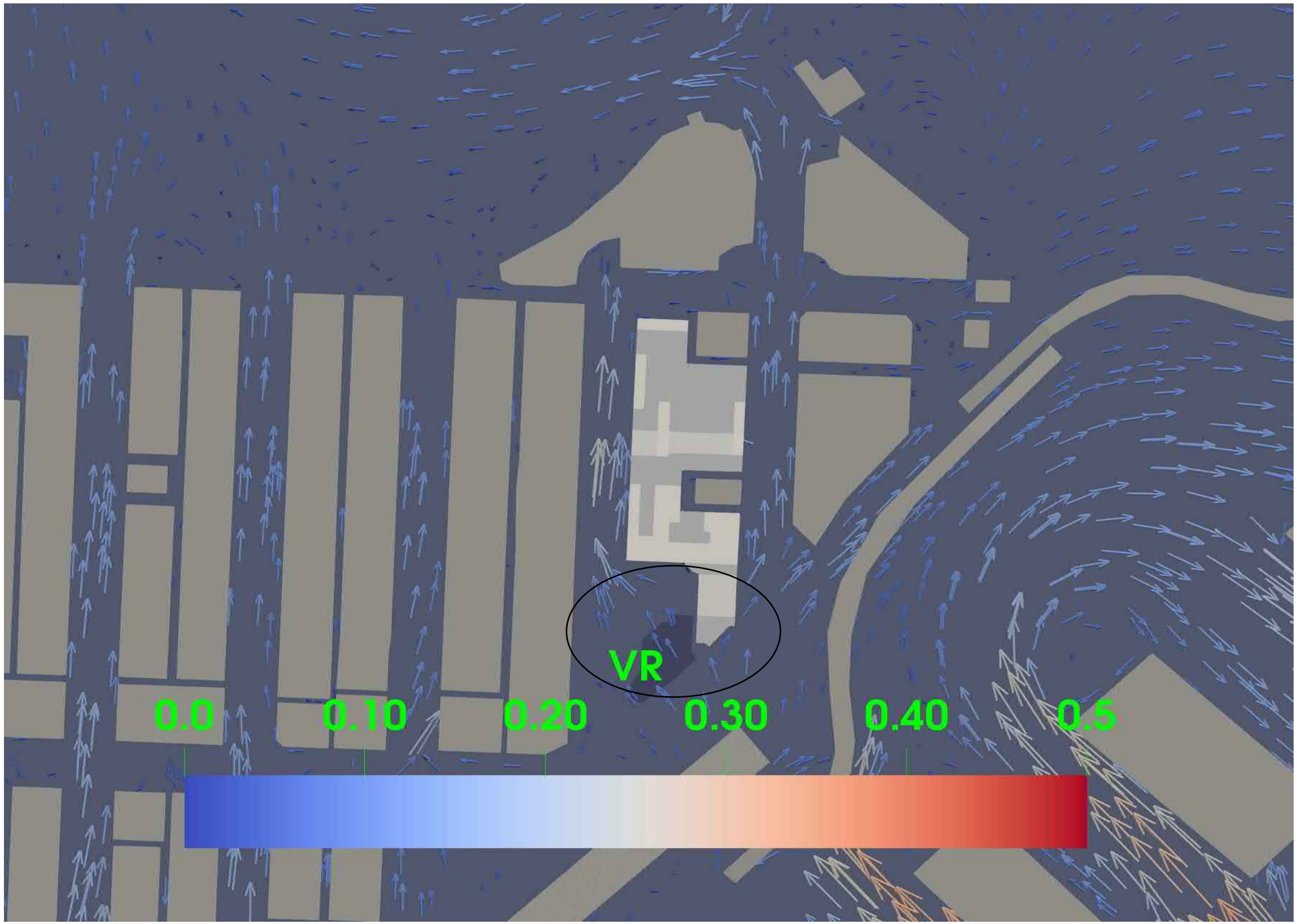


Remarks for Circled Area: Wind is blocked by the Baseline Building

Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 9a	REV. 1

157.5 deg Wind Direction (6m/s at 500m)



Remarks for the Circled Area: The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza

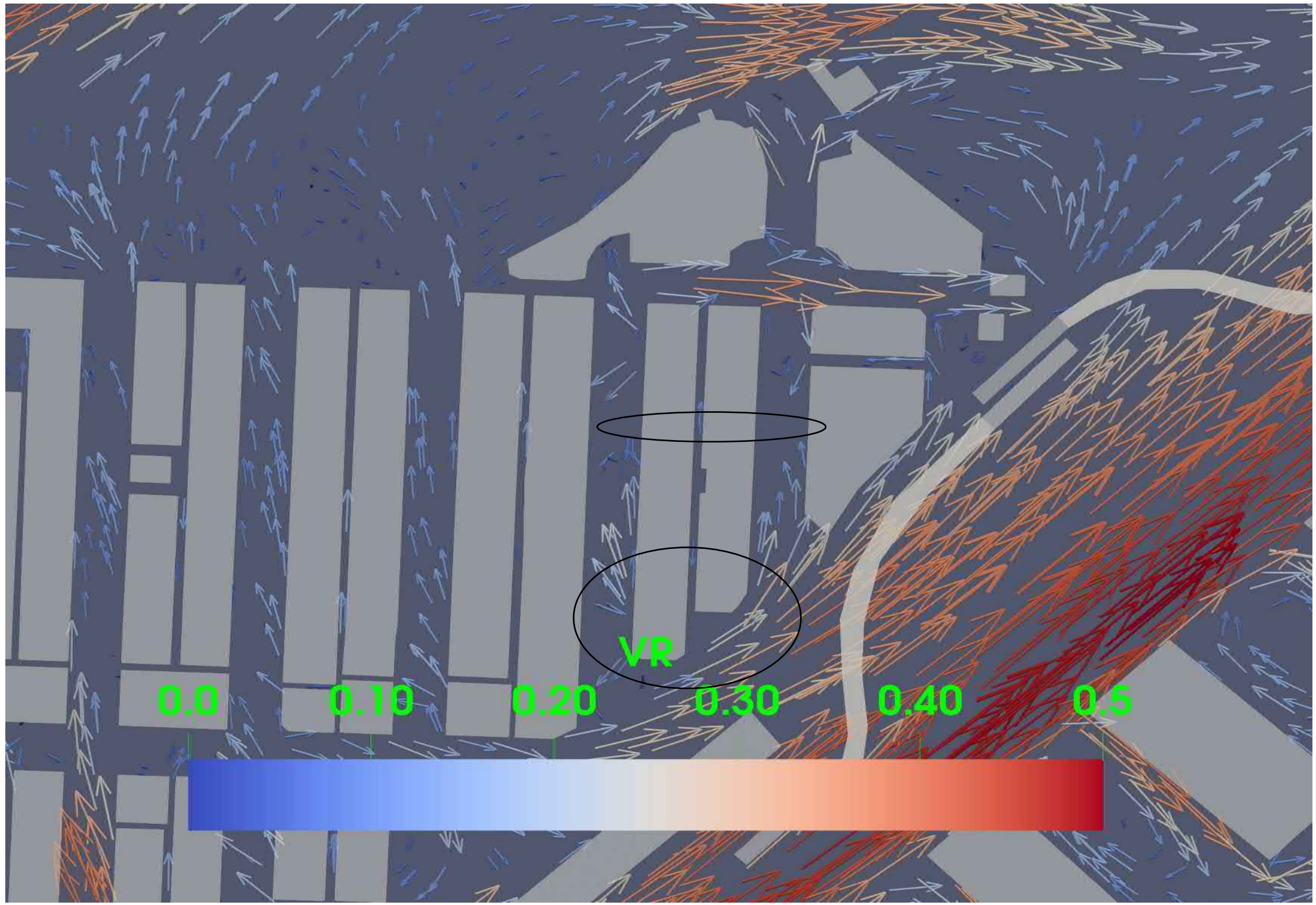
Proposed Scheme

CINOTECH 漢槎 consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Vectors of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	May-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO. 9b		REV.
		\		1

247.5 deg Wind Direction (6m/s at 500m)

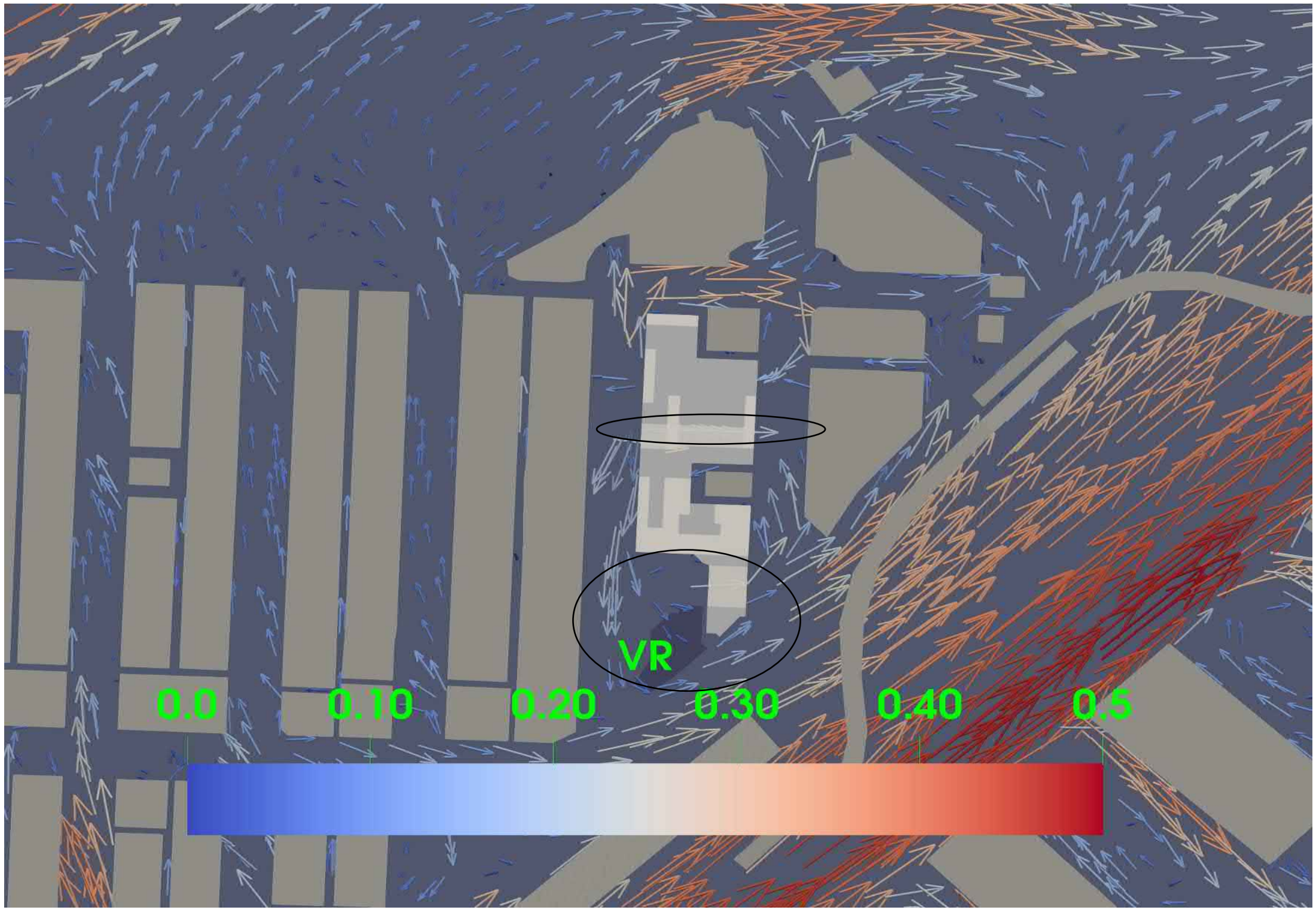


Remarks for Circled Area: **Wind is blocked by the Baseline Building**

Baseline Scheme

CINOTECH 漢疇 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 10a	REV. 1

247.5 deg Wind Direction (6m/s at 500m)



Remarks for the Circled Area: **The Sunken Plaza and the vehicle running-in/out allow the flow penetrating the site in east-west direction, fresh air is provided as ventilation at the Sunken Plaza**

Baseline Scheme

CINOTECH 漢臻 consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Vectors of Wind Velocity Ratio at 2mAG**	SCALE	N.T.S.	DATE	May-19
		CHECK	KW	DRAWN	CC
		JOB NO.	IA17019/K	FIGURE NO. 10b	REV. 1

Annex 5

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Responses to Departmental Comments

TABLE 1 DEVELOPMENT PARAMETERS OF PLANNED DEVELOPMENTS

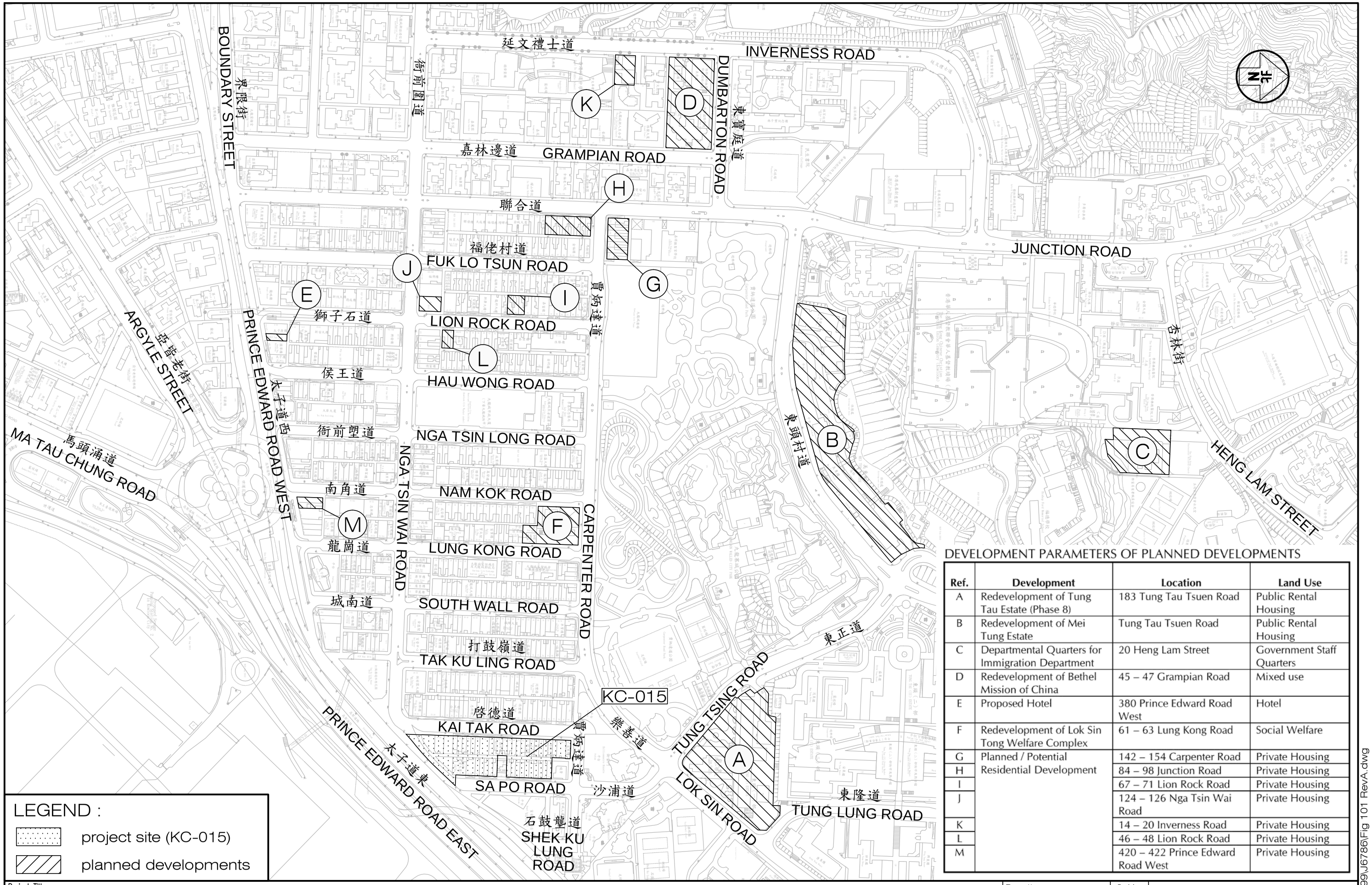
Ref.	Development	Location	Land Use	Development Parameters (Approx.)
A	Redevelopment of Tung Tau Estate (Phase 8)	183 Tung Tau Tsuen Road	Public Rental Housing	1,033 public rental flats
B	Redevelopment of Mei Tung Estate	Tung Tau Tsuen Road	Public Rental Housing	around 1,900 public rental flats
C	Departmental Quarters for Immigration Department (1)	20 Heng Lam Street	Government Staff Quarters	112 flats
D	Redevelopment of Bethel Mission of China (2)	45 – 47 Grampian Road	Mixed use	44 private flats and bible seminary
E	Proposed Hotel (3)	380 Prince Edward Road West	Hotel	72 guest rooms
F	Redevelopment of Lok Sin Tong Welfare Complex	61 – 63 Lung Kong Road	Social Welfare	Nursing home / care and attention home for the elderly with around 400 beds
G	Planned / Potential Residential Development	142 – 154 Carpenter Road	Private Housing	around 100 private flats
H		84 – 98 Junction Road	Private Housing	around 130 private flats and non-domestic GFA of around 1,300m^2
I		67 – 71 Lion Rock Road	Private Housing	around 60 private flats
J		124 – 126 Nga Tsin Wai Road	Private Housing	assume 80 private flats
K		14 – 20 Inverness Road	Private Housing	around 60 private flats
L		46 – 48 Lion Rock Road	Private Housing	assume 50 private flats
M		420 – 422 Prince Edward Road West	Private Housing	around 33 private flats and non-domestic GFA of around 640m^2

Source: (1) TPB Application No. A/K8/46
(2) TPB Application No. Y/K18/6
(3) TPB Application No. A/K10/249

TABLE 2 OBSERVED VEHICLE QUEUES

Ref.	Approach [1]	Average Queue Length (m) [2]				Maximum Queue Length (m) [2]			
		Weekday		Weekend		Weekday		Weekend	
		AM	PM	AM	PM	AM	PM	AM	PM
Junction A – Tung Tsing Road / Lok Sin Road / Sa Po Road									
A1	Carpenter Road	25	30	35	30	60	45	60	70
A2	Tung Tsing Road	20	30	25	35	35	50	60	70
A3	Lok Sin Road	20	30	25	35	40	40	45	50
Junction Q – Olympic Garden Roundabout									
Q1	Ma Tau Chung Road	80	60	25	40	180	100	60	80
Q2	Prince Edward Road East	80	30	5	5	160	80	30	20
Q3	Prince Edward Road West	10	20	5	15	30	20	30	40
Q4	Argyle Street	30	15	5	5	110	40	35	30

Note: [1] The critical vehicle queue among all traffic lanes within the same approach is adopted
[2] All vehicle queue rounded up to the nearest 5m



LEGEND :

- project site (KC-015)
- planned developments

DEVELOPMENT PARAMETERS OF PLANNED DEVELOPMENTS

Ref.	Development	Location	Land Use
A	Redevelopment of Tung Tau Estate (Phase 8)	183 Tung Tau Tsuen Road	Public Rental Housing
B	Redevelopment of Mei Tung Estate	Tung Tau Tsuen Road	Public Rental Housing
C	Departmental Quarters for Immigration Department	20 Heng Lam Street	Government Staff Quarters
D	Redevelopment of Bethel Mission of China	45 – 47 Grampian Road	Mixed use
E	Proposed Hotel	380 Prince Edward Road West	Hotel
F	Redevelopment of Lok Sin Tong Welfare Complex	61 – 63 Lung Kong Road	Social Welfare
G	Planned / Potential Residential Development	142 – 154 Carpenter Road	Private Housing
H		84 – 98 Junction Road	Private Housing
I		67 – 71 Lion Rock Road	Private Housing
J		124 – 126 Nga Tsin Wai Road	Private Housing
K		14 – 20 Inverness Road	Private Housing
L		46 – 48 Lion Rock Road	Private Housing
M		420 – 422 Prince Edward Road West	Private Housing

Project Title: URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title: PLANNED DEVELOPMENTS IN THE VICINITY OF KC-015

Figure No. 101 | Revision A

Designed by T H C | Drawn by C C L | Checked by

Scale in A3 1 : 3,500 | Date 16 MAY 2019

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road
Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343
Email : mail@ckmasia.com.hk

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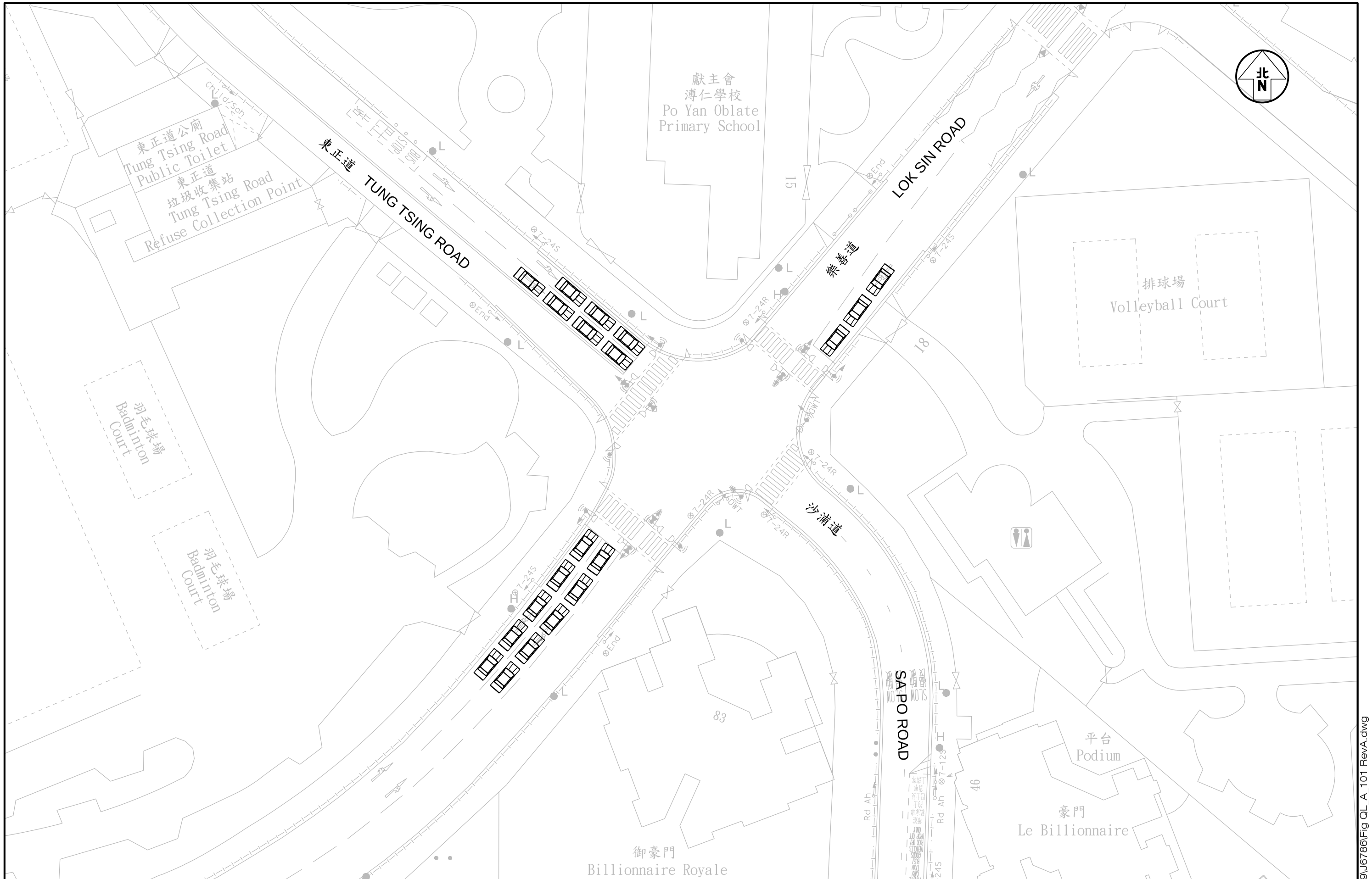

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/101 Revision A
Figure Title	JUNCTION A – WEEKDAY AVERAGE QUEUE LENGTH (AM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 16 MAY 2019

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road
Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343
Email : mail@ckmasia.com.hk

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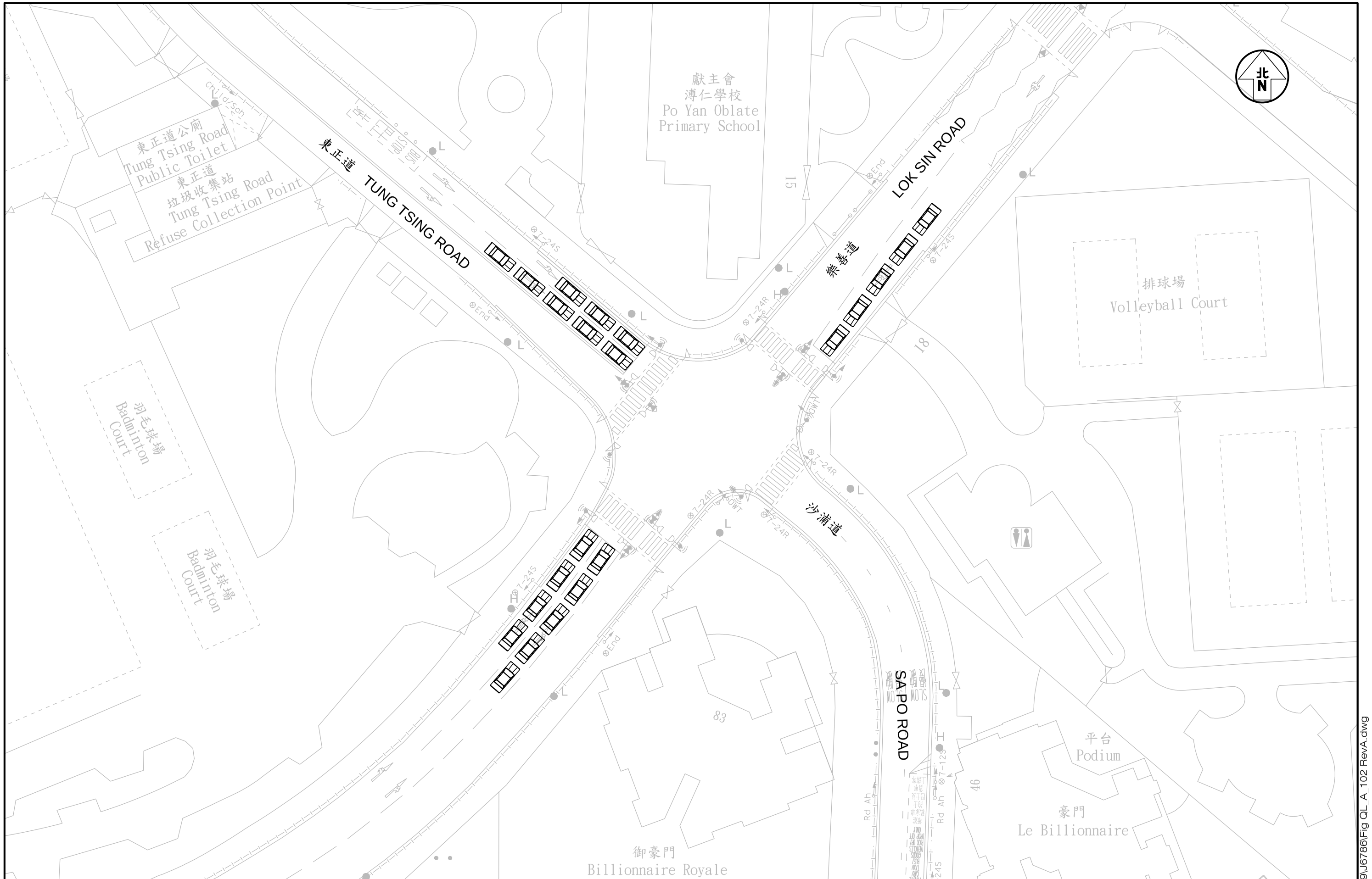

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/102 Revision A
Figure Title	JUNCTION A – WEEKDAY AVERAGE QUEUE LENGTH (PM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 16 MAY 2019

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road
Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343
Email : mail@ckmasia.com.hk

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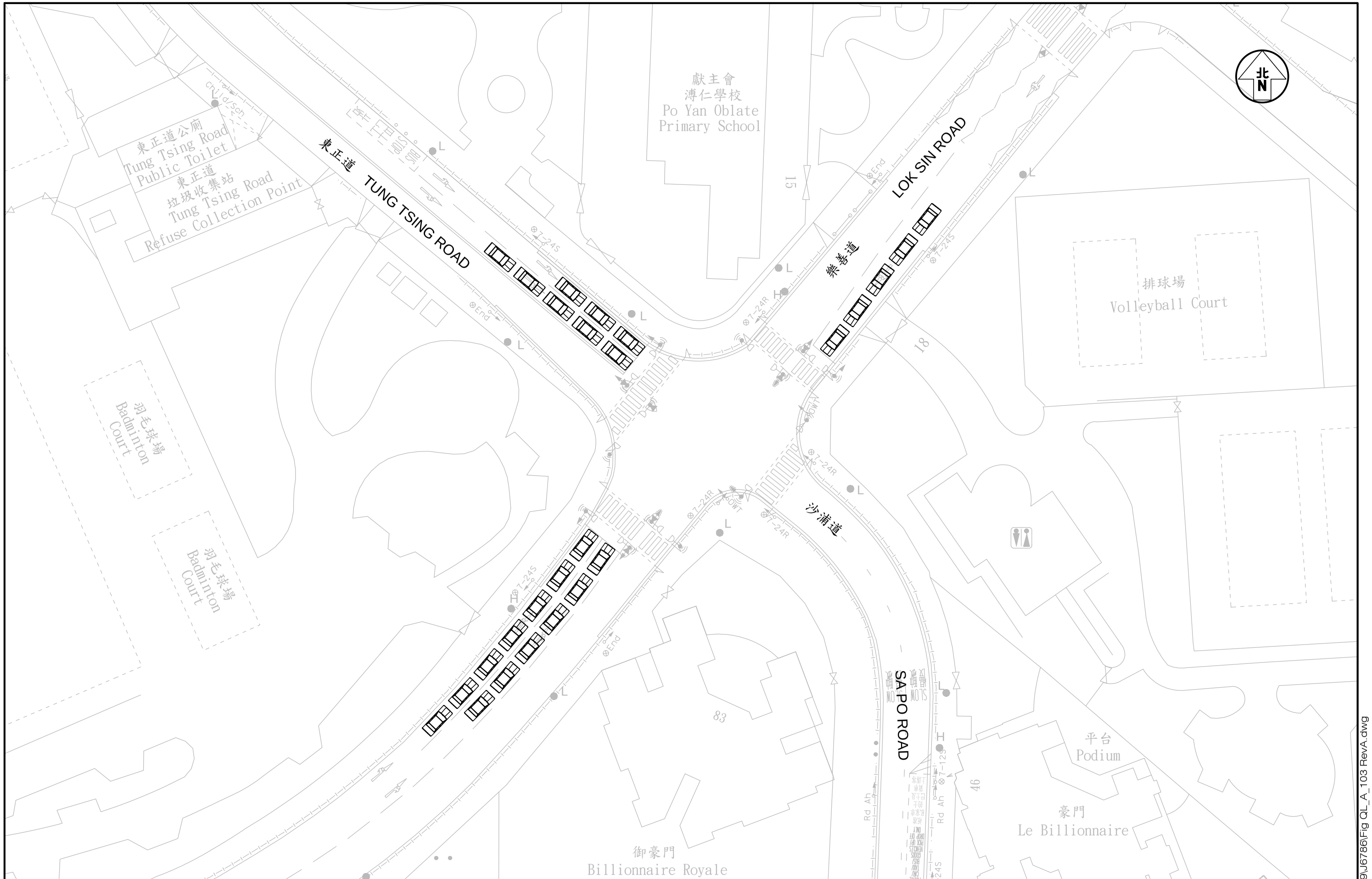

Project Title: URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/103	Revision A
Figure Title: JUNCTION A – WEEKEND AVERAGE QUEUE LENGTH (AM PEAK)		Designed by T H C / Drawn by C C L / Checked by	
		Scale in A3: 1 : 500	Date: 16 MAY 2019

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road
Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343
Email : mail@ckmasia.com.hk

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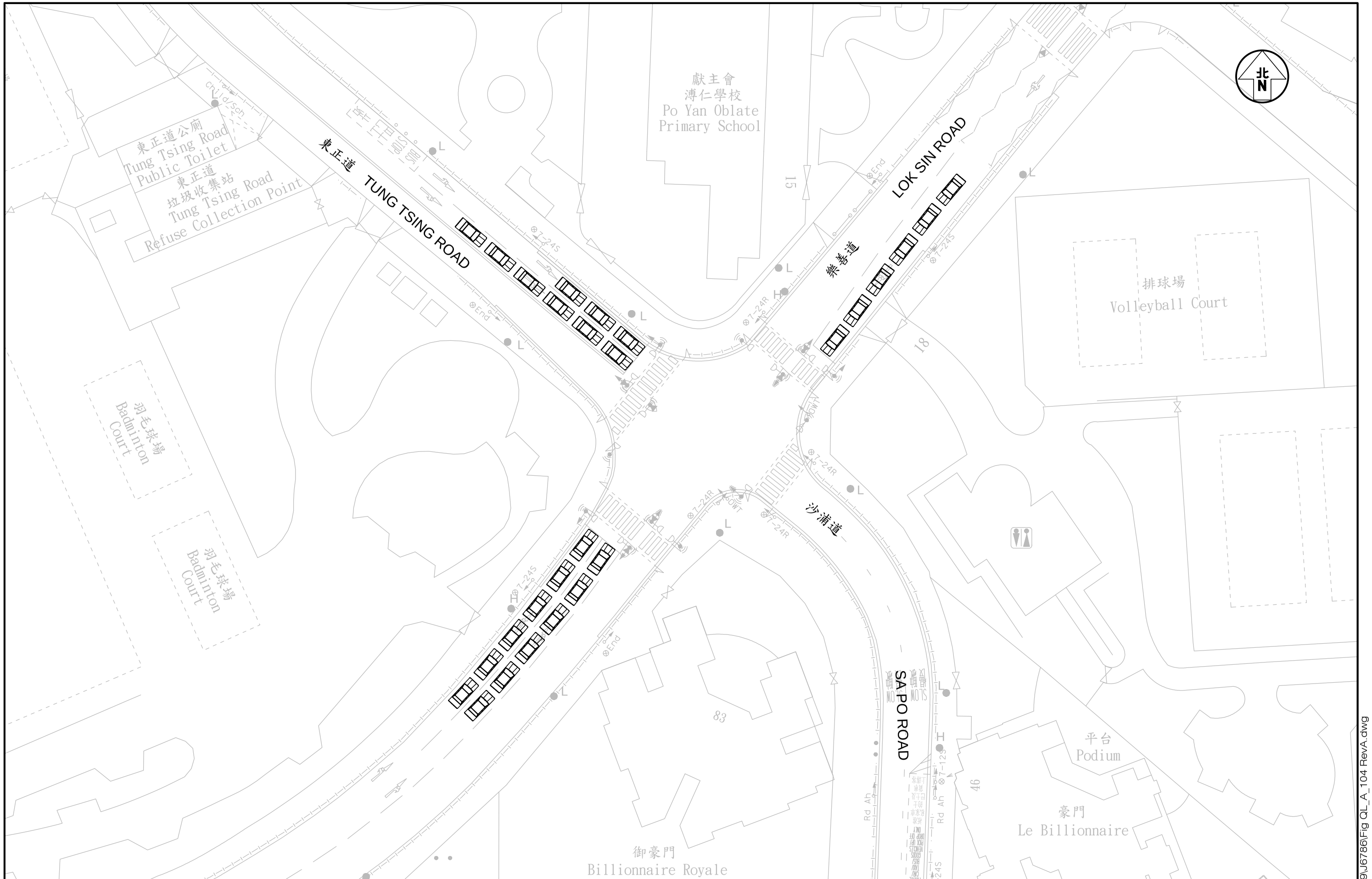

Project Title: URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/104	Revision A
Figure Title: JUNCTION A - WEEKEND AVERAGE QUEUE LENGTH (PM PEAK)		Designed by T H C / Drawn by C C L / Checked by	
		Scale in A3: 1 : 500	Date: 16 MAY 2019

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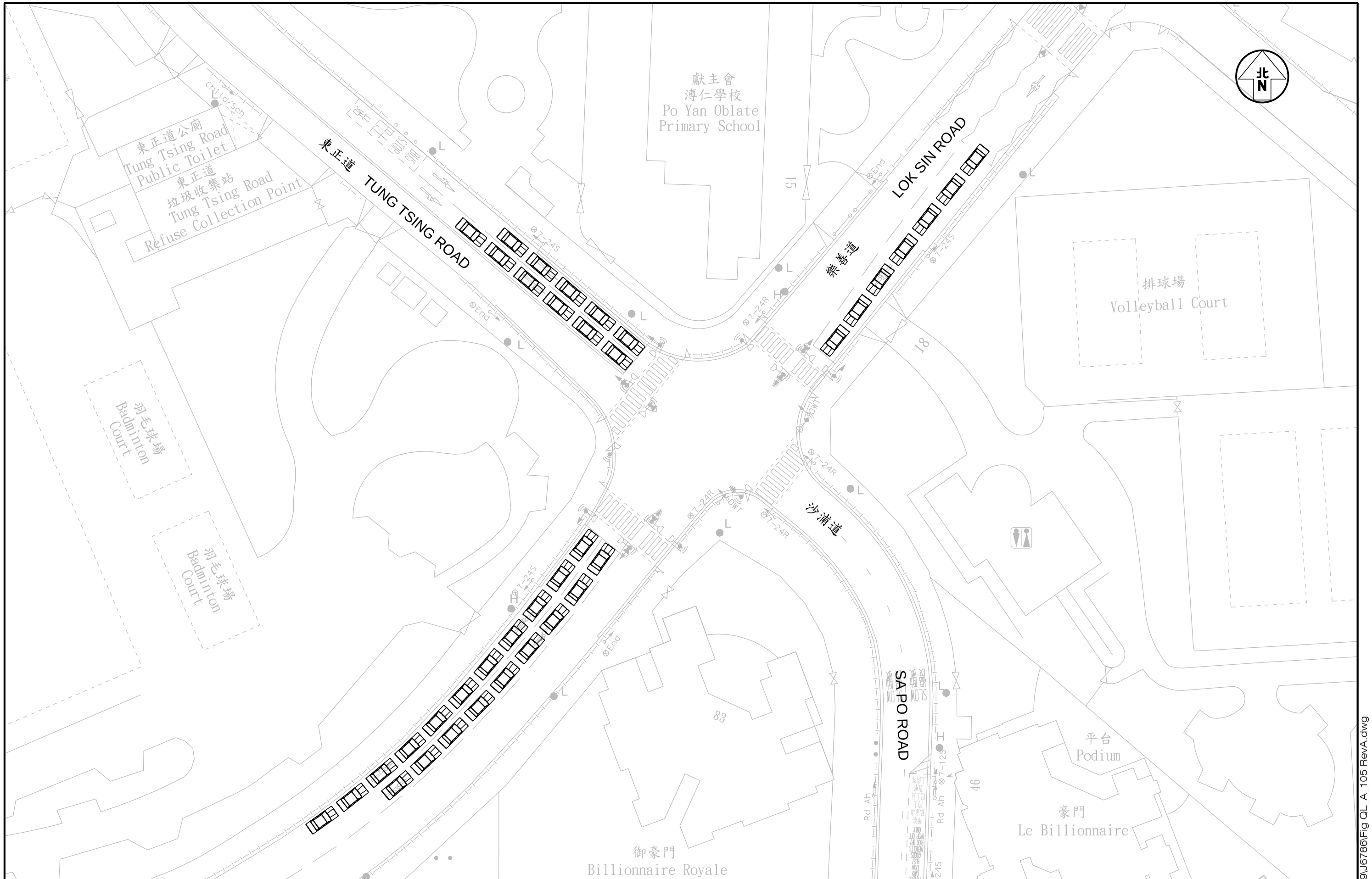

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/105 Revision A
Figure Title	JUNCTION A – WEEKDAY MAXIMUM QUEUE LENGTH (AM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 16 MAY 2019

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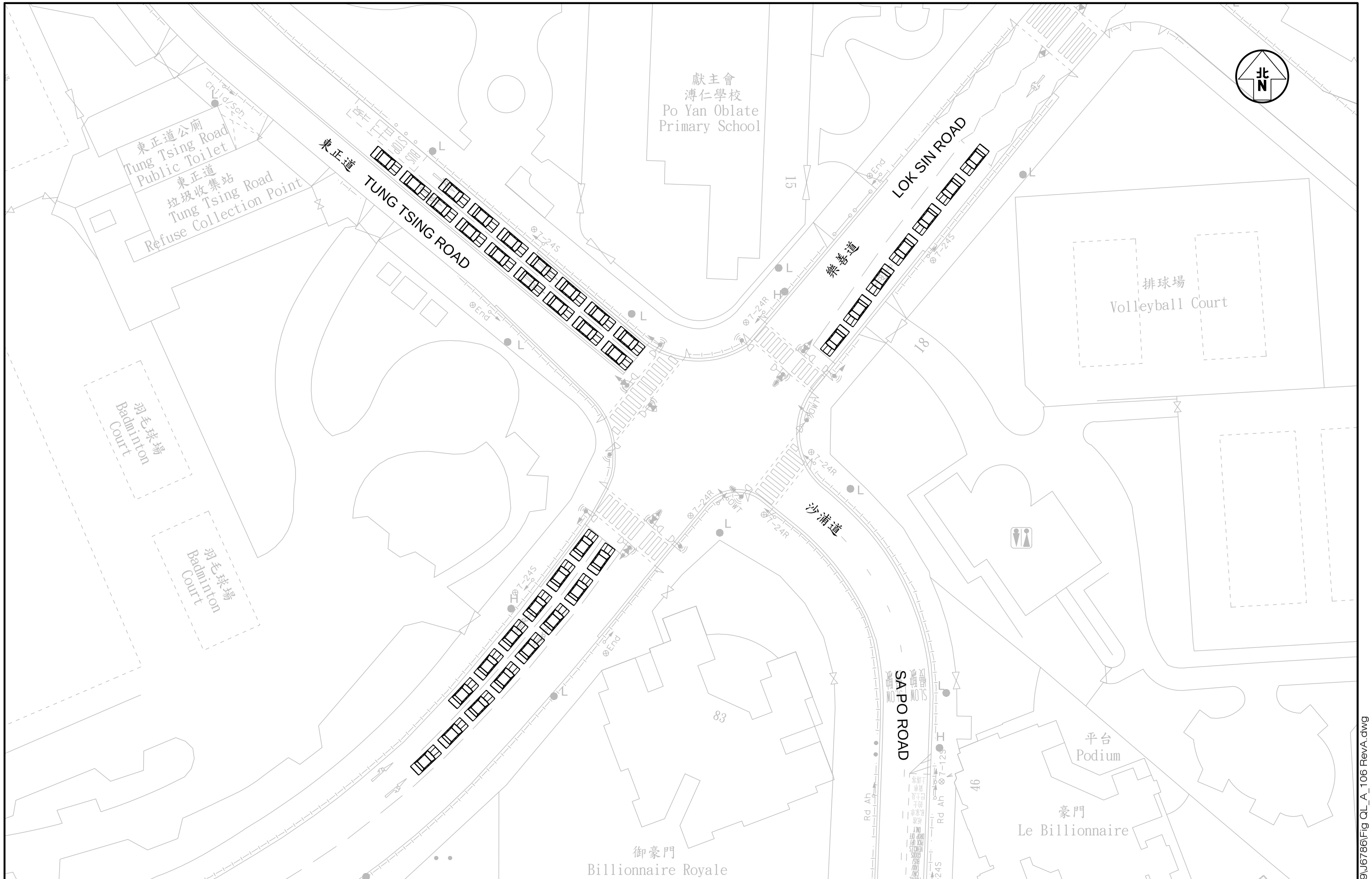

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/106 Revision A
Figure Title	JUNCTION A – WEEKDAY MAXIMUM QUEUE LENGTH (PM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 16 MAY 2019

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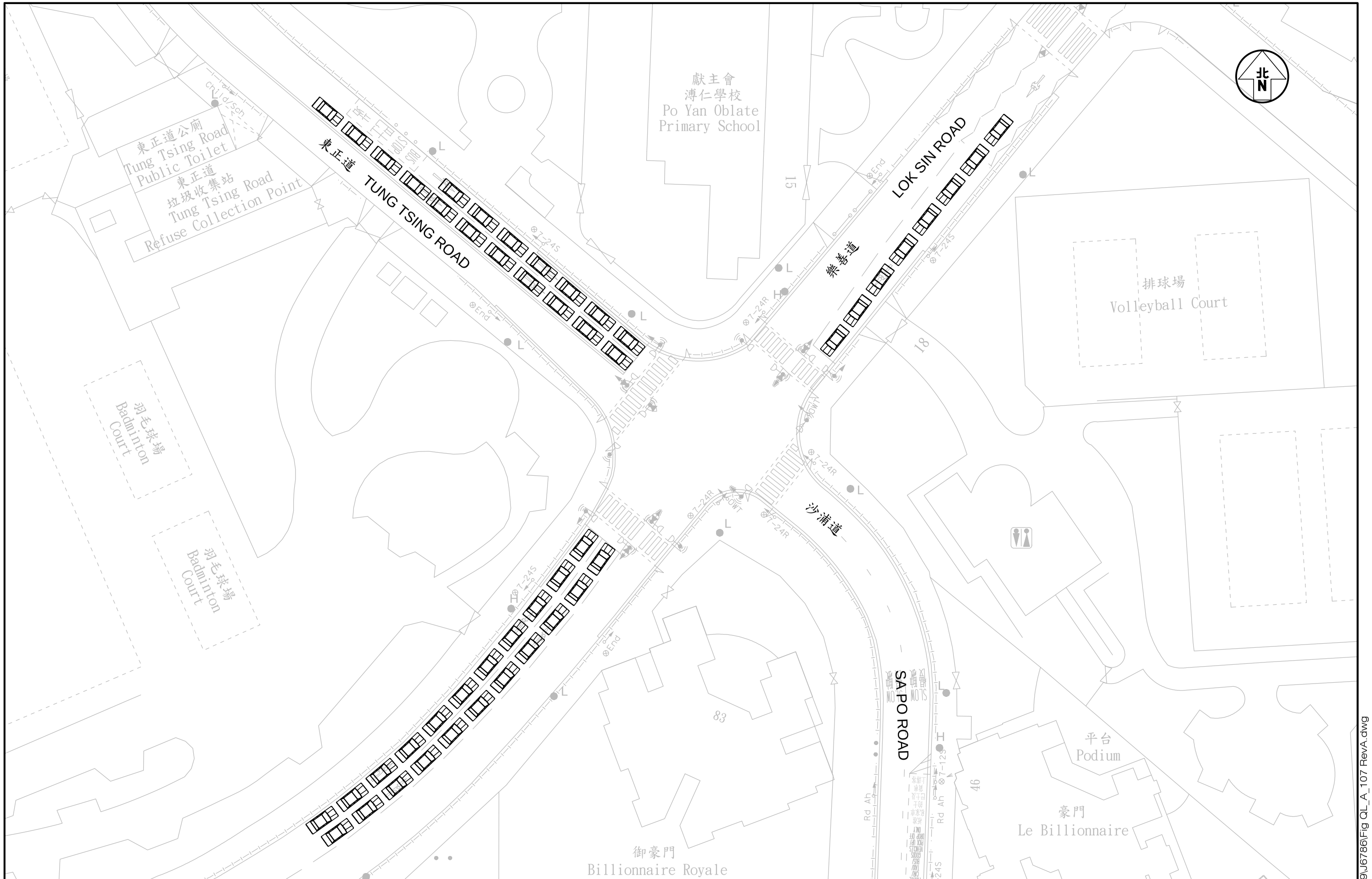

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/107 Revision A
Figure Title	JUNCTION A – WEEKEND MAXIMUM QUEUE LENGTH (AM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 16 MAY 2019

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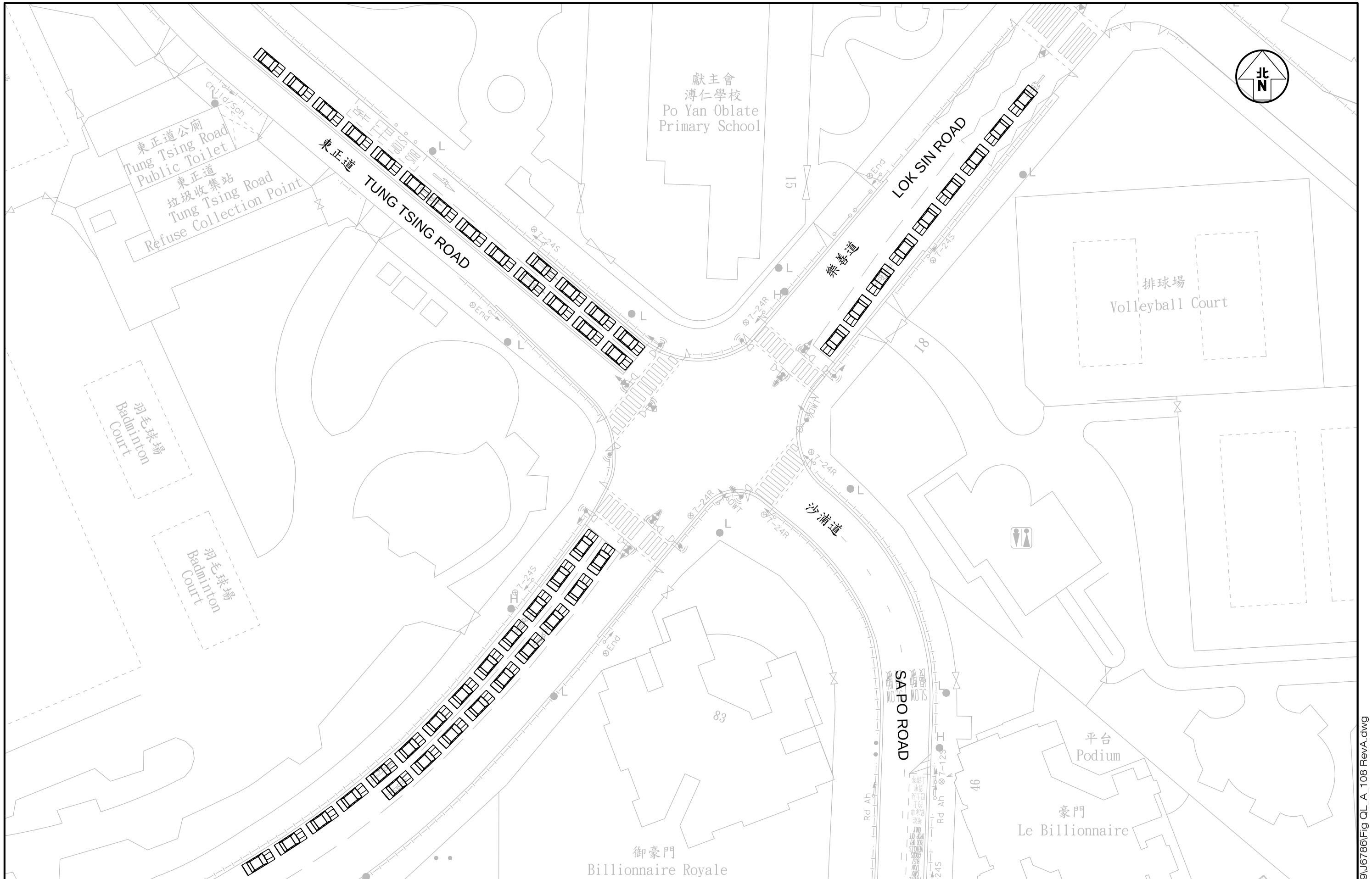

Project Title	URA KC–015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/108 Revision A
Figure Title	JUNCTION A – WEEKEND MAXIMUM QUEUE LENGTH (PM PEAK)		Designed by T H C · Drawn by C C L · Checked by · Scale in A3 1 : 500 · Date 16 MAY 2019

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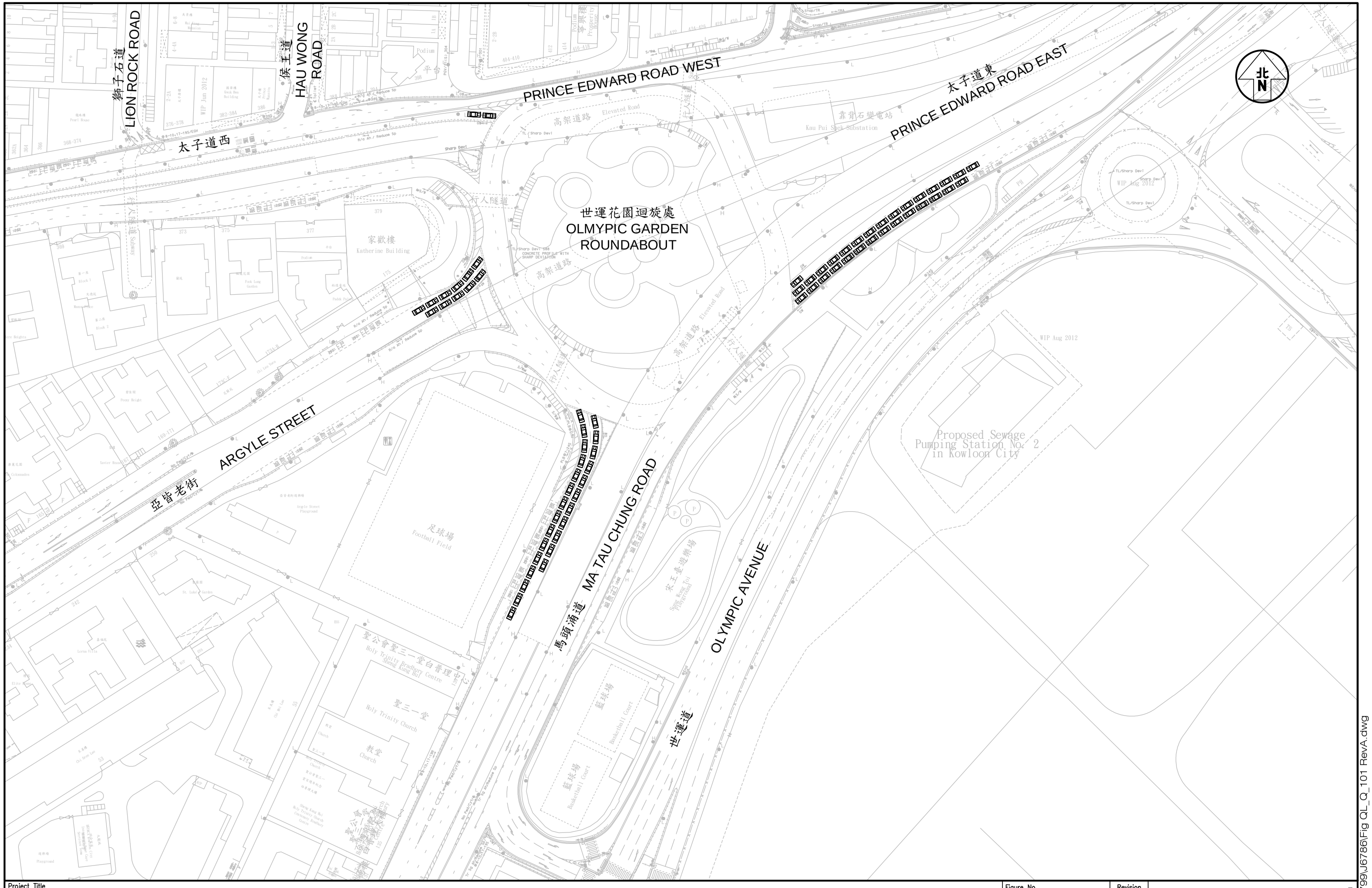

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/Q/101 Revision A
Figure Title	JUNCTION Q - WEEKDAY AVERAGE QUEUE LENGTH (AM PEAK)		Designed by THC; Drawn by CCL; Checked by; Scale in A3 1 : 1,250; Date 16 MAY 2019

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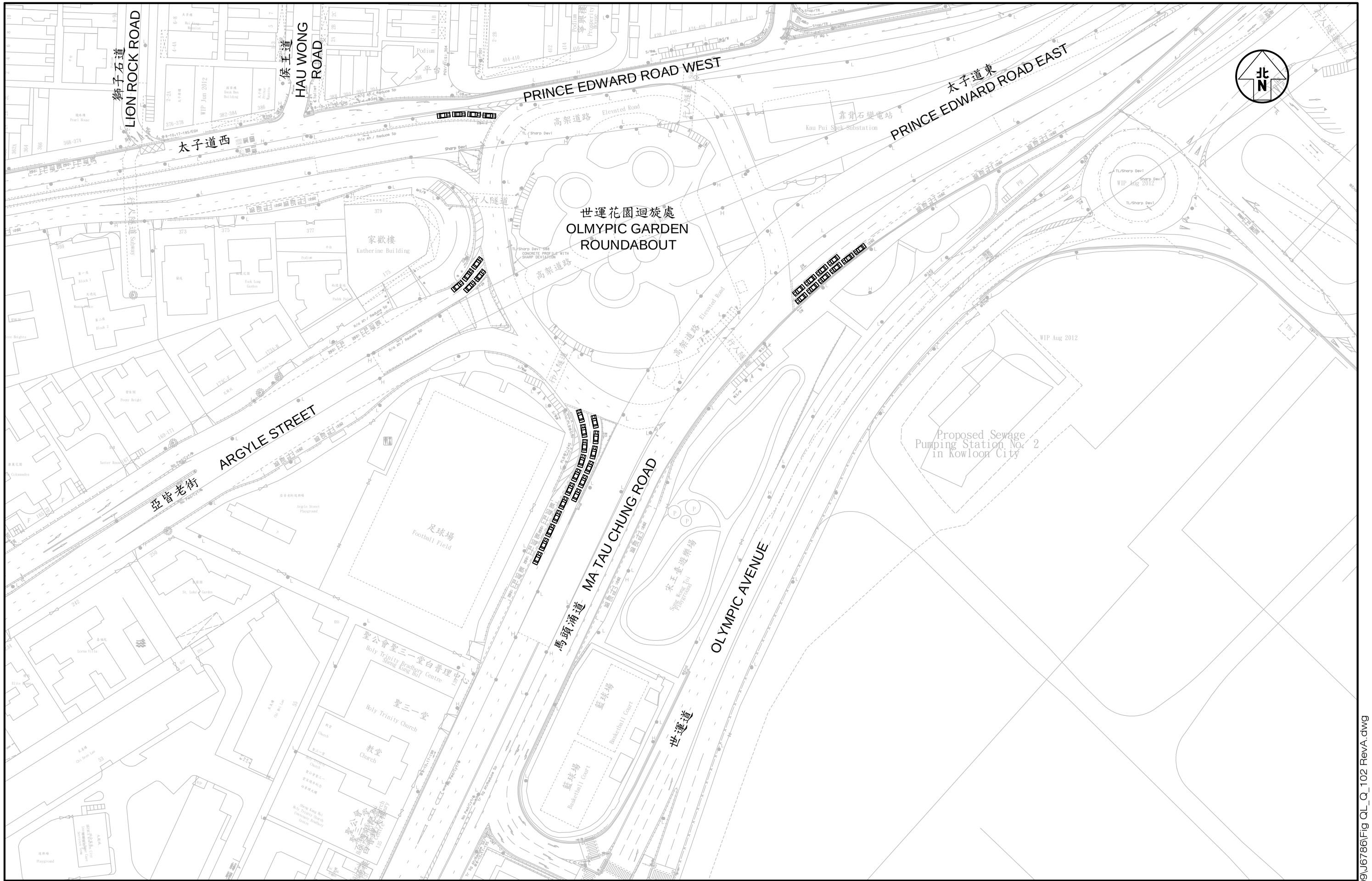

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	
Figure Title	JUNCTION Q - WEEKDAY AVERAGE QUEUE LENGTH (PM PEAK)	Figure No. QL/Q/102	Revision A
		Designed by T H C	Drawn by C C L
		Checked by	
		Scale in A3 1 : 1,250	Date 16 MAY 2019

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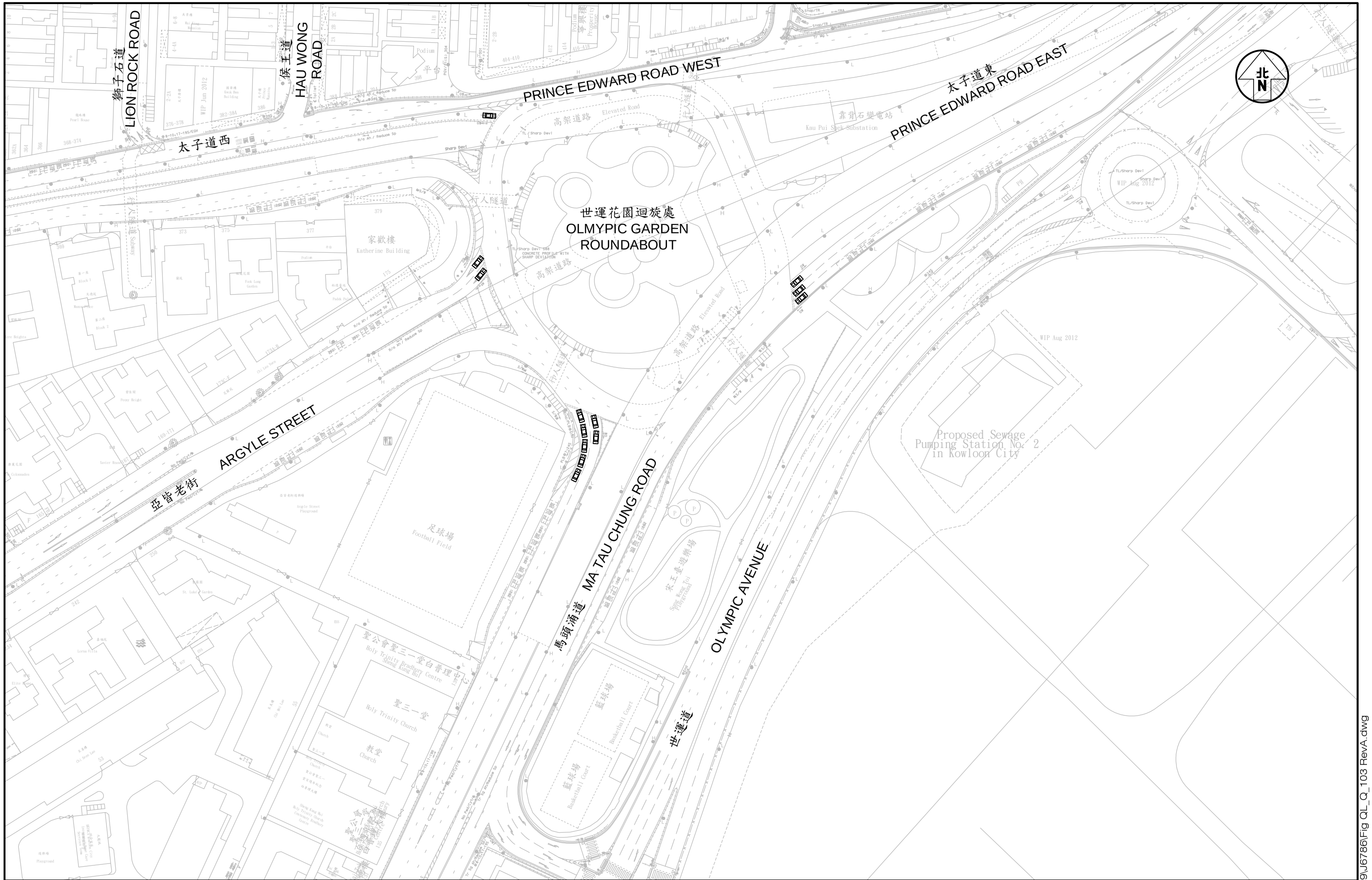

Project Title: URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No.: QL/Q/103	Revision: A
Figure Title: JUNCTION Q - WEEKEND AVERAGE QUEUE LENGTH (AM PEAK)		Designed by: T H C / Drawn by: C C L / Checked by:	
		Scale in A3: 1 : 1,250	Date: 16 MAY 2019

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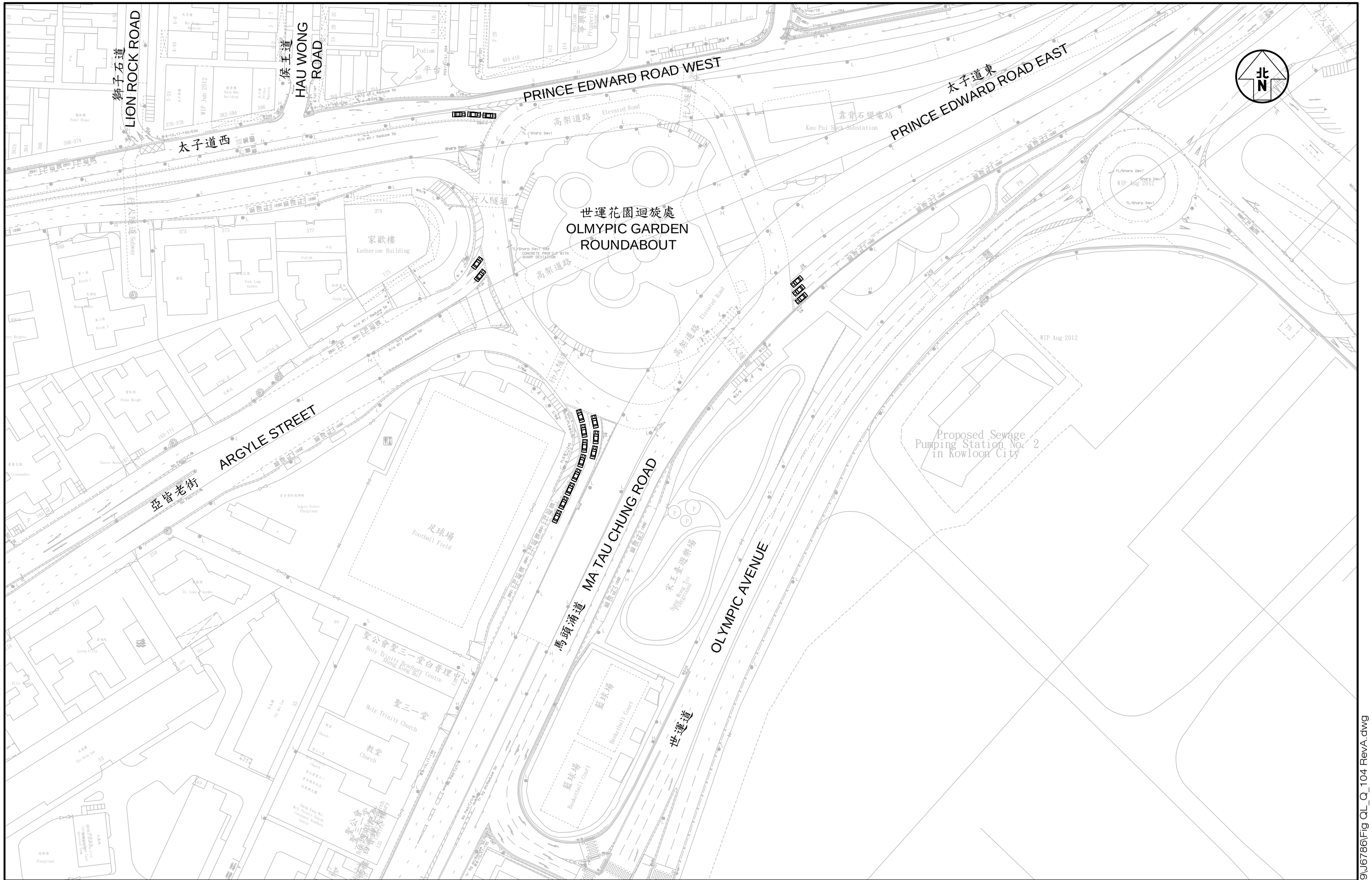

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	
Figure Title	JUNCTION Q - WEEKEND AVERAGE QUEUE LENGTH (PM PEAK)	Figure No. QL/Q/104	Revision A
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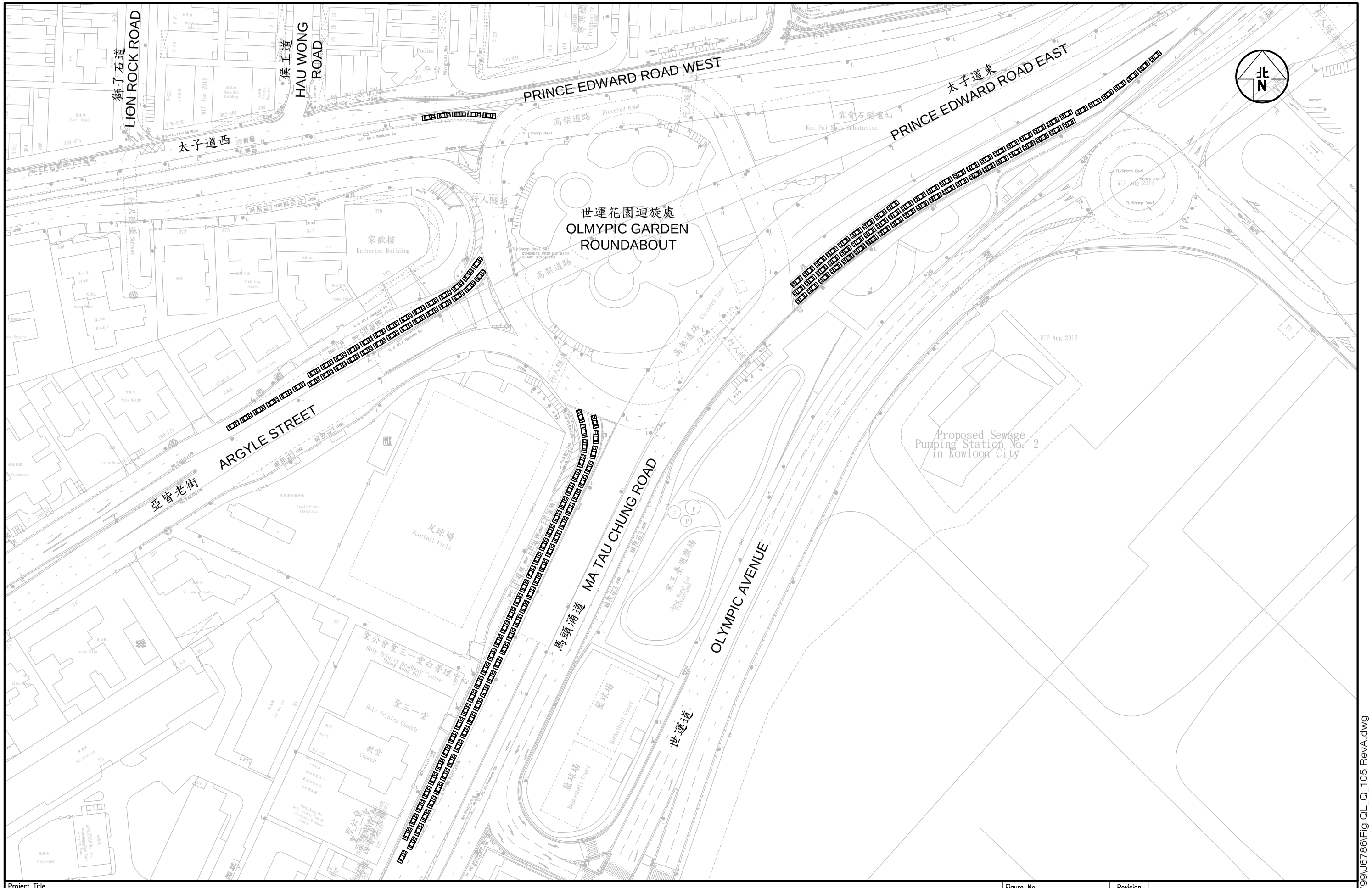

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/Q/105 Revision A
Figure Title	JUNCTION Q - WEEKDAY MAXIMUM QUEUE LENGTH (AM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 1,250 Date 16 MAY 2019

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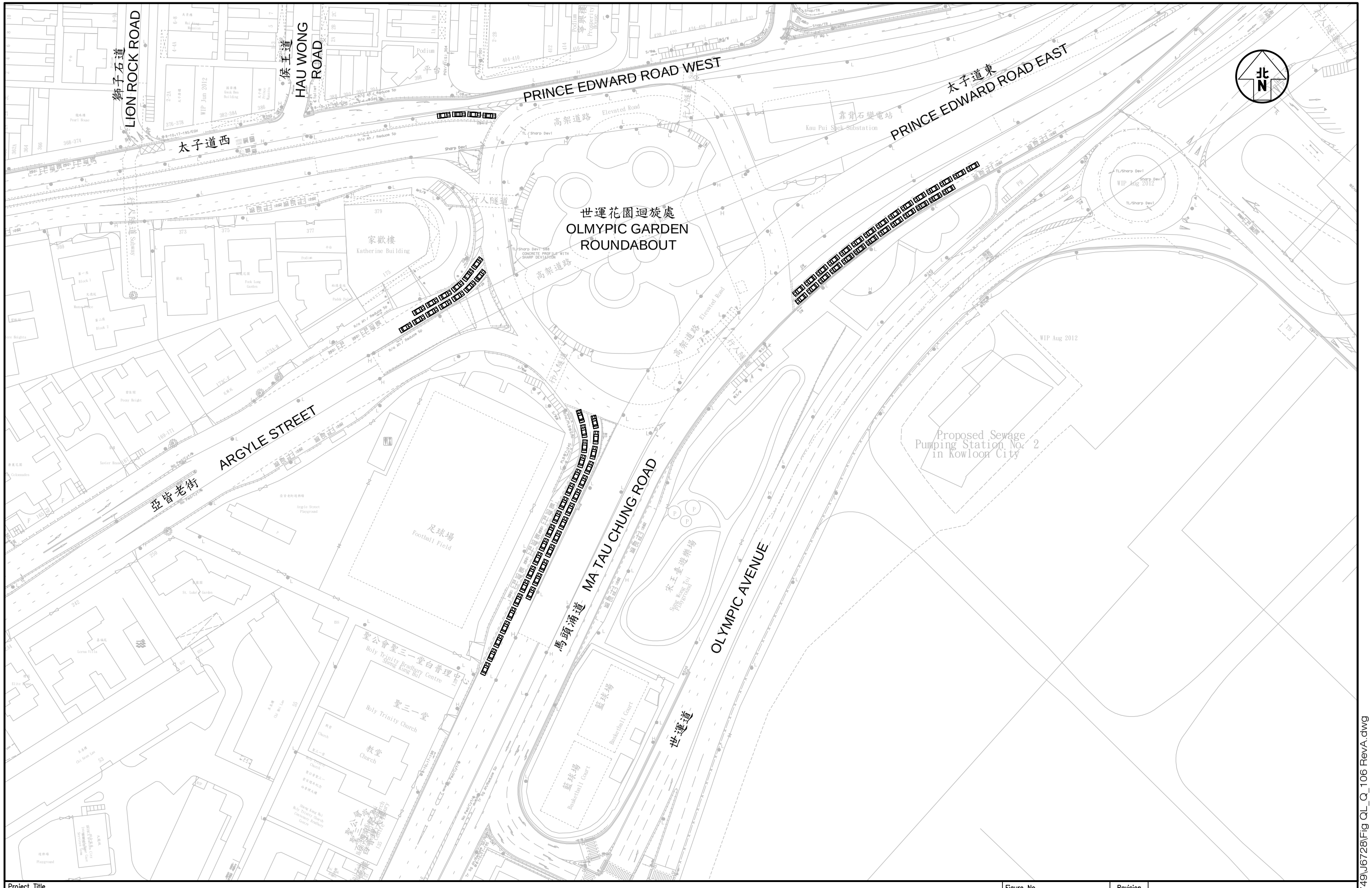

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	
Figure Title	JUNCTION Q – WEEKDAY MAXIMUM QUEUE LENGTH (PM PEAK)	Figure No. QL/Q/106	Revision A
		Designed by THC	Drawn by CCL
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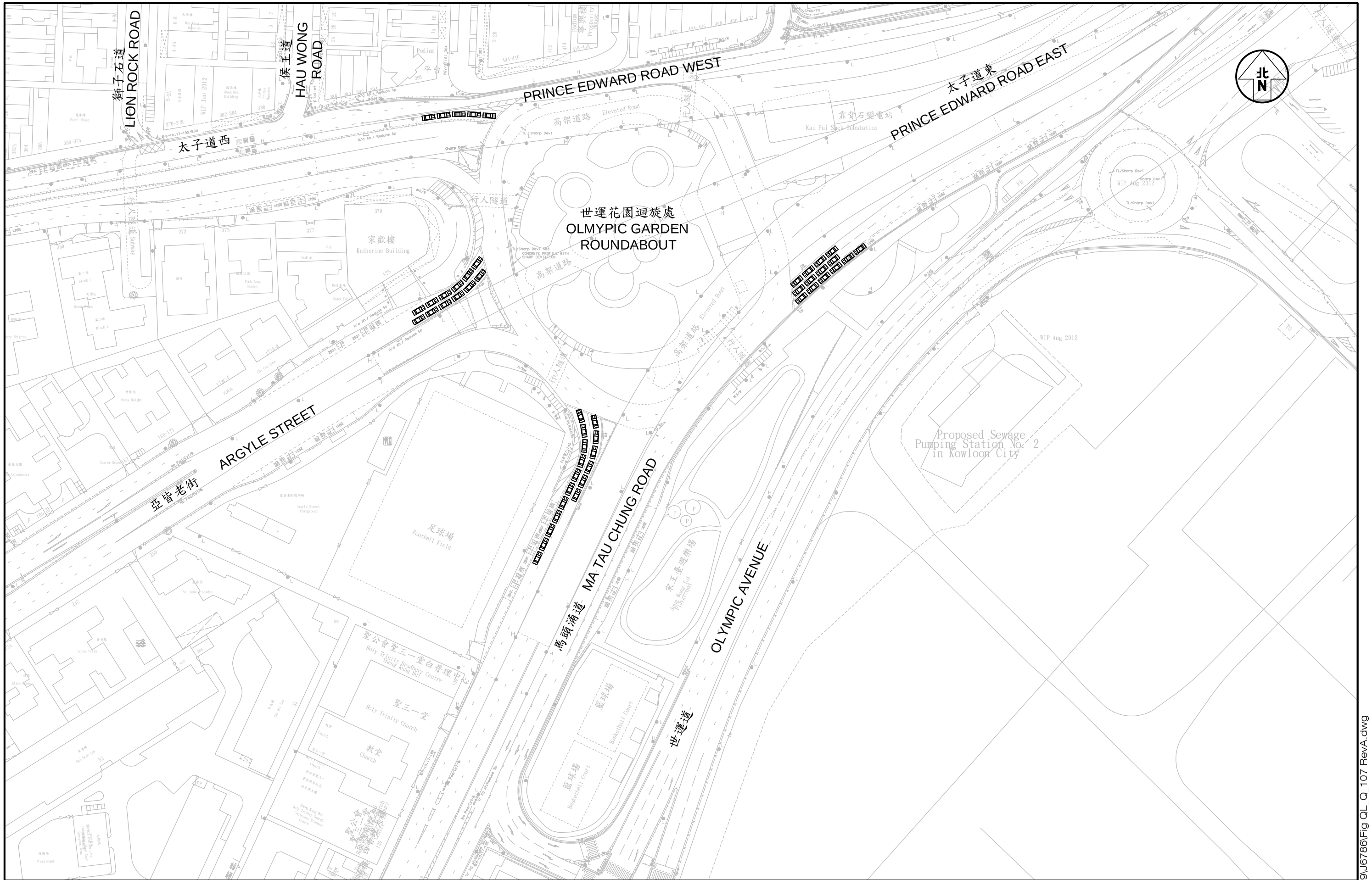

Project Title: URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/Q/107	Revision A
Figure Title: JUNCTION Q - WEEKEND MAXIMUM QUEUE LENGTH (AM PEAK)		Designed by T H C / Drawn by C C L / Checked by	
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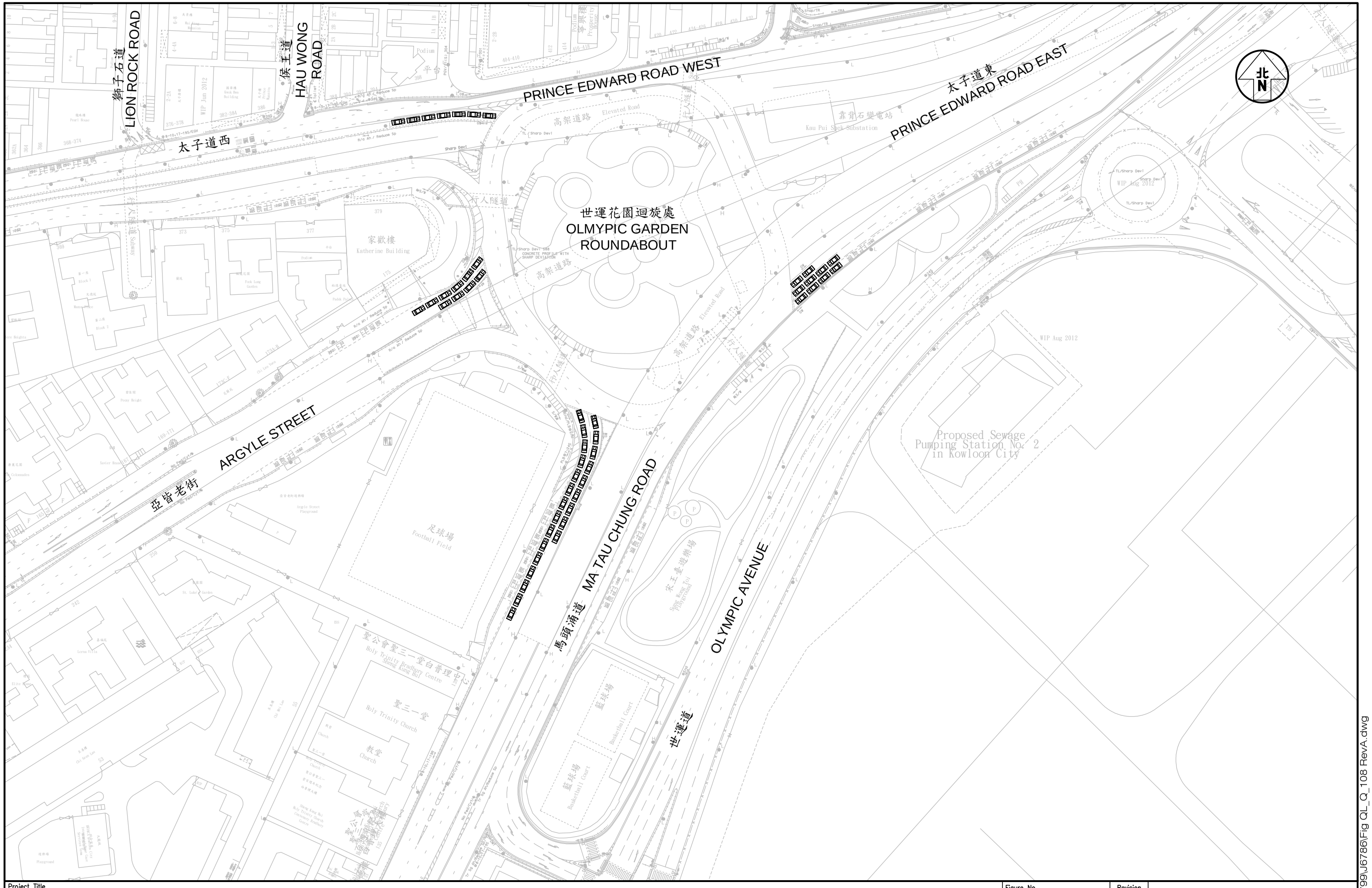

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/Q/108 Revision A
Figure Title	JUNCTION Q – WEEKEND MAXIMUM QUEUE LENGTH (PM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 1,250 Date 16 MAY 2019

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Our Ref: PDD/KC-015/19052418

市區重建局
URBAN RENEWAL AUTHORITY

By Hand

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

31 May 2019

Dear Sir/Madam,

Draft Development Scheme Plan
for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Responses to Departmental Comments -

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019 and Departmental Comments received via email dated on 27 and 28 May 2019. We would like to enclose our responses to comments (R to C) to the Departmental Comments and the revised Explanation Statement for your necessary action.

Please note no fundamental change has been proposed to the submitted draft DSP under URAO s.25, i.e. no change on the proposed boundaries of the DSP, the site area, the overall development parameters nor planning intention. The information as contained in this letter is mainly technical clarifications to address various comments. We look forward to your prompt processing and consideration on the R to C along with your ongoing preparation work for TPB's consideration.

Should you have any enquiry, please feel free to contact me at [redacted] or our Ms. Mable Kwan at [redacted]. Thank you very much.

Yours faithfully,

RECEIVED
31 MAY 2019
Town Planning Board

Mike Kwan
General Manager
Planning & Design Division

encl.

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

5 years+ 同心齊關懷 caringorganisation

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Government Department	Comments	Responses
Received via email from TP/K10, DPO/Kowloon dated May 27, 2019		
EPD	2. The URA has submitted R to C and revised R to C in response to the comments provided by various departments on the DSP for the subject site to PlanD on 15, 16 and 21 May 2019. No revisions of the Environmental Assessment (EA) nor Sewerage Impact Assessment (SIA) have been submitted.	URA submitted R to C on May 3, 10 and 21 respectively. On May 3, 2019, URA has provided Responses to EPD's comments on EA regarding Air Quality, Noise, Fixed Noise Sources, Waste Management and Sewerage Impact Assessment. On May 21, 2019, URA provided Responses to EPD's further comments on the EA regarding Air Quality, Noise, Waste Management and Land Contamination Assessment, Sewerage Impact Assessment. Given the issues were clarified in the R to C with supporting plans and tables provided and prior informal discussion with EPD was conducted, the submission and responses are considered sufficient and therefore no revised EA and SIA reports are provided. Furthermore, as verbally confirmed by EPD on May 28, 2019, it is not necessary to submit the full set EA for consideration. However, as requested by EPD in his comment on Point 4 below, a full set of revised SIA is provided for comment as attached.
	3. Regarding the latest revised R to C related to the EA, our previous comment has not been addressed (R-t-C 3 refers). Please confirm with the Transport Department for the road types of the concerned roads and demonstrate the proposed development can fulfill the buffer distance requirements under	It is supposed the comment referred to R-t-C 4 rather than R-t-C 3 in EPD's comments on May 14, 2019, regarding the road types of Carpenter Road, Sa Po Road and Kai Tak Road. As confirmed by TD on May 27, 2019 by email (see Annex 1), Carpenter Road, Sa Po Road and Kai Tak Road are "local distributors". In accordance with Chapter 9 of the HKPSG

Government Department	Comments	Responses
	Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG). Hence, we consider that the environmetnal acceptabilty of the subject proposed redevelopment for air quality has not been demonstration. We are unable to accept the EA at this stage.	dealing with the minimum buffer distance between the "roads" and active "open space", a minimum buffer distance between local distributor and active open space is 5m. Accede to the advice from EPD, it is a good practice to refer to such buffer distance for residential units. As demonstrated in Figure 4.1 of the EA in the DSP Planning Report, subject to detailed design, it has demonstrated that the proposed residential development facing the local distributers had a minimum separation of 5m measured from the kerb of the adjoining local distributers.
	4. Regarding the latest revised R to C related to the SIA, our comments are provided below for forwarding to URA for follow up. In addition, please ask URA to provide a full set of the revised SIA and R to C for further vetting/comment.	As requested, a full set of the revised SIA report (as attached in Annex 2) and R-t-C is prepared for comment.
	(i) The capacity of upgraded pipe 03 in Option 1 and 2 are inconsistent. Please advise.	The catchment area for Pipe 03 are different in two Options therefore the required upgrading for Pipe 03 are different.
	(ii) It is noted that less conservative value of roughness coefficient was adopted for proposed and upgraded sewers. Please adopt the more conservative value of roughness coefficient.	A more conservative roughness coefficient of slimed concrete pipe is adopted in the updated calculation (please see the revised SIA report as attached in Annex 2).

Government Department	Comments	Responses
	(iii) For upgraded sewers, it is preferable that the spare capacity of the sewers would be more than 40% at the estimated peak flow.	It is noted that the preferred spare capacity of the sewers be more than 40% is a new and additional request from EPD, which was not expressed in the last 2 rounds of comments. In general, the SIA would consider the sewerage impact of the proposed development and to propose mitigation measures, e.g. upgrading of existing pipes to the level that will not overload the designed discharge capacity. Nevertheless, it is noted that EPD requested for this project to achieve a more than 40% spare capacities at the estimated peak flow of the sewers. URA will take note of the request at the detailed design stage to ascertain the sewerage impact and propose the upgraded sewers to the satisfaction of the relevant departments according to the prevailing regulatory requirements. In this planning stage, it is proposed to upgrade PP01 under Option 2 (which is the preferred option recommended in the SIA), from 300mm diameter to 375mm diameter, so that all the proposed new pipes in Option 2 will have more than 40% spare capacities. Please refer to Appendix 3.4-3.5 in the revised report (as attached in Annex 2).

Government Department	Comments	Responses
		According to EPD's suggestion, when PP01 under Option 2 (which is the preferred option recommended in the SIA) is upgraded from 300mm diameter to 375mm diameter, a spare capacity of 40% is achievable. However, the final size of PP01 should comply with prevailing regulatory requirements at the detailed design stage.

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)
Responses to Departmental Comments

Government Department	Comments	Responses
Received via email from TP/K10, DPO/Kowloon dated May 28, 2019		
TD	1. Please submit the traffic impact assessment for construction stage during the detailed design stage.	Noted. The construction traffic impact assessment will be conducted in the updated TIA at detailed design stage.
	2. Please advise if this development (KC-015) would only provide pedestrian accesses for residents as shown in Figure 3.2. Please advise if there are proposed pedestrian accesses at Sa Po Road, Kai Tak Road and Carpenter Road.	Figure 3.2 mainly shows the vehicular ingress/egress arrangements, the pedestrian routings as shown in Figure 3.2 are indicative only. The pedestrian routing and accesses of KC-015 connecting to Sa Po Road, Kai Tak Road and Carpenter Road will be provided in the updated TIA at detailed design stage.
	3. The planned and committed developments considered in your assessment should be incorporated in corresponding sections of the updated TIA report.	Noted.
	4. Please include the revitalisation renewal initiative report proposed by the applicant as part of the TIA upon including assessment on the LOS of the footpaths and review of pedestrian crossing facilities during the detailed design stage so as to cater for the increase in population of the elderly.	Noted. A separate revitalisation renewal initiative will be studied in the Preliminary Project Feasibility Study (PPFS) and any revitalisation and/or traffic improvement proposals, if appropriate, will be included in the updated TIA report at the detailed design stage.
	5. I appreciate that the applicant carried out the queue analysis to review the operational performance of Junction A – Tung Tsing Road / Lok Sin Road / Sa Po Road and Junction Q – Olympic Garden Roundabout. As stated in the TIA report of KC-AA3-01 submitted in November 2018, the possible traffic and pedestrian improvement measures	The estimated vehicle queue lengths at Junctions A and Q for the case with KC-015 on weekday and weekend in 2033 are presented in Table 1 and Figures QL/A/201 – QL/Q/204 (as attached in Annex 3).

<table>
<tr><th>Government Department</th><th>Comments</th><th>Responses</th></tr>
<tr><td></td><td>were identified for the junctions. However, the applicant stated that these measures are not pre-requisite for KC-015 and these improvement measures might be implemented upon occupation of KC-015 subject to actual site and traffic conditions encountered at the time of implementation. The applicant should justify why he is of the view that the proposed measures in KC-AA3-01 are not pre-requisite for KC-015. As such, please advise the calculated queue length upon completion of KC-015 and check if the development of KC-015 would have impact on traffic, particularly at Junction A and Junction Q.</td><td>TABLE 1 ESTIMATED VEHICLE QUEUES WITH KC-015 IN 2033
<table>
<tr><th rowspan="3">Ref.</th><th rowspan="3">Approach (1)</th><th colspan="4">Estimated Queue Length (m) (2)</th></tr>
<tr><th colspan="2">Weekday</th><th colspan="2">Weekend</th></tr>
<tr><th>AM</th><th>PM</th><th>AM</th><th>PM</th></tr>
<tr><td colspan="6">Junction A – Tung Tsing Road / Lok Sin Road / Sa Po Road</td></tr>
<tr><td>A1</td><td>Carpenter Road</td><td>30</td><td>30</td><td>40</td><td>40</td></tr>
<tr><td>A2</td><td>Tung Tsing Road</td><td>20</td><td>30</td><td>30</td><td>30</td></tr>
<tr><td>A3</td><td>Lok Sin Road</td><td>30</td><td>35</td><td>45</td><td>45</td></tr>
</table>
TABLE 1 ESTIMATED VEHICLE QUEUES WITH KC-015 IN 2033 (CONT'D)
<table>
<tr><th rowspan="3">Ref.</th><th rowspan="3">Approach (1)</th><th colspan="4">Estimated Queue Length (m) (2)</th></tr>
<tr><th colspan="2">Weekday</th><th colspan="2">Weekend</th></tr>
<tr><th>AM</th><th>PM</th><th>AM</th><th>PM</th></tr>
<tr><td colspan="6">Junction Q – Olympic Garden Roundabout</td></tr>
<tr><td>Q1</td><td>Ma Tau Chung Road</td><td>90</td><td>70</td><td>30</td><td>45</td></tr>
<tr><td>Q2</td><td>Prince Edward Road East</td><td>90</td><td>35</td><td>10</td><td>5</td></tr>
<tr><td>Q3</td><td>Prince Edward Road West</td><td>10</td><td>25</td><td>10</td><td>15</td></tr>
<tr><td>Q4</td><td>Argyle Street</td><td>35</td><td>20</td><td>10</td><td>10</td></tr>
</table>
Note: (1) The critical vehicle queue among all traffic lanes within the same approach is adopted</td></tr>
</table>

Government Department	Comments	Responses
		[(2)] All vehicle queue rounded up to the nearest 5m Table 1 and Figures QL/A/201 – QL/Q/204 show that estimated vehicle queues at Junctions A and Q do not block their upstream junctions. From traffic engineering point of view, the vehicle queue analysis concluded that the traffic impact on Junctions A and Q associated to KC-015 is acceptable. Hence, the possible traffic and pedestrian improvement measures identified for Junctions A and Q are not pre-requisite for KC-015. As stated in the TIA report for whole study area KC-AA3 submitted to Transport Department on 9th November 2018, traffic improvement measures for Junction A and Q maybe desirable but not contingent to KC-015. The possible traffic and pedestrian improvement measures for the junctions will be further studied in the Preliminary Project Feasibility Study (PPFS), if appropriate and subject to further liaison with relevant government departments, will be included in the updated TIA report at the detailed design stage.
	6. It is noted that the development would provide 120 ancillary car parking spaces and 300 public vehicle car parking spaces, with two ingresses on Sa Po Road and Kai Tak Road respectively so as to facilitate turn-around of vehicles and efficiency in operation of public vehicle park (PVP). It is expected that traffic queue will be contained within the site and there is no expected traffic queue on the public road. In view of the above, we have no further comment	Noted.

Government Department	Comments	Responses
	on provision of the proposed two ingresses and one egress of the vehicle access provided that it would not result in traffic queue ah Sa Po Road, Kai Tak Road and Carpenter Road.	
	7. It is expected that there will be high demand of loading / unloading activities for retail purpose. As such, please review to provide additional 2 HGV + 2 LGV loading / unloading bays in the development.	As mentioned in our previous R-to-C to TD, the current proposed provision of L/UL bays complies with HKPSG requirements. A sunken plaza of about 1,000m^2 in the southern part of the site will be provided as a vibrant and vital connection node between Kai Tak Development Area (KTDA) and the old Nga Tsin Wai Road Area. In addition, 300 public car parking spaces will be provided in the proposed development. With the above two major planning intentions of the Scheme, there is severe limitation to accommodate all internal transport facilities within the subject site. Under current proposed L/UL provision, it has already occupied a large part of the ground floor area for loading/ unloading use and its required manoeuvring space, resulting in half of the street frontage of the site at Sa Po Road and Kai Tak Road respectively were occupied by L/UL activities with no retail shop frontage. If more loading / unloading bays are provided within the site, it will further reduce the street frontage for Ground floor shops, thus, the street activities will be decreased. As a result, it will further affect the street vibrancy pertaining to the local characters. If the L/UL bays be located in the basement, there is need to increase the headroom and enlarge the helical ramp. In the current proposal, there are already 5 levels of basement for private car park. Further enlargement of basement is undesirable and not environmentally sustainable. The provision of more L/UL bays within the site will also impose a more restrictive site layout and building disposition.

Government Department	Comments	Responses
		Nevertheless, in view of TD's concern on possible high retail demand, URA proposes to provide one additional HGV bay to be shared with the future Refuse Collection Vehicle (RCV). With the 3 HGVs provided for residential, the total provision of L/UL will be 6 HGVs and 5 LGVs which is already the mid-range of the HKPSG requirements.
	8. Please advise the figures of x_1 and x_2 adopted in your assessment. In addition, the methodology on obtaining the traffic flows in the design year of 2033 should be incorporated in paragraph 4.8 or corresponding sections of the updated TIA report.	x_1 is 0.55% per annum which is obtained from *"2014-based Territorial Population and Employment Data Matrix"*, and x_2 is 0.42% per annum which is obtained from the latest *"Hong Kong Population Projections"*.
	9. In accordance to paper on "Parking Policy" as discussed on 19 May 2017 at Legislative Council Panel on Transport that the Government's current policy in the provision of parking spaces is to accord priority to considering and meeting the parking demand of commercial vehicles. As such, due consideration should be given on provision of parking spaces for commercial vehicles in the PVP.	As mentioned in the previous response to comments of 15th May 2019, the public vehicle park in Kowloon City Plaza (KCP) has around 49 public goods vehicle parking spaces, and the occupancy of these spaces during weekday and weekend is around 53% and 65% respectively. Hence, the public vehicle park within KCP is not fully utilised and could meet the commercial parking demand of *"Nga Tsin Wai Road Area"*. In addition, the number of existing on-street metered goods vehicle parking spaces at Kai Tak Road and in the vicinity of KC-015 will be maintained. Therefore, the supply of on-street goods vehicle parking supply is not affected by KC-015. A sunken plaza of about 1,000m^2 in the southern part of the site will be provided as a vibrant and vital connection node between KTDA and the old Nga Tsin Wai Road Area. In addition, 300 public car parking spaces will be provided in the proposed development. With the above two major

Government Department	Comments	Responses
		planning intentions of the Scheme, there is severe limitation to accommodate all internal transport facilities within the subject site. Should additional commercial vehicle parking spaces be provided in KC-015, there is need to increase the headroom and enlarge the helical ramp, which is not cost-effective and create inefficient use of land. The space taken up by the enlarged helical ramp would result in the reduction in the provision of public car parking spaces in the basement levels and will pose significant construction constraints, thus, the car park will require more than 5 basement levels. The provision of more than 5 basement levels is considered unacceptable in terms of cost effectiveness, efficiency and environmental sustainability. Taking into consideration the provision of 300 public vehicle car parking spaces within the Site and the 5 levels of basement, further provision for public commercial parking spaces will not be provided within KC-015.
	10. As parking, pick-up / drop-off and loading / unloading activities would be conducted after completion of KC-015, please advise your quantitative assessment on the benefit to the capacity of the roads in the vicinity including Sa Po Road, Kai Tak Road and Carpenter Road. Please include the revitalisation initiative report proposed by the applicant as part of the TIA report including traffic arrangement and pavement widening in the vicinity of the development during the detailed design stage.	Noted. The analysis on the benefit to the public road capacity upon completion of KC-015 and a separate revitalisation renewal initiatives will be studied in the Preliminary Project Feasibility Study (PPFS) and any revitalisation and/or traffic improvement proposals, if appropriate, will be included in the updated TIA report at the detailed design stage.

From: Christine LUK
To: Kw Leung
Cc: Ho, Clarice; Colman Wong; Jennifer Mok; Lee Ks
Subject: Re: URA Sa Po Road/Kai Tak Road: Road Type
Date: 27 May 2019 11:27:52 AM

Dear Mr Leung ,

I have no comment on your suggested road type of Sa Po Road, Kai Tai Road and Carpenter Road.

Regards,

Christine LUK
EK/KC, TEK,TD
Tel 2399 2512

From: Kw Leung <KW.Leung@cinotech.com.hk>
To: Christineluk@td.gov.hk,
Cc: "Ho, Clarice" <CNSHo@ura.org.hk>, Jennifer Mok <jennifer.mok@cinotech.com.hk>, Colman Wong <colman.wong@cinotech.com.hk>, Lee Ks <ks.lee@cinotech.com.hk>
Date: 17/04/2019 10:17
Subject: Re: URA Sa Po Road/Kai Tak Road: Road Type

Dear Ms. Luk,

As per our telecommunication, we would like to seek your view on whether the road types of Sa Po Road, Kai Tak Road and Carpenter Road are Local Distributors.

Thank You.

Regards,
KW Leung 2151 2097
Cinotech Consultants Limited

On Thu, Mar 28, 2019 at 2:28 PM Kw Leung <KW.Leung@cinotech.com.hk> wrote:
Dear Ms Luk,

The Urban Renewal Authority (URA) has proposed a Development Scheme at Kai Tak Road/Sa Po Road Development Scheme (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO).

We, Cinotech Consultants Ltd., was commissioned by URA to carry out an Environmental Assessment (EA).

According to the comment from Environmental Protection Department (EPD), we would like to seek your view on the road type of Sa Po Road, Kai Tak Road and Carpenter Road.

Thank you in advance for your kind assistance in this matter. Your early reply would be

much appreciated. Should you have any questions, please contact us.

Regards,
KW Leung 2151 2097
Cinotech Consultants Limited

Urban Renewal Authority
Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Sewerage Impact Assessment

(V2.0)

May 2019

Approved By _____

(Project Manager: Mr. KS 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

Background

1.1. The Urban Renewal Authority (URA) has proposed a development scheme at Kai Tak Road / Sa Po Road (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). This Sewerage Impact Assessment (SIA) is to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

1.2. The proposed development scheme is located between Kai Tak Road and Sa Po Road. The existing zoning of the site is **"**Residential (Group A)2**"** (R(A)2) and shown **"**Road**"**, on the Approved Ma Tau Kok OZP No. S/K10/24. The site comprises two lines of buildings facing Kai Tak Road and Sa Po Road respectively (except 51 Sa Po Road and 33 Carpenter Road). The location of the Scheme is shown in **Figure 1.1**.

1.3. The Scheme proposes to demolish the existing old buildings on Nos. 24-82 Kai Tak Road (even nos.), 31-73 Sa Po Road (odd nos. expected No. 51) for redevelopment into new residential cum retail development. A portion of existing Sa Po Road is proposed to be closed permanently for creating of a split-level sunken plaza to serve as a gateway to connect to proposed subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) and underground shopping street (USS) in Kai Tak Development Area (KTDA). It will allow better connection, continue the retail vibrancy and enhance the walkability between this part of old district area and KTDA. Traffic of Sa Po Road will be redirected to a new private road within the Scheme. The scheme area is proposed to be rezoned to "R(A)" to reflect the redevelopment's intentions.

1.4. Cinotech Consultants Limited was commissioned by URA to carry out a SIA to assess and envisage any potential sewerage impact on the implementation of the proposed development and to recommend mitigation measures as necessary.

2 DESCRIPTION OF THE ENVIRONMENT

2.1. The site is located between Kai Tak Road and Sa Po Road and the net site area is about 5,352 m², developments within the Development Scheme Plan (DSP) boundary include even street no. 24-82 Kai Tak Road and odd street no. 31-73 Sa Po Road; an amenity area south to 24-26 Kai Tak Road and 31-35 Sa Po Road; portion of existing Sa Po Road. The existing 51 Sa Po Road (Carlson Court) and 33 Carpenter Road (High Place) are not included in the redevelopment scheme.

2.2. The buildings to be demolished within the Scheme are multi-storeys residential buildings with up to 12 storeys and ground floor shops, the sewage discharge are currently served by the public sewer laid in the scavenging lane between the two lines of buildings.

3 SEWERAGE IMPACT ASSESSMENT

Introduction

3.1 This chapter identifies and evaluates the sewerage impact of the Scheme by estimating the potential sewage loading and discharge distribution to the public sewer. As there will be an increase in population, the associated sewage generation arising from the proposed development in the Scheme is expected to increase. The sewerage system surrounding the proposed development is reviewed.

Review of Existing Sewerage System

3.2 The existing surrounding public sewers are:

- FSH4002820 to FMH4030180 in the scavenging lane to be closed;
- FMH4029814 to FMH4029808 along existing Sa Po Road (Route 1);
- FSH4001644 to FMH4029808 from Carpenter Road to Kai Tak Road (Route 2).

These existing routes and manholes are illustrated in **Figure 3.1**.

3.3 Sewage from existing buildings of the Site currently discharges to the sewerage system along the scavenging lane and eventually collected by FMH4029807. The existing sewers from manholes FSH4002820 to FMH4030180 will be demolished due to the redevelopment; therefore, the sewage pipes connecting to existing buildings High Place and Carlson Court (outside of DSP boundary) should be diverted.

3.4 The capacities of the existing foul sewers are calculated using Colebrook-White Equation. The capacities of existing public sewers are shown in **Table 3.1** below; detailed calculation of the existing pipes is shown in **Appendix 3.1**.

Table 3.1 Capacities of Existing Foul Sewers

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)[1]
Route 1: along Existing Sa Po Road			
Pipe 01[2]	FMH4029814	FMH4030180	159.3
Pipe 02	FMH4030180	FMH4029807	91.6
Pipe 03	FMH4029807	FMH4029809	44.1
Pipe 04[3]	FMH4029809	FMH4029808	576.0
Route 2: from Carpenter Road to Kai Tak Road			
Pipe 05	FSH4001644	FMH4051283	689.4
Pipe 06	FMH4051283	FMH4051284	721.3
Pipe 07	FMH4051284	FMH4029801	1022.0
Pipe 08[4]	FMH4029801	FMH4029802	704.6
Pipe 09	FMH4029802	FMH4029803	817.3
Pipe 10	FMH4029803	FMH4029804	1215.1
Pipe 11	FMH4029804	FMH4029805	1222.7
Pipe 12	FMH4029805	FMH4029806	815.1
Pipe 13	FMH4029806	FMH4029785	2040.7
Pipe 14	FMH4029785	FMH4029783	1351.0
Pipe 15	FMH4029783	FMH4029808	1596.7

[1] The pipe capacity are calculated by Colebrook-White Equation and detailed in **Appendix 3.1**.

[2] For Pipe01, Invert level of upstream is not found in Drainage Record plan, 1/100 is adopted in this calculation. Detail survey shall be conducted during construction stage to confirm the pipe capacity.

[3] For Pipe04, invert level of downstream is not found in Drainage Record Plan, same level of another pipe (from FMH4029783 to FMH4029808) is applied.

[4] The upstream and downstream invert levels are the same for Pipe08. The average slope of upstream Pipe07 & 08 is adopted. (slope = invert level at FMH4051284 - invert level at FMH4029802 / total length of Pipe07 and Pipe08).

Sewage Discharge from Scheme

3.5 Under the current notional design of the proposed development in the Scheme, the Scheme consists of a multi-storey non-residential podium (planning for shops and a club house) and 29-storey of residential flats (total 810 units). Upon CE in C's approval of the DSP, the proposed development will be subject to detailed design and changes, based on the approved DSP.

3.6 The proposed population intake year is Year 2030. Based on Population By-census 2016, the average domestic household size in Lung Shing District Council Constituency Area is 2.4 persons. The target population intake of the proposed development in the Scheme is in line with the recorded average household size for Lung Shing Constituency (2.4 persons/household). Therefore, the design residential population is about 1,944 persons (810 flats × 2.4 persons). The population from the Scheme is summarised in **Table 3.2** below.

Table 3.2 Estimation of Residential Population

No. of Floors	Total No. of Flats	No. of person per flat [1]	Predicted Total Population
29	810	2.4	1,944

[1] The average domestic household size is 2.4 persons for Lung Shing district according to Population By-census 2016. Hence, the number of persons per household for this proposed development is assumed to be 2.4.

3.7 The proposed use of the clubhouse is mainly for a gymnasium and some other passive activities. As the uses of shops are not confirmed, half of the shops are assumed to be "Restaurant" and the other half as "Retail". The population and the number of employees are estimated according to the usable floor area per person and the occupancy factor from Code of Practice for Fire Safety in Buildings 2011, published by Buildings Department. **Table 3.3** shows the population calculation of the clubhouse and shops, the detailed calculation is shown in **Appendix 3.2**.

Table 3.3 Estimation of Non-residential Population

Non-residential Use	UFA (m^2)	Occupancy Factor (m^2 per head)	Total No. of Occupancy	No. of Employee
Retail	2,819	3	964	97
Restaurant	2,819	1	2,891	290
Club House	884	3	295	30
Community	640	3	213	22

[1] Occupancy factors for the corresponding type of accommodation are from Table B1 of Code of Practice for Fire Safety in Buildings 2011.

Assume that UFA is 80% of GFA and the total GFA for Retail and Restaurant use is 7228m^2.

[2] No. of Occupants = Usable Floor Area (m^2) / Occupancy Factor

[3] A staff to occupant ratio of 1:10 is assumed for coffee shop and clubhouse to estimate the number of employees.

3.8 The estimated population and peak sewage flow from the residential towers and podium are summarized in **Table 3.4**. The total dry weather daily average flow is 1,025 m^3/day. The peak flow is 71.2 L/s, applying the peaking factor including stormwater allowance of 6 for a contribution population of 1,000-5,000 persons.

Table 3.4 Sewage Flow from Proposed Development

Type	Unit Flow Factors[1] (m^3/day/person)	No. of Employees/ Residents	Flow Rate (m^3/day)	Peak Flow[2] (L/s)
Retail	0.28	97	27.2	-
Restaurant	1.58	290	458.2	-
Club House	0.28	30	8.4	-
Community	0.28	22	6.2	-
Residential	0.27	1944	524.9	-
Total	**-**	**-**	**1025**	**71.2**

[1] EPD's Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 defining unit flow factors.

[2] The contribution population is 1025 m³/day / 0.27 = 3,796 and peaking Factor of 6 for contribution population 1,000 – 5,000 persons is adopted. 24 operation hours per day is adopted for peak flow calculation. i.e. Peak Flow = 1025 × 1000 × 6 × 1 / 24 / 3600 = 71.2 L/s.

3.9 The sewerage discharge from the redevelopment buildings is proposed to be collected by a terminal manhole (FTMH-01) as shown in **Figure 3.4**. The terminal manhole will be connected to the public sewerage system via a ϕ375mm pipe, PP01, with a slope of 1:100. The capacity of the proposed new pipe is shown in **Table 3.5** below and it would have sufficient capacity to cater the sewage discharge from the redevelopment (71.2L/s).

Table 3.5 Capacity of Proposed Pipe from Proposed Development

Pipe	Terminal Manhole	Diameter (mm)	Slope	Pipe Capacity (L/s)
PP01	FTMH01	375	1:100	159

Sewage Discharge from High Place and Carlson Court

3.10 As mentioned in **Section 3.3**, the sewers connecting to High Place and Carlson Court should be diverted to the closest manhole as the original downstream will be closed. The sewage from High Place (Catchment A) is proposed to discharge to existing public sewage manhole FMH4051284 while the sewage from Carlson Court (Catchment B) is proposed to discharge to FMH4029814. Both are diverted via pipes in 225mm diameter with 1:100 slope. The capacity of the proposed new pipe is shown in **Table 3.6** below.

Table 3.6 Capacity of Proposed Pipe from High Place and Carlson Court

Pipe	Terminal Manhole	Diameter (mm)	Slope	Pipe Capacity (L/s)
From High Place (Catchment A)				
PP02	FTMH02	225	1:100	35.7
From Carlson Court (Catchment B)				
PP03	FTMH03	225	1:100	35.7

Sewage Impact Assessment

3.11 The sewage from surrounding developments is reviewed to estimate the overall impact on the public sewerage system. **Table 3.7** below shows the sewage discharge from each catchment and the catchment areas are shown in **Figures 3.2 & 3.3**. The population and detailed calculation of flow rate are presented in **Appendix 3.3**.

Table 3.7 Daily Flow Rate from Surrounding Development

Catchment ID	Developments	Flow Rate (m^3/day)
A	High Place	80.1
B	Carlson Court	21.8
C	Regal Oriental Hotel	609.7
	Po sing Court	
D	Half of Mei Tung House and Mei Po House	3841.1
	Mei Tak House	
	Shing Tung House	
	Mau Tung House	
	Yan Tung House	
	On Tung House	
	Tung Tau (I) Estate (Phase 8)	
	Hong Tung House	
	Wui Yan House	
	Wui Sum House	
	Le Billionnaire	
	Bishop Ford Memorial School	
	Po Yan Oblate Primary School	
	Tung Tau Community Centre	
E	Billionnaire Royale	568.7
F	Bounder by Kai Tak Road, Tak Ku Ling Road, Nga Tsin Wai Road & Carpenter Road	933.9

3.12 All sewage discharge from the proposed development including the domestic use and non-domestic use is proposed to be collected by a single terminal manhole (FTMH01) and discharge to public sewer via a 375 mm pipe with 1:100 slope. As stated in **Section 3.2** above, two options of discharge routes for the proposed development are assessed: **Option 1** is to connect to original public sewer manhole FMH4030180 and via Route 1 to downstream; and **Option 2** is to connect to FMH4029804 via Route 2 to downstream. The proposed sewer layouts for two options are shown in **Figure 3.4** & **Figure 3.5**.

3.13 **Table 3.8** shows a summary of the discharge loading from the Scheme and surrounding catchment areas to each segment of pipe, detailed calculation for the pipe loading is shown in **Appendix 3.4**.

Table 3.8 Discharge Contribution to the Downstream Pipes

Segment	Catchment	Discharge Loading (L/s)	Full Capacity (L/s)	Upgrading required?
Option 1				
PP01	Scheme	71.2	159.3	-
PP02	A	7.4	35.7	-
PP03	A	7.4	35.7	-
PP04	B	2.0	35.7	-
PP05	B	2.0	35.7	-
Pipe 01	B & C	43.9	159.3	N
Pipe 02	Scheme & B & C	95.8	91.6	**Y**
Pipe 03	Scheme & B & C	95.8	44.1	**Y**
Pipe 04	Scheme & B & C	95.8	576.0	N
Pipe 05	D	177.8	689.4	N
Pipe 06	D & A	181.5	721.3	N
Pipe 07	D & A & E	207.9	1022.0	N
Pipe 08	D & A & E	207.9	704.6	N
Pipe 09	D & A & E	207.9	817.3	N
Pipe 10	D & A & E	207.9	1215.1	N
Pipe 11	D & A & E	207.9	1222.7	N
Pipe 12	D & A & E	207.9	815.1	N
Pipe 13	D & A & E	207.9	2040.7	N
Pipe 14	D & A & E & F	251.1	1351.0	N
Pipe 15	D & A & E & F	251.1	1596.7	N
Option 2				
PP01	Scheme	71.2	159.3	-
PP02	A	7.4	35.7	-
PP03	A	7.4	35.7	-
PP04	B	2.0	35.7	-
PP05	B	2.0	35.7	-
Pipe 01	B & C	43.9	159.3	N
Pipe 02	B & C	43.9	91.6	N
Pipe 03	B & C	43.9	44.1	**Y**
Pipe 04	B & C	43.9	576.0	N
Pipe 05	D	177.8	689.4	N
Pipe 06	D & A	181.5	721.3	N

Pipe 07	D & A & E	207.9	1022.0	N
Pipe 08	D & A & E	207.9	704.6	N
Pipe 09	D & A & E	207.9	817.3	N
Pipe 10	D & A & E	207.9	1215.1	N
Pipe 11	D & A & E & Scheme	232.2	1222.7	N
Pipe 12	D & A & E & Scheme	232.2	815.1	N
Pipe 13	D & A & E & Scheme	232.2	2040.7	N
Pipe 14	D & A & E & Scheme & F	275.4	1351.0	N
Pipe 15	D & A & E & Scheme & F	275.4	1596.7	N

*__Bold__ for surcharging pipes.

Impact Evaluation

3.14 The sewage from the Scheme can be discharged to FMH4030180 (Option 1) or FMH4029804 (Option 2), **Table 3.9** below summaries the assessment result and the corresponding upgrading works required for each connection option.

Table 3.9 Summary of Assessment Result and Evaluation on Connection Options

Connection to Public Manhole	Assessment Result	Upgrading Works
Option 1: FMH4030180	Pipe02 and Pipe03 have insufficient capacity to cater sewage discharge from Catchment B, C and the proposed development.	Pipe02 and Pipe03 would need to be upgraded from 300mm to 375mm and 600mm diameter circular pipes respectively with original slope.
Option 2: FMH4029804	Pipe03 has insufficient capacity to cater sewage discharge from Catchment B, C.	Pipe03 would need to be upgraded from 300mm to 375mm diameter circular pipe with original slope.

3.15 A section of downstream sewer in Option 1, Pipe 02 and Pipe 03 (~57.2m), are needed to be upgraded from 300 mm diameter to 375 mm and 600 mm respectively, whereas only Pipe 03 is needed to be upgraded from 300 mm diameter to 375 mm. Therefore, Option 2 is easier to implement as less construction works regarding sewerage system are involved.

3.16 The discharge loading of the proposed pipes are summarized in **Table 3.10**. The detailed calculation is shown in **Appendix 3.5**.

Table 3.10 Proposed Sewerage Pipes

Segment	Upstream Manhole	Downstream Manhole	Length (m)	Diameter (mm)	Full Capacity (L/s)	Discharge Loading (L/s)	(%) used
Option 1							
PP01	FTMH01	FMH4030180	5.8	375	159.3	71.2	45%
PP02	FTMH02	PFMH01	5.0	225	35.7	7.4	21%
PP03	PFMH01	FMH4051284	10.0	225	35.7	7.4	21%
PP04	FTMH03	PFMH02	32.0	225	35.7	2.0	6%
PP05	PFMH02	FMH4029814	38.0	225	35.7	2.0	6%
Upgraded Pipe 02	FMH4030180	FMH4029807	4.6	375	166.1	95.8	58%
Upgraded Pipe 03	FMH4029807	FMH4029809	52.6	600	282.8	95.8	34%
Option 2							
PP01	FTMH01	FMH4029804	14.0	375	159.3	71.2	45%
PP02	FTMH02	PFMH01	5.0	225	35.7	7.4	21%
PP03	PFMH01	FMH4051284	10.0	225	35.7	7.4	21%
PP04	FTMH03	PFMH02	32.0	225	35.7	2.0	6%
PP05	PFMH02	FMH4029814	38.0	225	35.7	2.0	6%
Upgraded Pipe 03	FMH4029807	FMH4029809	52.6	375	80.4	43.9	55%

*% = Discharge loading / full capacity.

3.17 Approximately 91m of new pipes and 57m existing pipe are required to be built or upgraded for Option 1; in comparison, approximately 100m of new pipes and upgrading of 53m existing pipe are required for Option 2. As Option 2 requires less upgrading work to the existing sewerage system, there will be fewer disturbances to the sewerage service. Therefore, it is proposed that the future sewerage plan should follow Option 2 as shown in **Figure 3.5**.

3.18 The sewage discharge from the redevelopment would be collected by a single terminal manhole and discharged to FMH4029804 on Kai Tak Road. Sewage from High Place and Carlson Court would be diverted by new pipes and connect to FMH4051283 on Carpenter Road and FMH4029814 on Sa Po Road respectively.

4 CONCLUSION

4.1 The scheme consists of a multi-storey non-residential podium (planning for shops and a club house) and 29-storey of residential flats (total 810 units) between Sa Po Road and Kai Tak Road. .

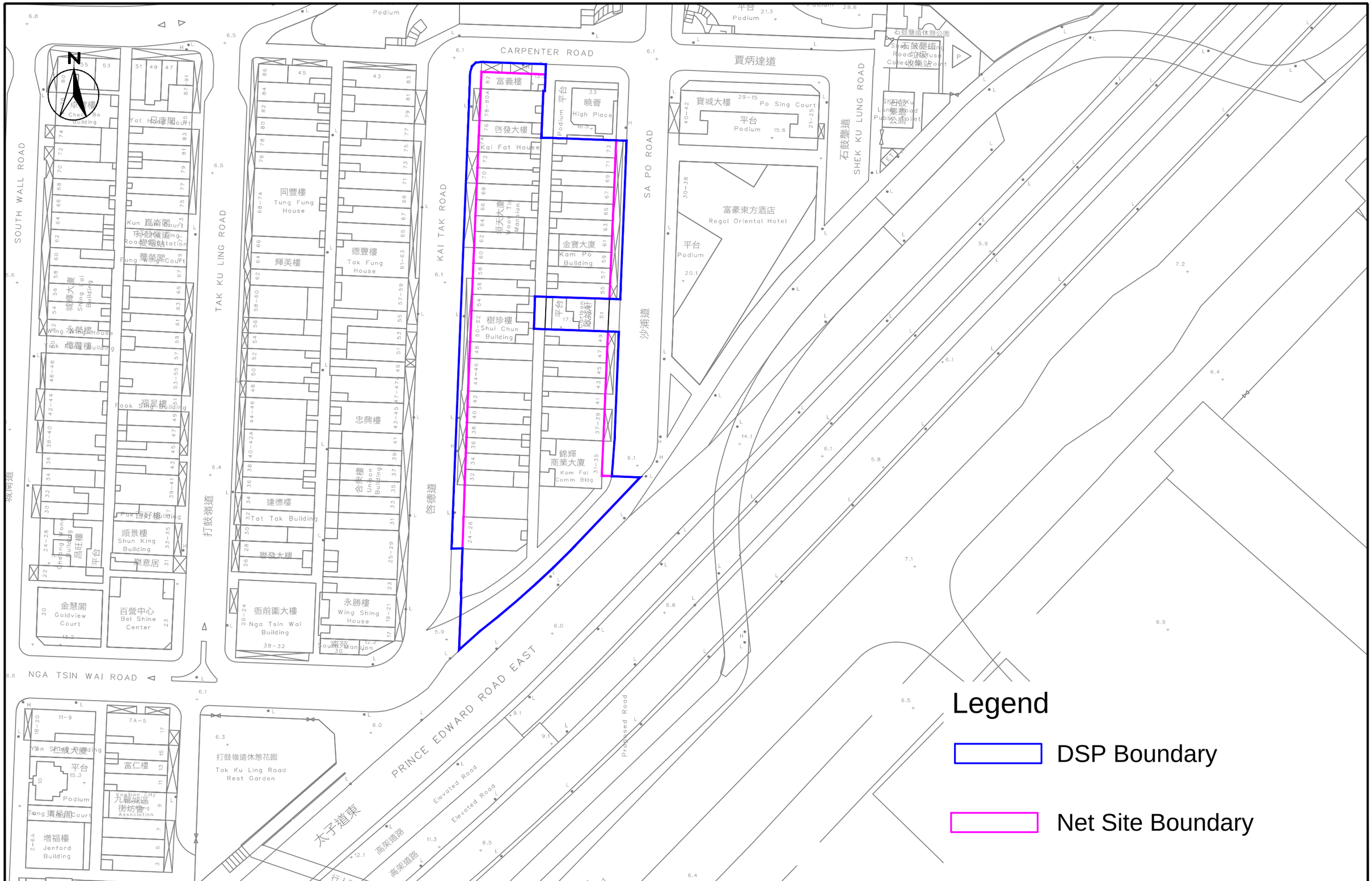
4.2 As Option 2 requires less upgrading work to the existing sewerage system, there will be fewer disturbances to the sewerage service, it is proposed that the future sewerage layout follow Option 2 (**Figure 3.5**), with approximately 100m of new pipes and upgrading of 53m existing pipe are required, subject to future technical verification and detail design. In this SIA, it is proposed that a terminal manhole (FTMH-01) would collect all sewerage discharge from the proposed development within the DSP boundary, and discharge to the public sewer via manhole FMH4030180 (Option1) or FMH4029804 (Option 2) with ϕ375mm pipes with slope of 1:100.

4.3 As the closure of existing scavenging lane between Sa Po Road and Kai Tak Road, the sewage from High Place and Carlson Court are proposed to be diverted to existing public sewage manhole FMH4051284 and FMH4029814 respectively by 2 sets of 225mm diameter pipe with 1:100 slope. No sewage impact is expected due to the diversion works.

4.4 A portion of the public sewage pipe section (from manhole FMH4029814 to FMH4029809) under Sa Po Road is located within DSP boundary, temporary diversion during construction phase might be required if necessary. However, no disturbance to the public sewerage service is expected and the pipes would be restored after construction phase. In future, a reserved area is, however, to be provided in the land grant for 24 hours' access by relevant government departments for maintenance along the sewage pipe area within the Scheme if required.

4.5 Detail design of sewerage system for the proposed development shall subject to the detailed sewerage layout. No adverse impact on the existing sewage system is anticipated in view of sewage connection feasibility with associated proposal of upgrading works.

FIGURES



Legend

- DSP Boundary
- Net Site Boundary

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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Scheme Location

SCALE	1:1000 @ A3	DATE	Feb 2019
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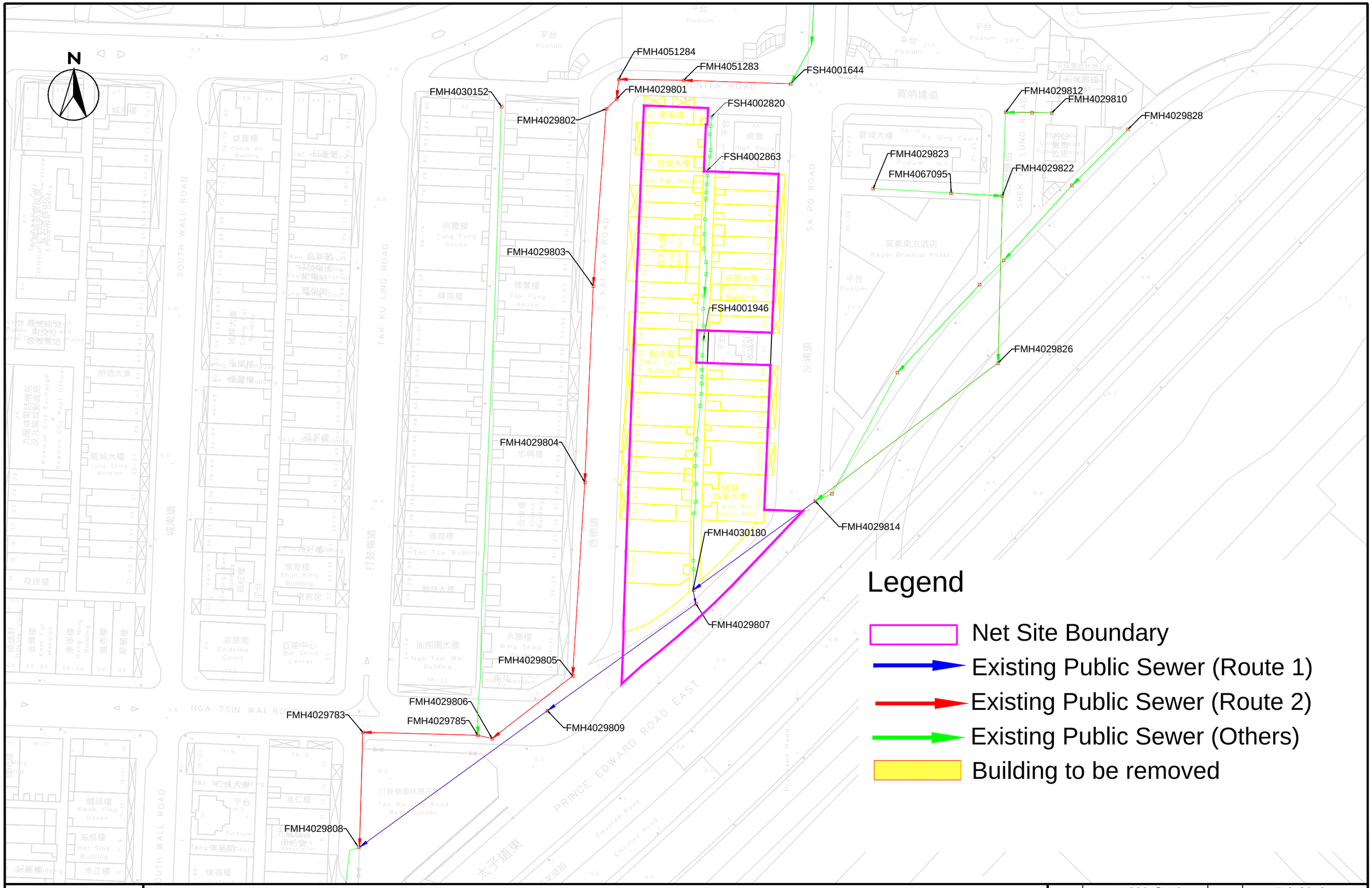
JOB No.	IA17019/KC015	DRAWING No.	1.1
		REV	-

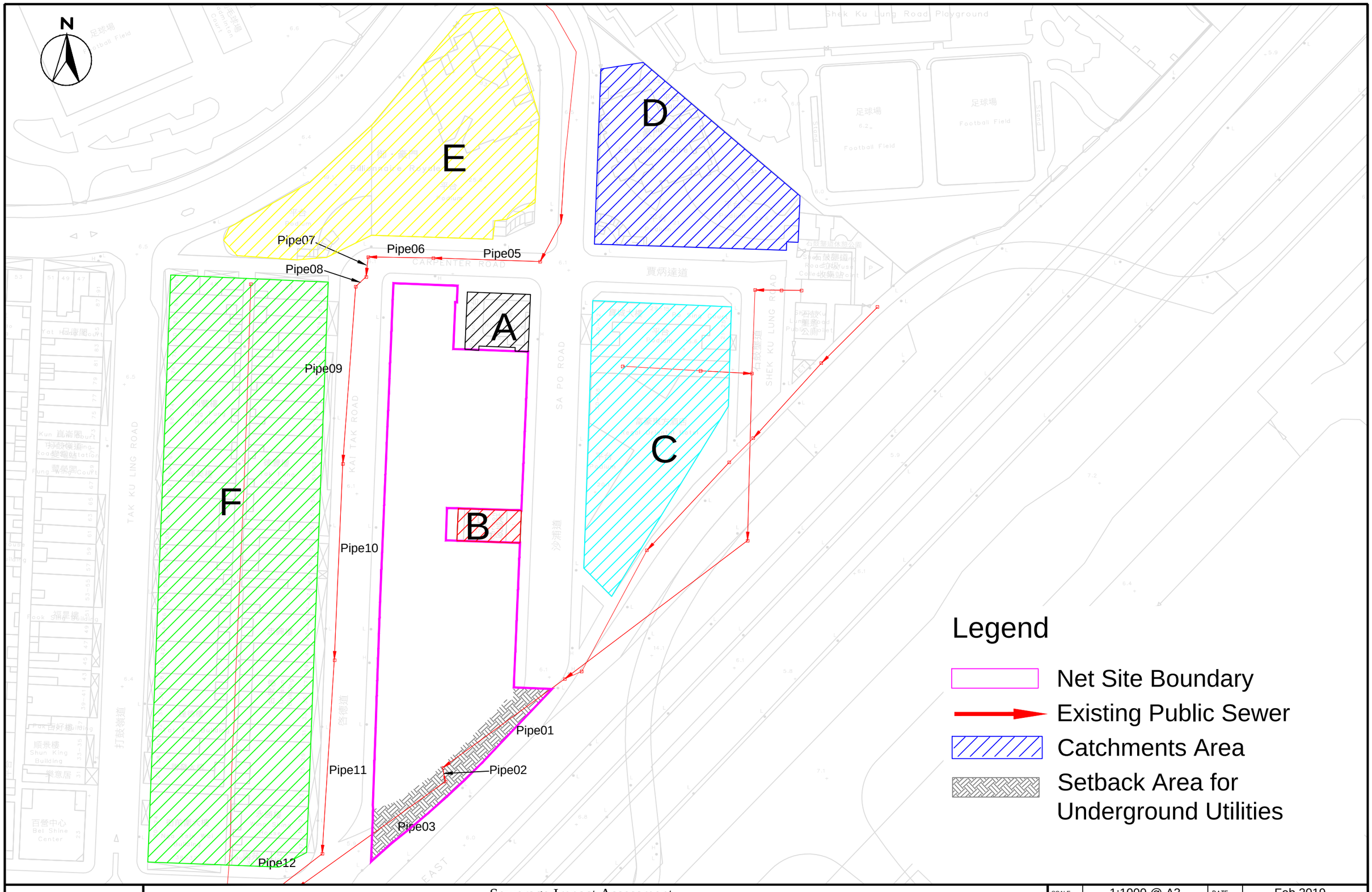


CINOTECH
Cinotech Consultants Limited

Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Existing Sewer Network

SCALE	1:1000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.1
		REV	-



CINOTECH
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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Catchment Area-1

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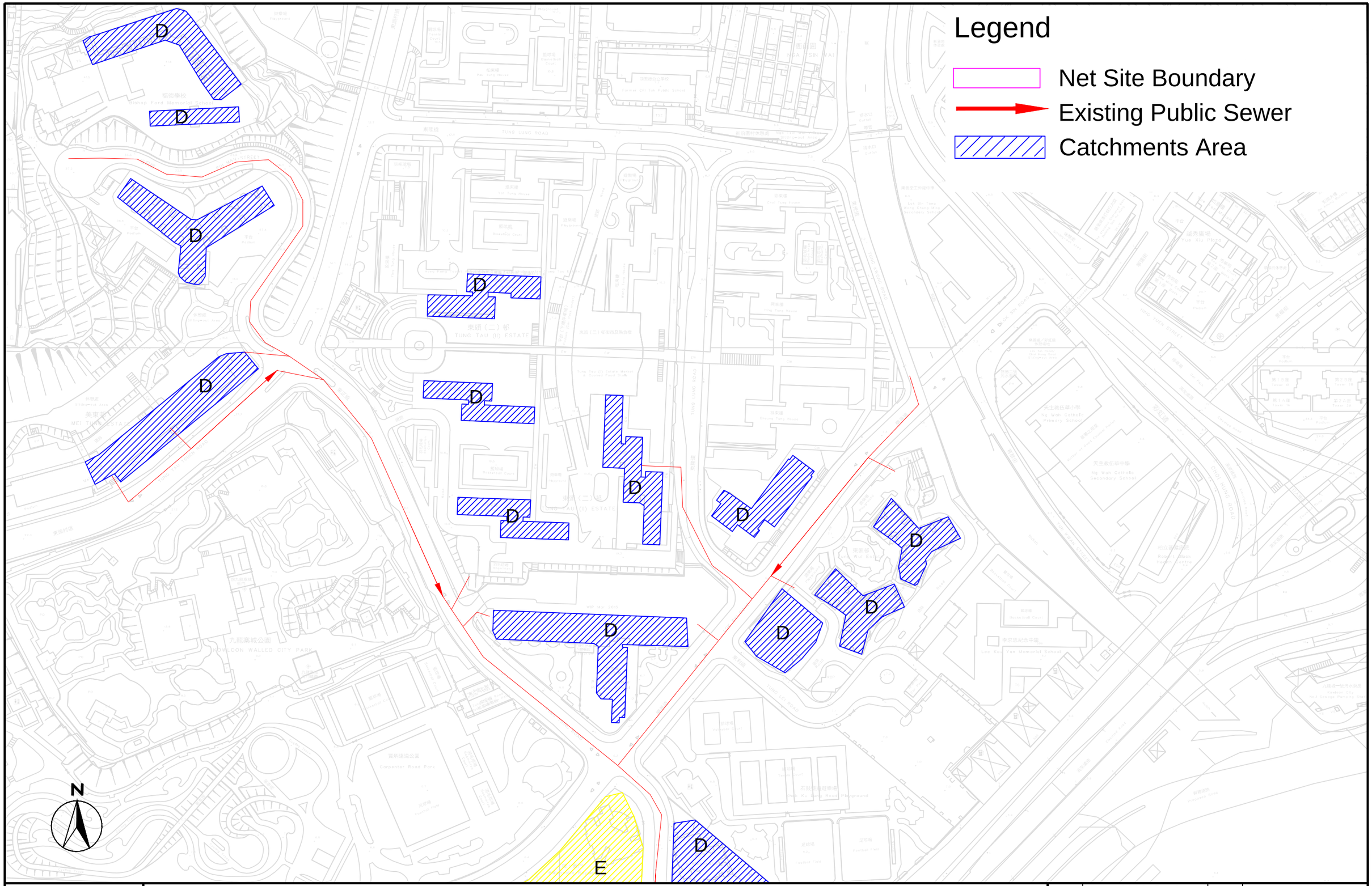
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.2
		REV	-

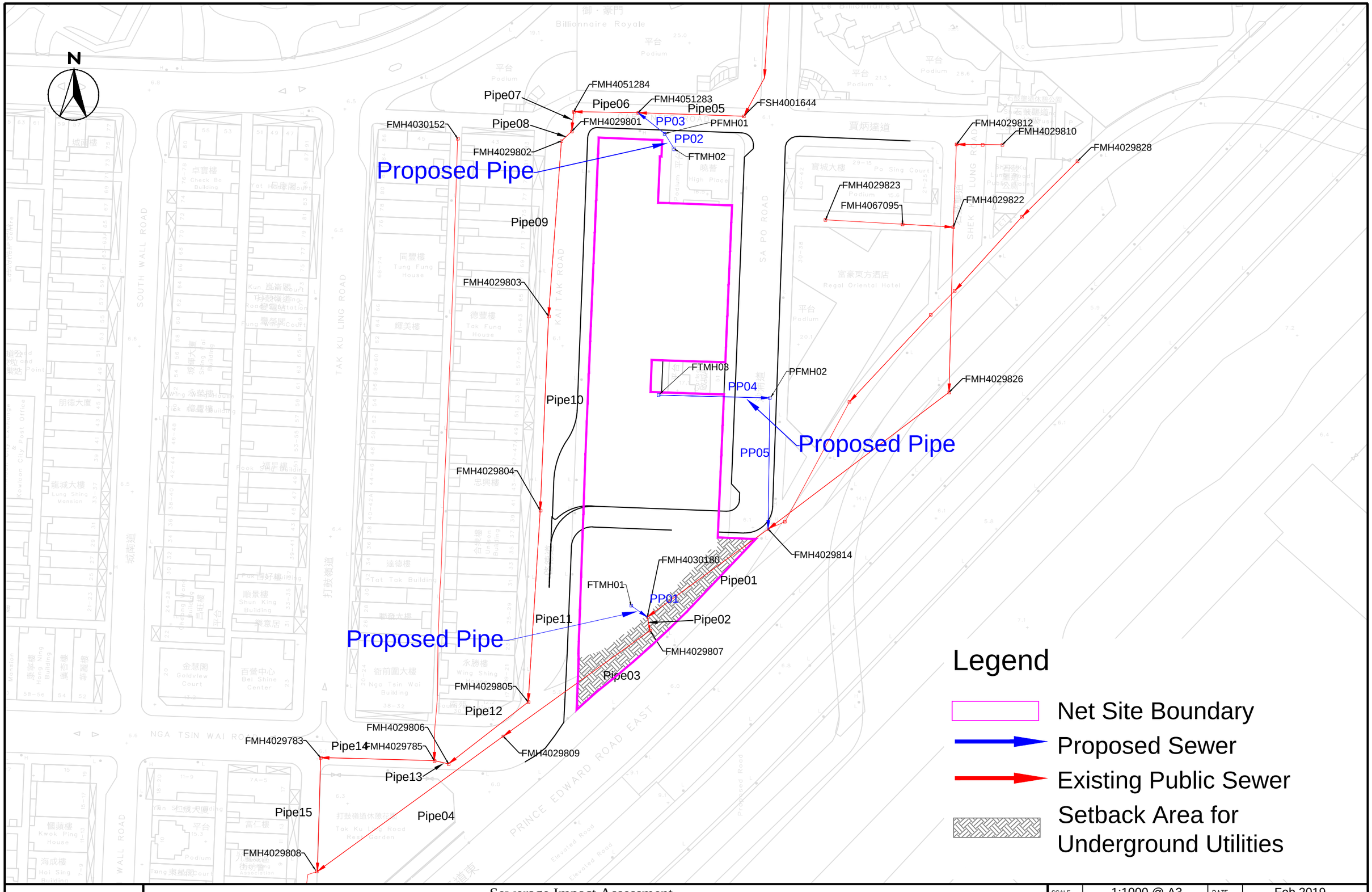


CINOTECH
Cinotech Consultants Limited

Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Catchment Area-2

SCALE	1:2000 @ A3	DATE	Apr 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.3
		REV	-



CINOTECH
Cinotech Consultants Limited

Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Sewer (Option1)

SCALE	1:1000 @ A3	DATE	Feb 2019
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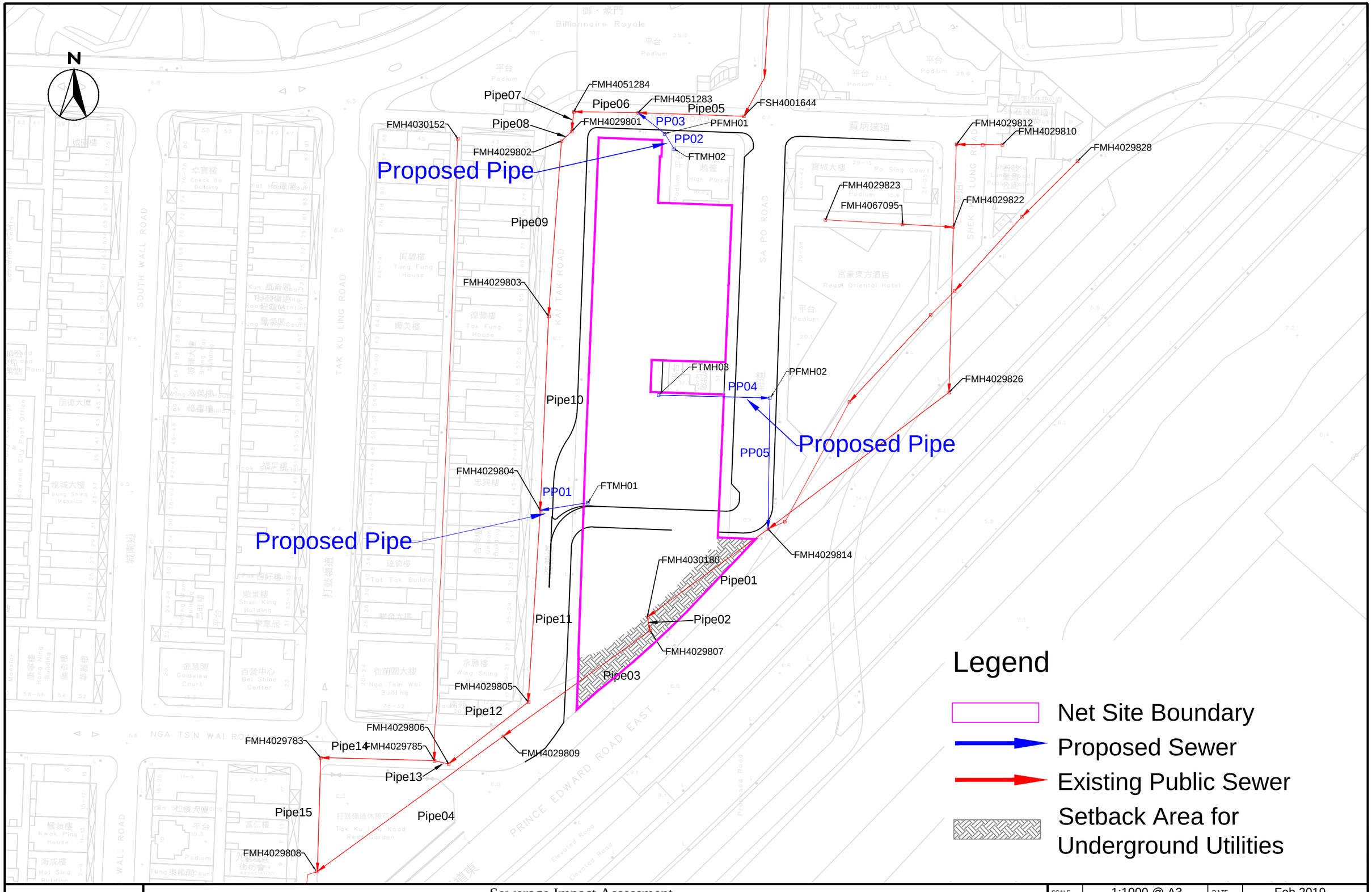
JOB No.	IA17019/KC015	DRAWING No.	3.4
		REV	-



CINOTECH
Cinotech Consultants Limited

Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Sewer (Option2)

SCALE	1:1000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.5
		REV	-

APPENDIX 3.1

EXISTING PIPE CAPACITY

Capacity Calculation of Existing Pipes

Segment	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)	Hydraulic Pipeline Roughness (m)[1]	Velocity (m/s)[2]	Full Capacity (l/s)
Route 1														
Pipe 01 [3]	FMH4029814	FMH4030180	-	2.81	43.0	375	0.375	0.110	0.09375	0.0100	0.00000114	0.003	1.4	159.3
Pipe 02	FMH4030180	FMH4029807	3.48	3.43	4.6	300	0.3	0.071	0.075	0.0109	0.00000114	0.003	1.3	91.6
Pipe 03	FMH4029807	FMH4029809	3.43	3.26	52.6	300	0.3	0.071	0.075	0.0032	0.00000114	0.006	0.6	44.1
Pipe 04 [4]	FMH4029809	FMH4029808	3.26	3.04	66.7	750	0.75	0.442	0.1875	0.0033	0.00000114	0.003	1.3	576.0
Route 2														
Pipe 05	FSH4001644	FMH4051283	3.73	3.70	30.7	1050	1.05	0.866	0.2625	0.0010	0.00000114	0.006	0.8	689.4
Pipe 06	FMH4051283	FMH4051284	3.70	3.68	18.7	1050	1.05	0.866	0.2625	0.0011	0.00000114	0.006	0.8	721.3
Pipe 07	FMH4051284	FMH4029801	3.68	3.67	5.7	1050	1.05	0.866	0.2625	0.0018	0.00000114	0.003	1.2	1022.0
Pipe 08 [5]	FMH4029801	FMH4029802	3.67	3.67	4.1	1050	1.05	0.866	0.2625	0.0010	0.00000114	0.006	0.8	704.6
Pipe 09	FMH4029802	FMH4029803	3.65	3.58	51.0	1050	1.05	0.866	0.2625	0.0014	0.00000114	0.006	0.9	817.3
Pipe 10	FMH4029803	FMH4029804	3.54	3.40	56.5	1050	1.05	0.866	0.2625	0.0025	0.00000114	0.003	1.4	1215.1
Pipe 11	FMH4029804	FMH4029805	3.40	3.26	55.8	1050	1.05	0.866	0.2625	0.0025	0.00000114	0.003	1.4	1222.7
Pipe 12	FMH4029805	FMH4029806	3.25	3.21	29.3	1050	1.05	0.866	0.2625	0.0014	0.00000114	0.006	0.9	815.1
Pipe 13	FMH4029806	FMH4029785	3.21	3.18	4.3	1050	1.05	0.866	0.2625	0.0070	0.00000114	0.003	2.4	2040.7
Pipe 14	FMH4029785	FMH4029783	3.17	3.12	33.0	1200	1.2	1.131	0.3	0.0015	0.00000114	0.003	1.2	1351.0
Pipe 15	FMH4029783	FMH4029808	3.11	3.04	33.1	1200	1.2	1.131	0.3	0.0021	0.00000114	0.003	1.4	1596.7

[1] Roughness coefficient for slimed concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] Calculated by Colebrook-White Equation

[3] Invert level of upstream is not found in Drainage Record plan, 1/100 is adopted in this calculation. Detail survey shall be conducted during construction stage to confirm the pipe capacity

[4] Invert level of downstream is not found in Drainage Record Plan, same level of another pipe (from FMH4029783 to FMH4029808) is applied.

[5] The invert level of upstream and downstream are the same for Pipe08. The average slope of upstream Pipe07 & 08 is adopted. (slope = invert level at FMH4051284 - invert level at FMH4029802 / total length of Pipe07 and Pipe08).

APPENDIX 3.2

DISCHARGE FROM SCHEME

Sewage Discharge from Scheme

Table 1 Estimation of Residential Population

Total GFA	No. of Block	Storeys	Total No. of Flats	No. of person per flat [1]	Predicted Total Population
40140	3	29	810	2.4	1944

Note:

1 The average domestic household size is 2.4 persons for (G10) Lung Shing district according to Population By-census 2016, and the number of persons per household for this proposed development is assumed to be 2.4.

Table 2 Estimation of Non-residential Population

Non-residential Use	GFA (m^2)	UFA (m^2)	Occupancy Factor (m^2 per head)	Total No. of Occupancy	No. of Employee
Retail	7228	2891	3	964	97
Restaurant		2891	1	2891	290
Club House	1105	884	3	295	30
Community	800	640	3	213	22

Note:

1 Occupancy factors for the corresponding type of accommodation are from Table B1 of Code of Practice for Fire Safety in Buildings 2011.

Assume that UFA is 80% of GFA

2 No. of Occupants = Usable Floor Area (m^2) / Occupancy Factor

3 A staff to occupant ratio of 1:10 is assumed for coffee shop and clubhouse to estimate the number of employees.

Table 3 Calculation of Sewage Flow

Occupant Type	Unit Flow Factors [1] (m^3/day/person)	No. of Occupants	Flow Rate (m^3/day)	Contributing population	Peak Flow (L/s)
Retail	0.28	97	27.2	-	-
Restaurant	1.58	290	458.2	-	-
Club House	0.28	30	8.4	-	-
Community	0.28	22	6.2	-	-
Residential	0.27	1944	524.9	-	-
Total	-	-	1025	3796	**71.2**

Note:

1 EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.

2 The contribution population is 1024.8 (m^3/day) / 0.27(m^3/day/person) = 3796

3 Peaking Factor of 6 for contribution population 1,000-5,000 is adopted and the operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

APPENDIX 3.3

DISCHARGE FROM SURROUNDING CATCHMENT

Sewage Discharge from Surrounding Catchment

ID	Catchment	No. of Flat	Catchment Area (m^2)	Club House (m^2)		Population			Flowrate (m^3/day) [c]			Total Flowrate / catchment (m^3/day)	Reference
					Household Size [a]	Residential (head) [a]	Retail/Shop (Staff)[b]	Restaurants / Hotel (Staff)[b]	Residential	Retail/Shop	Restaurants / Hotel		
A	High Place	76	355	124	2.7	205.2	8	14	55.4	2.2	22.4	80.1	[d]
B	Carlson Court	76	170		1	76	5	0	20.5	1.3	0.0	21.8	[e]
C	Regal Oriental Hotel					0	0	322	0.0	0.0	508.8	609.7	[f]
	Po Sing Court	132	626		2.7	356.4	17	0	96.2	4.7	0.0		[g]
D	Half of Mei Tung House and Mei Po House	333			2.7	899.1	39	0	242.8	10.9	0.0	3841.1	[h]
	Mei Tak House	990			2.7	2673	0	0	721.7	0.0	0.0		[i]
	Shing Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		Centadata
	Mau Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		
	Yan Tung House	168			2.7	453.6	0	0	122.5	0.0	0.0		
	On Tung House	240			2.7	648	0	0	175.0	0.0	0.0		
	Hong Tung House	364			2.7	982.8	0	0	265.4	0.0	0.0		
	Tung Tau (I) Estate (Phase 8)	1033			2.7	2789.1	0	0	753.1	0.0	0.0		[j]
	Wui Yan House	1300				2700	0	0	729.0	0.0	0.0		[k]
	Wui Sum House						0			0.0	0.0		
	Le Billionnaire	212	5252		2.7	572.4	70	210	154.5	19.6	331.9		[l]
						Student (UFF:0.04)	Staff (UFF:0.28)		Student (UFF:0.04)	Staff (UFF:0.28)			
	Bishop Ford Memorial School					406	52		16.2	14.6			[m]
	Po Yan Oblate Primary School					400	50		16	14			[n]
	Tung Tau Community Centre		1207				32			9			-
E	Billionnaire Royale	266	5600		2.7	718.2	75	224	193.9	20.9	353.9	568.7	[o]
F	Bounder by Kai Tak Road, Tak Ku Ling Road, Nga Tsin Wai Road & Carpenter Road	579	7646		2.7	1563.3	102	306	422.1	28.5	483.2	933.9	Centadata

Appendix 3.3 Discharge from Surrounding Catchment

Notes:

[a] The average domestic household size is according to Population By-census 2016. Source from (http://www.bycensus2016.gov.hk/en/bc-dp.html).

[b] For Catchment A, a 50% floor ratio among retail/shop and restaurant/ hotel is assumed, also density of 1 person per 1 m^2 and 1 person per 3 m^2 is assumed respectively. 80% of usable floor area and a staff to customer ratio of 1:10 are assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% × 50% / [10×population density (/m^2)].
For Catchment B-D, a 100% floor ratio of retail/shop is assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% / [10×population density (/m^2)]

[c] The Unit Flow Factors are 0.04, 0.27, 0.28, 1.58 m^3/day/head for students, residential use, industrial/retail/office use, restaurants/hotel respectively.
flat no: https://www.richitt.com/%E6%9B%89%E8%96%88-highplace/
[d] shop area: https://www.highplace.com.hk/data/highplace_web.pdf
[e] Carlson Court: https://sa.hkbu.edu.hk/sas/pg-housing/overview
[f] Regal Oriental Hotel: https://www.regalhotel.com/regal-oriental-hotel/tc/about/about-this-hotel.html#tab_1
[g] Po Sing Court: http://www.ricacorp.com/Ricapih09/estate.aspx?type=1&code=UFDOQRFXRV&lang=b5
[h] Half of 665 flat and 26 shops are adopted. 3 staff per shop is assumed. http://news.rthk.hk/rthk/ch/component/k2/1350123-20170824.htm
[i] Mei Tak house: https://www.housingauthority.gov.hk/en/common/pdf/about-us/housing-authority/ha-paper-library/HA7-16.pdf
[j] Tung Tau Phase 8: http://hk.on.cc/hk/bkn/cnt/news/20170824/bkn-20170824133257720-0824_00822_001.html
[k] HKHA https://www.housingauthority.gov.hk/en/global-elements/estate-locator/detail.html?propertyType=1&id=15020
[l] Le Billionnaire：https://www.richitt.com/%E8%B1%AA%E9%96%80-lebillionnaire/
[m] Bishop Ford Memorial School http://203.198.66.113/information/files/school%20report/18-19/1718schoolreport.pdf
[n] Po Yan Oblate Primary School http://www.poyan.edu.hk/index.html
[o] http://www.billionnaireroyale.com/tch/index.php

APPENDIX 3.4

DETAILED CALCULATION OF PIPE LOADING

Appendix 3.4 Detailed Calculation of Pipe Loading

Proportion of Peak Flow to Full Capacity (Option 1)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m^3/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4030180	159.3	Scheme	1024.8	3796	6	71.2	45%
PP02	FTMH02	PFMH01	35.7	A	80.1	297	8	7.4	21%
PP03	PFMH01	FMH4051284	35.7	A	80.1	297	8	7.4	21%
PP04	FTMH03	PFMH02	35.7	B	21.8	81	8	2.0	6%
PP05	PFMH02	FMH4029814	35.7	B	21.8	81	8	2.0	6%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	159.3	B & C	631.5	2339	6	43.9	28%
Pipe 02	FMH4030180	FMH4029807	91.6	Scheme & B & C	1656.3	6134	5	95.8	**105%**
Pipe 03	FMH4029807	FMH4029809	44.1	Scheme & B & C	1656.3	6134	5	95.8	**217%**
Pipe 04	FMH4029809	FMH4029808	576.0	Scheme & B & C	1656.3	6134	5	95.8	17%
Pipe 05	FSH4001644	FMH4051283	689.4	D	3841.1	14226	4	177.8	26%
Pipe 06	FMH4051283	FMH4051284	721.3	D & A	3921.1	14523	4	181.5	25%
Pipe 07	FMH4051284	FMH4029801	1022.0	D & A & E	4489.9	16629	4	207.9	20%
Pipe 08	FMH4029801	FMH4029802	704.6	D & A & E	4489.9	16629	4	207.9	30%
Pipe 09	FMH4029802	FMH4029803	817.3	D & A & E	4489.9	16629	4	207.9	25%
Pipe 10	FMH4029803	FMH4029804	1215.1	D & A & E	4489.9	16629	4	207.9	17%
Pipe 11	FMH4029804	FMH4029805	1222.7	D & A & E	4489.9	16629	4	207.9	17%
Pipe 12	FMH4029805	FMH4029806	815.1	D & A & E	4489.9	16629	4	207.9	26%
Pipe 13	FMH4029806	FMH4029785	2040.7	D & A & E	4489.9	16629	4	207.9	10%
Pipe 14	FMH4029785	FMH4029783	1351.0	D & A & E & F	5423.7	20088	4	251.1	19%
Pipe 15	FMH4029783	FMH4029808	1596.7	D & A & E & F	5423.7	20088	4	251.1	16%

Note:

[a] The operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m^3/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Upgraded Pipes									
Upgraded Pipe 02	FMH4030180	FMH4029807	166.1	Scheme & B & C	1656.3	6134	5	95.8	58%
Upgraded Pipe 03	FMH4029807	FMH4029809	282.8	Scheme & B & C	1656.3	6134	5	95.8	34%

Proportion of Peak Flow to Full Capacity (Option 2)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4029804	159.3	Scheme	1024.8	3796	6	71.2	45%
PP02	FTMH02	PFMH01	35.7	A	80.1	297	8	7.4	21%
PP03	PFMH01	FMH4051284	35.7	A	80.1	297	8	7.4	21%
PP04	FTMH03	PFMH02	35.7	B	21.8	81	8	2.0	6%
PP05	PFMH02	FMH4029814	35.7	B	21.8	81	8	2.0	6%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	159.3	B & C	631.5	2339	6	43.9	28%
Pipe 02	FMH4030180	FMH4029807	91.6	B & C	631.5	2339	6	43.9	48%
Pipe 03	FMH4029807	FMH4029809	44.1	B & C	631.5	2339	6	43.9	**99%**
Pipe 04	FMH4029809	FMH4029808	576.0	B & C	631.5	2339	6	43.9	8%
Pipe 05	FSH4001644	FMH4051283	689.4	D	3841.1	14226	4	177.8	26%
Pipe 06	FMH4051283	FMH4051284	721.3	D & A	3921.1	14523	4	181.5	25%
Pipe 07	FMH4051284	FMH4029801	1022.0	D & A & E	4489.9	16629	4	207.9	20%
Pipe 08	FMH4029801	FMH4029802	704.6	D & A & E	4489.9	16629	4	207.9	30%
Pipe 09	FMH4029802	FMH4029803	817.3	D & A & E	4489.9	16629	4	207.9	25%
Pipe 10	FMH4029803	FMH4029804	1215.1	D & A & E	4489.9	16629	4	207.9	17%
Pipe 11	FMH4029804	FMH4029805	1222.7	D & A & E & Scheme	5014.7	18573	4	232.2	19%
Pipe 12	FMH4029805	FMH4029806	815.1	D & A & E & Scheme	5014.7	18573	4	232.2	28%
Pipe 13	FMH4029806	FMH4029785	2040.7	D & A & E & Scheme	5014.7	18573	4	232.2	11%
Pipe 14	FMH4029785	FMH4029783	1351.0	D & A & E & Scheme & F	5948.6	22032	4	275.4	20%
Pipe 15	FMH4029783	FMH4029808	1596.7	D & A & E & Scheme & F	5948.6	22032	4	275.4	17%

Note:

[a] The operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Upgraded Pipes									
Upgraded Pipe 03	FMH4029807	FMH4029809	80.4	B & C	631.5	2339	6	43.9	55%

APPENDIX 3.5

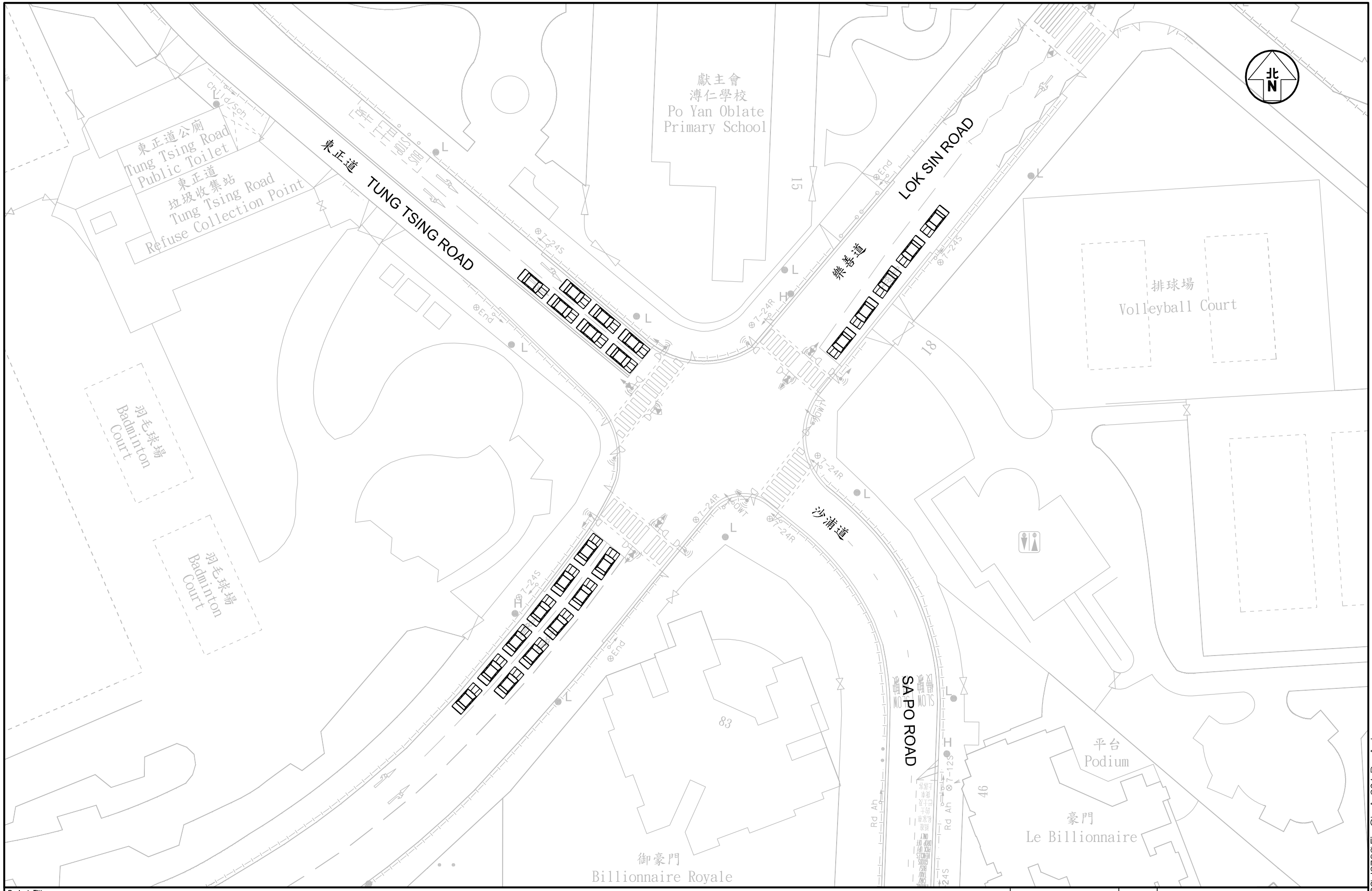
PROPOSED PIPE CAPACITY

Capacity Calculation of Upgrading Pipes

Segment	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)	Hydraulic Pipeline Roughness (m)*	Velocity (m/s)	Number of Pipes	Full Capacity (l/s)
Option 1															
Proposed Upgrading Pipes															
PP01	FTMH01	FMH4030180	3.46	3.40	5.8	375	0.375	0.110	0.09375	0.0100	0.00000114	0.003	1.44	1	159.3
PP02	FTMH02	PFMH01	3.85	3.80	5.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP03	PFMH01	FMH4051284	3.80	3.70	10.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP04	FTMH03	PFMH02	4.33	4.01	32.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP05	PFMH02	FMH4029814	4.01	3.63	38.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
Upgraded Pipe 02	FMH4030180	FMH4029807	3.48	3.43	4.6	375	0.375	0.110	0.09375	0.0109	0.00000114	0.003	1.50	1	166.1
Upgraded Pipe 03	FMH4029807	FMH4029809	3.43	3.26	52.6	600	0.6	0.283	0.15	0.0032	0.00000114	0.006	1.00	1	282.8
Option 2															
PP01	FTMH01	FMH4029804	0.14	0.00	14.0	375	0.375	0.110	0.09375	0.0100	0.00000114	0.003	1.44	1	159.3
PP02	FTMH02	PFMH01	3.85	3.80	5.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP03	PFMH01	FMH4051284	3.80	3.70	10.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP04	FTMH03	PFMH02	4.33	4.01	32.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
PP05	PFMH02	FMH4029814	4.01	3.63	38.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.006	0.90	1	35.7
Upgraded Pipe 03	FMH4029807	FMH4029809	3.43	3.26	52.6	375	0.375	0.110	0.09375	0.0032	0.00000114	0.006	0.73	1	80.4

*Roughness coefficient for new sewers with concrete under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

ANNEX 3



Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/A/201 Revision A
Figure Title	JUNCTION A - 2033 WEEKDAY QUEUE LENGTH WITH KC-015 (AM PEAK)		Designed by THC Drawn by CCL Checked by Scale in A3 1 : 500 Date 29 MAY 2019

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road
Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343
Email : mail@ckmasia.com.hk

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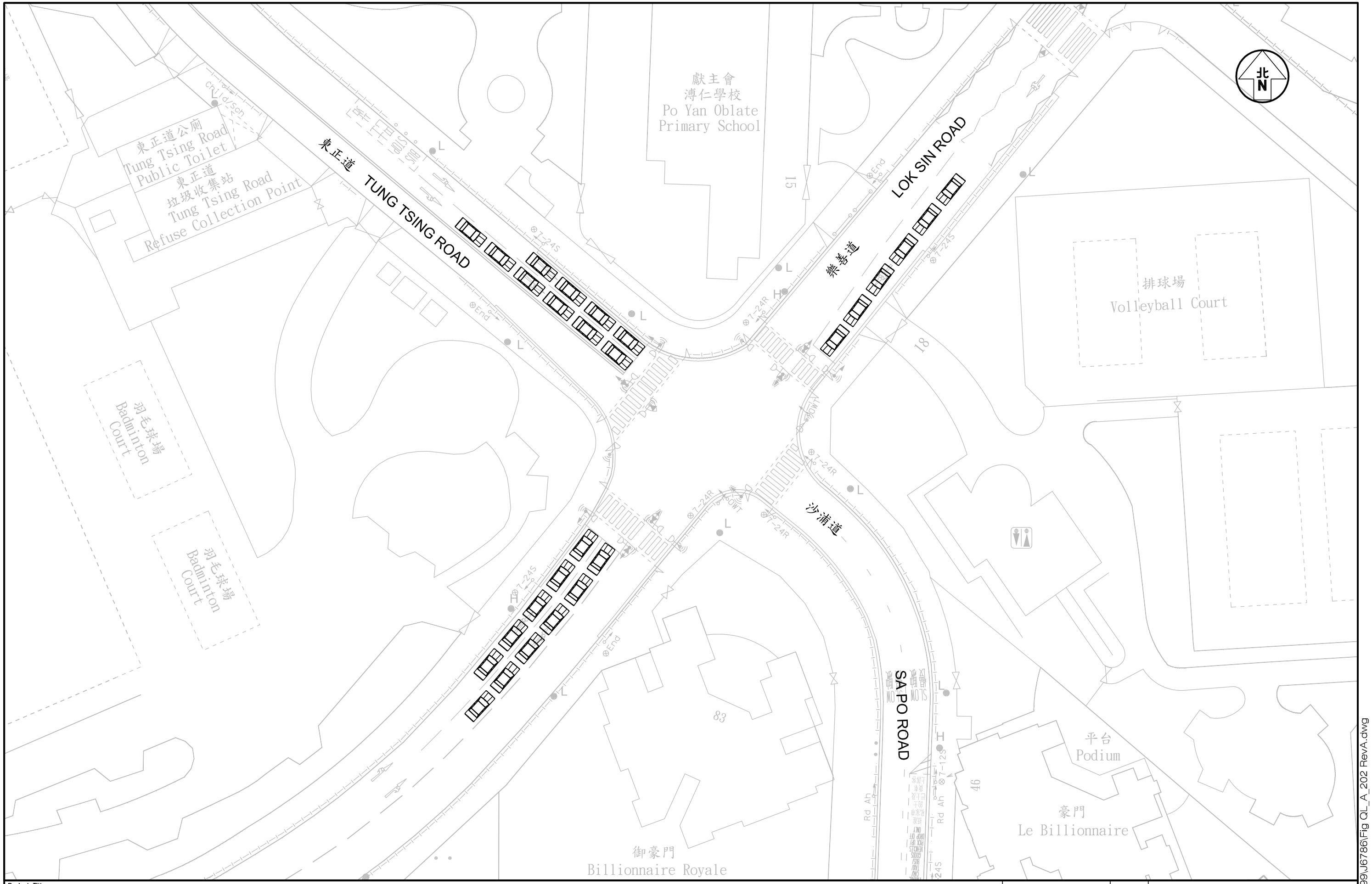

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

JUNCTION A - 2033 WEEKDAY QUEUE LENGTH WITH KC-015 (PM PEAK)

Figure No.	Revision
QL/A/202	A

Designed by	Drawn by	Checked by
T H C	C C L	

Scale in A3	Date
1 : 500	29 MAY 2019

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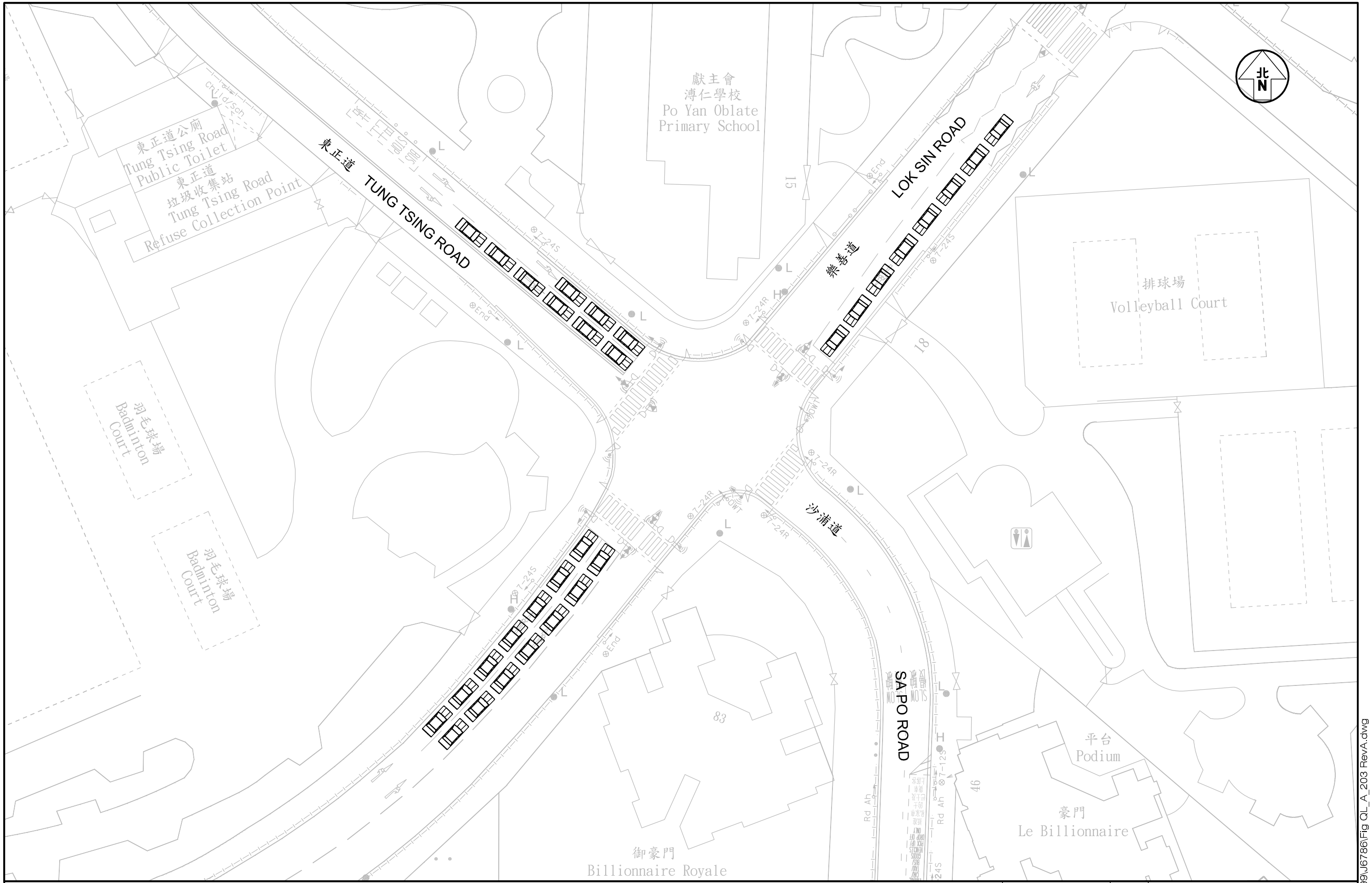

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

JUNCTION A - 2033 WEEKEND QUEUE LENGTH WITH KC-015 (AM PEAK)

Figure No.	Revision
QL/A/203	A

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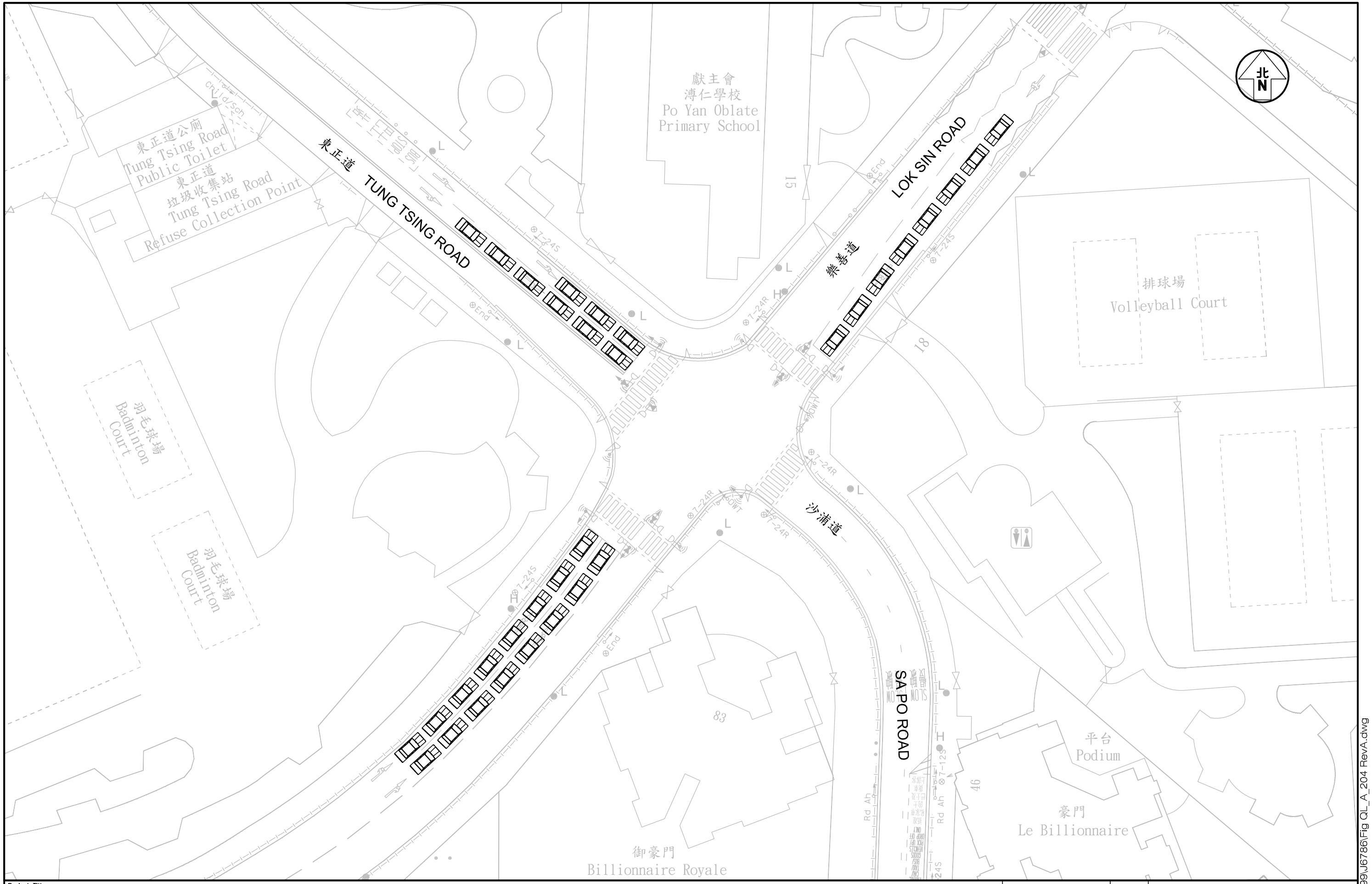

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

JUNCTION A - 2033 WEEKEND QUEUE LENGTH WITH KC-015 (PM PEAK)

Figure No.	Revision
QL/A/204	A

Designed by	Drawn by	Checked by
T H C	C C L	

Scale in A3	Date
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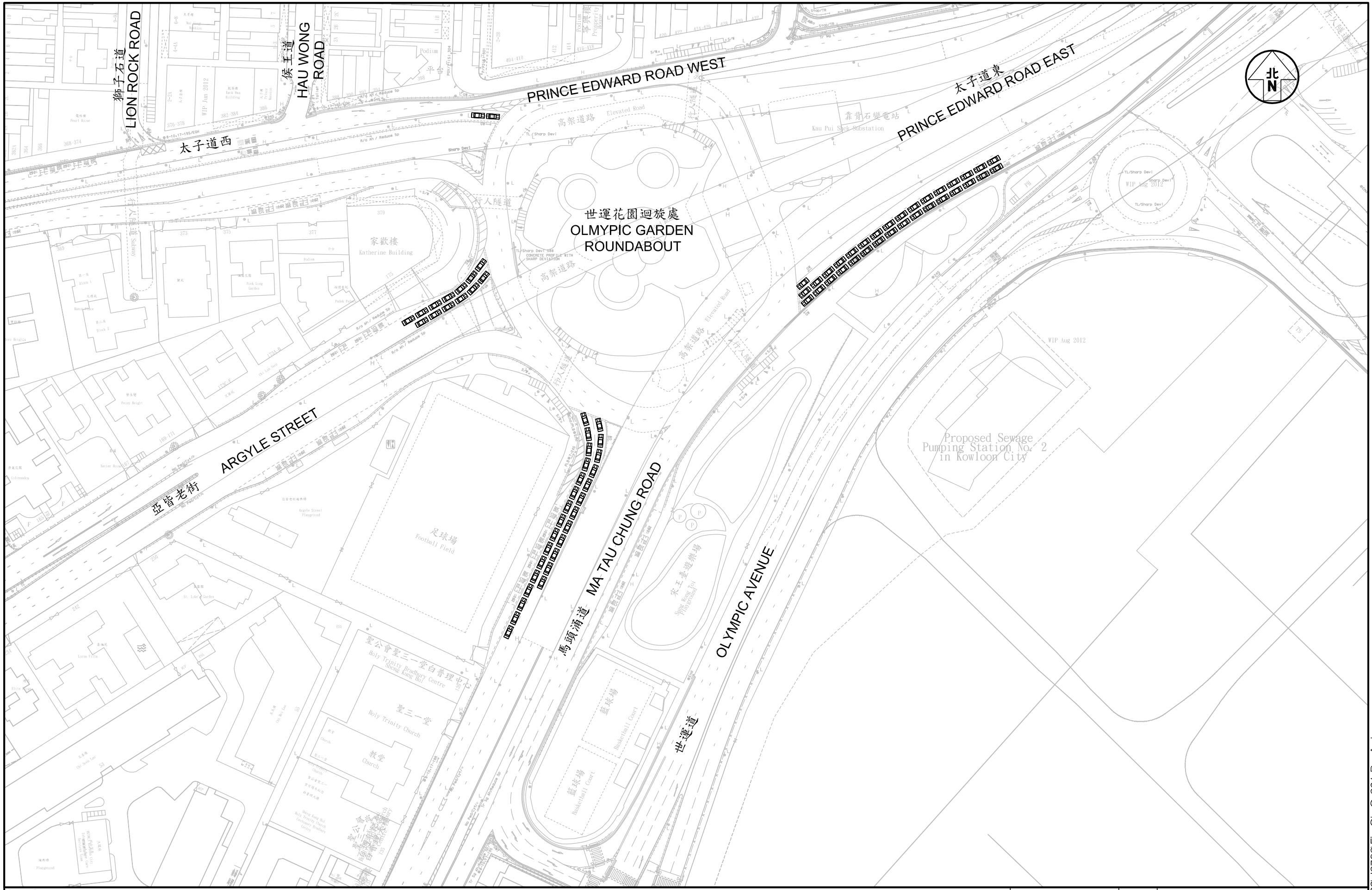

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

JUNCTION Q - 2033 WEEKDAY QUEUE LENGTH WITH KC-015 (AM PEAK)

Figure No.	Revision
QL/Q/201	A

Designed by	Drawn by	Checked by
T H C	C C L	

Scale in A3	Date
1 : 1,250	29 MAY 2019

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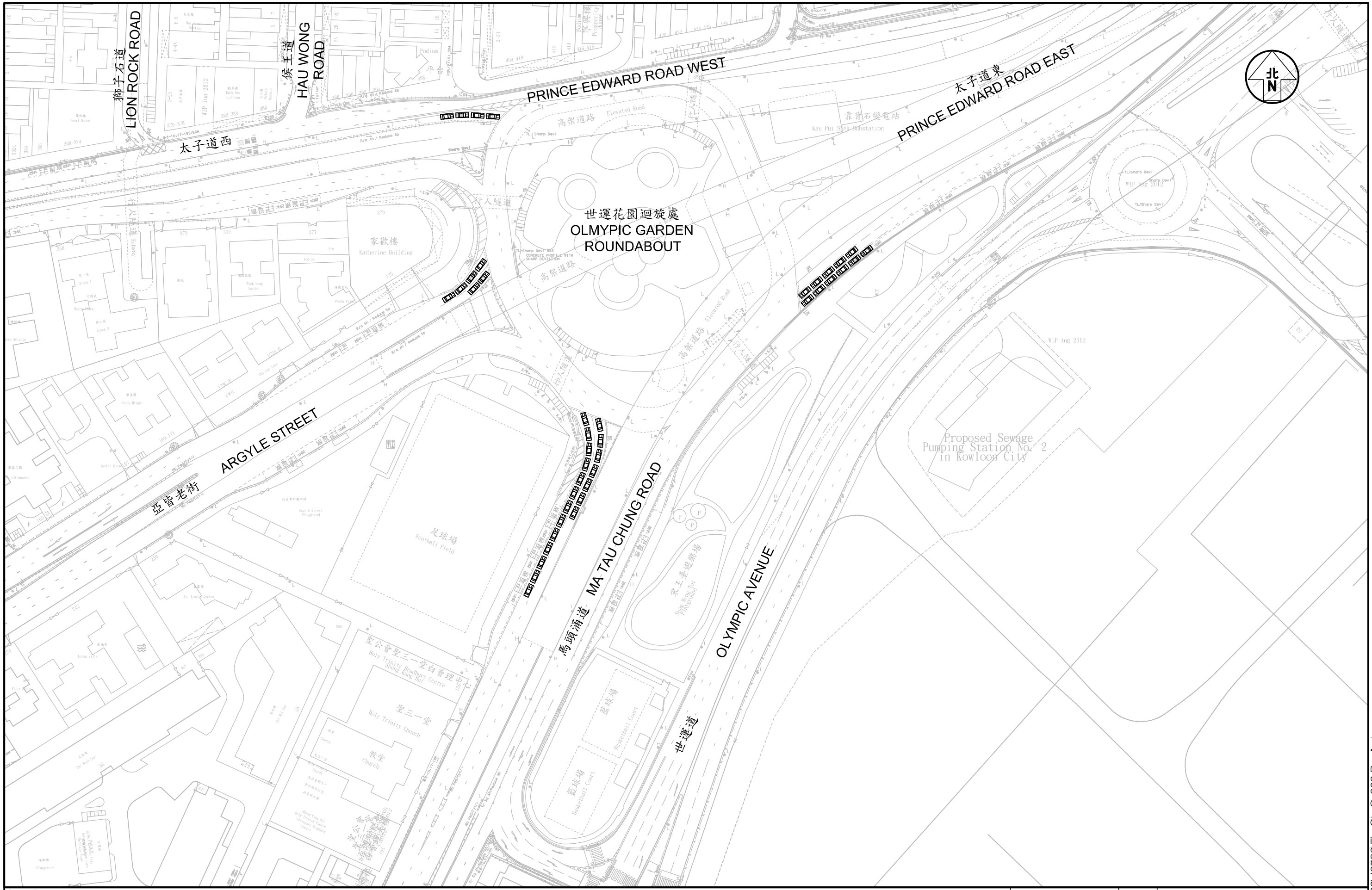

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. QL/Q/202 Revision A
Figure Title	JUNCTION Q - 2033 WEEKDAY QUEUE LENGTH WITH KC-015 (PM PEAK)		Designed by THC; Drawn by CCL; Checked by; Scale in A3 1 : 1,250; Date 29 MAY 2019

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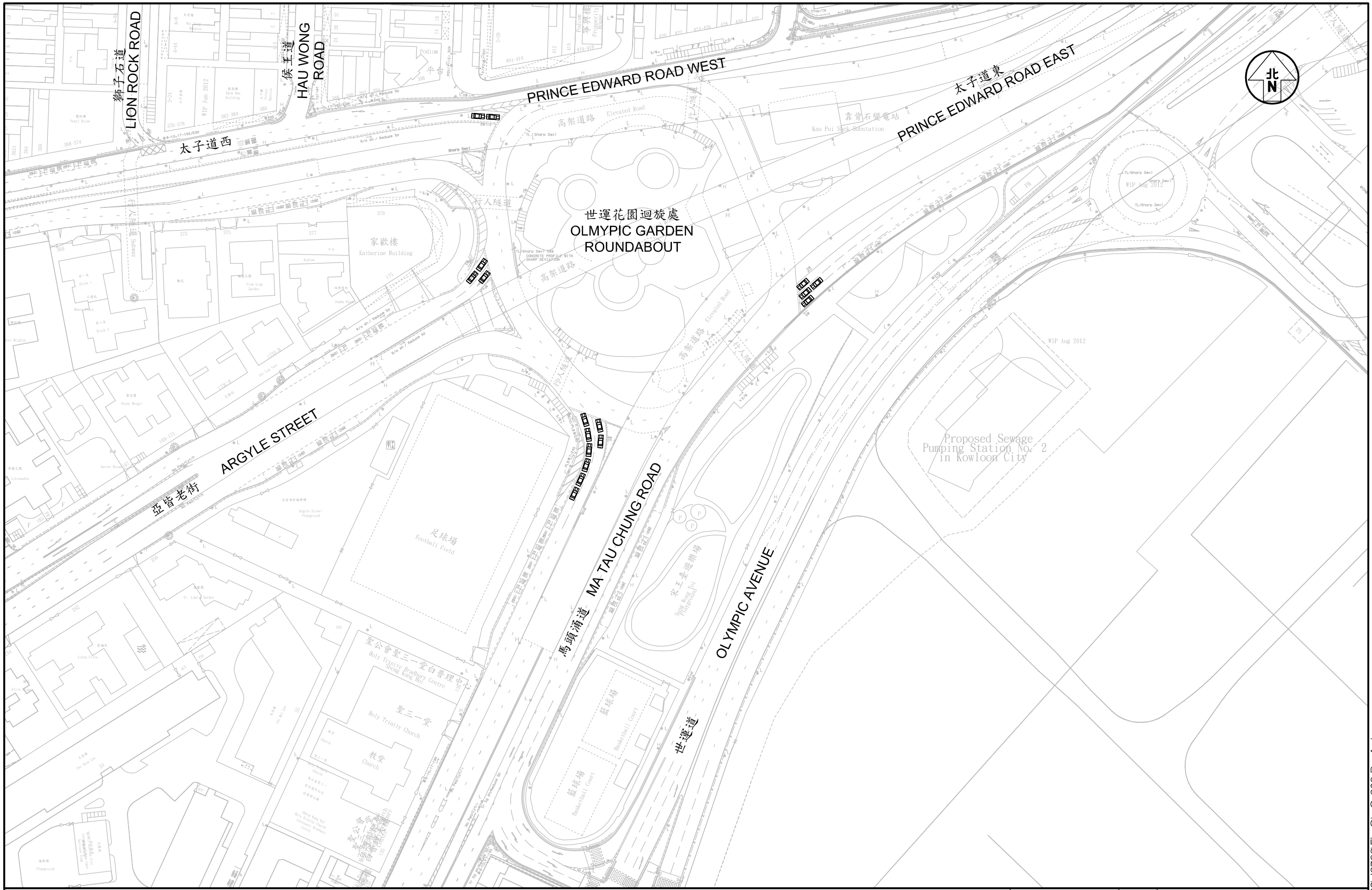

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	
Figure Title	JUNCTION Q – 2033 WEEKEND QUEUE LENGTH WITH KC-015 (AM PEAK)	Figure No. QL/Q/203	Revision A
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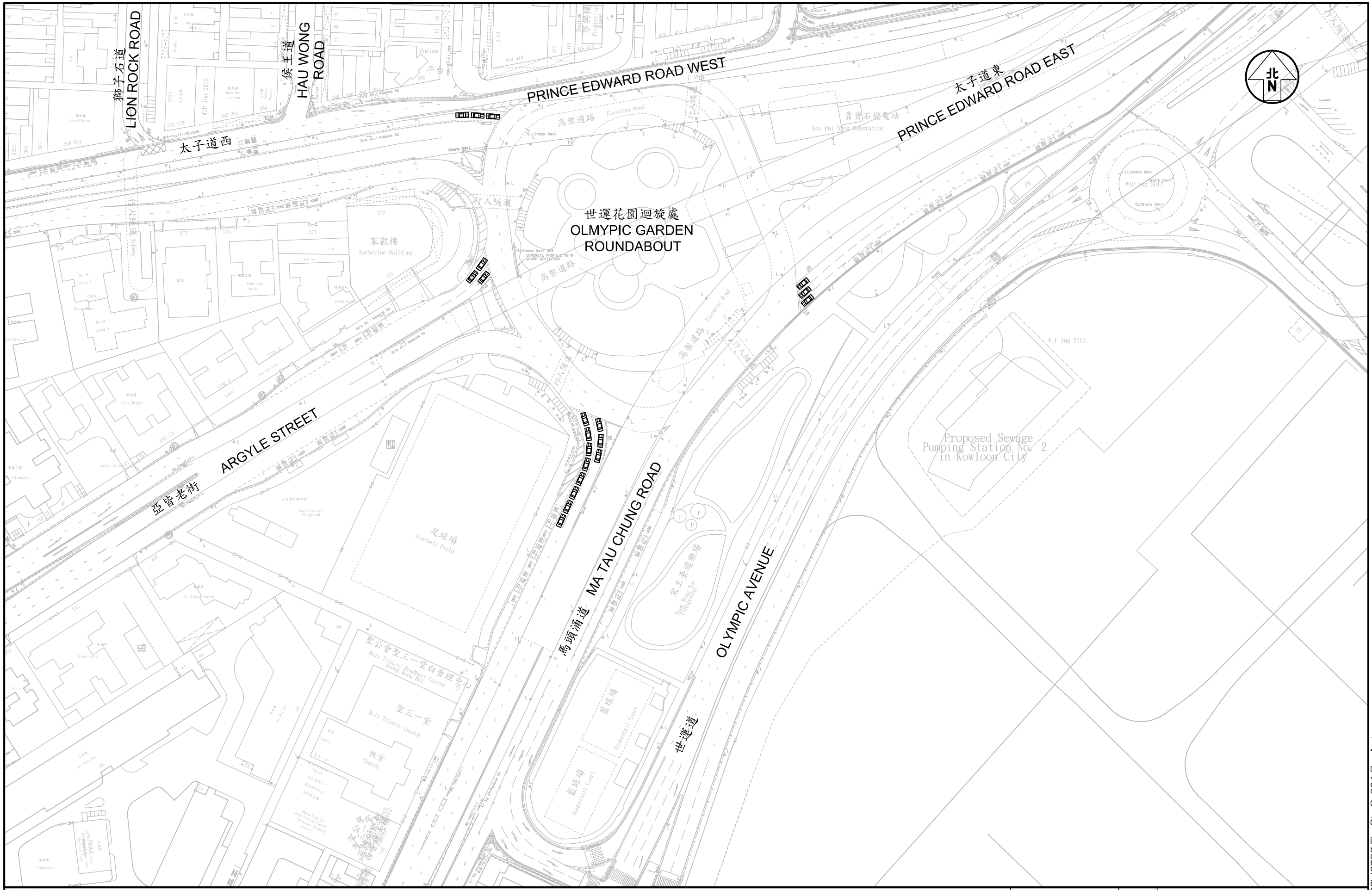

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

JUNCTION Q - 2033 WEEKEND QUEUE LENGTH WITH KC-015 (PM PEAK)

Figure No.	Revision
QL/Q/204	A

Designed by	Drawn by	Checked by
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DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

EXPLANATORY STATEMENT

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

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DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance (the 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 draft Urban Renewal Authority (URA) Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) No. S/K10/URA1/A. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the area covered by the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 In the URA's 17th Business Plan (2018/19) approved by the Financial Secretary in early 2018, the Kai Tak Road / Sa Po Road Development Scheme (KC-015) was proposed to be processed as a Development Scheme under section 25 of the URA Ordinance (URAO).

2.2 On 22 February 2019, pursuant to section 23(1) of the URAO, the URA notified in the Government Gazette the commencement of implementation of the Kai Tak Road / Sa Po Road Development Scheme.

2.3 On the same day of commencement (i.e. 22 February 2019), the URA submitted the draft URA Kai Tak Road / Sa Po Road DSP to the Board under section 25(5) of the URAO.

2.4 On XXXX, the Board, under section 25(6)(a) of the URAO, deemed the draft URA Kai Tak Road / Sa Po Road DSP as being suitable for publication. Under section 25(7) of the URAO, the draft DSP, which the Board has deemed suitable for publication, is deemed to be a draft plan prepared by the Board for the purposes of the Town Planning Ordinance (the Ordinance).

2.5 On XXXX, the draft Kai Tak Road / Sa Po Road DSP No. S/K10/URA1/1 (the Plan) was exhibited under section 5 of the Ordinance. By virtue of section 25(9) of the URAO, the Plan has from the date replaced the Ma Tau Kok Outline Zoning Plan (OZP) in respect of the area delineated and described herein.

3. OBJECT OF THE PLAN

The Plan illustrates that the Development Scheme Area (the Area) is designated as "Residential (Group A)" ("R(A)"). It is planned to be developed by means of the Development Scheme prepared under section 25 of the URAO. The Development Scheme intends to be primarily for a high-density residential development with the provision of a split-level sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building connecting to the sunken plaza.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area in this zone and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission

under section 16 of the Ordinance allows greater flexibility in land use planning and 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.

5. AREA COVERED BY THE PLAN

5.1 The Development Scheme boundary which is shown in heavy broken line on the Plan, covers a total area of about 6,106m^2. The Area is located at the street block bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Area includes two rows of buildings, two pieces of government land and also a portion of existing Sa Po Road in the southern part of the Scheme. The Area also includes a government lane between the two rows of buildings, and pavement area.

5.2 On the Approved Ma Tau Kok OZP No. S/K10/24, the Area is zoned "Residential (Group A)2" and an area shown as 'Road' before the exhibition of the Plan.

6. EXISTING CONDITIONS

6.1 The buildings within the Area are predominantly for residential use on the upper floors, and shop use on the ground floors. The only exception is the commercial building on 31 – 35 Sa Po Road, which is permitted for office use on upper floors and shops for ground floor. The residential buildings within the Area are of 5 to 10 storeys high and were built between 1962 and 1990. The commercial building is of 12 storeys high and was built in 1981. The buildings are in a dilapidating condition.

6.2 There is one private vacant site at 28-30 Kai Tak Road, which is currently used as a carpark. There are also two pieces of government

land on the southern side within the Scheme which are amenity area with landscaping, trees and sitting area.

6.3 The existing Sa Po Road is a one-way southbound local road. It passes by the immediately east of the Area and connect to Nga Tsin Wai Road in the south. The existing southern portion of Sa Po Road is included in the Area for redevelopment.

7 PLANNING AND LAND USE PROPOSALS

7.1 On the Plan, the Area is zoned "R(A)" and the Notes of the Plan indicated broadly the intended land uses within the Area. The area covered by the "R(A)" zone is about 5,352m^2, subject to site survey.

Uses

7.2 The "R(A)" zone is intended primarily for high-density residential developments with the provision of the sunken plaza and underground public vehicle park to serve the community. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

7.3 The maximum plot ratio within the "R(A)" zone is 9.0, or the plot ratio of the existing building(s), whichever is the greater. Except where the plot ratio is permitted to be exceeded under the Notes of the Plan or under Building (Planning) Regulations 22(1) or (2), under no circumstances shall the plot ratio for the domestic part of any development exceed 7.5. The "R(A)" zone is also subject to a maximum building height of 120 metres above Principal Datum (mPD).

7.4 To provide design flexibility, minor relaxation of the plot ratio and building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its individual planning and design merits.

Split-level Sunken Plaza

7.5 A portion of existing Sa Po Road is proposed to be closed to make way for the development of a sunken plaza of 1,000m^2 in the southern side of the Area. It will be connected with the proposed pedestrian subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) to the Kai Tak Development Area (KTDA) and its future underground shopping street (USS). The sunken plaza can serve to strengthen connectivity and walkability between the Area and the KTDA. Commercial space will be provided connecting to the sunken plaza to enable extension of vibrant retail activities from the USS of KTDA. The linkage between street level/the sunken plaza and the proposed pedestrian subway to KTDA will be opened for public use 24 hours daily. The linkage between street level and the proposed subway (via the sunken plaza) should be provided with barrier-free access. The plaza will be opened for public use at reasonable hours to benefit the local community.

7.6 The sunken plaza will be developed with different levels of space on ground floor and basement levels. It will include covered and un-covered area and with hard and soft landscape, commercial / retail components, event space and place-making elements at different levels for enjoyment. The sunken plaza will form part of the development and will be managed and maintained by the URA or its assignee.

7.7 The sunken plaza will also integrate with the existing pavement along Prince Edward Road East to provide more comfortable and spacious connection with the existing pavement and to provide solution space for existing bus queuing, improve pedestrian circulation and enhance walkability.

Vehicular and Pedestrian Circulation

7.8 To rationalise the land uses and to facilitate the creation of the sunken plaza, a portion of existing Sa Po Road will be closed permanently. A new private road will be provided within the Area for public use to divert the one-way vehicular traffic from Sa Po Road to Kai Tak Road. Pavement will be provided on both sides of the new private road to provide safe and comfortable walking environment. The private road

will be opened for public use 24 hours daily. Appropriate pedestrian crossing will be provided at the new private road to allow safe and convenient pedestrian connection between the proposed development and the sunken plaza in the Area.

Underground Public Vehicle Park

7.9 An underground public vehicle park will be provided within the Development Scheme to meet the local parking needs. It is proposed to accommodate about 300 private car parking spaces for public use. The provision of underground public vehicle park may also make way for solution space and create opportunity for pavement widening in the surrounding area. Management of the underground public vehicle park will be arranged at the development stage.

Internal Transport Facilities

7.10 Ancillary car parking spaces for the proposed residential development with non-domestic podium in the Development Scheme will also be provided in an underground car park. Ancillary loading/unloading bays will be provided within the Development Scheme. The number of car parking spaces, loading/unloading bays will be based on the relevant requirements under the Hong Kong Planning Standards and Guidelines (HKPSG) and subject to agreement with Transport Department.

Government, Institution or Community (GIC) Facilities

7.11 Not less than 800m^2 GFA would be reserved for community use within the non-domestic portion. The facilities can be run by a suitable Non-governmental Organisation (NGO) selected by the URA, or run by the Government, subject to liaison with relevant Government departments. In order to facilitate provision of GIC facilities, in determining the relevant maximum plot ratio of the development and/or redevelopment, any floor space that is constructed or intended for use solely as GIC facilities, as required by the Government, may be disregarded.

Landscaping and Greening

7.12 A cohesive landscaping, tree planting and greening will be designed, where appropriate and applicable, at the sunken plaza to enhance the local environment. To echo with the landscaping at the sunken plaza, greening on the podium edge and pedestrian level of the proposed development will be provided as far as practicable to meet the Sustainable Building Design (SBD) Guidelines and to enhance the local streetscape.

Air Ventilation

7.13 According to the air ventilation assessment report (AVA 2019) for the proposed development, good design features (i.e. the sunken plaza and 50m setback of domestic tower (at above 15m) from the intersection point of site boundary where Kai Tak Road and Prince Edward Road East meet) were proposed to enhance wind flow penetration. They should be incorporated in the design and layout of future developments in the "R(A)" zone. In addition, other building design elements (including building separation) should be provided in accordance with the Sustainable Building Design Guidelines. In the event that the proposed design features are not adopted in the future design scheme, further AVA study should be conducted by the project proponent in accordance with the joint Housing Planning and Lands Bureau – Environment, Transport and Works Bureau Technical Circular No. 1/06 on Air Ventilation Assessments (or its latest version) for demonstrating that the performance of any future development would not be worse than the Proposed Scheme adopted in the AVA 2019.

8. IMPLEMENTATION OF THE DEVELOPMENT SCHEME

8.1 The proposals set out in the Plan form an integral part of the Development Scheme for the Area.

8.2 The URA does not own or lease any land within the boundaries of the Development Scheme and intends to acquire the properties within the Area of the Development Scheme. With respect to any of such properties which cannot be acquired by purchase, the Secretary for Development

would consider, upon the application of the URA, recommending to the Chief Executive in Council the resumption of properties under the Lands Resumption Ordinance, if necessary.

8.3 All eligible tenants will be offered an ex-gratia payment package in accordance with URA's policy. The URA has already entered into agreement with the Hong Kong Housing Society (HKHS) and the Hong Kong Housing Authority (HKHA) for the purpose of making available rehousing units by HKHS or HKHA to rehouse affected tenants who satisfy the eligibility criteria of HKHS or HKHA.

8.4 Non-domestic tenants of properties acquired by URA whose tenancies are terminated by URA due to implementation of the Development Scheme may be offered an ex-gratia allowance to assist in their business relocation.

8.5 Details of the acquisition, compensation and rehousing policies are subject to the URA's prevailing policies at the time of acquisition. The URA may implement the Development Scheme on its own or in association with one or more partners.

TOWN PLANNING BOARD
[xxxx] 2019

Our Ref: PDD/KC-015/19060097

By Hand

市區重建局
URBAN RENEWAL AUTHORITY

The Secretary
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road, North Point,
Hong Kong

3 June 2019

Dear Sir/Madam,

Draft Development Scheme Plan
for the Urban Renewal Authority
Kai Tak Road / Sa Po Road Development Scheme (KC-015)
- Responses to Departmental Comment -

We refer to our submission of the captioned draft Development Scheme Plan (DSP) to Town Planning Board (TPB) dated 22 February 2019 and Departmental Comment received via email dated on 16 May 2019. We would like to enclose the revised DSP Notes for your necessary action.

Please note no fundamental change has been proposed to the submitted draft DSP under URAO s.25, i.e. no change on the proposed boundaries of the DSP, the site area, the overall development parameters nor planning intention. The information as contained in this letter is mainly technical clarifications to address various comments. We look forward to your prompt processing and consideration on the R to C along with your ongoing preparation work for TPB's consideration.

Should you have any enquiry, please feel free to contact me at [redacted] or our Ms. Mable Kwan at [redacted] Thank you very much.

Yours faithfully,

RECEIVED
03 JUN 2019
Town Planning

Mike Kwan
General Manager
Planning & Design Division

encl.

c.c. (w/o – by fax)
DPO/K, PlanD (Attn: Ms. Johanna Cheng) (Fax No.: 2894 9502)

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DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority 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 widths, road junctions and alignments of roads may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or building 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 Schedule of Uses:

(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; and

(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 coordinated or implemented by Government.

(8) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate

permission is required.

(9) 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.

(10) Any development not compatible with the Urban Renewal Authority's Development Scheme for the area is prohibited by virtue of section 25(4) of the Urban Renewal Authority Ordinance.

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

Schedule of Uses

	Page
RESIDENTIAL (GROUP A)	1

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
Flat	Commercial Bathhouse/ Massage Establishment
Government Use (not elsewhere specified)	Eating Place
House	Education Institution
Library	Exhibition or Convention Hall
Market	Government Refuse Collection Point
Place of Recreation, Sports or Culture	Hotel
Public Clinic	Institutional Use (not elsewhere specified)
Public Transport Terminus or Station (excluding open-air terminus or station)	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Public Vehicle Park (excluding container vehicle)	Office
Residential Institution	Petrol Filling Station
School (in free-standing purpose-designed building only)	Place of Entertainment
Social Welfare Facility	Private Club
Utility Installation for Private Project	Public Convenience
	Public Transport Terminus or Station (not elsewhere specified)
	Public Utility Installation
	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 but excluding floors containing wholly or mainly car parking, loading / unloading bay and / or plant room; or (b) in the purpose-designed non-domestic portion of a building connecting to the sunken plaza:
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 with the provision of a sunken plaza and underground public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-domestic portion of a building connecting to the sunken plaza.

Remarks

(1) 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 exceed under paragraphs (7) and/or (8) 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 (7) and/or (8) hereof.

(3) For the purposes of paragraph (1) above, 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 port ratio(s) or 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) In determining the relevant maximum plot ratio 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, 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. Any floor space that is constructed or intended for use solely as Government, institution or community facilities, as required by the Government, may also be disregarded.

(5) An underground public vehicle park shall be provided as required by the Government.

(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 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.

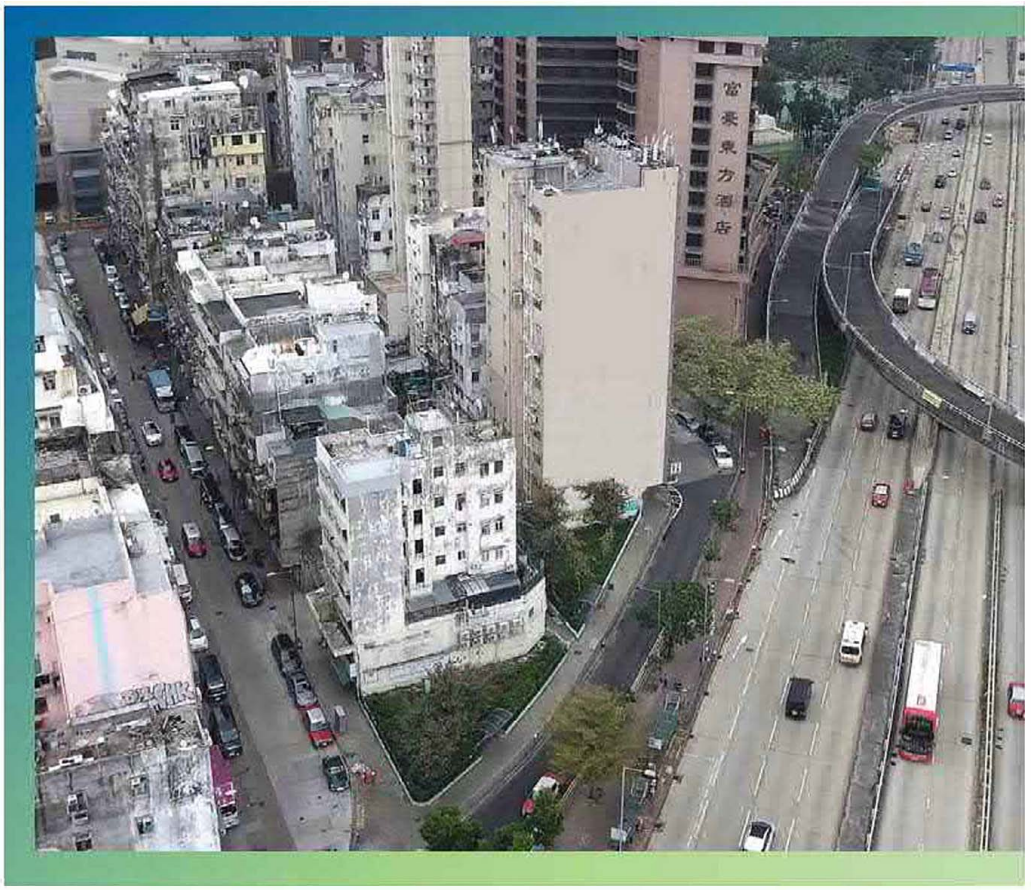
(7) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraphs (1) or (2) above applies may be increased by the additional 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 the paragraphs (1) or (2) above may thereby be exceeded.

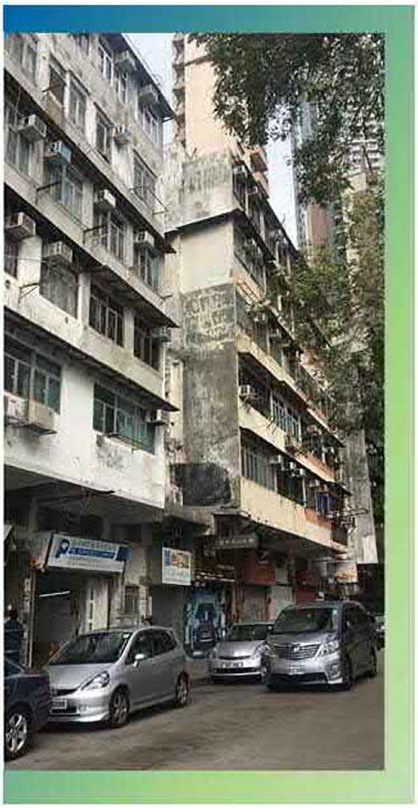
(8) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio and building height restrictions as stated in paragraphs (1), (2) and (6) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

Annex B of
TPB Paper No. 10542

DEVELOPMENT SCHEME

Prepared under Section 25 (3)
of the Urban Renewal Authority Ordinance





PLANNING REPORT

Kai Tak Road / Sa Po Road (KC-015)

市區重建局
URBAN RENEWAL AUTHORITY

February 2019

PART 1

PLANNING REPORT

Urban Renewal Authority

DEVELOPMENT SCHEME

Prepared under Section 25 (3)

of the Urban Renewal Authority Ordinance

Kai Tak Road / Sa Po Road
(KC-015)

PLANNING REPORT

February 2019

市區重建局
URBAN RENEWAL AUTHORITY

EXECUTIVE SUMMARY

1. The Urban Renewal Authority (URA) submits this planning report to seek approval of the Town Planning Board (TPB) for the draft Development Scheme Plan (DSP) No. S/K10/URA1/A. The DSP refers to the Development Scheme (the Scheme) designated at Kai Tak Road / Sa Po Road Development Scheme (KC-015). The Development Scheme Area (the Scheme Area) broadly bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north.

2. The Scheme falls within the Nga Tsin Wai Road Area defined in the Urban Renewal Plan (URP) prepared by Kowloon City District Urban Renewal Forum (KC DURF). The URP recommended the street block of the Scheme Area for comprehensive redevelopment and to strengthen the connectivity to the adjoining Kai Tak Development Area (KTDA) and its Underground Shopping Street (USS).

3. This part of Nga Tsin Wai Road Area is of distinctive dining and cultural characters that attracts people from other districts which creates high level of pedestrian flow and also high parking demand, and subsequently caused many illegal parking activities.

4. Under the proposed DSP, the Scheme Area is proposed to be zoned "R(A)", which is primarily for residential use, with the lowest three 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)" zone. The overall Plot Ratio (PR) is 9.0, which is in line with the development intensity of "R(A)" zone in Kowloon.

5. The Scheme aims to take into account of the planning intentions as recommended in the KC DURF and bring planning gains to the area through redevelopment as stipulated in Section 4 of the planning report. It aims to provide a more efficient use of land by replanning and restructuring of land uses within the Scheme area.

6. Through the closure and re-alignment of Sa Po Road, the configuration and size of the split-level sunken plaza is further optimised under the notional design. The sunken plaza is of about 1,000sq.m., which can strengthen the connection with the KTDA and its future underground shopping street (USS). It will allow better integration and enhance the walkability between this part of old district area and Kai Tak new area. It will integrate with the KTDA and extend the vibrancy of its future USS and create a sense of place of the area. The sunken plaza will connect with the existing pavement to provide solution space for bus queuing and to improve pedestrian circulation.

7. Apart from providing a sunken plaza for better connection to KTDA, the Scheme will also provide 800sq.m. GFA for community uses and an underground public vehicle park of about 300 private car parking spaces. When the supply and demand of parking spaces is balanced in long run, further study can be carried out on replacing certain on-street parking spaces for pavement

widening to enhance walkability of the area under an integrated urban renewal approach and to align with the planning objectives of KC DURF.

行政摘要

1. 市區重建局(市建局)向城市規劃委員會提交發展計劃草圖(編號S/K10/URA1/A)，名為啟德道 / 沙浦道發展計劃 (KC-015)（該計劃）。該計劃地盤的東面毗連沙浦道，南面毗連太子道東，西面毗連啟德道，北面毗連賈炳達道。

2. 該計劃位於九龍城市區更新地區諮詢平台（諮詢平台）編制的「市區更新計劃」（該「更新計劃」）所界定的衙前圍道一帶計劃區。 該「更新計劃」建議該計劃區的街區進行重建，並加強與毗鄰啟德發展區及其地下購物街的連接。

3. 衙前圍道一帶具有鮮明的餐飲及文化特色，吸引了其他地區的遊人前往，造成較高的人流和泊車需求，因而引發在該區內許多違例泊車情況。

4. 發展計劃草圖建議把該計劃的土地劃為「住宅（甲類）」地帶，主要用作住宅發展，建築物最低三層或在特別設計的非住宅部分中作商業／零售用途屬經常准許的用途。整體地積比率為9.0，與九龍「住宅（甲類）」地帶的發展密度一致。

5. 該計劃旨在考慮了諮詢平台在該計劃區所建議的規劃意向，通過重建為該區帶來規劃效益。 透過重新規劃/重整土地用途，提升土地使用的效率。

6. 該計劃會透過封閉及更改部分沙埔道路線，興建一個約1000平方米的分層地下廣場作為連接啟德發展區及未來啟德地下購物街，提高可達性，改善步行環境及其易行度。分層地下廣場將可與啟德發展區連接，並延伸未來啟德地下購物街的零售活力至廣場，讓地區融為一體。分層地下廣場連接現有行人路，有助改善路面的行人流通情況及在巴士站旁提供更多空間。

7. 該計劃亦將提供不少於 800 平方米的總樓面面積予社區用途，以及約有 300 個私家車泊車位的地下公眾停車場。該計劃希望善用地下空間興建地下停車場，有助緩解區內的泊車位短缺問題。長遠而言，在泊車位供求平衡下，可研究騰出路邊泊位作擴闊行人路，進一步改善區內步行環境，亦配合諮詢平台的「更新計劃」的規劃意向。

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1. INTRODUCTION

1.1 The Development Scheme (the Scheme) involves two rows of buildings and land: 31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.) respectively, two pieces of government land in the southern part of the Scheme, a portion of Sa Po Road and portion of the surrounding public pavement.

1.2 The Scheme is included in the URA's 17th Business Plan (2018/19), which was approved by the Financial Secretary. It is proposed to be proceeded as a Development Scheme under section 25 of the Urban Renewal Authority Ordinance (URAO). On 18 December 2018, the URA Board approved the submission of the Scheme under section 25(5) of the URAO to the Town Planning Board (TPB). The draft Development Scheme Plan (DSP), No. S/K10/URA1/A, was prepared for submission to the TPB.

1.3 Pursuant to section 23(1) of the URAO, the URA notified the public in the Government Gazette about the commencement of the Scheme on 22 February 2019. The draft DSP is hereby submitted under section 25(5) of the URAO to the TPB for its consideration.

1.4 This planning report (Part 1 of the whole report) was prepared to provide the TPB with the necessary background information and the planning proposal to facilitate its consideration of the draft DSP (Part 2 of the report), submitted under section 25 of the URAO. Supplementary information, including the preliminary design of the proposed development, key technical assessments, a social impact assessment (SIA) (Stage 1), and the implementation approach, are enclosed in Part 3 for reference.

2. THE DEVELOPMENT SCHEME AREA

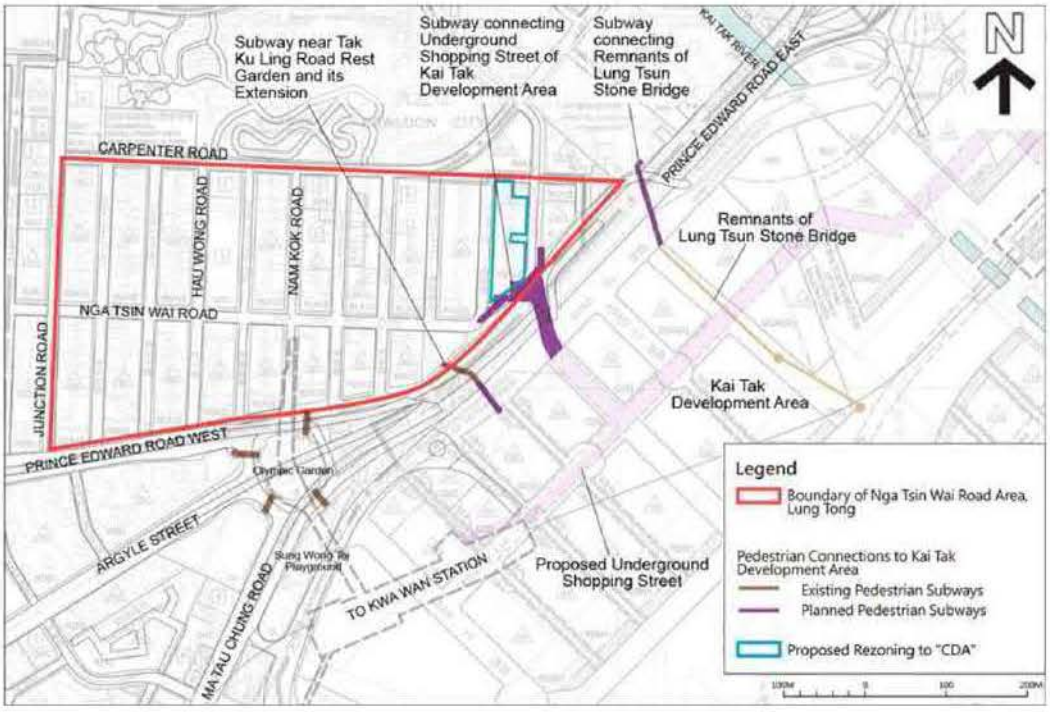
2.1 The Development Scheme Area (the Scheme Area) is located at the street block bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Scheme Area includes a portion of existing Sa Po Road at the immediate south of the street block. **Plan 1** shows the location of the Scheme.

2.2 The Scheme Area covers about 6,106 sq.m., which includes about 754 sq.m. pavement where the affected buildings overhang. The pavement area will be excluded from the plot ratio calculation. The net site area for plot ratio calculation is about 5,352 sq.m. subject to detailed site survey upon DSP approval. The Scheme Area is shown in **Plan 2.**

2.3 The Scheme Area is currently zoned "Residential (Group A)2" ("R(A)2"), and the pavement and the Sa Po Road are shown as "Road" on the Approved Ma Tau Kok Outline Zoning Plan (OZP) No. S/K10/24. An extract of the OZP is shown in **Plan 3**.

2.4 The Scheme falls within the Nga Tsin Wai Road Area defined in the Urban Renewal Plan (URP) prepared by Kowloon City District Urban Renewal Forum (KC DURF) and it is recommended for "Comprehensive Development Area" ("CDA") to facilitate mixed development and to strengthen the connectivity to the adjoining Kai Tak Development Area (KTDA) and its Underground Shopping Street (USS). (**Figure 2.1**)

Figure 2.1 Nga Tsin Wai Road Area of KC DURF (Extract of the KC DURF URP)



2.5 The Scheme Area boundary generally follows the redevelopment boundary recommended in the URP to address its planning intention of the area, except

that a portion of existing Sa Po Road will also be included. The portion of Sa Po Road within the Scheme is proposed to be permanently closed to optimize the size and configuration of a proposed sunken plaza at the southern part of the Scheme and to have better integration with the existing adjoining pavement. The replanning and restructuring of the land uses can enhance the walkability and connectivity of this part of the area. It can also enhance connectivity with the KTDA and its future USS. A new private road will be provided within the Scheme Area to allow traffic diversion from Sa Po Road to Kai Tak Road.

2.6 The buildings included in the Scheme Area are selected based on KC DURF's recommendation, with two relatively young buildings at 51 Sa Po Road (built in 2006) and 33 Carpenter Road (built in 2014) in the same street block are excluded from the Scheme Area.

3. BACKGROUND AND EXISTING CONDITIONS

Historical Background of the Scheme Area

3.1 Kowloon City was named after the Kowloon Walled City that built in Qing Dynasty (1847) to strengthen the defense of the Kowloon Peninsula. The village settlement was mostly engaged in agriculture and fisheries, some also relied on the salt and quarry industries for a living. The waterfront areas spanning from the present-day Kowloon City, To Kwa Wan to Hung Hom were mooring places for merchant ships during the Sung and Ming periods, and the shops along the waterfront of Kowloon City at that time, i.e., the area from Kowloon Walled City Park to Prince Edward Road East at present, was a bazaar named "Kowloon Street".

3.2 Historical map records indicate that the Scheme Area was probably located near the coastline in the 1920s. The last phase of reclamation in Kowloon City was carried out in the 1960s and the reclaimed land was designated for development of the former Hong Kong International Airport (i.e. also known as Kai Tak Airport). The Kai Tak Airport was relocated to Chek Lap Kok in July 1998 and the relocation has offered an opportunity for new development plan in Kai Tak, which is named as the Kai Tak Development Area (KTDA). The KTDA is designated with mix of community, housing, business, tourism and infrastructural uses.

3.3 Since after the relocation of the Kai Tak Airport and the removal of the airport height restrictions, some originally low-rise buildings were redeveloped into single high-rise towers in Kowloon City, resulting in sporadic redevelopments with a mixture of built forms and building heights in the area. The area is facing change of landscape and urban context through redevelopment nowadays.

3.4 The Scheme Area is situated in the eastern part of Nga Tsin Wai Road area in the KC DURF, separated from the KTDA by the Prince Edward Road East. This part of Lung Kong area is of distinctive characters with high pedestrian and traffic flow. Apart from being a residential area, it is one of the renowned specialty dining areas in Hong Kong with a variety of restaurants concentrated

on the ground floors of the residential buildings. The area is particularly busy during dining times with people coming for dining by private cars and/or public transport.

Planned Developments in the Vicinity

3.5 The Scheme is located at a strategic position in close proximity to the KTDA and its planned USS. Civil Engineering and Development Department (CEDD) proposed to build a pedestrian tunnel underneath Prince Edward Road East to connect between the KTDA and the Nga Tsin Wai Road Area, which is published in the Government Gazette on 2 November, 2018. The Scheme Area, which is in front of the exit of the proposed pedestrian tunnel, would provide an opportunity to enhance connectivity and walkability between the Nga Tsin Wai Road area and the KTDA.

3.6 The Scheme is also located nearby the MTR Shatin-to-Central Link (SCL) Sung Wong Toi Station (previously named as To Kwa Wan Station). One of its exits will be located at Nam Kok Road, which is about 5-minute walking distance from the Scheme. The SCL is anticipated to be in operation in 2021.

Existing Uses, Building and Living Conditions

3.7 All the buildings within the Scheme Area, except the two buildings at 31 – 35 Sa Po Road and 62 – 68 Kai Tak Road respectively, are buildings of 5 to 10 storeys high with no lift. The building ages are ranging from 29 to 55 years old, which were built between 1962 and 1990. As shown in the building record plans, the two rows of buildings are permitted for domestic use on upper floors, storage for cocklofts and shop for ground floors. The commercial building on 31 – 35 Sa Po Road, which is permitted for office use on upper floors and shop for ground floor, is of 12 storeys high with lift and it was built in 1981. The residential building at 62 – 68 Kai Tak Road is of 10 storeys high with lifts and was built in 1966. (**Plans 4** and **5**).

3.8 Apart from the mentioned buildings within the Scheme Area, there is one private vacant site at 28-30 Kai Tak Road, which is currently used as a carpark. There are also two pieces of government land on the southern side within the Scheme which are amenity area with landscaping and trees. Site photos are shown in **Plan 9**.

3.9 Based on non-obtrusive observation, the two rows of buildings within the Scheme are mainly residential in nature on the upper floors, except for the commercial building which is mainly office uses on the upper floors. At present, the ground floor of all the buildings are primarily engaging with businesses of retail of goods, services, workshops and restaurants/cafes.

3.10 Based on the URA's building condition survey carried out by appointed consultant in January 2019 as shown in **Plan 6**, more than 70% of the buildings are in 'varied' or 'poor' conditions, i.e. the worst and the second worst conditions. The buildings in general are in poor serviceability as there are no lift (except

two buildings). From the recent site visits, it is noticed that some of the buildings have suspected unauthorised building structures (UBWs) and subdivided units. The living condition in the Scheme is considered not satisfactory in general.

3.11 Based on Buildings Department's records and land search records in Lands Registry as of January 2019, most of the buildings within the Scheme have received Fire Safety Notices (FSDN) and some received building orders S26/26A and S28 respectively. Three buildings have completed building rehabilitation works by the Integrated Building Maintenance Assistance Scheme (IBMAS) within the Scheme (i.e. 47 Sa Po Road, 49 Sa Po Road and 59-61 Sa Po Road); and another three buildings are applying for the Common Area Repair Works Scheme (CAS) under IBMAS to carry out common area repair works. It is understood that the IBMAS works comprise mainly repairing defects (e.g. major cracks, spalling) in common or public areas of the buildings. Repair works to the interior of private units are not included. Based on past URA's experience in rehabilitation works, even buildings that have undergone repair works need to undertake comprehensive building rehabilitation every 5 to 6 years in order to avoid deterioration. Apart from those applied for IBMAS, three other buildings within the Scheme have carried out rehabilitation works by themselves but the dates are not known.

3.12 The portion of Sa Po Road included in the Scheme separates the two existing amenity areas and the pavement of Prince Edward Road East. There are a number of buses and minibuses stops along Prince Edward Road East. At present, long queuing at the bus and minibus stops often appear along the pavement of Prince Edward Road East to the south of the Scheme, resulting in a crowded condition and narrow pavement for pedestrian.

Surrounding Land Uses

3.13 The street blocks adjacent to the Scheme to the west are mainly residential in nature on the upper floors and shop and services on the ground floors. The area is also a popular dining place with the concentration of Thai and Vietnam cuisine restaurants on the ground floor shops. The restaurants attract people to come for dining from other districts and create high parking demand. Apart from restaurants, there are also car repair workshops, building materials trades and grocery stores occupying ground floor shops.

3.14 To the north and northeast side of the Scheme across Carpenter Road, there are two relatively young residential buildings, Billionaire Royale and Le Billionaire, with building ages of 5 and 13 years old respectively, and building heights of 170 mPD and 145 mPD respectively (see **Plans 7**).

3.15 To the east of the Scheme across Sa Po Road is a residential building and the Regal Oriental Hotel. Coach and taxi laybys are provided in front of the hotel on Sa Po Road for the drop-off for hotel customers.

3.16 To the south of the scheme is Prince Edward Road East and to the further south is the KTDA, which is under construction and the land is designated for a mix of residential, commercial, tourism, community uses support with infrastructure facilities.

Existing Traffic Network

3.17 The Scheme is bounded by Carpenter Road to the north, Kai Tak Road to the west and Sa Po Road to the east. All the three roads are 1-way local roads running westbound and southbound towards Nga Tsin Wai Road. Part of the existing Sa Po Road on the south is included into the Scheme Area. There are on-street parking spaces at Sa Po Road and Kai Tak Road. Nevertheless, illegal parking resulting in double parking or even triple parking are often found on these local streets when the on-street parking spaces are all occupied. To the immediate south of the Schema Area is the Prince Edward Road East, which is a trunk road and is a major traffic noise source. There are a number of buses and minibuses running along Prince Edward Road East. The 110m bus and GMB lay-by located along the pavement of Prince Edward Road East to the south of the Scheme is currently servicing about 69 franchised bus routes and 18 GMB routes.

Existing Pedestrian Network

3.18 At present, long queuing at the bus and minibus stops often appear along the pavement of Prince Edward Road East to the south of the Scheme, resulting in a crowded condition and narrow pavement for pedestrian. Further west from the Scheme to Tak Ku Ling Road Rest Garden, there is a pedestrian subway to cross the Prince Edward Road East to the bus stops on the opposite side of the road. The major pedestrian circulation is therefore concentrated along the pavement of Prince Edward Road East at the southern boundary of the Scheme.

3.19 Currently the Scheme and its surrounding area is served mainly by buses and minibuses. With the forthcoming MTR Shatin-Central-Line (SCL) and its entrances/exits of the future Sung Wong Toi Station located at Nam Kok Road, the accessibility of the area is expected to be enhanced, the pedestrian flow to and from the MTR exits or to the bus or minibus stops along the Prince Edward Road East is also expected to be increased for multi-modal transit.

Demographic Background

3.20 The existing population of the Scheme is estimated to be 1,410 persons in around 670 households. Detailed demographic information of the Scheme will be discussed in the SIA (Stage 2) report.

Ownership Pattern

3.21 Based on the land search conducted in January 2019, there are two single-owned properties, including the vacant site at No. 28-30 Kai Tak Road and the

building at 82 Kai Tak Road. Other buildings within the Scheme are under multiple ownerships (**Plan 8**).

4. PLANNING & LAND USE PROPOSALS

Objectives of the Scheme

4.1 The Scheme seeks to restructure and re-plan the area through redevelopment to rationalise the land uses and to improve the overall living and environmental conditions.

4.2 The Scheme also seeks the opportunity to carry out comprehensive redevelopment to achieve the planning intentions of the area as recommended in the KC DURF, which include:

- a comprehensive development to facilitate mixed development with commercial and residential uses to strengthen the connection with the KTDA;
- creation of sunken plaza of to tie in with the underground shopping street at KTDA;
- provision of community facility uses;
- provision of a public car park to address the demand for car parking facilitate of the Nga Tsin Wai Road area.

4.3 To take forward the recommendations in KC DURF, the Scheme proposes to re-configure the land uses by closing a portion of Sa Po Road at the southern part of the Scheme and convert it into a split-level sunken plaza; so as to strengthen the connectivity with the future USS in KTDA and extend the retail vibrancy to the area, and provide a more comfortable and spacious connection with the existing pavement along Prince Edward Road East to enhance pedestrian circulation and environment. Details of the planning proposal is elaborated below.

Development Intensity

4.4 Under the proposed DSP, the Scheme Area is proposed to be zoned "R(A)" and its associated development parameters are shown in Table 4.1, which is subject to adjustments in the detailed design stage. The proposed development in the Scheme is primarily for residential use, with the lowest three 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)" zone. A public vehicle park and a split-level sunken plaza (sunken plaza) will be provided in the Scheme.

4.5 Under the proposed Notes of "R(A)" zone, a public vehicle park (excluding container vehicle) will be annotated as the "always permitted use" under Column One (Schedule of Uses) to allow for such provision in the Scheme to serve the local community. Commercial/retail use is proposed at the sunken plaza as permitted in the purpose-designed non-residential portion of a building for place making.

4.6 In the proposed Notes of "R(A)" zone, the proposed maximum Gross Floor Area (GFA) of the "R(A)" zone is 48,168 sq.m., of which a domestic GFA of not more than 40,140sq.m. (PR=7.5) and a non-domestic GFA of not more than 8,028 sq.m. (PR=1.5) shall be provided in the zone, i.e. the overall Plot Ratio (PR) is

9.0, which is in line with the development intensity of "R(A)" zone in Kowloon.

4.7 About 800 sq.m. non-domestic GFA would be reserved for community facility uses. Site coverage of the Scheme is complied with the maximum permitted site coverage percentage under First Schedule of Building (Planning) Regulation (B(P)R).

Conceptual Layout

4.8 Based on the proposed development parameters for the Scheme, **Appendix 1** shows the indicative block plan, the section plan and the new traffic circulation of the Scheme. The proposed development will be in the form of residential towers on top of podium/podia comprising commercial / retail floor spaces, private residential clubhouse and podium garden. A sunken plaza is proposed at the southern edge of the Scheme to allow for at-grade integration with the existing pavement of Prince Edward Road East; and underground connection with the proposed pedestrian tunnel to be constructed by CEDD to link up with the future USS in KTDA. A private road will be provided within the Scheme to divert the traffic from Sa Po Road to Kai Tak Road. Pavements will be provided along the private road to provide safe pedestrian network and enhance walkability and connection with the sunken plaza. Landscaping and greening will be provided, where appropriate and applicable, to provide visually appealing pedestrian environment and echo with the landscape of the sunken plaza.

4.9 Ingress and egress to the basement car park will be provided on Sa Po Road and Kai Tak Road. Details of the ingress/egress arrangement is discussed in the Traffic Report in **Appendix 2**.

Table 4.1 Proposed Development Parameters of the Scheme

Parameters	**Details**
Scheme Area	6,106 sq.m.
Net Site Area *	5,352 sq.m. (Subject to site survey and detailed design)
Proposed Zoning	"R(A)"
Proposed Maximum Building Height	Not more than 120mPD
Proposed Domestic GFA (PR) ^	Around 40,140 sq.m. (7.5)
Proposed Non-domestic GFA (PR) ^	Around 8,028 sq.m. (1.5)
Total GFA (PR)	Around 48,168 sq.m. (9)
No. of Flats@	About 810 flats
Average Flat Size@	About 49.6 sq.m.

Community Facilities	To reserve about 800 sq.m. GFA for appropriate community facilities.
Internal Transport Facilities for the proposed development	• Basement car park to accommodate about 120 private car parking spaces and 14 motor-cycle parking spaces. • Provision of 10 L/UL bays (5 HGV and 5 LGV bays) at-grade. (Provision subject to agreement with Transport Department)
Public Vehicle Park	Basement public vehicle park to accommodate about 300 private car parking spaces. (subject to agreement with Transport Department)
Split-level Sunken Plaza	A split-level sunken plaza of about 1,000 sq.m., including covered and un-covered area and with hard and soft landscape, commercial/retail components, event space and place making elements at different levels, will be provided within the sunken plaza and intends for public use.
Other Proposals:	
1. A one-way private road will be provided within the Scheme to divert traffic from Sa Po Road to Kai Tak Road. It will be opened for public use. Design and width of the road is subject to detailed design and agreement with Transport Department. Future management and maintenance of the private road is subject to liaison with relevant government departments upon DSP's approval and to be stipulated in land grant and DMC at future.	
Notes: * Net Site Area includes all private lots, the government lane, the 2 pieces of government land and a portion of Sa Po Road within the Scheme boundary. ^ The exact GFA and PR are subject to TPB approval, detailed design and prevailing Schedule 1 of the Building (Planning) Regulations. @ Indicative Only, subject to detailed design at project implementation stage.	

Provision of a Split-level Sunken Plaza

4.10 In order to achieve a better urban design outcome and more planning gains to the community, a portion of existing Sa Po Road within the Scheme is proposed to be closed and realigned to make way for the development of a split-level sunken plaza. The sunken plaza will be developed at the southern part of the Scheme to connect with the existing pavement of Prince Edward Road East to improve walking environment and provide solution space for pedestrian circulation and queuing at the bus laybys locating in front of the Scheme. Commercial / retail components will be provided in the sunken plaza to match with the USS of KTDA. The sunken plaza can create an visual openness/relief area in front of the proposed residential developments in the Scheme as well as the adjoining buildings from the Prince Edward Road East.

4.11 The sunken plaza will be designed in split levels, from landscape deck, ground floor to basement levels to create a unique urban space. One of the basement levels will have direct connection with the proposed pedestrian tunnel to be constructed by CEDD. Such linkage would strengthen connectivity and walkability between the Scheme and the KTDA and its future USS.

4.12 The sunken plaza of about 1,000 sq.m. will be provided for public use within the Scheme, with commercial / retail shops, sitting area and event space, to enrich users' experience and to strengthen its identity. It can also continue the retail vibrancy from the future USS in KTDA and enhance the connection between this part of old district area and the new KTDA. The plaza will form part of the development and will be maintained and managed by URA or URA assignee for place making for public enjoyment.

4.13 A cohesive soft and hard landscaping, tree planting and vertical greening will be designed, where appropriate and applicable, at the different levels of the sunken plaza to enhance the visual environment and provision of possible event space/ place-making opportunity to create a sense of place for the local community.

4.14 In order to optimise the configuration and size of the sunken plaza, the existing portion of Sa Po Road in the Scheme is proposed to be closed. A private road will be provided within the Scheme for traffic diversion from Sa Po Road and Kai Tak Road. The private road will be provided with pavement alongside.

4.15 Subject to agreement with Transport Department (TD) and detailed design to comply with requirements from TD, the private road will be opened for public use. A Traffic Impact Assessment (TIA) report is provided in **Appendix 2** to detail the traffic proposal and related traffic assessment of the Scheme.

Relaxation of Maximum Building Height

4.16 Given the southern portion of the Scheme Area is proposed for a sunken plaza and a private road will be provided within the Scheme to divert the traffic, the proposed residential developments with commercial/retail podium will be restricted to the northern part of the Scheme Area. A relaxation of maximum building height (from 100mPD to 120mPD) is proposed in the Scheme Area to allow more design flexibility in building form and layout, which can enable a slimmer building form and wider building separation. The proposed scheme of 120mPD can contribute to a wider/more sensible building gaps between buildings. The gap can enable a visual relief and spatial feeling between the proposed towers and the adjoining existing buildings, i.e. Carlson Court and the High Place.

4.17 If the maximum building height of 100mPD is kept for the proposed development as of the current OZP and the proposed sunken plaza has to be maintained within the Scheme, the proposed residential towers are still restricted to the northern part of the Scheme Area. The residential towers will unavoidably need to be bulkier and wider in building form to accommodate the permissible domestic GFA and necessary E/M facilities and circulation space within the towers, resulting in a narrower gap and thus more stressful spatial feeling between the proposed towers and the adjacent buildings.

4.18 Despite of the proposed relaxation of building height to 120 mPD, the proposed

height generally respects and complement to a stepped building height profile of the adjoining buildings across Carpenter Road, i.e. Billionaire Royale and Le Billionaire with building height of 170mPD & 145mPD respectively. Visual appraisal is carried out in **Appendix 4** which demonstrates that the proposed building height of 120mPD is compatible with the surrounding developments as further explained in below paragraphs.

Underground Public Vehicle Park

4.19 An underground public vehicle park is proposed to alleviate the insufficient car parking spaces identified in the Nga Tsin Wai Road Area as recommended by KC DURF. It is proposed to provide about 300 private car parking spaces in the basement car park within the Scheme for public use. Both the ingress/egress of the public car park is proposed at Kai Tak Road. The provision of underground public car park may create opportunity for the relocation of some on-street parking spaces in the area and make way for pavement widening or partial pedestrianization to realise the revitalization strategy as recommended by KC DURF. The URA has sought Transport Department (TD)'s no in-principle objection on the underground public car park proposal. The TIA report in **Appendix 2** has detailed the traffic proposal for the underground public vehicle park.

Provision of Area for Community Use

4.20 It is proposed to reserve about 800 sq.m. GFA within the non-domestic portion of the proposed development to provide appropriate community facilities to meet community needs as recommended in KC DURF. The URA would consult Kowloon City District Council and may invite non-government organizations (NGOs) or by itself to run and operate the appropriate community facilities to meet the community needs.

Technical Assessments

Traffic Impact

4.21 A TIA (**Appendix 2**) has been conducted to assess the traffic impact of the Scheme, the proposed closure of the part of Sa Po Road within the Scheme and re-alignment of the traffic, the proposed provision and layout of the public vehicle park and the internal transport facilities of the proposed development. The TIA demonstrated that the Scheme (together with the proposed public vehicle park) has no adverse traffic impact on the local traffic network and the pedestrian walking environment. The proposed parking provision and layout of the public vehicle park and the internal transport facilities are acceptable from traffic engineering point of view.

4.22 TD has indicated no in-principle objection to the underground public vehicle park proposal. Subject to TD's agreement with the proposed realignment of Sa Po Road and the parking provision and layout within the Scheme and the approval of the draft DSP by CE in C, the URA will carry out detailed design and to liaise with relevant government departments for the statutory requirements concerning closure of portion of existing Sa Po Road and the necessary road works in the Scheme at detailed design stage.

Environmental Aspect

4.23 An Environmental Assessment (EA) (see **Appendix 5**) was conducted to study any potential environmental impacts / benefits associated with the implementation of the Scheme. The study concluded that the impact on air quality, noise, and waste management was not insurmountable. The URA will ensure that satisfactory environmental standards are being met at the detailed design stage and during implementation.

Air Ventilation

4.24 An Air Ventilation Assessment (AVA) (see **Appendix 6**) was conducted to study any potential impact to local air ventilation associated with the proposed scheme (i.e. 120mPD) as compared to the OZP-compliance scheme (the baseline scheme) (i.e. 100mPD). The study concluded that the air ventilation performance of the proposed scheme is similar to that of the baseline scheme and no adverse air ventilation impact is anticipated from the proposed scheme. The proposed scheme also creates advantage in term of ventilation performance of the downstream street canyons.

Drainage and Sewerage Impact

4.25 A Drainage and Sewerage Impact Assessment (DSIA) was conducted (see **Appendix 7**). The DSIA report concluded that the impact on the capacities of the existing drainage and sewerage system due to the increase of population from the proposed development will be acceptable. With the provision of new drainage and sewerage pipes and upgrading/ diversion of a few sections of existing drainage pipes connecting with the proposed development, the discharge generated from the proposed development in the Scheme will be within the capacities and will not have adverse impact to the existing drainage and sewerage systems.

Preliminary Landscape Design Principles, Tree Survey and Compensation Planting Proposal

4.26 Preliminary landscape design principles, a tree survey and compensation planting proposal were conducted (see **Appendix 3**) to provide a preliminary design concept and to address the conditions of the existing vegetation on site, and mitigation measures were proposed for the affected trees by the proposed development of the Scheme. The findings of the Tree Survey have highlighted that the majority of the existing trees were found to be in poor to fair condition and no old and valuable tree (OVT) is recorded on site. It has concluded that the trees found in the Scheme Area is of no significant values and are proposed to be felled. Compensation planting proposal is proposed within the Scheme to create a green and pleasant landscape environment.

Visual Impact

4.27 A Visual Appraisal (VA) was conducted (see **Appendix 4**) to study the potential visual impact with the implementation of the Scheme. Visual appraisal has been carried out both locally and at the strategic view point from the opposite side of the Victoria Harbour. The study has concluded that the proposed development will not create significant visual impact in general.

Desktop Geotechnical Appraisal

4.28 A desktop geotechnical appraisal was conducted (see **Appendix 8**) to identify any potential geotechnical constraints of the site and its limit to the buildability of the site based on the desktop available information and the guidelines from the Geotechnical Engineering Office (GEO). The Study indicated that the site is of no significant geotechnical constraints and the proposed development is considered feasible from geotechnical point of view.

Social Impact

4.29 In accordance with the Urban Renewal Strategy (URS), a non-obtrusive SIA (Stage 1) has been conducted and the report is included as **Appendix 9**. The report highlights characteristics of the local population which will need to be prepared for and borne in mind during the implementation of the Scheme. The Stage 2 SIA Report is under preparation based on factual data and opinions collected from the freezing survey and social impact assessment interviews, which has been conducted on the commencement of the Scheme. The Stage 2 SIA Report will be submitted to TPB separately. The SIA reports are to assess the likely effect of the implementation of the Scheme and to propose mitigation measures to minimise any social impact.

5. PLANNING AND URBAN DESIGN MERITS

5.1 The Scheme will provide the following planning and environmental benefits: -

- making reference to and taking forward of the recommendations of KC DURF;
- ensuring more efficient use of land by replanning and restructuring of land uses to rationalize the land uses and achieve more planning gains for the community;
- utilizing underground space by development of underground car park to alleviate insufficient parking spaces in the area and make way for solution space and opportunities to pavement widening and walkability of the area;
- rationalizing land uses through the closure and realignment of portion of Sa Po Road to create a sunken plaza and provide solution space to improve pedestrian circulation and the environment;
- extending retail vibrancy and creating a sense of place by providing a sunken plaza with retail facilities and well-designed landscape to connect with the USS in KTDA for the benefit of the community;
- providing more small to medium-sized flats in the urban area;
- provision of community facilities for the community;
- enhancing the townscape, urban design and environment through better building separation and design, and to echo with the stepped building height profile in the area; and
- facilitating an integrated urban renewal approach through further area-based study for urban renewal works in the vicinity of the Scheme to enhance walkability of the area.

6. IMPLEMENTATION OF THE DEVELOPMENT SCHEME

6.1 The URA does not own or lease any land within the boundaries of the Scheme and will acquire all the private lots within the Development Scheme boundary. The URA intends to acquire the property within the Scheme boundary by purchase under the current acquisition policy. An owner of domestic and non-domestic property will receive the market value of his property (valued on vacant possession basis). As for the owner-occupier of domestic property, on top of the said market value, the URA will pay a Home Purchase Allowance which is assessed based on a 7-year notional replacement unit of similar size within the same locality.

6.2 The URA may also offer "flat-for-flat" (FFF) (subject to any changes in the relevant legislations) in a URA new development in-situ or in the same district or at available site(s) (as URA may select for the purpose provided that necessary approval / authorization has been obtained at the time of FFF offer) for the affected eligible owner occupiers of domestic units of the Project.

6.3 Under current compensation policy, all eligible domestic tenants who are affected by the URA redevelopment projects and whose landlords sell the property to the URA subject to existing tenancies, will be offered rehousing. Domestic tenants who are not allocated rehousing units due to various reasons may receive ex-gratia payment. Eligible domestic tenants required to move from properties affected by the URA projects will be rehoused to public rental housing units provided by the Hong Kong Housing Authority or the Hong Kong Housing Society or will be rehoused to units at URA's rehousing block. Domestic tenants who are rehoused as a result of a URA project will be offered an ex-gratia removal allowance.

6.4 Non-domestic tenants whose tenancies are terminated by their landlords are not entitled to any compensation or other payments. However, the URA is prepared to pay 3 times the rateable value of the affected premises as an ex-gratia allowance for non-domestic tenants if such premises are purchased by the URA subject to existing tenancies. Eligible non-domestic tenants who commenced occupying the premises for business before the date of freezing survey will be offered an additional payment of Ex-gratia Business Allowance.

6.5 The URA may implement the Scheme in association with one or more parties or implementing the Scheme by itself alone.

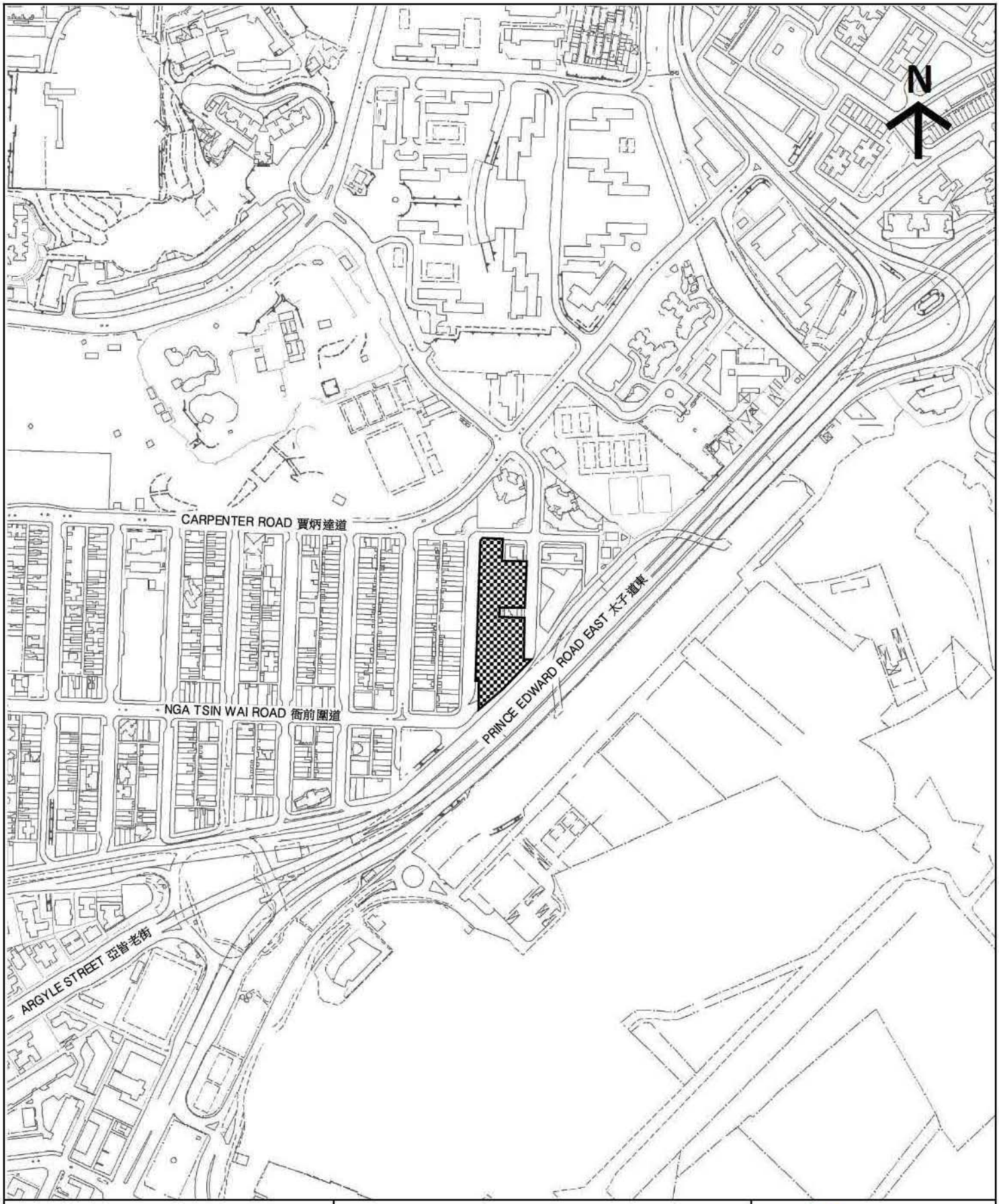
6.6 Supplementary documents detailing the implementation programme for the Scheme and the URA's rehousing, compensation, acquisition and resumption principles are attached in **Appendices 10, 11** and **12** respectively.

6.7 Any information contained in this document relating to compensation and re-housing benefits are with reference to the URA's prevailing policy on compensation and re-housing benefit ("Compensation Package") offered by the URA to owners/ tenants at the time of issuance of this document. The Compensation Package may be subject to change from time to time upon any

review carried out by the URA. The Compensation Package to be offered by the URA to owners/ tenants affected by the URA's project shall be that Compensation Package prevailing at the time of offer. Nothing contained in this document shall constitute any representation or warranty on the part of the URA or give rise to any expectation that the Compensation Package contained in this document will not be changed at the time of implementation of the project.

URBAN RENEWAL AUTHORITY

February 2019



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NW-10D, 11-NW-15B, 11-NW-15D, 11-NE-6C, 11-NE-6D, 11-NE-11A, 11-NE-11B, 11-NE-11C, 11-NE-11D

LOCATION PLAN

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

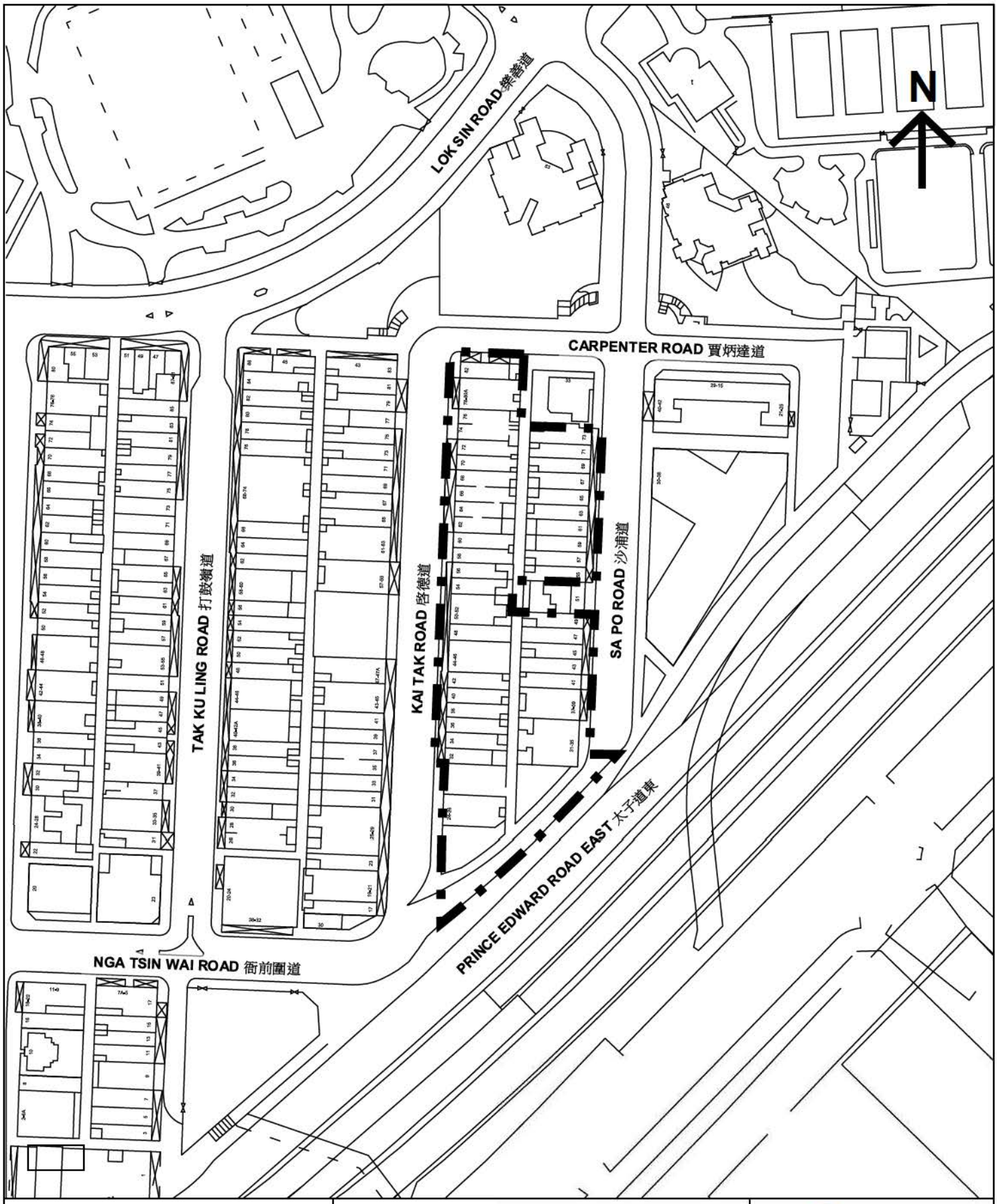
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 1



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

SCHEME AREA

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

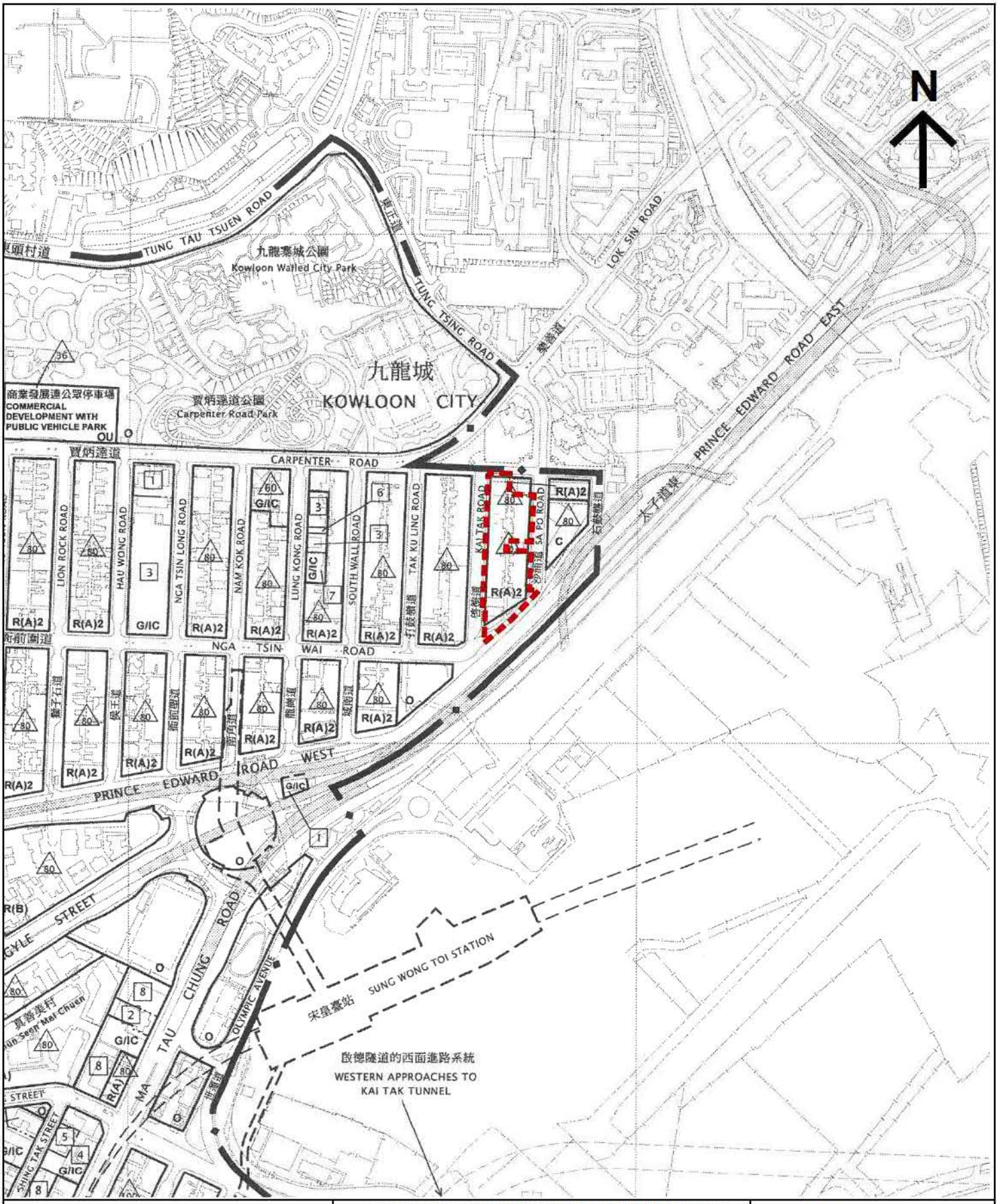
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 2



THE SCHEME

EXTRACT PLAN BASED ON
DRAFT MA TAU KOK OUTLINE ZONING PLAN No.S/K10/24

EXISTING ZONING OF DEVELOPMENT SCHEME

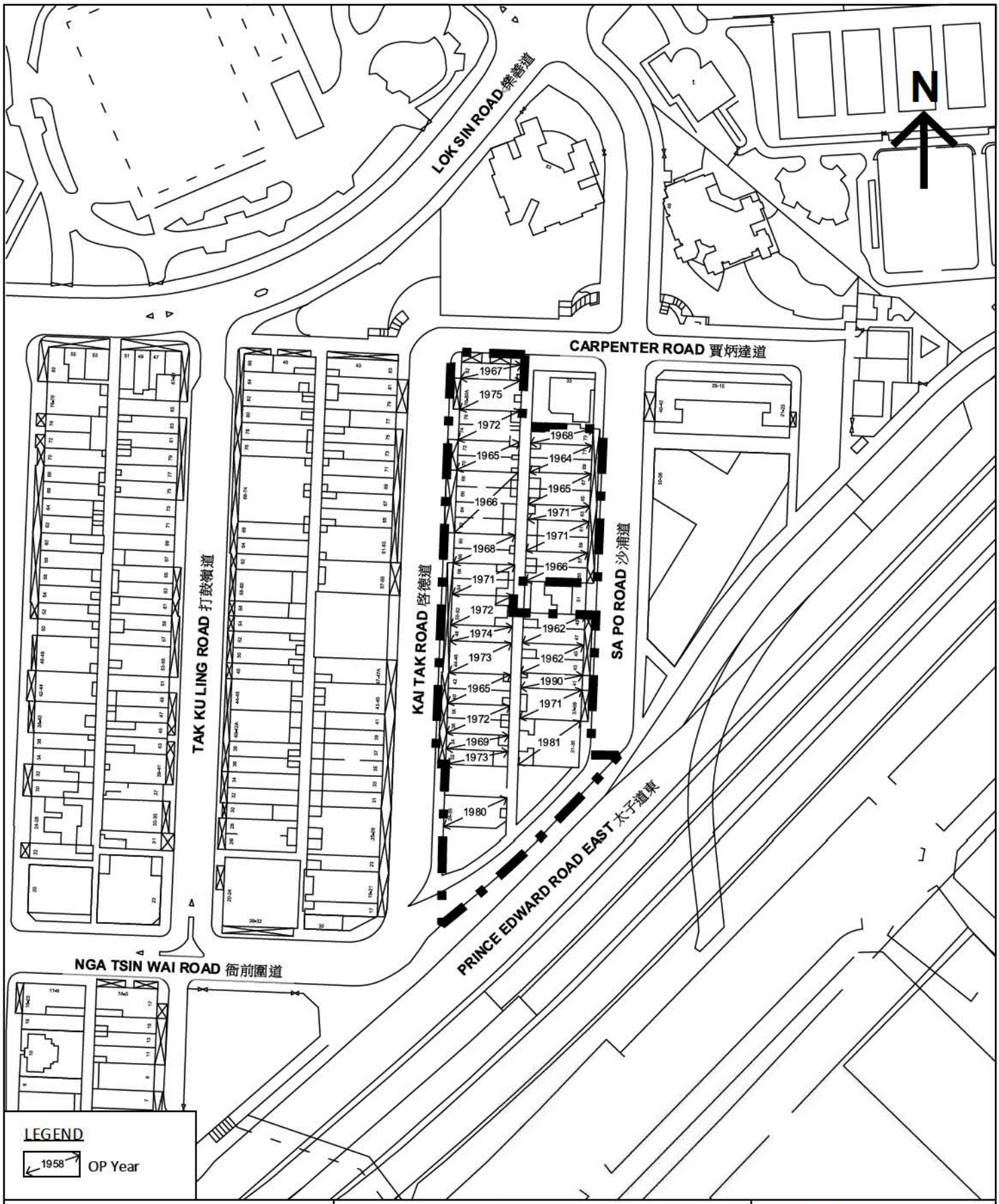
DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD
SCALE 1 : 5000

METRES 100 0 100 200 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 3



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

BUILDING AGE

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

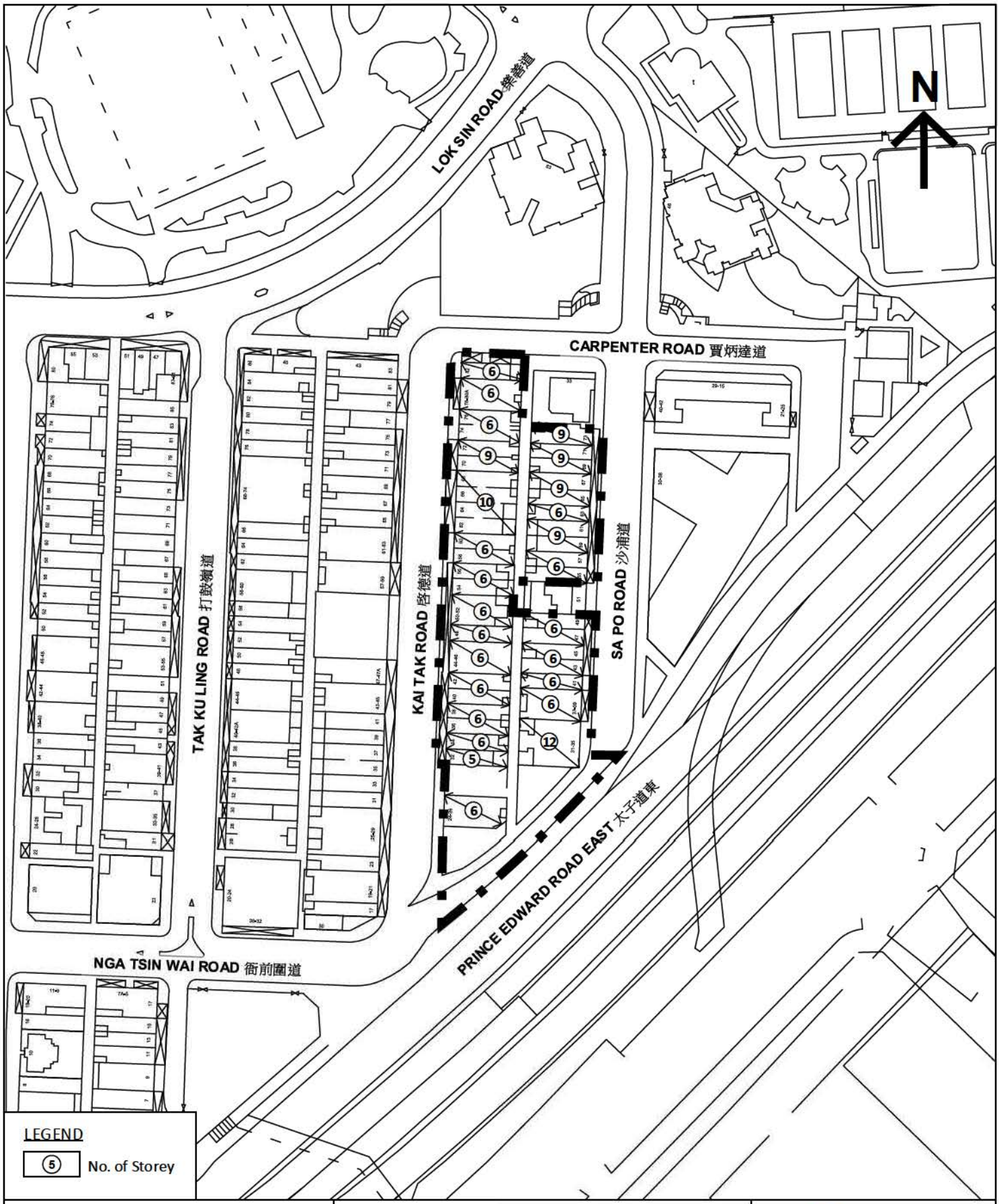
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 4



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

BUILDING HEIGHT

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

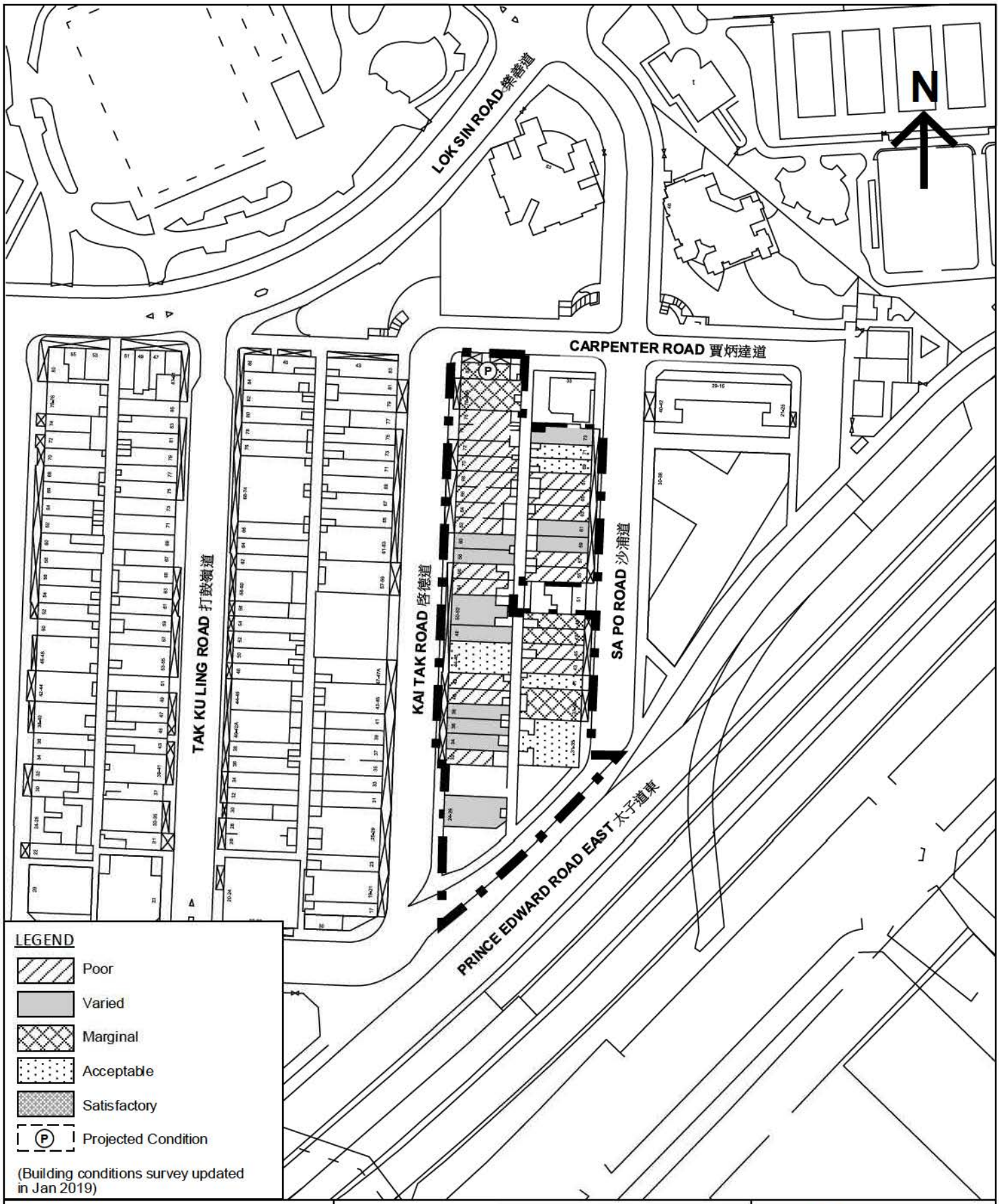
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 5



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A & 11-NE-11C

BUILDING CONDITION

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

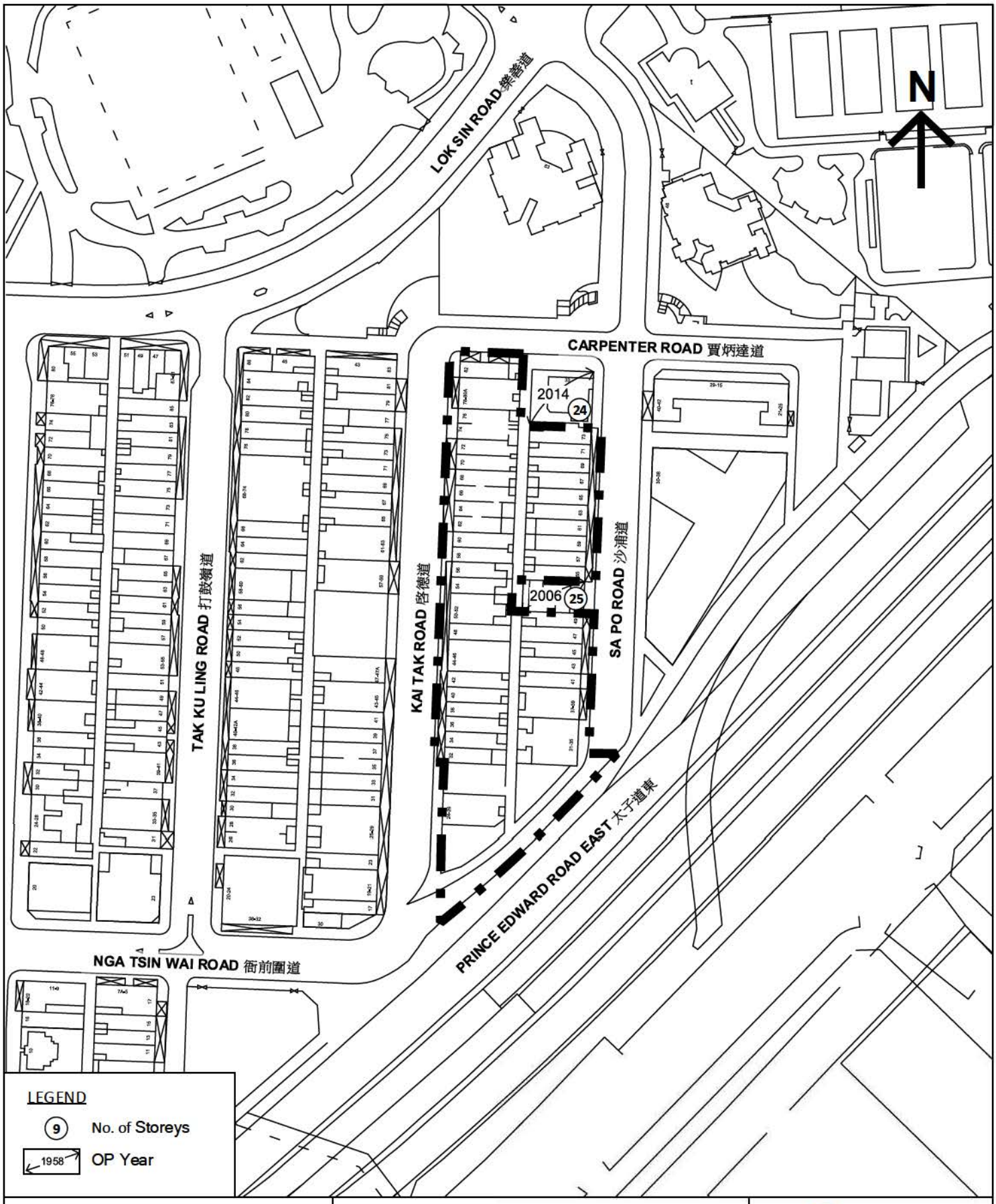
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 6



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A & 11-NE-11C

INFORMATION ON BUILDINGS IMMEDIATELY ADJACENT TO SCHEME AREA

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

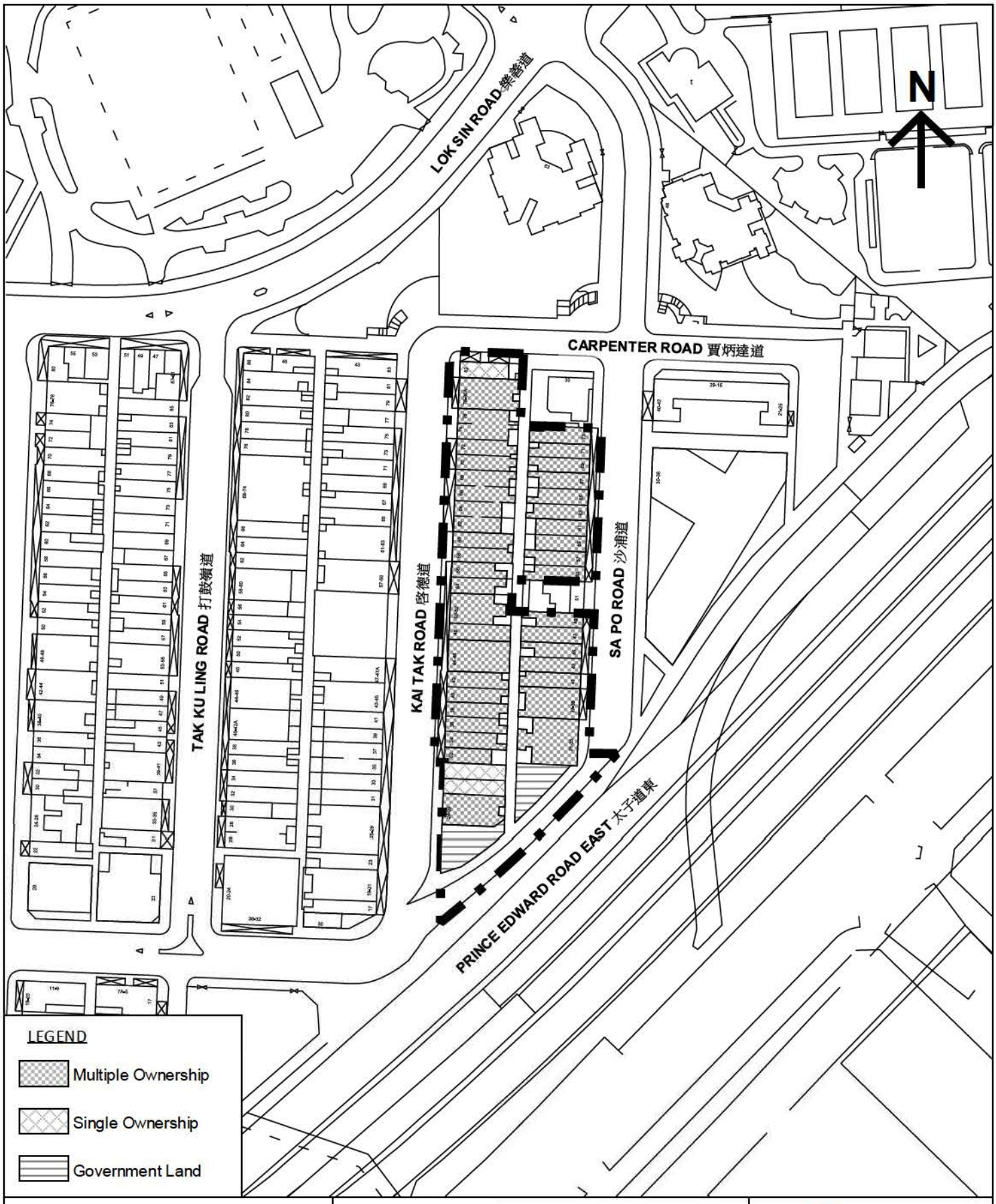
SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN 7



THE SCHEME

EXTRACT PLAN PREPARED ON 08.11.18
BASED ON SURVEY SHEET No.11-NE-11A
& 11-NE-11C

OWNERSHIP PATTERN

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

SCALE 1 : 1500

METRES 15 0 15 30 45 60 75 METRES

市區重建局
URBAN RENEWAL AUTHORITY

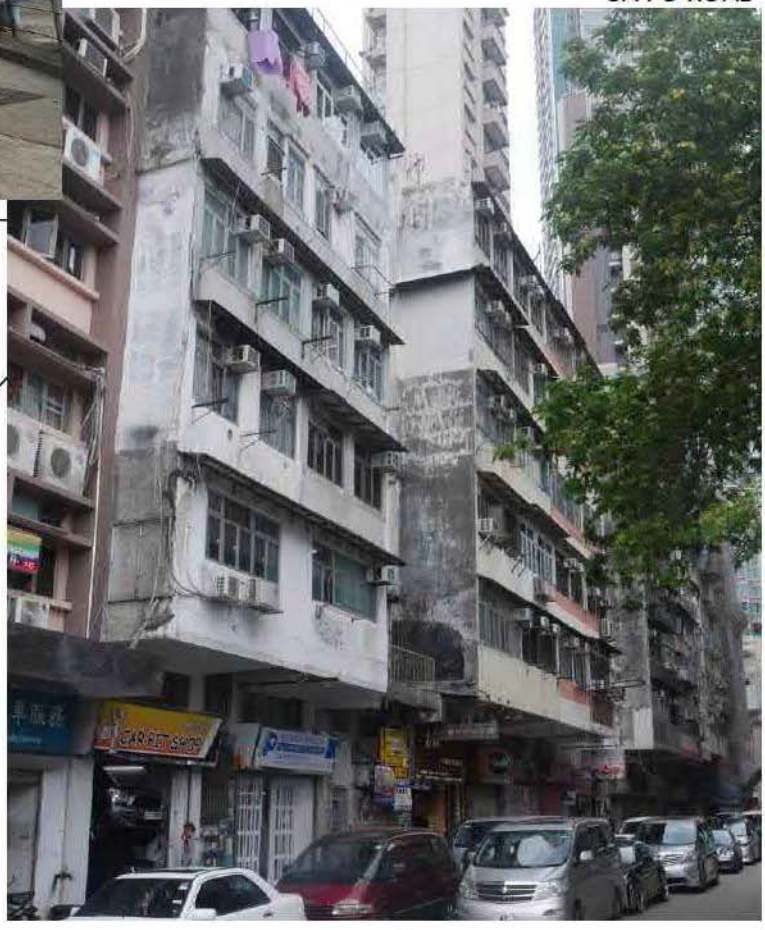
KC-015

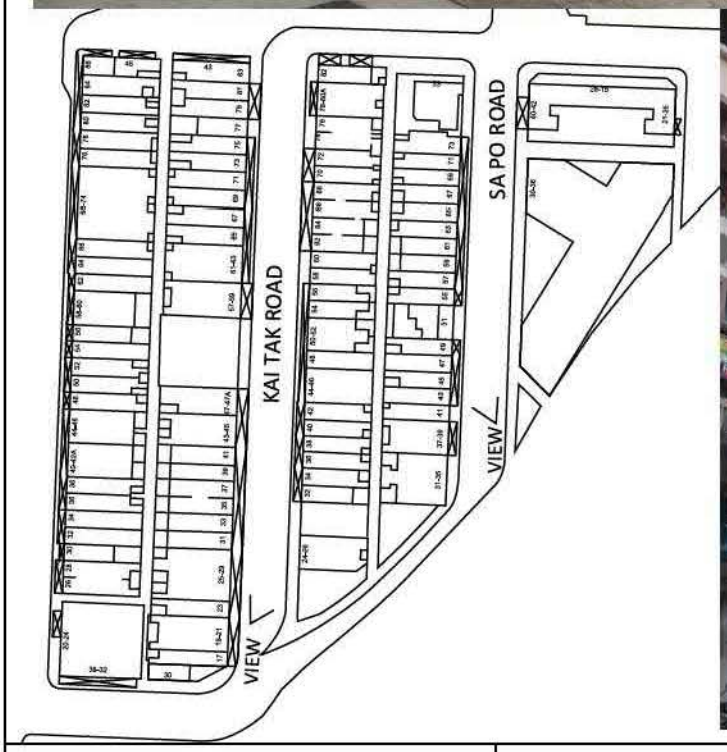
PLAN 8

KAI TAK ROAD



SA PO ROAD





PHOTOS TAKEN IN
JAN 2019

SITE PHOTOS

DEVELOPMENT SCHEME
AT KAI TAK ROAD / SA PO ROAD

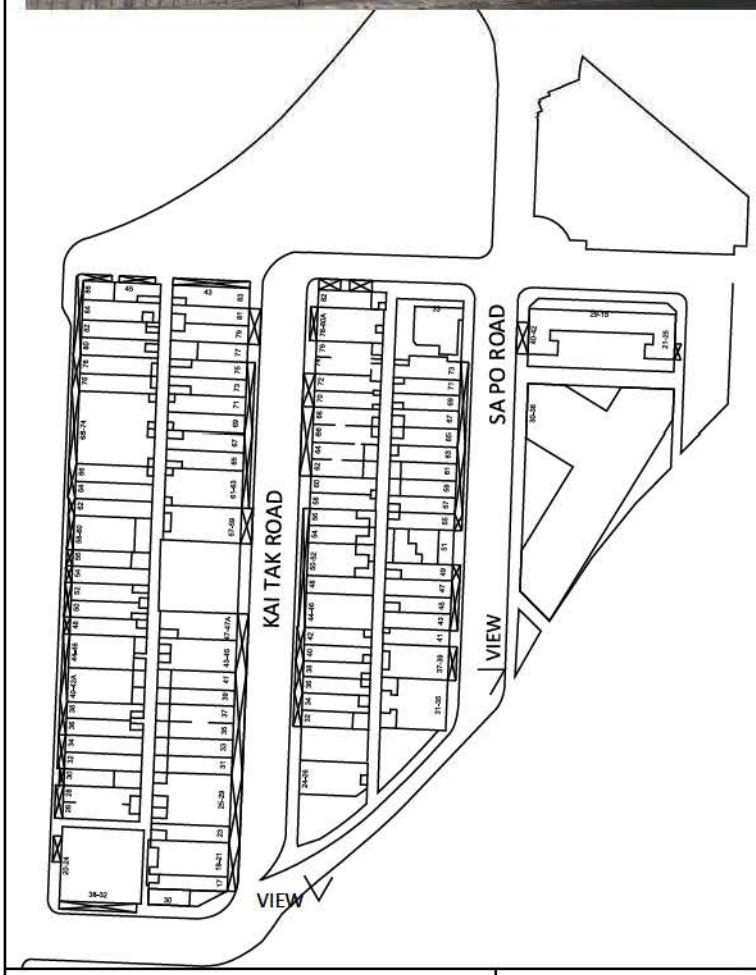
市區重建局
URBAN RENEWAL AUTHORITY

KC-015

PLAN
9

AMENITY AREA





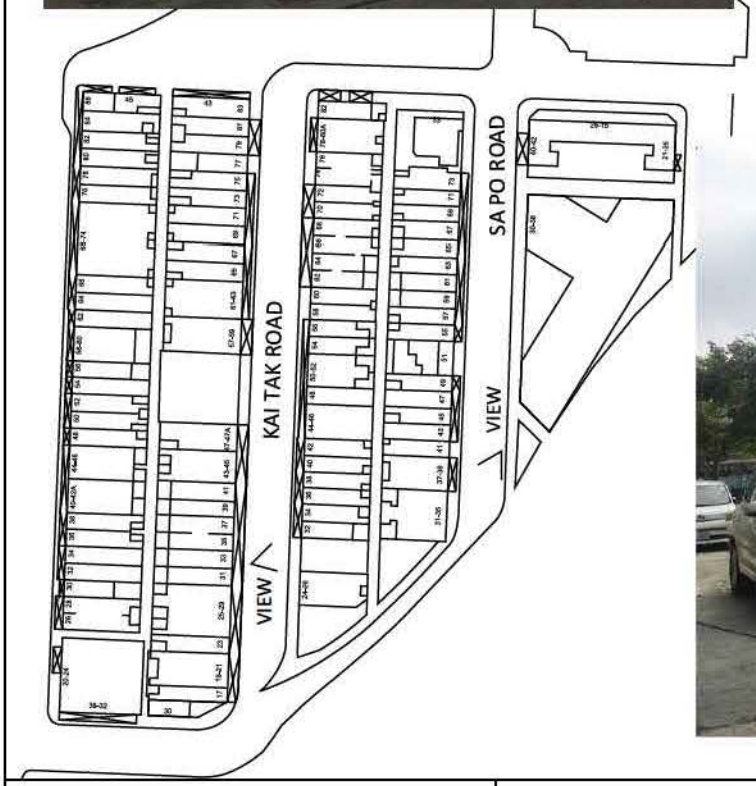
AMENITY AREA



PHOTOS TAKEN IN JAN 2019	SITE PHOTOS DEVELOPMENT SCHEME AT KAI TAK ROAD / SA PO ROAD	市區重建局 URBAN RENEWAL AUTHORITY KC-015 | PLAN 9

SA PO ROAD (PART OF ROAD CLOSURE)





28-30 KAI TAK ROAD

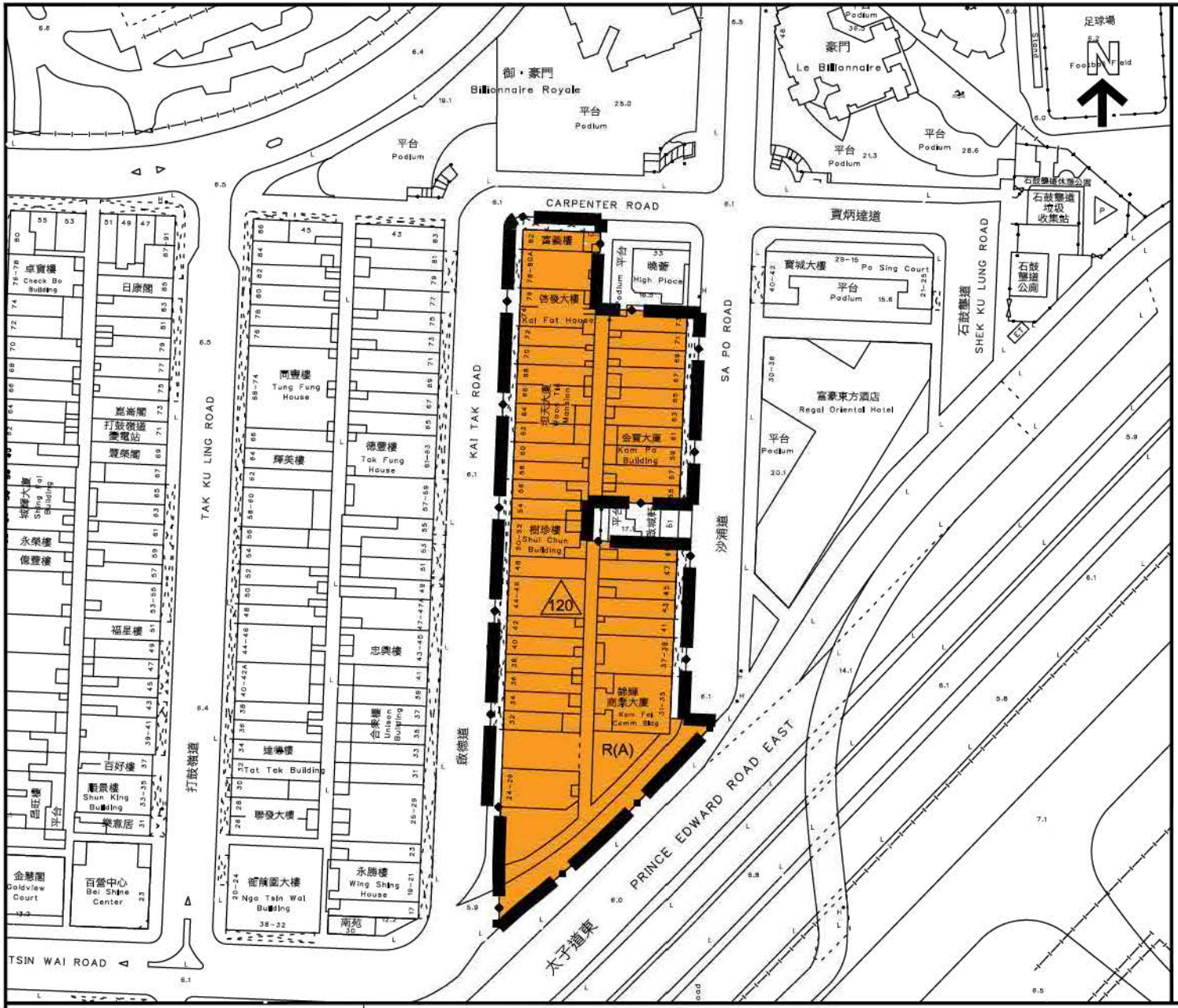


PHOTOS TAKEN IN JAN 2019	SITE PHOTOS DEVELOPMENT SCHEME AT KAI TAK ROAD / SA PO ROAD	市區重建局 URBAN RENEWAL AUTHORITY KC-015 | PLAN 9

PART 2

THE DRAFT PLAN

1. Draft Development Scheme Plan



圖例
NOTATION

BOUNDARY OF DEVELOPMENT SCHEME ..... 發展計劃範圍界線

RESIDENTIAL (GROUP A) ..... R(A) ..... 住宅(甲類)

MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM) ..... 120 ..... 最高建築物高度(在主水平基準上若干米)

夾附的<<註釋>>屬這份圖則的一部分

THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

2019年 月 日城市規劃委員會根據市區重建局條例第25(6)(a)條認為圖則適宜公布，並於2019年 月 日按照城市規劃條例第5條展示。

PLAN DEEMED SUITABLE BY THE TOWN PLANNING BOARD FOR PUBLICATION UNDER SECTION 25(6)(a) OF THE URBAN RENEWAL AUTHORITY ORDINANCE ON 2019 AND EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON 2019.

SECRETARY, TOWN PLANNING BOARD 城市規劃委員會秘書

香港城市規劃委員會依據城市規劃條例擬備的市區重建局啟德道/沙浦道發展計劃圖則
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD URBAN RENEWAL AUTHORITY KAI TAK ROAD / SA PO ROAD DEVELOPMENT SCHEME PLAN

SCALE 1:1000 比例尺

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依據市區重建局條例第25(3)(a)條擬備
PREPARED UNDER SECTION 25(3)(a) OF THE URBAN RENEWAL AUTHORITY ORDINANCE

圖則編號 PLAN No. S/K10/URA1/A

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority 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, S/K10/URA1/A

- 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 widths, road junctions and alignments of roads may be subject to minor adjustments as detailed planning proceeds.

(6) Temporary uses (expected to be 5 years or less) of any land or building 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 Schedule of Uses:

(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; and

(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 coordinated or implemented by Government.

(8) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate

permission is required.

(9) 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.

(10) Any development not compatible with the Urban Renewal Authority's Development Scheme for the area is prohibited by virtue of section 25(4) of the Urban Renewal Authority Ordinance.

S/K10/URA1/A

DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

Schedule of Uses

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RESIDENTIAL (GROUP A)	1

S/K10/URA1/A

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
Flat	Commercial Bathhouse/ Massage Establishment
Government Use (not elsewhere specified)	Eating Place
House	Education Institution
Library	Exhibition or Convention Hall
Market	Government Refuse Collection Point
Place of Recreation, Sports or Culture	Hotel
Public Clinic	Institutional Use (not elsewhere specified)
Public Transport Terminus or Station (excluding open-air terminus or station)	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Public Vehicle Park (excluding container vehicle)	Office
Residential Institution	Petrol Filling Station
School (in free-standing purpose-designed building only)	Place of Entertainment
Social Welfare Facility	Private Club
Utility Installation for Private Project	Public Convenience
	Public Transport Terminus or Station (not elsewhere specified)
	Public Utility Installation
	Religious Institution
	School (not elsewhere specified)
	Shop and Services (not elsewhere specified)
	Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd) S/K10/URA1/A

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 a building, both excluding floors containing wholly or mainly car parking, loading / unloading bay 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 with the provision of a sunken plaza and public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building.

Remarks

(1) 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 exceed under paragraphs (7) and/or (8) 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 (7) and/or (8) hereof.

(3) For the purposes of paragraph (1) above, 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 port ratio(s) or 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, alternation 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) In determining the relevant maximum plot ratio 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, 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. Any floor space that is constructed or intended for use solely as GIC or social welfare facilities, as required by the Government, may also be disregarded.

(5) An underground public vehicle park shall be provided. The design and provision of car parking spaces to be provided in the underground car park shall be as required by Government. In determining the maximum plot ratio for the purposes of paragraphs (1) or (2) above, any floor space that is constructed or intended for the use solely as the underground public vehicle park may be disregarded.

(6) No new development, or addition, alternation 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 (mPD) as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(7) 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 paragraphs (1) or (2) above 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 the paragraphs (1) or (2) above may thereby be exceeded.

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

3. Explanatory Statement

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

EXPLANATORY STATEMENT

DRAFT URBAN RENEWAL AUTHORITY

KAI TAK ROAD / SA PO ROAD

DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

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DRAFT URBAN RENEWAL AUTHORITY
KAI TAK ROAD / SA PO ROAD
DEVELOPMENT SCHEME PLAN NO. S/K10/URA1/A

(Being a Draft Plan for the Purposes of the Town Planning Ordinance prepared by the Urban Renewal Authority under section 25 of the Urban Renewal Authority Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance (the 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 draft Urban Renewal Authority (URA) Kai Tak Road/Sa Po Road Development Scheme Plan (DSP) No. S/K10/URA1/A. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the area covered by the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 In the URA's 17th Business Plan (2018/19) approved by the Financial Secretary, the Kai Tak Road / Sa Po Road Development Scheme (KC-015) was proposed to be processed as a Development Scheme under section 25 of the URA Ordinance (URAO).

2.2 On 22 February 2019, pursuant to section 23(1) of the URAO, the URA notified in the Government Gazette the commencement of implementation of the Kai Tak Road / Sa Po Road Development Scheme.

2.3 On the same day of commencement (i.e. 22 February 2019), the URA submitted the draft URA Kai Tak Road / Sa Po Road DSP to the Board under section 25(5) of the URAO.

2.4 On XXXX, the Board, under section 25(6)(a) of the URAO, deemed the draft URA Kai Tak Road / Sa Po Road DSP as being suitable for publication. Under section 25(7) of the URAO, the draft DSP, which the Board has deemed suitable for publication, is deemed to be a draft plan prepared by the Board for the purposes of the Town Planning Ordinance (the Ordinance).

2.5 On XXXX, the draft Kai Tak Road / Sa Po Road DSP No. S/K10/URA1/1 (the Plan) was exhibited under section 5 of the Ordinance. By virtue of section 25(9) of the URAO, the Plan has from the date replaced the Approved Ma Tau Kok Outline Zoning Plan (OZP) No. S/K10/24 in respect of the area delineated and described herein.

3. OBJECT OF THE PLAN

The Plan illustrates that the Development Scheme Area (the Area) is designated as "Residential (Group A)" ("R(A)"). It is planned to be developed by means of the Development Scheme prepared under section 25 of the URAO. The Development Scheme intends to be primarily for a high-density residential development with the provision of a split-level sunken plaza and public vehicle park. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Area in this zone and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and 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.

5. AREA COVERED BY THE PLAN

5.1 The Development Scheme boundary which is shown in heavy broken line on the Plan, covers a total area of about 6,106sq.m.. The Area is located at the street block bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The Area includes two rows of buildings, two pieces of government land and also a portion of existing Sa Po Road in the southern part of the Scheme. The Area also includes a government lane between the two rows of buildings, and pavement area.

5.2 On the Approved Ma Tau Kok OZP No. S/K10/24, the Area is zoned "Residential (Group A)2" and an area shown as 'Road' before the exhibition of the Plan.

6. EXISTING CONDITIONS

6.1 The buildings within the Area are predominantly for residential use on the upper floors, and shop use on the ground floors. The only exception is the commercial building on 31 – 35 Sa Po Road, which is permitted for office use on upper floors and shops for ground floor. The residential buildings within the Area are of 5 to 10 storeys high and were built between 1962 and 1990. The commercial building is of 12 storeys high and was built in 1981. The buildings are in a dilapidating condition.

6.2 There is one private vacant site at 28-30 Kai Tak Road, which is currently used as a carpark. There are also two pieces of government land on the southern side within the Scheme which are amenity area with landscaping, trees and sitting area.

6.3 The existing Sa Po Road is a one-way southbound local road. It passes by the immediately east of the Area and connect to Nga Tsin Wai Road in the south. The existing southern portion of Sa Po Road is included in the Area for redevelopment.

7 PLANNING AND LAND USE PROPOSALS

7.1 On the Plan, the Area is zoned "R(A)" and the Notes of the Plan indicated broadly the intended land uses within the Area.

Uses

7.2 The "R(A)" zone is intended primarily for high-density residential developments with the provision of a split-level sunken plaza and public vehicle park to serve the community. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of a building.

7.3 The maximum plot ratio within the "R(A)" zone is 9.0, or the plot ratio of the existing building(s), whichever is the greater. Except where the plot ratio is permitted to be exceeded under the Notes of the Plan or under Building (Planning) Regulations 22(1) or (2), under no circumstances shall the plot ratio for the domestic part of any development exceed 7.5. The "R(A)" zone is also subject to a maximum building height of 120 metres above Principal Datum (mPD).

7.4 To provide design flexibility, minor relaxation of the plot ratio and building height restriction may be considered by the Board on application under section 16 of the Ordinance taking into account its individual planning and design merits.

Split-level Sunken Plaza

7.5 A portion of existing Sa Po Road is proposed to be closed to make way for the development of a split-level sunken plaza (the proposed plaza) in the southern side of the Area. It will be connected with the proposed pedestrian tunnel across Prince Edward Road East by Civil Engineering and Development Department (CEDD) to the Kai Tak Development

Area (KTDA) and its future underground shopping street (USS). The proposed plaza can serve to strengthen connectivity and walkability between the Area and the KTDA. Commercial space will be provided at the proposed plaza to enable extension of vibrant retail activities from the USS of KTDA. The plaza will be opened for public use to benefit the local community.

7.6 The proposed plaza will be developed with different levels of space on ground floor and basement levels. It will include covered and un-covered area and with hard and soft landscape, commercial / retail components, event space and place-making elements at different levels for enjoyment. The proposed plaza will form part of the development and will be managed and maintained by the URA or its assignee.

7.7 The proposed plaza will also integrate with the existing pavement along Prince Edward Road East to provide more comfortable and spacious connection with the existing pavement and to provide solution space for existing bus queuing, improve pedestrian circulation and enhance walkability.

Vehicular and Pedestrian Circulation

7.8 To rationalise the land uses and to facilitate the creation of the proposed split-level sunken plaza, a portion of existing Sa Po Road will be closed permanently. A new private road will be provided within the Area for public use to divert the one-way vehicular traffic from Sa Po Road to Kai Tak Road. Pavement will be provided on both sides of the new private road to provide safe and comfortable walking environment. Appropriate pedestrian crossing will be provided at the new private road to allow safe and convenient pedestrian connection between the proposed development and the proposed plaza in the Area.

Public Vehicle Park

7.9 An underground public vehicle park will be provided within the Development Scheme to meet the local parking needs. It is proposed to accommodate about 300 private car parking spaces for public use. The provision of underground public vehicle park may also make way for

solution space and create opportunity for pavement widening in the surrounding area.

Internal Transport Facilities

7.10 Ancillary car parking spaces for the proposed residential development with non-domestic podium in the Development Scheme will also be provided in an underground car park. Ancillary loading/unloading bays will be provided within the Development Scheme. The number of car parking spaces, loading/unloading bays will be based on the relevant requirements under the Hong Kong Planning Standards and Guidelines (HKPSG) and subject to agreement with Transport Department.

Landscaping and Greening

7.11 A cohesive landscaping, tree planting and greening will be designed, where appropriate and applicable, at the proposed plaza to enhance the local environment. To echo with the landscaping at the proposed plaza, greening on the podium edge and pedestrian level of the proposed development will be provided as far as practicable to meet the Sustainable Building Design (SBD) Guidelines and to enhance the local streetscape.

8. IMPLEMENTATION OF THE DEVELOPMENT SCHEME

8.1 The proposals set out in the Plan form an integral part of the Development Scheme for the Area.

8.2 The URA does not own or lease any land within the boundaries of the Development Scheme and intends to acquire the properties within the Area of the Development Scheme. With respect to any of such properties which cannot be acquired by purchase, the Secretary for Development would consider, upon the application of the URA, recommending to the Chief Executive in Council the resumption of properties under the Lands Resumption Ordinance, if necessary.

8.3 All eligible tenants will be offered an ex-gratia payment package in accordance with URA's policy. The URA has already entered into agreement with the Hong Kong Housing Society (HKHS) and the Hong Kong Housing Authority (HKHA) for the purpose of making available rehousing units by HKHS or HKHA to rehouse affected tenants who satisfy the eligibility criteria of HKHS or HKHA.

8.4 Non-domestic tenants of properties acquired by URA whose tenancies are terminated by URA due to implementation of the Development Scheme may be offered an ex-gratia allowance to assist in their business relocation.

8.5 Details of the acquisition, compensation and rehousing policies are subject to the URA's prevailing policies at the time of acquisition. The URA may implement the Development Scheme on its own or in association with one or more partners.

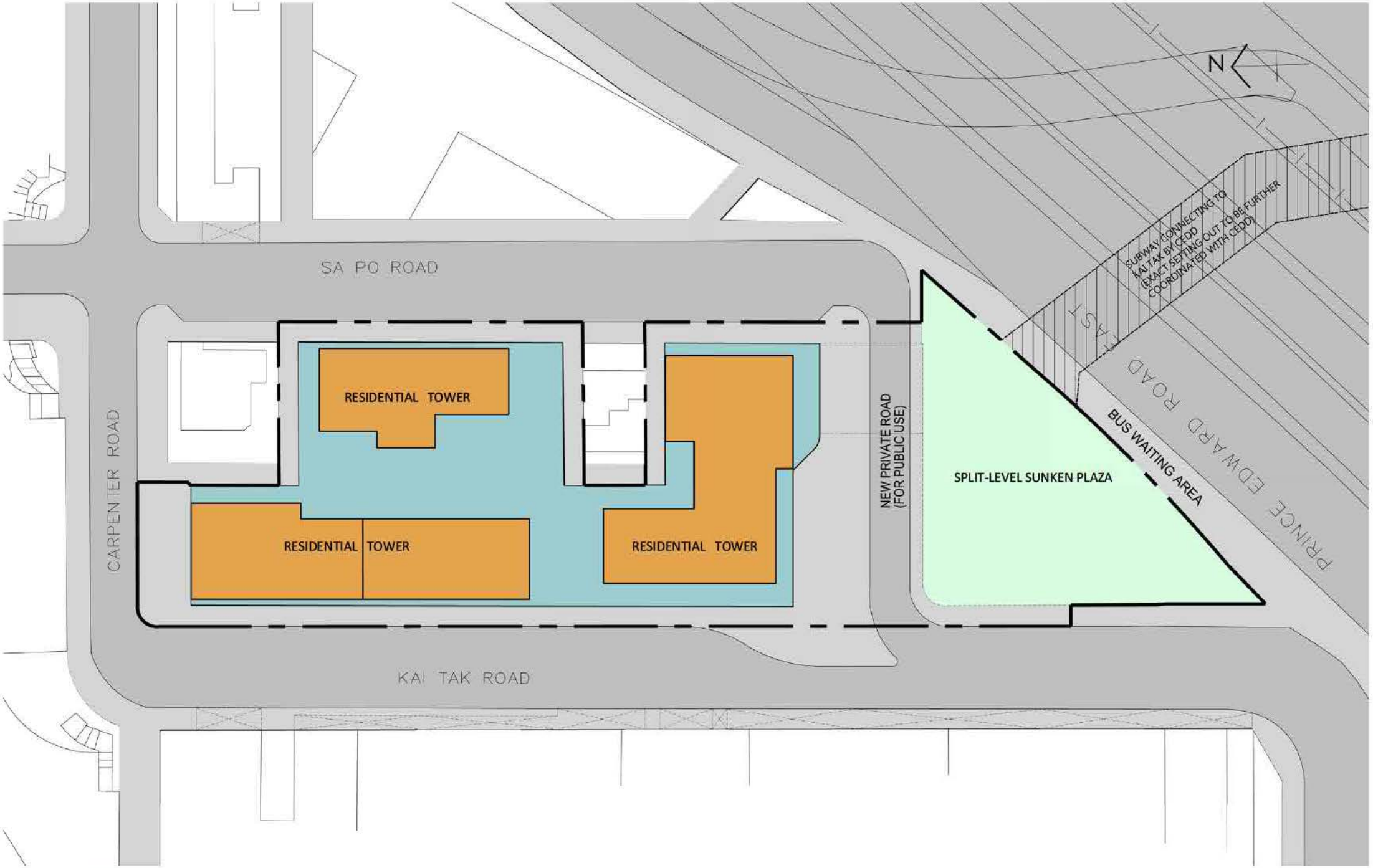
TOWN PLANNING BOARD
February 2019

PART 3

SUPPLEMENTARY INFORMATION

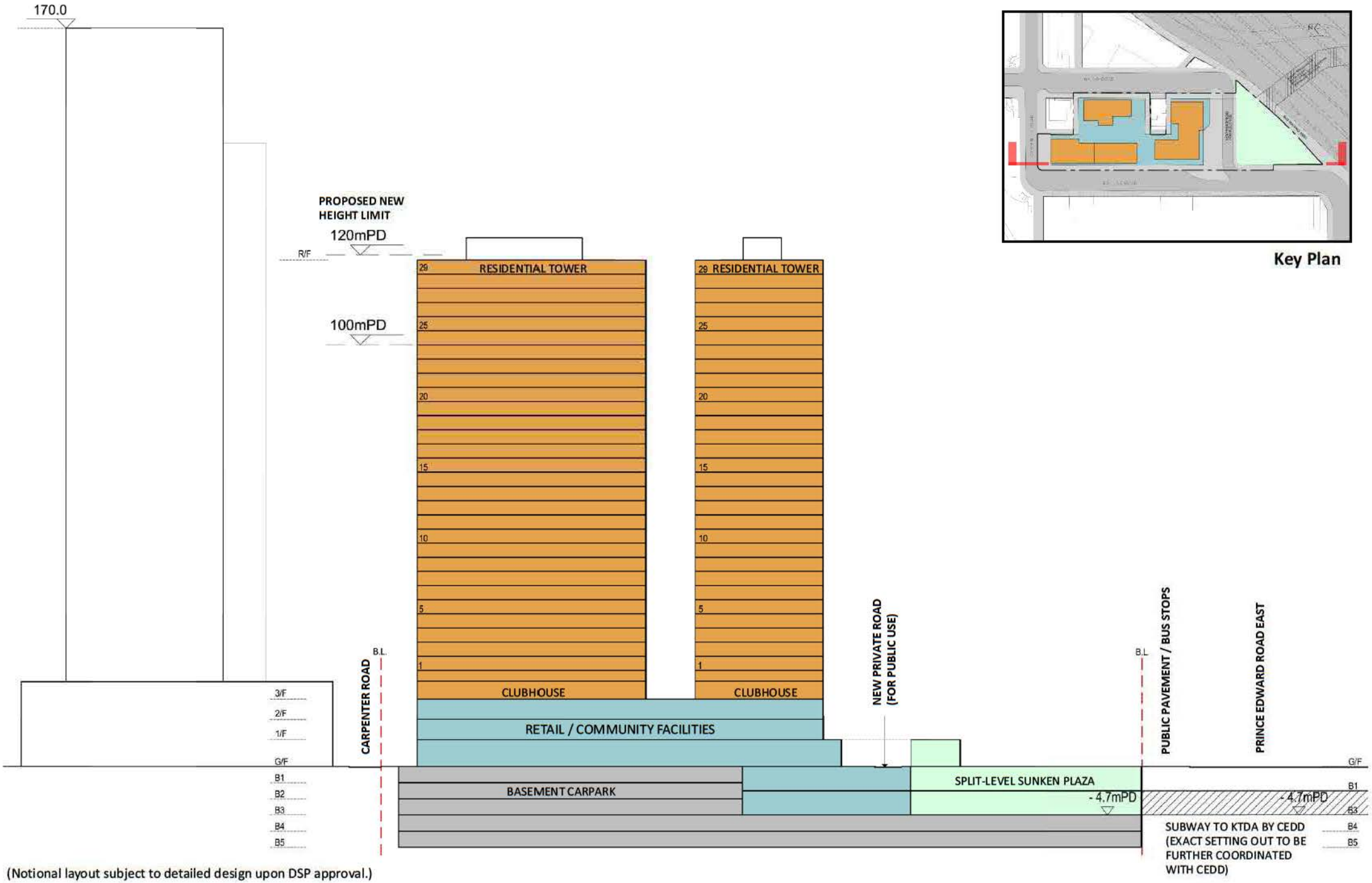
Appendix 1

Preliminary Design



(Notional layout subject to detailed design upon DSP approval.)

市區重建局 URBAN RENEWAL AUTHORITY URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Notional Design – Block Plan	**Figure 1.1**

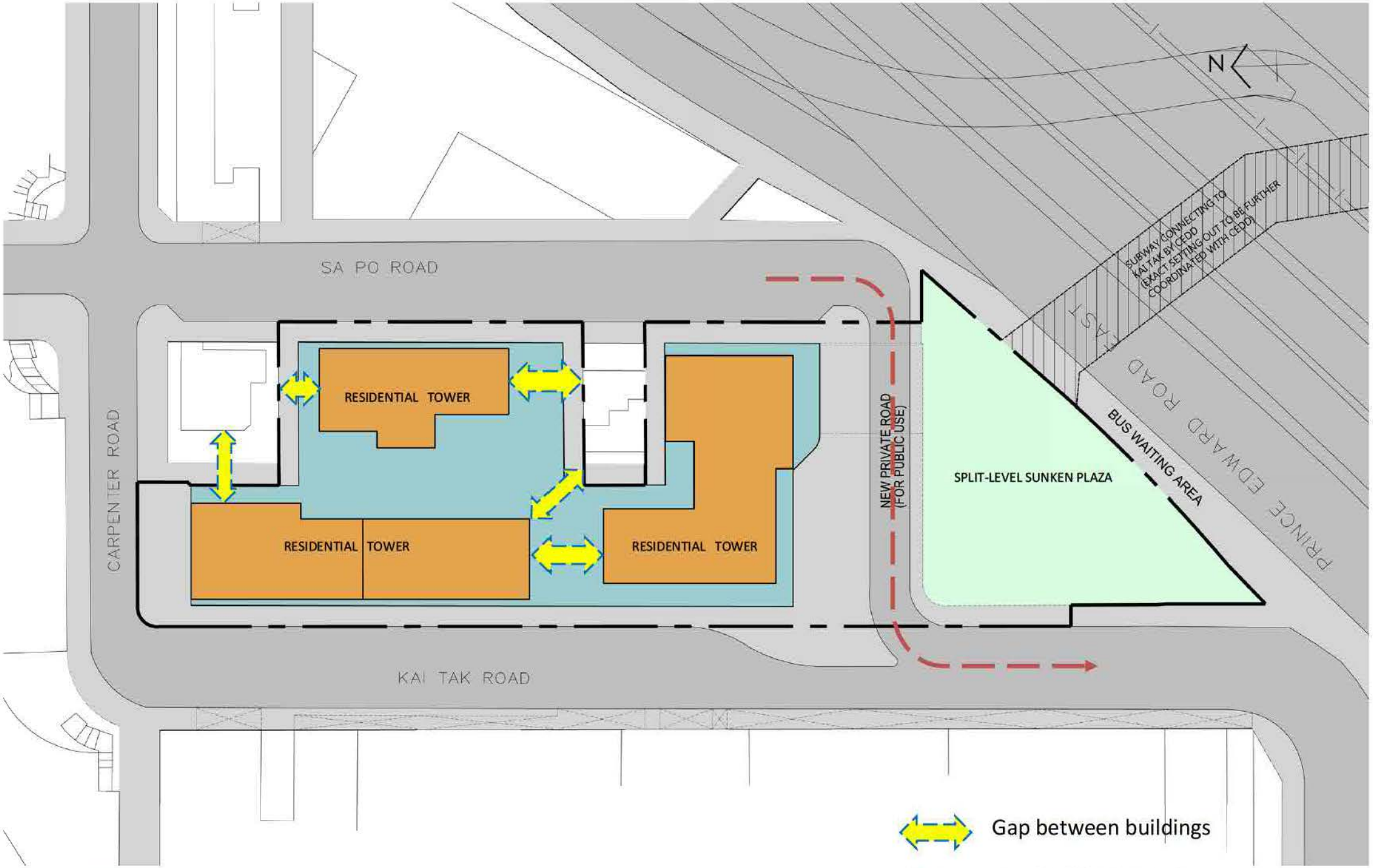


(Notional layout subject to detailed design upon DSP approval.)

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Notional Design – Schematic Section

Figure 1.2



(Notional layout subject to detailed design upon DSP approval.)

Appendix 2

Traffic Impact Assessment (TIA) Report

URA KC-015 in Kowloon City:
Redevelopment of Kai Tak Road / Sa Po Road

Traffic Impact Assessment

Final Report (R1)
February 2019

Prepared by: CKM Asia Limited

Prepared for: Urban Renewal Authority

URA KC-015 in Kowloon City:
Redevelopment of Kai Tak Road / Sa Po Road

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URA KC-015 in Kowloon City:
Redevelopment of Kai Tak Road / Sa Po Road

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URA KC-015 in Kowloon City:
Redevelopment of Kai Tak Road / Sa Po Road

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1.0 INTRODUCTION

Background

1.1 The Urban Renewal Authority (URA) intends to adopt a comprehensive and holistic approach to rejuvenate the district in an area-based manner and to review the re-structuring and re-planning of the Action Area in Kowloon City through master planning in order to redesign a more effective and environmentally-friendly local transport and road network.

1.2 The location of Project Site KC-015 in Kowloon City is shown in Figure 1.1 and comprises of the following sites:

- 24 – 82 Kai Tak Road (all even numbers); and
- 31 – 49 and 55 – 73 Sa Po Road (all odd numbers).

1.3 CKM Asia Limited, a traffic and transportation planning consultancy firm, was commissioned by URA to carry out a Traffic Study in support of redevelopment of KC-015 in Kowloon City.

Scope of Study

1.4 The main objectives of this study are as follows:

- To assess the existing traffic issues in the vicinity of KC-015;
- To quantify the internal transport facilities for KC-015;
- To quantify the local parking demand and optimise the level of public vehicle parking provision within KC-015;
- To quantify the amount of traffic generated by KC-015;
- To examine the traffic impact on the local road network;
- To identify deficiencies in the road network in accommodating the expected additional traffic associated with KC-015 (if any); and
- To review the pedestrian connection and accessibility to KC-015.

Contents of the Report

1.5 After this introduction, the remaining chapters contain the following:

chapter two – describes the existing and planned conditions;
chapter three – presents the parking provision for KC-015;
chapter four – describes the traffic impact analysis; and
chapter five – gives the overall conclusion.

2.0 TRAFFIC AND PEDESTRIAN CONDITIONS

Road Network in the vicinity of KC-015

2.1 The existing road network in the vicinity of KC-015 is described below:

- Junction Road is a District Distributor in Kowloon City running in north-south direction. It is a single carriageway 3-lane road connecting Prince Edward Road West and Carpenter Road;
- The section of Carpenter Road between Junction Road and Lok Sin Road is a single carriageway 2-lane 2-way road running in east-west direction. Public metered car parking spaces and motorcycle parking spaces are provided along the northern kerbside of Carpenter Road between Hau Wong Road and Lung Kong Road;
- Nga Tsin Wai Road is single carriageway east-western road which is classified as a Local Distributor. It has 2 – 4 traffic lanes and connects Kai Tak Road from east towards the west; and
- Kai Tak Road, Sa Po Road and the section of Carpenter Road abutting KC-015 are one-way Local Distributors. Metered car parking spaces are provided along these roads.

Manual Classified Traffic Counts

2.2 To establish the peak hour traffic flows, manual classified counts were conducted during the AM and PM peak periods on one weekday and one weekend at the junctions A – Q, which are located in the vicinity of KC-015. The surveyed junctions are listed in Table 2.1.

TABLE 2.1 SURVEYED JUNCTIONS

Ref.	Junction	Type of Junction	Figure No.
A	Tung Tsing Road / Lok Sin Road / Sa Po Road	Signal	2.2
B	Carpenter Road / Tak Ku Ling Road	Signal	2.3
C	Carpenter Road / Lion Rock Road	Signal	2.4
D	Junction Road / Carpenter Road	Signal	2.5
E	Junction Road / Nga Tsin Wai Road	Signal	2.6
F	Nga Tsin Wai Road / Lion Rock Road	Signal	2.7
G	Nga Tsin Wai Road / Hau Wong Road	Signal	2.8
H	Nga Tsin Wai Road / Lung Kong Road	Signal	2.9
I	Prince Edward Road West / South Wall Road	Priority	2.10
J	Prince Edward Road West / Lion Rock Road	Priority	2.11
K	Prince Edward Road West / Fuk Lo Tsun Road	Priority	2.12
L	Prince Edward Road West / Junction Road	Signal	2.13
M	Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street	Signal	2.14
N	Junction Road / Tung Tau Tsuen Road	Signal	2.15
O	Junction Road / Inverness Road	Signal	2.16
P	Lung Kong Road / Carpenter Road	Priority	2.17
Q	Olympic Garden Roundabout – Ma Tau Chung Road / Prince Edward Road East / Prince Edward Road West / Argyle Street	Roundabout	2.18

2.3 The locations and layouts of the surveyed junctions are shown in Figure 2.1 and Figures 2.2 – 2.18 respectively, and the peak hour traffic flows are shown in Figures 2.19 and 2.20.

Existing Junction Operational Performance

2.4 The existing operational performance of the surveyed junctions was calculated based on the observed traffic counts and the analysis method found in Volumes 2 and 4 of the Transport Planning and Design Manual ("TPDM"). The analysis results are summarised in Table 2.2 and detailed calculations are found in Appendix A.

TABLE 2.2 EXISTING JUNCTION OPERATIONAL PERFORMANCE

Ref.	Junction	Junction Type / Indicator	Weekday		Weekend	
			AM Peak	PM Peak	AM Peak	PM Peak
A	Tung Tsing Road / Lok Sin Road / Sa Po Road	Signal / RC	70%	> 100%	73%	67%
B	Carpenter Road / Tak Ku Ling Road	Signal / RC	> 100%	> 100%	> 100%	> 100%
C	Carpenter Road / Lion Rock Road	Signal / RC	100%	41%	> 100%	38%
D	Junction Road / Carpenter Road	Signal / RC	66%	43%	74%	47%
E	Junction Road / Nga Tsin Wai Road	Signal / RC	90%	82%	91%	56%
F	Nga Tsin Wai Road / Lion Rock Road	Signal / RC	> 100%	> 100%	> 100%	78%
G	Nga Tsin Wai Road / Hau Wong Road	Signal / RC	> 100%	91%	75%	55%
H	Nga Tsin Wai Road / Lung Kong Road	Signal / RC	> 100%	89%	> 100%	88%
I	Prince Edward Road West / South Wall Road	Priority / RFC	0.728	0.596	0.610	0.697
J	Prince Edward Road West / Lion Rock Road	Priority / RFC	0.402	0.447	0.371	0.394
K	Prince Edward Road West / Fuk Lo Tsun Road	Priority / RFC	0.354	0.290	0.330	0.305
L	Prince Edward Road West / Junction Road	Signal / RC	45%	62%	60%	48%
M	Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street	Signal / RC	100%	> 100%	100%	74%
N	Junction Road / Tung Tau Tsuen Road	Signal / RC	> 100%	59%	> 100%	60%
O	Junction Road / Inverness Road	Signal / RC	30%	45%	47%	33%
P	Lung Kong Road / Carpenter Road	Priority / RFC	0.333	0.288	0.316	0.324
Q	Olympic Garden Roundabout	Roundabout / RFC	0.772	0.701	0.663	0.726

Note: RC – Reserve Capacity RFC – Ratio-of-Flow to Capacity

2.5 The above results indicate that the 17 junctions currently operate with capacities during the AM and PM peak hours on both weekday and weekend.

Existing Public Transport Facilities

2.6 At present, KC-015 is well-served by various public transport services, including franchised bus and green minibus (GMB), and these services operate along Prince Edward Road East, Prince Edward Road West and Junction Road. The 110m bus and GMB lay-by at Prince Edward Road East outside KC-015 and Regal Oriental Hotel Hong Kong serves around 69 franchised bus routes and 18 GMB routes.

2.7 Details of the existing public transport services operating close to KC-015 are presented in Figure 2.21 and Table 2.3.

TABLE 2.3 PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO KC-015

Route No.	Routing	Frequency (min)
KMB 1	Star Ferry – Chuk Yuen Estate	6 – 15
KMB 1A	Star Ferry – Sau Mau Ping (Central)	5 – 10
KMB 2A	Mei Foo – Lok Wah	8 – 15
KMB 2D	Tung Tau Estate – Chak On Estate	20 – 30
KMB 3B	Hung Hom Ferry – Tsz Wan Shan (Central)	12 – 25
KMB 3X	Tsz Wan Shan (N) – Nathan Road (Public Square Street)	AM peak
KMB 5	Star Ferry – Fu Shan	7 – 15
KMB 5C	Star Ferry – Tsz Wan Shan (Central)	6 – 12
KMB 5D	Telford Gardens – Hung Hom (Circular)	15 – 30
KMB 5P	Star Ferry – Tsz Wan Shan (Central)	AM & PM peak
KMB 5X	Star Ferry – Tsz Wan Shan (Central)	AM & PM peak
KMB 6D	Mei Foo – Ngau Tau Kok	11 – 20
KMB 6P	So Uk – Lei Yue Mun Estate	AM peak
KMB 9	Tsim Sha Tsui East (Mody Road) – Choi Fuk	15 – 25
KMB 10	Choi Wan – Tai Kok Tsui (Circular)	15 - 25
KMB 11	Kowloon Station – Diamond Hill Station	9 – 20
KMB 11B	Kowloon City Ferry – Kwun Tong (Tsui Ping Road)	10 – 20
KMB 11D	Lok Fu – Kwun Tong Ferry	20 – 30
KMB 11K	Hung Hom Station – Chuk Yuen Estate	12 – 20
KMB 11X	Hung Hom Station – Sau Mau Ping (Upper)	10 – 20
KMB 12A	Whampoa Garden – Cheung Shan Wan (Sham Mong Road)	8 – 20
KMB 13D	Tai Kok Tsui (Island Harbourview) – Po Tat	15 – 25
KMB 14	China Ferry Terminal – Lei Yue Mun Estate	12 – 20
KMB 15	Hung Hom Ferry – Ping Tin	12 – 20
KMB 16	Mong Kok (Park Avenue) – Lam Tin (Kwong Tin Estate)	7 – 20
KMB 16	Ping Tin – Mong Kok (Park Avenue)	AM peak
KMB 16X	Lam Tin (Kwong Tin Estate) – Mong Kok (Park Avenue)	AM peak
KMB 17	Oi Man – Kwun Tong (Yue Man Square)	5 – 20
KMB 21	Hung Hom Station – Choi Wan	15 – 20
KMB 24	Kai Yip – Mong Kok (Circular)	12 – 20
KMB 26	Tsim Sha Tsui East – Shun Tin	7 – 20
KMB 27	Shun Tin – Mong Kok (Circular)	6 – 15
KMB 28	Tsim Sha Tsui East (Mody Road) – Lok Wah	8 – 15
KMB 42	Cheung Hong – Shun Lee	15 – 25
KMB 61X	Kowloon City Ferry – Tuen Mun Central	9 – 20
KMB 75X	Kowloon City Ferry – Fu Shin Estate	8 – 15
KMB 85	Kowloon City Ferry – Fo Tan (Shan Mei Street)	13 – 25
KMB 85A	Kowloon City Ferry – Kwong Yuen	15 – 25
KMB 85B	Kowloon City Ferry – Chun Shek	20 – 30
KMB 85X	Hung Hom Ferry – Man On Shan Town Centre	9 – 20
KMB 93K	Mong Kok East Station – Po Lam	15 – 25
KMB 95	Jordan (To Wah Road) – Tsui Lam	10 – 25
KMB 98C	Mei Foo – Hang Hau (North)	8 – 20
KMB 98S	Lohas Park – Mei Foo	AM & PM peak
KMB / NWFB 101	Kwun Tong (Yue Man Square) – Belcher's Street	AM peak
KMB / NWFB 101	Kwun Tong (Yue Man Square) – Central	PM peak
KMB / NWFB 101	Kennedy Town – Kwun Tong (Yue Man Square)	3 – 15

TABLE 2.3 PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO KC-015 (CONT'D)

Route No.	Routing	Frequency (min)
KMB / NWFB 106	Siu Sai Wan (Island Resort) – Wong Tai Sin	4 – 12
KMB / NWFB 106A	Wong Tai Sin – Taikoo (Kornhill Plaza)	AM peak
KMB / NWFB 106P	Siu Sai Wan (Island Resort) – Wong Tai Sin	AM & PM peak
KMB / CTB 107	Wah Kwai – Kowloon Bay	7 – 20
KMB 108	Braemar Hill – Kai Yip	10 – 25
KMB / NWFB 111	Central (Macau Ferry) – Ping Shek	3 – 12
KMB / NWFB 111P	Choi Fook – Central (Macau Ferry)	AM peak
KMB / NWFB 113	Kennedy Town (Belcher Bay) – Choi Hung	8 – 25
KMB / NWFB 116	Quarry Bay – Tsz Wan Shan (Central)	4 – 12
KMB 203E	Kowloon Station – Choi Hung	10 – 20
KMB 213D	Sau Mau Ping (Central) – Mong Kok (Circular)	10 – 20
KMB 296C	Cheung Sha Wan (Shan Mong Road) – Sheung Tak	15 – 30
KMB 297	Hung Hom Ferry – Hang Hau (North)	12 – 25
NWFB 796C	So Uk Estate – Oscar By The Sea	11 – 20
NWFB 796X	Tsim Sha Tsui East – Tseung Kwan O Industrial Estate / Tseung Kwan O Station	12 – 20
CTB A22	Lam Tin Station – Airport	15 – 20
CTB E23	Airport – Tsz Wan Shan (South)	10 – 20
CTB N23	Tung Chung Station – Tsz Wan Shan (North)	overnight
KMB / NWFB N121	Central (Macau Ferry) – Ngau Tau Kok	15
KMB N216	Hung Hom Station – Yau Tong	15 – 20
KMB N293	Mong Kok East Station – Sheung Tak	15 – 20
NWFB N796	Tseung Kwan O Station – Mong Kok (Circular)	20 – 30
GMB 2	Whampoa Garden – Festival Walk	10 – 15
GMB 2A	Whampoa Garden – Festival Walk	10 – 15
GMB 2M	Whampoa Garden – Kowloon City (Fuk Lo Tsun Rd)	10 – 12
GMB 25A	Kowloon Tong Station – Tung Tau Estate	15
GMB 25M	Tung Tau Estate (Tung Lung Road) – Kowloon Tong (Suffolk Road)	6 – 8
GMB 39M	Lok Fu – Tung Tau (Circular)	6 – 10
GMB 46	Olympic Station – Richland Gardens	3 – 15
GMB 49	Shun Tin – Kowloon City Ferry (Circular)	25
GMB 61	Mong Kok East Station – Siu Sai Wan (Island Resort)	overnight
GMB 69	Kowloon City (Lion Rock Road) – Laguna City	12 – 20
GMB 69A	Tung Choi Street – Laguna City	15
GMB 70	Tai Kok Tsui (Island Harbourview) – Diamond Hill Station	4 – 8
GMB 70A	Olympic Station – Diamond Hill Station	9 – 15
GMB 88	Kai Ching Estate (Kai Tak) – Wong Tai Sin Station (Circular)	12 – 15
GMB 105	To Kwa Wan – Hong Sing Garden	5 – 9
GMB 105S	Hong Shing Garden – To Kwa Wan	overnight
GMB 110	Tiu Keng Leng Station – Kowloon City (Circular)	10 – 20
GMB 805S	Ma On Shan (Kam Ying Court) – Mong Kok Station	overnight

Note: KMB – Kowloon Motor Bus NWB – New World First Bus
CTB – CityBus GMB – Green Minibus

Planned Public Transport Facilities

2.8 Apart from the road-based public transport services, the nearest railway station from KC-015 is the future MTR Shatin-to-Central Link (SCL) Sung Wong Toi Station. The Exit B of MTR Sung Wong Toi Station is located at Nam Kok Road which is around 250m or equivalent to around 5 minutes' walking from KC-015.

2.9 The Tai Wai to Hung Hom and Hung Hom to Admiralty sections of SCL are anticipated to be completed in 2019 and 2021 respectively. The location of MTR Sung Wong Toi Station and Exit B is shown in Figure 2.22.

2.10 In view of the comprehensive coverage and choice of public transport services, including existing road-based public transport services and future railway service, accessibility of KC-015 via the public transport services is considered convenient.

Existing Pedestrian Facilities

2.11 There are good pedestrian facilities provided in the vicinity of KC-015, including footpaths and at-grade pedestrian crossings at road junctions.

2.12 Currently, several pedestrian subways are found in the vicinity of KC-015 as shown in Figure 2.22, including:

- One subway is provided across Prince Edward Road West near Lion Rock Road. Pedestrian can use this subway to reach Boundary Street and St. Teresa's Hospital;
- One subway is provided across Prince Edward Road East near Tak Ku Ling Road. Pedestrian can use this subway to reach the future Kai Tak Development; and
- A subway system is provided at Olympic Garden Roundabout, which connects Prince Edward Road East, Prince Edward Road West, Argyle Street and Ma Tau Chung Road.

Planned Pedestrian Facilities

2.13 As outlined in the latest Kai Tak (KPA 22) Outline Zoning Plan No. S/K22/5, a 1.5km barrier-free underground shopping street (USS) system in Kai Tak is planned to link up Kowloon City and San Po Kong which connect the future MTR Kai Tak and Sung Wong Toi Stations.

2.14 The conceptual USS alignment shown in Figure 2.22 shows that one of the entrances to USS will be provided at Sa Po Road. Extract of Kowloon City District Council *"Housing and Infrastructure Committee"* Paper No. 20/18 submitted by CEDD showing the proposed USS entrance at Sa Po Road is attached in Appendix B. The section of Sa Po Road within KC-015 will be closed and realigned for the provision of a split-level sunken plaza to connect with the proposed USS system by CEDD.

2.15 The proposed USS system is anticipated to be completed in 2025. With the implementation of the USS to be tied in with the development of government land sale sites in Kai Tak, accessibility and connectivity of KC-015 could be further enhanced.

3.0 INTERNAL TRANSPORT FACILITIES FOR KC-015

Provision of Public Car Parking Spaces

3.1 Within the *"Nga Tsin Wai Road Area"* bounded by Shek Ku Lung Road to the east, Junction Road to the west, Carpenter Road to the north and Prince Edward Road West to the south, there is currently a public car park in Kowloon City Plaza with no less than 400 public car parking spaces located at Carpenter Road serving the western part of *"Nga Tsin Wai Road Area"*, say between Fuk Lo Tsun Road and Nga Tsin Long Road. The distance from Kowloon City Plaza to the western part of *"Nga Tsin Wai Road Area"* is around 300m or equivalent to 5-minute walk.

3.2 For the eastern part of *"Nga Tsin Wai Road Area"*, say between Shek Ku Lung Road and Nam Kok Road, most buildings do not provide internal transport facilities and vehicles utilise on-street metered car parking spaces and kerbside lay-bys. Therefore, there is currently a demand for car parking spaces for the eastern part of *"Nga Tsin Wai Road Area"*.

3.3 To determine the existing on-street parking demand, a parking demand survey was conducted on weekday and weekend for the eastern part of *"Nga Tsin Wai Road Area"*, i.e. within 300m radius or equivalent to 5-minute walk from KC-015 (the "parking study area"). The parking study area is shown in Figure 3.1.

3.4 During the parking survey on 3rd March 2018 (Saturday) and 20th March 2018 (Monday), all metered car parking spaces at the section of Nam Kok Road between Nga Tsin Wai Road and Prince Edward Road West are temporarily suspended to facilitate the construction of the SCL. According to the meeting for Working Group on the Shatin to Central Link *"Working Group on the Shatin to Central Link"* of Kowloon City District Council – see Appendix C, the affected metered car parking spaces have been relocated to Nam Kok Road (between Carpenter Road and Nga Tsin Wai Road), Lung Kong Road and South Wall Road. Therefore, the total number of metered car parking spaces within the parking study area will not be affected during construction and after completion of SCL.

3.5 The survey periods were chosen to determine the demand by visitors to KC-015 and also the residents of KC-015. The day-time and night-time car parking demand survey results on weekday and weekend are presented in Table 3.1.

TABLE 3.1 PARKING DEMAND SURVEY RESULTS IN THE PARKING STUDY AREA

Ref.	Road	Car Parking Spaces				
		Supply [a]	Day-time Demand		Night-time Demand	
			No. of Vehicle [b]	Shortfall [b] – [a]	No. of Vehicle [c]	Shortfall [c] – [a]
Weekday						
1	Shek Ku Lung Road	9	15	6	13	4
2	Sa Po Road	18	29	11	23	5
3	Kai Tak Road	6	36	30	43	37
4	Tak Ku Ling Road	12	36	24	35	23
5	South Wall Road	16	44	28	56	40
6	Lung Kong Road	35	53	18	49	14
7	Nam Kok Road [(1)]	35	40	5	44	9
8	Carpenter Road	18	18	0	26	8
Total		**149**	**271**	**122**	**289**	**140**
Weekend						
1	Shek Ku Lung Road	9	13	4	15	6
2	Sa Po Road	18	24	6	28	10
3	Kai Tak Road	6	46	40	29	23
4	Tak Ku Ling Road	12	41	29	49	37
5	South Wall Road	16	58	42	52	36
6	Lung Kong Road	35	64	29	62	27
7	Nam Kok Road [(1)]	35	45	10	38	3
8	Carpenter Road	18	24	6	25	7
Total		**149**	**315**	**166**	**298**	**149**

Note: [(1)] For SCL construction, the affected metered car parking spaces at Nam Kok Road (between Nga Tsin Wai Road and Prince Edward Road West) have been relocated to other locations within the parking study area.

3.6 At present, a total of 149 metered car parking spaces are provided within the parking study area, i.e. 300m from KC-015. During weekday, the day-time and night-time demand for car parking spaces was 271 and 289, resulting in a shortfall of 122 and 140 car parking spaces respectively.

3.7 During the weekend, the day-time and night-time demand for car parking spaces was 315 and 298, resulting in a shortfall of 166 and 149 car parking spaces respectively.

3.8 To meet the existing shortfall of car parking spaces, URA is willing to provide a public vehicle park (PVP) with some **300 public car parking spaces** in KC-015 to serve the eastern part of *"Nga Tsin Wai Road Area"*. The surplus of public car parking spaces would create an opportunity to replace certain on-street metered car parking spaces within the parking study area for pavement widening to improve walkability within the *"Nga Tsin Wai Road Area"*.

Internal Transport Facilities for KC-015

3.9 The planned development parameters for KC-015 are presented in Table 3.2.

TABLE 3.2 DEVELOPMENT SCHEDULE FOR KC-015

Item	Development Parameters
Project Site Area	6,106m^2
No. of Residential Block	3
No. of Residential Flat	810
Average Flat Size (m^2)	49.6
Domestic Plot Ratio	7.5
GFA for Retail Use [(1)]	8,028m^2

Note: [(1)] including 800m^2 for community facilities

3.10 The internal transport facilities for the residential and retail uses within KC-015 are provided in accordance to the Hong Kong Planning Standards and Guidelines (HKPSG) and are presented in Table 3.3.

TABLE 3.3 INTERNAL TRANSPORT FACILITIES FOR RESIDENTIAL AND RETAIL USES WITHIN KC-015

Item	HKPSG Recommendations [1] 3 blocks with 810 Residential Flats, Average Flat Size = 49.6m², Domestic Plot Ratio = 7.5 [2] Retail GFA = 8,028m²			
	Requirements	**Minimum**	**Maximum**	**Proposed Provision**
Car Parking Space	Residential GPS × R1 × R2 × R3 GPS = 1 car space per 6 – 9 flats R1 = 0.7 (40 – 70m²) R2 = 0.75 for site within 500m-radius of rail station R3 = 0.9 for plot ratio 5 – 8 Visitor 1 – 5 visitor spaces per block with more than 75 units Retail 1 car space per 200 – 300m² GFA	Residential 810 × 0.7 × 0.75 × 0.9 ÷ 9 = 42.53 = **43 nos.** Visitor 1 × 3 = **3 nos.** Retail 8028 ÷ 300 = 26.76 = **27 nos.** **Total** **43 + 3 + 27 = 73 nos.**	Residential 810 × 0.7 × 0.75 × 0.9 ÷ 6 = 63.79 = **64 nos.** Visitor 5 × 3 = **15 nos.** Retail 8028 ÷ 200 = 40.14 = **41 nos.** **Total** **64 + 15 + 41 = 120 nos.**	Residential 64 nos. Visitor 15 nos. Retail 41 nos. **Total** **64 + 15 + 41 = 120 nos. [= maximum]**
Motorcycle Parking Space	Residential 1 motorcycle space per 100 – 150 flats Retail 5 – 10% of total provision of car parking spaces	Residential 810 ÷ 150 = 5.4 = **6 nos.** Retail (for 27 car spaces) 27 × 5% = 1.35 = **2 nos.** **Total** **6 + 2 = 8 nos.**	Residential 810 ÷ 100 = 8.1 = **9 nos.** Retail (for 41 car spaces) 41 × 10% = 4.1 = **5 nos.** **Total** **9 + 5 = 14 nos.**	Residential 9 nos. Retail 5 nos. **Total** **9 + 5 = 14 nos. [= maximum]**
Loading / Unloading Bay	Residential Minimum of 1 loading bay for every 800 flats or part thereof, subject to a minimum of 1 bay per block Retail 1 loading bay for 800 – 1,200m², or part thereof GFA	Residential **3 nos. HGV** Retail 8028 ÷ 1200 = 6.69 = **7 nos.** **(2 HGV + 5 LGV)** **Total** **3 + 7 = 10 nos.** **(5 HGV + 5 LGV)**	Residential **3 nos. HGV** Retail 8028 ÷ 800 = 10.04 = **11 nos.** **(4 HGV + 7 LGV)** **Total** **3 + 11 = 14 nos.** **(7 HGV + 7 LGV)**	Residential **3 nos. HGV** Retail **7 nos.** **(2 HGV + 5 LGV)** **Total** **10 nos. (5 HGV + 5 LGV) [= minimum]**

3.11 As shown in Table 3.3, the car parking and motorcycle parking spaces provided for KC-015 comply with the upper bound recommendation of the HKPSG, while the goods vehicle loading / unloading bays comply with the lower bound recommendation.

Summary of Internal Transport Facilities

3.12 The provision of transport facilities for KC-015 are summarised in Table 3.4.

TABLE 3.4 INTERNAL TRANSPORT FACILITIES PROVIDED WITHIN KC-015

Item	Residential	Retail	PVP	Overall
Car Parking Space	79 [1], including: • 64 (for residents) • 15 (for visitors)	41 [2]	300 [3]	420
Motorcycle Parking Space	9	5	–	14
HGV Loading / Unloading Bay	3	2	–	5
LGV Loading / Unloading Bay	–	5	–	5

Note: [1] includes 2 spaces for persons with disabilities
[2] includes 1 space for persons with disabilities
[3] includes 4 spaces for persons with disabilities

Vehicle Access Arrangement

3.13 The ingress for the private car park of KC-015 is provided at Sa Po Road and the ingress for the PVP and goods vehicle is at Kai Tak Road. The private vehicle park of KC-015 and the PVP share a common egress point which is provided at Kai Tak Road. The schematic vehicular ingress and egress arrangement is presented in Figure 3.2.

3.14 The car park ingress points are provided on 2 different streets due to the following reasons:

- By locating the 2 car park ingress points at 2 different streets, there is less traffic pressure onto one single road;
- The surge of visitors especially during weekends, vehicles entering the PVP will not affect residents from entering the private car park of KC-015; and
- The PVP ingress at Kai Tak Road permits longer vehicle queue, i.e. some 8 vehicles, and since Kai Tak Road is around 9m wide, it could accommodate vehicle queueing to enter the PVP without affecting the flow of traffic.

3.15 To minimise the likelihood of vehicle tailback when entering the PVP, sufficient entry gates and queueing space, e.g. with the entry gates positioned as far away as possible from the ingress, be provided. Details on the provision of entry gates will be carried out in the detailed design stage.

3.16 To facilitate turn-around of vehicles and efficiency in operation of the PVP, URA is willing to identify suitable measures to reduce the dwell time for payment at the entry gates, e.g. introduce smart technology to minimise the payment processing time, position the entry gate away from the ingress to provide extra queuing space, etc., subject to availability of relevant technology and approval from relevant government departments at the detailed design stage.

Pedestrian Access Arrangement

3.17 As shown in Figure 3.2, URA has the intention to integrate KC-015 and the proposed USS (undertaken by CEDD) entrance at Sa Po Road to form a split-level sunken plaza.

3.18 With reference to Figure 2.22, the split-level sunken plaza could enhance connectivity and walkability to / from the following facilities;

- Proposed USS system in Kai Tak Development and MTR Kai Tak Station;
- The retail portions of KC-015 and the PVP via at-grade or grade-separated connections, keeping the retail vibrancy of connection to the proposed USS system;
- Exit B of MTR Sung Wong Toi Station which is 5 minutes' walk along Nga Tsin Wai Road or Prince Edward Road West;
- The existing bus and GMB lay-by fronting the split-level sunken plaza with over 80 bus / GMB routes;
- The bus and GMB lay-bys located on the opposite side of Prince Edward Road East southbound, Ma Tau Chung Road and Argyle Street via the Olympic Garden Roundabout; and
- The existing taxi stand at Sa Po Road outside Regal Oriental Hotel HK which is located opposite to KC-015.

3.19 It can be concluded that the split-level sunken plaza could enhance accessibility to nearby public transport services and facilities, improve the walking environment and bring long-term benefits to the public.

Internal Transport Layout

3.20 The notional layout plan showing the internal transport facilities, i.e. ground and basement 1st – 5th floors, are presented in Figures 3.3 – 3.8. Access to the basement floors is via the vehicle ramp.

4.0 TRAFFIC IMPACT

Traffic Generation for Residential and Retail

4.1 To estimate traffic generation of KC-015, the mean values trip generation rates for residential and retail found in Volume 1 of the TPDM are adopted.

4.2 Since the average size of the private residential flats is around 49.6m^2, mean values of the trip generation rates for *"Private Housing: High-density / R(A) with average flat size of 60m^2"* is adopted.

4.3 The adopted traffic generation rates for various uses are presented in Table 4.1.

TABLE 4.1 ADOPTED TRIP GENERATION RATES FOR KC-015

Use	Unit	Trip Generation Rates			
		AM Peak		PM Peak	
		IN	OUT	IN	OUT
Residential	pcu / hour / flat	0.0425	0.0718	0.0370	0.0286
Retail	pcu / hour / 100m^2	0.2434	0.2296	0.3563	0.3100

Source: Volume 1 of TPDM

Traffic Generation of PVP

4.4 To estimate the traffic generation of the proposed PVP, traffic generation surveys were conducted at the following PVPs:

- Denker Plaza Car Park at 16 Hi Yip Street in Yuen Long, which has around 144 public parking spaces;
- Auto Plaza Car Park at 65 Mody Road in Tsim Sha Tsui, which has around 475 public car parking spaces; and
- Canton Road Car Park at 1112 Canton Road, Mong Kok, which has around 400 public car parking spaces.

4.5 The survey results and derived trip generation rates for the surveyed PVPs are presented in Table 4.2.

TABLE 4.2 TRIP GENERATION RATES FOR PUBLIC VEHICLE PARK

PVP		AM Peak		PM Peak	
		IN	OUT	IN	OUT
Traffic Generation (pcu / hour)					
Denker Plaza Car Park	(144 spaces)	20	10	6	21
Auto Plaza Car Park	(475 spaces)	90	4	103	80
Canton Road Car Park	(400 spaces)	43	39	48	51
Trip Generation Rate (pcu / hour / space)					
Denker Plaza Car Park		0.1389	0.0694	0.0417	0.1458
Auto Plaza Car Park		0.1895	0.0084	0.2168	0.1684
Canton Road Car Park		0.1075	0.0975	0.1200	0.1275
Adopted Trip Generation Rate (maximum)		**0.1895**	**0.0975**	**0.2168**	**0.1684**

Traffic Generation of KC-015

4.6 The trip generation rates presented in Tables 4.1 and 4.2 are used to calculate the traffic generated associated with KC-015, and the calculated traffic generation is presented in Table 4.3.

TABLE 4.3 TRAFFIC GENERATION OF KC-015

Use	Quantity	Trip Generation Rates (from TPDM)			
		AM Peak		PM Peak	
		IN	OUT	IN	OUT
Residential	810 flats	35	59	30	24
Retail [1]	8,028m^2 GFA	20	19	29	25
Public Vehicle Park	300 spaces	57	30	66	51
Total		**112**	**108**	**125**	**100**

Note: [1] including 800m^2 for community facilities

Traffic Forecast

4.7 It is expected that KC-015 will be completed in 2030, thus, the design year adopted for the capacity analysis is 2033, i.e. 3 years after its planned completion.

4.8 The 2033 design traffic flows for capacity analysis are derived with reference to (i) the Base District Traffic Model ("BDTM") updated with planned developments and road network located in the vicinity (e.g. Kai Tak Development); and (ii) expected traffic generation associated with KC-015.

4.9 The 2033 peak hour traffic flows without and with KC-015 on weekday and weekend are shown in Figures 4.1 – 4.4 respectively.

2033 Junction Capacity Analysis

4.10 The 2033 junction capacity analysis for the cases without and with the KC-015 on weekday and weekend are summarised in Table 4.4, and detailed calculations are found in Appendix A.

TABLE 4.4 2033 JUNCTION OPERATIONAL PERFORMANCE

Ref.	Junction	Junction Type / Indicator [1]	Without KC-015		With KC-015	
			AM Peak	PM Peak	AM Peak	PM Peak
	Weekday					
A	Tung Tsing Road / Lok Sin Road / Sa Po Road [2]	Signal / RC	52%	74%	16%	45%
B	Carpenter Road / Tak Ku Ling Road	Signal / RC	>100%	>100%	>100%	94%
C	Carpenter Road / Lion Rock Road	Signal / RC	84%	33%	83%	32%
D	Junction Road / Carpenter Road	Signal / RC	57%	35%	57%	34%
E	Junction Road / Nga Tsin Wai Road	Signal / RC	66%	48%	65%	47%
F	Nga Tsin Wai Road / Lion Rock Road	Signal / RC	>100%	91%	>100%	85%
G	Nga Tsin Wai Road / Hau Wong Road	Signal / RC	76%	58%	71%	53%
H	Nga Tsin Wai Road / Lung Kong Road	Signal / RC	88%	69%	77%	55%
I	Prince Edward Road West / South Wall Road [2]	Priority / RFC	0.806	0.657	0.888	0.705
J	Prince Edward Road West / Lion Rock Road	Priority / RFC	0.444	0.487	0.453	0.495
K	Prince Edward Road West / Fuk Lo Tsun Road	Priority / RFC	0.381	0.318	0.381	0.318
L	Prince Edward Road West / Junction Road	Signal / RC	37%	48%	36%	46%
M	Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street	Signal / RC	83%	>100%	75%	92%
N	Junction Road / Tung Tau Tsuen Road	Signal / RC	87%	48%	86%	47%
O	Junction Road / Inverness Road	Signal / RC	18%	33%	15%	28%
P	Lung Kong Road / Carpenter Road	Priority / RFC	0.360	0.306	0.393	0.397
Q	Olympic Garden Roundabout	Roundabout / RFC	0.891	0.806	0.892	0.809

TABLE 4.4 2033 JUNCTION OPERATIONAL PERFORMANCE (CONT'D)

Ref.	Junction	Junction Type / Indicator [1]	Without KC-015		With KC-015	
			AM Peak	PM Peak	AM Peak	PM Peak
Weekend						
A	Tung Tsing Road / Lok Sin Road / Sa Po Road [2]	Signal / RC	54%	44%	15%	17%
B	Carpenter Road / Tak Ku Ling Road	Signal / RC	>100%	85%	91%	68%
C	Carpenter Road / Lion Rock Road	Signal / RC	98%	30%	97%	29%
D	Junction Road / Carpenter Road	Signal / RC	64%	38%	64%	36%
E	Junction Road / Nga Tsin Wai Road	Signal / RC	61%	43%	60%	42%
F	Nga Tsin Wai Road / Lion Rock Road	Signal / RC	>100%	67%	>100%	62%
G	Nga Tsin Wai Road / Hau Wong Road	Signal / RC	63%	40%	58%	36%
H	Nga Tsin Wai Road / Lung Kong Road	Signal / RC	84%	67%	72%	54%
I	Prince Edward Road West / South Wall Road [2]	Priority / RFC	0.678	0.767	0.757	0.815
J	Prince Edward Road West / Lion Rock Road	Priority / RFC	0.409	0.439	0.419	0.447
K	Prince Edward Road West / Fuk Lo Tsun Road	Priority / RFC	0.353	0.335	0.353	0.335
L	Prince Edward Road West / Junction Road	Signal / RC	50%	36%	48%	34%
M	Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street	Signal / RC	85%	56%	78%	50%
N	Junction Road / Tung Tau Tsuen Road	Signal / RC	94%	47%	92%	45%
O	Junction Road / Inverness Road	Signal / RC	31%	21%	27%	17%
P	Lung Kong Road / Carpenter Road	Priority / RFC	0.342	0.346	0.376	0.439
Q	Olympic Garden Roundabout	Roundabout / RFC	0.834	0.860	0.838	0.871

Note: [1] RC – Reserve Capacity RFC – Ratio-of-Flow to Capacity
[2] Improvement schemes are proposed for junctions A and I. Please refer to Chapter 5.

4.11 The above results indicate that the analysed junctions are expected to operate with capacities during the peak hours on both weekday and weekend in 2033. The junctions analysed have sufficient capacity to accommodate the (i) expected traffic growth; and (ii) traffic generated by KC-015.

4.12 The traffic generated by KC-015 is not expected to have adverse impact to the capacity of the analysed junctions, and is acceptable in traffic terms.

Improvement Schemes for KC-015

4.13 Two traffic and pedestrian improvement measures are identified as shown in Figure 4.5, and details of these measures are presented in the following paragraphs.

Improvement Measure 1 – Realignment of Sa Po Road

4.14 At present, the section of Sa Po Road between Kai Tak Road and Regal Oriental Hotel runs adjacent to Prince Edward Road East. In-between Sa Po Road and Prince Edward Road East, there is a footpath and 110m bus stop. CEDD will construct an underground pedestrian tunnel across Prince Edward Road East to connect Kai Tak and USS with exit at KC-015 near Sa Po Road.

4.15 URA intends to realign Sa Po Road to form a perpendicular intersection with Kai Tak Road. The proposed realignment of Sa Po Road has the following merits:

i. The enlarged triangular space in-between Sa Po Road and Prince Edward Road East would be converted to a split-level sunken plaza for public enjoyment. The split-level sunken plaza could enhance pedestrian connectivity and walkability between the old *"Nga Tsin Wai Road Area"*, KC-015 and USS, and would provide more walking and queuing space for the public at the existing bus stops of Prince Edward Road East.

ii. The realigned portion of road will form a private link road within KC-015 and will be opened to the public 24 hours daily. The connection between the split-level sunken plaza and KC-015 would be grade-separated.

iii. The proposed realignment is in line with Kowloon City District Council *"Housing and Infrastructure Committee"* Paper No. 20/18 submitted by CEDD on the provision of USS entrance at Sa Po Road in future – as shown in Appendix B.

iv. The proposed realignment will convert the existing priority junction with "STOP" arrangement to a free-flow intersection. Hence, vehicles from Kai Tak Road are no longer required to give-way to Sa Po Road.

v. With reference to the TPDM, the desirable visibility distance should be 70m for a road with design speed of 50km/h. At present, Sa Po Road forms an acute angle at its junction with Kai Tak Road and the visibility from Kai Tak Road to Sa Po Road is around 35m which falls below HKPSG requirement. The proposed realignment could eliminate the visibility constraint.

vi. The footpaths alongside the realigned Sa Po Road will be properly paved with landscaping to provide a pleasant pedestrian environment. In addition, traffic calming / pedestrian crossing will be provided at the realigned Sa Po Road to enhance pedestrian safety.

4.16 Subject to the approval by the Chief Executive in Council on the proposal, portion of the existing Sa Po Road will be closed and realigned within KC-015.

Improvement Measure 2 – Rearrangement of On-Street Parking Spaces

4.17 To accommodate the ingress / egress for KC-015 and realigned Sa Po Road as shown in Figure 4.5, the existing 24 on-street metered car parking spaces at Sa Po Road and Kai Tak Road are removed. In order to enhance pedestrian safety, kerb build-outs are proposed at Kai Tak Road and Sa Po Road.

4.18 The existing 3 metered goods vehicle parking spaces at Kai Tak Road would be relocated to Sa Po Road while the existing public light bus stand would be maintained and realigned on the eastern kerbside.

4.19 The above 2 improvement measures are expected to bring long-term benefits to the public, and enhance connectivity and accessibility to / from KC-015.

4.20 In long term, the surplus in public car park space provision will create an opportunity to replace certain on-street metered car parking spaces within the parking study area for pavement widening to improve walkability within the *"Nga Tsin Wai Road Area"*.

2033 Projected Car Parking Demand

4.21 By adopting the same traffic forecasting methodology used for estimating the 2033 traffic flows, the projected day-time and night-time demands in 2033 for car parking spaces are 294 and 314 on weekday, and 342 and 323 on weekend respectively.

4.22 When the proposed PVP with 300 public car parking spaces is provided, the availability of car parking spaces in 2033 within the parking study area is presented in Table 4.5.

TABLE 4.5 SURPLUS OF CAR PARKING SPACES IN 2033

Scenario		Calculation	Surplus or Shortfall
[a]	Projected maximum car parking demand in 2033	342 nos.	
[b]	Existing number of metered car parking spaces in the parking study area	149 nos.	
[c]	Scenario 1 – without the proposed PVP in KC-015 = [b] – [a]	149 – 342	**–193 nos.**
[d]	Scenario 2 – with the proposed PVP in KC-015, i.e. 300 public car parking spaces = [c] + 300 – 24 [(1)]	– 193 + 300 – 24	**83 nos.**

Note: [(1)] including removal of 24 metered car parking spaces to accommodate the ingress / egress and realigned Sa Po Road for KC-015

4.23 Taking into consideration the traffic and pedestrian improvement measures identified for KC-015, Table 4.5 shows that there will be a surplus of no less than 83 car parking spaces within the parking study area in 2033.

5.0 CONCLUSION

5.1 URA intends to adopt an integrated and district-based approach to holistically rejuvenate the portion of *"Nga Tsin Wai Road Area"* at Kowloon City by reviewing the existing and proposed land uses for the Project Site, i.e. KC-015. KC-015 comprises of:

- 24 – 82 Kai Tak Road (all even numbers); and
- 31 – 49 and 55 – 73 Sa Po Road (all odd numbers).

5.2 The car parking and motorcycle parking spaces provided for the residential and retail uses within KC-015 comply with the upper bound recommendation of the HKPSG, while the goods vehicle loading / unloading bays comply with the lower bound recommendation.

5.3 To address the demand on public car parking spaces in Kowloon City, a PVP with 300 car parking spaces within KC-015 to serve the eastern part of *"Nga Tsin Wai Road Area"*. Based on the projected car parking demand for 2033, there will be a surplus of no less than 83 car parking spaces within the parking study area, i.e. the eastern part of *"Nga Tsin Wai Road Area"*.

5.4 Manual classified counts were conducted at key junctions, which are located in the vicinity in order to establish the existing weekday and weekend traffic flows during the AM and PM peak hours. The 2033 design traffic flows are derived with reference to the BDTM and have taken into account the planned developments and road network.

5.5 The 2033 junction capacity analysis was undertaken for the cases with and without KC-015. The junctions analysed have sufficient capacity to accommodate the expected 2033 traffic flows and the traffic generated by KC-015 and the proposed PVP.

5.6 Two traffic and pedestrian improvement measures were identified for KC-015, including:

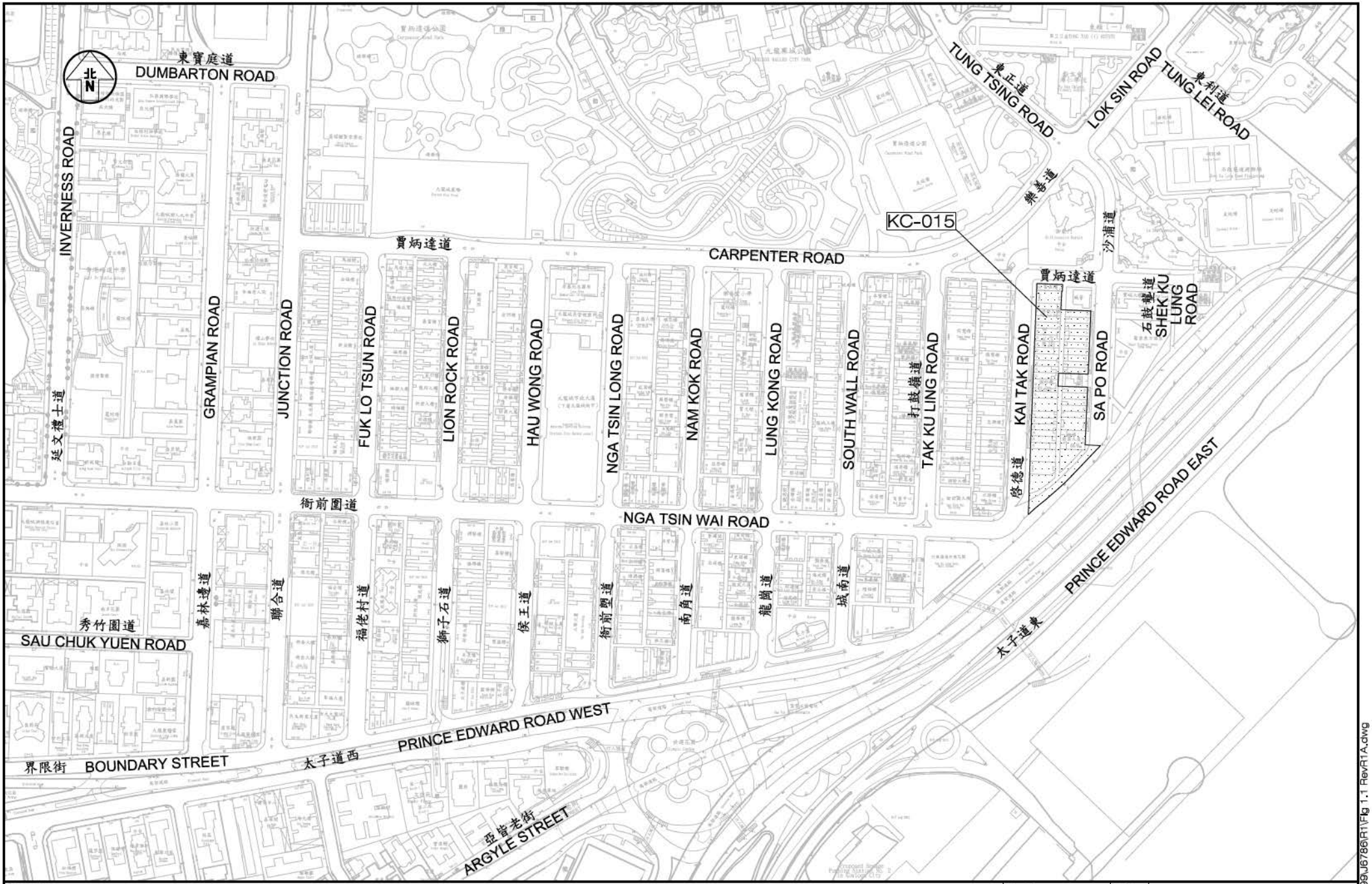
Improvement Measure 1 – Sa Po Road will be realigned to form a perpendicular intersection with Kai Tak Road to enhance pedestrian connectivity and walkability.

Improvement Measure 2 – The existing metered car parking spaces at Sa Po Road and Kai Tak Road are removed to accommodate the ingress / egress for KC-AA3-01 and realigned Sa Po Road. The provision of PVP with 300 car parking spaces could address the long-term parking demand in the 300m study area.

5.7 The Traffic Study concluded that KC-015 together with (i) a PVP with 300 car parking spaces; (ii) realigned Sa Po Road; and (iii) the two traffic and pedestrian improvement measures, will result in no adverse traffic impact to the surrounding planned road network, and is acceptable from traffic engineering grounds.

5.8 As mentioned in Paragraph 4.20, in collaboration with relevant stakeholders and government departments, pavement widening at appropriate location through street revitalisation works can be further explored to optimise the opportunity created by KC-015.

Figures



Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

LOCATION OF KC-015

Figure No.	Revision
1.1	R1A

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Scale in A3	Date
1 : 2,500	13 FEB 2019

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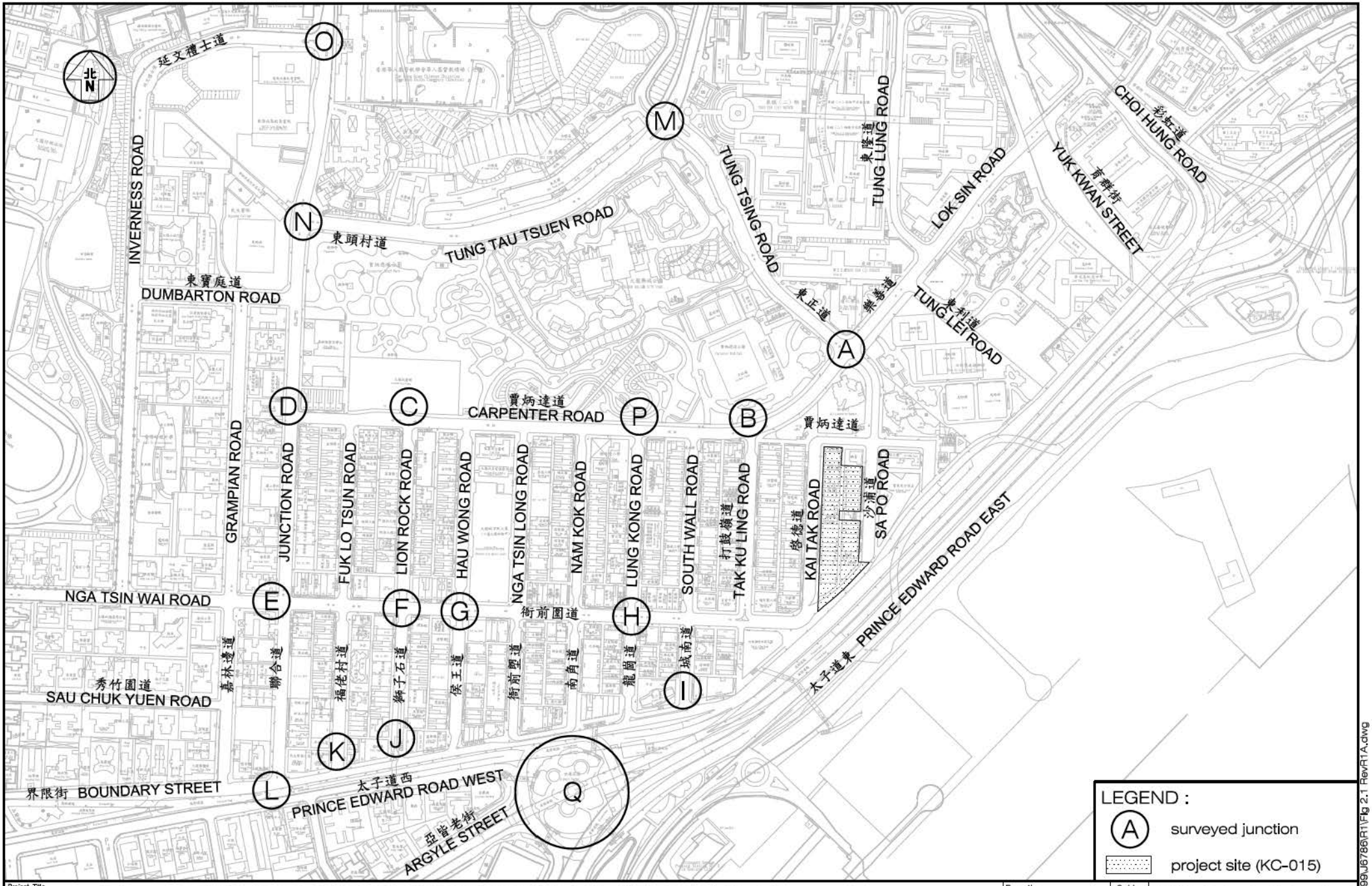

LEGEND :

A surveyed junction

project site (KC-015)

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD
	J6786
Figure Title	SURVEYED JUNCTION
Figure No.	2.1
Revision	R1A
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Scale in A3	1 : 3,500
Date	13 FEB 2019

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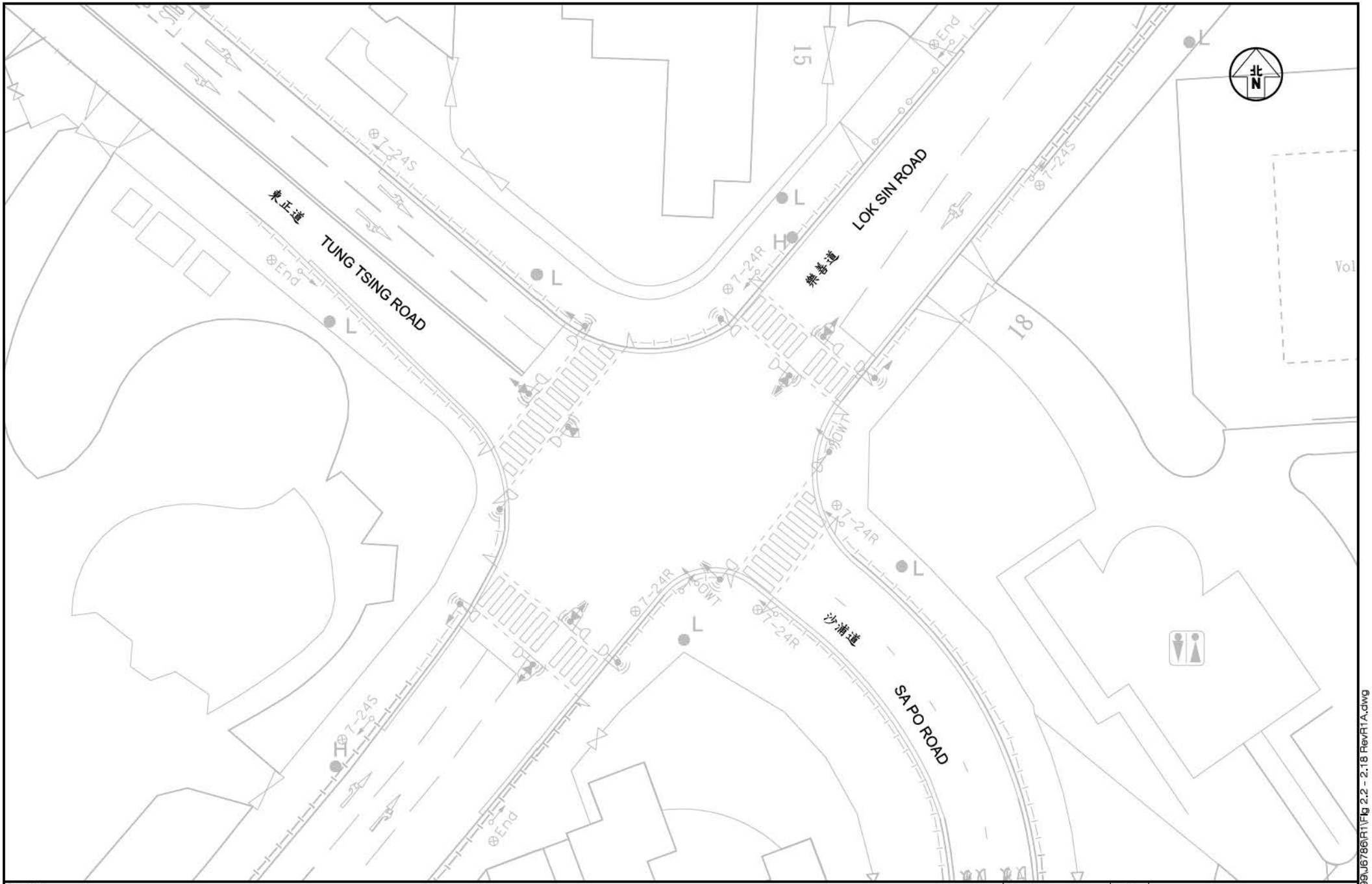

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure No. 2.2

Revision R1A

Figure Title

(A) JUNCTION OF TUNG TSING ROAD / LOK SIN ROAD / SA PO ROAD

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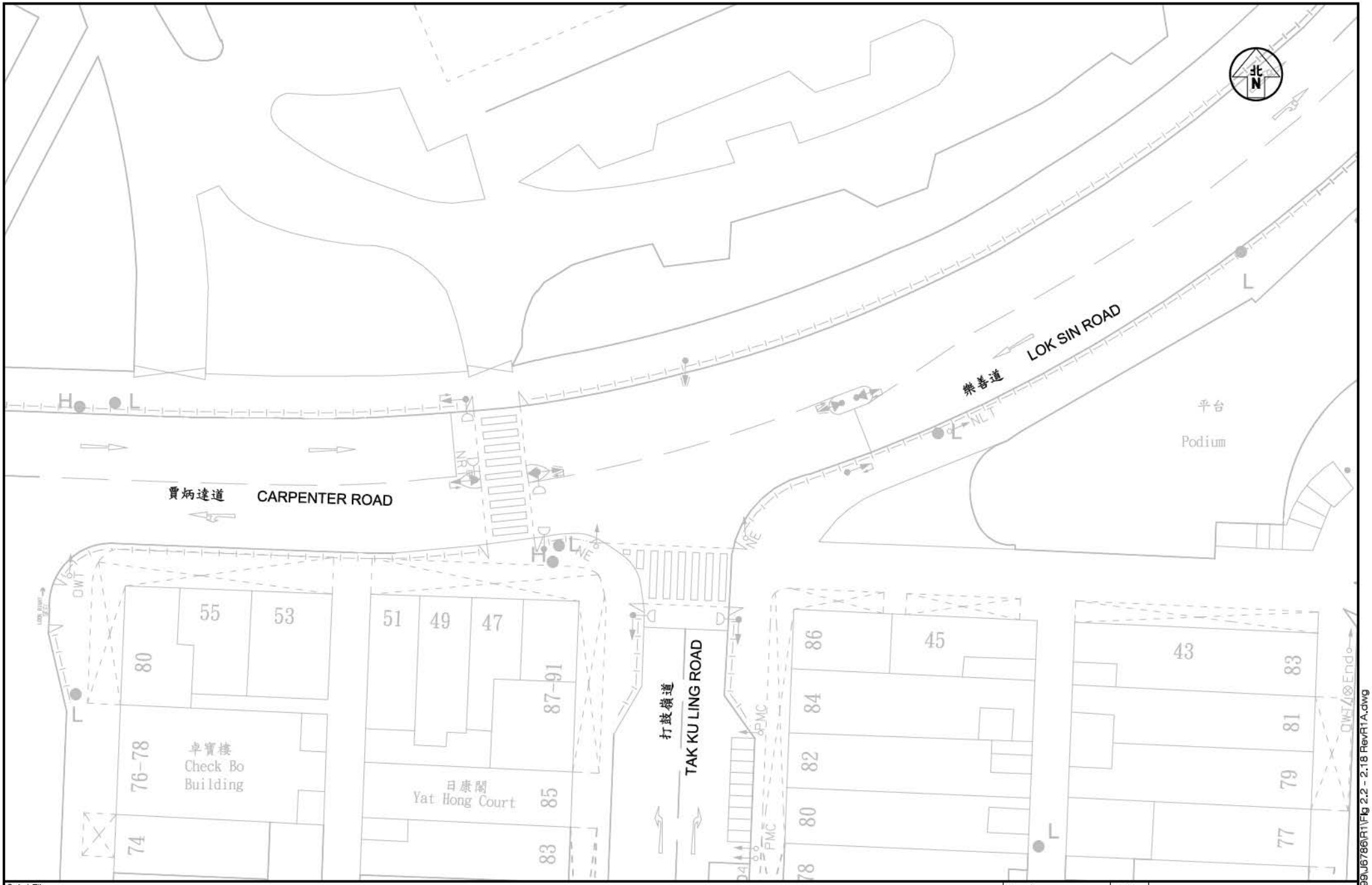

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(B) JUNCTION OF CARPENTER ROAD / TAK KU LING ROAD

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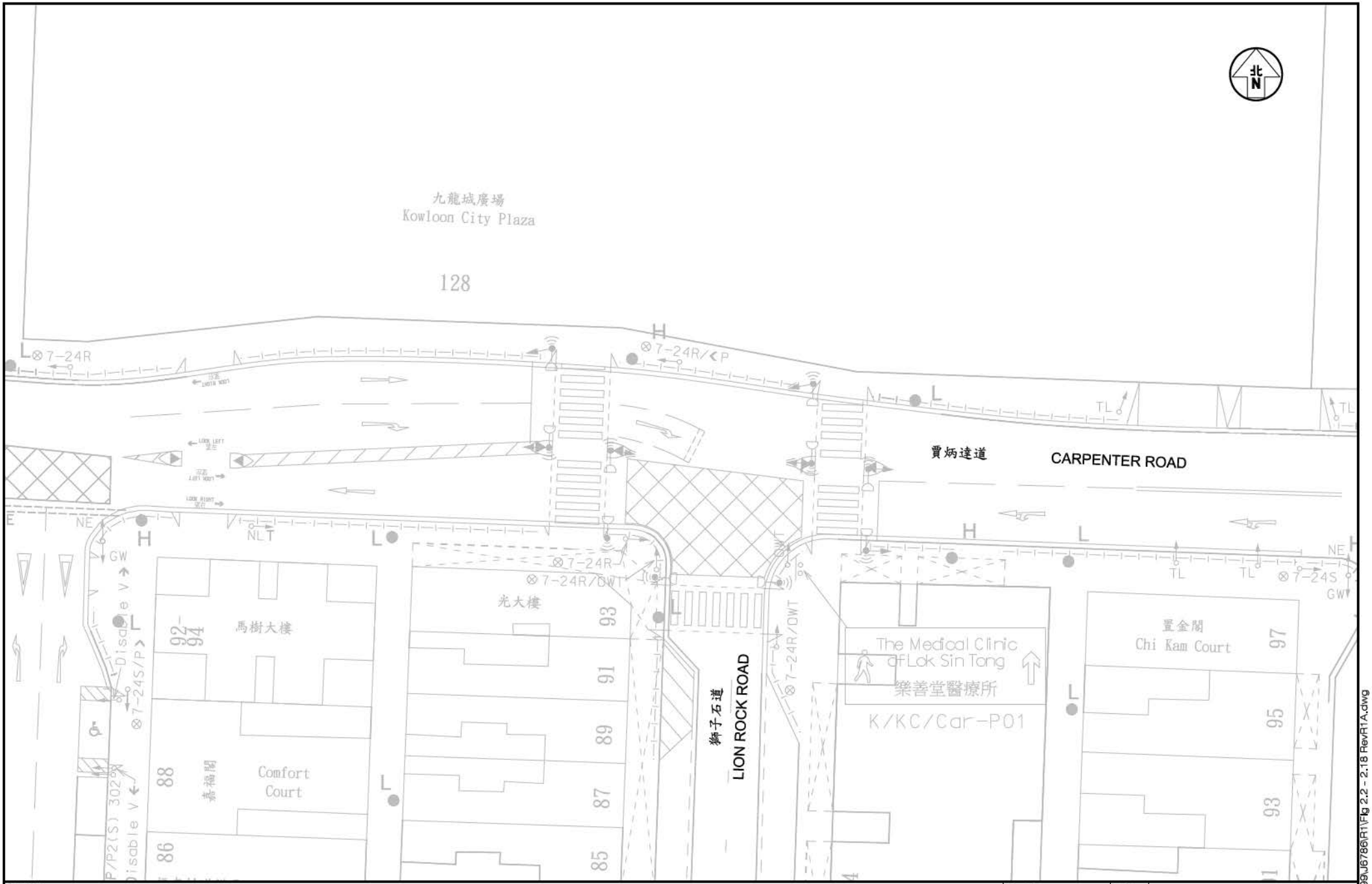

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(C) JUNCTION OF CARPENTER ROAD / LION ROCK ROAD

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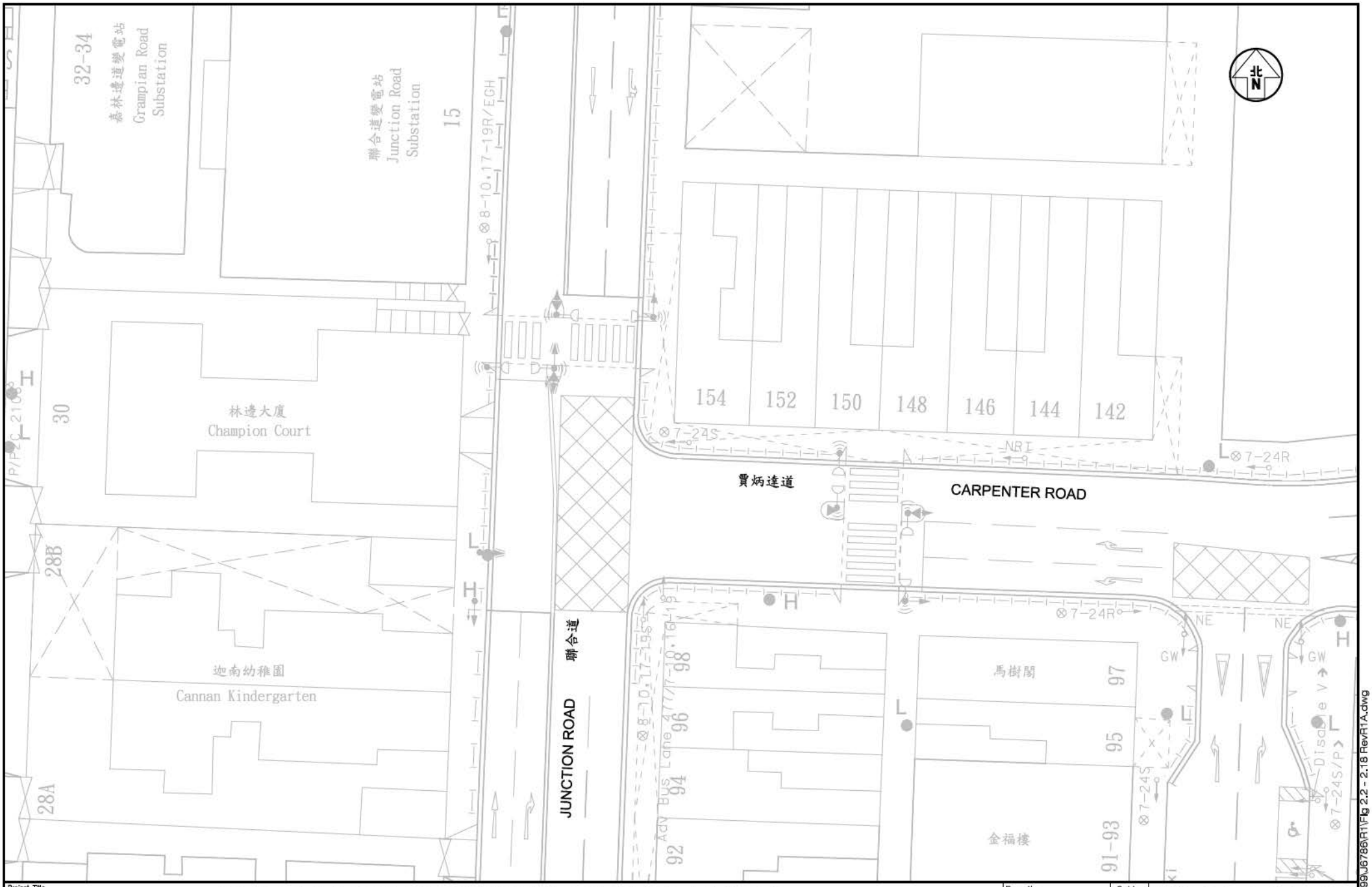

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure No. 2.5

Revision R1A

Figure Title

(D) JUNCTION OF JUNCTION ROAD / CARPENTER ROAD

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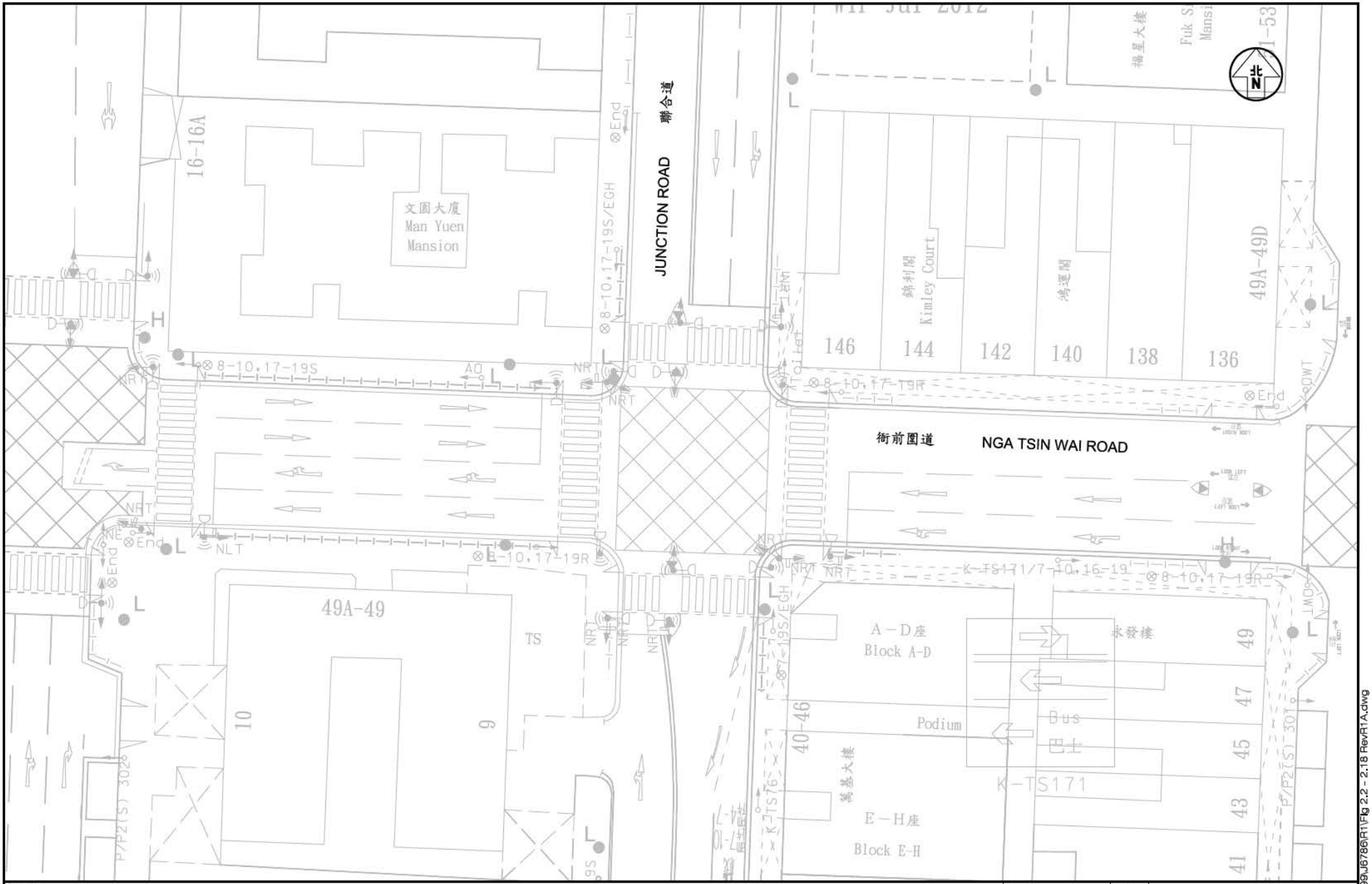

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(E) JUNCTION OF JUNCTION ROAD / NGA TSIN WAI ROAD

Figure No.	Revision
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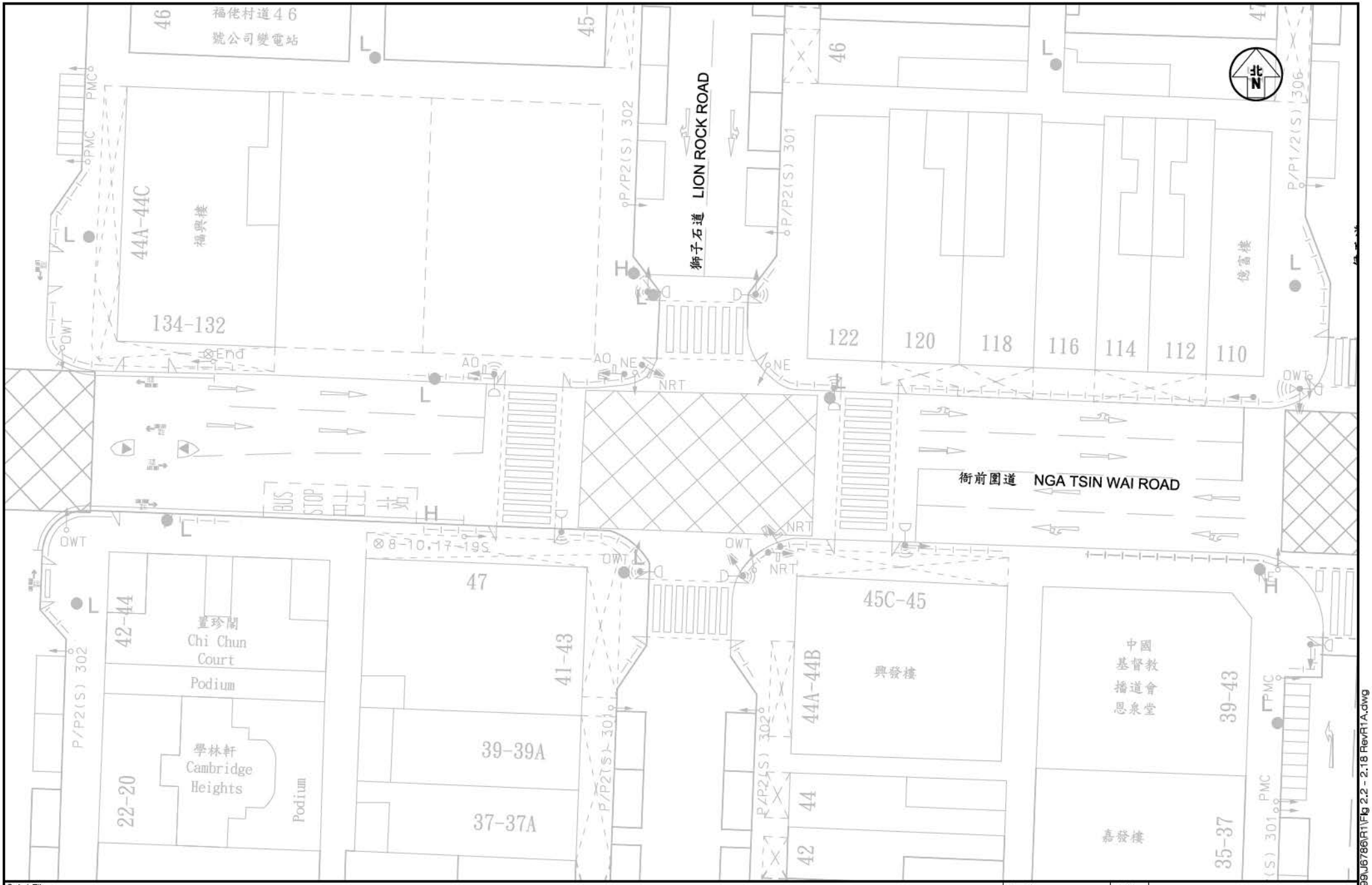

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Figure Title	(F) JUNCTION OF NGA TSIN WAI ROAD / LION ROCK ROAD		Designed by C Y N; Drawn by C C L; Checked by; Scale in A3 1 : 300; Date 13 FEB 2019

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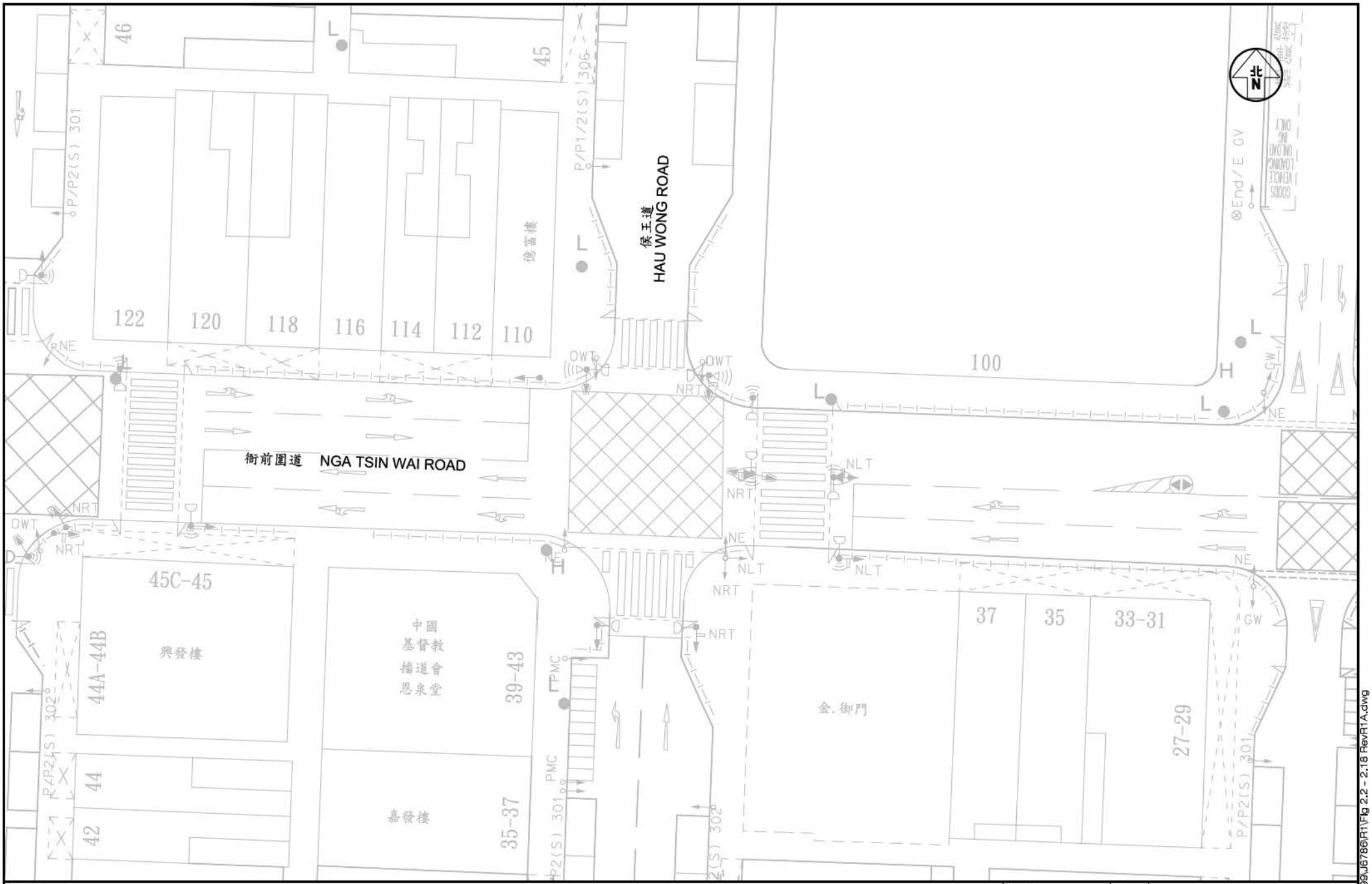

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(G) JUNCTION OF NGA TSIN WAI ROAD / HAU WONG ROAD

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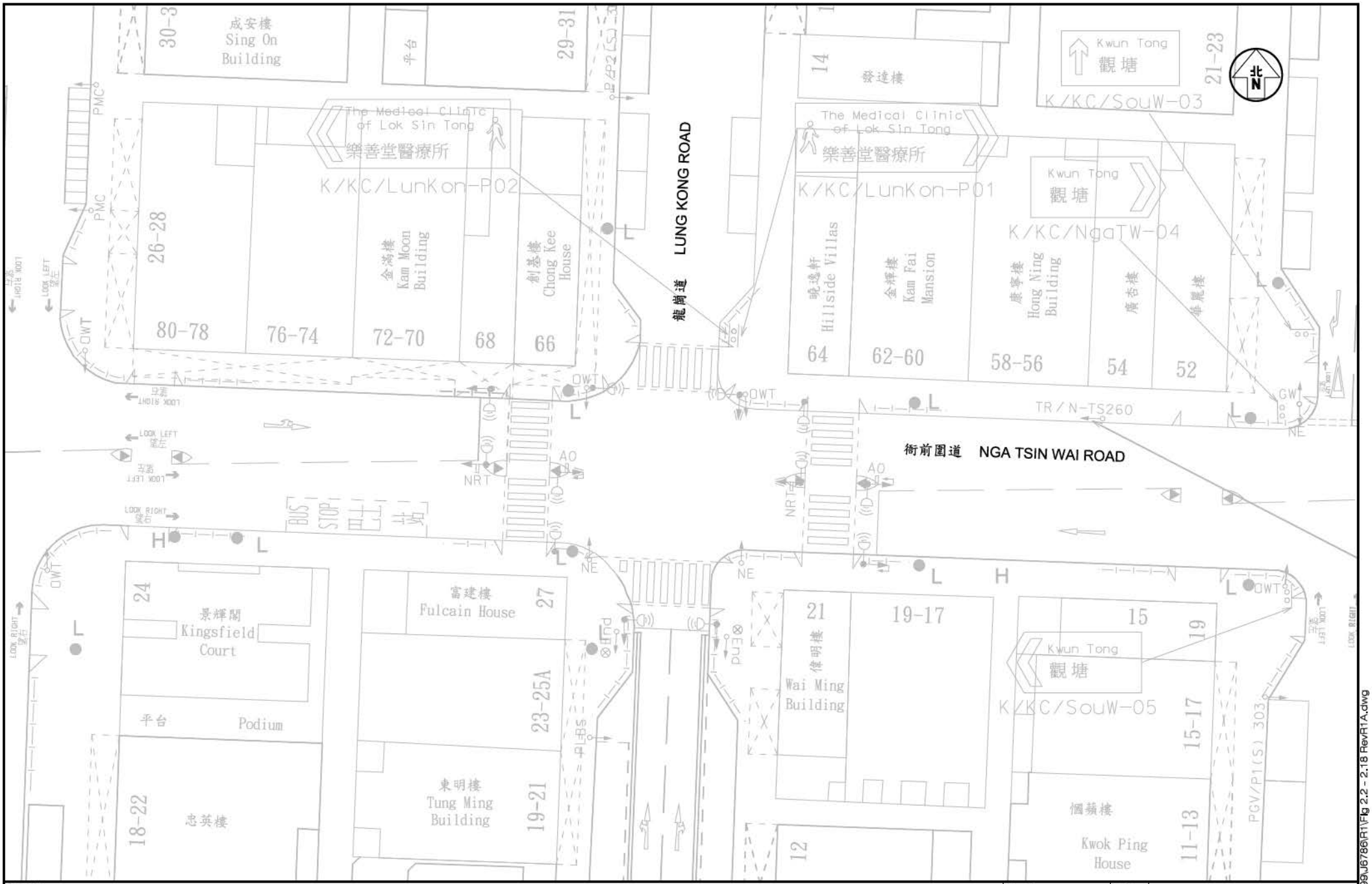

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Figure Title	(H) JUNCTION OF NGA TSIN WAI ROAD / LUNG KONG ROAD		Designed by C Y N; Drawn by C C L; Checked by; Scale in A3 1 : 300; Date 13 FEB 2019

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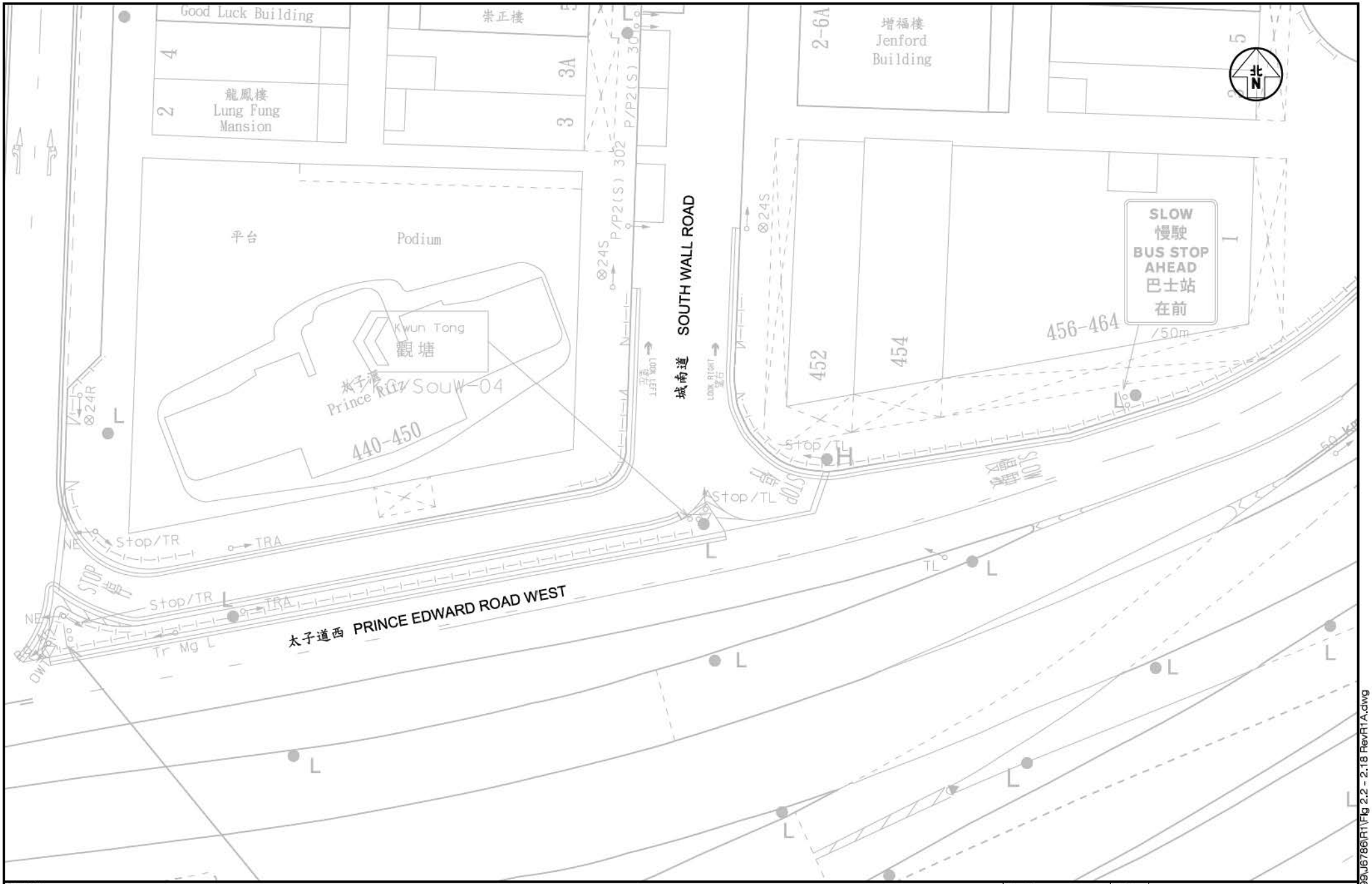

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Figure Title: (I) JUNCTION OF PRINCE EDWARD ROAD WEST / SOUTH WALL ROAD		Designed by C Y N / Drawn by C C L / Checked by		Traffic and Transportation Planning Consultants
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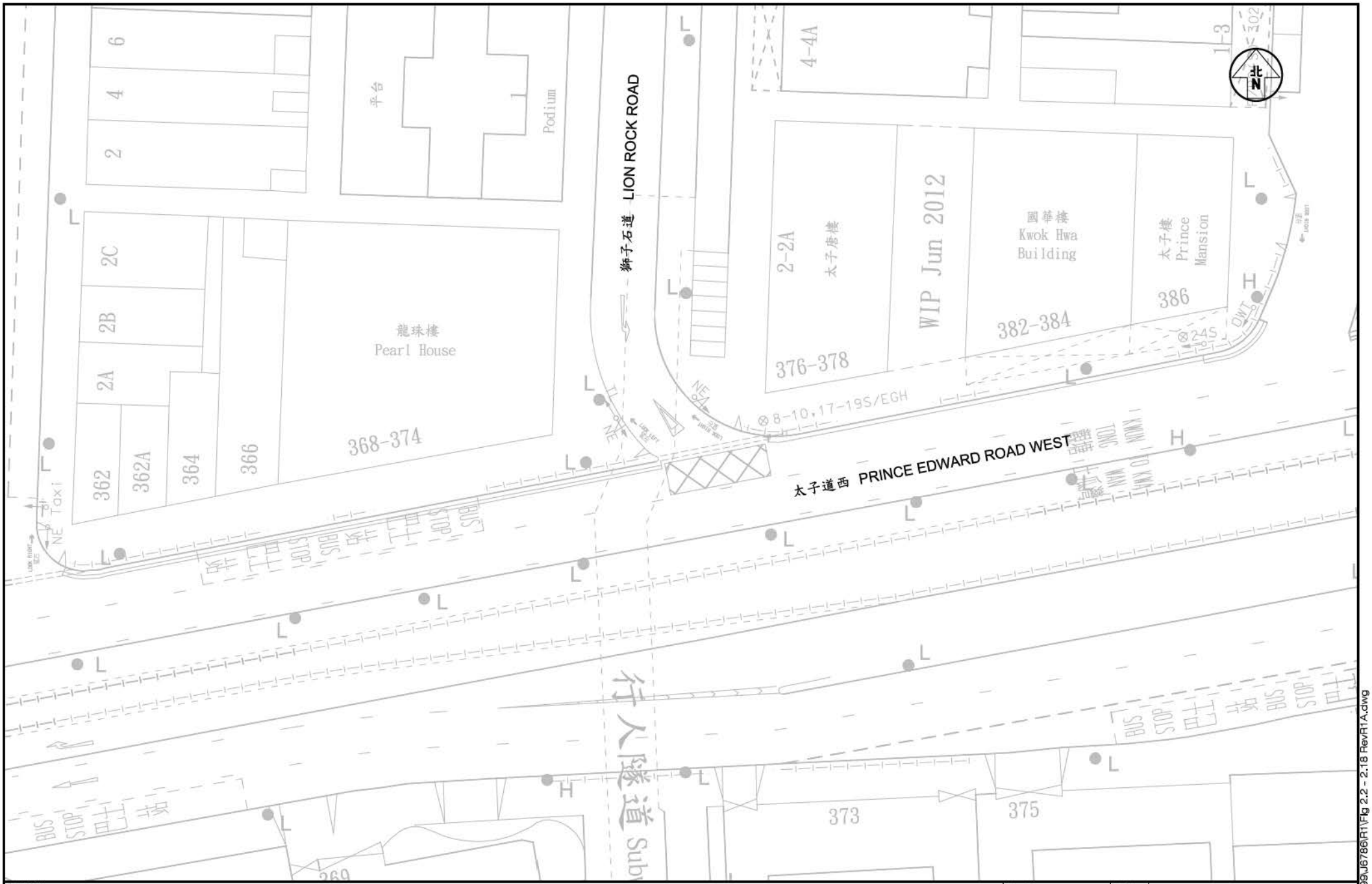

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Figure Title	(J) JUNCTION OF PRINCE EDWARD ROAD WEST / LION ROCK ROAD		Designed by C Y N / Drawn by C C L / Checked by	
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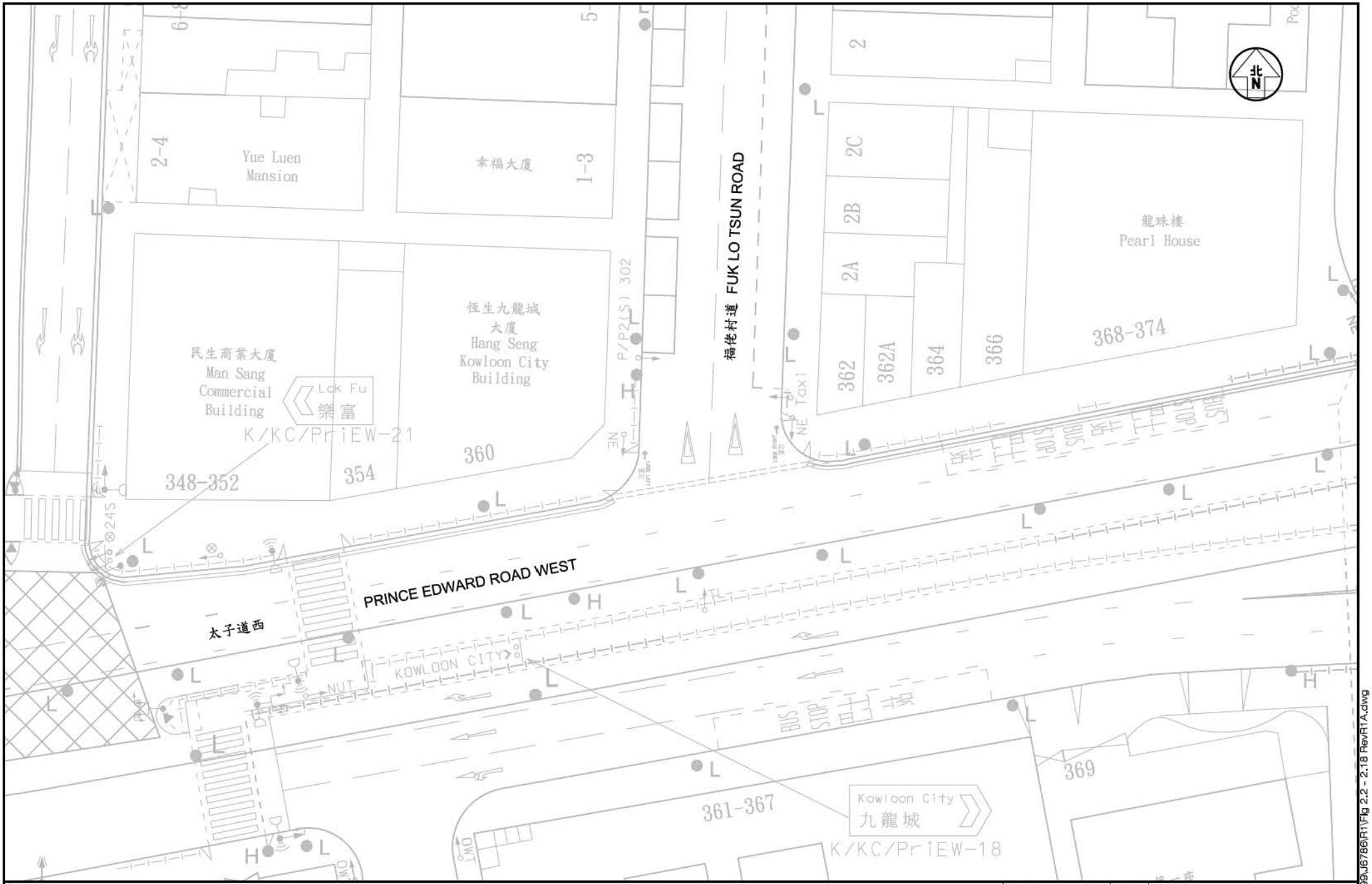

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(K) JUNCTION OF PRINCE EDWARD ROAD WEST / FUK LO TSUN ROAD

Figure No.	Revision
2.12	R1A

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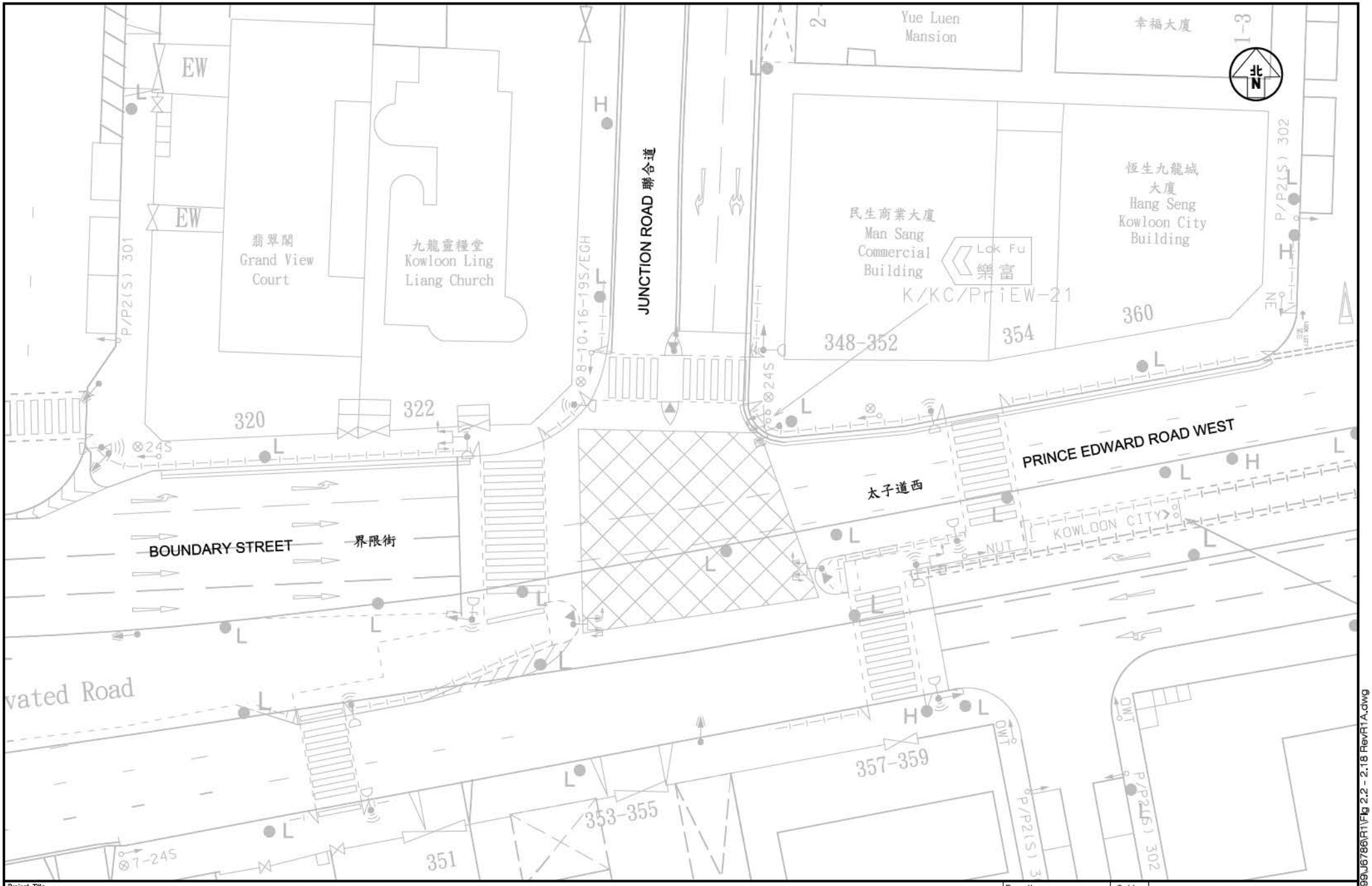

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 2.13	Revision R1A
Figure Title	(L) JUNCTION OF PRINCE EDWARD ROAD WEST / JUNCTION ROAD		Designed by C Y N / Drawn by C C L / Checked by	
			Scale in A3 1 : 300 / Date 13 FEB 2019	

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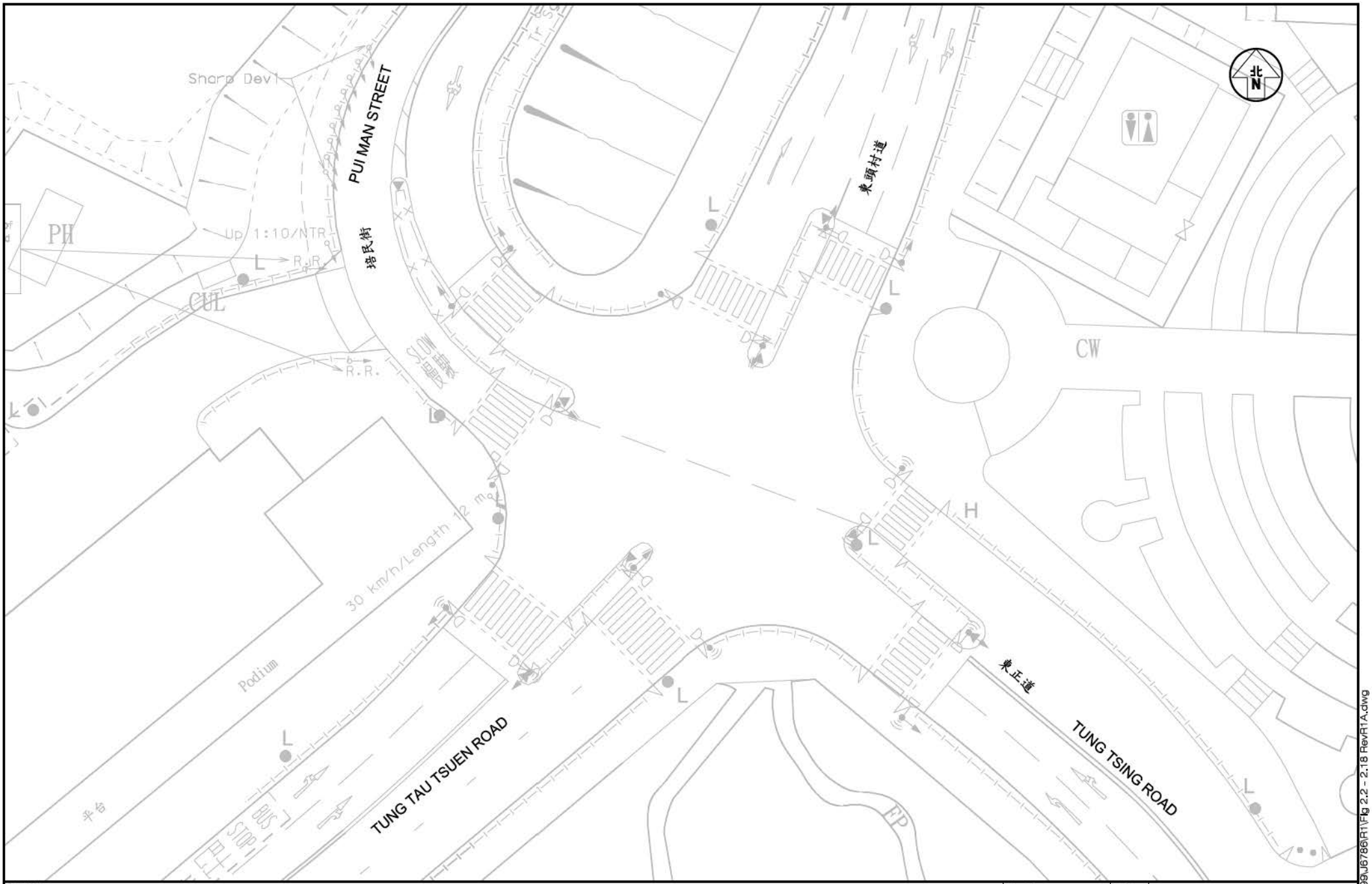

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(M) JUNCTION OF TUNG TAU TSUEN ROAD / TUNG TSING ROAD / PUI MAN STREET

Figure No.	Revision
2.14	R1A

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Scale in A3	Date
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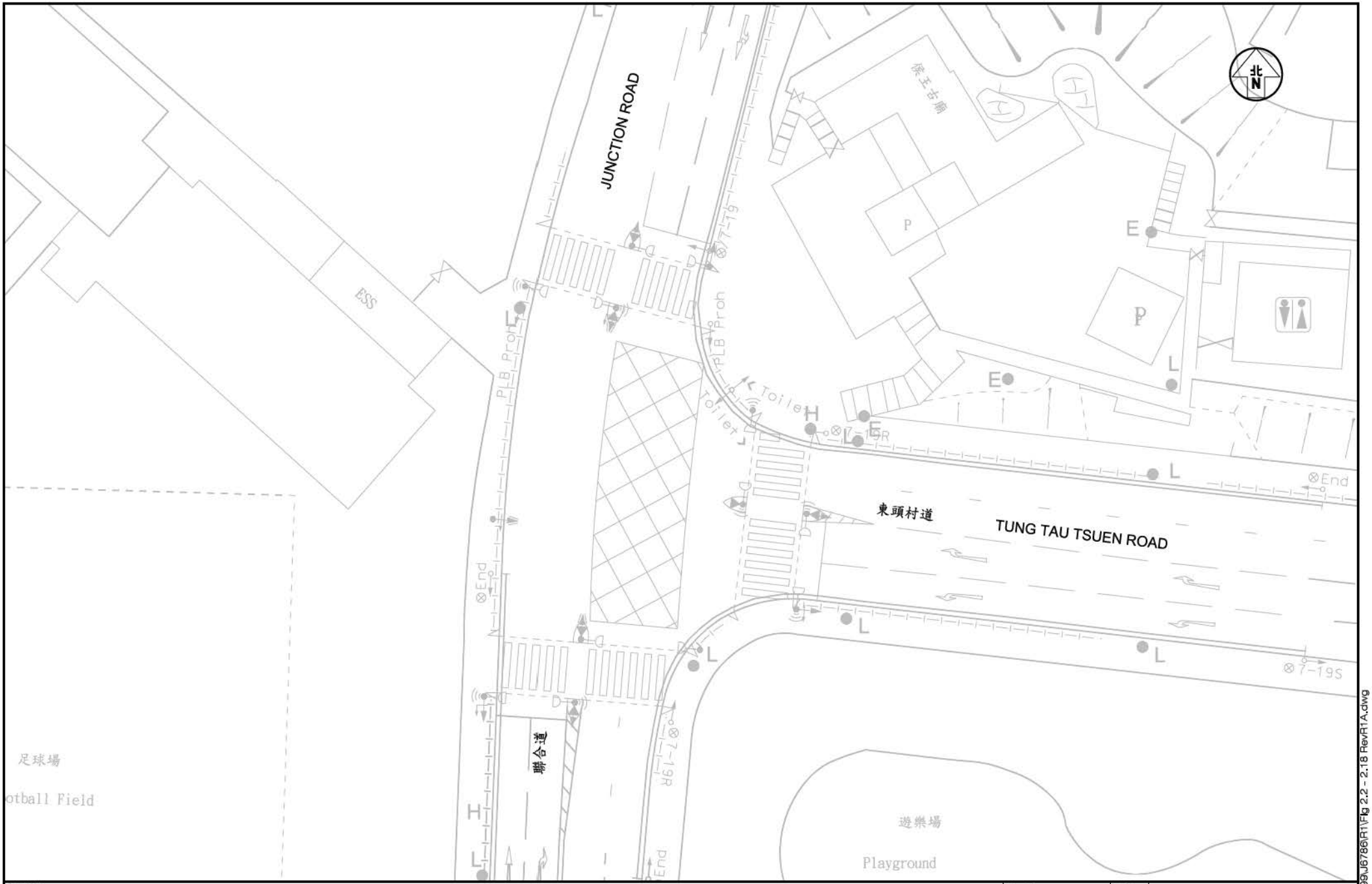
JUNCTION ROAD
TUNG TAU TSUEN ROAD
東頭村道
聯合道
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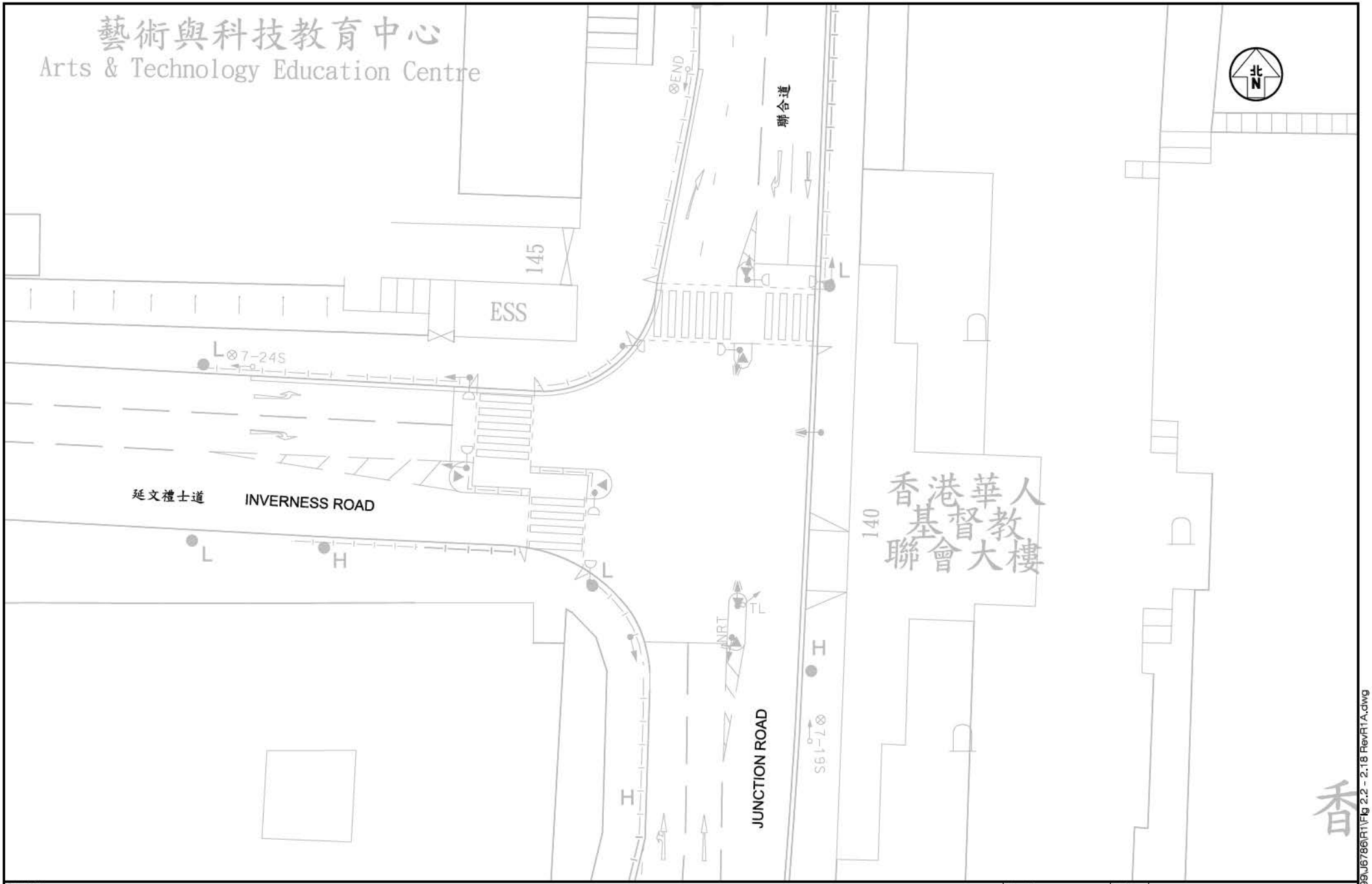

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 2.16 Revision R1A
Figure Title	(0) JUNCTION OF JUNCTION ROAD / INVERNESS ROAD		Designed by C Y N · Drawn by C C L · Checked by · Scale in A3 1 : 300 · Date 13 FEB 2019

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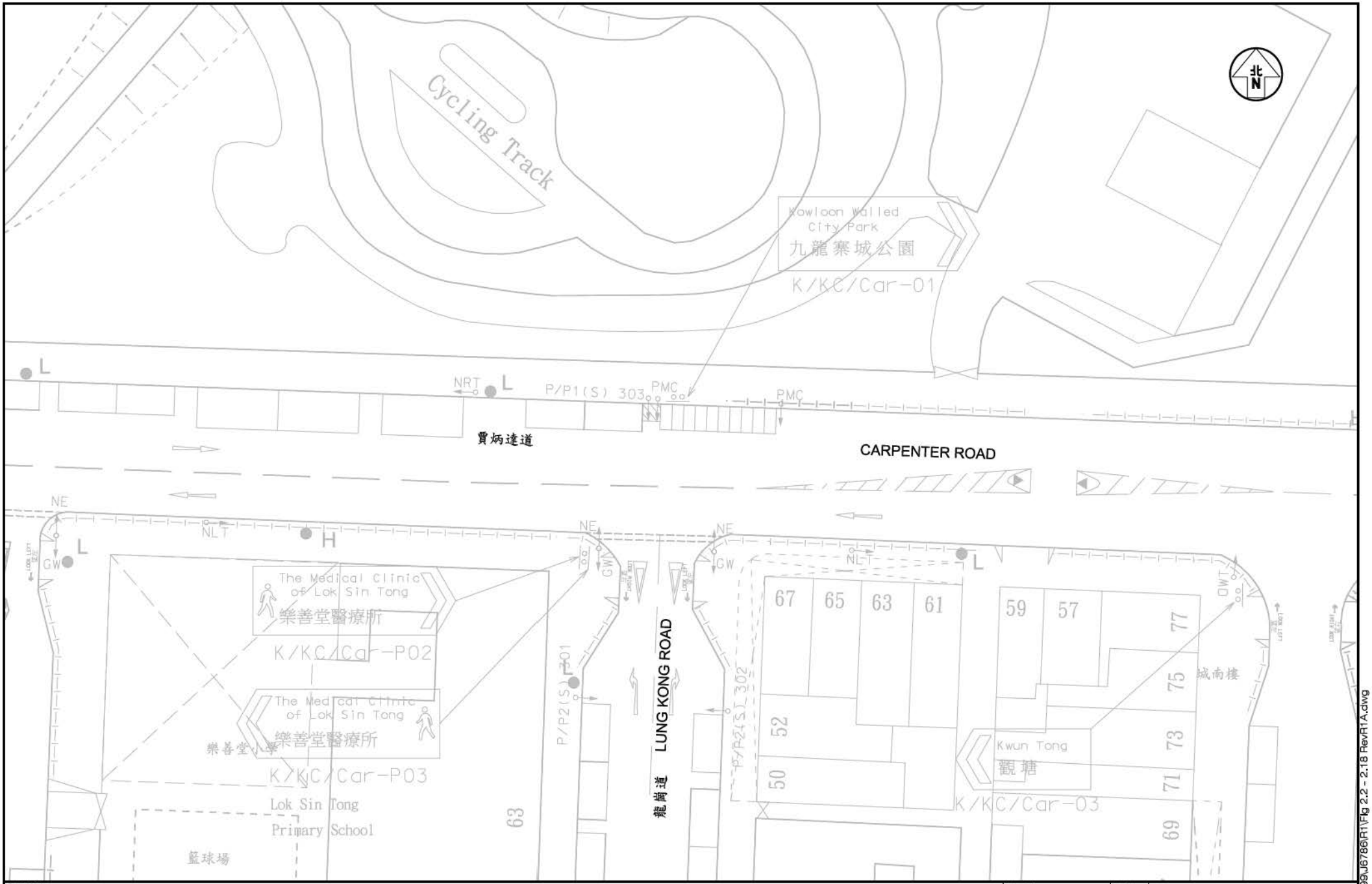

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

(P) JUNCTION OF LUNG KONG ROAD / CARPENTER ROAD

Figure No.	Revision
2.17	R1A

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C Y N	C C L	

Scale in A3	Date
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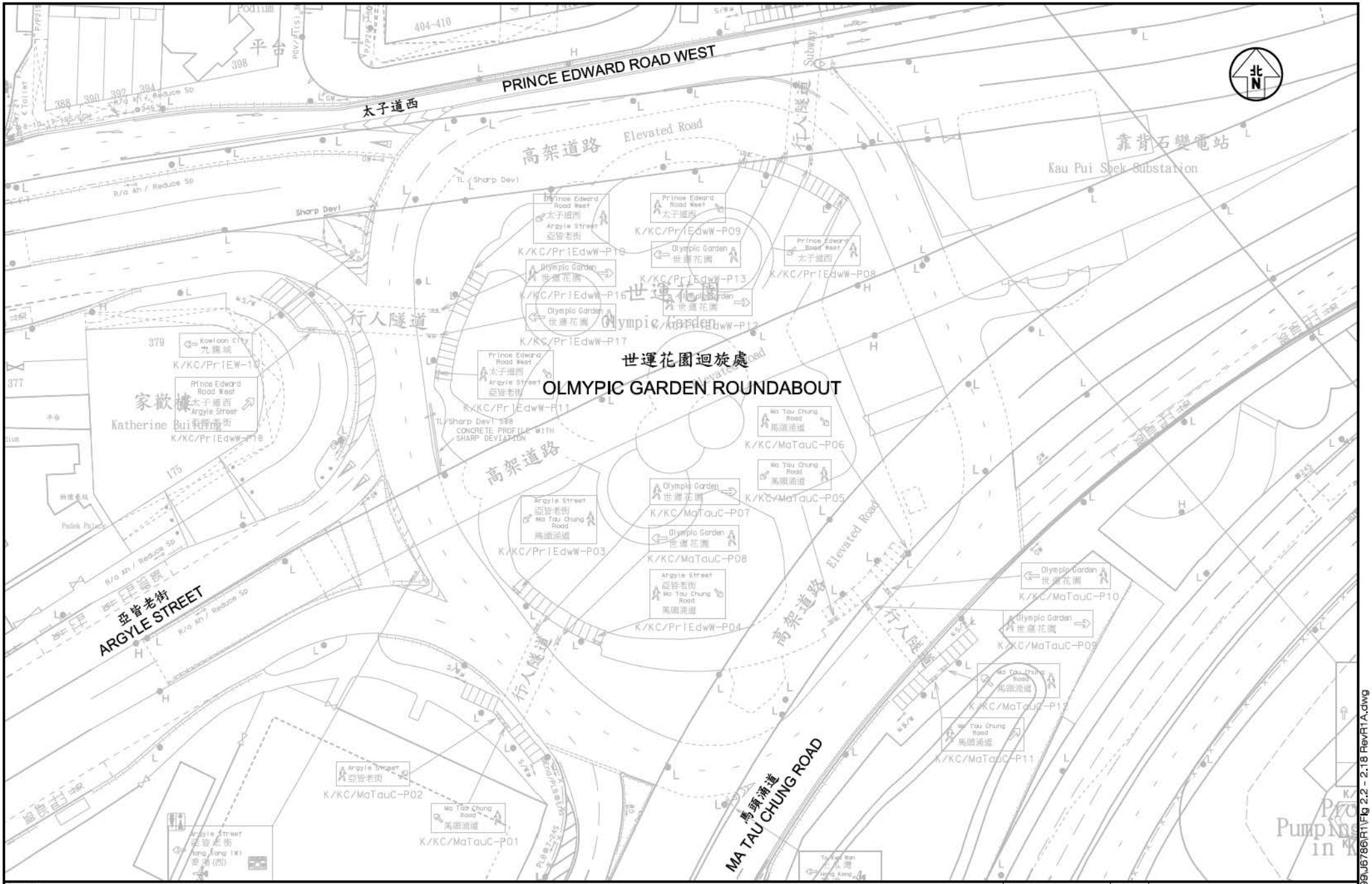

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 2.18 Revision R1A
Figure Title	(Q) OLYMPIC GARDEN ROUNDABOUT		Designed by C Y N; Drawn by C C L; Checked by
			Scale in A3 1 : 600; Date 13 FEB 2019

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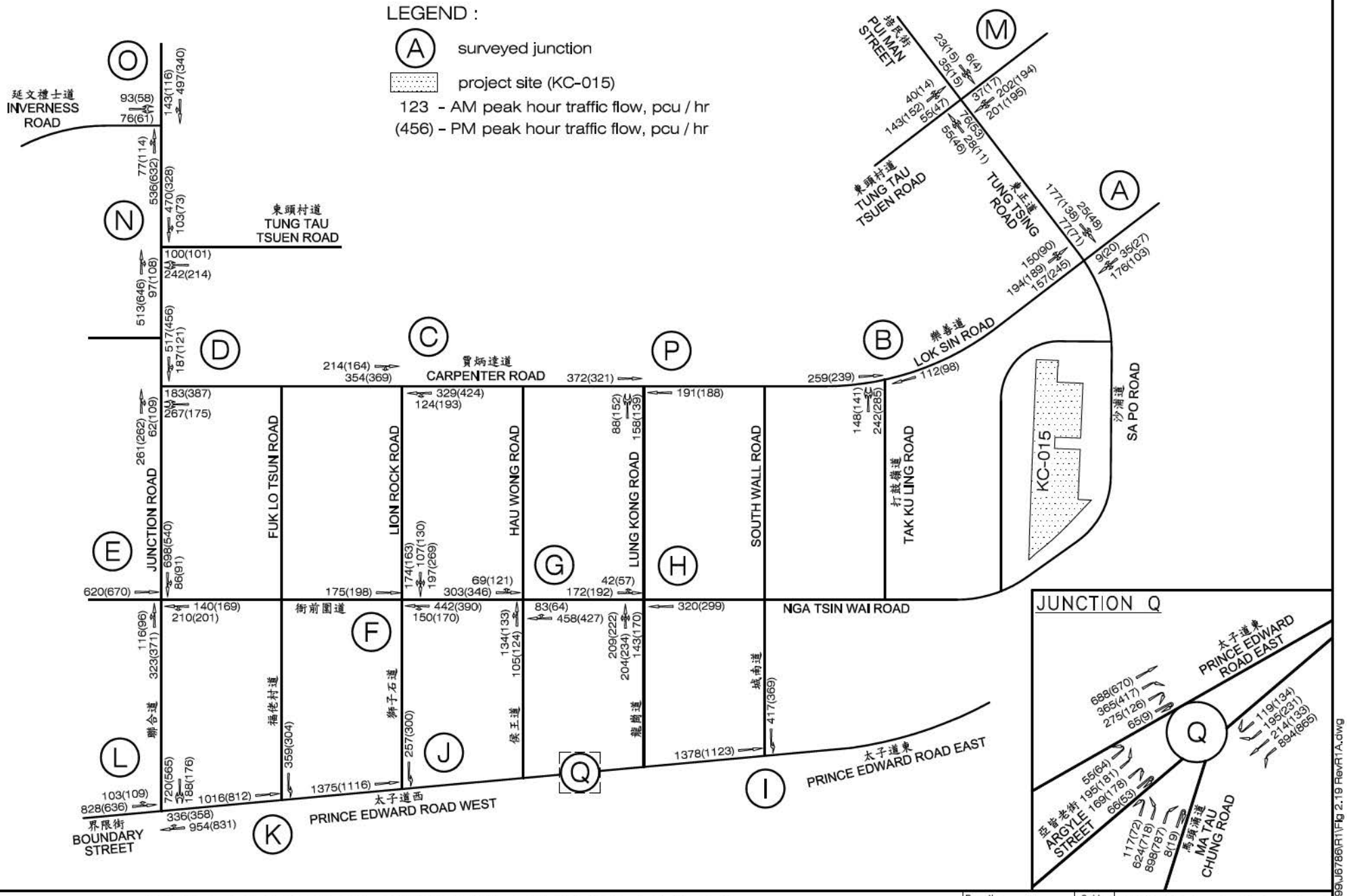

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 2.19 Revision R1A
Figure Title	EXISTING WEEKDAY PEAK HOUR TRAFFIC FLOWS	Designed by C Y N / Drawn by C C L / Checked by	Scale in A3 N.T.S. / Date 13 FEB 2019

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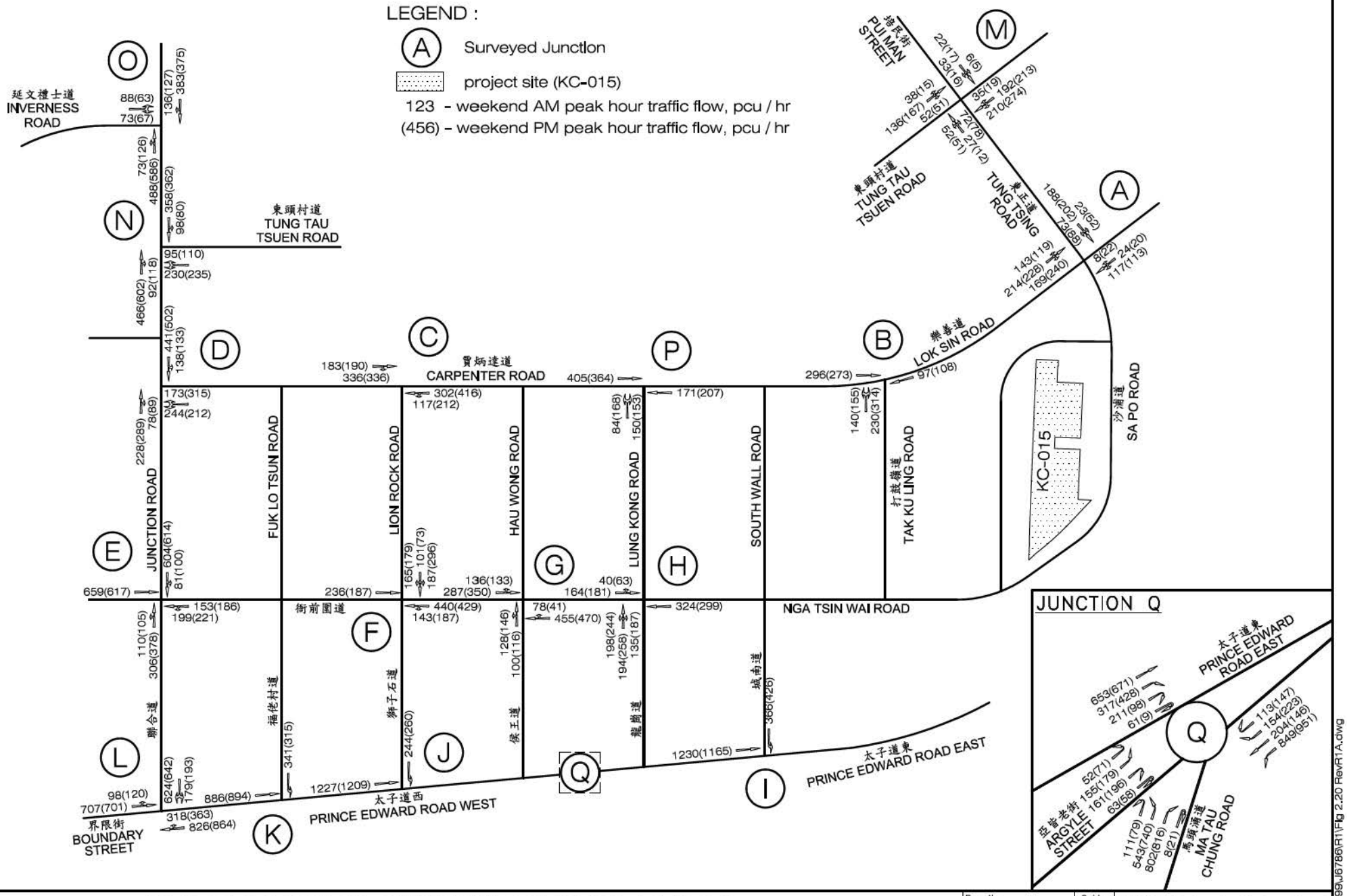

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 2.20 Revision R1A
Figure Title	EXISTING WEEKEND PEAK HOUR TRAFFIC FLOWS	Designed by C Y N / Drawn by C C L / Checked by	Scale in A3 N.T.S. / Date 13 FEB 2019

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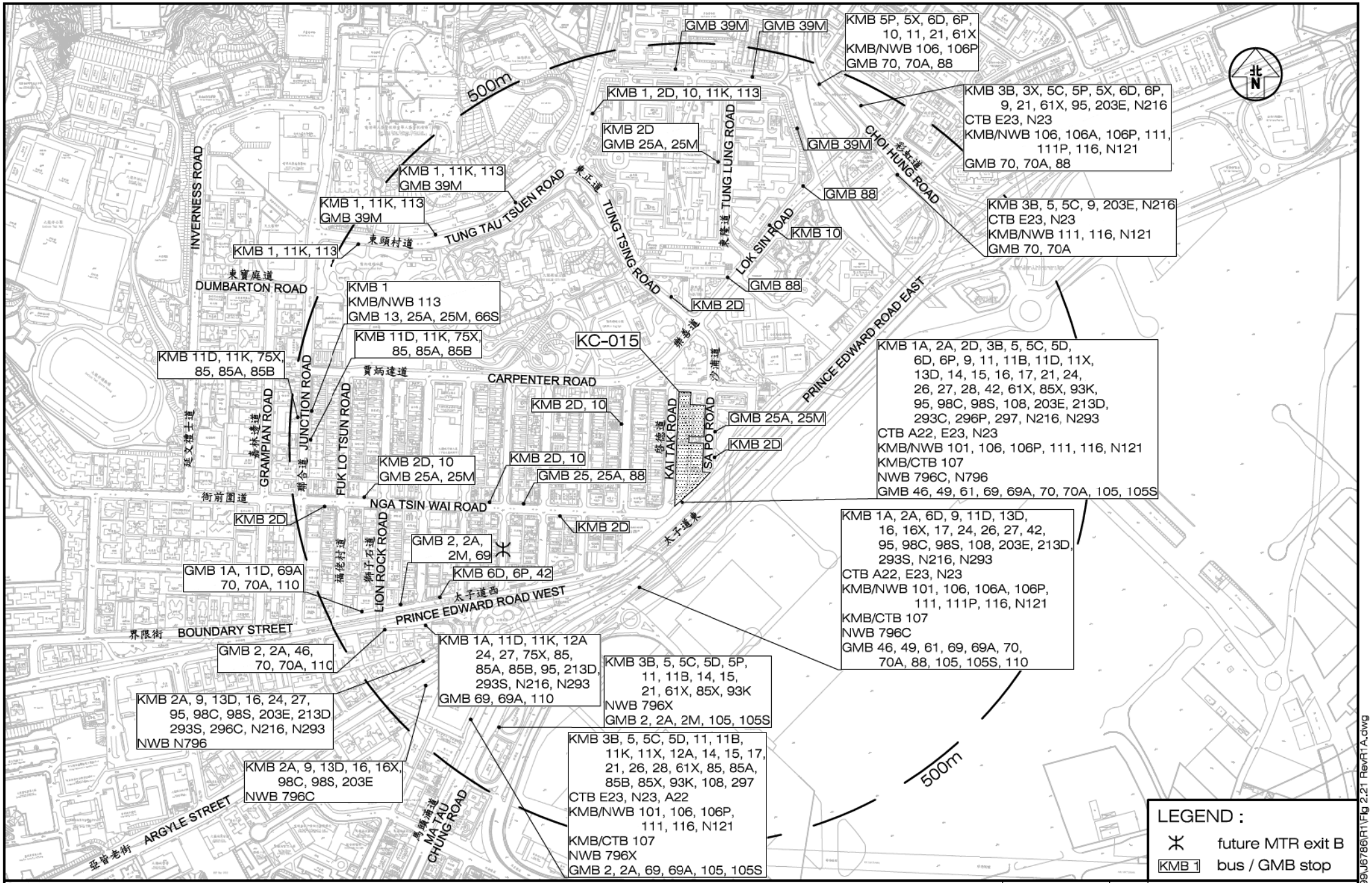

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

AVAILABILITY OF PUBLIC TRANSPORT SERVICES IN THE VICINITY OF KC-015

Figure No.	Revision
2.21	R1A

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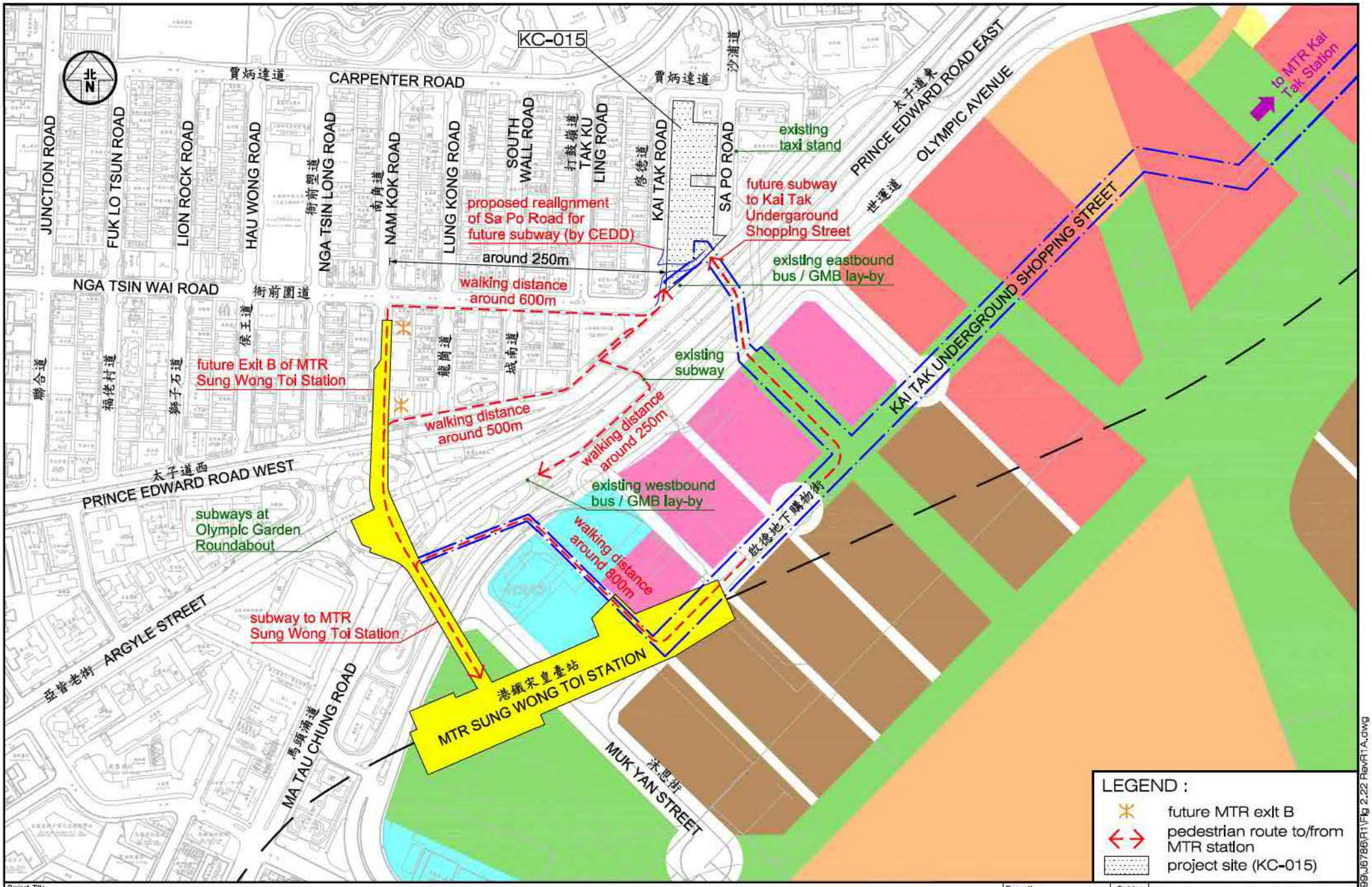

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

FUTURE PLANNED PEDESTRIAN NETWORK IN THE VICINITY OF KC-015

Figure No.	Revision
2.22	R1A

Designed by	Drawn by	Checked by
C Y N	C C L	

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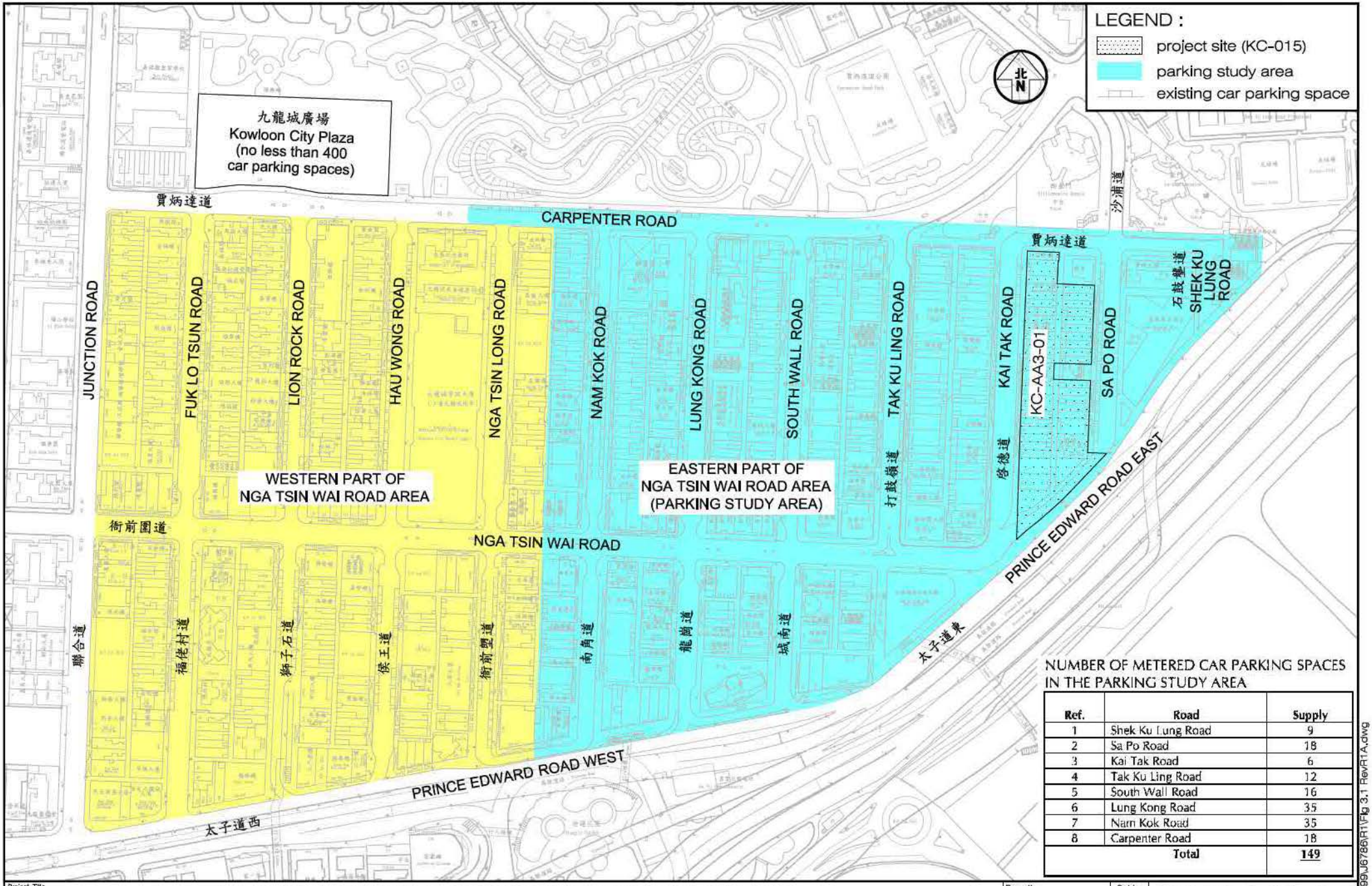

NUMBER OF METERED CAR PARKING SPACES IN THE PARKING STUDY AREA

Ref.	Road	Supply
1	Shek Ku Lung Road	9
2	Sa Po Road	18
3	Kai Tak Road	6
4	Tak Ku Ling Road	12
5	South Wall Road	16
6	Lung Kong Road	35
7	Nam Kok Road	35
8	Carpenter Road	18
	Total	**149**

Project Title: URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title: EXTENT OF PARKING DEMAND STUDY

Figure No. 3.1 | Revision R1A

Designed by C Y N | Drawn by C C L | Checked by

Scale in A3 1 : 2,000 | Date 13 FEB 2019

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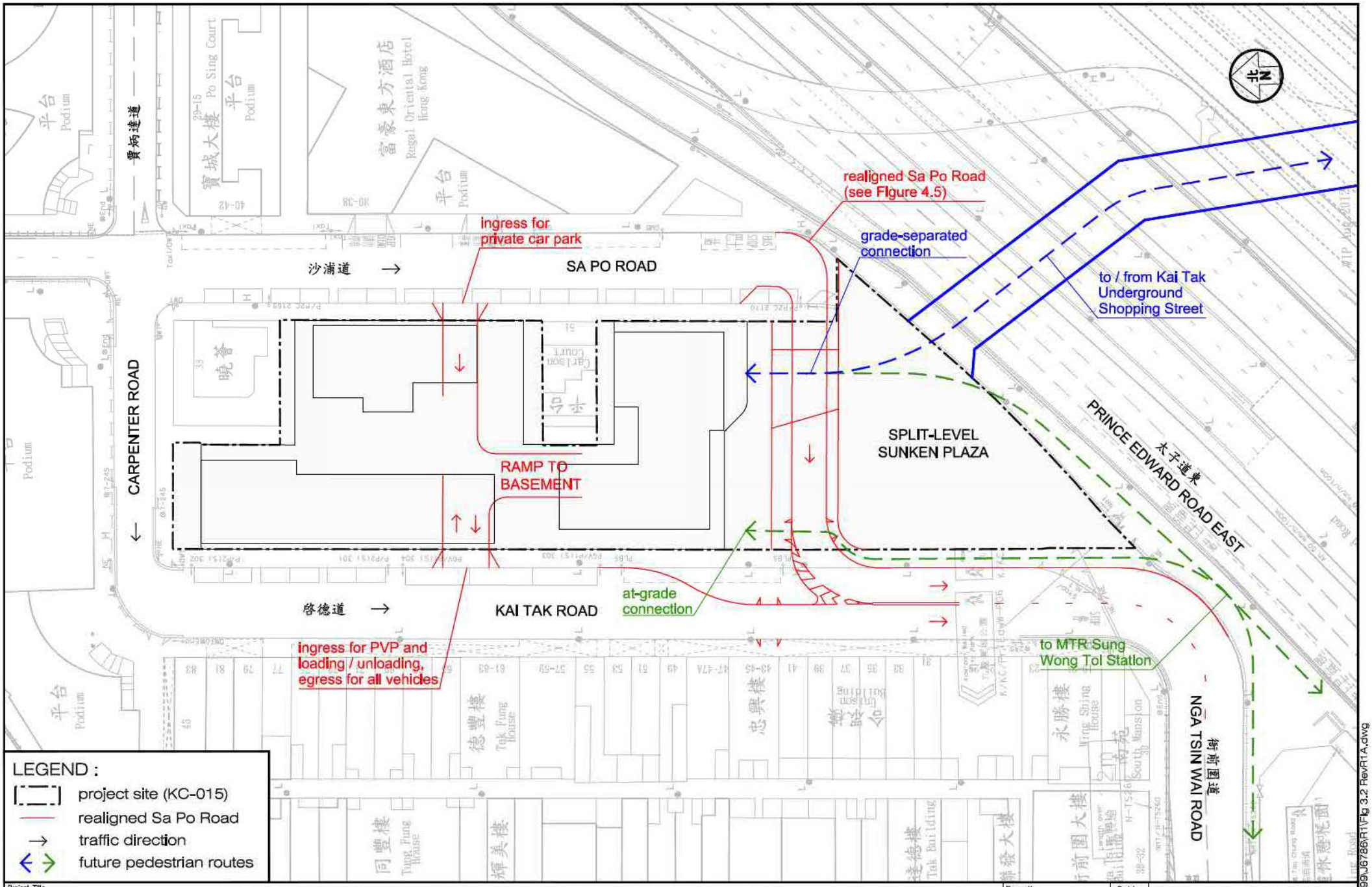

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure No. 3.2

Revision R1A

Figure Title

PROPOSED INGRESS AND EGRESS ARRANGEMENT FOR KC-015

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Scale in A3: 1 : 600

Date: 13 FEB 2019

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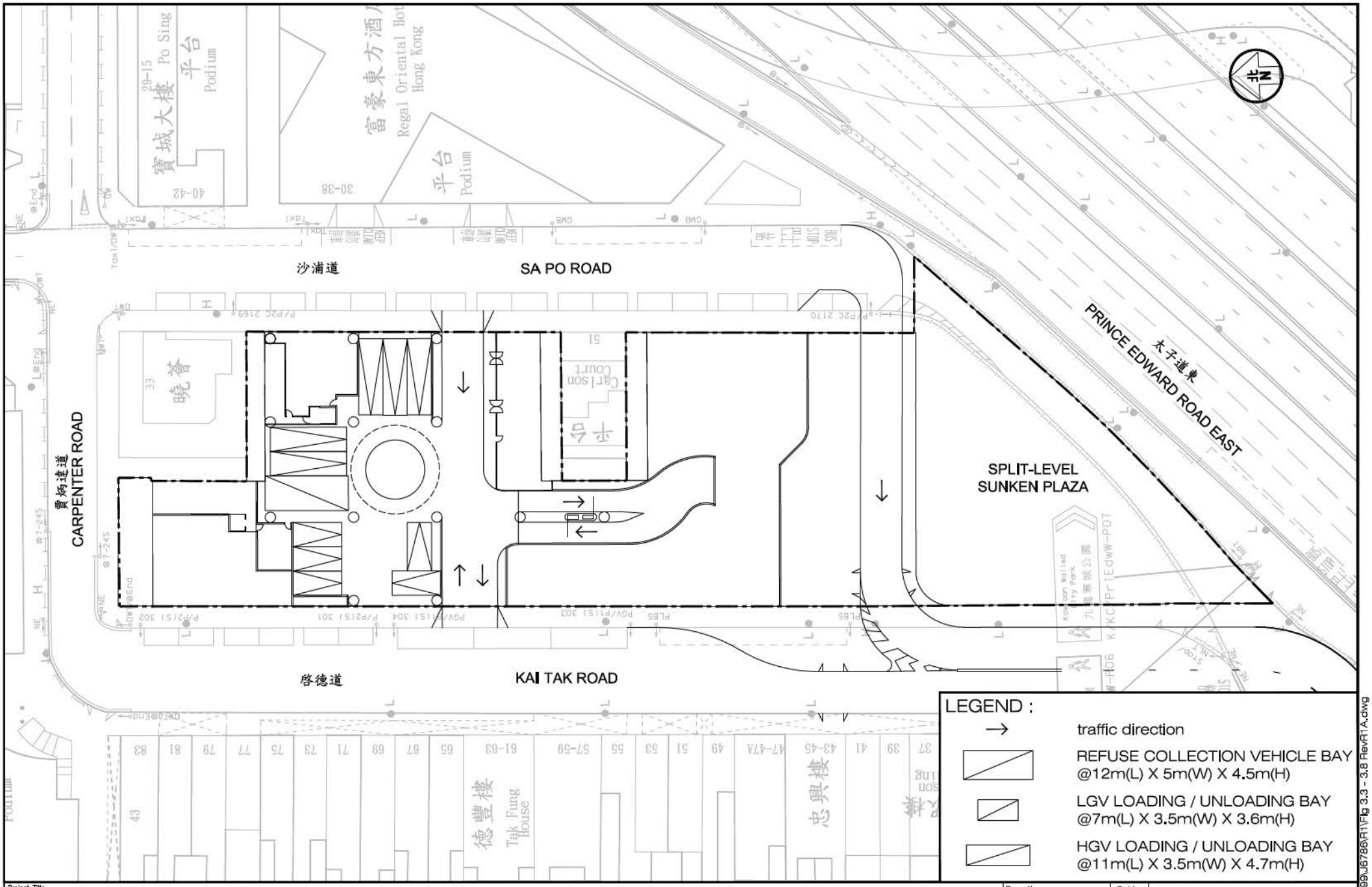

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – GROUND FLOOR

Figure No.	Revision
3.3	R1A

Designed by	Drawn by	Checked by
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Scale in A3	Date
1 : 500	13 FEB 2019

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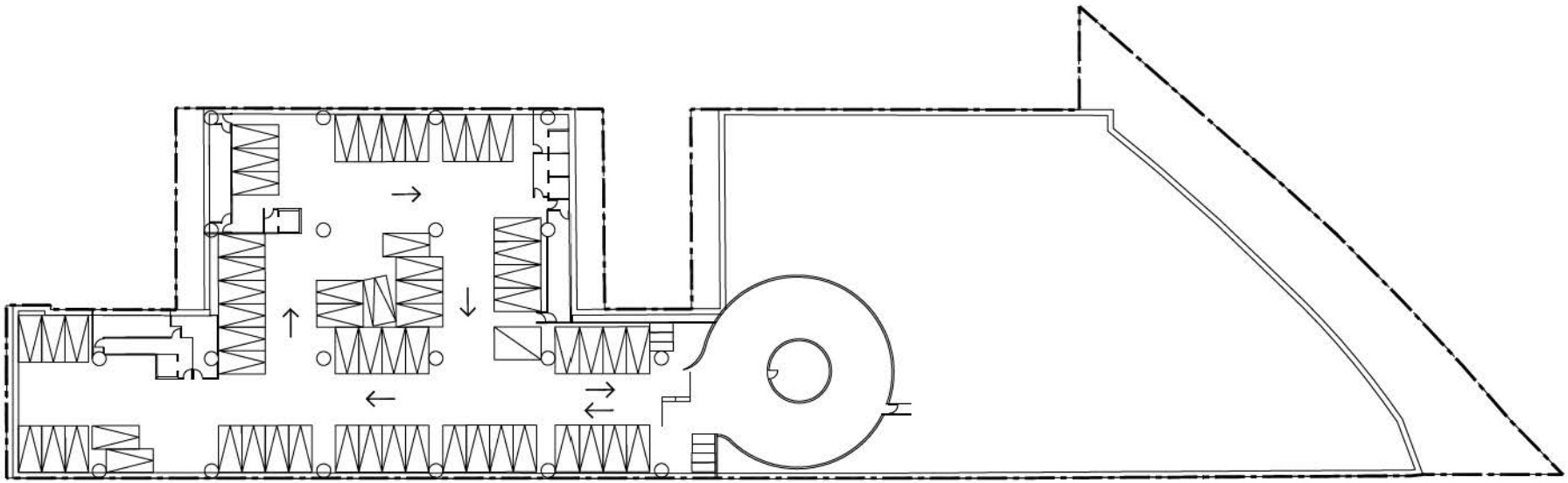

LEGEND :

- traffic direction
- MOTORCYCLE PARKING SPACE @2.4m(L) X 1m(W) X 2.4m(H)
- CAR PARKING SPACE @5m(L) X 2.5m(W) X 2.4m(H)
- CAR PARKING SPACE FOR PERSONS WITH DISABILITIES @5m(L) X 3.5m(W) X 2.4m(H)

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – BASEMENT 1 FLOOR

Figure No.	Revision
3.4	R1A

Designed by	Drawn by	Checked by
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Scale in A3	Date
1 : 500	13 FEB 2019

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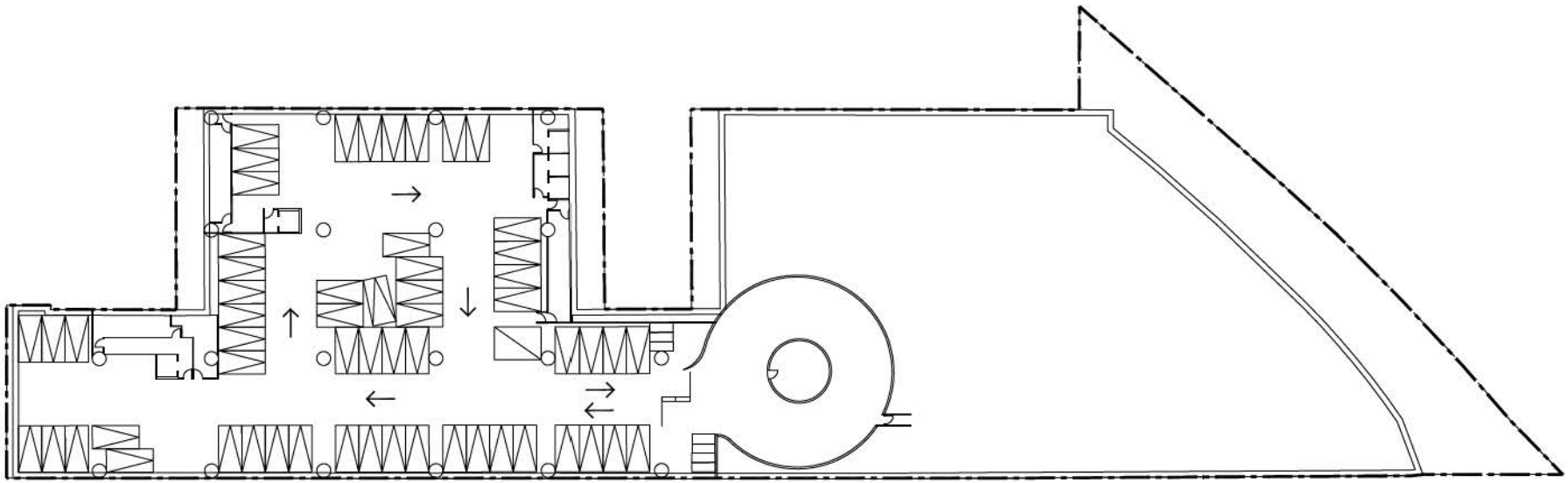

LEGEND :

- traffic direction
- MOTORCYCLE PARKING SPACE @2.4m(L) X 1m(W) X 2.4m(H)
- CAR PARKING SPACE @5m(L) X 2.5m(W) X 2.4m(H)
- CAR PARKING SPACE FOR PERSONS WITH DISABILITIES @5m(L) X 3.5m(W) X 2.4m(H)

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – BASEMENT 2 FLOOR

Figure No.	Revision
3.5	R1A

Designed by	Drawn by	Checked by
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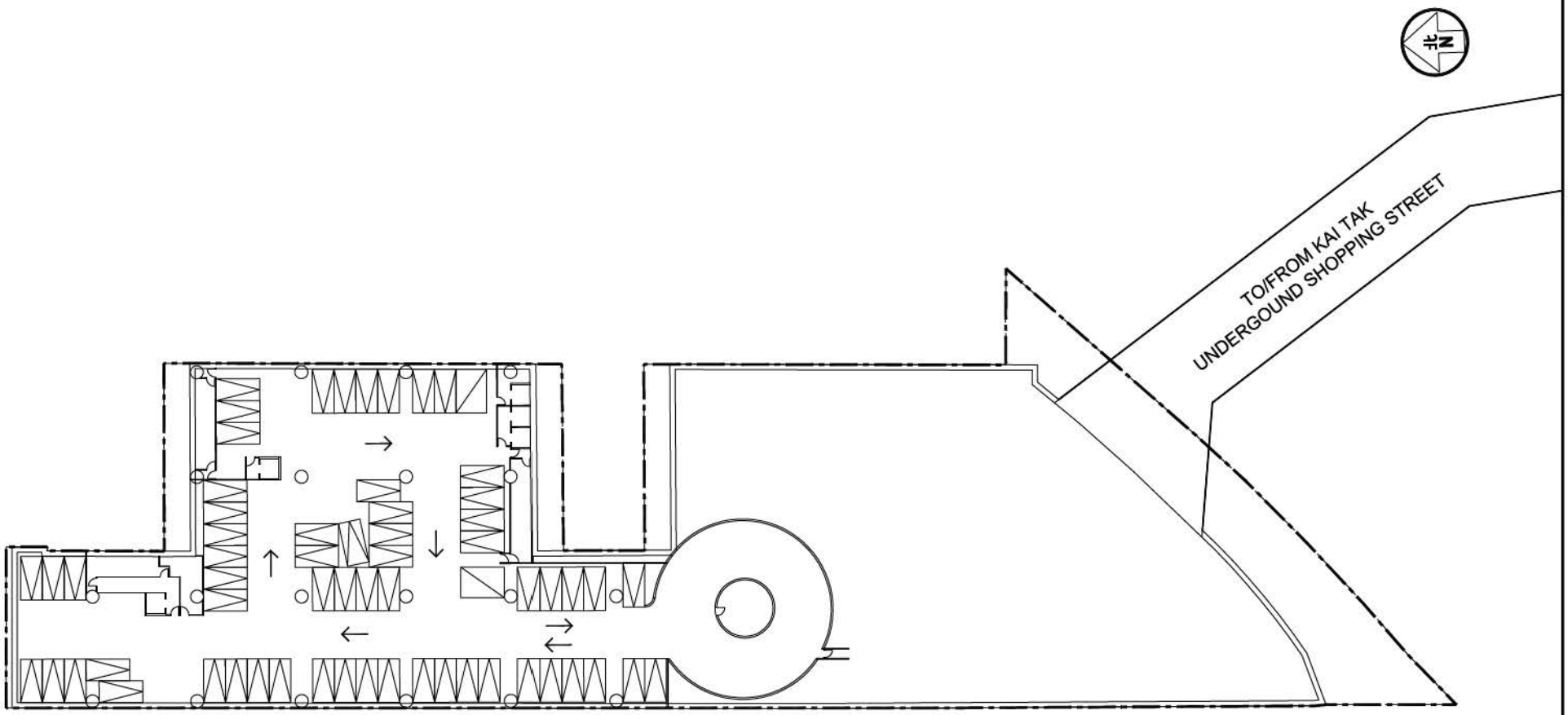

LEGEND :

- traffic direction
- MOTORCYCLE PARKING SPACE @2.4m(L) X 1m(W) X 2.4m(H)
- CAR PARKING SPACE @5m(L) X 2.5m(W) X 2.4m(H)
- CAR PARKING SPACE FOR PERSONS WITH DISABILITIES @5m(L) X 3.5m(W) X 2.4m(H)

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – BASEMENT 3 FLOOR

Figure No.	Revision
3.6	R1A

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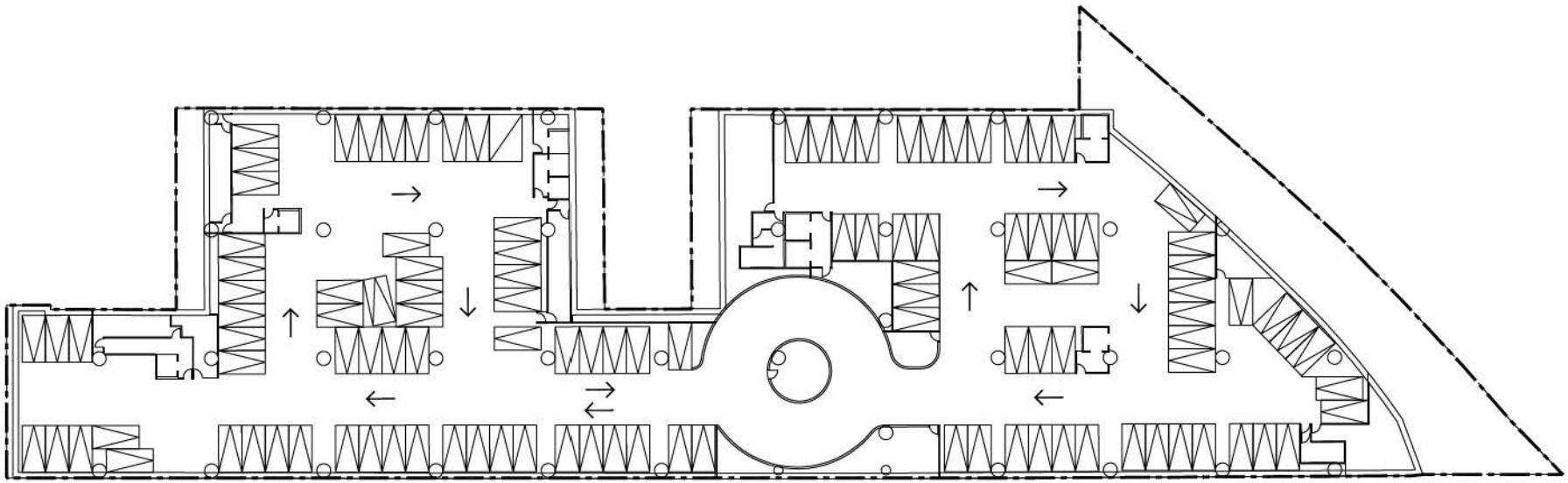

LEGEND :

- traffic direction
- MOTORCYCLE PARKING SPACE @2.4m(L) X 1m(W) X 2.4m(H)
- CAR PARKING SPACE @5m(L) X 2.5m(W) X 2.4m(H)
- CAR PARKING SPACE FOR PERSONS WITH DISABILITIES @5m(L) X 3.5m(W) X 2.4m(H)

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – BASEMENT 4 FLOOR

Figure No.	Revision
3.7	R1A

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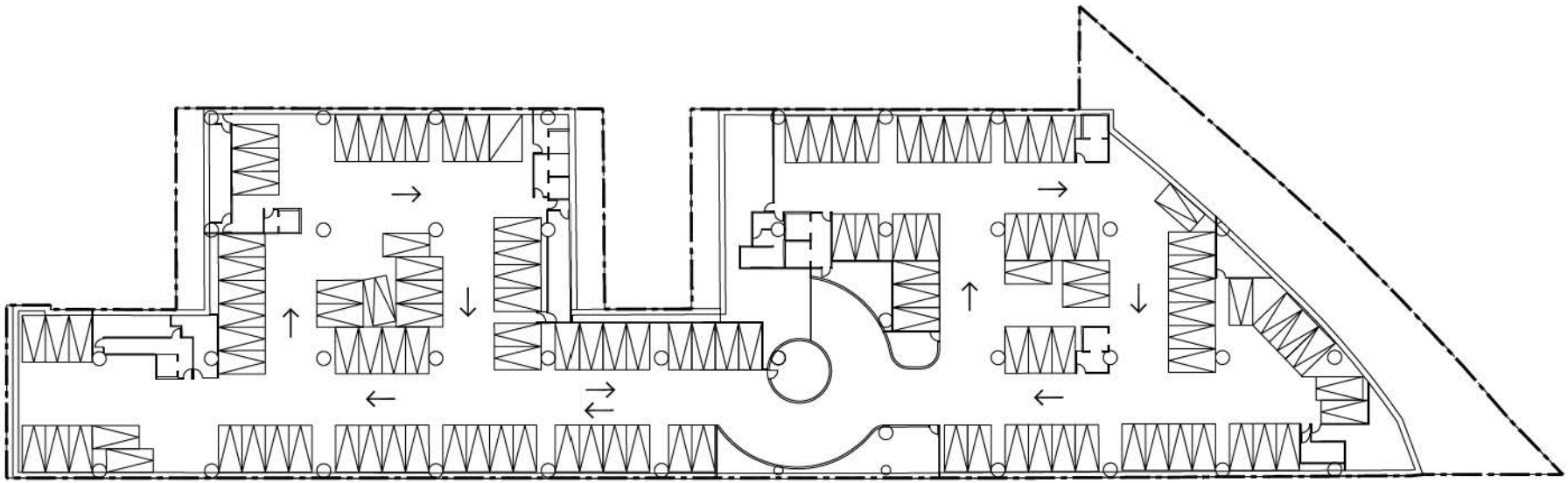

LEGEND :

- traffic direction
- MOTORCYCLE PARKING SPACE @2.4m(L) X 1m(W) X 2.4m(H)
- CAR PARKING SPACE @5m(L) X 2.5m(W) X 2.4m(H)
- CAR PARKING SPACE FOR PERSONS WITH DISABILITIES @5m(L) X 3.5m(W) X 2.4m(H)

Project Title

URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD

J6786

Figure Title

NOTIONAL LAYOUT PLAN – BASEMENT 5 FLOOR

Figure No.	Revision
3.8	R1A

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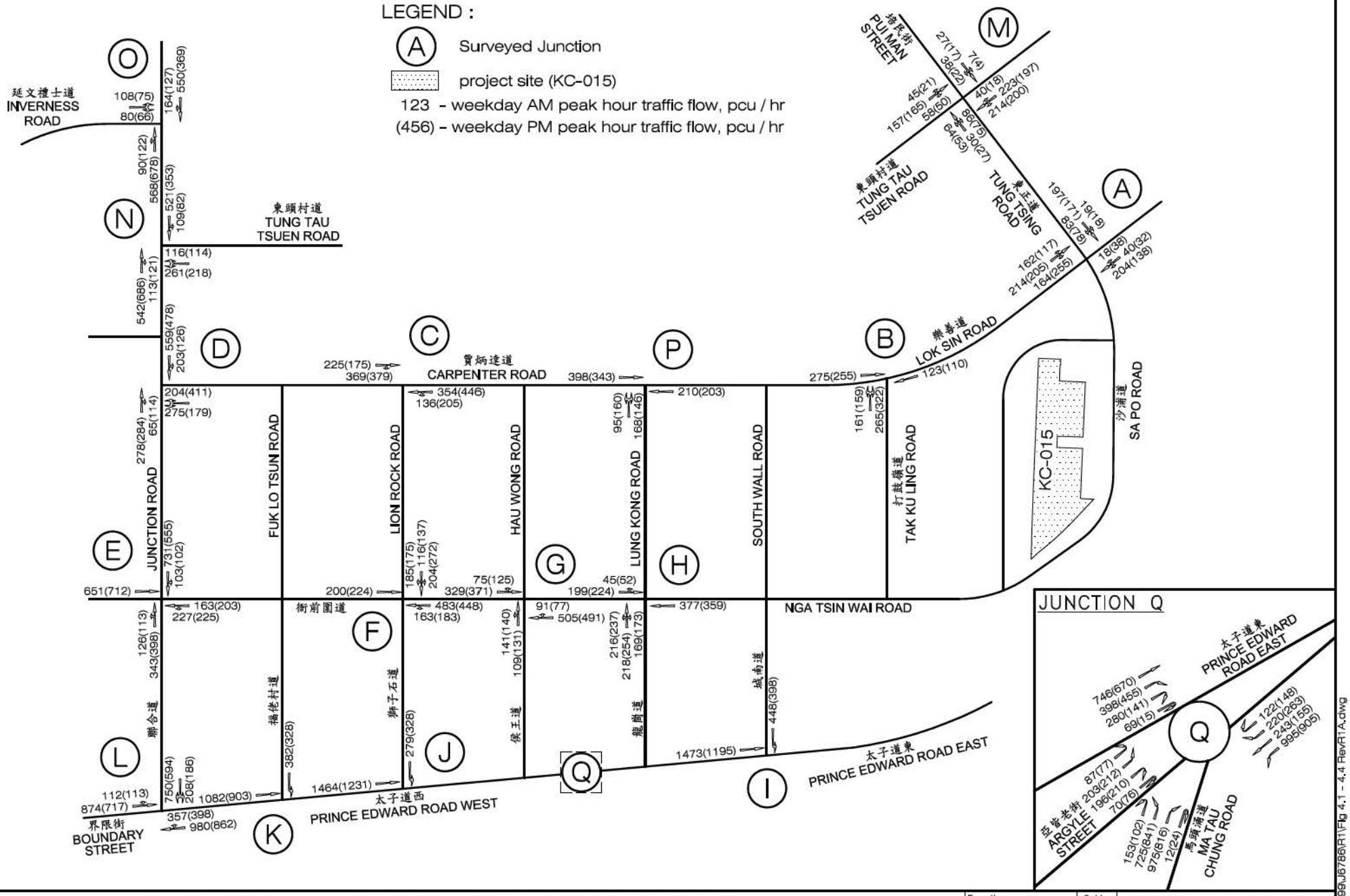

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 4.1 Revision R1A
Figure Title	2033 WEEKDAY PEAK HOUR TRAFFIC FLOWS WITHOUT KC-015		Designed by C Y N; Drawn by C C L; Checked by; Scale in A3 N.T.S.; Date 13 FEB 2019

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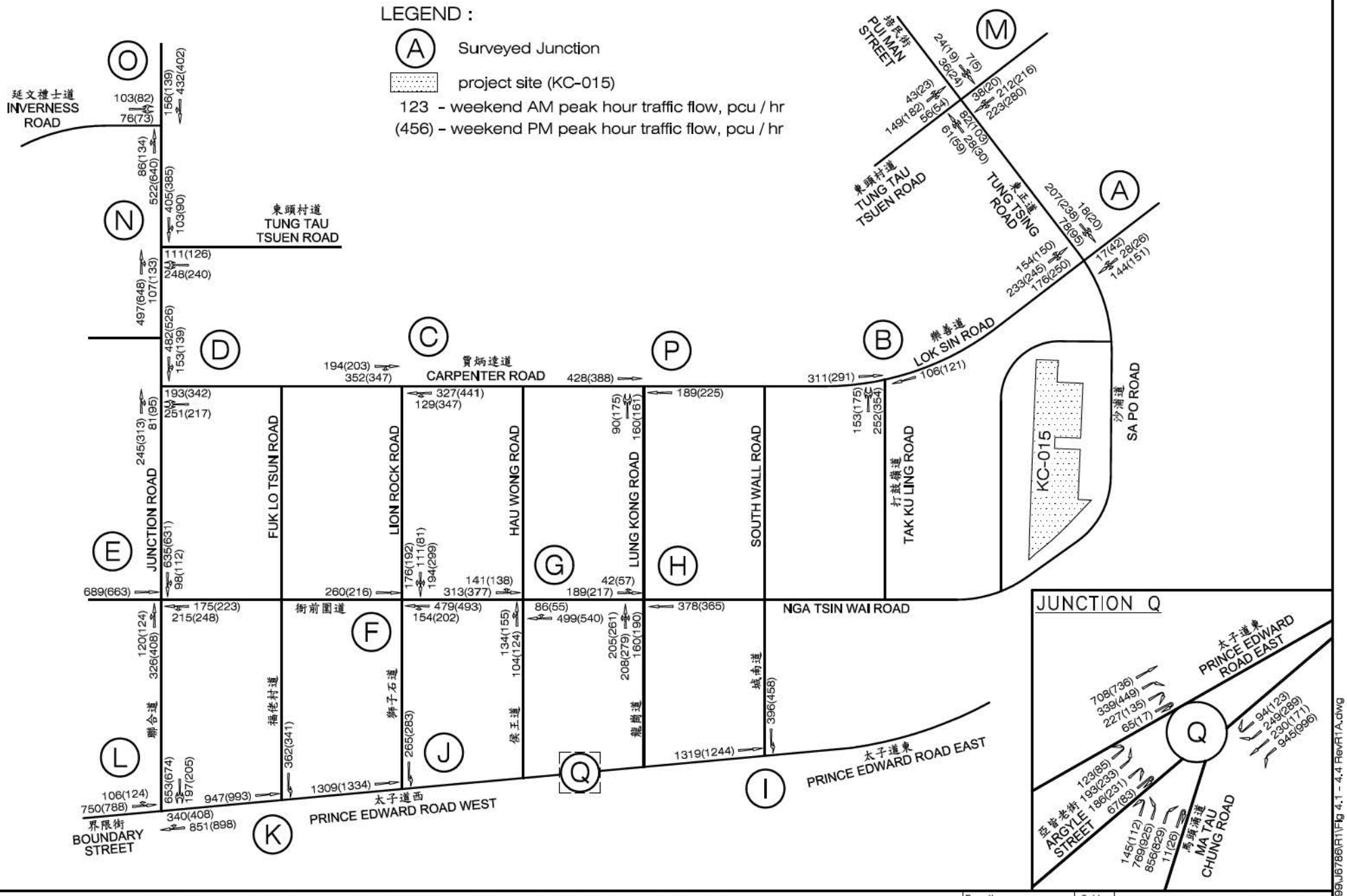

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 4.2 / Revision R1A
Figure Title	2033 WEEKEND PEAK HOUR TRAFFIC FLOWS WITHOUT KC-015	Designed by C Y N / Drawn by C C L / Checked by	Scale in A3 N.T.S. / Date 13 FEB 2019

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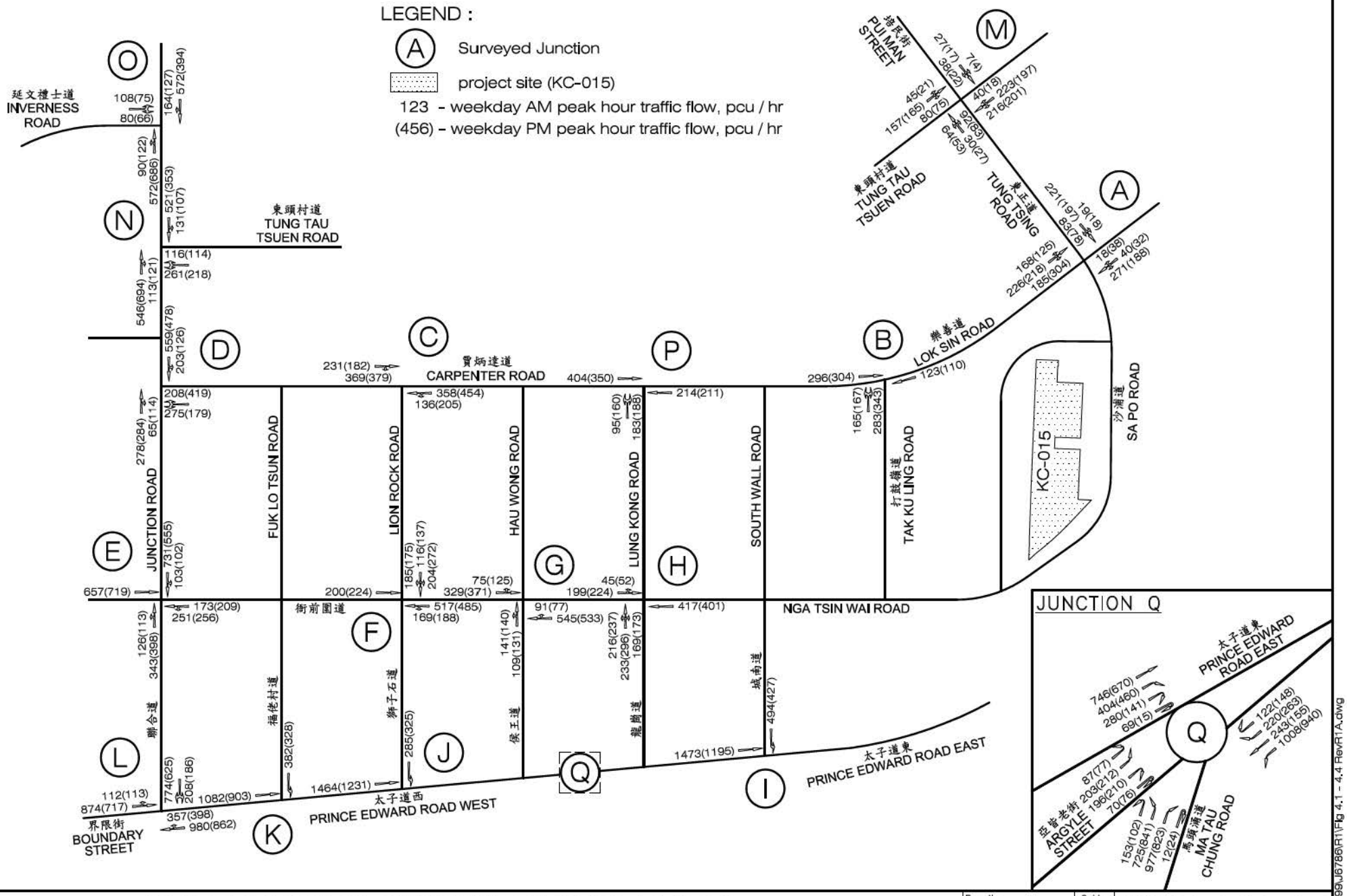

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 4.3	Revision R1A
Figure Title	2033 WEEKDAY PEAK HOUR TRAFFIC FLOWS WITH KC-015		Designed by C Y N / Drawn by C C L / Checked by	Scale in A3 N.T.S. / Date 13 FEB 2019

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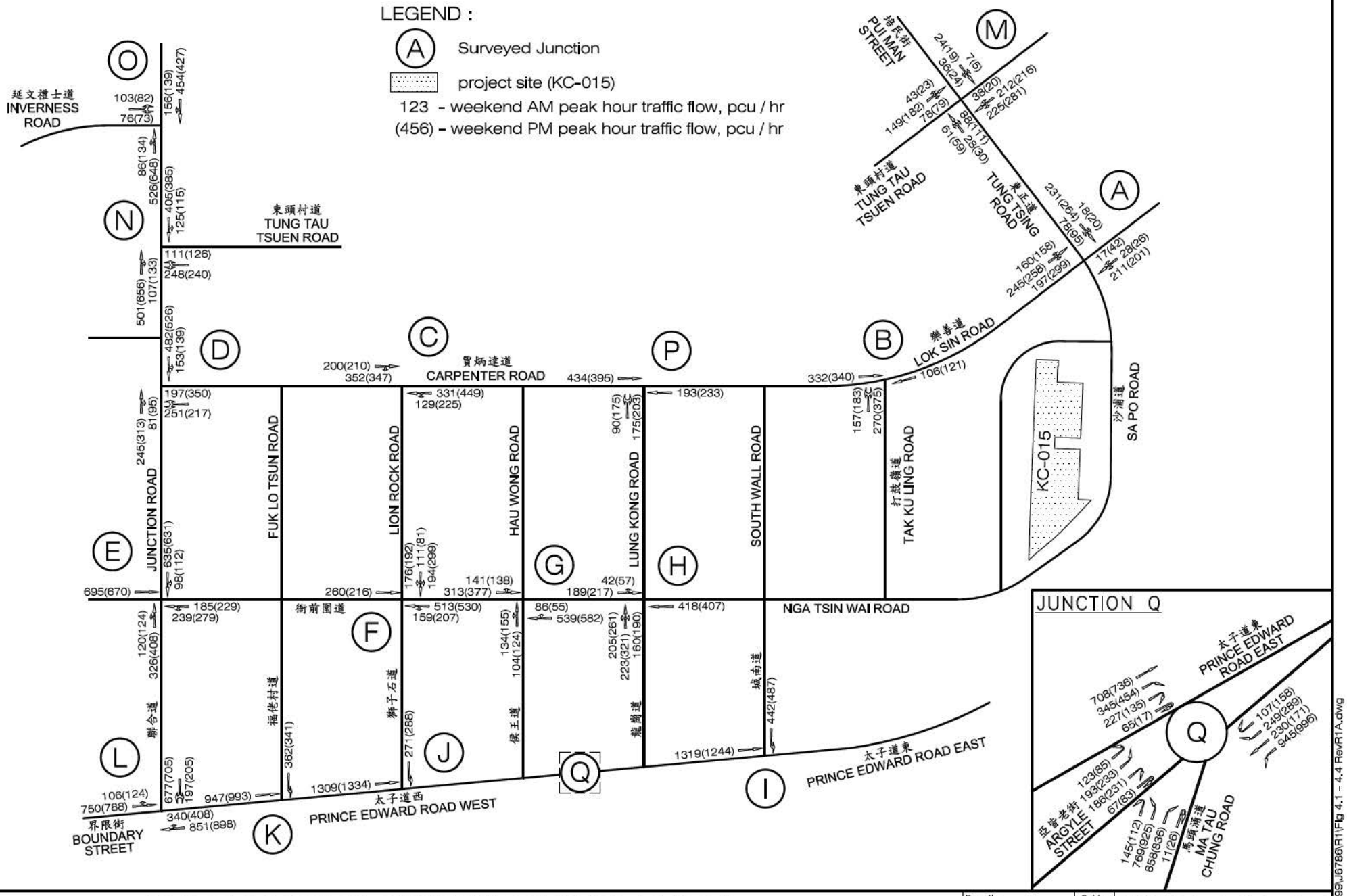

Project Title	URA KC-015 IN KOWLOON CITY : REDEVELOPMENT OF KAI TAK ROAD / SA PO ROAD	J6786	Figure No. 4.4 Revision R1A
Figure Title	2033 WEEKEND PEAK HOUR TRAFFIC FLOWS WITH KC-015		Designed by C Y N; Drawn by C C L; Checked by; Scale in A3 N.T.S.; Date 13 FEB 2019

CKM Asia Limited
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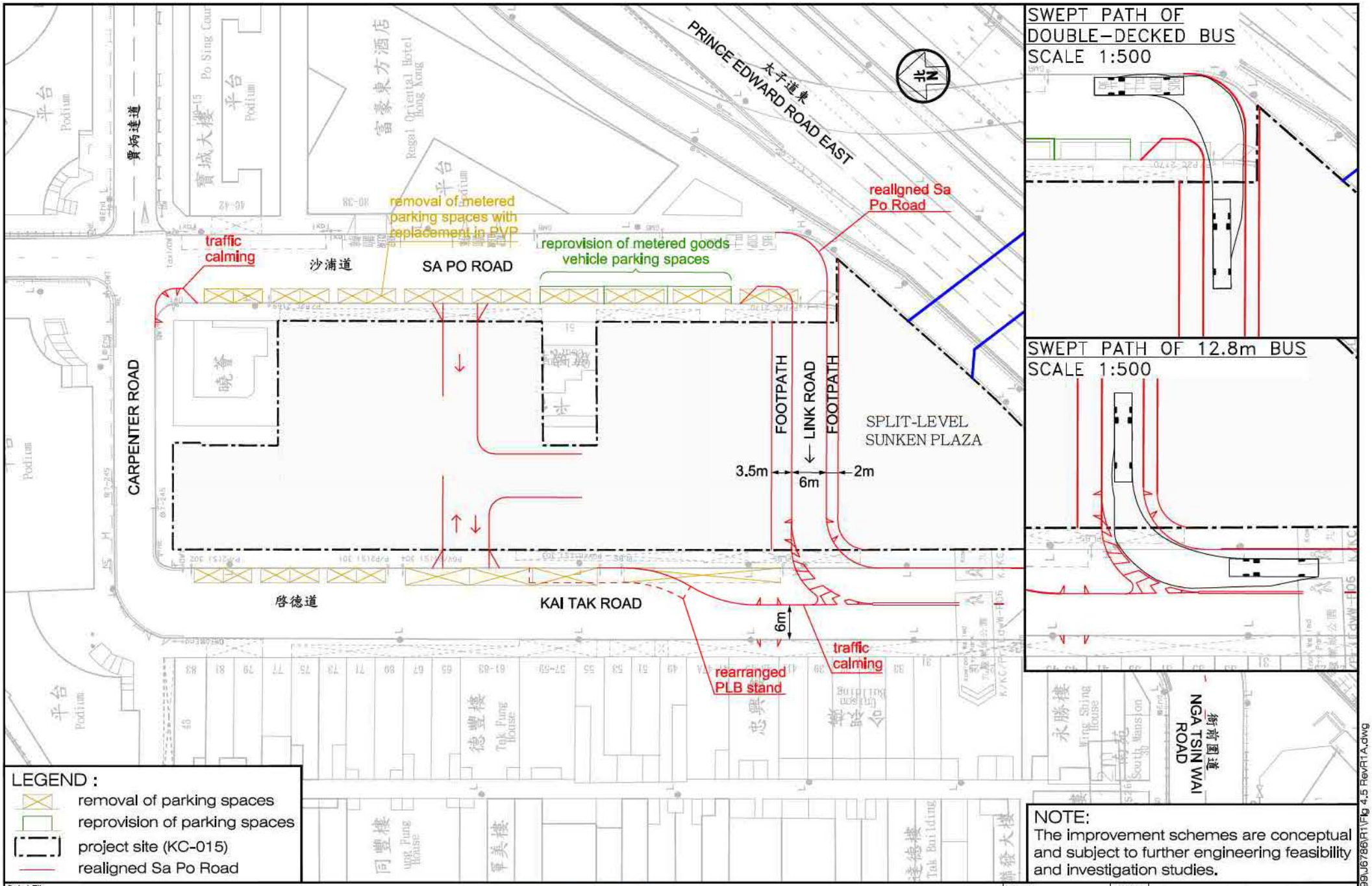
T:\JOB\J6750-J6799\J6786\R1\Fig 4.1 - 4.4 RevR1A.dwg



Project Title

TRAFFIC STUDY FOR KC-015

J6786

Figure Title

SCHEMATIC REALIGNMENT OF SA PO ROAD (SCHEMES 1 AND 2)

Figure No.	Revision
4.5	R1A

Designed by	Drawn by	Checked by
C Y N	C C L	

Scale in A3	Date
1 : 600	13 FEB 2019

CKM Asia Limited
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Appendix A – Junction Capacity Analysis

Signal Junction Analysis

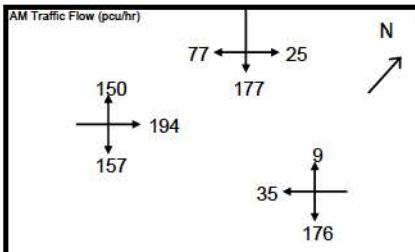
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.1-1

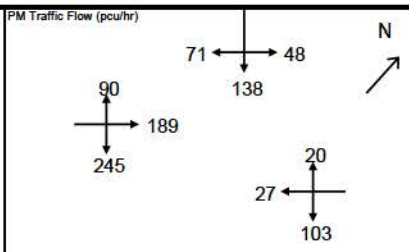
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		63	1829	240	0.131		35	1866	256	0.137	
	SA+RT	A2	1	3.00	25.0		60	1984	261	0.132	0.132	91	1949	268	0.138	0.138
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		18	1889	136	0.072	0.072	39	1861	124	0.067	
	SA+RT	B2	3	3.00	25.0		54	1991	143	0.072		53	1992	133	0.067	0.067
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		84	1918	220	0.115	0.115	82	1921	150	0.078	0.078
pedestrian phase		P1	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P2	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P3	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P4	4		min crossing time =		9	sec GM +		10	sec FGM =	19	sec			

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

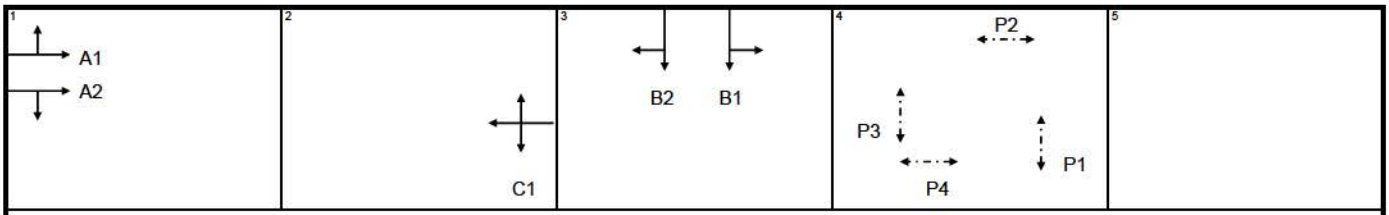


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.318		0.282	
L (s)	40		40	
C (s)	100		110	
practical y	0.540		0.573	
R.C. (%)	70%		103%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

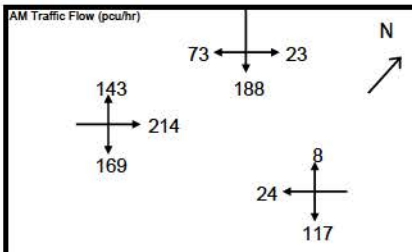
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road Job Number: J6786

Scenario: existing condition (weekend) R1A / P.1-2

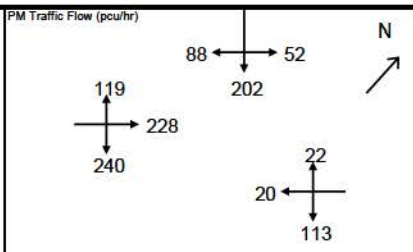
Design Year: 2018 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		57	1836	253	0.138		42	1857	285	0.154	
	SA+RT	A2	1	3.00	25.0		62	1981	273	0.138	0.138	79	1962	302	0.154	0.154
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		17	1891	138	0.073		31	1871	166	0.089	0.089
	SA+RT	B2	3	3.00	25.0		50	1995	146	0.073	0.073	50	1995	176	0.088	
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		84	1918	149	0.078	0.078	87	1915	155	0.081	0.081
pedestrian phase		P1	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P2	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P3	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P4	4		min crossing time =		9	sec GM +	10	sec FGM =		19	sec			

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

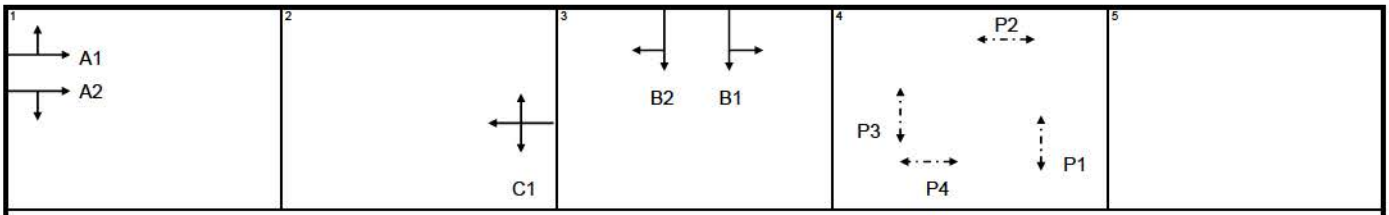


$S = 1940 + 100(W - 3.25)$ $S = 2080 + 100(W - 3.25)$

$S_M = S \div (1 + 1.5f/r)$ $S_M = (S - 230) \div (1 + 1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.289		0.324	
L (s)	40		40	
C (s)	90		100	
practical y	0.500		0.540	
R.C. (%)	73%		67%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

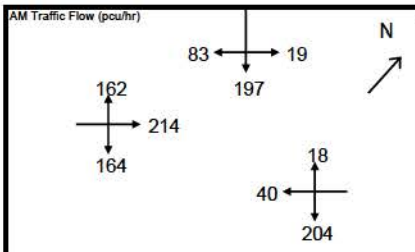
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.1-3

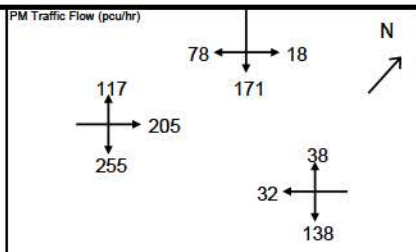
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		63	1829	259	0.142	0.142	42	1857	281	0.151	
	SA+RT	A2	1	3.00	25.0		58	1986	281	0.141		86	1954	296	0.151	0.151
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		13	1897	146	0.077	0.077	14	1895	130	0.069	
	SA+RT	B2	3	3.00	25.0		54	1991	153	0.077		57	1987	137	0.069	0.069
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		85	1917	262	0.137	0.137	85	1917	208	0.108	0.108
pedestrian phase		P1	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P2	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P3	4		min crossing time =		9	sec GM +	9	sec FGM =		18	sec			
		P4	4		min crossing time =		9	sec GM +	10	sec FGM =		19	sec			

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

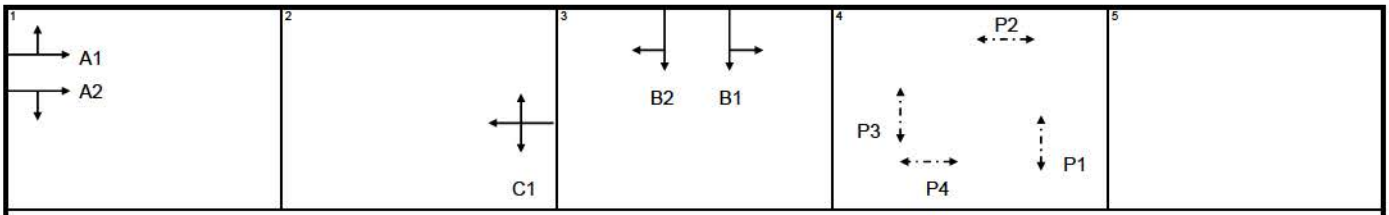


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.355		0.329	
L (s)	40		40	
C (s)	100		110	
practical y	0.540		0.573	
R.C. (%)	52%		74%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

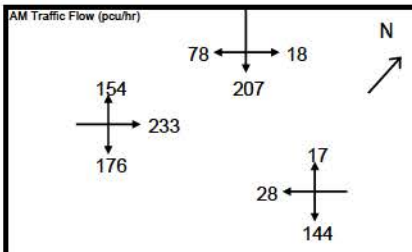
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road — Job Number: J6786

Scenario: without KC-015 (weekend) — R1A / P.1-4

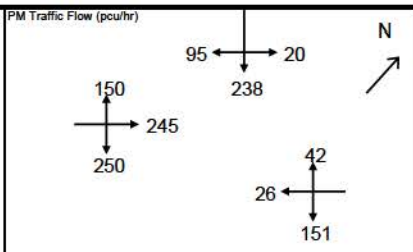
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		57	1836	271	0.148	0.148	48	1848	313	0.169	0.169
	SA+RT	A2	1	3.00	25.0		60	1984	292	0.147		75	1967	332	0.169	
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		12	1898	148	0.078	0.078	12	1898	172	0.091	
	SA+RT	B2	3	3.00	25.0		50	1995	155	0.078		52	1993	181	0.091	0.091
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		85	1917	189	0.099	0.099	88	1914	219	0.114	0.114
pedestrian phase		P1	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P3	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P4	4		min crossing time =		9	sec GM +		10	sec FGM =		19	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

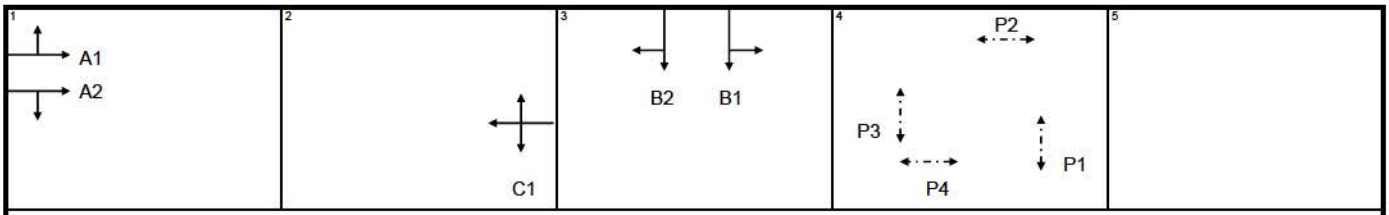


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.324		0.375	
L (s)	40		40	
C (s)	90		100	
practical y	0.500		0.540	
R.C. (%)	54%		44%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =				
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =				
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =				
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =				

Signal Junction Analysis

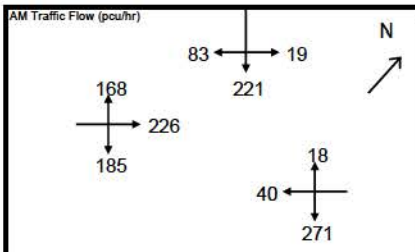
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.1-5

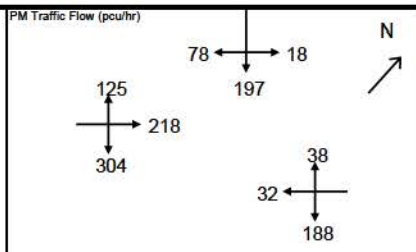
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		43	1855	394	0.212	0.212	36	1865	343	0.184	0.184
	SA+RT	A2	1	3.00	25.0		100	1939	185	0.095		100	1939	304	0.157	
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		12	1898	157	0.083		13	1897	143	0.075	0.075
	SA+RT	B2	3	3.00	25.0		50	1995	166	0.083	0.083	52	1993	150	0.075	
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		88	1914	329	0.172	0.172	88	1914	258	0.135	0.135
pedestrian phase		P1	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P2	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P3	4		min crossing time =		9	sec GM +		9	sec FGM =	18	sec			
		P4	4		min crossing time =		9	sec GM +		10	sec FGM =	19	sec			

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

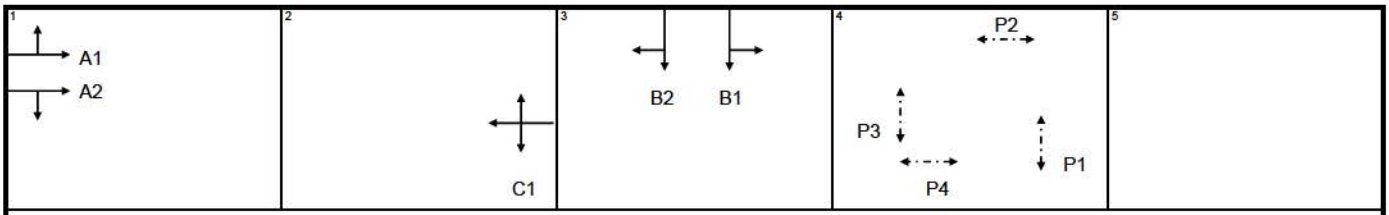


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.467		0.394	
L (s)	40		40	
C (s)	100		110	
practical y	0.540		0.573	
R.C. (%)	16%		45%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

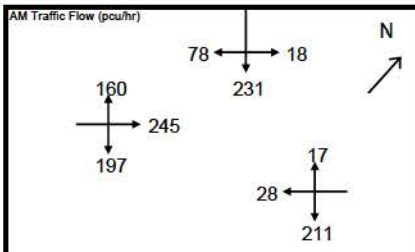
Junction: A. Tung Tsing Road / Lok Sin Road / Sa Po Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.1-6

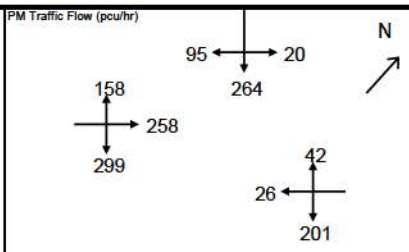
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Lok Sin Road EB	LT+SA	A1	1	3.00	20.0		40	1859	405	0.218	0.218	46	1851	416	0.225	0.225
	SA+RT	A2	1	3.00	25.0		100	1939	197	0.102		100	1939	299	0.154	
Tung Tsing Road SB	LT+SA	B1	3	3.00	20.0		11	1899	159	0.084		11	1899	185	0.097	0.097
	SA+RT	B2	3	3.00	25.0		46	2000	168	0.084	0.084	49	1996	194	0.097	
Lok Sin Road WB	LA+SA+RT	C1	2	4.00	25.0		89	1913	256	0.134	0.134	90	1912	269	0.141	0.141
pedestrian phase		P1	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P3	4		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P4	4		min crossing time =		9	sec GM +		10	sec FGM =		19	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

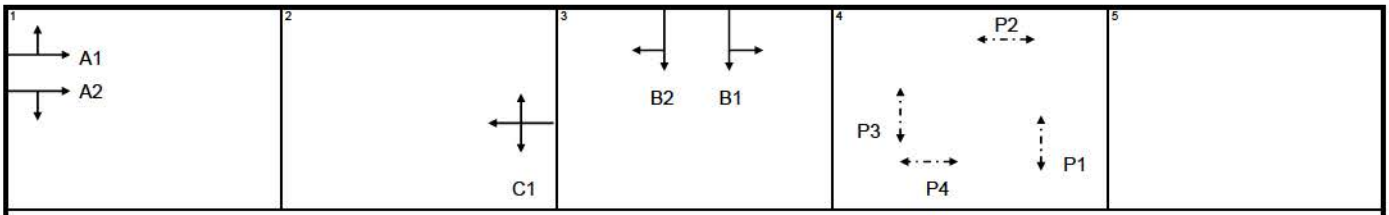


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.436		0.463	
L (s)	40		40	
C (s)	90		100	
practical y	0.500		0.540	
R.C. (%)	15%		17%	

Note:



AM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	6	G =		I/G =	6	G =		I/G =	9	G =	19	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

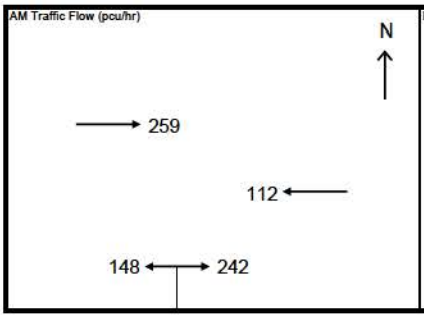
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.2-1

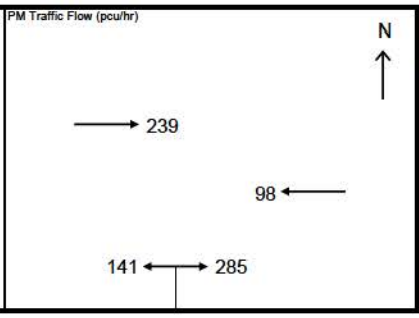
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	259	0.120	0.120		2165	239	0.110	0.110
Carpenter Road WB	SA	B1	1	4.00				2015	112	0.056			2015	98	0.049	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	148	0.081		100	1828	141	0.077	
	RT	C2	3	3.50	25.0		100	1854	242	0.131	0.131	100	1854	285	0.154	0.154
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

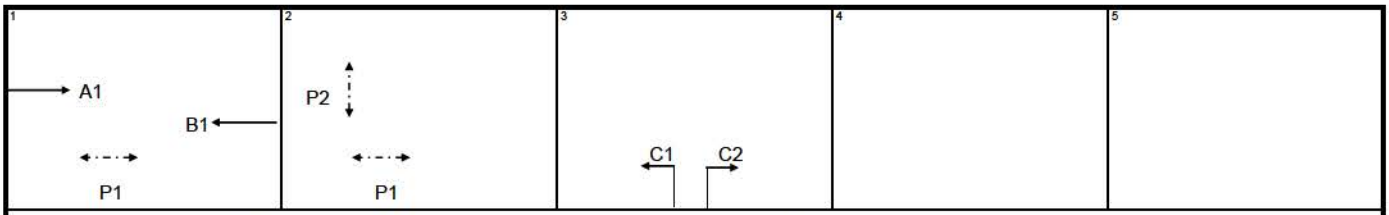


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.250		0.264	
L (s)	33		33	
C (s)	100		110	
practical y	0.603		0.630	
R.C. (%)	141%		139%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =	G =	I/G =
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =	G =	I/G =
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =	G =	I/G =
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =	G =	I/G =

Signal Junction Analysis

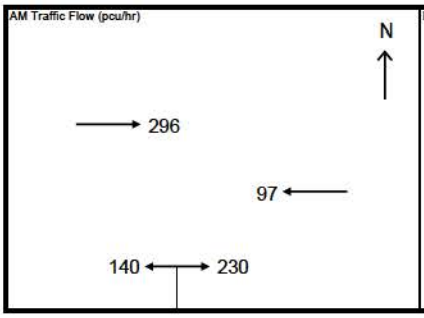
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: existing condition (weekend) — R1A / P.2-2

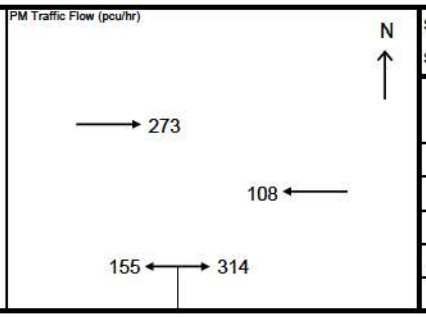
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	296	0.137	0.137		2165	273	0.126	0.126
Carpenter Road WB	SA	B1	1	4.00				2015	97	0.048			2015	108	0.054	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	140	0.077		100	1828	155	0.085	
	RT	C2	3	3.50	25.0		100	1854	230	0.124	0.124	100	1854	314	0.169	0.169
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

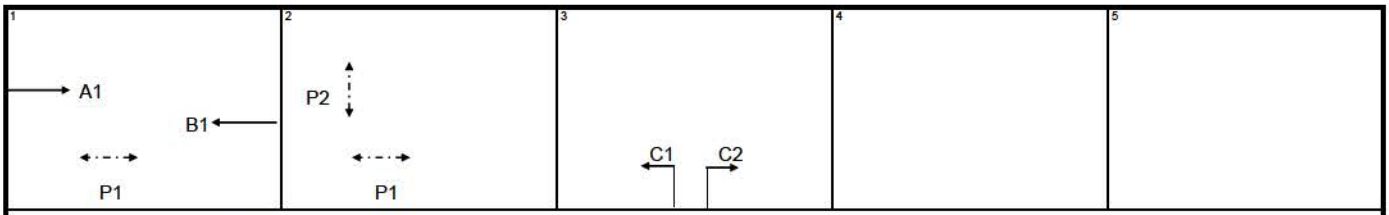


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.261		0.295	
L (s)	33		33	
C (s)	90		100	
practical y	0.570		0.603	
R.C. (%)	119%		104%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

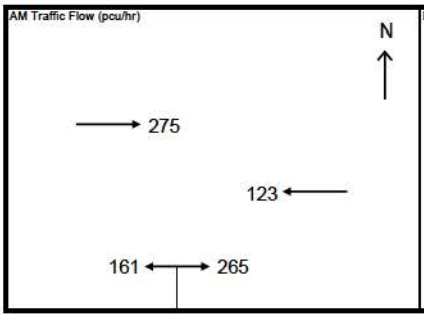
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.2-3

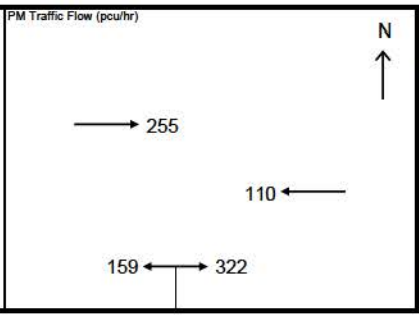
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	275	0.127	0.127		2165	255	0.118	0.118
Carpenter Road WB	SA	B1	1	4.00				2015	123	0.061			2015	110	0.055	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	161	0.088		100	1828	159	0.087	
	RT	C2	3	3.50	25.0		100	1854	265	0.143	0.143	100	1854	322	0.174	0.174
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

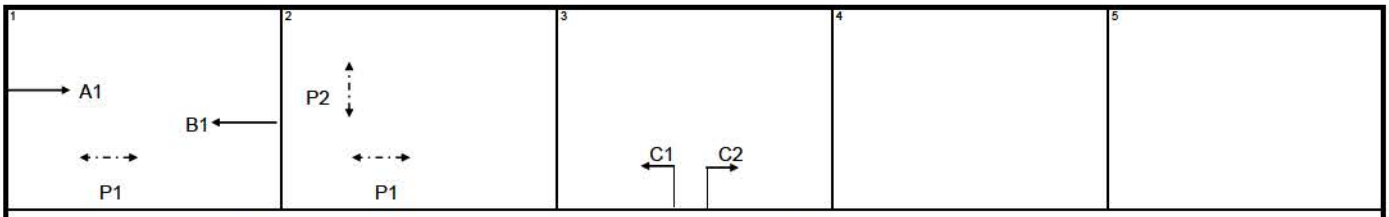


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.270		0.291	
L (s)	33		33	
C (s)	100		110	
practical y	0.603		0.630	
R.C. (%)	123%		116%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

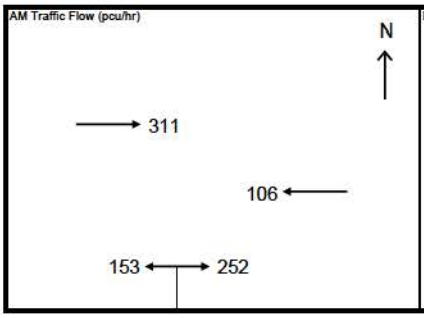
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: without KC-015 (weekend) — R1A / P.2-4

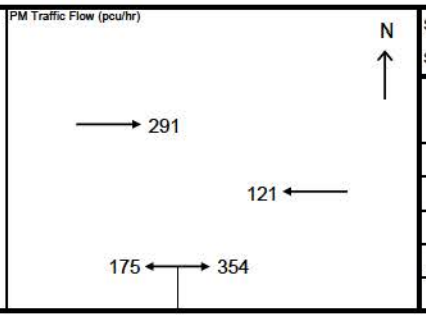
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	311	0.144	0.144		2165	291	0.134	0.134
Carpenter Road WB	SA	B1	1	4.00				2015	106	0.053			2015	121	0.060	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	153	0.084		100	1828	175	0.096	
	RT	C2	3	3.50	25.0		100	1854	252	0.136	0.136	100	1854	354	0.191	0.191
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

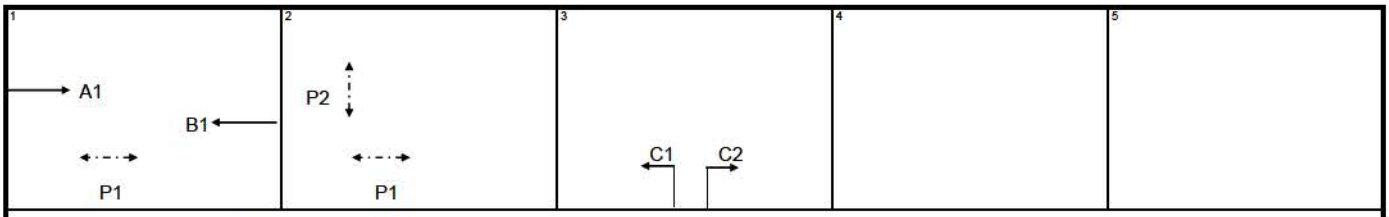


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.280		0.325	
L (s)	33		33	
C (s)	90		100	
practical y	0.570		0.603	
R.C. (%)	104%		85%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

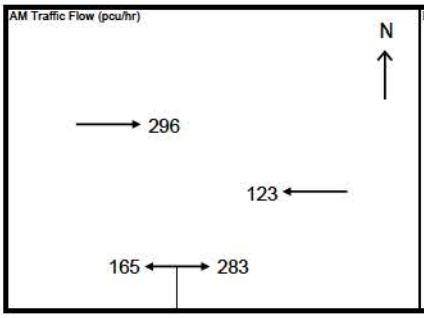
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.2-5

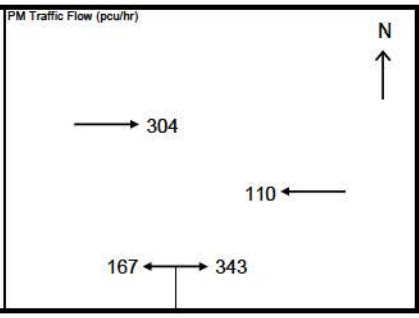
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	296	0.137	0.137		2165	304	0.140	0.140
Carpenter Road WB	SA	B1	1	4.00				2015	123	0.061			2015	110	0.055	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	165	0.090		100	1828	167	0.091	
	RT	C2	3	3.50	25.0		100	1854	283	0.153	0.153	100	1854	343	0.185	0.185
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

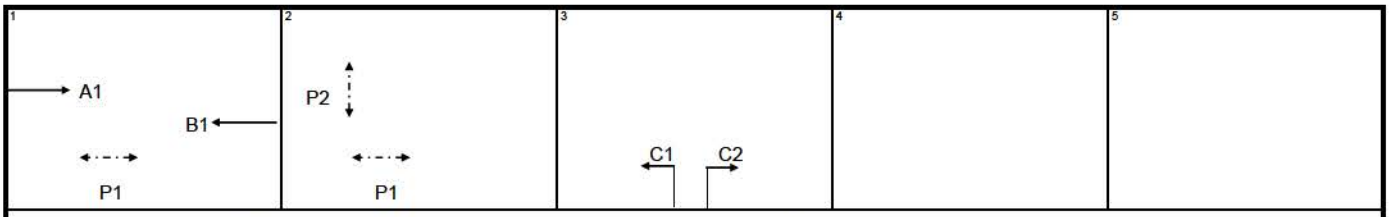


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.289		0.325	
L (s)	33		33	
C (s)	100		110	
practical y	0.603		0.630	
R.C. (%)	108%		94%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

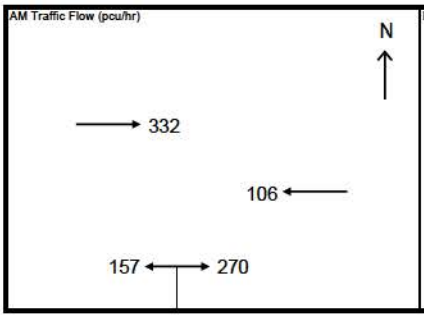
Junction: B. Carpenter Road / Tak Ku Ling Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.2-6

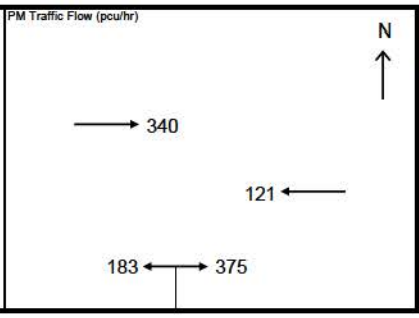
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1	5.50				2165	332	0.153	0.153		2165	340	0.157	0.157
Carpenter Road WB	SA	B1	1	4.00				2015	106	0.053			2015	121	0.060	
Tak Ku Ling Road NB	LT	C1	3	3.50	20.0		100	1828	157	0.086		100	1828	183	0.100	
	RT	C2	3	3.50	25.0		100	1854	270	0.146	0.146	100	1854	375	0.202	0.202
pedestrian phase		P1	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		
		P2	2		min crossing time =		9	sec GM +		9	sec FGM =		18	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

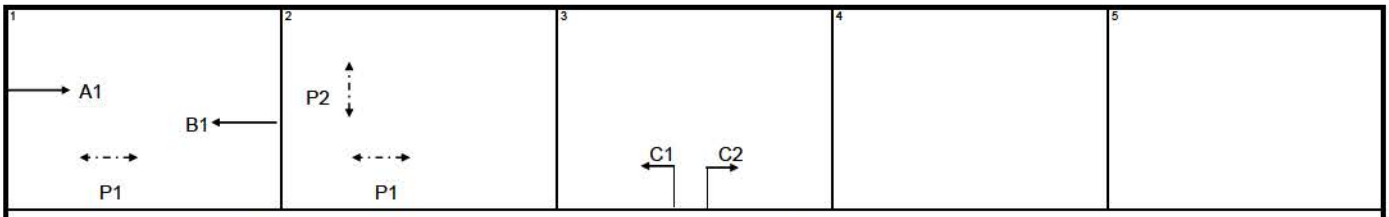


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.299		0.359	
L (s)	33		33	
C (s)	90		100	
practical y	0.570		0.603	
R.C. (%)	91%		68%	

Note:



AM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	18	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

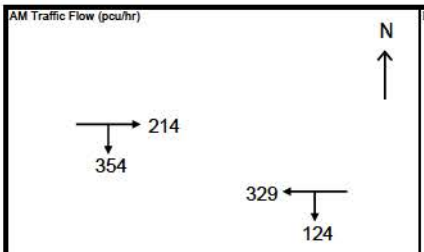
Junction: C. Carpenter Road / Lion Rock Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.3-1

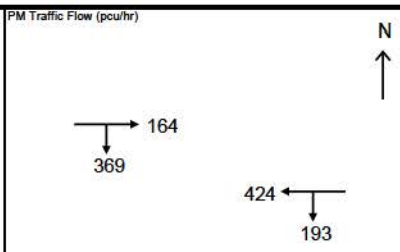
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	214	0.109			1965	164	0.083	
	RT	A2	1,2	3.50	20.0		100	1744	354	0.203	0.203	100	1744	369	0.212	0.212
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		27	2011	453	0.225		31	2003	617	0.308	
pedestrian phase		P1	3		min crossing time =		5	sec GM +		8		sec FGM =	13	sec		
		P2	3		min crossing time =		11	sec GM +		7		sec FGM =	18	sec		
		P3	3		min crossing time =		8	sec GM +		6		sec FGM =	14	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

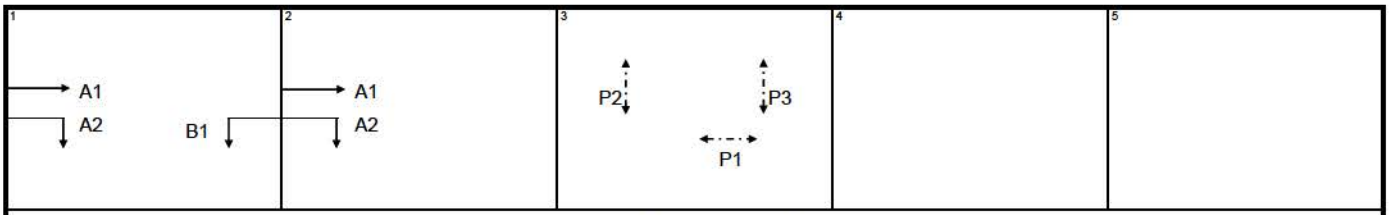


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.203	0.225	0.212	0.308
L (s)	33	60	33	57
C (s)	120	120	110	110
practical y	0.653	0.450	0.630	0.434
R.C. (%)	221%	100%	198%	41%

Note:



AM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =
PM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =

Signal Junction Analysis

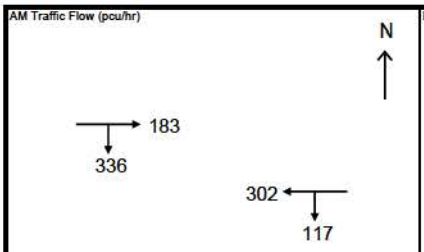
Junction: C. Carpenter Road / Lion Rock Road — Job Number: J6786

Scenario: existing condition (weekend) — R1A / P.3-2

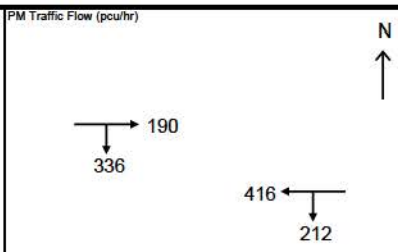
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	183	0.093			1965	190	0.097	
	RT	A2	1,2	3.50	20.0		100	1744	336	0.193	0.193	100	1744	336	0.193	0.193
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		28	2009	419	0.209		34	1997	628	0.314	
pedestrian phase		P1	3		min crossing time =			5	sec GM +	8	sec FGM =		13	sec		
		P2	3		min crossing time =			11	sec GM +	7	sec FGM =		18	sec		
		P3	3		min crossing time =			8	sec GM +	6	sec FGM =		14	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

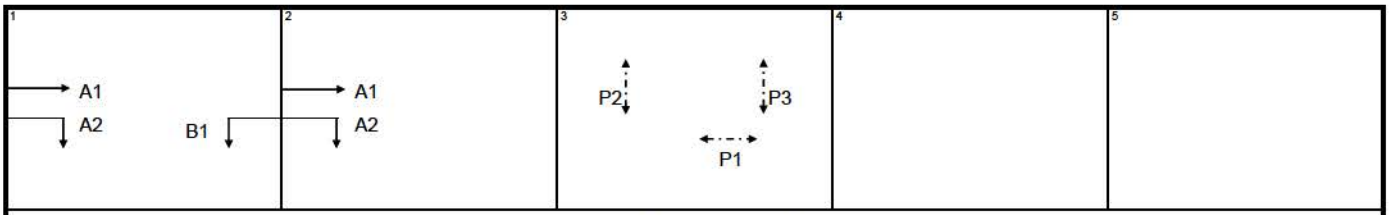


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.193	0.209	0.193	0.314
L (s)	33	60	33	57
C (s)	108	120	100	110
practical y	0.625	0.450	0.603	0.434
R.C. (%)	224%	116%	213%	38%

Note:



AM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =
PM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =

Signal Junction Analysis

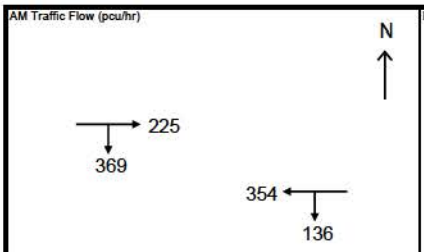
Junction: C. Carpenter Road / Lion Rock Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.3-3

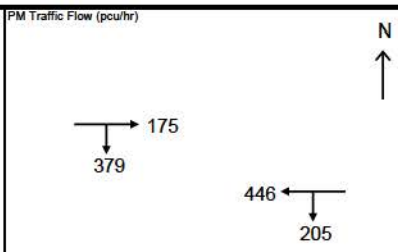
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	225	0.115			1965	175	0.089	
	RT	A2	1,2	3.50	20.0		100	1744	369	0.212	0.212	100	1744	379	0.217	0.217
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		28	2009	490	0.244		31	2003	651	0.325	
pedestrian phase		P1	3		min crossing time =			5	sec GM +		8	sec FGM =		13	sec	
		P2	3		min crossing time =			11	sec GM +		7	sec FGM =		18	sec	
		P3	3		min crossing time =			8	sec GM +		6	sec FGM =		14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

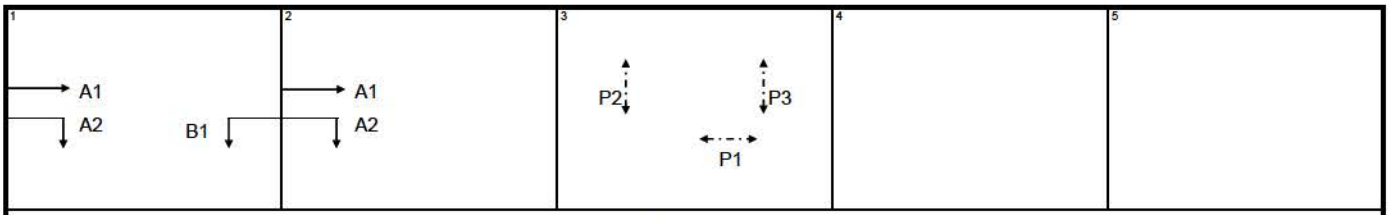


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.212	0.244	0.217	0.325
L (s)	33	60	33	57
C (s)	120	120	110	110
practical y	0.653	0.450	0.630	0.434
R.C. (%)	208%	84%	190%	33%

Note:



AM	G =	I/G = 5	G =		I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =
PM	G =	I/G = 5	G =		I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =

Signal Junction Analysis

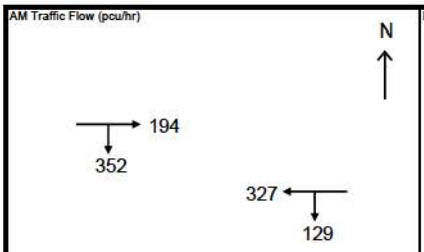
Junction: C. Carpenter Road / Lion Rock Road — Job Number: J6786

Scenario: without KC-015 (weekend) — R1A / P.3-4

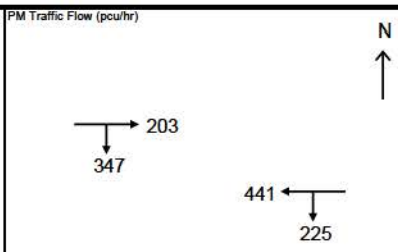
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	194	0.099			1965	203	0.103	
	RT	A2	1,2	3.50	20.0		100	1744	352	0.202	0.202	100	1744	347	0.199	0.199
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		28	2009	456	0.227		34	1997	666	0.333	
pedestrian phase		P1	3		min crossing time =			5	sec GM +		8	sec FGM =		13	sec	
		P2	3		min crossing time =			11	sec GM +		7	sec FGM =		18	sec	
		P3	3		min crossing time =			8	sec GM +		6	sec FGM =		14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

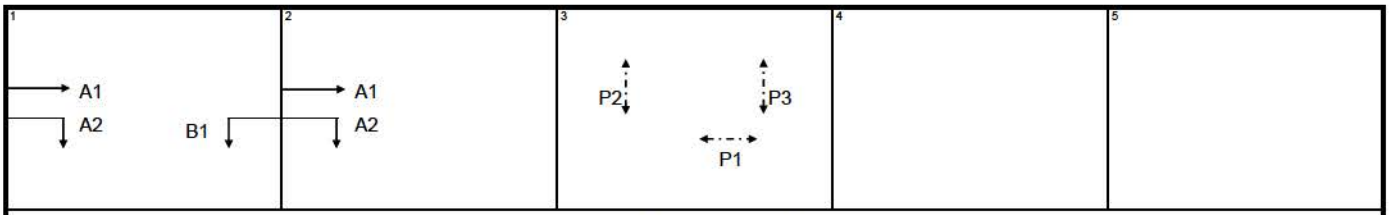


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.202	0.227	0.199	0.333
L (s)	33	60	33	57
C (s)	108	120	100	110
practical y	0.625	0.450	0.603	0.434
R.C. (%)	210%	98%	203%	30%

Note:



AM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =						
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =						
PM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =						
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =						

Signal Junction Analysis

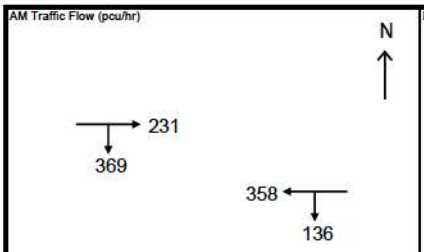
Junction: C. Carpenter Road / Lion Rock Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.3-5

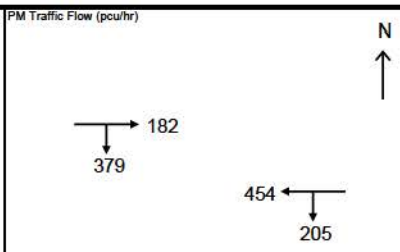
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	231	0.118			1965	182	0.093	
	RT	A2	1,2	3.50	20.0		100	1744	369	0.212	0.212	100	1744	379	0.217	0.217
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		28	2009	494	0.246		31	2003	659	0.329	
pedestrian phase		P1	3		min crossing time =			5	sec GM +		8	sec FGM =		13	sec	
		P2	3		min crossing time =			11	sec GM +		7	sec FGM =		18	sec	
		P3	3		min crossing time =			8	sec GM +		6	sec FGM =		14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

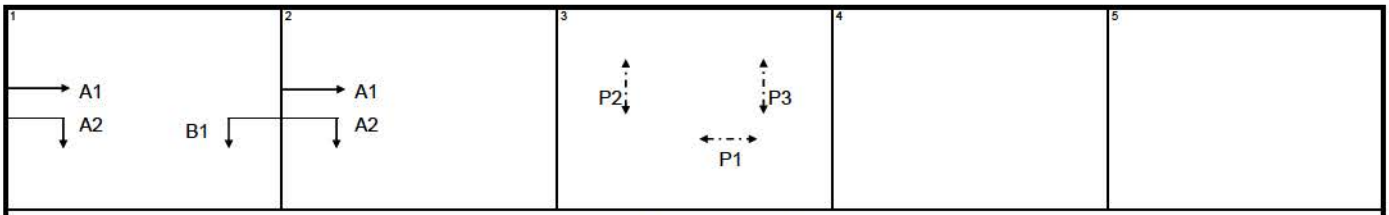


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.212	0.246	0.217	0.329
L (s)	33	60	33	57
C (s)	120	120	110	110
practical y	0.653	0.450	0.630	0.434
R.C. (%)	208%	83%	190%	32%

Note:



AM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =
PM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =

Signal Junction Analysis

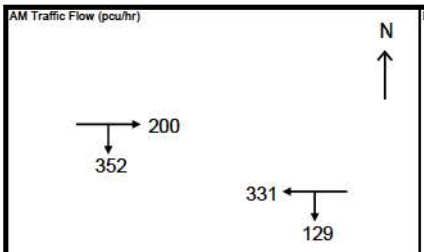
Junction: C. Carpenter Road / Lion Rock Road Job Number: J6786

Scenario: with KC-015 (weekend) R1A / P.3-6

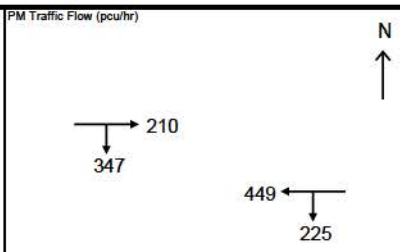
Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road EB	SA	A1	1,2	3.50				1965	200	0.102			1965	210	0.107	
	RT	A2	1,2	3.50	20.0		100	1744	352	0.202	0.202	100	1744	347	0.199	0.199
Carpenter Road WB	LT+SA	B1	1	4.50	15.0		28	2009	460	0.229		33	1999	674	0.337	
pedestrian phase		P1	3		min crossing time =			5	sec GM +	8	sec FGM =		13	sec		
		P2	3		min crossing time =			11	sec GM +	7	sec FGM =		18	sec		
		P3	3		min crossing time =			8	sec GM +	6	sec FGM =		14	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

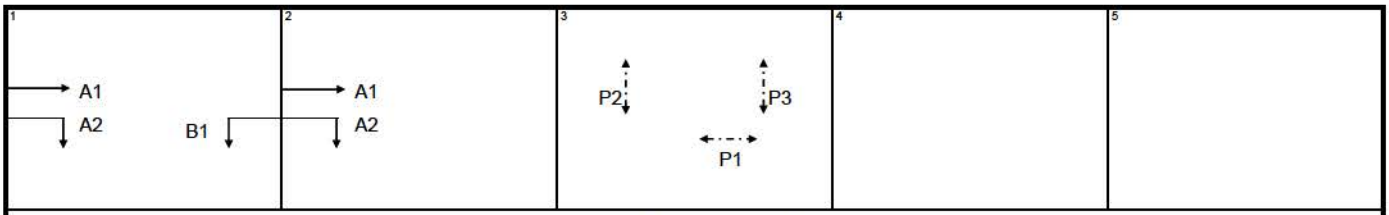


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.202	0.229	0.199	0.337
L (s)	33	60	33	57
C (s)	108	120	100	110
practical y	0.625	0.450	0.603	0.434
R.C. (%)	210%	97%	203%	29%

Note:



AM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =
PM	G =	I/G = 5	G =	I/G = 9	G = 18	I/G = 3	G =	I/G =	G =	I/G =
	G =	I/G = 5	G = 28	I/G =	G = 26	I/G = 2	G =	I/G =	G =	I/G =

Signal Junction Analysis

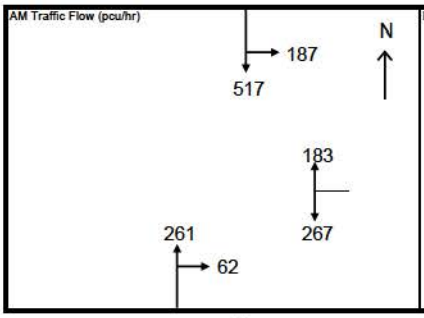
Junction: D. Junction Road / Carpenter Road Job Number: J6786

Scenario: existing condition (weekday) R1A / P.4-1

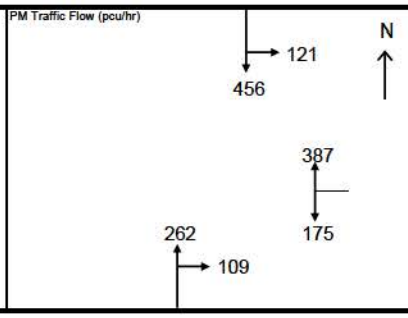
Design Year: 2018 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	267	0.153	0.153	100	1741	175	0.101	
	RT	A2	3	3.00	20.0		100	1912	183	0.096		100	1912	387	0.202	0.202
Junction Road NB	SA	B1	1,2	3.00				1915	261	0.136			1915	262	0.137	
	RT	B2	2	2.50	20.0		100	1865	62	0.033	0.033	100	1865	109	0.058	0.058
Junction Road SB	LT+SA	C1	1	3.25	15.0		57	1835	330	0.180		44	1858	272	0.146	
	SA	C2	1	3.25				2080	374	0.180	0.180		2080	305	0.147	0.147
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7		sec FGM =	14	sec		
		P2	4		min crossing time =		7	sec GM +		8		sec FGM =	15	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

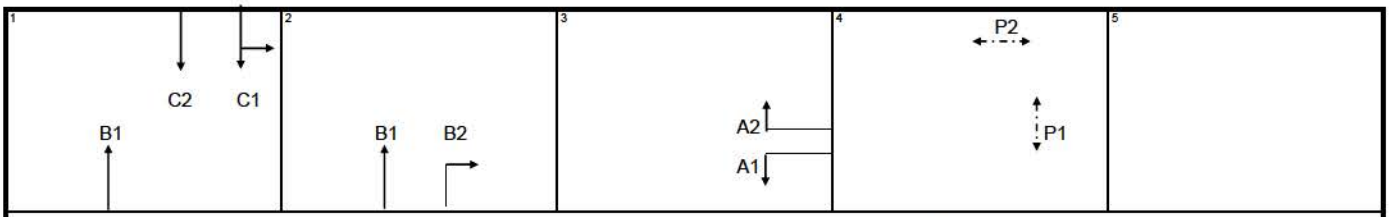


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.366		0.408	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	66%		43%	

Note:



AM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

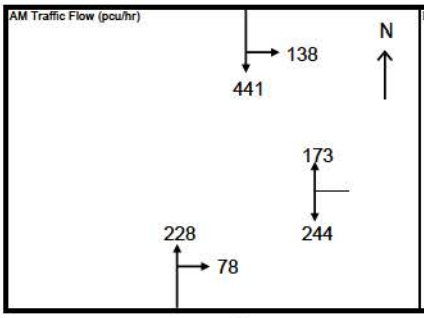
Junction: D. Junction Road / Carpenter Road — Job Number: J6786

Scenario: existing condition (weekend) — R1A / P.4-2

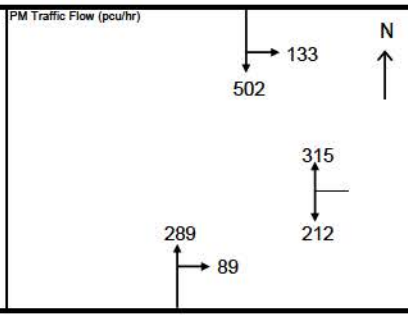
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	244	0.140	0.140	100	1741	212	0.122	
	RT	A2	3	3.00	20.0		100	1912	173	0.090		100	1912	315	0.165	0.165
Junction Road NB	SA	B1	1,2	3.00				1915	228	0.119			1915	289	0.151	
	RT	B2	2	2.50	20.0		100	1865	78	0.042	0.042	100	1865	89	0.048	0.048
Junction Road SB	LT+SA	C1	1	3.25	15.0		51	1846	272	0.147		44	1858	300	0.161	0.161
	SA	C2	1	3.25				2080	307	0.148	0.148		2080	335	0.161	
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7		sec FGM =	14	sec		
		P2	4		min crossing time =		7	sec GM +		8		sec FGM =	15	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

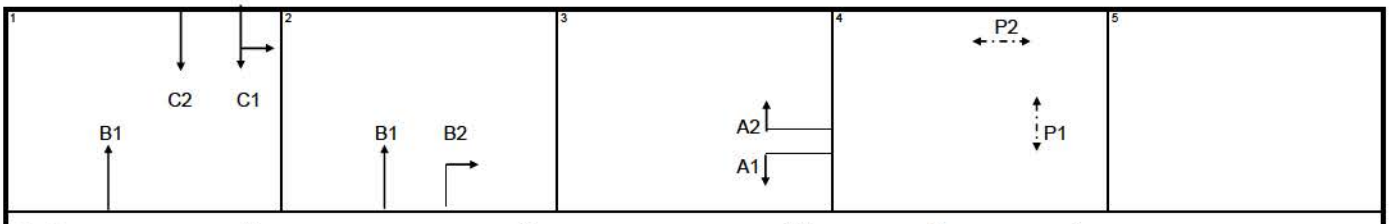


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.330		0.374	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	74%		47%	

Note:



AM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

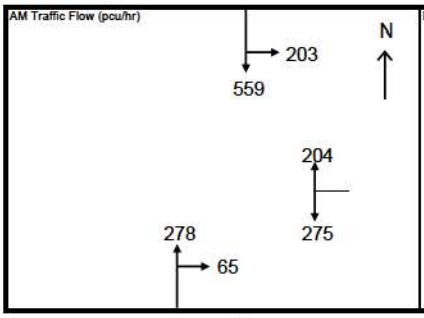
Junction: D. Junction Road / Carpenter Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.4-3

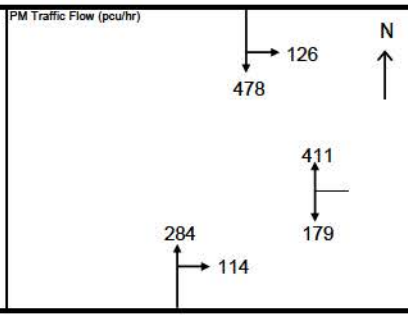
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	275	0.158	0.158	100	1741	179	0.103	
	RT	A2	3	3.00	20.0		100	1912	204	0.107		100	1912	411	0.215	0.215
Junction Road NB	SA	B1	1,2	3.00				1915	278	0.145			1915	284	0.148	
	RT	B2	2	2.50	20.0		100	1865	65	0.035	0.035	100	1865	114	0.061	0.061
Junction Road SB	LT+SA	C1	1	3.25	15.0		57	1835	357	0.195		44	1858	285	0.153	0.153
	SA	C2	1	3.25				2080	405	0.195	0.195		2080	319	0.153	
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7		sec FGM =	14	sec		
		P2	4		min crossing time =		7	sec GM +		8		sec FGM =	15	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

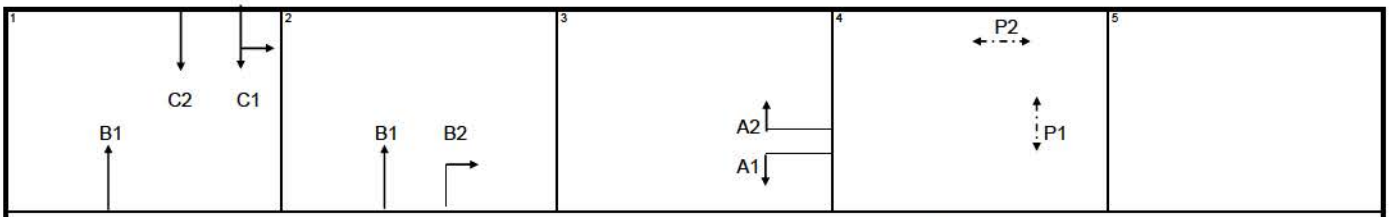


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.388		0.429	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	57%		35%	

Note:



AM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

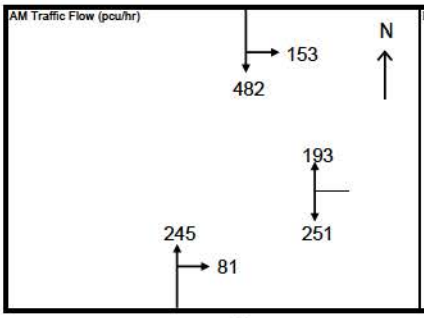
Junction: D. Junction Road / Carpenter Road Job Number: J6786

Scenario: without KC-015 (weekend) R1A / P.4-4

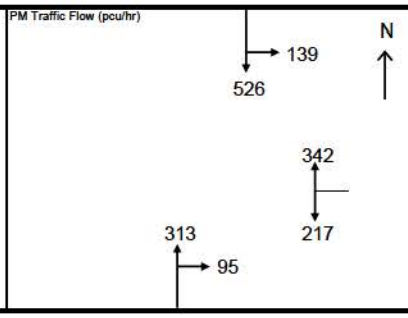
Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	251	0.144	0.144	100	1741	217	0.125	
	RT	A2	3	3.00	20.0		100	1912	193	0.101		100	1912	342	0.179	0.179
Junction Road NB	SA	B1	1,2	3.00				1915	245	0.128			1915	313	0.163	
	RT	B2	2	2.50	20.0		100	1865	81	0.043	0.043	100	1865	95	0.051	0.051
Junction Road SB	LT+SA	C1	1	3.25	15.0		51	1846	299	0.162	0.162	44	1858	314	0.169	0.169
	SA	C2	1	3.25				2080	336	0.162			2080	351	0.169	
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7	sec FGM =		14	sec		
		P2	4		min crossing time =		7	sec GM +		8	sec FGM =		15	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

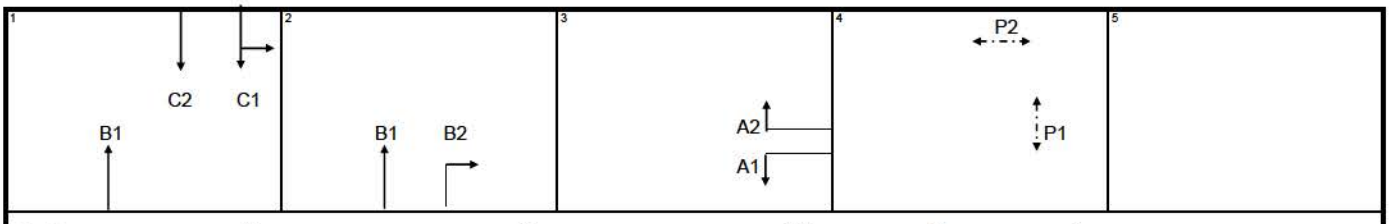


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.350		0.399	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	64%		38%	

Note:



		1		2		3		4		5	
AM	G =		I/G = 6	G =	I/G = 5	G =	I/G = 13	G = 15	I/G = 3	G =	I/G =
	G =		I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =
PM	G =		I/G = 6	G =	I/G = 5	G =	I/G = 13	G = 15	I/G = 3	G =	I/G =
	G =		I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =

Signal Junction Analysis

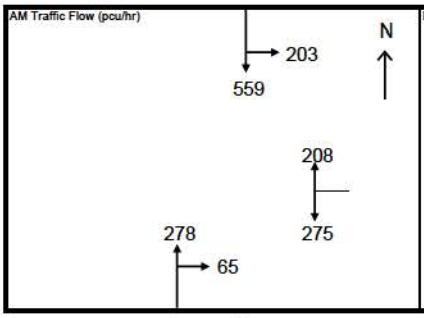
Junction: D. Junction Road / Carpenter Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.4-5

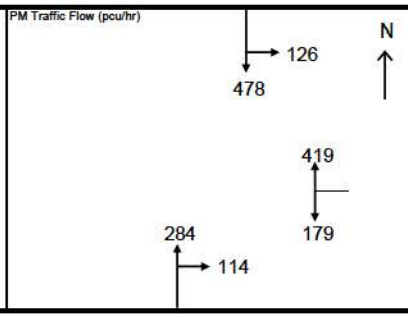
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	275	0.158	0.158	100	1741	179	0.103	
	RT	A2	3	3.00	20.0		100	1912	208	0.109		100	1912	419	0.219	0.219
Junction Road NB	SA	B1	1,2	3.00				1915	278	0.145			1915	284	0.148	
	RT	B2	2	2.50	20.0		100	1865	65	0.035	0.035	100	1865	114	0.061	0.061
Junction Road SB	LT+SA	C1	1	3.25	15.0		57	1835	357	0.195		44	1858	285	0.153	0.153
	SA	C2	1	3.25				2080	405	0.195	0.195		2080	319	0.153	
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7		sec FGM =		14	sec	
		P2	4		min crossing time =		7	sec GM +		8		sec FGM =		15	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

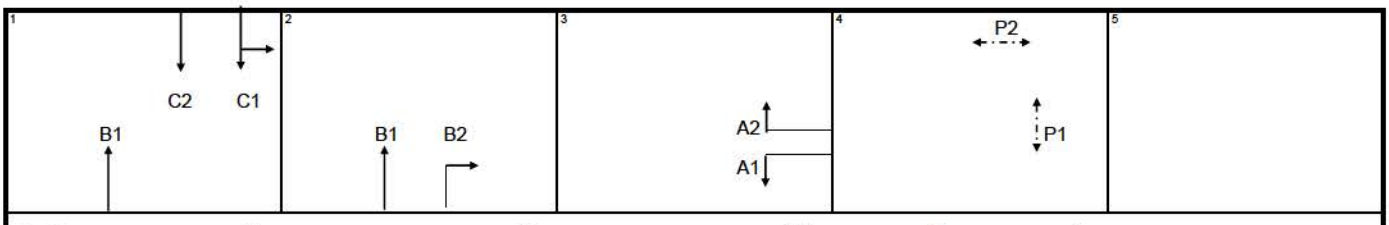


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.388		0.434	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	57%		34%	

Note:



AM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

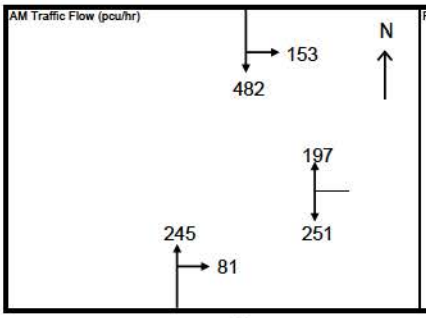
Junction: D. Junction Road / Carpenter Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.4-6

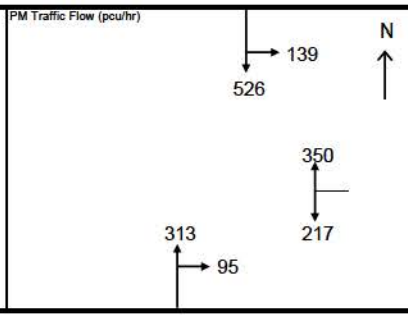
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Carpenter Road WB	LT	A1	3	3.00	15.0		100	1741	251	0.144	0.144	100	1741	217	0.125	
	RT	A2	3	3.00	20.0		100	1912	197	0.103		100	1912	350	0.183	0.183
Junction Road NB	SA	B1	1,2	3.00				1915	245	0.128			1915	313	0.163	
	RT	B2	2	2.50	20.0		100	1865	81	0.043	0.043	100	1865	95	0.051	0.051
Junction Road SB	LT+SA	C1	1	3.25	15.0		51	1846	299	0.162	0.162	44	1858	314	0.169	0.169
	SA	C2	1	3.25				2080	336	0.162			2080	351	0.169	
pedestrian phase		P1	4		min crossing time =		7	sec GM +		7	sec FGM =		14	sec		
		P2	4		min crossing time =		7	sec GM +		8	sec FGM =		15	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

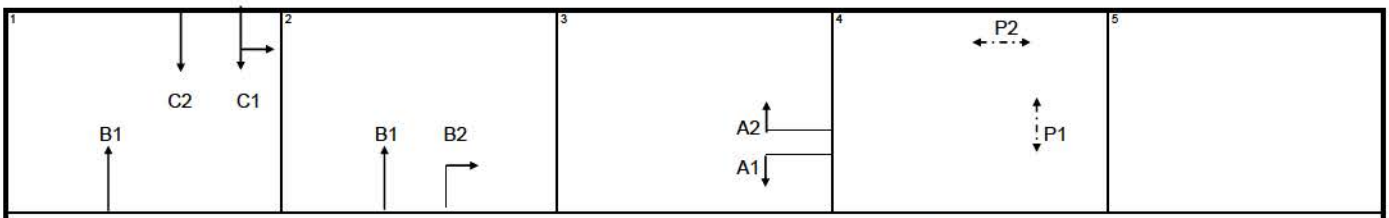


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.350		0.403	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	64%		36%	

Note:



AM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	6	G =		I/G =	5	G =		I/G =	13	G =	15	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: E. Junction Road / Nga Tsin Wai Road — Job Number: J6786

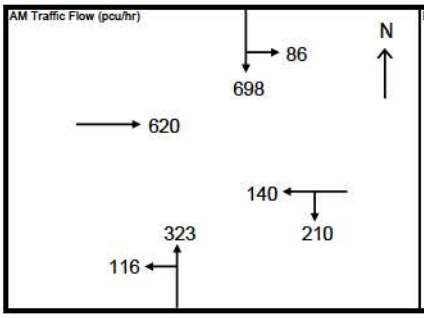
Scenario: existing condition (weekday) — R1A / P.5-1

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

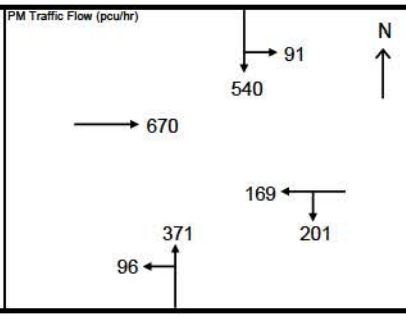
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	299	0.156			1915	323	0.169	
	SA	A2	1	3.00				2055	321	0.156	0.156		2055	347	0.169	0.169
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	210	0.115		100	1830	201	0.110	
	SA	B2	1	3.25				2080	140	0.067			2080	169	0.081	
Junction Road NB	LT+SA	C1	3	3.50	25.0		36	1923	323	0.168		26	1935	371	0.192	0.192
Junction Road SB	LT+SA	D1	3	3.00	25.0		23	1889	375	0.199		30	1881	302	0.161	
	SA	D2	3	3.00				2055	409	0.199	0.199		2055	329	0.160	

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec	
	P2	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec	
	P3	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec	
	P4	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

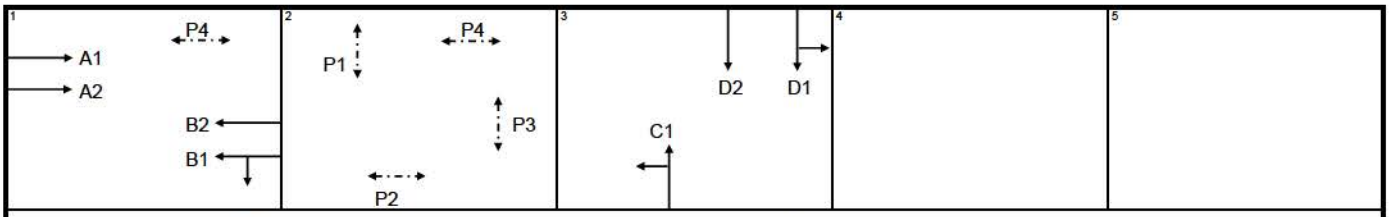


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.355		0.361	
L (s)	30		30	
C (s)	120		110	
practical y	0.675		0.655	
R.C. (%)	90%		82%	

Note:



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

Junction: E. Junction Road / Nga Tsin Wai Road — Job Number: J6786

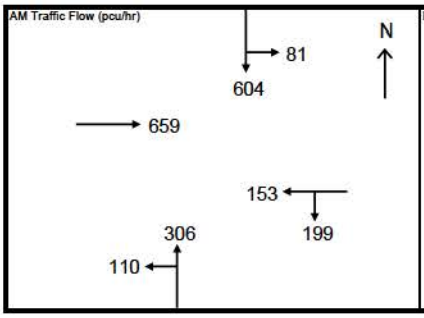
Scenario: existing condition (weekend) — R1A / P.5-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

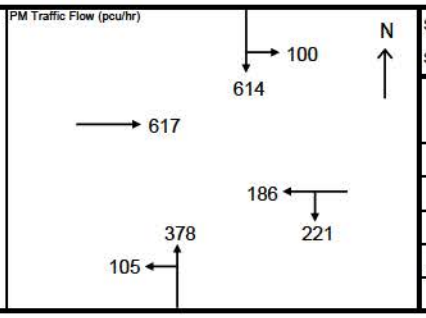
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	318	0.166	0.166		1915	298	0.156	0.156
	SA	A2	1	3.00				2055	341	0.166			2055	319	0.155	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	199	0.109		100	1830	221	0.121	
	SA	B2	1	3.25				2080	153	0.074			2080	186	0.089	
Junction Road NB	LT+SA	C1	3	3.50	25.0		36	1923	306	0.159		22	1939	483	0.249	0.249
Junction Road SB	LT+SA	D1	3	3.00	25.0		25	1887	328	0.174	0.174	29	1882	341	0.181	
	SA	D2	3	3.00				2055	357	0.174			2055	373	0.182	

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P2	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P3	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P4	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

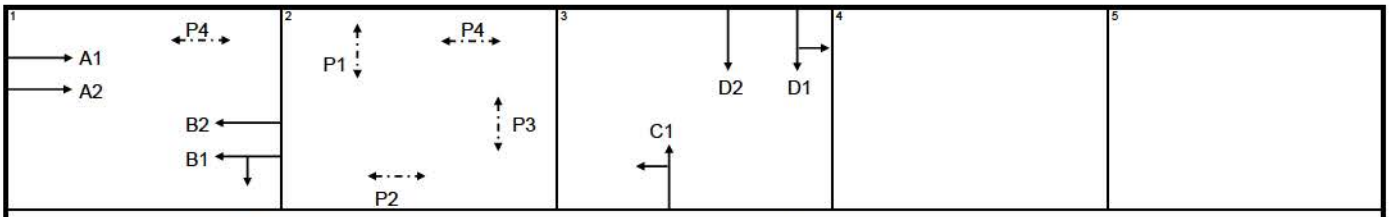


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.340		0.405	
L (s)	30		30	
C (s)	108		100	
practical y	0.650		0.630	
R.C. (%)	91%		56%	

Note:



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

Junction: E. Junction Road / Nga Tsin Wai Road Job Number: J6786

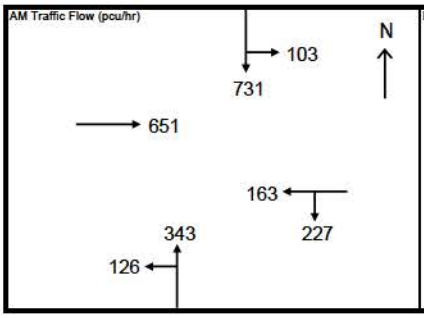
Scenario: without KC-015 (weekday) R1A / P.5-3

Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

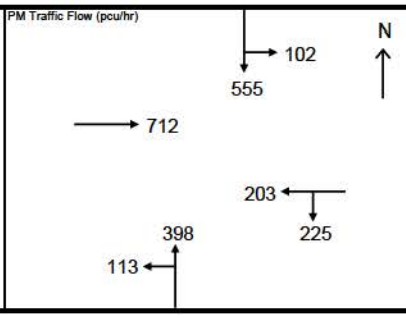
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	314	0.164			1915	343	0.179	
	SA	A2	1	3.00				2055	337	0.164	0.164		2055	369	0.180	0.180
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	227	0.124		100	1830	225	0.123	
	SA	B2	1	3.25				2080	163	0.078			2080	203	0.098	
Junction Road NB	LT+SA	C1	3	3.50	25.0		27	1934	469	0.243	0.243	22	1939	511	0.263	0.263
Junction Road SB	LT+SA	D1	3	3.00	25.0		26	1886	399	0.212		32	1879	314	0.167	
	SA	D2	3	3.00				2055	435	0.212			2055	343	0.167	

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P2	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P3	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		
	P4	2		min crossing time =	5	sec GM +	11	sec FGM =	16	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

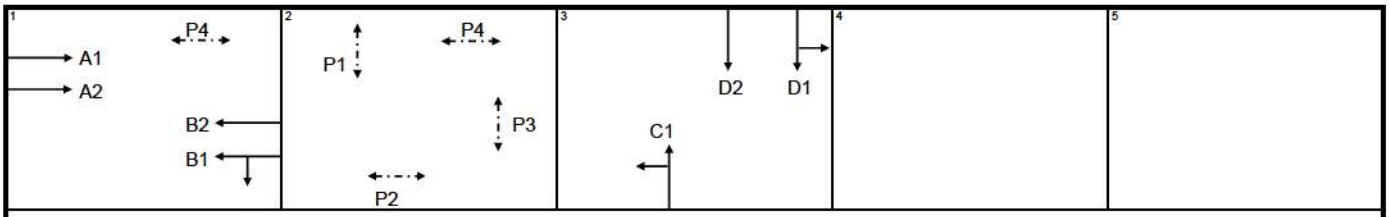


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.407		0.443	
L (s)	30		30	
C (s)	120		110	
practical y	0.675		0.655	
R.C. (%)	66%		48%	

Note:



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

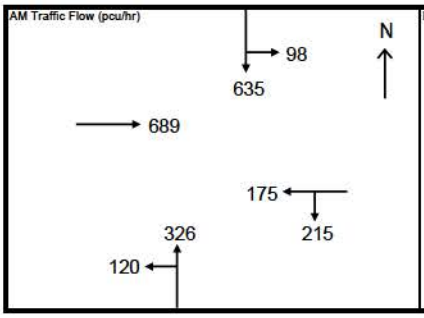
Junction: E. Junction Road / Nga Tsin Wai Road Job Number: J6786

Scenario: without KC-015 (weekend) R1A / P.5-4

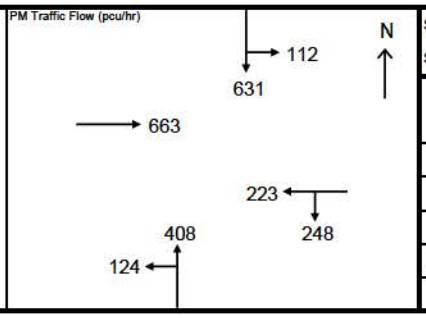
Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	332	0.173			1915	320	0.167	0.167
	SA	A2	1	3.00				2055	357	0.174	0.174		2055	343	0.167	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	215	0.117		100	1830	248	0.136	
	SA	B2	1	3.25				2080	175	0.084			2080	223	0.107	
Junction Road NB	LT+SA	C1	3	3.50	25.0		27	1934	446	0.231	0.231	23	1938	532	0.274	0.274
Junction Road SB	LT+SA	D1	3	3.00	25.0		28	1883	351	0.186		32	1879	355	0.189	
	SA	D2	3	3.00				2055	382	0.186			2055	388	0.189	
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P2	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P3	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P4	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

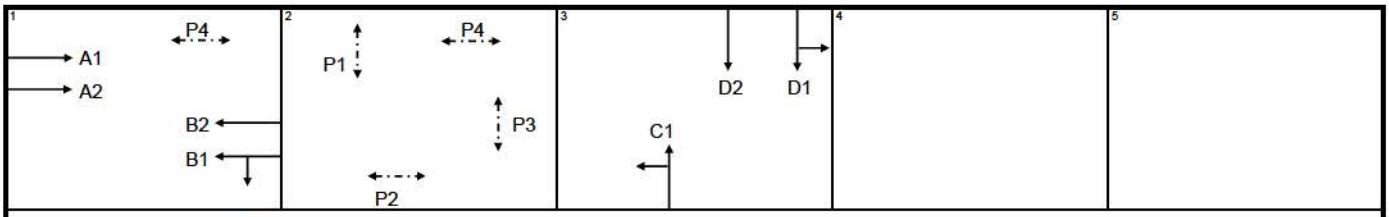


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.404		0.442	
L (s)	30		30	
C (s)	108		100	
practical y	0.650		0.630	
R.C. (%)	61%		43%	

Note:



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =	G =	I/G =
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =	G =	I/G =
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =	G =	I/G =
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =	G =	I/G =

Signal Junction Analysis

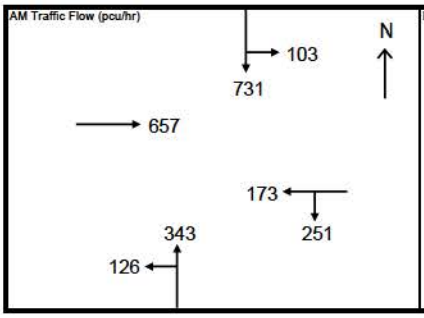
Junction: E. Junction Road / Nga Tsin Wai Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.5-5

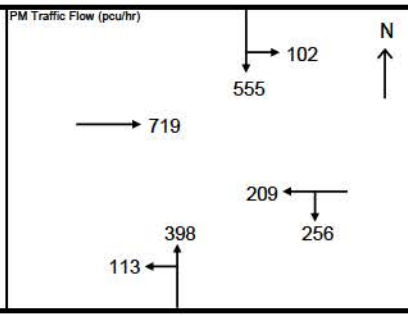
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	317	0.166	0.166		1915	347	0.181	0.181
	SA	A2	1	3.00				2055	340	0.165			2055	372	0.181	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	251	0.137		100	1830	256	0.140	
	SA	B2	1	3.25				2080	173	0.083			2080	209	0.100	
Junction Road NB	LT+SA	C1	3	3.50	25.0		27	1934	469	0.243	0.243	22	1939	511	0.263	0.263
Junction Road SB	LT+SA	D1	3	3.00	25.0		26	1886	399	0.212		32	1879	314	0.167	
	SA	D2	3	3.00				2055	435	0.212			2055	343	0.167	
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +		11	sec FGM =		16	sec		
		P2	2		min crossing time =		5	sec GM +		11	sec FGM =		16	sec		
		P3	2		min crossing time =		5	sec GM +		11	sec FGM =		16	sec		
		P4	2		min crossing time =		5	sec GM +		11	sec FGM =		16	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

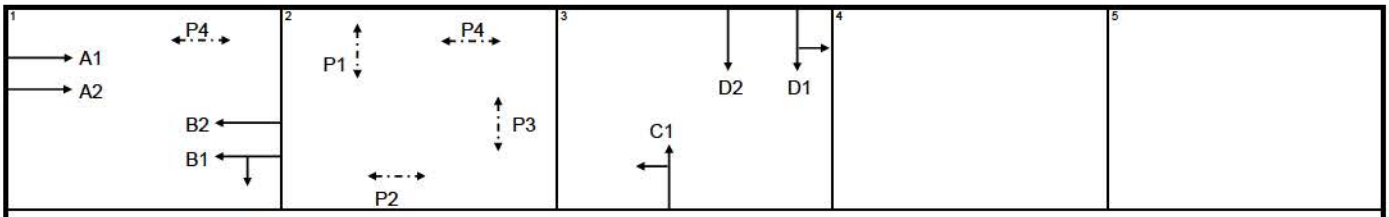


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.408		0.445	
L (s)	30		30	
C (s)	120		110	
practical y	0.675		0.655	
R.C. (%)	65%		47%	

Note:



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

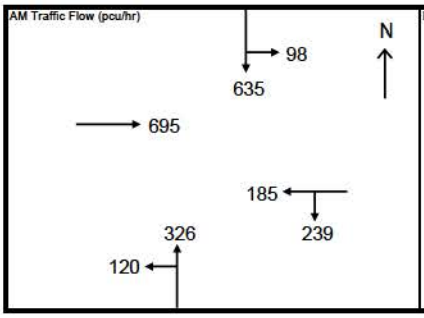
Junction: E. Junction Road / Nga Tsin Wai Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.5-6

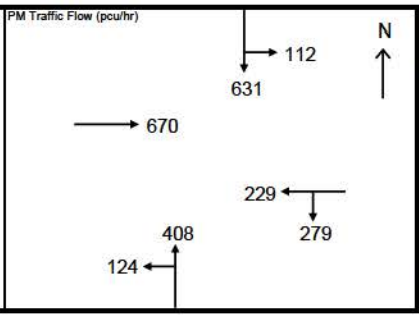
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	335	0.175			1915	323	0.169	
	SA	A2	1	3.00				2055	360	0.175	0.175		2055	347	0.169	0.169
Nga Tsin Wai Road WB	LT+SA	B1	1	3.25	25.0		100	1830	239	0.131		100	1830	279	0.152	
	SA	B2	1	3.25				2080	185	0.089			2080	229	0.110	
Junction Road NB	LT+SA	C1	3	3.50	25.0		27	1934	446	0.231	0.231	23	1938	532	0.274	0.274
Junction Road SB	LT+SA	D1	3	3.00	25.0		28	1883	351	0.186		32	1879	355	0.189	
	SA	D2	3	3.00				2055	382	0.186			2055	388	0.189	
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P2	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P3	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	
		P4	2		min crossing time =		5	sec GM +		11		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

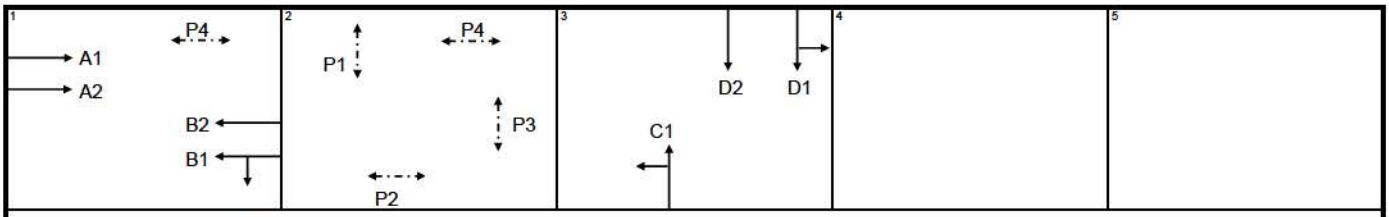


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.406		0.443	
L (s)	30		30	
C (s)	108		100	
practical y	0.650		0.630	
R.C. (%)	60%		42%	



AM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	7	G =	16	I/G =	3	G =	I/G =	6	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

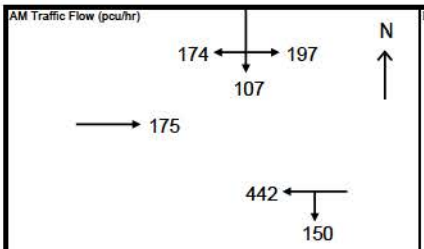
Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.6-1

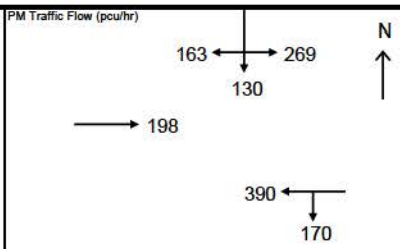
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	84	0.044			1915	96	0.050	
	SA	A2	1	3.00				2055	91	0.044			2055	102	0.050	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		53	1890	284	0.150	0.150	64	1875	267	0.142	
	SA	B2	1	3.00				2055	308	0.150			2055	293	0.143	0.143
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		86	1846	228	0.124		100	1828	269	0.147	0.147
	SA+RT	C2	3	3.50	25.0		70	2020	250	0.124	0.124	56	2037	293	0.144	
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +	8	sec FGM =	13	sec				
		P2	2		min crossing time =		9	sec GM +	14	sec FGM =	23	sec				
		P3	2		min crossing time =		5	sec GM +	7	sec FGM =	12	sec				
		P4	2		min crossing time =		9	sec GM +	14	sec FGM =	23	sec				

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

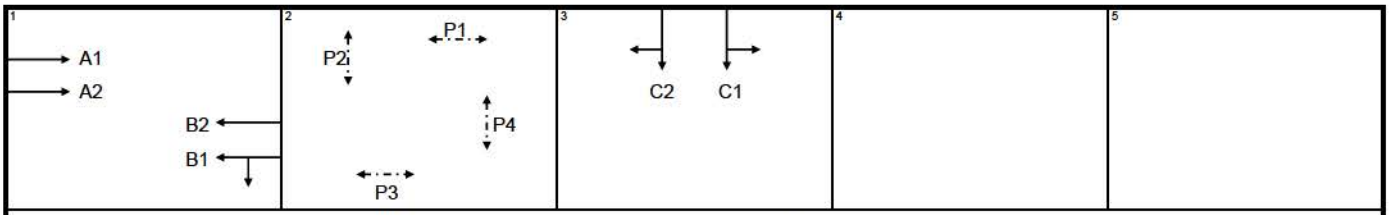


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.274		0.290	
L (s)	37		37	
C (s)	120		110	
practical y	0.623		0.597	
R.C. (%)	127%		106%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

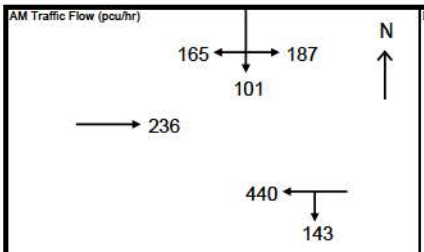
Scenario: existing condition (weekend) — R1A / P.6-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

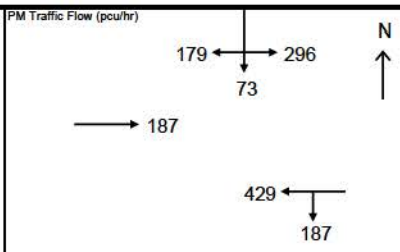
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	114	0.060			1915	90	0.047	
	SA	A2	1	3.00				2055	122	0.059			2055	97	0.047	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		51	1893	280	0.148	0.148	64	1875	294	0.157	0.157
	SA	B2	1	3.00				2055	303	0.147			2055	322	0.157	
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		87	1845	216	0.117		100	1828	296	0.162	0.162
	SA+RT	C2	3	3.50	25.0		70	2020	237	0.117	0.117	71	2019	252	0.125	

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	8	sec FGM =	13	sec
	P2	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec
	P3	2		min crossing time =	5	sec GM +	7	sec FGM =	12	sec
	P4	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

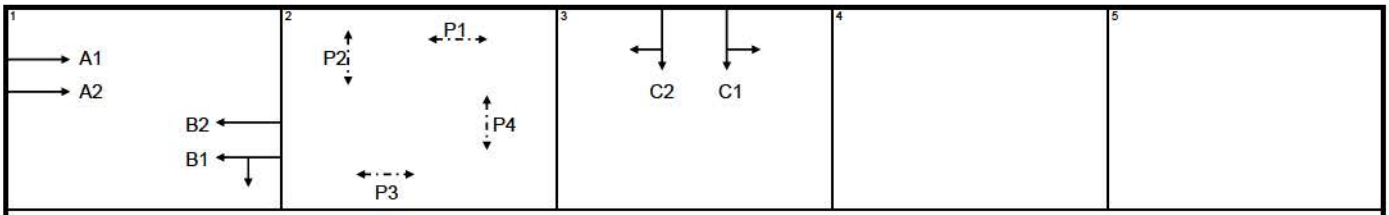


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.265		0.319	
L (s)	37		37	
C (s)	108		100	
practical y	0.592		0.567	
R.C. (%)	123%		78%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

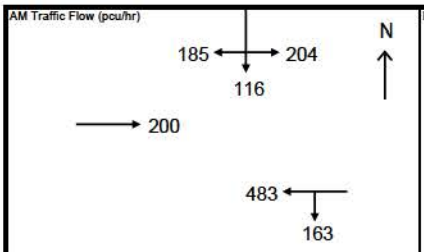
Scenario: without KC-015 (weekday) — R1A / P.6-3

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

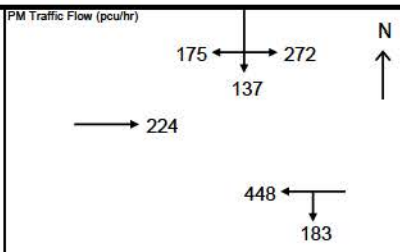
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	96	0.050			1915	108	0.056	
	SA	A2	1	3.00				2055	104	0.051			2055	116	0.056	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		53	1890	309	0.164		61	1879	301	0.160	
	SA	B2	1	3.00				2055	337	0.164	0.164		2055	330	0.161	0.161
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		85	1847	241	0.130		99	1829	276	0.151	
	SA+RT	C2	3	3.50	25.0		70	2020	264	0.131	0.131	57	2035	308	0.151	0.151

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	8	sec FGM =	13	sec
	P2	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec
	P3	2		min crossing time =	5	sec GM +	7	sec FGM =	12	sec
	P4	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

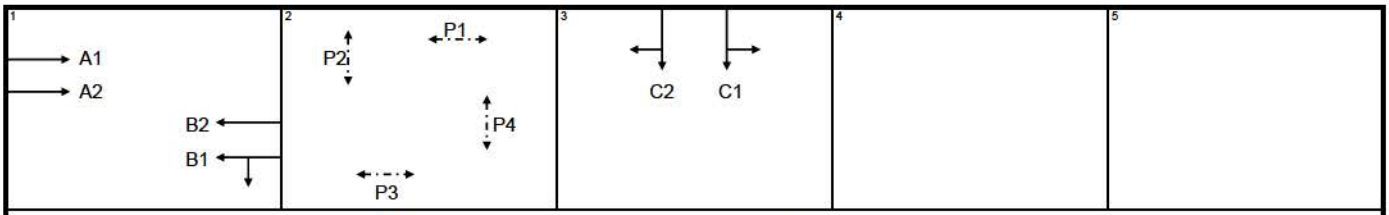


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.295		0.312	
L (s)	37		37	
C (s)	120		110	
practical y	0.623		0.597	
R.C. (%)	111%		91%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =		G =	I/G =	
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =		G =	I/G =	

Signal Junction Analysis

Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

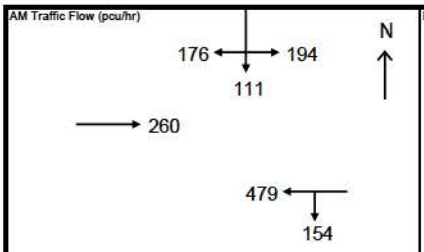
Scenario: without KC-015 (weekend) — R1A / P.6-4

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

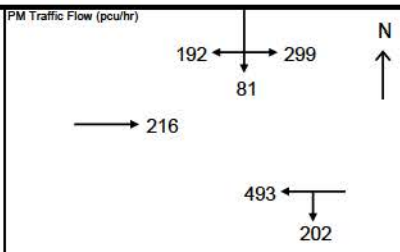
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	125	0.065			1915	104	0.054	
	SA	A2	1	3.00				2055	135	0.066			2055	112	0.055	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		51	1893	303	0.160		61	1879	332	0.177	0.177
	SA	B2	1	3.00				2055	330	0.161	0.161		2055	363	0.177	
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		84	1849	230	0.124	0.124	100	1828	299	0.164	0.164
	SA+RT	C2	3	3.50	25.0		70	2020	251	0.124		70	2020	273	0.135	

pedestrian phase	P1	1,2		min crossing time =	5	sec GM +	8	sec FGM =	13	sec
	P2	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec
	P3	2		min crossing time =	5	sec GM +	7	sec FGM =	12	sec
	P4	2		min crossing time =	9	sec GM +	14	sec FGM =	23	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

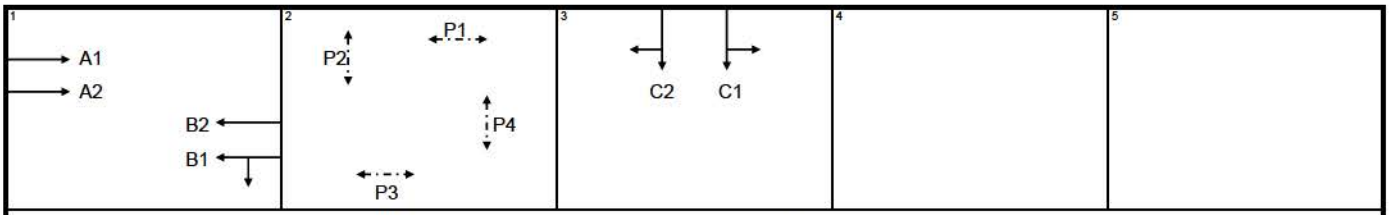


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.285		0.340	
L (s)	37		37	
C (s)	108		100	
practical y	0.592		0.567	
R.C. (%)	108%		67%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

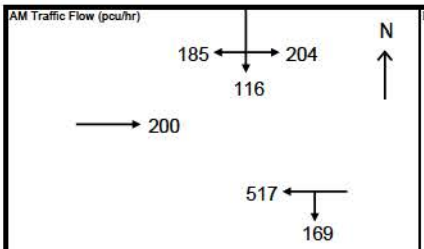
Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.6-5

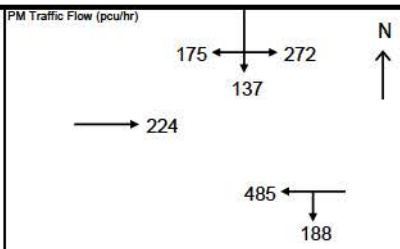
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	96	0.050			1915	108	0.056	
	SA	A2	1	3.00				2055	104	0.051			2055	116	0.056	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		51	1893	329	0.174	0.174	58	1883	322	0.171	0.171
	SA	B2	1	3.00				2055	357	0.174			2055	351	0.171	
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		85	1847	241	0.130		99	1829	276	0.151	
	SA+RT	C2	3	3.50	25.0		70	2020	264	0.131	0.131	57	2035	308	0.151	0.151
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +	8	sec FGM =	13	sec				
		P2	2		min crossing time =		9	sec GM +	14	sec FGM =	23	sec				
		P3	2		min crossing time =		5	sec GM +	7	sec FGM =	12	sec				
		P4	2		min crossing time =		9	sec GM +	14	sec FGM =	23	sec				

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

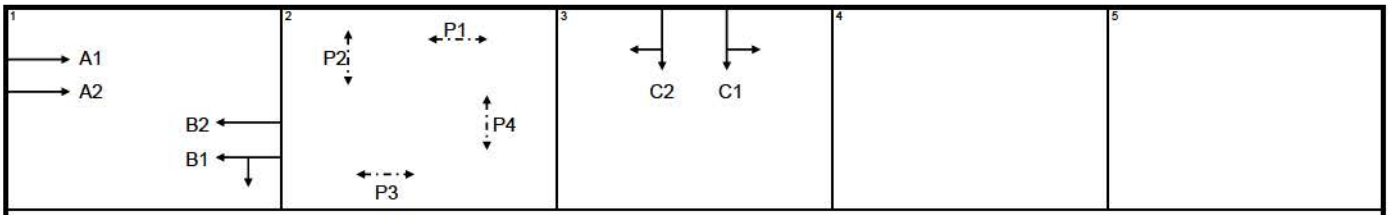


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.305		0.322	
L (s)	37		37	
C (s)	120		110	
practical y	0.623		0.597	
R.C. (%)	104%		85%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

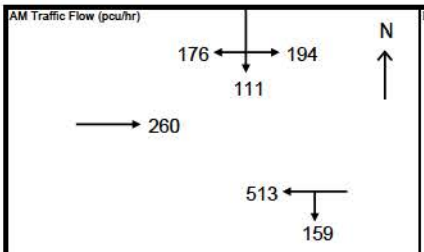
Junction: F. Nga Tsin Wai Road / Lion Rock Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.6-6

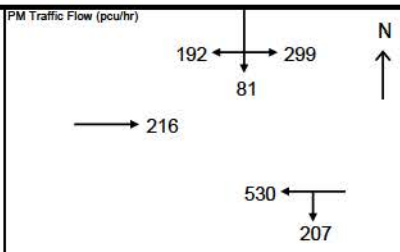
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	SA	A1	1	3.00				1915	125	0.065			1915	104	0.054	
	SA	A2	1	3.00				2055	135	0.066			2055	112	0.055	
Nga Tsin Wai Road WB	LT+SA	B1	1	3.50	20.0		49	1895	322	0.170		59	1882	352	0.187	
	SA	B2	1	3.00				2055	350	0.170	0.170		2055	385	0.187	0.187
Lion Rock Road SB	LT+SA	C1	3	3.50	20.0		85	1847	230	0.125	0.125	100	1828	299	0.164	0.164
	SA+RT	C2	3	3.50	25.0		70	2020	251	0.124		70	2020	273	0.135	
pedestrian phase		P1	1,2		min crossing time =		5	sec GM +		8	sec FGM =		13	sec		
		P2	2		min crossing time =		9	sec GM +		14	sec FGM =		23	sec		
		P3	2		min crossing time =		5	sec GM +		7	sec FGM =		12	sec		
		P4	2		min crossing time =		9	sec GM +		14	sec FGM =		23	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

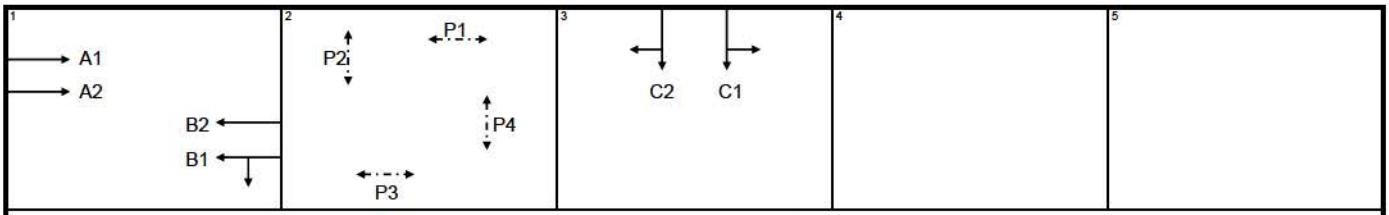


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.295		0.351	
L (s)	37		37	
C (s)	108		100	
practical y	0.592		0.567	
R.C. (%)	101%		62%	

Note:



AM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	9	G =	23	I/G =	2	G =	I/G =	5	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

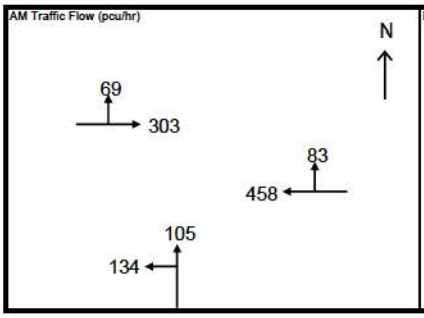
Scenario: existing condition (weekday) — R1A / P.7-1

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

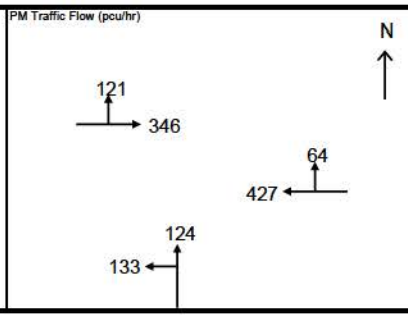
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		49	1826	142	0.078	0.078	76	1780	160	0.090	0.090
	SA	A2	1	3.25				2080	161	0.077			2080	186	0.089	
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	264	0.138	0.138		1915	248	0.130	0.130
	SA+RT	B2	2	3.00	20.0		30	2010	277	0.138		26	1878	243	0.129	
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	134	0.077	0.077	100	1741	133	0.076	0.076
	SA	C2	3	3.00				1915	105	0.055			1915	124	0.065	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	9	sec FGM =	17	sec
	P2	3,4		min crossing time =	6	sec GM +	7	sec FGM =	13	sec
	P3	4		min crossing time =	9	sec GM +	12	sec FGM =	21	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

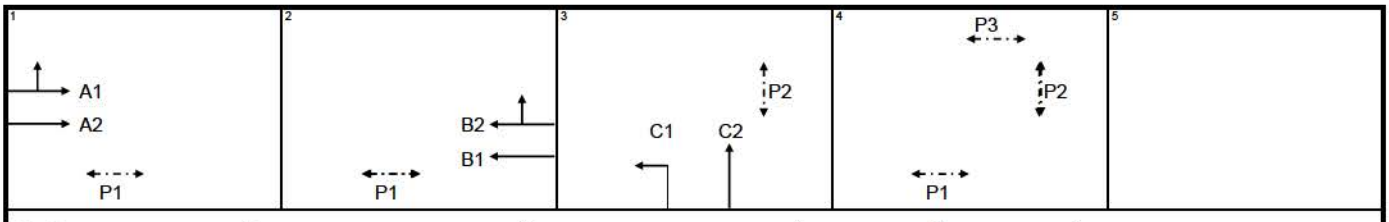


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.293		0.296	
L (s)	41		41	
C (s)	120		110	
practical y	0.593		0.565	
R.C. (%)	102%		91%	

Note:



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

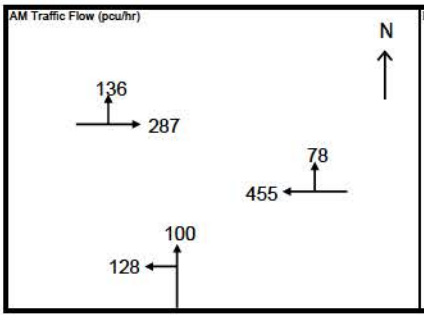
Scenario: existing condition (weekend) — R1A / P.7-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

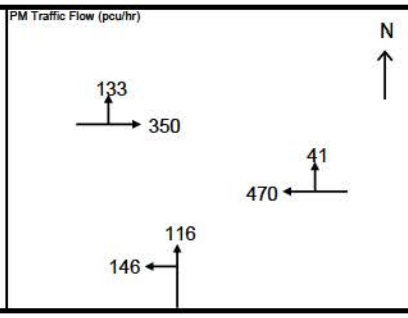
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		69	1791	196	0.109	0.109	59	1808	225	0.124	0.124
	SA	A2	1	3.25				2080	227	0.109			2080	258	0.124	
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	260	0.136	0.136		1915	257	0.134	
	SA+RT	B2	2	3.00	20.0		29	2011	273	0.136		16	1892	254	0.134	0.134
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	128	0.074	0.074	100	1741	146	0.084	0.084
	SA	C2	3	3.00				1915	100	0.052			1915	116	0.061	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	9	sec FGM =	17	sec	
	P2	3,4		min crossing time =	6	sec GM +	7	sec FGM =	13	sec	
	P3	4		min crossing time =	9	sec GM +	12	sec FGM =	21	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

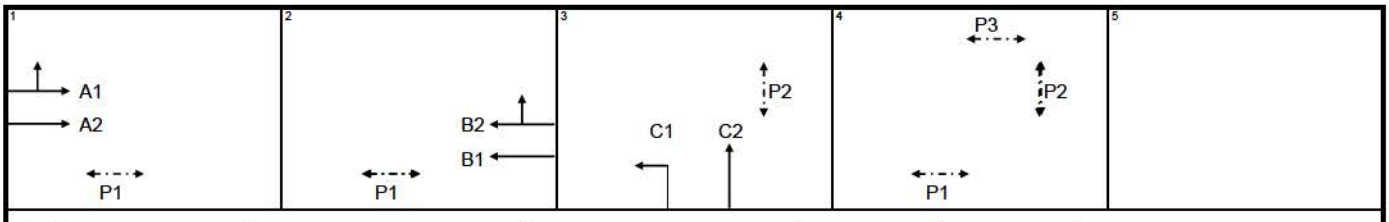


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.319		0.343	
L (s)	41		41	
C (s)	108		100	
practical y	0.558		0.531	
R.C. (%)	75%		55%	



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

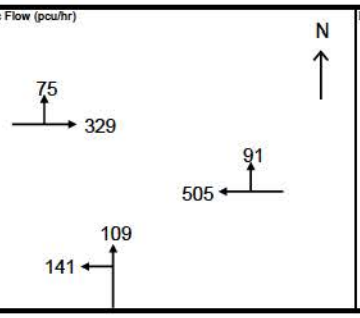
Scenario: without KC-015 (weekday) — R1A / P.7-3

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

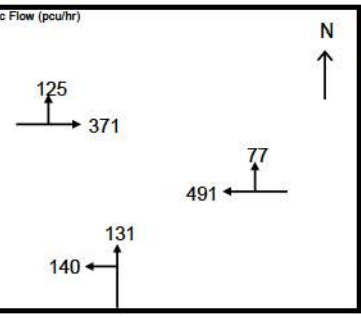
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		39	1843	190	0.103	0.103	54	1817	231	0.127	
	SA	A2	1	3.25				2080	214	0.103			2080	265	0.127	0.127
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	291	0.152	0.152		1915	287	0.150	0.150
	SA+RT	B2	2	3.00	20.0		30	2010	305	0.152		27	1877	281	0.150	
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	141	0.081	0.081	100	1741	140	0.080	0.080
	SA	C2	3	3.00				1915	109	0.057			1915	131	0.068	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	9	sec FGM =	17	sec
	P2	3,4		min crossing time =	6	sec GM +	7	sec FGM =	13	sec
	P3	4		min crossing time =	9	sec GM +	12	sec FGM =	21	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

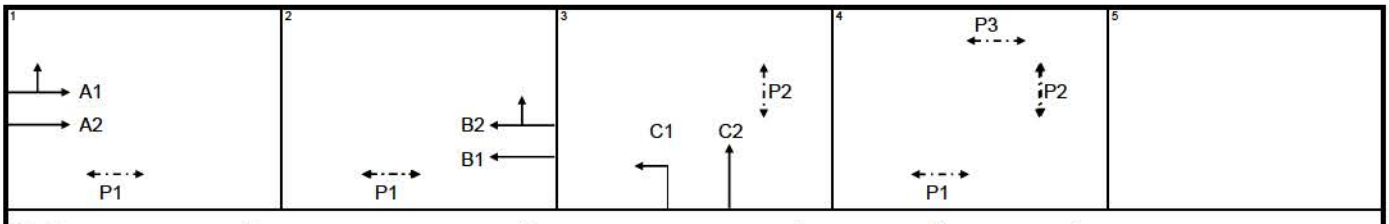


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.336		0.358	
L (s)	41		41	
C (s)	120		110	
practical y	0.593		0.565	
R.C. (%)	76%		58%	

Note:



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

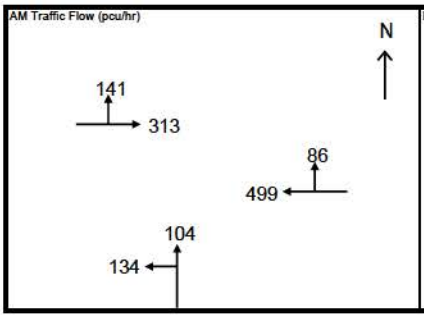
Scenario: without KC-015 (weekend) — R1A / P.7-4

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

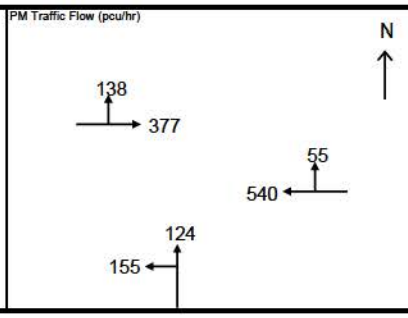
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		67	1795	210	0.117		58	1810	240	0.133	0.133
	SA	A2	1	3.25				2080	244	0.117	0.117		2080	275	0.132	
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	285	0.149			1915	300	0.157	0.157
	SA+RT	B2	2	3.00	20.0		29	2011	300	0.149	0.149	19	1888	295	0.156	
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	134	0.077	0.077	100	1741	155	0.089	0.089
	SA	C2	3	3.00				1915	104	0.054			1915	124	0.065	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	9	sec FGM =	17	sec
	P2	3,4		min crossing time =	6	sec GM +	7	sec FGM =	13	sec
	P3	4		min crossing time =	9	sec GM +	12	sec FGM =	21	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

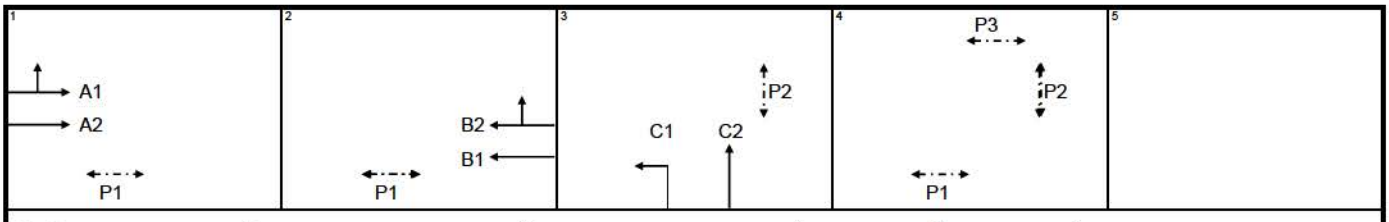


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.343		0.378	
L (s)	41		41	
C (s)	108		100	
practical y	0.558		0.531	
R.C. (%)	63%		40%	

Note:



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

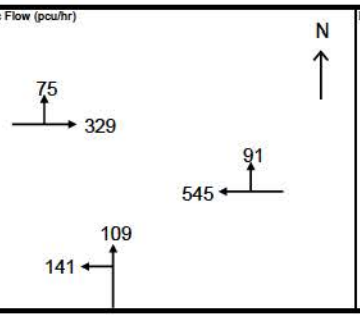
Scenario: with KC-015 (weekday) — R1A / P.7-5

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

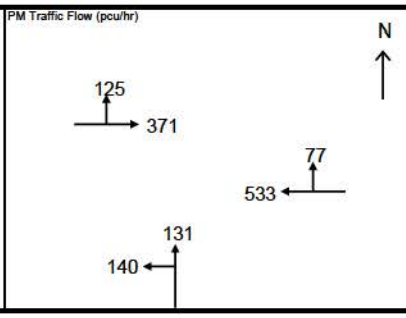
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		39	1843	190	0.103	0.103	54	1817	231	0.127	
	SA	A2	1	3.25				2080	214	0.103			2080	265	0.127	0.127
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	310	0.162			1915	308	0.161	0.161
	SA+RT	B2	2	3.00	20.0		28	2013	326	0.162	0.162	25	1880	302	0.161	
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	141	0.081	0.081	100	1741	140	0.080	0.080
	SA	C2	3	3.00				1915	109	0.057			1915	131	0.068	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	9	sec FGM =	17	sec	
	P2	3,4		min crossing time =	6	sec GM +	7	sec FGM =	13	sec	
	P3	4		min crossing time =	9	sec GM +	12	sec FGM =	21	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

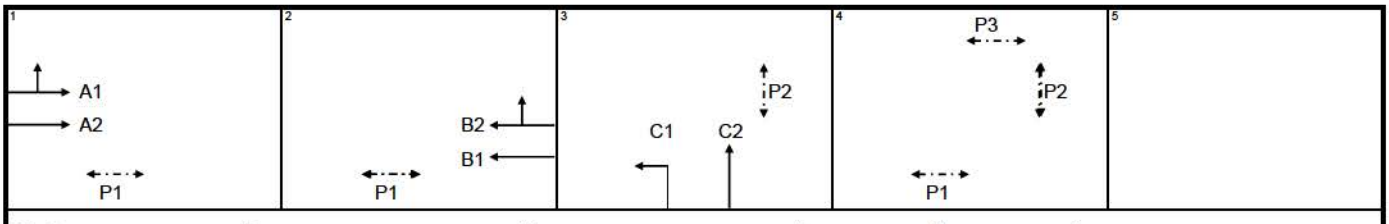


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.346		0.369	
L (s)	41		41	
C (s)	120		110	
practical y	0.593		0.565	
R.C. (%)	71%		53%	

Note:



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: G. Nga Tsin Wai Road / Hau Wong Road — Job Number: J6786

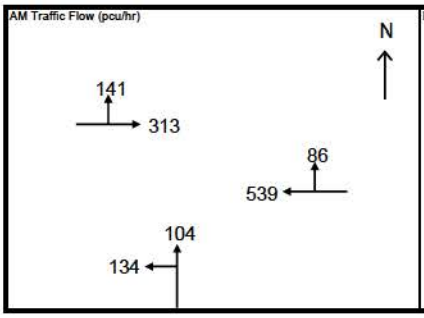
Scenario: with KC-015 (weekend) — R1A / P.7-6

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

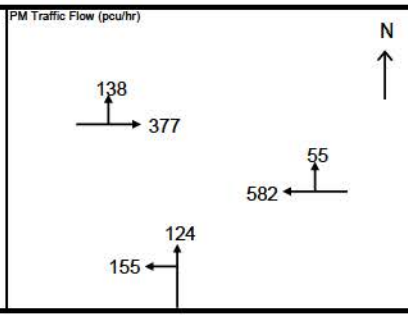
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	3.00	15.0		67	1795	210	0.117		58	1810	240	0.133	0.133
	SA	A2	1	3.25				2080	244	0.117	0.117		2080	275	0.132	
Nga Tsin Wai Road WB	SA	B1	2	3.00				1915	305	0.159	0.159		1915	321	0.168	0.168
	SA+RT	B2	2	3.00	20.0		27	2014	320	0.159		17	1891	316	0.167	
Hau Wong Road NB	LT	C1	3	3.00	15.0		100	1741	134	0.077	0.077	100	1741	155	0.089	0.089
	SA	C2	3	3.00				1915	104	0.054			1915	124	0.065	

pedestrian phase	P1	1,2,4		min crossing time =	8	sec GM +	8	sec FGM =	16	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	9	sec GM +	9	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

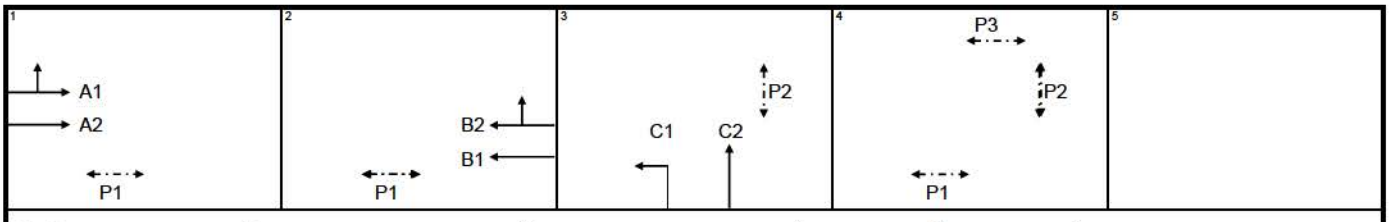


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.354		0.389	
L (s)	41		41	
C (s)	108		100	
practical y	0.558		0.531	
R.C. (%)	58%		36%	

Note:



AM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	5	G =		I/G =	6	G =		I/G =	9	G =	21	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

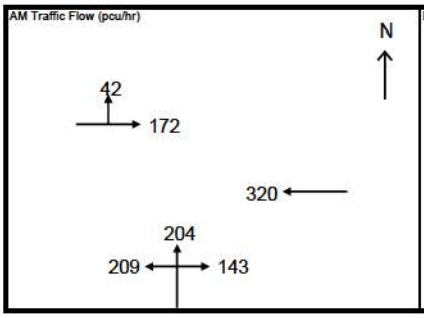
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.8-1

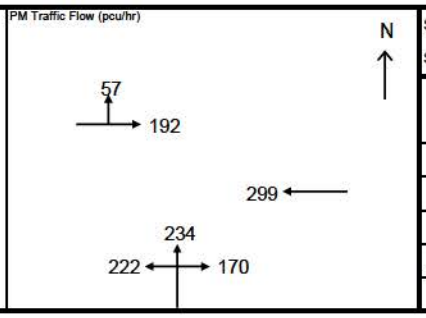
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		24	2127	172	0.081		30	2117	192	0.091	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	320	0.148	0.148		2165	299	0.138	0.138
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		76	1812	274	0.151		72	1817	310	0.171	0.171
	SA+RT	C2	3	3.00	25.0		51	1858	282	0.152	0.152	54	1855	316	0.170	
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

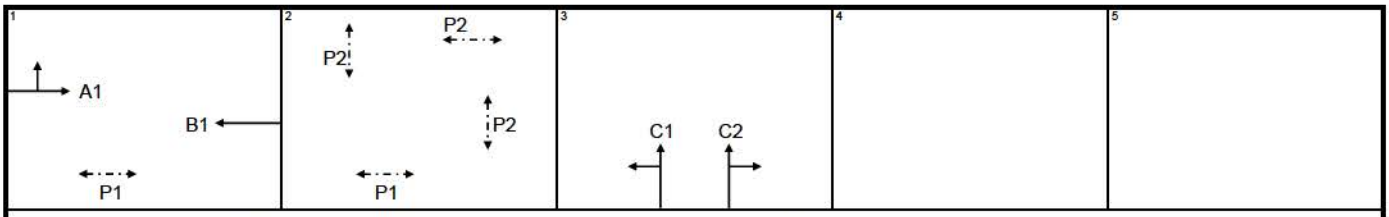


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.300		0.309	
L (s)	35		35	
C (s)	120		100	
practical y	0.638		0.585	
R.C. (%)	113%		89%	

Note:



AM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

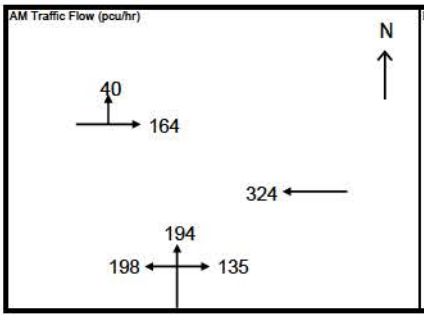
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: existing condition (weekend) — R1A / P.8-2

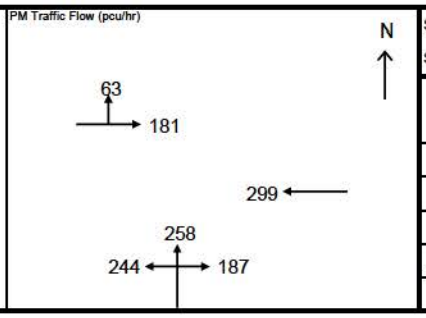
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		20	2133	204	0.096		26	2124	244	0.115	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	324	0.150	0.150		2165	299	0.138	0.138
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		76	1812	260	0.144		72	1817	341	0.188	0.188
	SA+RT	C2	3	3.00	25.0		51	1858	267	0.144	0.144	54	1855	348	0.188	
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

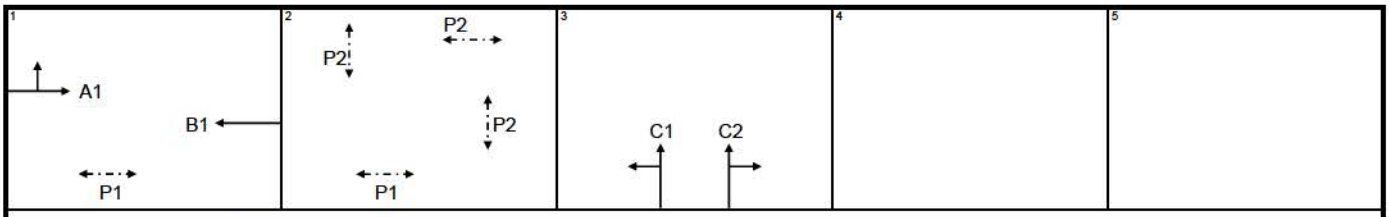


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.293		0.326	
L (s)	35		35	
C (s)	108		110	
practical y	0.608		0.614	
R.C. (%)	107%		88%	

Note:



AM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

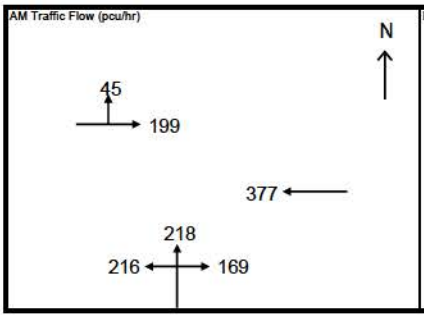
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.8-3

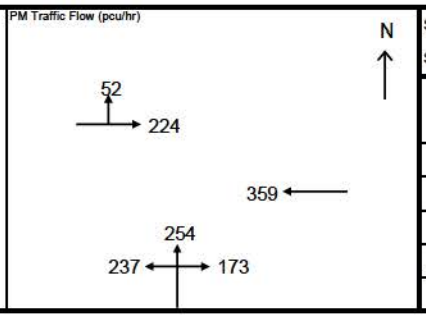
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		18	2136	244	0.114		19	2135	276	0.129	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	377	0.174	0.174		2165	359	0.166	0.166
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		72	1817	298	0.164		72	1817	328	0.181	
	SA+RT	C2	3	3.00	25.0		55	1854	305	0.165	0.165	51	1858	336	0.181	0.181
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

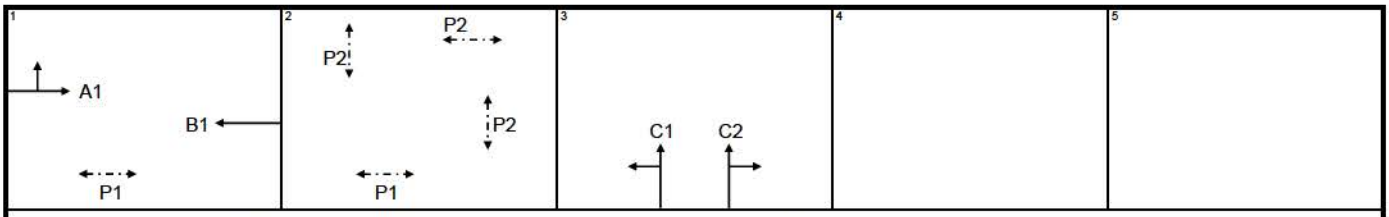


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.339		0.347	
L (s)	35		35	
C (s)	120		100	
practical y	0.638		0.585	
R.C. (%)	88%		69%	

Note:



AM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

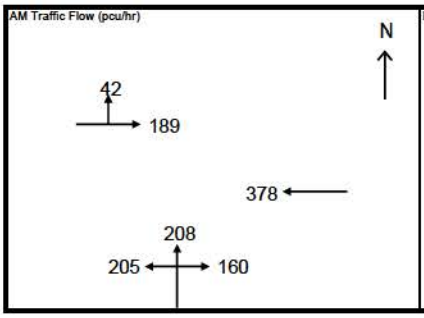
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: without KC-015 (weekend) — R1A / P.8-4

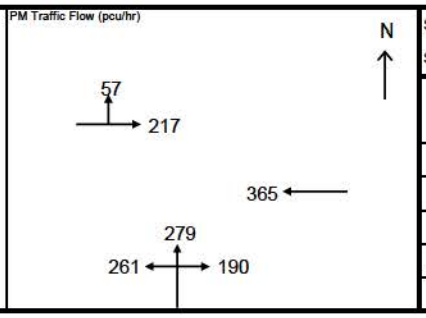
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		18	2136	231	0.108		21	2131	274	0.129	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	378	0.175	0.175		2165	365	0.169	0.169
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		72	1817	284	0.156	0.156	72	1817	361	0.199	0.199
	SA+RT	C2	3	3.00	25.0		55	1854	289	0.156		51	1858	369	0.199	
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

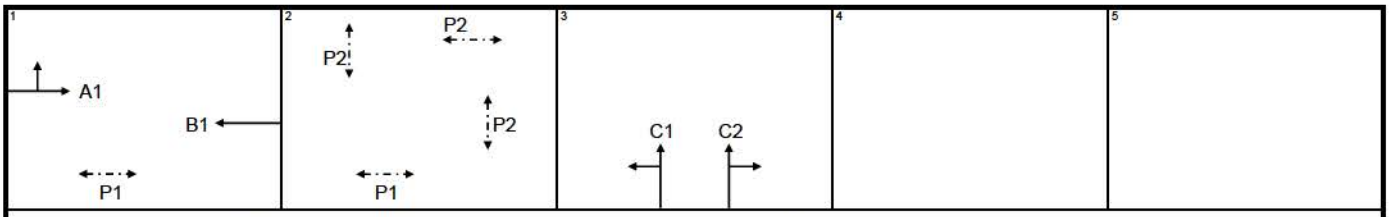


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.331		0.367	
L (s)	35		35	
C (s)	108		110	
practical y	0.608		0.614	
R.C. (%)	84%		67%	

Note:



AM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =	8	G =	20	I/G =	3	G =		I/G =	6	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

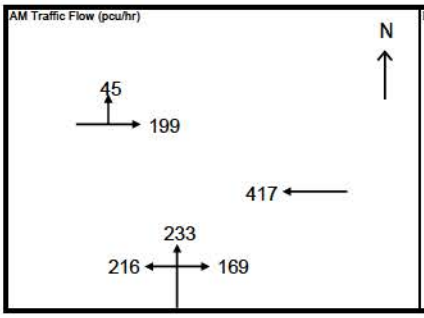
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.8-5

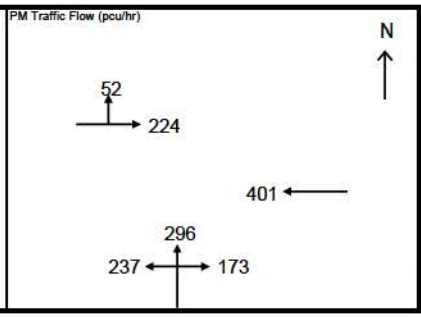
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		18	2136	244	0.114		19	2135	276	0.129	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	417	0.193	0.193		2165	401	0.185	0.185
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		71	1818	306	0.168	0.168	68	1822	349	0.192	
	SA+RT	C2	3	3.00	25.0		54	1855	312	0.168		48	1861	357	0.192	0.192
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

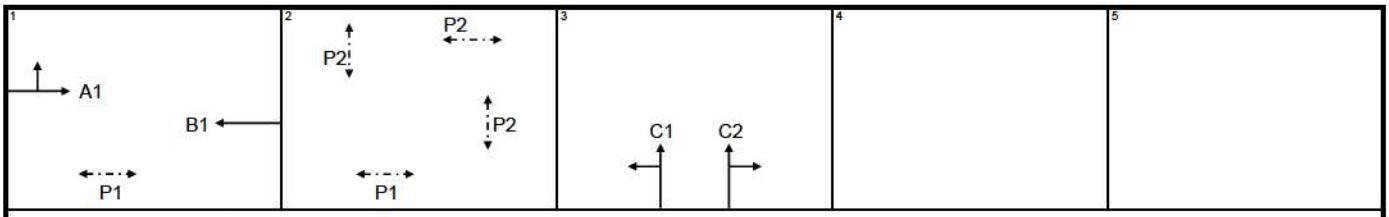


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.361		0.377	
L (s)	35		35	
C (s)	120		100	
practical y	0.638		0.585	
R.C. (%)	77%		55%	

Note:



AM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Signal Junction Analysis

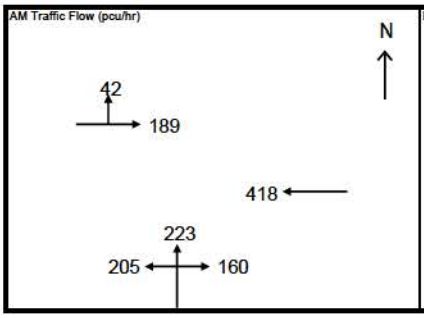
Junction: H. Nga Tsin Wai Road / Lung Kong Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.8-6

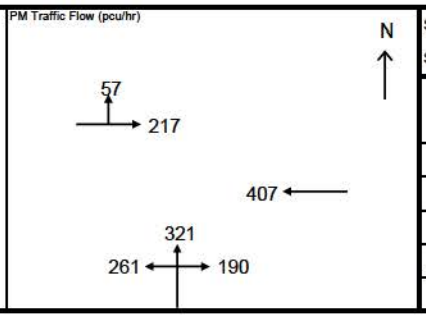
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Nga Tsin Wai Road EB	LT+SA	A1	1	5.50	20.0		18	2136	231	0.108		21	2131	274	0.129	
Nga Tsin Wai Road WB	SA	B1	1	5.50				2165	418	0.193	0.193		2165	407	0.188	0.188
Lung Kong Road NB	LT+SA	C1	3	3.00	20.0		70	1819	291	0.160		68	1822	382	0.210	0.210
	SA+RT	C2	3	3.00	25.0		54	1855	297	0.160	0.160	49	1860	390	0.210	
pedestrian phase		P1	1,2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		
		P2	2		min crossing time =		10	sec GM +		10	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

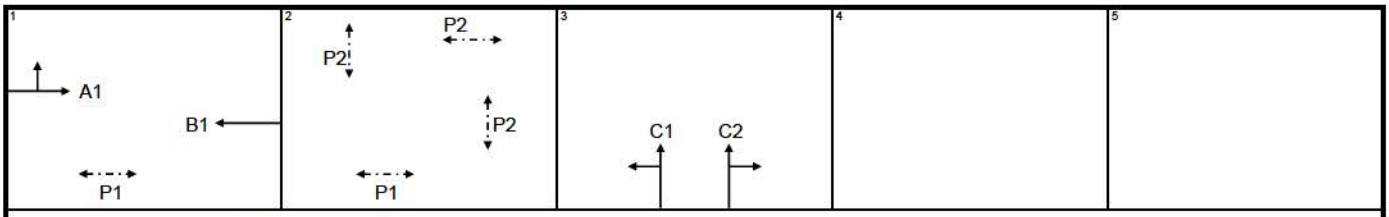


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.353		0.398	
L (s)	35		35	
C (s)	108		110	
practical y	0.608		0.614	
R.C. (%)	72%		54%	

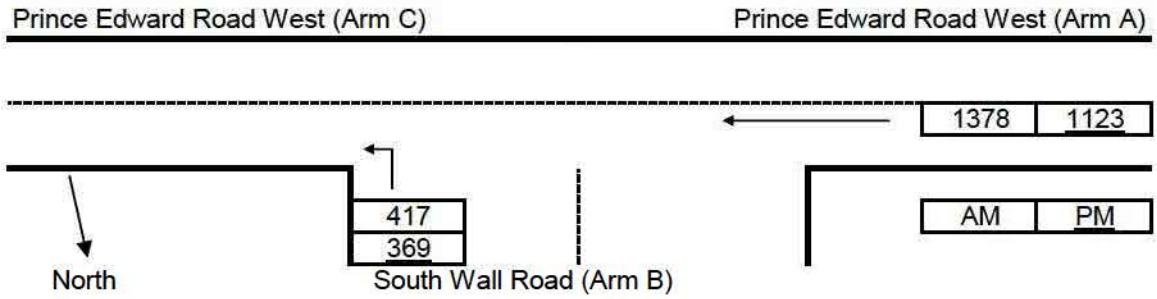
Note:



AM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		
PM	G =	I/G =	8	G =	20	I/G =	3	G =	I/G =	6	G =	I/G =	G =	I/G =		
	G =	I/G =		G =		I/G =		G =	I/G =		G =	I/G =	G =	I/G =		

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-1
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

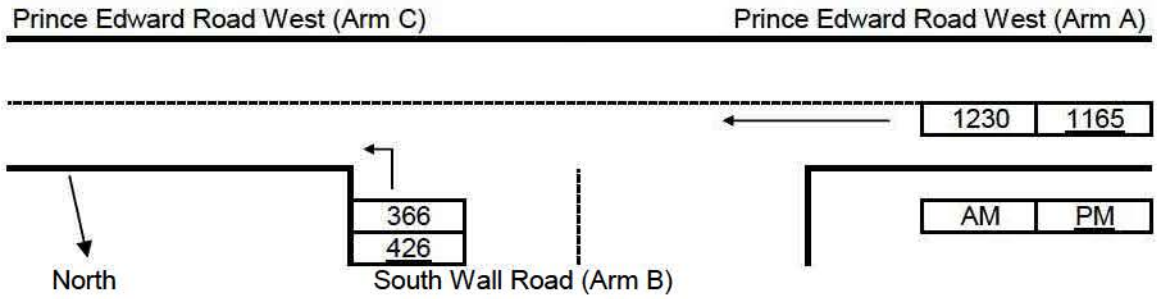
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	215	237
q-CB	0	0	Q-BC	573	619
q-AB	0	0	Q-CB	305	329
q-AC	1378	1123	Q-BAC	573	619
q-BA	0	0			
q-BC	417	369			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.728	0.596	
C-B	0.000	0.000	
B-AC	0.728	0.596	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-2
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

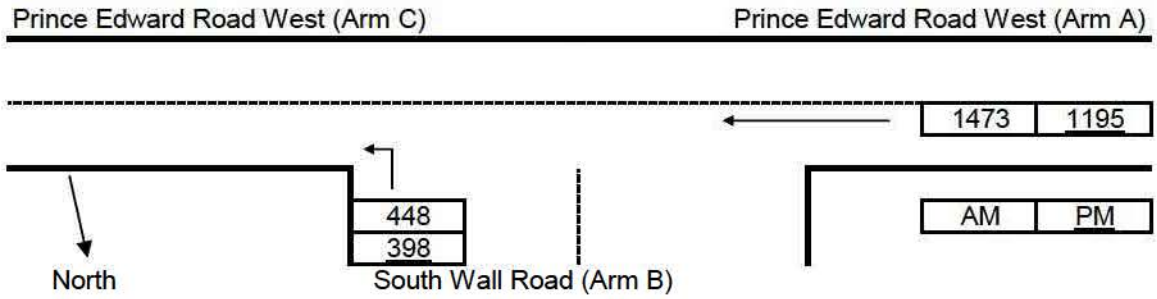
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	227	233
q-CB	0	0	Q-BC	600	611
q-AB	0	0	Q-CB	319	325
q-AC	1230	1165	Q-BAC	600	611
q-BA	0	0			
q-BC	366	426			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.610	0.697
C-B	0.000	0.000
B-AC	0.610	0.697 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-3
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

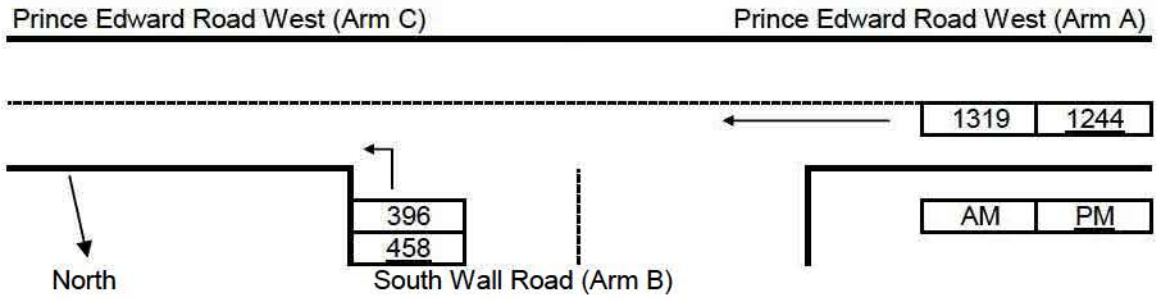
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	206	230
q-CB	0	0	Q-BC	556	606
q-AB	0	0	Q-CB	296	322
q-AC	1473	1195	Q-BAC	556	606
q-BA	0	0			
q-BC	448	398			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.806	0.657
C-B	0.000	0.000
B-AC	0.806	0.657 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-4
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

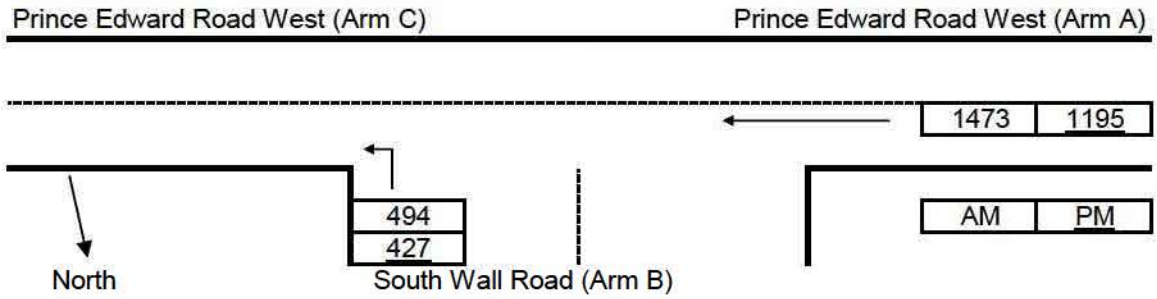
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	220	226
q-CB	0	0	Q-BC	584	597
q-AB	0	0	Q-CB	311	318
q-AC	1319	1244	Q-BAC	584	597
q-BA	0	0			
q-BC	396	458			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.678	0.767	
C-B	0.000	0.000	
B-AC	0.678	0.767	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-5
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

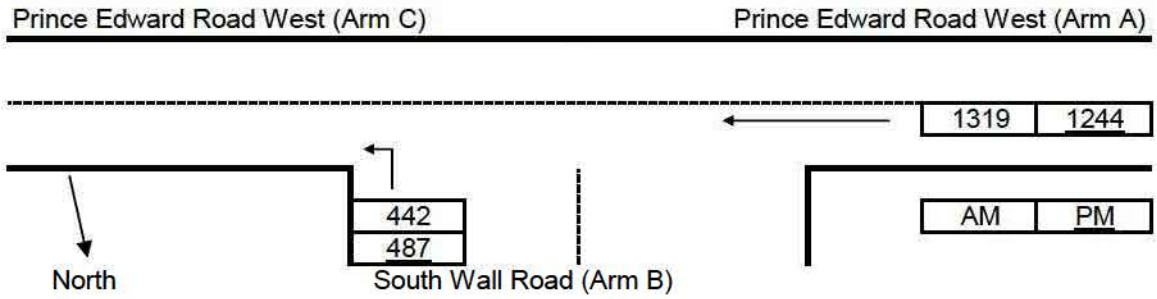
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	206	230
q-CB	0	0	Q-BC	556	606
q-AB	0	0	Q-CB	296	322
q-AC	1473	1195	Q-BAC	556	606
q-BA	0	0			
q-BC	494	427			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.888	0.705	
C-B	0.000	0.000	
B-AC	0.888	0.705	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	I. Prince Edward Road West / South Wall Road				R1A / P.9-6
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	16.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.00	E	1.1015
			V-rBC	95	w-CB		F	0.5860
			V-rCB				Y	0.4480

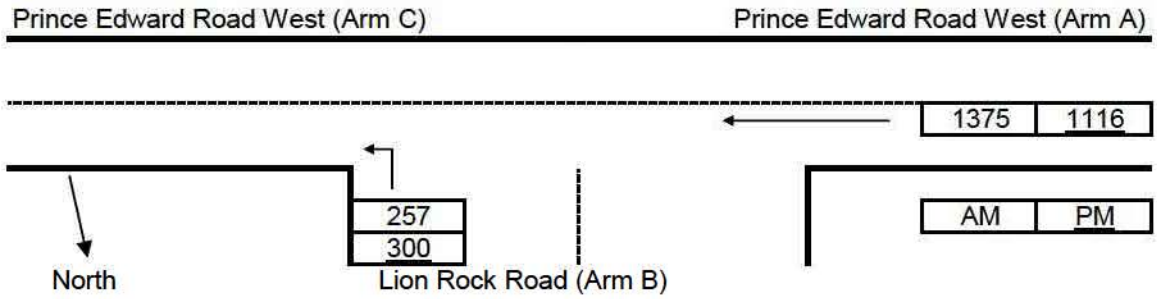
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	220	226
q-CB	0	0	Q-BC	584	597
q-AB	0	0	Q-CB	311	318
q-AC	1319	1244	Q-BAC	584	597
q-BA	0	0			
q-BC	442	487			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.757	0.815	
C-B	0.000	0.000	
B-AC	0.757	0.815	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-1
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

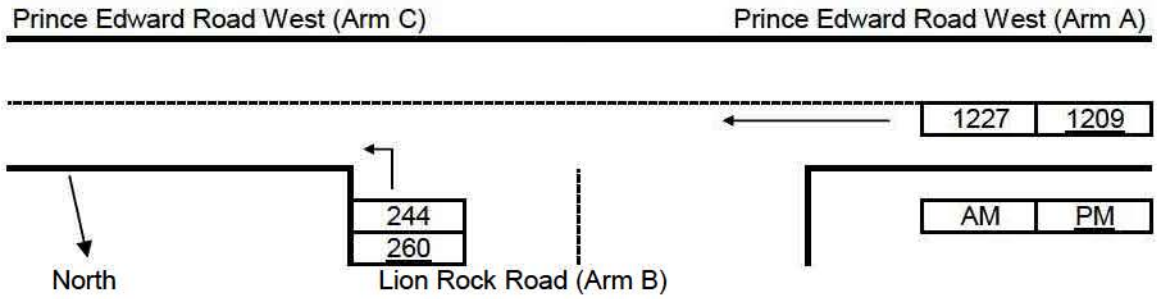
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	252	267
q-CB	0	0	Q-BC	639	671
q-AB	0	0	Q-CB	346	363
q-AC	1375	1116	Q-BAC	639	671
q-BA	0	0			
q-BC	257	300			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.402	0.447
C-B	0.000	0.000
B-AC	0.402	0.447 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-2
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

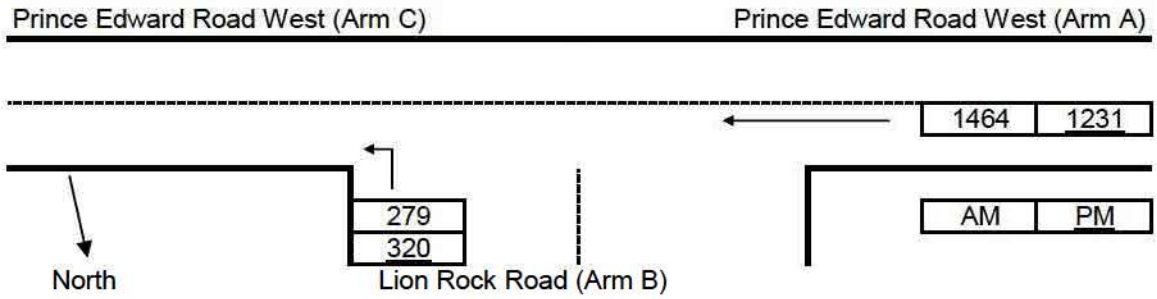
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	261	262
q-CB	0	0	Q-BC	658	660
q-AB	0	0	Q-CB	355	357
q-AC	1227	1209	Q-BAC	658	660
q-BA	0	0			
q-BC	244	260			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.371	0.394	
C-B	0.000	0.000	
B-AC	0.371	0.394	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-3
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

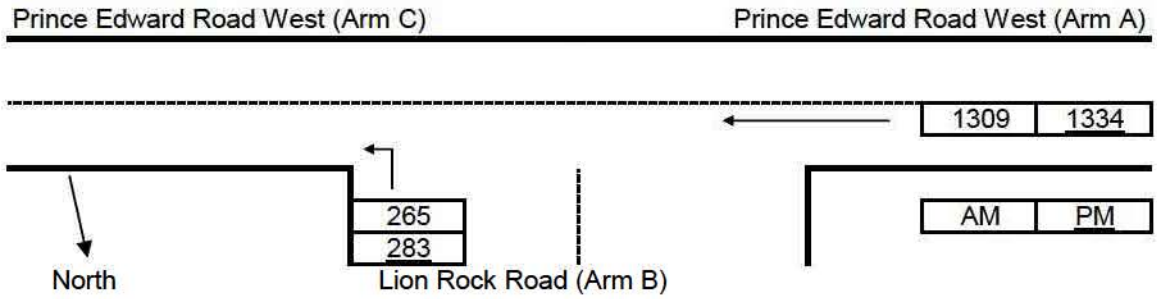
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	246	260
q-CB	0	0	Q-BC	629	657
q-AB	0	0	Q-CB	340	355
q-AC	1464	1231	Q-BAC	629	657
q-BA	0	0			
q-BC	279	320			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.444	0.487
C-B	0.000	0.000
B-AC	0.444	0.487 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-4
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

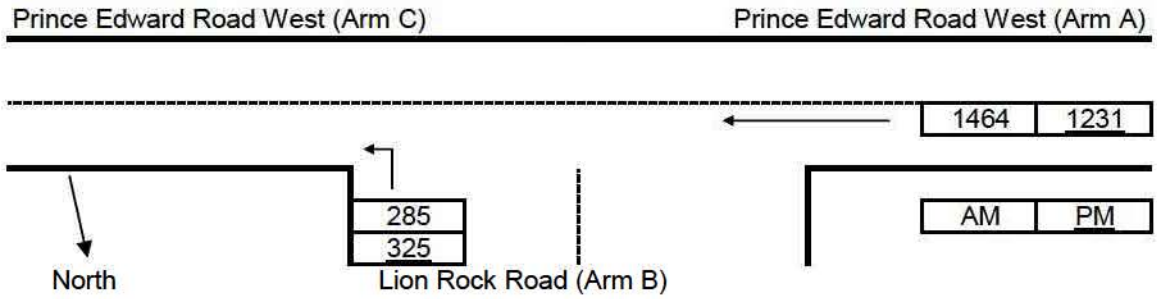
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	256	254
q-CB	0	0	Q-BC	648	644
q-AB	0	0	Q-CB	350	348
q-AC	1309	1334	Q-BAC	648	644
q-BA	0	0			
q-BC	265	283			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.409	0.439
C-B	0.000	0.000
B-AC	0.409	0.439 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-5
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

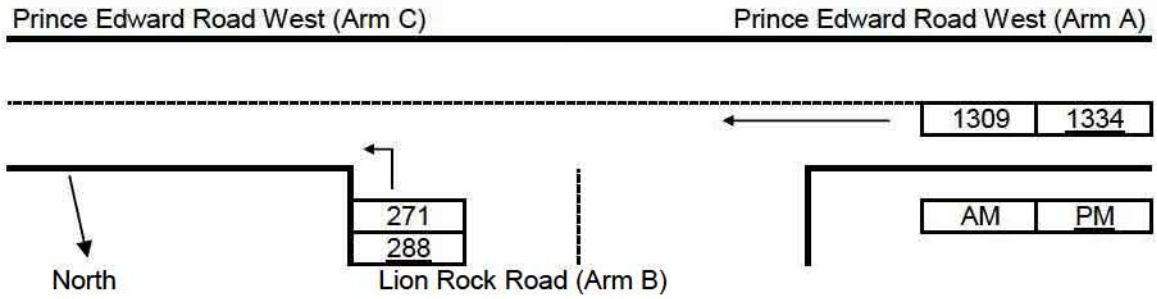
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	246	260
q-CB	0	0	Q-BC	629	657
q-AB	0	0	Q-CB	340	355
q-AC	1464	1231	Q-BAC	629	657
q-BA	0	0			
q-BC	285	325			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.453	0.495	
C-B	0.000	0.000	
B-AC	0.453	0.495	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	J. Prince Edward Road West / Lion Rock Road				R1A / P.10-6
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.00	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	5.50	E	1.0841
			V-rBC	35	w-CB		F	0.5860
			V-rCB				Y	0.3100

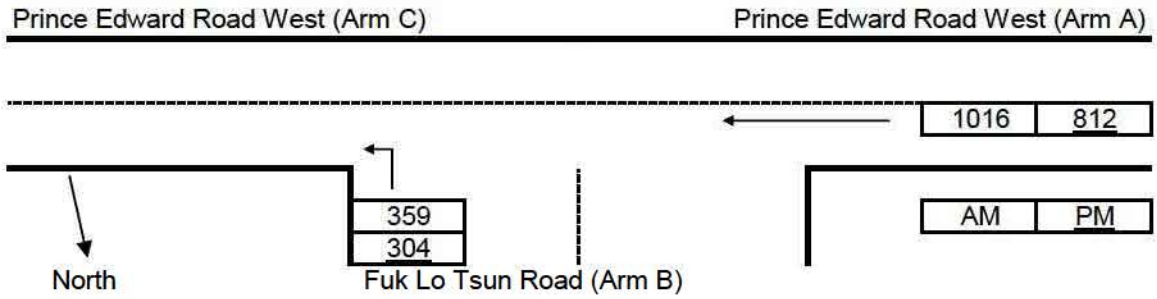
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	256	254
q-CB	0	0	Q-BC	648	644
q-AB	0	0	Q-CB	350	348
q-AC	1309	1334	Q-BAC	648	644
q-BA	0	0			
q-BC	271	288			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.419	0.447
C-B	0.000	0.000
B-AC	0.419	0.447 (for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-1
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

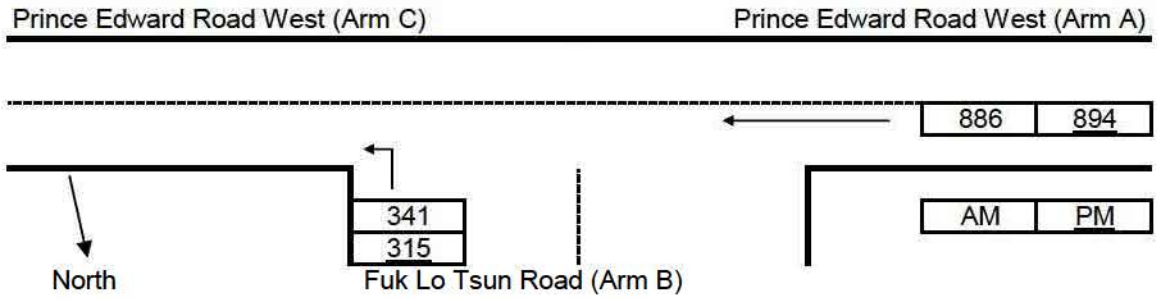
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	277	288
q-CB	0	0	Q-BC	1013	1047
q-AB	0	0	Q-CB	373	386
q-AC	1016	812	Q-BAC	1013	1047
q-BA	0	0			
q-BC	359	304			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.354	0.290	
C-B	0.000	0.000	
B-AC	0.354	0.290	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-2
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

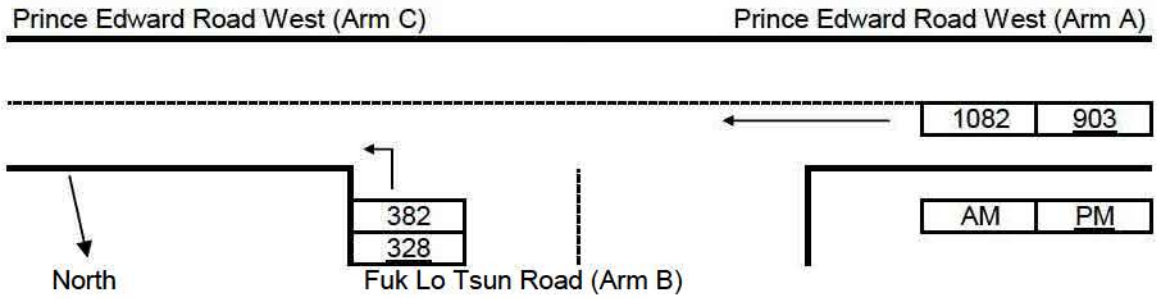
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	284	284
q-CB	0	0	Q-BC	1035	1034
q-AB	0	0	Q-CB	381	381
q-AC	886	894	Q-BAC	1035	1034
q-BA	0	0			
q-BC	341	315			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.330	0.305	
C-B	0.000	0.000	
B-AC	0.330	0.305	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-3
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

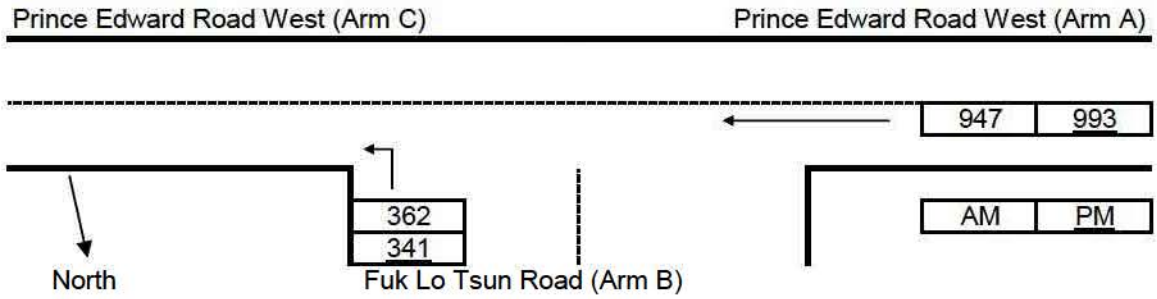
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	273	283
q-CB	0	0	Q-BC	1002	1032
q-AB	0	0	Q-CB	369	380
q-AC	1082	903	Q-BAC	1002	1032
q-BA	0	0			
q-BC	382	328			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.381	0.318	
C-B	0.000	0.000	
B-AC	0.381	0.318	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-4
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

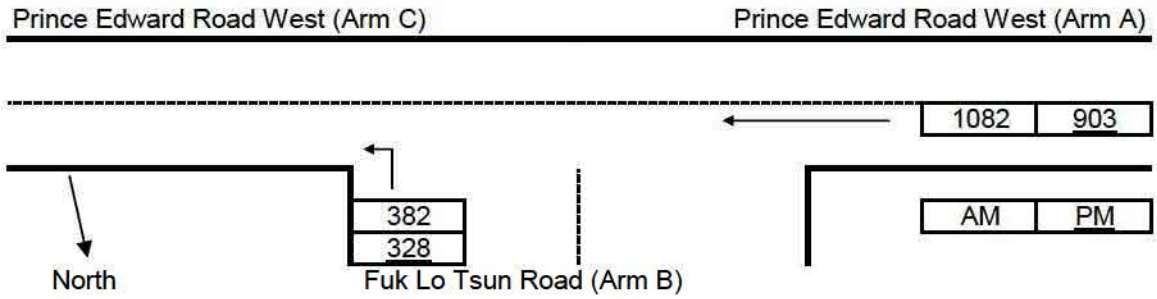
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	281	278
q-CB	0	0	Q-BC	1025	1017
q-AB	0	0	Q-CB	377	375
q-AC	947	993	Q-BAC	1025	1017
q-BA	0	0			
q-BC	362	341			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.353	0.335	
C-B	0.000	0.000	
B-AC	0.353	0.335	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-5
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

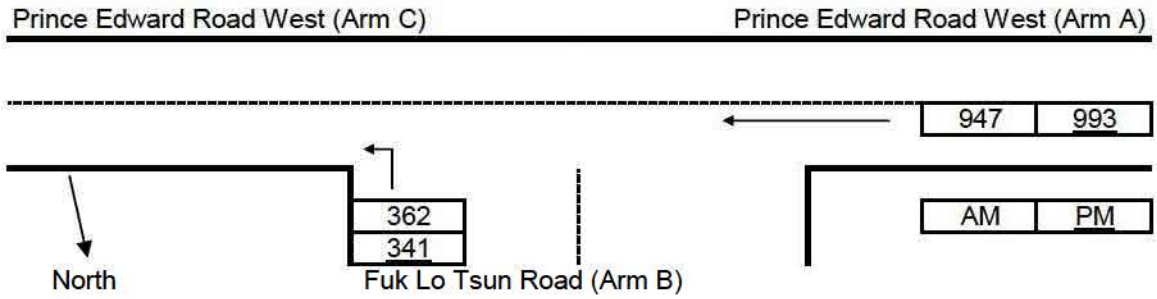
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	273	283
q-CB	0	0	Q-BC	1002	1032
q-AB	0	0	Q-CB	369	380
q-AC	1082	903	Q-BAC	1002	1032
q-BA	0	0			
q-BC	382	328			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.381	0.318	
C-B	0.000	0.000	
B-AC	0.381	0.318	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	K. Prince Edward Road West / Fuk Lo Tsun Road				R1A / P.11-6
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	20.50	V-rBA		w-BA		D	0.5332
	W-CR		V-lBA		w-BC	10.90	E	1.5907
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.2928

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	0	0	Q-BA	281	278
q-CB	0	0	Q-BC	1025	1017
q-AB	0	0	Q-CB	377	375
q-AC	947	993	Q-BAC	1025	1017
q-BA	0	0			
q-BC	362	341			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.000	0.000	
B-C	0.353	0.335	
C-B	0.000	0.000	
B-AC	0.353	0.335	(for shared lane CA, CB)

Signal Junction Analysis

Junction: L. Prince Edward Road West / Junction Road — Job Number: J6786

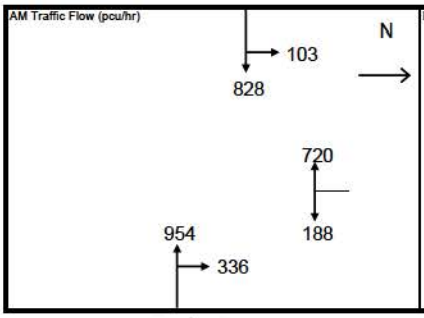
Scenario: existing condition (weekday) — R1A / P.12-1

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

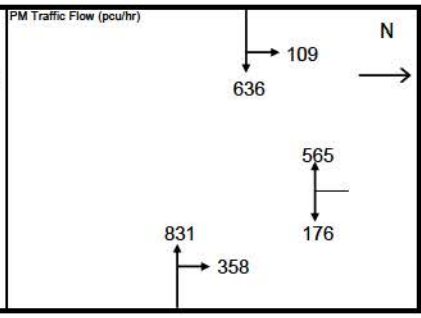
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	103	0.057		100	1807	109	0.060	
	SA	A2	1,2	3.50				2105	285	0.135	0.135		2105	219	0.104	0.104
	SA	A3	1,2	3.50				2105	285	0.135			2105	219	0.104	
	SA	A4	1,2	3.00				1915	258	0.135			1915	198	0.103	
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	469	0.233			2015	409	0.203	
	SA	B2	2,3	3.25				2080	485	0.233			2080	422	0.203	
	RT	B3	3	3.25	30.0		100	1848	336	0.182	0.182	100	1848	358	0.194	0.194
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	441	0.236		100	1871	360	0.192	0.192
	RT	C2	4	3.25	30.0		100	1981	467	0.236	0.236	100	1981	381	0.192	

pedestrian phase	P1	1		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	1,4		min crossing time =	5	sec GM +	9	sec FGM =	14	sec	
	P3	3		min crossing time =	5	sec GM +	9	sec FGM =	14	sec	
	P4	1		min crossing time =	7	sec GM +	5	sec FGM =	12	sec	
	P5	3,4		min crossing time =	7	sec GM +	13	sec FGM =	20	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

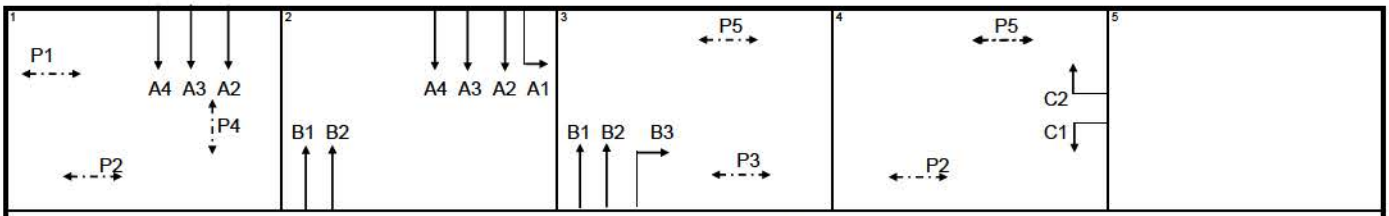


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.553	0.293	0.490	0.253
L (s)	13	56	13	56
C (s)	120	120	110	110
practical y	0.803	0.480	0.794	0.442
R.C. (%)	45%	64%	62%	75%

Note:



AM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =
PM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =

Signal Junction Analysis

Junction: L. Prince Edward Road West / Junction Road — Job Number: J6786

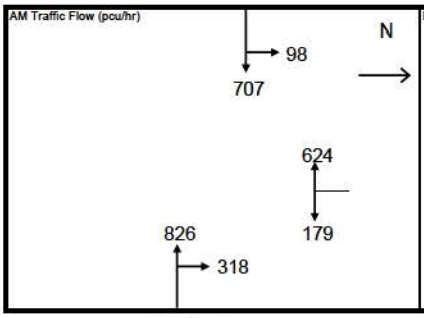
Scenario: existing condition (weekend) — R1A / P.12-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

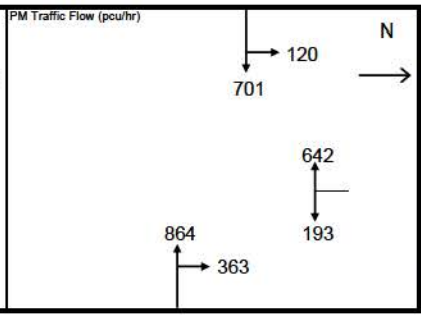
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	98	0.054		100	1807	120	0.066	
	SA	A2	1,2	3.50				2105	243	0.115	0.115		2105	241	0.114	0.114
	SA	A3	1,2	3.50				2105	243	0.115			2105	241	0.114	
	SA	A4	1,2	3.00				1915	221	0.115			1915	219	0.114	
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	406	0.201			2015	425	0.211	
	SA	B2	2,3	3.25				2080	420	0.202			2080	439	0.211	
	RT	B3	3	3.25	30.0		100	1848	318	0.172	0.172	100	1848	363	0.196	0.196
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	390	0.208		100	1871	406	0.217	0.217
	RT	C2	4	3.25	30.0		100	1981	413	0.208	0.208	100	1981	429	0.217	

pedestrian phase	P1	1		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P2	1,4		min crossing time =	5	sec GM +	9	sec FGM =	14	sec
	P3	3		min crossing time =	5	sec GM +	9	sec FGM =	14	sec
	P4	1		min crossing time =	7	sec GM +	5	sec FGM =	12	sec
	P5	3,4		min crossing time =	7	sec GM +	13	sec FGM =	20	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

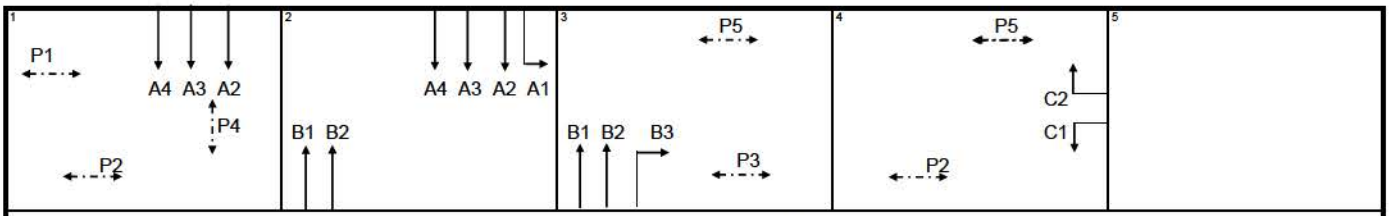


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.496	0.263	0.528	0.283
L (s)	13	56	13	56
C (s)	108	120	100	110
practical y	0.792	0.480	0.783	0.442
R.C. (%)	60%	83%	48%	56%

Note:



		1	2	3	4	5
AM	G =					
	I/G =		5	5	5	
	G =	14		14		
	I/G =	2	10	2	16	
PM	G =					
	I/G =		5	5	5	
	G =	14		14		
	I/G =	2	10	2	16	

Signal Junction Analysis

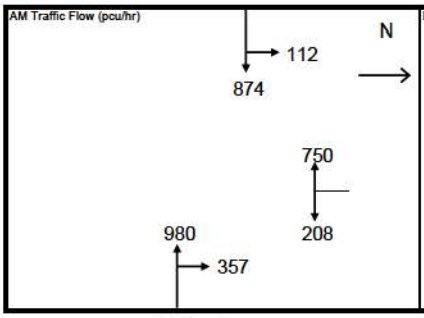
Junction: L. Prince Edward Road West / Junction Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.12-3

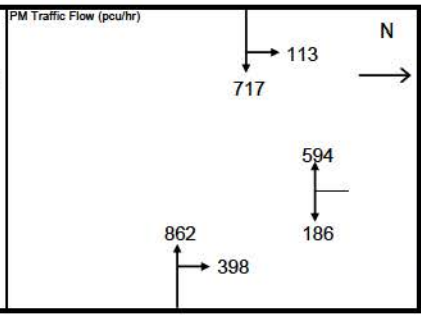
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	112	0.062		100	1807	113	0.063	
	SA	A2	1,2	3.50				2105	300	0.143			2105	246	0.117	
	SA	A3	1,2	3.50				2105	300	0.143			2105	246	0.117	
	SA	A4	1,2	3.00				1915	274	0.143	0.143		1915	225	0.117	0.117
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	482	0.239			2015	424	0.210	
	SA	B2	2,3	3.25				2080	498	0.239			2080	438	0.211	
	RT	B3	3	3.25	30.0		100	1848	357	0.193	0.193	100	1848	398	0.215	0.215
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	465	0.248		100	1871	379	0.203	0.203
	RT	C2	4	3.25	30.0		100	1981	493	0.249	0.249	100	1981	401	0.202	
pedestrian phase		P1	1		min crossing time =			7	sec GM +	7	sec FGM =		14	sec		
		P2	1,4		min crossing time =			5	sec GM +	9	sec FGM =		14	sec		
		P3	3		min crossing time =			5	sec GM +	9	sec FGM =		14	sec		
		P4	1		min crossing time =			7	sec GM +	5	sec FGM =		12	sec		
		P5	3,4		min crossing time =			7	sec GM +	13	sec FGM =		20	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

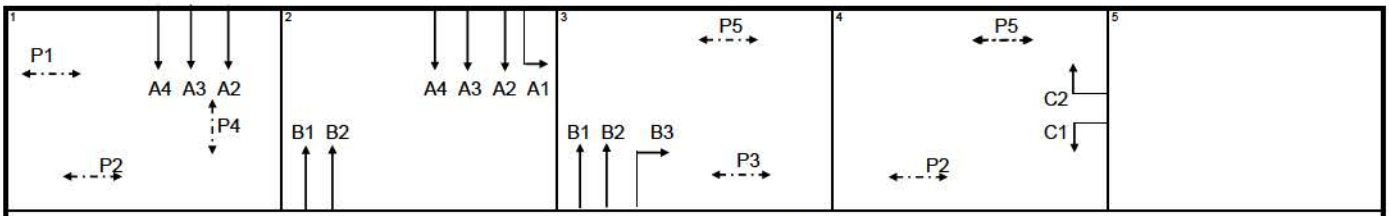


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.585	0.311	0.535	0.265
L (s)	13	56	13	56
C (s)	120	120	110	110
practical y	0.803	0.480	0.794	0.442
R.C. (%)	37%	54%	48%	67%

Note:



AM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		
PM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		

Signal Junction Analysis

Junction: L. Prince Edward Road West / Junction Road — Job Number: J6786

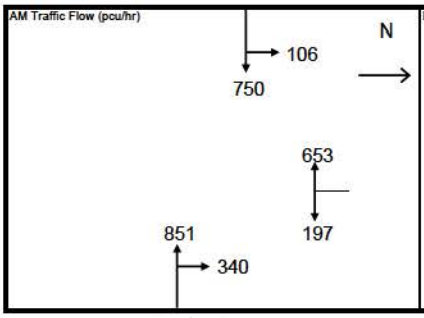
Scenario: without KC-015 (weekend) — R1A / P.12-4

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

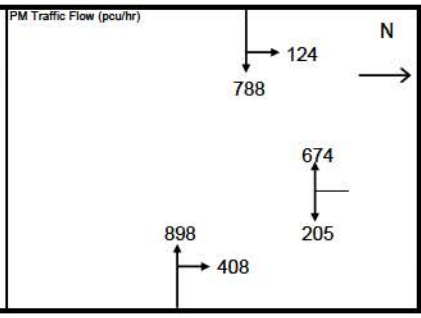
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	106	0.059		100	1807	124	0.069	
	SA	A2	1,2	3.50				2105	258	0.123	0.123		2105	271	0.129	0.129
	SA	A3	1,2	3.50				2105	258	0.123			2105	271	0.129	
	SA	A4	1,2	3.00				1915	234	0.122			1915	246	0.128	
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	419	0.208			2015	442	0.219	
	SA	B2	2,3	3.25				2080	432	0.208			2080	456	0.219	
	RT	B3	3	3.25	30.0		100	1848	340	0.184	0.184	100	1848	408	0.221	0.221
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	413	0.221	0.221	100	1871	427	0.228	
	RT	C2	4	3.25	30.0		100	1981	437	0.221		100	1981	452	0.228	0.228

pedestrian phase	P1	1		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P2	1,4		min crossing time =	5	sec GM +	9	sec FGM =	14	sec
	P3	3		min crossing time =	5	sec GM +	9	sec FGM =	14	sec
	P4	1		min crossing time =	7	sec GM +	5	sec FGM =	12	sec
	P5	3,4		min crossing time =	7	sec GM +	13	sec FGM =	20	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

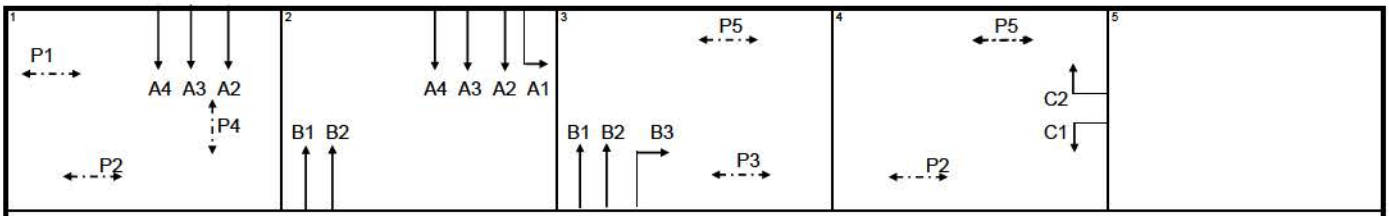


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.527	0.279	0.578	0.297
L (s)	13	56	13	56
C (s)	108	120	100	110
practical y	0.792	0.480	0.783	0.442
R.C. (%)	50%	72%	36%	49%

Note:



AM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =
PM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =

Signal Junction Analysis

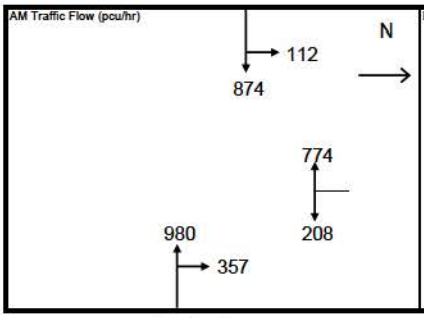
Junction: L. Prince Edward Road West / Junction Road Job Number: J6786

Scenario: with KC-015 (weekday) R1A / P.12-5

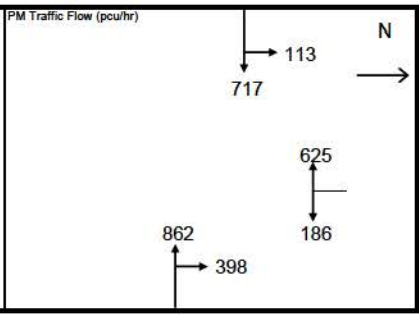
Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	112	0.062		100	1807	113	0.063	
	SA	A2	1,2	3.50				2105	300	0.143			2105	246	0.117	
	SA	A3	1,2	3.50				2105	300	0.143			2105	246	0.117	
	SA	A4	1,2	3.00				1915	274	0.143	0.143		1915	225	0.117	0.117
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	482	0.239			2015	424	0.210	
	SA	B2	2,3	3.25				2080	498	0.239			2080	438	0.211	
	RT	B3	3	3.25	30.0		100	1848	357	0.193	0.193	100	1848	398	0.215	0.215
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	477	0.255		100	1871	394	0.211	0.211
	RT	C2	4	3.25	30.0		100	1981	505	0.255	0.255	100	1981	417	0.211	
pedestrian phase		P1	1		min crossing time =		7	sec GM +	7	sec FGM =	14	sec				
		P2	1,4		min crossing time =		5	sec GM +	9	sec FGM =	14	sec				
		P3	3		min crossing time =		5	sec GM +	9	sec FGM =	14	sec				
		P4	1		min crossing time =		7	sec GM +	5	sec FGM =	12	sec				
		P5	3,4		min crossing time =		7	sec GM +	13	sec FGM =	20	sec				

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

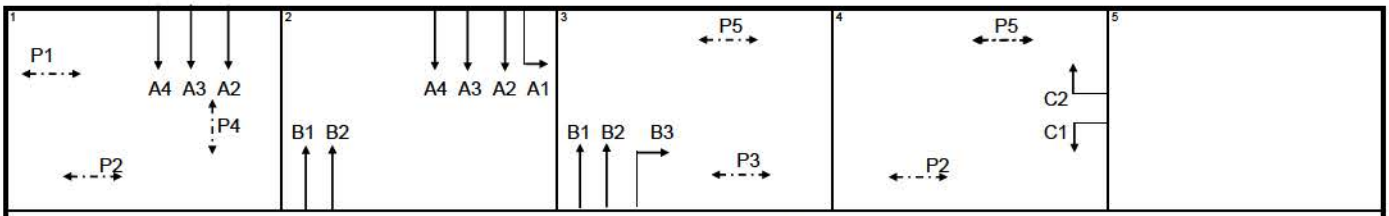


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.591	0.317	0.543	0.273
L (s)	13	56	13	56
C (s)	120	120	110	110
practical y	0.803	0.480	0.794	0.442
R.C. (%)	36%	51%	46%	62%

Note:



AM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		
PM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		

Signal Junction Analysis

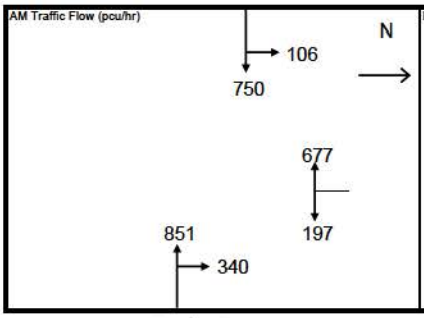
Junction: L. Prince Edward Road West / Junction Road Job Number: J6786

Scenario: with KC-015 (weekend) R1A / P.12-6

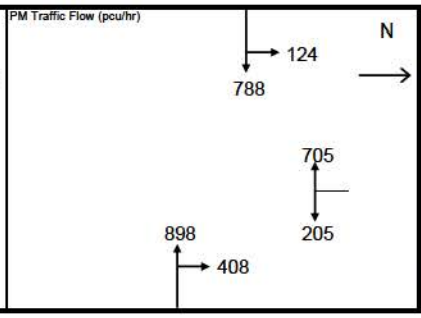
Design Year: 2033 Designed By: Checked By: Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Prince Edward Road West EB	LT	A1	2	3.00	25.0		100	1807	106	0.059		100	1807	124	0.069	
	SA	A2	1,2	3.50				2105	258	0.123	0.123		2105	271	0.129	0.129
	SA	A3	1,2	3.50				2105	258	0.123			2105	271	0.129	
	SA	A4	1,2	3.00				1915	234	0.122			1915	246	0.128	
Prince Edward Road West WB	SA	B1	2,3	4.00				2015	419	0.208			2015	442	0.219	
	SA	B2	2,3	3.25				2080	432	0.208			2080	456	0.219	
	RT	B3	3	3.25	30.0		100	1848	340	0.184	0.184	100	1848	408	0.221	0.221
Junction Road SB	LT+RT	C1	4	3.50	30.0		100	1871	425	0.227	0.227	100	1871	442	0.236	
	RT	C2	4	3.25	30.0		100	1981	449	0.227		100	1981	468	0.236	0.236
pedestrian phase		P1	1		min crossing time =			7	sec GM +		7	sec FGM =		14	sec	
		P2	1,4		min crossing time =			5	sec GM +		9	sec FGM =		14	sec	
		P3	3		min crossing time =			5	sec GM +		9	sec FGM =		14	sec	
		P4	1		min crossing time =			7	sec GM +		5	sec FGM =		12	sec	
		P5	3,4		min crossing time =			7	sec GM +		13	sec FGM =		20	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

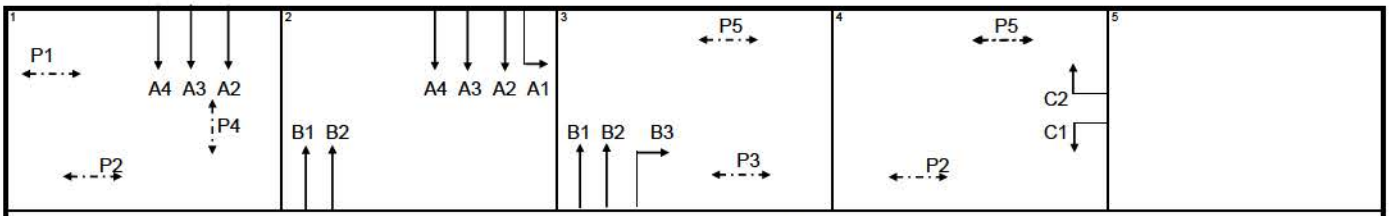


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.534	0.286	0.586	0.305
L (s)	13	56	13	56
C (s)	108	120	100	110
practical y	0.792	0.480	0.783	0.442
R.C. (%)	48%	68%	34%	45%

Note:



AM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		
PM	G =		I/G =		G =		I/G =	5	G =		I/G =	5	G =		I/G =	5	G =		I/G =		
	G =	14	I/G =	2	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =	16	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

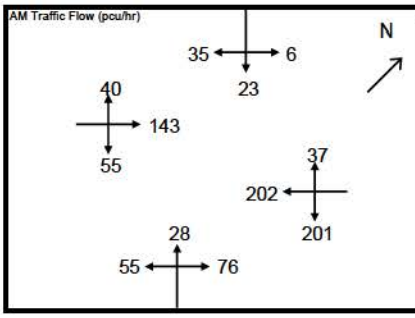
Scenario: existing condition (weekday) — R1A / P.13-1

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

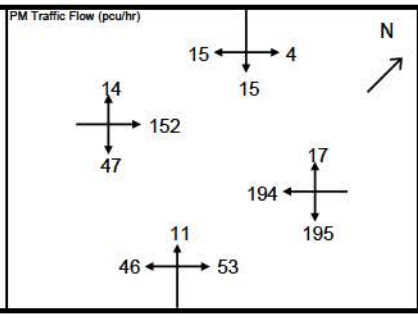
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		34	1870	117	0.063		13	1927	106	0.055	
	SA+RT	A2	1	3.00	12.0		45	1946	121	0.062	0.062	44	1948	107	0.055	0.055
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	55	0.033		100	1663	46	0.028	
	SA+RT	B2	3	3.25	11.0		73	1892	104	0.055	0.055	83	1869	64	0.034	0.034
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		100	1687	201	0.119	0.119	100	1687	195	0.116	0.116
	SA+RT	C2	2	2.75	14.0		15	1998	239	0.120		8	2013	211	0.105	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		64	1991	64	0.032	0.032	56	2011	34	0.017	0.017

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec	
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

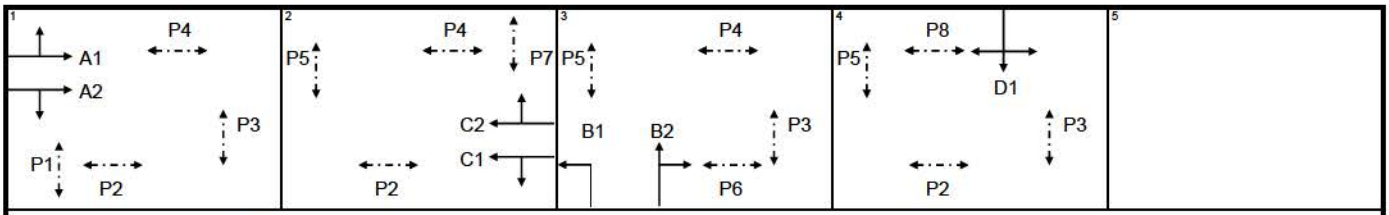


$S = 1940 + 100(W - 3.25)$ $S = 2080 + 100(W - 3.25)$

$S_M = S \div (1 + 1.5f/r)$ $S_M = (S - 230) \div (1 + 1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.268	0.236	0.222	0.205
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	147%	100%	199%	131%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

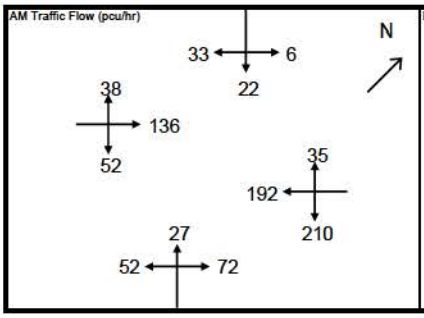
Scenario: existing condition (weekend) — R1A / P.13-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

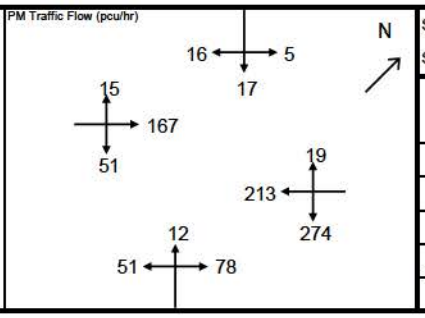
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		34	1870	111	0.059	0.059	13	1927	116	0.060	0.060
	SA+RT	A2	1	3.00	12.0		45	1946	115	0.059		44	1948	117	0.060	
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	52	0.031		100	1663	51	0.031	
	SA+RT	B2	3	3.25	11.0		73	1892	99	0.052	0.052	87	1859	90	0.048	0.048
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		100	1687	210	0.124	0.124	100	1687	274	0.162	0.162
	SA+RT	C2	2	2.75	14.0		15	1998	227	0.114		8	2013	232	0.115	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		64	1991	61	0.031	0.031	55	2014	38	0.019	0.019

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

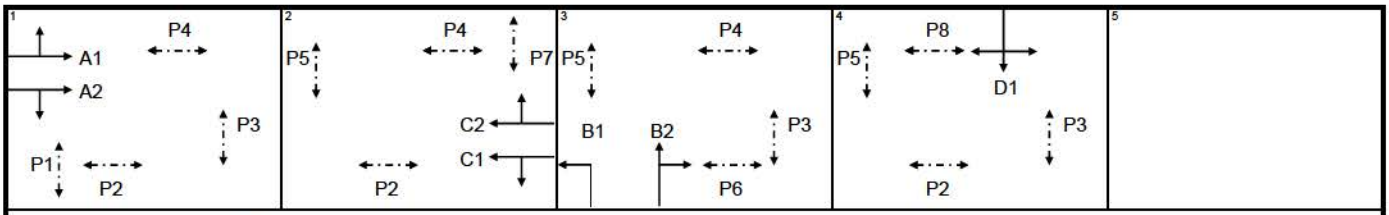


$S = 1940 + 100(W - 3.25)$ $S = 2080 + 100(W - 3.25)$

$S_M = S \div (1 + 1.5f/r)$ $S_M = (S - 230) \div (1 + 1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.267	0.236	0.290	0.271
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	149%	100%	129%	74%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

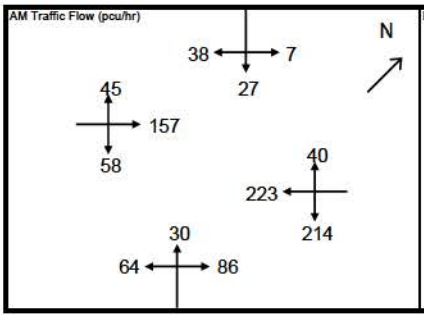
Scenario: without KC-015 (weekday) — R1A / P.13-3

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

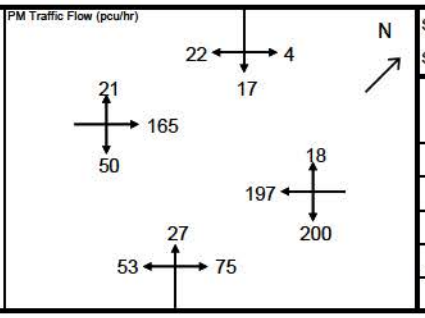
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		35	1867	127	0.068	0.068	18	1913	117	0.061	0.061
	SA+RT	A2	1	3.00	12.0		44	1948	133	0.068		42	1952	119	0.061	
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	64	0.038		100	1663	53	0.032	
	SA+RT	B2	3	3.25	11.0		74	1889	116	0.061	0.061	74	1889	102	0.054	0.054
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		98	1691	219	0.129	0.129	100	1687	200	0.119	0.119
	SA+RT	C2	2	2.75	14.0		16	1996	258	0.129		8	2013	215	0.107	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		63	1994	72	0.036	0.036	60	2001	43	0.021	0.021

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

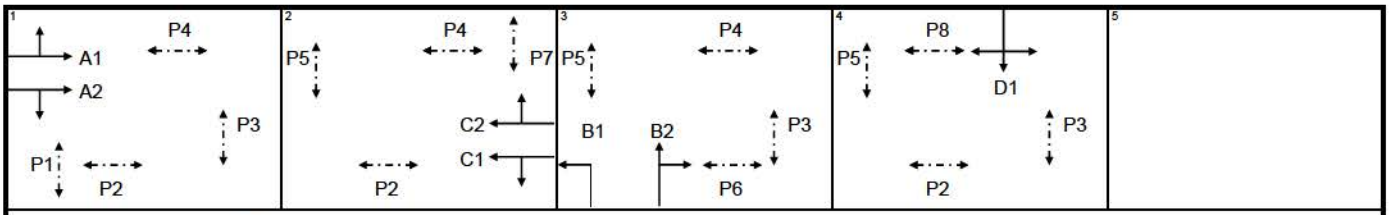


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.295	0.259	0.255	0.234
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	125%	83%	160%	102%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

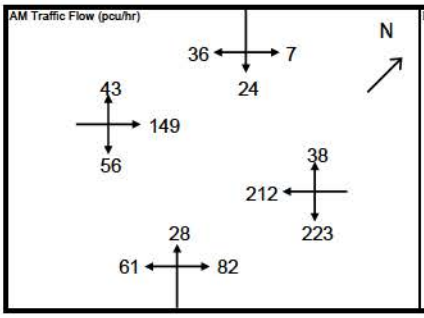
Scenario: without KC-015 (weekend) — R1A / P.13-4

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

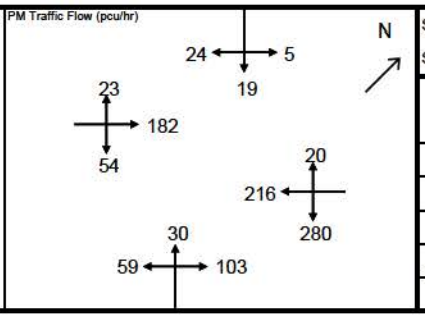
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		36	1864	121	0.065	0.065	18	1913	128	0.067	0.067
	SA+RT	A2	1	3.00	12.0		44	1948	127	0.065		41	1955	131	0.067	
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	61	0.037		100	1663	59	0.035	
	SA+RT	B2	3	3.25	11.0		75	1887	110	0.058	0.058	77	1882	133	0.071	0.071
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		100	1687	223	0.132	0.132	100	1687	280	0.166	0.166
	SA+RT	C2	2	2.75	14.0		15	1998	250	0.125		8	2013	236	0.117	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		64	1991	67	0.034	0.034	60	2001	48	0.024	0.024

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec	
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

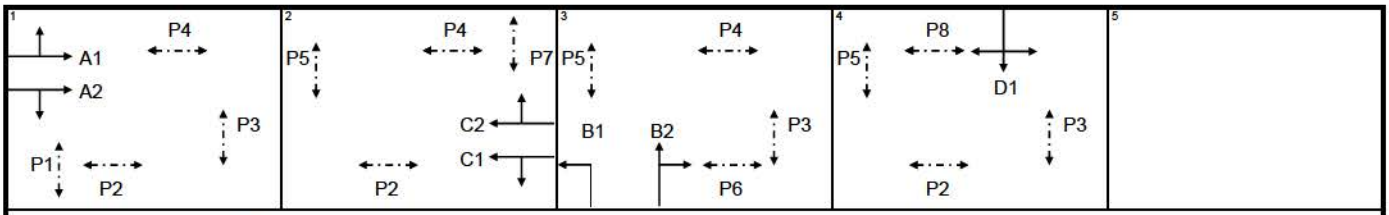


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.289	0.255	0.328	0.304
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	130%	85%	103%	56%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

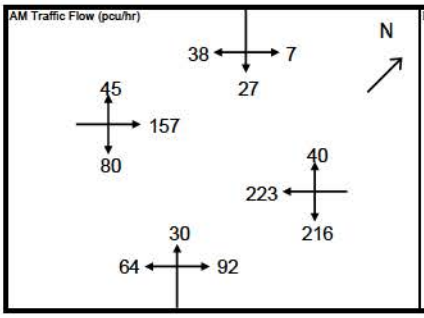
Scenario: with KC-015 (weekday) — R1A / P.13-5

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

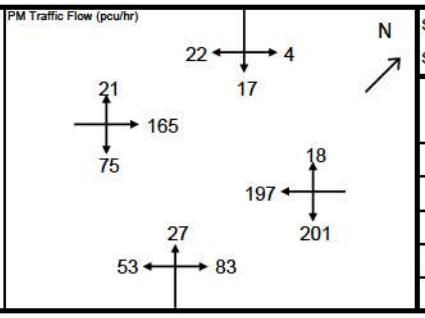
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		32	1875	139	0.074	0.074	16	1919	131	0.068	0.068
	SA+RT	A2	1	3.00	12.0		56	1921	143	0.074		58	1916	130	0.068	
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	64	0.038		100	1663	53	0.032	
	SA+RT	B2	3	3.25	11.0		75	1887	122	0.065	0.065	75	1887	110	0.058	0.058
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		100	1687	216	0.128		100	1687	201	0.119	0.119
	SA+RT	C2	2	2.75	14.0		15	1998	263	0.132	0.132	8	2013	215	0.107	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		63	1994	72	0.036	0.036	60	2001	43	0.021	0.021

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec	
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

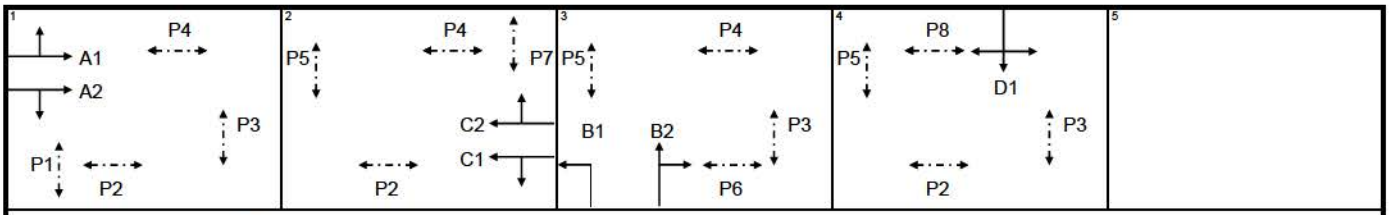


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.307	0.270	0.267	0.246
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	117%	75%	148%	92%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

Junction: M. Tung Tau Tsuen Road / Tung Tsing Road / Pui Man Street — Job Number: J6786

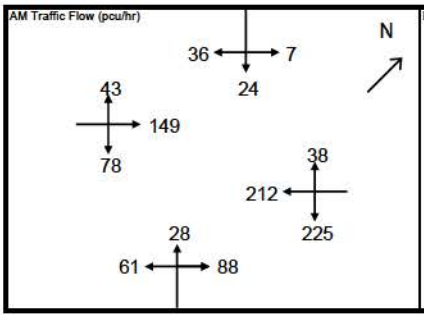
Scenario: with KC-015 (weekend) — R1A / P.13-6

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

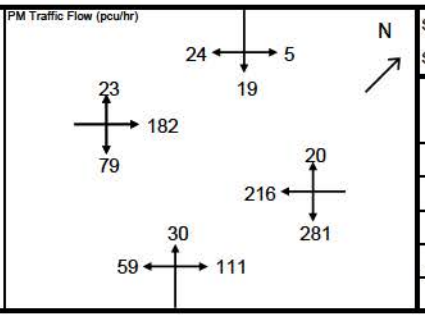
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Tung Tau Tsuen Road EB	LT+SA	A1	1	3.50	10.0		32	1875	133	0.071	0.071	16	1919	142	0.074	0.074
	SA+RT	A2	1	3.00	12.0		57	1918	137	0.071		56	1921	142	0.074	
Tung Tsing Road NB	LT	B1	3	2.75	11.0		100	1663	61	0.037		100	1663	59	0.035	
	SA+RT	B2	3	3.25	11.0		76	1885	116	0.062	0.062	79	1878	141	0.075	0.075
Tung Tau Tsuen Road WB	LT+SA	C1	2	3.25	10.0		100	1687	225	0.133	0.133	100	1687	281	0.167	0.167
	SA+RT	C2	2	2.75	14.0		15	1998	250	0.125		8	2013	236	0.117	
Pui Man Street SB	LT+SA+RT	D1	4	5.50	11.0		64	1991	67	0.034	0.034	60	2001	48	0.024	0.024

pedestrian phase	P1	1		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P2	1,2,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	1,3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P4	1,2,3		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P5	2,3,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P6	3		min crossing time =	5	sec GM +	5	sec FGM =	10	sec	
	P7	2		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P8	4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

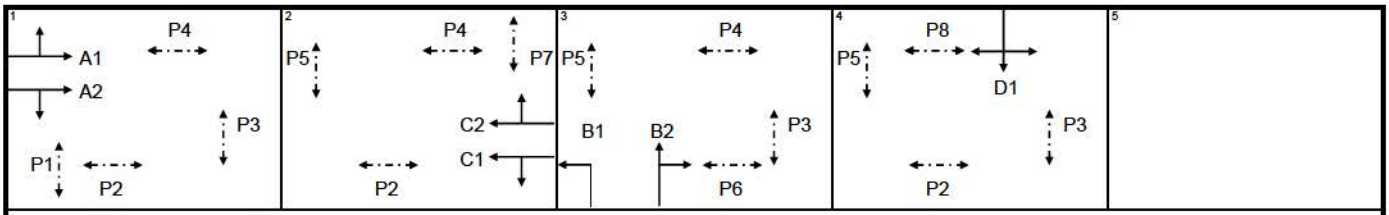


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

Note:

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.300	0.266	0.340	0.316
L (s)	21	38	21	38
C (s)	80	80	80	80
practical y	0.664	0.473	0.664	0.473
R.C. (%)	122%	78%	95%	50%



AM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	6	G =		I/G =	7	G =		I/G =	5	G =		I/G =		
	G =		I/G =	7	G =		I/G =	6	G =		I/G =	10	G =	14	I/G =	2	G =		I/G =		

Signal Junction Analysis

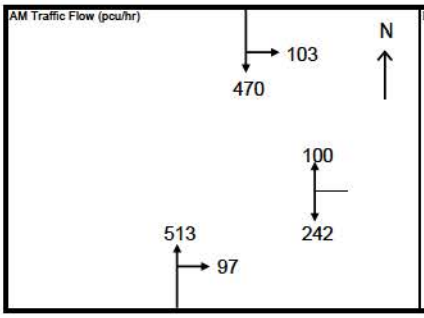
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: existing condition (weekday) — R1A / P.14-1

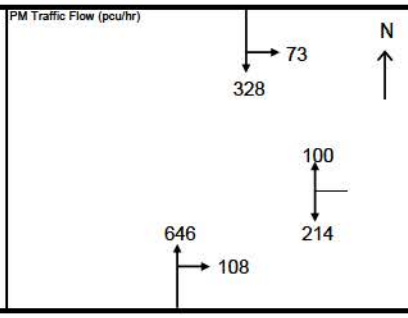
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		37	1894	275	0.145		38	1892	192	0.101	
	SA	A2	1	3.00				2055	298	0.145			2055	209	0.102	
Junction Road NB	SA	B1	1,2	2.75				1890	513	0.271	0.271		1890	646	0.342	0.342
	RT	B2	2	3.25	16.0		100	1902	97	0.051		100	1902	108	0.057	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	242	0.146		100	1663	214	0.129	
	RT	C2	3	3.50	11.0		100	1852	100	0.054	0.054	100	1852	100	0.054	0.054
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8	sec FGM =		16	sec		

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

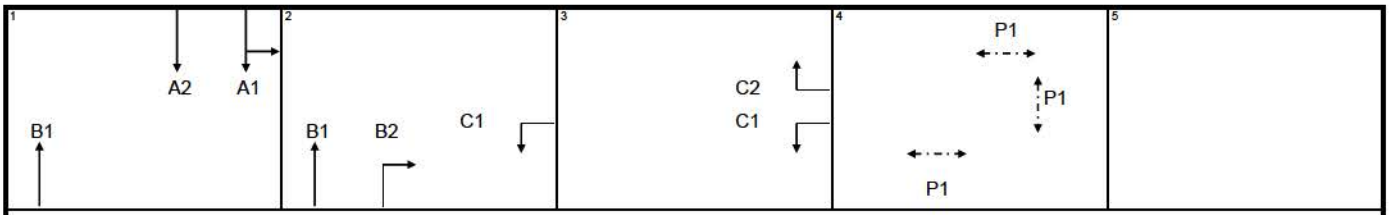


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.325		0.396	
L (s)	33		33	
C (s)	120		110	
practical y	0.653		0.630	
R.C. (%)	101%		59%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

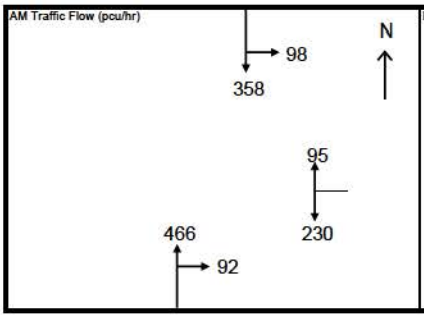
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: existing condition (weekend) — R1A / P.14-2

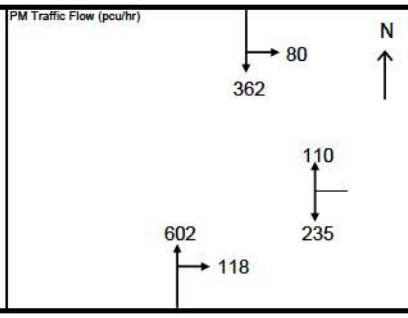
Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		45	1875	218	0.116		38	1892	212	0.112	
	SA	A2	1	3.00				2055	238	0.116			2055	230	0.112	
Junction Road NB	SA	B1	1,2	2.75				1890	466	0.247	0.247		1890	602	0.319	0.319
	RT	B2	2	3.25	16.0		100	1902	92	0.048		100	1902	118	0.062	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	230	0.138		100	1663	235	0.141	
	RT	C2	3	3.50	11.0		100	1852	95	0.051	0.051	100	1852	110	0.059	0.059
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

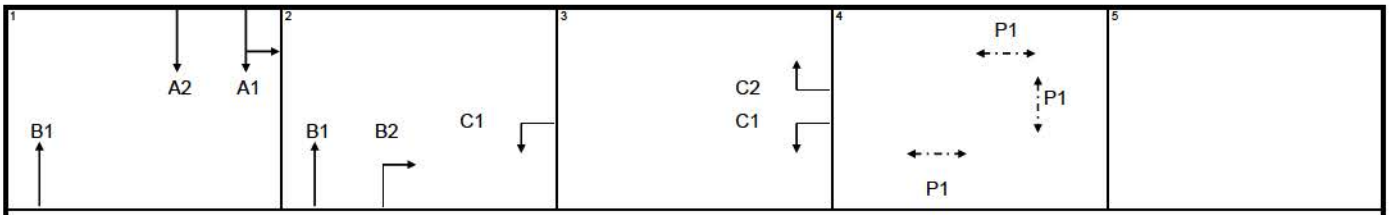


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.298		0.378	
L (s)	33		33	
C (s)	108		100	
practical y	0.625		0.603	
R.C. (%)	110%		60%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

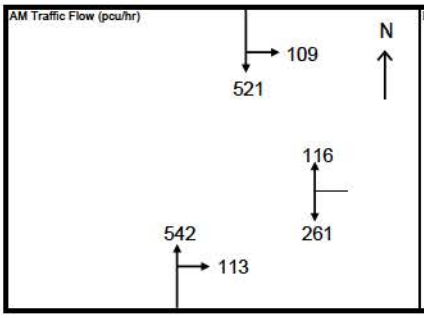
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: without KC-015 (weekday) — R1A / P.14-3

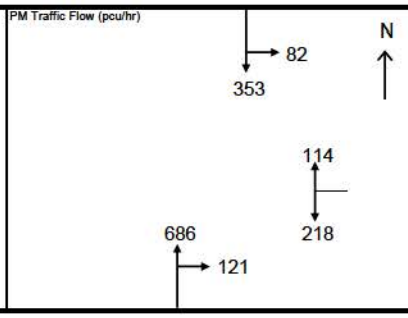
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		36	1897	302	0.159		39	1890	208	0.110	
	SA	A2	1	3.00				2055	328	0.160			2055	227	0.110	
Junction Road NB	SA	B1	1,2	2.75				1890	542	0.287	0.287		1890	686	0.363	0.363
	RT	B2	2	3.25	16.0		100	1902	113	0.059		100	1902	121	0.064	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	261	0.157		100	1663	218	0.131	
	RT	C2	3	3.50	11.0		100	1852	116	0.063	0.063	100	1852	114	0.062	0.062
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

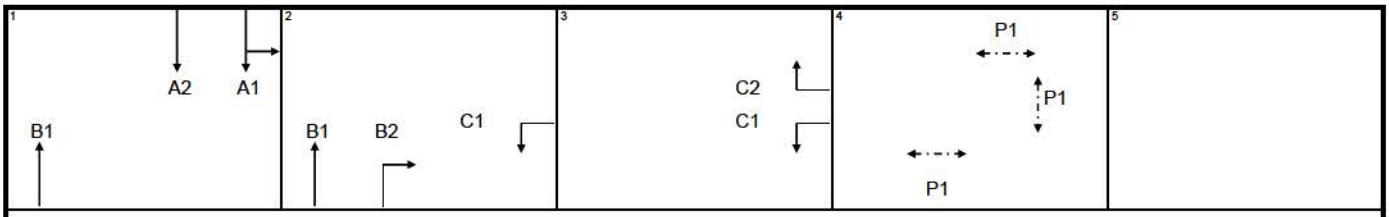


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.349		0.425	
L (s)	33		33	
C (s)	120		110	
practical y	0.653		0.630	
R.C. (%)	87%		48%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

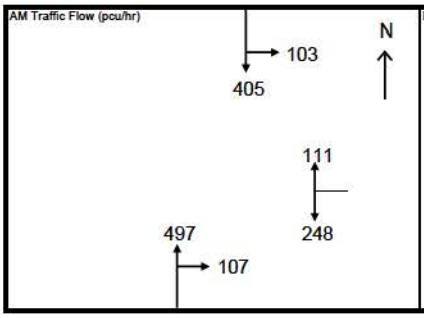
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: without KC-015 (weekend) — R1A / P.14-4

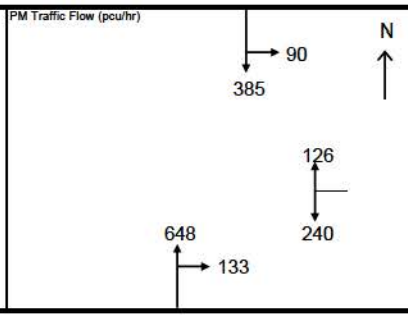
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		44	1877	243	0.129		40	1887	227	0.120	
	SA	A2	1	3.00				2055	265	0.129			2055	248	0.121	
Junction Road NB	SA	B1	1,2	2.75				1890	497	0.263	0.263		1890	648	0.343	0.343
	RT	B2	2	3.25	16.0		100	1902	107	0.056		100	1902	133	0.070	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	248	0.149		100	1663	240	0.144	
	RT	C2	3	3.50	11.0		100	1852	111	0.060	0.060	100	1852	126	0.068	0.068
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

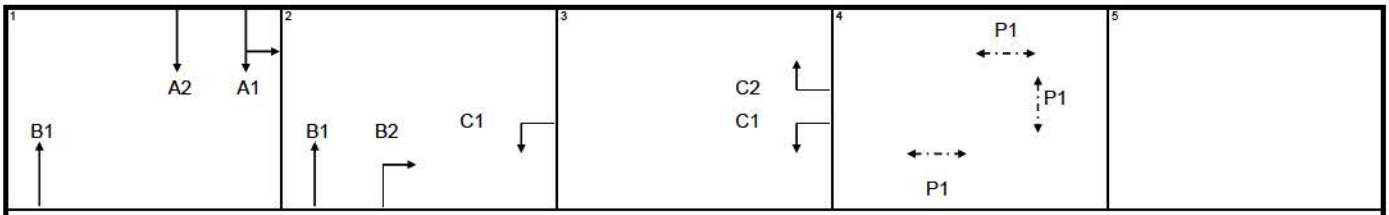


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.323		0.411	
L (s)	33		33	
C (s)	108		100	
practical y	0.625		0.603	
R.C. (%)	94%		47%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

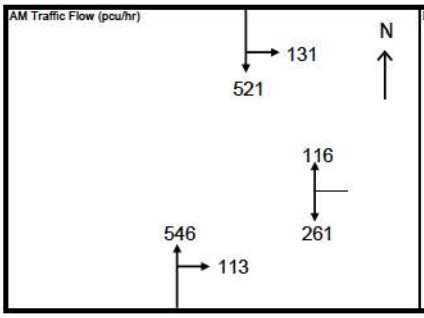
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: with KC-015 (weekday) — R1A / P.14-5

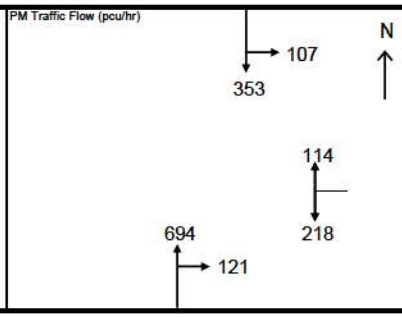
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		42	1882	312	0.166		49	1865	219	0.117	
	SA	A2	1	3.00				2055	340	0.165			2055	241	0.117	
Junction Road NB	SA	B1	1,2	2.75				1890	546	0.289	0.289		1890	694	0.367	0.367
	RT	B2	2	3.25	16.0		100	1902	113	0.059		100	1902	121	0.064	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	261	0.157		100	1663	218	0.131	
	RT	C2	3	3.50	11.0		100	1852	116	0.063	0.063	100	1852	114	0.062	0.062
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

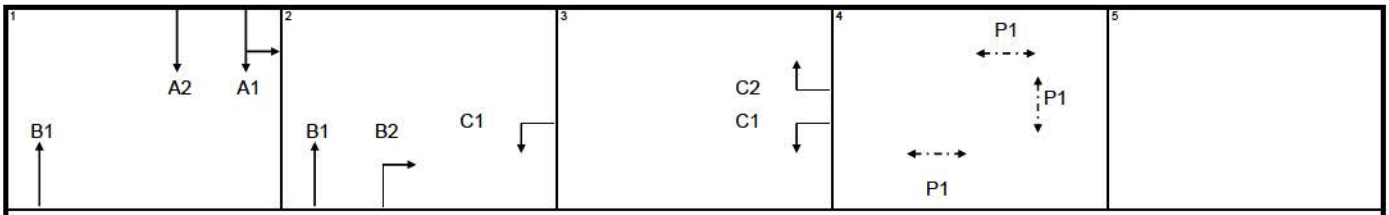


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.352		0.429	
L (s)	33		33	
C (s)	120		110	
practical y	0.653		0.630	
R.C. (%)	86%		47%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

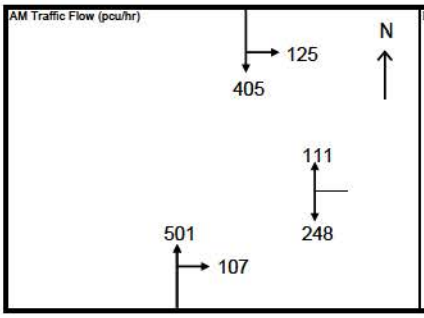
Junction: N. Junction Road / Tung Tau Tsuen Road — Job Number: J6786

Scenario: with KC-015 (weekend) — R1A / P.14-6

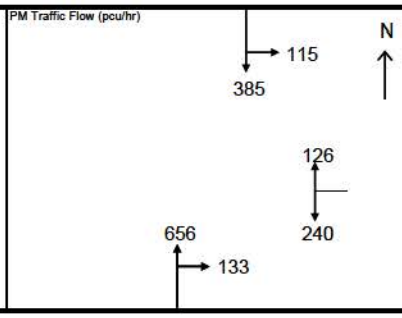
Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	LT+SA	A1	1	3.75	11.0		52	1858	252	0.136		48	1868	238	0.127	
	SA	A2	1	3.00				2055	278	0.135			2055	262	0.127	
Junction Road NB	SA	B1	1,2	2.75				1890	501	0.265	0.265		1890	656	0.347	0.347
	RT	B2	2	3.25	16.0		100	1902	107	0.056		100	1902	133	0.070	
Tung Tau Tsuen Road WB	LT	C1	2,3	3.25	9.0		100	1663	248	0.149		100	1663	240	0.144	
	RT	C2	3	3.50	11.0		100	1852	111	0.060	0.060	100	1852	126	0.068	0.068
pedestrian phase		P1	4		min crossing time =		8	sec GM +		8		sec FGM =		16	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

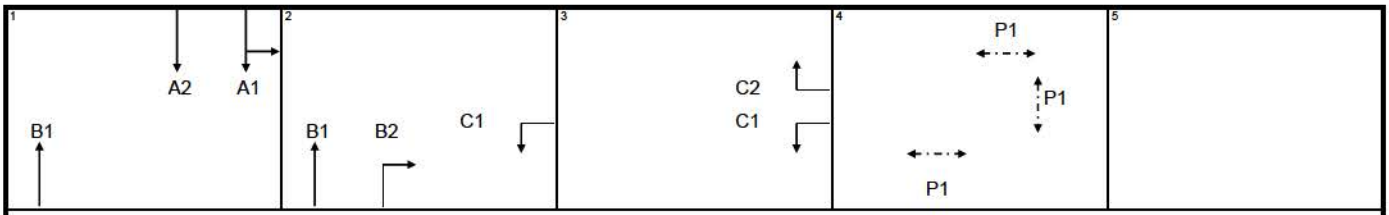


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.325		0.415	
L (s)	33		33	
C (s)	108		100	
practical y	0.625		0.603	
R.C. (%)	92%		45%	

Note:



AM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	
PM	G =		I/G =		G =		I/G =	6	G =		I/G =	11	G =	16	I/G =	3	G =		I/G =	
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =	

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

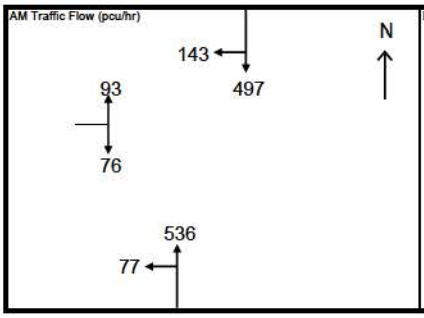
Scenario: existing condition (weekday) — R1A / P.15-1

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

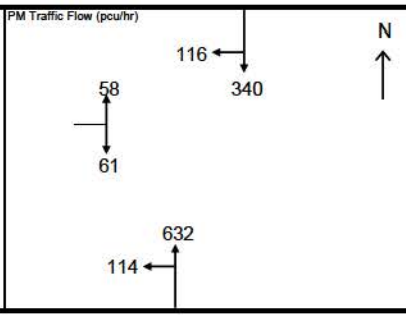
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	497	0.260	0.260		1915	340	0.178	0.178
	RT	A2	1	3.00	15.0		100	1868	143	0.077		100	1868	116	0.062	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	93	0.054	0.054	100	1729	58	0.034	0.034
	RT	B2	3	3.10	15.0		100	1877	76	0.040		100	1877	61	0.032	
Junction Road NB	LT+SA	C1	2	3.40	12.0		26	1893	292	0.154	0.154	32	1880	355	0.189	0.189
	SA	C2	2	3.20				2075	321	0.155			2075	391	0.188	

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

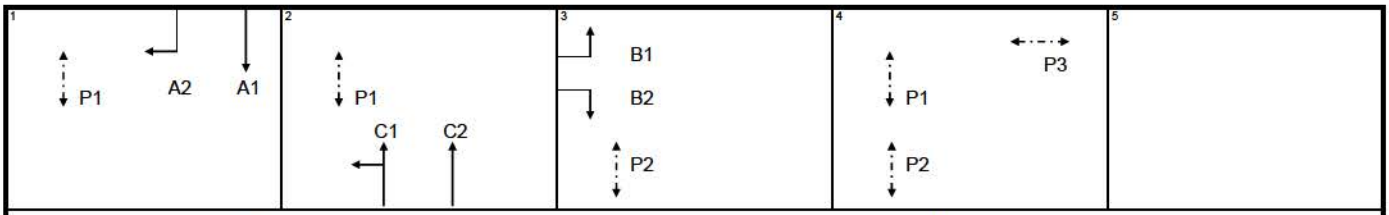


$S = 1940 + 100(W - 3.25)$ $S = 2080 + 100(W - 3.25)$

$S_M = S \div (1 + 1.5f/r)$ $S_M = (S - 230) \div (1 + 1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.468		0.400	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	30%		45%	

Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

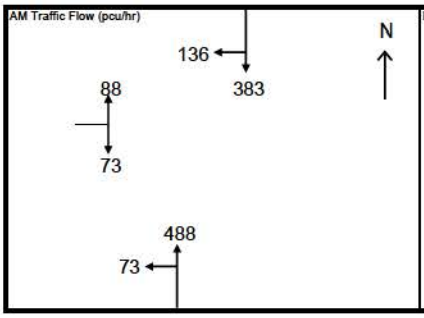
Scenario: existing condition (weekend) — R1A / P.15-2

Design Year: 2018 — Designed By: — Checked By: — Date: 13 February 2019

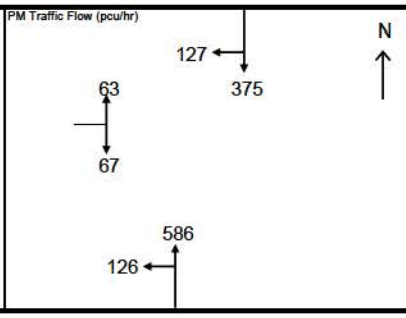
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	383	0.200	0.200		1915	375	0.196	0.196
	RT	A2	1	3.00	15.0		100	1868	136	0.073		100	1868	127	0.068	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	88	0.051	0.051	100	1729	63	0.036	0.036
	RT	B2	3	3.10	15.0		100	1877	73	0.039		100	1877	67	0.036	
Junction Road NB	LT+SA	C1	2	3.40	12.0		27	1891	267	0.141	0.141	37	1869	337	0.180	
	SA	C2	2	3.20				2075	294	0.142			2075	375	0.181	0.181

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

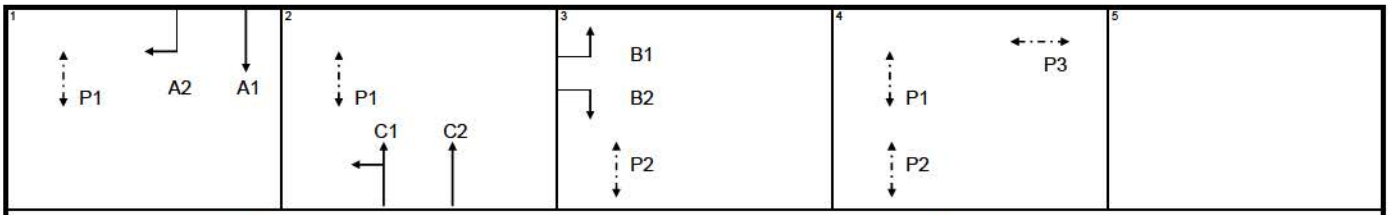


$S = 1940 + 100(W - 3.25)$ $S = 2080 + 100(W - 3.25)$

$S_M = S \div (1 + 1.5f/r)$ $S_M = (S - 230) \div (1 + 1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.392		0.413	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	47%		33%	

Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

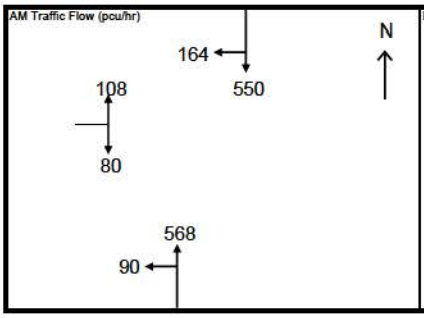
Scenario: without KC-015 (weekday) — R1A / P.15-3

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

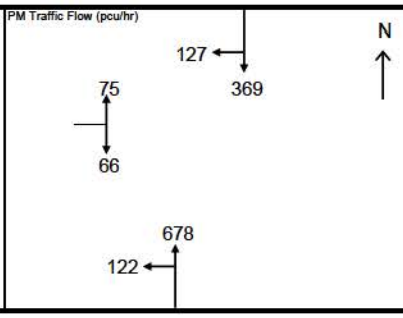
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	550	0.287	0.287		1915	369	0.193	0.193
	RT	A2	1	3.00	15.0		100	1868	164	0.088		100	1868	127	0.068	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	108	0.062	0.062	100	1729	75	0.043	0.043
	RT	B2	3	3.10	15.0		100	1877	80	0.043		100	1877	66	0.035	
Junction Road NB	LT+SA	C1	2	3.40	12.0		29	1887	313	0.166	0.166	32	1880	380	0.202	0.202
	SA	C2	2	3.20				2075	345	0.166			2075	420	0.202	

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

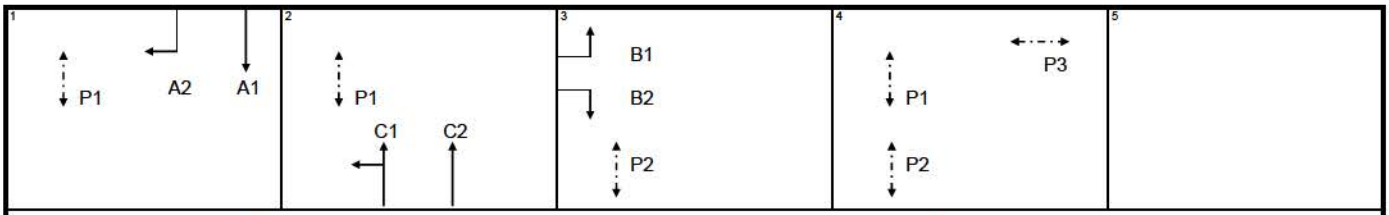


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.516		0.438	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	18%		33%	

Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

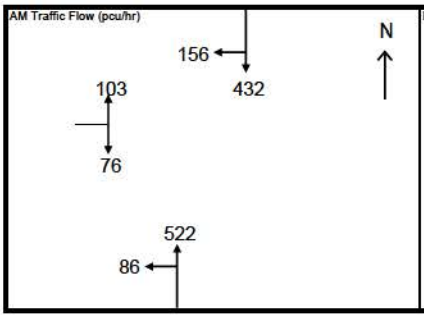
Scenario: without KC-015 (weekend) — R1A / P.15-4

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

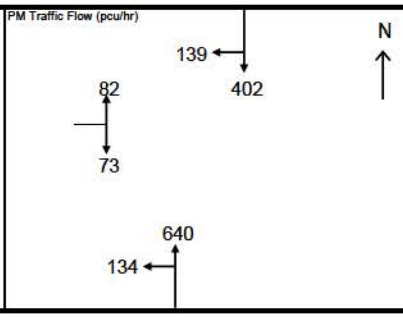
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	432	0.226	0.226		1915	402	0.210	0.210
	RT	A2	1	3.00	15.0		100	1868	156	0.084		100	1868	139	0.074	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	103	0.060	0.060	100	1729	82	0.047	0.047
	RT	B2	3	3.10	15.0		100	1877	76	0.040		100	1877	73	0.039	
Junction Road NB	LT+SA	C1	2	3.40	12.0		30	1884	289	0.153		37	1869	367	0.196	
	SA	C2	2	3.20				2075	319	0.154	0.154		2075	407	0.196	0.196

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec			
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec			
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec			

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

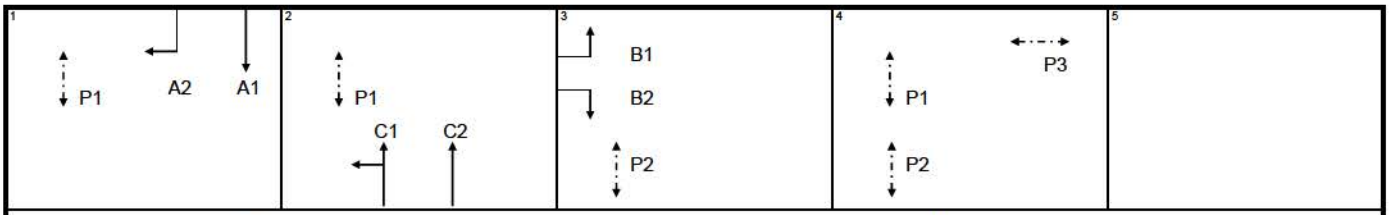


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.439		0.453	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	31%		21%	

Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

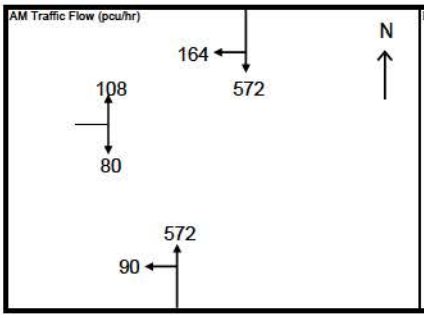
Scenario: with KC-015 (weekday) — R1A / P.15-5

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

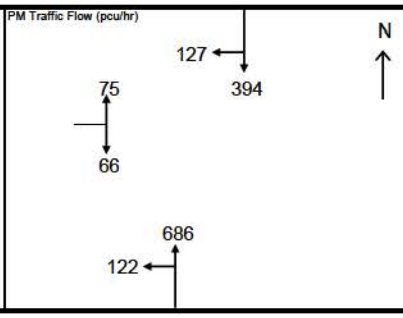
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	572	0.299	0.299		1915	394	0.206	0.206
	RT	A2	1	3.00	15.0		100	1868	164	0.088		100	1868	127	0.068	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	108	0.062	0.062	100	1729	75	0.043	0.043
	RT	B2	3	3.10	15.0		100	1877	80	0.043		100	1877	66	0.035	
Junction Road NB	LT+SA	C1	2	3.40	12.0		29	1887	315	0.167	0.167	32	1880	384	0.204	0.204
	SA	C2	2	3.20				2075	347	0.167			2075	424	0.204	

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

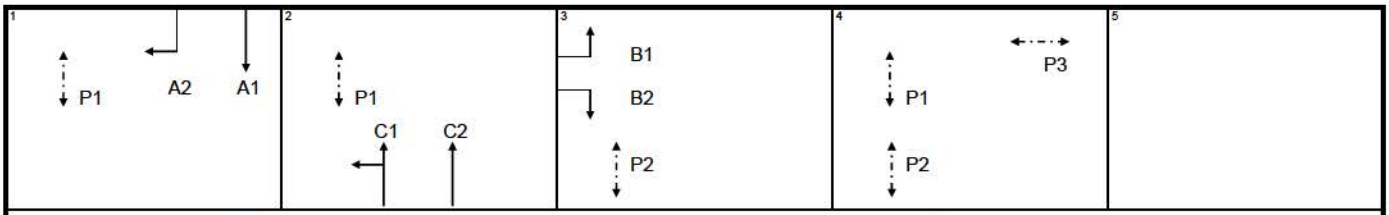


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.528		0.453	
L (s)	39		39	
C (s)	120		110	
practical y	0.608		0.581	
R.C. (%)	15%		28%	

Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Signal Junction Analysis

Junction: O. Junction Road / Inverness Road — Job Number: J6786

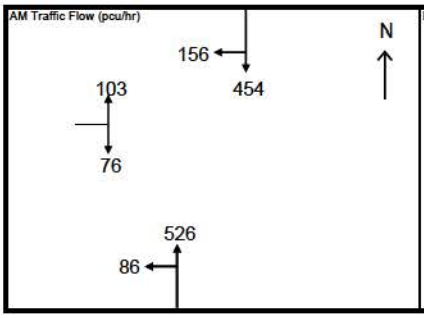
Scenario: with KC-015 (weekend) — R1A / P.15-6

Design Year: 2033 — Designed By: — Checked By: — Date: 13 February 2019

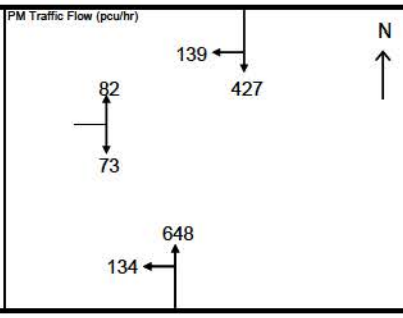
Approach		Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak Turning %	AM Peak Sat. Flow (pcu/hr)	AM Peak Flow (pcu/hr)	AM Peak y value	AM Peak Critical y	PM Peak Turning %	PM Peak Sat. Flow (pcu/hr)	PM Peak Flow (pcu/hr)	PM Peak y value	PM Peak Critical y
Junction Road SB	SA	A1	1	3.00				1915	454	0.237	0.237		1915	427	0.223	0.223
	RT	A2	1	3.00	15.0		100	1868	156	0.084		100	1868	139	0.074	
Inverness Road EB	LT	B1	3	3.30	12.0		100	1729	103	0.060	0.060	100	1729	82	0.047	0.047
	RT	B2	3	3.10	15.0		100	1877	76	0.040		100	1877	73	0.039	
Junction Road NB	LT+SA	C1	2	3.40	12.0		30	1884	291	0.154		36	1871	371	0.198	0.198
	SA	C2	2	3.20				2075	321	0.155	0.155		2075	411	0.198	

pedestrian phase	P1	1,2,4		min crossing time =	7	sec GM +	7	sec FGM =	14	sec	
	P2	3,4		min crossing time =	6	sec GM +	6	sec FGM =	12	sec	
	P3	4		min crossing time =	10	sec GM +	8	sec FGM =	18	sec	

AM Traffic Flow (pcu/hr)



PM Traffic Flow (pcu/hr)

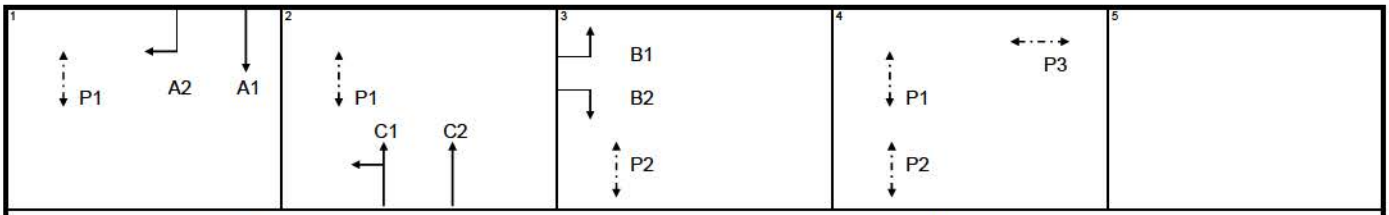


$S=1940+100(W-3.25)$ $S=2080+100(W-3.25)$

$S_M=S\div(1+1.5f/r)$ $S_M=(S-230)\div(1+1.5f/r)$

	AM Peak	Check Pedestrian Phase	PM Peak	Check Pedestrian Phase
Sum y	0.451		0.469	
L (s)	39		39	
C (s)	108		100	
practical y	0.575		0.549	
R.C. (%)	27%		17%	

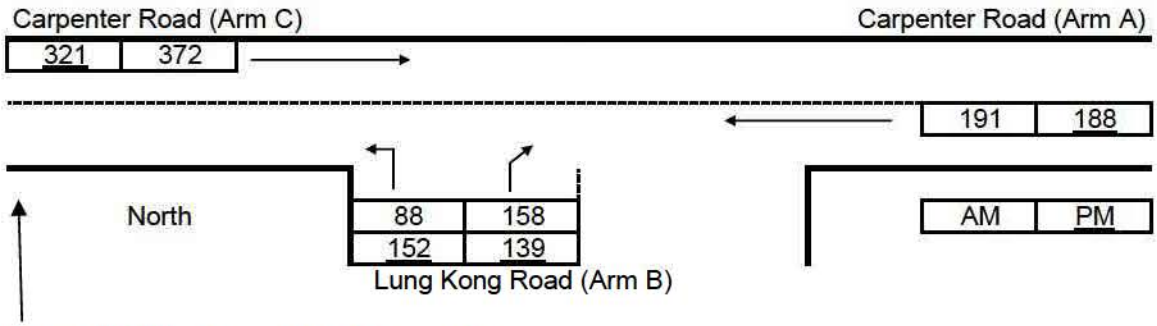
Note:



AM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		
PM	G =		I/G =	7	G =		I/G =	5	G =		I/G =	9	G =	18	I/G =	3	G =		I/G =		
	G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		G =		I/G =		

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-1
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

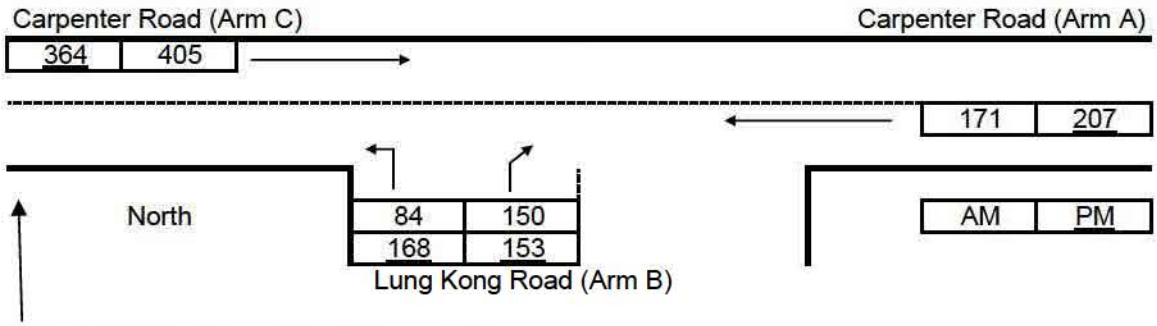
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	372	321	Q-BA	475	483
q-CB	0	0	Q-BC	694	694
q-AB	0	0	Q-CB	408	409
q-AC	191	188	Q-BAC	535	574
q-BA	158	139			
q-BC	88	152			
f	0.358	0.522			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.333	0.288	
B-C	0.127	0.219	
C-B	0.000	0.000	
B-AC	0.459	0.507	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-2
Design Year:	2018	Job Number:	J6786	Date:	13 February 2019
Scenario:	existing condition (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

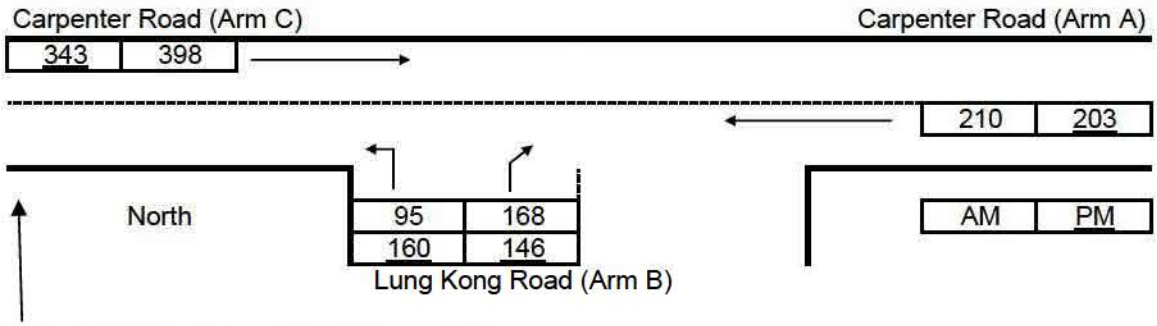
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	405	364	Q-BA	475	473
q-CB	0	0	Q-BC	699	690
q-AB	0	0	Q-CB	411	406
q-AC	171	207	Q-BAC	537	566
q-BA	150	153			
q-BC	84	168			
f	0.359	0.523			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.316	0.324	
B-C	0.120	0.244	
C-B	0.000	0.000	
B-AC	0.436	0.567	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-3
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

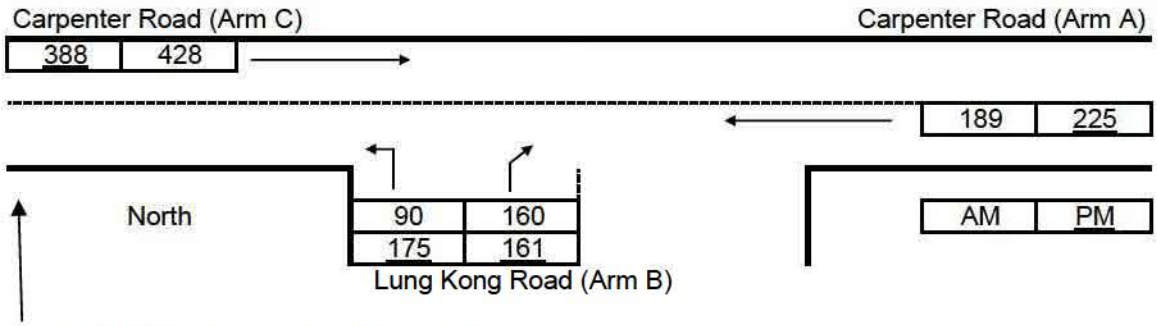
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	398	343	Q-BA	467	476
q-CB	0	0	Q-BC	689	691
q-AB	0	0	Q-CB	406	407
q-AC	210	203	Q-BAC	528	569
q-BA	168	146			
q-BC	95	160			
f	0.361	0.523			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.360	0.306	
B-C	0.138	0.232	
C-B	0.000	0.000	
B-AC	0.498	0.538	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-4
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	without KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

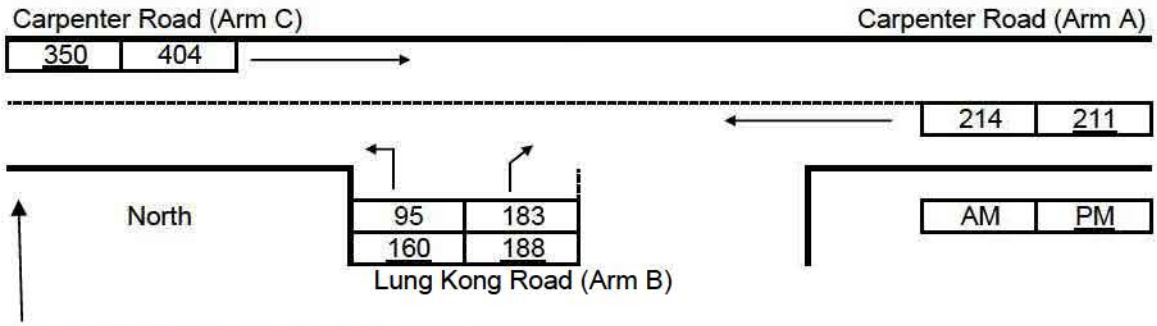
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	428	388	Q-BA	467	465
q-CB	0	0	Q-BC	694	685
q-AB	0	0	Q-CB	409	403
q-AC	189	225	Q-BAC	530	558
q-BA	160	161			
q-BC	90	175			
f	0.360	0.521			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.342	0.346	
B-C	0.130	0.255	
C-B	0.000	0.000	
B-AC	0.472	0.602	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-5
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekday)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

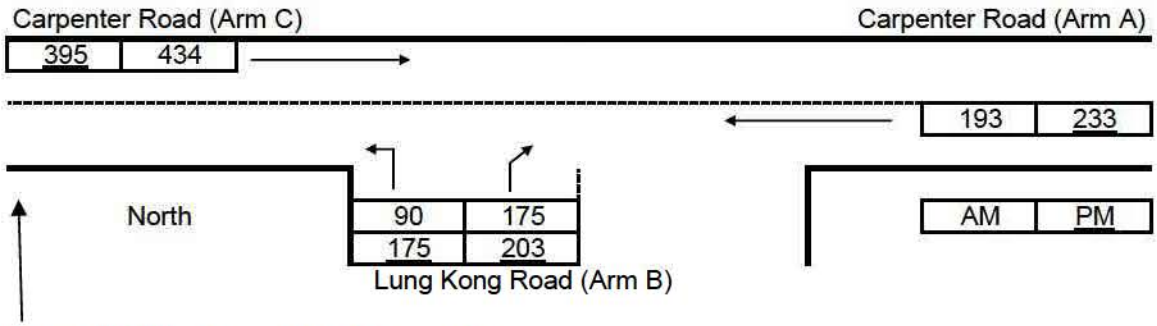
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	404	350	Q-BA	465	474
q-CB	0	0	Q-BC	688	689
q-AB	0	0	Q-CB	405	406
q-AC	214	211	Q-BAC	523	553
q-BA	183	188			
q-BC	95	160			
f	0.342	0.460			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.393	0.397	
B-C	0.138	0.232	
C-B	0.000	0.000	
B-AC	0.532	0.629	(for shared lane CA, CB)

Priority Junction Analysis

Junction:	P. Lung Kong Road / Carpenter Road				R1A / P.16-6
Design Year:	2033	Job Number:	J6786	Date:	13 February 2019
Scenario:	with KC-015 (weekend)				



The predictive equations of capacity of movement are:

Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]

Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]

Q-CB = F[745 - 0.364Y(q-AC + q-AB)]

The geometric parameters represented by D, E, F are:

D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]

E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]

F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]

where Y = 1 - 0.0345W

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.00	V-rBA	57	w-BA	4.00	D	0.9130
	W-CR		V-lBA	45	w-BC	4.20	E	0.9949
			V-rBC	60	w-CB		F	0.5860
			V-rCB				Y	0.6895

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	434	395	Q-BA	466	462
q-CB	0	0	Q-BC	693	683
q-AB	0	0	Q-CB	408	402
q-AC	193	233	Q-BAC	524	543
q-BA	175	203			
q-BC	90	175			
f	0.340	0.463			

Ratio-of-flow to Capacity	AM	PM	
B-A	0.376	0.439	
B-C	0.130	0.256	
C-B	0.000	0.000	
B-AC	0.506	0.696	(for shared lane CA, CB)

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-1
Scenario existing condition (weekday)
Design Year 2018 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	8	117	624	898					1647	934
From B	169	66	55	195					485	1909
From C	365	275	65						705	1455
From D		214	195	119					528	948
From E									0	1476
From F									0	1476
From G									0	1476
From H									0	1476
Total	542	672	939	1212	0	0	0	0	3365	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	19	72	718	787					1596	686
From B	178	53	64	181					476	1898
From C	417	126	9						552	1352
From D		133	231	134					498	802
From E									0	1300
From F									0	1300
From G									0	1300
From H									0	1300
Total	614	384	1022	1102	0	0	0	0	3122	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100	40	0.4
From B	7.8	5.4	25.0	6.6	100	20	0.6
From C	9.6	7.2	100.0	12.6	100	30	0.3
From D	9.6	7.2	100.0	60.0	100	60	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2134	2278	1647	1596	0.772	0.701
From B	6.509	54.598	1.009	1.044	1972.301	0.488	1088	1093	485	476	0.446	0.435
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1859	1921	705	552	0.379	0.287
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2104	2187	528	498	0.251	0.228
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-2
Scenario existing condition (weekend)
Design Year 2018 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	8	111	543	802					1464	806
From B	161	63	52	155					431	1681
From C	317	211	61						589	1302
From D		204	154	113					471	821
From E									0	1292
From F									0	1292
From G									0	1292
From H									0	1292
Total	486	589	810	1070	0	0	0	0	2955	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	21	79	740	816					1656	681
From B	196	58	71	179					504	1956
From C	428	98	9						535	1417
From D		146	223	147					516	810
From E									0	1326
From F									0	1326
From G									0	1326
From H									0	1326
Total	645	381	1043	1142	0	0	0	0	3211	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100.0	40.0	0.4
From B	7.8	5.4	25.0	6.6	100.0	20.0	0.6
From C	9.6	7.2	100.0	12.6	100.0	30.0	0.3
From D	9.6	7.2	100.0	60.0	100.0	60.0	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2208	2281	1464	1656	0.663	0.726
From B	6.509	54.598	1.009	1.044	1972.301	0.488	1204	1064	431	504	0.358	0.474
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1951	1882	589	535	0.302	0.284
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2177	2183	471	516	0.216	0.236
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-3
Scenario without KC-015 (weekday)
Design Year 2033 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	12	153	725	975					1865	1004
From B	196	70	87	203					556	2123
From C	398	280	69						747	1578
From D		243	220	122					585	1025
From E									0	1610
From F									0	1610
From G									0	1610
From H									0	1610
Total	606	746	1101	1300	0	0	0	0	3753	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	24	102	841	816					1783	798
From B	210	76	77	212					575	2107
From C	455	141	15						611	1486
From D		155	263	148					566	921
From E									0	1487
From F									0	1487
From G									0	1487
From H									0	1487
Total	689	474	1196	1176	0	0	0	0	3535	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100.0	40.0	0.4
From B	7.8	5.4	25.0	6.6	100.0	20.0	0.6
From C	9.6	7.2	100.0	12.6	100.0	30.0	0.3
From D	9.6	7.2	100.0	60.0	100.0	60.0	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2093	2213	1865	1783	0.891	0.806
From B	6.509	54.598	1.009	1.044	1972.301	0.488	979	987	556	575	0.568	0.583
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1785	1841	747	611	0.418	0.332
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2061	2120	585	566	0.284	0.267
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-4
Scenario without KC-015 (weekend)
Design Year 2033 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	11	145	769	856					1781	932
From B	186	67	123	193					569	2044
From C	339	227	65						631	1407
From D		230	249	94					573	895
From E									0	1468
From F									0	1468
From G									0	1468
From H									0	1468
Total	536	669	1206	1143	0	0	0	0	3554	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	26	112	925	829					1892	818
From B	231	83	85	233					632	2209
From C	449	135	17						601	1525
From D		171	289	123					583	941
From E									0	1524
From F									0	1524
From G									0	1524
From H									0	1524
Total	706	501	1316	1185	0	0	0	0	3708	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100.0	40.0	0.4
From B	7.8	5.4	25.0	6.6	100.0	20.0	0.6
From C	9.6	7.2	100.0	12.6	100.0	30.0	0.3
From D	9.6	7.2	100.0	60.0	100.0	60.0	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2135	2201	1781	1892	0.834	0.860
From B	6.509	54.598	1.009	1.044	1972.301	0.488	1019	935	569	632	0.559	0.676
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1888	1817	631	601	0.334	0.331
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2135	2108	573	583	0.268	0.277
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-5
Scenario with KC-015 (weekday)
Design Year 2033 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	12	153	725	977					1867	1004
From B	196	70	87	203					556	2125
From C	404	280	69						753	1580
From D		243	220	122					585	1031
From E									0	1616
From F									0	1616
From G									0	1616
From H									0	1616
Total	612	746	1101	1302	0	0	0	0	3761	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	24	102	841	823					1790	798
From B	210	76	77	212					575	2114
From C	460	141	15						616	1493
From D		155	263	148					566	926
From E									0	1492
From F									0	1492
From G									0	1492
From H									0	1492
Total	694	474	1196	1183	0	0	0	0	3547	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100.0	40.0	0.4
From B	7.8	5.4	25.0	6.6	100.0	20.0	0.6
From C	9.6	7.2	100.0	12.6	100.0	30.0	0.3
From D	9.6	7.2	100.0	60.0	100.0	60.0	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2093	2213	1867	1790	0.892	0.809
From B	6.509	54.598	1.009	1.044	1972.301	0.488	977	983	556	575	0.569	0.585
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1784	1836	753	616	0.422	0.335
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2057	2117	585	566	0.284	0.267
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Q. Olympic Garden Roundabout R1A / P.17-6
Scenario with KC-015 (weekend)
Design Year 2033 Job Number J6786 Date 13 February 2019

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	11	145	769	858					1783	945
From B	186	67	123	193					569	2059
From C	345	227	65						637	1422
From D		230	249	107					586	901
From E									0	1487
From F									0	1487
From G									0	1487
From H									0	1487
Total	542	669	1206	1158	0	0	0	0	3575	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q_c
From A	26	112	925	836					1899	853
From B	231	83	85	233					632	2251
From C	454	135	17						606	1567
From D		171	289	158					618	946
From E									0	1564
From F									0	1564
From G									0	1564
From H									0	1564
Total	711	501	1316	1227	0	0	0	0	3755	

Legend

Arm	Road (in clockwise order)
A	Ma Tau Chung Road
B	Argyle Street
C	Prince Edward Road West
D	Prince Edward Road East
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.2	7.3	30.0	13.2	100.0	40.0	0.4
From B	7.8	5.4	25.0	6.6	100.0	20.0	0.6
From C	9.6	7.2	100.0	12.6	100.0	30.0	0.3
From D	9.6	7.2	100.0	60.0	100.0	60.0	0.1
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q_E	Entry Capacity
q_c	Circulating Flow across the Entry
K	$= 1-0.00347(\varnothing-30)-0.978[(1/r)-0.05]$
F	$= 303x_2$
f_c	$= 0.210t_D(1+0.2x_2)$
t_D	$= 1+0.5/(1+M)$
M	$= \exp[(D-60)/10]$
x_2	$= v+(e-v)/(1+2S)$
S	$= 1.6(e-v)/L$

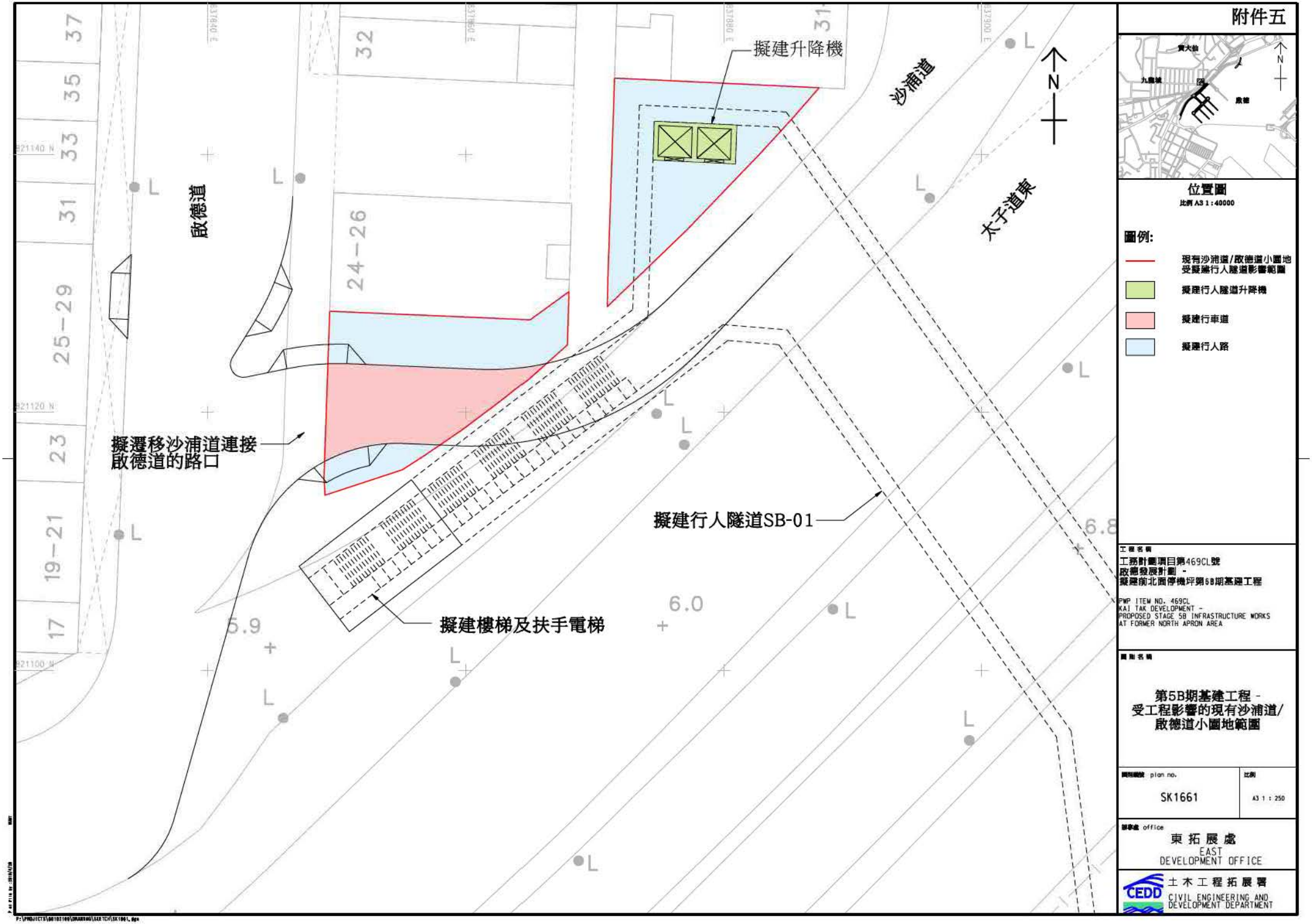
Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

							Q_E		Entry Flow		RFC	
Arm	x_2	M	t_D	K	F	f_c	AM	PM	AM	PM	AM	PM
From A	9.003	54.598	1.009	0.982	2727.863	0.593	2127	2181	1783	1899	0.838	0.871
From B	6.509	54.598	1.009	1.044	1972.301	0.488	1011	913	569	632	0.563	0.692
From C	8.691	54.598	1.009	1.039	2633.411	0.580	1879	1792	637	606	0.339	0.338
From D	9.328	54.598	1.009	0.935	2826.281	0.607	2131	2106	586	618	0.275	0.294
From E												
From F												
From G												
From H												

Appendix B – USS Entrance at Sa Po Road (Extract from Kowloon City District Council Paper)


附件五
擬建升降機
沙浦道
太子道東
啟德道
擬遷移沙浦道連接
啟德道的路口
擬建行人隧道SB-01
擬建樓梯及扶手電梯
位置圖
比例 A3 1 : 40000
圖例:
現有沙浦道/啟德道小圖地
受擬建行人隧道影響範圍
擬建行人隧道升降機
擬建行車道
擬建行人路
工程名稱
工務計劃項目第469CL號
啟德發展計劃 -
擬建前北面停機坪第5B期基建工程
PWP ITEM NO. 469CL
KAI TAK DEVELOPMENT -
PROPOSED STAGE 5B INFRASTRUCTURE WORKS
AT FORMER NORTH APRON AREA
圖則名稱
第5B期基建工程 -
受工程影響的現有沙浦道/
啟德道小圖地範圍
圖則編號 plan no.
SK1661
比例
A3 1 : 250
辦事處 office
東拓展處
EAST
DEVELOPMENT OFFICE
土木工程拓展署
CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

Appendix C – Paper for "Working Group on the Shatin to Central Link"

關注沙中線工作小組文件第 01/13 號

九龍城區議會
交通及運輸事務委員會
關注沙中綫工作小組
沙田至中環綫項目進展匯報

引言

1. 本文件旨在向九龍城區議會交通及運輸事務委員會關注沙中綫工作小組匯報沙田至中環綫(沙中綫)的項目進展及跟進事項。

背景

2. 自二零一二年九月十四日九龍城區議會轄下關注沙田至中環綫工作小組第二次會議，以及於九月廿一日及廿七日的特別會議上介紹了沙中綫項目進度及九龍城段建造期間實施的臨時交通管理措施詳細計劃後，港鐵公司亦於去年十二月四日與工作小組成員實地視察馬頭圍道實施了改道後的交通情況。本文件旨在向委員報告工程最新進展及跟進工程有關事項。

工程最新進展

<u>馬頭圍站及隧道興建工程</u>

3. 爲建造沙中綫九龍城段馬頭圍站車站及隧道，馬頭圍道已於去年十二月二日開始實施臨時交通管理措施，而其他相關改道措施，如農圃道的行車方向由原本的西行改爲東行亦已於去年十一月廿四日實施。經過之後個多星期的觀察，交通改道後馬頭圍道交通大致正常，遂於十二月十一日起，正式封閉馬頭圍道原本三條南行綫並用作工地，至今馬頭圍道及附近一帶的交通大致暢順。

4. 交通改道正式實施後，馬頭圍站工程經已展開，承建商現正進行工地平整、探坑挖掘、土質勘探和地下設施改道等前期工程。於沿走綫附近大廈安裝工程監測點的工作亦將陸續完成，這些監測

交通管理措施，以配合接駁紅磡站的隧道工程。另外，位於啓德發展區內的臨時躉船轉運站的建造工程已部分完成並陸續開始投入運作。此外，九龍城區部分重置休憩設施亦將會陸續完工。

臨時交通管理措施

<u>爲興建馬頭圍站及隧道的臨時交通管理措施</u>

10. 爲了在工程期間維持馬頭圍道的交通和巴士及專綫小巴站的正常運作，並且確保馬頭圍站及隧道能夠按計劃在二零一八年落成，馬頭圍站垂直隔牆和橫向支撐牆的前期工程和建造工程須與交通改道配合進行。

11. 現時，牧愛小學對出的一段馬頭圍道行人路正進行地下設施改道等前期工程，部分路面封閉，但行人路會維持。有關工程預計約於今年第一季內完成，完成後，土瓜灣市政大廈對出的南行巴士及專綫小巴站便會遷往牧愛小學對出位置，以便騰出空間進行興建垂直隔牆和橫向支撐牆工程（詳見<u>附件 2</u>）。

<u>爲興建土瓜灣站的臨時交通管理措施</u>

12. 土瓜灣站其中一個出入口將設於南角道，出入口將以明挖回填方式興建。爲配合工程，介乎太子道西至衙前圍道的南角道須於今年第一季起分階段封閉並實施臨時交通管理措施，現時以單綫行車的安排將會維持，但道路兩旁的咪錶泊車位則須要臨時取消，並盡量於附近街道，包括南角道以北、龍崗道及城南道重置。工程完成後，部分咪錶泊車位將會於原位復原，唯部分咪錶泊車位因原位已成爲車站出入口而無法復原。港鐵公司已經與受影響商戶解釋工程和諮詢咪錶泊車位安排，港鐵公司及承辦商將會與受影響的持份者保持溝通。（詳見<u>附件 3A-D</u>）

<u>爲興建連接紅磡站隧道的臨時交通管理措施</u>

13. 連接紅磡站的沙中綫東西走廊隧道和南北走廊隧道將以明挖回填方式建造。爲配合建造工程，現有漆咸道北以及漆咸道交匯

Appendix 3

Preliminary Landscape Design Principles and Tree Survey & Compensation Proposal

Ko Landscape Architects Ltd
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Preliminary Landscape Design Principles and Tree Survey & Compensation Proposal

DEVELOPMENT SCHEME PLAN
AT KC-015 KAI TAK ROAD / SA PO ROAD

Prepared for Urban Renewal Authority
By Ko Landscape Architects Limited

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1.0 INTRODUCTION

1.1 This report presents the preliminary landscape design intention, tree survey and compensation planting proposal in connection with the proposed Development Scheme. As there are trees identified in the Scheme Area, tree survey is conducted and mitigation measures are proposed.

2.0 PROPOSED DEVELOPMENT

2.1 The proposed development is located at Kai Tak Road / Sa Po Road, Kowloon City, and has a Net Site Area of approximately 5,352m². **Figure 1.1 – Context Plan** shows the location of the site and its surrounding conditions. The development scheme intends to be primarily for a high-density residential development with the provision of a split-level sunken plaza and public vehicle park. The proposed residential towers with not more than 120mPD include retail / commercial podium, clubhouse facilities and podium garden. **Figures 2.1 – Overall Landscape Proposal** shows the overall Layout Plan of the notional design.

2.2 The development also includes a split-level sunken plaza that connects to the proposed subway across Prince Edward Road East and the future Underground Shopping Street (SST) in the Kai Tak Development Area (KTDA). The sunken plaza includes covered and un-covered area and with hard and soft landscape, commercial/retail components, event space and place making elements at different levels. Landscape interventions shall be applied throughout all levels where appropriate and practicable to enhance the sense of place and the quality of built environment.

3.0 EXISTING CONDITION

3.1 The site is located in a built environment consisting of predominantly old tenement buildings. These are used for a mix of shops at street level and residential apartments at the upper levels.

3.2 To the southern-most portion of the development area and directly adjacent to the existing Sa Po Road, there exist 2 small parcels of government land. Planted within these parcels are ornamental shrubs and tree planting. There is a small sitting out area with shaded structure recessed into each of the parcels of planting. Apart from this, there is no other landscaping and greening feature in the street block.

3.3 The surrounding streetscape along Sa Po Road, Kai Tak Road and Carpenter Road is finished with a combination of Highways Department's standard concrete unit pavements in grey colour or basic brushed concrete. The streetscape pavements located along Prince Edward Road East are made up of a mix of red and grey standard concrete units.

4.0 LANDSCAPE DESIGN OBJECTIVES

The proposed development aims to create a better environment with the following objectives:

4.1 Address KC DURF's recommendation by creating a split-level sunken plaza to build a sense of place, provide space for events and place-making, and continue the vibrancy of the future Underground Shopping Street of the KTDA.

4.2 Address the need for a vibrant and attractive public space in this area to offset the heavy vehicular environment along Prince Edward Road East. The sunken plaza will integrate with existing pavement to create a pedestrian conducive environment that links people from the street level, to the retail component below and beyond. It should be opened to public as a place for leisure, shopping and gathering with sitting, shops and event space for public to enjoy.

4.3 Create a contemporary, complimentary, flexible and diversified spatial and landscape setting for the development that takes into consideration the different requirements between retail, clubhouse and streetscape. Maximize the opportunities for amenity facilities to promote community harmony and neighbourhood cohesion not only at ground level, but also at different levels of the sunken plaza, where appropriate.

4.4 Smooth and barrier free landscape transition from proposed public space to adjoining pavement at Prince Edward Road East to allow space for bus waiting and enhance walkability. The sunken plaza will be developed at the southern part of the Scheme to connect with the existing pavement of Prince Edward Road East to improve walking environment and provide solution space for pedestrian circulation and queuing at the bus laybys locating in front of the Scheme.

4.5 Provide a harmonious green interface along Sa Po Road and create a physical and visual link with the adjacent public open spaces of Tai Ku Ling Road Rest Garden and the smaller Planting Area adjacent to the Regal Oriental Hotel. (Refer to **Figure 1.1 – Context Plan**).

4.6 Capture the values of its historical and cultural context and integrate the proposed development, from a landscape and visual perspective, with the existing surrounded environment and planned landscape context to create an integrated landscape.

5.0 PRELIMINARY LANDSCAPE DESIGN INTENTIONS

5.1 With the above landscape design objectives, the current notional landscape design adopts an integrated approach to the planning, design and functions of the development and spaces for the various areas of which it is composed. These areas are physically linked by a virtually continuous landscaped pedestrian streetscape and network of open spaces, providing a variety of areas for different kinds of passive activity.

5.2 All calculations and proposed Greenery Areas will satisfy the requirements in PNAP APP-152. The notional design can achieve the required 20% Greenery Area at Pedestrian Zone (≤15m above the level of the street).

5.3 All Greenery Areas on Structure are to be of impervious construction and the minimum imposed load of soil, planting and trees will be taken into account in detailed design.

5.4 All Greenery Areas will be designed with adequate soil depth (i.e. Minimum of 1.2m, 0.6m, 0.3m for Tree Planting, Shrub Planting and Turf/Groundcover respectively). This allowance excludes the drainage layer and adequate water supply will be allowed for general irrigation purposes.

5.5 Should the draft DSP be approved, detailed design will be carried out and the notional landscape design would be subject to change according to the design development at GBP stage and other refinements, subject to liaison with relevant government departments.

6.0 TREE SURVEY AND MITIGATION

6.1 This chapter of the report contains tree identification, assessment and mitigation measures results from the proposed Development.

6.2 The tree identification provides a description and assessment of trees according to topographic survey conducted within the proposed site area at and over 95mm DBH (Diameter of Breast Height) measured at 1300mm above ground level.

6.3 The tree survey undertaken on 22nd October 2018, recorded a total of 11 nos. of existing with DBH at and over 95mm inside the boundary of the subject site. Refer to **Figure 6.1 - Tree Survey Plan.**

6.4 Based on the physical assessment as well as the inherent properties of the existing trees, this report will provide the recommendation on the status for each tree whether it should be retained, transplanted or felled. The report is prepared based on the content as described in the Development Bureau Technical Circular (Works) No. 7/2015.

6.5 The assessment and survey of the existing trees within the site area were carried out and recommendations were made regarding the treatment of existing trees in response to the design proposals. Locations of trees recorded in this Tree Survey Report are indicated in the Tree Survey Plan enclosed in **Figure 6.1 – Tree Survey Plan**.

6.6 All trees were assessed based on criteria such as: variety of the species, condition of the tree, size and maturity, and access of equipment to the trees to facilitate transplantation. This report outlines the approach and findings of the existing trees that will be affected by the proposed development works and makes recommendations on mitigation measures including removal, relocation and / or re-provision of trees.

7.0 TREE SURVEY METHODOLOGY

7.1 The tree survey methodology will strictly follow the guideline from Lands Department Practice Note No. 7/2007, Tree Preservation and Removal Application for building development in Private Projects.

7.2 All living trees at and over 95mm of Diameter at Breast Height (DBH) or more at a height of 1.3m above ground level were included in the survey.

7.3 Each tree was identified to species, and its position with reference numbers is shown on plans for reference provided in **Figure 6.1 - Tree Survey Plan**, and photographic record provided in **Figure 6.2 – Tree Photos**.

7.4 The report includes a Tree Assessment Schedule containing the following information on each tree surveyed (Refer to **Figure 6.1**):

Tree Number Tree numbers are determined by Topographic Surveyors and are corresponded to the tree survey plan

Species Tree species are identified with their botanical and Chinese names

Height (in meter) Height of trees area measured in meters and are taken from ground level to the top of trees

Spread (in meter) average diameter of foliage canopy

DBH (in mm) Trunk Diameters (DBH: diameter at breast height) of trees are measured in millimeter and are taken at above 1300MM height above ground level

Top of soil level above root collar as indicated with top of soil level above root collar

Amenity value The factors that are taken into consideration are conservation value, functional value, visual impact and aesthetic value

- Good: Trees that are rare or protected species, Fung Shui significance or have high visual impact with good health condition and form are classified as Good in amenity value
- Fair: Trees which individually or collectively make a useful but not vital contribution to the local environment
- Poor: Dead, dangerous and unhealthy trees and generally poor form and shape

Tree Form Estimated the overall appearance of tree form

- Good: Well-balanced tree form with attractive canopy, trunk(s), and branches
- Fair: Slightly unbalanced tree form canopy and non-straight trunk(s), with few or no visible defects or health problems
- Poor: Unbalanced and poor form tree, thinning of crown, poor leaf color, heavily leaning, badly damaged or clearly suffering from decay, dying back or the effects of very heavy vine growth

Health Condition Estimate the Foliage, Exposed Roots, Branches and Trunk

- Good: Without any visible disease or defect, sound and healthy tree
- Fair: With few visible defects or health problem
- Poor: With many visible defects or health problem such as rot, cavities in the main trunk, insect or fungi attack, lack of vigor and crown die back, etc.

Structural Condition Estimated the structure of canopy, branch and trunk

- Good: Well-balanced canopy and straight strong trunk(s) without any broken branch
- Fair: Slightly unbalanced canopy and non-straight trunk(s)
- Poor: Heavily leaning, unbalanced canopy misshapen, forked trunk or with any broken branch or trunk

Suitability for grading of **Transplanting** The survival rate after transplanting for individual tree indicated with a High, Medium or Low

The following criteria are taken into account:

- Condition of the Tree - trees with balanced form, in good health and with high amenity value are considered for transplanting
- Size and Maturity - small and younger trees have a better chance of surviving transplantation while larger, mature trees are difficult to transplant both logistically and in terms of survival rate
- Species - different tree species have better chances of survival or are better suited to transplanting than others
- Access - large machinery is required to lift the trees, steep slopes and rocky terrain therefore make it difficult to access trees
- Trees Located on Sloping Ground - for those trees located on sloping ground, they may not survive after transplanting even if they are accessible. It is difficult for their inclined root systems to adapt to the normally more gentle ground at the receptor site.

Conservation Status State the rarity & protection status of the species

Recommendation Recommendation for the tree will be Transplant, Retain or Fell

Remarks Supplementary special features identified on site and having status / characteristics / condition

8.0 GENERAL DESCRIPTION OF EXISTING TREES

8.1 A detailed site tree survey was conducted on 22nd October 2018. There were a total of 11 nos. of existing trees found within boundary of the subject site. All 11 nos. existing trees found are in conflict with the Proposed Residential Development.

8.2 The existing trees include: 11 nos. *Bauhinia blakeana (T1 -T11)* (See **Figure 6.1 - Tree Survey**). The majority of the trees were found to be in poor to fair health condition, tree form and amenity value.

8.3 There is no OVTs (Old and Valuable Trees) or potentially recognized OVTs according to ETWB TC (W) No. 29/2004.

9.0 TREE TREATMENT PROPOSAL

9.1 **General**

This proposal has taken into account the trees within the subject site is affected by the works.

9.2 **Trees to be Retained**

No trees are proposed to be retained due to poor form, health and an unavoidable conflict with the proposed split-level sunken plaza. This split-level sunken plaza plays a key role in creating a pedestrian-conducive and pragmatic connection to the future underground shopping street (USS) at KTDA .

9.3 **Trees to be Transplanted**

Criteria for transplanting existing trees are based on the health condition, economic value, amenity value, size and ability to withstand transplantation shock and its subsequent regeneration rate. For the tree(s) which affected by the works are listed and evaluated for transplanting in Table 1 (overleaf). All the 11 trees are not proposed to be transplanted based on the following reasons:

a. Low amenity value;

b. Irrecoverable form after transplanting (e.g. if substantial crown and root pruning are necessary to facilitate the transplanting);

c. Species with low survival rate after transplanting;

d. Very large size (Some of the affected trees are over 300mm DBH);

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 and etc.);

Table 1: Assessment table for consideration of transplanting

Tree No	Scientific Nam	Chinese Name	Recommendation of transplantation (Yes/ No)	Reason
T1	Bauhinia blakeana	洋紫荊	No	a, c, d, e
T2	Bauhinia blakeana	洋紫荊	No	a, c, d, e
T3	Bauhinia blakeana	洋紫荊	No	a, b, c, d, e
T4	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T5	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T6	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T7	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T8	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T9	Bauhinia blakeana	洋紫荊	No	a, b, c, d, e
T10	Bauhinia blakeana	洋紫荊	No	a, b, c, e
T11	Bauhinia blakeana	洋紫荊	No	a, b, c, e

Note*

a. low amenity value
b. Irrecoverable form after transplanting
c. low survival rate after transplanting
d. very large size
e. with poor health, structure or form

Based on the above criteria, **no** tree is proposed to be transplanted in this project.

9.4 **Trees to be Felled**

All 11 nos. *Bauhinia blakeana (T1 -T11)* are not in particularly good health and do not possess a high amenity value, are proposed to be felled as they are in conflict with the proposed development and/or in poor conditions as detailed below. (Refer to **Figure 6.3 – Development Overlay**).

7 trees (T1, T2, T3, T4, T5, T6 and T7) are proposed to be felled as they come in conflict with the proposed split-level sunken plaza.

2 trees (T8 and T9) are proposed to be felled as they come in conflict with the proposed escalator in the split-level sunken plaza.

2 trees (T10 and T11) are proposed to be felled because they are in poor form and health and adversely affect intended pedestrian circulation into the development.

6 trees (T3, T4, T5, T6, T7 and T10) are exhibiting severe leaning and if retained close to public footpaths, may pose safety concerns for the public.

6 trees (T1, T2, T8, T9, T10, T11) show signs of significant damage, likely inflicted by recent typhoons (i.e. Hato on 23 August 2017, Pakhar on 9 August 2017 and Mangkhut on 16 October 2018).

In this connection, **11** nos. trees are proposed to be felled. The total loss of DBH for these trees is 2.28m.

10.0 TREE COMPENSATION PROPOSAL

10.1 Since there are 11 no. trees proposed to be felled (total DBH is 2.28m), a total DBH of 2.28m of new trees will be proposed within site as the compensatory planting proposal. (Refer to **Figure 10.1 – Compensatory Tree Strategy**).

10.2 The ratio of compensatory proposal is **1:1 in DBH**. The compensatory trees will be of heavy standard size to ensure a proper establishment rate of the trees.

Table 2: Summary of proposed tree felled and compensatory trees

Proposed Tree Treatment	**Proposed Felled Trees**		**Compensatory Trees**
	Nos.	*Total DBH*	*Total DBH*
to be retained	0	0	0
to be transplanted	0	0	0
to be felled	11	2.28	2.28
Total	**11**	2.28	2.28

DBH Ratio between Proposed Felled Tree and Compensatory Tree = 1: 1
* DBH refers to Depth of Breast Height in accordance with AFCD nature Conservation Practice Note 02/2003 "Measurement of Diameter at Breast Height"

10.3 The proposed species for the compensatory tree planting is as per the below table and examples shown in **Figure 10.2 – Planting Palette (Trees)**:

Table 3: Proposed Types of Compensatory Tree

CODE	BOTANICAL NAME	CHINESE NAME	OVERALL HEIGHT(MM)	SPREAD (MM)	DBH (MM)	Live-Crown Ratio
SC	*Spathodea campanulata*	火焰木	4000	3000	120	60%
CB	*Cinnamomum burmannii*	陰香	4000	3000	120	60%
CU	*Crateva unilocularis*	魚木	3000	2500	120	60%
JM	*Jacaranda mimosifolia*	藍花楹	5000	2500	120	50%
BB	*Bauhinia x blakeana*	洋紫荊	4000	3000	120	60%
TC	*Tabebuia chrysantha*	黃花風鈴木	4500	3000	120	60%
AS	*Aquilaria sinensis*	土沉香	4500	3000	120	60%

10.4 A combination of the above types of trees are proposed to be reprovisioned within the site in the future proposed development to compensate the existing trees to be felled with DBH 2.28m. The aggregated DBH of the proposed compensatory trees within the site will not be less than that of the lost trees, i.e. DBH of not less than 2.28m. The proposed compensation trees' location aims at ensuring the trees could be established and will grow into healthy trees. The receptor locations are assessed and sufficient depth soil (1.2m excluding drainage layer) could be allowed.

10.5 The responsible landscape sub-contractor is required to submit bimonthly tree report to monitor the tree health conditions, and maintain the landscape work under one-year establishment period, after the completion of work.



FIGURE 1.1 - CONTEXT PLAN

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

LEGEND

1 B3 Sunken Plaza
2 B3 Amphitheatre Seating Area
3 B1 Sunken Plaza
4 B1 Amphitheatre Seating Area
5 GF Plaza
6 GF Amphitheatre Seating Area
7 GF Garden
8 GF Pavement
9 Upper Level Platform
10 Upper Level Planting Area

Remarks: Notional design subjected to change in detailed design stage



FIGURE 2.1 - OVERALL LANDSCAPE PROPOSAL

0 5 25M

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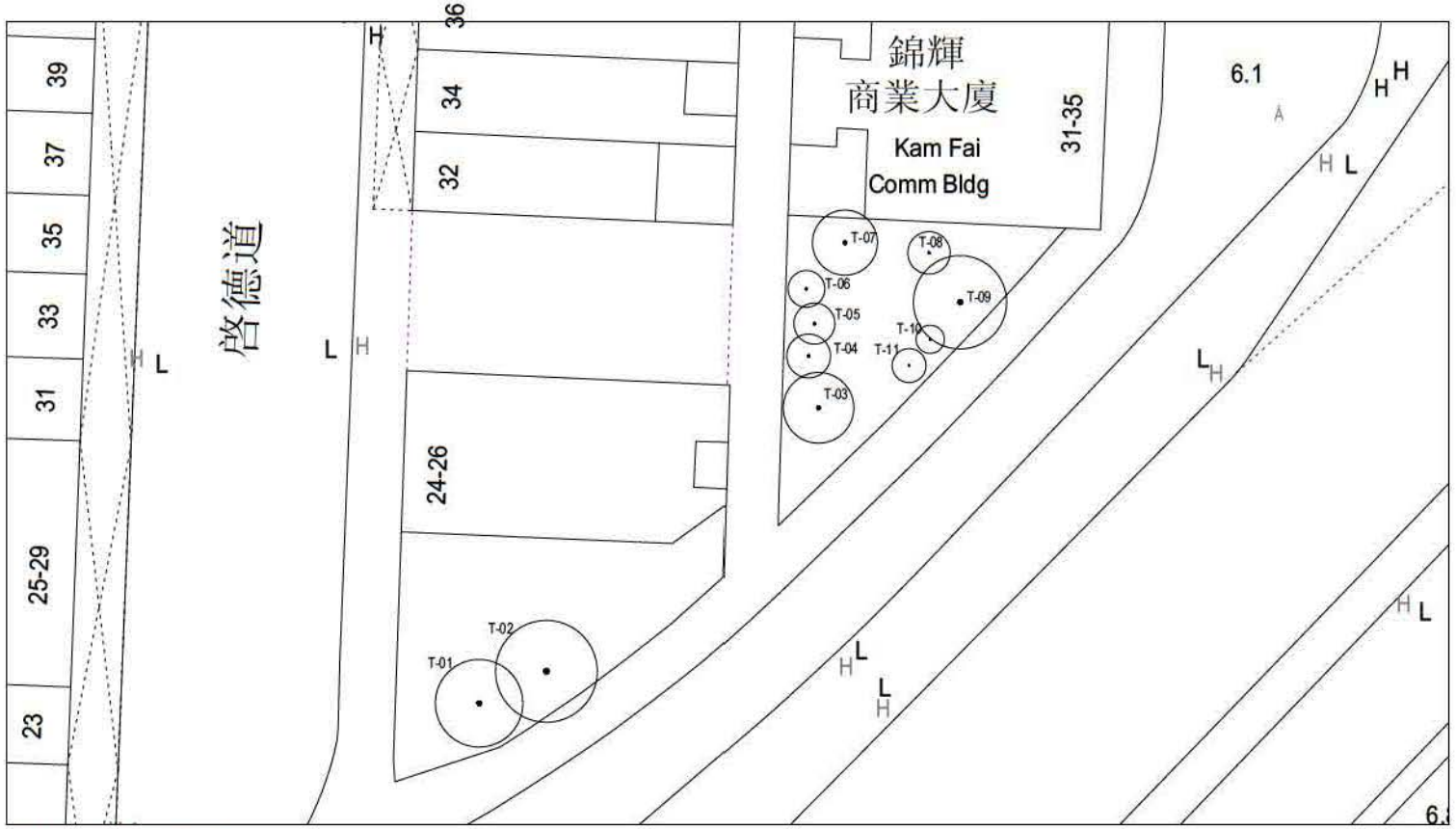

SCALE 1:300 @ A3

Note*

Major determining factors for rating on lack of suitablity for transplanting:

a. low amenity value
b. irrecoverable form after transplanting
c. low survival rate after transplanting
d. very large size
e. with evidence or notable signs of over- maturity and on set of senescence;
f. with poor health, structure or form
g. undesirable species

Tree Assessment Schedule

Project Title: KC-015

Date of Tree Survey: 22 Oct, 2018 **Surveyed by:** Ms. Ling Leung (Certified Arborist (ISA HK1609A)

Updated on : -

	Species		Tree Size			Amenity Value	Form	Health condition	Structural condition	Suitability for transplanting		Recommendation	Additional Remarks
Tree No	Scientific Name	Chinese Name	Overall Height (m)	Average Crown Spread (m)	DBH (mm)	(High/ Medium/ Low)	(Good/ Fair/ Poor)			(High/ Medium/ Low)	Remarks	(Retain/ Transplant/ Fell)	
T1	Bauhinia blakeana	洋紫荊	9	4	310	L	P	P	P	L	a, c, d, f	Fell	All upper branches broken off
T2	Bauhinia blakeana	洋紫荊	10	4	360	L	P	P	P	L	a, c, d, f	Fell	All upper branches broken off
T3	Bauhinia blakeana	洋紫荊	12	6	250	L	P	P	P	L	a, b, c, d, f	Fell	Severely Leaning & wounded Main Trunk (45 degrees)
T4	Bauhinia blakeana	洋紫荊	8	5	155	L	P	P	P	L	a, b, c, f	Fell	Severely Leaning and Crooked Main Trunk (45 degrees)
T5	Bauhinia blakeana	洋紫荊	7	5	145	L	P	P	P	L	a, b, c, f	Fell	Severely Leaning Main Trunk (60 degrees)
T6	Bauhinia blakeana	洋紫荊	6	3	130	L	P	P	P	L	a, b, c, f	Fell	Severely Crooked Main Trunk
T7	Bauhinia blakeana	洋紫荊	8	5	230	L	P	P	P	L	a, b, c, f	Fell	Severely Leaning and Crooked Main Trunk (50 degrees)
T8	Bauhinia blakeana	洋紫荊	7	5	150	L	P	P	P	L	a, b, c, f	Fell	All upper branches broken off
T9	Bauhinia blakeana	洋紫荊	8	3	330	L	P	P	P	L	a, b, c, d, f	Fell	All upper branches broken off
T10	Bauhinia blakeana	洋紫荊	4	3	100	L	P	P	P	L	a, b, c, f	Fell	Severely Leaning Main Trunk (60 degrees). All upper branches broken off
T11	Bauhinia blakeana	洋紫荊	6	4	120	L	P	P	P	L	a, b, c, f	Fell	All upper branches broken off

FIGURE 6.1 - TREE SURVEY

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

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FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T1_01



T1_02



T1_03

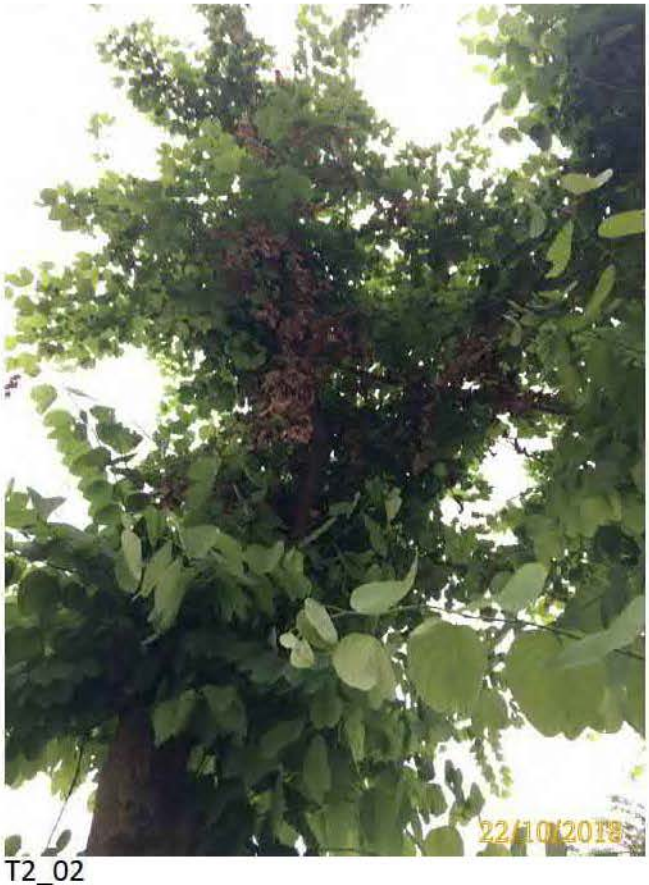


T1_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T2_01



T2_02



T2_03



T2_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T3_01



T3_02



T3_03



T3_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T4_01



T4_02

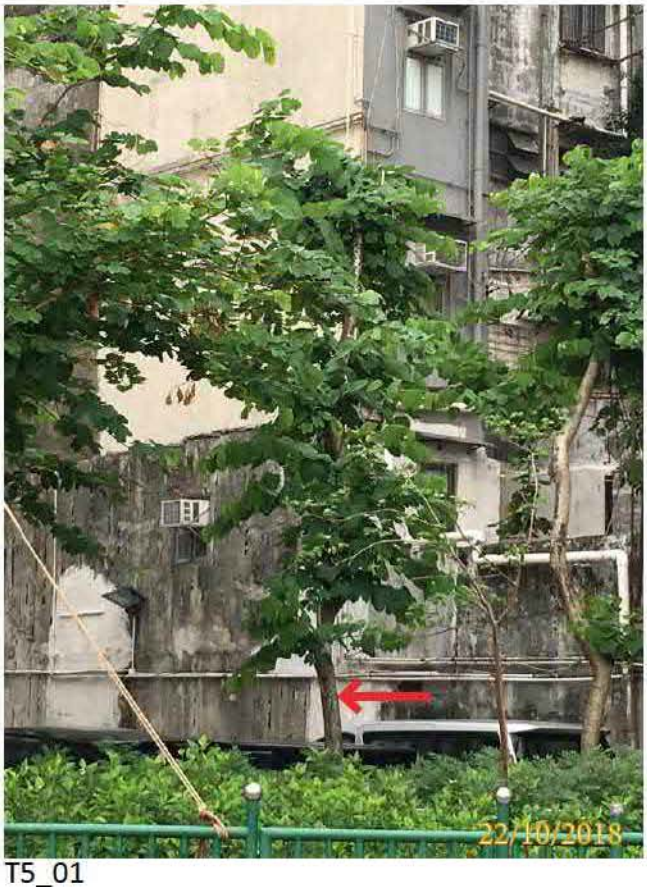


T4_03



T4_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T5_01



T5_02



T5_03



T5_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T6_01



T6_02



T6_03



T6_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T7_01



T7_02



T7_03

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T8_01



T8_02



T8_03

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T9_01


T9_02

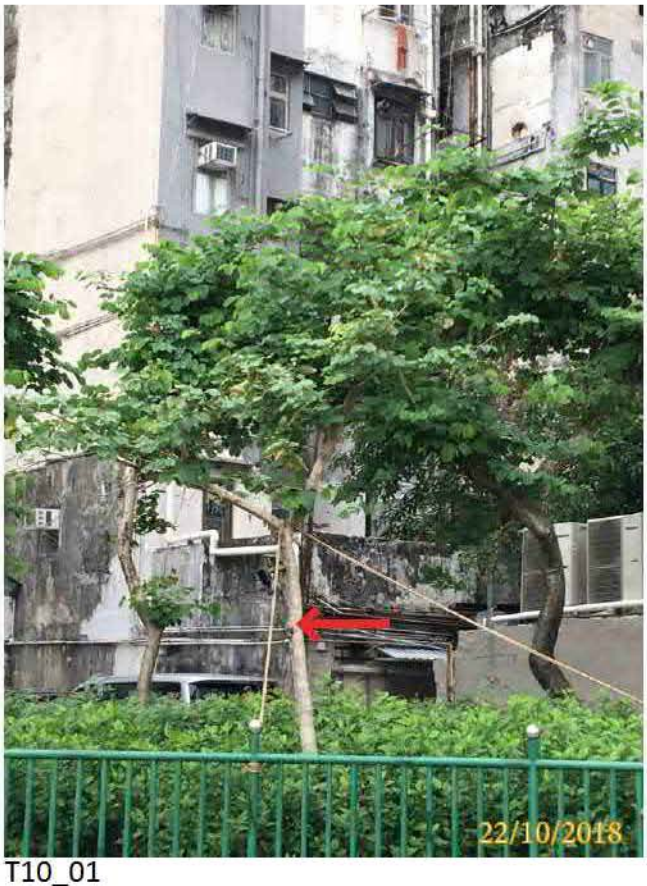


T9_03



T9_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T10_01



T10_02



T10_03



T10_04

FIGURE 6.2 - TREE PHOTOS
Photographic Record of Trees (Recorded 22rd October 2018)



T11_01



T11_02



T11_03



T11_04



LEGEND

EXISTING TREE TO BE FELLED (IN CONFLICT WITH PROPOSED SPLIT LEVEL SUNKEN PLAZA AND ESCALATOR)

SCALE 1:300 @ A3

FIGURE 6.3 - DEVELOPMENT OVERLAY PLAN

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

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LEGEND

COMPENSATORY TREE AT
120MM DBH EACH.

CODE	BOTANICAL NAME	CHINESE NAME	OVERALL HEIGHT(MM)	SPREAD (MM)	DBH (MM)	Live-Crown Ratio
SC	*Spathodea campanulata*	火焰木	4000	3000	120	60%
CB	*Cinnamomum burmannii*	陰香	4000	3000	120	60%
CU	*Crateva unilocularis*	魚木	3000	2500	120	60%
JM	*Jacaranda mimosifolia*	藍花楹	5000	2500	120	50%
BB	*Bauhinia x blakeana*	洋紫荊	4000	3000	120	60%
TC	*Tabebuia chrysantha*	黃花風鈴木	4500	3000	120	60%
AS	*Aquilaria sinensis*	土沉香	4500	3000	120	60%



FIGURE 10.1 - COMPENSATORY TREE STRATEGY

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

0 5 25M

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TREES- IN BLOOM



Spathodea campanulata
火焰木
6m HEIGHT



Cinnamomum burmannii
陰香
5m HEIGHT



Crateva unilocularis
魚木
5m HEIGHT



Jacaranda mimosifolia
藍花楹
6m HEIGHT



Bauhinia x blakeana
洋紫荊
5m HEIGHT



Tabebuia chrysantha
黃花風鈴木
6m HEIGHT



Aquilaria sinensis
土沉香
6m HEIGHT

FIGURE 10.2 - PLANTING PALETTE (TREES)

KC-015 KAI TAK ROAD/ SA PO ROAD DEVELOPMENT SCHEME

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Appendix 4

Visual Appraisal Report

Visual Appraisal for URA Kai Tak Road/ Sa Po Road Development Scheme (KC-015)

1. Background

1.1. The Kai Tak Road / Sa Po Road Development Scheme (KC-015) (the Scheme) has a gross site area of about 6,106sq.m. The Scheme is located between Kai Tak Road and Sa Po Road. It is surrounded by residential buildings to the north and west, and a hotel to the west. The southern side of the site is bounded by Prince Edward Road East. The Scheme Area is currently zoned "Residential (Group A)2" ("R(A)2"), and the pavement and the Sa Po Road are shown as "Road" on the Approved Ma Tau Kok Outline Zoning Plan (OZP) No. S/K10/24. The maximum building height of the Scheme Area under the current OZP is 100mPD (for site not less than 400sq.m.).

1.2. Under the current notional design, the proposed development of the Scheme (the Proposed Scheme) will compose of residential towers on a podium with community/retail facilities and private residential clubhouse, a basement carpark, and a split-level sunken plaza on the southern part within the Scheme. The proposed building height of the Scheme is 120mPD (see Figure 1.1 on notional layout plan).

2. Visual Appraisal

Strategic Viewpoint Assessment

2.1. The Scheme falls within the view-fan for protection of the ridgeline viewing from the Quarry Bay vantage point, which is one of the recommended strategic vantage points in the Hong Kong Planning Standards and Guidelines (HKPSG). Hence, it is taken as the key strategic viewpoint in this visual appraisal.

2.2. As shown in Figure 2.1 and 2.2, the proposed developments in the Scheme, upon completion, will be completely blocked by the existing buildings in front of the Scheme when viewing from the Quarry Bay viewpoint on the opposite side of the Victoria Harbour. Both the mountain ridgeline and the limit of the 20% building free zone are not interrupted by the Scheme. Given the Scheme is situated in the inland area, which is at least 1000m away from the waterfront, the Scheme will not have any adverse impact on visual permeability from the Victoria Harbour.

Local Viewpoint Assessment

2.3. Visual appraisal is also carried out in the local context to assess any visual impact of a baseline scheme which is based on OZP-compliance layout (i.e. 100mPD) (The Base Scheme) (See Figure 1.2) and the Proposed Scheme (120mPD). For the local view assessment area, i.e. the visual envelope ("VE"), has taken 3 times of the proposed building height of the Scheme (i.e. 120mPD x 3 = 360mPD) as an

assumption. Representative viewpoints ("VPs") within the VE were selected to assess the visual impact of the Scheme. Selected VPs generally covers the pedestrian/vehicular view corridors from different directions, major open spaces and existing/future pedestrian nodes. Six local VPs are selected and their locations are shown Figure 3.1.

2.4. The locations of the six selected VPs are listed in Table 1 below. Figure 3.2-3.7 shows the photomontages of each of the 6 local VPs.

Table 1: Selected Local Viewpoints

Local Viewpoint(s) (VPs)		**Approximate Distance from the Scheme**
VP1	Olympic Avenue	370m
VP2	Kai Tak Development Area	430m
VP3	Tung Tau Estate	340m
VP4	Carpenter Road Park Entrance	380m
VP5	Prince Edward Road East Bus Stop	100m
VP6	Kai Tak Road	35m

2.5. By viewing from the 6 selected VPs, the proposed development with 120mPD in the Scheme can generally blend in with the surrounding high-rise developments. It can create a stepped building height profile from inland area towards waterfront, i.e. with the residential developments across Carpenter Road of 170mPD and 145mPD respectively to the Scheme of 120mPD, and gradually down to about 80mPD to 100mPD towards KTDA in the south.

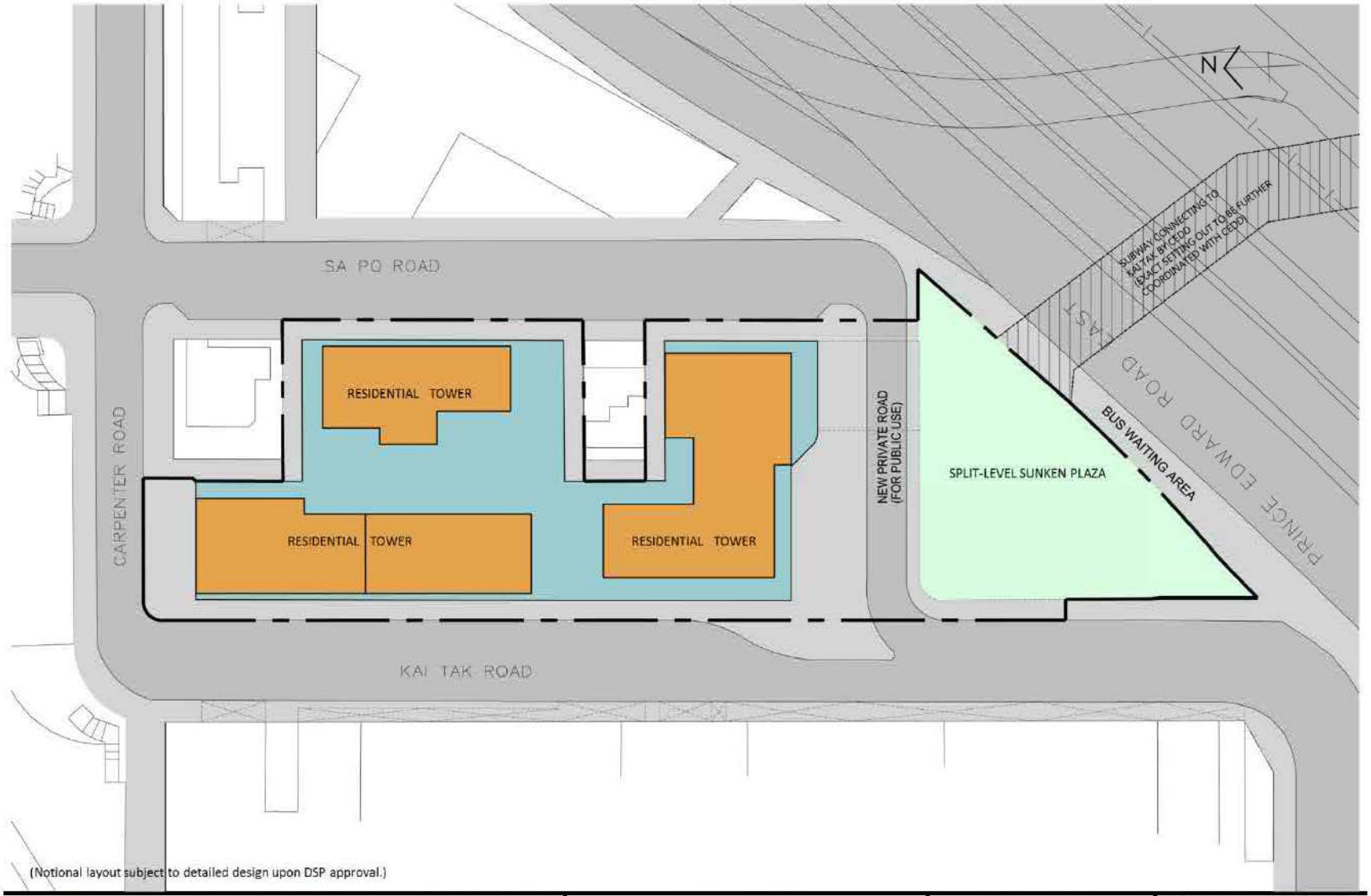
2.6. As compared with the maximum building height capped at 100mPD under the existing OZP (Approved Ma Tau Kok OZP No. S/K10/24), the increase of building height to 120mPD would allow a slimmer building form to enhance the building separation among the proposed residential towers within the Scheme and also between the proposed development and the adjoining existing buildings outside the Scheme. As viewed from VP2 and VP4, the proposed development of 120mPD shows a wider gap with buildings which gives a more comfortable visual and ventilation corridor as compared to the 100mPD scenario.

2.7. As shown in VP6, the proposed development with 120mPD in the Scheme will enhance the urban design through strategic positioning of a split-level sunken plaza as a gateway fronting the KTDA, which creates a sense of openness in the dense urban environment. Under the Base Scheme, the future redevelopment can build up to the existing private lot boundary along Kai Tak Road, which would result in much narrower opening/views from Kai Tak Road.

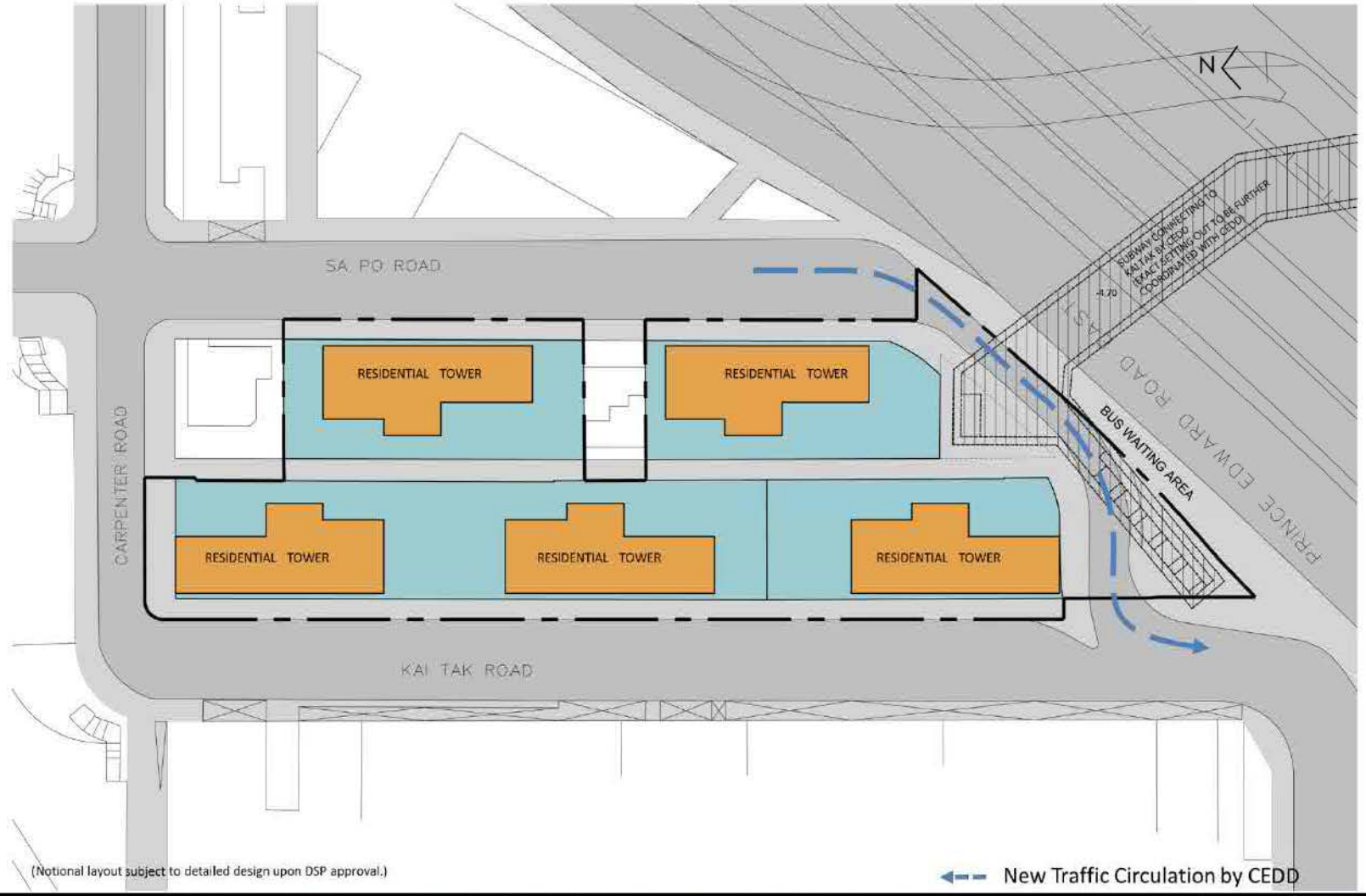
2.8. For VP1 and VP3, the assessment shows that the proposed schemes is of similar impact as to the Base scheme from the view angles from Olympic Avenue and Tung Tau Estate. For VP5, the Proposed Scheme has more setback from the Prince Edward Road East bus stops due to the creation of split-level sunken plaza, which looks less bulky as compared to the Base Scheme.

3. Summary

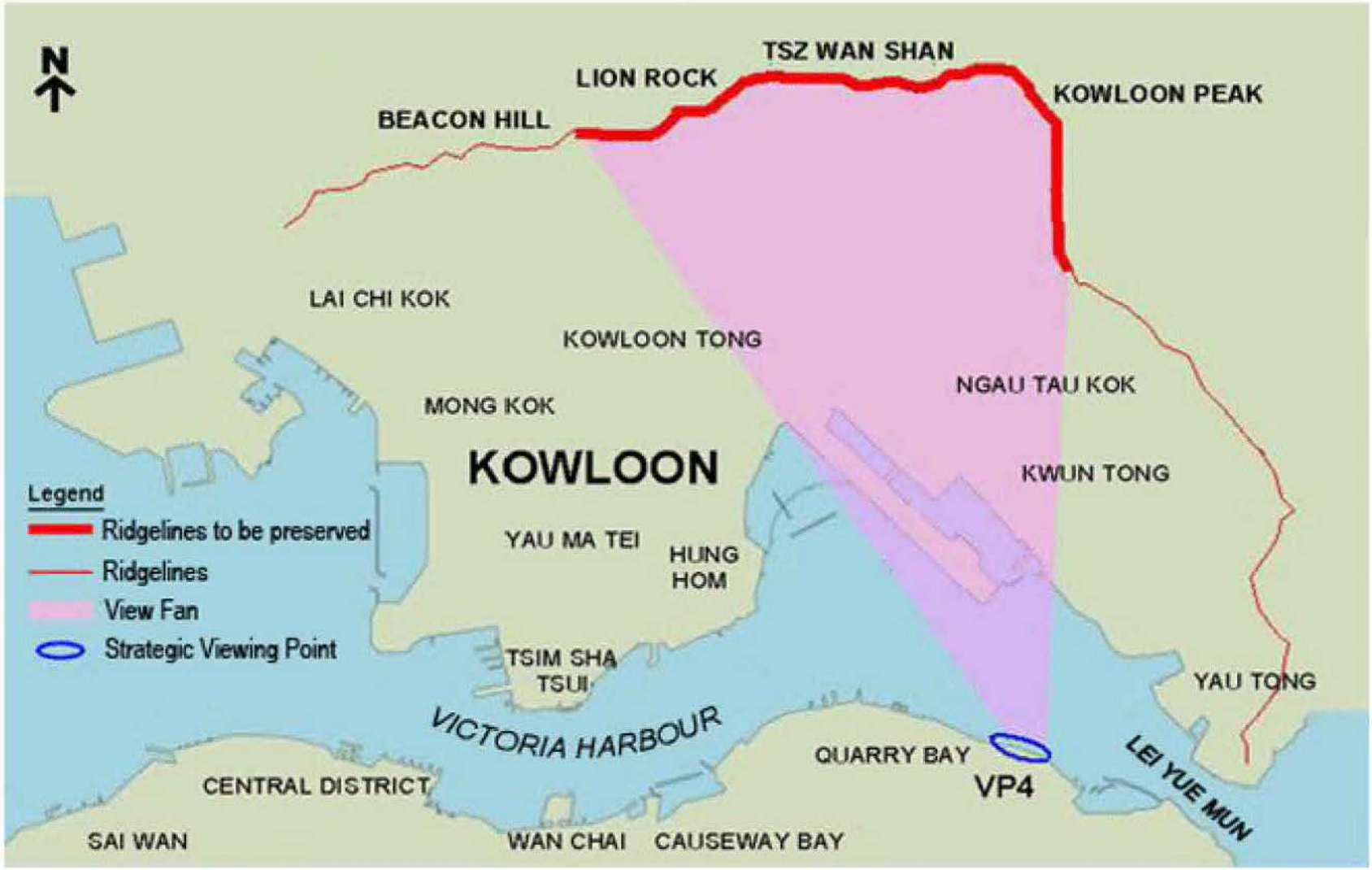
3.1. In summary, the visual appraisal demonstrates that the proposed developments in the Scheme with 120mPD is considered visually acceptable with the surrounding environment and will not create any significant blockage of views from both the strategic VP as recommended in the HKPSG and the key local VPs.



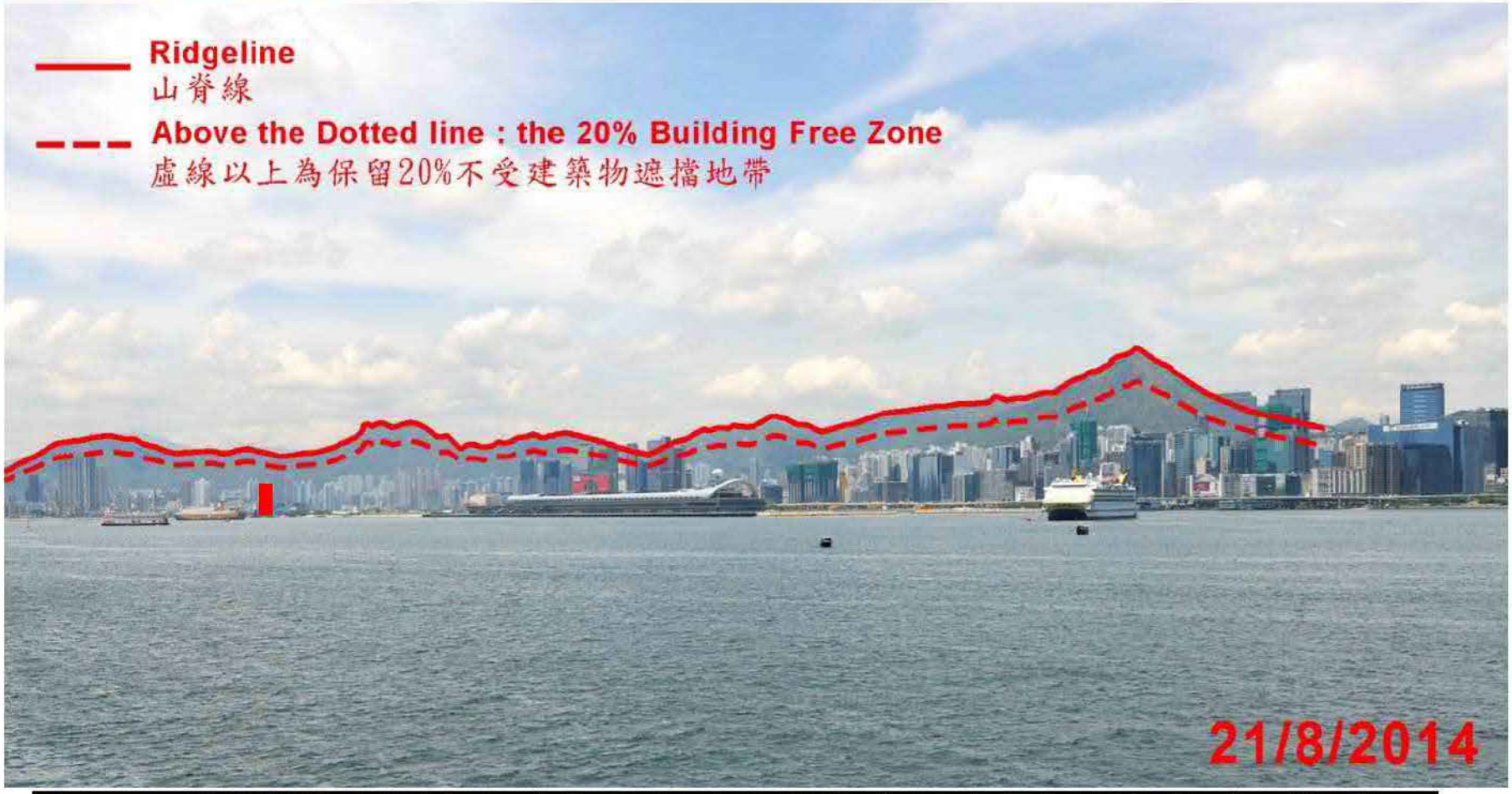
URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Layout Plan	Figure 1.1	Scale 1:500(A3)



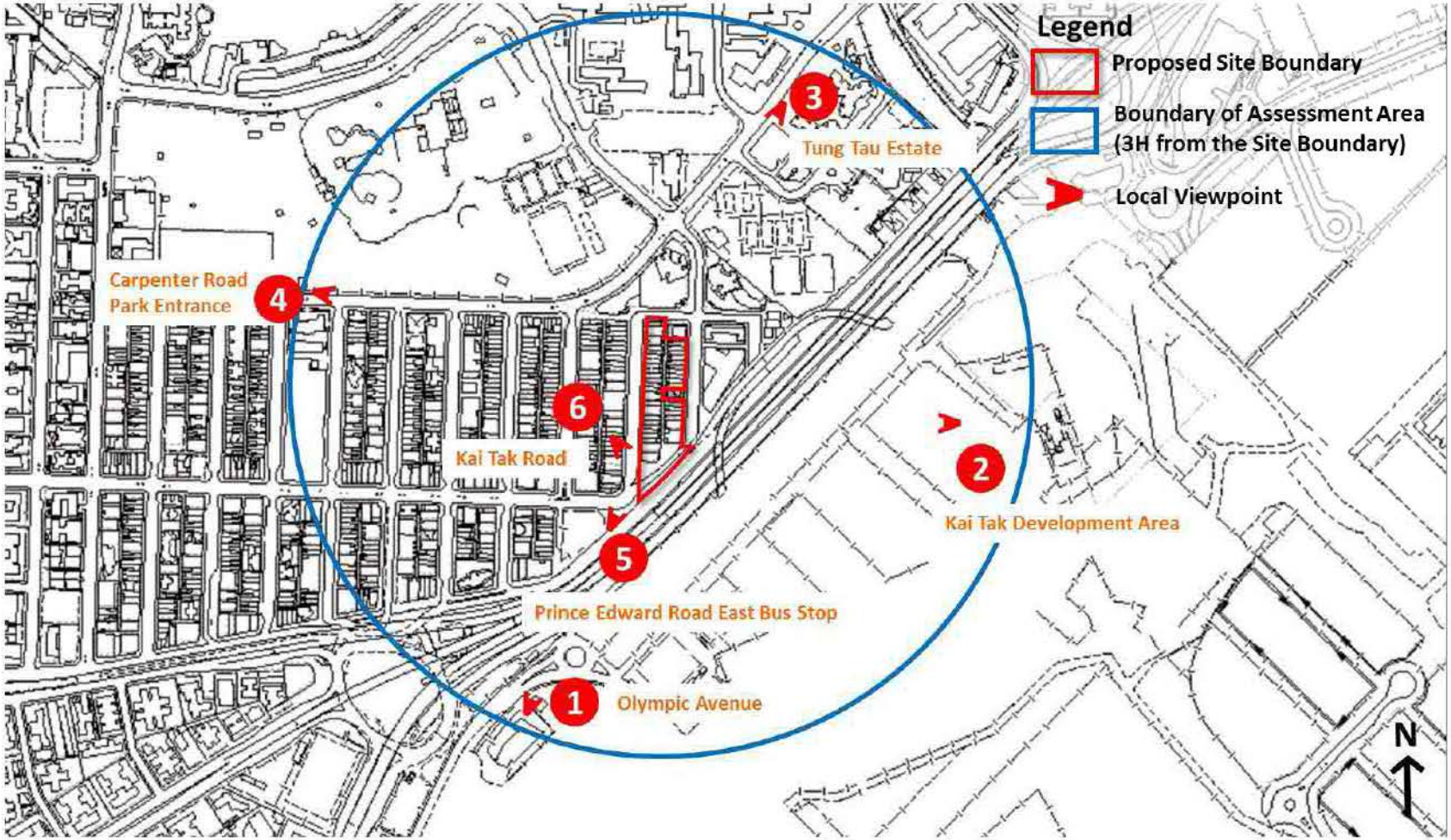
URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Layout Plan (OZP Compliance Scheme-100mPD)	Figure 1.2	Scale 1:500(A3)



URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Site Plan (Strategic Viewing Point)	Figure 2.1

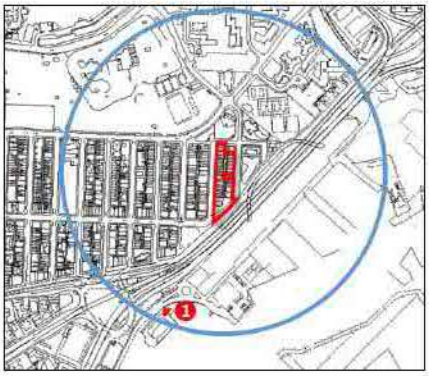


市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Proposed Scheme with 120mPD	Strategic viewing point (PlanD) – Quarry Bay	Figure 2.2



URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Site Plan (Local Viewing Points)	Figure 3.1	Not to Scale





Existing Condition



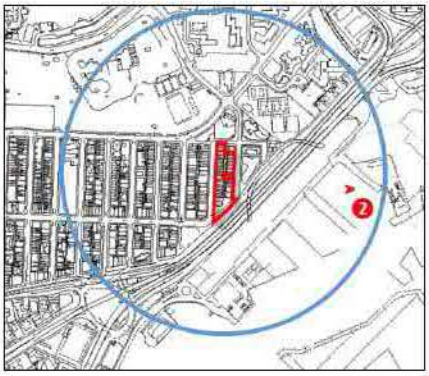
Base Scheme with 100mPD



Proposed Scheme with 120mPD

市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 1- Olympic Avenue	Figure 3.2





Existing Condition

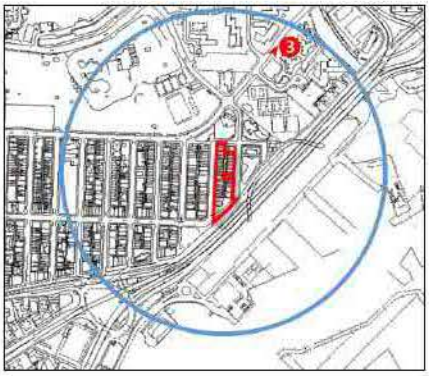


Base Scheme with 100mPD



Proposed Scheme with 120mPD

市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 2- Kai Tak Development Area	Figure 3.3





Existing Condition



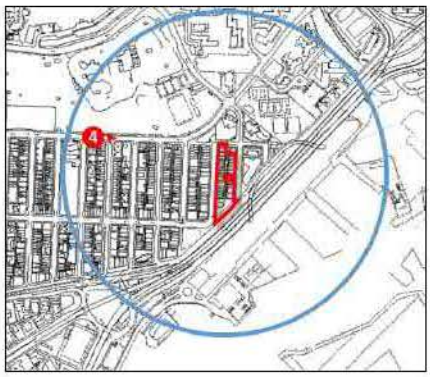
Base Scheme with 100mPD



Proposed Scheme with 120mPD

市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 3- Tung Tau Estate	Figure 3.4





Existing Condition

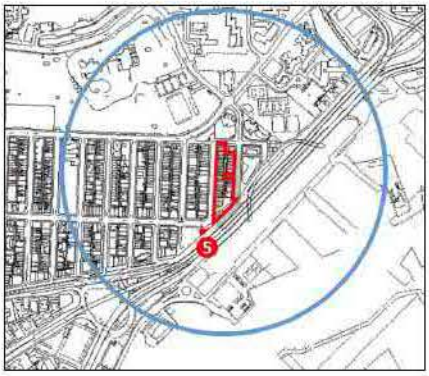


Base Scheme with 100mPD



Proposed Scheme with 120mPD

市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 4 - Carpenter Road Park Entrance	Figure 3.5





Existing Condition



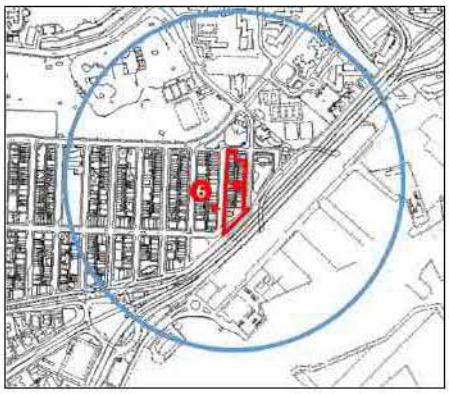
Base Scheme with 100mPD



Proposed Scheme with 120mPD

URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 5 - Prince Edward Road East Bus Stop	Figure 3.6





Existing Condition



Base Scheme with 100mPD



Proposed Scheme with 120mPD

市區重建局 URBAN RENEWAL AUTHORITY	URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Viewpoint 5 - Kai Tak Road	Figure 3.7

Appendix 5

Environmental Assessment (EA) Report

Urban Renewal Authority
Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Environmental Assessment Report

(V1.0)

February 2019

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

Background

1.1. The Urban Renewal Authority (URA) has proposed a Development Scheme at Kai Tak Road/Sa Po Road Development Scheme (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). This Environmental Assessment (EA) is to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

1.2. The Scheme is located between Kai Tak Road and Sa Po Road. It is currently zoned as "Residential (Group A) 2" (R(A)2) and the pavement area and Sa Po Road are shown as "Road" on the Approved Ma Tau Kok OZP No. S/K10/24. The Scheme comprises two rows of buildings facing Kai Tak Road and Sa Po Road, except of 51 Sa Po Road and 33 Carpenter Road which are excluded from the Scheme. The location of the site is shown in **Figure 1.1**.

1.3. The Scheme proposes to demolish the existing old buildings within the Scheme Area for redevelopment into new residential towers on top of commercial podium. A portion of existing Sa Po Road is proposed to be closed and realigned. A split-level sunken plaza is proposed within the Scheme to serve and connect to proposed subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) and an underground shopping street (USS) in Kai Tak Development Area (KTDA). Traffic of Sa Po Road will be redirected to a new private road within the Scheme. The scheme area is proposed to be rezoned to "R(A)" to reflect the redevelopment's intentions.

1.4. Cinotech Consultants Limited was commissioned by URA to carry out an Environmental Assessment (EA) to assess and envisage any potential environmental impact on the implementation of the proposed development and to recommend mitigation measures as necessary.

Purpose and Scope of Report

1.5. This EA is prepared to assess the potential environmental impact/benefit associated with the implementation of the Scheme in supporting the submission of the draft DSP to TPB's consideration. 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).

1.6. This EA presents the study of the potential environmental impacts of the following aspects:

- Air Quality
- Noise
- Waste Management

1.7. Drainage Impact, Sewerage Impact and Air Ventilation will be assessed in separate reports.

2 DESCRIPTION OF THE ENVIRONMENT

2.1. The site is located between Kai Tak Road and Sa Po Road. The gross site area is about 6,106 m^2. The site is surrounded by residential buildings to the north and west, and a hotel to the west. The southern side of the site is bounded by Prince Edward Road East.

2.2. The site is occupied by lines of 5 to 12 storeys tenement buildings facing Kai Tak Road and Sa Po Road, while the southern part of the site is amenity area. The site is located on a relatively flat ground with average level of about 6.0mPD.

3 THE PROPOSED DEVELOPMENT

3.1. The gross site area of the Scheme is 6,106 m^2, with a net site area of about 5,352 m^2. The area in the draft DSP is proposed to be zoned as **"**R(A)**"**, with the proposed total Gross Floor Area (**"**GFA**"**) is of around 48,168 m^2. The proposed development of the Scheme will compose of three main elements under current notional design (which is subject to changes during detailed design stage) : (1) 3 residential towers of about 29 residential storeys on a podium with community/retail facilities and private residential clubhouse; (2) 5 levels of basement carpark for private and public use; (3) a split-level sunken plaza to be provided on the southern part of the Scheme to connect to proposed subway by CEDD across Prince Edward Road East and USS in KTDA.

3.2. The 3 residential towers will provide about 810 units with private clubhouse and podium garden on a podium which would provide space for retail shops and community facilities, and about 5 levels of basement carpark.

3.3. A new split-level sunken plaza is a semi-opened and split-level urban space proposed at the Southern edge within the Scheme. It will open up a wide wind/air ventilation corridor in the local area and create setback of not less than 20m for the residential towers from the Prince Edward Road East. The sunken plaza would help improving local ventilation, landscape, pedestrian connectivity and walkability; also provide retail activities to integrate with the future USS in KTDA. Compared to existing OZP which allows redevelopment of R(A) for the whole area by private sector, the proposed Scheme by URA provides a wide space in the dense urban context.

3.4. A new private road, which would be opened for public use, is also proposed within the Scheme connecting Sa Po Road and Kai Tak Road. The section plan and block plans of the notional design of the Scheme are shown in **Figure 3.1a – 3.1b** respectively.

3.5. Upon CE in C's approval of the DSP, the proposed development will be subject to detailed design and changes, based on the approved DSP.

4 AIR QUALITY IMPACT ASSESSMENT

Introduction

4.1 The purpose of this chapter is to demonstrate the air sensitive receivers (ASRs) of the proposed development will not impose adverse air quality impact to the surrounding area during the construction phase and will not receive insurmountable air quality impact from the surrounding area during operation phase according to the notional layout plan.

4.2 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 - road traffic emission to the proposed developments in the Scheme. It also recommends appropriate mitigation measures to the potential impacts if any.

Background Air Quality

4.3 PATH-2016 is a macro-scale air quality model developed by EPD to predict future air quality over the whole Pearl River Delta region including Hong Kong. For the purpose of this assessment, the predicted values from PATH-2016 are adopted as the background air quality. The PATH grid corresponding to the Scheme is (42, 34). **Table 4.1** gives the predicted background air quality for Year 2016 to Year 2020.

Table 4.1 Background Air Quality of Grid (42, 34) of PATH-2016

Pollutant	Averaging Time	AQOs [µg/m³] [i]	PATH Model Concentration [µg/m³] [ii]				
			Year 2016	Year 2017	Year 2018	Year 2019	Year 2020
RSP [PM_{10}]	24-hour (10th Max)	100 (9)	78 [2]	77 [2]	77 [2]	76 [2]	76 [1]
	Annual	50	35	34	34	34	33
FSP [$PM_{2.5}$]	24-hour (10th Max)	75 (9)	59 [2]	58 [2]	58 [2]	57 [2]	57 [1]
	Annual	35	25	24	24	24	24
NO_2	1-hour (19th Max)	200	144 [0]	139 [0]	135 [0]	129 [0]	124 [0]
	Annual	40	36	33	31	29	26

Note:
(i) The numbers in brackets () refer to number of exceedance allowed per year.
(ii) The number in brackets [] refer to number of exceedances of the background concentration.
(iii) FSP concentrations were obtained from RSP concentration.

4.4 The RSP, FSP and NO_2 concentrations as shown in **Table 4.1** comply with the AQO. All pollutant concentrations show a decreasing trend from Year 2016 to Year 2020, and it is likely to continue to reduce after Year 2020.

Construction Phase Air Quality Impact Assessment

4.5 Major dust emitting construction activities will be the demolition of existing structures, excavation for basement construction and foundation works. Fugitive dust would be generated. The concerned air pollutants during the construction phase are the Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP) arising from the construction work of the Project.

4.6 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:

- Enclose the whole wall of the building to a height of at least 1m higher than the highest level of the structure to be demolished with impervious dust screens or sheeting on façade abutting or fronting upon a street
- Existing structures are proposed to be demolished by non-percussive equipment such as hydraulic crusher to reduce dust emission
- Water or a dust suppression chemical shall be sprayed immediate prior to, during and immediately after demolition/excavation works
- Cover stockpile or dusty materials with tarpaulin to prevent wind erosion
- 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

4.7 No significant dust impact on the surrounding air sensitive receivers (ASRs) is expected with proper implementation of mitigation measures. No quantitative construction dust assessment is considered necessary.

4.8 Operation of Powered Mechanical Equipment (PME) during demolition/construction work would emit air pollutants such as nitrogen dioxide (NO_2) via fuel burning. According to Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted Non-Road Mobile Machinery (NRMM) 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 NRMM would be provided to EPD to prove that the concerned NRMM

is in line with the prescribed emission standards. Since the number of PME expected to be used on-site will be much less than vehicles travelled on surrounding roads (e.g. Prince Edward Road East), no significant impact is anticipated.

Operation Phase Air Quality Impact Assessment

Residential Area

4.9 During operation phase, no major emission is anticipated from the residential and commercial component of the proposed development. However, the residential flats which rely on openable windows for ventilation are considered as ASRs.

4.10 The future residential towers will be built on a podium, with the first floor of sensitive receiver (i.e. first residential floor) having about 20m vertical separation from the traffic emission sources. The section plan of the proposed development is illustrated in **Figure 3.1a**. Besides, the residential towers will be further set back from the site boundary by a sunken plaza, which provides not less than 20m wide horizontal separation from Prince Edward Road East which is the major source of air pollutants emission from vehicles.

4.11 According to traffic data from Traffic Consultant, Prince Edward Road East is classified as primary distributor; Carpenter Road, Sa Po Road and Kai Tak Road are local distributors. Table 3.1 of Chapter 9 of HKPSG has given the minimum buffer distance required between roads and active open spaces and **Table 4.2** shows the extract of the related requirements.

Table 4.2 Minimum Buffer Distance Required (HKPSG)

Road Name	Type of Road	Buffer Distance
Prince Edward Road East	Primary Distributor	>20m
Carpenter Road	Local Distributor	>5m
Sa Po Road	Local Distributor	>5m
Kai Tak Road	Local Distributor	>5m

4.12 The air buffer zones are shown in the typical layout (**Figure 4.1**) and sufficient buffer distances are provided between ASRs and roads as required. No sensitive use, fresh air intake or openable windows will fall within the air quality buffer zone.

4.13 According to EIA report for Kai Tak Multi-Purposed Sports Complex (Register No.: AEIAR-204/2017), and further supported by site visit on 18 October 2018, no chimneys was identified within 200m from the site boundary. No air quality impact to the project is expected from chimney emissions.

Shops and Commercial Area

4.14 Comparing to the existing residential buildings which are built up to their lot boundaries with no setback, a reduction in air quality impact due to traffic emission is anticipated in the future residential development. It is proposed that the shops, clubhouse and lift lobby of the podium will be fitted with non-openable windows and central air-conditioning. Subject to detailed design, the air-intake will aim to be located at the top of the podium and avoid direct facing to Prince Edward Road East, which its traffic emission is a major air pollution source.

Parking Area

4.15 Parking slots are provided in the basement car park of the proposed development as shown in the section layout (**Figure 3.1a**). The air quality within the carpark is regulated by Practice Note for Professional Persons ProPECC PN 2/96 on *Control of Air Pollution in Car Parks*. Sufficient mechanical ventilation with automatic adjusted ventilation system with the real-time CO concentration monitoring system will be provided according to PN 2/96. No air quality impact within the carpark is anticipated with the measures mentioned in PN 2/96 are implemented.

4.16 Subject to detailed design, the exhaust of the carpark ventilation system will be designed to be away from and avoid direct facing to residential units. No air quality impact to the ASRs of the proposed development and the surrounding is anticipated.

Split-level Sunken Plaza

4.17 A new split-level sunken plaza of about 1,000m^2 will be provided on the southern portion of the Scheme (see **Figure 3.1b**). The plaza will open up a wide area of over 20m width of openings in front of the Scheme and can largely improve the local air ventilation in this part of the area.

Conclusion

4.18 The air quality impact arising from the proposed development to the surrounding area and air quality impact from the surrounding area to the proposed development has been assessed.

4.19 During construction phase, the key air pollutant sources are the dust emitted during construction activities. With implementation of mitigation measures and good site practice, no adverse air quality impact is anticipated.

4.20 No major emission will be produced from the proposed development during operation phase. Sufficient buffer distances are provided from the sensitive uses to the roads, fulfilling the relevant planning requirements.

4.21 It is envisaged that the air quality upon completion of the Scheme will be similar to, if not better than, the existing situation and no insurmountable air quality impact is anticipated.

5 NOISE IMPACT ASSESSMENT

Introduction

5.1 The purpose of this chapter is to demonstrate the noise sensitive receivers (NSRs) of the proposed development within the Scheme comply with the noise criteria of The Hong Kong Planning Standards and Guidelines (HKPSG).

5.2 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.

5.3 Effective mitigation measures and recommendations have been proposed to mitigate the excessive noise level to compliance level. As the notional layout is tentative and subject to change in later detailed design stage, the current noise impact assessment is used for demonstrating the feasibility of complying all of the noise related criteria as part of the planning application. A detail noise impact assessment will be conducted in later stage, if required by relevant government departments.

Standards and Guidelines

Road Traffic Noise

5.4 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.

Fixed Noise Sources

5.5 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), and should not be higher than the background. 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), $L_{eq, (30mins)}$

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

5.6 The Scheme is located in the urban area of Kowloon City. According to TD's updated Annual Traffic Census (2017), Prince Edward Road East to the south of the Scheme is with daily traffic more than 30,000. Therefore, the southern portion is considered directly affected by Influencing Factor (IF) while the northern portion is considered indirectly affected; the ASR of the site would be classified "C".

5.7 As the site is subject to traffic noise impact from Prince Edward Road East, which is a primary distributor according to the Annual Traffic Census (2017) (Street No 3639), it is expected that the prevailing background noise level would be higher than ANL for both daytime and night-time, thus ANL has been adopted as the fixed noise sources criterion. The planning criteria would be 70 dB(A) for day and evening time and 60 dB(A) for night time.

Construction Noise Impact Assessment

5.8 The use of powered mechanical equipment (PME) will generate construction noise impact to the nearby NSRs. The major noise emitting activities will be the demolition of existing structures and foundation works of future development.

5.9 As the site is situated in a well-developed urban area, the number of PME that it can accommodate is limited, however, the noise from construction activities may still be an impact if the construction works are not planned and arranged properly.

5.10 The "Practice Note for Professional *Persons* Environmental Consultative Committee" (ProPECC) "Noise from Construction Activities –Non-statutory Controls" (PN 2/93) suggests assessment criteria relating to construction noise and some practical noise abatement measures to reduce the construction noise.

5.11 To minimize noise generation, non-percussive equipment such as hydraulic crusher is proposed for demolishing existing building and structure. Also, adoption of non-percussive piling method for foundation work is also recommended. As these activities would only last for a short period of time, significant noise impact on sensitive receivers is not expected with proper implementation of mitigation measures:

- Adopt good site practice, such as throttle down or switch off equipment unused or intermittently used between works
- Regular maintenance of equipment to prevent noise emission due to impairment
- 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 quiet plants and working methods to mitigate at source
- Use of mobile noise barriers/enclosures along the path of noise propagation
- Schedule work to minimize concurrent activity and duration of impact

5.12 With the aforementioned noise mitigation measures implemented during the construction phase, no adverse noise impact arising from the construction activities is expected.

Operation Noise Impact Assessment

Representative Noise Sensitive Receivers during Operation Phase

5.13 All flats of the three residential towers were identified as NSRs according to the nature of use. Commercial & retail area, clubhouse and community facilities in the podium will be provided with air-conditioning systems and will not rely on openable windows for ventilation, and thus the noise standard is not applicable. The noise assessment points were located 1.2m above the slab level and 1m away from the façade. All potential windows locations of all residential flats are covered. Their locations are listed in **Table 5.3** and illustrated in **Figures 5.2, 5.2a-c**.

Table 5.3 Representative Noise Sensitive Receivers for Traffic Noise Impact Assessment

Tower	Flat	NSR ID				
1	A	T1_A				
	B	T1_B				
	C	T1_C				
	D	T1_D_L	T1_D_B			
	E	T1_E_B	T1_E_L			
	F	T1_F_L	T1_F_B1	T1_F_B2		
2	A	T2_A_B	T2_A_L			
	B	T2_B_B1	T2_B_L	T2_B_B2	T2_B_B3A	T2_B_B3B
	C	T2_C_L	T2_C_B			
	D	T2_D_B	T2_D_L			
	E	T2_E_L				
	F	T2_F_B1	T2_F_B2	T2_F_L		
	G	T2_G_L	T2_G_B1	T2_G_B2		
	H	T2_H				
	I	T2_I				
	J	T2_J				
	K	T2_K_L	T2_K_B			
3	A	T3_A_B	T3_A_L			
	B	T3_B				
	C	T3_C_B	T3_C_L			
	D	T3_D_L	T3_D_B			
	E	T3_E_L	T3_E_B1	T3_E_B2		
	F	T3_F_L	T3_F_B1	T3_F_B2	T3_F_B3	
	G	T3_G				
	H	T3_H				
	I	T3_I				
	J	T3_J				
	K	T3_K_L	T3_K_B			

5.14 The representative NSRs of the proposed residential developments have been identified for the fixed noise source of surrounding building. The locations of representative NSRs are listed in **Table 5.4** and shown in **Figure 5.3**.

Table 5.4 Representative Noise Sensitive Receivers for Fixed Noise Assessment

NSR ID	Description
NSR1	Tower1 Flat E Living Room
NSR2	Tower1 Flat D Bedroom
NSR3	Tower1 Flat B
NSR4	Tower2 Flat A Living Room
NSR5	Tower2 Flat B Bedroom1
NSR6	Tower2 Flat B Bedroom2
NSR7	Tower2 Flat B Bedroom3 (facing West)

Assessment Methodology

Road Traffic Noise

5.15 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 [L_{10} (1-hour) dB(A)].

5.16 The assessment was based on the projected peak hour flows for the worst year within 15 years after completion of the Project in Year 2030. Based on the traffic forecast provided by the traffic consultant, the PM peak hour flows in Year 2045 will be the maximum projected peak hour traffic flow within 15 years from the completion of the Project. The major roads within 300m from the boundary of the Project have been included in the assessment and are shown in **Appendix 5.1**.

5.17 Two scenarios have been considered in the traffic noise impact assessment. The first one is a base scenario which only includes careful disposition of layout such as the building orientation and setback. The second scenario is a mitigated scenario with incorporation of noise mitigation instruments in the development, such as acoustic windows, etc.

Fixed Noise Sources

5.18 Site visits have been organized to identify major fixed noise sources in the neighbourhood of the site. The sources are anticipated to have fixed noise impact on the site, which has been assessed according to standard acoustics principles and technique. Calculations are based on the following standard formula:

$$SPL = SWL - DC + FC - VC$$

where

SPL – Sound Pressure Levels at receiver, in dB(A)
SWL – Sound Power Levels of Fixed Noise Sources, in dB(A)
DC – Distance Correction, in dB by DC = $20 \times \log_{10}(D) + 8$, D is the slant distance between the NSR and noise source location in metres
FC – Façade Correction of 3 dB
VC – Screening Correction of 5 dB reduction in case of no direct view situation

5.19 The sound power levels in Appendix III of EPD's *Good Practices on Ventilation System Noise Control* (hereafter "Good Practices") have been used for the assessment.

Impact Identification and Assessment

Road Traffic Noise

5.20 The peak hour traffic flow of individual roads in the assessment year (Year 2045) is listed in **Appendix 5.1**. The traffic forecast will be submitted to the Transport Department for their endorsement.

5.21 Both of traffic flow and number of heavy vehicles of AM are higher than PM, thus the traffic noise for AM peak hours were calculated.

a) Base Scenario: Careful Building Setback and Building Disposition

5.22 In the base scenario, the Scheme has adopted a design with a setback of not less than 20m from the road kerb of Prince Edward Road East has been adopted for the proposed residential tower (T3) in order to reduce the traffic noise impact from Prince Edward Road East. The proposed 3-storey podium would also act as a noise barrier for lower levels. No acoustic window, acoustic balcony or acoustic fin are included in this scenario.

5.23 Careful building disposition and layout has been tested to bring more noise protection for residential units through tower disposition and orientation. The angles of the openable windows of the residential units are designed such that the openings toward Prince Edward Road East is minimised as much as practicable to achieve better noise protection. Based on the improved building disposition and orientation and setback, the detailed results are presented in **Appendix 5.3**. This Base Scenario results in about 39% flats complying with the noise criteria of 70 dB(A). The maximum exceedance is 9 dB, i.e. 79 dB(A), at Tower 3 (T3), which is located the closest to Prince Edward Road East within the Scheme.

b) Mitigated Scenario: With Acoustic Measures

5.24 Given the Base Scenario has already adopted design means to achieve noise protection including building setback, building disposition and podium design, at-receiver mitigation measures are considered in order to further minimize the traffic noise impact on the proposed residential units. Subject to detailed design, three types of mitigation measures are proposed in this mitigated scenario:

i. Type I: Acoustic Balcony (Noise Reduction: -2 dB(A))

This type of acoustic balcony is less complex and has a depth of more than 1m deep, solid parapet of about 1.2m high, and its ceiling is lined with absorptive material.

ii. Type II: Top-hung Window (Noise Reduction: -5 dB(A))

The design of a top-hung window with a horizontal fin on the bottom of the window coupled with Micro-perforated absorbers (MPA) on the inner side of the window and a pelmet in the indoor area behind the top-hung window, can effectively resist noise from entering domestic premises directly and hence minimize the impact caused to the residents. The design is similar to the type adopted in Hong Tsuen Road Residential Development at Sai Kung (Park Mediterranean). The ratio of vertical distance from opening of the top-hung window to the length of the horizontal acoustic fin (aspect ratio) will be less than the aspect ratio (0.55) of the acoustic window in Park Mediterranean.

iii. Type III: Enhanced Acoustic Balcony (Noise Reduction: -7 dB(A))

This type of balconies is specially designed with a combination of additional noise screen, inclined solid panel and increased solid parapet height to provide further screening against the traffic noise. The enhanced acoustic balcony could also include micro perforated absorber (MPA) and additional absorptive material on more surfaces to further absorb traffic noise that could have affected the residents inside. The design is similar to the type adopted in San Po Kong Public Housing Development.

Locations of these mitigation measures are shown in **Figure 5.3a - 5.3c** and listed in **Appendix 5.4**.

5.25 The detailed predicted noise levels in the mitigated scenario are presented in **Appendix 5.5**. Given specific noise reduction at different assessment points, the mitigated compliance rate by flat has been increased to 91%. The maximum exceedance of noise level is 72 dB(A), which occurred at T3.

Fixed Noise Sources

5.26 As central air ventilation will be provided for commercial & retail area, clubhouse and community facilities, the associated cooling towers & chillers and ventilation fans of car park may cause noise impact to surrounding NSRs. However, the commercial/retail area and the community facilities will be closed outside operation hours and the associated cooling towers & chillers are expected to stop during night time. To avoid the noise impact arising from the above plants, the location and the orientation of the fixed noise sources will be well designed to avoid, as far as practicable, to have direct facing to the surrounding NSRs mainly located at western and northern of the Site. With appropriate noise barrier installed at the cooling towers and chillers within the Scheme, if necessary and practicable, the noise impact due to the fixed plant of the proposed development would not be anticipated.

5.27 The major fixed noise sources in the surrounding are identified and estimated based on reasonable assumptions. The surrounding fixed noise source may affect the proposed residential buildings, and the information summarised in **Table 5.5** below, illustrated in **Figure 5.6** and detailed in **Appendix 5.6**. It should be noted that the identified fixed noise sources on the podium of Le Billionnaire and Billionnarire Royale are used for the commercial mall and operation hours are expected be day and evening time only. On the other hand, the restaurants of Regal Oriental Hotel will be closed at night, 2/3 loading (equivalent 4) of the water cooling towers on the podium of the hotel is adopted for the noise impact assessment during night time.

Table 5.5 Major Fixed Noise Sources

Location	Type of Plant	Quantities	Operation Time
Podium of Regal Oriental Hotel	Water Cooling Tower	6	Day and Evening Time
		4	Night Time
	Air-cooled Chiller	1	24 hours
Podium of Le Billionnaire	Air-cooled Chiller	11	Day and Evening Time
Podium of Billionnaire Royale	Air-cooled Chiller	18	Day and Evening Time

5.28 The predicted noise from fixed sources for each representative NSR has been listed in **Table 5.6**. The detailed calculation can be found in **Appendix 5.6**.

Table 5.6 Predicted Noise Level from Fixed Sources (Unmitigated)

NSR ID	Predicted Noise Level, dB(A)	
	Day & Evening	Night
NSR1	**83**	**80**
NSR2	**82**	**79**
NSR3	**81**	**78**
NSR4	**84**	
NSR5	**84**	
NSR6	**86**	
NSR7	**84**	
Criteria	70	60

5.29 The noise level at all NSRs shows exceedance in both day & evening and night time. According to "Good Practices on Ventilation System Noise Control" (EPD, 2006), full enclosure is a suitable measure for reducing fan noise in ductwork by 20dB. With complete full enclosure and silencers at fixed noise sources, a 20 dB noise reduction can be achieved in the calculation. As residential uses are above the podiums of Le Billionnaire and Billionnarire Royale, it can be assumed that mitigation measures for fixed noise sources have been implemented. More detailed assessment acquiring information from the surrounding buildings will be carried out in detailed design stage to assess whether further mitigation measure is required. With full enclosure equipped in the fixed noise sources, the predicted noise levels at the NSRs are all complied with the criteria (**Table 5.7**).

Table 5.7 Predicted Noise Level from Fixed Sources (Mitigated)

NSR ID	Predicted Noise Level, dB(A)	
	Day & Evening	Night
NSR1	63	60
NSR2	62	59
NSR3	61	58
NSR4	64	
NSR5	64	
NSR6	66	
NSR7	64	
Criteria	70	60

Conclusion

5.30 The overall noise impact during the construction phase is considered insignificant. Mitigation measures shall be implemented in accordance with ProPECC PN 2/93 during construction to minimize construction noise impact on the nearby NSRs.

5.31 Traffic noise impact has been taken into consideration when designing the notional layout of the residential development with not less than 20m set back from Prince Edward Road East in the southern direction. The layout of T3, which is the most directly affected by traffic noise from Prince Edward Road East, has been designed to avoid having openable windows facing it. Subject to detailed design, fixed glazing may be used to face roads with high traffic flow, while openable windows which are required for ventilation, would face less noisy direction instead. In the base scenario where only the careful building disposition and building setback are considered, only 39% of flats complies with the 70 dB(A) traffic noise assessment criteria as demonstrated. In the mitigated scenario where 3 types of mitigation measures (Type I: acoustic balcony, Type II: acoustic windows and Type III: enhanced acoustic balcony) are considered, the compliance rate by flat has been increased to 91%. Given the notional design is at planning stage and the proposed development is subject to detailed design upon CE in C's approval of the Scheme, the current assessment is based on a notional design and anticipated results. It is suggested that future laboratory test can be carried out at detailed design stage to ascertain the noise mitigation performance.

5.32 The noise level at the NSRs of the proposed development due to the fixed noise sources in the surroundings have been assessed based on reasonable assumptions on the noise. Upon CE in C's approval of the DSP and during detailed design stage, detailed information of noise levels and implications of required noise mitigation at the surrounding buildings shall be able to gather for assessment. It is anticipated with the mitigation measures already applied by the developers themselves, no adverse noise impact is anticipated to the proposed development.

6 WASTE MANAGEMENT

Legislations and Requirements

6.1 In general, sustainable approaches to waste management should be adopted to produce less waste and reuse or recover value from waste.

6.2 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.

Waste Management for Construction Phase

Waste Types

6.3 The demolition and 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;
- Potential asbestos containing materials
- Chemical waste from any maintenance of construction plant and equipment; and
- General refuse from the workforce.

Inert and non-inert C&D Materials

6.4 Inert C&D Materials includes construction debris, soil, rock and concrete, should be re-used on-site as filling materials or off-site as public fill at public fills reception facilities. C&D Waste (non-inert C&D material) includes metal from the existing structures, wood from formwork, equipment parts, and materials and equipment wrappings, etc. should be re-used or recycled as far as possible. C&D Waste is not suitable for public fill and requires disposal to licensed landfill facilities. It is recommended that different types of wastes should be segregated, stored, transported and disposed of separately in accordance with EPD's required procedure.

6.5 As the Scheme involves demolition of existing buildings and construction of 5 floors of basement, there will be generation of inert C&D materials during construction. It is estimated that about 95,000 m^3 excavated materials would be generated and about 15,000 m^3 would be suitable for backfilling during site formation stage. It is also estimated that about 18,000 m^3 C&D materials will be generated during the demolition work.

6.6 To account the quantity of C&D materials to be generated from construction of the new building, C&D materials generation rate of 0.1 m^3 per m^2 of GFA constructed is adopted in accordance with the "Reduction of Construction Waste Final Report, Hong Kong Polytechnic University (March 1993)". The total GFA of the proposed future development from the Project will be 48,168 m^2. The C&D materials will be generated from superstructure construction is approximately 4,820 m^3.

6.7 The volume of C&D Waste, such as maintenance and packaging waste being generated by the Project will be subject to specific construction procedures and site practices. The estimated amount of C&D wastes generated during site clearance and construction of superstructure works would be minimal with careful design, planning, good site management and control of ordering procedures etc.

6.8 The estimated quantities of inert and non-inert C&D material generated from the construction of the Project are presented in **Table 6.1**.

Table 6.1 Estimated Quantities of C&D materials to be Generated, Reused and Disposed of

Construction Activities	C&D material (m^3)	C&D material to be Reused On-site (m^3)	C&D material to be disposed of (m^3)	
			Inert	Non-inert
Excavation	95,000	15,000	80,000	-
Demolition of existing buildings	18,000	-	16,200	1,800
Superstructure construction	4,820	-	4,340 [(a)]	480 [(a)]

Note:

(a) Approximately ratio for (inert waste) : (non-inert waste) is 9:1 according to "Monitoring of Solid Waste in Hong Kong, 2014" by EPD

6.9 Detailed design of the foundation works and building construction is not yet available at this stage. A preliminary estimation of the amount of inert C&D materials arising from the Scheme should be reviewed in the Environmental Management Plan (EMP) and should be submitted by the Contractor prior to the commencement of construction works.

Chemical Waste

6.10 Chemical waste, such as spent lubricants 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 100L/month and hence approximately 6 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 collector should be employed to handle and dispose of the chemical waste. Furthermore, the chemical waste should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The Works Contractor should register as a Chemical Waste Producer under the WDO.

6.11 Since the existing structures were mostly built in 1960s and 1970s, asbestos containing materials may be present at the existing structures which would be demolished. Asbestos investigation would be carried out before the commencement of demolition works. Asbestos investigation and asbestos abatement plan will be made in accordance with the relevant statutory requirements if any asbestos is found in the Site. In addition, other chemical waste, if any, to be generated during the demolition works will be handled and disposed of in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Waste. For asbestos wastes, if any, will be handled and disposed of in accordance with the Code of Practice on the Handling, Transportation and Disposal of Asbestos Wastes. With the implementation of proper waste management measures, no adverse environmental impacts are expected.

6.12 No hazardous materials or hazardous wastes are expected to be generated during the construction of the Site.

General Refuse

6.13 General refuse such as food scraps, waste paper, empty containers, etc., would be generated from construction workforce during construction phase. 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 paper, plastics and aluminum materials, the reuse and recycling of such waste is encouraged. 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 problem. Waste storage areas should be well maintained and cleaned regularly.

6.14 With the implementation of good waste management practices at the site, adverse environmental impacts are not expected to arise from the storage, handling and transportation of general refuse generated by construction workers.

6.15 A tentative estimated timing of waste arising from construction phase is shown in **Table 6.2**.

Table 6.2 Tentative Estimated Timing of Waste Arising from Construction Phase

Type of Waste	Timing
C&D Material	End 2024 to Mid 2025 (Demolition stage)
C&D Waste	
Chemical Waste	Mid 2025 to Early 2030 (Entire construction phase)
General Refuse	

Mitigation Measures

6.16 Prior to the commencement of the construction works, the constructor will identify the types and amount of waste generated and its associated mitigation measures according to the requirements as stipulated in ETWB TCW No. 19/2005.

6.17 The Contractor should adopt good housekeeping practices such as waste segregation 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.

6.18 Whenever there are excess recyclable construction materials, including bricks, plastics and metals, re-use and recycling should be carried out as far as practicable for waste minimisation. Other inert non-recyclable materials such as concrete, asphalt, etc. should be treated as public fill. Non-inert and non-recyclable wastes should be disposed at designated landfill site.

6.19 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. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" light materials.

6.20 Provided that good site practices are strictly followed, there would be no adverse impacts related to waste management during construction phase.

Waste Management for Operation Phase

6.21 Domestic wastes will be expected as the major type of waste from the redevelopment, including food residues, plastic and metal products, and paper. No chemical or hazardous waste is anticipated. 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. The volumes of wastes likely to be generated by the proposed development are considered to be insignificant.

6.22 Domestic waste with good management and controls to reduce the generation of waste amounts, adverse impacts due to waste management will not be anticipated.

6.23 Provided that all recommended measures and legislations are strictly followed, there would be no adverse impacts related to waste management during operation phase.

Conclusion

6.24 A variety of wastes including inert C&D material, C&D waste, chemical waste and general refuse would be generated during the construction phase and domestic waste during occupation 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 occupation of the Scheme would be envisaged.

7 CONCLUSION

7.1 An Environmental Assessment has been carried out to evaluate the potential environmental benefits and impacts likely to arise from the proposed DSP. The key environmental issues associated with the Scheme are construction dust impact, construction noise impact and waste management during the construction phase and potential air quality and noise impact during the operational phase.

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.

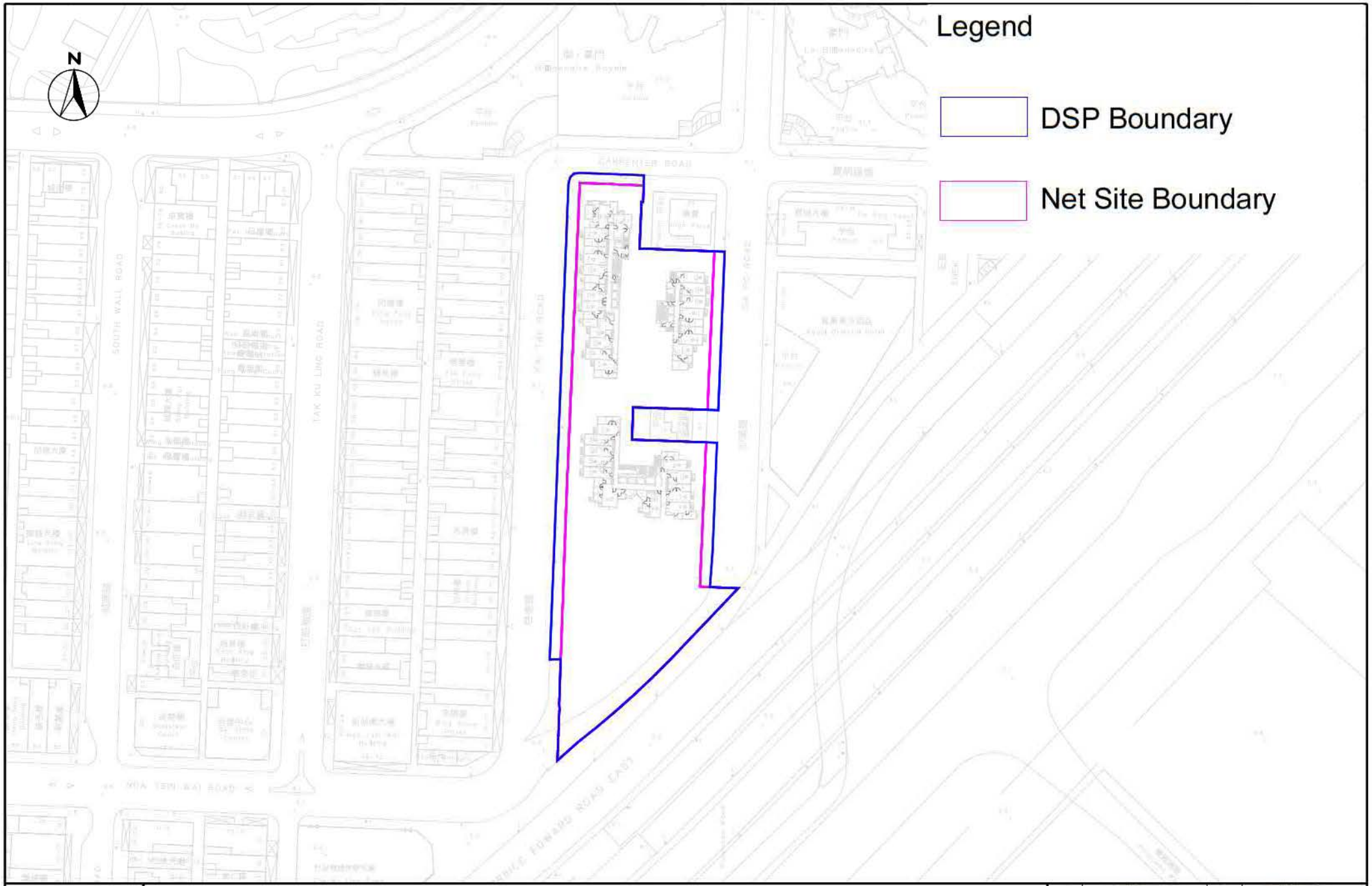
7.3 Adverse air quality impact from the nearby traffic to the proposed development is not anticipated with sufficient buffer distance provided between the traffic emission and the ASRs. In addition, no chimneys are found imposing air quality impact within 200m from Project boundary. The air quality upon completion of the project will be similar to, if not better than, the existing situation and no insurmountable air quality impact is anticipated.

7.4 Construction noise impact is considered insignificant with proper implementation of the recommended mitigation measures.

7.5 Traffic noise impact and fixed noise impact during operation phase have been taken into consideration. A noise compliance of 91% of flats can be achieved in the notional design by adopting careful design in building disposition and at-receiver mitigation measures such as enhanced acoustic balcony, acoustic windows and balcony. The noise impact from the fixed noise sources in the surroundings has been assessed. Upon CE in C's approval of the DSP and during detailed design stage, detailed information of noise levels and implications of required noise mitigation at the surrounding buildings shall be able to gather for assessment. It is anticipated with the mitigation measures already applied by the developers themselves, no adverse noise impact is anticipated to the proposed development.

7.6 A variety of wastes including inert C&D material, C&D waste, chemical waste and general refuse would be generated during the construction phase and domestic waste during occupation 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 occupation of the Scheme would be envisaged.

FIGURES



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Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Scheme Location

SCALE	1:1000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	FIGURE No.	1.1
		REV.	-



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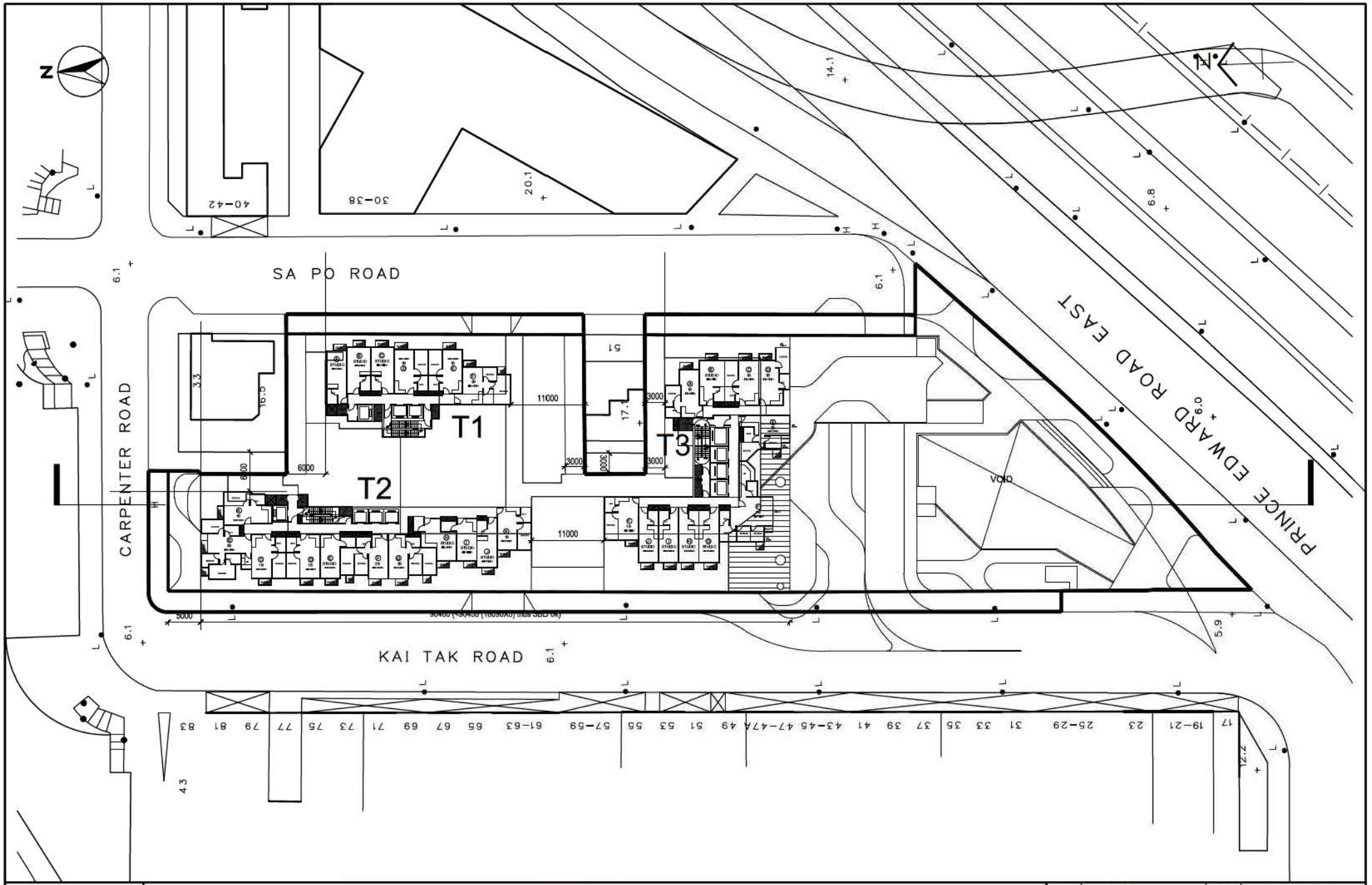
Environmental Assessment
Kai Tak Road / Sa Po Road Project Development Scheme (KC015)

Schematic Section View Layout

SCALE	N.T.S.	DATE	Nov 2018
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	FIGURE No. 3.1a	REV -



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Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Schematic Typical View Layout

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JOB No.	IA17019/KC015	FIGURE No.	3.1b
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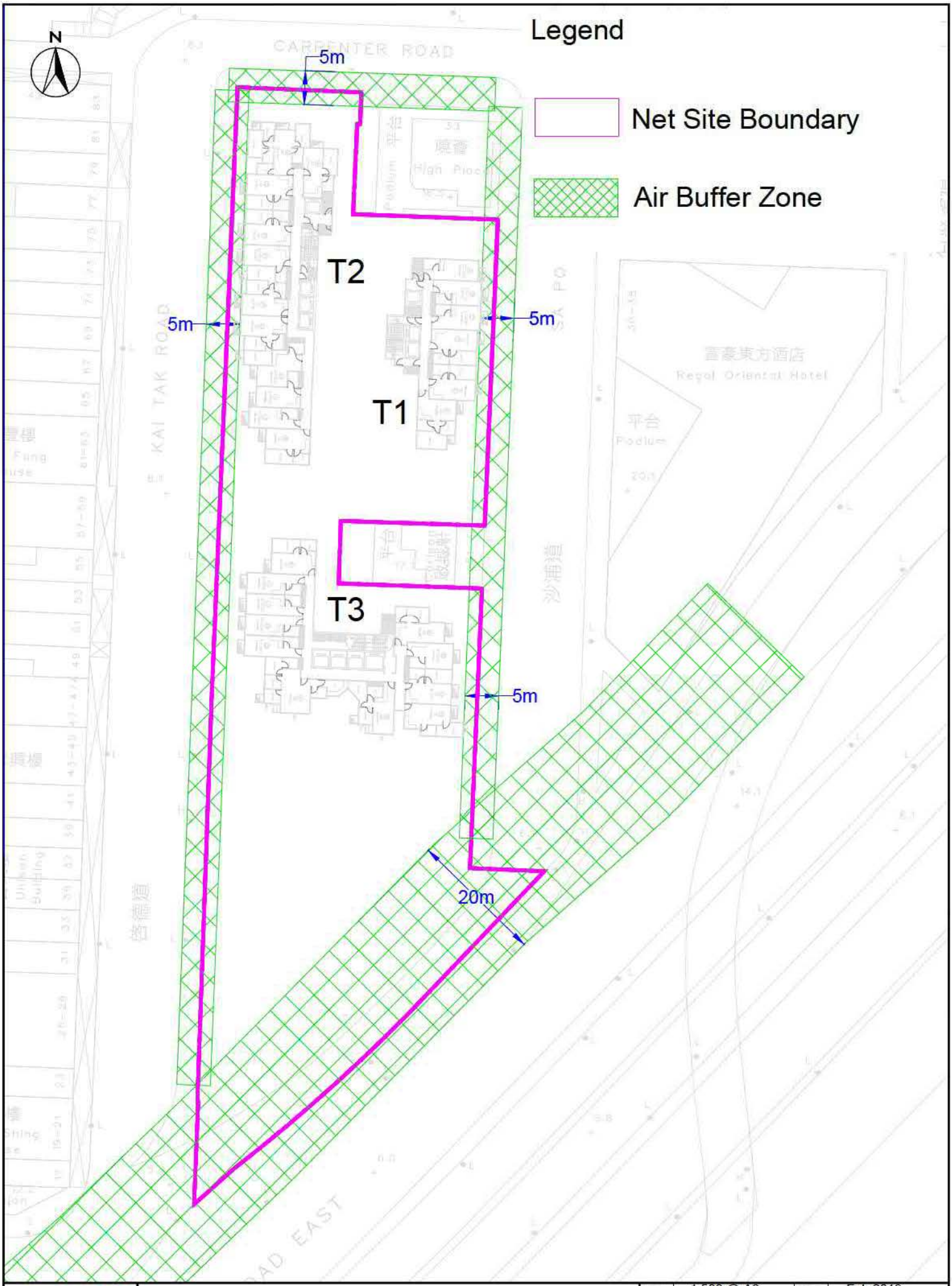

CINOTECH Cinotech Consultants Limited	Environmental Assessment Kai Tak Road / Sa Po Road Development Scheme (KC015) Air Buffer Zone	SCALE: 1:500 @ A3	DATE: Feb 2019
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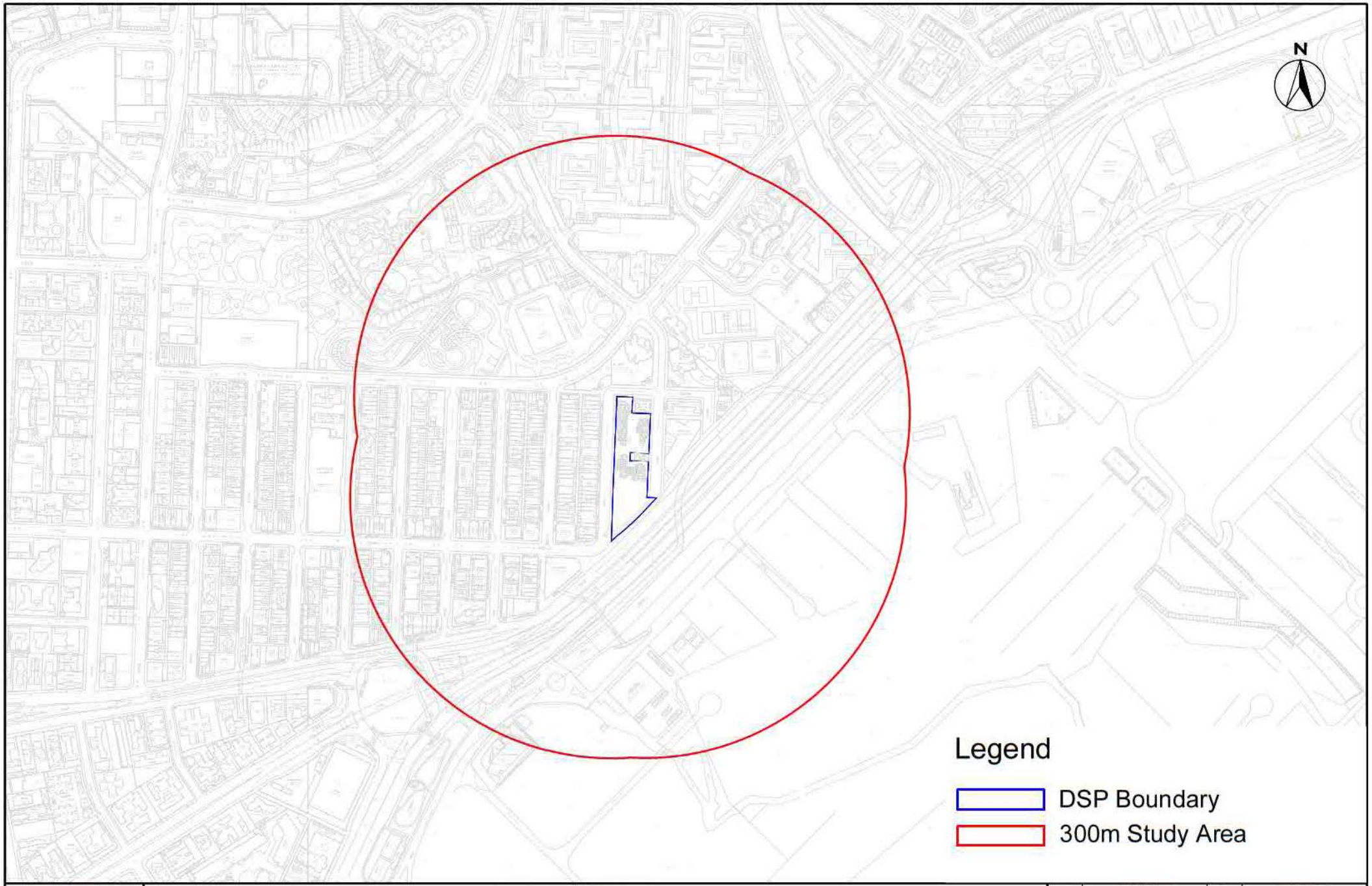
			REV: -



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Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Study Area for Noise Impact Assessment

SCALE	1:2000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.1
		REV.	-



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Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Representative Assessment Point for Traffic Noise Impact Assessment

SCALE	1:500 @ A3	DATE	Feb 2019
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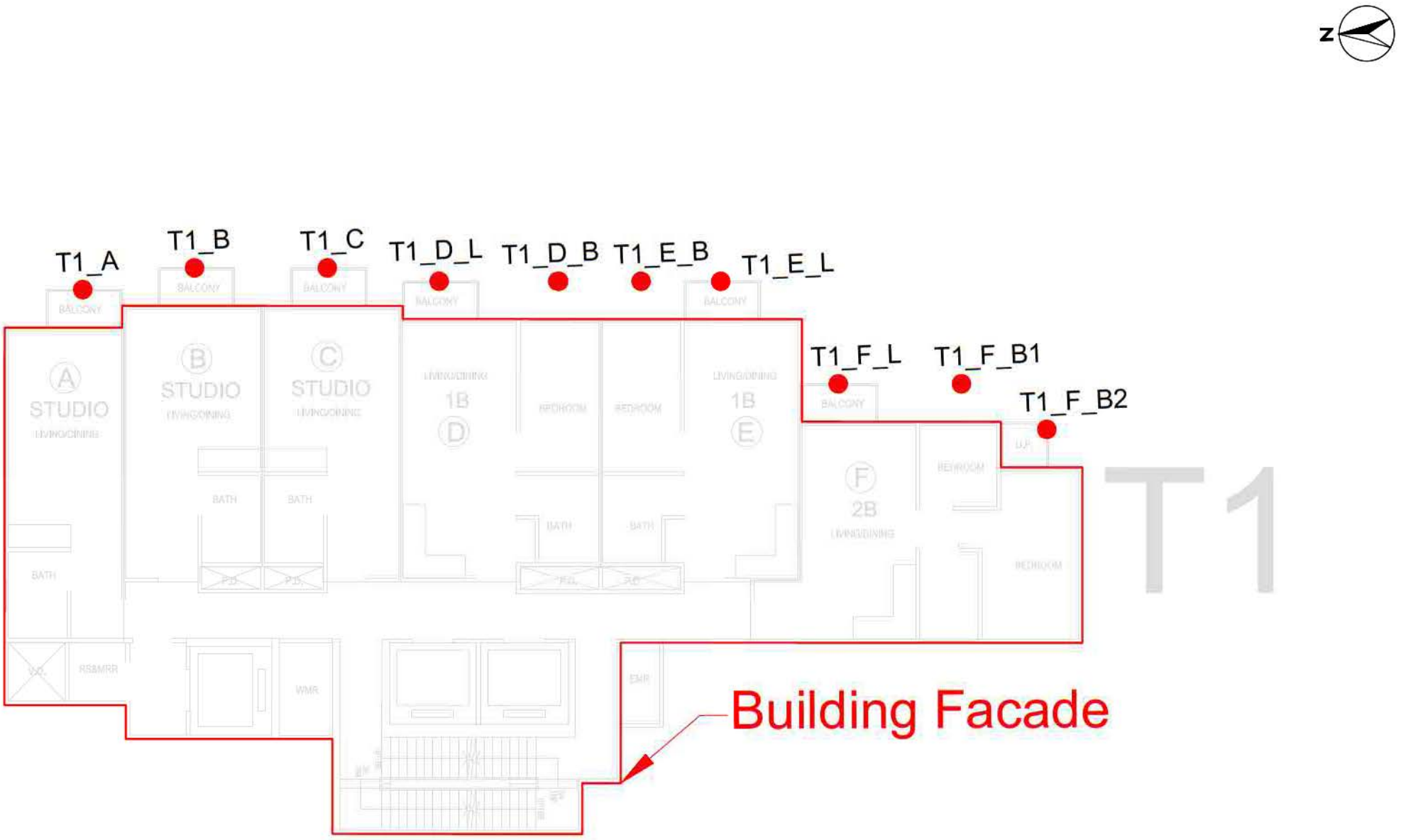

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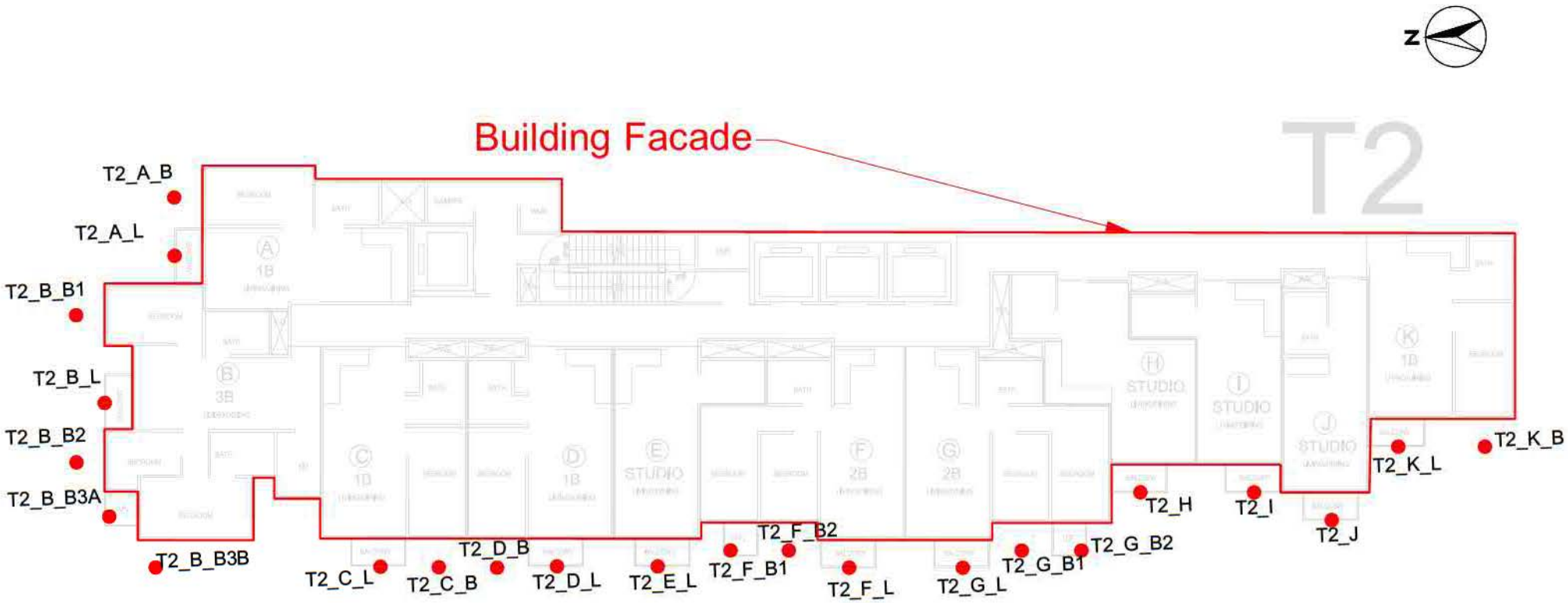
Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Representative Assessment Point - T1

SCALE	1:100 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.2a
		REV.	-



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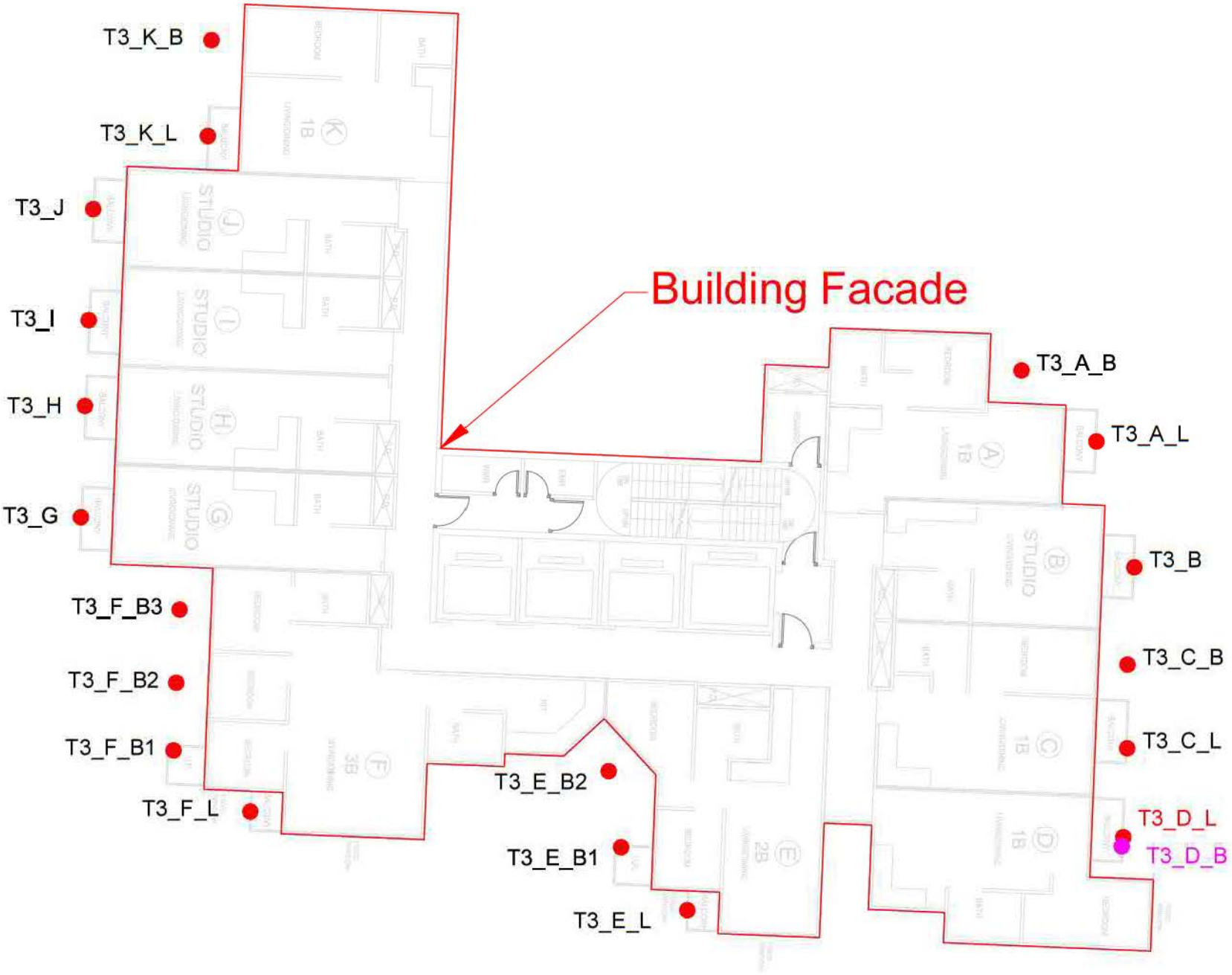
Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Representative Assessment Point - T2

SCALE	1:150 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.2b
		REV.	-

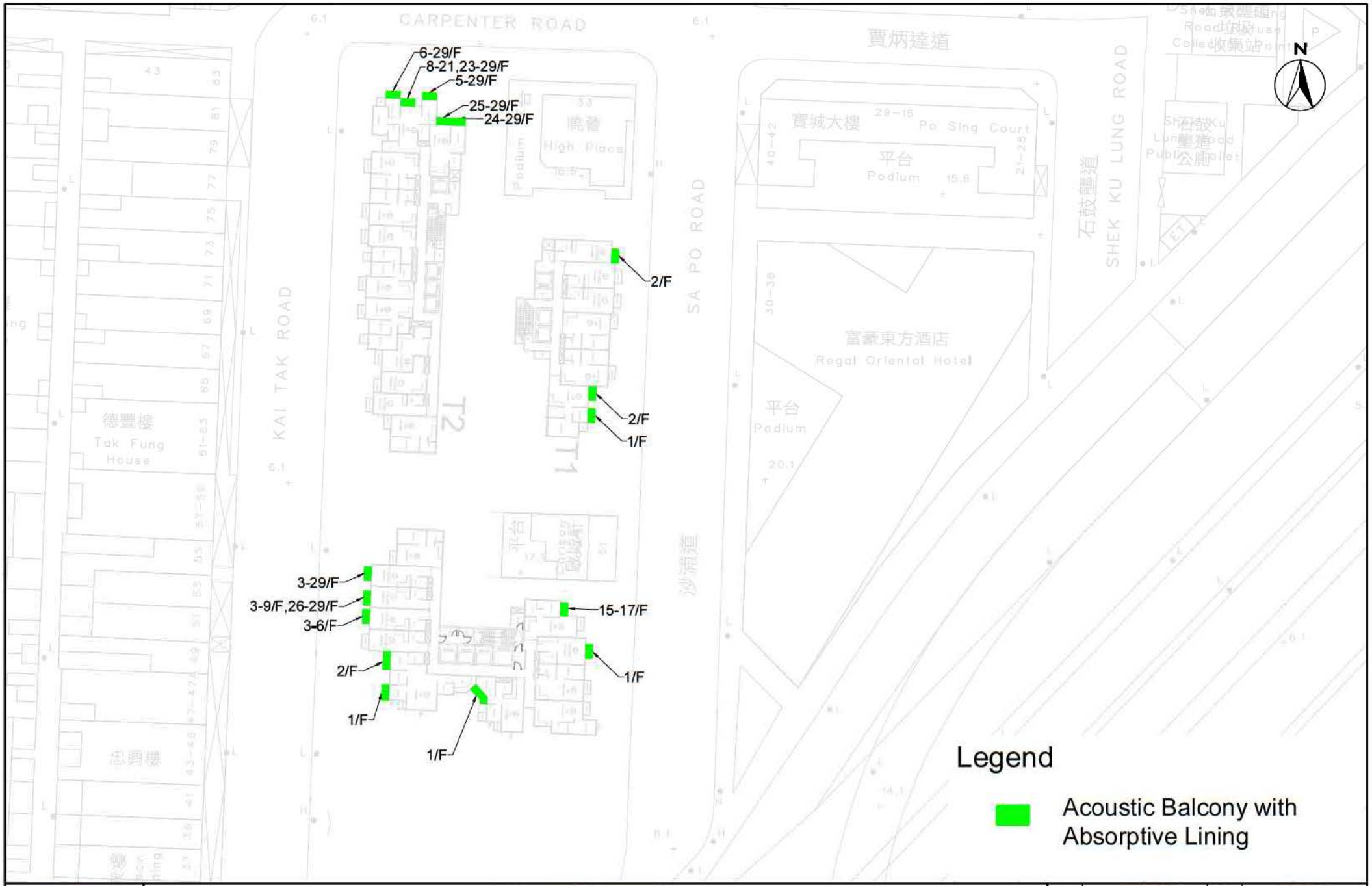


CINOTECH
Cinotech Consultants Limited

Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Representative Assessment Point - T3

SCALE	1:125 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.2c
		REV.	-

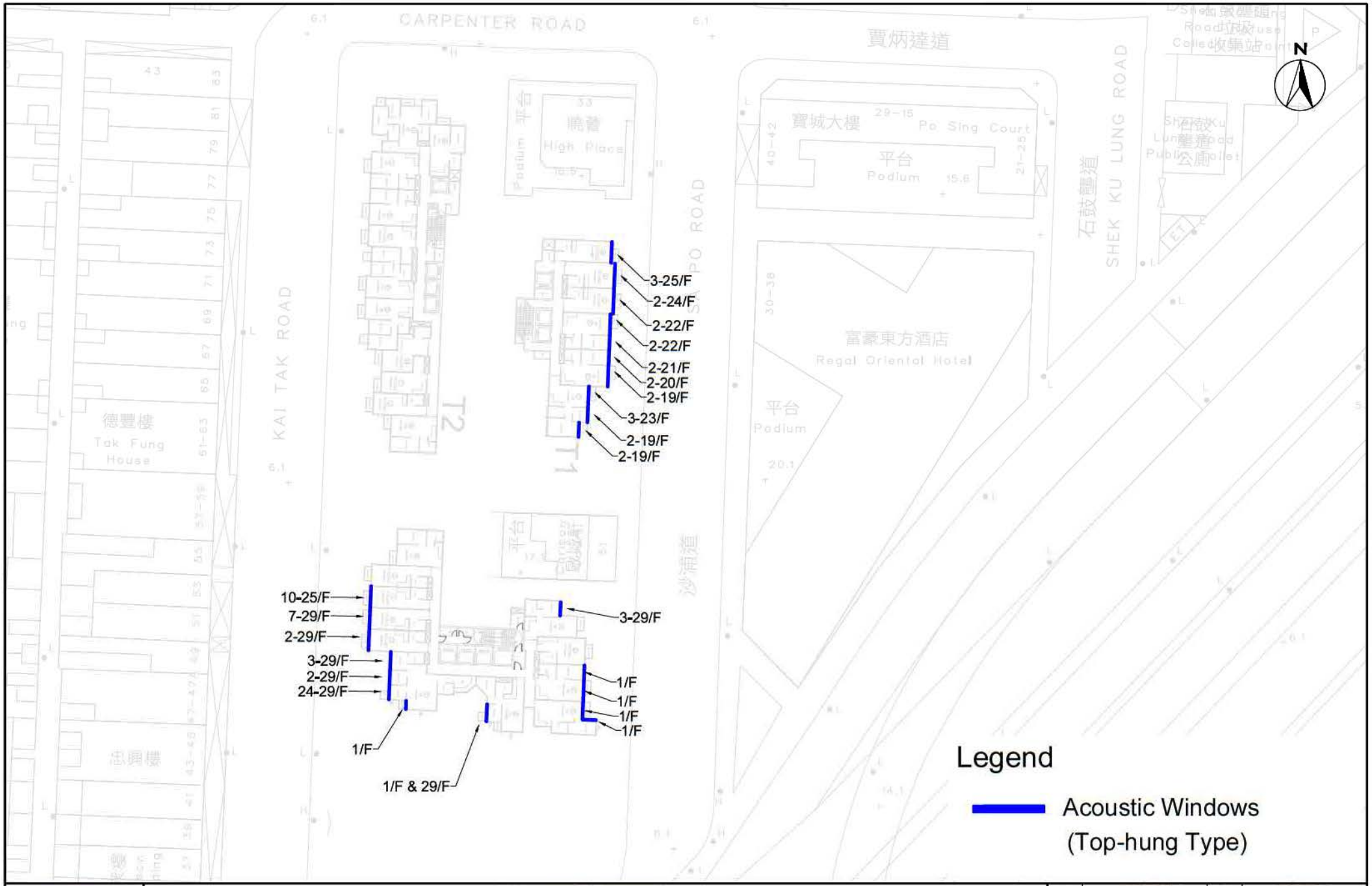


CINOTECH
Cinotech Consultants Limited

Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Mitigation Measure (Type I)

SCALE	1:500 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.3A
		REV.	-



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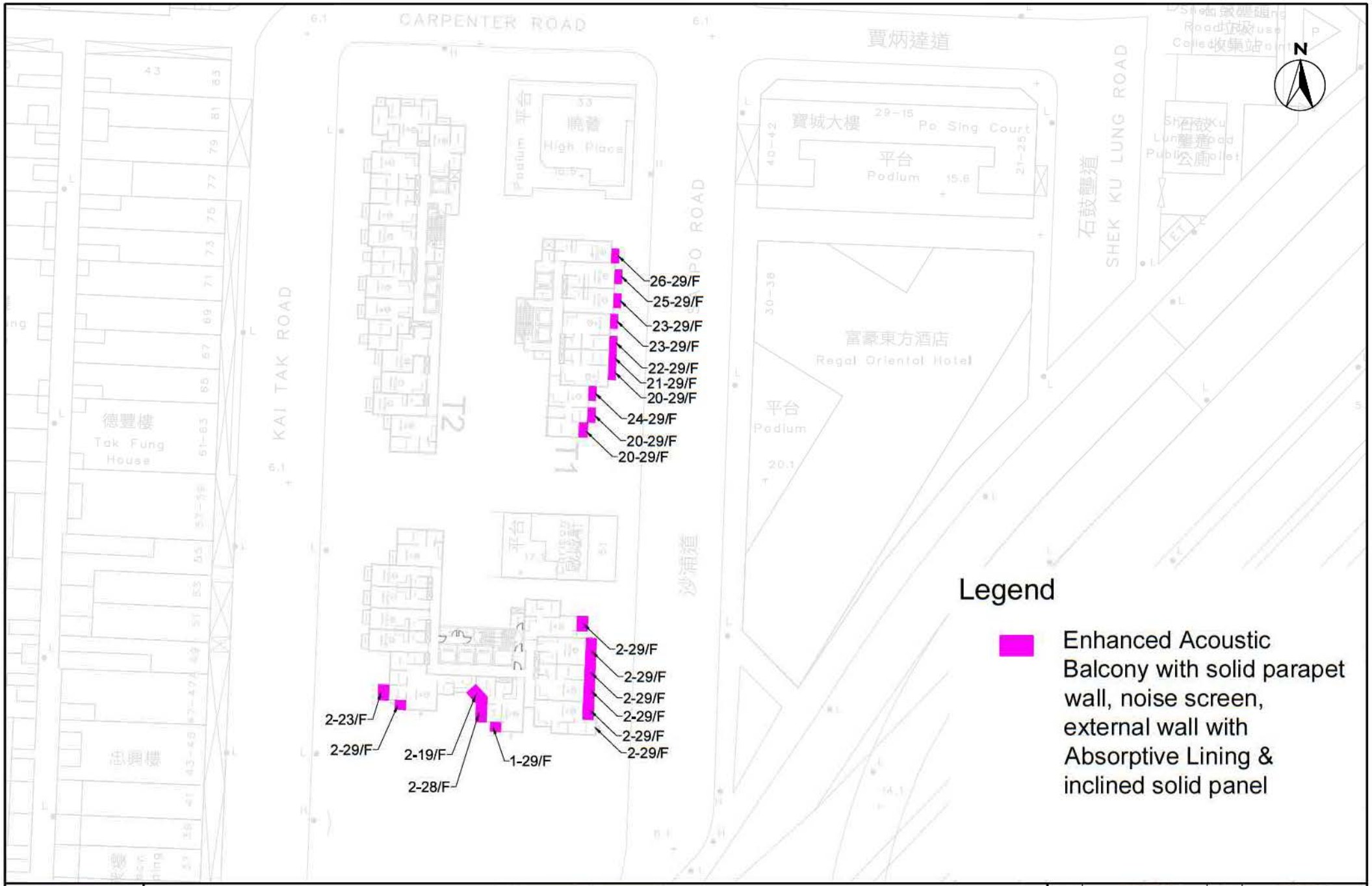
Cinotech Consultants Limited

Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Mitigation Measure (Type II)

SCALE	1:500 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.3B
		REV.	-

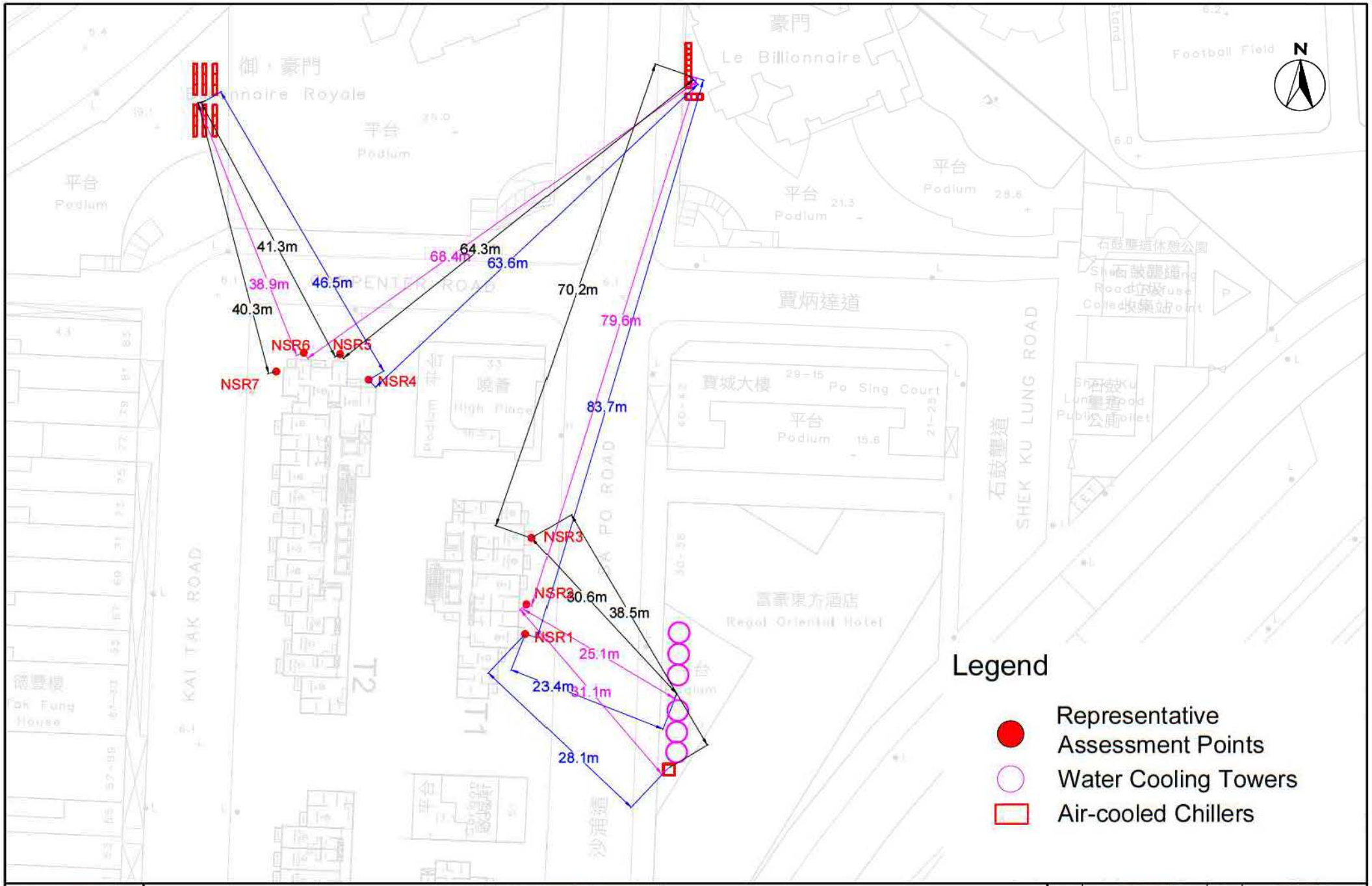


CINOTECH
Cinotech Consultants Limited

Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Mitigation Measure (Type III)

SCALE	1:500 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	5.3C
		REV.	-



CINOTECH
Cinotech Consultants Limited

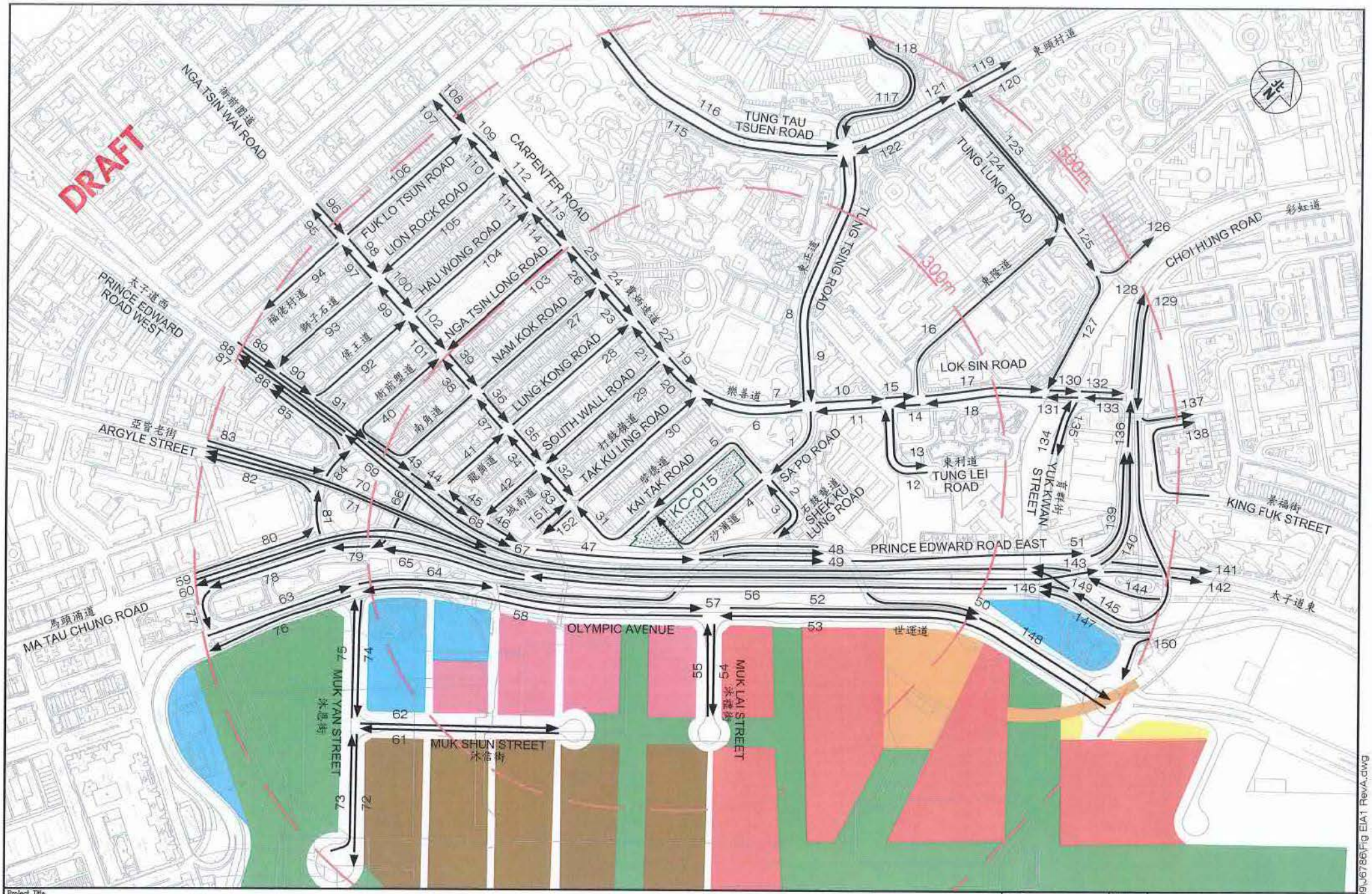
Environmental Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Fixed Noise Sources Impact Assessment

SCALE	1:500 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No. 5.4	REV. -

APPENDIX 5.1

PREDICTED TRAFFIC FLOW AT PEAK HOUR IN YEAR 2045



Project Title

URA KC-015 : KAI TAK ROAD / SA PO ROAD, KOWLOON CITY - TRAFFIC FORECAST

J6786

Figure Title

LOCATION OF TRAFFIC DATA

Figure No.	Revision
EIA1	A

Designed by	Drawn by	Checked by
T H C	C C L	K C

Scale in A3	Date
N.T.S.	05 NOV 2018

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Traffic and Transportation Planning Consultants
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Email : mail@ckmasia.com.hk

T:\JOB\J6750-J6799\J6786\Fig EIA1 RevA.dwg

PEAK HOUR TRAFFIC FLOW AND VEHICLE COMPOSITION

YEAR 2045 TRAFFIC FORECAST

Link ID	Road Section	From Road	To Road	Speed Limit (kph)	AM Peak Hour		PM Peak Hour	
					Traffic Flows (veh/hr)	Vehicle Composi HV	Traffic Flows (veh/hr)	Vehicle Composi HV
L001	Sa Po Road (SB)	Lok Sin Road	Carpenter Road	50	600	33.6%	600	35.0%
L002	Shek Ku Lung Road (EB)	Sa Po Road	Cul de sac	50	50	19.5%	50	24.0%
L003	Shek Ku Lung Road (WB)	Cul de sac	Sa Po Road	50	50	16.7%	50	17.1%
L004	Sa Po Road (SB)	Carpenter Road	Kai Tak Road	50	450	39.2%	450	34.3%
L005	Kai Tak Road (SB)	Sa Po Road	Kai Tak Road	50	150	18.1%	200	33.7%
L006	Lok Sin Road (WB)	Tung Tsing Road	Tak Ku Ling Road	50	150	27.1%	100	34.7%
L007	Lok Sin Road (EB)	Tak Ku Ling Road	Tung Tsing Road	50	500	34.5%	550	37.8%
L008	Tung Tsing Road (NB)	Lok Sin Road	Tung Tau Tsuen Road	50	150	34.2%	150	34.6%
L009	Tung Tsing Road (SB)	Tung Tau Tsuen Road	Lok Sin Road	50	300	32.1%	250	35.9%
L010	Lok Sin Road (EB)	Tung Tsing Road	Tung Lei Road	50	200	43.4%	200	54.2%
L011	Lok Sin Road (WB)	Tung Lei Road	Tung Tsing Road	50	300	39.9%	250	43.2%
L012	Tung Lei Road (WB)	Cul de sac	Lok Sin Road	50	100	20.9%	50	29.3%
L013	Tung Lei Road (EB)	Lok Sin Road	Cul de sac	50	50	23.1%	100	30.9%
L014	Lok Sin Road (WB)	Tung Lung Road	Tung Lei Road	50	300	42.5%	250	42.9%
L015	Lok Sin Road (EB)	Tung Lei Road	Tung Lung Road	50	250	40.8%	200	57.3%
L016	Tung Lung Road (NB)	Lok Sin Road	Tung Lung Road	50	150	44.1%	150	60.5%
L017	Lok Sin Road (EB)	Tung Lung Road	Tung Kwong Road	50	150	35.9%	150	46.0%
L018	Lok Sin Road (WB)	Tung Kwong Road	Tung Lung Road	50	350	39.1%	350	41.9%
L019	Carpenter Road (EB)	South Wall Road	Tak Ku Ling Road	50	300	30.6%	300	30.8%
L020	Carpenter Road (WB)	Tak Ku Ling Road	South Wall Road	50	250	29.3%	250	31.4%
L021	Carpenter Road (WB)	South Wall Road	Lung Kong Road	50	200	26.8%	200	27.2%
L022	Carpenter Road (EB)	Lung Kong Road	South Wall Road	50	500	32.0%	500	29.2%
L023	Carpenter Road (WB)	Lung Kong Road	Nam Kok Road	50	300	28.6%	350	28.5%
L024	Carpenter Road (EB)	Nam Kok Road	Lung Kong Road	50	350	33.0%	300	32.0%
L025	Carpenter Road (EB)	Nga Tsin Long Road	Nam Kok Road	50	200	23.7%	200	25.2%
L026	Carpenter Road (WB)	Nam Kok Road	Nga Tsin Long Road	50	400	28.1%	500	26.1%
L027	Nam Kok Road (NB)	Nga Tsin Wai Road	Carpenter Road	50	250	37.5%	300	29.8%
L028	Lung Kong Road (NB)	Nga Tsin Wai Road	Carpenter Road	50	250	31.5%	350	26.5%
L029	South Wall Road (SB)	Carpenter Road	Nga Tsin Wai Road	50	300	32.3%	300	29.4%
L030	Tak Ku Ling Road (NB)	Nga Tsin Wai Road	Carpenter Road	50	400	36.3%	450	39.5%
L031	Nga Tsin Wai Road (WB)	Kai Tak Road	Tak Ku Ling Road	50	600	36.9%	600	34.6%
L032	Nga Tsin Wai Road (EB)	South Wall Road	Tak Ku Ling Road	50	250	40.0%	300	38.2%
L033	Nga Tsin Wai Road (WB)	Tak Ku Ling Road	South Wall Road	50	450	38.5%	450	32.1%
L034	Nga Tsin Wai Road (WB)	South Wall Road	Lung Kong Road	50	400	33.5%	350	29.2%
L035	Nga Tsin Wai Road (EB)	Lung Kong Road	South Wall Road	50	350	30.5%	350	32.0%
L036	Nga Tsin Wai Road (EB)	Nam Kok Road	Lung Kong Road	50	200	29.7%	250	37.1%
L037	Nga Tsin Wai Road (WB)	Lung Kong Road	Nam Kok Road	50	600	24.4%	600	23.0%
L038	Nga Tsin Wai Road (WB)	Nam Kok Road	Nga Tsin Long Road	50	450	25.6%	450	22.0%
L039	Nga Tsin Wai Road (EB)	Nga Tsin Long Road	Nam Kok Road	50	400	35.0%	500	33.6%
L040	Nga Tsin Long Road (NB)	Nga Tsin Wai Road	Nga Tsin Wai Road	50	100	16.1%	100	15.8%
L041	Lung Kong Road (NB)	Unnamed Road	Nga Tsin Wai Road	50	600	22.1%	650	21.6%
L042	South Wall Road (SB)	Nga Tsin Wai Road	Unnamed Road	50	500	31.0%	450	29.8%
L043	Kowloon City Roundabout (EB)	Prince Edward Road W	Prince Edward Road W	50	2,650	26.5%	2,350	28.9%
L044	Prince Edward Road W (EB)	Kowloon City Roundabout	Lung Kong Road	50	1,700	29.3%	1,550	32.8%
L045	Unnamed Road (WB)	South Wall Road	Lung Kong Road	50	50	25.0%	50	24.4%
L046	Prince Edward Road W (EB)	South Wall Road	Prince Edward Road W Flyover	50	1,600	32.6%	1,300	37.3%
L047	Prince Edward Road E (EB)	Prince Edward Road W	Kai Tak Flyover	70	4,150	25.5%	3,600	28.8%
L048	Kai Tak Flyover (EB)	Olympic Avenue	Prince Edward Road E	50	250	13.2%	250	14.8%
L049	Prince Edward Road E (EB)	Prince Edward Road E	Kai Tak Flyover	70	3,700	26.2%	3,250	30.2%
L050	Kai Tak Flyover (EB)	Prince Edward Road E	Olympic Avenue	50	500	20.0%	350	16.7%
L051	Prince Edward Road E (EB)	Kai Tak Flyover	Choi Hung Road	70	3,900	26.0%	3,500	29.2%
L052	Olympic Avenue (EB)	Muk Lai Street	Kai Tak Flyover	50	450	22.4%	300	34.6%
L053	Olympic Avenue (WB)	Olympic Avenue Roundabout	Muk Lai Street	50	450	26.2%	550	28.7%
L054	Muk Lai Street (EB)	Olympic Avenue	Cul de sac	50	250	14.3%	300	12.5%
L055	Muk Lai Street (WB)	Cul de sac	Olympic Avenue	50	250	10.5%	200	14.8%
L056	Prince Edward Road E (WB)	Choi Hung Road Flyover	Prince Edward Road W	70	2,850	31.7%	2,800	28.2%
L057	Olympic Avenue (EB)	Kai Tak Flyover	Muk Lai Street	50	400	20.0%	300	24.1%
L058	Olympic Avenue (WB)	Muk Lai Street	Muk Yan Street	50	350	24.0%	500	26.8%
L059	Ma Tau Chung Road Flyover (EB)	Ma Tau Chung Road	Choi Hung Road	70	1,900	26.9%	1,700	27.1%
L060	Ma Tau Chung Road Flyover (WB)	Prince Edward Road W	Ma Tau Chung Road	70	700	32.6%	750	27.9%
L061	Muk Shun Street (WB)	Cul de sac	Muk Yan Street	50	300	12.0%	200	16.1%
L062	Muk Shun Street (EB)	Muk Yan Street	Cul de sac	50	200	17.4%	250	13.9%
L064	Olympic Avenue (EB)	Muk Yan Street	Kai Tak Flyover	50	600	23.1%	550	29.2%
L065	Prince Edward Road W (WB)	Ma Tau Chung Road Flyover	Kowloon City Roundabout	50	1,250	43.7%	1,250	37.8%
L066	Kowloon City Roundabout (SB)	Prince Edward Road W	Prince Edward Road W	50	950	21.7%	850	21.8%
L067	Prince Edward Road W Flyover (EB)	Boundary Street	Prince Edward Road E	70	1,400	17.7%	1,300	19.8%
L068	Prince Edward Road W (EB)	Lung Kong Road	South Wall Road	50	1,200	34.9%	900	42.7%
L069	Prince Edward Road W Flyover (WB)	Prince Edward Road E	Prince Edward Road W	70	2,000	23.7%	2,150	24.6%
L070	Argyle Street Flyover (EB)	Argyle Street	Prince Edward Road W	70	1,250	26.8%	1,100	31.7%
L071	Argyle Street Flyover (WB)	Prince Edward Road W	Argyle Street	70	950	15.9%	850	14.9%
L151	Tak Ku Ling Road (NB)	Cul de sac	Nga Tsin Wai Road	50	50	20.0%	50	12.5%
L152	Tak Ku Ling Road (SB)	Nga Tsin Wai Road	Cul de sac	50	50	14.3%	50	16.0%

APPENDIX 5.2

ENDORSEMENT OF TRAFFIC FORECAST FROM TRANSPORT DEPARTMENT (Pending)

APPENDIX 5.3

TRAFFIC NOISE ASSESSMENT RESULTS (BASE CASE)

Traffic Noise Assessment Result (Base Case)

T1	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))									
Floor	T1_A	T1_B	T1_C	T1_D_L	T1_D_B	T1_E_B	T1_E_L	T1_F_L	T1_F_B1	T1_F_B2
1	68	69	70	68	69	69	69	67	71	74
2	72	73	73	73	73	73	74	72	73	74
3	73	74	74	74	74	74	74	73	73	74
4	74	74	74	74	74	74	75	73	74	74
5	74	74	74	74	74	74	75	73	74	74
6	73	74	74	74	74	74	74	74	74	74
7	73	73	74	74	74	74	74	73	74	74
8	73	73	74	74	74	74	74	73	74	74
9	73	73	73	74	74	74	74	73	74	74
10	73	73	73	74	74	74	74	73	74	74
11	74	73	74	74	74	74	74	73	74	74
12	74	74	74	74	74	74	74	73	74	74
13	74	74	74	74	74	74	74	74	74	74
14	74	74	74	74	74	74	75	74	75	75
15	74	74	74	74	75	75	75	74	75	75
16	74	74	75	75	75	75	75	74	75	75
17	75	75	75	75	75	75	75	74	75	75
18	75	75	75	75	75	75	75	74	75	75
19	75	75	75	75	75	75	75	75	75	75
20	75	75	75	75	75	75	76	75	76	76
21	75	75	75	75	75	76	76	75	76	76
22	75	75	75	75	76	76	76	75	76	76
23	75	75	76	76	76	76	76	75	76	76
24	75	75	76	76	76	76	76	76	76	76
25	75	76	76	76	76	76	76	76	76	76
26	76	76	76	76	76	76	76	76	76	76
27	76	76	76	76	76	76	76	76	76	76
28	76	76	76	76	76	76	76	76	76	76
29	76	76	76	76	76	76	76	76	76	76
Unit	A	B	C	D		E		F		
No.of Unit Complied 70B(A)	1	1	1	1		1		0		

Summary of Base Scenario	T1	T2	T3	Total
Total Number of Assessment Point:	290	667	580	1537
Number of Assessment Point Complied	8	571	82	661
Compliance Rate by Assessment Point	3%	86%	14%	43%

Summary of Base Scenario	T1	T2	T3	Total
Total Number of Flat	174	319	319	812
Number of Falts Complied	5	273	38	316
Compliance Rate by Flat	3%	86%	12%	39%

Traffic Noise Assessment Result (Base Case)

T2	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))																						
Floor	T2_A_B	T2_A_L	T2_B_B1	T2_B_L	T2_B_B2	T2_B_B3A	T2_B_B3B	T2_C_L	T2_C_B	T2_D_B	T2_D_L	T2_E_L	T2_F_B1	T2_F_B2	T2_F_L	T2_G_L	T2_G_B1	T2_G_B2	T2_H	T2_I	T2_J	T2_K_L	T2_K_B
1	59	58	70	69	70	66	62	63	62	62	62	62	61	61	63	63	61	61	58	60	62	57	59
2	65	64	70	69	70	67	67	67	67	67	67	67	66	66	67	67	66	66	63	64	65	62	63
3	66	66	70	69	70	67	68	68	68	68	68	68	67	67	68	68	68	68	65	66	67	65	66
4	67	67	70	69	70	68	68	68	68	68	68	68	68	68	68	69	68	69	67	67	69	67	67
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9	68	68	71	71	71	70	69	68	68	68	68	69	68	69	69	69	69	69	68	69	70	68	69
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15	68	68	71	71	71	70	69	69	69	69	69	69	69	69	70	70	70	70	69	70	71	70	70
16	68	68	71	71	71	70	69	69	69	69	69	69	69	69	70	70	70	70	69	70	71	70	70
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18	68	68	71	71	71	70	69	69	69	69	69	69	69	70	70	70	70	70	69	70	71	70	70
19	68	68	71	71	71	70	69	69	69	69	69	70	69	70	70	70	70	70	69	70	71	70	70
20	68	68	71	71	71	69	69	69	69	69	69	70	69	70	70	70	70	70	69	70	71	70	70
21	68	68	71	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
22	69	69	71	70	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
23	70	69	71	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
24	71	70	71	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
25	72	71	72	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
26	72	71	72	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
27	72	71	72	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
28	72	71	72	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
29	72	71	72	71	71	69	69	69	69	69	69	70	70	70	70	70	70	70	69	70	71	70	70
Unit	A		B					C		D		E	F			G			H	I	J	K	
No.of Unit Complied 70B(A)	23		4					29		29		29	29			29			29	29	14	29	

Traffic Noise Assessment Result (Base Case)

T3	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))																			
Floor	T3_A_B	T3_A_L	T3_B	T3_C_B	T3_C_L	T3_D_L	T3_D_B	T3_E_L	T3_E_B1	T3_E_B2	T3_F_L	T3_F_B1	T3_F_B2	T3_F_B3	T3_G	T3_H	T3_I	T3_J	T3_K_L	T3_K_B
1	60	69	72	73	73	73	73	78	75	72	74	72	68	66	66	64	63	62	57	63
2	66	76	78	78	78	78	77	79	77	76	77	76	73	72	73	70	69	68	60	63
3	67	77	78	79	79	78	77	79	77	76	77	76	74	73	74	72	71	71	60	62
4	68	77	78	79	79	78	77	79	77	76	78	76	74	73	74	72	72	71	60	62
5	68	77	78	79	79	78	77	79	77	76	78	76	74	73	74	72	72	71	60	62
6	68	77	78	79	79	78	77	79	77	76	78	76	74	73	74	72	72	71	60	62
7	68	77	78	78	79	77	77	79	77	76	78	76	74	73	74	73	72	71	60	62
8	68	77	78	78	78	77	77	78	77	76	78	76	74	73	75	73	72	71	60	62
9	68	77	78	78	78	77	77	78	77	76	78	76	74	73	75	73	72	72	60	63
10	68	77	78	78	78	77	77	78	77	76	78	76	74	74	75	73	73	72	60	63
11	68	77	78	78	78	77	76	78	77	76	77	76	74	74	75	73	73	72	60	63
12	68	77	78	78	78	77	77	78	77	76	77	76	74	74	75	73	73	72	60	63
13	69	77	78	78	78	77	77	78	77	76	77	76	74	74	75	73	73	72	60	63
14	70	77	78	78	78	77	77	78	77	76	77	76	74	74	75	73	73	72	59	63
15	71	77	78	78	78	77	77	78	77	76	77	76	74	74	75	73	73	72	59	63
16	71	77	78	78	78	77	77	78	77	76	77	76	74	74	75	73	73	72	59	63
17	72	77	78	78	78	77	77	78	77	75	77	76	74	74	75	73	73	72	59	63
18	73	77	78	78	78	77	77	77	76	75	77	76	74	74	75	73	73	72	59	63
19	73	77	78	78	78	77	77	77	76	75	77	76	74	73	75	73	73	72	59	63
20	73	77	78	78	78	77	77	77	76	75	77	76	74	73	75	73	73	72	59	63
21	73	77	78	78	78	77	77	77	76	75	77	76	74	73	75	73	73	72	59	63
22	73	77	78	78	78	77	76	77	76	75	77	76	74	73	75	73	73	72	59	63
23	74	77	78	78	78	77	76	77	76	75	77	76	74	73	74	73	73	72	59	63
24	74	77	78	78	78	77	76	77	76	75	76	75	74	73	74	73	73	72	59	63
25	74	77	78	78	78	77	76	77	76	75	76	75	74	73	74	73	73	72	59	63
26	74	77	78	78	78	77	76	77	76	75	76	75	74	73	74	73	72	72	59	63
27	74	77	78	78	77	76	76	77	76	75	76	75	74	73	74	73	72	72	59	63
28	74	77	77	77	77	76	76	76	76	74	76	75	73	73	74	73	72	72	59	63
29	74	77	77	77	77	76	76	76	75	74	76	75	73	73	74	73	72	72	59	63
Unit	A		B	C		D		E			F				G	H	I	J	K	
No.of Unit Complied 70B(A)	1		0	0		0		0			1				1	2	2	2	29	

APPENDIX 5.4

PROPOSED MITIGATION MEASURES

Proposed Mitigation Measure

T1	Proposed Mitigation Reduction (dB(A))									
Unit	A	B	C	D		E		F		
Floor	T1_A	T1_B	T1_C	T1_D_L	T1_D_B	T1_E_B	T1_E_L	T1_F_L	T1_F_B1	T1_F_B2
1	0	0	0	0	0	0	0	0	2	5
2	2	5	5	5	5	5	5	2	5	5
3	5	5	5	5	5	5	5	5	5	5
4	5	5	5	5	5	5	5	5	5	5
5	5	5	5	5	5	5	5	5	5	5
6	5	5	5	5	5	5	5	5	5	5
7	5	5	5	5	5	5	5	5	5	5
8	5	5	5	5	5	5	5	5	5	5
9	5	5	5	5	5	5	5	5	5	5
10	5	5	5	5	5	5	5	5	5	5
11	5	5	5	5	5	5	5	5	5	5
12	5	5	5	5	5	5	5	5	5	5
13	5	5	5	5	5	5	5	5	5	5
14	5	5	5	5	5	5	5	5	5	5
15	5	5	5	5	5	5	5	5	5	5
16	5	5	5	5	5	5	5	5	5	5
17	5	5	5	5	5	5	5	5	5	5
18	5	5	5	5	5	5	5	5	5	5
19	5	5	5	5	5	5	5	5	5	5
20	5	5	5	5	5	5	7	5	7	7
21	5	5	5	5	5	7	7	5	7	7
22	5	5	5	5	7	7	7	5	7	7
23	5	5	7	7	7	7	7	5	7	7
24	5	5	7	7	7	7	7	7	7	7
25	5	7	7	7	7	7	7	7	7	7
26	7	7	7	7	7	7	7	7	7	7
27	7	7	7	7	7	7	7	7	7	7
28	7	7	7	7	7	7	7	7	7	7
29	7	7	7	7	7	7	7	7	7	7

Mitigation:

- Type I: Acoustic Balcony
- Type II: Top-hung Type Acoustic Window
- Type III: Enhanced Acoustic Balcony

Proposed Mitigation Measure

T2	Proposed Mitigation Reduction (dB(A))																					
Unit	A		B					C		D		E	F			G			H	I	J	K	
Floor	T2_A_B	T2_A_L	T2_B_B1	T2_B_L	T2_B_B2	T2_B_B3A	T2_B_B3B	T2_C_L	T2_C_B	T2_D_B	T2_D_L	T2_E_L	T2_F_B1	T2_F_B2	T2_F_L	T2_G_L	T2_G_B1	T2_G_B2	T2_H	T2_I	T2_J	T2_K_L	T2_K_B
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
16	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
17	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
18	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
19	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
20	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
21	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
22	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
23	0	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
24	2	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
25	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
26	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
27	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
28	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
29	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

Mitigation:

- Type I: Acoustic Balcony
- Type II: Top-hung Type Acoustic Window
- Type III: Enhanced Acoustic Balcony

Proposed Mitigation Measure

T3	Proposed Mitigation Reduction (dB(A))																		
Unit	A		B	C		D		E			F				G	H	I	J	K	
Floor	T3_A_B	T3_A_L	T3_B	T3_C_B	T3_C_L	T3_D_L	T3_D_B	T3_E_L	T3_E_B1	T3_E_B2	T3_F_L	T3_F_B1	T3_F_B2	T3_F_B3	T3_G	T3_H	T3_I	T3_J	T3_K_L	T3_K_B
1	0	0	2	5	5	5	5	7	5	2	5	2	0	0	0	0	0	0	0	0
2	0	7	7	7	7	7	7	7	7	7	7	7	5	2	5	0	0	0	0	0
3	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	2	2	2	0	0
4	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	2	2	2	0	0
5	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	2	2	2	0	0
6	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	2	2	2	0	0
7	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	2	2	0	0
8	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	2	2	0	0
9	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	2	2	0	0
10	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
11	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
12	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
13	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
14	0	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
15	2	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
16	2	7	7	7	7	7	7	7	7	7	7	7	5	5	5	5	5	2	0	0
17	2	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
18	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
19	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
20	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
21	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
22	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
23	5	7	7	7	7	7	7	7	7	5	7	7	5	5	5	5	5	2	0	0
24	5	7	7	7	7	7	7	7	7	5	7	5	5	5	5	5	5	2	0	0
25	5	7	7	7	7	7	7	7	7	5	7	5	5	5	5	5	5	2	0	0
26	5	7	7	7	7	7	7	7	7	5	7	5	5	5	5	5	2	2	0	0
27	5	7	7	7	7	7	7	7	7	5	7	5	5	5	5	5	2	2	0	0
28	5	7	7	7	7	7	7	7	7	5	7	5	5	5	5	5	2	2	0	0
29	5	7	7	7	7	7	7	7	5	5	7	5	5	5	5	5	2	2	0	0

Mitigation:

- Type I: Acoustic Balcony
- Type II: Top-hung Type Acoustic Window
- Type III: Enhanced Acoustic Balcony

APPENDIX 5.5

TRAFFIC NOISE ASSESSMENT RESULTS (MITIGATED CASE)

Traffic Noise Assessment Result (Mitigated Case)

T1	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))									
Floor	T1_A	T1_B	T1_C	T1_D_L	T1_D_B	T1_E_B	T1_E_L	T1_F_L	T1_F_B1	T1_F_B2
1	68	69	70	68	69	69	69	67	69	69
2	70	68	68	68	68	68	69	70	68	69
3	68	69	69	69	69	69	69	68	68	69
4	69	69	69	69	69	69	70	68	69	69
5	69	69	69	69	69	69	70	68	69	69
6	68	69	69	69	69	69	69	69	69	69
7	68	68	69	69	69	69	69	68	69	69
8	68	68	69	69	69	69	69	68	69	69
9	68	68	68	69	69	69	69	68	69	69
10	68	68	68	69	69	69	69	68	69	69
11	69	68	69	69	69	69	69	68	69	69
12	69	69	69	69	69	69	69	68	69	69
13	69	69	69	69	69	69	69	69	69	69
14	69	69	69	69	69	69	70	69	70	70
15	69	69	69	69	70	70	70	69	70	70
16	69	69	70	70	70	70	70	69	70	70
17	70	70	70	70	70	70	70	69	70	70
18	70	70	70	70	70	70	70	69	70	70
19	70	70	70	70	70	70	70	70	70	70
20	70	70	70	70	70	70	69	70	69	69
21	70	70	70	70	70	69	69	70	69	69
22	70	70	70	70	69	69	69	70	69	69
23	70	70	69	69	69	69	69	70	69	69
24	70	70	69	69	69	69	69	69	69	69
25	70	69	69	69	69	69	69	69	69	69
26	69	69	69	69	69	69	69	69	69	69
27	69	69	69	69	69	69	69	69	69	69
28	69	69	69	69	69	69	69	69	69	69
29	69	69	69	69	69	69	69	69	69	69
Unit	A	B	C	D		E		F		
No.of Unit Complied	29	29	29	29		29		29		

Summary of Mitigated Case	T1	T2	T3	Total
Total Number of Assessment Point:	290	667	580	1537
Number of Assessment Point Complied	290	667	474	1431
Compliance Rate by Assessment Point	100%	100%	82%	93%

Summary of Mitigated Case	T1	T2	T3	Total
Total Number of Flat	174	319	319	812
Number of Falts Complied	174	319	245	738
Compliance Rate by Flat	100%	100%	77%	91%

Traffic Noise Assessment Result (Mitigated Case)

T2	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))																						
Floor	T2_A_B	T2_A_L	T2_B_B1	T2_B_L	T2_B_B2	T2_B_B3A	T2_B_B3B	T2_C_L	T2_C_B	T2_D_B	T2_D_L	T2_E_L	T2_F_B1	T2_F_B2	T2_F_L	T2_G_L	T2_G_B1	T2_G_B2	T2_H	T2_I	T2_J	T2_K_L	T2_K_B
1	57	56	68	67	68	64	60	61	60	60	60	60	59	59	61	61	59	59	56	58	60	55	57
2	63	62	68	67	68	65	65	65	65	65	65	65	64	64	65	65	64	64	61	62	63	60	61
3	64	64	68	67	68	65	66	66	66	66	66	66	65	65	66	66	66	66	63	64	65	63	64
4	65	65	68	67	68	66	66	66	66	66	66	66	66	66	66	67	66	67	65	65	67	65	65
5	66	65	69	68	68	66	66	66	66	66	66	66	66	66	67	67	67	67	65	66	67	65	66
6	66	66	69	68	69	67	66	66	66	66	66	66	66	67	67	67	67	67	66	66	67	66	66
7	66	66	69	68	69	67	67	66	66	66	66	67	66	67	67	67	67	67	66	67	67	66	66
8	66	66	69	69	69	67	67	66	66	66	66	67	66	67	67	67	67	67	66	67	68	66	66
9	66	66	69	69	69	68	67	66	66	66	66	67	66	67	67	67	67	67	66	67	68	66	67
10	66	66	69	69	69	68	67	66	66	66	66	67	66	67	67	67	67	67	66	67	68	67	67
11	66	66	69	69	69	68	67	66	66	66	66	67	67	67	67	67	67	67	67	67	68	67	67
12	66	66	69	69	69	68	67	66	67	67	67	67	67	67	67	67	67	68	67	67	68	67	68
13	66	66	69	69	69	68	67	67	67	67	67	67	67	67	67	68	68	68	67	68	68	67	68
14	66	66	69	69	69	68	67	67	67	67	67	67	67	67	67	68	68	68	67	68	68	68	68
15	66	66	69	69	69	68	67	67	67	67	67	67	67	67	68	68	68	68	67	68	69	68	68
16	66	66	69	69	69	68	67	67	67	67	67	67	67	67	68	68	68	68	67	68	69	68	68
17	66	66	69	69	69	68	67	67	67	67	67	67	67	68	68	68	68	68	67	68	69	68	68
18	66	66	69	69	69	68	67	67	67	67	67	67	67	68	68	68	68	68	67	68	69	68	68
19	66	66	69	69	69	68	67	67	67	67	67	68	67	68	68	68	68	68	67	68	69	68	68
20	66	66	69	69	69	67	67	67	67	67	67	68	67	68	68	68	68	68	67	68	69	68	68
21	66	66	69	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
22	67	67	69	68	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
23	68	67	69	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
24	69	68	69	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
25	70	69	70	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
26	70	69	70	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
27	70	69	70	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
28	70	69	70	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
29	70	69	70	69	69	67	67	67	67	67	67	68	68	68	68	68	68	68	67	68	69	68	68
Unit	A		B					C		D		E	F			G			H	I	J	K	
No.of Unit Complied 70B(A)	29		29					29		29		29	29			29			29	29	29	29	

Traffic Noise Assessment Result (Mitigated Case)

T3	Predicted Noise level at NSR ($L_{10(1hr)}$, dB(A))																			
Floor	T3_A_B	T3_A_L	T3_B	T3_C_B	T3_C_L	T3_D_L	T3_D_B	T3_E_L	T3_E_B1	T3_E_B2	T3_F_L	T3_F_B1	T3_F_B2	T3_F_B3	T3_G	T3_H	T3_I	T3_J	T3_K_L	T3_K_B
1	60	69	70	68	68	68	68	71	70	70	69	70	68	66	66	64	63	62	57	63
2	66	69	71	71	71	71	70	72	70	69	70	69	68	70	68	70	69	68	60	63
3	67	70	71	72	72	71	70	72	70	69	70	69	69	68	69	70	69	69	60	62
4	68	70	71	72	72	71	70	72	70	69	71	69	69	68	69	70	70	69	60	62
5	68	70	71	72	72	71	70	72	70	69	71	69	69	68	69	70	70	69	60	62
6	68	70	71	72	72	71	70	72	70	69	71	69	69	68	69	70	70	69	60	62
7	68	70	71	71	72	70	70	72	70	69	71	69	69	68	69	68	70	69	60	62
8	68	70	71	71	71	70	70	71	70	69	71	69	69	68	70	68	70	69	60	62
9	68	70	71	71	71	70	70	71	70	69	71	69	69	68	70	68	70	70	60	63
10	68	70	71	71	71	70	70	71	70	69	71	69	69	69	70	68	68	70	60	63
11	68	70	71	71	71	70	69	71	70	69	70	69	69	69	70	68	68	70	60	63
12	68	70	71	71	71	70	70	71	70	69	70	69	69	69	70	68	68	70	60	63
13	69	70	71	71	71	70	70	71	70	69	70	69	69	69	70	68	68	70	60	63
14	70	70	71	71	71	70	70	71	70	69	70	69	69	69	70	68	68	70	59	63
15	69	70	71	71	71	70	70	71	70	69	70	69	69	69	70	68	68	70	59	63
16	69	70	71	71	71	70	70	71	70	69	70	69	69	69	70	68	68	70	59	63
17	70	70	71	71	71	70	70	71	70	70	70	69	69	69	70	68	68	70	59	63
18	68	70	71	71	71	70	70	70	69	70	70	69	69	69	70	68	68	70	59	63
19	68	70	71	71	71	70	70	70	69	70	70	69	69	68	70	68	68	70	59	63
20	68	70	71	71	71	70	70	70	69	70	70	69	69	68	70	68	68	70	59	63
21	68	70	71	71	71	70	70	70	69	70	70	69	69	68	70	68	68	70	59	63
22	68	70	71	71	71	70	69	70	69	70	70	69	69	68	70	68	68	70	59	63
23	69	70	71	71	71	70	69	70	69	70	70	69	69	68	69	68	68	70	59	63
24	69	70	71	71	71	70	69	70	69	70	69	70	69	68	69	68	68	70	59	63
25	69	70	71	71	71	70	69	70	69	70	69	70	69	68	69	68	68	70	59	63
26	69	70	71	71	71	70	69	70	69	70	69	70	69	68	69	68	70	70	59	63
27	69	70	71	71	70	69	69	70	69	70	69	70	69	68	69	68	70	70	59	63
28	69	70	70	70	70	69	69	69	69	69	69	70	68	68	69	68	70	70	59	63
29	69	70	70	70	70	69	69	69	70	69	69	70	68	68	69	68	70	70	59	63
Unit	A		B	C		D		E			F				G	H	I	J	K	
No.of Unit Complied 70B(A)	29		3	3		24		12			29				29	29	29	29	29	

APPENDIX 5.6

DETAILED CALCULATIONS OF NOISE FROM FIXED SOURCES

Detailed Calculations of Noise from Fixed Sources - Unmitigated

NSR1 - Tower1 Flat E Living Room

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	23.4	0	0	-35.4	3	80.4	80	83	70
	Air-cooled Chiller	109	1	28.1	0	0	-37.0	3	75.0	75		
Le Billionnaire	Air-cooled Chiller	109	11	83.7	0	0	-46.5	3	76.0	76		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	23.7	0	0	-35.5	3	78.5	79	80	60
	Air-cooled Chiller	109	1	28.1	0	0	-37.0	3	75.0	75		

NSR2 - Tower1 Flat D Bedroom

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	25.1	0	0	-36.0	3	79.8	80	82	70
	Air-cooled Chiller	109	1	31.1	0	0	-37.9	3	74.1	74		
Le Billionnaire	Air-cooled Chiller	109	11	79.6	0	0	-46.0	3	76.4	76		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	25.5	0	0	-36.1	3	77.9	78	79	60
	Air-cooled Chiller	109	1	31.1	0	0	-37.9	3	74.1	74		

NSR3 - Tower1 Flat B

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	30.6	0	0	-37.7	3	78.1	78	81	70
	Air-cooled Chiller	109	1	38.5	0	0	-39.7	3	72.3	72		
Le Billionnaire	Air-cooled Chiller	109	11	70.2	0	0	-44.9	3	77.5	77		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	30.3	0	0	-37.6	3	76.4	76	78	60
	Air-cooled Chiller	109	1	38.5	0	0	-39.7	3	72.3	72		

NSR4 - Tower2 Flat A Living Room

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	63.6	0	0	-44.1	3	78.3	78	84	70
Billionnaire Royale	Air-cooled Chiller	109	18	46.5	0	0	-41.3	3	83.2	83		

NSR5 - Tower2 Flat B Bedroom1

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	64.3	0	0	-44.2	3	78.2	78	85	70
Billionnaire Royale	Air-cooled Chiller	109	18	41.3	0	0	-40.3	3	84.2	84		

NSR6 - Tower2 Flat B Bedroom2

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	68.4	0	0	-44.7	3	77.7	78	86	70
Billionnaire Royale	Air-cooled Chiller	109	18	38.9	0	0	-39.8	3	84.8	85		

NSR7 - Tower2 Flat B Bedroom3 (facing West)

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Billionnaire Royale	Air-cooled Chiller	109	18	40.3	0	0	-40.1	3	84.4	84	84	70

[1] The sound power level refer to Table7A & 7B of "Good Practices on Ventilation System Noise Control".

Detailed Calculations of Noise from Fixed Sources -Mitigated

NSR1 - Tower1 Flat E Living Room

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	23.4	-20	0	-35.4	3	60.4	60	63	70
	Air-cooled Chiller	109	1	28.1	-20	0	-37.0	3	55.0	55		
Le Billionnaire	Air-cooled Chiller	109	11	83.7	-20	0	-46.5	3	56.0	56		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	23.7	-20	0	-35.5	3	58.5	59	60	60
	Air-cooled Chiller	109	1	28.1	-20	0	-37.0	3	55.0	55		

NSR2 - Tower1 Flat D Bedroom

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	25.1	-20	0	-36.0	3	59.8	60	62	70
	Air-cooled Chiller	109	1	31.1	-20	0	-37.9	3	54.1	54		
Le Billionnaire	Air-cooled Chiller	109	11	79.6	-20	0	-46.0	3	56.4	56		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	25.5	-20	0	-36.1	3	57.9	58	59	60
	Air-cooled Chiller	109	1	31.1	-20	0	-37.9	3	54.1	54		

NSR3 - Tower1 Flat B

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	6	30.6	-20	0	-37.7	3	58.1	58	61	70
	Air-cooled Chiller	109	1	38.5	-20	0	-39.7	3	52.3	52		
Le Billionnaire	Air-cooled Chiller	109	11	70.2	-20	0	-44.9	3	57.5	57		

Night Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Regal Oriental Hotel	Water Cooling Tower	105	4	30.3	-20	0	-37.6	3	56.4	56	58	60
	Air-cooled Chiller	109	1	38.5	-20	0	-39.7	3	52.3	52		

NSR4 - Tower2 Flat A Living Room

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	63.6	-20	0	-44.1	3	58.3	58	64	70
Billionnaire Royale	Air-cooled Chiller	109	18	46.5	-20	0	-41.3	3	63.2	63		

NSR5 - Tower2 Flat B Bedroom1

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	64.3	-20	0	-44.2	3	58.2	58	65	70
Billionnaire Royale	Air-cooled Chiller	109	18	41.3	-20	0	-40.3	3	64.2	64		

NSR6 - Tower2 Flat B Bedroom2

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Le Billionnaire	Air-cooled Chiller	109	11	68.4	-20	0	-44.7	3	57.7	58	66	70
Billionnaire Royale	Air-cooled Chiller	109	18	38.9	-20	0	-39.8	3	64.8	65		

NSR7 - Tower2 Flat B Bedroom3 (facing West)

Day & Evening Time

Source Location	Type of machine	Sound Power Level (SWL) adopted, dB(A)[1]	Quantity	Horizontal Distance to nearest NSR, m	Corrections				Sound Pressure Level (SPL), dB(A)	Sub Total SPL, dB(A)	Total SPL at NSR, dB(A)	Noise Criteria, dB(A)
					C-mitigation[2]	C-view[3]	C-distance	C-façade				
Billionnaire Royale	Air-cooled Chiller	109	18	40.3	-20	0	-40.1	3	64.4	64	64	70

[1] The sound power level refer to Table7A & 7B of "Good Practices on Ventilation System Noise Control".

[2] A 20 dB noise level reduction for full enclosure is applied to the fixed noise sources.

Appendix 6

Air Ventilation Assessment (AVA) Report

Urban Renewal Authority
Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Air Ventilation Assessment
(Draft v2.1)

February 2019

Approved By _____
(Principal Environmental Consultant:
Mr. KS 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 The Urban Renewal Authority (URA) has proposed a Development Scheme at Kai Tak Road / Sa Po Road Development Scheme (KC-015) (the Proposed Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). This Air Ventilation Assessment (AVA) is to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

1.1.2 The site of the Scheme (the Site) is located in Kowloon City. The Site comprises two lines of buildings facing Kai Tak Road and Sa Po Road respectively (except 51 Sa Po Road and 33 Carpenter Road), two pieces of government amenity area and a portion of Sa Po Road. The location of the Site is shown in **Figure 1.1** and the captured OZP is shown in **Figure 1.2**. The existing zoning of the Site is **"**Residential (Group A)**"** (R(A)2) and shown **"**Road**"**, on the Approved Ma Tau Kok OZP No. S/K10/24. The maximum permissible building height of **"**R(A)2**"** is 100PD (for site not less than 400sq.m.) in the current OZP.

1.1.3 As the Proposed Scheme involves several residential towers with a proposed building height of 120mPD, which is higher than the maximum permissible building height of the current OZP, Cinotech Consultants Limited was commissioned by URA to carry out an Air Ventilation Assessment (AVA) to assess and envisage any potential/adverse air ventilation impact on the implementation of the Proposed Scheme as compared to the OZP-compliance notional redevelopment (i.e. 100mPD) and to recommend mitigation measures when necessary.

1.1.4 This AVA study was conducted in accordance with the recommendations of **"***Feasibility Study for Establishment of Air Ventilation Assessment System – Final Report***"** by Planning Department in 2005, and **"***Technical Circular No. 1/06 on Air Ventilation Assessments***"** by HPLB & ETWB in 2006 (Technical Circular).

1.2 The Proposed Scheme (120mPD Scheme)

1.2.1 The gross site area of the Scheme is about 6,106m^2 and planned to be completed by **year 2030**. The Proposed Scheme intends to demolish the existing 5 – 12 storeys high buildings on Nos. 24-82 Kai Tak Road (even numbers), 31 – 49 and 55 – 73 Sa Po Road (odd numbers) for redevelopment. Under the current notional design, the proposed development of the Scheme (the Proposed Scheme) will compose of 3 residential towers on a podium with community/retail facilities and private residential clubhouse, a basement carpark, and a split-level sunken plaza on the southern part within the Scheme. The proposed building height of the Scheme is 120mPD. The

existing portion of Sa Po Road will be re-aligned within the Scheme to connect the traffic from Sa Po Road to Kai Tak Road. The notional layout and section plan of the Proposed Scheme is shown in **Figure 1.3** and **Figure 1.4**. The notional design of the Proposed Scheme is subject to change in the detailed design stage upon CE in C's approval of the draft DSP.

1.2.2 According to *Approved OZP No. S/K10/24*, for site with 400m^2 or larger for zone R(A)2, a maximum building height of 100mPD is allowed. The Proposed Scheme involves three residential towers (T1- T3) each with building height of not more than 120 mPD including 29 residential storey, a storey for clubhouse and three commercial storey. An AVA study is required to demonstrate no insurmountable air ventilation impact is induced by the additional height in the Proposed Scheme on the pedestrian wind environment.

1.2.3 **Figure 1.3** shows the general layout of the Proposed Scheme. As shown in the layout, a split-level sunken plaza (the sunken plaza) will be provided at the southern side the Scheme. It will enhance wind flow penetration along the E-S-W direction through the sunken plaza to inner area. The Sa Po Road will be re-aligned within the Scheme to connect Sa Po Road and Kai Tak Road, which would also enhance flow penetration at the pedestrian level along the E-W direction through the Site.

1.2.4 Gaps are provided between the three towers, an approximately 11 m wide gap is created between T1-2 and T3 which allows East /West wind to flow through the Site directly. Wind could also be directed to/from the Carpenter road via the gap (~13 m) between T1 and T2 at the North of the Site. The designs for enhancing ventilation are illustrated in **Figure 1.5**.

1.3 The Baseline Scheme (100mPD Scheme)

1.3.1 A Baseline Scheme fulfilling the maximum building height requirement (100mPD) of *Approved Ma Tau Kok OZP No. S/K10/24*, will be used to represent the intended air ventilation performance.

1.3.2 In the Baseline Scheme, five residential towers are set in two rows with alternate arrangement as to reflect the possible redevelopment by market practice, which is shown in **Appendix 1.1**. Despite there is no sunken plaza provision in the Baseline Scheme, the alternate arrangement of the five towers would allow wind to penetrate through the towers uniformly even though the wind cannot pass through the Site directly because of the arrangement. A small gap (~3 m) between the podium of T1-T2 and T3-T5 would allow ground level wind to penetrate through the buildings in the N-S direction.

1.3.3 A comparison of the two schemes is illustrated in **Figure 1.5a and 1.5b**.

1.4 The Surrounding Environment

1.4.1 The Site is located in a developed urban area, however, there are not many high-rise buildings in the surrounding area. Unlike other fully developed area in Hong Kong, the buildings in Kowloon City that are built prior to the relocation of the former Kai Tak Airport are mostly short tenement buildings due to the height restriction required for the airport, therefore most of the buildings are lower than 30 m. Only the new buildings that are built after the relocation of the airport are high-rise buildings.

1.4.2 The Regal Oriental Hotel and the building east of Site are between 30 m – 50 m in height, a few buildings in the vicinity of the Site are between 50 m – 75m in height and buildings that are tallest within the surrounding are the Le Billionaire and the Billionaire Royale which are 144 m and 166 m in height respectively. The height distribution of the buildings in the surrounding environment of the Site is shown in **Figure 1.6**.

1.4.3 The Kai Tak Development Area (KTDA) is in the South-East of the Site. Although the land slots in KTDA have already been zoned into different zones by Planning Department (please refer to *Approved Kai Tak OZP No. S/K22/6*), most of the area near the Site are not yet developed. The zoned but not yet developed land slots in the KTDA near the Site are illustrated in **Figure 1.7**. As the Proposed Scheme is planned to be completed in **year 2030**, it is assumed that undeveloped land slots will be occupied during the operation phase of the Development. Since no detailed scheme are available for those land slots at the moment, the buildings for those land slots applied in the model has adopted the height and land coverage restriction for assessment purpose.

1.5 Objective

1.5.1 The objective of this AVA study is to demonstrate that the air ventilation impact on the surrounding area at the pedestrian level of the Proposed Scheme is not worse than the Baseline Scheme, which has adopted the requirement as listed in the *Approved Ma Tau Kok OZP No. S/K10/24*, by qualitatively comparing the two schemes. This comparison is conducted using the Velocity Ratio (VR) computed by Computational Fluid Dynamics (CFD) models for the two schemes.

1.5.2 It should be noted that the current Proposed Scheme is only tentative and subject to change. In case there are major changes in building design, the AVA may need to be modified to reflect the changes. In addition, the results and conclusion in this report should only be used for the comparison of the Baseline and Proposed Scheme for this development to assess the air ventilation impact.

2. THE WIND ENVIRONMENT

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 Planning Department website.

2.2 Selection of Wind Data Source

2.2.1 Simulated result of RAMS from Planning Department 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. The closest HKO weather stations to the Site is Kowloon City Automatic Weather Station which is located approximately 980 m away from the Site. Since the measurement location of HKO weather station is often at low height or a few meters above roof top, the wind at the weather station is inevitably affected by nearby developments or topography. Its data should be applied with caution specifically when the station is not very close to the Site.

2.2.3 The measurement level of the wind data from the Kowloon City Automatic Weather Station is 92m which is 28 m lower than the proposed building and considering that the weather station is located with an urban area, it should only be adopted when no other alternatives are preferred. However, 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 is often adopted in AVA study.

2.2.4 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 public. The closest location can be found in "*Experimental Site Wind*

[1] https://www.pland.gov.hk/pland_en/info_serv/site_wind/index.html
[2] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html

Availability Study for the Proposed Kai Tak Development, Hong Kong - Investigation Report WWTF013-2009". One of its assessment locations is representing the northern half of KTD area. The wind data in this experiment study is often adopted in AVA studies of KTDA (e.g. AVA studies for government projects: AVR/G/018 & AVR/G/076). As the site of this development is also included in the wind tunnel experiment and in the assessment area of those government AVA studies. It is believed that the wind data from WWTF013-2009 is suitable for this AVA study if no better alternative wind data are available.

2.2.5 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 the Planning Department. 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 provides 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.

2.2.6 When comparing the RAMS to the wind tunnel experiments in the experimental site wind availability studies, the RAMS have the following advantage:

- 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 unlike those wind tunnel experiments that can only provide data at predetermined locations.

2.2.7 Considering that the grid from RAMS can cover the Site and the advantages of the RAMS over those wind tunnel experiments, the data of grid [84,45] from RAMS is best suited for this AVA study.

2.3 Adopted Wind Conditions

2.3.1 The wind speed and the vertical wind profiles of grid [84,45] from RAMS[3] have been adopted in order to provide a realistic flow condition.

2.3.2 The wind velocity and wind direction at 500m elevation have been adopted in the analysis of general wind condition of the site, while the vertical wind profiles are adopted as the inlet conditions of the numerical analysis.

[3] https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html

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 (with different free stream flow velocities). 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 [84,45] and the wind profile from RAMS are illustrated in **Figures 2.1a and 2.1b**. The top 9 of wind directions, which will be assessed in this study, are presented in the **Tables 2.1 & 2.2**. Detailed occurrence probability for each wind directions 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 direction, 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 around 59% of the time, the wind comes from NE, ENE, E, ESE, or SE. Around 23% of the wind comes from S, SSW, SW, WSW, or W. The occurrence chance for the rest of wind directions are all below 5% each.

2.3.6 Under summer condition, the major wind direction shifted to South-Western. For around 53% of the time, the wind comes from S, SSW, SW, WSW, or W. Around 36% of the wind comes from ENE, E, ESE, SE, or SSE. The occurrence chance for the rest of wind directions are all below 4% each.

2.3.7 Generally, the major wind direction of concern is the east direction for the whole year and the south-western direction 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 and The Average Wind Speed at 500m Elevation (Annual)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 500m elevation	Speed (m/s) rounded to integer
E	90	20.2%	7
ESE	112.5	11.8%	7
ENE	67.5	11.4%	6
NE	45	9.0%	6
SE	135	7.0%	6
SW	225	6.6%	6
NNE	22.5	6.5%	7
SSW	202.5	5.9%	6
S	180	4.3%	5
Sum	--	82.7%	--

Table 2.2 Occurrence Probability for Each Wind Directions and The Average Wind Speed at 500m Elevation (Summer)

Wind Direction	Wind Direction (degree)	Occurrence Probability at 500m elevation	Speed (m/s) rounded to integer
SW	225	15.9%	6
SSW	202.5	13.3%	6
WSW	247.5	10.1%	6
ESE	112.5	10.0%	7
S	180	8.9%	6
E	90	8.4%	8
SE	135	8.1%	6
SSE	157.5	7.7%	6
W	270	5.2%	4
Sum	--	87.6%	--

Table 2.3 Vertical Wind Profiles for different Wind Directions

Heights (m)	Wind speed (Ratio to the freestream flow velocity) for different Wind directions (degree from North)			
	22.5- 112.5°	112.5-202.4°	202.5-292.4°	292.5-22.4°
10	0.47	0.42	0.51	0.37
50	0.49	0.44	0.54	0.41
100	0.52	0.46	0.56	0.43
150	0.53	0.48	0.56	0.46
200	0.59	0.52	0.59	0.52
250	0.67	0.60	0.67	0.63
300	0.74	0.68	0.72	0.74
350	0.82	0.76	0.82	0.81
400	0.89	0.84	0.87	0.91
450	0.96	0.92	0.92	1.00
500 and above	1.00	1.00	1.00	1.00

3. ASSESSMENT METHODOLOGY

3.1 Assessment Tool

3.1.1 The microclimate around the Site for the two Schemes have been assessed by Computational Fluid Dynamics (CFD). Open source CFD code, OpenFOAM 2.4.0, has been utilized for calculating the local wind speed. GroovyBC has been used for applying the inlet boundary condition. The model solves the algebraic equations by applying the conservation laws of physics to finite volumes of space and time. Renormalization Group (RNG) k-epsilon with wall model is adopted to handle the flow turbulence.

3.2 Assessment Area and Surround Area

3.2.1 According to the Technical Circular, the Assessment Area of the DSP should include the Scheme's surrounding up to a perpendicular distance H from the DSP boundary, H being the height of the tallest building on site, that is the . Surrounding Area of up to a perpendicular distance of 2H from the DSP boundary must be included. Since the highest building near the Site, that is the Billionaire Royale, is around 170mPD, area of 170m and 340m from the DSP boundary are adopted as the Assessment Area and Surrounding Area, respectively. The Assessment Area and Surrounding Area are illustrated in **Figure 3.1**.

3.3 Test Points

3.3.1 42 perimeter test points (P01-P42) have been used to examine the air ventilation around the Site. The perimeter test points are evenly spread, with around 10m separation, on the nearby streets which covering the four sides of the Site and the two adjacent buildings. The exceptions are the Test Points P31 & P45, which located in narrow back lanes. The locations of the perimeter test points are illustrated in **Figure 3.2**.

3.3.2 124 overall test points (O01-O124) have been used to examine the air ventilation of the local area. Overall test points are evenly spread, with around 30m separation, on all roads within the Assessment Area, where there is frequent pedestrian access. The overall test points are also placed in the planned roads within the TKDA. Besides the roads, overall test points are also placed in playgrounds (O78-O88, O89-O96 and O98-O100). The locations of the perimeter test points are illustrated in **Figure 3.3**.

3.3.3 The locations of the test points within the proposed development of the Scheme are illustrated in **Figure 3.4**. As the Sunken Plaza and its landscape deck on the 1/F in the southern part of the Site will be opened for public access, the air ventilation in the public area within the Site are also be assessed (D12 ,D16-D22). Test points D13-D15 are

added to assess the area for the proposed public access between Sa Po Road and Kai Tak Road within the Site, D08 and D09 are added for the new private road within the Scheme. No test points are placed in the lower ground of the sunken plaza (e.g. entrance of the Government subway) as those areas are expected to be served by mechanical ventilation which is not the subject of this study.

3.3.4 The vertical locations of all test points within the Site (D07-D12) are 2mAG except the two test points at 1/F of the proposed development (D21 & D22). Test points D21 & D22 are located at 2m above the slab level of the Deck of the Sunken Plaza (8mAG). Test points D24 & D25 are open area within the gaps between the Baseline and Proposed residential towers, and they are both located at ~24 mAG. D07-D25 are not applicable to the Baseline Scheme and the test points are included for the assessment of the mitigation measure adopted in the Proposed Scheme.

3.3.5 A total of six Special test points are also assigned outside of the Site to assess the air ventilation impact to the immediate surrounding of the site. Two of the six test points are given to the podiums of the buildings that are located immediately outside the Site, which are High Place (D05) and Carlson Court (D06). The vertical distances for the test points are 12.4 m and 15 m respectively. Four special test points were assigned to the podiums of Le Billionaire and Billionaire Royale (D01-D04).

3.4 Assessed Parameters

3.4.1 According to the Technical Circular, Wind Velocity Ratio (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).

3.4.2 To quantitatively assess the air ventilation for the Site and in the surrounding area, two spatial averaged values, namely Site Air Ventilation Assessment (SVR) and Local Air Ventilation Assessment (LVR) will be used.

3.4.3 SVR is the weight average (weighted by the occurrence probability of the wind directions) of the VRs for the Site (i.e. P01-P42), to quantify the air ventilation of the Site. LVR is the weight average of the VRs for the whole assessment area, for quantify the air ventilation of the local region.

3.4.4 It should be noted that the VRs (also SVRs and LVRs) 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.

3.4.5 Averaged VRs for smaller areas (e.g. a street section) will also be presented to examine the effect of the building design to air ventilation of individual regions within the Assessment Area.

3.5 Studied Scenarios

3.5.1 Two scenarios were considered in this study. The first scenario is based on the design of the Baseline Scheme. The other scenario is based on the Proposed Scheme. The results of the scenarios will be compared to draw the conclusion.

3.5.2 In both scenarios, all buildings in the surrounding area are included. As the North-West of the Site has a rather open upstream within the Study Area, which would allow the adopted wind profiles, as stated in Section 2.3, to enter the pedestrian level of assessment area directly, resulting in an unexpectedly high VR at the NW boundary wind condition during the simulation. Therefore, some buildings in the North-West outsides of the surrounding area are also included. As stated in **Section 1.4**, the buildings in KTDA are made-up buildings based on the OZP's requirement. The buildings (and flyovers) included in the CFD are illustrated in **Figure 3.5**.

3.5.3 The main difference between the two scenarios is the design of the block layout of the development as shown in **Figures 1.3** & **1.4**. The Baseline Scheme have a range of shorter and wider buildings; while the Proposed Scheme have a range of taller and narrower buildings. The simplified 3D model of the development adopted in both scenarios are illustrated in **Figures 3.6 & 3.7** for Baseline Scheme and Proposed Scheme, respectively.

3.5.4 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' setting will be explained later.

3.6 Computational Domain and Boundary Condition

3.6.1 The global domain size is 3000m (length) x 3000m (width) x 1500m (height) centered at 837870.2641 m (E), 821200.4520 m (N). All the buildings within the surrounding area have been included in the model. The distance between the sides boundaries of the domain and the buildings are more than 5 times the highest building adopted. The Blockage ratio is less than 3% for all wind directions. The domain boxes were built in

the way that the prevailing wind is perpendicular to the flow inlet and outlet, while parallel to the side boundaries.

3.6.2 Velocity inlet has been applied on the flow inlet using data provided as stated in **Section 2.3**. Outflow condition (fixed value for pressure, zero gradient for other variables) has been applied on the flow outlet. Free slip condition has been applied on the top boundary and two side boundaries. **Figure 3.8** shows the boundary conditions using the southerly wind direction (180°) as an example.

3.6.3 The computation domain has been discretized by triangle and tetrahedral meshes for 2D surfaces and 3D volumes, respectively. The triangle meshes on the surface of buildings and flyovers are mostly in the range of 1m – 10m. The tetrahedral meshes with size of 1m - 80m were 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, 4 viscous layers with a total thickness of 1.6m were applied on the Ground. The different in size of neighborhood grids, also called grid expansion ratio, are in the range of 10%-20% for the whole domain. Generally, smaller grids were placed near the building surfaces and ground in order to resolve the near surface flow properly. The meshes adopted in the model are illustrated in **Figure 3.9 & 3.10**.

3.7 Model Setting

3.7.1 The RNG k-epsilon model has been used in this study as it can provide better results than the standard k-epsilon model. Wall functions are applied on the solid boundaries, i.e. ground and building facades, to account for the turbulence, generated by flow over surfaces.

3.7.2 SIMPLE algorithm is adopted to handle the velocity-pressure coupling.

3.7.3 Convergence criterion is used to control when the iteration will stop. When the residual value reaches the target tolerance value, the iteration will stop and progress to the next step. For iterations of individual variable, a tolerance of 1e-7 was applied to the pressure equation; a tolerance of 1e-8 was applied to the momentum equation; and a tolerance of 1e-6 was applied to the turbulence related equations. For the velocity-pressure couple (SIMPLE algorithm), a tolerance of 1e-4 was used for the pressure and turbulence parameters, and a tolerance of 1e-5 was used for the flow velocities. By nature, the RNG k-epsilon model is harder to converge compared to the Standard k-epsilon model. When the variables cannot achieve the target residual due to the nature of turbulence model, the model is assumed to be converged when the residual remains below < 5e-4 for a

sufficiently long time (> 50% of the total running time). A summary of the model setting can be found in **Table 3.1**.

Table 3.1 Summary of Modeling Settings

Software	Pre-processing	Salome 8.5.0
	Processing	OpenFOAM 2.4.0 with GroovyBC
	Post-processing	ParaView
Domain Size	3000m x 3000m x 1500m (Width x Length x Height)	
Boundary Conditions	Inlet	Flow inlet
	Outlet	Outflow Condition
	Top	Free Slip Condition
	Sides	Free Slip Condition
	Ground and Building Surfaces	No Slip Condition with Wall Function
Grid Expansion Ratio	<= 20%	
Blockage Ratio	< 3%	
Primary Variables	U	Flow Speed
	P	Pressure
		Turbulence Kinetic Energy
	Epsilon	Dissipation Rate of Turbulence Energy
Residual (Individual Variable)	U	1e-8
	P	1e-7
	K	1e-6
	Epsilon	1e-6
Residual (SIMPLE Algorithm)	U	1e-5 (or stay below 5e-4 for half of the iteration steps)
	P	1e-4 (or stay below 5e-4 for half of the iteration steps)
	K	1e-4 (or stay below 5e-4 for half of the iteration steps)
	Epsilon	1e-4 (or stay below 5e-4 for half of the iteration steps)

3.8 List of Models

3.8.1 The wind environment of the site has been discussed in **Section 2**. The top 80% wind directions for both annual and summer condition will be adopted in this study (**Table 2.1 & 2.2**). The averaged wind speed at 500m will be adopted at the free stream flow velocity. As some wind directions and their corresponding wind speed in annual and summer are overlapped, only 14 wind conditions thus 28 models are required (**Table 3.2**).

Table 3.2 List of Wind Conditions Included in the AVA Study

Wind Direction		Averaged Wind Speed at 500m (m/s)	Occurrence Probability (Annual)	Occurrence Probability (Summer)
22.5	NNE	7	6.5%	
45	NE	6	9.0%	
67.5	ENE	6	11.4%	
90	E	7	20.2%	
90	E	8		8.4%
112.5	ESE	7	11.8%	10.0%
135	SE	6	7.0%	8.1%
157.5	SSE	6		7.7%
180	S	5	4.3%	
180	S	6		8.9%
202.5	SSW	6	5.9%	13.3%
225	SW	6	6.6%	15.9%
247.5	WSW	6		10.1%
270	W	4		5.2%

4. ASSESSMENT RESULTS

4.1 Previous Study

4.1.1 Although the result of this report should not directly compare with other AVA study due to the difference in model settings, size of computational domain, the geometry of the buildings in KTD area, wind environment, and etc. as stated in previous sections, the results in previous studies can still be served as validation purpose to ensure the results in the models of this study are not out of order.

4.1.2 Although there are a few AVA studies near the subject Site, not many have considered the increase in development density in KTDA. One suitable AVA study, "*Kai Tak Development Engineering Study Cum Design and Construction of Advance Works - Investigation, Design and Construction - Additional Services for Technical Study on Increasing the Development Density in Kai Tak*" (AVR/G/76). is available in Planning Department (PlanD) website.

4.1.3 AVR/G/76 covers the Subject Site of this study in its "group 20". Its ultimate scenario has considered the increases in development density in TKDA which is closer to the current OZP. Although AVR/G/76 covers a much larger area thus resulted in less grid resolution (minimum grid size of 0.5m in TKD area, 2m in other areas), and its testing point are not spread in the same way as the current AVA, its spatial averaged VRs should still be comparable to LVRs of the current models. The spatial averaged VRs of Group 20 in the Ultimate Scenario of AVR/G/76 are presented in **Table 4.1**.

Table 4.1 Spatial Averaged VRs of Group 20 in AVR/G/76 (Ultimate Scenario)

Annual Wind	Summer Wind
0.145	0.154

4.2 Model Results

4.2.1 2 Scenarios each with 14 wind configurations, as stated in **Table 3.2** have been conducted based on the methodology mentioned in **Section 3**. As the difference between two Schemes has occurred only on superstructures above the podium with minor difference on street level (Baseline Scheme with amenity areas and Proposed Scheme with split-level sunken plaza), whereas the test points are near ground level, it is expected the difference between the two Schemes should be small.

4.2.2 The SVR for both the Baseline and Proposed Scheme are 0.18 for Annual wind conditions. During summer, the SVRs are 0.18 in both Schemes. The LVRs in the Baseline Scheme and Proposed Scheme are both 0.17 for Annual and Summer. During Summer, the LVR become 0.14 for both Schemes. A summary of the predicted spatial averaged VRs of the test points are presented in **Table 4.2**. The detailed simulated VRs at individual test points are listed in **Appendix 4.1**. The bar charts for the comparison between the Baseline Scheme and the Proposed Scheme are also illustrated in **Appendix 4.1**. The contours of VRs at 2m above ground are illustrated in **Figures 4.1a** to **4.1n**.

4.2.3 The values of LVRs in this study is similar to the averaged VRs of Group 20 in AVR/G/76, even though the summer VR in AVR/G/76 is higher whereas the annual LVR in the current study is higher. The discrepancy could have many reasons, however, having comparable LVRs means the setting of the current CFD models can at least produce reasonable results, which is sufficient to serve the purpose for the comparison of two schemes.

4.2.4 From the small difference in SVRs and LVRs in two schemes, it is safe to assume that both designs have similar effect to the local wind environment in average. In order to examined the localised ventilation, the spatial averaged VRs have been broken into 12 zones for road sections and 4 zones for open areas. Similar to the SVRs and LVRs, the averaged VRs for each sub-zone also show little variations between the Baseline Scheme and the Proposed Scheme. It further proven that the design in the Proposed Scheme have little AVA impact to local area in comparison with the Baseline Scheme.

Table 4.2 Summary of Spatial Averaged Velocity Ratios for the Subject Site

Test Points for the Subject Site and Assessment Area	Base		Proposed	
	Annual	Summer	Annual	Summer
Overall				
Site Air Ventilation Assessment (SVR) (All P Points)	0.18	0.18	0.18	0.18
Local Air Ventilation Assessment (LVR) (All P & O Points)	0.18	0.17	0.18	0.17
Road Sections				
Kai Tak Road (P01-P18, O90-O95)	0.15	0.18	0.15	0.17
Prince Edward Road East Section (P19-P26, O21-O46)	0.24	0.21	0.26	0.21
Sa Po Road (P27-P37, O101-104)	0.15	0.15	0.18	0.18
Carpenter Road Section (near Carpenter Road Park) (O01-O04)	0.14	0.13	0.11	0.12
Carpenter Road Section (near Project Site) (P40-P42, O05-O07,O96-O97)	0.24	0.18	0.23	0.17

Shek Ku Lung Road (O08)	0.15	0.11	0.13	0.11
Lok Sin Road Section (O09-O15)	0.20	0.16	0.19	0.16
Nga Tsin Wai Road Section (O16-O20)	0.16	0.16	0.14	0.15
South Wall Road (O17, O47-O54)	0.15	0.19	0.14	0.18
Tak Ku Ling Road (O19, O55-O62)	0.14	0.15	0.14	0.14
Tung Tsing Road (O63-O68)	0.18	0.15	0.17	0.14
Roads in TKD Area (O69-O77)	0.16	0.16	0.15	0.16
Area within Site				
Public Area within the Site (G/F) (D07-D12)	[1]	[1]	0.17	0.13
Public Area within the Site (Landscape Deck on 1/F) (D21-D22)	[1]	[1]	0.17	0.14
New Private Road for the Proposed Development (D13-D15)	[1]	[1]	0.18	0.12
Podium within the Site (D23:D25)	[1]	[1]	0.10	0.09
Sunken Plaza at G/F (D12,D16-D21)	[1]	[1]	0.21	0.17
Public Area outside the carriageway at G/F for the Proposed Development (D08-D09)	[1]	[1]	0.18	0.15
Other Concerned Area				
Podium on Carlson Court (D06)	0.07	0.09	0.07	0.09
Podium on High Place (D05)	0.06	0.06	0.13	0.10
Carpenter Road Park (O78-O88)	0.18	0.12	0.16	0.13
Shek Ku Lung Road Playground (O105-O119)	0.28	0.18	0.27	0.19
Tak Ku Ling Playground (O98-O100)	0.19	0.15	0.19	0.15
Po Yan Oblate Primary School (0107-O111)	0.13	0.14	0.13	0.13
Le Billionaire & Billionaire Royale (D01-D04)	0.23	0.18	0.21	0.17
[1] Those locations are not applicable to Baseline Scenario				

4.3 Flow Penetration

4.3.1 The spatial averaged VRs have been examined in previous section and no significant overall difference between the two Schemes have been observed. The major difference between the two Schemes are the arrangement of the buildings and the gaps created between the towers above the podium with minor difference on street level (Baseline Scheme with amenity areas and Proposed Scheme with split-level sunken plaza), therefore it is expected that results at certain test points for both Schemes shall not be consistent and the results produced are aligned with the expected. However, this give little, if any, information to the flow penetration of the Site.

4.3.2 Two major wind directions for the site are the east direction for annual and South-West direction for summer. For the South-Western wind, the upstream wind flow can go along the Prince Edward Road East and then reaches the downstream area.

4.3.3 The design of the current Schemes offers three potential wind paths for the eastern wind penetrating the Site. The first is the open area in the southern part of the Site, as no large superstructure in that region and its upstream location is roads, it is expected that will become a major wind path in future. The second is the vehicle running-in/out located on ground floor. As the size of the opening is limited, and its direct upstream area is blocked by the Regal Oriental Hotel, its effect is very little. Since the above two opening are presented in both Schemes, no comparison for them can be made by the current methodology. The third potential wind path is the gap between the residential towers which is only available above the podium floor. Generally, opening for wind path should be located on ground to maximised its effect. However, when there are several long and narrow street canyons in the downstream area perpendicular to the wind direction, the flow at roof level of the downstream street canyon become important.

4.3.4 When there are several long and narrow street canyons in the downstream area that lies perpendicular to the wind direction, the wind pattern will behave like skimming flow regime (Oke, 1988)[4] as illustrated in **Figure 4.2**. In skimming flow regime, the upstream flow in the pedestrian level cannot enter the downstream street canyons. The mean flow within the street canyon cannot escape the roof level of the canyon, instead, the air exchange of the canyons is mainly relied on turbulence exchanges occurring at the roof level. Therefore, the mean wind speed and the VRs have little meaning in this case. The rate of turbulence exchange is expected to be a function of urban roughness (Ho YK, Liu CH & Wong MS, 2015)[5]. This kind of flow regime should be avoided in urban planning especially for the major wind direction as it will give the worst ventilation.

4.3.5 The design of the building in the subject site has little effect to the overall flow turbulence in the surrounding as the site area is not significant. The turbulence exchange would only be affected by the change in the subject site unless the site area has amounted to entire district e.g KTD. In addition, the study of flow turbulence is not the objective of this study. However, the design of the superstructure in the subject Site can allow more fresh air reaching the roof level of the downstream street canyon thus more fresh air, rather than re-entrained aged air, can reach the pedestrians level of the street canyon.

4.3.6 In the Proposed Scheme, the open area provided at the Sunken Plaza at the south of the Site would allow plenty of airflow from the SW direction, the upstream wind flow can go along the Prince Edward Road East and then reaches the downstream area. However, in the Baseline Scheme, most of the SW wind approaching the residential

[4] Oke (1988), Street design and urban canopy layer climate, Energy and Buildings
[5] Ho YK, Liu CH & Wong MS (2015), Ho Building and Environment, v. 89, p. 345-355

towers (T4) is forced to go upward or on the Kai Tak Road or Prince Edward Road East before leaving the Site, resulting in lesser wind reaching the roof level of downstream area, hence the results at Sa Po Road (P27-P37) shows that the wind penetration along the SW direction in the Proposed Scheme has shown advantage over the Baseline Scheme. The streamline of the flow passing through the Site is illustrated in **Figure 4.3**.

4.3.7 Under the easterly winds, the Baseline Scheme may offer a better flow penetration due to the uniform gaps with larger cross sectional area, as indicated by the results at Kai Tak Road's test points. However, since the streets are long and narrow, the wind is forced to go upward by the buildings across the street after leaving the Site.

4.3.8 Apart from the easterly and south-westerly winds as discussed above, on the whole, the ventilation performance in both Schemes are similar when considering all simulated wind directions as shown by the SVR and LVR, however given that the designs in both schemes are quite different, the results in both schemes are would not be consistent at all test points.

5. CONCLUSIONS

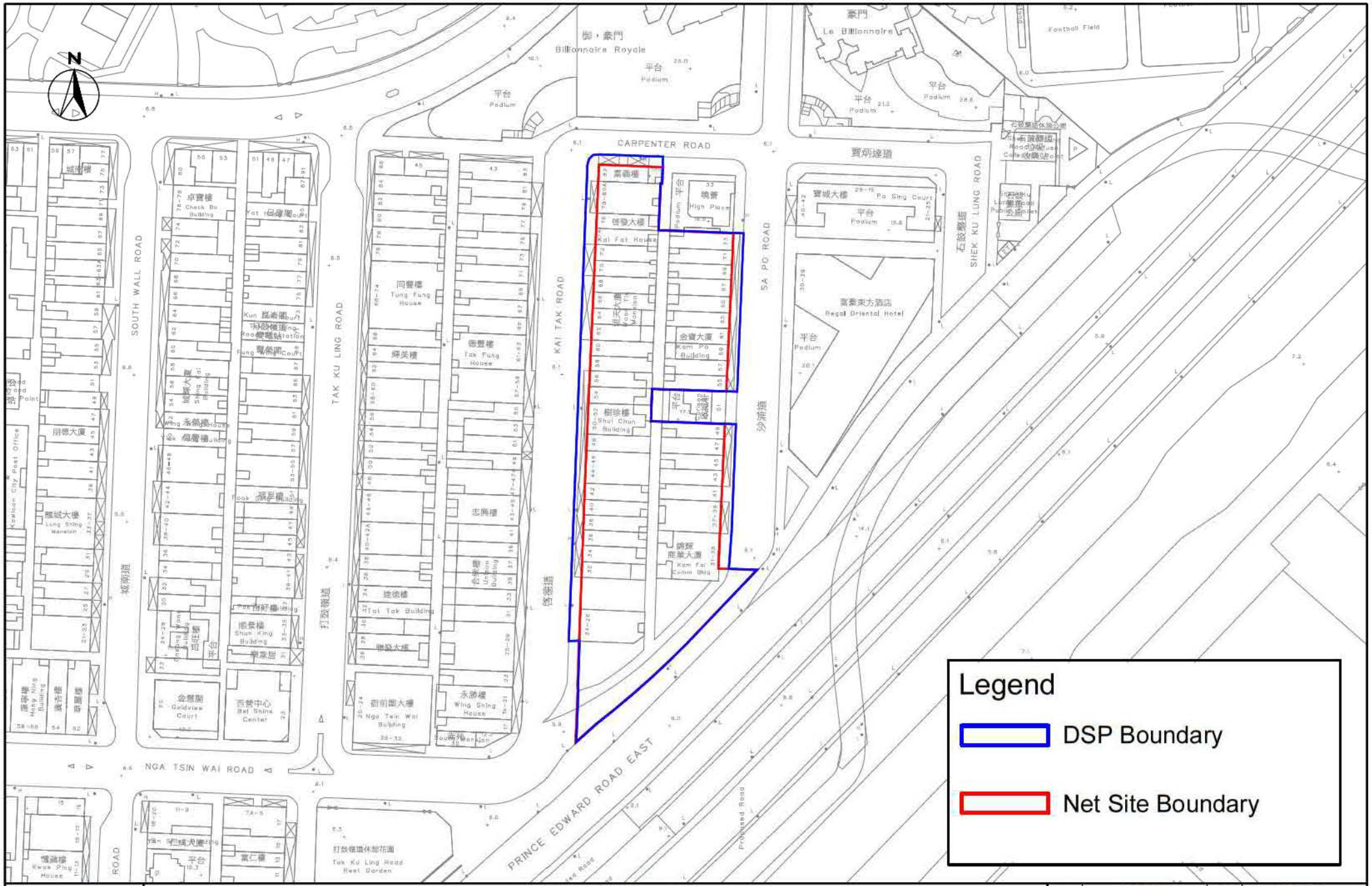
5.1.1 The Urban Renewal Authority (URA) has proposed a Development Scheme at Kai Tak Road / Sa Po Road Development Scheme (KC-015) (the Proposed Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). An Air Ventilation Assessment (AVA) has been conducted in accordance with the recommendations of "*Feasibility Study for Establishment of Air Ventilation Assessment System – Final Report*" by Planning Department, and "*Technical Circular No. 1/06 on Air Ventilation Assessments"* by HPLB & ETWB to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

5.1.2 The microclimate around the Site for the two Schemes have been assessed by Computational Fluid Dynamics (CFD). The results in this study have been compared to previous study to ensure the trustworthiness of the model settings and reliability of the model results.

5.1.3 The models result suggest that the air ventilation performance of the Proposed Scheme is similar to that of the Baseline Scheme thus no further air ventilation mitigation measures would be required for the Proposed Scheme. Further analysis for the south-westerly wind, which is one of the major wind direction, implies that the Proposed Scheme has the advantage in terms of ventilation performance of the downstream street canyons.

5.1.4 In conclusion, no adverse AVA impact is anticipated for the Proposed Scheme in compare with the Baseline Scheme, which follows the requirement in the latest OZP.

FIGURES



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Location of the Development Scheme Plan

SCALE	1:1000 @ A3	DATE	Dec 2018
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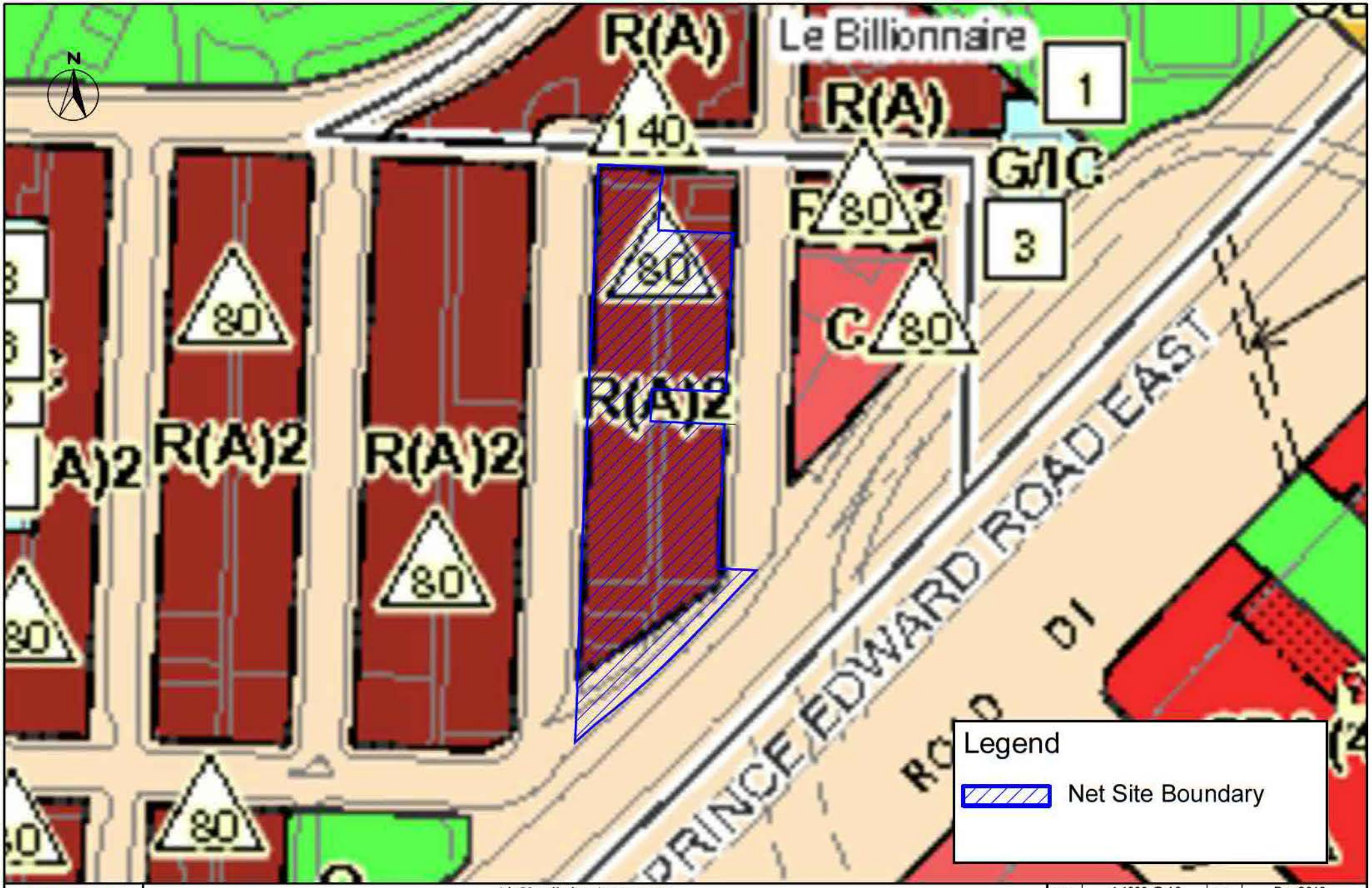
JOB No.	IA17019/KC015	DRAWING No.	1.1
		REV.	-



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

OZP Capture from Draft Ma Tau Kok OZP No. S/K10/23

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JOB No.	IA17019/KC015	DRAWING No.	1.2
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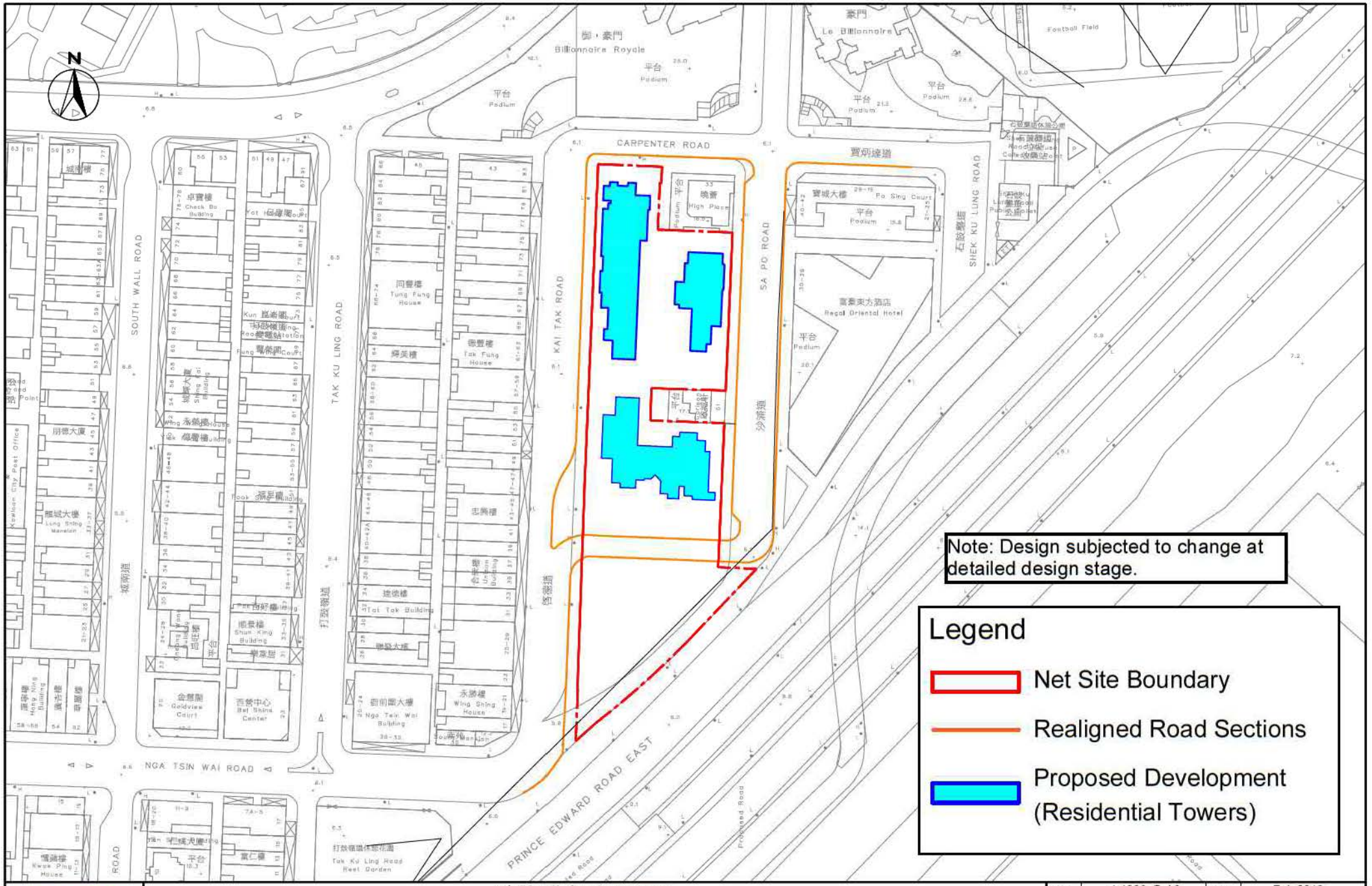

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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

General Layout of the Proposed Development

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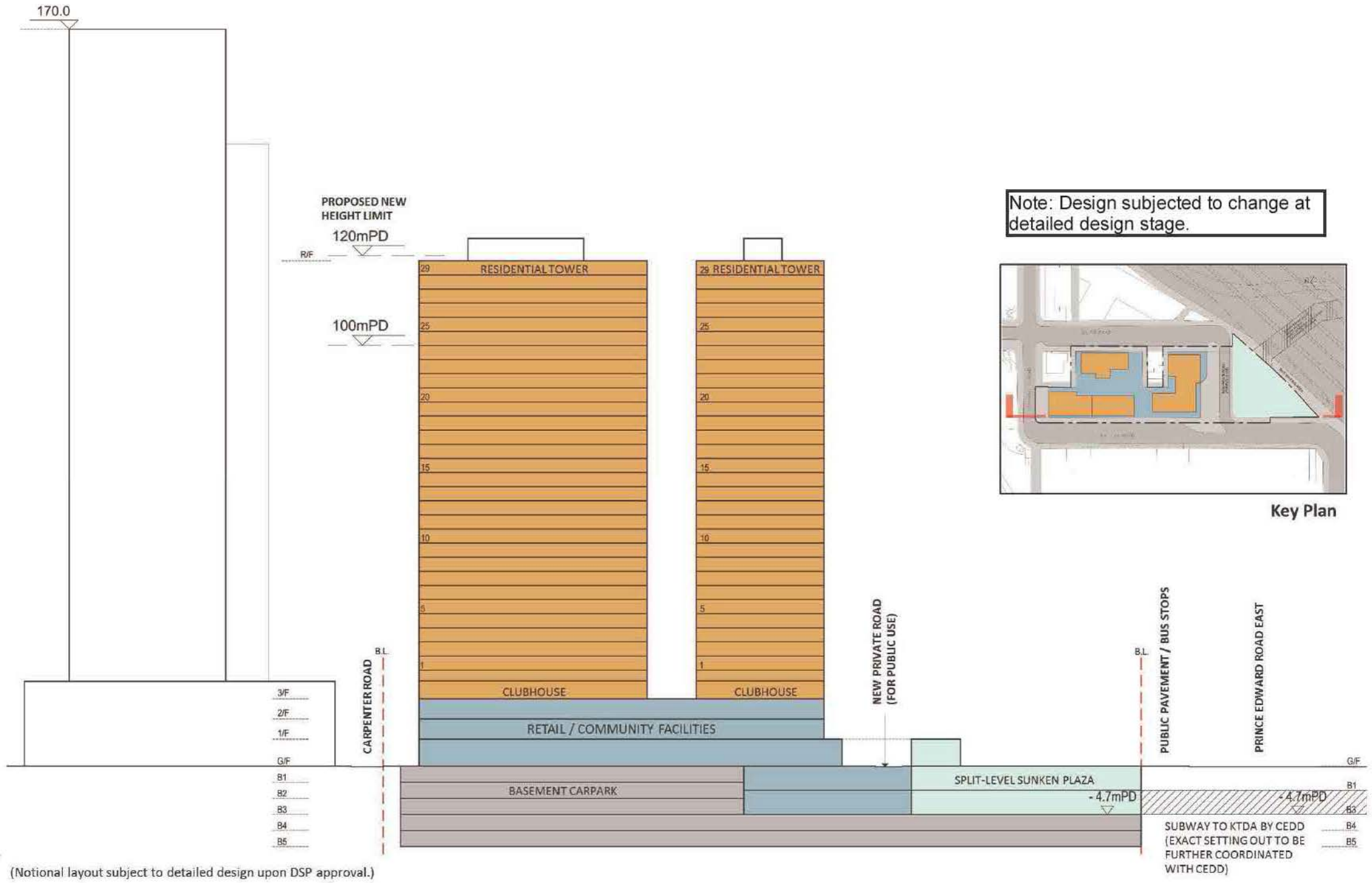
CHECK	KW	DRAWN	CC
JOB No.	IA17019/KC015	DRAWING No.	1.3
		REV.	-

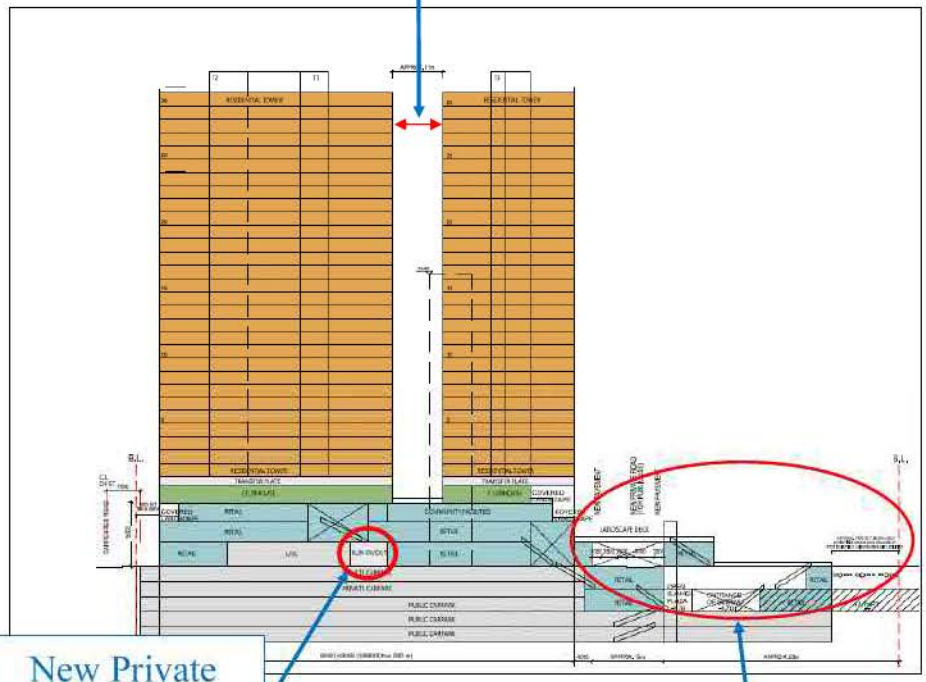


(Notional layout subject to detailed design upon DSP approval.)

Figure 1.4 Scheme Section of the Proposed Development

1:750 (A3)
26 NOV 2018

Gap Width:
~11m



New Private Road for enhanced flow

Split-level Sunken Plaza with landscaping and open area

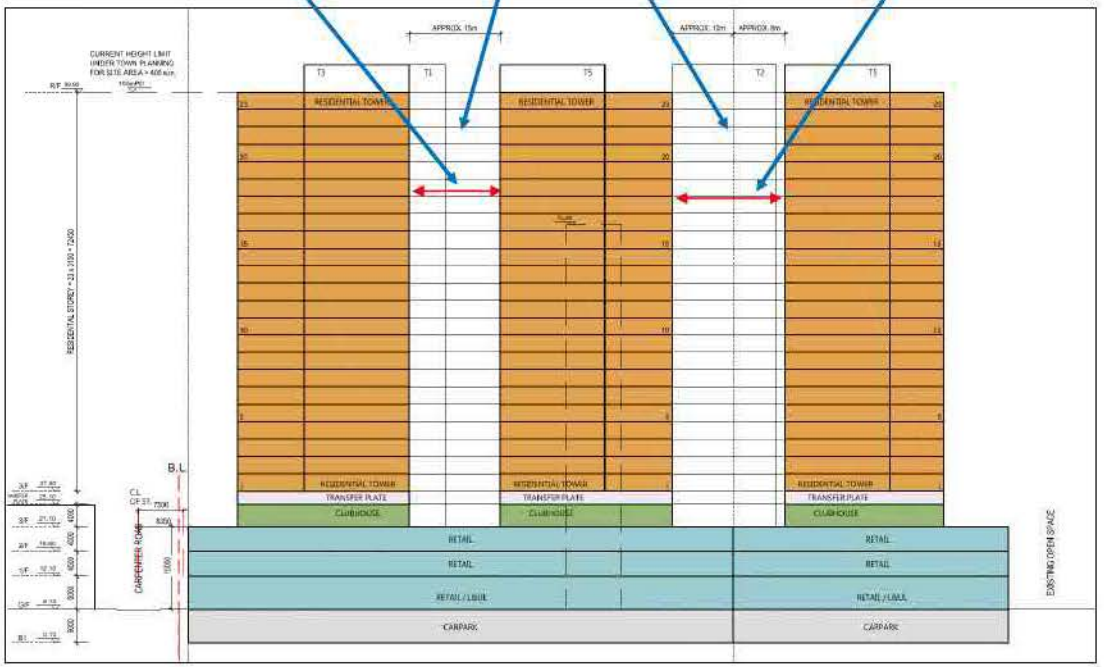
Proposed Scheme (120 mPD)

Note: Design subjected to change at detailed design stage.

Two Building with the same Building Height behind the Gap (Please refer to Figure 1.5b)

Gap Width:
~ 15 m

Gap Width:
~18 m



Baseline Scheme (100 mPD)

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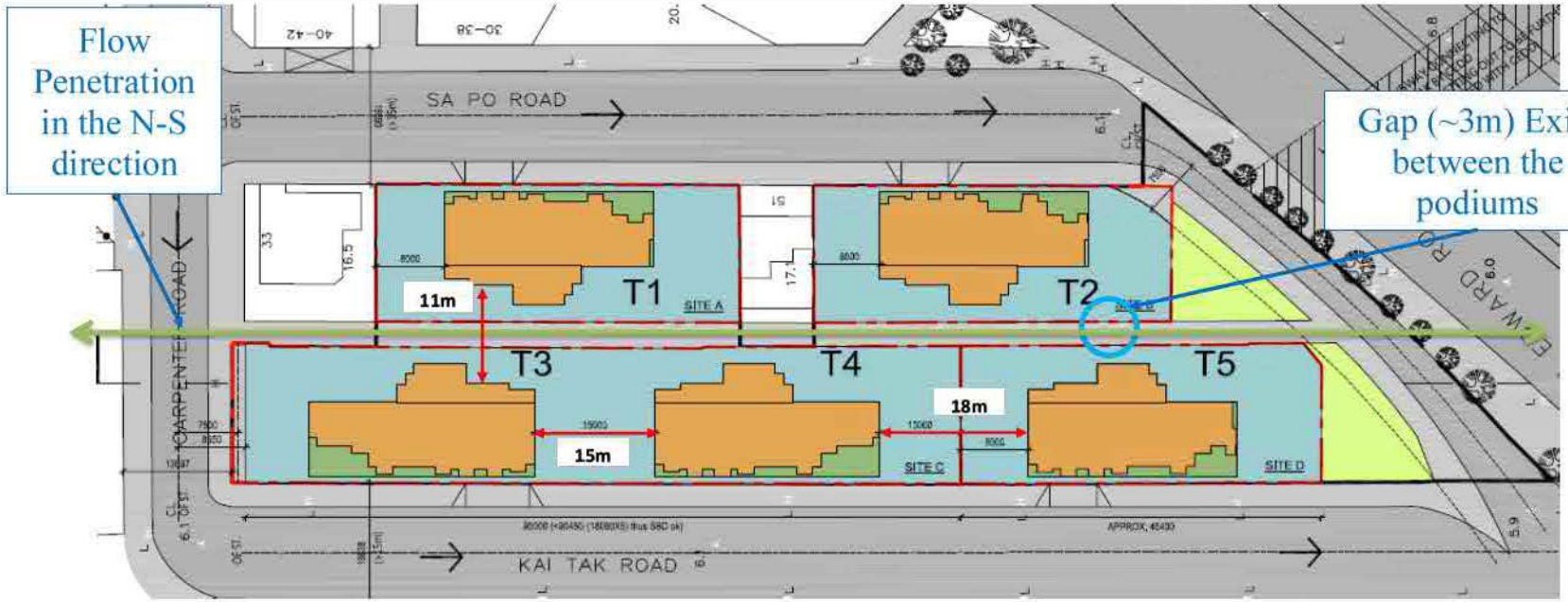
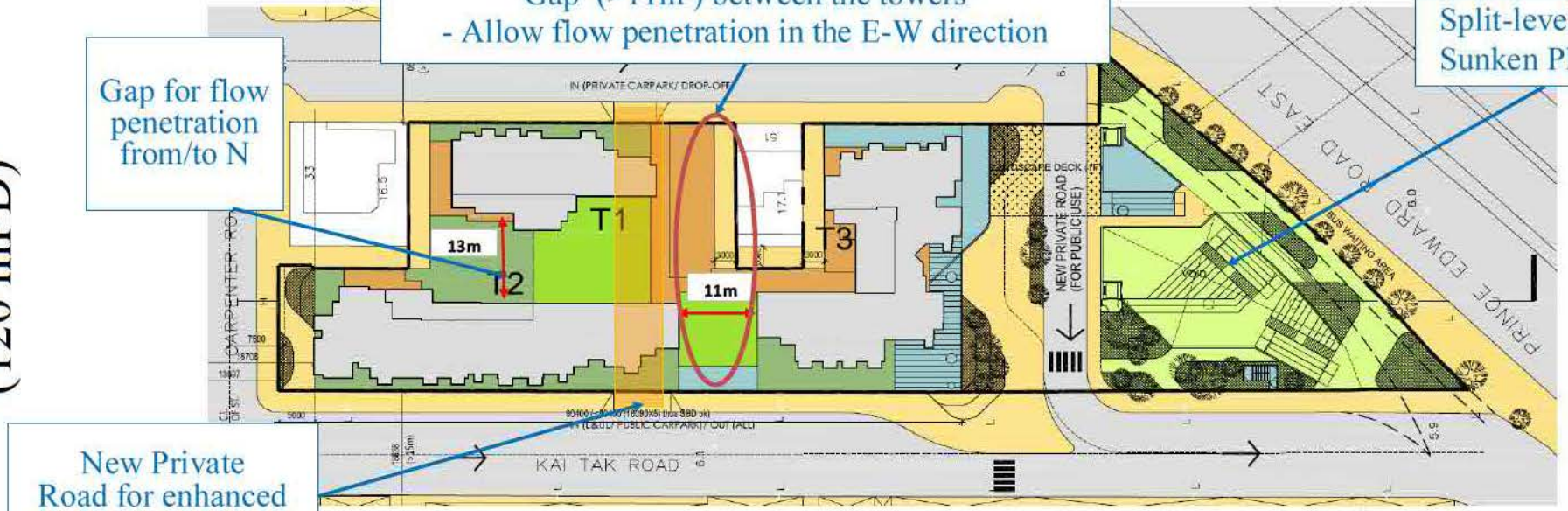
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Comparison of the Schemes

SCALE	N.T.S.	DATE	Feb-18
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO. 1.5a	REV. 1

Baseline Scheme (100 mPD)



Proposed Scheme (120 mPD)



Note: Design subjected to change at

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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Comparison between Designs of the Baseline and Proposed Schemes

SCALE	N.T.S.	DATE	Feb-18
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO. 1.5b	REV. 1



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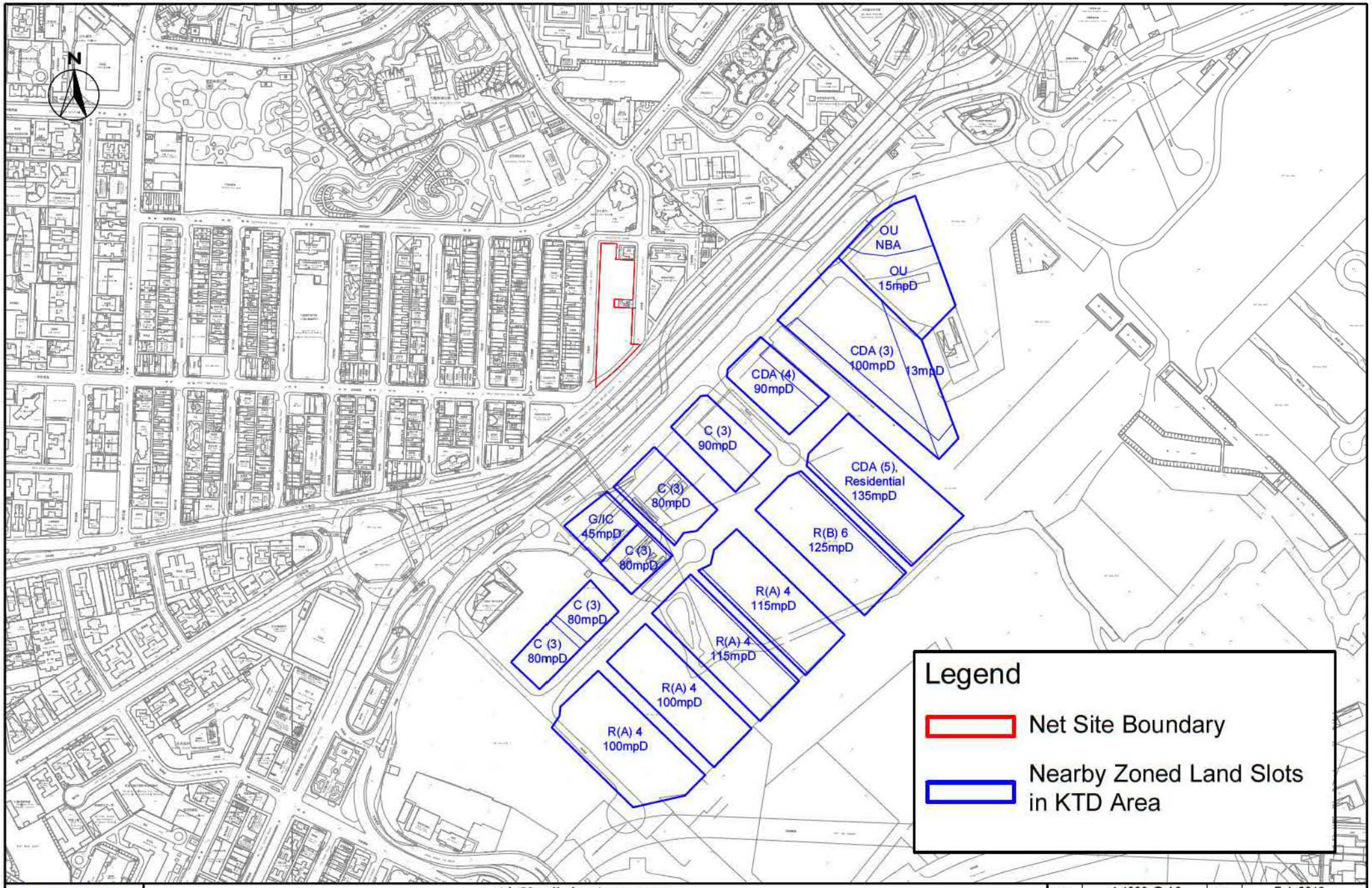
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Building Heights in the Surrounding Area

SCALE	1:1000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	CC
JOB No.	IA17019/KC015	DRAWING No.	1.6
		REV.	-



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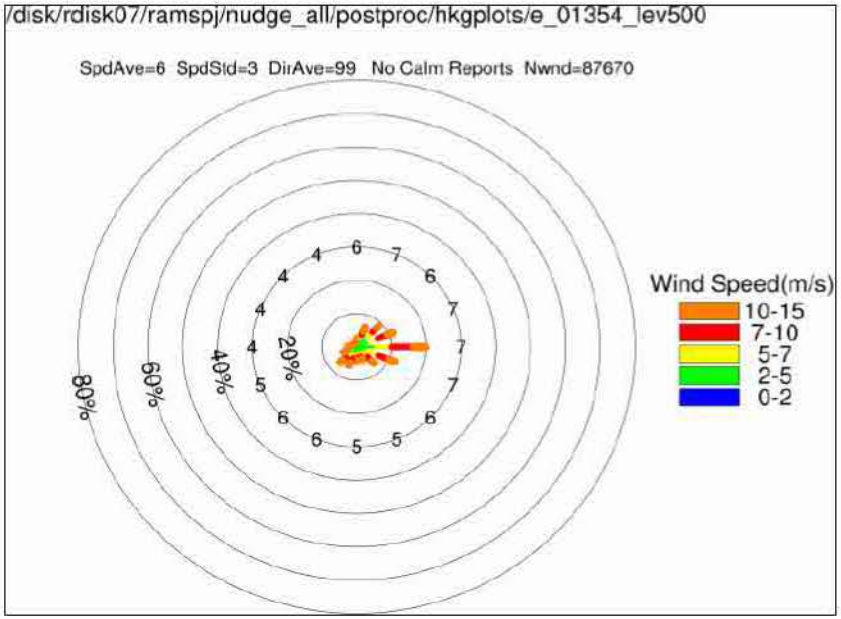
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

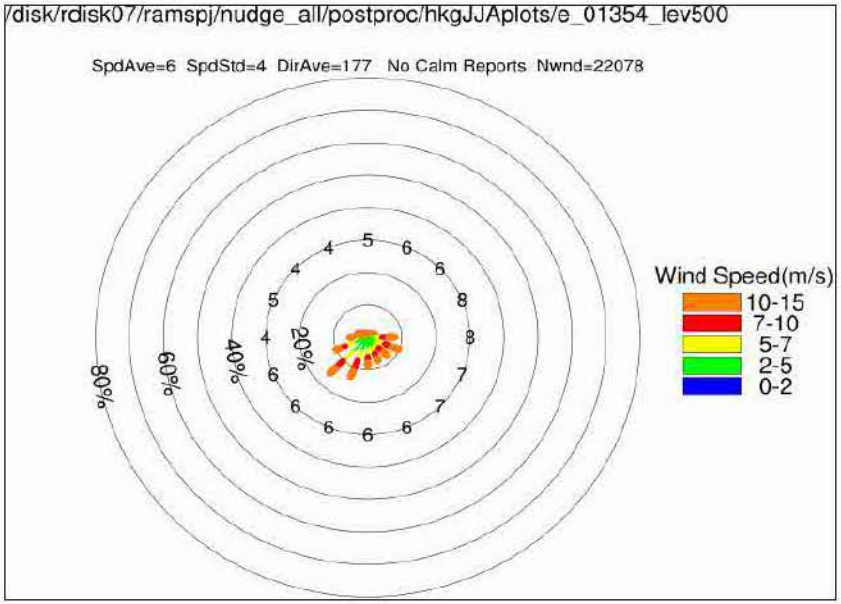
Zoned Land Slots Capture from Approved Kai Tak OZP No. S/K22/6

SCALE	1:4000 @ A3	DATE	Feb 2019
CHECK	KW	DRAWN	CC
JOB No.	IA17019/KC015	DRAWING No.	1.7
		REV.	-

Annual



Summer



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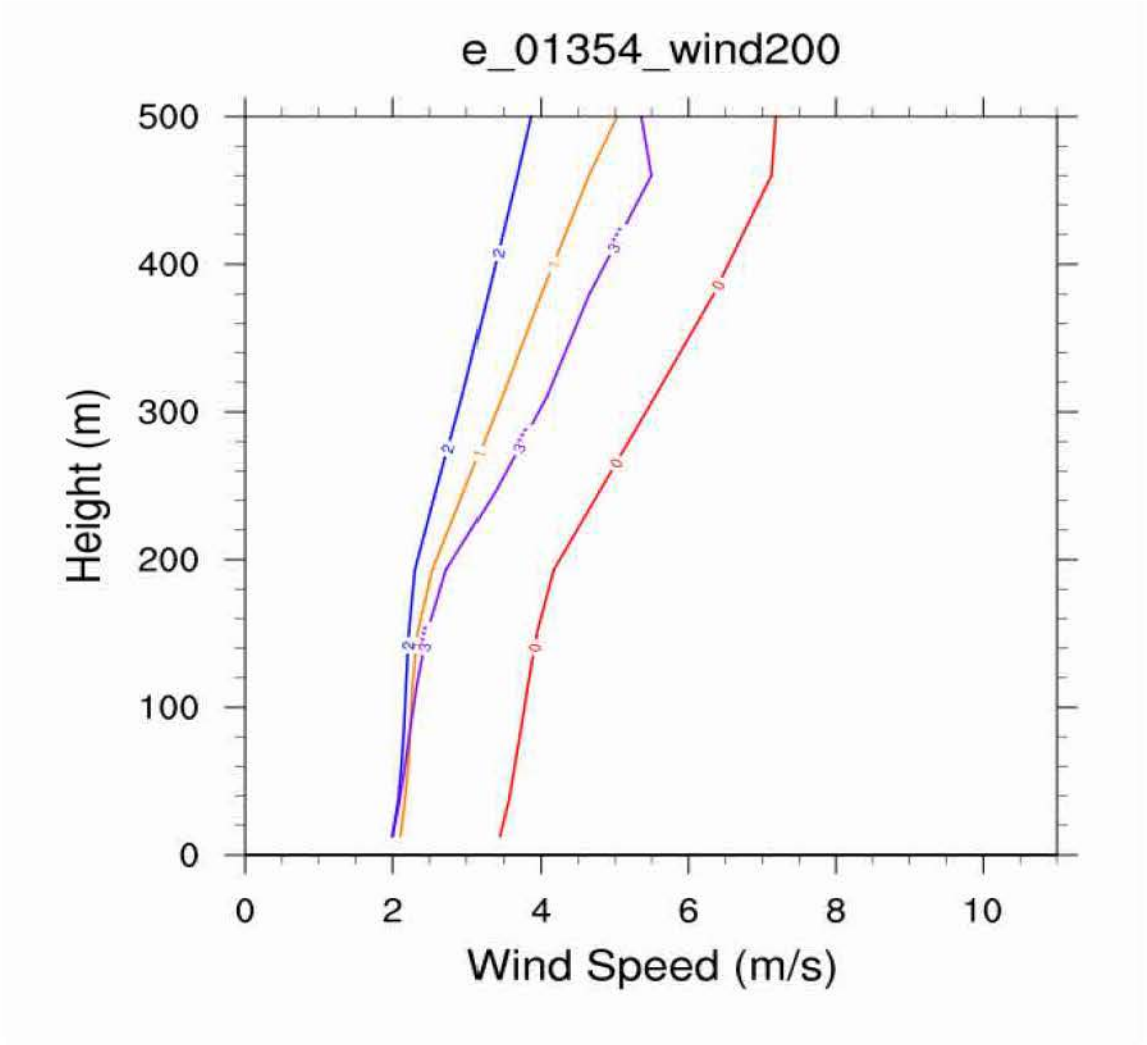
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
The Wind Roses at grid [084,045] from RAMS

SCALE	N.T.S.	DATE	Oct-18
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO. 2.1a	REV. 1



https://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/084045.html

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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
The Wind Profile from RAMS

SCALE	N.T.S.	DATE	Feb-19	
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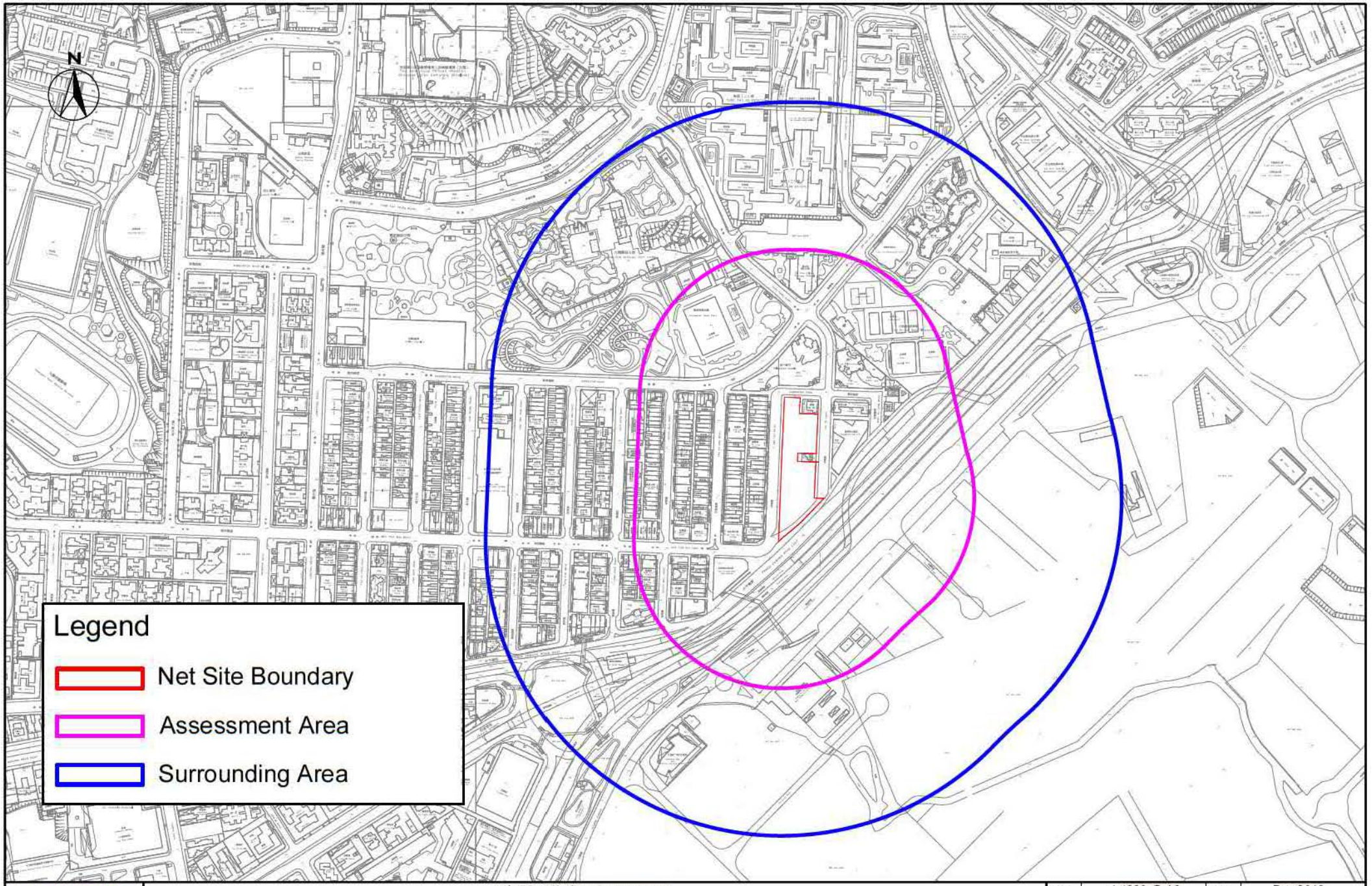
JOB NO.	IA17019/K	FIGURE NO.	2.1b	REV. 1



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Assessment Area and Surrounding Area

SCALE	1:4000 @ A3	DATE	Dec 2018
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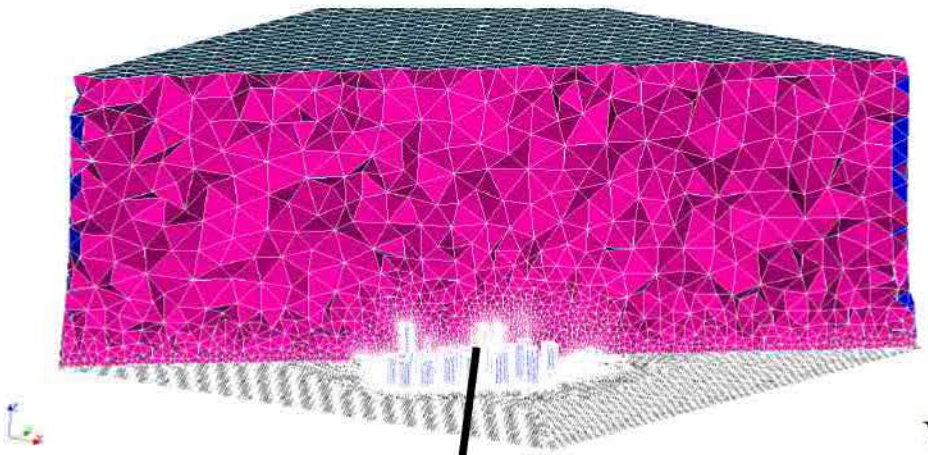
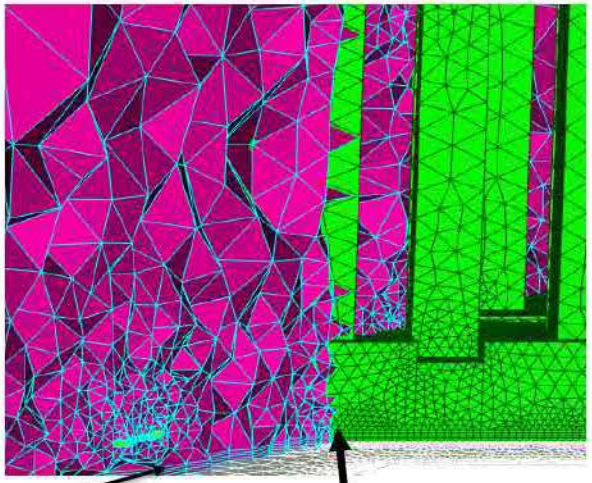
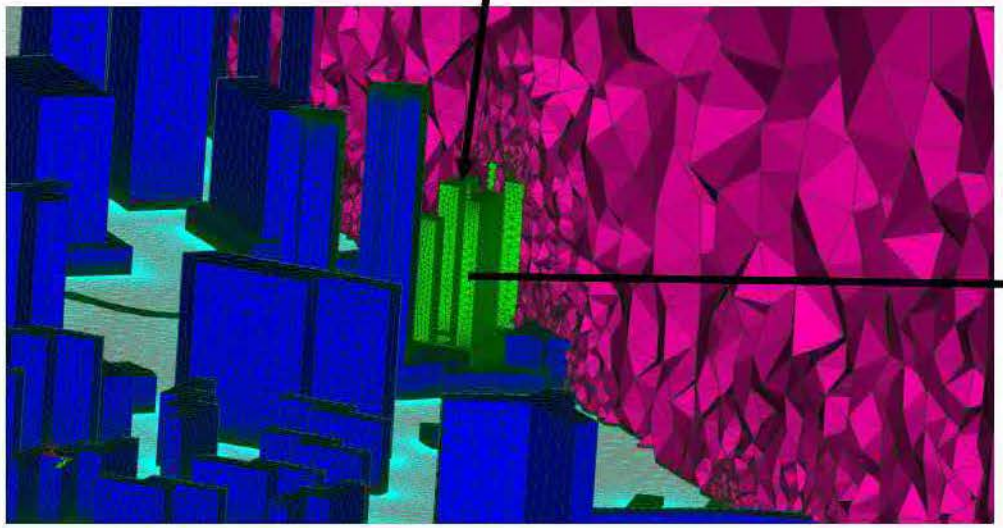
JOB No.	IA17019/KC015	DRAWING No.	3.1
		REV.	-

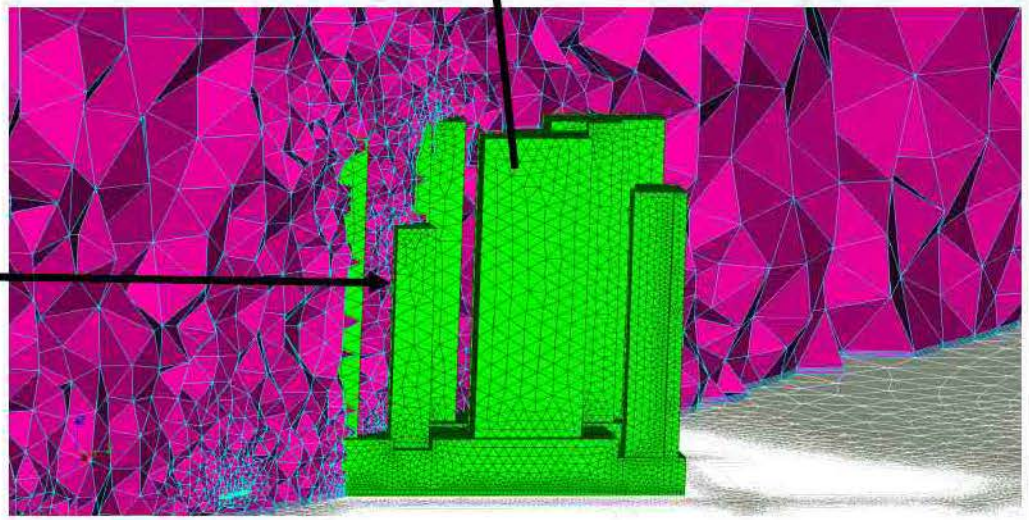




Viscous Layers at Ground

Near the Site





CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Meshes in 3D Space**	SCALE	N.T.S.	DATE Oct-18
		CHECK	KW	DRAWN CC
		JOB NO.	17019/KC0	FIGURE NO. 3.10 REV. 1



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Perimeter Test Points

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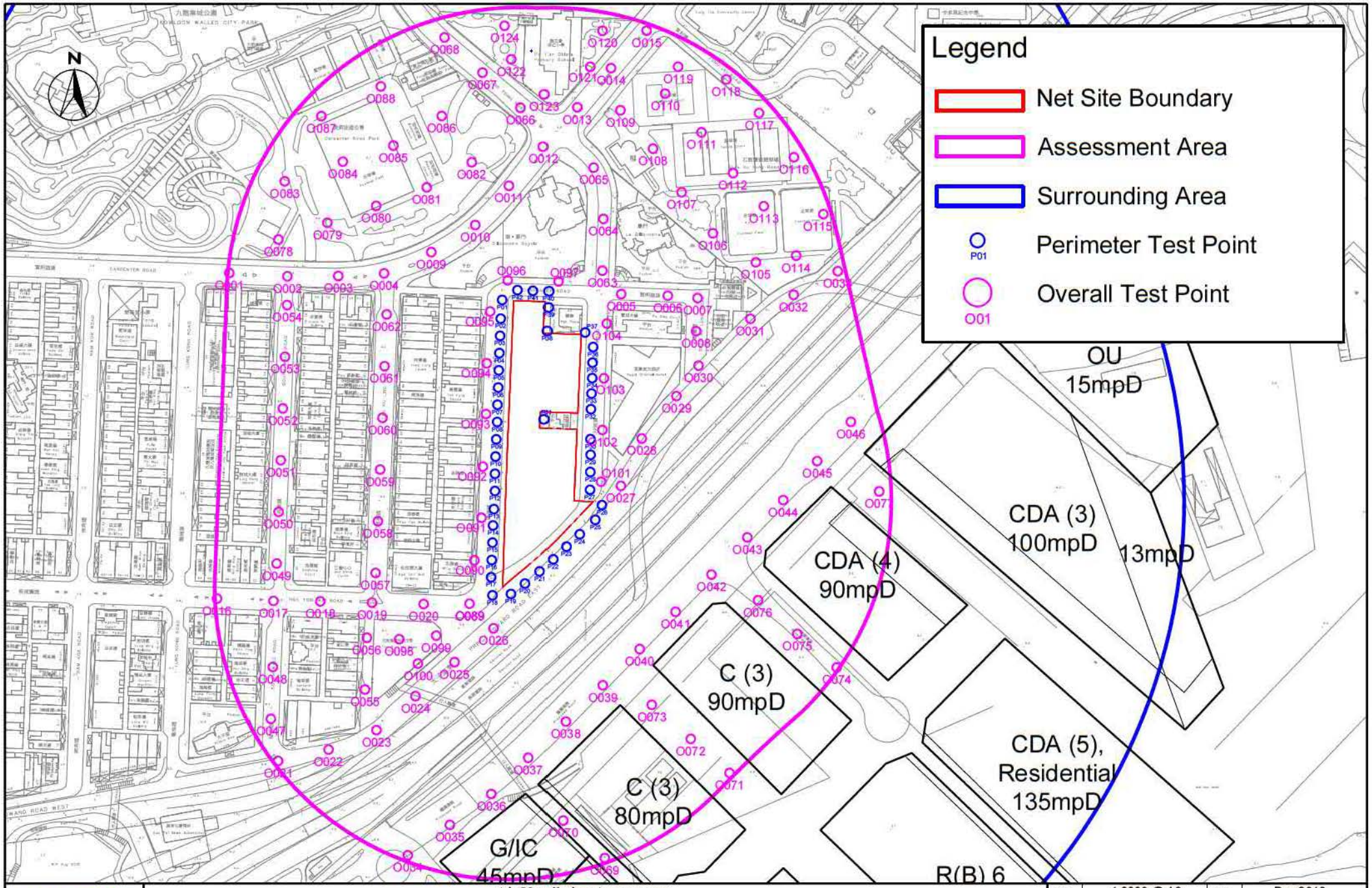
JOB No.	IA17019/KC015	DRAWING No.	3.2
		REV	-



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Overall Test Points

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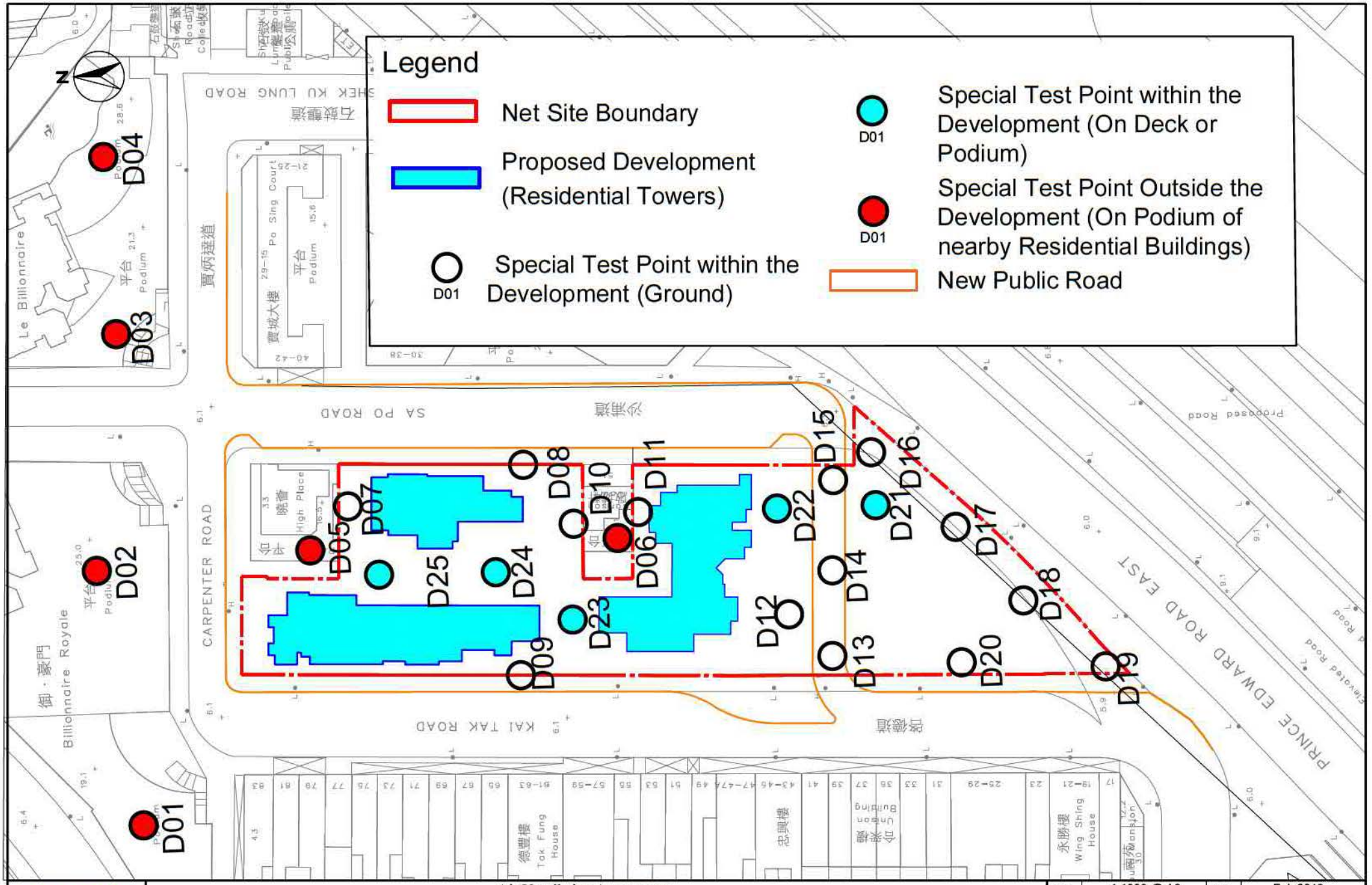
		REV.	-



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Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)

Special Test Points

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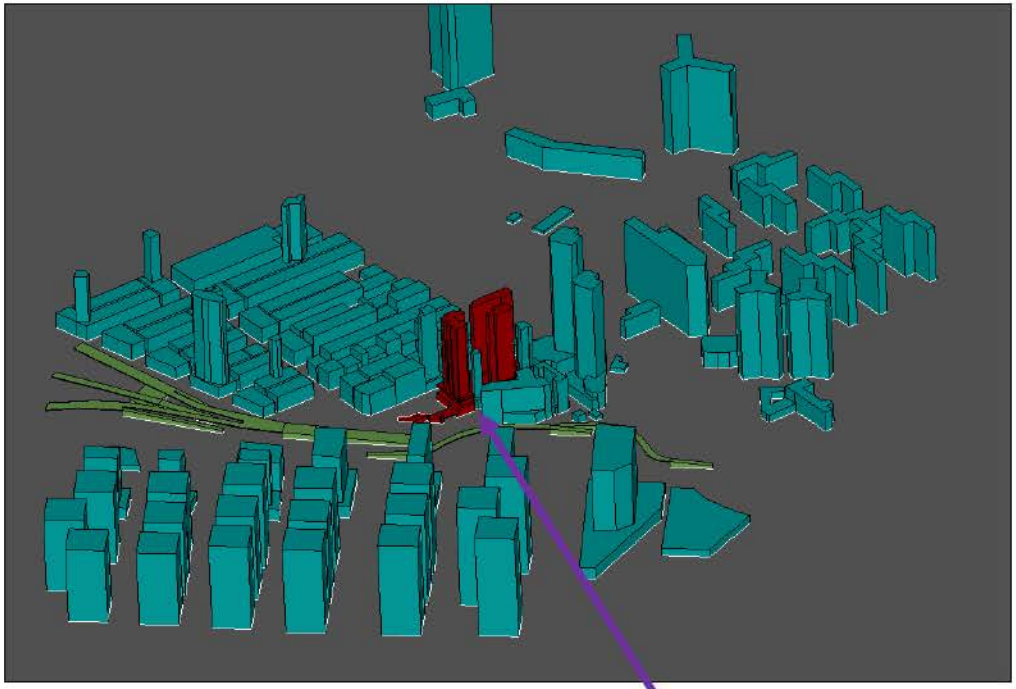
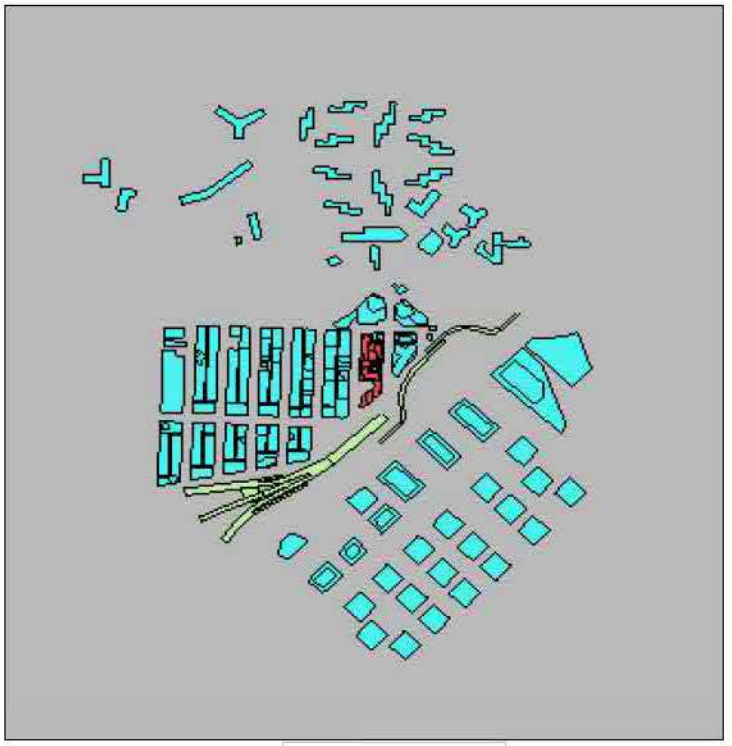
JOB No.	IA17019/KC015	DRAWING No.	3.4
		REV.	-





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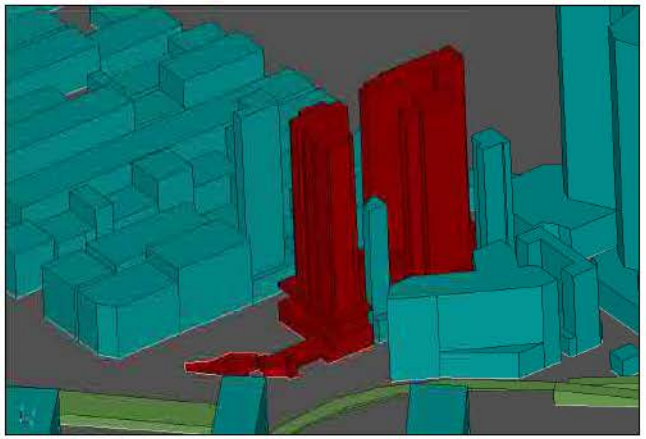

Site

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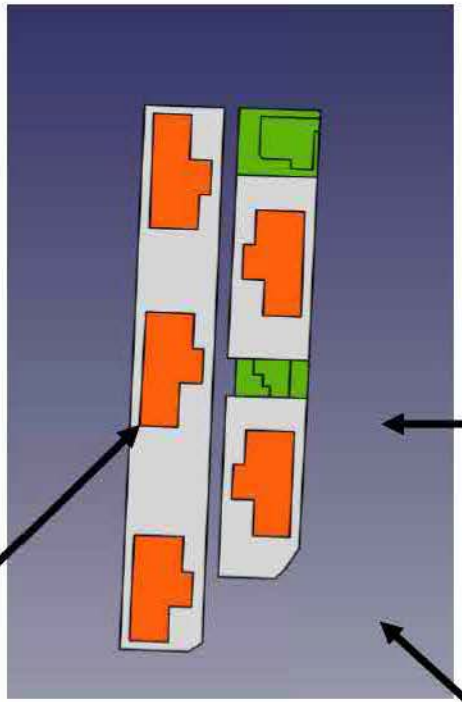
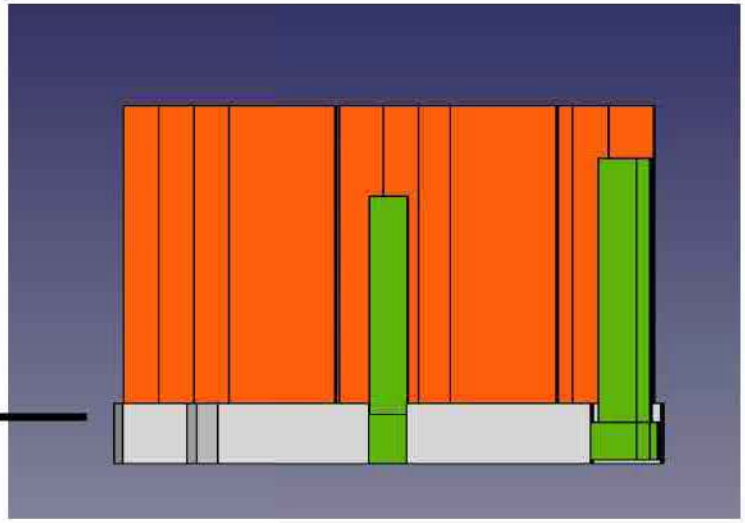
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Buildings Included in the CFD Models

SCALE	N.T.S.	DATE	Feb-19
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO. 3.5	REV. 1

Top





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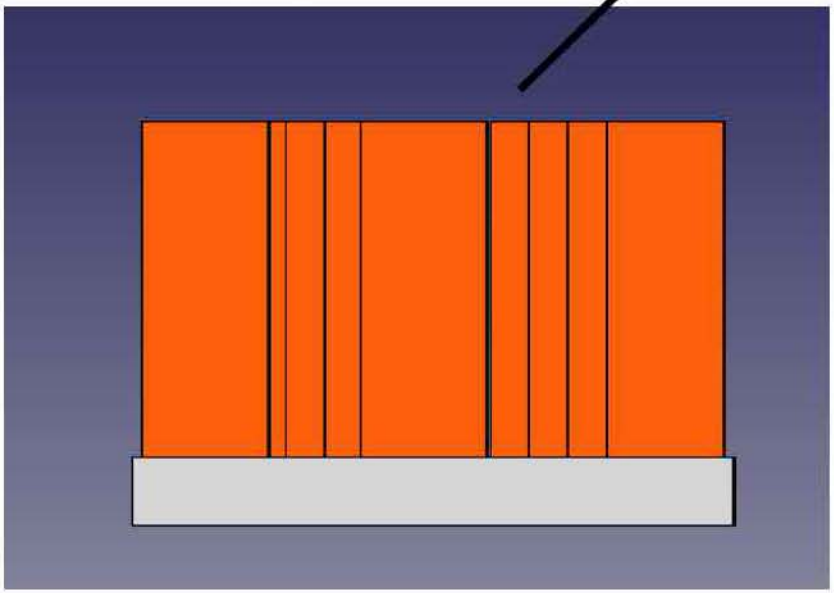

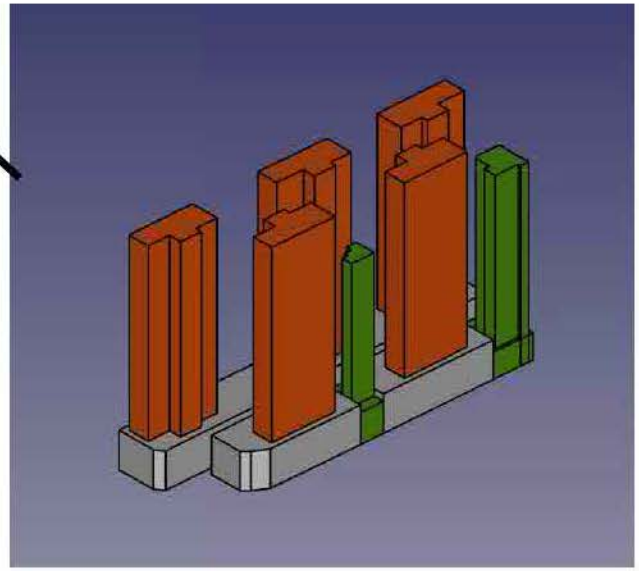

Note: The green buildings are the existing buildings

* The buildings in green are other buildings in the immediate surrounding of the site

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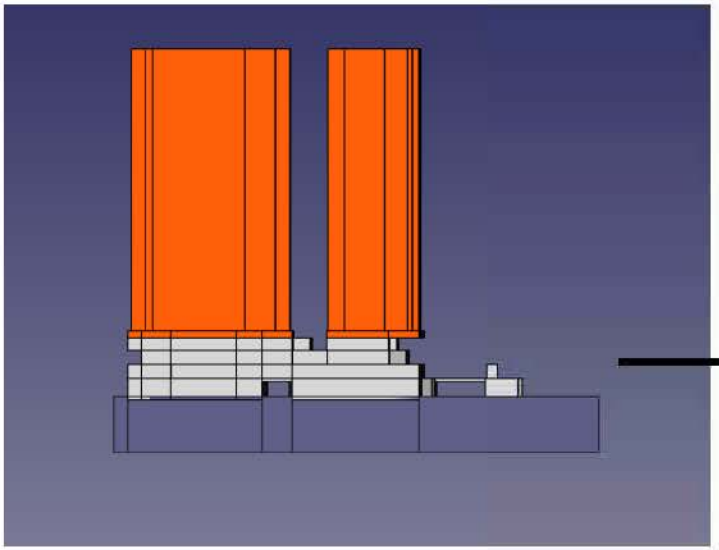
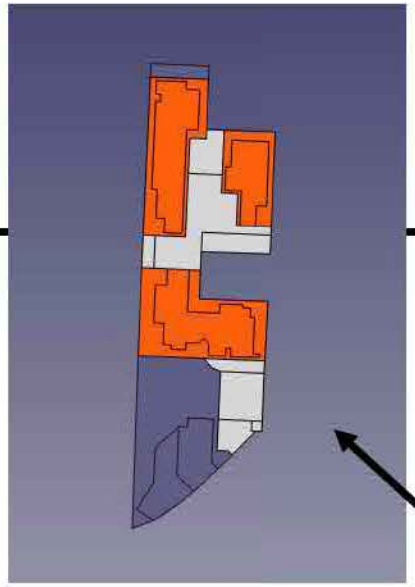
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
3D Model of the Baseline Building (Superstructure) adopted in CFD

SCALE	N.T.S.	DATE	Feb-19
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO.	3.6a
			REV. 1



Front



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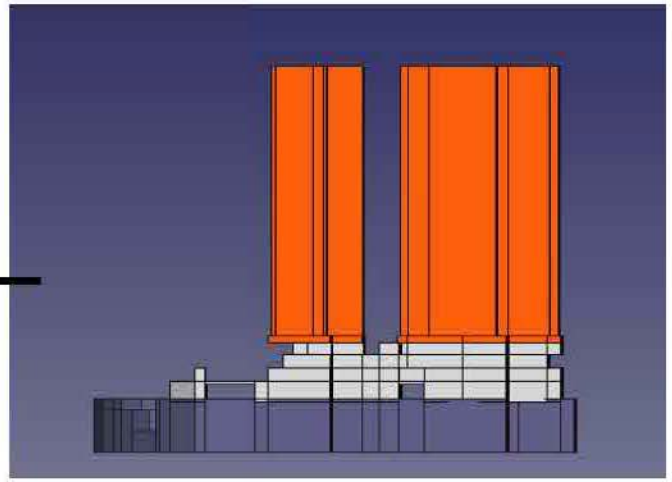

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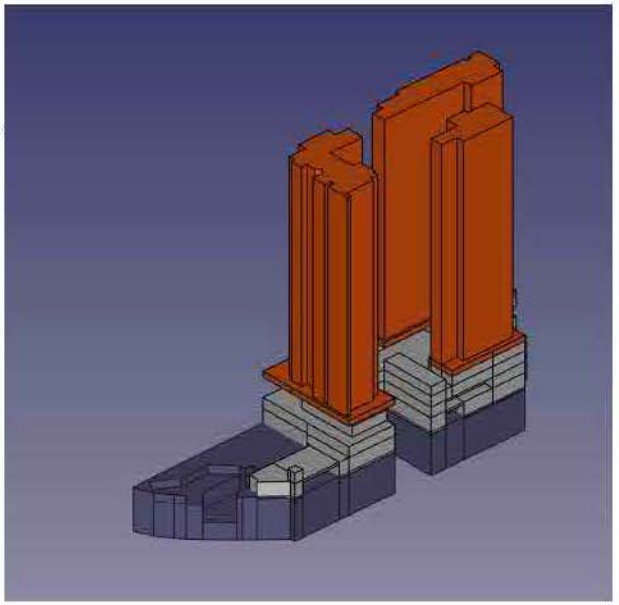

* The purple shaded structure underneath the grey region is the underground, which includes the part of the entrance area of the underpass

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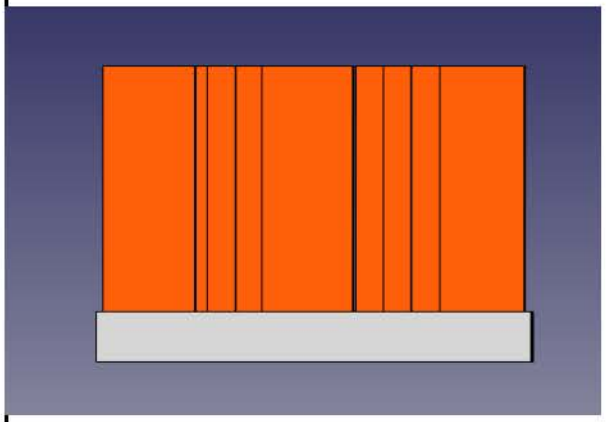
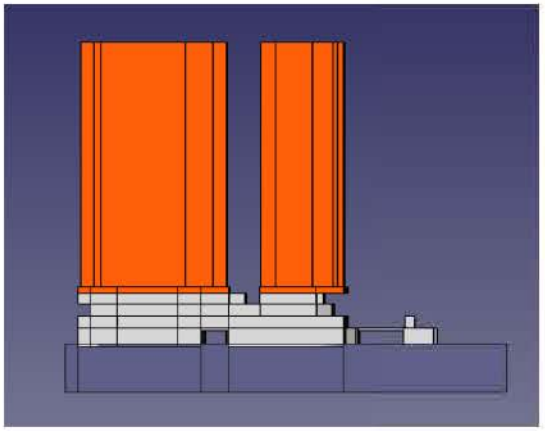
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
3D Model of the Proposed Building (Superstructure) adopted in CFD

SCALE	N.T.S.	DATE	Oct-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	3.6b	REV. 1

Baseline

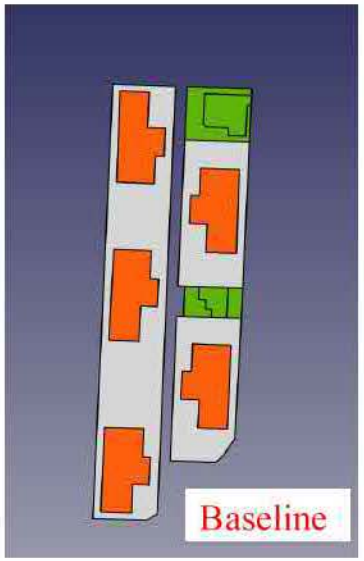


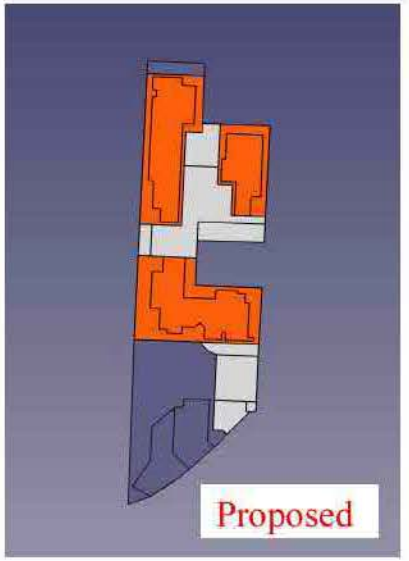
Proposed



Note: The green buildings are the existing buildings.

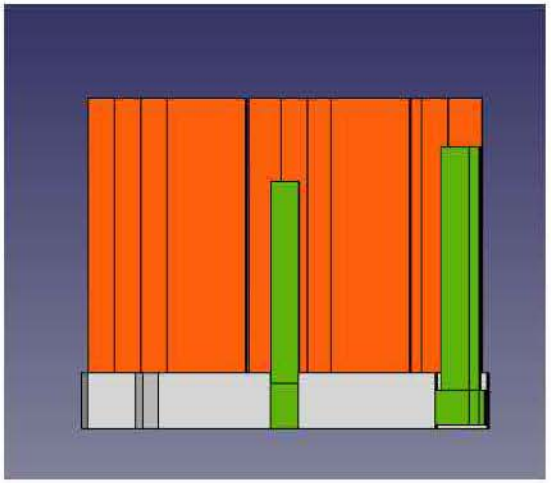
Front



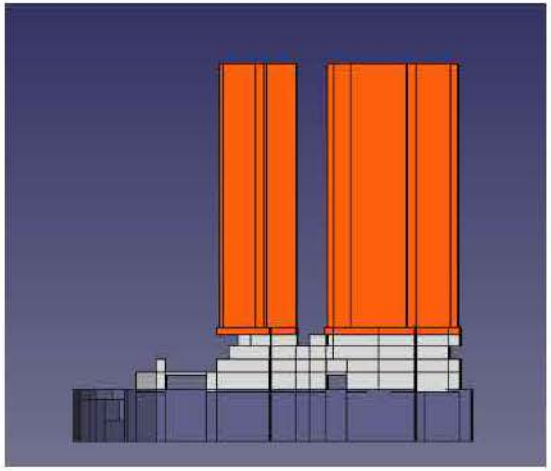


Top

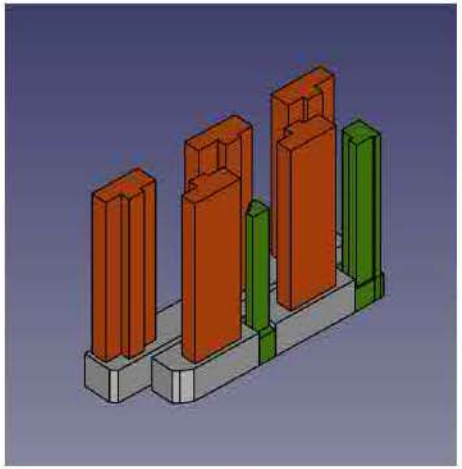
Baseline



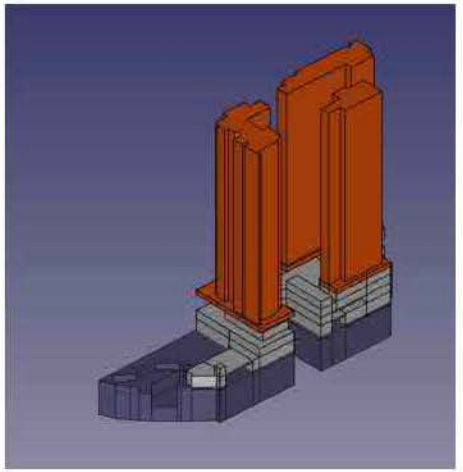
Proposed



Back



Baseline



Proposed

Orthogonal

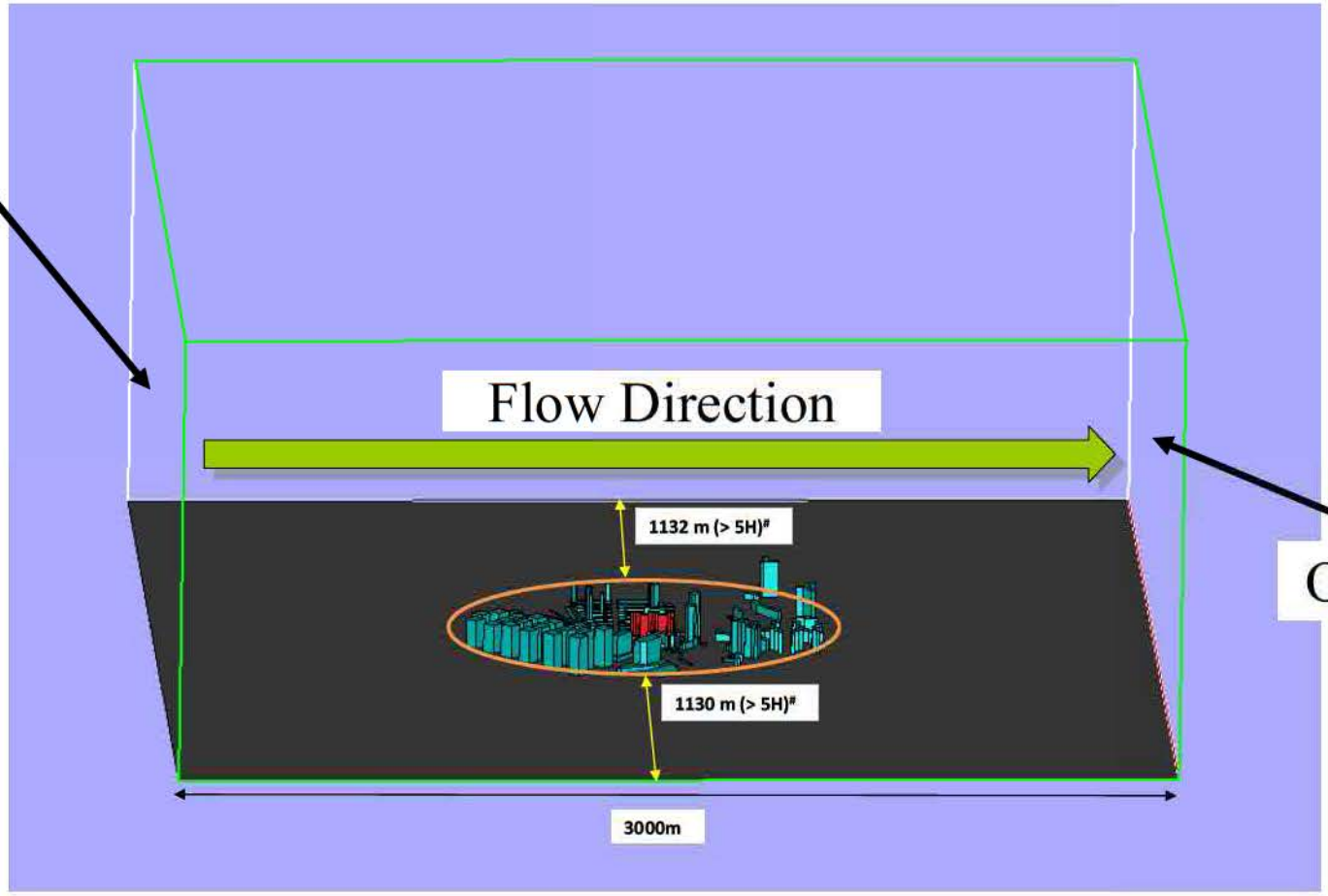
CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Comparison between the Baseline and Proposed Model

SCALE	N.T.S.	DATE	Feb-19	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	3.6b	REV. 1

Top and Side Boundary: Free Slip

Velocity Inlet

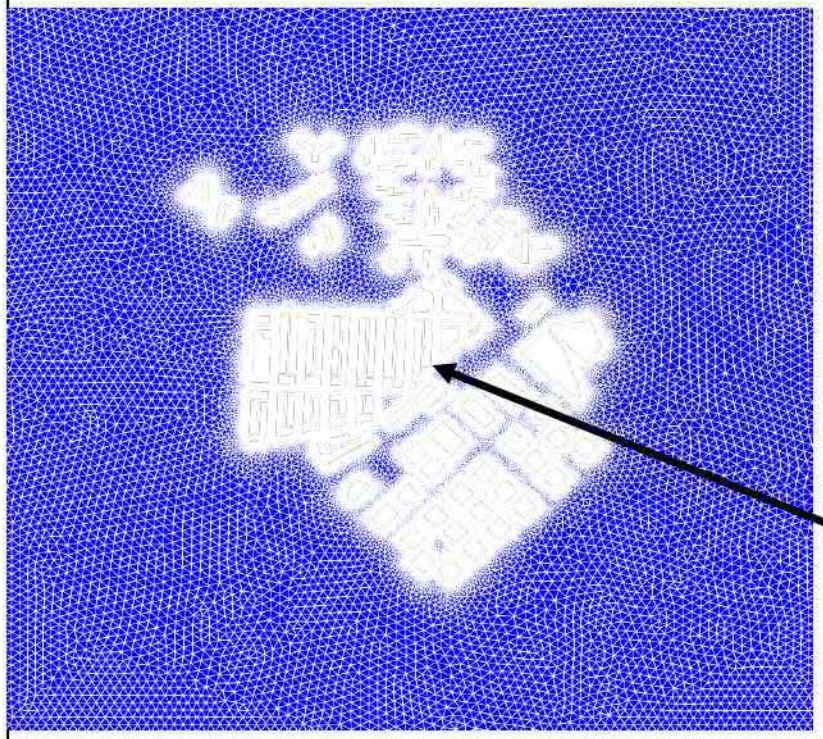


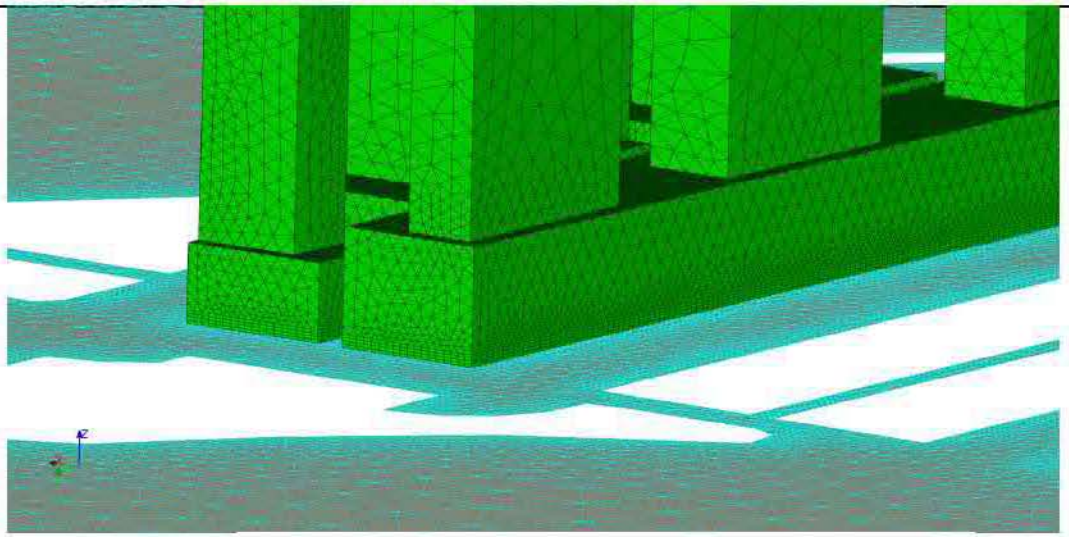
Outflow

Ground & Building Walls: No Slip

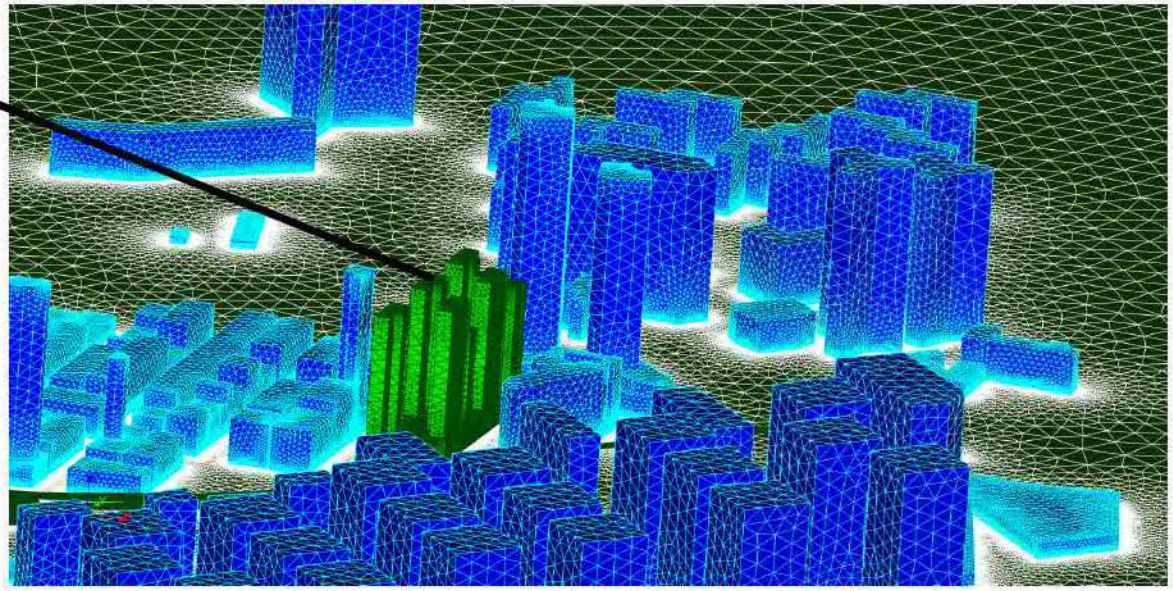
* Setting for 180 deg Wind is adopted in this example

Top





Viscous Layers at Ground

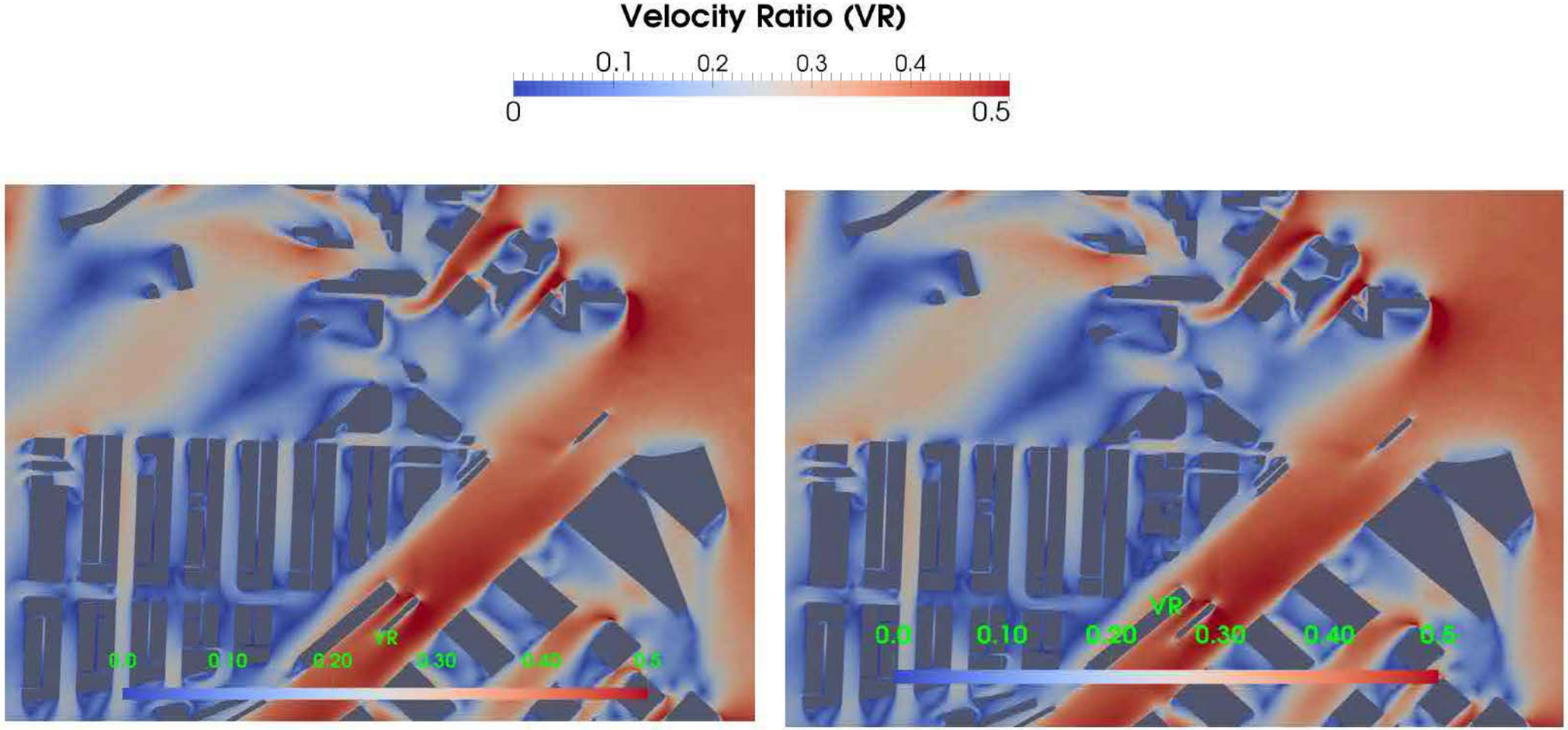


Near the Site

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Meshes on 2D Surfaces

SCALE	N.T.S.	DATE	Oct-18
CHECK	KW	DRAWN	CC
JOB NO.	17019/KC0	FIGURE NO. 3.9	REV. 1



Baseline Scheme

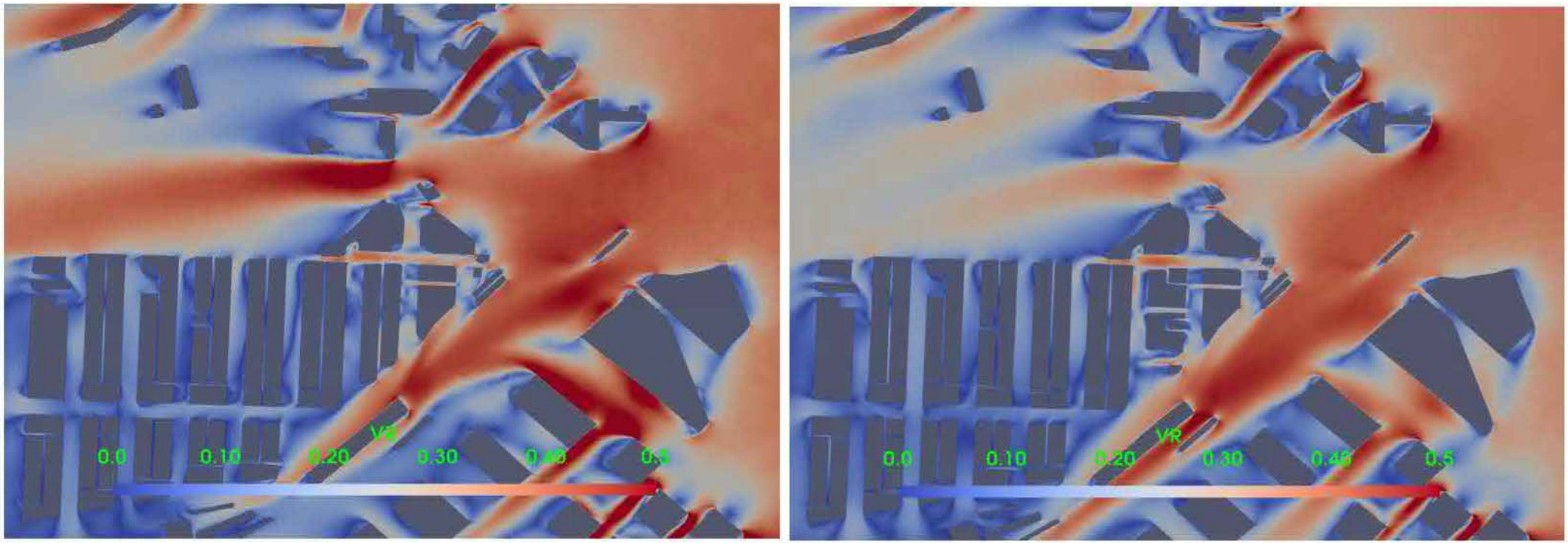
Proposed Scheme

022.5 deg Wind Direction (7m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1a	REV. 1



Baseline Scheme

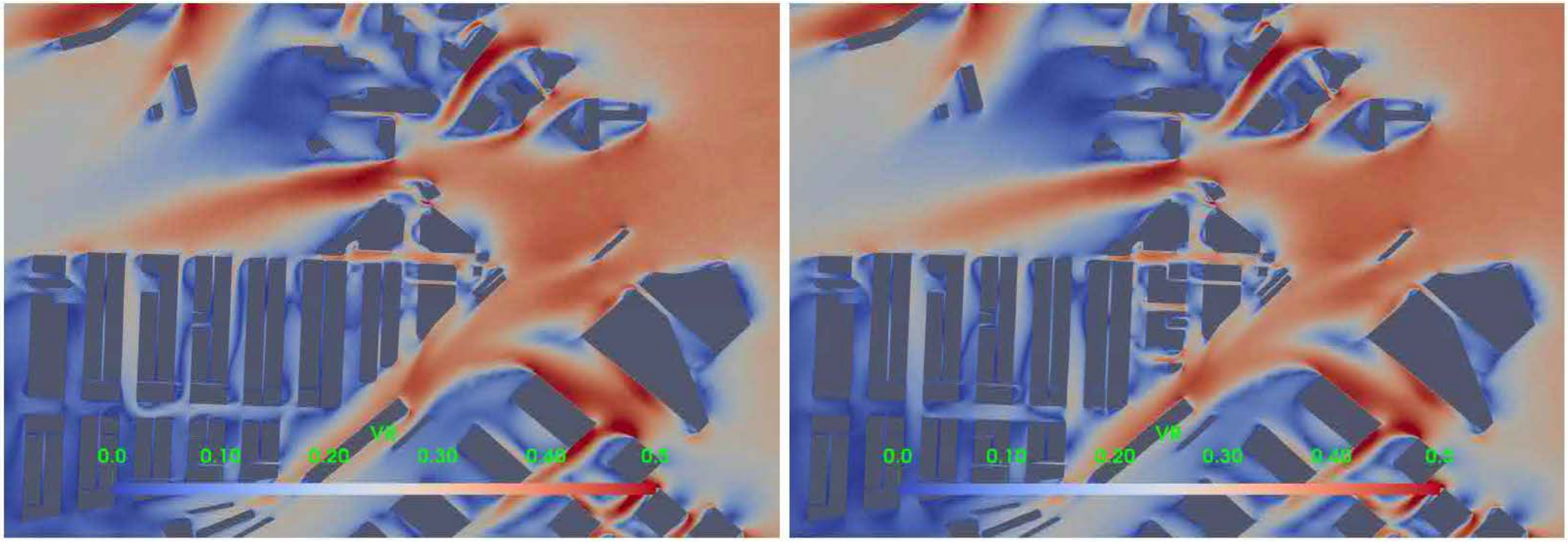
Proposed Scheme

045 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1b	REV. 1



Baseline Scheme

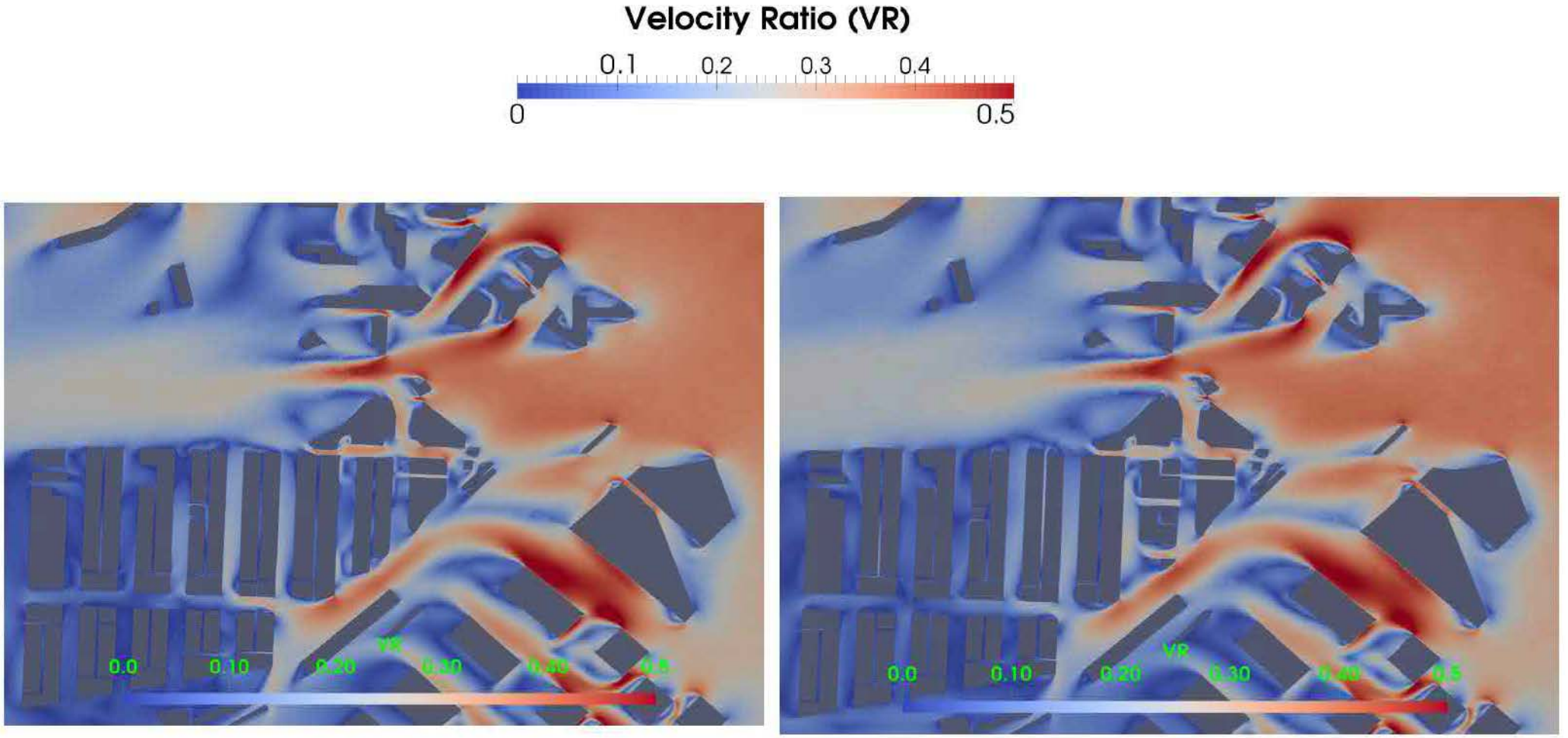
Proposed Scheme

067.5 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1c	REV. 1



Baseline Scheme

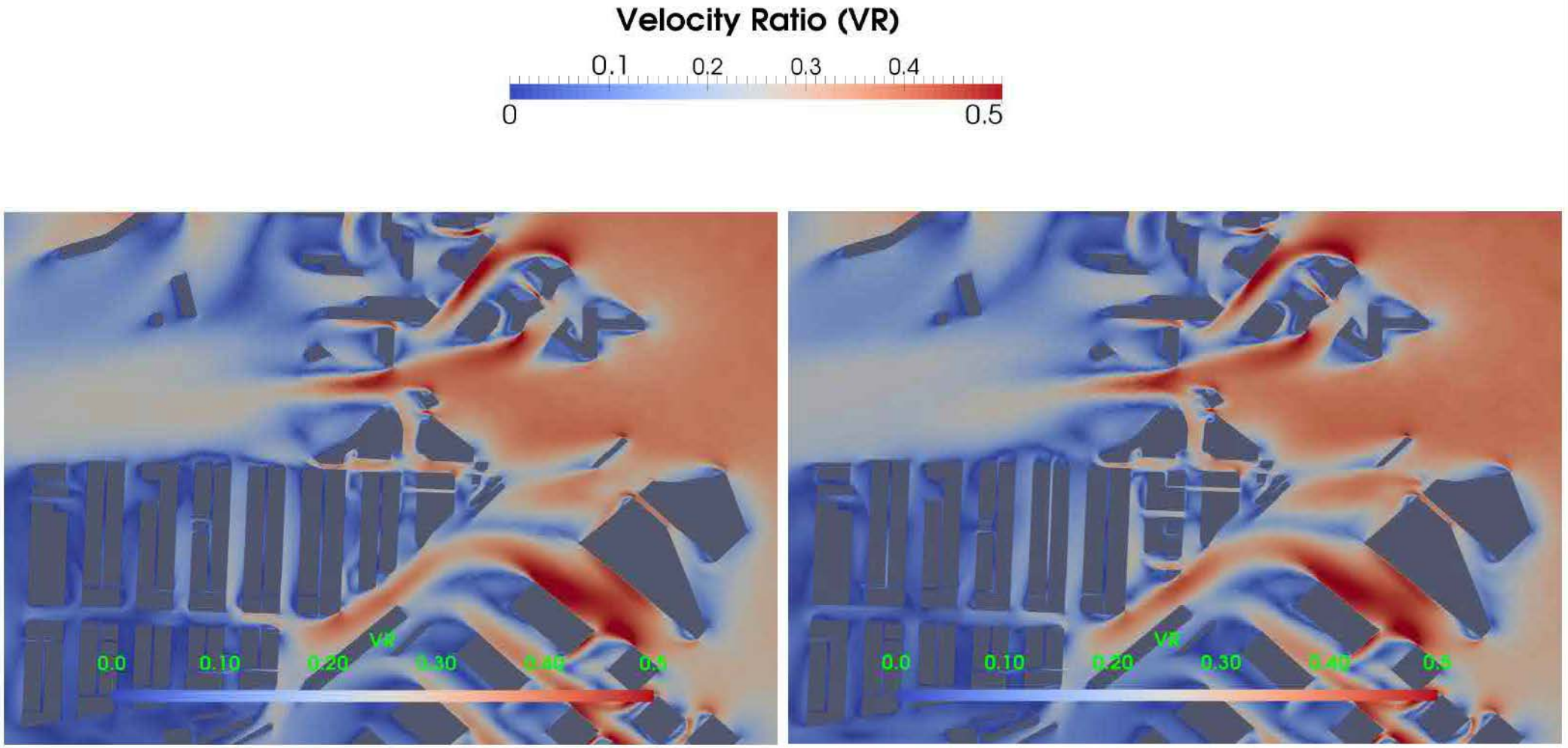
Proposed Scheme

090 deg Wind Direction (7m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1d	REV. 1



Baseline Scheme

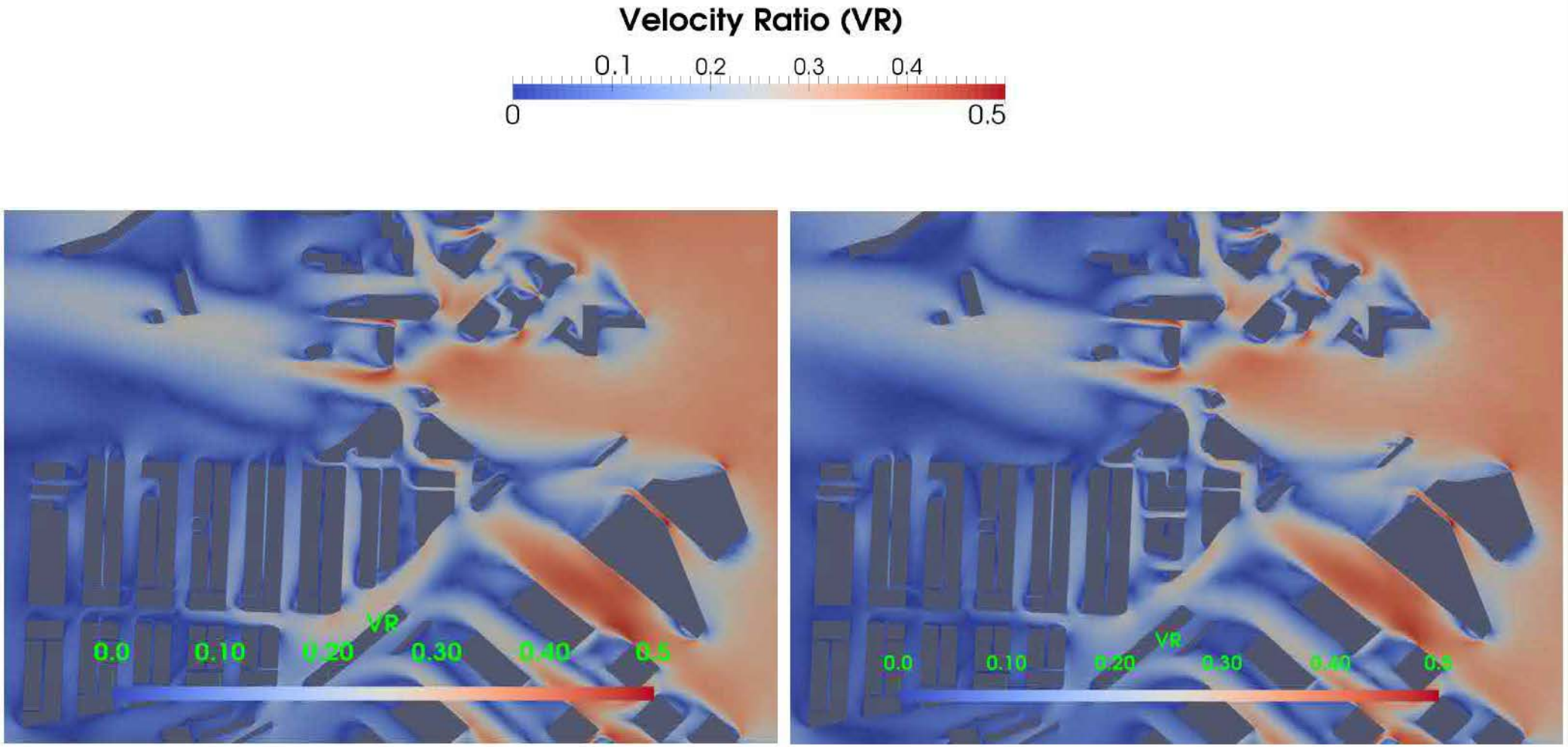
Proposed Scheme

090 deg Wind Direction (8m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1e	REV. 1



Baseline Scheme

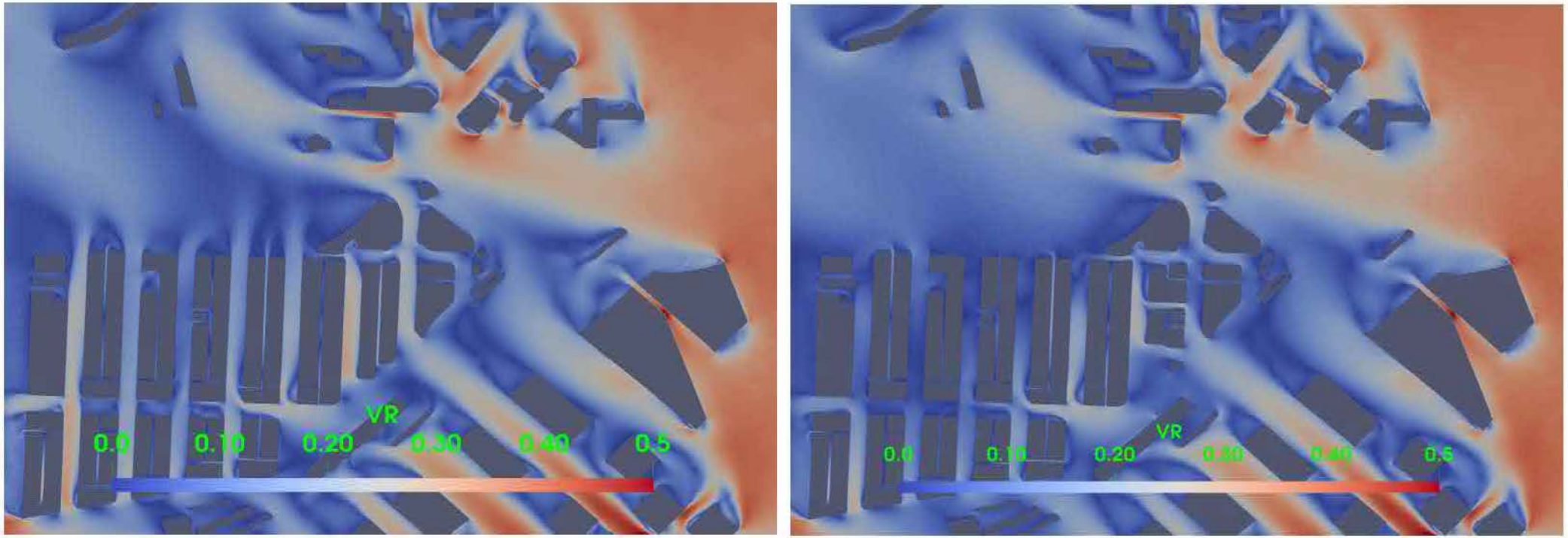
Proposed Scheme

112.5 deg Wind Direction (7m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1f	REV. 1



Baseline Scheme

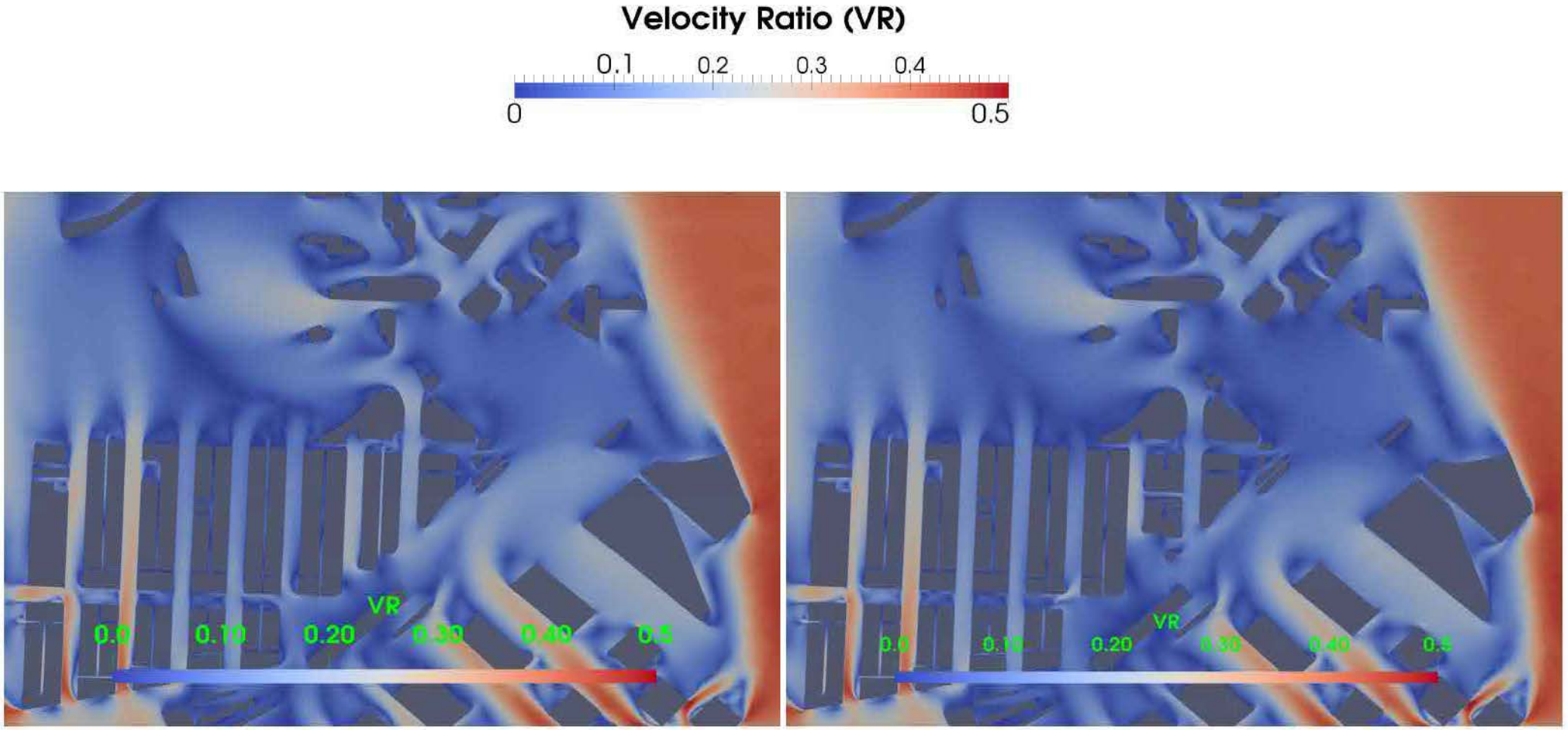
Proposed Scheme

135 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1g	REV. 1



Baseline Scheme

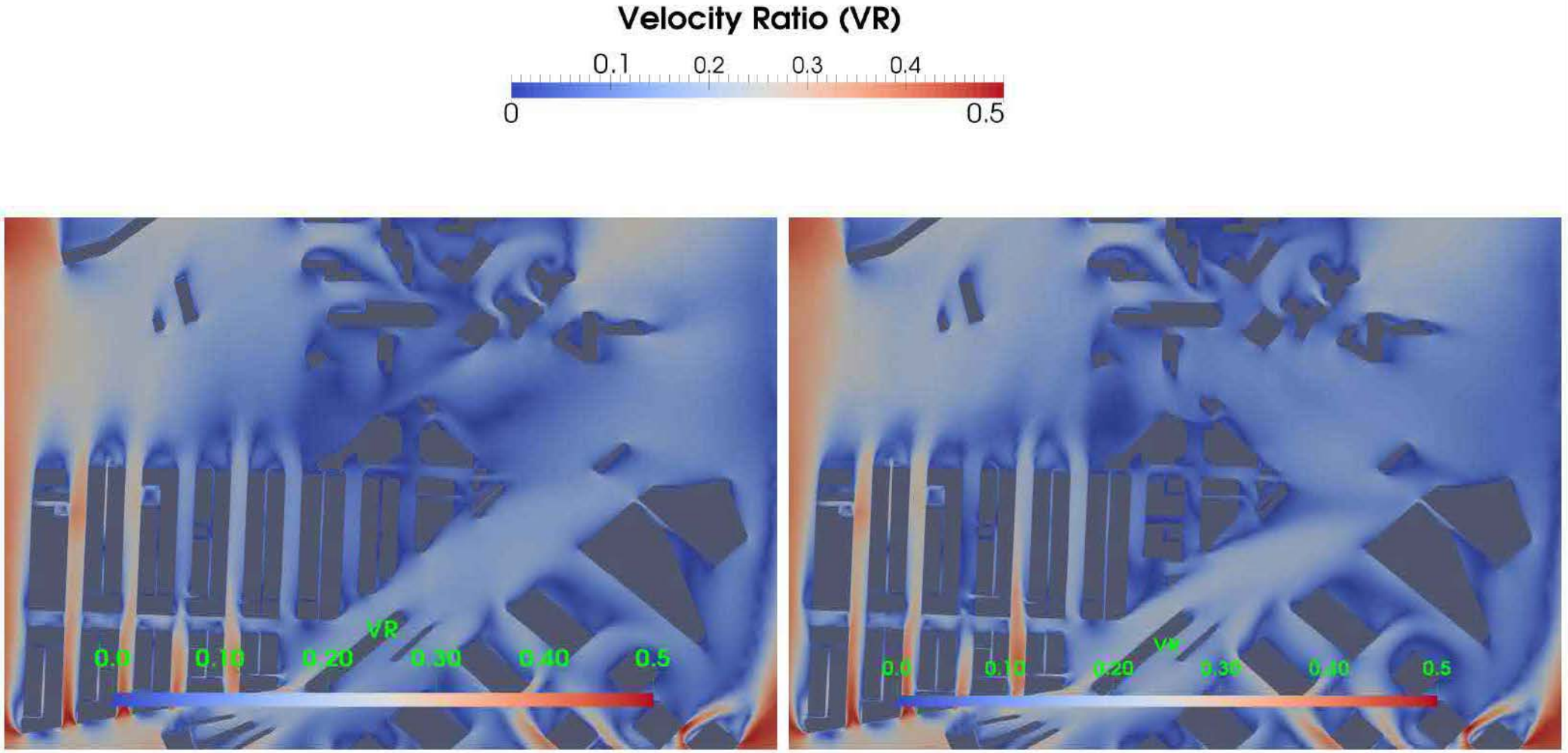
Proposed Scheme

157.5 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1h	REV. 1



Baseline Scheme

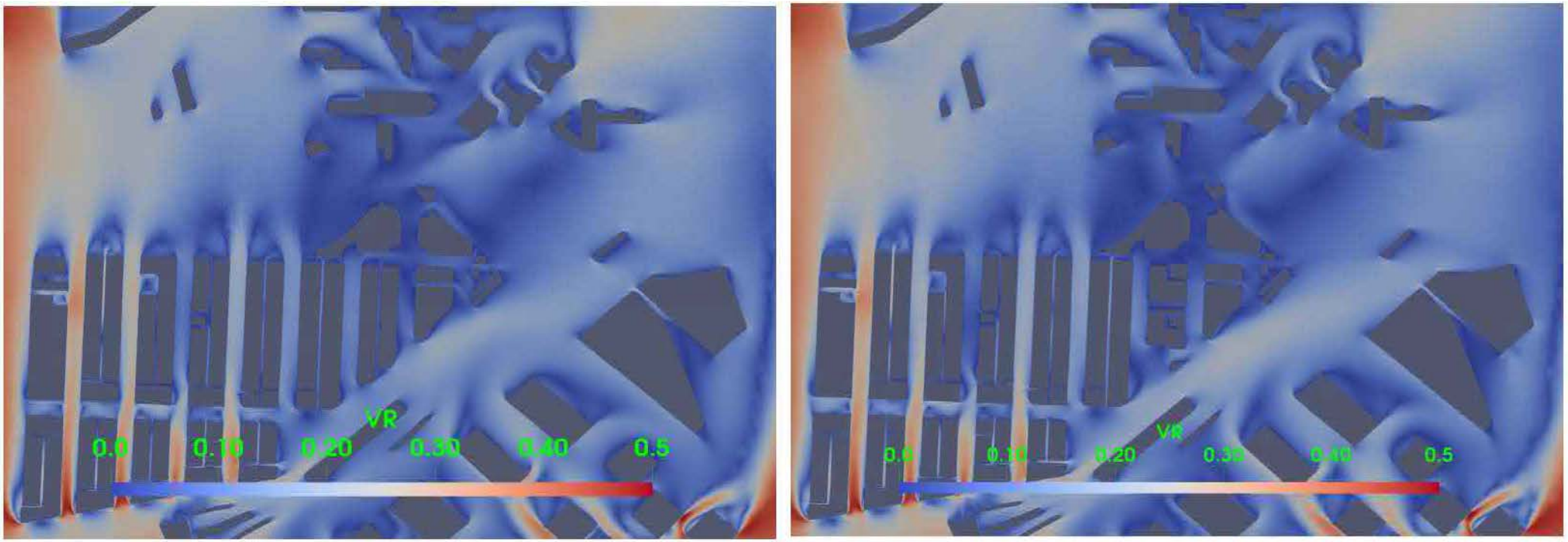
Proposed Scheme

180 deg Wind Direction (5m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18
CHECK	KW	DRAWN	CC
JOB NO.	IA17019/K	FIGURE NO. 4.1i	REV. 1



Baseline Scheme

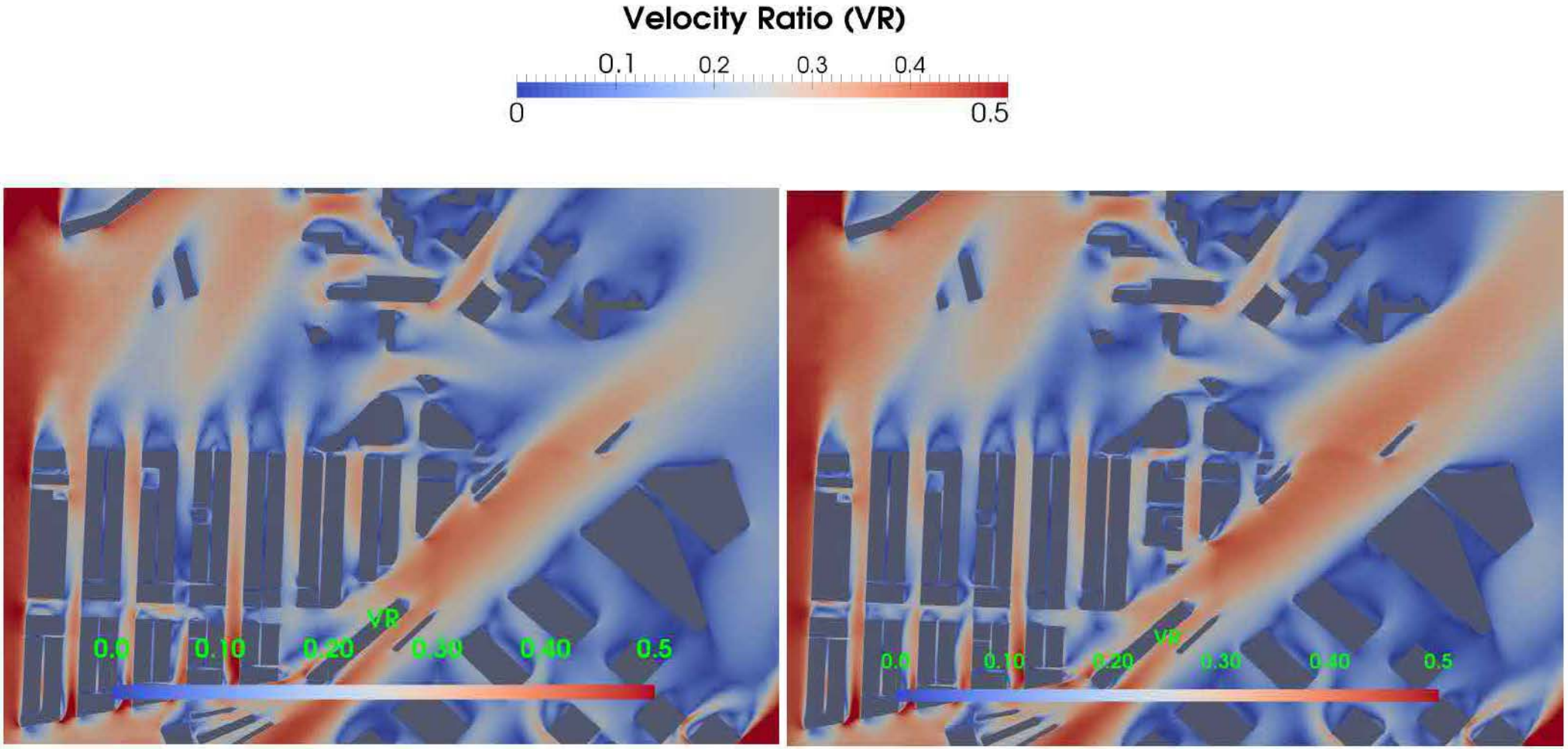
Proposed Scheme

180 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1j	REV. 1



Baseline Scheme

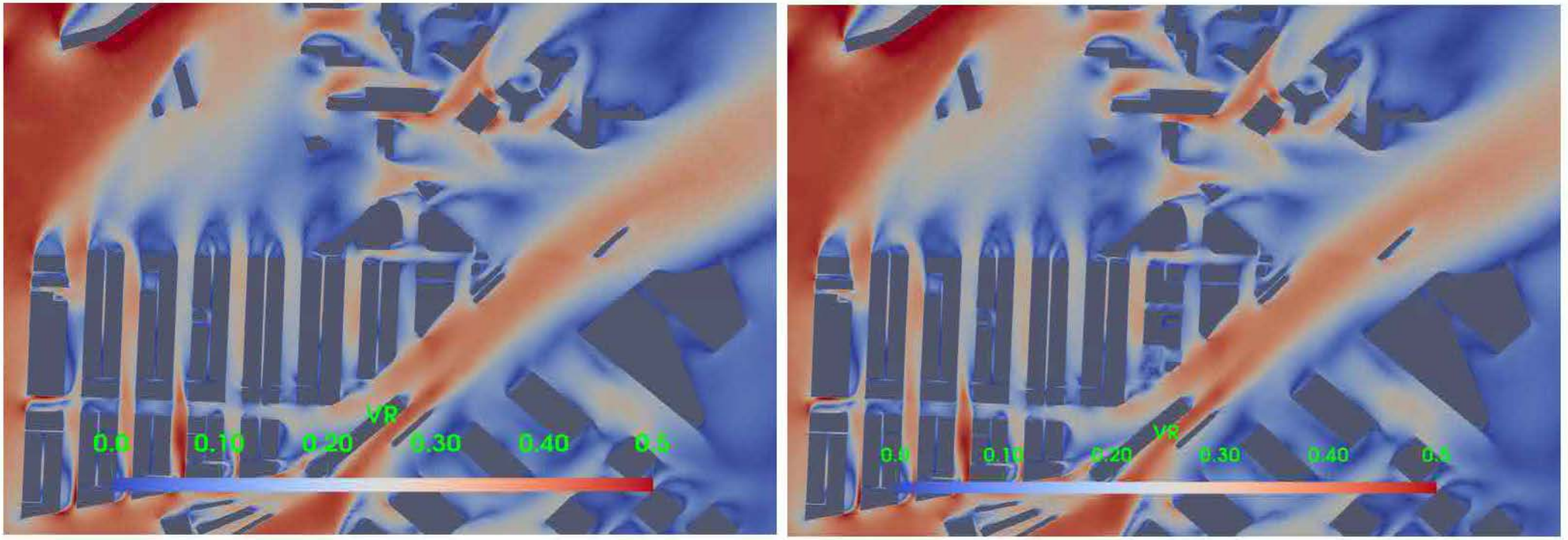
Proposed Scheme

202.5 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1k	REV. 1



Baseline Scheme

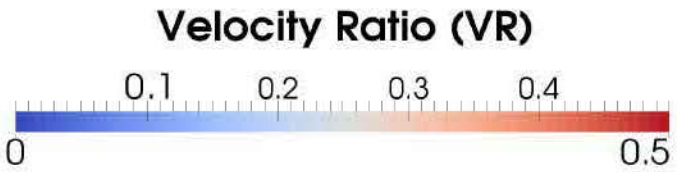
Proposed Scheme

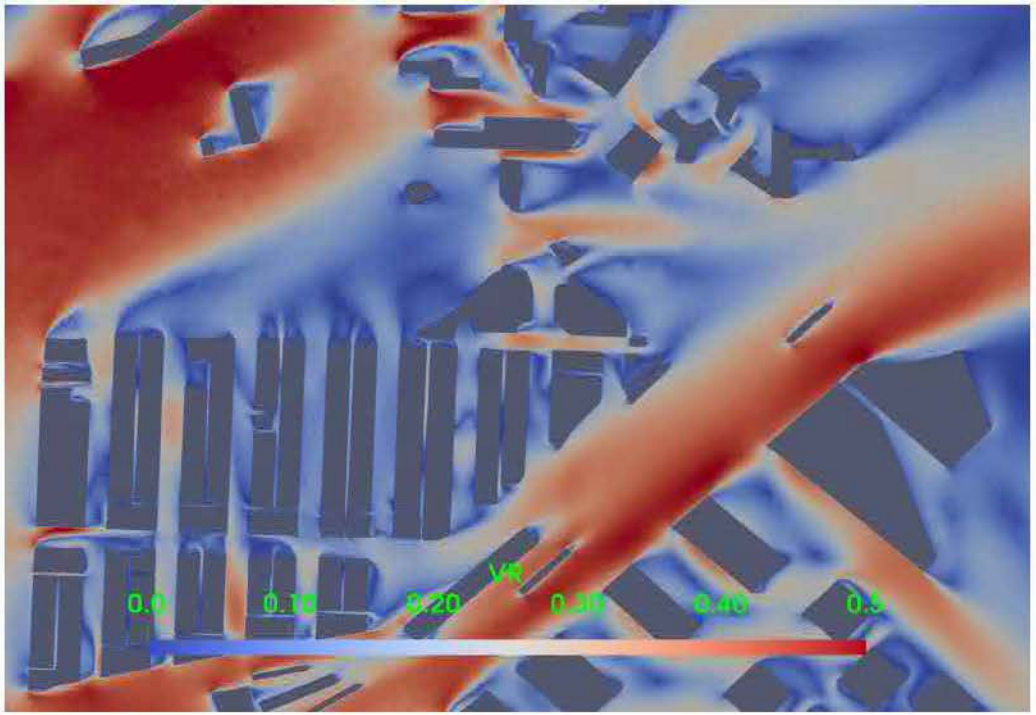
225 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

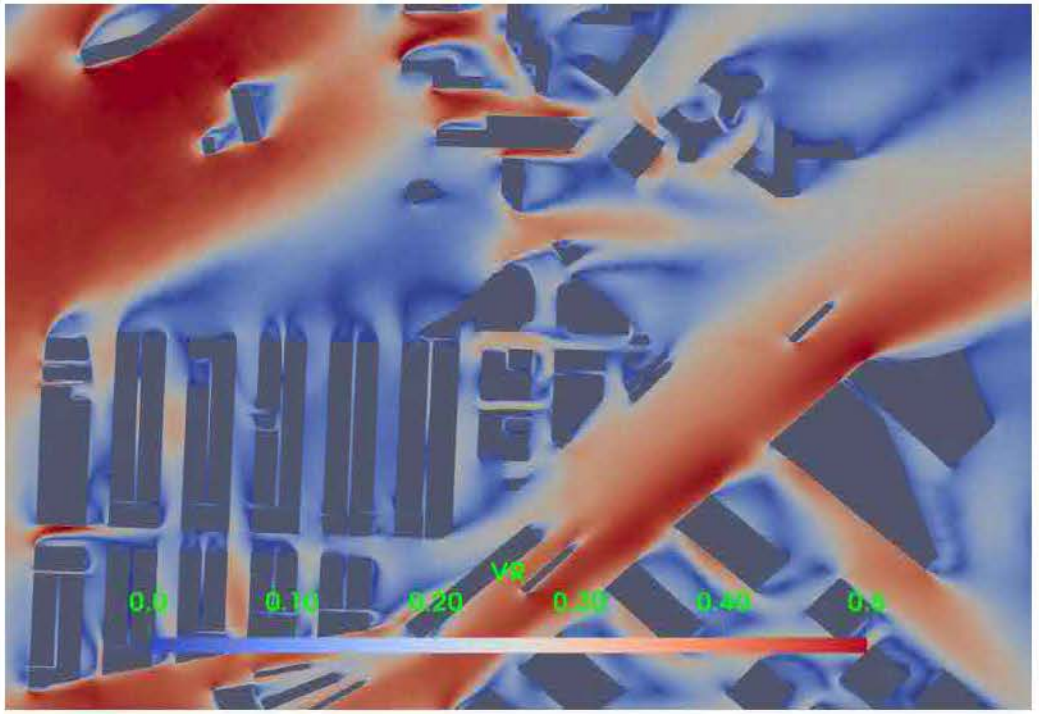
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.11	REV. 1





Baseline Scheme



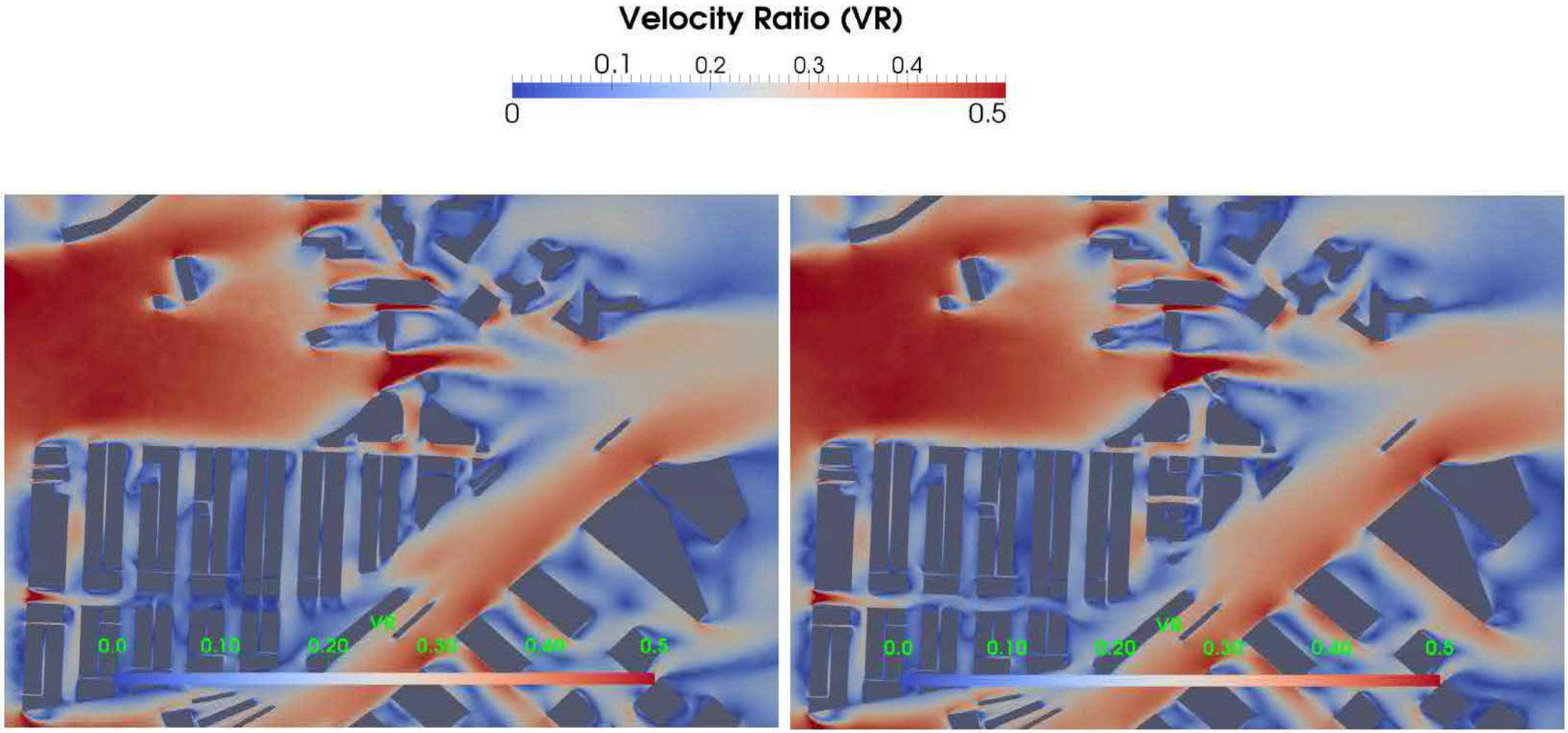
Proposed Scheme

247.5 deg Wind Direction (6m/s at 500m)

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1m	REV. 1



Baseline Scheme

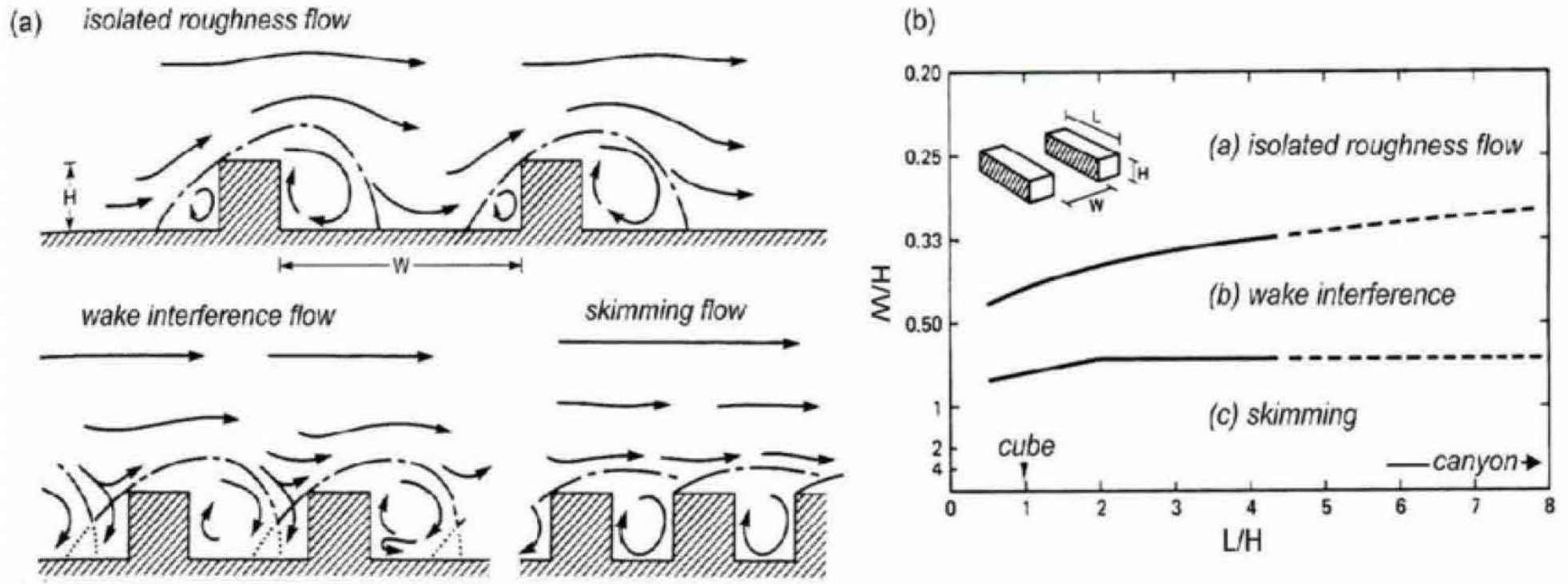
Proposed Scheme

270 deg Wind Direction (4m/s at 500m)

CINOTECH consultants limited

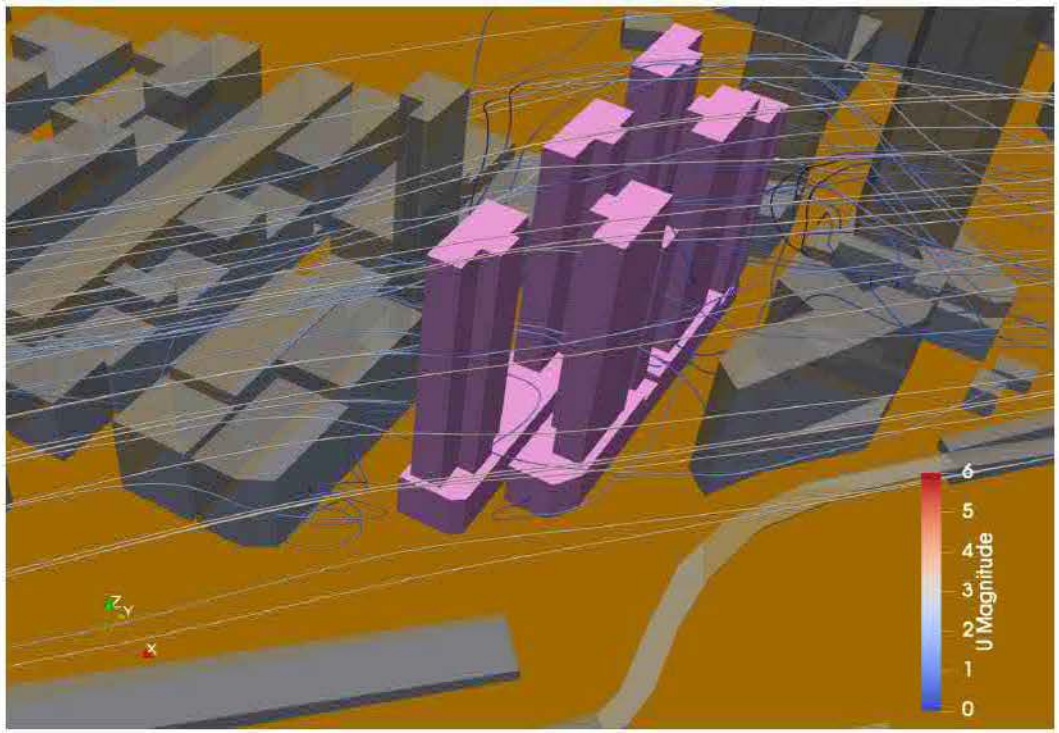
Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Contours of Wind Velocity Ratio at 2mAG

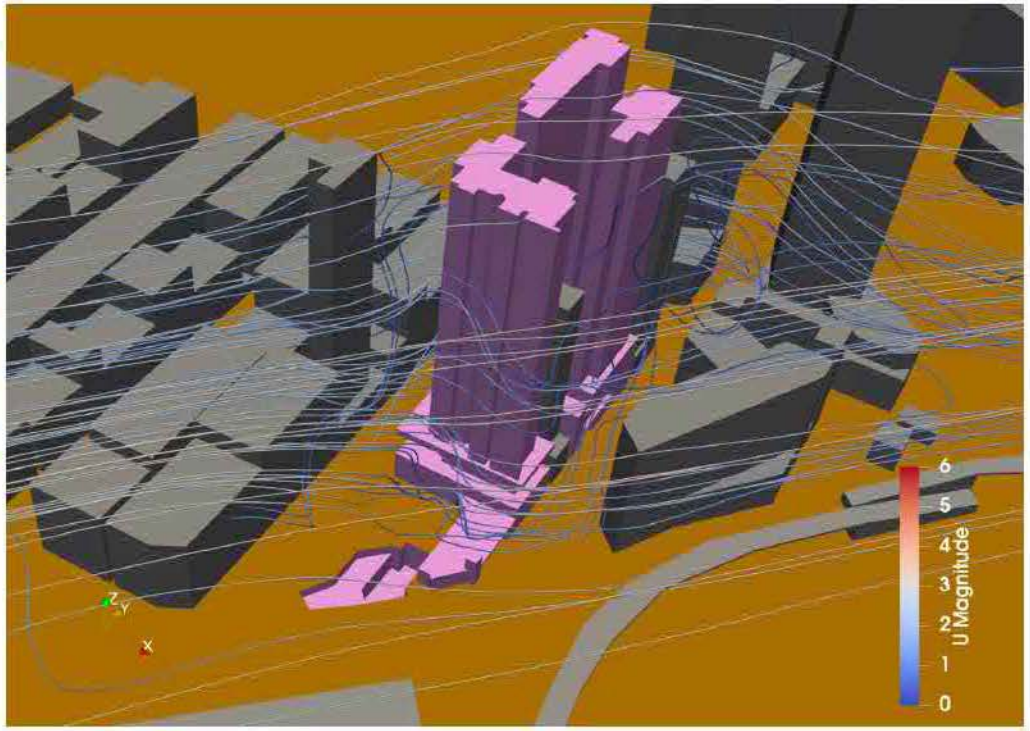
SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	IA17019/K	FIGURE NO.	4.1n	REV. 1



Source: Oke (1988), Street design and urban canopy layer climate, Energy and Buildings

CINOTECH consultants limited	Air Ventilation Assessment Kai Tak Road / Sa Po Road Project (KC015) **Flow Regime for Urban Street Canyon**	SCALE	N.T.S.	DATE	Nov-18
		CHECK	KW	DRAWN	CC
		JOB NO.	17019/KC0	FIGURE NO. 4.2	REV. 1





Baseline Scheme

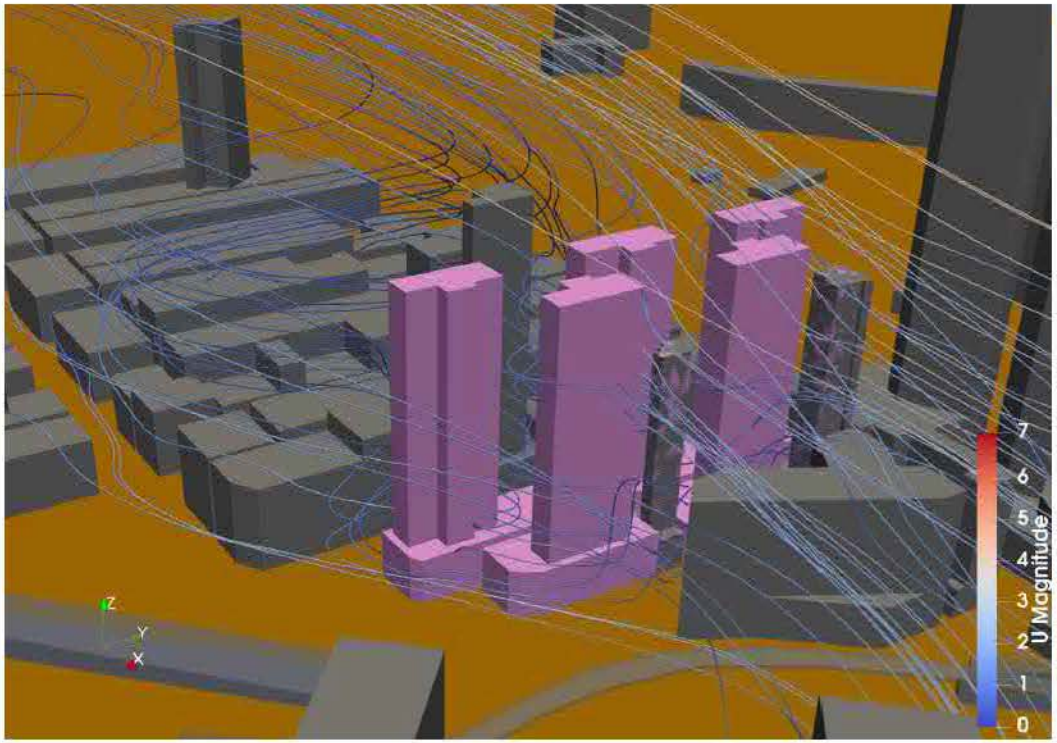
Proposed Scheme

Both with South-Westerly Wind with 6m/s at 500m

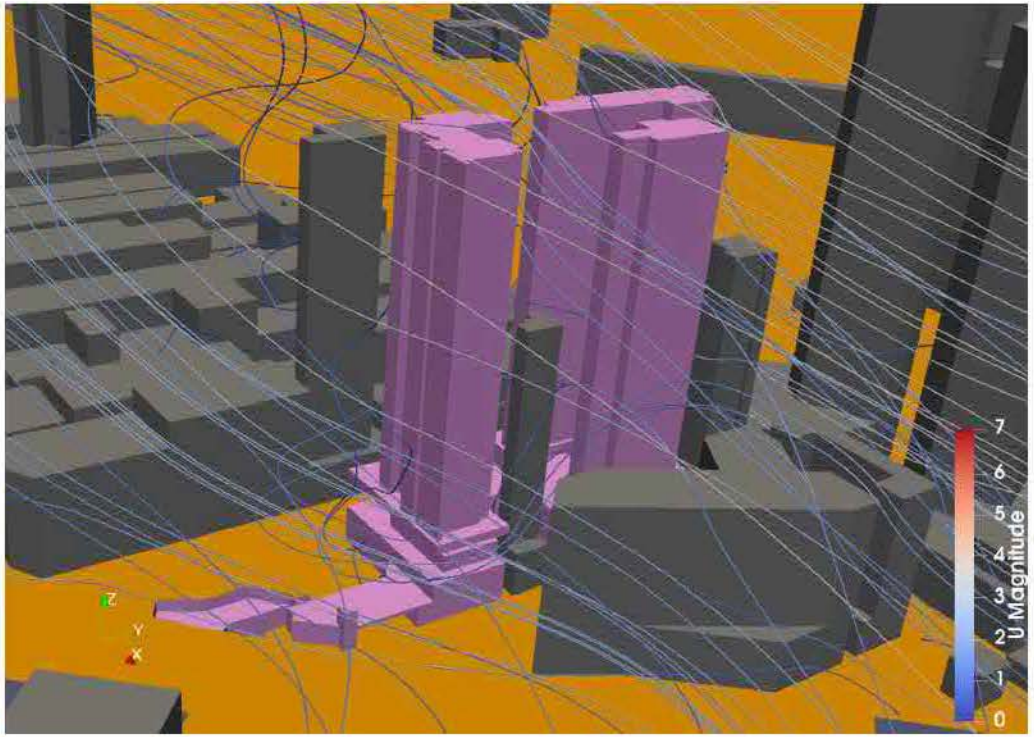
CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Flow Penetration of the Site under South Westerly Wind

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	17019/KC0	FIGURE NO.	4.3a	REV. 1



Baseline Scheme



Proposed Scheme

Both with Easterly Wind with 7m/s at 500m

CINOTECH consultants limited

Air Ventilation Assessment
Kai Tak Road / Sa Po Road Project (KC015)
Flow Penetration of the Site under Easterly Wind

SCALE	N.T.S.	DATE	Nov-18	
CHECK	KW	DRAWN	CC	
JOB NO.	17019/KC0	FIGURE NO.	4.3b	REV. 1

APPENDIX 1.1

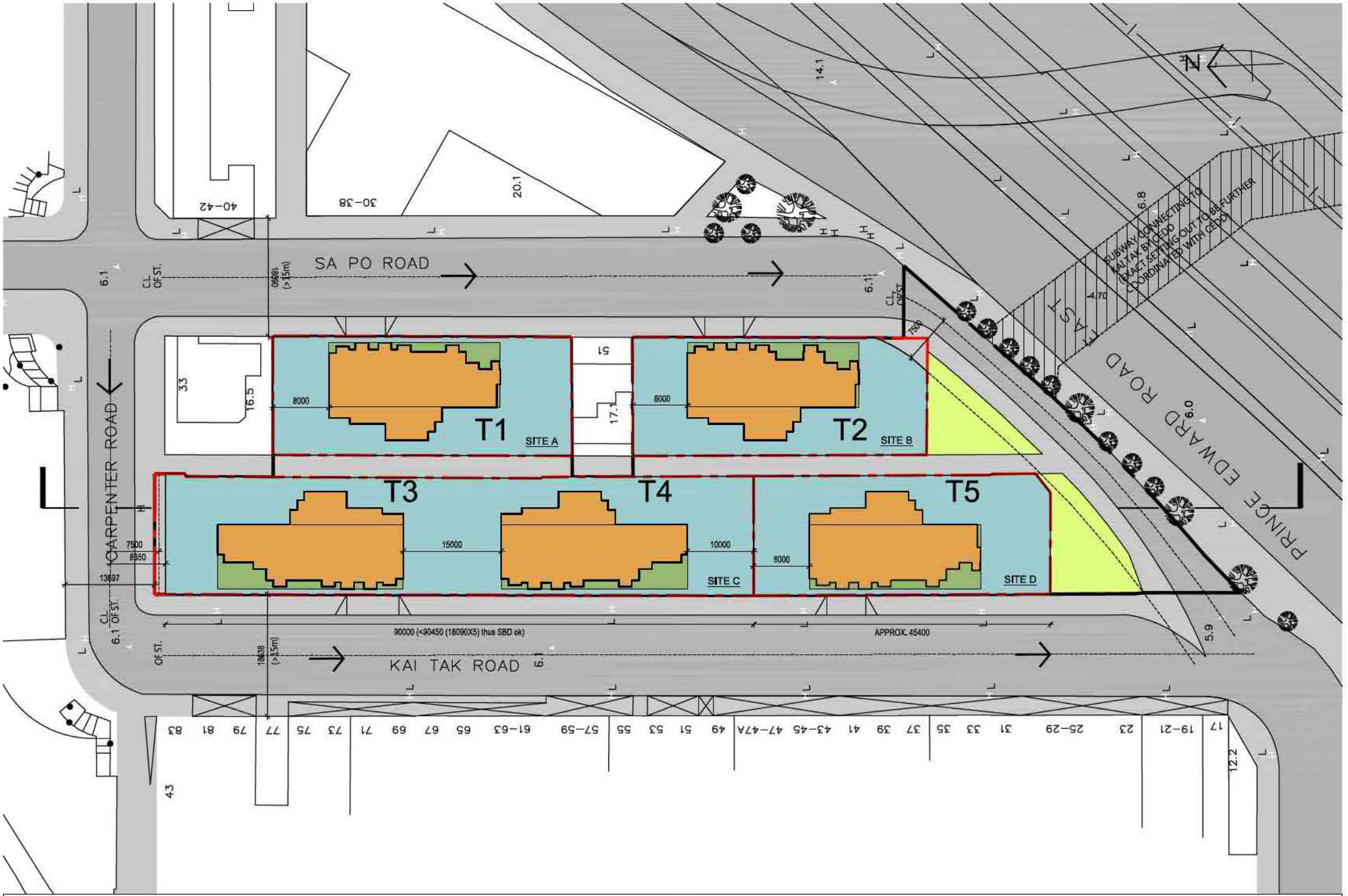
Notional Layout of the Baseline Scheme



Note: Proposed Height 100mPD
SCHEMATIC SECTION

KC-015 - OZP-COMPLIANCE SCHEME

1:750 (A3)
24 JAN 2019



Note: Proposed Height 100mPD
SCHEMATIC BLOCK PLAN

KC-015 - OZP-COMPLIANCE SCHEME

1:500 (A3)
24 JAN 2019

APPENDIX 2.1

Wind Data at grid [84,45] form RAMS

Occurrence Probability at 500m elevation (Annual)

e_01354	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.026	0.065	0.09	0.114	0.202	0.118	0.07	0.042	0.043	0.059	0.066	0.04	0.025	0.015	0.011	0.012
00_to_01	0.02	0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001
01_to_02	0.06	0.003	0.005	0.007	0.007	0.007	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.004	0.002	0.001	0.002
02_to_03	0.095	0.004	0.008	0.012	0.01	0.013	0.006	0.005	0.005	0.005	0.006	0.007	0.005	0.004	0.002	0.002	0.003
03_to_04	0.11	0.004	0.007	0.012	0.011	0.014	0.009	0.007	0.006	0.007	0.007	0.008	0.006	0.004	0.003	0.002	0.002
04_to_05	0.116	0.003	0.006	0.012	0.012	0.017	0.014	0.008	0.006	0.006	0.007	0.009	0.006	0.004	0.003	0.002	0.002
05_to_06	0.117	0.002	0.005	0.011	0.013	0.022	0.017	0.01	0.005	0.005	0.006	0.009	0.005	0.003	0.002	0.001	0.001
06_to_07	0.112	0.002	0.006	0.008	0.013	0.024	0.017	0.01	0.005	0.005	0.006	0.008	0.004	0.001	0.001	0.001	0.001
07_to_08	0.1	0.002	0.005	0.008	0.012	0.024	0.014	0.008	0.004	0.005	0.006	0.006	0.003	0.001	0.001	0.001	0
08_to_09	0.08	0.002	0.004	0.006	0.011	0.022	0.011	0.006	0.002	0.003	0.005	0.004	0.003	0.001	0	0	0
09_to_10	0.061	0.001	0.004	0.004	0.008	0.018	0.009	0.004	0.001	0.001	0.004	0.003	0.002	0	0	0	0
10_to_11	0.044	0.001	0.003	0.003	0.006	0.014	0.006	0.003	0.001	0.001	0.003	0.003	0.001	0	0	0	0
11_to_12	0.029	0.001	0.003	0.002	0.003	0.009	0.004	0.002	0	0	0.002	0.002	0.001	0	0	0	0
12_to_13	0.018	0	0.002	0.001	0.002	0.006	0.002	0.001	0	0	0.001	0.001	0	0	0	0	0
13_to_14	0.012	0	0.002	0.001	0.002	0.003	0.002	0.001	0	0	0	0.001	0	0	0	0	0
14_to_15	0.008	0	0.001	0.001	0.001	0.002	0.001	0	0	0	0	0	0	0	0	0	0
15_to_16	0.005	0	0.001	0	0.001	0.002	0.001	0	0	0	0	0	0	0	0	0	0
16_to_17	0.004	0	0.001	0	0.001	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	0.002	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_01354	Wind_direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
V_infinity(m/s)	Sum	0.009	0.012	0.015	0.024	0.084	0.1	0.081	0.077	0.089	0.133	0.159	0.101	0.052	0.031	0.018	0.012
00_to_01	0.019	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.002	0.001	0	0.001
01_to_02	0.058	0.001	0.002	0.003	0.003	0.003	0.003	0.005	0.004	0.006	0.007	0.007	0.004	0.006	0.002	0.002	0.002
02_to_03	0.098	0.002	0.002	0.003	0.003	0.005	0.005	0.006	0.009	0.008	0.012	0.015	0.011	0.008	0.003	0.003	0.002
03_to_04	0.122	0.001	0.001	0.002	0.001	0.005	0.01	0.009	0.01	0.012	0.015	0.021	0.015	0.009	0.005	0.003	0.002
04_to_05	0.125	0.001	0.001	0.001	0.001	0.007	0.012	0.009	0.01	0.011	0.014	0.02	0.016	0.009	0.006	0.004	0.001
05_to_06	0.115	0	0	0.001	0.001	0.01	0.013	0.008	0.009	0.011	0.014	0.02	0.014	0.006	0.005	0.002	0.001
06_to_07	0.105	0.001	0	0.001	0.001	0.009	0.012	0.007	0.01	0.011	0.014	0.018	0.011	0.003	0.003	0.002	0.001
07_to_08	0.095	0	0	0.001	0.002	0.008	0.01	0.009	0.008	0.01	0.016	0.014	0.009	0.002	0.003	0.002	0.001
08_to_09	0.07	0.001	0.001	0.001	0.002	0.007	0.007	0.007	0.005	0.007	0.011	0.011	0.006	0.002	0.001	0	0
09_to_10	0.051	0	0.001	0	0.002	0.006	0.006	0.005	0.004	0.004	0.009	0.008	0.005	0.001	0.001	0	0
10_to_11	0.042	0	0	0	0.001	0.005	0.005	0.004	0.003	0.002	0.008	0.007	0.003	0.001	0	0	0
11_to_12	0.031	0	0.001	0.001	0.001	0.004	0.004	0.003	0.002	0.001	0.004	0.007	0.002	0.001	0	0	0
12_to_13	0.021	0	0	0.001	0.001	0.003	0.004	0.002	0.001	0.001	0.003	0.004	0.001	0	0	0	0
13_to_14	0.015	0	0	0	0.001	0.002	0.003	0.002	0	0.001	0.001	0.002	0.001	0	0	0	0
14_to_15	0.01	0	0	0	0	0.002	0.002	0	0	0.001	0.001	0.001	0	0	0	0	0
15_to_16	0.008	0	0	0	0.001	0.003	0.001	0.001	0	0	0	0.001	0	0	0	0	0
16_to_17	0.005	0	0	0	0	0.001	0	0	0	0.001	0	0.001	0	0	0	0	0
17_to_18	0.003	0	0	0	0	0.001	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	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	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 3.1

Detailed Simulated Velocity Ratio

Wind Velocity Ratio, Base Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
P01	837848.1486	821265.2969		0.23	0.30	0.28	0.29	0.29	0.03	0.05	0.12	0.07	0.07	0.29	0.26	0.17	0.17		0.21	0.17
P02	837847.3208	821254.4717		0.04	0.08	0.10	0.07	0.07	0.13	0.18	0.15	0.09	0.08	0.33	0.27	0.13	0.13		0.12	0.18
P03	837846.9514	821244.4786		0.04	0.08	0.17	0.05	0.05	0.16	0.21	0.16	0.09	0.09	0.33	0.27	0.12	0.10		0.14	0.19
P04	837846.582	821234.4854		0.03	0.15	0.14	0.11	0.12	0.17	0.24	0.17	0.09	0.09	0.33	0.28	0.15	0.14		0.16	0.20
P05	837846.2126	821224.4922		0.08	0.10	0.11	0.07	0.08	0.18	0.24	0.20	0.10	0.09	0.33	0.29	0.17	0.16		0.15	0.21
P06	837845.8432	821214.499		0.11	0.07	0.09	0.05	0.05	0.17	0.25	0.19	0.10	0.10	0.33	0.30	0.14	0.17		0.14	0.21
P07	837845.4738	821204.5059		0.11	0.06	0.06	0.04	0.04	0.18	0.25	0.19	0.10	0.10	0.32	0.31	0.07	0.15		0.13	0.20
P08	837845.2487	821194.5217		0.10	0.08	0.05	0.06	0.05	0.18	0.25	0.20	0.10	0.10	0.31	0.31	0.13	0.15		0.14	0.20
P09	837844.735	821184.5195		0.09	0.11	0.08	0.07	0.06	0.16	0.25	0.20	0.09	0.09	0.29	0.30	0.19	0.17		0.14	0.21
P10	837844.3656	821174.5263		0.05	0.13	0.10	0.11	0.09	0.13	0.25	0.21	0.09	0.09	0.27	0.28	0.23	0.16		0.15	0.20
P11	837843.9962	821164.5332		0.04	0.14	0.11	0.14	0.14	0.11	0.25	0.15	0.08	0.08	0.24	0.25	0.20	0.13		0.15	0.18
P12	837843.9962	821154.54		0.03	0.12	0.11	0.09	0.10	0.09	0.25	0.10	0.07	0.07	0.19	0.22	0.14	0.11		0.12	0.15
P13	837843.4049	821144.0414		0.02	0.10	0.09	0.11	0.10	0.10	0.26	0.07	0.07	0.06	0.11	0.18	0.10	0.14		0.11	0.13
P14	837842.8881	821134.5536		0.03	0.09	0.09	0.10	0.11	0.14	0.28	0.05	0.07	0.06	0.08	0.13	0.12	0.22		0.11	0.13
P15	837842.5187	821124.5605		0.02	0.07	0.09	0.06	0.06	0.17	0.21	0.03	0.05	0.05	0.17	0.16	0.14	0.27		0.11	0.14
P16	837842.1493	821114.5673		0.06	0.05	0.07	0.21	0.20	0.16	0.11	0.02	0.06	0.05	0.15	0.09	0.09	0.25		0.12	0.12
P17	837841.7799	821104.5741		0.14	0.23	0.18	0.31	0.30	0.21	0.07	0.03	0.15	0.16	0.29	0.30	0.16	0.19		0.22	0.21
P18	837842.5296	821094.0798		0.21	0.30	0.23	0.38	0.38	0.26	0.09	0.03	0.16	0.17	0.26	0.31	0.26	0.11		0.27	0.23
P19	837853.2848	821094.8537		0.28	0.36	0.30	0.37	0.37	0.26	0.10	0.03	0.16	0.17	0.25	0.29	0.27	0.11		0.29	0.22
P20	837861.3935	821100.868		0.30	0.38	0.32	0.38	0.38	0.26	0.11	0.04	0.16	0.16	0.27	0.29	0.28	0.13		0.30	0.23
P21	837869.8475	821107.9724		0.31	0.39	0.33	0.40	0.40	0.28	0.09	0.07	0.16	0.16	0.29	0.30	0.28	0.17		0.31	0.24
P22	837877.3922	821114.9105		0.32	0.40	0.34	0.40	0.40	0.28	0.06	0.08	0.16	0.17	0.32	0.33	0.29	0.22		0.32	0.25
P23	837885.0522	821122.3098		0.31	0.39	0.34	0.39	0.39	0.27	0.03	0.10	0.16	0.17	0.34	0.34	0.30	0.26		0.31	0.26
P24	837892.7069	821129.4184		0.31	0.40	0.35	0.39	0.38	0.27	0.03	0.10	0.16	0.17	0.36	0.36	0.31	0.29		0.31	0.27
P25	837901.7463	821137.8129		0.32	0.44	0.39	0.38	0.38	0.27	0.06	0.10	0.16	0.16	0.37	0.37	0.34	0.31		0.33	0.28
P26	837905.6312	821146.3139		0.28	0.42	0.37	0.36	0.36	0.28	0.12	0.11	0.15	0.15	0.36	0.37	0.34	0.29		0.32	0.28
P27	837898.6802	821155.2203		0.12	0.27	0.24	0.19	0.19	0.11	0.09	0.12	0.10	0.09	0.29	0.30	0.29	0.27		0.19	0.21
P28	837898.8586	821165.5444		0.05	0.21	0.20	0.10	0.11	0.03	0.14	0.13	0.06	0.03	0.27	0.23	0.24	0.08		0.14	0.16
P29	837899.0314	821175.5407		0.05	0.22	0.21	0.09	0.10	0.04	0.19	0.12	0.02	0.02	0.24	0.18	0.17	0.05		0.13	0.14
P30	837898.9295	821184.5401		0.05	0.25	0.23	0.11	0.11	0.03	0.23	0.13	0.02	0.02	0.24	0.15	0.12	0.12		0.14	0.14
P31	837872.1948	821196.0993		0.02	0.08	0.08	0.05	0.05	0.10	0.16	0.03	0.03	0.03	0.05	0.08	0.01	0.10		0.07	0.07
P32	837899.1554	821201.9848		0.02	0.15	0.18	0.10	0.10	0.05	0.24	0.13	0.04	0.01	0.25	0.16	0.11	0.10		0.13	0.13
P33	837899.5166	821210.9775		0.02	0.10	0.10	0.05	0.05	0.06	0.23	0.13	0.04	0.02	0.25	0.17	0.12	0.12		0.10	0.14
P34	837899.9453	821219.9673		0.03	0.10	0.14	0.09	0.09	0.06	0.22	0.12	0.05	0.02	0.25	0.17	0.09	0.13		0.12	0.14
P35	837900.177	821228.9643		0.03	0.09	0.09	0.09	0.10	0.06	0.22	0.12	0.05	0.03	0.25	0.16	0.07	0.13		0.11	0.13
P36	837900.4744	821237.9594		0.10	0.14	0.10	0.07	0.07	0.06	0.21	0.13	0.05	0.03	0.24	0.15	0.03	0.11		0.11	0.12
P37	837895.8873	821246.4201		0.07	0.16	0.17	0.12	0.12	0.08	0.22	0.11	0.04	0.01	0.21	0.12	0.09	0.03		0.13	0.12
P38	837874.0999	821247.235		0.01	0.12	0.09	0.01	0.01	0.10	0.14	0.02	0.01	0.02	0.14	0.22	0.20	0.17		0.08	0.12
P39	837874.7958	821260.9193		0.03	0.22	0.16	0.05	0.05	0.12	0.09	0.03	0.01	0.01	0.12	0.18	0.12	0.15		0.11	0.10
P40	837875.0099	821270.2824		0.27	0.35	0.32	0.35	0.35	0.16	0.15	0.04	0.01	0.01	0.17	0.21	0.30	0.31		0.25	0.19
P41	837866.015	821270.5863		0.27	0.39	0.36	0.35	0.35	0.19	0.14	0.04	0.01	0.01	0.18	0.18	0.23	0.28		0.26	0.18
P42	837857.0229	821270.9641		0.26	0.40	0.36	0.35	0.35	0.18	0.12	0.06	0.06	0.06	0.29	0.26	0.19	0.30		0.28	0.20
O001	837689.8385	821280.8902		0.09	0.22	0.27	0.03	0.05	0.07	0.01	0.02	0.04	0.04	0.14	0.07	0.06	0.30		0.10	0.08
O002	837723.5232	821278.9883		0.17	0.22	0.26	0.06	0.05	0.04	0.13	0.12	0.19	0.19	0.29	0.27	0.14	0.28		0.16	0.18
O003	837753.0211	821279.1785		0.13	0.16	0.21	0.14	0.16	0.06	0.10	0.03	0.04	0.04	0.07	0.13	0.11	0.28		0.12	0.10
O004	837779.6644	821280.7		0.13	0.11	0.18	0.18	0.18	0.06	0.13	0.05	0.13	0.14	0.29	0.24	0.16	0.28		0.16	0.18
O005	837916.7856	821268.6982		0.17	0.32	0.36	0.33	0.34	0.13	0.04	0.07	0.06	0.06	0.14	0.18	0.30	0.26		0.23	0.17
O006	837943.7994	821267.7037		0.14	0.28	0.31	0.37	0.37	0.32	0.14	0.07	0.08	0.09	0.07	0.15	0.30	0.40		0.25	0.20
O007	837961.1744	821266.3647		0.13	0.33	0.36	0.30	0.30	0.18	0.07	0.07	0.08	0.08	0.09	0.08	0.27	0.35		0.22	0.15
O008	837960.3213	821247.1836		0.10	0.22	0.23	0.12	0.12	0.22	0.10	0.01	0.02	0.02	0.10	0.18	0.10	0.05		0.15	0.11
O009	837807.0428	821292.9648		0.08	0.10	0.15	0.11	0.11	0.07	0.01	0.02	0.03	0.03	0.07	0.08	0.06	0.24		0.09	0.07
O010	837832.5731	821308.7192		0.06	0.06	0.08	0.13	0.13	0.09	0.05	0.03	0.04	0.04	0.15	0.06	0.04	0.20		0.09	0.08

Wind Velocity Ratio, Base Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O011	837852.0991	821331.4949		0.05	0.23	0.28	0.08	0.08	0.09	0.06	0.03	0.04	0.05	0.25	0.19	0.16	0.32		0.14	0.14
O012	837871.7222	821354.1872		0.25	0.49	0.45	0.37	0.36	0.26	0.21	0.13	0.03	0.04	0.28	0.27	0.27	0.47		0.32	0.25
O013	837891.3072	821376.9121		0.17	0.41	0.39	0.41	0.41	0.33	0.25	0.12	0.03	0.02	0.23	0.19	0.33	0.50		0.31	0.25
O014	837910.8923	821399.6371		0.10	0.27	0.27	0.18	0.18	0.19	0.20	0.07	0.07	0.08	0.16	0.20	0.12	0.22		0.19	0.16
O015	837931.5592	821421.383		0.40	0.28	0.32	0.25	0.25	0.13	0.22	0.02	0.08	0.09	0.27	0.31	0.03	0.09		0.25	0.18
O016	837682.6729	821092.1394		0.07	0.11	0.16	0.07	0.07	0.07	0.04	0.05	0.11	0.11	0.15	0.18	0.02	0.04		0.10	0.10
O017	837715.443	821090.806		0.07	0.11	0.12	0.12	0.12	0.12	0.16	0.14	0.28	0.29	0.39	0.24	0.19	0.05		0.15	0.21
O018	837742.6524	821090.5699		0.11	0.16	0.13	0.25	0.24	0.21	0.19	0.04	0.14	0.14	0.13	0.18	0.14	0.03		0.18	0.15
O019	837772.6421	821089.7852		0.11	0.13	0.17	0.24	0.24	0.20	0.23	0.08	0.11	0.11	0.21	0.23	0.20	0.18		0.19	0.19
O020	837802.6319	821089.0005		0.10	0.05	0.05	0.28	0.26	0.23	0.21	0.06	0.04	0.04	0.15	0.21	0.16	0.02		0.17	0.16
O021	837718.1576	820998.087		0.11	0.22	0.16	0.07	0.08	0.03	0.11	0.07	0.23	0.23	0.34	0.36	0.41	0.09		0.15	0.22
O022	837747.4363	821004.626		0.07	0.21	0.11	0.08	0.08	0.03	0.08	0.02	0.23	0.23	0.33	0.33	0.38	0.10		0.13	0.20
O023	837775.2203	821015.9417		0.20	0.32	0.31	0.22	0.22	0.15	0.06	0.10	0.27	0.27	0.39	0.36	0.37	0.12		0.25	0.26
O024	837797.8719	821035.6116		0.25	0.36	0.34	0.22	0.21	0.14	0.02	0.04	0.24	0.23	0.37	0.31	0.29	0.16		0.24	0.22
O025	837820.5235	821055.2815		0.29	0.37	0.34	0.27	0.26	0.18	0.09	0.01	0.18	0.18	0.26	0.12	0.11	0.12		0.25	0.15
O026	837843.1751	821074.9514		0.32	0.38	0.34	0.31	0.31	0.23	0.13	0.01	0.16	0.17	0.22	0.20	0.19	0.13		0.27	0.18
O027	837916.6007	821157.5422		0.27	0.44	0.40	0.34	0.34	0.28	0.19	0.11	0.15	0.15	0.36	0.38	0.33	0.27		0.33	0.29
O028	837928.7116	821185.0314		0.18	0.37	0.33	0.19	0.20	0.26	0.09	0.10	0.07	0.03	0.27	0.29	0.24	0.19		0.24	0.20
O029	837948.8537	821209.5287		0.18	0.32	0.30	0.12	0.12	0.10	0.11	0.11	0.07	0.04	0.28	0.26	0.21	0.10		0.19	0.17
O030	837961.6155	821227.2203		0.09	0.18	0.12	0.08	0.07	0.20	0.10	0.07	0.02	0.02	0.20	0.25	0.18	0.13		0.13	0.15
O031	837991.7848	821254.3929		0.12	0.13	0.14	0.07	0.07	0.10	0.07	0.06	0.04	0.03	0.15	0.19	0.03	0.06		0.11	0.10
O032	838016.8545	821268.2334		0.34	0.41	0.37	0.26	0.26	0.04	0.12	0.06	0.08	0.08	0.21	0.25	0.11	0.07		0.24	0.15
O033	838042.4668	821281.9154		0.37	0.46	0.42	0.33	0.34	0.18	0.03	0.06	0.09	0.10	0.31	0.31	0.19	0.13		0.30	0.20
O034	837793.4425	820943.4247		0.47	0.14	0.22	0.11	0.11	0.09	0.17	0.10	0.05	0.05	0.36	0.41	0.38	0.34		0.20	0.24
O035	837817.7762	820960.9708		0.46	0.10	0.21	0.09	0.09	0.07	0.05	0.03	0.11	0.11	0.29	0.44	0.43	0.35		0.17	0.23
O036	837841.8493	820978.873		0.45	0.17	0.20	0.06	0.06	0.09	0.06	0.07	0.08	0.08	0.11	0.25	0.44	0.38		0.14	0.17
O037	837863.2658	820999.8809		0.46	0.09	0.18	0.03	0.03	0.02	0.13	0.12	0.10	0.11	0.14	0.25	0.44	0.37		0.13	0.18
O038	837884.6823	821020.8889		0.47	0.11	0.15	0.03	0.03	0.03	0.07	0.06	0.12	0.12	0.18	0.22	0.46	0.39		0.12	0.17
O039	837906.0988	821041.8968		0.49	0.11	0.12	0.20	0.20	0.15	0.29	0.11	0.13	0.13	0.20	0.14	0.48	0.40		0.19	0.22
O040	837927.5153	821062.9047		0.51	0.12	0.10	0.04	0.04	0.05	0.19	0.26	0.15	0.15	0.21	0.13	0.47	0.38		0.13	0.20
O041	837948.3411	821084.4984		0.49	0.13	0.08	0.06	0.07	0.02	0.06	0.03	0.17	0.17	0.24	0.07	0.48	0.39		0.12	0.16
O042	837969.1669	821106.0921		0.48	0.20	0.11	0.25	0.25	0.19	0.26	0.10	0.14	0.15	0.24	0.13	0.49	0.40		0.22	0.23
O043	837989.9927	821127.6858		0.48	0.11	0.10	0.09	0.09	0.07	0.06	0.22	0.14	0.15	0.24	0.16	0.47	0.40		0.14	0.20
O044	838010.8184	821149.2795		0.47	0.44	0.36	0.22	0.22	0.06	0.02	0.08	0.17	0.17	0.26	0.15	0.47	0.40		0.24	0.20
O045	838030.54	821171.8861		0.46	0.23	0.23	0.38	0.38	0.38	0.16	0.13	0.17	0.18	0.26	0.17	0.46	0.39		0.29	0.27
O046	838050.0655	821194.6623		0.45	0.41	0.27	0.11	0.11	0.26	0.18	0.14	0.16	0.16	0.26	0.20	0.44	0.38		0.24	0.24
O047	837713.9362	821022.5054		0.14	0.06	0.15	0.07	0.07	0.07	0.16	0.15	0.34	0.34	0.42	0.15	0.13	0.12		0.14	0.19
O048	837715.0554	821052.4845		0.04	0.08	0.07	0.03	0.03	0.07	0.19	0.17	0.36	0.36	0.48	0.20	0.21	0.13		0.13	0.22
O049	837717.2937	821112.4427		0.14	0.05	0.04	0.17	0.16	0.08	0.21	0.13	0.21	0.21	0.37	0.15	0.11	0.02		0.14	0.17
O050	837718.4129	821142.4219		0.16	0.06	0.12	0.20	0.20	0.14	0.14	0.13	0.17	0.17	0.36	0.23	0.13	0.04		0.17	0.19
O051	837719.6519	821172.3963		0.16	0.13	0.04	0.20	0.20	0.15	0.14	0.12	0.16	0.17	0.32	0.26	0.12	0.03		0.17	0.19
O052	837720.8909	821202.3707		0.16	0.14	0.05	0.18	0.18	0.12	0.15	0.12	0.17	0.18	0.30	0.26	0.12	0.06		0.16	0.18
O053	837722.1298	821232.3451		0.15	0.12	0.03	0.17	0.16	0.10	0.14	0.12	0.18	0.18	0.29	0.28	0.15	0.12		0.15	0.19
O054	837723.3688	821262.3195		0.19	0.21	0.15	0.13	0.13	0.05	0.13	0.12	0.18	0.19	0.28	0.28	0.14	0.07		0.16	0.17
O055	837768.5787	821039.4704		0.02	0.06	0.08	0.22	0.22	0.13	0.05	0.10	0.02	0.02	0.11	0.11	0.07	0.09		0.11	0.10
O056	837769.6459	821069.4515		0.05	0.13	0.16	0.08	0.08	0.07	0.06	0.11	0.05	0.05	0.17	0.06	0.04	0.17		0.09	0.09
O057	837774.705	821107.0123		0.04	0.04	0.05	0.14	0.14	0.10	0.06	0.18	0.13	0.13	0.18	0.10	0.11	0.18		0.10	0.13
O058	837776.0538	821136.982		0.16	0.11	0.09	0.15	0.15	0.15	0.17	0.11	0.12	0.13	0.20	0.15	0.13	0.18		0.14	0.15
O059	837777.4026	821166.9517		0.20	0.03	0.13	0.17	0.16	0.16	0.19	0.12	0.13	0.13	0.25	0.20	0.12	0.16		0.16	0.17
O060	837778.7514	821196.9213		0.22	0.06	0.12	0.16	0.15	0.14	0.19	0.12	0.14	0.14	0.28	0.22	0.11	0.17		0.16	0.18
O061	837779.9153	821226.8987		0.23	0.11	0.08	0.13	0.12	0.13	0.17	0.11	0.14	0.14	0.30	0.23	0.12	0.14		0.15	0.18
O062	837781.0793	821256.8761		0.23	0.15	0.09	0.08	0.07	0.09	0.15	0.07	0.13	0.14	0.30	0.24	0.15	0.04		0.14	0.16

Wind Velocity Ratio, Base Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O063	837905.8574	821282.2419		0.09	0.15	0.27	0.27	0.27	0.21	0.16	0.09	0.02	0.05	0.21	0.13	0.09	0.26		0.20	0.16
O064	837906.4098	821312.2369		0.09	0.22	0.24	0.30	0.30	0.21	0.22	0.14	0.02	0.02	0.19	0.26	0.25	0.37		0.22	0.21
O065	837900.799	821341.9543		0.14	0.06	0.16	0.23	0.23	0.19	0.18	0.09	0.01	0.02	0.09	0.10	0.07	0.13		0.15	0.12
O066	837858.751	821376.7075		0.09	0.51	0.36	0.28	0.27	0.36	0.24	0.03	0.07	0.08	0.13	0.14	0.15	0.34		0.28	0.18
O067	837836.7413	821397.093		0.10	0.17	0.19	0.22	0.22	0.09	0.09	0.08	0.05	0.06	0.03	0.06	0.09	0.10		0.14	0.09
O068	837814.7315	821417.4786		0.07	0.12	0.09	0.11	0.11	0.08	0.14	0.18	0.03	0.03	0.16	0.17	0.12	0.34		0.11	0.14
O069	837907.2166	820941.7594		0.35	0.18	0.10	0.10	0.10	0.11	0.32	0.06	0.05	0.05	0.14	0.25	0.17	0.22		0.16	0.16
O070	837883.1779	820963.5399		0.27	0.16	0.10	0.06	0.06	0.09	0.28	0.05	0.03	0.03	0.01	0.24	0.13	0.09		0.13	0.12
O071	837979.6531	820991.0857		0.13	0.07	0.06	0.14	0.14	0.10	0.36	0.25	0.10	0.10	0.13	0.17	0.11	0.19		0.13	0.17
O072	837957.0857	821010.8521		0.02	0.09	0.10	0.16	0.16	0.10	0.35	0.22	0.06	0.06	0.08	0.14	0.06	0.10		0.13	0.13
O073	837934.5183	821030.6186		0.23	0.04	0.09	0.16	0.16	0.10	0.33	0.20	0.05	0.06	0.04	0.07	0.21	0.38		0.13	0.15
O074	838041.8332	821052.2632		0.10	0.14	0.13	0.30	0.30	0.20	0.32	0.28	0.17	0.17	0.19	0.08	0.13	0.21		0.20	0.19
O075	838019.0114	821071.7354		0.09	0.12	0.13	0.26	0.27	0.19	0.30	0.25	0.16	0.16	0.14	0.09	0.06	0.17		0.18	0.17
O076	837996.1896	821091.2076		0.14	0.14	0.07	0.23	0.23	0.17	0.28	0.21	0.08	0.07	0.05	0.11	0.26	0.28		0.16	0.17
O077	838066.5434	821154.2853		0.16	0.27	0.30	0.38	0.38	0.40	0.22	0.16	0.08	0.08	0.04	0.13	0.20	0.17		0.27	0.19
O078	837718.3121	821300.3583		0.07	0.28	0.33	0.17	0.17	0.07	0.08	0.08	0.13	0.13	0.23	0.19	0.08	0.41		0.18	0.16
O079	837746.6913	821310.0857		0.08	0.26	0.33	0.17	0.17	0.03	0.02	0.02	0.03	0.03	0.08	0.06	0.05	0.40		0.14	0.08
O080	837775.0821	821319.7791		0.09	0.25	0.32	0.10	0.11	0.07	0.06	0.05	0.06	0.07	0.16	0.15	0.09	0.38		0.15	0.12
O081	837804.3843	821330.5353		0.10	0.28	0.35	0.10	0.10	0.07	0.04	0.06	0.03	0.02	0.12	0.06	0.04	0.35		0.14	0.08
O082	837830.4738	821345.0837		0.16	0.44	0.46	0.19	0.19	0.05	0.02	0.09	0.03	0.03	0.13	0.08	0.08	0.35		0.20	0.10
O083	837721.9945	821334.0651		0.08	0.40	0.39	0.25	0.25	0.08	0.06	0.05	0.09	0.09	0.16	0.14	0.11	0.42		0.21	0.14
O084	837755.6946	821345.4837		0.03	0.42	0.40	0.25	0.25	0.14	0.02	0.07	0.08	0.09	0.05	0.11	0.09	0.40		0.20	0.12
O085	837785.0556	821354.7342		0.03	0.47	0.43	0.30	0.30	0.10	0.05	0.08	0.06	0.06	0.14	0.12	0.06	0.39		0.23	0.13
O086	837813.1149	821371.9343		0.13	0.51	0.31	0.25	0.24	0.28	0.16	0.09	0.03	0.02	0.06	0.06	0.08	0.39		0.24	0.13
O087	837743.2586	821371.8284		0.10	0.44	0.16	0.17	0.17	0.18	0.06	0.07	0.11	0.11	0.14	0.13	0.15	0.41		0.18	0.15
O088	837777.8265	821389.0285		0.04	0.17	0.07	0.11	0.11	0.21	0.18	0.06	0.10	0.10	0.11	0.11	0.12	0.34		0.13	0.14
O089	837829.2576	821089.1858		0.12	0.23	0.19	0.42	0.41	0.29	0.13	0.12	0.15	0.15	0.23	0.31	0.24	0.05		0.26	0.23
O090	837835.36	821114.3329		0.06	0.06	0.09	0.11	0.11	0.08	0.11	0.02	0.02	0.03	0.06	0.12	0.13	0.26		0.08	0.09
O091	837836.1729	821138.9981		0.04	0.13	0.13	0.16	0.16	0.25	0.30	0.04	0.05	0.05	0.08	0.13	0.12	0.19		0.15	0.14
O092	837837.0365	821168.6993		0.08	0.15	0.13	0.10	0.09	0.20	0.29	0.07	0.08	0.08	0.21	0.23	0.21	0.17		0.16	0.18
O093	837838.7661	821199.1156		0.15	0.03	0.05	0.07	0.06	0.21	0.28	0.08	0.10	0.10	0.28	0.29	0.06	0.18		0.14	0.19
O094	837839.1981	821228.6156		0.14	0.09	0.13	0.09	0.09	0.20	0.26	0.08	0.10	0.09	0.30	0.29	0.16	0.15		0.16	0.20
O095	837841.2164	821258.5987		0.14	0.14	0.09	0.08	0.08	0.14	0.21	0.07	0.08	0.08	0.31	0.27	0.15	0.13		0.14	0.18
O096	837851.4423	821276.619		0.18	0.37	0.38	0.30	0.31	0.16	0.09	0.03	0.03	0.03	0.10	0.13	0.09	0.22		0.23	0.12
O097	837880.3894	821276.0434		0.21	0.26	0.35	0.22	0.23	0.10	0.15	0.06	0.07	0.07	0.34	0.32	0.33	0.42		0.23	0.23
O098	837788.4206	821068.6249		0.03	0.08	0.11	0.27	0.27	0.19	0.13	0.07	0.09	0.09	0.15	0.22	0.19	0.10		0.16	0.17
O099	837809.8903	821070.6683		0.07	0.20	0.20	0.34	0.34	0.23	0.15	0.10	0.12	0.12	0.08	0.20	0.17	0.08		0.21	0.17
O100	837799.2832	821054.4488		0.11	0.25	0.25	0.27	0.27	0.18	0.08	0.12	0.14	0.14	0.08	0.11	0.11	0.07		0.19	0.13
O101	837905.118	821159.9335		0.12	0.23	0.22	0.21	0.20	0.16	0.16	0.09	0.11	0.10	0.30	0.32	0.29	0.26		0.20	0.22
O102	837905.8471	821189.9247		0.01	0.23	0.23	0.11	0.12	0.05	0.23	0.04	0.05	0.01	0.31	0.22	0.14	0.09		0.15	0.15
O103	837906.7709	821219.9104		0.09	0.17	0.17	0.09	0.09	0.06	0.18	0.04	0.05	0.02	0.25	0.17	0.05	0.15		0.13	0.12
O104	837908.4733	821251.5377		0.06	0.09	0.11	0.07	0.08	0.03	0.17	0.03	0.04	0.01	0.21	0.11	0.13	0.18		0.09	0.11
O105	837994.9121	821287.1066		0.24	0.30	0.26	0.29	0.29	0.18	0.07	0.04	0.04	0.07	0.03	0.14	0.16	0.12		0.21	0.12
O106	837970.0451	821303.8885		0.11	0.17	0.13	0.24	0.24	0.21	0.13	0.05	0.05	0.07	0.05	0.15	0.07	0.09		0.16	0.12
O107	837951.8239	821327.721		0.13	0.32	0.28	0.34	0.34	0.29	0.16	0.05	0.06	0.07	0.06	0.13	0.12	0.18		0.24	0.15
O108	837935.2263	821352.9729		0.21	0.42	0.37	0.39	0.39	0.34	0.17	0.04	0.04	0.06	0.15	0.12	0.11	0.06		0.29	0.16
O109	837916.3123	821375.214		0.15	0.42	0.40	0.40	0.40	0.34	0.22	0.05	0.06	0.06	0.21	0.18	0.34	0.52		0.31	0.24
O110	837942.3071	821384.9073		0.17	0.36	0.36	0.40	0.40	0.37	0.29	0.07	0.09	0.07	0.16	0.17	0.24	0.34		0.31	0.22
O111	837963.364	821362.4345		0.17	0.39	0.36	0.39	0.39	0.37	0.25	0.08	0.09	0.10	0.21	0.24	0.30	0.27		0.31	0.25
O112	837981.6875	821338.8127		0.09	0.37	0.33	0.37	0.37	0.34	0.17	0.03	0.04	0.05	0.12	0.10	0.12	0.12		0.27	0.15
O113	837999.5347	821319.5748		0.16	0.37	0.33	0.36	0.36	0.30	0.11	0.03	0.04	0.04	0.07	0.07	0.13	0.17		0.25	0.13
O114	838018.3418	821290.9256		0.30	0.41	0.37	0.36	0.36	0.22	0.07	0.06	0.07	0.08	0.13	0.17	0.10	0.22		0.27	0.16

Wind Velocity Ratio, Base Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O115	838034.102	821315.0249		0.27	0.43	0.40	0.40	0.40	0.31	0.12	0.06	0.07	0.08	0.11	0.15	0.11	0.14		0.30	0.16
O116	838016.9993	821348.0503		0.14	0.42	0.39	0.39	0.39	0.35	0.25	0.03	0.03	0.04	0.14	0.13	0.15	0.18		0.30	0.18
O117	837996.8242	821373.6404		0.13	0.39	0.37	0.39	0.39	0.37	0.31	0.07	0.09	0.10	0.19	0.24	0.28	0.35		0.32	0.25
O118	837977.762	821393.0576		0.13	0.36	0.38	0.44	0.44	0.39	0.36	0.12	0.14	0.14	0.20	0.30	0.18	0.19		0.34	0.26
O119	837949.8296	821400.5297		0.14	0.32	0.30	0.31	0.31	0.35	0.35	0.04	0.05	0.05	0.17	0.23	0.08	0.06		0.28	0.19
O120	837905.945	821421.329		0.31	0.28	0.23	0.22	0.22	0.07	0.20	0.07	0.08	0.09	0.24	0.26	0.11	0.21		0.21	0.17
O121	837898.8866	821400.4287		0.07	0.19	0.20	0.07	0.07	0.08	0.11	0.05	0.06	0.06	0.17	0.20	0.15	0.22		0.12	0.13
O122	837853.475	821404.74		0.09	0.18	0.15	0.12	0.12	0.16	0.11	0.07	0.08	0.09	0.07	0.12	0.12	0.08		0.13	0.11
O123	837872.317	821384.4606		0.06	0.08	0.09	0.13	0.13	0.08	0.06	0.04	0.05	0.06	0.17	0.23	0.25	0.25		0.11	0.15
O124	837849.5725	821424.2231		0.04	0.14	0.07	0.09	0.09	0.18	0.11	0.05	0.06	0.06	0.09	0.14	0.17	0.32		0.11	0.13
D01	837827.3723	821284.5045		0.03	0.18	0.15	0.21	0.21	0.08	0.05	0.01	0.02	0.01	0.17	0.07	0.07	0.23		0.13	0.10
D02	837875.3914	821291.3735		0.24	0.19	0.20	0.32	0.32	0.22	0.11	0.05	0.06	0.07	0.14	0.20	0.25	0.44		0.21	0.19
D03	837919.5661	821285.9497		0.07	0.34	0.35	0.42	0.42	0.29	0.19	0.04	0.05	0.06	0.05	0.25	0.35	0.43		0.27	0.22
D04	837952.8274	821287.0337		0.17	0.46	0.46	0.39	0.39	0.12	0.09	0.07	0.08	0.08	0.22	0.24	0.37	0.36		0.29	0.22
D05	837877.6186	821251.2285		0.05	0.09	0.07	0.03	0.03	0.08	0.11	0.02	0.02	0.02	0.06	0.06	0.08	0.05		0.06	0.06
D06	837878.2297	821193.2792		0.04	0.11	0.10	0.04	0.04	0.03	0.02	0.02	0.03	0.03	0.12	0.22	0.08	0.09		0.07	0.09

Wind Velocity Ratio, Proposed Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
P01	837848.1486	821265.2969		0.22	0.33	0.32	0.25	0.23	0.10	0.04	0.12	0.08	0.05	0.29	0.25	0.25	0.21		0.22	0.19
P02	837847.3208	821254.4717		0.03	0.09	0.05	0.05	0.11	0.05	0.05	0.15	0.10	0.06	0.33	0.29	0.22	0.18		0.09	0.18
P03	837846.9514	821244.4786		0.03	0.10	0.04	0.13	0.05	0.03	0.05	0.16	0.10	0.07	0.33	0.28	0.14	0.11		0.11	0.16
P04	837846.582	821234.4854		0.02	0.11	0.17	0.04	0.03	0.03	0.06	0.17	0.10	0.08	0.33	0.28	0.11	0.08		0.11	0.15
P05	837846.2126	821224.4922		0.07	0.09	0.20	0.06	0.06	0.06	0.13	0.20	0.11	0.09	0.33	0.29	0.13	0.13		0.13	0.18
P06	837845.8432	821214.499		0.10	0.11	0.14	0.13	0.14	0.14	0.17	0.19	0.10	0.10	0.33	0.30	0.16	0.17		0.16	0.21
P07	837845.4738	821204.5059		0.11	0.21	0.11	0.16	0.17	0.15	0.19	0.19	0.10	0.10	0.32	0.32	0.18	0.20		0.18	0.22
P08	837845.2487	821194.5217		0.11	0.25	0.13	0.18	0.18	0.16	0.21	0.20	0.10	0.11	0.31	0.32	0.20	0.26		0.19	0.23
P09	837844.735	821184.5195		0.09	0.18	0.12	0.20	0.21	0.17	0.22	0.20	0.09	0.11	0.29	0.31	0.20	0.31		0.19	0.23
P10	837844.3656	821174.5263		0.06	0.18	0.12	0.22	0.23	0.19	0.23	0.21	0.09	0.11	0.27	0.29	0.20	0.35		0.19	0.23
P11	837843.9962	821164.5332		0.05	0.15	0.11	0.22	0.22	0.15	0.15	0.15	0.07	0.09	0.24	0.24	0.20	0.34		0.16	0.20
P12	837843.9962	821154.54		0.03	0.08	0.17	0.20	0.21	0.11	0.09	0.10	0.04	0.05	0.19	0.20	0.18	0.30		0.14	0.16
P13	837843.4049	821144.0414		0.01	0.04	0.07	0.18	0.19	0.09	0.08	0.07	0.03	0.03	0.11	0.16	0.17	0.26		0.10	0.13
P14	837842.8881	821134.5536		0.02	0.07	0.08	0.13	0.14	0.07	0.07	0.05	0.05	0.01	0.08	0.15	0.15	0.24		0.09	0.10
P15	837842.5187	821124.5605		0.02	0.12	0.08	0.08	0.08	0.07	0.06	0.03	0.05	0.01	0.17	0.17	0.12	0.20		0.09	0.11
P16	837842.1493	821114.5673		0.06	0.14	0.13	0.15	0.15	0.10	0.04	0.02	0.03	0.06	0.15	0.09	0.07	0.15		0.11	0.09
P17	837841.7799	821104.5741		0.14	0.21	0.22	0.30	0.30	0.16	0.04	0.03	0.18	0.17	0.29	0.29	0.14	0.09		0.22	0.19
P18	837842.5296	821094.0798		0.21	0.29	0.32	0.37	0.37	0.18	0.10	0.03	0.20	0.18	0.26	0.31	0.23	0.14		0.27	0.22
P19	837853.2848	821094.8537		0.28	0.33	0.35	0.34	0.34	0.15	0.08	0.03	0.20	0.18	0.25	0.29	0.24	0.19		0.27	0.21
P20	837861.3935	821100.868		0.30	0.34	0.35	0.35	0.35	0.15	0.07	0.04	0.20	0.18	0.27	0.28	0.25	0.18		0.27	0.21
P21	837869.8475	821107.9724		0.32	0.35	0.37	0.37	0.38	0.18	0.06	0.07	0.20	0.18	0.29	0.29	0.25	0.15		0.29	0.22
P22	837877.3922	821114.9105		0.32	0.36	0.38	0.40	0.40	0.21	0.06	0.08	0.20	0.18	0.32	0.32	0.24	0.14		0.31	0.24
P23	837885.0522	821122.3098		0.31	0.36	0.40	0.42	0.42	0.22	0.07	0.10	0.19	0.18	0.34	0.35	0.22	0.15		0.32	0.25
P24	837892.7069	821129.4184		0.32	0.38	0.41	0.43	0.43	0.24	0.06	0.10	0.19	0.18	0.36	0.36	0.22	0.17		0.33	0.26
P25	837901.7463	821137.8129		0.32	0.38	0.42	0.42	0.42	0.25	0.10	0.10	0.18	0.19	0.37	0.38	0.22	0.20		0.34	0.27
P26	837905.6312	821146.3139		0.28	0.36	0.40	0.41	0.41	0.27	0.15	0.11	0.15	0.18	0.36	0.38	0.22	0.20		0.33	0.27
P27	837898.6802	821155.2203		0.12	0.28	0.32	0.29	0.28	0.19	0.14	0.12	0.09	0.09	0.29	0.31	0.16	0.13		0.24	0.21
P28	837898.8586	821165.5444		0.07	0.24	0.29	0.22	0.22	0.13	0.14	0.13	0.10	0.11	0.27	0.25	0.22	0.15		0.20	0.19
P29	837899.0314	821175.5407		0.07	0.21	0.26	0.20	0.20	0.13	0.16	0.12	0.06	0.08	0.24	0.20	0.18	0.04		0.18	0.16
P30	837898.9295	821184.5401		0.07	0.21	0.25	0.19	0.19	0.13	0.18	0.13	0.07	0.10	0.24	0.17	0.17	0.04		0.18	0.16
P31	837872.1948	821196.0993		0.01	0.06	0.07	0.08	0.08	0.01	0.04	0.03	0.02	0.02	0.05	0.02	0.11	0.07		0.05	0.05
P32	837899.1554	821201.9848		0.03	0.15	0.10	0.10	0.10	0.10	0.15	0.13	0.06	0.10	0.25	0.16	0.13	0.02		0.12	0.14
P33	837899.5166	821210.9775		0.03	0.13	0.11	0.07	0.07	0.09	0.11	0.13	0.05	0.09	0.25	0.16	0.25	0.28		0.10	0.16
P34	837899.9453	821219.9673		0.03	0.11	0.13	0.07	0.08	0.07	0.07	0.12	0.04	0.08	0.25	0.17	0.07	0.08		0.10	0.12
P35	837900.177	821228.9643		0.04	0.09	0.11	0.08	0.09	0.07	0.06	0.12	0.02	0.08	0.25	0.16	0.08	0.12		0.09	0.12
P36	837900.4744	821237.9594		0.09	0.11	0.08	0.07	0.07	0.10	0.06	0.13	0.02	0.07	0.24	0.15	0.16	0.11		0.10	0.13
P37	837895.8873	821246.4201		0.08	0.07	0.14	0.09	0.08	0.13	0.05	0.11	0.03	0.05	0.21	0.10	0.14	0.05		0.10	0.11
P38	837874.0999	821247.235		0.07	0.13	0.14	0.14	0.13	0.10	0.07	0.02	0.01	0.02	0.14	0.14	0.15	0.13		0.11	0.11
P39	837874.7958	821260.9193		0.06	0.17	0.21	0.13	0.13	0.16	0.07	0.03	0.02	0.02	0.12	0.14	0.14	0.14		0.13	0.11
P40	837875.0099	821270.2824		0.28	0.39	0.36	0.29	0.29	0.13	0.15	0.04	0.06	0.01	0.17	0.21	0.31	0.32		0.25	0.18
P41	837866.015	821270.5863		0.27	0.41	0.39	0.30	0.30	0.16	0.14	0.04	0.07	0.02	0.18	0.20	0.31	0.34		0.26	0.19
P42	837857.0229	821270.9641		0.25	0.40	0.39	0.29	0.29	0.17	0.13	0.06	0.08	0.02	0.29	0.26	0.28	0.34		0.27	0.21
O001	837689.8385	821280.8902		0.10	0.16	0.23	0.06	0.04	0.07	0.04	0.02	0.04	0.03	0.14	0.06	0.05	0.32		0.10	0.08
O002	837723.5232	821278.9883		0.17	0.14	0.21	0.08	0.09	0.08	0.04	0.12	0.20	0.18	0.29	0.27	0.12	0.30		0.15	0.18
O003	837753.0211	821279.1785		0.14	0.09	0.15	0.04	0.05	0.06	0.04	0.03	0.07	0.05	0.07	0.14	0.08	0.29		0.08	0.09
O004	837779.6644	821280.7		0.14	0.06	0.12	0.13	0.11	0.01	0.03	0.05	0.18	0.16	0.29	0.24	0.16	0.28		0.12	0.16
O005	837916.7856	821268.6982		0.17	0.27	0.35	0.30	0.30	0.04	0.10	0.07	0.05	0.04	0.14	0.18	0.18	0.22		0.20	0.14
O006	837943.7994	821267.7037		0.15	0.19	0.30	0.36	0.36	0.29	0.14	0.07	0.10	0.06	0.07	0.14	0.15	0.31		0.24	0.17
O007	837961.1744	821266.3647		0.13	0.32	0.34	0.30	0.30	0.16	0.05	0.07	0.09	0.05	0.09	0.08	0.16	0.28		0.21	0.13
O008	837960.3213	821247.1836		0.09	0.15	0.18	0.10	0.10	0.21	0.06	0.01	0.04	0.04	0.10	0.18	0.12	0.09		0.13	0.11
O009	837807.0428	821292.9648		0.08	0.07	0.11	0.11	0.10	0.06	0.03	0.02	0.03	0.02	0.07	0.08	0.07	0.25		0.08	0.07
O010	837832.5731	821308.7192		0.06	0.04	0.06	0.11	0.11	0.05	0.04	0.03	0.03	0.02	0.15	0.06	0.03	0.21		0.07	0.07

Wind Velocity Ratio, Proposed Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O011	837852.0991	821331.4949		0.04	0.13	0.22	0.08	0.07	0.08	0.03	0.03	0.05	0.02	0.25	0.18	0.18	0.32		0.11	0.13
O012	837871.7222	821354.1872		0.25	0.33	0.43	0.40	0.40	0.25	0.20	0.13	0.10	0.05	0.28	0.27	0.29	0.48		0.31	0.26
O013	837891.3072	821376.9121		0.17	0.33	0.39	0.42	0.42	0.33	0.25	0.12	0.10	0.01	0.23	0.19	0.34	0.50		0.31	0.25
O014	837910.8923	821399.6371		0.10	0.13	0.25	0.16	0.16	0.22	0.18	0.07	0.11	0.04	0.16	0.21	0.12	0.23		0.18	0.16
O015	837931.5592	821421.383		0.38	0.31	0.35	0.24	0.24	0.14	0.22	0.02	0.10	0.07	0.27	0.31	0.04	0.16		0.26	0.18
O016	837682.6729	821092.1394		0.06	0.08	0.16	0.09	0.10	0.05	0.02	0.05	0.15	0.04	0.15	0.18	0.01	0.13		0.10	0.09
O017	837715.443	821090.806		0.07	0.10	0.15	0.12	0.12	0.06	0.12	0.14	0.34	0.27	0.39	0.24	0.19	0.13		0.15	0.20
O018	837742.6524	821090.5699		0.11	0.10	0.04	0.17	0.17	0.13	0.15	0.04	0.17	0.14	0.13	0.18	0.14	0.09		0.13	0.14
O019	837772.6421	821089.7852		0.11	0.11	0.24	0.17	0.17	0.16	0.22	0.08	0.14	0.12	0.21	0.23	0.19	0.14		0.18	0.18
O020	837802.6319	821089.0005		0.10	0.08	0.06	0.10	0.08	0.17	0.21	0.06	0.07	0.03	0.15	0.21	0.15	0.05		0.12	0.14
O021	837718.1576	820998.087		0.10	0.03	0.11	0.03	0.01	0.04	0.12	0.07	0.24	0.23	0.34	0.36	0.40	0.24		0.11	0.22
O022	837747.4363	821004.626		0.07	0.04	0.05	0.02	0.03	0.02	0.12	0.02	0.25	0.22	0.33	0.33	0.37	0.20		0.10	0.21
O023	837775.2203	821015.9417		0.20	0.24	0.31	0.18	0.19	0.12	0.07	0.10	0.28	0.27	0.39	0.36	0.37	0.21		0.22	0.26
O024	837797.8719	821035.6116		0.25	0.30	0.33	0.19	0.20	0.12	0.02	0.04	0.24	0.25	0.37	0.30	0.30	0.17		0.22	0.22
O025	837820.5235	821055.2815		0.29	0.32	0.37	0.24	0.25	0.14	0.09	0.01	0.19	0.19	0.26	0.12	0.15	0.19		0.23	0.16
O026	837843.1751	821074.9514		0.31	0.33	0.39	0.28	0.28	0.15	0.10	0.01	0.19	0.18	0.22	0.20	0.17	0.21		0.26	0.17
O027	837916.6007	821157.5422		0.28	0.35	0.39	0.39	0.38	0.28	0.19	0.11	0.14	0.18	0.36	0.39	0.25	0.24		0.33	0.28
O028	837928.7116	821185.0314		0.18	0.28	0.31	0.19	0.19	0.25	0.07	0.10	0.06	0.02	0.27	0.29	0.15	0.15		0.22	0.18
O029	837948.8537	821209.5287		0.18	0.30	0.28	0.13	0.13	0.09	0.09	0.11	0.07	0.01	0.28	0.27	0.19	0.17		0.18	0.16
O030	837961.6155	821227.2203		0.09	0.17	0.09	0.07	0.07	0.19	0.07	0.07	0.07	0.04	0.20	0.25	0.23	0.22		0.13	0.16
O031	837991.7848	821254.3929		0.11	0.22	0.08	0.07	0.07	0.06	0.05	0.06	0.03	0.01	0.15	0.19	0.10	0.01		0.10	0.09
O032	838016.8545	821268.2334		0.34	0.39	0.37	0.24	0.24	0.11	0.09	0.06	0.12	0.06	0.21	0.24	0.22	0.14		0.24	0.17
O033	838042.4668	821281.9154		0.37	0.43	0.41	0.33	0.33	0.21	0.04	0.06	0.14	0.08	0.31	0.31	0.26	0.18		0.30	0.22
O034	837793.4425	820943.4247		0.47	0.07	0.19	0.10	0.09	0.07	0.20	0.10	0.08	0.05	0.36	0.41	0.38	0.35		0.18	0.24
O035	837817.7762	820960.9708		0.47	0.04	0.18	0.08	0.07	0.05	0.04	0.03	0.13	0.10	0.29	0.43	0.43	0.37		0.16	0.22
O036	837841.8493	820978.873		0.45	0.13	0.17	0.07	0.06	0.08	0.05	0.07	0.09	0.06	0.11	0.24	0.44	0.39		0.14	0.16
O037	837863.2658	820999.8809		0.47	0.09	0.16	0.02	0.02	0.03	0.10	0.12	0.15	0.05	0.14	0.25	0.43	0.39		0.12	0.17
O038	837884.6823	821020.8889		0.48	0.10	0.15	0.05	0.04	0.03	0.07	0.06	0.17	0.07	0.18	0.22	0.45	0.39		0.13	0.17
O039	837906.0988	821041.8968		0.49	0.12	0.11	0.10	0.10	0.16	0.28	0.11	0.16	0.04	0.20	0.14	0.47	0.41		0.17	0.20
O040	837927.5153	821062.9047		0.51	0.25	0.11	0.04	0.04	0.03	0.23	0.26	0.13	0.10	0.21	0.12	0.46	0.38		0.15	0.19
O041	837948.3411	821084.4984		0.49	0.30	0.11	0.01	0.02	0.03	0.05	0.03	0.20	0.11	0.24	0.07	0.47	0.39		0.13	0.15
O042	837969.1669	821106.0921		0.49	0.35	0.10	0.20	0.22	0.19	0.24	0.10	0.15	0.03	0.24	0.13	0.47	0.38		0.22	0.21
O043	837989.9927	821127.6858		0.48	0.41	0.09	0.09	0.10	0.04	0.05	0.22	0.13	0.10	0.24	0.16	0.46	0.37		0.16	0.19
O044	838010.8184	821149.2795		0.47	0.41	0.33	0.21	0.21	0.05	0.02	0.08	0.17	0.13	0.26	0.15	0.46	0.38		0.23	0.19
O045	838030.54	821171.8861		0.46	0.41	0.22	0.38	0.38	0.38	0.13	0.13	0.18	0.15	0.26	0.17	0.44	0.38		0.31	0.26
O046	838050.0655	821194.6623		0.45	0.45	0.26	0.13	0.13	0.24	0.16	0.14	0.18	0.17	0.26	0.20	0.42	0.36		0.24	0.23
O047	837713.9362	821022.5054		0.14	0.05	0.13	0.03	0.03	0.05	0.13	0.15	0.37	0.33	0.42	0.13	0.13	0.09		0.12	0.18
O048	837715.0554	821052.4845		0.04	0.05	0.08	0.02	0.04	0.07	0.16	0.17	0.40	0.34	0.48	0.20	0.18	0.13		0.12	0.21
O049	837717.2937	821112.4427		0.14	0.06	0.06	0.13	0.13	0.09	0.16	0.13	0.31	0.25	0.37	0.15	0.11	0.05		0.14	0.17
O050	837718.4129	821142.4219		0.16	0.10	0.03	0.16	0.16	0.12	0.11	0.13	0.24	0.22	0.36	0.23	0.11	0.06		0.15	0.19
O051	837719.6519	821172.3963		0.16	0.13	0.12	0.15	0.16	0.14	0.08	0.12	0.21	0.20	0.32	0.26	0.10	0.03		0.16	0.18
O052	837720.8909	821202.3707		0.16	0.14	0.17	0.12	0.12	0.12	0.03	0.12	0.20	0.20	0.30	0.26	0.08	0.06		0.15	0.17
O053	837722.1298	821232.3451		0.15	0.13	0.16	0.12	0.12	0.09	0.03	0.12	0.20	0.19	0.29	0.28	0.13	0.10		0.15	0.17
O054	837723.3688	821262.3195		0.19	0.15	0.20	0.11	0.11	0.03	0.03	0.12	0.20	0.19	0.28	0.28	0.13	0.06		0.14	0.16
O055	837768.5787	821039.4704		0.02	0.02	0.13	0.20	0.20	0.10	0.05	0.10	0.05	0.02	0.11	0.11	0.06	0.08		0.11	0.10
O056	837769.6459	821069.4515		0.05	0.11	0.12	0.06	0.06	0.04	0.05	0.11	0.08	0.04	0.17	0.05	0.02	0.07		0.08	0.07
O057	837774.705	821107.0123		0.04	0.02	0.26	0.15	0.16	0.12	0.11	0.18	0.17	0.14	0.18	0.10	0.09	0.14		0.14	0.13
O058	837776.0538	821136.982		0.16	0.05	0.22	0.18	0.19	0.14	0.17	0.11	0.17	0.13	0.20	0.15	0.10	0.17		0.16	0.15
O059	837777.4026	821166.9517		0.20	0.15	0.19	0.18	0.18	0.16	0.19	0.12	0.18	0.15	0.25	0.20	0.08	0.15		0.18	0.17
O060	837778.7514	821196.9213		0.22	0.18	0.12	0.15	0.15	0.15	0.17	0.12	0.18	0.16	0.28	0.22	0.08	0.16		0.17	0.17
O061	837779.9153	821226.8987		0.23	0.16	0.05	0.12	0.13	0.12	0.08	0.11	0.19	0.17	0.30	0.23	0.09	0.14		0.15	0.17
O062	837781.0793	821256.8761		0.23	0.17	0.18	0.08	0.09	0.04	0.03	0.07	0.18	0.16	0.30	0.24	0.14	0.05		0.14	0.15

Wind Velocity Ratio, Proposed Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O063	837905.8574	821282.2419		0.09	0.08	0.28	0.26	0.26	0.17	0.13	0.09	0.04	0.02	0.21	0.12	0.16	0.23		0.18	0.15
O064	837906.4098	821312.2369		0.09	0.18	0.23	0.31	0.31	0.21	0.18	0.14	0.02	0.02	0.19	0.26	0.22	0.26		0.21	0.20
O065	837900.799	821341.9543		0.14	0.09	0.18	0.23	0.23	0.20	0.16	0.09	0.08	0.01	0.09	0.11	0.07	0.11		0.16	0.12
O066	837858.751	821376.7075		0.10	0.40	0.37	0.23	0.22	0.38	0.22	0.03	0.11	0.05	0.13	0.12	0.15	0.36		0.26	0.17
O067	837836.7413	821397.093		0.09	0.06	0.17	0.20	0.20	0.09	0.07	0.08	0.07	0.04	0.03	0.06	0.09	0.07		0.12	0.08
O068	837814.7315	821417.4786		0.07	0.07	0.07	0.10	0.11	0.09	0.12	0.18	0.04	0.02	0.16	0.16	0.15	0.33		0.10	0.14
O069	837907.2166	820941.7594		0.34	0.24	0.15	0.09	0.09	0.12	0.20	0.06	0.07	0.03	0.14	0.27	0.19	0.20		0.17	0.15
O070	837883.1779	820963.5399		0.26	0.21	0.13	0.07	0.07	0.10	0.21	0.05	0.04	0.02	0.01	0.24	0.13	0.08		0.13	0.11
O071	837979.6531	820991.0857		0.13	0.04	0.05	0.08	0.07	0.13	0.36	0.25	0.11	0.12	0.13	0.17	0.16	0.23		0.12	0.17
O072	837957.0857	821010.8521		0.03	0.08	0.04	0.08	0.07	0.14	0.34	0.22	0.12	0.10	0.08	0.14	0.06	0.16		0.11	0.14
O073	837934.5183	821030.6186		0.21	0.11	0.05	0.08	0.07	0.13	0.33	0.20	0.04	0.05	0.04	0.07	0.25	0.39		0.11	0.14
O074	838041.8332	821052.2632		0.10	0.11	0.10	0.31	0.30	0.17	0.32	0.28	0.14	0.15	0.19	0.08	0.14	0.25		0.19	0.19
O075	838019.0114	821071.7354		0.09	0.11	0.08	0.26	0.27	0.17	0.29	0.25	0.14	0.15	0.14	0.09	0.08	0.22		0.17	0.17
O076	837996.1896	821091.2076		0.14	0.09	0.09	0.19	0.21	0.18	0.27	0.21	0.11	0.12	0.05	0.11	0.25	0.33		0.15	0.17
O077	838066.5434	821154.2853		0.15	0.12	0.25	0.38	0.38	0.40	0.18	0.16	0.07	0.10	0.04	0.13	0.26	0.24		0.24	0.20
O078	837718.3121	821300.3583		0.07	0.21	0.28	0.14	0.14	0.02	0.07	0.08	0.12	0.10	0.23	0.19	0.06	0.41		0.15	0.14
O079	837746.6913	821310.0857		0.08	0.21	0.27	0.13	0.13	0.06	0.08	0.02	0.04	0.04	0.08	0.05	0.05	0.41		0.13	0.08
O080	837775.0821	821319.7791		0.10	0.20	0.28	0.09	0.09	0.09	0.09	0.05	0.11	0.11	0.16	0.16	0.08	0.39		0.14	0.13
O081	837804.3843	821330.5353		0.10	0.21	0.30	0.08	0.09	0.06	0.06	0.06	0.01	0.03	0.12	0.06	0.06	0.37		0.12	0.09
O082	837830.4738	821345.0837		0.17	0.31	0.42	0.19	0.18	0.04	0.06	0.09	0.02	0.02	0.13	0.09	0.11	0.36		0.18	0.11
O083	837721.9945	821334.0651		0.09	0.29	0.38	0.25	0.25	0.10	0.10	0.05	0.08	0.08	0.16	0.14	0.10	0.44		0.20	0.15
O084	837755.6946	821345.4837		0.03	0.31	0.39	0.26	0.25	0.13	0.12	0.07	0.10	0.10	0.05	0.11	0.09	0.42		0.20	0.13
O085	837785.0556	821354.7342		0.03	0.33	0.41	0.31	0.30	0.09	0.11	0.08	0.09	0.09	0.14	0.12	0.08	0.40		0.22	0.14
O086	837813.1149	821371.9343		0.13	0.35	0.31	0.24	0.24	0.24	0.18	0.09	0.05	0.04	0.06	0.06	0.10	0.41		0.21	0.13
O087	837743.2586	821371.8284		0.10	0.27	0.17	0.15	0.14	0.16	0.13	0.07	0.13	0.12	0.14	0.13	0.16	0.43		0.16	0.15
O088	837777.8265	821389.0285		0.04	0.10	0.07	0.10	0.11	0.18	0.17	0.06	0.11	0.12	0.11	0.11	0.13	0.36		0.11	0.14
O089	837829.2576	821089.1858		0.12	0.23	0.31	0.40	0.40	0.23	0.16	0.06	0.18	0.15	0.27	0.30	0.22	0.14		0.27	0.23
O090	837835.36	821114.3329		0.06	0.05	0.07	0.07	0.06	0.08	0.05	0.02	0.05	0.05	0.09	0.13	0.09	0.17		0.07	0.09
O091	837836.1729	821138.9981		0.04	0.08	0.12	0.19	0.20	0.08	0.10	0.04	0.05	0.01	0.11	0.13	0.20	0.28		0.12	0.12
O092	837837.0365	821168.6993		0.08	0.18	0.15	0.26	0.26	0.20	0.18	0.16	0.06	0.08	0.16	0.23	0.22	0.35		0.19	0.20
O093	837838.7661	821199.1156		0.15	0.20	0.16	0.20	0.20	0.20	0.24	0.23	0.10	0.12	0.25	0.30	0.20	0.24		0.20	0.23
O094	837839.1981	821228.6156		0.14	0.25	0.20	0.22	0.22	0.21	0.23	0.23	0.11	0.11	0.25	0.29	0.12	0.10		0.22	0.21
O095	837841.2164	821258.5987		0.14	0.22	0.19	0.09	0.04	0.08	0.12	0.18	0.09	0.08	0.26	0.28	0.22	0.16		0.15	0.17
O096	837851.4423	821276.619		0.18	0.33	0.36	0.27	0.27	0.16	0.12	0.07	0.04	0.02	0.14	0.12	0.13	0.23		0.22	0.13
O097	837880.3894	821276.0434		0.22	0.29	0.30	0.18	0.18	0.10	0.12	0.04	0.07	0.02	0.31	0.32	0.33	0.40		0.21	0.21
O098	837788.4206	821068.6249		0.03	0.03	0.16	0.25	0.25	0.14	0.14	0.07	0.14	0.10	0.11	0.23	0.17	0.07		0.15	0.15
O099	837809.8903	821070.6683		0.07	0.19	0.29	0.33	0.33	0.17	0.15	0.05	0.15	0.13	0.13	0.21	0.15	0.14		0.22	0.16
O100	837799.2832	821054.4488		0.11	0.22	0.29	0.26	0.27	0.14	0.09	0.05	0.17	0.15	0.20	0.11	0.07	0.15		0.19	0.14
O101	837905.118	821159.9335		0.14	0.25	0.30	0.28	0.28	0.21	0.17	0.13	0.10	0.12	0.24	0.33	0.20	0.18		0.24	0.22
O102	837905.8471	821189.9247		0.02	0.17	0.24	0.17	0.17	0.14	0.10	0.14	0.09	0.12	0.36	0.23	0.21	0.08		0.17	0.19
O103	837906.7709	821219.9104		0.09	0.17	0.17	0.09	0.10	0.07	0.04	0.12	0.01	0.09	0.33	0.17	0.12	0.06		0.12	0.14
O104	837908.4733	821251.5377		0.05	0.06	0.07	0.06	0.06	0.16	0.06	0.13	0.07	0.05	0.28	0.10	0.28	0.18		0.09	0.15
O105	837994.9121	821287.1066		0.24	0.31	0.28	0.28	0.28	0.18	0.08	0.03	0.11	0.04	0.21	0.14	0.15	0.19		0.22	0.15
O106	837970.0451	821303.8885		0.11	0.18	0.13	0.24	0.24	0.20	0.12	0.03	0.06	0.05	0.03	0.15	0.11	0.08		0.16	0.11
O107	837951.8239	821327.721		0.13	0.29	0.28	0.34	0.34	0.29	0.15	0.03	0.06	0.05	0.07	0.13	0.11	0.14		0.23	0.14
O108	837935.2263	821352.9729		0.20	0.35	0.37	0.39	0.39	0.34	0.18	0.04	0.09	0.07	0.09	0.12	0.12	0.14		0.28	0.16
O109	837916.3123	821375.214		0.15	0.31	0.39	0.40	0.40	0.34	0.21	0.03	0.10	0.03	0.15	0.17	0.35	0.49		0.29	0.22
O110	837942.3071	821384.9073		0.17	0.23	0.34	0.41	0.41	0.37	0.28	0.04	0.11	0.06	0.14	0.18	0.25	0.14		0.29	0.21
O111	837963.364	821362.4345		0.17	0.28	0.36	0.38	0.38	0.37	0.24	0.05	0.11	0.09	0.18	0.24	0.31	0.44		0.30	0.25
O112	837981.6875	821338.8127		0.09	0.29	0.33	0.38	0.37	0.33	0.17	0.05	0.10	0.04	0.07	0.09	0.12	0.07		0.26	0.14
O113	837999.5347	821319.5748		0.16	0.34	0.34	0.37	0.37	0.30	0.13	0.05	0.11	0.02	0.19	0.08	0.11	0.15		0.26	0.15
O114	838018.3418	821290.9256		0.29	0.39	0.38	0.35	0.35	0.24	0.07	0.05	0.13	0.06	0.30	0.17	0.14	0.15		0.28	0.18

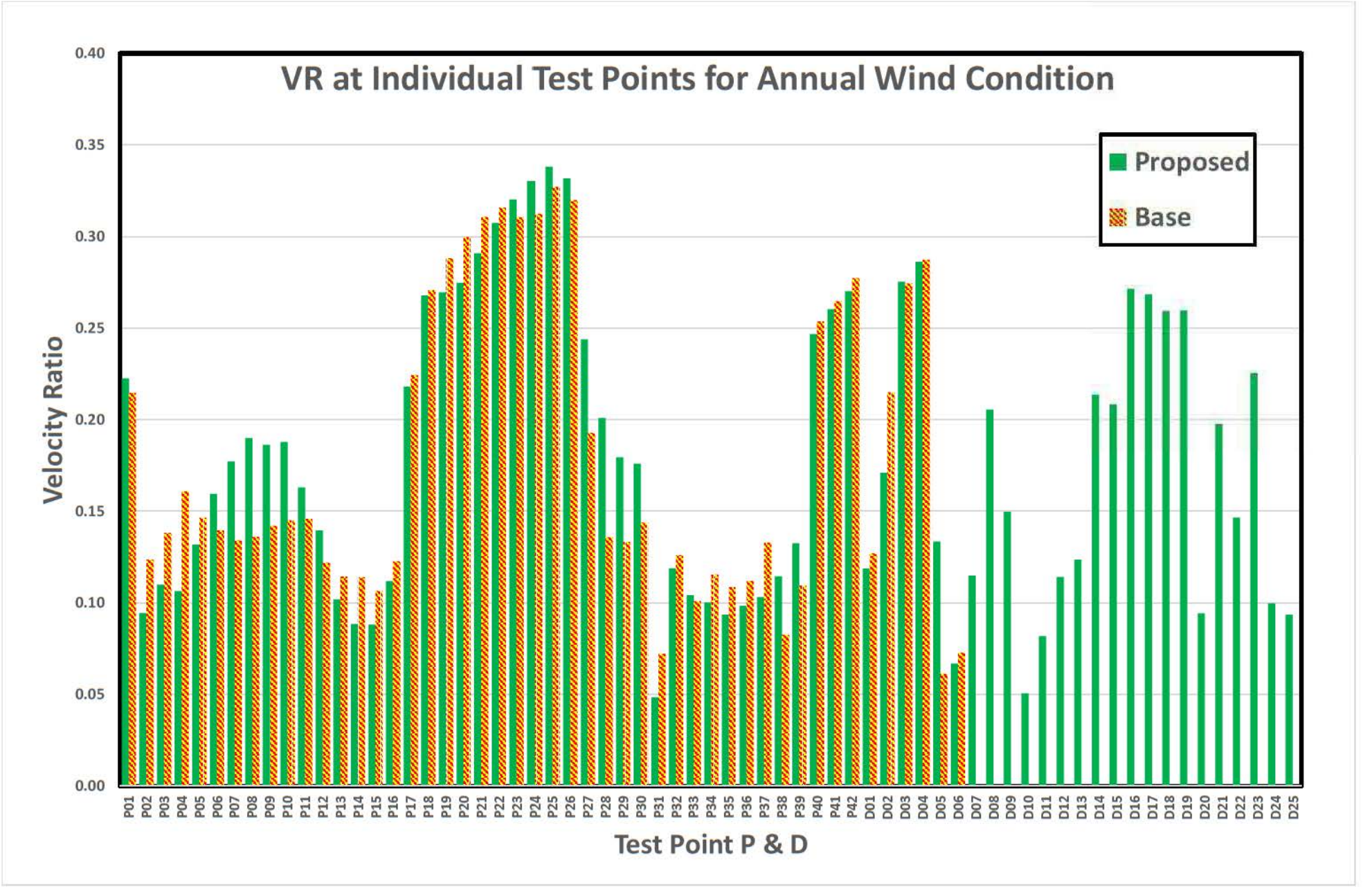
Wind Velocity Ratio, Proposed Case

Tes Point			Wind direction (Degree)	22.5	45	67.5	90	90	112.5	135	157.5	180	180	202.5	225	247.5	270	Sum	Average (Annual)	Average (Summer)
			Wind direction	NNE	NE	ENE	E	E	ESE	SE	SSE	S	S	SSW	SW	WSW	W			
			Average Wind Speed at 500m elevation	7	6	6	7	8	7	6	6	5	6	6	6	6	4			
ID	Easting (m)	Northing (m)	Probability (Annual)	6.5%	9.0%	11.4%	20.2%		11.8%	7.0%		4.3%		5.9%	6.6%			82.7%		
			Probability (Summer)					8.4%	10.0%	8.1%	7.7%		8.9%	13.3%	15.9%	10.1%	5.2%	87.6%		
O115	838034.102	821315.0249		0.26	0.41	0.40	0.40	0.40	0.31	0.15	0.06	0.13	0.05	0.30	0.15	0.14	0.11		0.31	0.19
O116	838016.9993	821348.0503		0.14	0.34	0.39	0.39	0.39	0.34	0.25	0.06	0.11	0.03	0.15	0.13	0.17	0.24		0.29	0.19
O117	837996.8242	821373.6404		0.12	0.27	0.36	0.37	0.37	0.37	0.30	0.05	0.11	0.08	0.17	0.25	0.29	0.28		0.30	0.24
O118	837977.762	821393.0576		0.13	0.26	0.38	0.44	0.44	0.39	0.35	0.04	0.11	0.12	0.21	0.30	0.18	0.22		0.33	0.25
O119	837949.8296	821400.5297		0.13	0.18	0.30	0.31	0.31	0.35	0.33	0.06	0.11	0.03	0.18	0.23	0.10	0.14		0.26	0.20
O120	837905.945	821421.329		0.31	0.28	0.24	0.23	0.23	0.08	0.17	0.06	0.10	0.06	0.22	0.26	0.14	0.06		0.21	0.16
O121	837898.8866	821400.4287		0.06	0.07	0.17	0.07	0.07	0.13	0.10	0.10	0.12	0.03	0.16	0.20	0.15	0.19		0.11	0.13
O122	837853.475	821404.74		0.09	0.11	0.15	0.11	0.10	0.16	0.10	0.06	0.10	0.04	0.07	0.12	0.13	0.09		0.12	0.10
O123	837872.317	821384.4606		0.06	0.14	0.08	0.12	0.12	0.06	0.05	0.03	0.09	0.06	0.18	0.23	0.26	0.26		0.11	0.15
O124	837849.5725	821424.2231		0.04	0.11	0.05	0.06	0.06	0.16	0.09	0.14	0.06	0.04	0.08	0.13	0.19	0.31		0.09	0.13
D01	837827.3723	821284.5045		0.02	0.10	0.14	0.22	0.22	0.11	0.08	0.04	0.02	0.04	0.05	0.08	0.04	0.28		0.12	0.09
D02	837875.3914	821291.3735		0.11	0.18	0.29	0.22	0.23	0.09	0.14	0.12	0.04	0.02	0.09	0.19	0.40	0.28		0.17	0.17
D03	837919.5661	821285.9497		0.08	0.27	0.34	0.44	0.44	0.28	0.20	0.06	0.05	0.02	0.10	0.25	0.35	0.32		0.28	0.22
D04	837952.8274	821287.0337		0.17	0.43	0.44	0.44	0.44	0.13	0.09	0.12	0.08	0.05	0.09	0.27	0.39	0.37		0.29	0.21
D05	837877.6186	821251.2285		0.06	0.19	0.22	0.15	0.15	0.15	0.10	0.02	0.06	0.03	0.05	0.05	0.25	0.20		0.13	0.10
D06	837878.2297	821193.2792		0.03	0.09	0.10	0.04	0.04	0.02	0.16	0.02	0.02	0.01	0.07	0.10	0.17	0.22		0.07	0.09
D07	837885.5851	821243.8358		0.07	0.15	0.14	0.18	0.18	0.07	0.09	0.04	0.02	0.01	0.06	0.06	0.02	0.08		0.11	0.07
D08	837892.0227	821210.6803		0.09	0.27	0.36	0.24	0.24	0.18	0.23	0.12	0.03	0.06	0.11	0.07	0.28	0.32		0.21	0.16
D09	837855.147	821212.5698		0.05	0.19	0.25	0.17	0.17	0.16	0.12	0.04	0.01	0.01	0.05	0.13	0.27	0.33		0.15	0.13
D10	837880.622	821201.8274		0.06	0.07	0.08	0.03	0.03	0.04	0.06	0.07	0.05	0.05	0.10	0.01	0.12	0.03		0.05	0.05
D11	837882.3172	821189.6578		0.05	0.15	0.17	0.07	0.07	0.04	0.10	0.06	0.01	0.01	0.06	0.03	0.01	0.03		0.08	0.04
D12	837862.0567	821162.1529		0.03	0.12	0.15	0.14	0.15	0.10	0.13	0.05	0.01	0.02	0.11	0.10	0.06	0.14		0.11	0.10
D13	837853.9254	821154.3421		0.04	0.20	0.26	0.11	0.11	0.10	0.07	0.09	0.02	0.05	0.14	0.07	0.11	0.22		0.12	0.10
D14	837869.967	821153.6992		0.07	0.32	0.35	0.32	0.32	0.19	0.07	0.05	0.04	0.06	0.06	0.09	0.11	0.16		0.21	0.12
D15	837886.8448	821152.8671		0.08	0.27	0.31	0.27	0.27	0.17	0.13	0.05	0.10	0.08	0.23	0.11	0.18	0.12		0.21	0.15
D16	837891.2369	821145.486		0.22	0.36	0.39	0.32	0.32	0.21	0.06	0.11	0.09	0.12	0.21	0.35	0.12	0.13		0.27	0.20
D17	837876.9782	821130.1137		0.20	0.25	0.25	0.39	0.39	0.27	0.07	0.09	0.13	0.15	0.24	0.33	0.13	0.12		0.27	0.22
D18	837862.8999	821118.1371		0.21	0.29	0.27	0.38	0.38	0.21	0.06	0.08	0.18	0.16	0.29	0.22	0.12	0.08		0.26	0.19
D19	837849.9257	821103.2182		0.21	0.29	0.28	0.35	0.36	0.17	0.06	0.04	0.20	0.18	0.33	0.29	0.20	0.12		0.26	0.21
D20	837854.2657	821130.1703		0.03	0.15	0.12	0.10	0.10	0.13	0.04	0.07	0.01	0.08	0.08	0.06	0.08	0.15		0.09	0.08
D21	837881.8283	821145.1043		0.15	0.37	0.36	0.17	0.18	0.12	0.10	0.13	0.09	0.11	0.22	0.11	0.14	0.17		0.20	0.14
D22	837881.9412	821163.6206		0.04	0.21	0.19	0.15	0.16	0.11	0.14	0.06	0.09	0.09	0.22	0.11	0.18	0.12		0.15	0.14
D23	837862.6939	821202.7516		0.11	0.36	0.38	0.26	0.26	0.18	0.11	0.14	0.05	0.08	0.17	0.16	0.31	0.29		0.23	0.19
D24	837872.1197	821216.6204		0.07	0.19	0.15	0.06	0.07	0.10	0.09	0.04	0.04	0.02	0.07	0.12	0.16	0.06		0.10	0.09
D25	837872.532	821238.5118		0.10	0.05	0.09	0.16	0.16	0.03	0.06	0.04	0.06	0.04	0.05	0.18	0.05	0.11		0.09	0.08

Spatial Averaged Velocity Ratio

	Base		Proposed	
	Annual	Summer	Annual	Summer
Overall				
Site Air Ventilation Assessment (SVR) (All P Points)	0.18	0.18	0.18	0.18
Local Air Ventilation Assessment (LVR) (All P & O Points)	0.18	0.17	0.18	0.17
Road Sections				
Kai Tak Road (P01-P18, O90-O95)	0.15	0.18	0.15	0.17
Prince Edward Road East Section (P19-P26, O21-O46)	0.24	0.21	0.26	0.21
Sa Po Road (P27-P37, O101-104)	0.15	0.15	0.18	0.18
Carpenter Road Section (near Carpenter Road Park) (O01-O04)	0.14	0.13	0.11	0.12
Carpenter Road Section (near Project Site) (P40-P42, O05-O07,O96-O97)	0.24	0.18	0.23	0.17
Shek Ku Lung Road (O08)	0.15	0.11	0.13	0.11
Lok Sin Road Section (O09-O15)	0.20	0.16	0.19	0.16
Nga Tsin Wai Road Section (O16-O20)	0.16	0.16	0.14	0.15
South Wall Road (O17, O47-O54)	0.15	0.19	0.14	0.18
Tak Ku Ling Road (O19, O55-O62)	0.14	0.15	0.14	0.14
Tung Tsing Road (O63-O68)	0.18	0.15	0.17	0.14
Roads in TKD Area (O69-O77)	0.16	0.16	0.15	0.16
Area within Site				
Public Area within the Site (G/F) (D07-D12)	[1]	[1]	0.17	0.13
Public Area within the Site (Landscape Deck on 1/F) (D21-D22)	[1]	[1]	0.17	0.14
New Private Road for the Proposed Development (D13-D15)	[1]	[1]	0.18	0.12
Podium within the Site (D23:D25)	[1]	[1]	0.10	0.09
Sunken Plaza at G/F (D12,D16-D21)	[1]	[1]	0.21	0.17
Public Area outside the carriageway at G/F for the Proposed Development (D08-D09)	[1]	[1]	0.18	0.15
Other Concerned Area				
Podium on Carlson Court (D06)	0.07	0.09	0.07	0.09
Podium on High Place (D05)	0.06	0.06	0.13	0.10
Carpenter Road Park (O78-O88)	0.18	0.12	0.16	0.13
Shek Ku Lung Road Playground (O105-O119)	0.28	0.18	0.27	0.19
Tak Ku Ling Playground (O98-O100)	0.19	0.15	0.19	0.15
Po Yan Oblate Primary School (0107-O111)	0.13	0.14	0.13	0.13
Le Billionaire & Billionaire Royale (D01-D04)	0.23	0.18	0.21	0.17

[1] Those locations are not applicable to Baseline Scenario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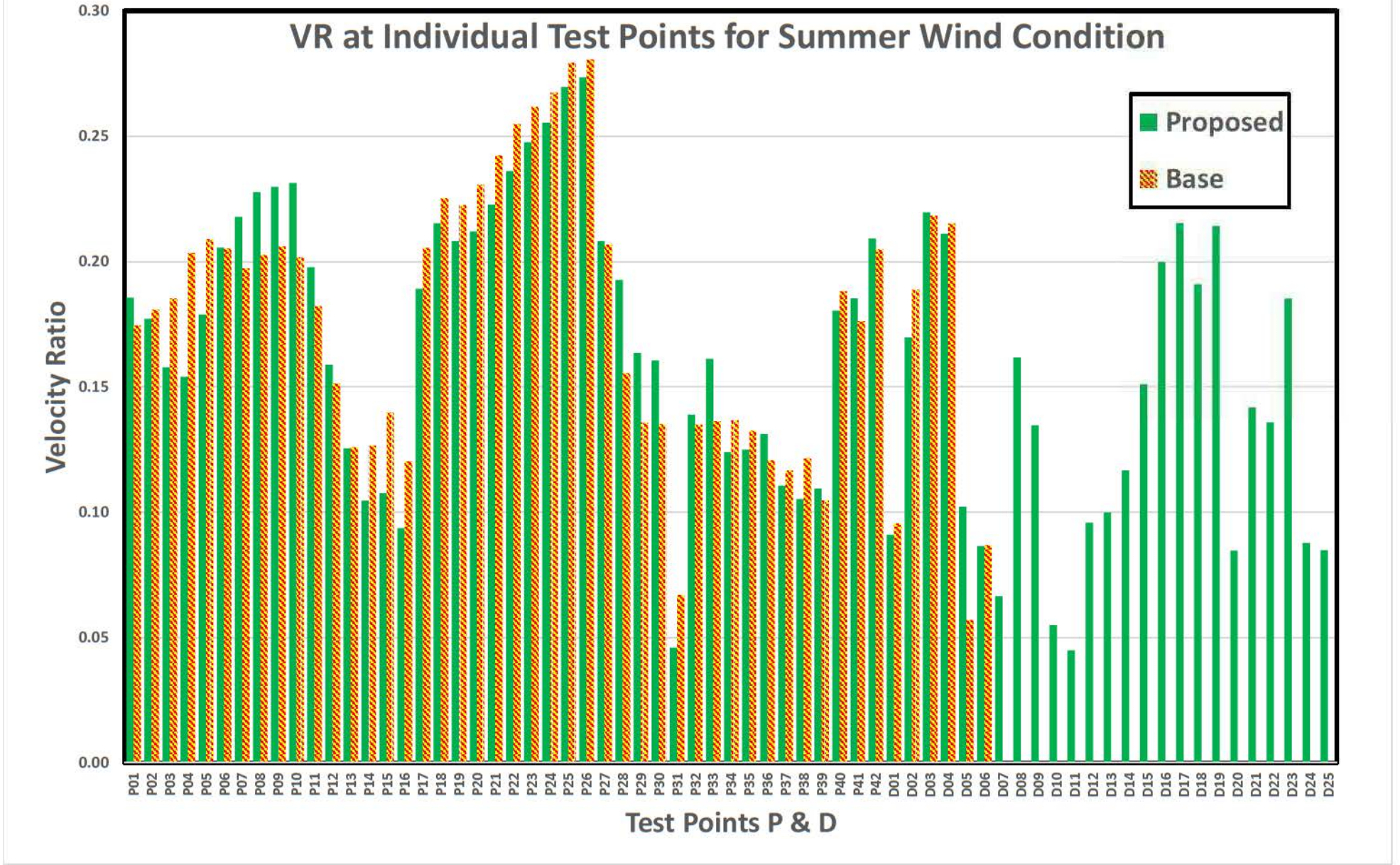
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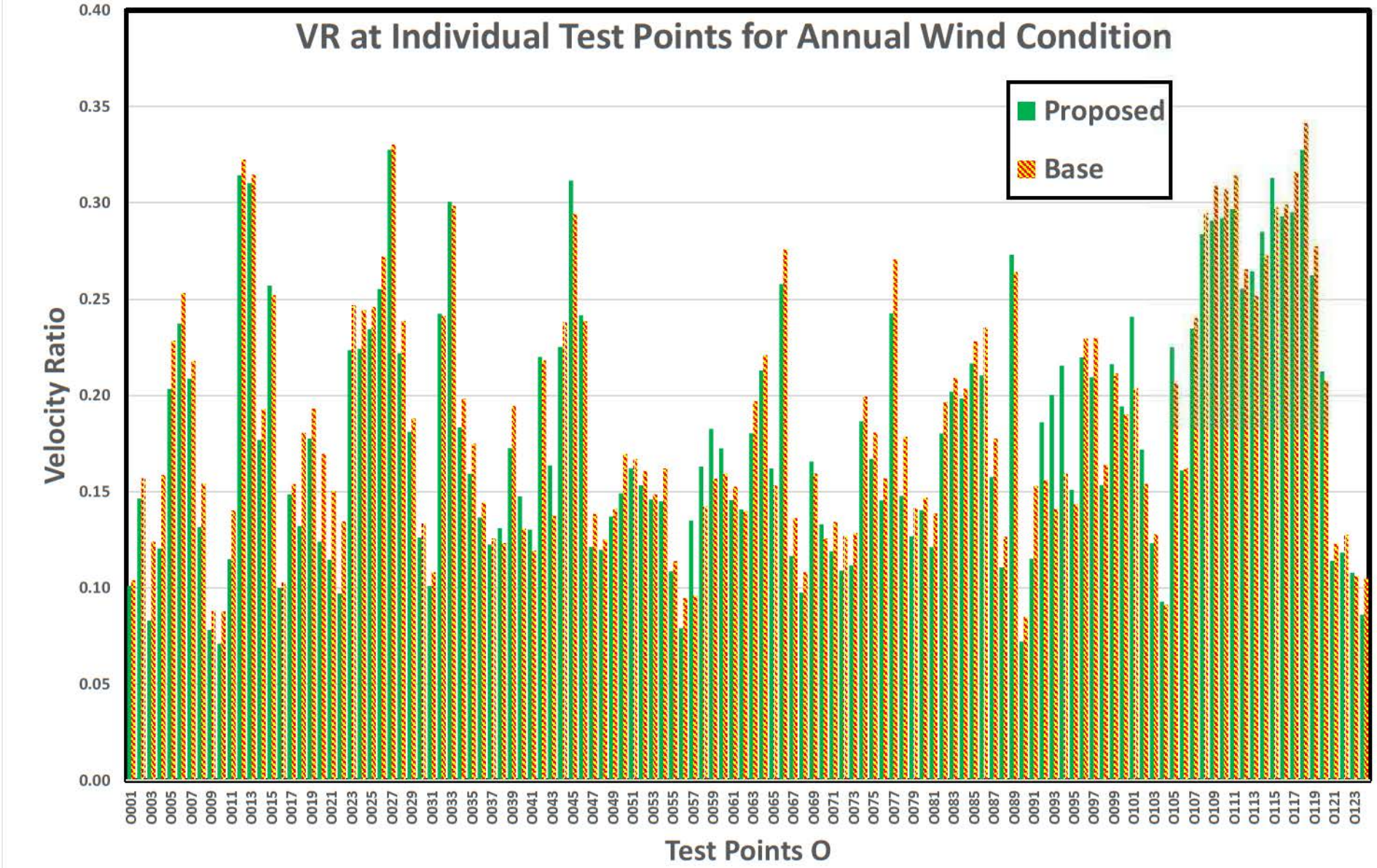
Test Points P & D


VR at Individual Test Points for Annual Wind Condition
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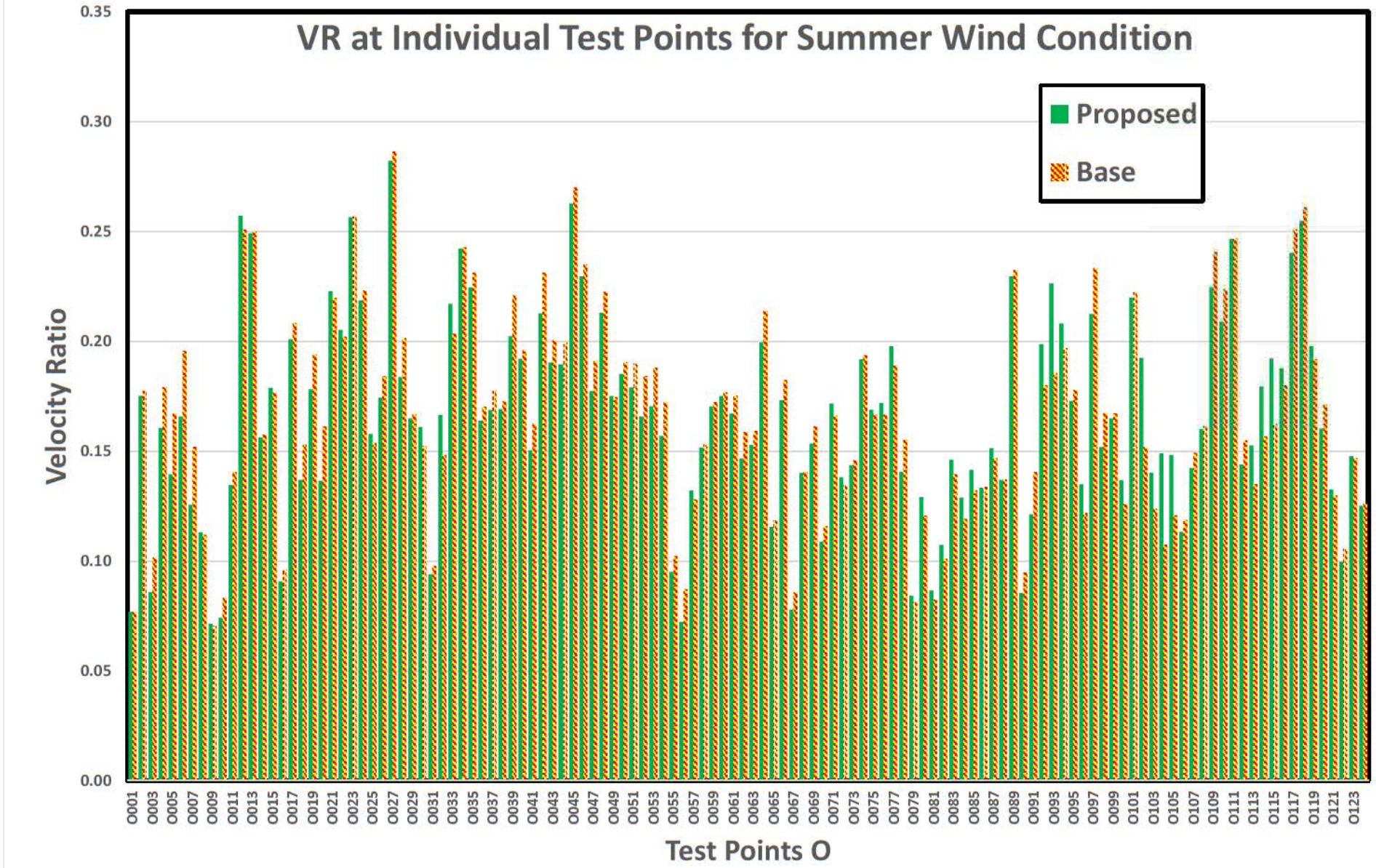
VR at Individual Test Points for Summer Wind Condition
Proposed
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Test Points O

Appendix 7

Drainage & Sewerage Impact Assessment (DSIA) Report

Urban Renewal Authority
Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Drainage Impact Assessment

(V1.0)

February 2019

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

Background

1.1 The Urban Renewal Authority (URA) has proposed a development scheme at Kai Tak Road / Sa Po Road (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). This drainage impact assessment (DIA) is to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

1.2 The proposed Development Scheme (the Scheme) is located between Kai Tak Road and Sa Po Road. The existing zoning of the site is "Residential (Group A)2" (R(A)2) and shown "Road" on the Approved Ma Tau Kok OZP No. S/K10/24. The site comprises two lines of buildings facing Kai Tak Road and Sa Po Road respectively (except for 51 Sa Po Road and 33 Carpenter Road), amenity area and portion of existing Sa Po Road. The location of the site is shown in **Figure 1.1**.

1.3 The Scheme proposes to demolish the existing old buildings on Nos. 24-82 Kai Tak Road (even nos.), 31-73 Sa Po Road (odd nos. except No. 51) for redevelopment into new residential cum retail development. A portion of existing Sa Po Road is proposed to be closed permanently for creation of a split-level sunken plaza which will serve as the gateway to connect to proposed subway across Prince Edward Road East and underground shopping street (USS) in Kai Tak Development Area (KTDA). It will allow better connection, continue the retail vibrancy and enhance the walkability between this part of old district area and KTDA. Traffic of Sa Po Road will be redirected to a new private road within the Scheme. The scheme area is proposed to be rezoned to "R(A)" to reflect the redevelopment's intentions.

1.4 Cinotech Consultants Limited was commissioned by URA to carry out a DIA to assess and envisage any potential drainage impact on the implementation of the proposed development and to recommend mitigation measures as necessary.

2 PROJECT DISCRIPTION

2.1 The net site area is about 5352m^2. Under the current notional design of the proposed development in the Scheme, the Scheme would include 3 residential towers which can provide 810 flats, commercial and community facilities, open space and a basement car park. Upon CE in C's approval of the DSP, the proposed development will be subject to detailed design and changes, based on the approved DSP.

2.2 The current surface run-off from the site area is collected by drains along the scavenging lane between the buildings within the DSP boundary as shown in **Figure 2.1**, by pipe sections from manhole SMH4037349 and discharge southwards.

2.3 The drainage system from manhole SMH4037350 to SGJ4005318 within the DSP boundary will be removed due to the redevelopment. Due to the removal of the foresaid drain sections, Carlson Court (51 Sa Po Road) and High Place (33 Carpenter Road) (both outside the Scheme boundary) will be isolated from the public drainage system, therefore diversion work is required.

Project Contribution

2.4 The existing Scheme area including rooftops and pavement is mostly paved with concrete, except for two plantation areas located south of the Site. The ground floor layout plan of the proposed development in the Scheme is shown in **Figure 2.2**. Compared to the existing site condition, the area of unpaved area with landscaping is expected to increase about 40% after redevelopment. The area of paved and unpaved portions is listed in **Table 2.1** below.

Table 2.1 Paved and Unpaved Area

Area	Existing	Planned
Total: 5352 m^2		
Paved	5036 m^2	4893 m^2
Unpaved	316 m^2	459 m^2

2.5 Since the unpaved area has increased and the slope remains flat in the future layout, the runoff coefficient of grassland (0.05-0.15) is smaller than that of asphalt/concrete (0.7-0.95) according to DSD's Stormwater Drainage Manual, therefore the surface runoff is expected to decrease. No additional drainage impact is anticipated from the redevelopment.

2.6 The drainage runoff from the redevelopment can be collected by a single manhole and discharge to manhole SGJ4005318 on Prince Edward Road East as the existing setting (**Figure 2.1**).

3 DRAINAGE DIVERSION

3.1 As mentioned in **Section 2.3**, the drainage connection from Carlson Court and High Place to the public drainage system will be influenced by the removal of the pipes along the existing scavenging lane. The closest manhole to Carson Court is SMH4037321; and the closest manholes to High Place are SMH4037346 and SMJ4066541. The downstream of these manholes will be assessed in the following sections for a suitable diversion proposal.

High Place

3.2 The drainage discharge from High Place is currently collected by manhole SMH4059920 and flow southwards to downstream. Total drainage discharge from rooftop and podium of High Place is 20.4L/s.

3.3 The closest manholes for diversion are SMH4066540 on Carpenter Road to the North of High Place and SMH4037346, SMH4037347 and SMH4037348 on Sa Po Street to the East. The public drainage system surrounding High Place is shown in **Figure 3.1**.

3.4 For the option of discharging drainage from High Place to the public drainage system via SMH4066540, there is a 1050mm diameter wide sewer which runs parallel with the drainage pipes along Carpenter Road, the sewer have a invert level of approximately 3.70mPD, and the invert level at SMH4066540 approximately 4.30mPD, which means that it is impracticable to build a pipe from High Place to the drainage manhole SMH4066540 across Carpenter Road.

3.5 For the option of discharging via SMH4037346 and SMH4037347, due to the outgoing pipe invert level of SMH4037346 (5.35mPD) and SMH4037347 (5.20mPD) are higher than SMH4059920 (~5.1mPD), gravity pipe cannot be constructed or a drain pump is necessary for the stormwater to flow upward against gravity.

3.6 Therefore, the downstream is proposed to be connected to SMH4037348 as minimal work is required for this diversion as shown in **Figure 3.2**. The existing manholes SMH4037349 and SMH4059920 at the remaining service lane behind High Place would collect storm water runoff; the downstream can be directed to SMH4037348 via new drainage pipes.

3.7 The total catchment including High Place and the service lane between High Place and the DSP boundary contribute 29.0L/s drainage discharge to the public drainage system. **Table 3.1** below summarizes the flowrate of the catchment; the detailed calculation is presented in **Appendix I**.

Table 3.1 Stormwater Runoff from High Place Catchment

Assessment Area	Total Area (m^2)	Paved Ratio	Surface Runoff, Q (L/s)
High Place - rooftop	140	100%	9.7
High Place - podium	160	100%	10.7
Lane	120	100%	8.6
Total			**29.0**

3.8 The total drainage discharge is proposed to be collected by a 375mm dia. pipe, the hydraulic parameters and capacity are listed in **Table 3.2** below and the calculation is detailed in **Appendix I**.

Table 3.2 Proposed Drainage Pipes from High Place Catchment

Upstream manhole	Downstream manhole	Upstream Invert Level	Downstream Invert Level	Diameter (mm)	Full Capacity (L/s)
SMH4059920	H01	5.14	5.13	375	52
H01	SMH4037348	5.13	5.09	375	52

Carlson Court

3.9 The drainage discharge from Carlson Court is currently collected by manhole SMH4063221 at the service lane and discharge southwards. Total drainage discharge from rooftop and podium of Carlson Court is 11.8L/s.

3.10 According to the planned layout (**Figure 2.1**), there will be a new 3m wide lane for pedestrian use surrounding Carlson Court. As the manhole SMH4063221 is not disturbed, it is proposed that the drainage discharge from the building to be collected by the same manhole as existing setting, and connect to SMH4037321 on Sa Po Road as shown in **Figure 3.3**. However, the sewage flow direction would be changed if the diversion proposal is adopted, the connected pipes will be demolished and rebuilt; and the manhole may also need to be rebuilt, but the location and connection to Carlson Court would remain the same.

3.11 The total catchment including Carlson Court and the service lane contribute 22.6L/s drainage discharge to the public drainage system. **Table 3.3** below summarizes the flowrate of the catchment; the detailed calculation is presented in **Appendix II**.

Table 3.3 Stormwater Runoff from Carlson Court Catchment

Assessment Area	Total Area (m^2)	Paved Ratio	Surface Runoff, Q (L/s)
Carlson Court - rooftop	60	100%	4.3
Carlson Court - podium	110	100%	7.5
Lane	157	100%	10.8
Total			**22.6**

3.12 The total drainage discharge is proposed to be collected by a 225mm dia. pipe, the hydraulic parameters and capacity are listed in **Table 3.4** below and the calculation is detailed in **Appendix II**.

Table 3.4 Proposed Drainage Pipes from High Place Catchment

Upstream manhole	Downstream manhole	Upstream Invert Level	Downstream Invert Level	Diameter (mm)	Full Capacity (L/s)
SMH4063221	C01	4.70	4.67	225	47
C01	C02	4.67	4.40	225	47
C02	SMH4037321	4.40	4.30	225	47

4 DRAINAGE IMPACT ASSESSMENT

4.1 This chapter evaluates the drainage impact of the diverted drainage from High Place and Carlson Court to the public drainage system along Sa Po Road due to the redevelopment. The existing public drainage pipes from manholes SMH4037348 to SMH4037342 will be evaluated.

4.2 "Stormwater Drainage Manual – Planning, Design and Management", fourth edition, May 2013, (hereafter called "the DSD Manual") prepared by the DSD provides guidelines for the design of the drainage system. According to Table 10 of the DSD Manual, the recommended design return period based on flood levels is 50 years ("main rural catchment drainage channels") for conservative purpose.

4.3 The neighborhood catchment areas are shown in **Figure 4.1** and the area ratio of each catchment is summarized in **Table 4.1** below and presented in **Appendix III**.

Table 4.1 Neighborhood Catchment Areas

Catchment Zone	Area (m^2)	Paved Ratio
A	1897	100%
B	247	100%
C	433	100%
D	968	100%
E	2492	98%
F	1930	100%

4.4 The hydraulic calculation of the maximum flow capacities of the existing public network is shown in **Table 4.2**. The detailed calculation can be found in **Appendix III**.

Table 4.2 Existing Public Drainage Pipe Capacity

Drainage Pipe No.	From Manhole	To Manhole	Diameter (mm)	Full Capacity (l/s)
Pipe01	SMH4037348	SMH4037320	300	112
Pipe02	SMH4037320	SMH4037321	375	153
Pipe03	SMH4037321	SMH4037322	375	77
Pipe04	SMH4037322	SMH4037328	375	77
Pipe05	SMH4037328	SMH4037342	1725	3967

4.5 The existing drainage system is evaluated with the catchment zones listed in **Table 4.1**, together with the catchment of High Place and Carlson Court. **Table 4.3** shows the stormwater discharge from catchment zones to each section of public drain and **Figure 4.2** shows the locations of the various downstream pipes.

Table 4.3 Stormwater Discharge

Manhole no.	Downstream pipe	Pipe Capacity (L/s)	Catchment	Total Discharge (L/s)	Necessary to upgrade?
SMH4037348	Pipe01	111.5	A & High Place	131.2	Y
SMH4037320	Pipe02	152.9	A & High Place & B	137.8	N
SMH4037321	Pipe03	76.6	A & High Place & B & C & Carlson Court	168.5	Y
SMH4037322	Pipe04	76.6	A & High Place & B & C & Carlson Court & D	197.0	Y
SMH4037328	Pipe05	3966.7	A & High Place & B & C & Carlson Court & D & E & Project & F & Full pipe of SMH4037337 to SMH4037328 (Pipe06)	3392.2	N

*The full pipe capacity (2745L/s) of SMH4037337 to SMH4037328 represents the upstream of SMH4037337 and the calculation is shown in **Appendix III**.

4.6 The above calculation shows that Pipe01, Pipe03 and Pipe04 would be surcharged, therefore Pipe01 is proposed to be upgraded from 300mm dia. to 375 dia. pipe, Pipe03 and Pipe04 are proposed to be upgraded from 375mm dia. to 600mm dia. pipe, the calculation of the capacity for the upgrading pipes is shown in **Appendix III** and is summarized in **Table 4.4** below.

Table 4.4 Proposed Upgrading Drainage Pipes

Drainage Pipe No.	From Manhole	To Manhole	Diameter (mm)	Full Capacity (l/s)
Pipe01	SMH4037348	SMH4037320	375	202
Pipe03	SMH4037321	SMH4037322	600	270
Pipe04	SMH4037322	SMH4037328	600	270

4.7 After upgrading Pipe01, Pipe03 and Pipe04, the public drainage system along Sa Po Road is expected to have sufficient capacity to cater the additional run-off from High Place and Carlson Court. **Table 4.5** shows the percentage loading of the drainage pipes after the proposed upgrading works, all sections of pipes are less than 90% full. The proposed drainage layout is shown in **Figure 4.2**.

Table 4.5 Percentage Loading of Pipes

Pipe No.	Pipe Capacity (L/s)	Total Discharge (L/s)	Total discharge / Full Capacity (%)
Pipe01*	202	131	65%
Pipe02	153	138	90%
Pipe03*	270	169	63%
Pipe04*	270	197	73%
Pipe05	3967	3392	86%

*Pipe01, Pipe03 and Pipe04 are proposed to be upgraded.

5 CONCLUSION

5.1 The stormwater surface runoff from the Site will be decreased due to less impermeable area from the planned layout. Hence, no expected drainage impact is anticipated from this Scheme. The stormwater runoff is proposed to be collected by a single manhole and discharge to the public drainage system via SGJ4005318 as the existing setting.

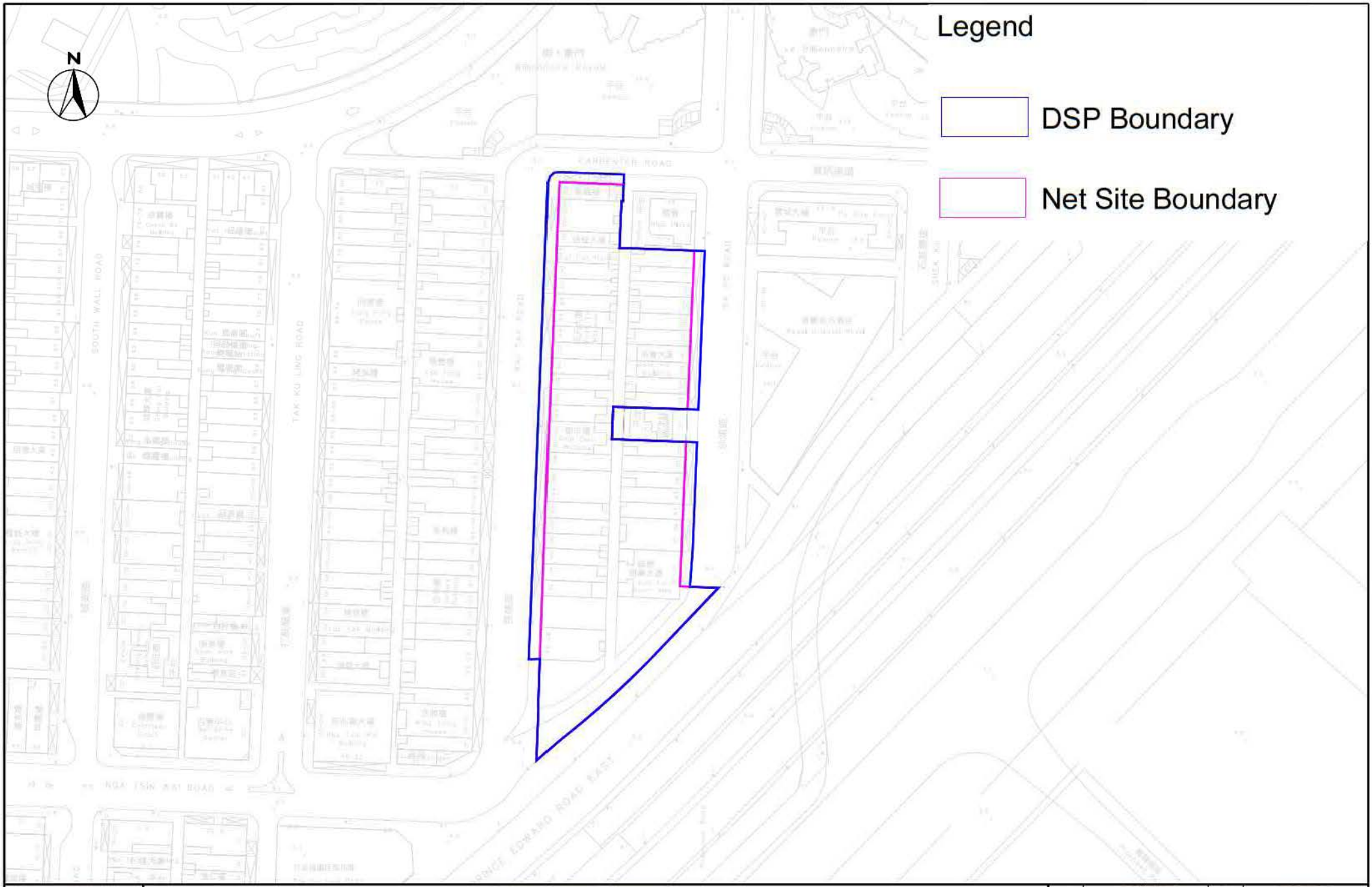
5.2 A portion of the public drainage pipe section (from manhole SMH4037328 to SMH4037342) under Sa Po Road is located within DSP boundary, temporary diversion during construction phase might be required if necessary. However, no disturbance to the public drainage service is expected and the pipes would be restored within site after construction phase.

5.3 However, due to the redevelopment, drainage pipe sections from manhole SMH4037350 to SGJ4005318 within the DSP boundary will be removed; diversion of drainage system for High Place and Carlson Court is proposed.

5.4 The stormwater from High Place is proposed to be collected by public manhole SMH4037348 via new 375mm dia. pipes; and stormwater from Carlson Court is proposed to be collected by public manhole SMH4037321 via new 225mm dia. pipes.

5.5 The public pipe sections from SMH4037348 to SMH4037342 along Sa Po Road are evaluated. All drainage pipes have sufficient capacity to cater the drainage discharge from High Place, Carlson Court and the proposed development, except for 3 sections as indicated in **Table 4.5**. Therefore the 3 sections of surcharged pipes (i.e. Pipe 01, 03 and 04) are proposed to be upgraded to 375/600mm dia. pipes with the existing slope. After the upgrading works, the public drainage system along Sa Po Road is expected to have sufficient capacity to cater for the run-off from the Scheme and the adjoin High Place and Carlson Court.

FIGURES



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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Scheme Location

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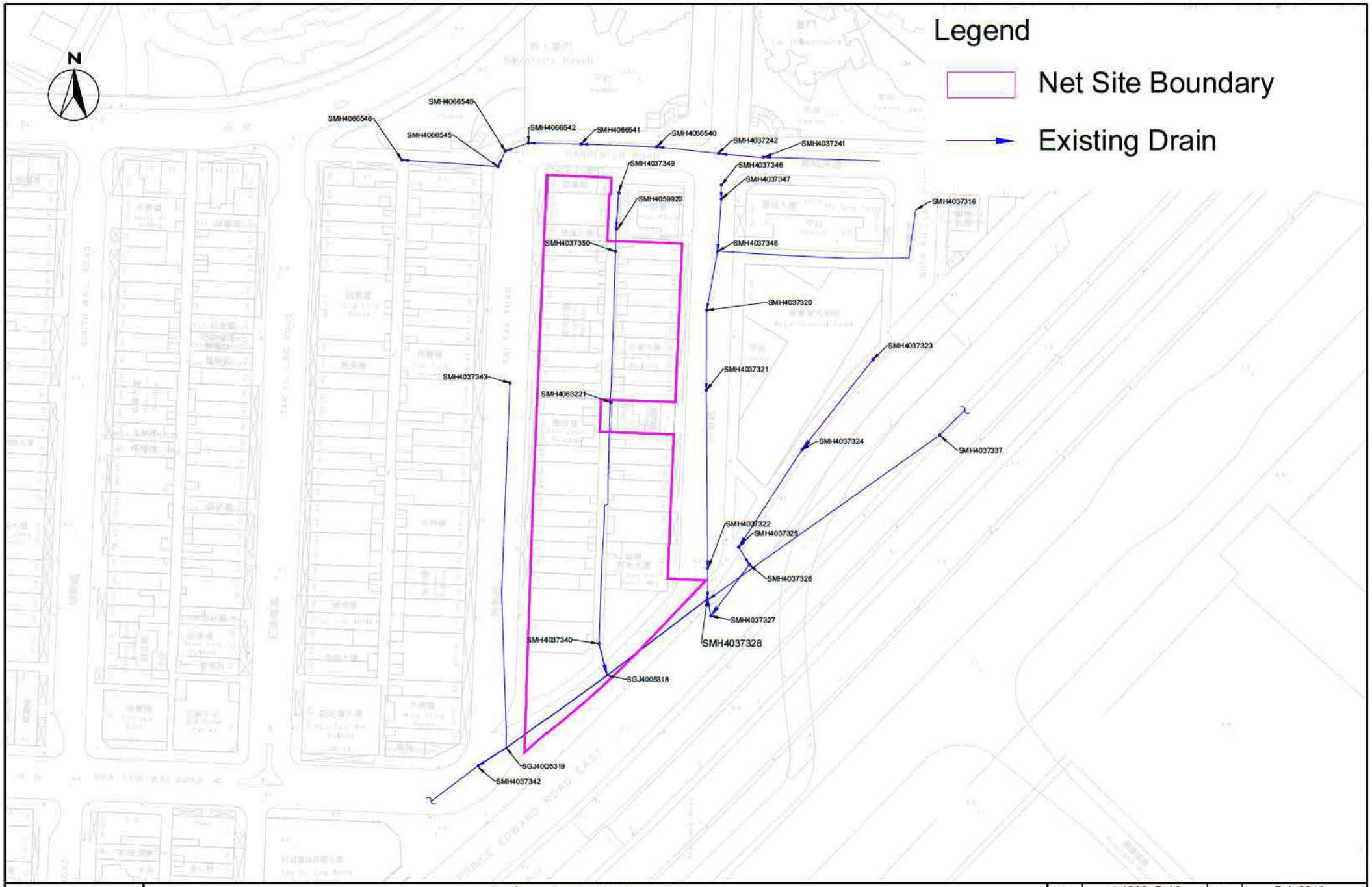
		REV.	-



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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Existing Drainage Network

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JOB No.	IA17019/KC015	DRAWING No.	2.1
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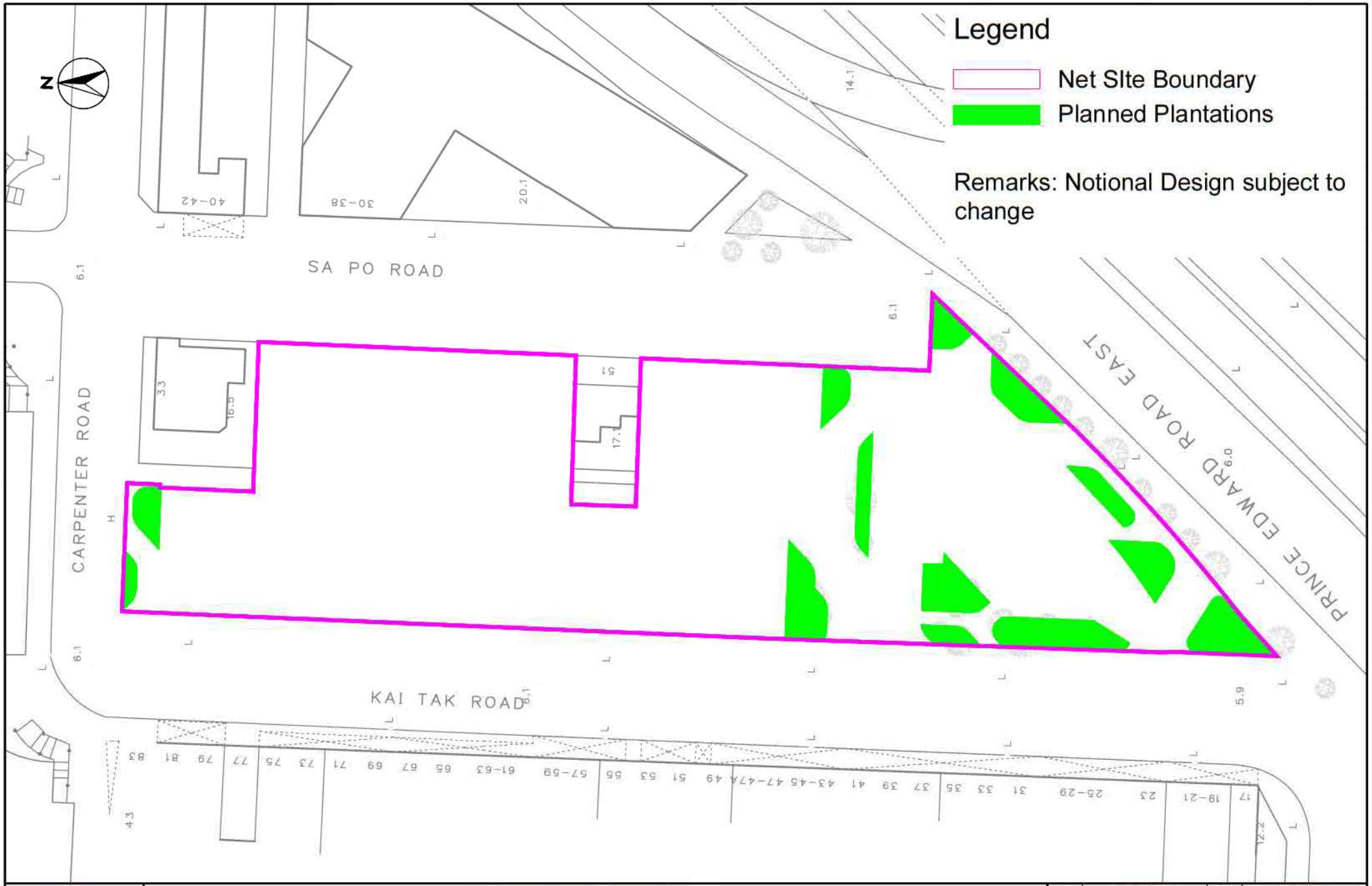

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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Plantation Area

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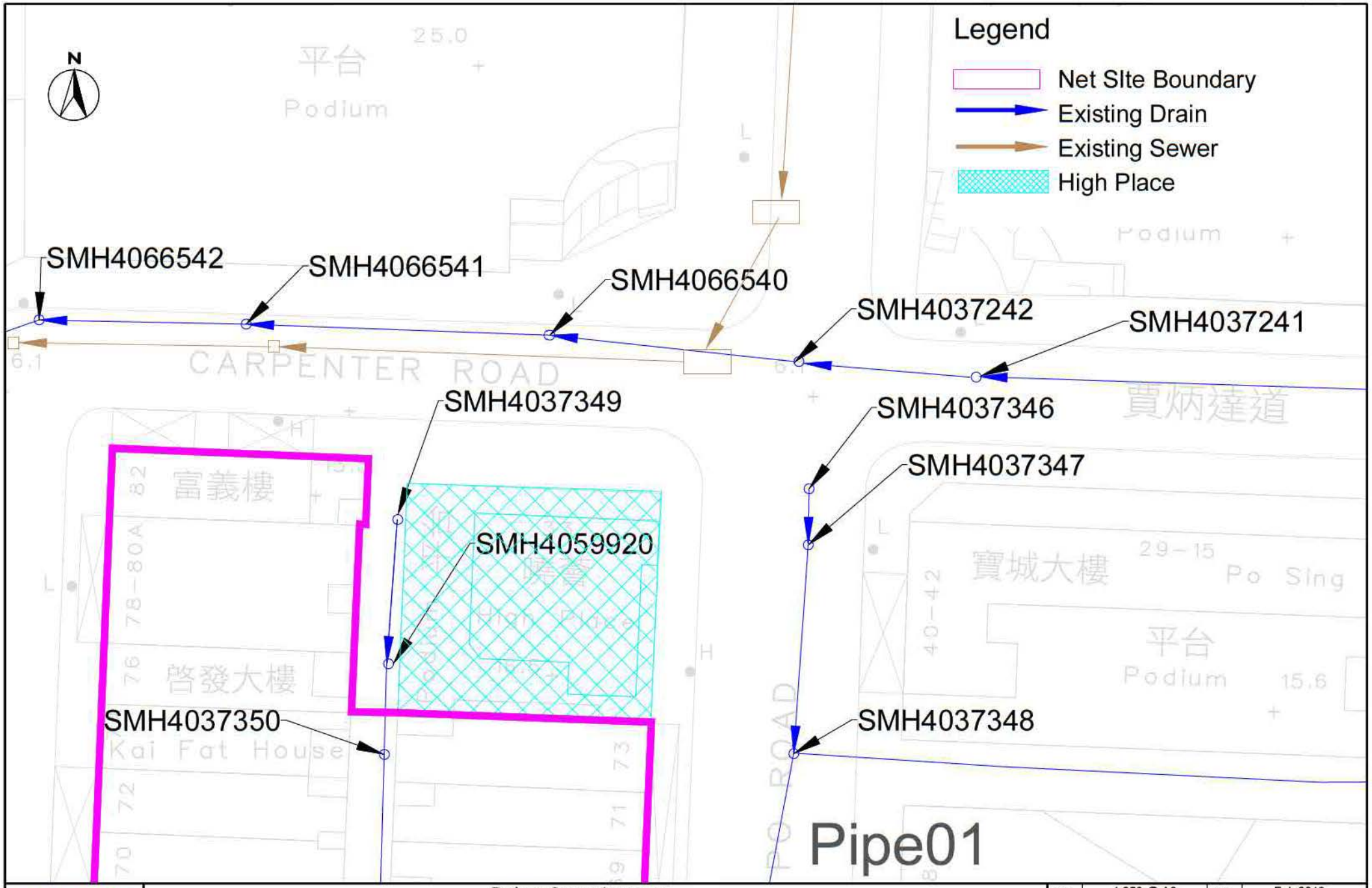

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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Existing Drainage System around High Place

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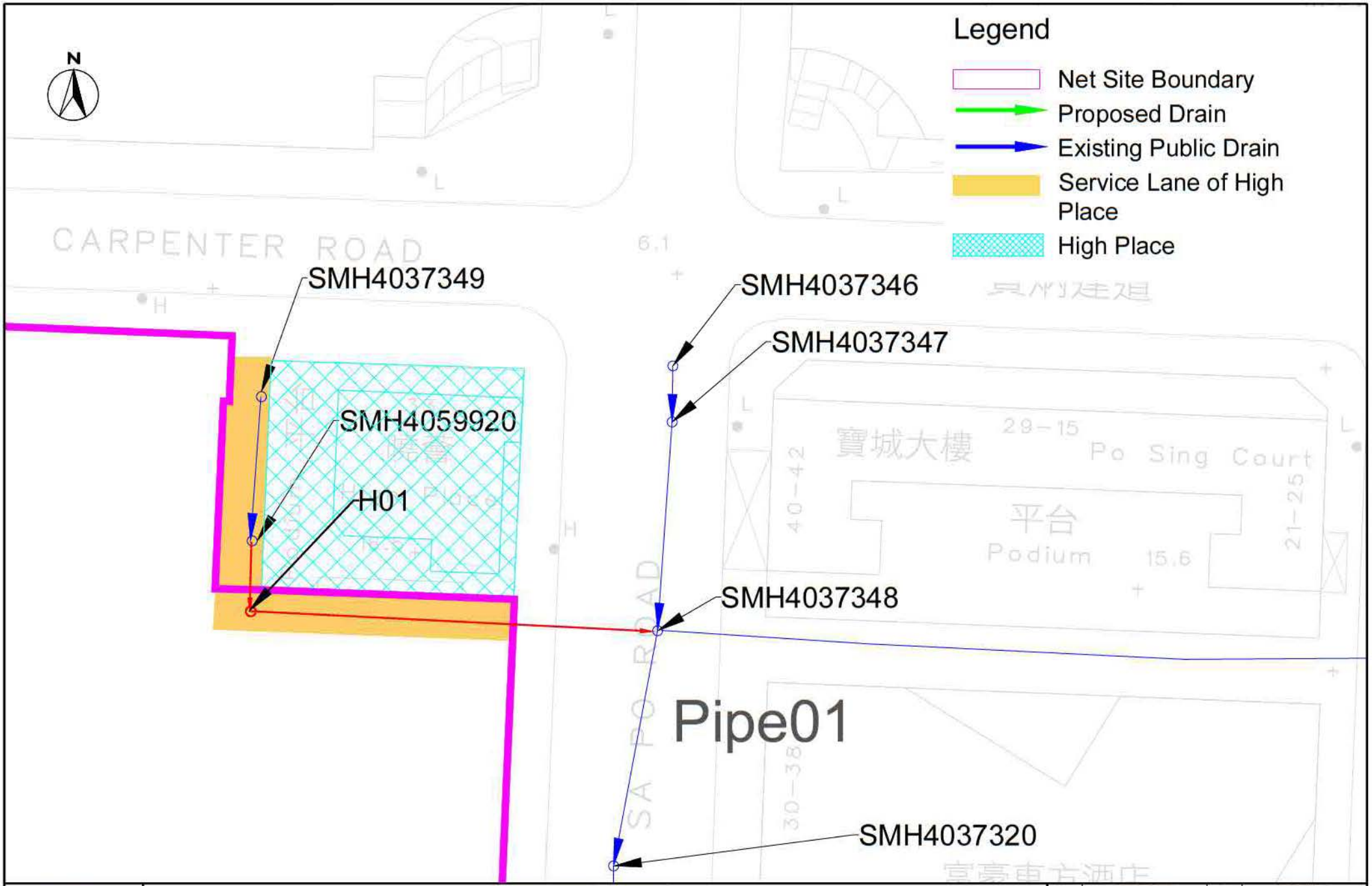
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.1
		REV.	-



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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Drainage Diversion for High Place

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JOB No.	IA17019/KC015	DRAWING No.	3.2
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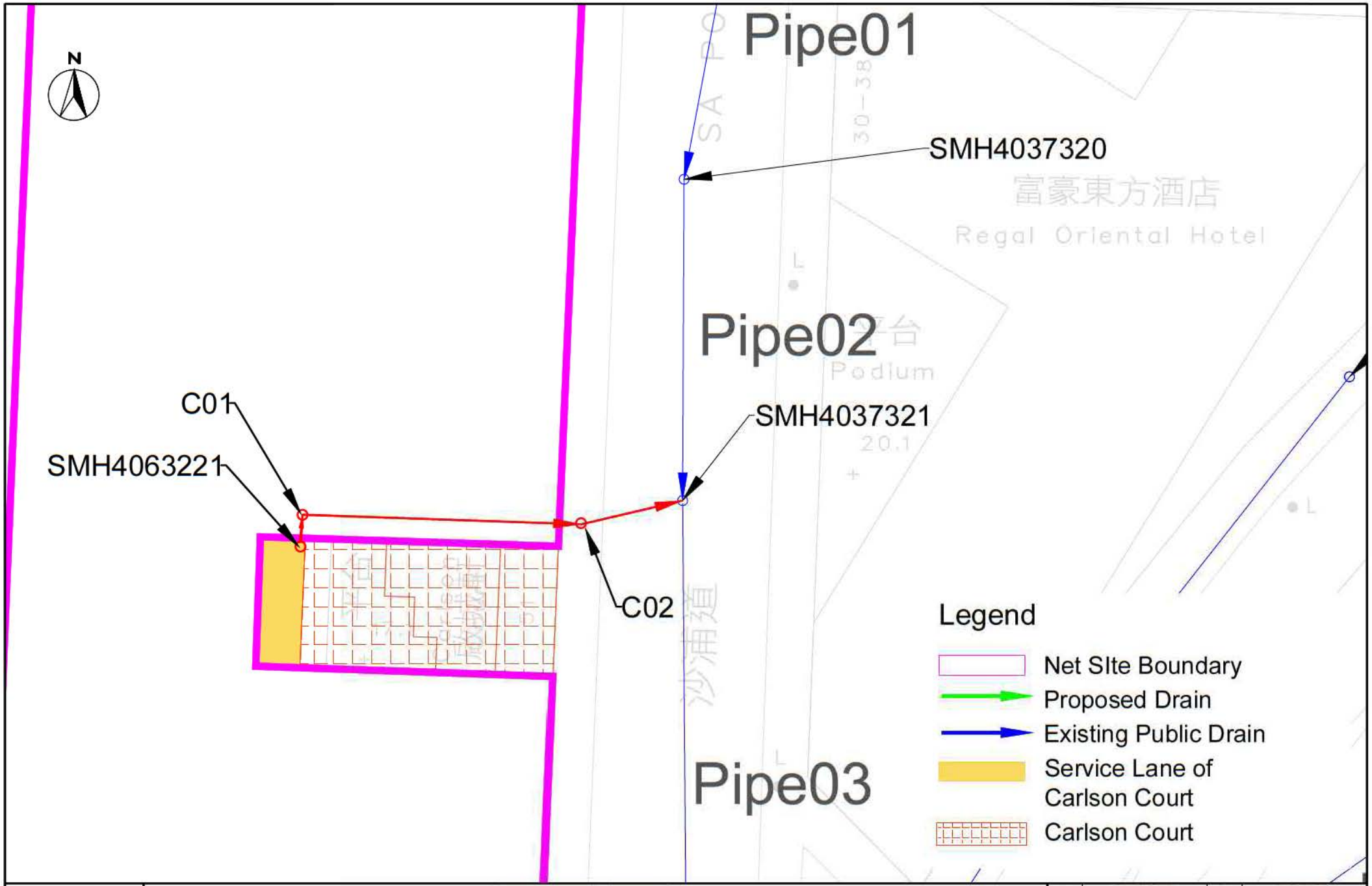

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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Drainage Diversion for Carlson Court

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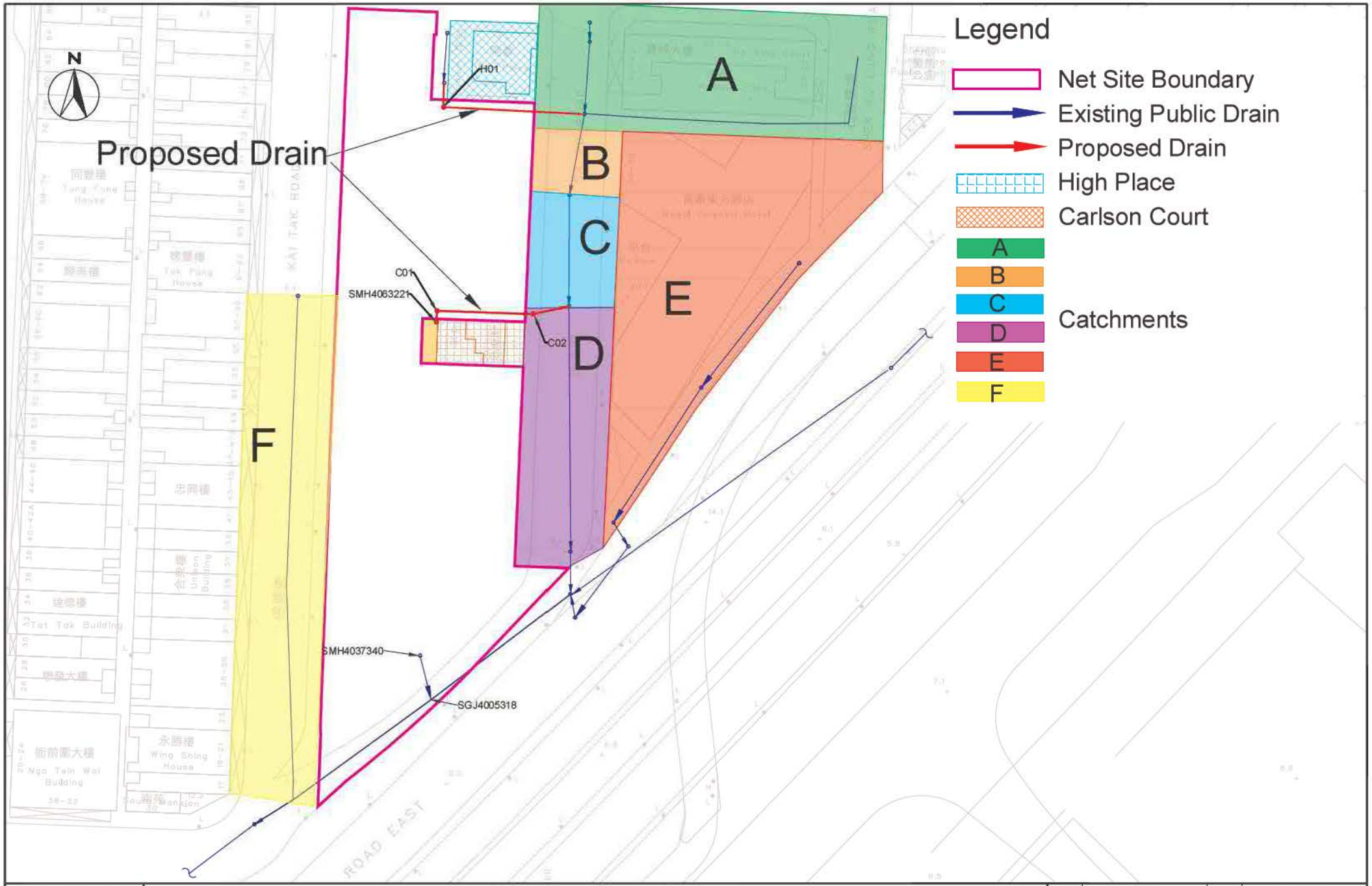

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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Catchment Area

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JOB No.	IA17019/KC015	DRAWING No.	4.1
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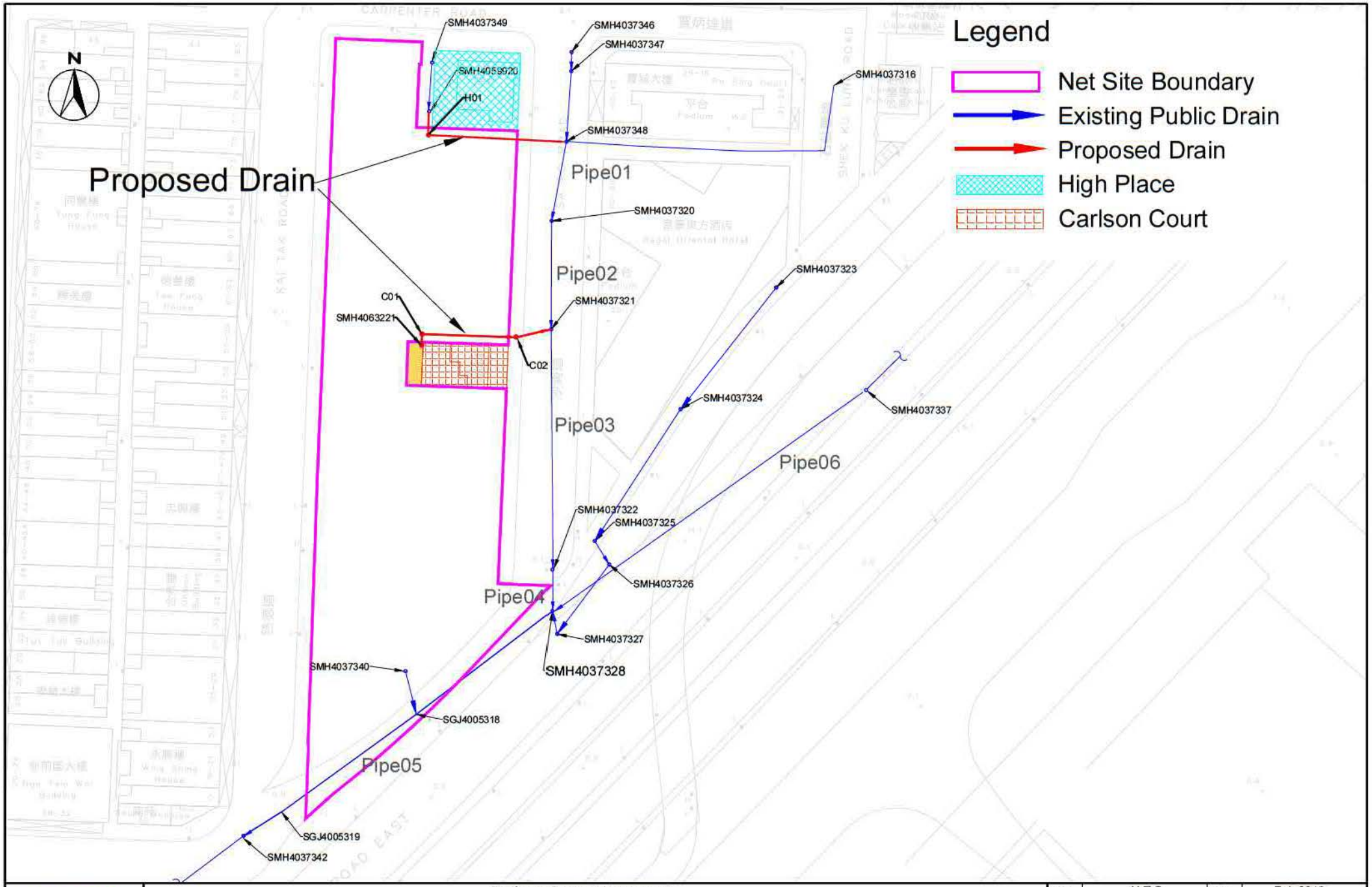

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Drainage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Drainage Layout

SCALE	N.T.S	DATE	Feb 2019
CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	4.2
		REV.	-

APPENDIX I

CALCULATION FOR HIGH PLACE

Stormwater runoff from High Place Catchment

Runoff Coefficient, C			0.9					Surface Runoff, Q (L/s)	
Assessment Area[1]	Area (m^2)	Paved Ratio	Paved Area (m^2)	Slope, H[1] (m per 100m)	L (m)	Time of Concentration (min)	Rainfall Intensity [2] (mm/hr)	Q_{Paved}	Q_{Total}
High Place - rooftop	140	100%	140	0.4000	17	1.8	277	9.7	29.0
High Place - podium	160	100%	160	0.4000	22	2.3	267	10.7	
Lane	120	100%	120	0.4000	13	1.4	286	8.6	

Note:

[1] The average slope of 1:250 is adopted for the surface runoff

[2] Rainfall intensity is based on 1:50 year return period of "Area adopted rainfall statistics of HKO Headquarters".

Proposed Drainage Pipe from High Place

Upstream Manhole No.	Downstream Manhole No.	Upstream invert level (mP.D.)	Downstream invert level (mP.D.)	Length (m)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope [1]	Kinematic Viscosity (m^2/s)	Hydraulic Pipeline Roughness (m) [2]	Velocity (m/s)	Full Capacity (l/s)
SMH4037349	SMH4059920	5.15	5.14	10.5	0.225	0.040	0.056	0.001	1.14E-06	0.006	0.33	13
SMH4059920	H01	5.14	5.13	5.0	0.375	0.110	0.094	0.001	1.14E-06	0.006	0.47	52
H01	SMH4037348	5.13	5.09	29.0	0.375	0.110	0.094	0.001	1.14E-06	0.006	0.47	52

[1] The slope from each proposed pipe sections are assumed to be the average slope from SMH37349 to SMH4037348.
Actual dimension of pipes will be subject to on-site survey and detail planning during construction phase.
[2] The hydraulic roughness of poor concrete slimed drains (0.003m) is adopted for the velocities more than 1.2m/s, otherwise 0.006m.

APPENDIX 3.2

CALCULATION FOR CARLSON COURT

Stormwater runoff from Carlson Court Catchment

Runoff Coefficient, C			0.9					Surface Runoff, Q (L/s)	
Assessment Area[1]	Area (m^2)	Paved Ratio	Paved Area (m^2)	Slope, H[1] (m per 100m)	L (m)	Time of Concentration (min)	Rainfall Intensity [2] (mm/hr)	Q_{Paved}	Q_{Total}
Carlson Court - rooftop	60	100%	60	0.4000	12	1.4	286	4.3	22.6
Carlson Court - podium	110	100%	110	0.4000	18	2.0	273	7.5	
Lane	157	100%	157	0.4000	18	1.9	275	10.8	

Note:

[1] The average slope of 1:250 is adopted for the surface runoff

[2] Rainfall intensity is based on 1:50 year return period of "Area adopted rainfall statistics of HKO Headquarters".

Proposed Drainage Pipes from Carlson Court

Upstream Manhole No.	Downstream Manhole No.	Upstream invert level (mP.D.)	Downstream invert level (mP.D.)	Length (m)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope [1]	Kinematic Viscosity (m^2/s)	Hydraulic Pipeline Roughness (m) [2]	Velocity (m/s)	Full Capacity (l/s)
SMH4063221	C01	4.70	4.67	2	0.225	0.040	0.056	0.014	1.14E-06	0.003	1.19	47
C01	C02	4.67	4.40	20	0.225	0.040	0.056	0.014	1.14E-06	0.003	1.19	47
C02	SMH4037321	4.40	4.30	7.5	0.225	0.040	0.056	0.014	1.14E-06	0.003	1.19	47

[1] The slope from each proposed pipe sections are assumed to be the average slope from SMH4063221 to SMH4037321.
Actual dimension of pipes will be subject to on-site survey and detail planning during construction phase.
[2] The hydraulic roughness of poor concrete slimed drains (0.003m) is adopted for the velocities more than 1.2m/s, otherwise 0.006m.

APPENDIX III

DOWNSTREAM PIPE CAPACITIES & ASSESSMENT CALCULATION

Table a - Detailed Calculation of Pipes Capacities

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)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m^2/s)	Hydraulic Pipeline Roughness (m) [1]	Velocity (m/s)	Full Capacity (l/s)
Existing Drainage Pipes													
Pipe01	SMH4037348	SMH4037320	5.09	4.81	17.4	0.300	0.071	0.075	0.016	1.14E-06	0.003	1.58	112
Pipe02	SMH4037320	SMH4037321	4.51	4.30	22.8	0.375	0.110	0.094	0.009	1.14E-06	0.003	1.38	153
Pipe03	SMH4037321	SMH4037322	4.30	4.15	51.1	0.375	0.110	0.094	0.003	1.14E-06	0.006	0.69	77
Pipe04*	SMH4037322	SMH4037328	4.15	4.12	9.0	0.375	0.110	0.094	0.003	1.14E-06	0.006	0.69	77
Pipe05	SMH4037328	SMH4037342	2.09	2.02	36.3	1.725	2.337	0.431	0.002	1.14E-06	0.003	1.70	3967
Upstream Pipe													
Pipe06	SMH4037337	SMH4037328	2.34	-	4.0	1.500	1.767	0.375	0.002	1.14E-06	0.003	1.55	2745

*The downstream invert level of Pipe04 is not found in the drainage record plan, thus the level is estimated by the slope of Pipe03.

[1] The hydraulic roughness of poor concrete slimed drains (0.003m) is adopted for the velocities more than 1.2m/s, otherwise 0.006m.

Table b - Assessment Calculation

coefficient	0.9	0.18

Manhole no.	Downstream pipe	Catchment	Slope (per 100m)	Total Area (m^2)	Paved Area (m2)	Unpaved Area (m2)	L (m)	Time of Concentration (min)	Rainfall Intensity (mm/hr) [1]	Paved Area (L/s)	Unpaved Area (L/s)	Total Discharge (L/s)	Pipe Capacity (L/s)	Total discharge / Full Capacity (%)	Necessary to upgrade?
SMH4037348	Pipe01	A & High Place	0.4	2317	2317	0	66	5.3	226	131	0	131.2	111.5	118%	Y
SMH4037320	Pipe02	A & High Place & B	0.4	2564	2564	0	83	6.6	215	138	0	137.8	152.9	90%	N
SMH4037321	Pipe03	A & High Place & B & C & Carlson Court	0.4	3324	3324	0	108	8.3	203	169	0	168.5	76.6	220%	Y
SMH4037322	Pipe04	A & High Place & B & C & Carlson Court & D	0.4	4292	4292	0	160	12.0	183	197	0	197.0	76.6	257%	Y
SMH4037328	Pipe05	A & High Place & B & C & Carlson Court & D & E & Project & F & Full pipe of SMH4037337	0.4	14066	13547	519	160	10.7	189	642	5	3392.2	3966.7	86%	N

Note:
[1] Rainfall intensity is based on 1:50 year return period of "Area adopted rainfall statistics of HKO Headquarters".

Table c - Detailed Calculation of Upgrading Pipes Capacities

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)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m^2/s)	Hydraulic Pipeline Roughness (m) [1]	Velocity (m/s)	Full Capacity (l/s)
Proposed Upgrading Pipe													
Pipe01	SMH4037348	SMH4037320	5.09	4.81	17.4	0.375	0.110	0.094	0.016	1.14E-06	0.003	1.83	202
Pipe03	SMH4037321	SMH4037322	4.30	4.15	51.1	0.600	0.283	0.150	0.003	1.14E-06	0.006	0.95	270
Pipe04	SMH4037322	SMH4037328	4.15	4.12	9.0	0.600	0.283	0.150	0.003	1.14E-06	0.006	0.95	270

[1] The hydraulic roughness of poor concrete slimed drains (0.003m) is adopted for the velocities more than 1.2m/s, otherwise 0.006m.

Table d - Percentage Loading of Pipes after Proposed Upgrading Work

Pipe No.	Pipe Capacity (L/s)	Total Discharge (L/s)	Total discharge / Full Capacity (%)
Pipe01*	202	131	65%
Pipe02	153	138	90%
Pipe03*	270	169	63%
Pipe04*	270	197	73%
Pipe05	3967	3392	86%

Urban Renewal Authority
Kai Tak Road / Sa Po Road
Development Scheme (KC-015)

Sewerage Impact Assessment
(V1.0)

February 2019

Approved By _____
(Project Manager: Mr. KS 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

Background

1.1. The Urban Renewal Authority (URA) has proposed a development scheme at Kai Tak Road / Sa Po Road (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO). This Sewerage Impact Assessment (SIA) is to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration.

1.2. The proposed development scheme is located between Kai Tak Road and Sa Po Road. The existing zoning of the site is **"**Residential (Group A)2**"** (R(A)2) and shown **"**Road**"**, on the Approved Ma Tau Kok OZP No. S/K10/24. The site comprises two lines of buildings facing Kai Tak Road and Sa Po Road respectively (except 51 Sa Po Road and 33 Carpenter Road). The location of the Scheme is shown in **Figure 1.1**.

1.3. The Scheme proposes to demolish the existing old buildings on Nos. 24-82 Kai Tak Road (even nos.), 31-73 Sa Po Road (odd nos. expected No. 51) for redevelopment into new residential cum retail development. A portion of existing Sa Po Road is proposed to be closed permanently for creating of a split-level sunken plaza to serve as a gateway to connect to proposed subway across Prince Edward Road East by Civil Engineering and Development Department (CEDD) and underground shopping street (USS) in Kai Tak Development Area (KTDA). It will allow better connection, continue the retail vibrancy and enhance the walkability between this part of old district area and KTDA. Traffic of Sa Po Road will be redirected to a new private road within the Scheme. The scheme area is proposed to be rezoned to "R(A)" to reflect the redevelopment's intentions.

1.4. Cinotech Consultants Limited was commissioned by URA to carry out a SIA to assess and envisage any potential sewerage impact on the implementation of the proposed development and to recommend mitigation measures as necessary.

2 DESCRIPTION OF THE ENVIRONMENT

2.1. The site is located between Kai Tak Road and Sa Po Road and the net site area is about 5,352 m^2, developments within the Development Scheme Plan (DSP) boundary include even street no. 24-82 Kai Tak Road and odd street no. 31-73 Sa Po Road; an amenity area south to 24-26 Kai Tak Road and 31-35 Sa Po Road; portion of existing Sa Po Road. The existing 51 Sa Po Road (Carlson Court) and 33 Carpenter Road (High Place) are not included in the redevelopment scheme.

2.2. The buildings to be demolished within the Scheme are multi-storeys residential buildings with up to 12 storeys and ground floor shops, the sewage discharge are currently served by the public sewer laid in the scavenging lane between the two lines of buildings.

3 SEWERAGE IMPACT ASSESSMENT

Introduction

3.1 This chapter identifies and evaluates the sewerage impact of the Scheme by estimating the potential sewage loading and discharge distribution to the public sewer. As there will be an increase in population, the associated sewage generation arising from the proposed development in the Scheme is expected to increase. The sewerage system surrounding the proposed development is reviewed.

Review of Existing Sewerage System

3.2 The existing surrounding public sewers are:

- FSH4002820 to FMH4030180 in the scavenging lane to be closed;
- FMH4029814 to FMH4029808 along existing Sa Po Road (Route 1);
- FSH4001644 to FMH4029808 from Carpenter Road to Kai Tak Road (Route 2).

These existing routes and manholes are illustrated in **Figure 3.1**.

3.3 Sewage from existing buildings of the Site currently discharges to the sewerage system along the scavenging lane and eventually collected by FMH4029807. The existing sewers from manholes FSH4002820 to FMH4030180 will be demolished due to the redevelopment; therefore, the sewage pipes connecting to existing buildings High Place and Carlson Court (outside of DSP boundary) should be diverted.

3.4 The capacities of the existing foul sewers are calculated using Colebrook-White Equation. The capacities of existing public sewers are shown in **Table 3.1** below; detailed calculation of the existing pipes is shown in **Appendix 3.1**.

Table 3.1 Capacities of Existing Foul Sewers

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (L/s)[1]
Route 1: along Existing Sa Po Road			
Pipe 01[2]	FMH4029814	FMH4030180	199.9
Pipe 02	FMH4030180	FMH4029807	115.8
Pipe 03	FMH4029807	FMH4029809	49.9
Pipe 04[3]	FMH4029809	FMH4029808	706.9
Route 2: from Carpenter Road to Kai Tak Road			
Pipe 05	FSH4001644	FMH4051283	924.0
Pipe 06	FMH4051283	FMH4051284	797.4
Pipe 07	FMH4051284	FMH4029801	1242.1
Pipe 08[4]	FMH4029801	FMH4029802	778.8
Pipe 09	FMH4029802	FMH4029803	1097.3
Pipe 10	FMH4029803	FMH4029804	1478.5
Pipe 11	FMH4029804	FMH4029805	1487.8
Pipe 12	FMH4029805	FMH4029806	1094.3
Pipe 13	FMH4029806	FMH4029785	2489.3
Pipe 14	FMH4029785	FMH4029783	1636.4
Pipe 15	FMH4029783	FMH4029808	1936.2

[1] The pipe capacity are calculated by Colebrook-White Equation and detailed in **Appendix 3.1**.

[2] For Pipe01, Invert level of upstream is not found in Drainage Record plan, 1/100 is adopted in this calculation. Detail survey shall be conducted during construction stage to confirm the pipe capacity.

[3] For Pipe04, invert level of downstream is not found in Drainage Record Plan, same level of another pipe (from FMH4029783 to FMH4029808) is applied.

[4] The upstream and downstream invert levels are the same for Pipe08. The average slope of upstream Pipe07 & 08 is adopted. (slope = invert level at FMH4051284 - invert level at FMH4029802 / total length of Pipe07 and Pipe08).

Sewage Discharge from Scheme

3.5 Under the current notional design of the proposed development in the Scheme, the Scheme consists of a multi-storey non-residential podium (planning for shops and a club house) and 29-storey of residential flats (total 810 units). Upon CE in C's approval of the DSP, the proposed development will be subject to detailed design and changes, based on the approved DSP.

3.6 Based on Population By-census 2016, the average domestic household size in Lung Shing District Council Constituency Area is 2.4 persons. Therefore, the design residential population is about 1,944 persons (810 flats × 2.4 persons). The population from the Scheme is summarised in **Table 3.2** below.

Table 3.2 Estimation of Residential Population

No. of Floors	Total No. of Flats	No. of person per flat [1]	Predicted Total Population
29	810	2.4	1,944

[1] The average domestic household size is 2.4 persons for Lung Shing district according to Population By-census 2016. Hence, the number of persons per household for this proposed development is assumed to be 2.4.

3.7 The proposed use of the clubhouse is mainly for a gymnasium and some other passive activities. As the uses of shops are not confirmed, half of the shops are assumed to be "Restaurant" and the other half as "Retail". The population and the number of employees are estimated according to the usable floor area per person and the occupancy factor from Code of Practice for Fire Safety in Buildings 2011, published by Buildings Department. **Table 3.3** shows the population calculation of the clubhouse and shops, the detailed calculation is shown in **Appendix 3.2**.

Table 3.3 Estimation of Non-residential Population

Non-residential Use	UFA (m^2)	Occupancy Factor (m^2 per head)	Total No. of Occupancy	No. of Employee
Retail	2,819	3	964	97
Restaurant	2,819	1	2,891	290
Club House	884	3	295	30
Community	640	3	213	22

[1] Occupancy factors for the corresponding type of accommodation are from Table B1 of Code of Practice for Fire Safety in Buildings 2011.

Assume that UFA is 80% of GFA and the total GFA for Retail and Restaurant use is 7228m^2.

[2] No. of Occupants = Usable Floor Area (m^2) / Occupancy Factor

[3] A staff to occupant ratio of 1:10 is assumed for coffee shop and clubhouse to estimate the number of employees.

3.8 The estimated population and peak sewage flow from the residential towers and podium are summarized in **Table 3.4**. The total dry weather daily average flow is 1,025 m^3/day. The peak flow is 71.2 L/s, applying the peaking factor including stormwater allowance of 6 for a contribution population of 1,000-5,000 persons.

Table 3.4 Sewage Flow from Proposed Development

Type	Unit Flow Factors[1] (m^3/day/person)	No. of Employees/ Residents	Flow Rate (m^3/day)	Peak Flow[2] (L/s)
Retail	0.28	97	27.2	-
Restaurant	1.58	290	458.2	-
Club House	0.28	30	8.4	-
Community	0.28	22	6.2	-
Residential	0.27	1944	524.9	-
Total	-	-	**1025**	**71.2**

[1] EPD's Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 defining unit flow factors.

[2] The contribution population is 1025 m^3/day / 0.27 = 3,796 and peaking Factor of 6 for contribution population 1,000 – 5,000 persons is adopted. 24 operation hours per day is adopted for peak flow calculation. i.e. Peak Flow = 1025 × 1000 × 6 × 1 / 24 / 3600 = 71.2 L/s.

3.9 The sewerage discharge from the redevelopment buildings is proposed to be collected by a terminal manhole (FTMH-01) as shown in **Figure 3.4**. The terminal manhole will be connected to the public sewerage system via a ϕ300mm pipe, PP01, with a slope of 1:100. The capacity of the proposed new pipe is shown in **Table 3.5** below and it would have sufficient capacity to cater the sewage discharge from the redevelopment (71.2L/s).

Table 3.5 Capacity of Proposed Pipe from Proposed Development

Pipe	Terminal Manhole	Diameter (mm)	Slope	Pipe Capacity (L/s)
PP01	FTMH01	300	1:100	111

Sewage Discharge from High Place and Carlson Court

3.10 As mentioned in **Section 3.3**, the sewers connecting to High Place and Carlson Court should be diverted to the closest manhole as the original downstream will be closed. The sewage from High Place (Catchment A) is proposed to discharge to existing public sewage manhole FMH4051284 while the sewage from Carlson Court (Catchment B) is proposed to discharge to FMH4029814. Both are diverted via pipes in 225mm diameter with 1:100 slope. The capacity of the proposed new pipe is shown in **Table 3.6** below.

Table 3.6 Capacity of Proposed Pipe from High Place and Carlson Court

Pipe	Terminal Manhole	Diameter (mm)	Slope	Pipe Capacity (L/s)
From High Place (Catchment A)				
PP02	FTMH02	225	1:100	51.9
From Carlson Court (Catchment B)				
PP03	FTMH03	225	1:100	51.9

Sewage Impact Assessment

3.11 The sewage from surrounding developments is reviewed to estimate the overall impact on the public sewerage system. **Table 3.7** below shows the sewage discharge from each catchment and the catchment areas are shown in **Figures 3.2 & 3.3**. The population and detailed calculation of flow rate are presented in **Appendix 3.3**.

Table 3.7 Daily Flow Rate from Surrounding Development

Catchment ID	Developments	Flow Rate (m^3/day)
A	High Place	73.9
B	Carlson Court	21.8
C	Regal Oriental Hotel	599.0
	Po sing Court	
D	Half of Mei Tung House and Mei Po House	3,550.1
	Mei Tak House	
	Shing Tung House	
	Mau Tung House	
	On Tung House	
	Tung Tau (I) Estate (Phase 8)	
	Hong Tung House	
	Wui Yan House	
	Wui Sum House	
	Le Billionnaire	
	Bishop Ford Memorial School	
	Po Yan Oblate Primary School	
E	Billionnaire Royale	547.2
F	Bounder by Kai Tak Road, Tak Ku Ling Road, Nga Tsin Wai Road & Carpenter Road	887.0

3.12 All sewage discharge from the proposed development including the domestic use and non-domestic use is proposed to be collected by a single terminal manhole (FTMH01) and discharge to public sewer via a 300 mm pipe with 1:100 slope. As stated in **Section 3.2** above, two options of discharge routes for the proposed development are assessed: **Option 1** is to connect to original public sewer manhole FMH4030180 and via Route 1 to downstream; and **Option 2** is to connect to FMH4029805 via Route 2 to downstream. The proposed sewer layouts for two options are shown in **Figure 3.4** & **Figure 3.5**.

3.13 **Table 3.8** shows a summary of the discharge loading from the Scheme and surrounding catchment areas to each segment of pipe, detailed calculation for the pipe loading is shown in **Appendix 3.4**.

Table 3.8 Discharge Contribution to the Downstream Pipes

Segment	Catchment	Discharge Loading (L/s)	Full Capacity (L/s)	Upgrading required?
Option 1				
PP01	Scheme	71.2	111.0	-
PP02	A	6.8	51.9	-
PP03	A	6.8	51.9	-
PP04	B	2.0	51.9	-
PP05	B	2.0	51.9	-
Pipe 01	B & C	43.1	199.9	N
Pipe 02	Scheme & B & C	95.2	115.8	N
Pipe 03	Scheme & B & C	95.2	49.9	**Y**
Pipe 04	Scheme & B & C	95.2	706.9	N
Pipe 05	D	164.4	924.0	N
Pipe 06	D & A	167.8	797.4	N
Pipe 07	D & A & E	193.1	1242.1	N
Pipe 08	D & A & E	193.1	778.8	N
Pipe 09	D & A & E	193.1	1097.3	N
Pipe 10	D & A & E	193.1	1478.5	N
Pipe 11	D & A & E	193.1	1487.8	N
Pipe 12	D & A & E	193.1	1094.3	N
Pipe 13	D & A & E	193.1	2489.3	N
Pipe 14	D & A & E & F	234.2	1636.4	N
Pipe 15	D & A & E & F	234.2	1936.2	N
Option 2				
PP01	Scheme	71.2	111.0	-
PP02	A	6.8	51.9	-
PP03	A	6.8	51.9	-
PP04	B	2.0	51.9	-
PP05	B	2.0	51.9	-
Pipe 01	B & C	43.1	199.9	N
Pipe 02	B & C	43.1	115.8	N
Pipe 03	B & C	43.1	49.9	N
Pipe 04	B & C	43.1	706.9	N
Pipe 05	D	164.4	924.0	N
Pipe 06	D & A	167.8	797.4	N
Pipe 07	D & A & E	193.1	1242.1	N
Pipe 08	D & A & E	193.1	778.8	N
Pipe 09	D & A & E	193.1	1097.3	N

Pipe 10	D & A & E	193.1	1478.5	N
Pipe 11	D & A & E	193.1	1487.8	N
Pipe 12	D & A & E & Scheme	240.6	1094.3	N
Pipe 13	D & A & E & Scheme	240.6	2489.3	N
Pipe 14	D & A & E & Scheme & F	281.6	1636.4	N
Pipe 15	D & A & E & Scheme & F	281.6	1936.2	N

*__Bold__ for surcharging pipes.

Impact Evaluation

3.14 The sewage from the Scheme can be discharged to FMH4030180 (Option 1) or FMH4029805 (Option 2), **Table 3.9** below summaries the assessment result and the corresponding upgrading works required for each connection option.

Table 3.9 Summary of Assessment Result and Evaluation on Connection Options

Connection to Public Manhole	Assessment Result	Upgrading Works
Option 1: FMH4030180	Pipe03 has insufficient capacity to cater sewage discharge from Catchment B, C and the proposed development.	Pipe03 would need to be upgraded from 300mm to 375mm diameter circular pipe with original slope.
Option 2: FMH4029805	Existing sewer have sufficient capacities to cater the sewage discharge from the proposed development with nearby catchment area.	No upgrading work for existing pipe is needed.

3.15 A section of downstream sewer in Option 1, Pipe 03 (~52.6m), is needed to be upgraded from 300 mm diameter to 375 mm, whereas no upgrading work is required for Option 2. Therefore, Option 2 is easier to implement as less construction works regarding sewerage system are involved.

3.16 The discharge loading of the proposed pipes are summarized in **Table 3.10**. The detailed calculation is shown in **Appendix 3.5**.

Table 3.10 Proposed Sewerage Pipes

Segment	Upstream Manhole	Downstream Manhole	Length (m)	Diameter (mm)	Full Capacity (L/s)	Discharge Loading (L/s)	(%)
Option 1							
PP01	FTMH01	FMH4030180	5.8	300	111.0	71.2	64%
PP02	FTMH02	PFMH01	5.0	225	51.9	6.8	13%
PP03	PFMH01	FMH4051284	10.0	225	51.9	6.8	13%
PP04	FTMH03	PFMH02	32.0	225	51.9	2.0	4%
PP05	PFMH02	FMH4029814	38.0	225	51.9	2.0	4%
Upgraded Pipe 03	FMH4029807	FMH4029809	52.6	375	199.9	95.2	48%
Option 2							
PP01	FTMH01	FMH4029805	14.0	300	111.0	71.2	64%
PP02	FTMH02	PFMH01	5.0	225	51.9	6.8	13%
PP03	PFMH01	FMH4051284	10.0	225	51.9	6.8	13%
PP04	FTMH03	PFMH02	32.0	225	51.9	2.0	4%
PP05	PFMH02	FMH4029814	38.0	225	51.9	2.0	4%

*% = Discharge loading / full capacity.

3.17 Approximately 90m of new pipes and 53m existing pipe are required to be built or upgraded for Option 1; in comparison, approximately 100m of new pipes are required for Option 2. As Option 2 requires no upgrading work to the existing sewerage system, there will be fewer disturbances to the sewerage service. Therefore, it is proposed that the future sewerage plan should follow Option 2 as shown in **Figure 3.5**.

3.18 The sewage discharge from the redevelopment would be collected by a single terminal manhole and discharged to FMH4029804 on Kai Tak Road. Sewage from High Place and Carlson Court would be diverted by new pipes and connect to FMH4051283 on Carpenter Road and FMH4029814 on Sa Po Road respectively.

4 CONCLUSION

4.1 The scheme consists of a multi-storey non-residential podium (planning for shops and a club house) and 29-storey of residential flats (total 810 units) between Sa Po Road and Kai Tak Road. .

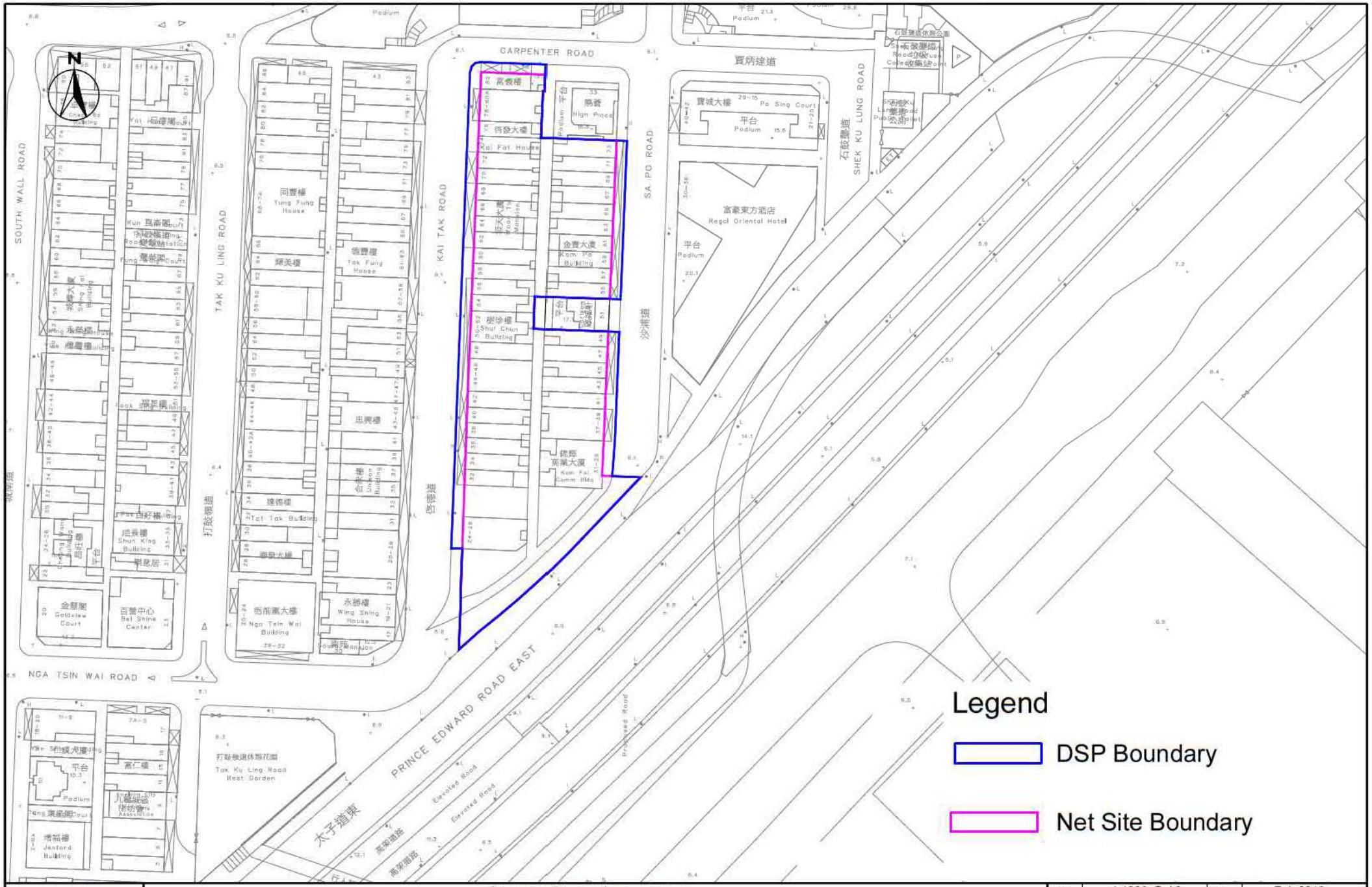
4.2 As the downstream of FMH4029804 (Option 2) has sufficient capacity to cater the sewage from the proposed redevelopment and the existing developments, it is proposed that the future sewerage layout follow Option 2 (**Figure 3.5**), with approximately 100m of new pipes are required subject to future technical verification and detail design. In this SIA, it is proposed that a terminal manhole (FTMH-01) would collect all sewerage discharge from the proposed development within the DSP boundary, and discharge to the public sewer via manhole FMH4030180 (Option1) or FMH4029804 (Option 2) with ϕ300mm pipes with slope of 1:100.

4.3 As the closure of existing scavenging lane between Sa Po Road and Kai Tak Road, the sewage from High Place and Carlson Court are proposed to be diverted to existing public sewage manhole FMH4051284 and FMH4029814 respectively by 2 sets of 225mm diameter pipe with 1:100 slope. No sewage impact is expected due to the diversion works.

4.4 A portion of the public sewage pipe section (from manhole FMH4029814 to FMH4029809) under Sa Po Road is located within DSP boundary, temporary diversion during construction phase might be required if necessary. However, no disturbance to the public sewerage service is expected and the pipes would be restored after construction phase. In future, a reserved area is, however, to be provided in the land grant for 24 hours' access by relevant government departments for maintenance along the sewage pipe area within the Scheme if required.

4.5 Detail design of sewerage system for the proposed development shall subject to the detailed sewerage layout. No adverse impact on the existing sewage system is anticipated in view of sewage connection feasibility with associated proposal of upgrading works.

FIGURES



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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Scheme Location

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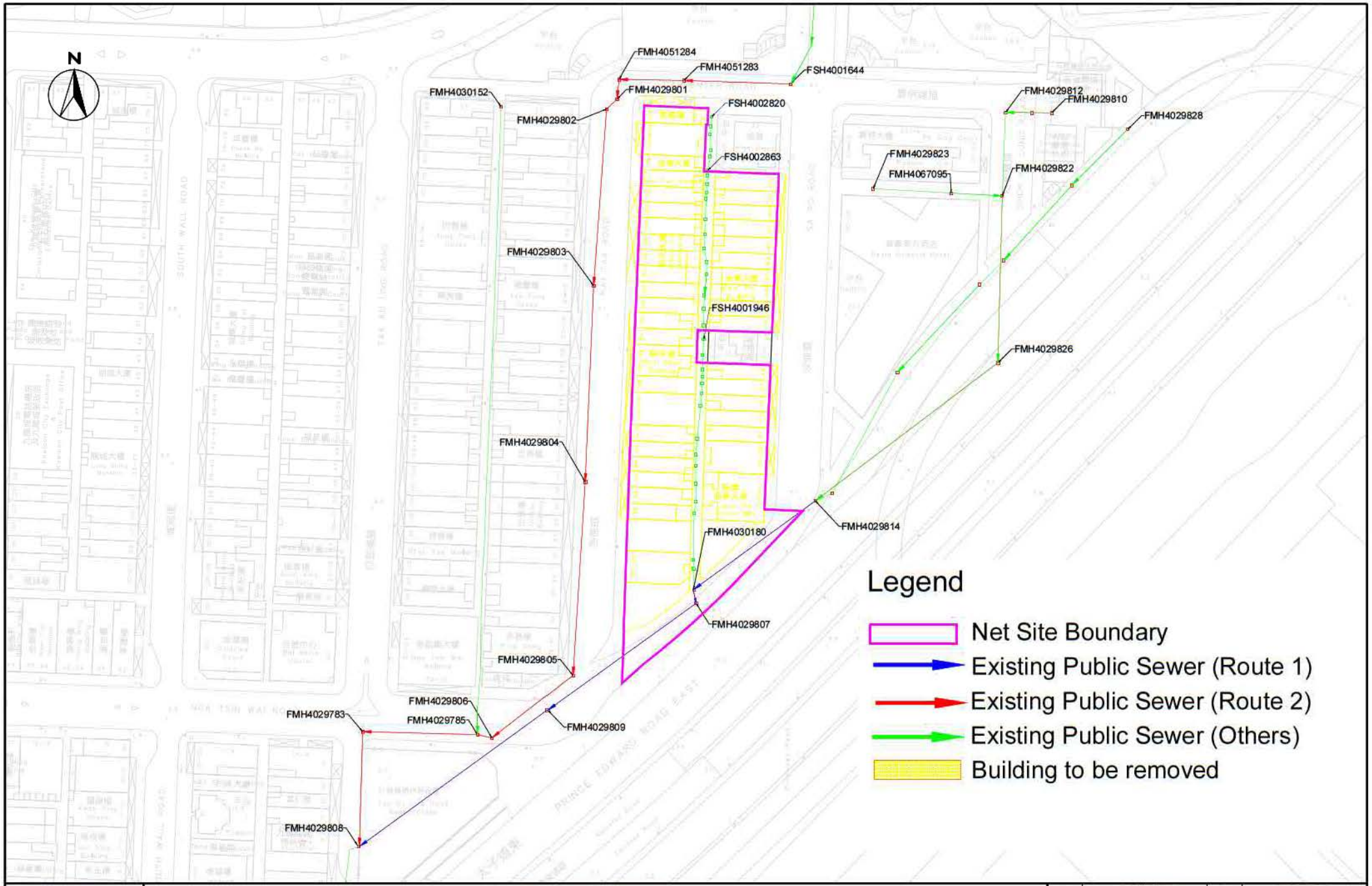
		REV.	-



CINOTECH
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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Existing Sewer Network

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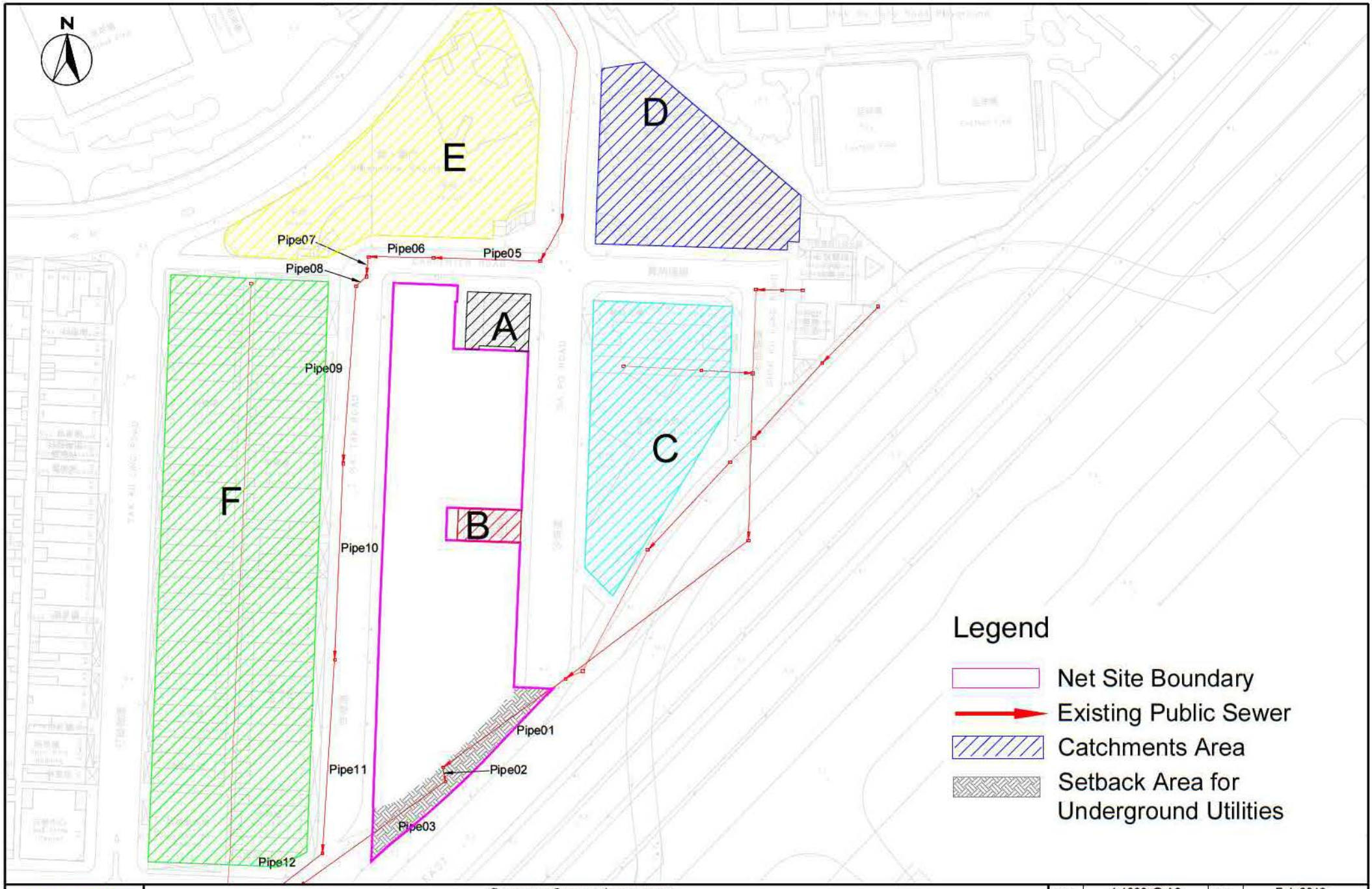
JOB No.	IA17019/KC015	DRAWING No.	3.1
		REV.	-



CINOTECH
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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Catchment Area-1

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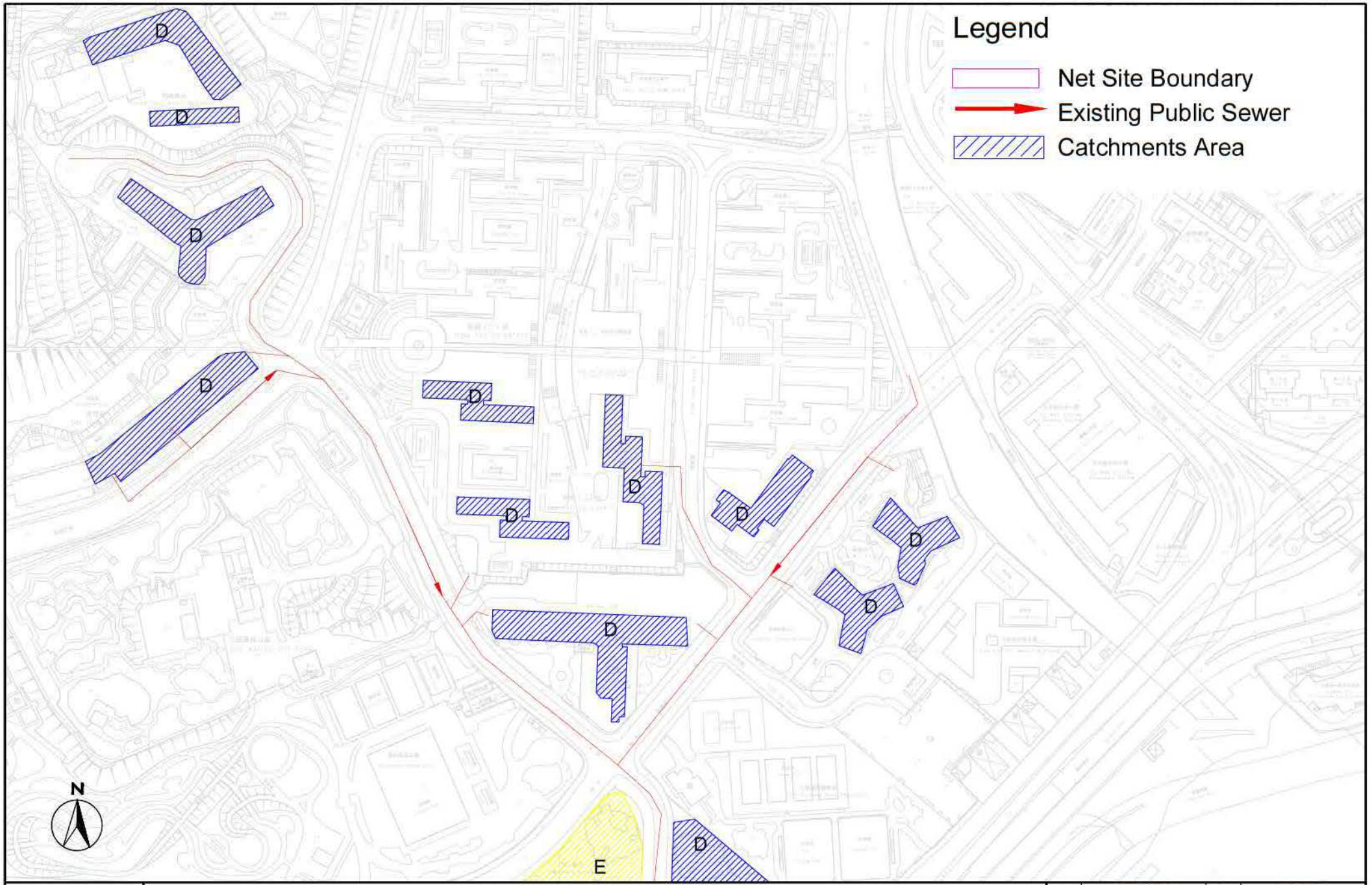

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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Catchment Area-2

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CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.3
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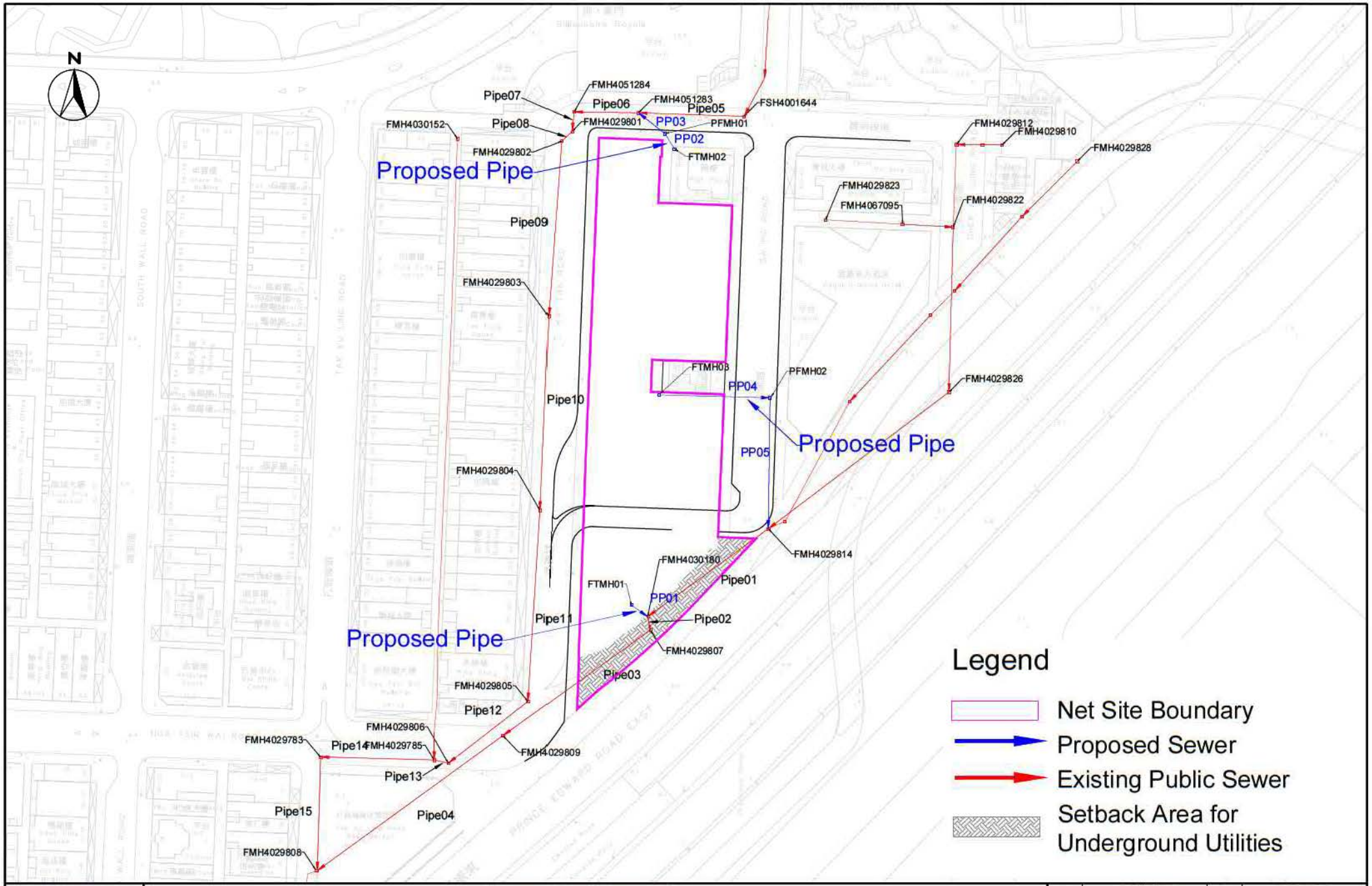

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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Sewer (Option1)

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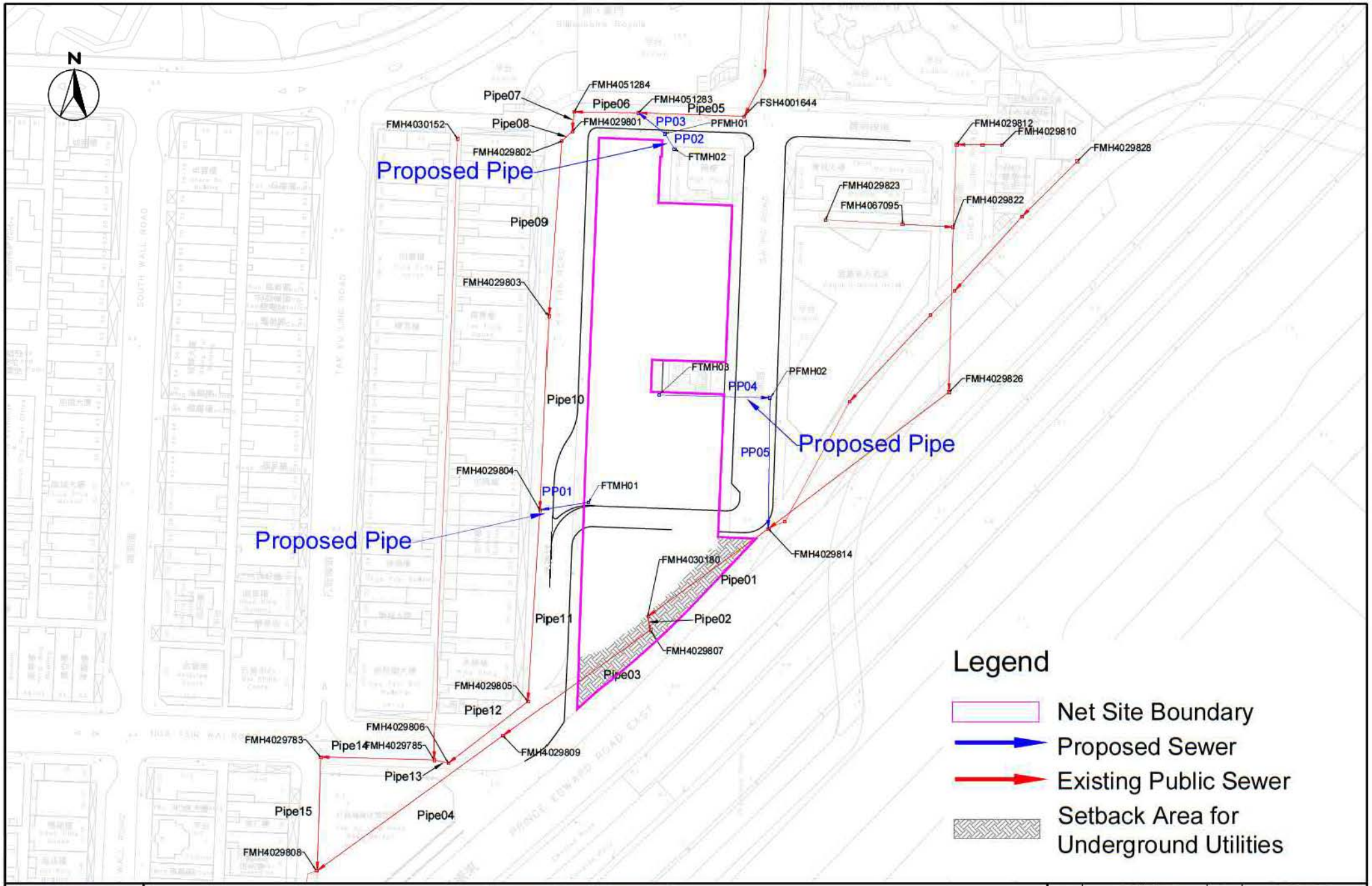

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Sewerage Impact Assessment
Kai Tak Road / Sa Po Road Development Scheme (KC015)

Proposed Sewer (Option2)

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CHECK	KW	DRAWN	JM
JOB No.	IA17019/KC015	DRAWING No.	3.5
		REV.	-

APPENDIX 3.1

EXISTING PIPE CAPACITY

Capacity Calculation of Existing Pipes

Segment	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)	Hydraulic Pipeline Roughness (m)[1]	Velocity (m/s)[2]	Full Capacity (l/s)
Route 1														
Pipe 01 [3]	FMH4029814	FMH4030180	-	2.81	43.0	375	0.375	0.110	0.09375	0.0100	0.00000114	0.0006	1.81	199.9
Pipe 02	FMH4030180	FMH4029807	3.48	3.43	4.6	300	0.3	0.071	0.075	0.0109	0.00000114	0.0006	1.64	115.8
Pipe 03	FMH4029807	FMH4029809	3.43	3.26	52.6	300	0.3	0.071	0.075	0.0032	0.00000114	0.003	0.71	49.9
Pipe 04 [4]	FMH4029809	FMH4029808	3.26	3.04	66.7	750	0.75	0.442	0.1875	0.0033	0.00000114	0.0006	1.60	706.9
Pipe 05	FSH4001644	FMH4051283	3.73	3.7	30.7	1050	1.05	0.866	0.2625	0.0010	0.00000114	0.0006	1.07	924.0
Route 2														
Pipe 06	FMH4051283	FMH4051284	3.7	3.68	18.7	1050	1.05	0.866	0.2625	0.0011	0.00000114	0.003	0.92	797.4
Pipe 07	FMH4051284	FMH4029801	3.68	3.67	5.7	1050	1.05	0.866	0.2625	0.0018	0.00000114	0.0006	1.43	1242.1
Pipe 08 [5]	FMH4029801	FMH4029802	3.67	3.67	4.1	1050	1.05	0.866	0.2625	0.0010	0.00000114	0.003	0.90	778.8
Pipe 09	FMH4029802	FMH4029803	3.65	3.58	51.0	1050	1.05	0.866	0.2625	0.0014	0.00000114	0.0006	1.27	1097.3
Pipe 10	FMH4029803	FMH4029804	3.54	3.4	56.5	1050	1.05	0.866	0.2625	0.0025	0.00000114	0.0006	1.71	1478.5
Pipe 11	FMH4029804	FMH4029805	3.4	3.26	55.8	1050	1.05	0.866	0.2625	0.0025	0.00000114	0.0006	1.72	1487.8
Pipe 12	FMH4029805	FMH4029806	3.25	3.21	29.3	1050	1.05	0.866	0.2625	0.0014	0.00000114	0.0006	1.26	1094.3
Pipe 13	FMH4029806	FMH4029785	3.21	3.18	4.3	1050	1.05	0.866	0.2625	0.0070	0.00000114	0.0006	2.87	2489.3
Pipe 14	FMH4029785	FMH4029783	3.17	3.12	33.0	1200	1.2	1.131	0.3	0.0015	0.00000114	0.0006	1.45	1636.4
Pipe 15	FMH4029783	FMH4029808	3.11	3.04	33.1	1200	1.2	1.131	0.3	0.0021	0.00000114	0.0006	1.71	1936.2

[1] Roughness coefficient for slimed clayware sewer under poor condition is adopted; the ks values are 0.6mm for velocities greater than 1.2m/s, otherwise 3mm.

[2] Calculated by Colebrook-White Equation

[3] Invert level of upstream is not found in Drainage Record plan, 1/100 is adopted in this calculation. Detail survey shall be conducted during construction stage to confirm the pipe capacity

[4] Invert level of downstream is not found in Drainage Record Plan, same level of another pipe (from FMH4029783 to FMH4029808) is applied.

[5] The invert level of upstream and downstream are the same for Pipe08. The average slope of upstream Pipe07 & 08 is adopted. (slope = invert level at FMH4051284 - invert level at FMH4029802 / total length of Pipe07 and Pipe08).

APPENDIX 3.2

DISCHARGE FROM SCHEME

Sewage Discharge from Scheme

Table 1 Estimation of Residential Population

Total GFA	No. of Block	Storeys	Total No. of Flats	No. of person per flat [1]	Predicted Total Population
40140	3	29	810	2.4	1944

Note:

1 The average domestic household size is 2.4 persons for (G10) Lung Shing district according to Population By-census 2016, and the number of persons per household for this proposed development is assumed to be 2.4.

Table 2 Estimation of Non-residential Population

Non-residential Use	GFA (m^2)	UFA (m^2)	Occupancy Factor (m^2 per head)	Total No. of Occupancy	No. of Employee
Retail	7228	2891	3	964	97
Restaurant		2891	1	2891	290
Club House	1105	884	3	295	30
Community	800	640	3	213	22

Note:

1 Occupancy factors for the corresponding type of accommodation are from Table B1 of Code of Practice for Fire Safety in Buildings 2011.

Assume that UFA is 80% of GFA

2 No. of Occupants = Usable Floor Area (m^2) / Occupancy Factor

3 A staff to occupant ratio of 1:10 is assumed for coffee shop and clubhouse to estimate the number of employees.

Table 3 Calculation of Sewage Flow

Occupant Type	Unit Flow Factors [1] (m^3/day/person)	No. of Occupants	Flow Rate (m^3/day)	Contributing population	Peak Flow (L/s)
Retail	0.28	97	27.2	-	-
Restaurant	1.58	290	458.2	-	-
Club House	0.28	30	8.4	-	-
Community	0.28	22	6.2	-	-
Residential	0.27	1944	524.9	-	-
Total	-	-	1025	3796	**71.2**

Note:

1 EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.

2 The contribution population is 1024.8 (m^3/day) / 0.27(m^3/day/person) = 3796

3 Peaking Factor of 6 for contribution population 1,000-5,000 is adopted and the operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

APPENDIX 3.3

DISCHARGE FROM SURROUNDING CATCHMENT

Appendix 3.3 Discharge from Surrounding Catchment

Sewage Discharge from Surrounding Catchment

ID	Catchment	No. of Flat	Catchment Area (m^2)	Club House (m^2)		Population			Flowrate (m^3/day) [c]			Total Flowrate / catchment (m^3/day)	Reference
					Household Size [a]	Residential (head) [a]	Retail/Shop (Staff)[b]	Restaurants / Hotel (Staff)[b]	Residential	Retail/Shop	Restaurants / Hotel		
A	High Place	76	355	124	2.4	182.4	8	14	49.2	2.2	22.4	73.9	[d]
B	Carlson Court	76	170		1	76	5	0	20.5	1.3	0.0	21.8	[e]
C	Regal Oriental Hotel					0	0	322	0.0	0.0	508.8	599.0	[f]
	Po sing Court	132	626		2.4	316.8	17	0	85.5	4.7	0.0		[g]
D	Half of Mei Tung House and Mei Po House	333			2.6	865.8	39	0	233.8	10.9	0.0	3550.1	[h]
	Mei Tak House	990			2.6	2574	0	0	695.0	0.0	0.0		[i]
	Shing Tung House	168			2.5	420	0	0	113.4	0.0	0.0		Centadata
	Mau Tung House	168			2.5	420	0	0	113.4	0.0	0.0		
	On Tung House	240			2.5	600	0	0	162.0	0.0	0.0		
	Hong Tung House	364			2.5	910	0	0	245.7	0.0	0.0		
	Tung Tau (I) Estate (Phase 8)	1033			2.5	2582.5	0	0	697.3	0.0	0.0		[j]
	Wui Yan House	1300				2700	0	0	729.0	0.0	0.0		[k]
	Wui Sum House						0			0.0	0.0		
	Le Billionnaire	212	5252		2.4	508.8	70	210	137.4	19.6	331.9		[l]
						Student (UFF:0.04)	Staff (UFF:0.28)		Student (UFF:0.04)	Staff (UFF:0.28)			
	Bishop Ford Memorial School					406	52		16.2	14.6			[m]
	Po Yan Oblate Primary School					400	50		16	14			[n]
E	Billionnaire Royale	266	5600		2.4	638.4	75	224	172.4	20.9	353.9	547.2	[o]
F	Bounder by Kai Tak Road, Tak Ku Ling Road, Nga Tsin Wai Road & Carpenter Road	579	7646		2.4	1389.6	102	306	375.2	28.5	483.2	887.0	Centadata

Appendix 3.3 Discharge from Surrounding Catchment

Notes:

[a] The average domestic household size is according to Population By-census 2016. Source from (http://www.bycensus2016.gov.hk/en/bc-dp.html).

[b] For Catchment A, a 50% floor ratio among retail/shop and restaurant/ hotel is assumed, also density of 1 person per 1 m^2 and 1 person per 3 m^2 is assumed respectively. 80% of usable floor area and a staff to customer ratio of 1:10 are assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% × 50% / [10×population density (/m^2)].
For Catchment B-D, a 100% floor ratio of retail/shop is assumed. Therefore, Population = Area of floor catchment area (m^2) × 80% / [10×population density (/m^2)]

[c] The Unit Flow Factors are 0.04, 0.27, 0.28, 1.58 m^3/day/head for students, residential use, industrial/retail/office use, restaurants/hotel respectively.
flat no: https://www.richitt.com/%E6%9B%89%E8%96%88-highplace/
[d] shop area: https://www.highplace.com.hk/data/highplace_web.pdf
[e] Carlson Court: https://sa.hkbu.edu.hk/sas/pg-housing/overview
[f] Regal Oriental Hotel: https://www.regalhotel.com/regal-oriental-hotel/tc/about/about-this-hotel.html#tab_1
[h] Half of 665 flat and 26 shops are adopted. 3 staff per shop is assumed. http://news.rthk.hk/rthk/ch/component/k2/1350123-20170824.htm
[i] Mei Tak house: https://www.housingauthority.gov.hk/en/common/pdf/about-us/housing-authority/ha-paper-library/HA7-16.pdf
[j] Tung Tau Phase 8: http://hk.on.cc/hk/bkn/cnt/news/20170824/bkn-20170824133257720-0824_00822_001.html
[k] HKHA https://www.housingauthority.gov.hk/en/global-elements/estate-locator/detail.html?propertyType=1&id=15020
[l] Le Billionnaire：https://www.richitt.com/%E8%B1%AA%E9%96%80-lebillionnaire/
[m] Bishop Ford Memorial School http://203.198.66.113/information/files/school%20report/18-19/1718schoolreport.pdf
[n] Po Yan Oblate Primary School http://www.poyan.edu.hk/index.html
[o] http://www.billionnaireroyale.com/tch/index.php

APPENDIX 3.4

DETAILED CALCULATION OF PIPE LOADING

Appendix 3.4 Detailed Calculation of Pipe Loading

Proportion of Peak Flow to Full Capacity (Option 1)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4030180	111.0	Scheme	1024.8	3796	6	71.2	64%
PP02	FTMH02	PFMH01	51.9	A	73.9	274	8	6.8	13%
PP03	PFMH01	FMH4051284	51.9	A	73.9	274	8	6.8	13%
PP04	FTMH03	PFMH02	51.9	B	21.8	81	8	2.0	4%
PP05	PFMH02	FMH4029814	51.9	B	21.8	81	8	2.0	4%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	199.9	B & C	620.6	2298	6	43.1	22%
Pipe 02	FMH4030180	FMH4029807	115.8	Scheme & B & C	1645.6	6095	5	95.2	82%
Pipe 03	FMH4029807	FMH4029809	49.9	Scheme & B & C	1645.6	6095	5	95.2	**191%**
Pipe 04	FMH4029809	FMH4029808	706.9	Scheme & B & C	1645.6	6095	5	95.2	13%
Pipe 05	FSH4001644	FMH4051283	924.0	D	3550.1	13149	4	164.4	18%
Pipe 06	FMH4051283	FMH4051284	797.4	D & A	3624.0	13422	4	167.8	21%
Pipe 07	FMH4051284	FMH4029801	1242.1	D & A & E	4171.2	15449	4	193.1	16%
Pipe 08	FMH4029801	FMH4029802	778.8	D & A & E	4171.2	15449	4	193.1	25%
Pipe 09	FMH4029802	FMH4029803	1097.3	D & A & E	4171.2	15449	4	193.1	18%
Pipe 10	FMH4029803	FMH4029804	1478.5	D & A & E	4171.2	15449	4	193.1	13%
Pipe 11	FMH4029804	FMH4029805	1487.8	D & A & E	4171.2	15449	4	193.1	13%
Pipe 12	FMH4029805	FMH4029806	1094.3	D & A & E	4171.2	15449	4	193.1	18%
Pipe 13	FMH4029806	FMH4029785	2489.3	D & A & E	4171.2	15449	4	193.1	8%
Pipe 14	FMH4029785	FMH4029783	1636.4	D & A & E & F	5058.2	18734	4	234.2	14%
Pipe 15	FMH4029783	FMH4029808	1936.2	D & A & E & F	5058.2	18734	4	234.2	12%

Note:

[a] The operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m³/day)	Contribution Population	Peaking Factor	Peak Flow [a] (L/s)	% of full capacity
Upgraded Pipes									
Upgraded Pipe 03	FMH4029807	FMH4029809	199.9	Scheme & B & C	1645.6	6095	5	95.2	48%

Proportion of Peak Flow to Full Capacity (Option 2)

Segment	Upstream Manhole	Downstream Manhole	Full Capacity (l/s)	Catchment	Total catchment discharge (m^3/day)	Contribution Population	Peaking Factor[a]	Peak Flow (L/s)	% of full capacity
Proposed Pipes									
PP01	FTMH01	FMH4029805	111.0	Scheme	1024.8	3796	6	71.2	64%
PP02	FTMH02	PFMH01	51.9	A	73.9	274	8	6.8	13%
PP03	PFMH01	FMH4051284	51.9	A	73.9	274	8	6.8	13%
PP04	FTMH03	PFMH02	51.9	B	21.8	81	8	2.0	4%
PP05	PFMH02	FMH4029814	51.9	B	21.8	81	8	2.0	4%
Existing Pipes									
Pipe 01	FMH4029814	FMH4030180	199.9	B & C	620.8	2299	6	43.1	22%
Pipe 02	FMH4030180	FMH4029807	115.8	B & C	620.8	2299	6	43.1	37%
Pipe 03	FMH4029807	FMH4029809	49.9	B & C	620.8	2299	6	43.1	86%
Pipe 04	FMH4029809	FMH4029808	706.9	B & C	620.8	2299	6	43.1	6%
Pipe 05	FSH4001644	FMH4051283	924.0	D	3550.1	13149	4	164.4	18%
Pipe 06	FMH4051283	FMH4051284	797.4	D & A	3624.0	13422	4	167.8	21%
Pipe 07	FMH4051284	FMH4029801	1242.1	D & A & E	4171.2	15449	4	193.1	16%
Pipe 08	FMH4029801	FMH4029802	778.8	D & A & E	4171.2	15449	4	193.1	25%
Pipe 09	FMH4029802	FMH4029803	1097.3	D & A & E	4171.2	15449	4	193.1	18%
Pipe 10	FMH4029803	FMH4029804	1478.5	D & A & E	4171.2	15449	4	193.1	13%
Pipe 11	FMH4029804	FMH4029805	1487.8	D & A & E	4171.2	15449	4	193.1	13%
Pipe 12	FMH4029805	FMH4029806	1094.3	D & A & E Scheme	5196.0	19245	4	240.6	22%
Pipe 13	FMH4029806	FMH4029785	2489.3	D & A & E Scheme	5196.0	19245	4	240.6	10%
Pipe 14	FMH4029785	FMH4029783	1636.4	D & A & E Scheme & F	6083.0	22530	4	281.6	17%
Pipe 15	FMH4029783	FMH4029808	1936.2	D & A & E Scheme & F	6083.0	22530	4	281.6	15%

Note:

[a] Peaking Factor of 4 for contribution population 10,000- 50,000 and peaking factor of 5 for contribution populaton 5,000-10,000 are adopted and the operation hour is assumed to be 24 hours. The peak flow is the sum of flow rate of each occupant type × peaking factor.

APPENDIX 3.5

PROPOSED PIPE CAPACITY

Appendix 3.5 Proposed Pipe Capacity

Capacity Calculation of Upgrading Pipes

Segment	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)	Hydraulic Pipeline Roughness (m)*	Velocity (m/s)	Number of Pipes	Full Capacity (l/s)
Option 1															
Proposed Upgrading Pipes															
PP01	FTMH01	FMH4030180	3.46	3.40	5.8	300	0.3	0.071	0.075	0.0100	0.00000114	0.0006	1.57	1	111.0
PP02	FTMH02	PFMH01	3.85	3.80	5.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP03	PFMH01	FMH4051284	3.80	3.70	10.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP04	FTMH03	PFMH02	4.33	4.01	32.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP05	PFMH02	FMH4029814	4.01	3.63	38.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
Upgraded Pipe 03	FMH4029807	FMH4029809	3.43	3.26	52.6	375	0.375	0.110	0.09375	0.0100	0.00000114	0.0006	1.81	1	199.9
Option 2															
PP01	FTMH01	FMH4029805	0.14	0.00	14.0	300	0.3	0.071	0.075	0.0100	0.00000114	0.0006	1.57	1	111.0
PP02	FTMH02	PFMH01	3.85	3.80	5.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP03	PFMH01	FMH4051284	3.80	3.70	10.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP04	FTMH03	PFMH02	4.33	4.01	32.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9
PP05	PFMH02	FMH4029814	4.01	3.63	38.0	225	0.225	0.040	0.05625	0.0100	0.00000114	0.0006	1.31	1	51.9

*As the capacity of Pipe 09 is undetermined, Pipe 09 and Pipe 10 is calculated as one section of pipe and the average slope is adopted to calculate the capacity.

Appendix 8

Desktop Geotechnical Appraisal



Consultancy Services for Desktop Geotechnical Study

Job No.: DA18072

Desktop Study Report

Issued 18 JANUARY 2019

REVISION A

Prepared for:
Urban Renewal Authority

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A Site Location Plan

B Information Retrieved from BD

C Information Retrieved from DSD (Existing Drainage)

D Ground Investigation Records

E Schematic Building Plans

F Preliminary Foundation Plans

G Preliminary ELS Plans

H Settlement Analysis (Plaxis Model)

1. INTRODUCTION

1.1 General

The Urban Renewal Authority (URA) has proposed a Development Scheme at Kai Tak Road/Sa Po Road (KC-015) (the Scheme) under section 25 of the Urban Renewal Authority Ordinance (URAO) (see Location Plan in Appendix A). The Scheme proposes to demolish the existing buildings in deteriorating conditions within the Scheme Area for redevelopment into new residential towers on top of a commercial/retial podium, with about 5 levels of basement carpark for public and ancillary uses, and a split-level sunken plaza. David S.K Au & Associates Ltd (DAAL) have been appointed by URA to undertake a desktop geotechnical study for the proposed Scheme to give a preliminary assessment of geotechnical condition of the site and the geotechnical feasibility of the proposed Scheme.

1.2 Objectives

This desktop geotechnical study is a geotechnical feasibility study to support the submission of a draft Development Scheme Plan (DSP) with its planning proposal to the Town Planning Board (TPB) for consideration. It covers the findings of desktop study on existing geotechnical conditions, preliminary appraisal on the feasibility, and recommendations on necessary further geotechnical investigation works in order to ensure no adverse impacts on adjacent properties from the proposed site works and vice versa.

2. SITE DESCRIPTION AND TOPOGRAPHY

The site is in irregular shape with a net site area of about 5,352 m^2. It is bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north. The site is generally flat with an average ground level of about 6.1mPD. No registered slope features are located in the vicinity of the site. The current site is occupied by 2 rows of buildings of 5 – 12 storeys, a vacant site for car parking use, two amenity areas and a portion of Sa Po Road.

3 SURROUNDING BUILDINGS AND ADJACENT UTILITIES

In order to study the background of the adjacent buildings, general building plans from the Buildings Department (BD) and sewerage and drainage networks records from Drainage

Services Department (DSD) were retrieved. The records of building plans, sewerage and drainage networks are enclosed in Appendix B and C respectively.

3.1 Records retrieved from the Building Department

There are about 37 buildings located in the vicinity of the site and they are summarized as follows.

BD Ref. No.	Building	Ground Level (mPD)	Foundation Type	Pile Length (m)	Height of Building (m)
4705/60	86 TAK KU LING ROAD	6.23	RC PRECAST PILE(DRIVEN PILE)	16.764 & 18.288	no information
4608/61	84 TAK KU LING ROAD	6.23	RC PRECAST PILE(DRIVEN PILE)	15.24 & 16.154	21.79
4159/61	80-82 TAK KU LING ROAD	6.23	STEEL PILE(DRIVEN PILE)	13.106 & 13.335	23.19
4426/64	76-78 TAK KU LING ROAD	6.69	FRANKI PILE(DRIVEN PILE)	25.908 & 27.432	23.19
4783/65	68-74 TAK KU LING ROAD	6.20	STEEL PILE(DRIVEN PILE)	21.336 & 24.384	36.57
5369/63	64-66 TAK KU LING ROAD	6.55	FRANKI PILE(DRIVEN PILE)	27.432	30.48
4290/69	62 TAK KU LING ROAD	6.55	FRANKI PILE(DRIVEN PILE)	27.432	19.81
4044/70	58-60 TAK KU LING ROAD	6.62	FRANKI PILE(DRIVEN PILE)	25.908	19.63
4425/69	56 TAK KU LING ROAD	6.62	FRANKI PILE(DRIVEN PILE)	27.432	19.65
4586/69	54 TAK KU LING ROAD	6.57	FRANKI PILE(DRIVEN PILE)	27.432	19.48
4188/62	50-52 TAK KU LING ROAD	6.57	RC PRECAST PILE(DRIVEN PILE)	16.764 & 17.678	6.56
4452/62	48 TAK KU LING ROAD	6.49	RC PRECAST PILE(DRIVEN PILE)	15.240	6.56
4359/61	40-46 TAK KU LING ROAD	6.43	STEEL PILE(DRIVEN PILE)	18.288	24.00
4721/61	36-38 TAK KU LING ROAD	6.42	STEEL PILE(DRIVEN PILE)	18.288 & 19.812	24.00
4002/71	32-34 TAK KU LING ROAD	6.45	FRANKI PILE(DRIVEN PILE)	29.870	19.65

BD Ref. No.	Building	Ground Level (mPD)	Foundation Type	Pile Length (m)	Height of Building (m)
4673/70	26-28 TAK KU LING ROAD	6.39	RC PRECAST PILE(DRIVEN PILE)	16.154 & 18.288	no information
4235/62	NGA TSIN WAI BUILDING	6.39	FRANKI PILE(DRIVEN PILE)	21.641 & 27.432	27.43
4476/70	43 CARPENTER ROAD	6.42	FRANKI PILE(DRIVEN PILE)	27.432	19.63
4038/67	79-81 KAI TAK ROAD	6.37	FRANKI PILE(DRIVEN PILE)	27.432 & 28.956	22.25
4019/71	77 KAI TAK ROAD	5.99	FRANKI PILE(DRIVEN PILE)	27.432	19.65
4412/63	73-75 KAI TAK ROAD	6.12	RC PRECAST PILE(DRIVEN PILE)	24.079 & 27.127	29.10
5406/63	69-71 KAI TAK ROAD	6.18	RC PRECAST PILE(DRIVEN PILE)	18.288	26.16
4753/61	65-67 KAI TAK ROAD	6.20	RC PRECAST PILE(DRIVEN PILE)	18.288	27.66
4511/64	61-63 KAI TAK ROAD	6.20	STEEL PILE(DRIVEN PILE)	24.384	36.57
4685/60	57-59 KAI TAK ROAD	6.22	RC PRECAST PILE(DRIVEN PILE)	18.288 & 19.812	20.87
4933/58	47-47A KAI TAK ROAD	6.22	RC PRECAST PILE(DRIVEN PILE)	18.288 & 19.812	32.46
4320/63	43-45 KAI TAK ROAD	6.10	FRANKI PILE(DRIVEN PILE)	21.641 & 27.127	29.97
4132/63	31-41 KAI TAK ROAD	5.88	RC PRECAST PILE(DRIVEN PILE)	12.192	32.30
4939/61	27-29 KAI TAK ROAD	5.88	RC PRECAST PILE(DRIVEN PILE)	18.288 & 19.812	26.82
5148/61	23-25 KAI TAK ROAD	5.88	RC PRECAST PILE(DRIVEN PILE)	18.288 & 19.812	26.82
4614/63	19-21 KAI TAK ROAD	5.91	RC PRECAST PILE(DRIVEN PILE)	19.812	28.65
4791/63	17 KAI TAK ROAD	5.85	FRANKI PILE(DRIVEN PILE)	25.908 & 0	19.81

BD Ref. No.	Building	Ground Level (mPD)	Foundation Type	Pile Length (m)	Height of Building (m)
4094/04	83 SA PO ROAD	6.20	(DRIVEN H PILE)	33.775 TO 52.075	163.55
4083/10	33 CARPENTER ROAD	6.10	(DRIVEN H PILE)	31.4 TO 37.4	77.54
4231/65	15-29 CARPENTER ROAD	6.32	FRANKI PILE(DRIVEN PILE)	27.432	45.72
4342/78	REGAL KAITAK HOTEL	5.95	STEEL PIPE PILE(DRIVEN PILE)	28 TO 33	no information
4029/96	51 SA PO ROAD	6.10	*(DRIVEN PILE)	36.015 TO 39.415	77.95

The records retrieved from BD are enclosed in Appendix B.

3.2 Adjacent Utilities

In order to study the background of the adjacent utilities, records were retrieved from the utility companies. The utilities records are enclosed in Appendix C.

- DSD (SWD4041834-36) storm drainage pipes are located along Kai Tak Road
- DSD (SWD4041828, 33, 4041837-38, 4041804-07) storm drainage pipes are located under Sa Po Road.
- DSD (SWD4041827-42) storm drainage pipes are located under the site area.
- DSD (SWD4078287&88) storm drainage pipes are located along Carpenter Road.

- DSD (FWD4031552-54) sewerage pipes are located along Kai Tak Road.
- DSD (FWD4064703-36, 474258, 4031556) sewerage pipes are located under the site area.
- DSD (FWD4031557, 64) sewerage pipes are located under the Sa Po Road.
- DSD (FWD4031552) sewerage pipes are located under the Carpenter Road.

4. GEOTECHNICAL ASSESSMENT

4.1 Geology

According to the 1:20,000 scale, Sheet 11 of HGM20 Series Solid and Superficial Geology Map published by the Geotechnical Engineering Office (GEO), the site may be underlain by bedrock of equigranular medium-grained biotite granites, (Kowloon Granite, Lion Rock Suite) of Cretaceous Mesozoic.

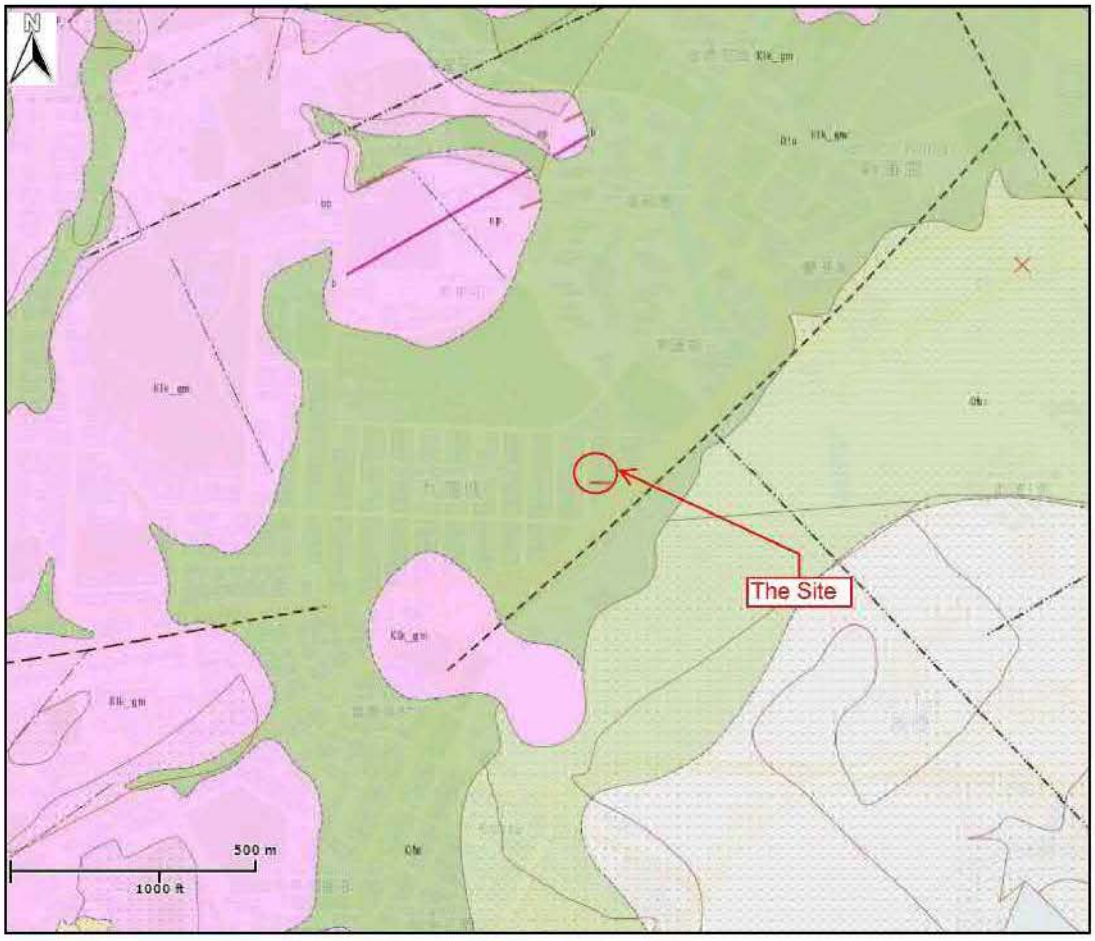


Figure 1 Geological Map of Hong Kong Sheet No. 11

4.2 Ground Condition

Existing Ground Investigation (GI) Records

A review of existing GI records in the vicinity of the site has been carried out, including GI for Kai Tak Development (GIU No. 57852), the geological sequence of the strata revealed for the site is summarized as follows:

FILL Fill layer is encountered in all drillholes with thickness ranging from 3.6m to 7.1m, which mainly comprised of clayey sandy silt, clayey silty fine to coarse sand, clayey silty sandy fine to coarse gravel and cobble of rock fragments and locally with boulder of moderately decomposed granite fragments.

Marine Deposit MD layer is with a thickness of about 0.95m, which mainly comprised of slightly clayey silty fine to coarse sand.

Alluvium Alluvium layer is with a thickness ranging from 11.2m to 20.4m, which mainly comprised of silty sandy clay, clayey sandy silt, clayey silty fine to coarse sand and clayey silty sandy fine to coarse gravel of quartz and rock fragments.

CDG Completely decomposed and highly decomposed granite layer is with a minimum thickness of 30m, which mainly comprised of clayey sandy silt, clayey silty fine to coarse sand, clayey silty sandy find to coarse gravel and cobble of highly decomposed granite fragments and locally with corestones of moderately decomposed and slightly decomposed granite.

Bedrock Bedrock is moderately to highly decomposed Granite with levels ranging from -63.88mPD to -67.36mPD.

The existing Ground Investigation Records are enclosed in Appendix D.

5. GEOTECHNICAL DESIGN PARAMETERS

5.1 Design Soil Parameters

The soil parameters adopted for this study are mainly derived from the typical values in Table 8 and 9 of Geoguide 1. The adopted values are presented in the following table.

Soil Type	γ' (kN/m^3)	c' (kPa)	Ø' (Deg.)	SPT N-Value	Young Modulus, E (kPa)
Fill	19	0	33	10	10000
Alluvium	19	3	34	12	12000
CDG	19	4	36	75	75000
M/HDG	19	6	36	200	200000

A site specific GI is needed for future detailed geotechnical design and it will especially focus on determining the soil strata & bedrock level and also assessing the soil properties.

Undisturbed samples retrieved from future ground investigation works will be taken to carry out testing for moisture content, particle size distribution, Atterberg Limits, bulk density, triaxial compression tests, undrained shear strength.

Standard penetration test will also be carried out in order to obtain sufficient data for detail geotechnical design.

Once available, results of laboratory / in-situ testing will be plotted into s'-t plots for deriving design soil parameters in the BD submission of ELS and foundation plan.

5.2 Groundwater Condition and Design Ground Water Table

A 7-day groundwater monitoring was carried out in boreholes no. BH5 during 10 Oct to 18 Oct 2005 according to GIU report no.57852. Measurement results of the groundwater level are tabulated as shown below.

Borehole	Tip Level (mPD)	Ground Level (mPD)	Highest observed GWL (mPD)
BH5	-47.67	+5.83	+3.51

Referring to the existing GI, the highest measured water level was about 2.32 m (i.e. +3.51mPD) below existing ground level. For conservative design, the design ground water table should be fully submerged. With the below geotechnical works proposed in Section 6, the excavation and construction works of the proposed Scheme are considered technically feasible from geotechnical aspect and is geotechnically safe for the adjoining developments.

6. PROPOSED GEOTECHNICAL WORKS FOR THE REDEVELOPMENT

According to the notional design of the Scheme (See Appendix E), the proposed Scheme involves three residential towers each with proposed building height of not more than 120 mPD, with 5 levels of basement carpark for public and ancillary uses covering almost the whole underground area of the site, and a multi-level sunken plaza to be provided on the southern part of the Scheme to connect to the proposed subway by CEDD crossing Prince Edward Road East towards the Underground Shopping Street (USS) in Kai Tak Development Area (KTDA). No new slope / retaining wall will be formed. For the construction of the proposed development, geotechnical consideration should be given to the following particulars:

- Building Foundation System
- Excavation & Lateral Support (ELS)
- Grout Curtain Works
- Precautionary Monitoring

6.1 Building Foundation System

The proposed residential buildings could be supported by large diameter bored piles founded on bedrock or driven steel H-piles founded on refusal stratum. A tentative Foundation Layout Plan is enclosed in Appendix F.

The design and construction of foundation works will follow the requirements in Section B and D of PNAP APP-62.

Detailed design of the foundation with assessment of the effect on the existing structures, foundations and adjacent properties will be carried out and submitted for approval in order to ensure no adverse effect on the adjacent properties such as buildings, road, foundation, utilities, etc. from the proposed work and vice versa.

6.2 Excavation and Lateral Support Works

Based on current notional scheme with 5-level basement carpark, the proposed excavation depth is approximately 20m. Pipe pile wall with strutting layers are proposed to retain the soils around the excavation area so as to limit horizontal displacement and ground settlement and maintain the structural stability of existing buildings. Preloading of struts will be designed if found necessary to control deflection and settlement.

Grout curtain surrounding the excavation area will also be installed to control seepage during excavation works. Dewatering will be considered carefully and designed for construction of the proposed pile caps and basement wall so that no adverse effect will be induced on the adjacent properties and vice versa.

Preliminary assessment has been conducted to assess the stability of the proposed shoring system and the effect from the ELS works on the adjacent properties.

During construction, close monitoring will be provided on adjacent buildings, grounds and if necessary all affected utilities will be diverted and protected prior to installation of the shoring system. Extreme care shall be taken not to damage adjacent properties.

All loadings from the adjacent properties such as foundations, etc. will be taken into account in the design. Detailed design with assessment on the effect on the adjacent properties and utilities will be carried out and submitted for approval in order to confirm no adverse effect on the adjacent properties and utilities and vice versa.

Schematic ELS layout plan and section are enclosed in **Appendix F.**

6.2.1 Grout Curtain Works

In order to minimize the settlement of adjacent ground due to the excavation works and dewatering, grout curtain is proposed to install surrounding the cofferdam in dealing with

high groundwater level. The grout curtains to provide an effective groundwater cut-off system down to the refusal stratum. Pumping test to be carried out to verify the water cutt-off effectiveness of the grouting for the excavation and lateral support works.

6.3 Preliminary Settlement Analysis

Two critical design cases have been considered for preliminary assessment. The ground movement is checked by the BD's pre-accepted computer program "Plaxis" (BD Ref. No. G174) . Ground movement are evaluated for each stage of excavation immediately before the installation of the next layer of strut. The lateral deflections calculated include pipe pile wall and elastic shortening of strut. The preliminary ELS plans are enclosed in Appendix G and the relevant calculations are enclosed in **Appendix H**.

Section	Predicted Max. Settlements due to Bulk Excavation (mm)	Max. Predicted Settlement due to Groundwater drawdown (mm)	Max. Total Settlement (mm)
1-1	8.00	8.55	16.55 < 25 O.K
2-2	6.00	8.55	14.55 < 25 O.K

The predicted ground settlement on the critical sections of the proposed ELS works meet the current geotechnical standard and with minimum effect on the surrounding area. In conclusion, the proposed ELS works are considered technically feasible and will not cause damage to, any building, structure, land, street or services.

6.4 Precautionary Monitoring Measures and Effect on Adjacent Properties

To safeguard the effect of the development on the adjacent properties and utilities, the following comprehensive monitoring scheme will be proposed at the construction stage upon CE in C's approval of the DSP for implementation.

- Settlement check points on ground and utilities
- Tilting and vibration check points on adjacent structures
- Piezometer/standpipe to monitor ground water level

Before the start of the work, the monitoring points will be installed and initial readings will be taken. In addition, a condition survey will be carried out on the adjacent structures and pavements for a further guarded tool. During the progress of all the construction works, close monitoring will be carried out on a daily basis and the results will be reviewed closely to assess the impact on the adjacent properties & utilities and submitted to the Buildings Department regularly.

7. MASTER CONSTRUCTION SEQUENCE

Generally, the proposed ELS & Foundation works will be constructed in sequence as follows.

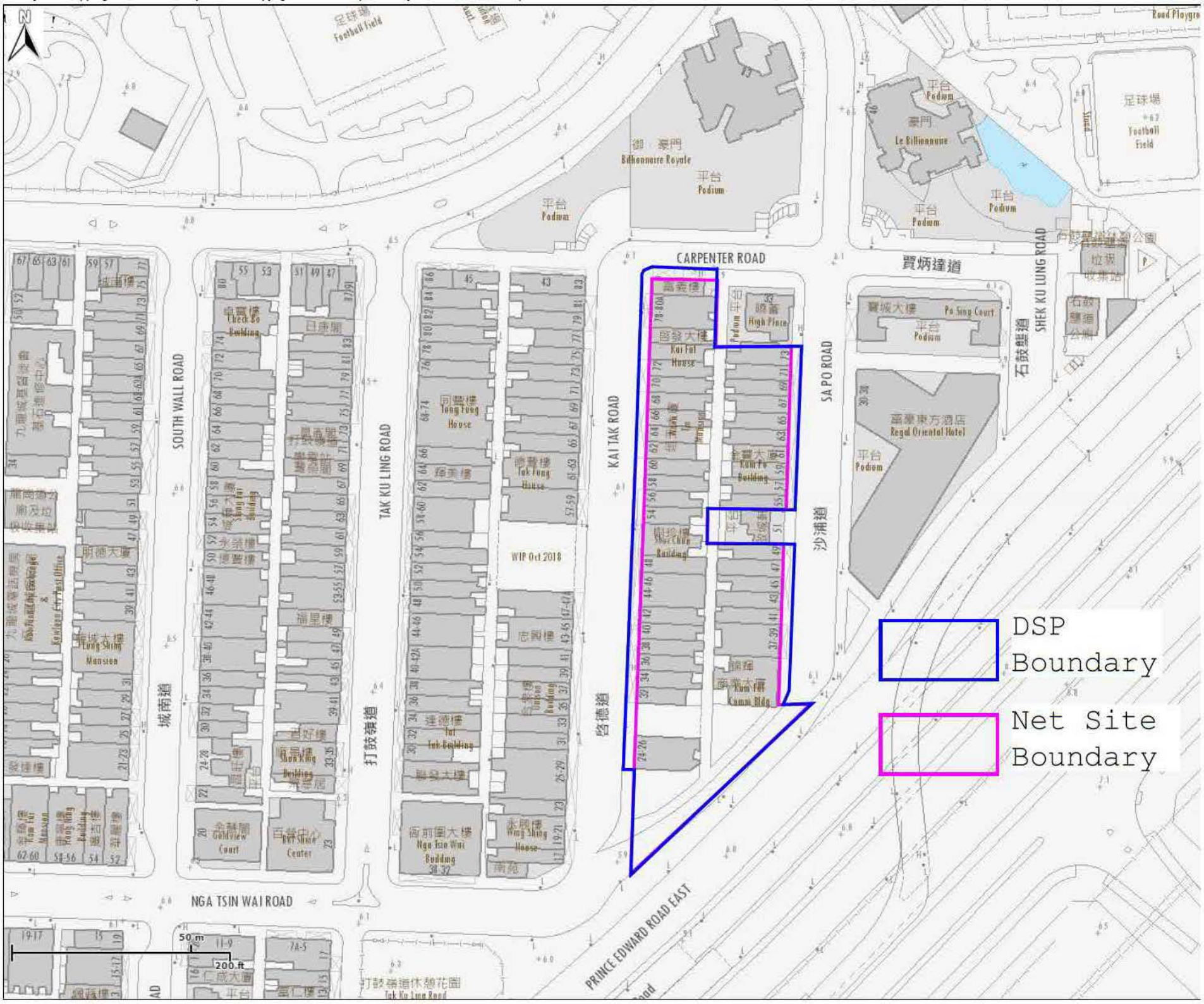
1. Install pipe pile wall.
2. Install grout curtain.
3. Construct bored piles / driven H-piles.
4. Carry out pumping test.
5. Carry out excavation work after installation of lateral supports where necessary layer by layer for construction of proposed pile caps and basement wall.
6. Construct the pile caps.
7. Construct the basement wall up to ground floor.
8. Dismantle all temporary lateral supports.

8. CONCLUSION

This desktop geotechnical study report has appraised existing geotechnical conditions based on available desktop information and GEO's Guidelines, and has addressed issues related to schematic design, construction and necessary monitoring works of the proposed geotechnical works, including foundation works and ELS works. This study has found that the excavation and construction works of the proposed Scheme are considered technically feasible from geotechnical aspect and is geotechnically safe for the adjoining developments. All structural and geotechnical design in this report is only preliminary and subject to detailed design, ground investigation and approval from relevant government departments.

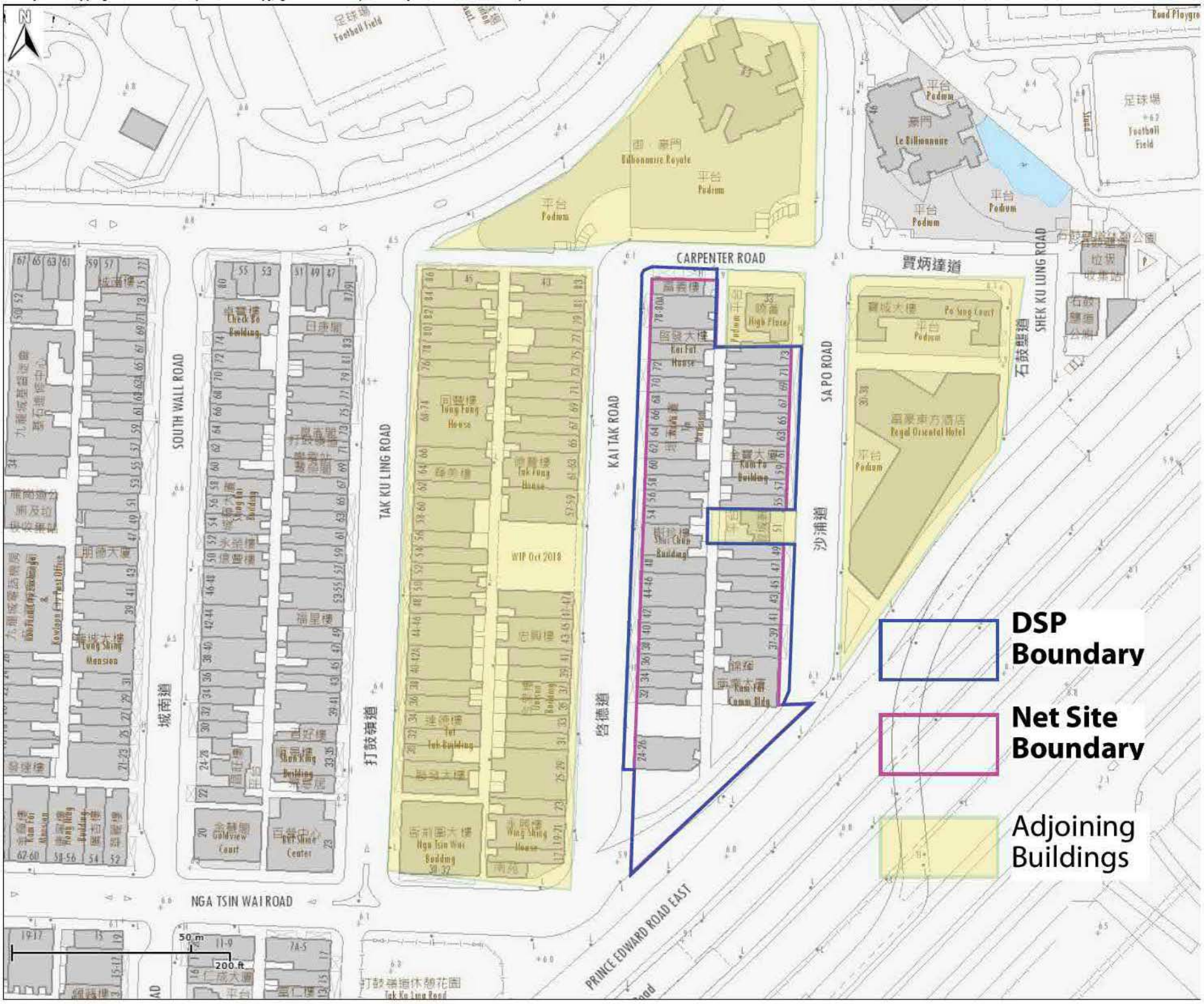
APPENDIX A

Site Location Plan


DSP Boundary
Net Site Boundary
CARPENTER ROAD
賈炳達道
SHEK KU LUNG ROAD
石鼓壟道
SA PO ROAD
沙浦道
KAI TAK ROAD
啓德道
TAK KU LING ROAD
打鼓嶺道
SOUTH WALL ROAD
城南道
NGA TSIN WAI ROAD
PRINCE EDWARD ROAD EAST
WIP Oct 2018
Regal Oriental Hotel
Po Sing Court
Kar Fai House
Tung Fung House
Tak Fung House
Wang Shing House
Nga Tsin Wai Building
Goldview Court
Tung Shing Mansion
Kam Fai Mansion
Kwong Hing Building
Kam Po Building
Kam Fai Comm Bldg
Tak Building
Kwong Yuen Building
Shun Chun Building
Check Bo Building
Tung Shing Building
Kwong Tung Building
Kwong Wah Building
Kwong Sang Hong Building
Kwong Tak Building
Kwong Ming Building
Kwong Lee Building
Kwong Yip Building
Kwong Yiu Building
Kwong Yue Building
Kwong Yuen Building
Kwong Yuen Building
Kwong Yuen

APPENDIX B

Information Retrieved from BD

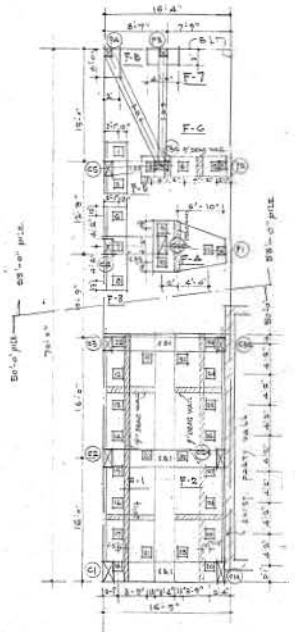


DSP Boundary
Net Site Boundary
Adjoining Buildings
CARPENTER ROAD
賈炳達道
SHEK KU LUNG ROAD
石鼓壟道
SA PO ROAD
沙浦道
KAI TAK ROAD
啓德道
TAK KU LING ROAD
打鼓嶺道
SOUTH WALL ROAD
城南道
NGA TSIN WAI ROAD
PRINCE EDWARD ROAD EAST
Billionnaire Royale
Le Billionnaire
Football Field
Regal Oriental Hotel
Po Sing Court
Kai Fat House
Tung Fung House
Tak Fung House
Shui Chun Building
Kam Fat Comm Bldg
Ngan Tsin Wai Building
Wing Shing House
Goldview Court
Ret Shine Center
Lung Shing Mansion
Kowloon City Post Office
WIP Oct 2018
50 m
200 ft

TAK KU LING ROAD

TAK KU LING ROAD

B.O.O. REF. NO. 3/4608/61



TAK KU LING ROAD

PILING PLAN SCALE: 1/8"=1'-0"

TOTAL: 93 - 14"x14" PILES.

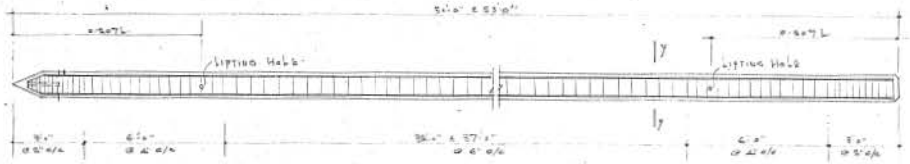
LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE	LOADING (TONS) L.L.	LOADING (TONS) D.L.	SAFE WT. OF PILE (TONS)	WIND LOADS (T) T-T	WIND LOADS (T) T-T	WIND SHEAR (T) T-T	WIND SHEAR (T) T-T	WORKING LOAD ON EACH PILE (T) D.L.	WORKING LOAD ON EACH PILE (T) D+L	WORKING LOAD ON EACH PILE (T) D+L+W	WORKING LOAD ON EACH PILE (T) D+W	NO. OF PILES	PILE CAP MARK
C1	14"x28"	104.5	85.4	50	13.1	52.3	5.6±	19.4±	16.34±	41.88	33.0	17.97	11	P-1
C2	14"x36"	15.8	16.4		8.4	57	8.7±	23.5±	16.34±	41.88	33.0	17.97		
C3	14"x28"	17.7	9.5.0		8.43±	24.5	8.7±	21.6±	16.34±	41.88	33.0	17.97		
C1A	14"x28"	14.1	81.8	50	13.8	53.3	6.5A±	13.4±	15.8	36.44	34.6	16.38	11	P-2
C2A	14"x36"	24.2	106.5		6.6	57	9.3±	25.2±	15.8	36.44	34.6	16.38		
C3A	14"x28"	17.3	77.A		8.58	56.5	6.2±	21.6±	15.8	36.44	34.6	16.38		
C4	12"x28"	9.78	66.1	8.6	1.76	63.9	4.48±	13.8±	30.66	34.64	16.80	37.68	2	P-3
C5	10"x18"	6.5.0	30.6	3	8.7	28.2	1.65±	3.14±	13.78	17.0	16.35	16.6	2	P-5
P1	9"x18"	6.25	13.6	12.5	4.7	15.7	4.26±	9.2±	41.76	46.37	44	18.98	3	P-4
CAR	15"x28"	15.0	8.4.3		19.4	68.4	14.6±	15.3±	41.76	46.37	46	18.98		
P2	9"x12"	2.16	7.82	6.2	0.35	1.1	2.6±	0.55±	26.5	33.5	46.05	0.21	3	P-6
CSA	15"x18"	7.7	46		19.3	21.5	11.5±	16.6±	26.5	33.5	46.05	0.21		
P3	9"x9"	3.6	2	0.67 T	0	0	0	0	0.80 T	—	—	—	—	P-7
P4	9"x9"	3.6	2	0.77 T	0	0	0	0	0.87 T	—	—	—	—	P-8

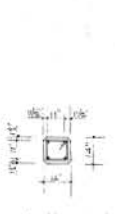
NOTES :-

1. ALL PILES TO BE R.C. PRECAST PILE.
2. SIZE OF AGG. 3/4".
3. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
4. ALL PILES TO BE LIFTED AT TWO LIFTING HOLES (SHOWN IN DETAILS).
5. CUBIC MIXTURE TO BE 1:1:2 G.A.
6. USE STEEL PILE DRIVING TUBES.
7. USE STEEL HELMET & STEEL FOLLOWER. (WT = 4 TONS L = 11'-0").
8. USE PLASTIC DOLLY.
9. CUT-OFF LEVEL OF PILES 7'-8" BELOW GRD. FLOOR LEVEL.
10. ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-0" BELOW CUT-OFF LEV.
11. ALL PEDESTALS TO BE 1:1:2 MIX.
12. ALL PILE CAP MIX. TO BE 1:2:4.
13. CONCRETE COVER TO MAIN REINFORCEMENT :-
    2" COVER FOR STRAP HEAD & BELOW GRD. LEV.
    4" COVER FOR PILING.
14. STAGGING OF PILES - 2'-0".
15. TOTAL HEIGHT OF BUILDING = 71'-6"

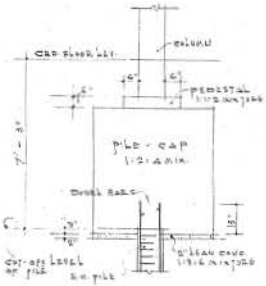
SIZE OF PILES	LEVENT	HAMMER WEIGHT	HEIGHT OF FALL	SET PENETRATION WITHOUT FOLLOWER	SET PENETRATION WITH FOLLOWER
14"x14"	54'-0"	4T	4'-0"	4 Blows/in	—
14"x14"	54'-0"	4T	4'-0"	—	5 Blows/in
14"x14"	33'-0"	4T	2'-0"	5 Blows/in	—
14"x14"	33'-0"	4T	4'-0"	—	5 Blows/in



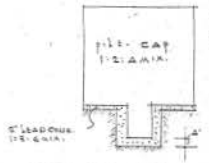
DETAIL OF 14" x 14" R. C. PRECAST PILE



SEC. Y-Y



DETAIL SHOWING CUT-OFF LEVEL OF PILE



DETAIL SHOWING TYPICAL PILE CAP & DRAG WALL

RECEIVED BY 23 JAN 1963 BUILDINGS ORDINANCE OFFICE KOWLOON H.K.G.

Approved 12 Feb 1963

R. C. C. PILE-CAPS PRECAST PILE DETAILS FOR PROPOSED BUILDING ON N. K. I. L. No. 2106 AT No. 84 TAK KU LING ROAD, KOWLOON.	SCALE 1/8"=1'-0"	PRECAST CONCRETE PILING BY WAH YIP & CO. PILING CONTRACTORS	P. H. IP AUTHORIZED ARCHITECT

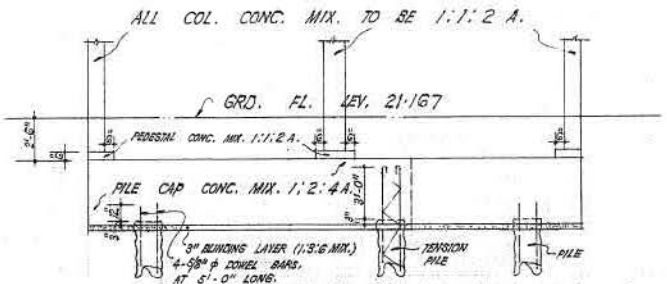
TAK KU LING ROAD

B.O.O. REF. NO. 3/4002/71

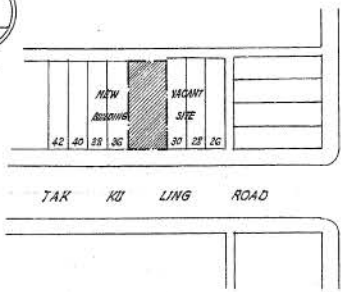
PRESSURE PILING DETAILS			
Type & diameter	18½"	Pile Nos.	(SEE NOTE 3)
Material of pile	RC	Design Load	89·0T
Section	9"x 9"	Depth of Pile	98'-0"
Class & No. of piles	1 No.	Conc. Mix. in pile	1:2:4 A.
Soil Strata	Hard mottled white, brown & pink clayey silt with well graded sand, fine gravel & mica.		

NOTES:-

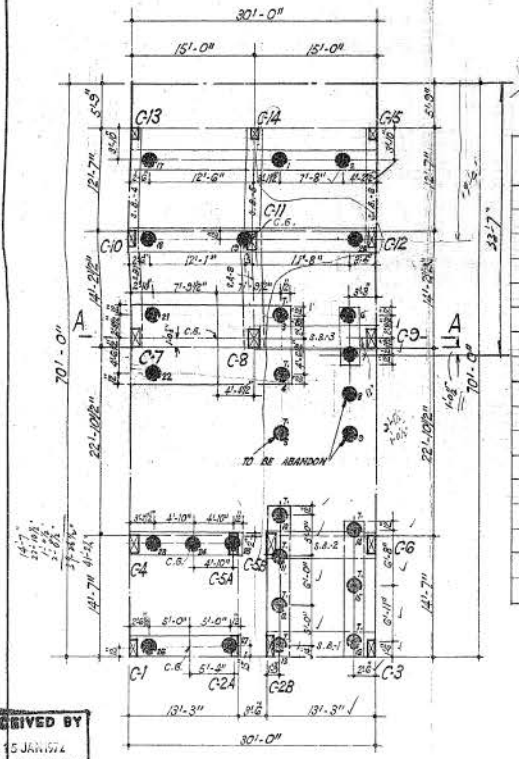
1. THE HEIGHT OF BUILDING = G4'-6"
2. ⊕ 7· = 18½" DIA. TENSION PILE, USE 4-¾" ϕ TENSION STEEL BARS, AT FULL LENGTH, & ⅜" ϕ HELIX. AT 6" ⅞c.
3. PILE NO. 1 TO 16 ARE EXISTING PRESSURE PILES, WHICH HAD BEEN DONE UNDER B.O.O. REF. NO. 3/4424/69.
4. PILE NO. 17 TO 27 ARE THE PROPOSED NEW PRESSURE PILE POSITIONS.



SECTION A-A
SHOWING THE TOP LEVEL OF PILE CAP
(SCALE : ¼" = 1'-0")



BLOCK PLAN
(SCALE : 1" = 50'-0")



TAK KU LING ROAD

PILING PLAN

COL.	SIZE	LOADING (TONS) D.L.	L.L.	D.+L.	WIND LOAD (TONS) ⟷	↕	WIND SHEAR (KIPS) ⟷	↕	WEIGHT OF PILE CAP	NO. OF PILE 18½" ϕ	LOAD PER PILE (TONS) D.L.	D.+L.	D.+L.+W. ⟷	D.+L.+W. ↕	⅔D.+W.	DEPTH OF PILE CAP
C-1	9"X24"	47·0	8·0	55·0	±15·9	±24·8	6·22	6·30	10	2	63·3	69·4	88·0	105·9	5·7	4'-0"
C-2A	9"X30"	50·5	14·2	73·7	±16·7	±40·5	7·75	11·30								
C-2B	9"X30"	50·5	14·2	73·7	±16·7	±40·5	7·75	11·30	15	4	38·2	52·7	68·7	75·3	2·9	4'-0"
C-5B	11"X28"	82·7	28·6	111·3	±18·8	±40·5	12·63	11·70								
C-3	9"X24"	47·0	8·0	55·0	±15·9	±24·8	6·22	6·30	18	3	42·4	55·7	69·6	78·5	1·4	4'-0"
C-6	11"X24"	58·0	14·5	72·5	±28·0	±20·0	10·85	8·50								
C-4	11"X24"	58·0	14·5	72·5	±28·0	±20·0	10·85	8·50	10	3	50·2	64·6	92·1	84·6	5·8	4'-0"
C-5A	11"X28"	82·7	28·6	111·3	±18·8	±40·5	12·63	11·70								
C-7	12"X26"	62·5	16·0	78·5	±27·8	±11·4	11·80	9·20	42	4	57·9	71·0	86·1	85·2	23·4	4'-0"
C-8	14"X26"	141·5	40·5	182·0	0	±41·2	21·63	18·70								
C-9	12"X26"	62·5	16·0	78·5	±27·8	±11·4	11·80	9·20	60	2	41·5	57·2	76·4	65·1	13·6	4'-0"
C-10	9"X22"	31·8	11·2	43·0	±12·2	±12·0	4·01	5·40								
C-11	13"X26"	63·5	24·0	87·5	0	±32·5	14·32	16·30	20	3	53·9	70·7	79·2	90·8	15·7	4'-0"
C-12	9"X22"	31·8	11·2	43·0	±12·2	±12·0	4·01	5·40								
C-13	9"X14"	23·2	12·8	42·0	±8·2	±4·0	7·18	1·57								
C-14	10"X16"	48·3	17·4	65·7	0	±9·3	9·85	1·94	24	3	63·0	78·9	93·5	87·1	22·8	4'-0"
C-15	9"X14"	23·2	12·8	42·0	±8·2	±4·0	7·18	1·57								

Approved
- 4 FEB 1972

RECEIVED BY
15 JAN 1972
BUILDING CONTROL OFFICE
P.W.D.

RECEIVED BY
29 NOV 1971
BUILDING ORDINANCES OFFICE
P.W.D.

Raymund Kan

PRESSURE PILING CO.
DESIGN 14-7-71 YEAR 71
SCALE 1"=1'-0" JOB No. 419
DRG. No. 1003 SHEET No. 1

PROPOSED PRESSURE PILING PLAN ON N.K.I.L. 955 & 1316 AT NO. 32-34 TAK KU LING ROAD.

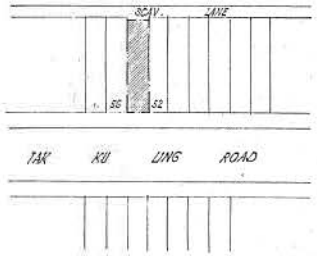
TAK KU LING ROAD

B. O. O. REF. No. 3/

PRESSURE PILING DETAILS			
Tube diameter	18½"	File No.	15
Authorized load	89T.	Design load	89·0T.
Spacing	6'-10"	Depth of bore	90'-0"
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4A.
Soil Class hard mottled white, yellow & red clayey silt with coarse sand, fine gravel & mica.			

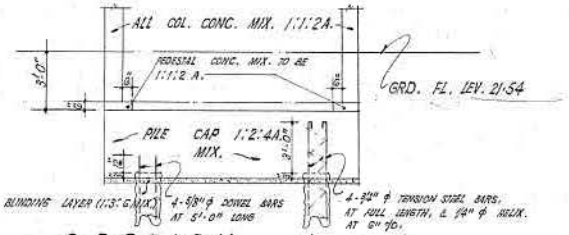
NOTES:-

1. THE HEIGHT OF BUILDING = 63'-11".
2. ○T. = 18½" DIA. TENSION PILE, USE 4-5/8" ϕ TENSION STEEL BARS AT FULL LENGTH, & 1/4" ϕ HELIX AT 6" o/c.



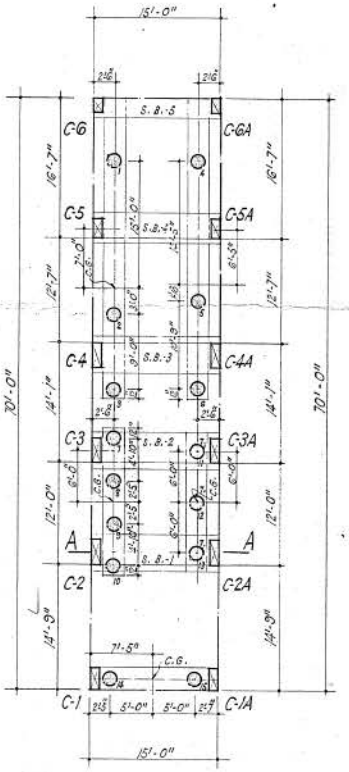
BLOCK PLAN

(SCALE : 1" = 50'-0")



SECTION A - A

SHOWING THE TOP LEVEL OF PILE CAP (SCALE: 1/4" = 1'-0")



TAK KU LING ROAD

PILING PLAN

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	WIND LOAD (TONS) ↑	⟷	WIND SHEAR (KIPS) ↑	⟷	WEIGHT OF PILE CAP	No. OF PILE 18½" DIA.	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	2/3 D.-W.	DEPTH OF PILE CAP
C-1	12"X30"	49·0	10·0	59·0	∓13·9	∓24·0	6·1	11·1	10	2	53·4	63·1	33·6	96·7	2·1	4'-0"
C-1A	12"X30"	47·8	9·4	57·2	∓9·4	±24·0	4·2	11·1								
C-2	12"X34"	72·3	18·7	91·0	±1·3	∓42·0	6·6	15·8	18	4	44·4	54·7	29·6	84·3	0	4'-0"
C-3	12"X34"	84·0	23·0	107·0	∓4·5	∓43·0	6·6	15·8								
C-2A	12"X34"	70·0	19·0	89·0	±0·9	±42·0	4·5	15·8	16	3	51·5	70·7	39·7	110·4	-5·3	4'-0"
C-3A	12"X34"	71·5	20·5	92·0	∓3·1	±43·0	4·5	15·8								
C-4	12"X34"	70·5	17·8	88·3	±13·9	∓30·4	6·6	12·3	36	3	50·1	65·7	22·1	87·8	11·3	4'-0"
C-5	12"X24"	25·9	10·1	36·0	±1·3	∓4·5	3·1	4·5								
C-6	12"X18"	15·2	5·8	21·0	±1·8	∓2·7	1·4	2·5								
C-4A	12"X34"	59·5	17·8	77·3	±9·4	±30·4	4·5	12·3	36	3	44·1	59·3	26·6	85·9	1·7	4'-0"
C-5A	12"X24"	24·6	10·4	35·0	±0·9	±4·5	2·1	4·5								
C-6A	12"X18"	14·7	5·3	20·0	±1·3	±2·7	1·0	2·5								

Approved
PRO BUILDING AUTHORITY
- 7 SEP 1970

RECEIVED BY
- 1 AUG 1970
BUILDING ORDINANCE OFFICE
P.W.D.

GUY W. K. CHAN
Authorized Architect.

31 JUL 1970

PRESSURE PILING CO.

DESIGN	DATE 2-7-70	YEAR 70
DRAWN	SCALE 1/8"=1'-0"	T. No. 107
CHECKED	C. No. 927	SHEET No. 1

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1272 & 935 S. A. AT No. 54 TAK KU LING ROAD.

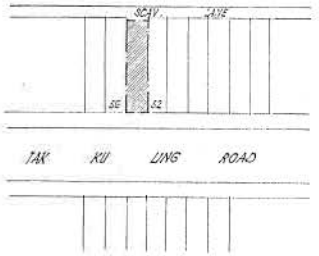
TAK KU LING ROAD

B. O. O. REF. No. 3/4586/69

PRESSURE PILING DETAILS			
Pipe diameter	18½"	Pile No.	15
Authorized load	60T	Design load	89·0T
Spacing	5'-10"	Depth of bore	90'-0"
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4A
Soil Data	hard mottled white, yellow & red clayey silt with coarse sand, fine gravel & mica.		

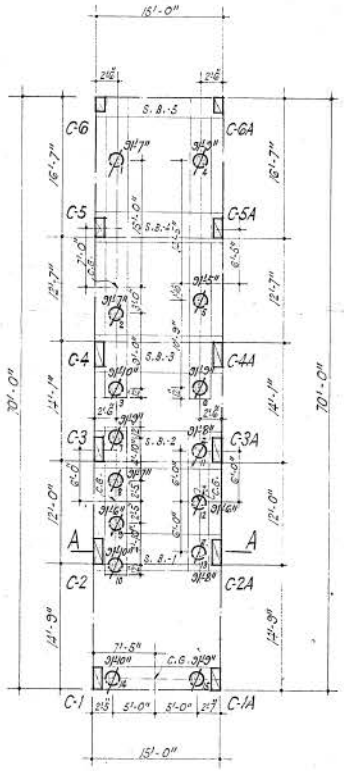
NOTES:-

1. THE HEIGHT OF BUILDING = 63'-11".
2. ○T = 18½" DIA. TENSION PILE, USE 4-⅝" ϕ TENSION STEEL BARS AT FULL LENGTH, & ¼" ϕ HELIX AT 6" c/c.



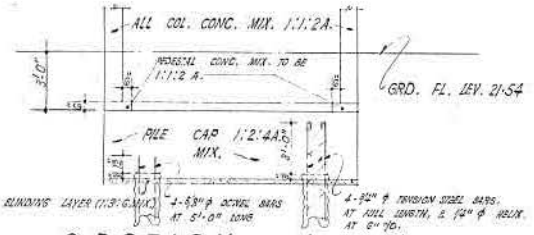
BLOCK PLAN

(SCALE : 1" = 50'-0")



TAK KU LING ROAD

PILING PLAN



SECTION A - A

SHOWING THE TOP LEVEL OF PILE CAP (SCALE: ¼" = 1'-0")

COL.	SIZE	LOADING (TONS)			WIND LOAD (TONS)		WIND SHEAR (KIPS)		WEIGHT OF PILE CAP	No. OF PILE 18½" DIA.	LOAD PER PILE (TONS)					DEPTH OF PILE CAP
		D. L.	L. L.	D.+L.	↑	↓	↑	↓			D. L.	D.+L.	W. L.	D.+L.+W.	⅔ D.-W.	
C-1	12"X30"	49·0	10·0	59·0	∓13·9	∓24·0	6·1	11·1	10	2	53·4	63·1	33·6	96·7	2·1	4'-0"
C-1A	12"X30"	47·8	9·4	57·2	∓9·4	±24·0	4·2	11·1								
C-2	12"X34"	72·3	18·7	91·0	±1·3	∓42·0	6·6	15·8	18	4	44·4	54·7	29·6	84·3	0	4'-0"
C-3	12"X34"	84·0	23·0	107·0	∓4·5	∓43·0	6·6	15·8								
C-2A	12"X34"	70·0	19·0	89·0	±0·9	±42·0	4·5	15·8	16	3	51·5	70·7	39·7	110·4	-5·3	4'-0"
C-3A	12"X34"	71·5	20·5	92·0	∓3·1	±43·0	4·5	15·8								
C-4	12"X34"	70·5	17·8	88·3	±13·9	∓30·4	6·6	12·3	36	3	50·1	65·7	22·1	87·8	11·3	4'-0"
C-5	12"X24"	25·9	10·1	36·0	±1·3	∓4·5	3·1	4·5								
C-6	12"X18"	15·2	5·8	21·0	±1·8	∓2·7	1·4	2·5								
C-4A	12"X34"	59·5	17·8	77·3	±9·4	±30·4	4·5	12·3	36	3	44·1	59·3	26·6	85·9	1·7	4'-0"
C-5A	12"X24"	24·6	10·4	35·0	±0·9	±4·5	2·1	4·5								
C-6A	12"X18"	14·7	5·3	20·0	±1·3	±2·7	1·0	2·5								

NOTE:-

THE FIGURES MARKED ON THE PLAN IN RED ARE THE DEPTHS OF EACH PILE FROM THE FUTURE GROUND LEVEL TO ITS TIP

GUY W. K. CHAN
Authorized Architect.

RECEIVED BY
28 NOV 1970

20 NOV 1970

PRESSURE PILING CO.

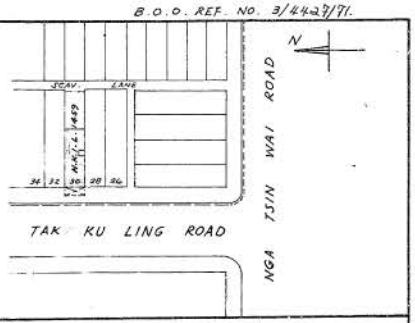
DESIGN	DATE	YEAR
T-L	2-7-70	70
DRAWN	SCALE 1/8"=1'-0"	7. No. 107
CHECK	C. No. 927	DWG. No. 1

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1272 & 935 S. A. AT No. 54 TAK KU LING ROAD.

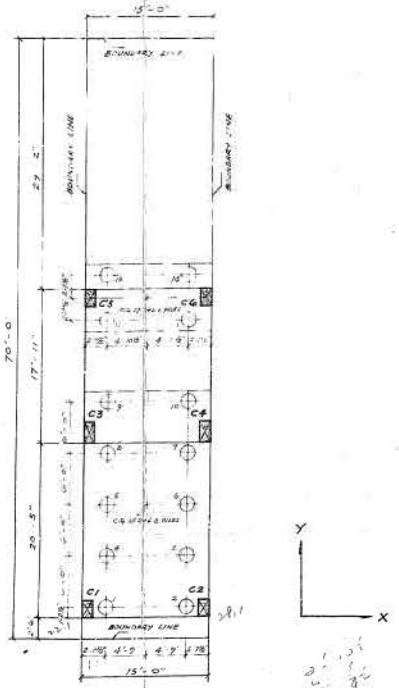
4

TAK KU LING ROAD

B.O.O. REF. NO. 3/4429/71.



BLOCK PLAN SCALE 1"=50'-0"



TAK KU LING ROAD

NOTES. (PILES TO BE PACKCON PILE)

1. EXPECTED DEPTH OF PILES ACCORDING TO STANDARD PENETRATION TEST ASSUMED TO BE 70'-0".
2. SERIAL REFERENCE NUMBER OF PILES FROM 1 TO 14 . INDICATE PILES DRIVEN WITH 20" ϕ OUTER STEEL TUBE AND 16" ϕ INNER STEEL TUBE . WEIGHT OF OUTER & INNER TUBE & SHOE = 9.18 T . THICKNESS OF OUTER TUBE TO BE 5/8", INNER TUBE TO BE 3/4" . MAX. PERMISSIBLE BEARING CAPACITY OF PILE TO BE 105 T .
3. MAX. PENETRATION OF TUBE PER LAST 6 BLOWS TO BE 1 INCH .
4. LENGTH OF TUBE TO BE 80'-0".
5. WEIGHT OF HAMMER TO BE 5 T .
6. DROP OF HAMMER TO BE 4'-6" .
7. BEARING CAPACITY OF PILE (BY HILEY FORMULA)

$$\eta = \frac{W + Pe^2}{W+P}$$

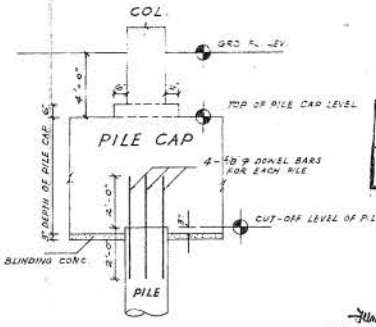
$$S = \frac{0.8 \times \eta \times W \times H}{R} - \frac{C}{2}$$

(a) W — WEIGHT OF HAMMER .
(b) P — WEIGHT OF OUTER TUBE , INNER TUBE , CAP & SHOE OF PILE .
(c) e — COEFFICIENT OF RESTITUTION .
(d) η — EFFICIENCY OF HAMMER BLOW .
(e) R — BEARING CAPACITY OF PILE .
(f) H — DROP OF HAMMER .
(g) S — LAST PENETRATION PER ONE BLOW .
(h) C — COEFFICIENT OF COMPRESSION .

8. HEIGHT OF BUILDING : 64'-5"
9. CONCRETE MIX. TO BE 1:2:4 AS. SIZE OF AGGREGATE TO BE 1½" MAX .

LOADING SCHEDULE

COLUMN		LOADING (T)		WIND LOAD (T)		WIND SHEAR (K)		NO. OF PILES REQ'D.	LOAD PER PILE (T)						DEPTH OF PILE CAP
MARK	SIZE	D.L.	D+L	ALONG X–X	ALONG Y–Y	ALONG X–X	ALONG Y–Y		CAP WT.	D.L+CAP	D+L+CAP	W.L max.	D+L+CAP ± W.L.	⅓(D.L+CAP) – W.L.	
C1	15"×24"	86	98	±59.6	±10.7	22.1	5.5	10	22.5	63.8	70.3	40.0	110.3	2.5	6'-0"
C2	15"×24"	87	98	±59.8	±10.7	22.1	5.5								
C3	15"×30"	119	137	±78.6	±3.11	28.6	10.7								
C4	15"×30"	127	145	±78.6	±3.1	28.6	10.7								
C5	15"×24"	78	89	±42.9	±9.4	15.9	5.5	4	18.5	51.4	58.0	30.3	88.3	4.0	4'-6"
C6	15"×24"	76	89	±42.9	±9.4	15.9	5.5								



TYPICAL DETAILS SHOWING DOWEL BARS

Approved
BUILDING AUTHORITY
1 - 4 AUG 1972

FUNG MAN CHI
AUTHORISED ARCHITECT
- 9 JUN 1972

RECEIVED BY
10 JUN 1972
P. W. D.

PROPOSED NEW BUILDING ON N.K.I.L. 1459 AT NO. 30 TAK KU LING RD., KOWLOON.

FUNG MAN CHI
AUTHORIZED ARCHITECT

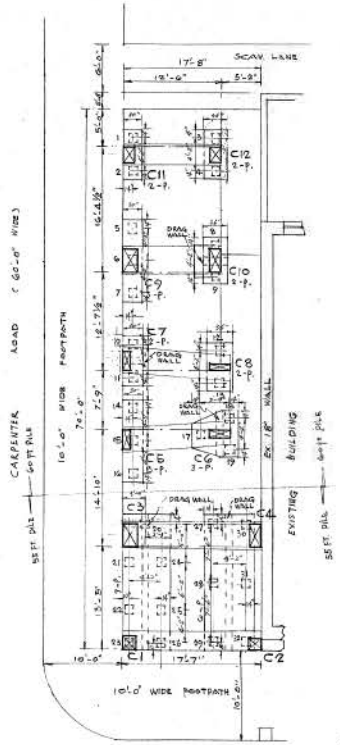
KEE LEE PILING SERVICE CO.
TEL. K-847867

PILING PLAN
DRAWING NO. 1/1
SCALE: 1/8"=1'-0"

TAK KU LING ROAD

BUILDINGS ORDINANCE OFFICE REF. NO. 2058/60

B.o.o. 4 Sep 1961



TAK KU LING ROAD (60'-0" WIDE)

PILING PLAN

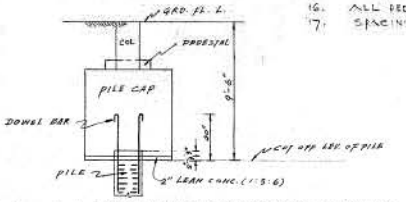
TOTAL: 32-14"x14"-P.

COL. MARK	COL. SIZE	COL. LOAD D.L.	COL. LOAD L.L.	WT. OF PILE-CAPS	WIND (ABOUT Y-Y) W.L.	WIND (ABOUT Y-Y) H.S.	WIND (ABOUT X-X) W.L.	WIND (ABOUT X-X) H.S.	WORKING LOAD ON EACH PILE D.L.	D.+L.	D.+L.+W.	D.-W.
C1	26" x 24"	137 T.	41 T.	18 T.	±46.5 T.	9.2 T.	±18.7 T.	3.3 T.	40 T.	52.5 T.	69 T.	23.5 T.
C2	26" x 60"	72	15	18 T.	±48.5	7.8	±28.6	11.3	31	39	67.83	24.67
C3	22" x 38"	110	31	18	± 44	8.0	± 14.3	3.0	40	52.5	69	24.5
C4	18" x 38"	97	16	18	± 44	3.0	± 28.6	6.3	31	39	67.83	24.67
C5	14" x 80"	99	23	9	± 51	3.0	± 10.5	4.4	38	46	64.4	11
C6	18" x 92"	97	17	9	± 51	11.8	± 21	0.5	35.4	41	58	12.4
C7	14" x 80"	91	18	6	± 46.5	2.7	± 19.1	4.4	46	55.5	80	21.3
C8	18" x 32"	91	13	6	± 46.5	10.7	± 9.3	0.5	43.5	50	73.45	20.45
C9	22" x 38"	105	36	9	± 65.5	8.3	± 5.9	3.0	39.2	51.5	72.6	16.6
C10	18" x 38"	70	11	6	± 65.5	9.3	± 3.1	6.3	38	43.5	76.2	7.8
C11	18" x 24"	88	20	6	± 41	5.9	± 8.8	1.3	49	55.5	91	27.5
C12	18" x 24"	46	8	6	± 41	5.9	± 14.1	0.9	26	30	50.5	5.5

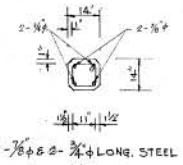
NOTE: (+) COMPRESSION
(-) TENSION

NOTES:

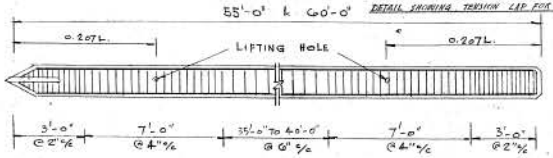
1. ALL PILES TO BE R.C. PRECAST PILE.
2. CONCRETE MIX. TO BE 1:1:2 (R.A.)
3. SIZE OF AGG. 3/4".
4. CAST IRON PILE-SHOES TO BE FIXED TO ALL PILES.
5. ALL PILES SHALL BE LIFTED AT TWO LIFTING HOLE, SHOWN IN DETAILS.
6. USE STEEL PILE DRIVING TRUSS.
7. USE STEEL HELMET & STEEL FOLLOWER.
8. USE PLASTIC DOLLEY.
9. CUT OFF LEVEL OF PILES 9'-6" BELOW GRD. FL. LEVEL.
10. HAMMER WEIGHT 4 TONS FOR 14"x 14"-P.
11. DROPPING 4'-6" FOR 14"x14"-P.
12. LAST PENETRATION:
    10 BLOWS PER 1" FOR 14"x14"-P.
13. ALL PILES TO BE FOLLOWED DOWN ABOUT 8'-6" BELOW GRD. LEVEL.
14. CONC. COVER TO MAIN REINFORCEMENT:
    2" COVER FOR STRAP BEAM & BELOW GRD. LEVEL
    3" COVER FOR FOOTING.
15. ALL PILE-CAPS CONC. MIX. TO BE 1:2:4.
16. ALL PEDESTAL CONC. MIX. TO BE 1:1:2
17. SPACING OF PILES 4'-2" FOR 14"x14"-P.



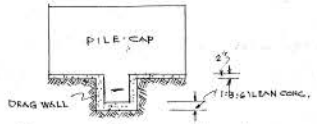
55'-0" & 60'-0" DETAIL SHOWING TENSION CAP FOR PILE NOS. 3,4,8 & 9.



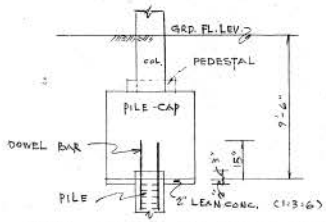
2-7/8"ϕ & 2-3/4"ϕ LONG. STEEL
1/4" BINDERS
SECTION



14" x 14" R. C. PRECAST PILE DETAIL



SECTION SHOWING TYPICAL PILE CAP & DRAG WALL



DETAIL SHOWING CUT OFF LEV. OF PILES

Approved
2 0 OCT 1961

RECEIVED BY
-2 OCT 1961
BUILDINGS ORDINANCE OFFICE
KOWLOON
P. W. D.

RECEIVED BY
13 OCT 1961
BUILDINGS
KOWLOON
P. W. D.

1/3

R. C. C. PILE CAP & PRECAST PILE DETAILS FOR PROPOSED BUILDING ON N.K.I.L. NO. 1714 AT NO. 86 TAK KU LING RD. & CARPENTER RD. N. T.

SCALE 3/8" = 1'-0"

PRECAST PILING BY
WAH YIP & CO.
PILING CONTRACTOR

P. H. IP
AUTHORIZED ARCHITECT

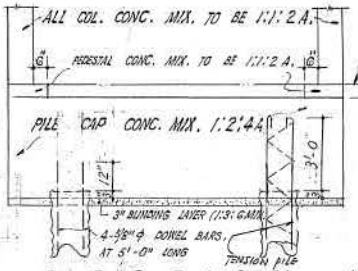
TAK KU LING ROAD

B. O. O. REF. Nº. 3/4425/69.

PRESSURE PILING DETAILS			
Pile diameter	18½"	Pile Nos.	14
Authorised load	127	Design load	89·0 T
Spacing	6'-10"	Depth of bore	30'-0"
Conc. Mix. in pile	1:2:4 A.	Conc. Mix. in caps	1:2:4 A.
Soil Data: hard mottled white, yellow & red clayey silt with coarse sand, fine gravel & mica.			

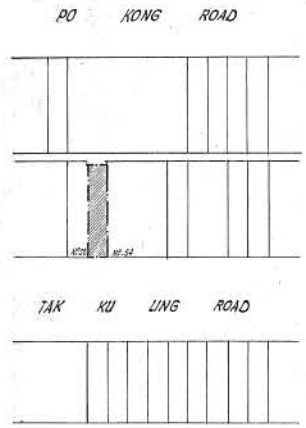
NOTES :-

1. THE HEIGHT OF BUILDING = 64'-6".
2. ○T = 18½" DIA. TENSION PILE, USE 4-¾" ϕ TENSION STEEL, AT FULL LENGTH, & ¼" ϕ HELIX AT 6" P/C.



SECTION A - A

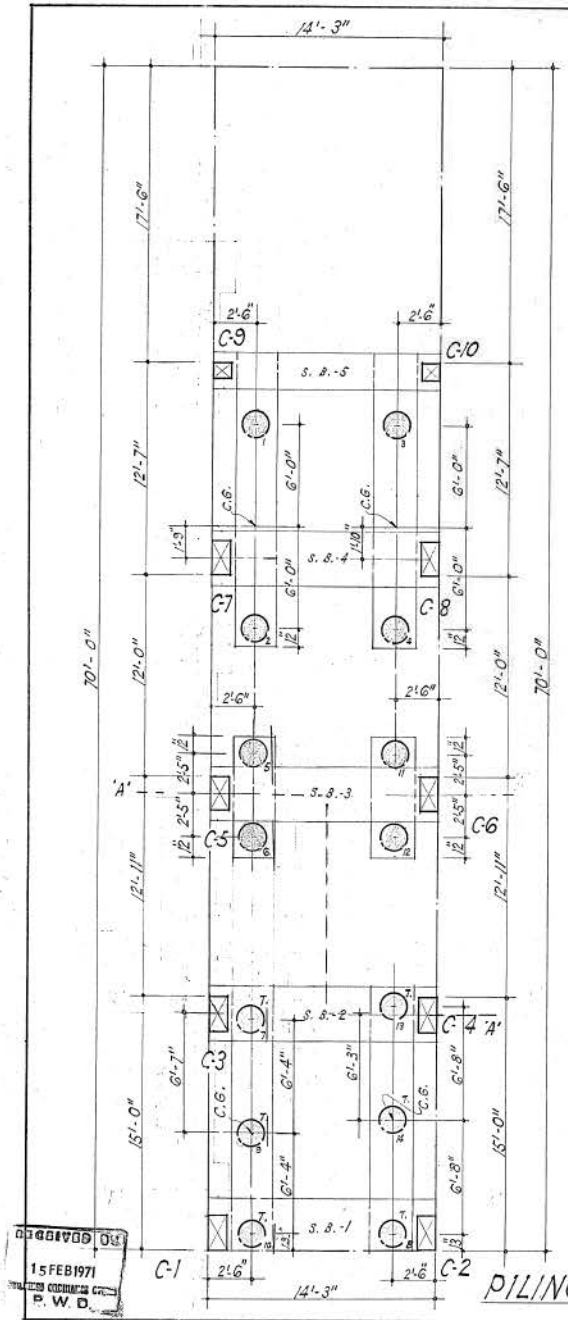
SHOWING THE TOP LEVEL OF PILE CAP (SCALE : ⅜" = 1'-0")



BLOCK PLAN

(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	WIND LOAD (TONS) →	↑	WIND SHEAR (KIPS) →	↑	WIND MOMENT (FT) →	↑	HEIGHT OF CAP	NO. OF PILE 18½"	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	⅔ D.-W.	DEPTH OF PILE CAP
C-1	12"X24"	72·3	12·1	84·4	±33·0	±8·7	16·0	5·0	33·0	9·5	16	3	55·9	68·2	40·6	108·8	-12·6	4'-0"
C-3	12"X24"	68·0	9·8	77·8	±40·5	±3·3	20·0	5·0	58·0	9·5								
C-5	12"X24"	97·3	13·7	111·0	±43·0	±1·2	19·0	5·0	37·0	9·5	8	2	52·3	65·3	34·8	100·1	0·1	4'-0"
C-2	12"X24"	64·0	13·7	77·3	±39·0	±11·4	16·0	6·0	33·0	12·0	16	3	49·5	63·4	44·3	107·7	-11·3	4'-0"
C-4	12"X24"	70·0	12·7	82·7	±40·5	±4·3	20·0	6·0	58·0	12·0								
C-6	12"X24"	102·0	15·0	117·0	±43·0	±2·0	19·0	6·0	37·0	12·0	8	2	55·7	68·0	34·8	102·8	2·3	4'-0"
C-7	12"X24"	72·7	14·4	87·1	±21·5	±4·7	11·0	5·0	20·0	9·5	16	2	51·0	64·9	22·5	87·4	11·5	4'-0"
C-9	12"X12"	13·8	2·8	16·6	±0·42	±1·9	2·0	1·0	2·0	1·2								
C-8	12"X24"	73·7	14·8	88·5	±21·5	±6·4	11·0	6·0	20·0	12·0	16	2	51·7	60·2	22·5	88·7	11·9	4'-0"
C-10	12"X12"	13·4	4·0	17·4	±0·44	±2·7	2·0	1·0	2·0	1·5								



PILING PLAN

RECEIVED
15 FEB 1971
P. W. D.

Approved
PRO BUILDING AUTHORITY
17 MAR 1971

PETER T. F. POON
AUTHORIZED ARCHITECT
15 FEB 1971

A	REMOVED THE EX. PARTY WALL	16-12-70

PRESSURE PILING CO.

DESIGN	DATE 6-7-70	YEAR 70	
DRAWN	SCALE 1"=1'-0"	DRG. NO. 123	
CHECKED	JOB NO. 926	SHEET NO. 1A	

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 935 R. P. AT Nº. 56 TAK KU LING ROAD.

TAK KU LING ROAD

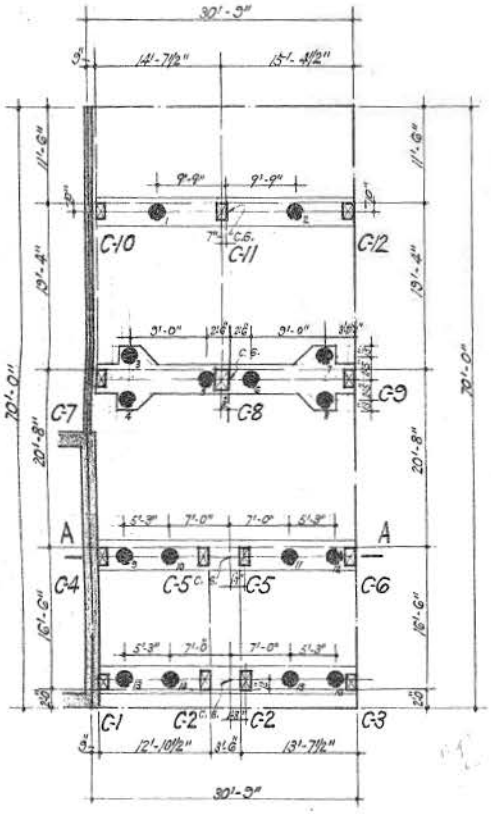
B. O. O. REF. No. 3/4044/70

PRESSURE PILING DETAILS			
Tube diameter	18½"	Pile No.	16
Authorised load	89"	Design load	89·0"
Spacing	4'-10"	Depth of bars	85'-0"
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4 A.

Soil Data: hard mottled white yellow & pink clayey silt with well graded sand, fine gravel & mica.

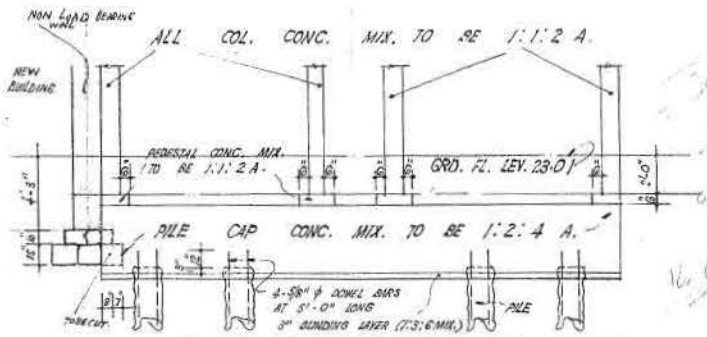
NOTE :-

THE HEIGHT OF BUILDING = 64'-5".



TAK KULING ROAD

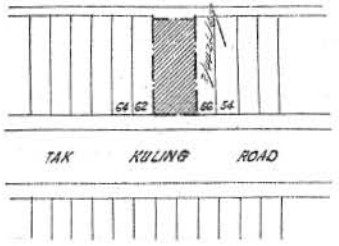
PILING PLAN



SECTION A - A

SHOWING THE TOP LEVEL OF PILE CAP)

(SCALE : 1/4" = 1'-0")



BLOCK PLAN

(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING (TONS)			WIND LOAD (TONS)		WIND SHEAR (LBS.)		WEIGHT OF PILE CAP	No. OF PILE 18½" φ	LOAD PER PILE (TONS)					DEPTH OF PILE CAP
		D. L.	L. L.	D.+L.	⟷	↓	⟷	↓			D. L.	D.+L.	D.+L.+W.⟷	D.+L.+W.↓	2/3 D.-W.	
C-1	11"X22"	58·0	10·0	68·0	∓23·0	∓19·0	7350	3850	20	4	75·0	86·5	109·6	99·5	27·9	4'-0"
C-2	12"X24"	77·0	13·0	90·0	-24·0 +26·0	∓7·0	10400	5450								
C-3	11"X22"	68·0	10·0	78·0	±21·0	∓19·0	7350	3850								
C-4	14"X24"	53·0	9·0	62·0	∓25·0	±16·0	13400	6360	20	4	67·8	78·0	105·5	89·5	18·5	4'-0"
C-5	12"X24"	67·0	13·0	80·0	-44·0 +46·0	±7·0	8400	5450								
C-6	14"X24"	64·0	8·0	72·0	±23·0	±16·0	13400	6360								
C-7	14"X24"	64·0	14·0	78·0	∓34·0	0	12800	6360	38	6	60·0	70·0	92·8	71·0	21·2	4'-0"
C-8	16"X27"	188·0	33·0	221·0	±2·0	∓6·0	21500	10400								
C-9	14"X24"	69·0	13·0	82·0	±32·0	0	12800	6360								
C-10	12"X18"	25·0	6·0	31·0	∓17·0	±3·0	5520	2300	15	2	72·5	86·5	111·0	93·0	26·3	3'-0"
C-11	15"X21"	75·0	16·0	91·0	±1·0	±7·0	12600	4510								
C-12	12"X18"	30·0	6·0	36·0	±16·0	±3·0	5520	2300								

Approved
TAK KULING AUTHORITY
26 APR 1972

RECEIVED BY
29 FEB 1972
P. W. D.

PRESSURE PILING CO.

DATE 1-2-72	YEAR 70	
SCALE 1/8"=1'-0"	NO. 162	
NO. 1051	SHEET 1	

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 643 R. P. & S. A. & 1420 AT No. 58-60 TAK KULING RD.

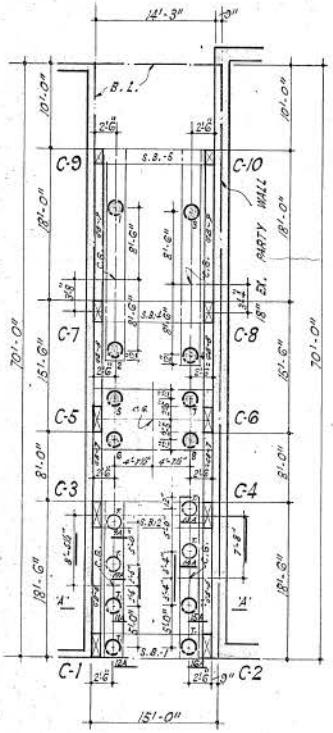
TAK KU LING ROAD

B. O. O. REF. Nº. 3/6290/69.

PRESSURE PILING DETAILS			
Pile diameter	18½"	Pile Nos.	16
Authorized load	60T.	Design load	89·0T.
Spacing	4'-10"	Depth of bore	99'-0"
Conc. Mix. in pile	1:2:4	Conc. Mix. in caps	1:2:4 A.
Soil Data: hard mottled red yellow & white clayey silt with well graded sand & some fine gravel.			

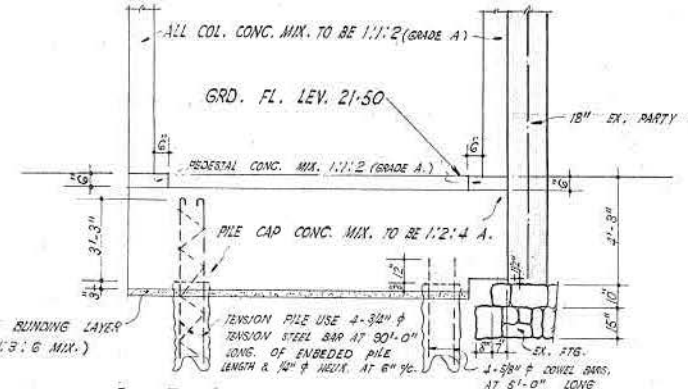
NOTES :-

1. THE HEIGHT OF BUILDING = 65'-0".
2. ⊙T. = 18½" DIA. TENSION PILE, USE 4-¾" ϕ TENSION STEEL BARS, AT 90'-0" LONG. OF EMBEDED PILE LENGTH & ½" ϕ HELIX. AT 6" ⁄c.
3. GB-1, 2, 3, 4 & 5 ARE OMITTED AND COMBINING WITH FOOTING.



TAK KU LING ROAD

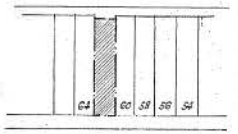
PILING PLAN



SECTION A-A

SHOWING THE TOP LEVEL OF PILE CAP

(SCALE : ⅜" = 1'-0")



TAK KU LING ROAD

BLOCK PLAN

(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	WIND LOAD (TONS) ←	↑	WIND M. (FT-TONS) ←	↑	WIND PRESS (K/ps) ←	↑	WEIGHT OF PILE CAP	Nº. OF PILE 18½" ϕ	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	⅔ D.-W.	DEPTH OF PILE CAP
C-1	12"X36"	78·5	6·8	85·3	±41.8	±6.7	43	18.1	18.35	3.2	16	4	38.6	46·4	27.5	63.9	-11.1	4'-6"
C-3	12"X36"	66·0	6·3	72·3	±36.4	±5.1	62	18.1	18.03	3.2								
C-2	12"X36"	78·5	6·8	85·3	±41.8	±6.7	43	18.1	18.38	3.2	16	4	41.4	50·8	25.6	64.4	-6.6	4'-0"
C-4	12"X36"	76·7	8·6	85·3	±36.4	±5.1	62	18.1	18.03	3.2								
C-5	12"X36"	85·0	8·3	93·3	±34	±4.1	55.7	18.1	16.12	5.2	30	4	48.5	57.1	30.8	84.5	2.6	4'-6"
C-6	12"X36"	83·0	10·0	93·0	±34	±4.1	55.7	18.1	16.12	5.2								
C-7	12"X30"	82·2	6·3	88·5	±22.2	±3	40.2	18.5	12.82	3:1	22	2	62	71 / 67.7	31.6	98.8	63.7	4'-0"
C-9	12"X18"	17·0	0·9	17·9	±6.2	±0.6	4.1	3.9	2.30	1.2								
C-8	12"X30"	92·8	5·5	98·3	±22.2	±3	40.2	18.5	12.82	3:1	22	2	62.3	76.6 / 74.7	31.4	106.1	102	4'-0"
C-10	12"X18"	17·0	0·9	17·9	±6.2	±0.6	4.1	3.9	2.30	6.2								

74.
17/2/70

Approved
PRO BUILDING AUTHORITY
19 FEB 1970

EDDIE CHIU, B. A. (ARCH.)
authorized architect
29 DEC 1969

RECEIVED
29 DEC 1969
BUILDINGS ORDINANCE OFFICE KOWLOON

A. Change piles position P1 P2 P3 P4 P5 P6 P7 P8 & G4 and cut the G.F. Fl. Beam Mark on plan. 6/2/69

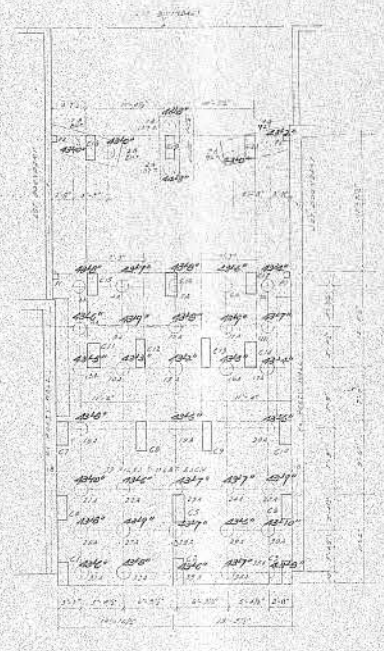
PRESSURE PILING CO.

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1888 AT Nº. 62 TAK KU LING ROAD.

DESIGN K.F. DATE 9-9-69 YEAR 69
DRAWN K.F. SCALE 1"=1'-0" T. No. 175
CHECKED K.F. DRG. No. C. 856 REV. No. 1A.

TAK KU LING ROAD

2/4159/61



TAK KU LING ROAD

LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE	LOCATION		LOAD (T)		PILE SIZE			LOAD (T)				LAST BLOW PENETRATION
		N.S.	E.W.	W.P.	D.L.	D.L.	L.L.		D.L.	L.L.	W.P.	TOTAL	
C1	18"×36"	124	50	9.06	5.47							14.5	42.5
C2	18"×60"	208	81	5	7.84							12.84	47.0
C3	18"×36"	124	50	7.84	4.77							12.61	42.5
C4	18"×36"	83	17	5.23	3.0							8.23	40.5
C5	18"×60"	166	33	5	7.84							12.84	42.5
C6	18"×72"	83	33	5.42	2.4							7.42	42.5
C7	18"×30"	66	17	4.33	2.53							6.83	42.5
C8	18"×60"	96	17	4.66	0							4.66	0
C9	18"×60"	96	17	4.66	0							4.66	0
C10	18"×36"	66	9	3.03	1.83	4-50	24	32	11.08	20		31.08	141.75
C11	18"×72"	132	9	4.08	2.49							6.57	0
C12	18"×60"	113	17	5.42	3							8.42	0
C13	18"×60"	113	17	5.66	0							5.66	0
C14	18"×72"	96	9	4.08	2.49							6.57	0
C15	18"×72"	190	17	7.66	4.74							12.4	0
C16	18"×36"	132	33	8	3.96							11.96	28.0
C17	18"×72"	124	33	7.84	3.12							10.96	42.5
P1	3'-0"	2	2	0	0.1							0.1	0
C18	18"×72"	70	17	7.31	3.74							11.05	42.5
P2	4'-0"	3	1	0	0.4	11	39	32	80	12		124	112.95
C19	18"×72"	75	7	5.51	3.16	11	100	83	92	13		118	112.75
P3	3'-0"	4	0	0	0.1							0.1	0
C15	18"×72"	165	17	9	4.92	5	48	67	119	44	242	325	112.95

NOTES:—

1. EXPECTED DEPTHS OF PILES ACCORDING TO STANDARD PENETRATION TEST ABOUT 45'
2. SERIAL REFERENCE NUMBER OF PILES:
   (a) 1-A TO 5-A INDICATE PILES DRIVEN WITH 2000 LBS. STEEL THRIEWAY HAMMER & 10 INCH TUBE & 3/8" THICK STEEL SHOES OF TUBE (10").
   (b) 1-B TO 2-B INDICATE PILES DRIVEN WITH 1 TON ALL STEEL TUBE TYPE OF HAMMER AS ABOVE. TUBE 35' TO 40' LONG, THICKNESS OF TUBE (5/8").
3. CONCRETE MIX TO BE 1:2:4 AND SIZE OF AGGREGATE FROM 1" TO 2½".
4. GROUND FLOOR LEVEL TO BE +10.65
5. BEARING CAPACITY OF PILES (EUTER FORMULA)

$$R = \frac{2WH}{S+1}$$

WHERE R = BEARING CAPACITY OF PILE (IN TONS)
W = WEIGHT OF HAMMER (IN TONS) - SEE ABOVE
H = DROP OF HAMMER (IN FT.) - 6 FT.
Q = WEIGHT OF STEEL TUBE (IN TONS) - SEE ABOVE
N = FACTOR OF SAFETY (4)
S = PENETRATION OF TUBE PER ONE LAST BLOW (IN FT.)

6. MAX PENETRATION OF TUBE PER LAST 10 BLOWS TO BE 1"
7. WEIGHT OF BUILDING TO BE 20 TONS.
8. TOP OF PEDESTAL LEVEL TO BE 3 FEET BELOW GROUND LEVEL.
9. DEPTH OF PILES SHOWN THUS — 42'40"

01/9/62

DRAWN	[illegible]	
TRACED	[illegible]	
CHECKED	[illegible]	15/11/62
APPROVED	[illegible]	16/11/62

HONG KONG ENGINEERING & CONSTRUCTION CO. LTD. HONG KONG

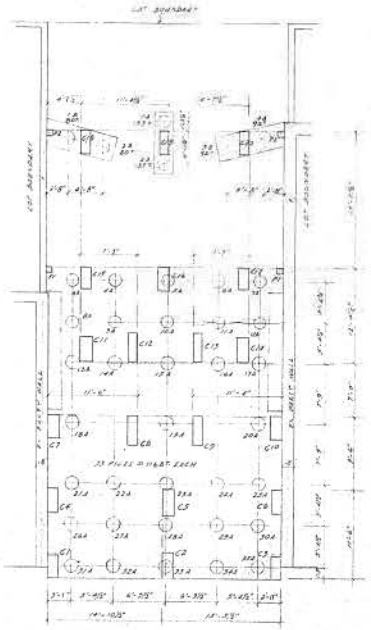
SCALE 1" = 10'-0"

PROPOSED FRANKI PILING PLAN

N.K.I.L. 2125 G 1847 TAK KU LING ROAD

TAK KU LING ROAD

BUILDINGS ORDINANCE OFFICE
BRF. NO. 3/145/61



TAK KU LING ROAD

LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE (IN.)	COLUMN D.L	COLUMN L.L.	LOAD (T) M	LOAD (T) T	NO. OF CAP (T)	PILE D.L	PILE L.L	LOAD (T) DRIVEN	LOAD (T) D.W.	WIND SPEED M.P.H.	WIND SPEED K.M.H.	CUT-OFF PILE HEAD LEVEL
C1	12×36	24	20	344	487						14.5	23.1	
C2	16×40	248	34	0	1184						19.04	30.6	
C3	12×36	124	20	226	347						14.8	23.1	
C4	12×36	63	18	242	323						11.4	18.1	
C5	12×48	198	33	0	1130						21.67	34.23	
C6	12×36	63	12	242	316						11.2	18.1	
C7	12×36	66	7	1101	1253						22.4	18.1	
C8	12×48	96	17	1181	0						14.32	0	
C9	12×42	98	17	1101	0						19.32	0	
C10	12×36	66	"	1101	1253	490	14	82	116.8	39	22.4	18.1	111.95
C11	12×36	66	3	1103	1259						24.3	35.1	
C12	12×48	113	15	1192	0						19.32	0	
C13	12×48	113	13	1185	0						19.12	0	
C14	12×36	63	8	1115	1329						24.4	6.51	
C15	18×32	124	19	1200	1374						24.2	7.1	
C16	18×30	207	32	0	1382						26.4	24.4	
C17	18×32	124	18	1206	1374						24.2	7.1	
P1	9×9	7	2	0	11						0	0.05	
C18	12×36	74	7	1231	1414						24.0	7.1	
P2	9×9	4	1	0	11	11	49	32	88	14	0	0.18	112.95
C19	12×36	74	7	1231	1414						24.0	7.1	
P2	9×9	4	1	0	11	11	60	63	92	11	0	9.85	112.95
C13	12×36	145	17	0	632	9	88	37	137	44	24.3	23.3	112.95

NOTES :—

1. EXPECTED DEPTH OF PILES ACCORDING TO STANDARD PENETRATION TEST ABOUT 45'
2. SERIAL REFERENCE NUMBER OF PILES:
   (a) 1 A TO 33 A INDICATE PILES DRIVEN WITH 20⅝" DIA. STEEL TUBE (FOR HAMMER 5 TONS, TUBE 3½ TONS; THICKNESS OF TUBE ⅛")
   (b) 1 B TO 44 B INDICATE PILES DRIVEN WITH 13⅜" DIA. STEEL TUBE (AT. OF HAMMER 10 TONS, TUBE 5½ TONS, THICKNESS OF TUBE ¼")
3. CONCRETE MIX TO BE 1:1½:3 AND SIZE OF AGGREGATES FROM ¼" TO 2½".
4. GROUND FLOOR LEVEL TO BE +10.45.
5. BEARING CAPACITY OF PILES (DUTCH FORMULA).

$$R = \frac{M^2 H}{(M+Q)S(M+Q)}$$

WHERE R = BEARING CAPACITY OF PILE (IN TONS)
M = WEIGHT OF HAMMER (IN TONS) - SEE ABOVE.
H = DROP OF HAMMER (IN FT.) - 6 FT.
Q = WEIGHT OF STEEL TUBE (IN TONS) - SEE ABOVE
N = FACTOR OF SAFETY (6)
S = PENETRATION OF TUBE PER ONE LAST BLOW (IN FT.)

6. MAX. PENETRATION OF TUBE PER LAST 10 BLOWS TO BE 1 ⅛".
7. HEIGHT OF BUILDING TO BE 97 FEET.
8. TOP OF PEDESTAL LEVEL TO BE 3 FEET BELOW GRD. FLR. LEVEL.

Approved
for Building Authority
26 APR 1962

RECEIVED BY
16 APR 1962
BUILDINGS ORDINANCE OFFICE
KOWLOON
P.W.D.

H.K. CHIEF ENGINEER
HONG KONG GOVERNMENT

DWG. NO.	62/P32/A	
DRAWN	Y.C.LIU	7.2.62.
CHECKED	Y.T.Tsang	13/11/62
APPROVED	[signature]	16/11/62

SCALE		
16" = 1'-0"	PROPOSED FRANKI PILING PLAN	N.K.I.L. 2125 & 1847 TAK KU LING ROAD

HONG KONG ENGINEERING & CONSTRUCTION CO., LTD.
HONG KONG

TAK KU LING ROAD

BUILDINGS DEPT. / FIRE OFFICE
CEF. NO. 3/4 35-9/61

NOTES

1. EXPECTED DEPTHS OF PILES ACCORDING TO STANDARD PENETRATION TEST ABOUT 60 FT.
2. SERIAL REFERENCE NUMBER OF PILES
   a) 1A TO 10A INDICATE PILES DRIVEN WITH 20⅜" DIA. STEEL TUBE (WEIGHT OF HAMMER 3 TONS, TUBE 4½ TONS, THICKNESS OF TUBE 1⅜")
   b) 1B TO 28B INDICATE PILES DRIVEN WITH 17¾" DIA. STEEL TUBE (WEIGHT OF HAMMER 2½ TONS, TUBE 3⅝ TONS, THICKNESS OF TUBE 1⅜")
   c) 1C TO 9C INDICATE PILES DRIVEN WITH 16" DIA. STEEL TUBE (WEIGHT OF HAMMER 2 TONS, TUBE 2½ TONS, THICKNESS OF TUBE ⅜")
   d) 1D TO 2D INDICATE PILES DRIVEN WITH 14" DIA. STEEL TUBE (WEIGHT OF HAMMER 1½ TONS, TUBE 2 TONS, THICKNESS OF TUBE ⅜")
3. CONCRETE MIX TO BE 1:3:5 AND SIZES OF AGGREGATES FROM 1" TO 2½"
4. BEARING CAPACITY OF PILES (DUTCH FORMULA)

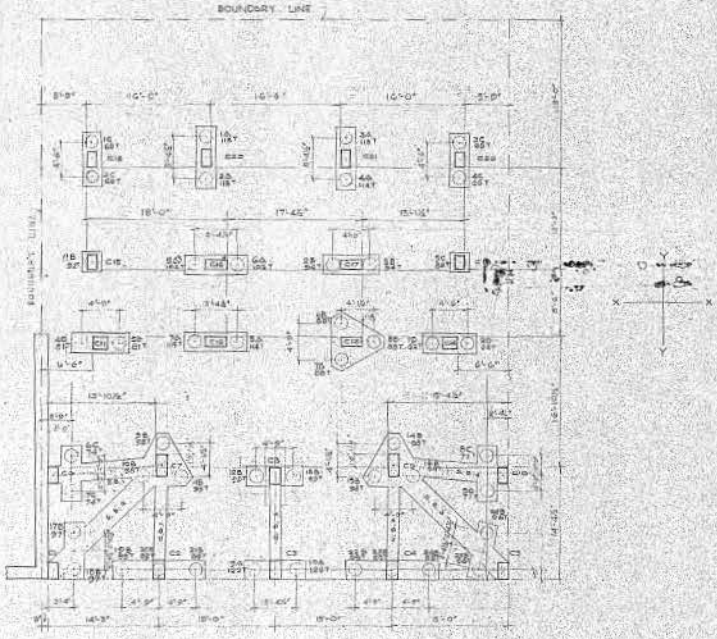
$$R = \frac{P^2 H}{(P+Q)\eta_1 s}$$

WHERE R — BEARING CAPACITY OF PILE (IN TONS)
P — WEIGHT OF HAMMER (IN TONS) — SEE ABOVE
H — DROP OF HAMMER (IN FT.) — 6 FT.
Q — WEIGHT OF STEEL TUBE (IN TONS) — SEE ABOVE
η_1 — FACTOR OF SAFETY — 6
s — PENETRATION OF TUBE PER ONE LAST BLOW (IN FT.)

5. MAX. PENETRATION OF TUBE PER LAST 10 BLOWS TO BE 1⅛"
6. GRD. FL. LEV. TO BE +21.11
7. TOP OF PEDESTAL LEV. TO BE +18.61
8. HEIGHT OF BUILDING TO BE 78'-9"
9. ASSUMED PILING LEVEL TO BE +20.61

LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE	LOADING D.L	LOADING L.L	LOADING WIND LOAD X-X	LOADING WIND LOAD Y-Y	WT. OF CAP	PILE LOAD D.L	PILE LOAD D+L	PILE LOAD D+L+W	PILE LOAD D+W	WIND SHEAR X-X	WIND SHEAR Y-Y	CUT-OFF PILE HEAD LEVEL	NUMBERS OF PILES
C 1	16×20	94	15	± 10	± 10	6.5	77	79	97	49	2.7	2.75	12.11	2 - 17¾" ϕ TUBE
C 2	16×30	159	24	± 3	± 56	13	39	98	86	91	4.1	14.4	13.61	3 - 17¾" ϕ TUBE
C 3	16×30	149	38	± 0	± 42	13	82	101	122	76	4.1	14.4	13.61	2 - 20⅜" ϕ TUBE
C 4	16×30	159	26	± 3	± 56	13	58	95	80	94	4.1	19.4	13.61	3 - 17¾" ϕ TUBE
C 5	16×26	94	13	± 10	± 30	8.5	69	78	96	48	2.7	8.25	12.11	2 - 17¾" ϕ TUBE
C 6	16×24	70	8	± 0	± 20	11	31	56	74	29	2.42	6.0	13.61	2 - 16" ϕ TUBE
C 7	16×24	179	29	± 3	± 54	14	67	76	88	41	7.0	20.4	14.11	3 - 17¾" ϕ TUBE
C 8	16×26	182	21	± 0	± 40	10	69	70	89	48	5.3	8.6	14.16	2 - 17¾" ϕ TUBE
C 9	16×24	179	25	± 3	± 54	14	67	76	88	41	7.0	20.4	14.11	3 - 17¾" ϕ TUBE
C 10	16×26	70	8	± 0	± 30	11	30	54	71	24	2.42	6.0	13.61	2 - 16" ϕ TUBE
C 11	20×24	120	14	± 17	± 4	8	45	72	91	53	3.65	5.7	14.16	2 - 17¾" ϕ TUBE
C 12	16×34	169	25	± 1	± 24	9	80	104	116	74	22.4	4.1	14.11	2 - 20⅜" ϕ TUBE
C 13	16×34	167	21	± 5	± 24	12	60	80	92	56	22.4	4.1	14.11	2 - 17¾" ϕ TUBE
C 14	20×26	83	9	± 24	± 6	7	22	50	62	31	3.65	5.7	14.84	2 - 16" ϕ TUBE
C 15	16×26	81	10	± 26	± 10	5	53	64	92	34	3.49	6.9	14.11	1 - 17¾" ϕ TUBE
C 16	16×35	145	23	± 15	± 28	9	78	99	109	69	23.4	4.25	14.11	2 - 20⅜" ϕ TUBE
C 17	16×35	138	18	± 21	± 35	8	72	82	96	52	23.4	4.25	15.26	2 - 17¾" ϕ TUBE
C 18	16×26	46	6	± 23	± 16	5	52	60	82	27	3.42	5.9	14.11	1 - 16" ϕ TUBE
C 19	16×26	98	11	± 7	± 18	7	31	57	66	39	3.49	6.0	14.84	2 - 16" ϕ TUBE
C 20	16×26	171	18	± 3	± 42	9	82	100	110	75	2.98	10.9	14.11	2 - 20⅜" ϕ TUBE
C 21	16×35	177	18	± 3	± 25	8	88	100	103	77	2.98	10.9	14.11	2 - 20⅜" ϕ TUBE
C 22	16×26	92	11	± 7	± 18	7	31	57	65	39	3.49	6.0	14.84	2 - 16" ϕ TUBE



Approved
BUILDING AUTHORITY
- 9 JUL 1962

RECEIVED BY
26 JUN 1962

25 JUN 1962

DRG. NO.	61/164/12	
DRAWN	M. A. Chan	17-5-62
CHECKED	[illegible]	19/6/62
APPROVED	[illegible]	20/6/62

FRANKI PILING & ENGINEERING (H.K.) LTD.

SCALE	PROPOSED FRANKI PILING PLAN	N. K. I. L. 560, 561, 988, & 1400 TAK KU LING ROAD.
1/8" = 1'-0"		

TAK KU LING ROAD

NOTES :-

1. EXPECTED DEPTHS OF PILES ACCORDING TO STANDARD PENETRATION TEST ABOUT 60' TO 65'
2. SERIAL REFERENCE NUMBER OF PILES.
   a) 1A TO 5A INDICATE PILES DRIVEN WITH 20½" DIA. STEEL TUBE (WEIGHT OF HAMMER 3 TONS TUBE 4½ TONS THICKNESS OF TUBE 1⅛").
   b) 1B TO 14 B INDICATE PILES DRIVEN WITH 17¾" DIA. STEEL TUBE (WEIGHT OF HAMMER 2½ TONS, TUBE 3½ TONS, THICKNESS OF TUBE 1⅛")
   c) 1C TO 8C INDICATE PILES DRIVEN WITH 16" DIA. STEEL TUBE (WEIGHT OF HAMMER 2 TONS, TUBE 2½ TONS, THICKNESS OF TUBE 15/16")
   d) 1D TO 12D INDICATE PILES DRIVEN WITH 14" DIA. STEEL TUBE (WEIGHT OF HAMMER 1½ TONS, TUBE 2 TONS, THICKNESS OF TUBE 15/16".)
3. CONCRETE MIX. TO BE 1:3:5 AND SIZES OF AGGREGATES FROM 1" TO 2½"
4. BEARING CAPACITY OF PILES (DUTCH FORMULA)

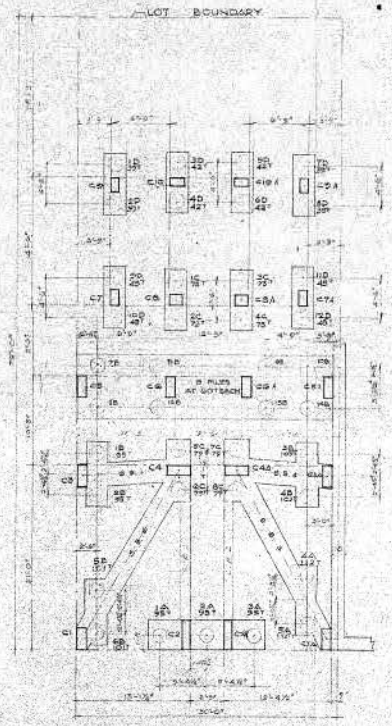
$$R = \frac{P^2 \cdot H}{(P+Q)\eta q}$$

WHERE R — BEARING CAPACITY OF PILES. (IN TONS)
P — WEIGHT OF HAMMER (IN TONS) SEE ABOVE
H — DROP OF HAMMER (IN FT.) 6 FT.
Q — WEIGHT OF STEEL TUBE (IN TONS) SEE ABOVE.
η — FACTOR OF SAFETY — 6.
q — PENETRATION OF TUBE PER ONE LAST BLOW (IN FT.)

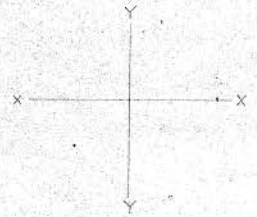
5. MAX. PENETRATION OF TUBE PER LAST 10 BLOWS TO BE 1⅛".
6. GRD. FL. LEV. TO BE ⊕ 21.07'
7. TOP OF PEDESTAL LEV. TO BE ⊕ 18.57'
8. HEIGHT OF BUILDING TO BE 76'9"
9. ASSUMED PILING LEVEL TO BE ⊕ 20.57'

LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE	LOADING (T) P.L.	LOADING (T) L.L.	MOMENT ALONG X-X	MOMENT ALONG Y-Y	WEIGHT OF CAP (T)	PILE LOAD (T) P.L.	P.L.+L.L.	P.L.+L.L.+W	P.L.+W	WIND SHEAR (KIPS) ALONG X-X	WIND SHEAR (KIPS) ALONG Y-Y	CUT-OFF PILE HEAD LEVEL	NUMBERS OF PILES
C1	14x30	91	17	342	99	21	66	76	101	86	14	2	13.57	6-12¾"ΦTUBE
C1A	14x30	91	17	342	99	25	73	84	112	98	14	4	12.57	2-20¾"ΦTUBE
C2	12x40	94	22	73	764	26	74	89	95	94	12	2	14.07	5-20¾"ΦTUBE
C2A	12x40	94	22	73	764						12	2		
C3	14x30	72	17	357	312	14	58	82	98	13	8	6	14.07	2-17¾"ΦTUBE
C3A	14x30	73	17	357	312	14	58	87	103	15	8	6	13.57	2-17¾"ΦTUBE
C4	16x54	82	32	749	320	13	56	84	79	10	57	3	14.57	2-16"ΦTUBE
C4A	14x34	82	32	349	320	13	56	84	79	10	57	3	14.57	2-16"ΦTUBE
C5	14x30	25	6	185	221						18	4		
C5A	14x30	25	6	295	321	105	32	37	60	4	18	6	18.07	6-17¾"ΦTUBE
C6	14x30	42	13	365	33						15	14		
C6A	14x30	42	13	365	33						15	14		
C7	12x21	56	6	337	319	6	22	28	45	1	6	7	14.82	2-14"ΦTUBE
C7A	12x21	56	6	337	319	6	22	28	45	1	6	7	14.82	2-14"ΦTUBE
C8	15x18	96	24	113	317	7	33	65	78	41	10	3	14.57	2-16"ΦTUBE
C8A	18x18	98	24	113	317	7	33	65	73	41	10	3	14.57	2-16"ΦTUBE
C9	12x21	37	9	324	319	6	25	27	33	5	4	7	14.82	2-14"ΦTUBE
C9A	12x21	37	9	324	319	6	23	27	33	5	4	7	14.82	2-14"ΦTUBE
C10	12x21	51	16	35	37	6	30	38	42	24	10	3	14.82	2-14"ΦTUBE
C10A	12x21	51	16	35	37	6	30	38	42	24	10	3	14.82	2-14"ΦTUBE



TAK KU LING ROAD.



Approved
29 AUG 1962

17 AUG 1962

REVISED ON 27-7-62

RECEIVED BY
18 AUG 1962
BUILDING ... OFFICE

DRG. NO.	62/PES/A	
DRAWN	W. H. Chan	23-5-62
CHECKED	[illegible]	19/6/62
APPROVED	[illegible]	20/6/62

FRANKI PILING & ENGINEERING (H.K.) LTD.

SCALE 1/8" = 1'-0"

PROPOSED FRANKI PILING PLAN | N. K. I. L. 575 & 952 TAK KU LING ROAD.

TAK KU LING ROAD

BUILDINGS ORDINANCE OFFICE
REF. NO. SN 795/67

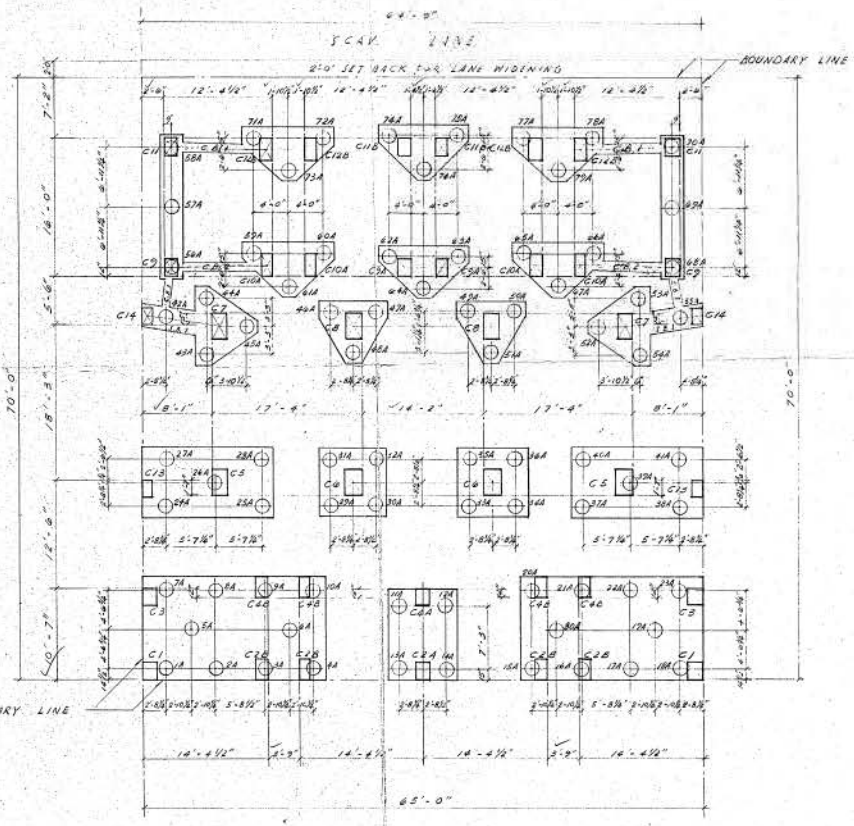
NOTES:-

(1) EXPECTED DEPTHS OF PILES ACCORDING TO STANDARD PENETRATION TEST ABOUT 70 FT. TO 80 FT.
(2) SERIAL REFERENCE NUMBER OF PILES:
1A TO 80A INDICATE PILES DRIVEN WITH 20½"ϕ STEEL TUBE (WEIGHT OF HAMMER 3T.
TUBE 4½T. THICKNESS OF TUBE 1/8" AND MAX. PERMISSIBLE BEARING CAPACITY OF PILE = 110T.)
(3) MAX. PENETRATION OF TUBE PER LAST 10 BLOWS TO BE 1"
(4) CONC. MIX TO BE 1:3:5 AND SIZE OF AGGREGATE FROM 1" TO 2½"
(5) BEARING CAPACITY OF PILES (DUTCH FORMULA)

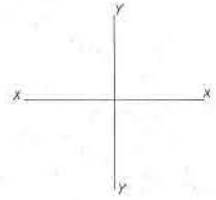
$$R = \frac{P^2 H}{(P+Q)\,n\,g}$$

WHERE R — BEARING CAPACITY OF PILES (IN TONS)
P — WEIGHT OF HAMMER (3 TONS.)
Q — WEIGHT OF STEEL TUBE (4½ TONS)
H — DROP OF HAMMER (6 FT.)
n — FACTOR OF SAFETY (6)
g — PENETRATION OF TUBE PER ONE LAST BLOW (IN FT.)

(6) GROUND FLOOR LEVEL TO BE +20.35
(7) ASSUMED PILING LEVEL TO BE +19.85
(8) HEIGHT OF BUILDING TO BE 120'-0"
(9) TOP OF PILE CAP LEVEL TO BE +15.35
(10) 4 NOS. OF 5/8"ϕ DOWEL BARS 4'-6" LONG TO BE PROVIDED IN EACH PILE



TAK KU LING ROAD



LOADING SCHEDULE

COLUMN MARK	COLUMN SIZE (IN.)	COLUMN LOAD (T.) D.L.	COLUMN LOAD (T.) D+L	M.A. ALONG X-X	M.A. ALONG Y-Y	NT. OF PILE CAP (T.)	PILE LOAD (T.) D.L.	PILE LOAD (T.) D+L	PILE LOAD (T.) D+LW	PILE LOAD (T.) D+W	WIND SHEAR (K) ALONG X-X	WIND SHEAR (K) ALONG Y-Y	NUMBER OF PILES	CUT-OFF PILE HEAD LEVEL	
C 1	18X24	113	154	± 29	± 48						8.8	5.0			
C 2B	17X29	101	132	± 12	± 14						7.1	8.1			
C 2B	17X29	101	132	± 21	± 14	100	79	93.5	116.5	50	7.1	8.1	10-20½"ϕ TUBE	+10.35	5'-0"
C 8	18X24	96	115	± 26	± 45						7.8	5.0			
C 4B	17X29	120	150	± 2	± 12						6.3	8.1			
C 4B	17X29	120	150	± 10	± 12						6.3	8.1			
C 2A	20X27	149	242	0	± 51	28	89	109	137.5	52	9.6	6.5	4-20½"ϕ TUBE	+11.35	4'-0"
C 4A	20X27	147	183	0	± 49						8.4	6.5			
C 13	14X20	26	33	± 28	± 3	4.5	76	93	116	39	3.1	2.2	2-20½"ϕ TUBE	+10.35	
C 5	26X34	292	369	± 86	± 5						19.9	16.2			
C 6	26X36	281	351	± 97	± 5	19	75	93	117	50	19.6	16.2	4-20½"ϕ TUBE	+11.35	
C 14	14X20	25	31	± 22	± 1	4	38	46	75	8	3.1	2.2	1-20½"ϕ TUBE	+10.35	3'-0"
C 7	23X36	242	313	± 64	± 49	13	85	109	130	63	16.8	14.4	3-20½"ϕ TUBE	+11.35	
C 8	23X36	222	283	± 74	± 49	13	79	99	124	63	16.8	14.4	3-20½"ϕ TUBE	+11.35	
C 9	18X24	84	113	± 37	± 24	22	71	82	110	34	6.3	5.0	3-20½"ϕ TUBE	+10.85	0'-6"
C 11	18X24	91	111	± 30	± 28						5.1	5.0			
C10A	15X30	95	120	± 5	± 8	18	70	86	93	64	5.0	8.1	3-20½"ϕ TUBE	+10.85	
C10A	15X30	95	120	± 11	± 8						5.0	8.1			
C9A	18X24	80	108	± 13	± 24	18	60	78	94	63	6.3	5.0	3-20½"ϕ TUBE	+10.85	
C9A	18X24	80	108	± 13	± 24						6.3	5.0			
C12B	15X30	95	112	± 5	± 12	18	70	81	89	61	4.1	8.1	3-20½"ϕ TUBE	+10.85	
C12B	15X30	95	112	± 16	± 12						4.1	8.1			
C11B	18X24	84	104	± 7	± 28	18	62	76	94	63	5.1	8.0	3-20½"ϕ TUBE	+10.85	
C11B	18X24	84	104	± 7	± 28						5.1	5.0			

Approved
PRO BUILDING AUTHORITY
14 OCT 1966

GUY W. K. CHAN
Authorized Architect.

19 SEP 1966

REVISED ON 13-9-66

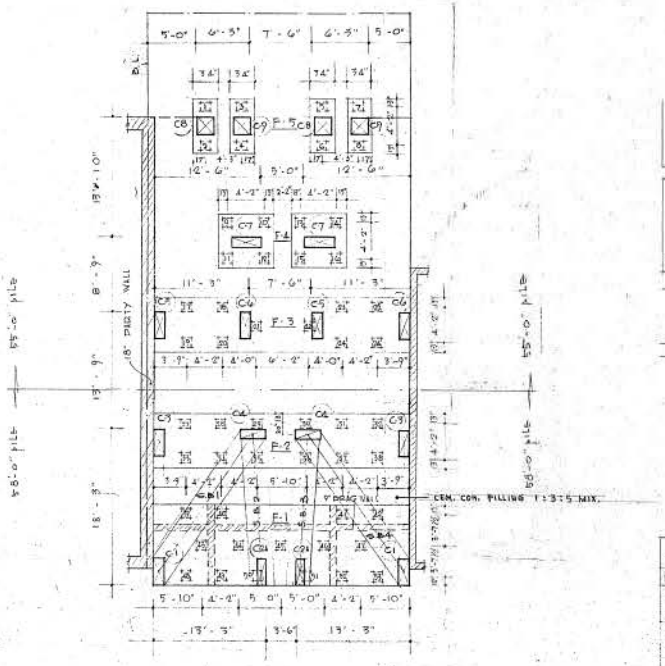
RECEIVED BY
14 SEP 1966
BUILDINGS ORDINANCE OFFICE

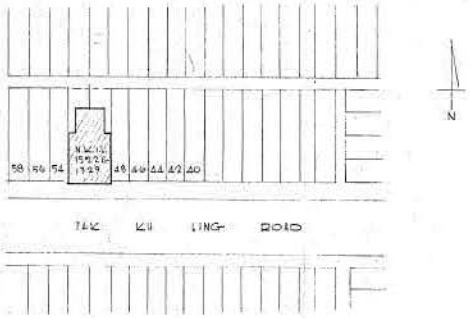
DWG. NO.	66 PILE 4
DRAWN	C. Tam 2-8-66
CHECKED	[illegible] 2/8/66
APPROVED	[illegible] 2/8/66

SCALE			
1/8" = 1'-0"	PROPOSED FRANKI PILING PLAN	N.K.I.L. 1490, 1901, 1876 & 1606 AT NOS 68, 70, 72 & 74 TAK KU LING ROAD, KOWLOON.	FRANKI PILING & ENGINEERING (HONG KONG) LTD.

TAK KU LING ROAD

BUILDING DEPARTMENT KOWLOON
BUILDING PLAN NO. 3/4188/62



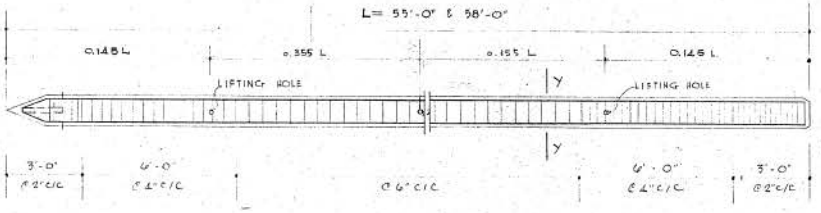


NOTES:-

1. ALL PILES TO BE R.C. PRECAST PILE.
2. SIZE OF AGG. 3/4.
3. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
4. ALL PILES TO BE LIFTED AT TWO LIFTING HOLES (SHOWN IN DETAILS).
5. CONC. MIXTURE TO BE 1:1:2 Q.A.
6. USE STEEL PILE DRIVING TRUSS.
7. USE STEEL HELMET & STEEL FOLLOWER (WT. = 0.4T L=10'-0").
8. USE PLASTIC DOLLY.
9. CUT OFF LEVEL OF PILES 8'-0" BELOW GRD FLOOR LEVEL.
10. ALL PILES TO BE FOLLOWED DOWN ABOUT 7'-0" BELOW GRD. LEVEL.
11. ALL PEDESTALS TO BE 1:1:2 MIX.
12. ALL PILE CAP MIX TO BE 1:2:4.
13. CONCRETE COVER TO MAIN REINFORCEMENT.
    2" COVER FOR STRIP BEAM & BELOW GRD. LEVEL.
    3" COVER FOR FOOTING.
14. SPACING OF PILES - 4'-2".
15. HEIGHT OF BUILDING 95'-9".
16.

SIZE OF PILE	LENGTH OF PILE	WEIGHT OF HAMMER	HT. OF FALL	LAST PENETRATION WITH FOLLOWER	LAST PENETRATION WITHOUT FOLLOWER
14" x 14"	58'-0"	2½TON	4'-6"	½ BLOWS/IN.	——
14" x 14"	58'-0"	2½TON	4'-3"	——	½ BLOWS/IN.
14" x 14"	55'-0"	2½TON	4'-6"	——	4 BLOWS/IN.
14" x 14"	55'-0"	2½TON	4'-6"	4 BLOWS/IN.	——

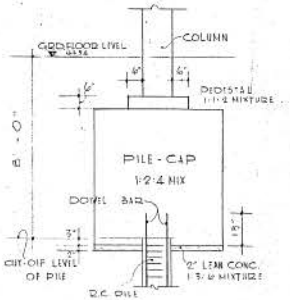
COL MARK	COL SIZE	COLUMN LOAD T D.L.	L.L.	D.L.+L.L.	WIND LOAD T X-X	Y-Y	WIND SHEAR T X-X	Y-Y	PILE CAP WT	PILE-CAP MARK	PILE NOS	LOAD PER PILE T D.L+CAP	D.L+CAP+L.L	D.L+W/CAP	D.L+W+CAP
C1	14"x38"	106.2	19.65	125.85	48.4	19.8	15.1	9.45	90T	F-1	15	39.8	49.2	67	21.9
C2A	12"x38"	106.2	37.5	143.7	20	38.8	15.1	19.3				39.3	49.2	67	21.9
C3	14"x38"	97.8	22.8	120.6	30.1	4.64	3.45	9.45				39.65	49.45	68.3	18.75
C4	14"x36"	126	39.8	164.0	73.2	48.6	25	2.3	60T	F-2	12	39.25	49.45	68.3	18.75
C5	12"x38"	73.2	15.6	88.8	36.5	7.05	11.25	9.45				23.93	49.78	66.93	6.45
C6	14"x38"	102	28.1	130.1	7.02	60.5	11.25	19.3	60T	F-3	10	23.53	49.76	66.93	6.45
C7	14"x42	151	13.4	164.4	143	27.5	23	7.6	14T	F-4	4	41.3	42.6	80.8	3.6
C8	24"x24"	62.5	13.4	75.9	62.5	22.1	7.41	12.8	6T	F-5	2	34.45	41.5	72.7	3
C9	24"x24"	74	11.2	85.2	47.3	44.7	7.41	2.15			2	34.45	41.5	72.7	3



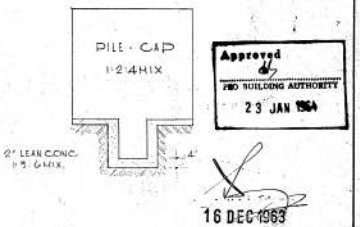
DETAIL OF 14" x 14" R.C. PRECAST PILE



SEC. Y-Y



DETAIL SHOWING CUT-OFF LEVEL OF PILE



Approved
PWD BUILDING AUTHORITY
23 JAN 1964

16 DEC 1963

DETAIL SHOWING TYPICAL PILE CAP & DRAG WALL

P. 1/1

R. C. C. PRECAST PILE & PILING PLAN FOR PROPOSED BUILDING ON N.K.I.L. 1329 & 1522, AT Nos.50,52, TAK KU LING RD., KOWLOON.

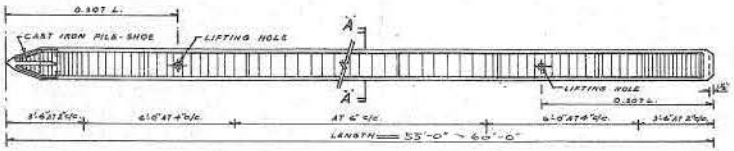
SCALE 1/8" = 1'-0"

PRECAST CONCRETE PILING BY WAH YIP & CO. TEL. 28426

P. H. IP AUTHORIZED ARCHITECT

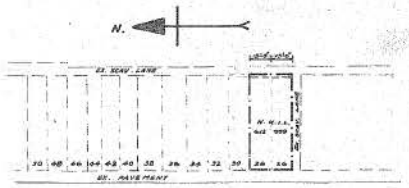
TAK KU LING ROAD

B. O. O. REF. NO. 3/4673/70



3/8" DETAIL OF 14"X14" R. C. C. PRECAST PILE





TAK KU LING ROAD (60'-0" WIDE)



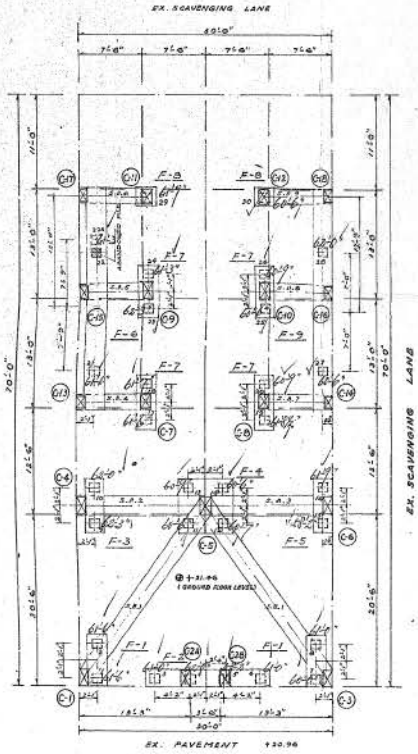
BLOCK PLAN
(SCALE: 50'-0" = 1")

LOADING SCHEDULE (IN TONS)

COLUMN MARK	COLUMN SIZE	LOADING D. L.	LOADING D. + L.	WIND LOAD X-X ⇄	WIND LOAD Y-Y ⇅	SHEAR X-X ⇄	SHEAR Y-Y ⇅	MARK OF PILE-CAP	WEIGHT OF PILE-CAP	NO. OF PILE REQUIRED	WORKING LOAD ON EACH PILE D. L.	D. + L.	D.+L.+W.	1/3 D.L.+W.L.
C-1	16"X26"	74.0	80.5	±25.5	±19.5	4.5	4.0	F-1	6	2-14"X14"	35.05	53.6	68.0	16.3
C-2A	14"X26"	79.0	103.5	±16.5	±11.5	4.5	3.5	F-2	12	4-14"X18"	42.4	54.5	60.28	23.7
C-2B	14"X26"	78.5	102.5	±16.5	±11.5	4.5	3.5							
C-3	14"X26"	75.5	94.0	±25.5	±19.5	4.5	4.0	F-1	6	2-14"X14"	45.05	53.6	68.0	16.3
C-4	14"X26"	75.0	89.5	±29.5	±13.0	5.5	4.0	F-3	6	2-14"X14"	48.8	53.6	69.5	19.8
C-5	16"X26"	142.0	202.5	0	±12.5	8.5	10.5	F-4	12	4-14"X14"	43.6	53.7	54.9	16.5
C-6	14"X26"	84.5	106.0	±23.5	±13.0	5.5	4.0	F-5	4	2-14"X14"	50.1	62.1	78.6	18.0
C-7	14"X22"	80.0	103.0	±16.5	±16.0	5.0	3.0	F-7	6	2-14"X14"	43.6	54.8	62.5	21.7
C-8	14"X22"	91.0	119.0	±16.5	±18.0	5.0	3.0	F-7	6	2-14"X14"	48.6	62.2	68.75	26.08
C-9	14"X26"	71.0	97.0	±13.0	±4.0	4.5	4.0	F-7	6	2-14"X14"	38.5	51.5	58.0	20.2
C-10	14"X26"	69.0	95.5	±13.0	±7.0	4.5	4.0	F-7	6	2-14"X14"	37.5	50.75	57.25	19.8
C-11	14"X22"	42.0	55.5	±7.5	±20.0	2.5	3.0	F-8	2	1-14"X14"	45.0	57.0	71.0	10.0
C-12	14"X22"	43.0	56.5	±7.5	±20.0	2.5	3.0	F-8	2	1-14"X14"	45.0	58.5	76.5	10.7
C-13	12"X18"	14.0	18.0	±14.0	±4.5	2.5	1.5							
C-15	12"X18"	17.5	23.5	±14.0	±7.0	2.0	1.5	F-6	18	2-14"X14"	35.99	44.41	70.25	1.43
C-17	12"X18"	8.5	11.0	±8.0	±4.0	1.5	1.5							
C-14	12"X18"	13.5	17.5	±14.0	±4.5	2.5	1.5							
C-16	12"X18"	17.5	23.5	±14.0	±7.0	2.0	1.5	F-9	18	2-14"X14"	31.93	38.77	57.55	0.84
C-18	12"X18"	8.5	11.0	±8.0	±4.0	1.5	1.5							

DRIVING DATA:

PILES SIZE	PILES LENGTH	WEIGHT OF HAMMER	HEIGHT OF FALL	LAST PENETRATION WITHOUT FOLLOWER	LAST PENETRATION WITH FOLLOWER
14"X14"	55'-0" & 60'-0"	5 T.	4'-3"	3 BLOWS/IN.	———
			4'-6"	———	3 BLOWS/IN.



TAK KU LING ROAD (60'-0" WIDE)

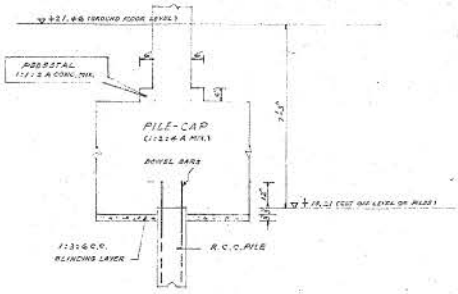
PILING PLAN (SCALE: 1" = 1'-0")

THE RED FIGURES SHEWING THE DEPTH FROM FUTURE GROUND FLOOR LEVEL TO THE TOP OF EACH PILE.

□ INDICATES 14"X14" R.C.C. PRECAST PILES (NO. 1 TO 30.) (OMITTED PILE NO. 22 ADD PILE NO. 22 A)

NOTES: —

1. ALL PILES TO BE R.C.C. PRECAST PILES.
2. SIZE OF AGGREGATE TO BE 3/4".
3. ALL PILES TO BE LIFTED AT TWO LIFTING HOLES.
4. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
5. USE PLASTIC DOLLY.
6. USE STEEL PILE DRIVING TRUSS.
7. USE STEEL HELMET & STEEL FOLLOWER (L. = 10'-0", WT. = 880#)
8. CUT-OFF LEVEL OF PILES TO BE 7'-3" BELOW GROUND FLOOR LEVEL.
9. ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-0" BELOW GROUND FLOOR LEVEL.
10. CONC. MIX. FOR ALL PILES TO BE 1:1:2 A.
    CONC. MIX. FOR ALL PILE-CAPS TO BE 1:2:4 A.
    CONC. MIX. FOR ALL PEDESTALS TO BE 1:1:2 A.
11. CONC. COVER TO MAIN REINFORCEMENT: —
    2" COVER FOR STRAP BEAMS.
    3" COVER FOR PILE-CAPS.
12. HEIGHT OF BUILDING = 63'-10"
13. SPACING OF PILE: 4'-2" FOR 14"X14" R.C.C. PILE.
14. 55'-0" PILES TO BE USED FOR PILE Nos. 11, 12, 13, 14, 20, 25, 26, 27 & 30 ONLY



3/8" DETAIL SHOWING CUT-OFF LEVEL OF PILES.

RECEIVED BY BUILDING ORDINANCE OFFICE 17 MAR 1972 P.W.D.

15 MAR 1972

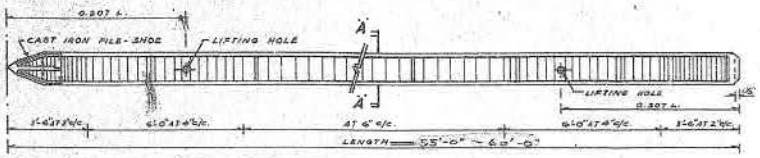
GUY W. K. CHAN Authorised Architect

PILING RECORD PLAN

R. C. C. PRECAST PILE AND PILING PLAN FOR PROPOSED BUILDING, ON N. K. I. L. 612, & 999, AT NOS. 26, & 28, TAK KU LING ROAD, KOWLOON.	SCALE: 1" = 1'-0"	PRECAST CONCRETE PILING BY: WAH YIP & CO., LTD. TEL: H-228426.	GUY W. K. CHAN AUTHORISED ARCHITECT

TAK KU LING ROAD

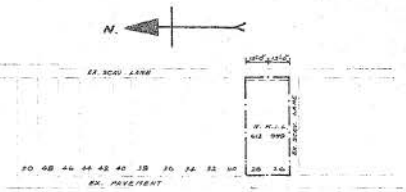
B. O. O. REF. No. 1/6673/70



3/8" DETAIL OF 14"X14" R. C. C. PRECAST PILE



SEC. A-A



TAK KU LING ROAD (60'0" WIDE)

BLOCK PLAN
(SCALE : 50'0" = 1")

LOADING SCHEDULE (IN TONS)

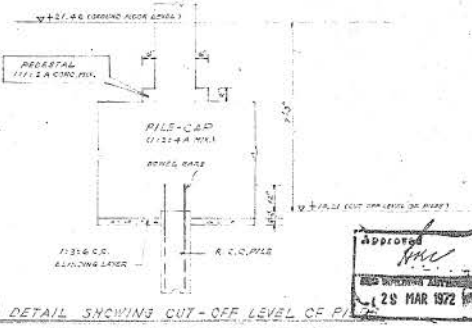
COLUMN MARK	COLUMN SIZE	LOADING D. L.	LOADING D.+L.	WIND LOAD X-X ⟷	WIND LOAD Y-Y ↕	WIND SHEAR X-X ⟷	WIND SHEAR Y-Y ↕	MARK OF PILE-CAP	WEIGHT OF PILE-CAP	NO. OF PILE REQUIRED	WORKING LOAD ON EACH PILE D. L.	D.+L.	D.+L.+W.	D.L.+W.L.
C-1	14"X24"	74.0	88.5	∓25.5	∓19.5	4.5	4.0	F-1	6	2-14"X14"	95.05	53.6	69.1	14.2
C-2A	14"X24"	79.0	103.5	∓16.5	∓11.5	4.5	3.5	F-2	12	4-14"X14"	43.4	54.5	90.28	23.7
C-2B	14"X24"	78.5	102.5	±16.5	∓11.5	4.5	3.5							
C-3	14"X28"	75.5	91.0	±25.5	∓19.5	4.5	4.0	F-1	6	2-14"X14"	95.05	53.6	69.1	12.0
C-4	14"X24"	75.0	89.5	∓29.5	±13.0	5.5	4.0	F-3	6	2-14"X14"	96.8	55.0	69.5	13.8
C-5	16"X24"	160.0	202.5	0	±12.3	8.5	10.5	F-4	12	4-14"X14"	93.0	53.7	56.9	14.5
C-6	14"X28"	69.5	104.0	±29.5	±13.0	5.5	4.0	F-5	6	2-14"X14"	80.1	92.1	70.9	18.0
C-7	14"X22"	82.0	103.0	∓14.5	∓16.0	5.0	3.0	F-7	6	2-14"X14"	93.0	54.5	62.5	21.7
C-8	14"X22"	91.0	119.0	∓14.5	∓16.0	5.0	3.0	F-7	6	2-14"X14"	98.5	62.5	68.75	26.05
C-9	14"X24"	71.0	97.0	∓13.0	∓6.0	4.5	4.0	F-7	6	2-14"X14"	98.5	61.5	68.0	23.2
C-10	14"X24"	69.0	95.5	±13.0	∓7.0	4.5	4.0	F-7	6	2-14"X14"	97.5	59.75	67.25	19.5
C-11	12"X22"	42.0	55.0	∓7.5	±20.0	2.5	3.0	F-8	2	1-14"X14"	44.0	53.0	77.0	10.0
C-12	14"X22"	43.0	56.5	∓7.5	±20.0	2.5	3.0	F-8	2	1-14"X14"	95.0	59.5	78.5	10.7
C-13	12"X18"	14.0	18.0	∓14.0	±4.5	1.5	1.5							
C-15	12"X18"	17.5	23.5	∓14.0	∓2.0	2.0	1.5	F-6	19	2-14"X14"	35.99	44.61	70.25	1.43
C-17	12"X18"	8.5	11.0	∓8.0	±4.0	1.5	1.5							
C-16	12"X18"	13.5	17.5	±14.0	±4.5	2.5	1.5							
C-14	12"X18"	17.5	23.5	±14.0	∓2.0	2.0	1.5	F-9	18	2-14"X14"	31.93	38.77	57.55	0.84
C-18	12"X18"	8.5	11.0	±8.0	±4.0	1.5	1.5							

DRIVING DATA:

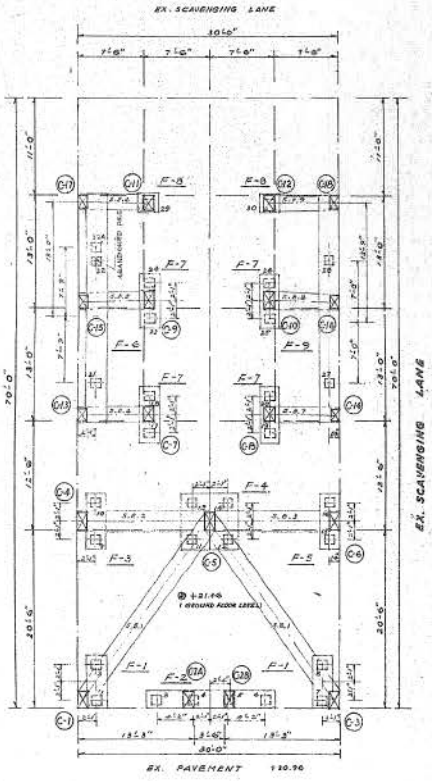
PILES SIZE	PILES LENGTH	WEIGHT OF HAMMER	HEIGHT OF FALL	LAST PENETRATION WITHOUT FOLLOWER	LAST PENETRATION WITH FOLLOWER
14"X14"	55'-0" & 60'-0"	5 T.	4'-3"	3 BLOWS/IN.	———
			4'-6"	———	3 BLOWS/IN.

NOTES :—

1. ALL PILES TO BE R. C. C. PRECAST PILES.
2. SIZE OF AGGREGATE TO BE 3/4".
3. ALL PILES TO BE LIFTED AT TWO LIFTING HOLES.
4. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
5. USE PLASTIC DOLLY.
6. USE STEEL PILE DRIVING TRUSS.
7. USE STEEL HELMET & STEEL FOLLOWER (L. = 10'-0", WT. = 880 #)
8. CUT-OFF LEVEL OF PILES TO BE 7'-3" BELOW GROUND FLOOR LEVEL.
9. ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-0" BELOW GROUND FLOOR LEVEL
10. CONC. MIX. FOR ALL PILES TO BE 1:1:2 A.
    CONC. MIX. FOR ALL PILE-CAPS TO BE 1:2:4 A.
    CONC. MIX. FOR ALL PEDESTALS TO BE 1:1:2 A.
11. CONC. COVER TO MAIN REINFORCEMENT :—
    2" COVER FOR STRAP BEAMS.
    3" COVER FOR PILE-CAPS.
12. HEIGHT OF BUILDING = 43'-10"
13. SPACING OF PILE : 4'-2" FOR 14"X14" R.C.C. PILE.
14. (55'-0" PILES TO BE USED FOR PILE Nos. 11, 12, 13, 14, 20, 25, 26, 27 & 30 ONLY)



3/8 DETAIL SHOWING CUT-OFF LEVEL OF PILES



TAK KU LING ROAD (60'0" WIDE)

PILING PLAN
(SCALE : 1/8" = 1'0")

RECEIVED BY 17 MAR 1972 BUILDINGS ORDINANCE OFFICE P. W. D.

Approved 28 MAR 1972

□ INDICATES 14"X14" R. C. C. PRECAST PILES (NOS. 1 TO 30.) (OMITTED PILE NO. 22 ADD PILE NO. 22 A)

AMENDED PLAN

P. 1/1

13 MAR 1972

R. C. C. PRECAST PILE AND PILING PLAN FOR PROPOSED BUILDING, ON N. K. I. L. 612, & 999, AT NOS. 26, & 28, TAK KU LING ROAD, KOWLOON.

SCALE: 1/8" = 1'0"

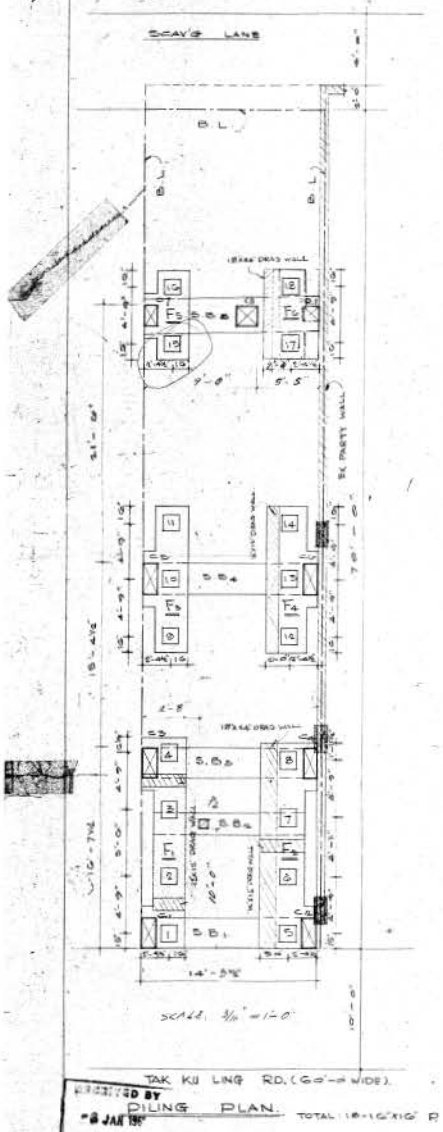
PRECAST CONCRETE PILING BY: WAH YIP & CO., LTD. TEL: H-228426.

GUY W.K. CHAN Authorized Architect. AUTHORIZED ARCHITECT

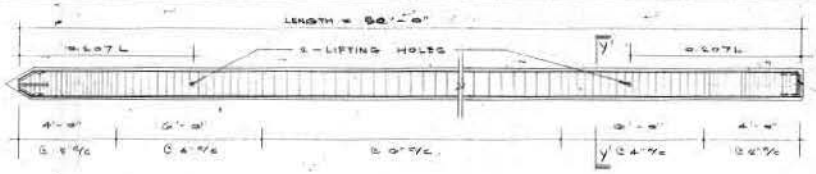
TAK KU LING ROAD

B.D. 3/4453/62

BUILDING ORDINANCE OFFICE

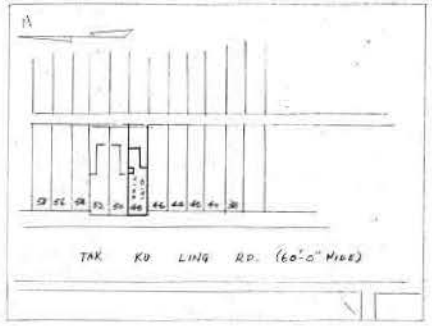


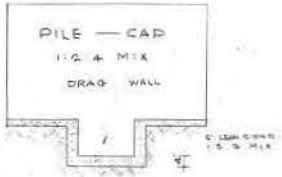
PILING PLAN TOTAL 18-16"X16" P



DETAIL OF 16"X16" R.C.C. PRECAST PILE

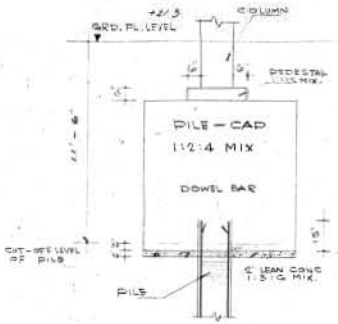




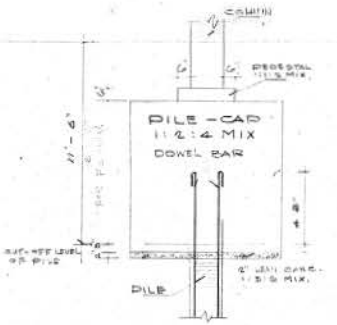


DETAIL SHOWING TYPICAL PILE CAP & DRAG WALL

BLOCK PLAN SCALE: 3/16" = 1'-0"



DETAIL SHOWING CUT-OFF LEVEL OF PILE
(FOR F1 & F6 ONLY)



DETAIL SHOWING CUT-OFF LEVEL OF TENSILE PILE
(FOR F1, F2 & F6 ONLY)

MIN. LENGTH OF TENSILE PILES

F1 L = 25'-0"
F2 L = 20'-0"
F6 L = 22'-6"

LOADING SCHEDULE.

COL MK	COL SIZE	D.L.	T.L.	WIND LOAD	WIND SHEAR	NOS. OF PILES	WT. OF CAP	MK. OF FT.	WORKING LOAD D+CAP	D+L+CAP	D+LW+CAP	D+W+CAP
C1	18"x26"	73.4	95.5	-10.0	2.5	6.92						
C3	18"x26"	89.6	117.6	+2.07	2.5.0	6.92	4	14'8"	F1	98.3	65.1	105.6	-11.67
F5	9"x9"	2.06	3.75										
C2	18"x26"	78	101	-4.68	-12.55	9.5	6.9						
C4	18"x26"	81.5	110.2	+0.61	9.5	6.9	4	17	F4	44.1	59.7	105.3	-9.52
C5	15"x31"	131	167.8	+3.4	+4.95	23.75	7.67	5	11	F3	59.2	59.7	93.0	12.05
C6	15"x31"	121	168.0	-7.84	+11.04	23.75	7.60	5	11	F4	42.1	51.1	84.2	6.77
C7	14"x20"	61	68.0	-7.12	+9.04	16.45	1.93	2	7	F5	51.2	51.75	100.69	7.9
C8	19"x18"	62.5	71.5	+10.8	+11.4	23.2	1.81							
P1	16"x14"	25.1	29.0	+5.05	+12.55	13.42	0.81	2	11	F6	31	38.19	84.2	-14.75

NOTE:
1. ALL PILES TO BE R.C. PRECAST PILE.
2. SIZE OF AGG.: 3/4"
3. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
4. ALL PILE TO BE LIFTED AT TWO LIFTING HOLES. (SHOWN IN DETAILS)
5. CONCRETE MIX TO BE 1:1:2 R.A.
6. USE STEEL PILES DRIVING TRUSS.
7. USE STEEL HELMET & STEEL FOLLOWER. (WT. = 0.5 TON L = 10'-0")
8. USE PLASTIC DOLLY.
9. CUT-OFF LEVEL OF PILE TO BE 11'-6" BELOW GRD. FL. LEVEL.
10. ALL PILE TO BE FOLLOWED DOWN ABOUT 10'-0" BELOW GRD FL LEVEL FOR F1, F2 & F6 ONLY.
11. ALL PEDESTAL TO BE 1:1:2 MIXTURE.
12. ALL PILE-CAP TO BE 1:2:4 MIXTURE.
13. MIN. COVER TO MAIN REINFORCEMENT:—
    5" COVER FOR STRAP BEAM & BELOW GRD. FL. LEVEL.
    3" COVER FOR FOOTING.
14. HEIGHT OF BUILDING = 56'-10"
15. DRIVING DATA:

PILE SECTION	PILE LENGTH	HAMMER WEIGHT	HAMMER FALL	LAST PENETRATION WITH FOLLOWER	LAST PENETRATION WITHOUT FOLLOWER
16"x16"		-			
16"x16"					
16"x16"	50'-0"	6T	54"		3 BLOWS
16"x16"	50'-0"	6T	54	4 BLOWS	

16. ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-0" FOR F1, F2, F6 ONLY.

APPROVED
PRO BUILDING AUTH. OFFICE
21 JAN 1963

5-Jan-1963

PILING PLAN | PROPOSED TENEMENT BUILDING ON N.K.I.L. 1216 AT NO. 48 TAK KU LING RD., KOWLOON. | KEE LEE PILING SERVICE CO. TEL. 847867

TAK KU LING ROAD

BUILDING ORDINANCE OFFICE
B.O.C. REF. NO. B/6565/65
REF. NO.

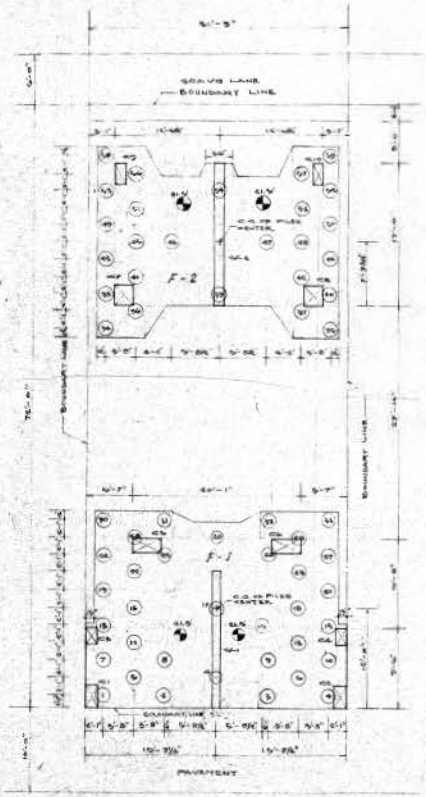
NOTES:

1. EXPECTED DEPTH OF PILES ACCORDING TO STANDARD PENETRATION TEST ASSUMED TO BE AT 60' OR 17'.
2. SPECIAL REFERENCE TIMBER OF PILES (-67) INDICATES PILES DRIVEN WITH 16" DIAM. STEEL TUBE AND 12" ϕ INNER (ALSO STEEL) WEIGHT OF OUTER & INNER & SHOE = 7.49T THICKNESS OF OUTER TUBE ARE TO BE ½", THICKNESS OF INNER TUBE ARE TO BE ⅜", AND MAX. PERMISSIBLE BEARING CAPACITY OF PILE ARE TO BE 67 TONS.
3. MAX. PENETRATION OF TUBE PER LAST 5 BLOWS PER 1".
4. CONCRETE MIXTURE TO BE 1:1:2:4 & SIZE OF AGGREGATE TO BE 1 IN. MAX.
5. BEARING CAPACITY OF PILES (BY HILY FORMULA):

$R_u = \frac{W \cdot H \cdot E}{S + \frac{C}{2}}$; $C = \frac{2W}{W+P}$

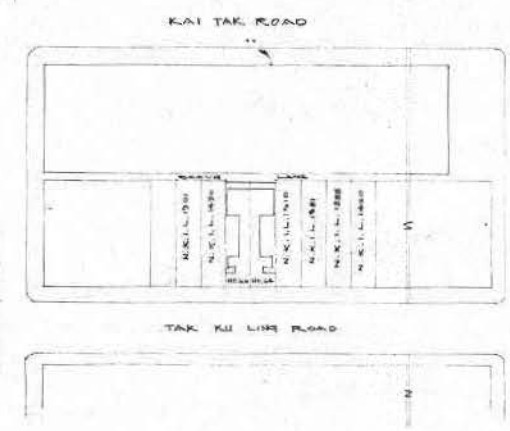
W ..... WEIGHT OF HAMMER = 4 TONS.
P ..... WEIGHT OF OUTER TUBE, INNER TUBE, CAP & SHOE OF PILE = 7.49T
C ..... COEFFICIENT OF COMPRESSION = 0.586
R ..... COEFFICIENT OF RESTITUTION = 0.36
E ..... EFFICIENCY OF HAMMER BLOW = 0.85
R_u ..... BEARING CAPACITY OF PILE = ?
H ..... DROP OF HAMMER = 2'-6"
S ..... LAST PENETRATION PER ONE BLOW = 0.015

6. GROUND FLOOR LEVEL ARE TO BE 41.5
7. ASSUMED PILING LEVEL = +25 (FOR F-1) ; +20 (FOR F-2)
8. TOP OF PILE-CAP LEVEL = B.C. + 11.50 FOR F-1 ; B.C. + 12.00 FOR F-2
9. WEIGHT OF HAMMER = 4 TONS
10. DROP OF HAMMER = 2'-6"
11. HEIGHT OF BUILDING = 116'-0"
12. 4-¾"ϕ DOWEL BARS 2'-0" LONG TO BE PROVIDED IN EACH PILE.
13. LENGTH OF PILING TUBE = 74'-0"
14. THE DETAIL OF PILE-CAP WILL BE SUBMITTED LATER.

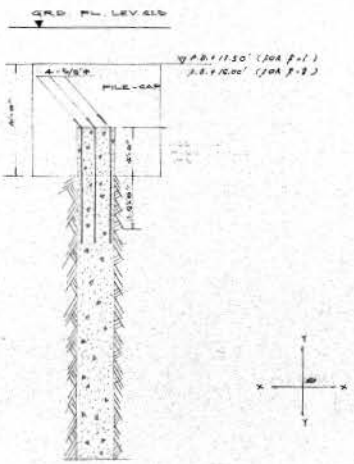


PILING PLAN
(SCALE 1/8"=1'-0")

AMENDED PLAN



BLOCK PLAN
(SCALE 50'-0"=1")



TYPICAL DETAIL SHOWING DOWEL BAR

SCHEDULE

PILE MARK	PILE SIZE (IN.)	COLUMN LOAD (TONS) D.L.	L.L.	D+L	ABOUT X-X M+ve	ABOUT X-X M-ve	ABOUT X-X W.L	ABOUT Y-Y W.L	ABOUT X-X W.S	ABOUT Y-Y W.S	MAP PILE CAP (INS.)	PILE LOAD (TONS) D.L.	P.L.	D+L+P.L.	F.S.	NOS OF PILES
P1	16"x¾"	86.4	19.6	106.0			0	1645	0	10.4						
P2	16"x¾"	84.0	18.4	101.4			0	1644.5	0	10.4						
P3	16"x¾"	84.5	19.0	103.5			0	1645.5	0	9.7						
P4	16"x¾"	84.5	19.0	103.5			0	1645.5	0	9.7	MAP3	62.9	40.975	71.65	15.65	63
W1	16"x¾"	344.0	93.0	437.0			1650"	5990"	79.9	∞	69.0	16.4				
P5	16"x¾"	241.0	47.0	288.0			0	3193.5	0	81.9						
P6	16"x¾"	241.0	44.0	285.0			0	3193.5	0	84.5						
P7	16"x¾"	140.0	38.0	178.0			0	2193.0	0	81.9						
P8	16"x¾"	139.0	35.0	174.0			0	2195.0	0	81.9						
P9	16"x¾"	78.5	19.0	97.4			0	2445	0	9.7	154.0	40.43	54.08	0.0124	61.87	2.00
P10	16"x¾"	78.0	29.6	107.6			0	2445	0	9.7						
W-2	16"x¾"	496.0	162.0	658.0			1650"	6340"	68.6'	∞	47.0	16.9				

RECEIVED BY
13 MAR 1967
BUILDING ORDINANCE OFFICE

Approved
PRO BUILDING AUTHORITY
30 MAR 1967

KEELEE PILING SERVICE CO. TEL.: 847867, 848813	PILING PLAN ON N.K.I.L. 1510 & 1581 AT 64–66 TAK KU LING ROAD. KOWLOON.	SCALE: AS SHOWN

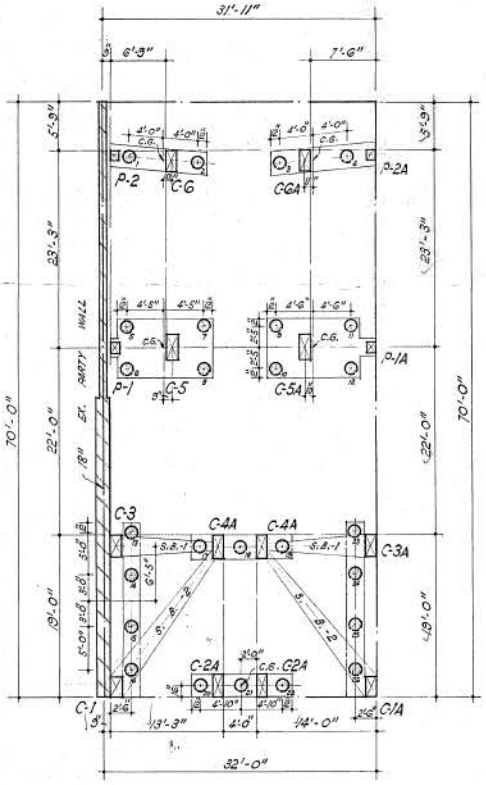
TAK KU LING ROAD

B. O. O. REF. No. ~~2/44 26/64~~

PRESSURE PILING DETAILS			
Tube diameter	18¼"	Pile Nos.	26
Authorised load	89T	Design load	89·0T
Spacing	4'-10"	Depth of bore	85'~96'
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4
Soil Data DECOMPOSED GRANITE			

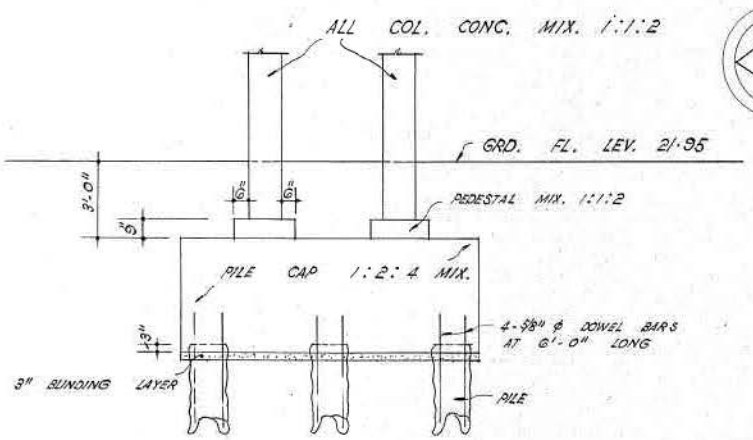
NOTE : -

1. THE HEIGHT OF BUILDING = 76'-1".
2. DETAILS SHOWING THE RELATION BETWEEN THE NEW FOUNDATION & OLD FOOTINGS WILL BE SUBMITTED LATER.



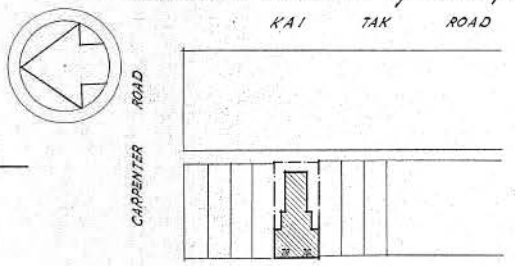
TAK KU LING ROAD

PILING PLAN



TYPICAL DETAIL OF PILE CAP SHOWING THE TOP LEV. OF PILE CAP

(SCALE : ⅜" = 1'-0")



BLOCK PLAN

(SCALE : 1" = 50'-0")

Approved
PRO BUILDING AUTHORITY
12 JUL 1966

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	ALONG X-X ⟷ W. L.(T.)	W. S.(K.)	ALONG Y-Y ↕ W. L.(T.)	W. S.(K.)	WEIGHT OF PILE CAP	NO. OF PILE 18/12" ϕ	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	D.-W.	DEPTH OF PILE CAP
C-1	15"X28"	93·0	19·0	112·0	±25·0	9·9	±20·0	8·1	20	4	555	775	167	942	388	4'~0"
C-3	15"X30"	109·0	25·0	134·0	±31·7	13·5	±17·9	9·9								
C-2A	14"X32"	85·0	22·0	107·0	±14·7	9·1	±29·0	11·6	10	3	600	746	184	98	402	4'~0"
C-1A	15"X28"	93·0	19·0	112·0	±25·0	9·9	±20·0	8·1	20	4	555	775	167	942	388	4'~0"
C-3A	15"X30"	109·0	25·0	134·0	±31·7	13·5	±17·9	9·9								
C-4A	14"X32"	113·0	27·0	140·0	±17·4	11·8	±28·1	11·6	10	3	626	806	154	96	472	4'~0"
C-4A	14"X32"	113·0	27·0	140·0	±17·4	11·8	±28·1	11·6								
C-5	16"X36"	226·0	73·0	299·0	±20·5	25·3	±13·0	23·5	15	4	675	88	22	110	455	3'~6"
P-1	√12"X16"	29·4	8·6	38·0	±30·0	4·8	±1·8	1·3								
C-5A	16"X36"	226·0	73·0	299·0	±20·5	25·3	±13·0	23·5	15	4	675	88	22	110	455	3'~6"
P-1A	√12"X16"	29·4	8·6	38·0	±30·0	4·8	±1·8	1·3								
C-6	15"X28"	99·5	29·5	129·0	±4·5	12·4	±22·4	10·4	9	2	614	782	257	1039	357	4'~0"
P-2	12"X14"	14·3	4·0	18·3	±19·2	3·2	±0·4	0·9								
C-6A	15"X28"	99·5	29·5	129·0	±4·5	12·4	±22·4	10·4	9	2	614	782	257	1039	357	4'~0"
P-2A	12"X14"	14·3	4·0	18·3	±19·2	3·2	±0·4	0·9								

RECEIVED 8TH
19 JUN 1966
BUILDINGS DIVISION
P.W.D.

D

PRESSURE PILING CO.		
DRAWN	DATE 7-6-66	YEAR 66
SCALE ⅜"=1'-0"	T. No. 749	
CHECKED	C. No. 729	FILE No. 1

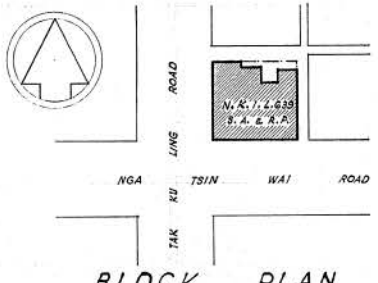
PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1781 & 1842 AT NOS. 76 ~ 78 TAK KU LING ROAD

OTHER

OTHER

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	X-X DIRECTION N (m.)	S (KIP)	Y-Y DIRECTION N (m.)	S (KIP)	WEIGHT OF PILE	WEIGHT OF CAP	NO. OF PILE @12½"ϕ	NO. OF PILE @18½"ϕ	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	D.-W.	DEPTH OF PILE	DEPTH OF CAP
C-1	25"X30"	111·8	25·0	136·8	22·3	7·5	19·3	7·2	6			2	66·5	80·5	12·7	93·2	53·8		4'-0"
C-2	28"X36"	215·7	49·3	265·0	11·2	14·2	34·4	17·2	22			4	64·5	78·5	9·35	87·85	55·15		4'-0"
C-3	28"X36"	205·7	45·3	251·0	0	14·2	38·7	17·2	12			3	72·4	87·6	12·9	100·5	53·5		5'-6"
C-4	28"X36"	219·3	49·3	269·0	11·2	14·2	34·1	17·2	22			4	65·0	78·5	9·35	87·85	55·65		4'-0"
C-5	25"X30"	111·5	25·0	136·5	22·3	7·5	22·8	7·2	6			2	66·5	80·5	13·0	93·5	53·5		4'-0"
C-6	28"X30"	104·5	20·5	125·0	21·5	8·9	4·6	8·5	4		2		54·25	64·5	10·75	75·25	43·5		4'-0"
C-7	30"X32"	215·4	22·6	238·0	7·8	13·6	6·75	10·7	8			3	74·8	82·0	2·6	84·6	71·7		4'-0"
C-8	24"X28"	121·6	26·9	148·5	0	6·5	38·7	6·8	4			2	62·8	76·2	19·35	95·55	43·45		3'-6"
C-9	30"X32"	190·7	43·3	234·0	7·8	13·6	3·2	10·7	8			3	66·2	80·6	2·6	83·2	63·6		4'-0"
C-10	26"X30"	104·5	20·5	125·0	21·5	8·9	4·83	8·5	4		2		54·25	64·5	10·75	75·25	43·5		4'-0"
C-11	28"X28"	79·1	16·9	96·0	0	6·5	68·0	3·2	14		4		52·2	62·0	24·5	86·5	27·7		4'-0"
C-14	28"X28"	116·6	21·4	138·0	0	6·5	68·0	3·2											
C-12	32"X24"	103·2	17·8	121·0	22·4	10·2	1·65	3·4	4		2		53·6	62·5	11·2	73·7	42·4		4'-0"
C-13	24"X36"	184·7	35·3	220·0	11·1	8·8	13·7	17·2	8			3	64·1	76·0	4·6	80·6	59·5		4'-0"
C-15	24"X36"	232·6	31·4	264·0	11·1	8·8	11·1	17·2	12		4		61·0	68·0	2·8	71·8	58·2		4'-0"
C-16	32"X24"	130·9	27·1	158·0	22·4	10·2	6·8	3·4	4			2	63·5	81·0	11·2	92·2	56·3		4'-0"
C-17	32"X24"	146·8	33·2	180·0	25·2	10·2	0·18	3·3	8		3		51·6	62·7	8·4	71·1	43·2		5'-6"
C-18	28"X32"	184·2	25·8	210·0	10·8	11·0	17·2	11·0	8			3	64·0	72·6	5·7	78·3	58·3		4'-0"
C-19	26"X30"	144·5	21·5	166·0	12·9	7·2	7·68	6·4	4			2	74·25	85·0	6·45	91·45	67·8		3'-6"
C-20	26"X30"	171·0	34·0	205·0	24·6	6·4	7·68	6·4	8		3		59·5	71·0	8·2	79·2	51·3		4'-0"
C-21	26"X30"	152·4	24·6	177·0	24·6	6·4	2·15	6·4	8		3		53·5	61·7	8·2	69·9	45·3		5'-6"
C-22	26"X32"	99·4	23·6	114·0	19·1	7·2	6·75	6·4	4		2		51·4	59·0	9·6	68·6	41·8		3'-6"
C-23	28"X32"	188·5	41·5	230·0	4·7	11·0	42·0	11·0	8			3	65·5	78·3	14·0	92·3	51·5		4'-0"
C-24	26"X32"	32·7	30·3	123·0	11·6	7·2	5·65	6·4	4		2		48·2	63·5	5·8	69·3	42·4		4'-0"
C-25	34"X26"	128·6	18·9	147·5	24·3	14·0	20·0	5·0	6			2	67·3	76·75	12·45	89·2	58·85		4'-0"
C-26	24"X40"	127·5	17·6	145·5	8·86	6·2	66·0	14·2	10			2	68·8	77·5	33·0	110·5	35·5		3'-6"
C-27	30"X48"	75·6	8·4	84·0	16·1	10·5	22·3	5·1	6		2		40·3	44·5	11·15	55·65	28·35		3'-6"
C-28	27"X43"	91·2	11·8	103·0	48·6	13·6	11·6	4·4	4		2		47·6	53·5	24·3	77·8	23·3		3'-6"
C-29	27"X43"	92·0	11·5	103·5	48·6	13·6	14·3	4·4	4		2		48·0	53·75	24·3	78·05	23·7		3'-6"

B. O. O. REF. NO. 3/4235/62



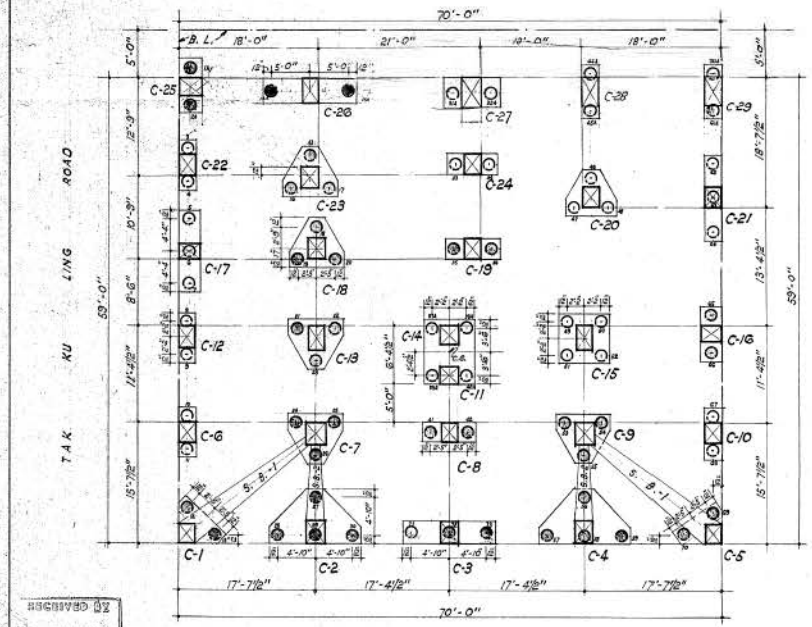
BLOCK PLAN
(SCALE : 1" = 50'-0")

PRESSURE PILING DETAILS

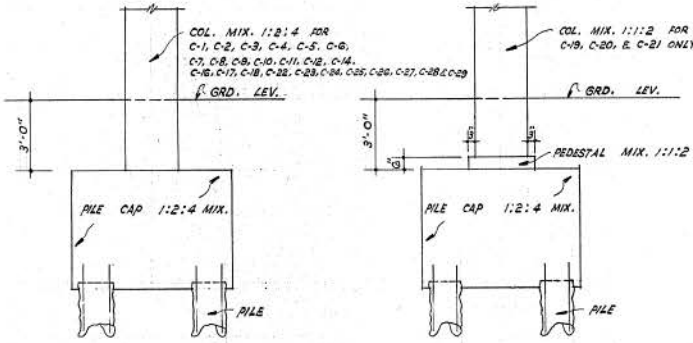
Outside diameter of tube and symbol	12½" ⊗	16½" ○	18½" ●
Estimated number of Pressure Piles required	—	33	40
Maximum authorised D + L load and Minimum spacing	62.0 | 3'-6"	71.0 | 4'-4"	89.0 | 4'-10"
Maximum Design load	—	71.0	87.6

Approximate depth of bore will be 80' to 95' and the pile will be founded in ordinary rock with an ultimate crushing strength of not less than 1,000 tons per sq. ft.
Concrete Mix. for pile & pile caps is 1:2:4 with 1" maximum size of aggregate.
Piles are designed to carry their load in bearing & in friction.
All dimensions, column sizes & loadings, are extracted from drawing No. dated. prepared by the Architect. STEVEN S. L. YUE

NOTE :
THE HEIGHT OF BUILDING = 90'-0"



NGA TSIN WAI ROAD
PILING PLAN



TYPICAL OF PILE CAP
SHOWING TOP LEV. OF PILE CAP
(SCALE : ⅜" = 1'-0")

Approved
16 JUL 1963

RECEIVED
14 JUN 1963

14 JUN 1963

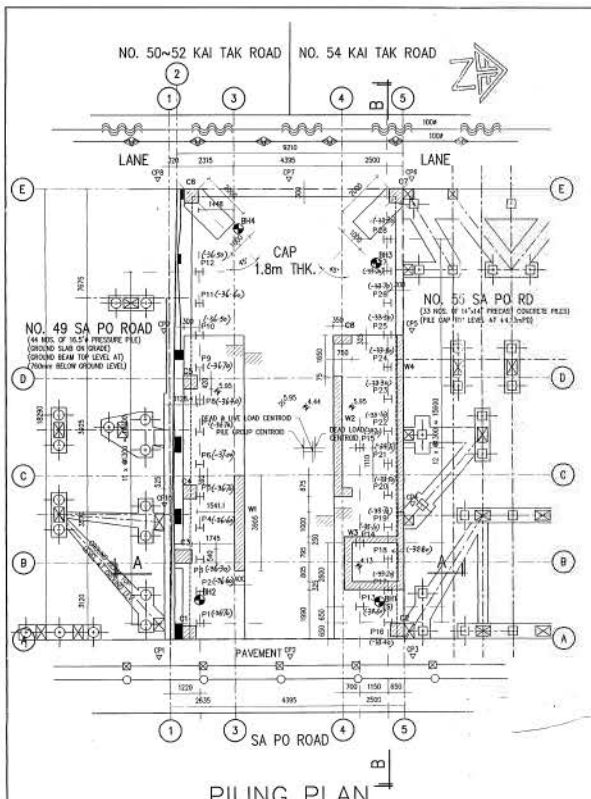
A	CHANGE DIMENSION S. PILE POSITION FOR COL. C-11 & C-14 ONLY	22-5-63
B.	CHANGE PILE POSITION FOR COL. C-25, C-26, C-27, C-28 & C-29	6-6-63

PRESSURE PILING CO.
DESIGN DATE 17-4-63 YEAR 63
DRAWN
CHECKED
SCALE 1"=1'-0" T. NO. 414
SHEET NO. 413 DWG. NO. 18

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 639 S. A. & R. P. AT NGA TSIN WAI ROAD

OTHER

3/4029/96

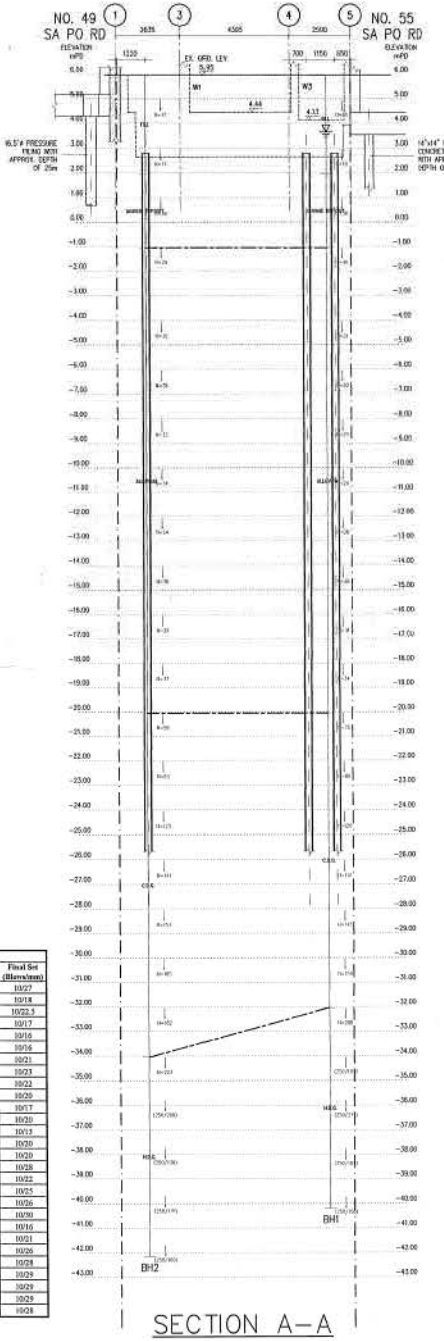


PILING PLAN

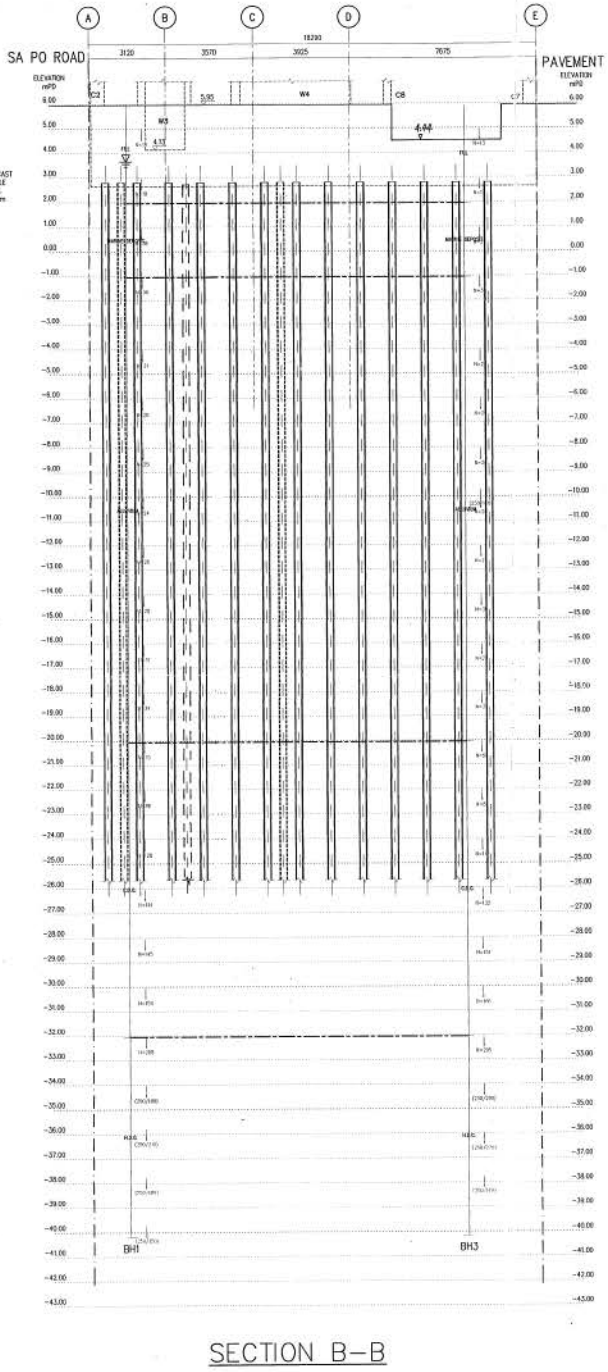
(TOTAL NO. OF PILES = 28)

LEGEND:

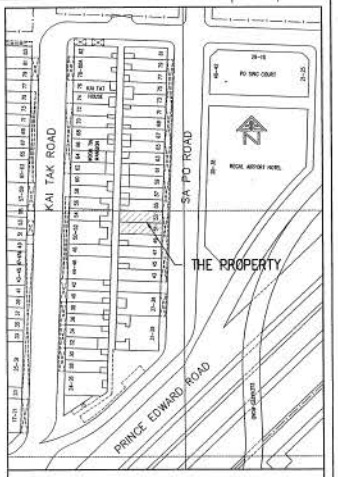
- BH1 (S) — BOREHOLE (WITH STANDPIPE)
- 5.95 — FUTURE GROUND LEVEL (mPD)
- 4.44 P28 — PILE CAP TOP LEVEL (mPD)
- 305x305x180kg/m UBP GRADE 55c
- CP10 — CHECK POINT (CP1~CP10) (CHECK POINT ON BUILDING: CP4, CP5, CP9 & CP10)
- (-36.7m) — As-Built Toe Level of H-pile (m.p.d.)
- ○ — CLP CABLE
- ⊠ — TELECOM CABLE
- — FRESH WATER MAINS
- — SALT WATER MAINS



SECTION A–A



SECTION B–B



BLOCK PLAN 1 : 1000

As-built Pile Record Summary

Pile No.	Pile Type Grade 55C	Date of Final Set	Ex. Grd. Level (mpd)	Cut-off Level (mpd)	Pitched Length (m)	Driven Length (m)	As-built Toe Level (mpd)	Net Pile Length (m)	Hammer Type	C2+C3 (mm)	Final Set (Blows/mm)
P1	305 x 305 x 180 kg/m	26-Mar-98	+5.80	+2.715	44	42.50	-36.700	39.415	10 Ton Drop Hammer	30	10/27
P2	305 x 305 x 180 kg/m	26-Mar-98	+5.80	+2.715	44	42.40	-36.600	39.315	10 Ton Drop Hammer	30	10/18
P3	305 x 305 x 180 kg/m	11-Mar-98	+5.80	+2.715	44	42.10	-36.300	39.015	10 Ton Drop Hammer	34.5	10/22.5
P4	305 x 305 x 180 kg/m	26-Mar-98	+5.80	+2.715	44	42.40	-36.600	39.315	10 Ton Drop Hammer	31	10/17
P5	305 x 305 x 180 kg/m	26-Mar-98	+5.80	+2.715	44	42.50	-36.700	39.415	10 Ton Drop Hammer	33	10/16
P6	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.80	-37.000	39.715	10 Ton Drop Hammer	32	10/16
P7	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.50	-36.700	39.415	10 Ton Drop Hammer	32	10/21
P8	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.20	-36.400	39.115	10 Ton Drop Hammer	32	10/23
P9	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.50	-36.700	39.415	10 Ton Drop Hammer	32	10/22
P10	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.30	-36.500	39.215	10 Ton Drop Hammer	32	10/20
P11	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.40	-36.600	39.315	10 Ton Drop Hammer	32	10/17
P12	305 x 305 x 180 kg/m	23-Mar-98	+5.80	+2.715	44	42.30	-36.500	39.215	10 Ton Drop Hammer	31	10/20
P13	305 x 305 x 180 kg/m	31-Mar-98	+5.80	+2.715	42	40.40	-34.600	37.315	10 Ton Drop Hammer	32	10/13
P14	305 x 305 x 180 kg/m	31-Mar-98	+5.80	+2.715	42	40.90	-35.100	37.815	10 Ton Drop Hammer	32	10/20
P15	305 x 305 x 180 kg/m	31-Mar-98	+5.80	+2.715	42	40.50	-34.700	37.415	10 Ton Drop Hammer	32	10/20
P16	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	39.20	-33.400	36.115	10 Ton Drop Hammer	31	10/28
P17	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	39.00	-33.200	35.915	10 Ton Drop Hammer	33	10/22
P18	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	38.60	-32.800	35.515	10 Ton Drop Hammer	34	10/25
P19	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	39.50	-33.700	36.415	10 Ton Drop Hammer	35	10/26
P20	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	39.30	-33.500	36.215	10 Ton Drop Hammer	33	10/30
P21	305 x 305 x 180 kg/m	21-Mar-98	+5.80	+2.715	42	40.30	-34.700	37.415	10 Ton Drop Hammer	36	10/16
P22	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	38.90	-33.100	35.815	10 Ton Drop Hammer	33	10/21
P23	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.10	-33.300	36.015	10 Ton Drop Hammer	33	10/26
P24	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.60	-33.800	36.515	10 Ton Drop Hammer	31	10/28
P25	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.30	-33.500	36.215	10 Ton Drop Hammer	32	10/29
P26	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.50	-33.700	36.415	10 Ton Drop Hammer	33	10/29
P27	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.00	-33.200	35.915	10 Ton Drop Hammer	32	10/29
P28	305 x 305 x 180 kg/m	20-Mar-98	+5.80	+2.715	42	39.10	-33.300	36.015	10 Ton Drop Hammer	34	10/28

AN HSIN CONSTRUCTION CO. LTD.

29/03/98	C	BD APPROVAL (AMENDMENT)
28/01/98	B	COLUMN LAYOUT REVISED
11/01/98	A	PILING TYPE & LAYOUT REVISED
25/11/97		BD APPROVAL
No.	REVISION	BY

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B.D. 3/4029/96

DANIEL MAK KIN-CHI
Registered Structural Engineer

LEE MARK & ASSOCIATES
Architects & Surveyors Ltd
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Tel: 2827 8222 Fax: 2827 8773

PROJECT
PROPOSED COMPOSITE BUILDING
AT No.51 & 53
SA PO ROAD,
KOWLOON CITY,
KOWLOON

TITLE
AS-BUILT H-PILE RECORD PLAN

(PILING PLAN AND SECTIONS)

JOB NO.	DRG. NO.	REV. NO.
6125	A&P - 1/2	

SCALE	DATE
1 : 100	08/04/98

KA Consultants Limited

TEL NO. 2591 0333
FAX NO. 2591 0317

C:\My Documents\Job\9703\2nd SUBMISSION\Drawings\F1E Sat Apr 04 00:25:59 1998

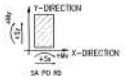
OTHER

LOADING SCHEDULE

COLUMN/ WALL MARK	COLUMN/ WALL SIZE B x D (m)	DEAD LOAD (kN)	DEAD & LIVE LOAD (kN)	DEAD LOAD MOMENT ALONG X (kNm)	DEAD LOAD MOMENT ALONG Y (kNm)	DEAD & LIVE LOAD MOMNT ALONG X (kNm)	DEAD & LIVE LOAD MOMNT ALONG Y (kNm)	AXIAL LOAD (kN)	WIND ALONG X-X ALONG X-X SHEAR (kN)	WIND ALONG X-X ALONG X-X MOMENT (kNm)	WIND ALONG X-X ALONG Y-Y SHEAR (kN)	WIND ALONG X-X ALONG Y-Y MOMENT (kNm)	WIND ALONG X-X TORSION (kNm)	AXIAL LOAD (kN)	WIND ALONG Y-Y ALONG X-X SHEAR (kN)	WIND ALONG Y-Y ALONG X-X MOMENT (kNm)	WIND ALONG Y-Y ALONG Y-Y SHEAR (kN)	WIND ALONG Y-Y ALONG Y-Y MOMENT (kNm)	WIND ALONG Y-Y TORSION (kNm)
C1	0.550 x 0.550	645	1550	0	0	0	0	-468	170	70	70	25	-1	-2580	30	-10	35	20	-1
C2	0.550 x 0.550	645	1550	0	0	0	0	565	25	65	-140	-20	-1	-2700	-25	-10	55	15	-1
C3	0.700 x 0.550	845	1950	0	0	0	0	-738	230	68	110	30	-1	-415	20	-5	55	20	-1
C4	0.550 x 0.550	275	730	0	0	0	0	-858	225	98	75	25	-1	200	-5	-5	55	20	-1
C5	0.550 x 0.550	1010	1750	0	0	0	0	-559	125	105	55	25	-1	1680	-5	5	55	20	-1
C6	0.550 x 0.550	480	945	0	0	0	0	-68	120	130	25	23	-1	280	20	10	20	20	-1
C7	0.550 x 0.550	480	945	0	0	0	0	40	140	130	-20	-10	-1	280	10	10	15	15	-1
C8	0.750 x 0.325	2520	3410	0	0	0	0	-1200	85	488	45	5	-1	700	-30	25	30	15	-1
W1	0.400 x 2.905	4100	5570	0	-466	0	-620	-5975	360	0	290	1450	0	-595	30	0	240	3210	0
M2	AS SHOWN	8100	11430	-310	-3100	-410	-3990	-3450	165	105	-50	-1265	70	1935	-20	-60	300	3440	-20
M3	AS SHOWN	5800	7500	-2100	5900	-2700	6400	6340	1125	26705	-160	1840	40	-5120	-15	-1700	245	2710	-20
W4	0.250 x 7.175	2990	3890	0	4105	0	4100	9630	155	0	-300	-3475	0	3195	-15	0	245	4835	0

NOTES:

1. WIND LOADS ARE CONSIDERED TO BE REVERSIBLE.
2. COMPRESSION IS SHOWN POSITIVE AND TENSION SHOWN NEGATIVE.
3. OWN WT. OF STRAP BEAMS, CAPS & WEIGHT OF UNDERGROUND WATER TANK ARE EXCLUDED FROM THE LOADING SCHEDULE.
4. ALL FORCES ARE REFERRED TO TOP OF PILE CAP.
5. LIVE LOAD ON CAP TO BE 10kPa.
6. HEIGHT OF BUILDING SHALL BE 77.85 METRES.
7. NOTATION OF FORCES

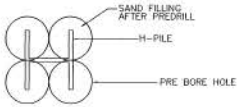


SA PO RD

METHOD FOR OVERCOMING UNDERGROUND OBSTRUCTIONS

BY PRE-DRILLING WITH PNEUMATIC DRILLS

WHEN UNDERGROUND OBSTRUCTION IS ENCOUNTERED, IT WILL BE DRILLED THROUGH PRIOR TO DRIVING AS INDICATED ON THE FOLLOWING DETAILS.



TYPICAL DETAIL FOR PREBORE HOLE THROUGH THE BOULDER

PILE SCHEDULE

(UPTHRUST LOAD PER PILE = 82.63kN)

(+ DENOTES TENSION PILE)

PILE MARK	DEAD LOAD (D) (kN)	DEAD & LIVE LOAD (DL) (kN)	WIND X-X (Wx) (kN)	WIND Y-Y (Wy) (kN)	MAX WIND LOAD (W) (kN)	MAX DEAD & LIVE & WIND (DLW) (kN)	DEAD + WIND - 1.5 WIND (D+1.5W) (kN)	DEAD + WIND - 1.1D (D-W-1.1D) (kN)
P1	1175	1751	-1243	-618	1243	2994	-690	-159
P2	1182	1740	-1248	-504	1248	2988	-670	-149
P3	1188	1730	-1238	-390	1238	2968	-669	-141
P4	1194	1719	-1235	-277	1235	2954	-659	-132
P5	1201	1709	-1233	-163	1233	2942	-649	-123
P6	1207	1699	-1230	-49	1230	2929	-638	-114
P7	1213	1688	-1228	65	1228	2916	-629	-106
P8	1219	1678	-1225	179	1225	2903	-619	-97
P9	1226	1668	-1223	292	1223	2891	-609	-88
P10	1232	1657	-1221	406	1221	2878	-599	-80
P11	1238	1647	-1218	520	1218	2865	-589	-71
P12	1245	1636	-1216	634	1216	2852	-579	-62
P13	1476	2071	640	-564	648	2711	516	745
P14	1489	2050	645	-336	645	2695	522	753
P15	1508	2019	652	5	652	2671	530	765
P16	1526	2134	971	-621	971	3105	70	464
P17	1532	2123	973	-507	973	3096	73	468
P18	1538	2113	976	-394	976	3089	74	471
P19	1545	2102	978	-280	978	3088	78	476
P20	1551	2092	981	-166	981	3073	80	479
P21	1557	2082	983	-52	983	3065	83	483
P22	1564	2071	986	62	986	3057	85	487
P23	1570	2061	988	175	988	3049	88	491
P24	1576	2050	991	289	991	3041	90	494
P25	1582	2040	993	403	993	3033	93	498
P26	1589	2030	995	517	995	3025	97	503
P27	1595	2019	998	630	998	3017	98	506
P28	1601	2009	1000	744	1000	3009	101	510

NOTE: WEIGHT OF BACKFILL ABOVE CAP & SUPERIMPOSED LOAD AT G/F WERE INCLUDED IN THE PILE SCHEDULE

PILE MEMBER SPECIFICATIONS :

DESIGNATION	DIMENSIONS/SIZES					CROSS-SECTIONAL DATA					
SECTION	DEPTH h mm	FLANGE WIDTH b mm	WEB THICK a mm	FLANGE THICK e mm	FILLET RADIUS r mm	SECT. AREA F cm²	WEIGHT G kg/m	Ix cm	Wx cm³	Iy cm	Wy cm³
HP305x305x180	339.7	319.7	24.8	24.8	15.2	229.3	180.0	40973	2508	13546	847



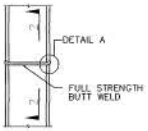
PILING NOTES

1. STEEL H PILES SHALL BE OF 305x305x180kg/m SECTION OF GRADE 55c TO B.S. 4360.
2. MINIMUM PILE SPACING TO BE 1,300 mm (MIN.) FOR 305x305x180kg/m GRADE 55c
3. DESIGN WORKING LOAD OF PILE = 2,950 kN. (WITHOUT WIND)
   = 3,688 kN. (WITH WIND)
4. NET PILE CAPACITY = MAX. WORKING LOAD X k
   WHERE k = 0.85 FOR NO. OF PILE > 4
   AND PILE CAPACITY = 2,508 kN (W/O WIND CASE) & 3,135 kN (WITH WIND CASE)
5. PILING RECORDS SHALL BE KEPT TO COMPLY WITH REQUIREMENTS OF THE BUILDING AUTHORITY.
6. ALL LATERAL LOAD SHALL BE RESISTED BY STEEL H-PILES.
7. MINIMUM PILE LENGTH FOR PILE P1~P12 SHALL BE 39.0 METRES.

ESTIMATE DEPTH OF PILE LENGTH

BORE HOLE	EXPECTED DEPTH OF PILE	TENTATIVE BOTTOM LEVEL OF PILE
BH1	36.50m	-32.05mPD
BH2	40.00m	-34.05mPD
BH3	38.00m	-32.05mPD
BH4	37.00m	-31.05mPD

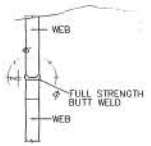
PILE CUT OFF LEVEL AT +2.715mPD



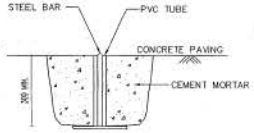
ELEVATION



DETAIL A



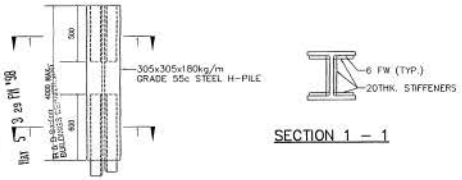
SECTION 2 – 2



SETTLEMENT CHECK POINT ON PAVEMENT
(N.T.S.)

TYPICAL SPLICE DETAILS

(N.T.S.)



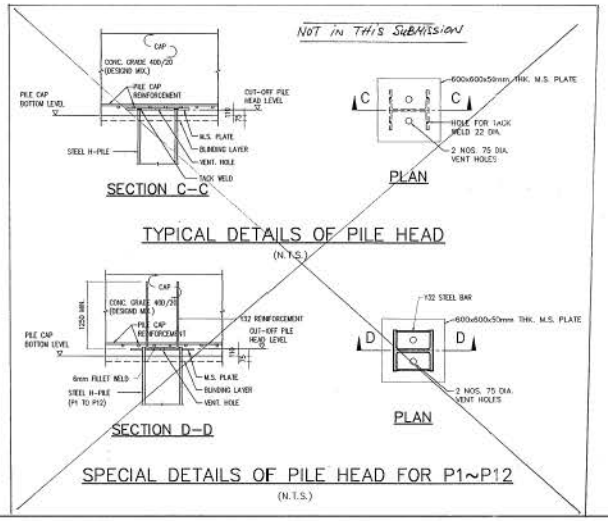
PLAN

SECTION 1 – 1

TYPICAL DETAILS OF FOLLOWER

(N.T.S.)

NOT IN THIS SUBMISSION



GENERAL NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL LEVELS IN METRES WITH REFERENCE TO PRINCIPAL DATUM OF HONG KONG.
3. ALL WELDING SHALL COMPLY WITH BS 5135 QUALITY CATEGORY A AND ELECTRODE SHALL COMPLY WITH BS 639 AS APPROPRIATE. THE CONNECTIONS SHALL BE FREE FROM FLAW, CRACK AND OTHER IMPERFECTIONS.
4. ALL SPLICING SHALL BE CONTINUOUS FULL-PENETRATION BUTT WELDS UNLESS OTHERWISE SPECIFIED.
5. ALL TEMPORARY PLATE FOR ALIGNMENT OF SPLICES SHALL BE REMOVED PRIOR TO FURTHER DRIVING OF PILES.
6. WELDING SHALL BE TESTED IN ACCORDANCE WITH BS 4870:PART 1 BY WELDERS CERTIFIED IN ACCORDANCE WITH BS 4871:PART 1.
7. CHECK POINTS ARE TO BE INSTALLED PRIOR TO COMMENCEMENT OF PILING WORKS.
8. CHECK POINT READINGS ARE TO BE TAKEN AT LEAST ONCE DAILY DURING PILING CONSTRUCTION AND COPIES SHALL BE FORWARDED TO THE R.S.E. AND THE BUILDING AUTHORITY BIWEEKLY.
9. INITIAL READINGS OF CHECK POINTS SHALL BE SUBMITTED TO THE R.S.E. AND THE BUILDING AUTHORITY BEFORE COMMENCEMENT OF PILING WORKS.
10. DRIVING OF PILES SHALL BE SUSPENDED IF ADVERSE VERTICAL SETTLEMENTS, EXCESSIVE VIBRATION AND/OR LATERAL MOVEMENTS ARE OBSERVED IN THE CHECK POINT READINGS AND THE A.P./R.S.E./BUILDING AUTHORITY BE INFORMED ACCORDINGLY.
11. PILES SHALL BE DRIVEN FROM THE EXISTING GROUND LEVELS.
12. ESTIMATED PILE LENGTHS GIVEN IN THE PILING SCHEDULE ARE MEASURED FROM EXISTING GROUND LEVELS OF EACH BORE HOLE.
13. ESTIMATED PILE LENGTHS GIVEN ARE TENTATIVE. ACTUAL PILE LENGTH FOR INDIVIDUAL PILES SHALL BE VERIFIED ON SITE.
14. DETAILS OF PILE CAP AND STRAP BEAMS SHALL REFER TO SEPARATE SUBMISSION.
15. DURING THE DRIVING OF STEEL H-PILES, VIBRATION CHECKING AT ADJACENT GROUND AND STRUCTURES SHOULD BE CARRIED OUT TO ENSURE THAT THE INDUCED VIBRATION IS LESS THAT 25mm/s PEAK PARTICLE VELOCITY.

AN HSIN CONSTRUCTION CO. LTD.

DATE	REVISION	BY
30/01/98	B PILE SCHEDULE REVISED	
11/01/98	A PILE SCHEDULE REVISED, LOADING OF W1 REVISED.	
26/04/97	00 APPROVAL	

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B.D. 3/4029/96

DANIEL SHEK KEE-KONG
Registered Structural Engineer

ARCHITECT
LEE MARK & ASSOCIATES
Architects & Surveyors Ltd
Room 3406 China Resources Building
26 Harbour Road Wanchai Hong Kong
Tel: 2827 8222 Fax: 2827 8773

PROJECT
PROPOSED COMPOSITE BUILDING AT No.51 & 53 SA PO ROAD, KOWLOON CITY, KOWLOON

TITLE
AS-BUILT H-PILE RECORD PLAN (LOADING SCHEDULE, PILE SCHEDULE, NOTES AND TYPICAL DETAILS)

JOB NO.	DRG NO.	REV. NO.
6125	ABP-2/2	

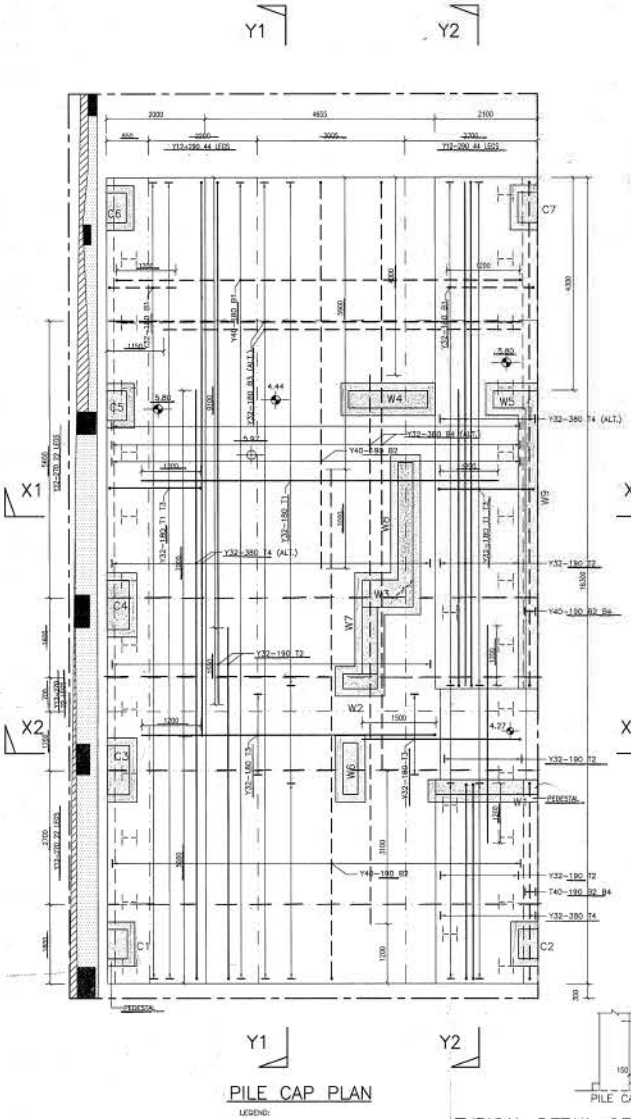
DESIGN	DRAWN	CHECKED	SCALE	DATE
			1 : 100	08/04/98

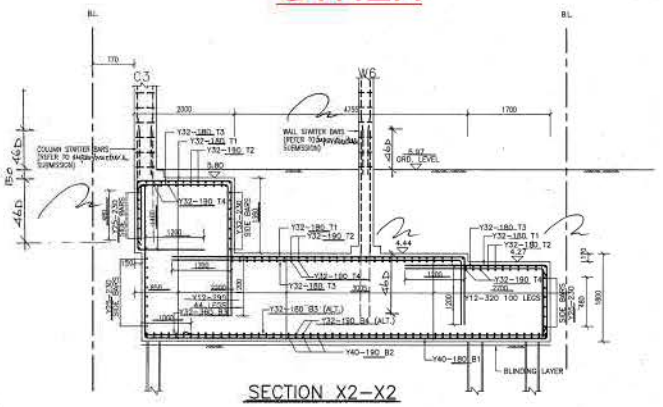
KA Consultants Limited

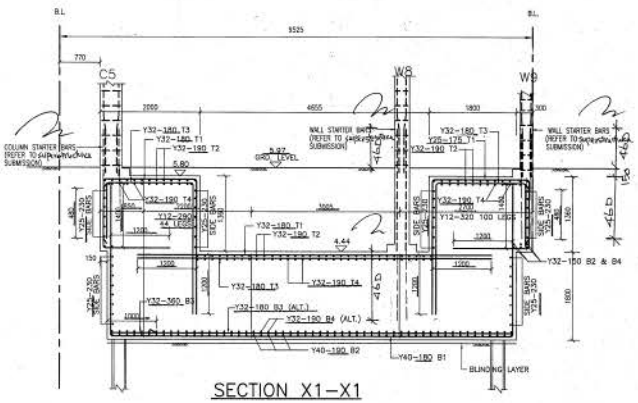
TEL NO. 25921186
FAX NO. 25916765

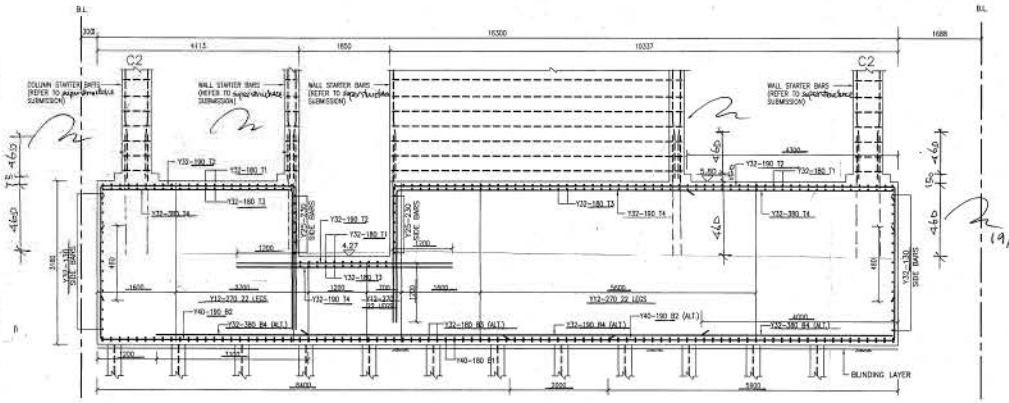
C:\My Documents\Jobs\9703\2ND SUBMISSION\Drawings\P2E Sat Apr 04 00:33:25 1998

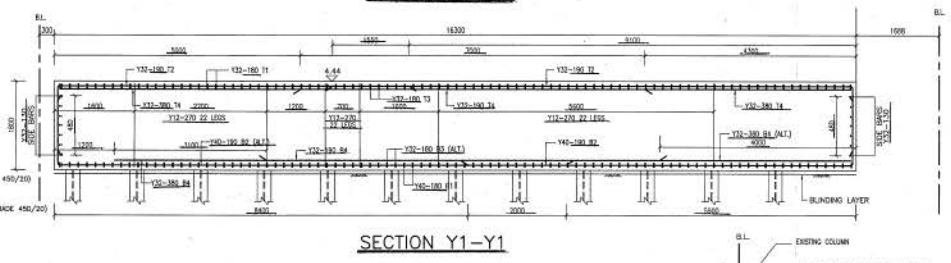
OTHER





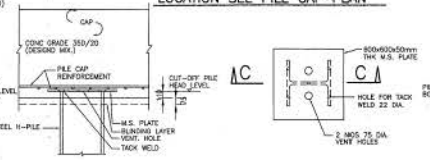






TYPICAL DETAIL OF 150mm PEDESTAL
LOCATION SEE PILE CAP PLAN

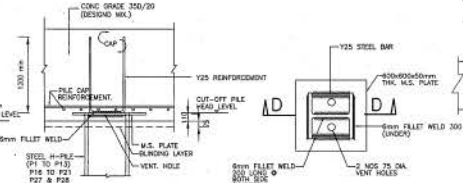
NOTES:
1. THE PROPOSED PILE CAP TOP LEVEL IS AT 5.80 / 4.44mPD.
2. THE FUTURE GROUND LEVEL IS AT 5.97mPD
3. ALL LEVELS ARE REFERRED TO PRINCIPAL DATUM (P.D.) OF HONG KONG IN METRES.
4. ALL DIMENSIONS ARE IN MM
5. ALL STEEL BARS SHALL BE IN COMPLIANCE WITH CS2 AND ALL CONCRETE WORKS WITH THE STRUCTURAL USE OF CONCRETE 2013.
6. CONCRETE COVER TO MAIN REINFORCEMENT FOR PILE CAP TO BE 75mm.
7. PILE CAP SHALL BE OF GRADE 35D/20 DESIGNED MIX. CONCRETE TO CS1:1990
8. CONCRETE CUBES SHALL BE MADE AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS AS SPECIFIED IN THE CS1:1990.
9. 75mm THICK BLINDING LAYER OF 20P CONCRETE MIX SHALL BE PROVIDED FOR THE PILE CAP.
10. HIGH TENSILE STEEL BARS DENOTED BY 'Y' SHALL BE HOT ROLLED DEFORMED BARS TO CS2:1995 AND HAVE A GUARANTEED YIELD STRENGTH OF 460mPa. MILD STEEL BARS (DENOTED BY 'R') SHALL BE PLAIN ROUND BARS AND COMPLIED WITH BS4449 WITH A MINIMUM YIELD STRENGTH 250mPa.
11. MINIMUM TENSION LAP LENGTH OF REINFORCEMENT SHALL BE 48 x BAR DIAMETER.
12. THE MINIMUM ALKALI CONTENT OF CONCRETE, EXPRESSED AS THE EQUIVALENT SODIUM OXIDE PER CUBIC METRE OF CONCRETE SHOULD NOT EXCEED 3.0kg WHEN DETERMINED IN ACCORDANCE WITH THE SPECIFICATION ITEMS GIVEN IN APPENDIX A OF PNAP 150.
13. T1 DENOTES TOP BARS AT THE LOWEST LAYER.
T2 DENOTES TOP BARS AT THE SECOND HIGHEST LAYER.
14. B1 DENOTES BOTTOM BARS AT THE LOWEST LAYER.
B2 DENOTES BARS AT THE SECOND LOWEST LAYER.
15. (U) DENOTES LENGTH IN METRES.
16. (ALT.) DENOTES ALTERNATE BARS.
17. DEPTH OF CAP TO BE 1.2m UNLESS OTHERWISE STATED.
18. ALL STRUCTURAL DESIGN COMPLIES WITH BUILDING (CONSTRUCTION) REGULATION 1990 & STRUCTURAL USE OF CONCRETE 2013/10:1990.
19. IN ADDITION TO THE REGULAR COMPRESSIVE TEST ON CONCRETE CUBES, CONCRETE CORE SAMPLES SHOULD BE TAKEN FROM THE FINISHED CONCRETE HAS BEEN ACHIEVED, FREQUENCY OF CONCRETE CORING AND TESTING TO BE COMPLY WITH PNAP 150.



SECTION C – C

PLAN

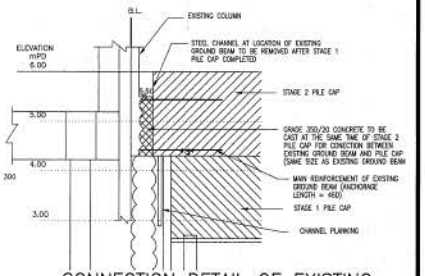
TYPICAL DETAILS OF PILE HEAD
(N.T.S.)



SECTION D – D

PLAN

SPECIAL DETAILS OF PILE HEAD
FOR P1–P13, P16–21, P27–P28
(N.T.S.)



CONNECTION DETAIL OF EXISTING
GROUND BEAM AND PILE CAP
1 : 50

Plan Approved
Y. C. TSUI
Senior Structural Engineer
for BUILDING AUTHORITY
19 AUG 2004

REV.	DATE	DESCRIPTION	CHK.
B	JULY, 04	DESIGN TO BS8110	
A			

PROJECT

PROPOSED COMPOSITE
BUILDING
LOT N.K.I.L. 484 R.P. & 1110 R.P.
NOS. 51 - 53 SA PO ROAD,
KOWLOON

PLAN

PILE CAP DETAILS

AMENDED PLAN

SCALE: 22 JUL 2004
1 : 50

LOKE HONG WA
BEng, MSc(Eng), MHKIE(Hon.Mem.)
CEng, MIStructE, RPE
Registered Structural Engineer
19/8/04

KENNETH K. C. CHAN
Registered Structural Engineer

KENNETH K. C. CHAN
REGISTERED STRUCTURAL
ENGINEER

DRAWN CHECKED

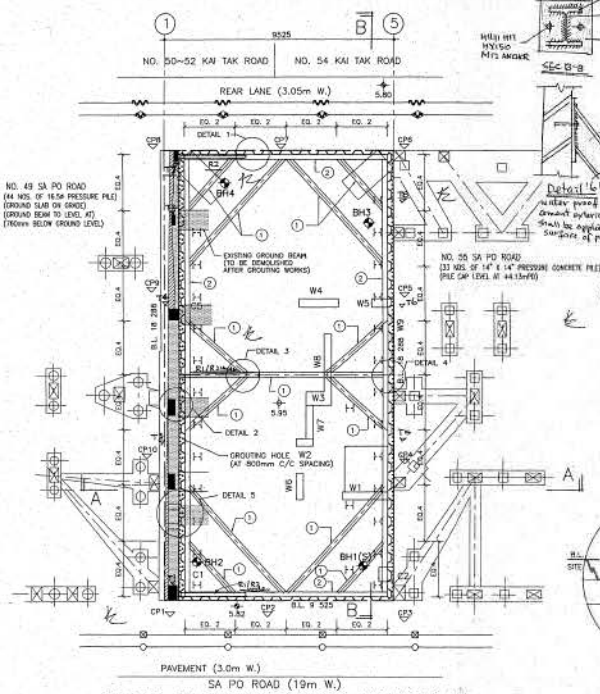
FIRST APPROVAL:

DRAWING NO.: CD-1

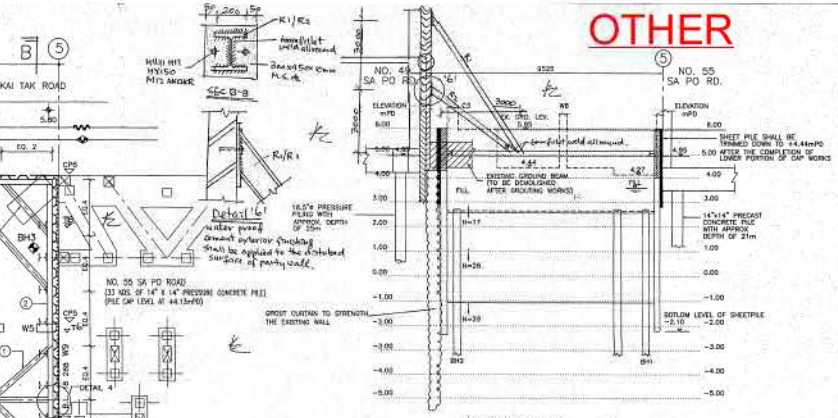
A	
B	
C	JULY 03
D	
E	

OTHER

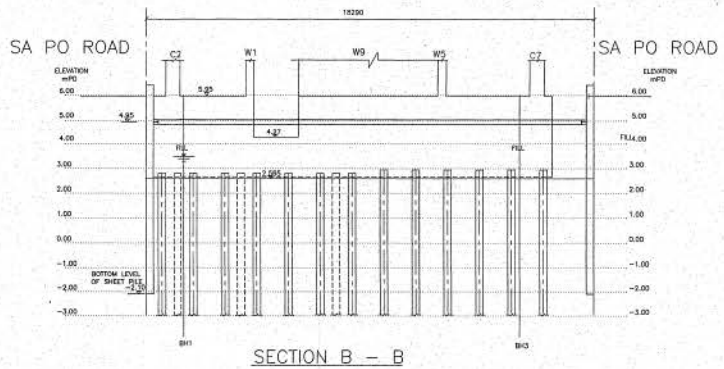
Bd 3/4027/96



SHEET PILE & SHORING LAYOUT PLAN



SECTION A – A



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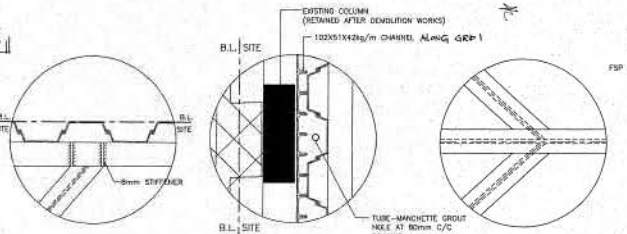
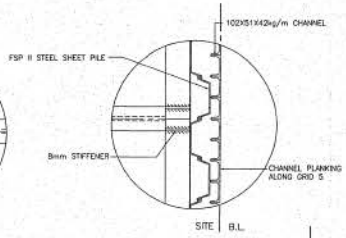


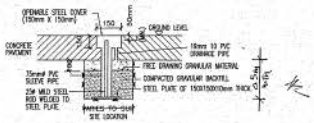
DETAIL 1
1 : 20

DETAIL 2
1 : 20

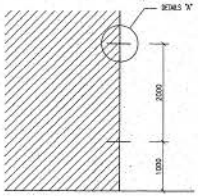
DETAIL 3
1 : 20



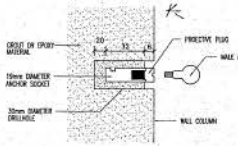
DETAIL 4
1 : 20



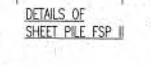
GROUND SETTLEMENT MONITORING CHECK POINT
(NTS)

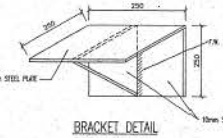


TYPICAL DETAIL OF BUILDING TILTING / SETTLEMENT MATKERS
(NTS)

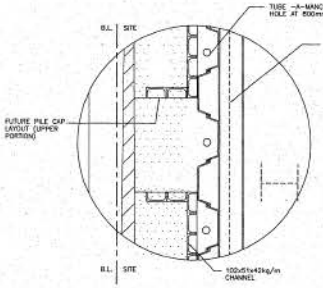


DETAIL "A"
(NTS)

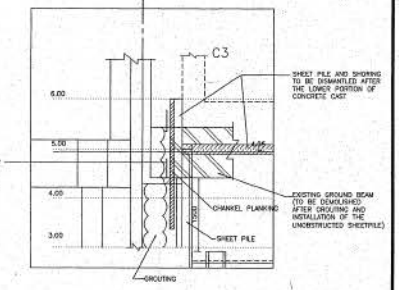




BRACKET DETAIL FOR WALING
(NTS)



DETAIL 5
1 : 20



DETAILS OF CHANNEL PLANKING BEHIND SHEET PILE WALL
(SCALE 1:50)

LEGEND:

BH2 (S) BOREHOLE (WITH STANDPIPE)	CLP CABLE
5.95 FUTURE GROUND LEVEL (mPD)	TELECOM CABLE
H 305x305x180kg/m UKP GRADE 55±	FRESH WATER MAINS
CP2 CHECK POINT (CP1~CP10) (CHECK POINT ON BUILDING: CP4, CP5, CP9 & CP10)	SALT WATER MAINS
TILTING OR MONITORING (Y1~T6)	FSP II SHEET PILE GRADE 250
	1 203x203x46kg/m UNIVERSAL COLUMNS
	2 203x203x71kg/m UNIVERSAL COLUMNS
R1,R2 203x203x46kg/m UC	

GENERAL NOTES:
1. ALL LEVELS SHOWN ARE IN METRE ABOVE PRINCIPAL DATUM AND DIMENSIONS ARE IN MM.
2. DURING SHORING WORKS, GEOTECHNICAL MONITORING SHALL BE CARRIED OUT WITH LOCATION AS SHOWN ON THE SHORING PLAN.

NOTES FOR STRUCTURAL STEELWORKS
1. ALL STRUCTURAL STEELWORKS SHALL BE COMPLIED WITH THE STRUCTURAL USE OF STEEL 1997.
2. U.O.S. ALL STRUCTURAL STEEL SHALL BE GRADE 250 WITH YIELD STRESS GREATER THAN 250n/m.
3. ALL WELDING SHALL BE COMPLIED WITH BS5135.
4. U.O.S. ALL WELDING SHALL BE 6mm FILLET WELD ALL ROUND.

CONSTRUCTION PROCEDURE FOR SHORING
1. INSTALL GROUT HOLES AT 800mm C/C DOWN TO -5.6mPD ALONG GRID LINE 1 AND CARRY OUT GROUTING IN ACCORDANCE WITH THE GENERAL NOTES FOR GROUTING.
2. AT LOCATIONS AS SHOWN ON SHEET PILE & SHORING LAYOUT PLAN DRIVE FSP II SHEET PILE WALL FROM EXISTING GROUND LEVEL DOWN TO -2.10mPD.
3. FOR SHEET PILES ALONG GRID LINE 1, DRIVE THE SHEET PILES THAT ARE NOT OBSTRUCTING BY THE EXISTING BEAM TO THE REQUIRED LEVEL.
4. REMOVE THE SECTION OF THE EXISTING CONCRETE BEAMS THAT OBSTRUCT THE SHEET PILE INSTALLATION BY PNEUMATIC TOOLS. CONTINUE TO DRIVE THE REMAINING SHEET PILES TO THE REQUIRED LEVEL.
5. REMOVAL OF THE EXISTING GROUND BEAMS SHOULD ONLY BE CARRIED OUT ONE BY ONE AND THE ADJACENT SHEET PILES SHALL BE DRIVEN DOWN ONCE THE BEAM IS REMOVED.
6. INSTALL STEEL CHANNEL PLANKING AT THE BACK OF SHEET PILE DOWN TO +3.00mPD AT LOCATIONS SHOWN ON PLAN (ALONG GRID LINE 1 & 5)
7. EXCAVATE DOWN TO +4.05mPD AND INSTALL FIRST LAYER OF WALING AND STRUTTING AT +4.95mPD.
8. EXCAVATE DOWN TO +2.50mPD AND PLACE 75mm BLINDING LAYER.
9. FIX THE PILE CAP REINFORCEMENT AND CAST THE LOWER PART OF PILE CAP UP TO +4.44mPD.
10. DISMANTLE THE WALING, BRACING AND STRUT LAYER, TRIM DOWN THE SHEET PILE TO +4.44mPD.
11. CHANNEL PLANKING ALONG GRID LINES 1 & 5 SHOULD REMAIN IN PLACE AT ALL TIME.
12. CONSTRUCT THE UPPER PART OF PILE CAP.
13. DETAILS OF CONNECTION BETWEEN EXISTING GROUND BEAM AND FUTURE PILE CAP TO BE SUBMITTED LATER.

NOTES FOR PRECAUTIONARY AND MONITORING MEASURES
1. THE CONTRACTOR IS TO EXERCISE DUE CARE TO AVOID DAMAGING ADJOINING PROPERTIES, AND SERVICES DURING THE COURSE OF THE WORKS. SETTLEMENT OF ADJOINING BUILDINGS SHALL BE MONITORED CONTINUOUSLY AT DESIGNED CHECK POINTS.
2. EXISTING LAMP CLOSE TO THE SITE IS TO BE SURVEYED FOR THE LEVEL AT THE BENCH MARK / CHECK POINTS SHOWN.
3. CHECK POINTS / BENCH MARKS ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF SHORING WORKS.
4. READINGS OF CHECK POINTS ARE TO BE TAKEN ONCE ONLY.
5. EXCAVATION WORK IS TO BE SUSPENDED AND A.P. / R.S.E. AND THE BUILDINGS DEPARTMENT INFORMED IMMEDIATELY IF UNDUE SETTLEMENT/TILTING IS RECORDED IN THE READINGS.
6. BEFORE PROCEEDING TO LARGER EXCAVATIONS AND BENCH MARKS ARE TO BE SUBMITTED TO BUILDING AUTHORITY PRIOR TO COMMENCEMENT OF WORKS.
7. MONITORING RECORDS ARE TO BE SUBMITTED TO THE B.D. BI-WEEKLY.
8. THE MONITORING CHECK POINTS ARE TO BE INSTALLED AS SHOWN ON SHORING PLAN.
9. SHOULD ANY OF THE FOLLOWING SYSTEMS OCCUR, THE CONSTRUCTION WORKS SHALL BE CEASED AND THE BUILDING DEPARTMENT OFFICE AND THE R.S.E. SHOULD BE NOTIFIED IMMEDIATELY:
   (a) EXCESSIVE INCREASED IN MOVEMENT BETWEEN TWO CONSECUTIVE READINGS.
   (b) ANY EXCESSIVE MOVEMENT IND / OR SETTLEMENT/TILTING AT ANY MARKERS.
   (c) ANY DAMAGE TO ANY PROPERTY AND / OR UTILITIES.
   (d) ACCUMULATIVE SETTLEMENT EXCEEDS 25mm.
10. WORKS SHALL NOT BE RESUMED WITHOUT THE APPROVAL OF THE R.S.E. AND THE B.D. THE B.D. SHALL BE INFORMED OF THE ADDITIONAL REMEDIAL MEASURES TO BE TAKEN.
11. A SET OF UPDATED MONITORING RECORDS SHOULD BE KEPT ON SITE FOR INSPECTION.

GENERAL NOTES FOR GROUTING
1. GROUTING SHALL BE COMMENCED FROM BOTTOM OF GROUND BEAM DOWN TO 1 METRE BELOW TOP OF COMPLETELY DECOMPOSED GRANITE STRATUM (BOTTOM LEVEL = -3.00mPD)
2. GROUTING SHALL BE CARRIED BY THE METHOD OF TUBE-A-MANCHETTE OR APPROVED SIMILAR. GROUTING HOLES SHALL BE MINIMUM 32mm DIAMETER AND GROUT PIPES MIN. 20mm DIAMETER.
3. GROUT PIPE SHALL BE SET AT SPACING OF 800mm CENTRES ALONG THE BOUNDARY LINES AS SHOWN THE SHEET PILE AND SHOWING LAYOUT PLAN.
4. SLEEVE GROUT SHALL BE INJECTED TO FILL THE VOID BETWEEN THE GROUT PIPE AND THE CASING WITH CEMENT-BENTONITE GROUT. GROUT MIX COMPOSITION SHALL BE 250KG CEMENT OF GROUT.
5. CASING SHALL BE EXTRACTED AFTER THE INJECTION OF SLEEVE GROUT.
6. THE HOLES SHALL BE GROUTED IN ONE STAGE WITH CEMENT / BENTONITE GROUT WITH THE MIX COMPOSITION OF 250KG CEMENT 250 BENTONITE & 800 LITRES OF WATER FOR 1 CUBIC METRE OF GROUT.
7. SPECIAL CARE SHOULD BE TAKEN DURING THE WHOLE GROUTING OPERATION TO PREVENT DISTURBANCE TO EXISTING BUILDINGS, ROAD AND UNDERGROUND SERVICES. THE MAXIMUM ALLOWABLE GROUTING PRESSURE SHALL NOT EXCEED 1.2 OVERBURDEN PRESSURE AS CALCULATED FROM EXISTING GROUND.
8. GROUTING SHALL BE COMPLETED WHEN THE GROUT PRESSURE REACHED 1.2 OVERBURDEN PRESSURE OR THE GROUT INTAKE ACHIEVED 250 LITRES PER METRE DEPTH. GROUTING RECORDS SHALL BE SUBMITTED TO THE BUILDING AUTHORITY. GROUT MIX COMPOSITION SHALL BE 250KG CEMENT OF GROUT.
9. THE PROPOSED SETTLEMENT MONITORING POINT SHALL BE CHECKED DAILY DURING GROUTING OPERATIONS. IF SIGNIFICANT GROUND MOVEMENT IS OBSERVED FROM THE GROUTING WORKS SHALL BE STOPPED IMMEDIATELY. THE GROUTING METHODS REVIEWED AND REMEDIAL MEASURES IMPLEMENTED.
10. FOLLOWING COMPLETION OF GROUTING, GROUT HOLES SHALL BE KEPT OPEN TO FACILITATE LATER RE-GROUTING WHENEVER NECESSARY.
11. BOREING PRESSURE OF GROUT = 0.5MPA.

SHEET PILE SPECIFICATIONS :

DESIGNATION	DIMENSIONS / SIZES			CROSS-SECTIONAL DATA							
SECTION	WIDTH	HEIGHT	THICKNESS	SECTIONAL AREA	SECTIONAL PER SHEET	SECTIONAL PER 1m WALL WIDTH	MOMENT OF INERTIA PER SHEET	MOMENT OF INERTIA PER 1m WALL WIDTH	MODULUS OF SECTION PER SHEET	MODULUS OF SECTION PER 1m WALL WIDTH
	w mm	h mm	t mm	cm^2	kg/m	kg/m	cm^4	cm^4/m	cm^3	cm^3/m
FSP II	400	100	10.5	61.2	48.0	120	1240	3740	152	574

CHANNEL SPECIFICATIONS :

DESIGNATION	DIMENSIONS / SIZES					CROSS-SECTIONAL DATA					
NOMINAL SIZE	MASS PER METRE	DEPTH OF SECTION D	WIDTH OF SECTION B	WEB THICKNESS t	FLANGE THICKNESS T	SECTIONAL AREA	MOMENT OF INERTIA AXIS X-X	MOMENT OF INERTIA AXIS Y-Y	MODULUS OF SECTION AXIS X-X	MODULUS OF SECTION AXIS Y-Y
	kg	mm	mm	mm	mm	cm^2	cm^4	cm^4	cm^3	cm^3
102 X 51	10.42	101.5	50.8	6.1	7.6	13.28	207.7	29.18	40.89	8.16

Plan Approved
Y. C. TSUI
Senior Structural Engineer
for BUILDING AUTHORITY
21 APR 2004

AMENDED PLAN

REV.	DATE	DESCRIPTION	CHK.

PROJECT
PROPOSED COMPOSITE BUILDING
LOT N.K.I.L. 484 R.P. & 1110 R.P.
NOS. 51 - 53 SA PO ROAD, KOWLOON

PLAN
EXCAVATION & LATERAL SUPPORT PLAN

SCALE:
1 : 100

CALVIN K.H. FUNG
REGISTERED PERSON (LIST)

KENNETH K. C. CHAN
Registered Structural Engineer

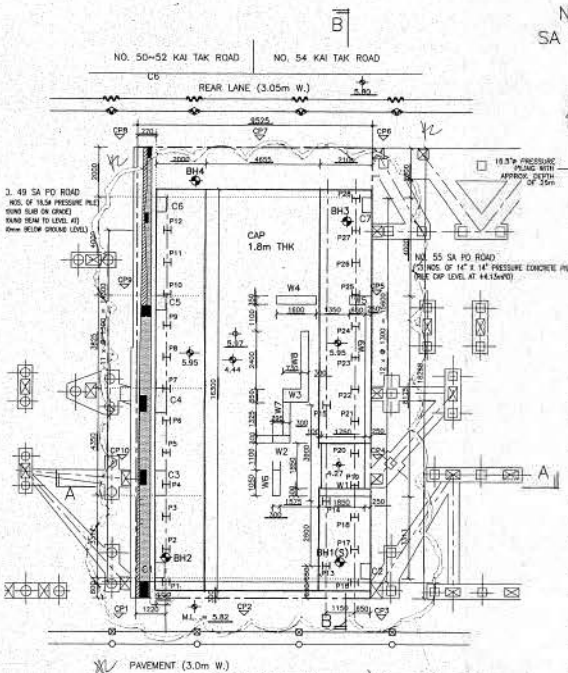
DRAWN | CHECKED

FIRST APPROVAL:

DRAWING NO.:
ELS-1

A	
B	
C	
D	
E	

OTHER



PILING PLAN

(TOTAL NO. OF PILES = 28)

LEGEND:

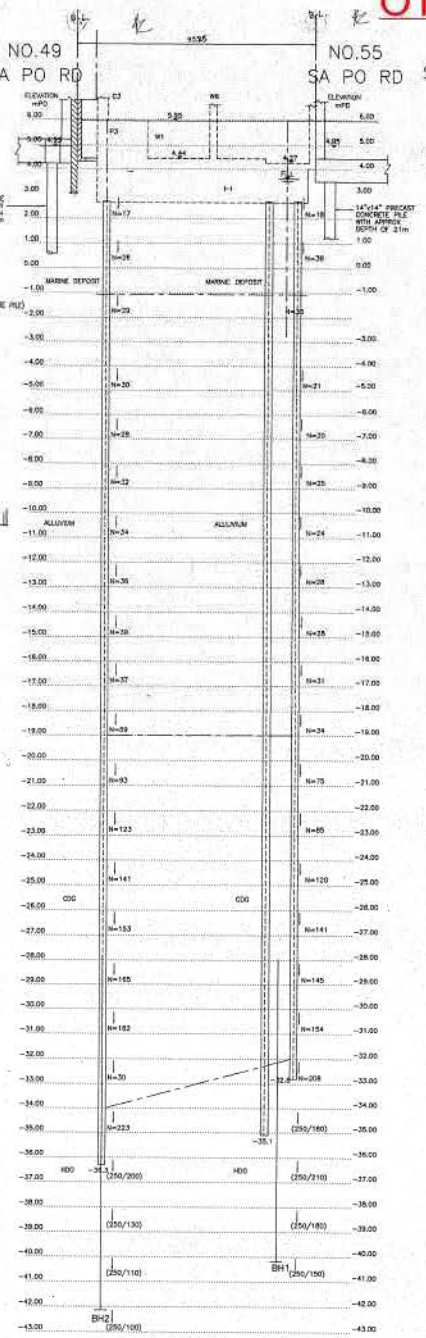
BH2 (S)	BOREHOLE (WITH STANDPIPE)	○	- CLP CABLE
5.97	FUTURE GROUND LEVEL (mPD)	⊠	- TELECOM CABLE
4.44	PILE CAP TOP LEVEL (mPD)	~~~	- FRESH WATER MAINS
P8	305x305x180kg/m U.B.P. GRADE 55o	◆	- SALT WATER MAINS
CP10	CHECK POINT (CP1~CP10) (CHECK POINT ON BUILDING: CP4, CP5, CP9 & CP10)		

Plan Approved
Y. C. TSUI
Senior Structural Engineer
for BUILDING AUTHORITY
21 APR 2004

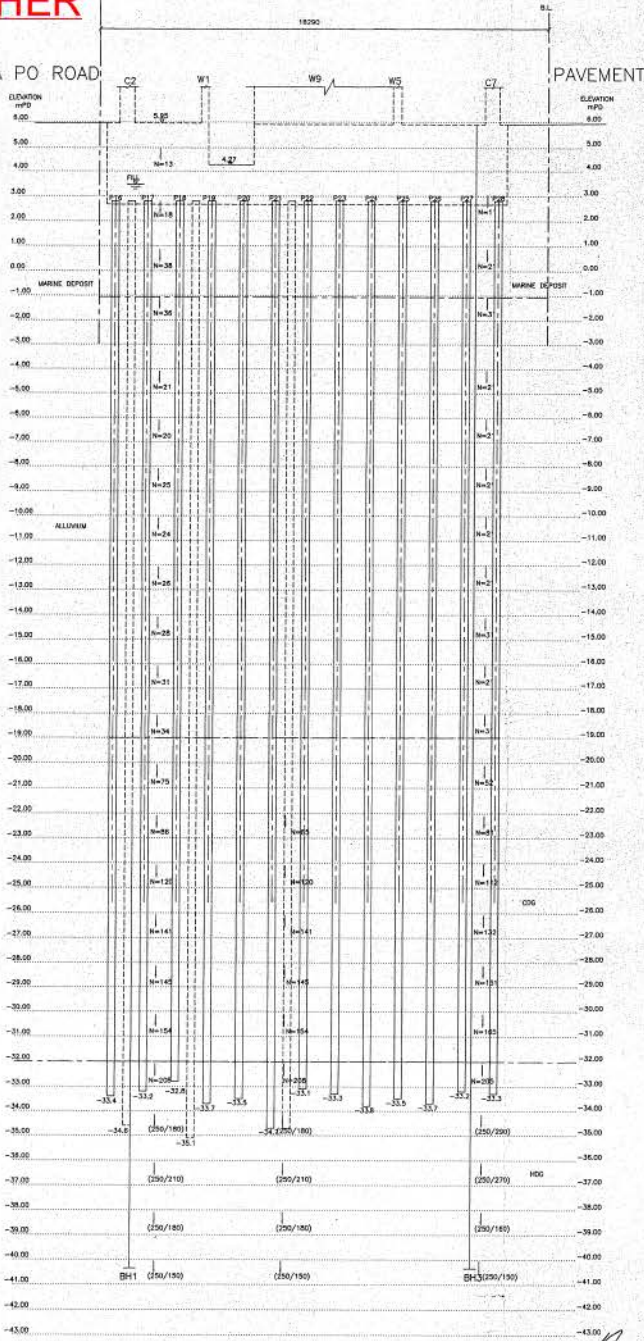
RECEIVED BY Buildings Department MAR 24 11 07 AM 2004

AS-BUILT PILE RECORD

PILE NO.	PITCHED LENGTH (m)	AS-BUILT TOE LEVEL (mPD)
P1	44	-36.700
P2	44	-36.600
P3	44	-36.600
P4	44	-36.600
P5	44	-36.700
P6	44	-37.000
P7	44	-36.700
P8	44	-36.400
P9	44	-36.700
P10	44	-36.500
P11	44	-36.600
P12	44	-36.500
P13	42	-34.800
P14	42	-35.100
P15	42	-34.700
P16	42	-33.400
P17	42	-33.200
P18	42	-32.800
P19	42	-33.700
P20	42	-33.500
P21	42	-34.700
P22	42	-33.100
P23	42	-33.300
P24	42	-33.800
P25	42	-33.500
P26	42	-33.700
P27	42	-33.300
P28	42	-33.300



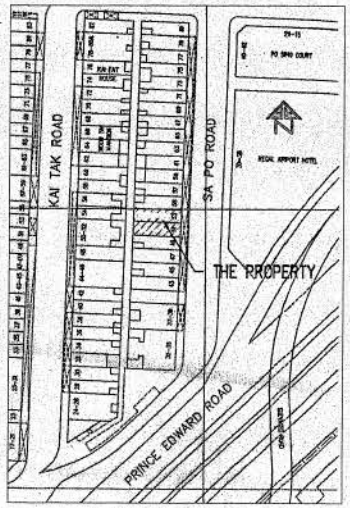
SECTION A – A



SECTION B – B

"Statement II: The works shown on these plans are Type II works (PILING WORKS) in respect of which the Building Authority's consent is applied for."

KD 3/4029/96



BLOCK PLAN

1 : 1000

REV.	DATE	DESCRIPTION	CHK.

PROJECT

PROPOSED COMPOSITE BUILDING
LOT N.K.I.L. 484 R.P. & 1110 R.P.
NOS. 51 - 53 SA PO ROAD, KOWLOON

PLAN

PILING PLAN AND
SECTION A-A, SECTION B-B

SCALE:

1 : 100

AMENDED PLAN

KENNETH K. C. CHAN
Registered Structural Engineer

22 MAR 2004

DRAWN CHECKED

DRAWING NO.: F1

FIRST APPROVAL:

A	
B	
C	
D	
E	

OTHER

3/4029/96 (Pt II)

LOADING SCHEDULE

COLUMN OR WALL MARK	SECTION SIZE B x D mm x mm	DL AXIAL LOAD kN	DL MOMENT X-X kN.m	DL MOMENT Y-Y kN.m	DL + LL AXIAL LOAD kN	DL + LL MOMENT X-X kN.m	DL + LL MOMENT Y-Y kN.m	WIND X-X AXIAL LOAD kN	WIND X-X SHEAR Y-Y kN	WIND X-X MOMENT X-X kN.m	WIND X-X MOMENT Y-Y kN.m	WIND Y-Y AXIAL LOAD kN	WIND Y-Y SHEAR X-X kN	WIND Y-Y SHEAR Y-Y kN	WIND Y-Y MOMENT X-X kN.m	WIND Y-Y MOMENT Y-Y kN.m
C1	400 x 600	600	25	10	1110	30	10	-121	53	-11	30	-7	-281	274	32	-159	21
C2	400 x 600	1200	-25	10	1800	-30	10	183	42	-18	21	-7	-193	29	18	-246	9
C3	400 x 1000	2400	10	-10	3410	15	-10	-2421	29	-111	139	-177	-1424	-27	173	-41	434
C4	400 x 2000	2900	10	10	4110	15	10	-2699	84	-118	134	-179	1550	-31	172	-19	434
C5	400 x 600	600	5	5	1110	10	5	-316	252	-24	30	-14	174	3	48	2	27
C6	400 x 600	600	45	85	1110	45	85	-82	13	-13	15	-8	86	8	24	8	18
C7	400 x 600	500	-45	0	900	-45	85	98	13	5	15	2	168	6	11	8	7
W1	2100 x 300	2050	-350	0	3400	-400	0	3639	491	0	3241	0	-5377	-39	0	-1017	0
W2	775 x 300	850	170	0	1650	210	3	-843	62	-44	66	-28	-478	72	58	-4	32
W3	900 x 550	2400	-10	0	3520	-20	0	-452	244	0	313	0	3	56	0	7	0
W4	1650 x 350	1900	75	0	2820	110	0	-3286	568	-28	1361	-18	3061	35	65	177	65
W5	900 x 350	870	-60	0	1050	-100	0	1128	351	0	337	0	1883	30	0	35	0
W6	300 x 1050	2100	0	-300	3340	0	-450	-2589	0	-19	0	-38	-1407	0	118	0	145
W7	300 x 1350	1250	0	90	1750	0	80	-2455	48	3	81	-209	-954	-15	529	-19	733
W8	300 x 2375	2250	0	670	2850	0	1000	-859	47	20	75	-564	2006	1	465	5	1410
W9	250 x 5675	4300	0	-2100	5600	0	-2900	11890	114	349	135	-4342	1529	-21	263	-19	8468

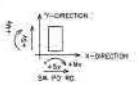
BACKFILL = 19 x 8.755 x 16.3 x 1.51 (H) = 4094 kN
L.L.(SAPo) = 5 x 8.755 x 16.3 = 714 kN

27/5/2005

Pile Load Schedule (kN)

Pile Mark	X	Y	D	D+L	U	Wx	Wy	Wmax	D+L+W	D+1.5W+1.1U
P1	1.22	0.88	1178	1629	-113	-964	-693	964	2593	-392
P2	1.22	1.98	1202	1667	-118	-969	-727	969	2636	-381
P3	1.22	3.28	1226	1685	-123	-974	-961	974	2659	-370
P4	1.22	4.58	1250	1713	-128	-980	-995	980	2693	-361
P5	1.22	5.88	1274	1742	-133	-985	-290	985	2727	-350
P6	1.22	7.18	1299	1770	-138	-991	-64	991	2761	-339
P7	1.22	8.48	1323	1798	-143	-996	102	996	2794	-328
P8	1.22	9.78	1347	1826	-148	-1002	268	1002	2828	-318
P9	1.22	11.08	1371	1855	-153	-1007	433	1007	2862	-308
P10	1.22	12.38	1395	1883	-158	-1013	599	1013	2896	-298
P11	1.22	13.68	1419	1911	-163	-1018	765	1018	2929	-287
P12	1.22	14.98	1443	1939	-167	-1024	931	1024	2963	-277
P13	7.73	1.30	1178	1569	-74	564	-625	825	2364	-141
P14	7.73	3.90	1226	1615	-84	563	-494	563	2168	-319
P15	7.73	7.80	1298	1708	-99	527	4	527	2237	-399
P16	8.88	0.65	1163	1530	-64	825	-911	911	2441	-274
P17	8.88	1.95	1187	1558	-69	820	-745	820	2378	-319
P18	8.88	3.25	1212	1586	-74	814	-579	814	2400	-90
P19	8.88	4.55	1236	1615	-79	809	-413	809	2424	-266
P20	8.88	5.85	1260	1643	-84	804	-248	804	2447	-135
P21	8.88	7.15	1284	1671	-89	798	-82	798	2469	-11
P22	8.88	8.45	1308	1699	-94	793	84	793	2492	15
P23	8.88	9.75	1332	1727	-99	787	249	787	2514	43
P24	8.88	11.05	1356	1756	-103	782	415	782	2538	70
P25	8.88	12.35	1380	1784	-108	776	581	776	2560	97
P26	8.88	13.65	1404	1812	-113	771	747	771	2583	123
P27	8.88	14.95	1428	1840	-118	765	912	912	2752	-70
P28	8.88	16.25	1452	1869	-123	760	1078	1078	2947	-380
			1452	1939					2963	-392

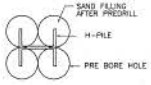
NOTES:
1. WIND LOADS ARE CONSIDERED TO BE REVERSIBLE.
2. COMPRESSION IS SHOWN POSITIVE AND TENSION SHOWN NEGATIVE.
3. DWN. WT. OF STRAP BEAMS, CAPS & WEIGHT OF UNDERGROUND WATER TANK ARE EXCLUDED FROM THE LOADING SCHEDULE.
4. ALL FORCES ARE REFERRED TO TOP OF PILE CAP.
5. LIVE LOAD ON CAP TO BE 10kPa.
6. HEIGHT OF BUILDING SHALL BE 77.65 METRES.
7. NOTATION OF FORCES:



METHOD FOR OVERCOMING UNDERGROUND OBSTRUCTIONS

B) PRE-DRILLING WITH PNEUMATION DRILLS

WHEN UNDERGROUND OBSTRUCTION IS ENCOUNTERED, IT WILL BE DRILLED, TROUGHT PRIOR TO DRIVING AS INDICATED ON THE FOLLOWING DETAILS.



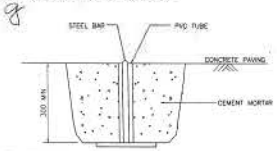
TYPICAL DETAIL FOR PREBORE HOLE THROUGH THE BOULDER

Steel H-PilesPECIFICATIONS

DESIGNATION	DIMENSIONS / SIZES					CROSS-SECTIONAL DATA					
SECTION	DEPTH h mm	FLANGE WIDTH b mm	WEB THICK t mm	FLANGE THICK t mm	FILLET RADIUS r mm	SECT AREA F cm²	WEIGHT G kg/m	Ix cm⁴	Wx cm³	ix cm	Wy cm³
HP305x305x186	305.7	318.7	24.8	24.8	15.2	239.3	186.8	43973	2508	13.56	847



PILING NOTES
1. STEEL H-PILES SHALL BE OF 305x305x180kg/m SECTION OF GRADE 55e TO B.S. 4360.
2. MINIMUM PILE SPACING TO BE 1.300mm (M.P.S.) FOR 305x305x180kg/m GRADE 55e.
3. DESIGN WORKING LOAD OF PILE = 2.900 kN (WITHOUT WIND) = 3.688 kN (WITH WIND)
4. NET PILE CAPACITY = MAX. WORKING LOAD X k WHERE k = 0.85 FOR NO. OF PILE > 4 AND PILE CAPACITY = 2.508 kN (W/O WIND CASE) & 3.135 kN (WITH WIND CASE)
5. PILING RECORDS SHALL BE KEPT TO COMPLY WITH REQUIREMENTS OF THE BUILDING AUTHORITY.
6. ALL LATERAL LOAD SHALL BE RESISTED BY STEEL H-PILES.
7. MINIMUM PILE LENGTH FOR PILE P1~P12 SHALL BE 59 METRES MINIMUM PILE LENGTH FOR PILE P13, P16~P21 P38 & P39 TO BE 27 METRES.



SETTLEMENT CHECK POINT ON PAVEMENT

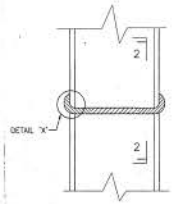
(N.T.S.)

ESTIMATE DEPTH OF PILE LENGTH

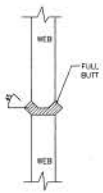
BORE HOLE	EXPECTED DEPTH OF PILE	TENTATIVE BOTTOM LEVEL OF PILE
BH1	36.50m	-32.05mPD
BH2	+0.00m	-34.05mPD
BH3	38.00m	-32.05mPD
BH4	37.00m	-31.05mPD

PILE CUT OFF LEVEL AT +2.715mPD

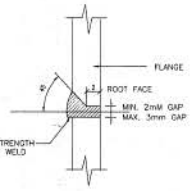
Plan Approved
Kan Kim-ching
Senior Structural Engineer
for BUILDING AUTHORITY
30 MAY 2005



ELEVATION



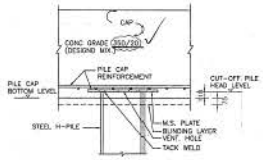
SECTION 2-2



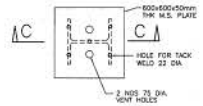
DETAIL A

TYPICAL SPLICING DETAIL

(N.T.S.)



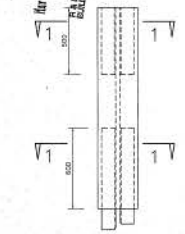
SECTION C - C



PLAN

TYPICAL DETAILS OF PILE HEAD

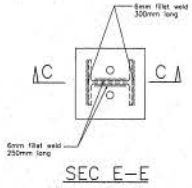
(N.T.S.)



PLAN



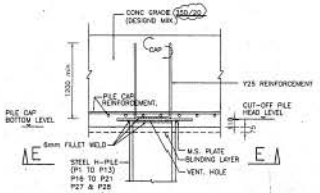
SECTION 1 - 1



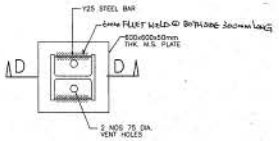
SEC E-E

TYPICAL DETAILS OF FOLLOWER

(N.T.S.)



SECTION D - D



PLAN

SPECIAL DETAILS OF PILE HEAD FOR P1~P13, P16~P21, P27 & P28

(N.T.S.)

GENERAL NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
2. ALL LEVELS IN METRES WITH REFERENCE TO PRINCIPAL DATUM OF HONG KONG.
3. ALL WELDING SHALL COMPLY WITH BS 5135 QUALITY CATEGORY A AND ELECTRODE SHALL COMPLY WITH BS 639 AS APPROPRIATE, THE CONNECTIONS SHALL BE FREE FROM FLAW, CRACK AND OTHER IMPERFECTIONS.
4. ALL SPLICING SHALL BE CONTINUOUS FULL-PENETRATION BUTT WELDS UNLESS OTHERWISE SPECIFIED.
5. ALL TEMPORARY PLATE FOR ALIGNMENT OF SPLICES SHALL BE REMOVED PRIOR TO FURTHER DRIVING OF PILES.
6. WELDING SHALL BE TESTED IN ACCORDANCE WITH BS 4870:PART 1 BY WELDERS CERTIFIED IN ACCORDANCE WITH BS 4871:PART 1.
7. CHECK POINTS ARE TO BE INSTALLED PRIOR TO COMMENCEMENT OF PILING WORKS.
8. CHECK POINT READINGS ARE TO BE TAKEN AT LEAST ONCE DAILY DURING PILING CONSTRUCTION AND COPIES SHALL BE FORWARDED TO THE R.S.E. AND THE BUILDING AUTHORITY BIWEEKLY.
9. INITIAL READING OF CHECK POINTS SHALL BE SUBMITTED TO THE R.S.E. AND THE BUILDING AUTHORITY BEFORE COMMENCEMENT OF PILING WORKS.
10. DRIVING OF PILES SHALL BE SUSPENDED IF ADVERSE VERTICAL SETTLEMENTS, EXCESSIVE VIBRATION AND/OR LATERAL MOVEMENTS ARE OBSERVED IN THE CHECK POINT READINGS AND THE A/P, R.S.E./BUILDING AUTHORITY BE INFORMED ACCORDINGLY.
11. PILES SHALL BE DRIVEN FROM THE EXISTING GROUND LEVELS.
12. ESTIMATED PILE LENGTHS GIVEN IN THE PILING SCHEDULE ARE MEASURED FROM EXISTING GROUND LEVELS OF EACH BORE HOLE.
13. ESTIMATED PILE LENGTHS GIVEN ARE TENTATIVE, ACTUARIAL PILE LENGTH FOR INDIVIDUAL PILES SHALL BE VERIFIED ON SITE.
14. DETAILS OF PILE CAP AND STRAP BEAMS SHALL REFER TO SEPARATE SUBMISSION.
15. DURING THE DRIVING OF STEEL H-PILES, VIBRATION CHECKING AT ADJACENT GROUND AND STRUCTURES SHOULD BE CARRIED OUT OT ENSURE THAT THE INDUCED VIBRATION IS LESS THAT 25mm/s PEAK PARTICLE VELOCITY.

AMENDED PLAN

REV.	DATE	DESCRIPTION	CHK.

PROJECT

PROPOSED COMPOSITE BUILDING LOT N.K.I.L. 484 R.P. & 1110 R.P. NOS. 51 - 53 SA PO ROAD, KOWLOON

PLAN

LOADING SCHEDULE, PILE SCHEDULE NOTES AND TYPICAL DETAILS

SCALE: NTS

YU LIN KEUNG
AUTHORIZED PERSON
REGISTERED STRUCTURAL ENGINEER

DRAWN CHECKED

FIRST APPROVAL:

DRAWING NO.: F2

A	
B	
C	
D	
E	

OTHER

B.D. REF. NO. BD 3/4029/96
F.P.B. REF. NO.

FINAL SET CALCULATION BY HILEY FORMULA

Type of H-Pile (Grade 55C)		305x305x180 kg/m
Weight of Drop Hammer		10 Ton
Drop Height of Hammer		2.5 m
Weight of Helmet		3.5 kN
Output Energy per Blow		245000 kNmm
Effective Energy per Blow	245000 x 0.65	159250 kNmm
Coefficient of Restitution		0.32
Temporary Helmet Compression		2.50 mm
Ultimate Pile Load		5900 kN
Follower Unit Weight		180 kg
Follower length		0 m

Pile (m) Length	Cp + Cq (mm) 18	19	20	21	22	23	24	25	26	27	28	29	30	31
30 + 0	78	73	68	63	58	53	48	43	38	33	28	-	-	-
31 + 0	77	72	67	62	57	52	47	42	37	32	27	-	-	-
32 + 0	75	70	65	60	55	50	45	40	35	30	25	-	-	-
33 + 0	73	68	63	58	53	48	43	38	33	28	-	-	-	-
34 + 0	72	67	62	57	52	47	42	37	32	27	-	-	-	-
35 + 0	70	65	60	55	50	45	40	35	30	25	-	-	-	-
36 + 0	69	64	59	54	49	44	39	34	29	-	-	-	-	-
37 + 0	67	62	57	52	47	42	37	32	27	-	-	-	-	-
38 + 0	66	61	56	51	46	41	36	31	26	-	-	-	-	-
39 + 0	64	59	54	49	44	39	34	29	-	-	-	-	-	-
40 + 0	63	58	53	48	43	38	33	28	-	-	-	-	-	-
41 + 0	61	56	51	46	41	36	31	26	-	-	-	-	-	-
42 + 0	60	55	50	45	40	35	30	25	-	-	-	-	-	-
43 + 0	59	54	49	44	39	34	29	-	-	-	-	-	-	-
44 + 0	57	52	47	42	37	32	27	-	-	-	-	-	-	-
45 + 0	56	51	46	41	36	31	26	-	-	-	-	-	-	-
46 + 0	55	50	45	40	35	30	25	-	-	-	-	-	-	-
47 + 0	53	48	43	38	33	28	-	-	-	-	-	-	-	-
48 + 0	52	47	42	37	32	27	-	-	-	-	-	-	-	-

(mm / 10 Blows)

FINAL SET CALCULATION BY HILEY FORMULA

Type of H-Pile (Grade 55C)		305x305x180 kg/m
Weight of Drop Hammer		10 Ton
Drop Height of Hammer		2.0 m
Weight of Helmet		3.5 kN
Output Energy per Blow		196000 kNmm
Effective Energy per Blow	196000 x 0.8	156800 kNmm
Coefficient of Restitution		0.32
Temporary Helmet Compression		2.50 mm
Ultimate Pile Load		5900 kN
Follower Unit Weight		180 kg
Follower length		0 m

Pile (m) Length	Cp + Cq (mm) 18	19	20	21	22	23	24	25	26	27	28	29	30	31
30 + 0	76	71	66	61	56	51	46	41	36	31	26	-	-	-
31 + 0	74	69	64	59	54	49	44	39	34	29	-	-	-	-
32 + 0	72	67	62	57	52	47	42	37	32	27	-	-	-	-
33 + 0	71	66	61	56	51	46	41	36	31	26	-	-	-	-
34 + 0	69	64	59	54	49	44	39	34	29	-	-	-	-	-
35 + 0	67	62	57	52	47	42	37	32	27	-	-	-	-	-
36 + 0	66	61	56	51	46	41	36	31	26	-	-	-	-	-
37 + 0	64	59	54	49	44	39	34	29	-	-	-	-	-	-
38 + 0	63	58	53	48	43	38	33	28	-	-	-	-	-	-
39 + 0	61	56	51	46	41	36	31	26	-	-	-	-	-	-
40 + 0	60	55	50	45	40	35	30	25	-	-	-	-	-	-
41 + 0	59	54	49	44	39	34	29	-	-	-	-	-	-	-
42 + 0	57	52	47	42	37	32	27	-	-	-	-	-	-	-
43 + 0	56	51	46	41	36	31	26	-	-	-	-	-	-	-
44 + 0	55	50	45	40	35	30	25	-	-	-	-	-	-	-
45 + 0	53	48	43	38	33	28	-	-	-	-	-	-	-	-
46 + 0	52	47	42	37	32	27	-	-	-	-	-	-	-	-
47 + 0	51	46	41	36	31	26	-	-	-	-	-	-	-	-
48 + 0	50	45	40	35	30	25	-	-	-	-	-	-	-	-

(mm / 10 Blows)

10-10-2000

RECEIVED BY
Sep 22 3 03 PM 2000
B.D. (Lands)
RECORDS DEPARTMENT

Plan Approved
LO KA LUNG
Chief Structural Engineer
for BUILDING AUTHORITY
20 OCT 2000

EDWARD D. K. LEUNG
AUTHORIZED PERSON &
REGISTERED STRUCTURAL ENGINEER
22 SEP 2000

~~AMENDED PLAN~~

P. Y. LEUNG & ASSOCIATES LTD.
ROOM 2409 DOMINION CENTRE, 43-59A, QUEEN'S ROAD EAST, HONG KONG
TEL : 2529-3585, 2529-3587 FAX: 2805-4089

梁伯仁建築工程師公司

PROPOSED COMPOSITE BUILDING AT No. 51 & 53 SA PO ROAD, LOT N.K.I.LS. 484 R.P. & 1110 R.P. KOWLOON CITY, KOWLOON.

FINAL SET TABLES

REVISIONS	SCALE	JOB NO.:
	DATE	DWG. NO. F 3

OTHER

GENERAL NOTES: –

1. ALL WORKS SHALL COMPLY WITH 'BS 8110: THE STRUCTURAL USE OF CONCRETE–1985' AND HONG KONG BUILDING (CONSTRUCTION) REGULATION 1990.
2. ALL LEVELS SHOWN ARE IN METERS AND OTHER DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
3. CONCRETE

STRUCTURAL ELEMENTS	CONCRETE GRADES	CHARACTERISTIC STRENGTH AT 28 DAYS
PILE CAPS	40D/20 DESIGN MIX	40 MPa
STRAP BEAMS / TIE BEAMS	40D/20 DESIGN MIX	40 MPa
BLINDING LAYER	10P PRESCRIBED MIX	10 MPa

CONCRETE SHALL COMPLY WITH CS1:1990

4. REINFORCEMENT

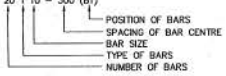
TYPE	fy–MIN. YIELD STRESS (MPa)	SPECIFICATION
HIGH YIELD BARS, HOT ROLLED (PREFIXED "Y")	460	CS2:1995

ALL STEEL REINFORCEMENT IS SCHEDULED IN ACCORDANCE WITH BS4466 AND SHALL BE CUT AND BENT IN CONFORMITY WITH BS4466.

5. ALLOW SUFFICIENT STEEL CHAIRS TO SUPPORT TOP REINFORCEMENT AND U–BARS TO KEEP VERTICAL WALL REINFORCEMENT IN THIER CORRECT ALIGNMENT.
6. CONCRETE COVER TO MAIN BAR SHALL BE THE BAR DIAMETER OR AS FOLLOW WHICHEVER GREATER:

ELEMENTS	CONCRETE COVERS
STRAP BEAMS / TIE BEAMS	50
PILE CAP	50

7. BAR REFERENCE ARE GIVEN ON THE DRAWINGS IN THE FOLLOWING ORDER: –



8. ANCHORAGE, LAP LENGTH OF REINFORCEMENT SHALL COMPLY WITH THE FOLLOWING.

CONCRETE GRADE	T.A.L. OR T.L.L. OR C.L.L. SIZE OF BAR (mm)						
	10	12	16	20	25	32	40
40	350	400	550	650	800	1100	1300

CONCRETE GRADE	COMPRESSION ANCHORAGE LENGTH (C.A.L.) SIZE OF BAR (mm)						
	10	12	16	20	25	32	40
40	300	350	450	550	650	850	1100

T.A.L. = TENSION ANCHORAGE LENGTH
T.L.L. = TENSION LAP LENGTH
C.L.L. = COMPRESSION LAP LENGTH

i. FOR ANCHORAGE OR LAP BETWEEN BARS OF SAME BAR SIZE, USE ø = SIZE OF BARS.
ii. FOR ANCHORAGE OR LAP BETWEEN BARS OF DIFFERENT BAR SIZE, USE ø = SIZE OF SMALLER BARS.
III. NOMINAL LAP LENGTH FOR DISTRIBUTION BARS TO BE 300
iv. WHERE LAP OCCURS AT THE CORNER & MIN. COVER IS LESS THAN TWICE THE SIZE OF LAPPED REINFORCEMENT, THE LAP LENGTH SHOULD BE INCREASED BY FACTOR OF 1.4.
v. WHERE LAP OCCURS AT THE CORNER & MIN. COVER TO EITHER FACE IS LESS THAN TWCE THE SIZE OF LAPPED REINFORCEMENT OR, WHERE THE CLEAR DISTANCE BETWEEN ADJACENT LAP IS LESS THAN 75mm OR 6 TIMES THE SIZE OF LAPPED REINFORCEMENT, WHICHEVER IS GREATER, THE LAP LENGTH SHOULD BE INCREASED BY A FACTOR OF 1.4.
vi. IN CASE WHERE BOTH (iv) & (v) APPLY, THE LAP LENGTH SHOULD BE INCREASED BY FACTOR OF 2.0.

9. THE REACTIVE ALKALI OF CONCRETE EXPRESSED AS THE EQUIVALENT SODIUM OXIDE PER CUBIC METRE OF CONCRETE SHOULD NOT EXCEED 3.0kg AND COMPLY WITH PNAP 180.
10. 75mm GRADE 10P BLINDING LAYER TO BE PROVIDED TO THE UNDERSIDE OF PILE CAP.
11. FULL TENSION LAP LENGTH IS TO BE PROVIDED FOR ALL SIDE BAR UNLESS OTHERWISE STATED.
12. THE SPACING OF SPACE BAR IS TO BE 1500mm MAX. DIAMETER OF SPACER BAR IS TO BE SAME AS MAXIMUN DIAMETER OF MAIN BARS THAT SHALL BE SPACED.

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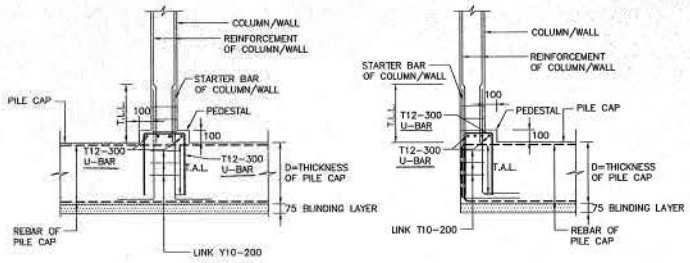
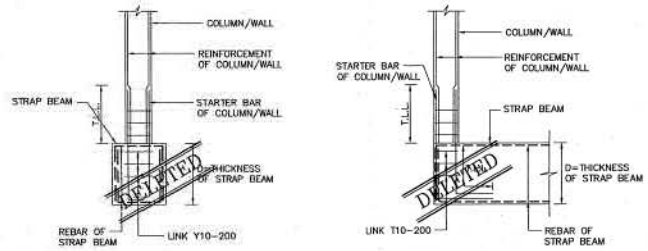


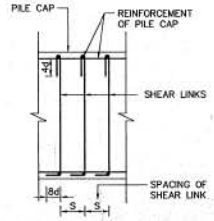
TYPICAL DETAILS OF STARTER BAR FOR PILE CAPS

NOTE : R.C. DETAILS OF COLUMN / WALL SHALL REFER TO SUPERSTRUCTURE PLAN UNDER SEPARATE SUBMISSION.



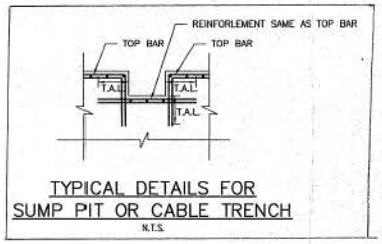
TYPICAL DETAILS OF STARTER BAR FOR STRAP BEAMS

NOTE : R.C. DETAILS OF COLUMN / WALL SHALL REFER TO SUPERSTRUCTURE PLAN UNDER SEPARATE SUBMISSION.



TYPICAL ARRANGEMENT OF SHEAR LINK

N.T.S.



TYPICAL DETAILS FOR SUMP PIT OR CABLE TRENCH

N.T.S.

C.S. TAM & ASSOCIATES

Tam Chee Sum Registered Structural Engineer

B.D. Ref. 3/4049/04

Plan Approved
W. C. YIP
Senior Structural Engineer
for BUILDING AUTHORITY
12 APR 2007

Rev.	Date	Descriptions
A	3–07	AMENDMENT
	3–07	B.D. APPROVED ON 19–12–06

Engineer
C.S. TAM & ASSOCIATES
FLAT A&B 5TH FL. HO LEE COMMERCIAL BUILDING 30–44 STAGULAR STREET, CENTRAL, HONG KONG TEL. 25258017–8 FAX. 28491751

Contractor
YAT MING CONSTRUCTION CO., LTD.

Project Title
PROPOSED RESIDENTIAL BUILDING AT SA PO ROAD, N.K.I.L. NO. 6330

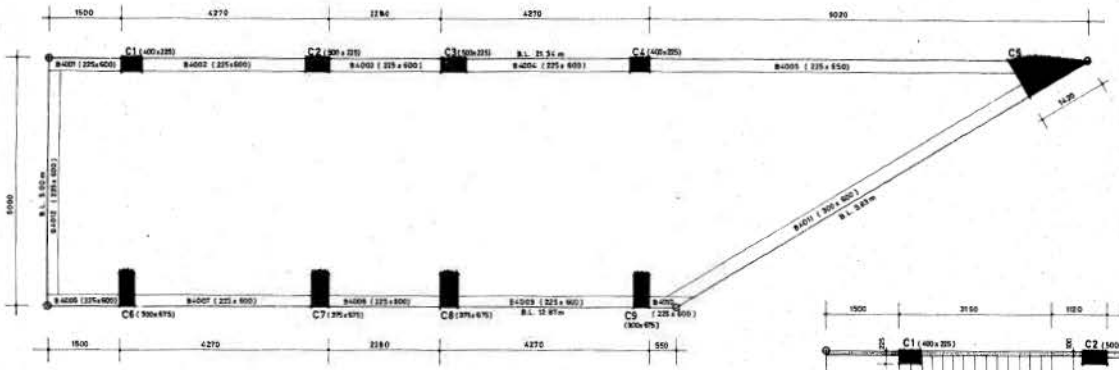
Drawing Title
GENERAL NOTES AND TYPICAL DETAILS

Designer
Victor Li & Associates Ltd.
Consulting Engineers
1019, Chevalier Comm. Centre, 8 Wang Hoi Road, Kowloon Bay, Hong Kong
Tel : (+852) 25192737
Fax : (+852) 21040052

Job No.	Drawing No.	Rev.
784	PC–11	A

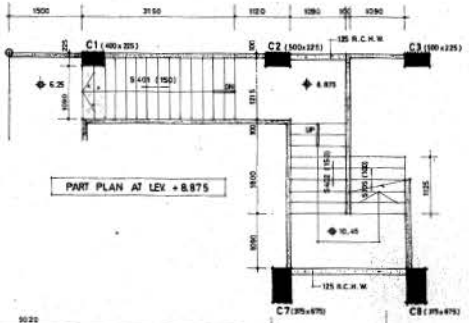
Drawn	KW	Designed	AT
Checked	VL	Scale	–
Date of Issue	3–06		

OTHER

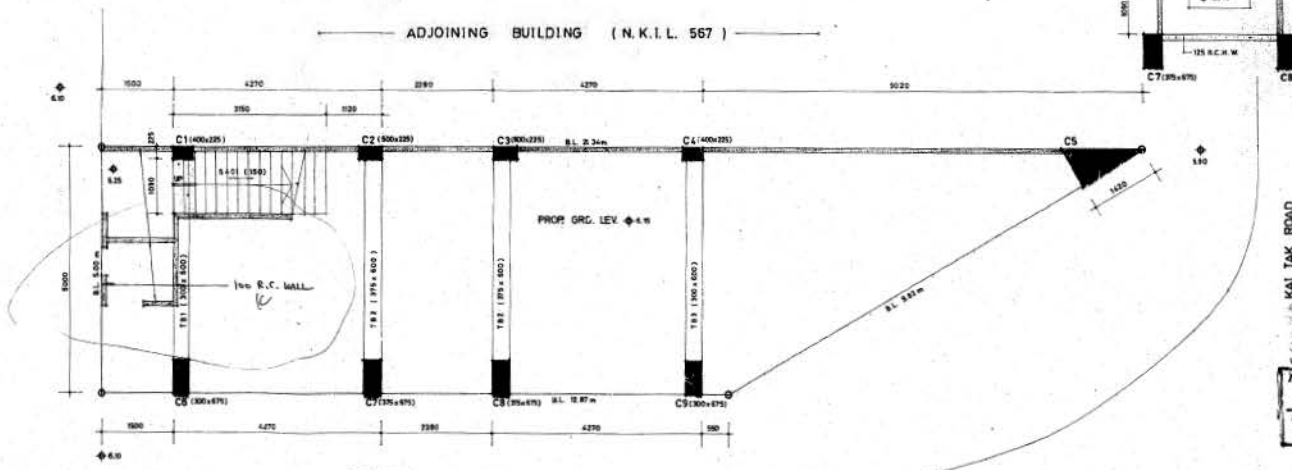


UPPER GROUND FLOOR FRAMING PLAN

NOTE: ALL UPPER GRD. FL. BEAM LEVEL TO BE AT + 3.95



PART PLAN AT LEV. + 8.875



GROUND FLOOR FRAMING PLAN

RECEIVED BY
Oct 29 3 30 PM '82
BUILDING DEVELOPMENT DEPARTMENT

B.O.O.
F.S.D.
LAB.D.
HWY

ALL MEASUREMENTS MUST BE CHECKED AT THE SITE. DO NOT SCALE DRAWINGS. THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY CERTIFIED

REVISION | CHECK

PROPOSED COMPOSITE BUILDING
AT N.K.I.L. 5768 NGA TSIN WAI ROAD, KOWLOON

NOTE: As these plans have been examined only as [illegible] Fined in Circular [illegible] Section 4(5) [illegible] Ordinance regarding your duty as Authorised Persons and to Section 14(2)(c) regarding possible contraventions [illegible] of the Buildings Ordinance.

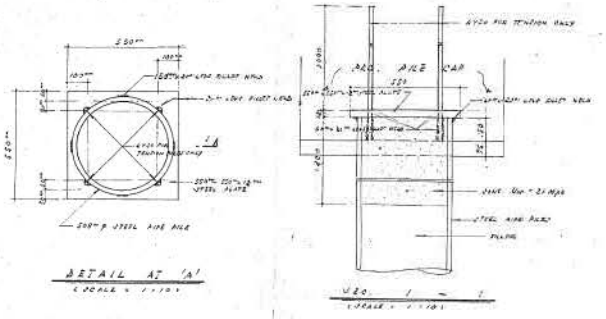
Approved
CHEUNG Kwok-shui
FOR BUILDING AUTHORITY
15 DEC 1982

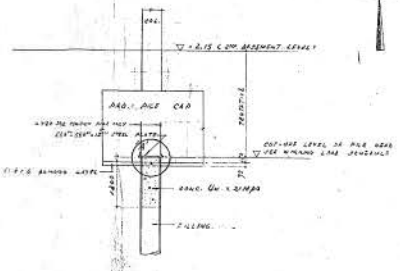
GROUND FL. & UPPER GROUND FL. FRAMING PLAN

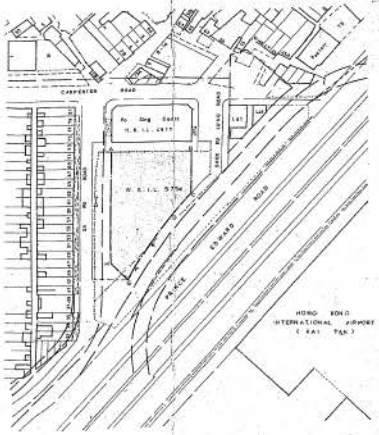
CHAU LAM ARCHITECT & ASSOCIATES
周林建築師
CHAU HO MING — B. ARCH (HONS.) HK.A.
LAM WAI CHING — B. SC., AM. S. C. S.
HO PENG — B. SC., F. I. STRUCT. E. CHARTERED ENGINEER
PENG

SCALE: 1:50		
DESIGNED BY:	JOB NO.	SHEET NO.
DRAWN BY: Nonnie	7903 A	ST-2
CHECKED BY:		
DATE: 15-10-82		

OTHER







WORKING LOAD SCHEDULE

PILE CAP MARK	NO. OF PILE CAP	NO. OF PILES PER PILE CAP	MIN. DEPTH BELOW FORMATION LEVEL OF PILE HEAD	NET WT. OF PILE CAP	MAX. LOADS ON PILE D.L	L.L	D.L + L.L	S.L.W	NO. OF S.W
P-1	1	4	-7.47	215	1722	2088		817	
P-2	1	2	-4.04	79	1440	1878	1928		
P-3	1	2	-3.82	150	1407	2208		817	
P-4	1	4	-7.47	215	1722	2088		1089	
P-5	2	6	-7.93 for col. A3 -8.24 for col. A4, A5 -8.64 for col. A2, A6	340	1457	1832		764	
P-6	3	7	-8.64 for col. A1, A7 -7.47 for col. A8 & A9 -8.24 for col. A10 & A11	402	1482	1817		798	
P-7	4	7	-8.79 for col. A5 -8.58 for col. A7 & A8 -7.29 for col. A6	400	1420	1798		822	
P-8	3	8	-7.79 for col. A1 -7.99 for col. A2 & A3 -7.29 for col. A4	410	1459	1788		832	
P-9	1	8	-7.99	280	1338	1728		859	
P-10	1	9	-7.79	488	1267	1668		798	
P-11	1	12	-8.4	1292	1479	1843		1054	
P-12	1	23	-8.74	2660	2244	2882	3332	1345	3.04
P-13	1	8	-7.36	700	1283	1715	1736	1116	5.24
P-14	1	12	-8.1	1220	1496	1824		1150	
P-15	1	17	-8	2180	1835	2213	2373		7.46
P-16	1	16	-8.58	1240	1562	1951	1930		8.07
P-17	2	2	-8.64	140	1402	1950	1963		3.18
P-18 & 18A	5	6	-8.44	220	1481	2162	1768	1139	
P-19	1	24	-8	2210	1799	2556	2554	-61	-2.07

U-121	DISTANCE IN METRES	BEARING °	'	"	REMARKS
A1	0.00	92	10	00	A
A2	39.65	92	10	00	A
A3	24.19	182	10	40	B
A4	16.25	220	04	00	C
A5	17.76	218	48	30	A
A7	18.52	272	20	30	E
A8	5.84	178	31	00	F
A9	11.44				
A6	56.69	92	10	40	H

NOTES:-

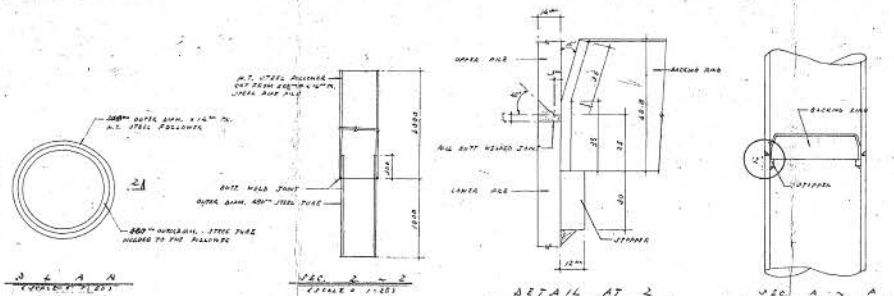
1. ESTIMATE GROSS LENGTH OF STEEL BEARING PIPE PILES BELOW EX. GRD LEVEL P.D. +5.85m TO BE FROM 36m TO 45m APP. (ACCORDING TO SITE INVESTIGATION REPORT OR TO THE REQUIRED SET AS SHOWN.)
2. ALL STEEL BEARING PIPE PILES TO BE SUPPLIED WITH B.S. 3360, 1972 GRADE 500 WITH MIN. YIELD STRENGTH = 355 MPA.
3. STEEL PLATES ARE MILD STEEL TO B.S. 4360 GRADE 43B WITH MIN. YIELD STRENGTH = 240 MPA. ALL REINFORCEMENT TO BE HIGH YIELD DEFORMED BARS (Y).
4. ALL STEEL PIPE PILES TO BE DRIVING WITHOUT STEEL SHOES, EXCEPT FOR PILE NO. P8,9&10 TO BE DRIVEN WITH STEEL SHOES
5. FILLING MATERIAL FOR STEEL PIPE PILES.
   (A) TOP 1.5m BELOW CUT-OFF PILE HEAD LEVEL TO BE SPECIAL MIX, CONC. U_{28} = 21 MPA.
   (B) CRUSH STONE, SAND OR NATURAL SAND TO BS.882 SHALL BE FILLED INTO THE PILE FOR THE REST.
6. PROPOSE GRD. FL. LEVEL TO BE +5.95m P.D.
   1ST BASEMENT LEVEL TO BE +1.95m P.D.
   2ND BASEMENT LEVEL TO BE -2.15m P.D. & -5.50m P.D. AS SHOWN ON PLAN
   TOP OF PILE CAP LEVEL TO BE 500mm BELOW BASEMENT SLAB LEV.
7. PROVIDE STEEL FRAME TRUSS WITH DROP HAMMER PILING RIG & STEEL HELMET & PLASTIC DOLLY FOR PILE DRIVING.
8. PROVIDE 508mm ø HIGH YIELD STEEL BEARING PIPE PILES WITH MAX. DESIGN CAPACITY FOR SINGLE PILE = 2240 KN & (2612.25 KN/PILE WITH WIND EFFECT)
   MIN. PILES SPACING = 1600mm
   THICKNESS OF STEEL PIPE PILE TO BE 11 mm
9. PROVIDE STEEL FOLLOWER FOR PILE DRIVING, DETAIL AS SHOWN
10. THE ULTIMATE WORKING CAPACITIES OF PILES ARE ASSESSED BY HILEY FORMULA WITH THE DRIVING SET DATA AS FOLLOW: (C VALUE SAY 30mm & HILL BE VERIFIED ON SITE)
11. BITUMIUM SOLUTION SHALL BE APPLIED FOR THE UPPER SECTION OF THE PILES FOR AGAINST CORROSION.
12. ALL WELDING WORKS SHALL BE COMPLIED WITH B.S. 5135, N.

CHAN PING YIU, B.Sc. (Eng.), C. ENG. M.I.C.E.
REGISTERED STRUCTURAL ENGINEER
GRANTED FREE ENGINEER-AUTHORISED PERSON

AMENDED PLAN

Approved
for BUILDING AUTHORITY
26 MAR 1981

U-121	LENGTH OF PILE	NO. OF SPLICE	NO. OF PILES	EAST PENETRATION (m) (FOR BLOWS) WITHOUT FOLLOWER	WITH FOLLOWER (4m)
EXTREMITY PILE STEEL PIPE PILE	30m	2	2204m	24	–
			2668	–	28
	36m	2	2649	28	–
			2813	–	32
	42m	2	2802	28	–
			2816	–	32
	45m	2	2320	28	–
			2133	–	32
	48m	2	2160	28	–
	48m	2	1910	28	–



REVISION		
E	6-3-81	ADDITIONS OF PILE NO. P16 & P17
D	1-1-81	AMEND AMEND GENERAL NOTES
C	12-8-80	ADD PILE NO. P17 & P18 TO RECOMMENDED EMBEDDED LENGTH OF SPLICED PILE (AMENDED)
B	22-11-79	ADD PILE NO. P16 & P17 TO PILE SCHEDULE, REVISED GENERAL NOTE NO. 8 & 10
A	12-11-79	REVISED GENERAL NOTE NO. 6 & ADD PILE DETAIL OF PILE SHOE, P16
NO.	DATE	DESCRIPTION

DESIGNED	W.Y. YUEN
DRAWN	S. P. CHAN
CHECKED	
CONTRACT NO.	

PROJECT: N. K. I. L. 5754, JA AO ROAD, KOWLOON

TITLE: PILING PLAN

DRAWING NO. PRM 2032 - P3/3 E

SCALE AS SHOWN ON PLAN

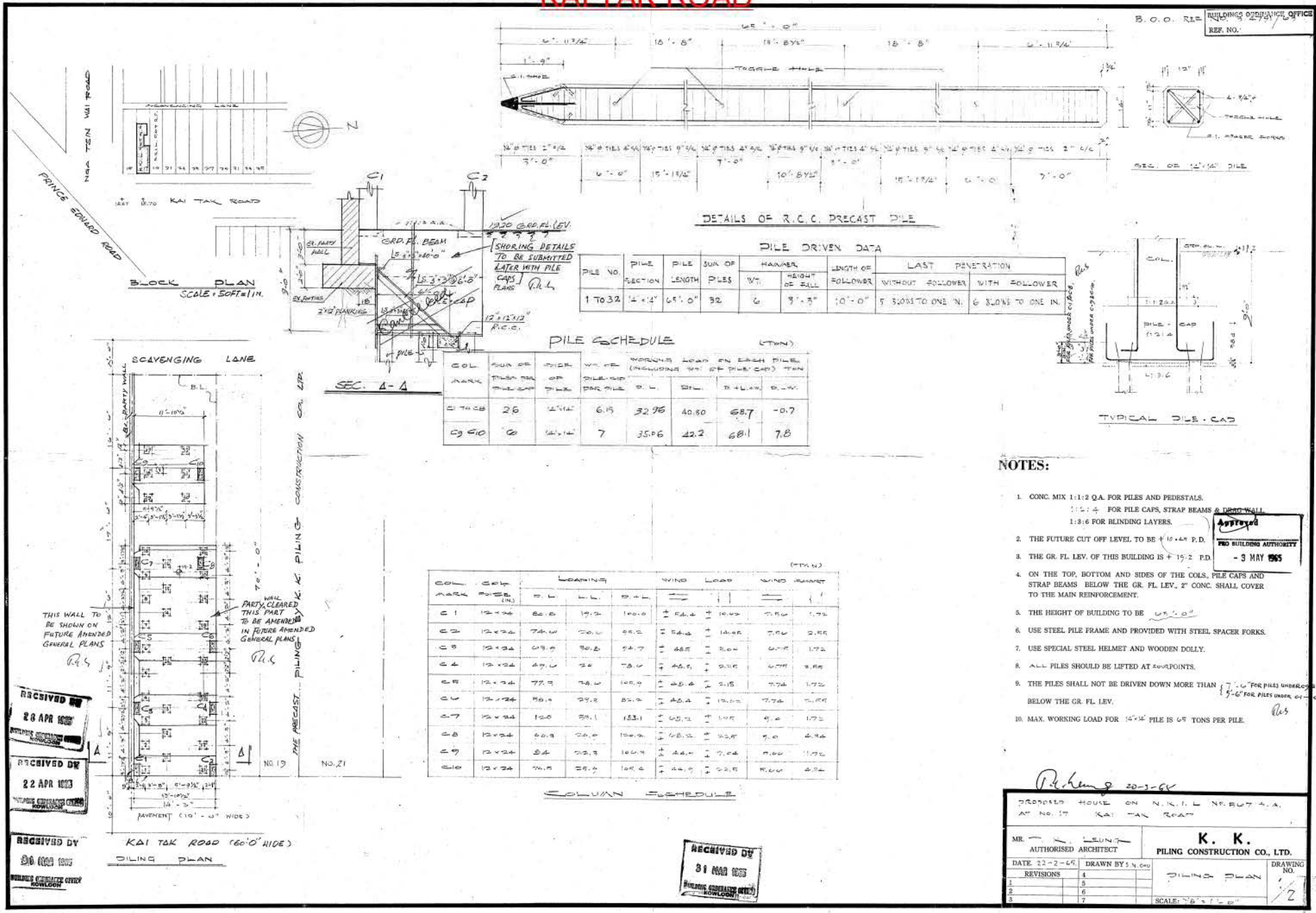
AUTHORIZED PERSON

W. Y. LO & ASSOCIATES

成業打樁建築有限公司
RIH SHING VIP PILING & CONST LTD
HO LEE COMMERCIAL BUILDING 3RD FLOOR, FLAT H-O,
38 D'AGUILAR STREET, HONG KONG. TEL: 5-286246

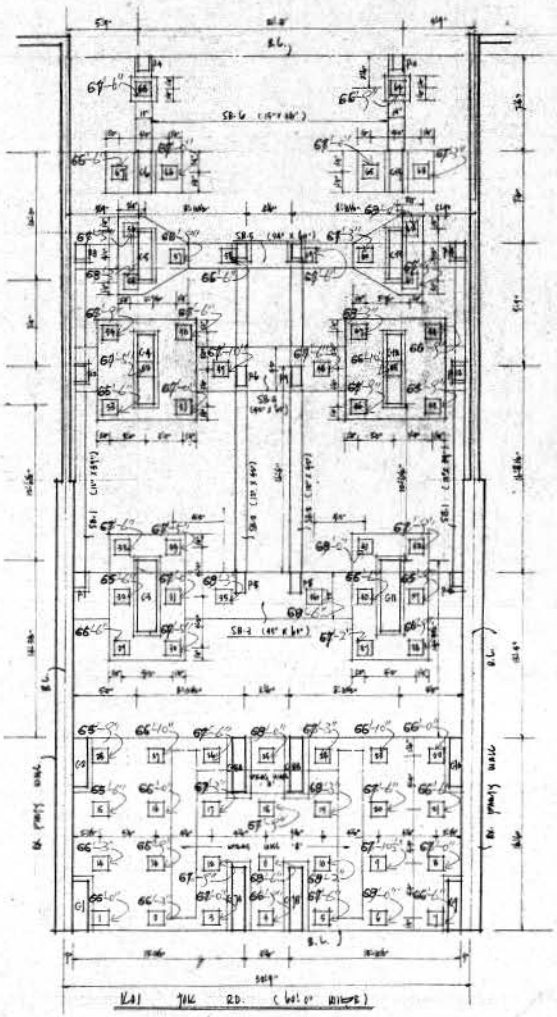
KAI TAK ROAD

KAI TAK ROAD


B.O.O. REF. NO. 3/2737/64
BUILDINGS ORDINANCE OFFICE REF. NO.
65'-0"
TOGGLE HOLE
DETAILS OF R.C.C. PRECAST PILE
PILE DRIVEN DATA
PILE NO. | PILE SECTION | PILE LENGTH | SUM OF PILES | HAMMER WT. | HAMMER HEIGHT OF FALL | LENGTH OF FOLLOWER | LAST PENETRATION WITHOUT FOLLOWER | LAST PENETRATION WITH FOLLOWER
1 TO 32 | 14"×14" | 65'-0" | 32 | 6 | 9'-3" | 10'-0" | 5 BLOWS TO ONE IN. | 6 BLOWS TO ONE IN.
SEC. OF 14"×14" PILE
BLOCK PLAN
SCALE: 50FT=1IN.
PRINCE EDWARD ROAD
NGA TSIN WAI ROAD
SCAVENGING LANE
KAI TAK ROAD
SEC. A-A
GRD. FL. BEAM
SHORING DETAILS TO BE SUBMITTED LATER WITH PILE CAPS PLANS
1320 GRD. FL. LEV.
PILE-CAP
PILE SCHEDULE (TONS)
COL. MARK | SUM OF PILES PER PILE CAP | SIZE OF PILE | WT. OF PILE-CAP PER PILE | WORKING LOAD ON EACH PILE (INCLUDING WT. OF PILE-CAP) TON D.L. | L.L. | D.L.+L.L. | W.+L.L. | D.L.+W.
C1 TO C8 | 28 | 14"×14" | 6.19 | 32.96 | 40.80 | 68.7 | -0.7
C9 C10 | 6 | 14"×14" | 7 | 35.96 | 42.2 | 68.1 | 7.8
TYPICAL PILE-CAP
SCAVENGING LANE
PARTY WALL CLEARED THIS PART TO BE AMENDED IN FUTURE AMENDED GENERAL PLANS
THIS WALL TO BE SHOWN ON FUTURE AMENDED GENERAL PLANS
THE PRECAST PILING BY K. K. PILING CONSTRUCTION CO. LTD.
NO. 19
NO. 21
PAVEMENT (19'-0" WIDE)
KAI TAK ROAD (60'0" WIDE)
PILING PLAN
COLUMN SCHEDULE (TONS)
COL. MARK | COL. SIZE (IN.) | LOADING D.L. | L.L. | D.+L. | WIND LOAD ⟷ | WIND LOAD ↕ | WIND MOMENT ⟷ | WIND MOMENT ↕
C1 | 12×24 | 80.8 | 19.2 | 100.0 | ± 54.4 | ± 10.45 | 7.80 | 1.72
C2 | 12×24 | 74.4 | 20.0 | 94.2 | ± 54.4 | ± 14.85 | 7.80 | 2.55
C3 | 12×24 | 69.8 | 20.8 | 90.7 | ± 48.5 | ± 8.04 | 6.78 | 1.72
C4 | 12×24 | 69.0 | 22 | 78.0 | ± 46.6 | ± 9.26 | 6.78 | 2.66
C5 | 12×24 | 77.3 | 78.0 | 105.9 | ± 48.4 | ± 2.15 | 7.74 | 1.72
C6 | 12×24 | 88.4 | 39.2 | 85.3 | ± 48.4 | ± 13.62 | 7.74 | 2.66
C7 | 12×24 | 120 | 33.1 | 153.1 | ± 65.2 | ± 10.5 | 9.4 | 1.72
C8 | 12×24 | 60.9 | 24.6 | 100.9 | ± 62.2 | ± 22.8 | 5.0 | 4.84
C9 | 12×24 | 84 | 22.3 | 106.3 | ± 44.6 | ± 7.64 | 11.66 | 1.72
C10 | 12×24 | 76.5 | 25.4 | 101.4 | ± 44.6 | ± 22.8 | 11.66 | 4.84
NOTES:
1. CONC. MIX 1:1:2 Q.A. FOR PILES AND PEDESTALS. 1:1:4 FOR PILE CAPS, STRAP BEAMS & DRAIN WALL. 1:3:6 FOR BLINDING LAYERS.
2. THE FUTURE CUT OFF LEVEL TO BE + 10.48 P.D.
3. THE GR. FL. LEV. OF THIS BUILDING IS + 15.2 P.D.
4. ON THE TOP, BOTTOM AND SIDES OF THE COLS., PILE CAPS AND STRAP BEAMS BELOW THE GR. FL. LEV., 2" CONC. SHALL COVER TO THE MAIN REINFORCEMENT.
5. THE HEIGHT OF BUILDING TO BE 65'-0"
6. USE STEEL PILE FRAME AND PROVIDED WITH STEEL SPACER FORKS.
7. USE SPECIAL STEEL HELMET AND WOODEN DOLLY.
8. ALL PILES SHOULD BE LIFTED AT FOURPOINTS.
9. THE PILES SHALL NOT BE DRIVEN DOWN MORE THAN 7'-6" FOR PILES UNDER C1-C10, 5'-6" FOR PILES UNDER C1-C8 BELOW THE GR. FL. LEV.
10. MAX. WORKING LOAD FOR 14"×14" PILE IS 65 TONS PER PILE.
Approved PRO BUILDING AUTHORITY - 3 MAY 1965
RECEIVED BY 26 APR 1965 BUILDING ORDINANCE OFFICE KOWLOON
RECEIVED BY 22 APR 1965 BUILDING ORDINANCE OFFICE KOWLOON
RECEIVED BY 30 MAR 1965 BUILDING ORDINANCE OFFICE KOWLOON
RECEIVED BY 31 MAR 1965 BUILDING ORDINANCE OFFICE KOWLOON
PROPOSED HOUSE ON N.K.I.L. No. 607 A.S. AT No. 17 KAI TAK ROAD
MR. — N. LEUNG AUTHORISED ARCHITECT
K. K. PILING CONSTRUCTION CO., LTD.
DATE 22-2-65 DRAWN BY S.N.CHU
REVISIONS 1 2 3 4 5 6 7
PILING PLAN
SCALE: 1/8"=1'-0"
DRAWING NO. 1/2

KAI TAK ROAD

BUILDINGS ORDINANCE OFFICE
B.O. Ref.: 3/4763/61



PILING KEY PLAN

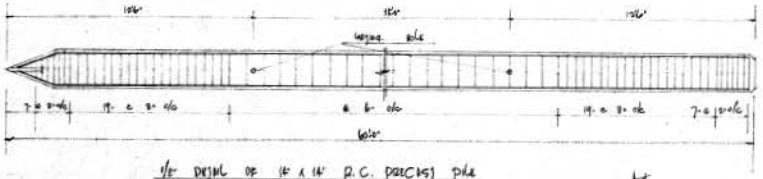
COL.	SIZE	D	D+L	W+Y	W+X	S+Y	S+X	CAP.	PILE HEAD	D	D+L	D+L+HD	D+W	DEPTH OF PILE CAP.
C-1	14'x 66'	103.6	166.3	18.8	25.6	2.1	6.3							
C-2	14' x 66'	103.8	166.3	18.8	28.5	2.1	6.3							
C-2A	14'x 60'	100.8	139.0	16.1	30.3	4.1	6.5					64.9 (MIN.) 95.5 (MAX.)	57.8 (MIN.) 90.8 (MAX.)	50'
C-3	14' x 60'	100.5	139.0	16.1	29.8	4.1	6.5	150	28	38.2	44.2			
C-4	14' x 47'	83.9	118.1	17.4	23.3	1.9	5.6							
C-5	14' x 47'	83.5	118.1	17.4	24.1	1.9	5.4							
C-5A	14'x 66'	118.8	166.3	23.8	28.9	2.7	6.0							
C-6B	14'x 66'	118.8	166.3	23.6	28.9	2.7	5.0							
P-1	30'x 66'	11.6	16.4	16	23.6	-0.3	0.4							
C-6	14' x 66'	118.5	166.3	17.5	80	6.9	12.6	20	7	67.2	85.4	68.0	33.4	50'
P-2	30' x 14'	30.5	39.0	2.5	30	-1	0.5							
P-3	30'x 14'	30.2	39.0	2.5	30	-1	0.5							
C-11	14' x 66'	118.5	166.3	17.5	82	8.9	13.5	20	7	67.0	85.4	68.0	33.4	
P-10	14'x 66'	11.5	16.6	16	23.8	-0.3	2.4							
P-2	30'x 66'	8.4	16.3	0.1	28.1	-0.8	-1.6							
C-5	30'x 47'	206.0	289.3	6.6	35.4	6.6	10.8	25	6	44.9	58.8	68.0	33.6	50'
P-4	30'x 47'	28.6	38.5	0.1	16.6	0.1	0.9							
P-5	30'x 47'	28.6	38.5	0.1	16.6	0.1	0.9							
C-12	30'x 47'	206.0	289.3	6.6	35.4	6.6	11.8	25	6	44.9	63.8	68.0	33.6	50'
P-11	30'x 47'	11.4	16.7	0.1	28.1	0.1	-1.8							
P-9	30'x 66'	6.8	9.7	0.1	23.2	0.4	-3.9							
C-8	30'x 47'	83.5	117.0	16.5	8.6	3.5	5.3	18	6	36.2	46.1	51.9	32.8	50'
P-7	30'x 47'	11.5	17.0	-1	8.8	-0.6	-1							
P-8	30'x 47'	11.2	17.4	-1	8.8	-0.3	-1							
C-13	30'x 47'	83.6	117.0	16.4	9.0	1.9	5.3	18	6	36.1	46.1	51.9	32.8	
P-13	30'x 66'	16	7.7	0.1	23.2	-0.4	-3.4							
C-6	30'x 66'	206.0	289.3	26.6	28.7	3.5	6.9	30	8	44.6	63.0	69.9	36.8	45'6"
P-6	30'x 66'	11.6	16.7	1.6	2.3	-0.6	0.4	6.0	1	15.9	20.5	20.6	6.9	45'0"
C-14	30'x 66'	206.0	289.3	26.6	28.7	3.5	6.9	30	8	44.6	63.0	69.9	36.8	45'6"
P-12	30'x 66'	11.6	16.7	1.6	2.3	-0.6	0.6	6.0	1	15.9	20.5	20.6	6.9	45'0"

NOTE :-
1. ALL CONC. TO BE 1:2:4 MIX.
2. ALL MINOR LOADS, WIND SHEAR, & CONC. LOAD TO 30 TONS.
3. WT. OF BOLLARD, = 2½ T.

DESIGN OF R.C.C. PRECAST PILES

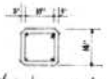
1. 14" x 14" SQ. R.C. CONC PRECAST PILES.
2. (1:1:2 CEMENT & CONCRETE MIX.
3. ½" TO BE AGGREGATE USED
4. ALL PILES TO BE LOCATED BY TOP PILES
5. ALL PILES TO BE DRIVEN DOWN 150" BELOW CONC. PL. LEVEL.
6. ALL PILES TO BE CUT OFF 12" BELOW CONC. PL. LEVEL.
7. WT. OF HAMMER SOLELY & STATIONARY PILES TO BE ADOPTED = 2½ = 0.5 TON.
8. COVER TO STEEL IN STRAP BM. ½", CAPS 3"
9. ALLOWING LAPPED 1:2:4 MIX. & WATER PROOFING & CONC. OVER THE UNDISTURBED EARTH BEFORE THE CONSTRUCTION OF CAPS, BMS. & CONC. WALLS.
10. HORIZONTAL 6" WIDE 9" HIGH PILE ALL CONC.
11. ALLOWING LOAD

	1-6 PILES	5 & OVER
D+L	66.0	66.0
D+L+W.	81.2	69.0

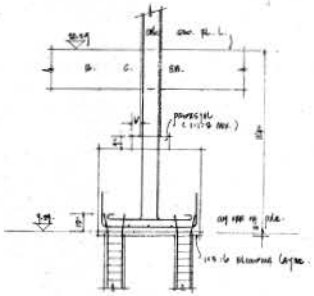


½ DESIGN OF 14" x 14" R.C. PRECAST PILE

PILES DRIVEN	WT. OF HAMMER = W	WEIGHT OF PILE = P	W. OF HAMMER PER FOOT OF PENETRATION = Z
14" x 14"	5 TONS.	4.9 T.	1 TONS PER 1"



SEC.



DETAIL OF PILE HEAD & PROPOSAL

RECEIVED BY
25 APR 1963
BUILDING ORDINANCE OFFICE

YEUNG TO CONSTRUCTION CO.
RM. 52 WING HOUSE 5TH FL.
DING KONG (TEL. 31594)

LO KWONG YIU, A. ....
Authorised Architect
25 APR 1963

WEIGHT OF R. C. C. PRECAST PILES FOR PROPOSED HOUSEBOAT HOUSE ON N. K. I. L. 1884, SEC. A & B N.K. I.L. 1810 SEC. A & A.P. NO. 65-67 KAI TAK ROAD

SCALE:- 3/16" = 1'0" | DRWG. NO. 1. | ARCHITECT:- LO KWONG YIU B. ARCH.

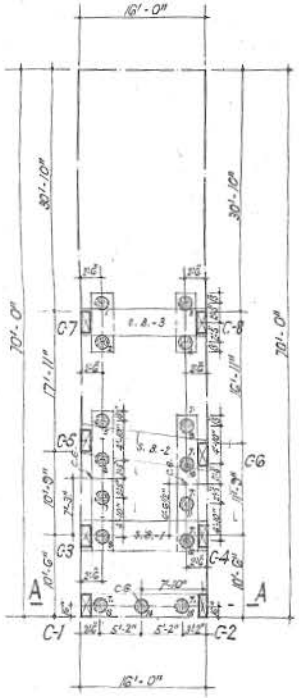
KAI TAK ROAD

B. O. O. REF. No. 3/4019/71.

PRESSURE WESTPILE DETAILS				
Diameter	21"	18½"	Nos. 18½ ϕ Piles	15
Authorised Load	115T	90T	Design Load	90-0"
Spacing	8'-6"	4'-10"	Depth	90'-0"
Conc. Mix. in piles	1:2:4	1:2:4	Conc. Mix. in caps	1:2:4 A.
Soil Data: hard pink yellow & brown clayey silt with well graded sand & fine gravel.				

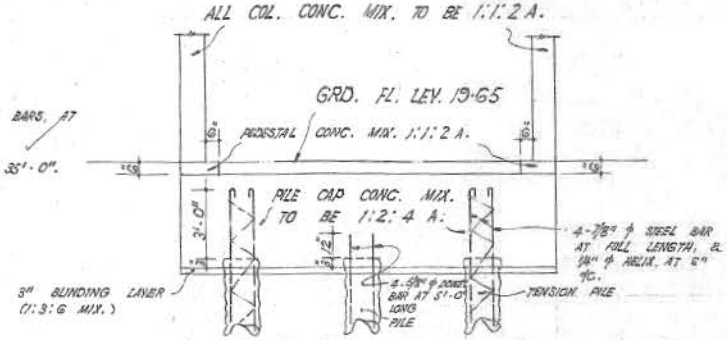
NOTE :-

1. THE HEIGHT OF BUILDING = 64'-6".
2. T = 18½" DIA. TENSION PILE, USE 4-7/8" ϕ STEEL BARS, AT FULL LENGTH, & ¼" ϕ HELIX. AT 6" c/c.
3. THE MIN. NET LENGTH OF TENSION PILE TO BE 35'-0".



KAI TAK ROAD

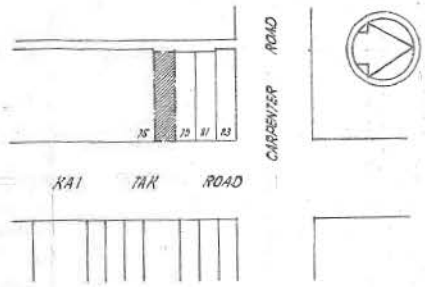
PILING PLAN



SECTION A - A

SHOWING THE TOP LEVEL OF PILE CAP

(SCALE : 3/8" = 1'-0")



BLOCK PLAN

(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING TONS			WIND LOAD (TONS)		WIND SHEAR (KIPS)		WEIGHT OF PILE CAP	No. OF PILE 18½" ϕ	LOAD PER PILE (TONS)					DEPTH OF PILE CAP
		D. L.	L. L.	D.+L.	⟷	↕	⟷	↕			D. L.	D. +L.	D.+L.+W. ⟷	D.+L.+W. ↕	⅔ D.-W.	
C-1	12"X32"	67·0	6·7	73·7	∓33·5	∓22·3	12·27	5·86	12	3	46.8	51.2	99.8	66.1	-15	4'-0"
C-2	12"X32"	61·3	6·7	68·0	±33·5	∓22·3	12·27	5·86								
C-3	12"X32"	66·0	9·0	75·0	∓42·5	±11·2	15·09	5·86	28	4	52.8	64.3	97.9	67.6	0.6	4'-0"
C-5	12"X32"	111·5	15·2	126·7	∓62·5	∓3·1	21·42	5·86								
C-4	12"X32"	51·5	9·0	60·5	±42·5	±11·2	15·09	5·86	28	4	41.9	53.4	86.8	55.9	-5.7	4'-0"
C-6	12"X32"	93·8	13·0	106·8	±62·5	∓1·4	21·42	5·86								
C-7	12"X32"	89·3	11·2	100·5	∓42·5	±13·4	15·28	5·86	13	2	52.3	61.3	90.5	68.1	8.0	4'-0"
C-8	12"X32"	76·0	9·4	85·4	±42·5	±12·5	15·28	5·86	13	2	42.8	51.5	80.5	57.7	2.0	4'-0"

Approved
12 JUL 1972

RECEIVED BY
15 MAY 1972
P. W. D.

DAI-CHUNG SHUM, F.R.A.I.A.
CHARTERED ARCHITECT
612 CENTRAL BUILDING
PEDDER STREET,
HONG KONG

PRESSURE WESTPILE

DATE 5-5-72	SCALE 1/8"=1'-0"	72
		612
	1075	1

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1715 AT No. 77 KAI TAK ROAD.

KAI TAK ROAD

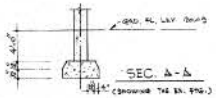
B.O.O. REF. No 3/4412/63

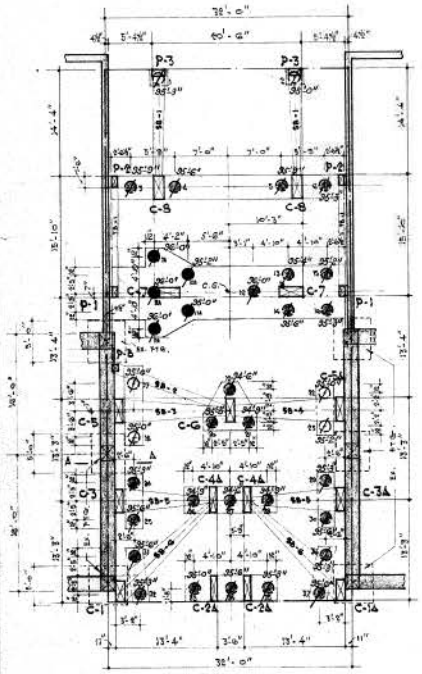
BUILDING ORDINANCE OFFICE REF. NO.

PRESSURE PILING DETAILS

Outside diameter of pile and symbol	18" ⊠	14" ○	14" ●
Estimated number of Pressure Piles required	42	6	31
Maximum authorised D + L load and Minimum rejection	42 & 37.8	71.0 & 4.4	89 & 11.12
Maximum Design load	71	89	

Approximate depth of bore will be 35'-0" and the pile will be terminated in stiff clay with cobbles and some rock.
Concrete Mix. for pile & pile caps is 1:2:4 with 1½" maximum size of aggregate.
Piles are designed to carry their load in bearing & in friction.
All dimensions, column sizes & loadings, are extracted from drawing No.
Arch. & Str. 24 prepared by the Architect, LO KWONG YIU



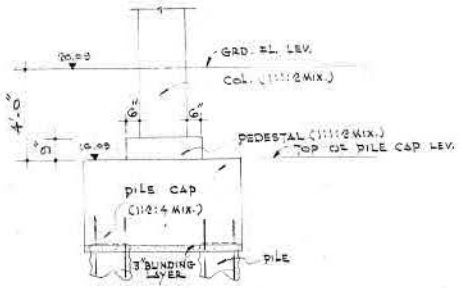


PILING PLAN

RECEIVED BY 14 JUL 1965

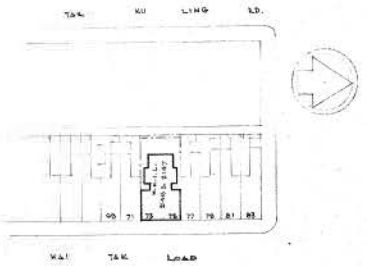
NOTE:-

THE FIGURES MARKED ON THE PLAN IN RED ARE THE DEPTHS OF EACH PILE FROM THE FUTURE GROUND LEVEL TO ITS TIP



DETAIL OF TYPICAL PILE CAP

(SHOWING THE TOP LEV. OF PILE CAP)



BLOCK PLAN

SCALE: 1" = 50'-0"

HEIGHT OF BUILDING = 95'-6"

COLUMN		LOADING (TONS)			W. L. (TONS)		W. S. (KIPS)		WEIGHT OF PILE CAP (TONS)	NO OF PILE		LOAD PER PILE (TONS)				D.-W.	DEPTH OF PILE CAP
MARK	SIZE	D. L.	L. L.	D+L.	X	Y	X	Y		16"ø	18"ø	D. L.	D+L.	W. L.	D+L+W.		
C-1	14"x 32"	107.0	12.9	119.9	± 40.4	± 30.9	16.42	10.43	4.0		2	67.1	75.05	24.6	99.65	42.5	3'-6"
C-1A	14"x 32"	107.0	14.0	121.0	± 40.4	± 30.9	16.42	10.43	4.0		2	67.1	75.9	24.6	100.5	42.5	3'-6"
C-2A	9"x 40"	94.0	17.6	111.6	± 8.9	± 28.4	7.35	10.80	8.0		3	65.3	77.1	18.92	96.02	46.38	4'-0"
C-3	12"x 36"	86.0	18.1	104.1	± 42.4	± 0.8	16.40	10.43	4.0		2	53.15	64.0	25.25	89.25	27.9	3'-6"
C-3A	12"x 36"	86.3	18.0	104.3	± 42.4	± 0.8	16.40	10.43	4.0		2	53.45	64.15	25.25	89.40	28.2	3'-6"
C-4A	9"x 40"	80.5	25.7	106.2	± 5.6	± 9.5	7.64	10.80	8.0		3	56.3	73.5	6.33	79.83	49.97	4'-0"
C-5	12"x 36"	81.5	17.3	98.8	± 44.2	± 29.3	14.25	10.43	6.0	2		48.28	61.23	26.13	87.36	22.15	3'-6"
P-8	9"x 9"	1.73	—	1.73	—	—	—	—									
C-5A	12"x 36"	81.0	16.0	97.0	± 44.2	± 29.3	14.25	10.43	4.0	2		49.0	58.65	25.75	84.4	23.25	3'-6"
C-6	14"x 36"	180.0	56.8	236.8	± 3.26	± 36.0	22.66	12.25	6.0		3	62.0	81.0	12.0	93.0	50.0	3'-0"
C-7	38"x 14"	260.0	40.0	300.0	± 33.5	± 27.7	33.75	1.86	56.0		10	59.0	71.08	23.0	94.08	26.77	4'-0"
P-1	9"x 16"	7.44	3.46	10.9	± 41.8	± 0.47	0.43	0.09									
C-8	16"x 36"	108.2	29.5	137.7	± 7.0	± 24.6	17.05	14.00	26.0		4	63.4	79.1	31.0	110.1	32.4	4'-0"
P-2	14"x 9"	5.51	2.09	7.6	± 30.2	± 0.6	4.25	0.22									
P-3	20"x 9"	24.2	7.0	31.2	± 1.16	± 5.1	2.43	0.27	1	1		26.2	33.5	5.31	38.81	20.89	2'-6"

LO KWONG YIU, R. [illegible]

13 JUL 1965

B	Showing the ex. ftg. of plan.	4-6-1965
A	CHANGE PILE PORTION FOR PILE NO. 1A, 8A, 8A, 10A & 11A ONLY	8-5-65

PRESSURE PILING CO.

DRAWN	DATE 8-5-64	1965 64
CHECKED	SCALE 1/8"=1'-0"	JOB No. 555
APPROVED	DWG No. C 521	SHEET No. 1B

PROPOSED PRESSURE PILING PLAN ON N.K.I.L. 2146 & 2147 AT No 73 ~ 75 KAI TAK ROAD

4

KAI TAK ROAD

B.O.C. REF. [illegible]

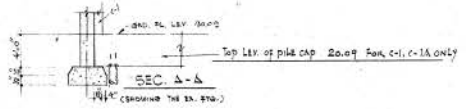
PRESSURE PILING DETAILS			
Outside diameter of tube and symbol	12¾" ⊗	16" ○	19" ●
Estimated number of Pressure Piles required		6	31
Maximum authorised D + L load and Minimum spacing	42.0 / 5'-6"	71.0 / 4'-6"	89.0 / 5'-10"
Maximum Design load		71	89

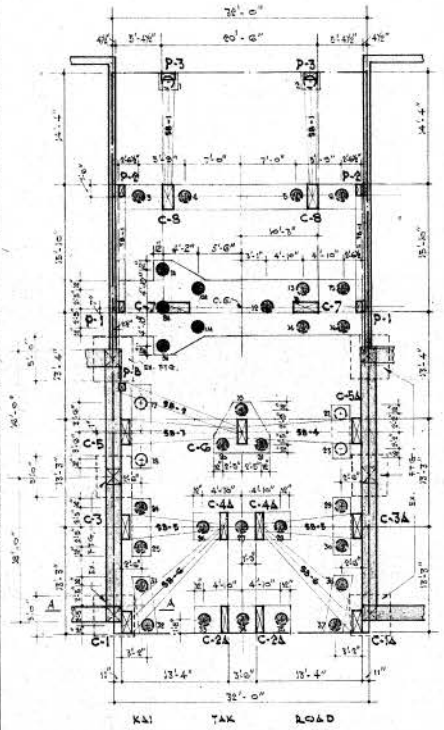
Approximate depth of bore will be 25'-0" and the pile will be founded in HARD CLAY WITH GRAVEL AND SOME SAND BELOW ± GRADE OF F.M.G. GRAVEL

Concrete Mix. for pile & pile caps is 1:2:4 with 1½" maximum size of aggregate.

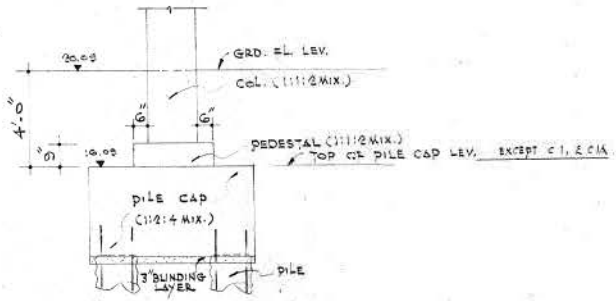
Piles are designed to carry their load in bearing & in friction.

All dimensions, column sizes & loadings, are extracted from drawing No. Incl. S-LDR-64 prepared by the Architect. Leo KWONG YIU



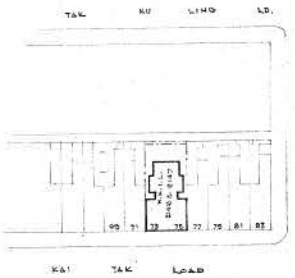


PILING PLAN



DETAIL OF TYPICAL PILE CAP

(SHOWING THE TOP LEV. OF PILE CAP)



BLOCK PLAN

SCALE: 1" = 50'-0"

HEIGHT OF BUILDING = 95'-6"

COLUMN		LOADING (TONS)			W. L. (TONS)		W. S. (KIPS)		WEIGHT OF PILE CAP (TONS)	No. OF PILE		LOAD PER PILE (TONS)				DEPTH OF PILE CAP
MARK	SIZE	D. L.	L. L.	D+L.	X	Y	X	Y		16"ϕ	12¾"ϕ	D. L.	D+L.	W. L.	D+L+W.	D.-W.	
C-1	14"x 32"	107.0	12.9	119.9	± 40.4	± 30.9	16.42	10.43	4.0		2	67.1	75.05	24.6	99.65	42.5	4'-0"
C-1A	14"x 32"	107.0	14.0	121.0	± 40.4	± 30.9	16.42	10.43	4.0		2	67.1	75.9	24.6	100.5	42.5	4'-0"
C-2A	9"x 40"	94.0	17.6	111.6	± 8.9	± 28.4	7.35	10.80	8.0		3	65.3	77.1	18.92	96.02	46.38	4'-0"
C-3	12"x 36"	86.0	18.1	104.1	± 42.4	± 0.8	16.40	10.43	4.0		2	53.15	64.0	25.25	89.25	27.9	4'-0"
C-3A	12"x 36"	86.3	18.0	104.3	± 42.4	± 0.8	16.40	10.43	4.0		2	53.45	64.15	25.25	89.40	28.2	4'-0"
C-4A	9"x 40"	80.5	25.7	106.2	± 5.6	± 9.5	7.64	10.80	8.0		3	56.3	73.5	6.33	79.83	49.97	4'-0"
C-5	12"x 36"	81.5	17.3	98.8	± 44.2	± 29.3	14.25	10.43	6.0	2		48.28	61.23	26.13	87.36	22.15	4'-0"
P-B	9"x 9"	1.73	—	1.73	—	—	—	—									
C-5A	12"x 36"	81.0	16.9	97.9	± 44.2	± 29.3	14.25	10.43	4.0	2		49.0	58.65	25.75	84.4	23.25	4'-0"
C-6	14"x 36"	180.0	56.8	236.8	± 3.26	± 36.0	22.66	12.25	6.0		3	62.0	81.0	12.0	93.0	50.0	4'-0"
C-7	38"x 14"	260.0	40.0	300.0	± 33.5	± 27.7	33.75	1.96	56.0		10	59.0	71.08	23.0	94.08	26.77	4'-0"
P-1	9"x 16"	7.44	3.46	10.9	± 41.8	± 0.47	0.49	0.69									
C-8	16"x 36"	108.2	29.5	137.7	± 7.0	± 24.6	17.05	14.00	26.0		4	63.4	79.1	31.0	110.1	32.4	4'-0"
P-2	16"x 9"	5.51	2.09	7.6	± 30.2	± 0.6	4.25	0.22									
P-3	20"x 9"	24.2	7.0	31.2	± 1.16	± 5.1	2.43	0.27	1	1		26.2	33.5	5.31	38.81	20.89	2'-6"

Approved
PRO BUILDING AUTHORITY
10 JUL 1965
LO KWONG YIU, [illegible]

RECEIVED BY
[illegible] JUL 1965
BUILDING [illegible] KOWLOON

B	Showing the ex. grd. on plan.	4-8-1965
A	CHANGE PILE POSITION FOR PILE NOS. 7A, 8A, 9A, 10A & 11A ONLY	8-5-65

PRESSURE PILING CO.

DRAWN	DATE 3-5-64	YEAR	64
CHECKED	SCALE 1"=1'-0"	JOB No.	555
APPROVED	C No. 521	DWG No.	1B

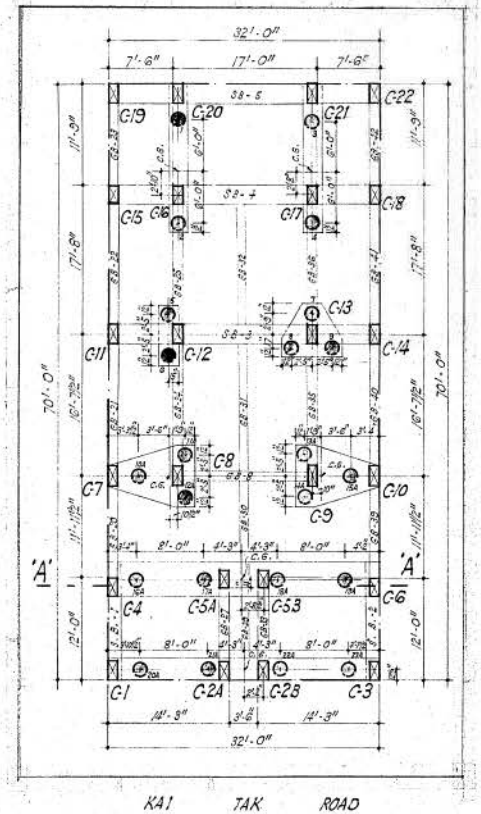
PROPOSED PRESSURE PILING PLAN ON N.K.I.L. 2146 & 2147 AT No. 73 ~ 75 KAI TAK ROAD

KAI TAK ROAD

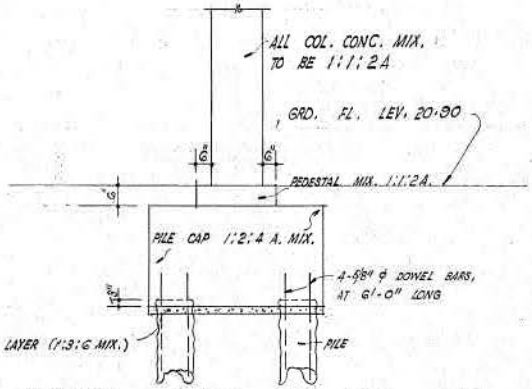
GUY W. K. CHAN
Authorised Architect

PRESSURE PILING DETAILS			
Tube diameter	18"	Pile Nos.	23
Ascertained load	80T.	Design load	89·0T.
Spacing	4'-10"	Depth of bore	80'to 85'
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4 A.
Soil Type: hard yellow & brown silty clay with coarse sand & fine gravel.			

NOTE :-
THE HEIGHT OF BUILDING = 73'-0"

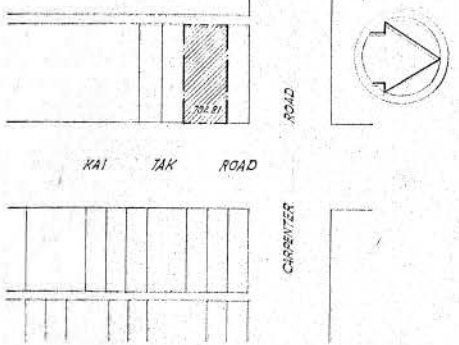


PILING PLAN



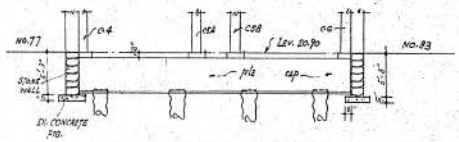
TYPICAL DETAIL OF PILE CAP
SHOWING THE TOP LEVEL OF PILE CAP (SCALE : 3/8" = 1'-0")

B. O. O. REF. No. 3/4038/67



BLOCK PLAN
(SCALE : 1" = 60'-0")

COL.	SIZE	LOADING (TONS) D.L.	L.L.	D.+L.	W. L. (TONS) ⟷	↕	W. S. (KIPS) ⟷	↕	WEIGHT OF PILE CAP	NO. OF PILE 12½" DIA.	LOAD PER PILE (TONS) D.L.	D.+L.	W. L.	D.+L.+W.	⅔ D.+W.	DEPTH OF PILE CAP
C-1	13"X25"	57·8	9·2	67·0	716·5	723·1	7·29	4·14								
C-2A	13"X25"	67·6	12·4	80·0	714·5	710·2	7·29	4·14	20	4	70·7	83·7	22·9	106·6	92·2	4'-0"
C-2B	13"X25"	67·6	12·4	80·0	714·5	710·2	7·29	4·14								
C-3	13"X25"	60·6	8·9	69·5	716·5	723·1	7·29	4·14								
C-4	13"X25"	59·2	9·4	68·6	719·6	719·3	9·03	4·14								
C-6	13"X25"	49·5	10·0	59·5	719·6	719·3	9·03	4·14	20	4	64·0	70·0	25·0	100·0	17·7	4'-0"
C-5A	13"X25"	67·6	13·4	81·0	722·2	718·2	9·03	4·14								
C-5B	13"X25"	69·0	13·0	82·0	722·2	718·2	9·03	4·14								
C-7	12"X24"	19·1	1·3	20·4	723·6	721·75	9·49	3·38	16	3	57·4	64·2	33·2	102·4	91·1	4'-0"
C-8	13"X25"	138·0	18·3	156·3	77·9	75·2	12·52	4·14								
C-9	13"X25"	145·0	25·0	170·0	77·9	75·2	12·52	4·14	16	3	60·0	68·8	39·3	108·1	98·8	4'-0"
C-10	12"X24"	19·1	1·3	20·4	723·8	721·75	9·49	3·38								
C-11	12"X24"	21·2	0·9	22·1	726·8	720·05	8·55	3·38	12	2	70·8	78·8	28	106·8	19·1	4'-0"
C-12	15"X25"	118·0	17·0	135·0	79·2	70·47	17·42	4·79								
C-13	15"X25"	140·0	25·0	165·0	78·2	70·47	17·42	4·79								
C-14	12"X24"	21·2	0·9	22·1	726·9	720·5	8·55	3·38	16	3	62·3	71·6	18·7	90·3	22·8	4'-0"
C-15	12"X24"	19·0	0·8	19·8	711·4	73·0	7·24	3·38								
C-16	13"X25"	65·5	6·9	72·4	711·6	712·12	9·55	4·14								
C-19	12"X24"	10·6	0·4	11·0	73·6	15·0	2·14	3·38	28	2	70·6	74·8	28·3	103·1	18·7	4'-0"
C-20	12"X24"	18·1	0·2	18·3	13·3	16·9	2·14	3·38								
C-17	13"X 25"	68·5	7·5	76·0	71·6	72·12	9·55	4·14								
C-18	12"X 24"	13·0	0·8	13·8	711·4	73·0	7·24	3·38	28	2	71·2	75·8	28·1	103·9	19·3	4'-0"
C-21	12"X 24"	16·2	0·5	16·7	73·9	76·9	2·14	3·38								
C-22	12"X 24"	10·6	0·4	11·0	73·6	15·0	2·14	3·38								



SEC 'A'—'A'

NOTES :-
1. 6, 8, 13, 38, 10, 11, 12, 13, 14, 15, 16, 17, 18, ARE OMITTED & COMBINED WITH S.B.-1, S.B.-2, S.B.-3, S.B.-4 & S.B.-5 RESPECTIVELY.
2. 6, 8, 1, 2, 3, 4, 5, 6, 7, 9, 26, 27 ARE OMITTED & COMBINED WITH FOOTING C-1, C-2A C-2B C-3, C-4 C-5A C-5B C-6, C-7 C-9, C-9 C-10, C-16 C-20 & C-17 C-21, RESPECTIVELY.

Approved
PRO BUILDING AUTHORITY
24 JAN 1969

8 JAN 1969

GUY W. K. CHAN
Authorised Architect.

RECEIVED BY
10 JAN 1969

A REVISED PILE POSITION ARR COL. C-1, C-2A, C-2B, C-3, C-4, C-5A, C-5B, C-6, C-7, C-8, C-9, C-10 ONLY. AND ADDED C-8. MARK 18-12-68

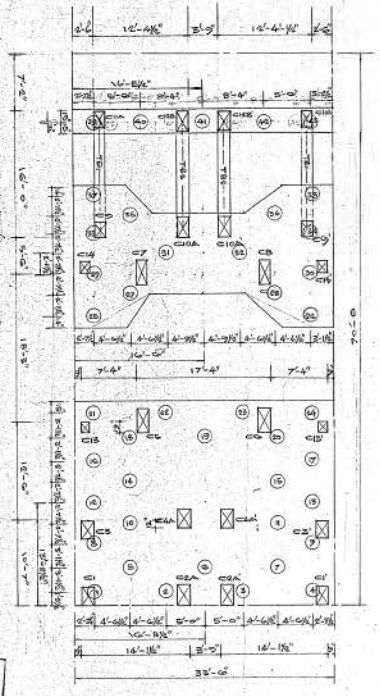
PRESSURE PILING CO.
DESIGN | DATE 11-6-68 | YEAR 67
DRAWN | SCALE 1/8"=1'-0" | T. NO. 849
CHECK | C. NO. 795 | FOL. NO. 1A

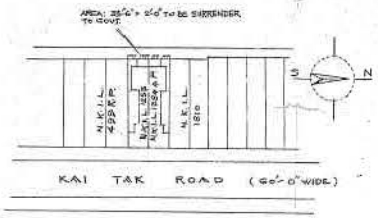
PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1716 AT Nº. 79 & 81 KAI TAK ROAD.

KAI TAK ROAD

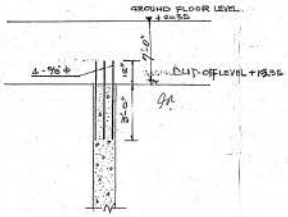
BUILDINGS ORDINANCE OFFICE
REF. NO. 3/45 & 64

B.O.C. NO: 3/451/64





BLOCK PLAN
SCALE: (1 INCH = 50 FT)



TYPICAL DETAIL SHOWING DOWEL BAR

LOADING SCHEDULE

COL MARK	COL SIZE	LOADING D.L	LOADING L.L	LOADING D+L	WIND LOAD ⇌	WIND LOAD ⇅	SHEAR (KIP) ⇌	SHEAR (KIP) ⇅	NOS OF PILE	WT OF CAP	MARK OF FTG	WORKING LOAD (T) D+L CAP	WORKING LOAD (T) D+L+W CAP	WORKING LOAD (T) D+L PILE	WORKING LOAD (T) D+L+W PILE
C1	20'x24"	104.02	24.78	128.0	±38.1	∓23.9	9.5	5.8							
C2A	17'x29"	99.9	24.10	124.0	±20.7	∓16.5	12.1	9.7							
C2A'	17'x29"	99.9	24.10	124.0	∓20.7	∓16.5	12.1	9.7							
C2'	20'x24"	104.02	24.98	129.0	∓38.1	∓23.9	9.5	5.2							
C3	20'x18"	89.6	19.6	109.2	∓40.6	∓25.2	10.9	6.2							
C4A	17'x29"	143.6	29.4	173.	±5.7	∓13.5	13.7	9.7							
C4A'	17'x29"	135.6	29.4	165.	∓5.7	∓13.5	13.7	9.7	64	270	F1	78.95	85.2	109.98	47.82
C3'	20'x24"	85.2	19.6	104.8	∓45.4	∓25.2	10.9	5.2							
C1B	17'x20"	15.27	6.93	22.	±47.4	±2.46	9.7	6.9							
C5	24'x26"	496.18	91.82	588	±78.3	±5.8	33.6	16.9							
C6	24'x30"	482.5	71.5	554	∓78.5	±3.4	33.6	16.9							
C1B'	17'x20"	15.27	6.93	22.	∓47.4	∓2.09	9.7	6.9							
C14	17'x20"	15.51	6.39	22.	∓32.9	∓2.06	9.4	6.9							
C9	18'x24"	81.2	29.8	111.	∓46.4	∓25.6	9.9	5.2							
C7	21'x36"	242.	72.	314.	∓62.6	∓62.1	22.7	15.1							
C10A	18'x30"	98.52	25.08	144.4	±20.5	∓8.86	12.6	9.7							
C10A'	18'x30"	98.52	25.08	124.6	±20.5	∓8.86	12.6	9.7							
C8	21'x36"	240.9	64.1	280.	±52.9	∓62.1	22.7	15.1							
C9'	18'x26"	81.6	29.8	111.	∓46.4	∓25.6	9.9	5.2							
C14'	17'x20"	13.31	6.39	19.7	∓36.8	∓2.05	9.4	6.9							
C11A	18'x24"	80.2	17.9	97.9	∓58.0	∓9.13	8	5.2							
C12B	18'x30"	91.3	14.2	105.5	±16.4	±12.55	10.4	9.7							
C12B'	18'x30"	91.3	14.2	105.5	±16.4	±12.55	10.4	9.7	5	29.9	F3	76.04	89.62	109	70.94
C11A'	18'x24"	78.0	17.9	97.9	∓55.6	∓9.13	8	5.2							

NOTES:

1. EXPECTED DEPTH OF PILES ACCORDING TO STANDERD PENETRATION TEST ASSUMED TO BE 70'-75'
2. SERIAL REFERENCE NUMBER OF PILES 1 TO 45 INDICATE PILES DRIVEN WITH 20"ϕ STEEL TUBE (WEIGHT OF HAMMER 5 TONS) AND 16"ϕ INNER TUBE (ALSO STEEL). WEIGHT OF OUTER & INNER TUBE & SHOE = 2975# THICKNESS OF OUTER TUBE = 5/8" THICKNESS OF INNER TUBE = 3/4" MAX DERMISSIBLE BEARING CAPACITY OF PILE = 105T
3. MAX PENETRATION OF TUBE PER LAST 7 BLOWS TO BE 1" IN MAX.
4. LENGTH OF TUBE = 80'-0"
5. WEIGHT OF HAMMER = 5 TONS
6. DROP OF HAMMER = 4'-6"
7. BEARING CAPACITY OF PILES (BY HILEY FORMULA).

$$R = \frac{W + Pe^2}{W + P}$$

$$S = \frac{\eta \times W \times H}{R} - \frac{c}{2}$$

(a) W — WEIGHT OF HAMMER.
(b) P — WEIGHT OF OUTER TUBE, INNER TUBE, CAP & SHOE OF PILE.
(c) e — COEFFICIENT OF RESTITUTION.
(d) η — EFFICIENCY OF HAMMER BLOW.
(e) R — BEARING CAPACITY OF PILE.
(f) H — DROP OF HAMMER.
(g) S — LAST PENETRATION PER ONE BLOW.
(h) C — COEFFICIENT OF COMPRESSION.

8. GROUND FLOOR LEVEL TO BE + 20.55
9. ASSUMED PILING LEVEL. + 17.55
10. TOP OF PILE-CAP LEVEL + 17.75
11. HEIGHT OF BUILDING : 120'-0".
12. CONCRETE MIX TO BE 1:2:4. & SIZE OF AGG TO BE 1½" MAX
13. 4 - ⅝"ϕ DOWEL BARS 4'-0" LONG TO BE PROVIDED IN EACH PILE.
14. DETAILS OF PILE-CAP TO BE SUBMITTED LATER.

RECEIVED 28
6 MAR 1969
BUILDINGS ORDINANCE OFFICE KOWLOON

RECEIVED BY
15 FEB 1969
BUILDINGS ORDINANCE OFFICE KOWLOON

RECEIVED BY
24 JAN 1969
BUILDINGS ORDINANCE OFFICE KOWLOON

Approved
PRO BUILDING AUTHORITY
17 MAR 1969

GUY W. K. CHAN
Authorized Architect.

28 JAN 1969

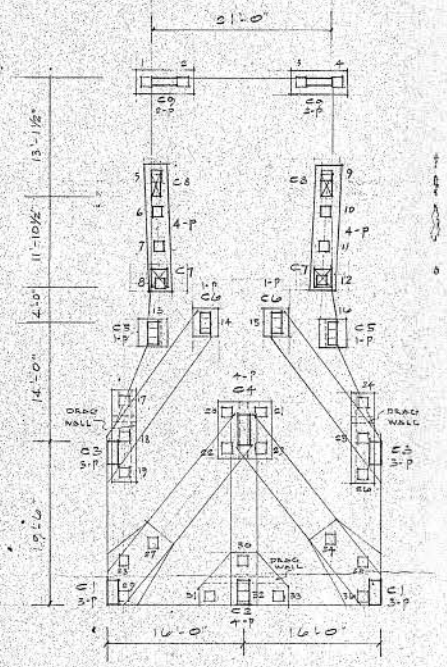
KEE LEE PILING SERVICE CO.
TEL: 847867.

PLAN OF PROPOSED PILING ON N.K.I.L. 1253 & 1384
KAI TAK ROAD , KOWLOON

CONSULTING ENGINEER:
K.T. PHILCOX
A.M.I.C.E., M.I.STRUCT.E., M.A.S.C.E., M.A.M.C.I.

KAI TAK ROAD

BUILDINGS ORDINANCE OFFICE
BOD 3/4693/60
BDF. NO.

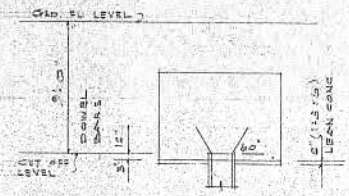


KAI TAK ROAD
PILING PLAN
TOTAL: 36 - 14"x14"-P

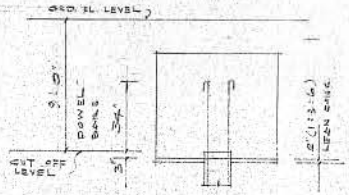
COL MARK	COL SIZE	COL LOAD D.L	COL LOAD L.L	WT. OF PILE CAP	WIND LOAD X-X	WIND LOAD Y-Y	WIND SHEAR X-X	WIND SHEAR Y-Y	WORKING LOAD ON EACH PILE D	D+L	D+L+W	D-W	REMARK
C1	18"x30"	102 T.	18 T.	9 T.	30 T.	22 T.	7.5 T.	6 T.	43.6 T.	51 T.	62.7 T.	31.5 T.	
C2	18"x34"	166	34	12	0	45	7.5	5.4	46.2	55	66.7	34.5	
C3	18"x30"	100	15	12	28	22	7	6	40	47	58	29	
C4	18"x48"	210	35	12	15	50	25	10	44.6	56.4	68.9	32.1	UP-LIFT = 13.2 T. DOWN-LIFT = 3.2 T.
C5	18"x30"	37	6	3	30	10	5	0	40	46	76	-3.4	
C6	15"x36"	50	10	2.5	17	0	3	0	45.2	55.2	72.2	28.2	UP-LIFT = 7.2 T.
C7	24"x24"	80	8	6	20	25	5	5	50.5	56	76.6	29.7	
C8	18"x52"	110	15	6	30	8	8	7	50.5	56	76.8	29.7	
C9	30"x18"	80	7	6	15	16	4	3	43	46.5	54.5	25	

NOTE:

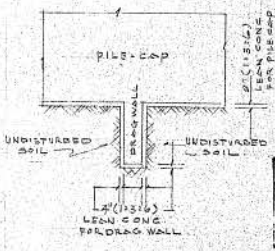
1 ALL PILES TO BE R.C. PRECAST PILE
2 CONC. MIX. TO BE 1:1:2 @ A.
3 SIZE OF AGG. ¾"
4 CAST IRON PILE-SHOES TO BE FIXED TO ALL PILES
5 ALL PILES SHALL BE LIFTED AT TWO LIFTING HOLE SHOWN IN DETAILS
6 USE STEEL PILE DRIVING TRESS
7 USE STEEL HELMET
8 USE PLASTIC DOLLEY
9 CUT OFF LEVEL OF PILE 9'-0" BELOW GRD. FL. LEVEL
10 HAMMER WEIGHT : 5 TONS
11 HEIGHT OF FALL : 4'-6"
12 LAST PENETRATION : 3 BLOWS TO THE INCH
13 ALL PILES TO BE FOLLOW DOWN ABOUT 8'-0" BELOW GRD. LEVEL EXCEPT PILE NO. 13, 16 TO BE FOLLOW DOWN 5'-0"
14 CONC. COVER TO MAIN REINFORCEMENT :
2" COVER FOR STRAP BEAM & BELOW GRD. LEVEL
3" COVER FOR FOOTINGS
15 ALL PILE CAP CONC. MIX. TO BE 1:2:4
16 ALL PEDESTAL CONC. MIX. TO BE 1:1:2
17 SPACING OF PILE 4'-6"



TYPICAL CUT OFF LEVEL AND DOWEL BARS

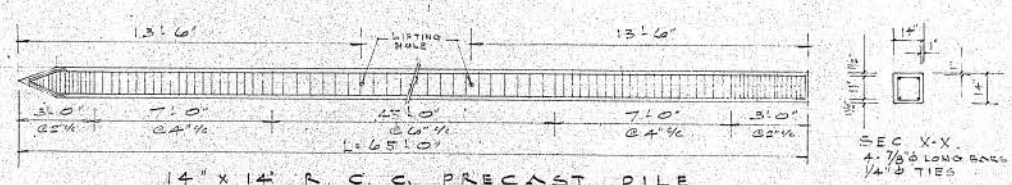


TYPICAL CUT OFF LEVEL AND DOWEL BARS FOR TENSION PILE
NO. 13 & 16



TYPICAL DRAG WALL

Approved
for BUILDING AUTHORITY
12 MAR 1962



14" x 14" R.C.C. PRECAST PILE

RECEIVED BY
28 FEB 1962
BUILDINGS ORDINANCE OFFICE
KOWLOON
P. W. D.

PRECAST R.C.C. PILING BY
YUEN ON CONSTRUCTION CO.
TEL: 31592

LO KWONG YIU, D. Arch
28 FEB 1962

AMENDED PLAN
AMENDED

1/3

PRO. PILING PLAN & DETAILS OF R.C.C. PRECAST PILE & PILE CAPS FOR BLDG ON N.K.I.L. 499 R.P AT NO 57, 59 KAI TAK RD

AUTHORIZED ARCHITECT
LO KWONG YIU

SCALE
1/8"=1'-0"

KAI TAK ROAD

B. O. O. REF. No. ~~5/726/63~~

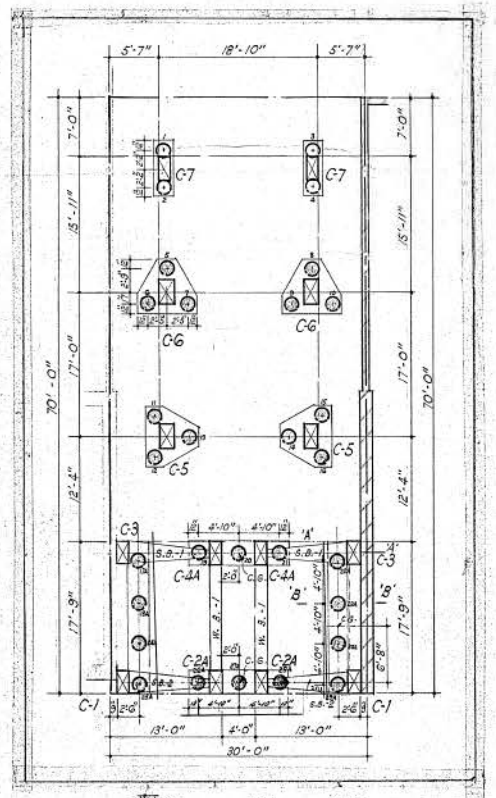
BUILDINGS ORDINANCE OFFICE REF. NO.

PRESSURE PILING DETAILS					
Outside diameter of tube and symbol	12¾" ⊡		16¾" ○	18¾" ●	
Estimated number of Pressure Piles required	-		4	28	
Maximum authorised D + L load and Minimum spacing	42.0	5'-6"	71.0	4'-4"	89.0	4'-10"
Maximum Design load	-		71.0		89.0	

Approximate depth of bore will be 90-0' and the pile will be founded in ~~first specified rock layer or first stable stratum or hard pinnacle~~ pinnacle whichever is met with.
Concrete Mix. for pile & pile caps is 1:2:4 with 1/2" maximum size of aggregate.
Piles are designed to carry their load in bearing & in friction.
All dimensions, column sizes & loadings, are retraced from drawing No. dated. prepared by the Architect. CHAU, LEE & SHE

NOTE :-

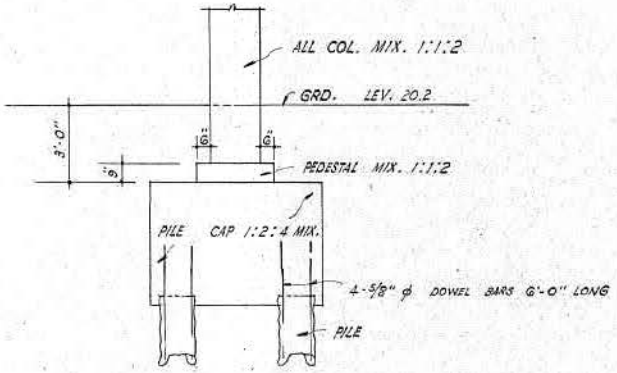
THE HEIGHT OF BUILDING = 98'-4"



KAI TAK ROAD GRD. LEV.

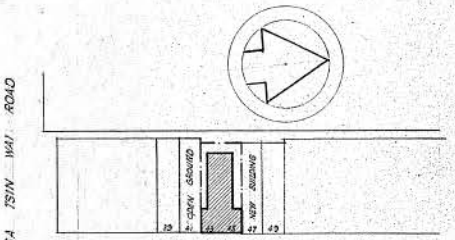
PILING PLAN

SEE FIG.



TYPICAL OF PILE CAP

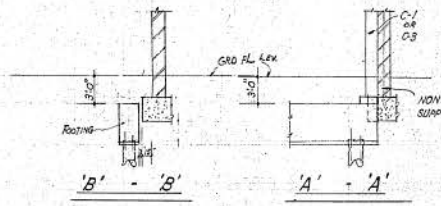
SHOWING THE TOP LEV. OF PILE CAP
(SCALE : 3/8" = 1'-0")



BLOCK PLAN

(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING (TONS) D. L.	L. L.	D.+L.	WIND LOAD (TONS) X-X	Y-Y	WIND SHEAR (KIPS) X-X	Y-Y	WEIGHT OF PILE CAP	NO. OF PILE 16½"ϕ	18½"ϕ	LOAD PER PILE (TONS) D. L.	D.+L.	W. L.	D.+L.+W.	D.-W.	DEPTH OF PILE CAPS
C-1	17"X30"	98·0	18·0	116·0	44·5	30·0	14·82	11·0	18		4	17-33 = 327	62.35	34	96.36	18.7	4'-6"
C-2A	15"X32"	96·0	36·0	132·0	22·0	31·0	10·92	11·8	9		3	57.2	81.5	20.7	102.2	36.5	4'-6"
C-2A	15"X32"	96·0	36·0	132·0	22·0	31·0	10·92	11·8									
C-3	17"X30"	74·0	16·0	90·0	45·0	22·5	14·75	11·0		Refer		10	C-1				
C-4A	15"X32"	91·0	35·0	126·0	22·0	25·0	10·85	11·8	8		3	63.4	86.6	16.7	103.3	36.7	4'-6"
C-4A	15"X32"	91·0	35·0	126·0	22·0	25·0	10·85	11·8									
C-5	20"X32"	162·0	26·0	188·0	89·0	19·0	30·70	15·0	8		3	56.6	65.4	27.64	95.04	26.96	4'-0"
C-6	20"X32"	173·0	33·0	206·0	95·0	11·5	32·91	15·0	8		3	60.4	71.4	31.6	103	28.8	4'-0"
C-7	15"X34"	84·0	16·0	100·0	46·0	37·0	15·68	13·0	4	2		44	52	23	75	21	4'-0"



'B' - 'B'

'A' - 'A'

Approved
PWD BUILDING AUTHORITY
30 MAR 1965

RECEIVED DW
26 MAR 1965
BUILDINGS ORDINANCE OFFICE KOWLOON

SHE KWONG WING
Authorised Architect
24 MAR 1969

19 MAR 1969

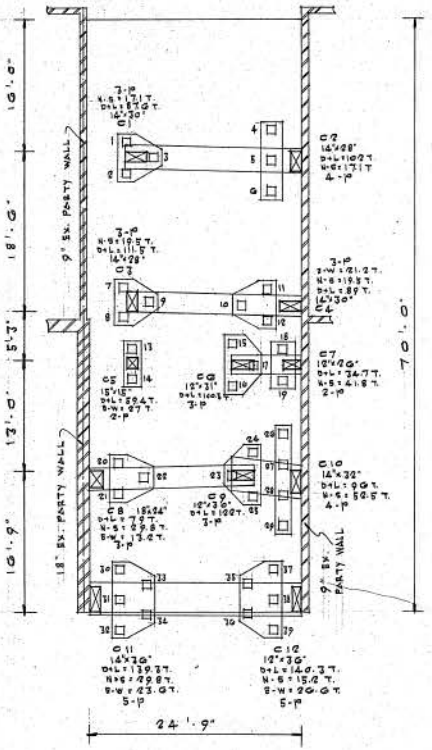
A	CHANGE PILE POSITION FOR COL. C-1 & C-3 ONLY. 21-1-65
B	OMITTED PARTY WALL & CHANGE PILE FOR C-2A ONLY. 10-2-65

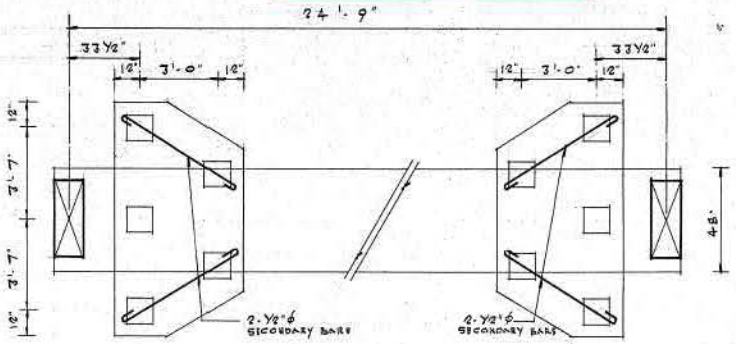
PRESSURE PILING CO.

DESIGNED W. DATE 27-12-63 YEAR 63
DRAWN CL SCALE 1/8"=1'-0" T. NO. 726
CHECKED C. NO. 478 DRG. NO. 1B

PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 547 S. A. & R. P. AT KAI TAK ROAD

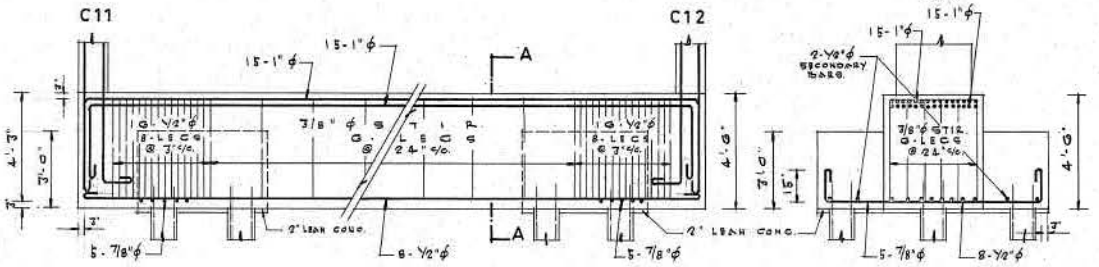
KAI TAK ROAD





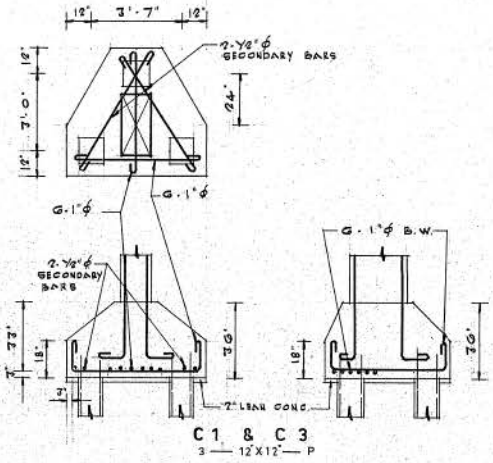
NOTE:

1. SECTION OF PILE 12"x12"
2. ALL CONC. TO BE 1:2:4 C.A.
3. ALL PILES SHALL BE LIFTED AT TWO POINTS.
4. ALL PILES ARE PROVIDED WITH STEEL SPACER FORKS.
5. USE STEEL PILE FRAME.
6. USE SPECIAL STEEL HELMET.
7. USE SPECIAL PLASTIC COLLAR.
8. WEIGHT OF HAMMER : 2 TONS.
9. HEIGHT OF FALL : 4'-0"
10. LAST PENETRATION : 10 BLOWS TO THE INCH.
11. SIZE OF AGG. 3/4"
12. FUTURE CUT OFF LEVEL: 0'-6" BELOW GR. FL. LEVEL.
13. 1:2:4 CONC. FOR PILE-CAPS.
14. 2" CONC. BLINDING FOR STRAP BEAM.
15. 2" CONC. COVER TO MAIN REINFORCEMENT FOR TOP & BOT. & SIDES OF STRAP BEAM.
16. 3" CONC. COVER TO MAIN REINFORCEMENT FOR TOP & BOT. & SIDES OF FOOTINGS
17. 2" CONC. COVER TO MAIN REINFORCEMENT FOR COLUMNS BELOW GR. LEVEL.

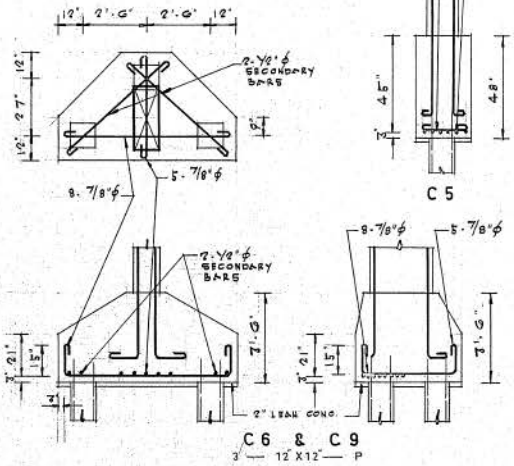


CONNECTING FOOTING FOR C11 & C12
1 0 — 12" X 12" — P

SEC. A A

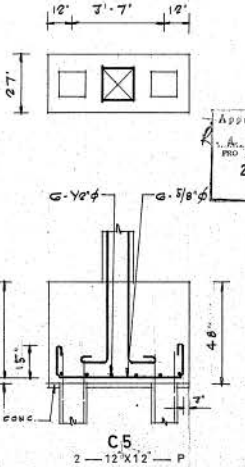


C1 & C3
3 — 12"X12" — P



C6 & C9
3 — 12"X12" — P

C 5



C5
2 — 12"X12" — P

BUILDING ORDINANCE OFFICE REF. NO. 3/4933/58

Approved
PRO BUILDING AUTHORITY
23 JUL 1959

RECEIVED BY
18 JUL 1959
BUILDING ORDINANCE OFFICE
KOWLOON

PRECAST CONCRETE PILING BY KEE YIP CONSTRUCTION CO. LTD.			
REF. NO. JOB NO.			
DESIGNED BY	DRAWN BY	TRACED BY	CHECKED BY

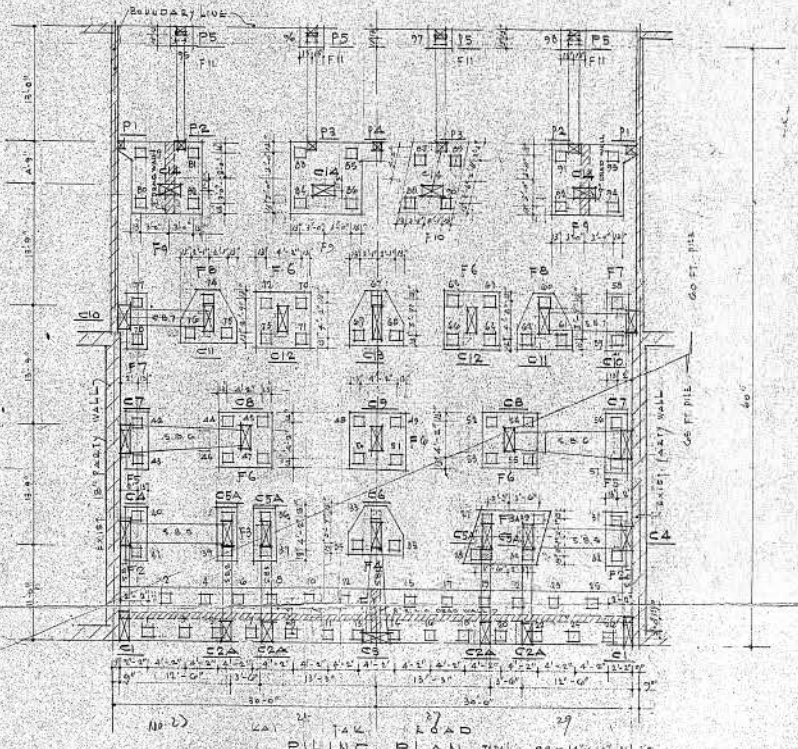
PROPOSED PILING PLAN & DETAILS OF PRECAST PILE & PILE CAPS FOR THE BLDG. ON N. K. I. L. 499 SEC. A. AT NO. 47 KAI TAK RD. KLN.

AUTHORIZED ARCHITECT
PAK C. KWONG
PAK C. KWONG, B. Arch., M. Arch.

B.O.O. REF. NO. 3/4933/58
DATE: 18 JUL 1959

DRAWING NUMBER 1/2
SCALE: 3/8"=1'-0"

KAI TAK ROAD



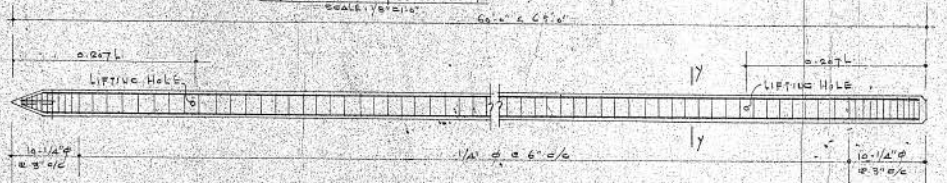
PILING PLAN TOTAL 98-14"x14" PILES
SCALE 1/8"=1'-0"

COLUMN		LOADING T		WT. OF PILE CAP	WIND LOAD T		WIND SHEAR lbs		WORKING LOAD ON EACH PILE				No. of PILES	REMARK
MARKS	SIZE	D.L	L.L		X-X	Y-Y	X-X	Y-Y	D.L	D+L	D+L+W	D-W		
C1	14"x66"	93.8	22.8	9.2	20.9	8.6		10800	40.9	55	66.3	33.8		
C2A	14"x28"	107	35		19.3	24.2	3790	4400	41.9	55	66.3	33.8	26	F-1
C3	38"x14"	242.5	51.5		0	13.8	3190	1600	44.9	55	66.3	33.8		
C4	12"x36"	73.6	23.2	3	14	10	3070	7810	43.7	57	65	34.25	2	F-2
C5A	12"x36"	78.2	48.5	3	15.3	1.84	3070	7810	46.6	64.85	72.5	31.45	2	F-3
C6	12"x66"	141	54.8	5	2.18	8.1	4880	9150	43.27	56.6	69.2	50.95	3	F-4
C7	12"x36"	93.8	19.2	3	3.1	12.7	3410	12800	54	65	72	38.2	2	F-5
C8	12"x36"	192	38.8	5	4.8	26.7	3070	7800	54.25	60.1	66.58	41.6	4	F-6
C9	14"x36"	182	39.8	9	0	4.48	4880	9150	56.25	60.1	66.58	41.6	4	F-6
C10	18"x36"	66.5	11.9	3	26.2	16.2	6910	5200	40.75	47.75	63.25	33.75	2	F-7
C11	14"x36"	168	27.55	9	7.4	4.08	4880	9150	54.5	63.9	66.36	52	3	F-8
C12	14"x36"	163	32	9	9.2	0	4880	9150	56.25	60.1	66.58	41.6	4	F-6
C13	9"x46"	180	115	9	7.4	4.08	2940	12200	54.5	63.9	66.36	52	3	F-8
C14	38"x26"	115	26		7.4	9.95	30600	3880	52.87	62.67	74.955	14.58		
P1 OR P4	14"x9"	20.5	3.84	13.5	2.68	0.2	1220	145	52.87	62.62	74.955	14.58	4	F-9
P2 OR P3	14"x9"	36.4	6.16	140	2.23	6.2	1220	145	52.87	62.62	74.955	14.55		
P3	14"x9"	36.4	6.16		2.23	0.2	1220	145	46.5	54.30	68.3	12.79		
C14	20"x20"	115	26		7.4	9.95	30600	3880	46.5	54.30	68.3	12.79	4	F-10
P5	16"x9"	35.5	6.7		1.7	0.83	1850	164	36.4	41.5	45.2	33.6	1	F-11
C5A	12"x36"	78.2	48.5	13.5	15.3	1.84	3070	7810	56.52	59.77	67.42	20.12	4	F-3A

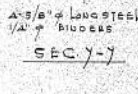
NOTES:-
1. ALL PILES TO BE R.C. PRECAST PILE.
2. CONCRETE MIXTURE TO BE 1:1:2 @ A.
3. SIZE OF AGG. 3/4"
4. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
5. ALL PILES SHALL BE LIFTED AT TWO LIFTING HOLES. (SHOWN IN DETAILS.)
6. USE STEEL DRIVING TERES.
7. USE STEEL HELMET & STEEL FOLLOWER. (WHERE REQUIRED, L=10'-0")
8. USE PLASTIC DOLLY.
9. CUT-OFF LEVEL OF PILES TO BE 0'-0" BELOW GRD FL LEV.
10. ALL PILES TO BE FOLLOWED DOWN ABOUT 12" BELOW GRD. FLOOR LEVEL.
11. CONCRETE COVER TO MAIN REINFORCEMENT:- 2" COVER FOR STRAP BEAM & BELOW GRD. LEVEL, 3" COVER FOR FOOTING.
12. ALL PILE CAP MIXTURE TO BE 1:2:4.
13. ALL PEDESTAL MIXTURE TO BE 1:1:2.
14. SPACING OF PILES: 4'-2".

SECTION OF PILE	LENGTH	WT. OF HAMMER	HEIGHT OF FALL:- WITH FOLLOWER	WITHOUT FOLLOWER	LAST PENETRATION:- WITH FOLLOWER	WITHOUT FOLLOWER
14"x14"	64'-0"	5 Ton	4'-0"	4'-0"	5 Blows/in	4 Blows/in
14"x14"	66'-0"	5 Ton	4'-0"	4'-0"	5 Blows/in	5 Blows/in

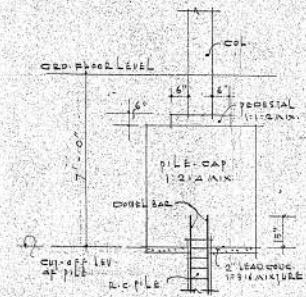
15. HEIGHT OF BUILDING : 88'-0"
16. L x x DETAIL OF PILE-CAP TO BE SUBMITTED LATER.
17. PILE HITTING OBSTRUCTION TO BE OMITTED.



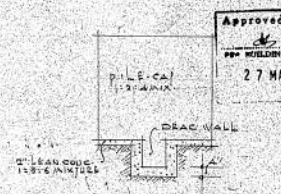
DETAIL OF 14"x14" R.C.C. PRECAST PILE



SEC. Y-Y



DETAIL SHOWING CUT-OFF LEVEL OF PILE



DETAIL SHOWING TYPICAL PILE CAP & DRAG WALL

Approved
BUILDING AUTHORITY
27 MAY 1963

RECEIVED BY
14 FEB 1963
BUILDINGS ORDINANCE OFFICE
KOWLOON
P.W.D.

AMENDED PLAN

LO KWONG YIU, O. ARCH.
14 FEB 1963

1/3

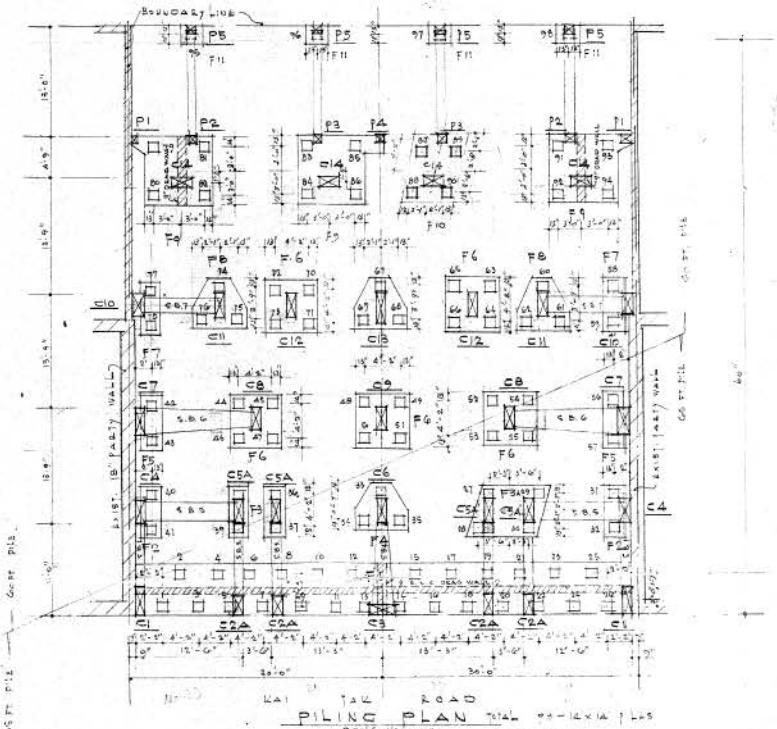
R. C. C. PILE CAP & PRECAST PILE DETAILS FOR PROPOSED BUILDING ON N.K.I.L. 634, 1200 & 576, 588 AT Nos. 23, 25, 27 & 29, KAI TAK ROAD, KOWLOON.

SCALE: 1/8" — 1'-0"

PRECAST CONCRETE PILING BY
WAH YIP & CO.
PILING CONTRACTORS

LO KWONG YIU
AUTHORIZED ARCHITECT

KAI TAK ROAD



PILING PLAN TOTAL 94-14"x14" PILES

SCALE 1/8"=1'-0"

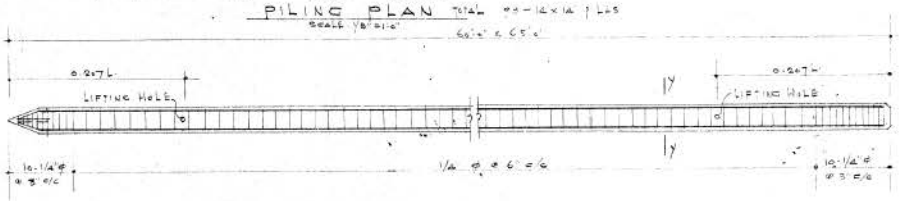
COLUMN		LOADING T		WT. OF PILE CAP	WIND LOAD T		WIND SHEAR Ibs		WORKING LOAD ON EACH PILE				No. OF PILES	REMARK
MARKS	SIZE	D.L	L.L		X-X	Y-Y	X-X	Y-Y	D.L	S.L	D+L	D+W		
C1	14"x42"	91.8	22.8	9.0	20.9	34.6		10800	48.9	55	66.3	33.8	26	F-1
C2A	14"x38"	107	25		19.3	24.2	3780	4200	44.8	55	66.3	33.8		
C3	38"x14"	202.5	51.5		0	13.8	3780	1400	44.9	55	66.3	33.8		
C4	18"x36"	78.6	23.2	8	14	10	3070	7810	43.7	57	65	34.25	2	F-2
C5A	12"x36"	78.2	18.5	8	13.3	1.84	3010	7810	48.6	64.85	72.5	37.45	2	F-3
C6	14"x36"	141	54.8	8	2.18	8.1	4880	9150	53.67	56.6	69.2	36.95	2	F-4
C7	12"x46"	93.8	19.2	8	3.1	12.7	3210	10150	54	68	72	38.2	4	F-5
C8	12"x36"	192	38.8	7	4.8	26.7	3070	7200	54.25	64.1	66.58	41.6	4	F-6
C9	14"x36"	182	39.8	9	0	4.48	4880	9150	54.25	64.1	66.58	41.6	4	F-6
C10	18"x26"	66.8	11.9	5	26.2	16.2	6010	5200	46.75	47.75	63.25	25.75	2	F-7
C11	14"x36"	169	27.55	9	7.4	4.08	4880	9150	54.5	63.9	66.36	52	8	F-8
C12	14"x46"	168	32	9	9.2	0	4880	9150	54.25	64.1	66.58	41.6	4	F-6
C13	9"x46"	120	115	9	7.4	4.08	2960	12200	54.5	63.9	66.36	52	8	F-8
C14	38"x14"	113	86	13.5	7.4	9.95	30600	3800	52.87	62.67	74.955	14.58	4	F-9
P1,P2	14"x14"	9.5	3.84		2.68	0.2	1220	145	52.87	62.62	74.955	14.58		
P2-P3	14"x9"	36.4	8.16		2.93	6.2	1220	145	52.87	62.62	74.955	14.55		
P3	14"x9"	36.4	6.16	14.5	2.93	0.2	1220	145	48.5	54.06	68.3	12.79	4	F-10
C14	30"x20"	115	20		14	9.95	30600	3800	48.5	54.06	68.3	12.79		
P5	16"x9"	31.5	6.7		1.7	0.83	1820	194	19.9	19.5	25.9	33.6	1	F-11
C5A'	12"x36"	78.2	18.5	12.5	13.3	1.84	3070	7810	39.52	59.77	67.42	28.12	4	F-5A

NOTES:-

1. ALL PILES TO BE R.C.C. PRECAST PILE.
2. CONCRETE MIXTURE TO BE 1:1:2 @ 4.
3. SIZE OF AGG. 3/4".
4. CAST IRON PILE SHOES TO BE FIXED TO ALL PILES.
5. ALL PILES SHALL BE LIFTED AT THE LIFTING HOLES (SHOWN IN DETAILS).
6. USE STEEL DRIVING TIMBER.
7. USE STEEL HELMET & STEEL FOLLOWER. (Wt=800 LB. L=10-0)
8. USE PLASTIC DOLLY.
9. CUT-OFF LEVEL OF PILES TO BE 6'-0" BELOW GND. FL. LEV.
10. ALL PILES TO BE DRIVEN UNTIL ABOUT 15' BELOW GND. FLOOR LEVEL.
11. CONCRETE GRADE TO MAIN REINFORCEMENT:-
    A) C.C. FOR STRAP BEAM & BELOW GND. LEVEL.
    B) C.C. FOR FOOTING.
12. ALL PILE CAP MIXTURE TO BE 1:2:4.
13. ALL PEDESTAL MIXTURE TO BE 1:1:2.
14. STAGGER OF PILES: 4'-0".

SECTION OF PILE	LENGTH	WT. OF HAMMER	HEIGHT OF FALL		LAST PENETRATION	
					WITH FOLLOWER	WITHOUT FOLLOWER
A-A	66'-0"	5 TON	4'-6"	6'-0"	5 blows/in	4 blows/in
B-B	65'-0"	5 TON	4'-6"	6'-0"	5 blows/in	5 blows/in

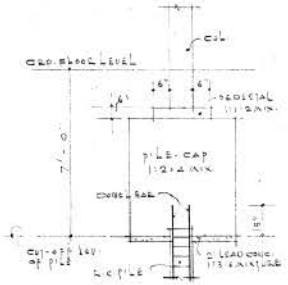
15. LEVEL OF BUILDING + 88'-0".
16. L.W.L. = STAFF OF PILE-CUT TO BE CHRISTY LATCH.
17. ☐ = PILE HITTING OBSTRUCTION TO BE OMITTED.



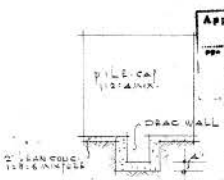
DETAIL OF 14"x14" R.C.C. PRECAST PILE



SEC Y-Y



DETAIL SHOWING CUT-OFF LEVEL OF PILE



DETAIL SHOWING TYPICAL PILE CAP & DRAG WALL

Approved
BUILDING AUTHORITY
27 MAY 1963

RECEIVED BY
14 FEB 1963
BUILDING ORDINANCE OFFICE
KOWLOON
P. W. D.

LO KWONG YIU, D. Arch.
Authorised Architect
14 FEB 1963

1/3

AMENDED PLAN

R. C. C. PILE CAP & PRECAST PILE DETAILS FOR PROPOSED BUILDING ON N.K.I.L. 634, 1200 & 576, 588 AT Nos. 23, 25, 27 & 29, KAI TAK ROAD, KOWLOON.

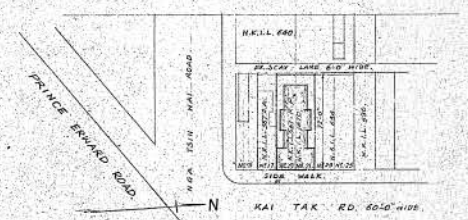
SCALE: 1/8" — 1'-0"

PRECAST CONCRETE PILING BY
WAH YIP & CO.
PILING CONTRACTORS

LO KWONG YIU
AUTHORIZED ARCHITECT

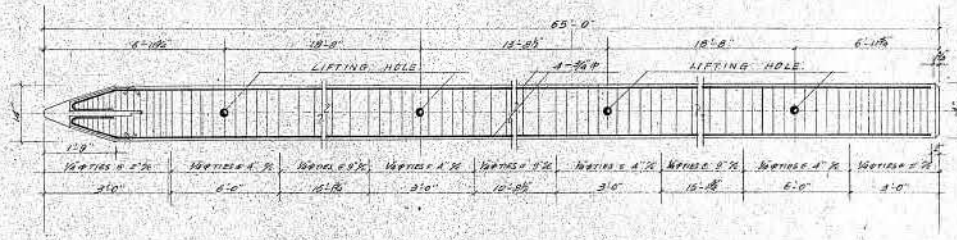
KAI TAK ROAD

B.O.O. REF. NO. 3/1614/63



BLOCK PLAN

SCALE: 1" = 50'-0"



DETAILS OF R.C.C. PRECAST PILE

PILE DRIVE DATA

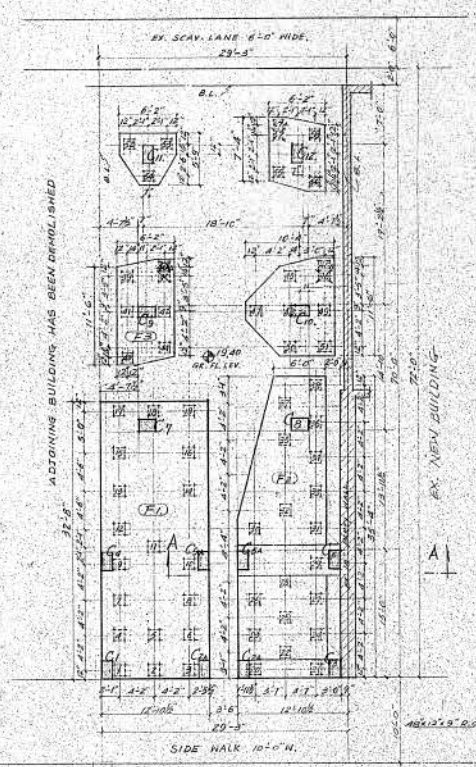
PILE Nos.	PILE SIZE	PILE LENGTH	SUM OF PILES	HAMMER Wt.	HAMMER HEIGHT OF FALL	LENGTH OF FOLLOWER	LAST PENETRATION WITHOUT FOLLOWER	LAST PENETRATION WITH FOLLOWER
NO. 1 TO NO. 58, 40A, 46A & 57A	14"x14"	65'-0"	58	6T	3'-3"	10	5. BLOWS TO ONE IN.	6. BLOWS TO ONE IN.

LOADING SCHEDULE in tons

COL. MARK.	SIZE IN.	D.L. (T)	L.L. (T)	D+L (T)	WIND FORCE X-X	WIND FORCE Y-Y	WIND SHEAR X-X	WIND SHEAR Y-Y
C1.	12"x26"	103	30	133	+69.4	+50.4	6.85	5.03
C2A.	12"x26"	98	42	140	+19.8	+41.2	6.85	5.03
C3.	12"x26"	104	29	133	-69.4	+50.4	6.85	5.03
C4.	12"x26"	81	24	105	+60.5	-50.4	6.85	5.03
C5A.	12"x26"	78	47	125	+19.6	-41.2	6.85	5.03
C6.	12"x26"	87	23	110	-58.8	-50.4	6.85	5.03
C7.	16"x22"	213	80	293	+97	+18.9	14.9	2.17
C8.	16"x22"	202	82	284	-97	+18.9	14.9	2.17
C9.	18"x22"	195	85.8	280.8	+114.	+0.24	17	2.17
C10.	18"x22"	201	86	287	-114.	+0.24	17	2.17
C11	14"x24"	110	38	148	+79.1	-19.15	12.6	4.48
C12.	14"x24"	113.4	44.6	158	-79.7	-19.15	12.6	4.48

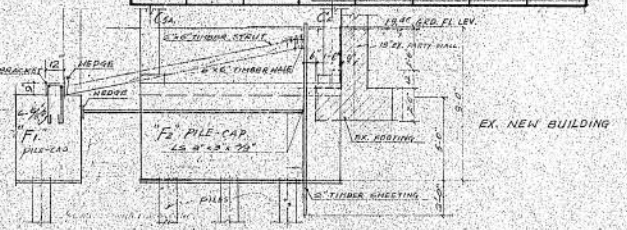
LOADING PER PILE (IN TONS)

COL MARK.	SUM OF PILES FOR PER PILE-CAP	SIZE OF PILE	No. OF PILE-CAP FOR PER PILE	WORKING LOAD ON EACH PILE (IN CLUDING WT. OF PILE-CAP) D.L.	D.L.+L.L.	D.L.+L.L.+W.	D.L.+W.
F1.	19	14"x14"	7.97	39.1	54.04	66.81	46.5
F2.	19	14"x14"	6.9"	41.4	56.9	68.7	48.2
F3	6	14"x14"	2.5	36.	50.1	62.	41.
C10.	7	14"x14"	2.5	36.84	48.54	66.26	47.92
C11	3	14"x14"	1.3	40	52.7	79.	13.4
C12.	4	14"x14"	1.6	32.8	44.0	68.8	12.9



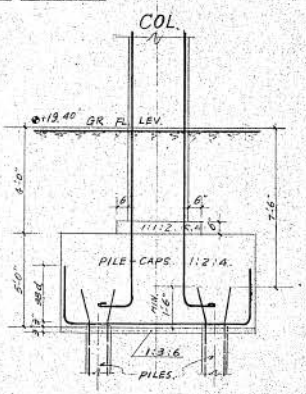
PILING PLAN

SCALE: 1/8" = 1'-0"



SECTION A-A

SCALE: 1/8" = 1'-0"



typical pile cap

NOTES:

1. CONC. MIX 1:1:2 Q.A. FOR PILES AND PEDESTALS.
   1:2:4, G.A. FOR PILE CAPS, STRAP BEAMS & DRAG WALL.
   1:3:6 FOR BLINDING LAYERS.
2. THE FUTURE CUT OFF LEVEL TO BE + 10.65 P.D.
3. THE GR. FL. LEV. OF THIS BUILDING IS + 19.40 P.D.
4. ON THE TOP, BOTTOM AND SIDES OF THE COLS., PILE CAPS AND STRAP BEAMS BELOW THE GR. FL. LEV., 2" CONC. SHALL COVER TO THE MAIN REINFORCEMENT.
5. THE HEIGHT OF BUILDING TO BE 94'-0".
6. USE STEEL PILE FRAME AND PROVIDED WITH STEEL SPACER FORKS.
7. USE SPECIAL STEEL HELMET AND WOODEN DOLLY.
8. 14"x14" PILES SHOULD BE LIFTED AT FOUR POINTS.
9. THE PILES SHALL NOT BE DRIVEN DOWN MORE THAN 7'-6" BELOW THE GR. FL. LEV.
10. MAX. WORKING LOAD FOR 14"x14" PILE IS 65. TONS PER PILE.
11. ⊠ INDICATES THE AMENDED PILING POSITION NOS. 40A, 43, 57, 46A
12. ⊠ INDICATES THE ABANDONED PILE-POSITION NOS. 46, 57 & 46A

Approved
for Director of Buildings Authority
30 NOV 1967

AMENDED

RECEIVED BY
10 NOV 1967
BUILDINGS ORDINANCE OFFICE
KOWLOON
P.W.D.

PROPOSED 4 NEW HOUSES ON N.K.I.L. 567 R.P. & N.K.I.L. 1670 AT NO. 19,-21, KAI TAK ROAD KOWLOON.

MR. T. K. LEUNG
AUTHORISED ARCHITECT

K. K.
PILING CONSTRUCTION CO., LTD.

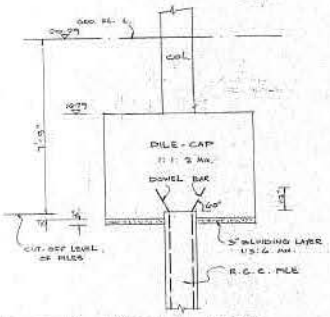
DATE 22ND FEB 1965.	DRAWN BY K.U-TAT		
REVISIONS		4	
1 27.0.67 1967		5	
2		6	
3		7	

PILING PLAN

DRAWING NO. 1/3

SCALE: 1/8" = 1'-0"

KAI TAK ROAD



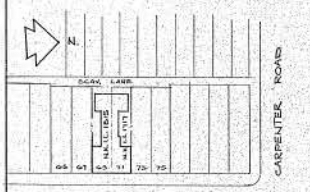
3/8" DETAIL SHOWING CUT-OFF LEVEL OF PILES

NOTES:

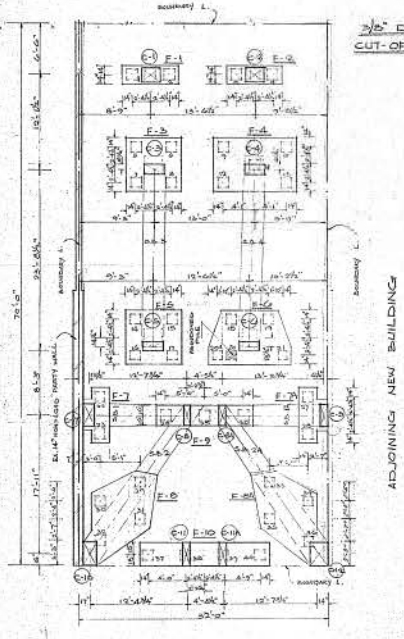
1. ALL PILES TO BE R.C.C. PRECAST PILES.
2. SIZE OF AGGREGATE 3/4".
3. CAST IRON PILE-SHOES TO BE FIXED TO ALL PILES.
4. ALL PILES TO BE LIFTED AT TWO LIFTING HOLES.
5. USE STEEL HELMET & STEEL FOLLOWER. (LENGTH = 10'-0", WEIGHT = 850 LBS.)
6. USE SPECIAL PLASTIC DOLLY.
7. USE STEEL PILE DRIVING TRUSS.
8. CUT OFF LEVEL OF PILES TO BE 7'-9" BELOW GRD. FL. LEVEL.
9. ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-6" BELOW GRD. FL. LEVEL.
10. CONCRETE MIXTURE FOR ALL PILES TO BE 1:1:2 @ 'A'.
11. CONCRETE MIXTURE FOR ALL PILE-CAPS TO BE 1:1:2.
12. CONCRETE MIXTURE FOR ALL STRAP BEAMS TO BE 1:1:2.
13. CONCRETE MIXTURE FOR ALL COLUMNS & PEDESTALS TO BE 1:1:2.
14. CONCRETE COVER TO MAIN REINFORCEMENT AS BELOW:
    3" COVER FOR PILE-CAPS
    2" COVER FOR STRAP BEAMS.
15. SPACING OF PILES : 4'-9"
16. HEIGHT OF BUILDING : 88'-10"
17. DRIVING DATA :

SIZE OF PILE	LENGTH OF PILE	WT. OF HAMMER	WT. OF RAM	LAST PENETRATION	
				WITH FOLLOWER	WITHOUT FOLLOWER
16"x16"	60'-0"	5½T	4'-6"	6 BLOWS/IN.	8 BLOWS/IN.

B.O.O. REF. NO. B/5406/63.



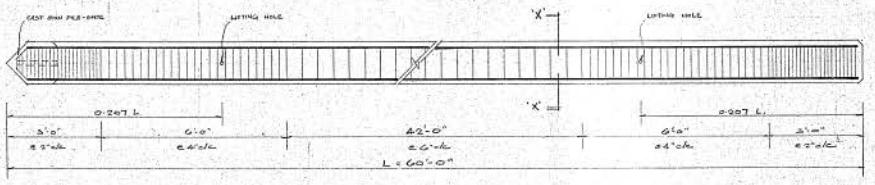
BLOCK PLAN
SCALE: 1"=50'-0"



PILING PLAN
SCALE: 1/16" = 1'-0"

LOADING SCHEDULE (IN TONS)

COLUMN MARK	COLUMN SIZE	LOADING D.L.	LOADING DL+LL	WIND LOAD X-X	WIND LOAD Y-Y	MARK OF PILE-CAP	WT. OF PILE-CAP	NOS. OF PILE REQUIRED	WORKING LOAD ON EACH PILE D.L.	WORKING LOAD ON EACH PILE DL+LL	WORKING LOAD ON EACH PILE DL+LL+WL	WORKING LOAD ON EACH PILE D.L.+W.L.
C-1	27"x27"	85·0	110·5	± 47·2	∓ 17·5	F-1	4·66	2	43·33	57·46	81·06	32·75
C-2	27"x22"	103·0	129·0	∓ 47·2	∓ 17·5	F-2	4·66	2	53·83	66·83	90·43	38·93
C-3	30"x15"	184·5	288·5	± 17·5	± 10·75	F-3	14·5	4	45·33	60·63	80·12	17·47
C-4	30"x15"	204·2	285·0	∓ 12·5	± 10·75	F-4	20·0	6	44·0	58·2	75·6	18·7
C-5	30"x15"	150·5	166·5	∓ 10·2	∓ 6·15	F-5	14·5	4	43·42	52·62	80·62	15·62
C-6	30"x15"	172·0	218·0	∓ 10·5·2	∓ 6·15	F-6	14·5	4	49·25	63·67	87·62	21·52
C-7	15"x30"	168·2	165·0	± 36·0	∓ 25·6	F-7	4·66	2	41·42	52·73	73·05	21·13
C-8	15"x30"	63·2	85·0	∓ 36·0	∓ 25·6	F-7A	4·66	2	43·33	55·65	76·33	16·83
C-10	30"x30"	138·6	113·0	± 41·4	± 28·5	F-8	14·5	4	38·42	46·62	61·82	24·42
C-12	30"x30"	188·6	118·0	∓ 44·7	± 28·8	F-8A	14·5	4	33·62	46·62	68·62	23·32
C-9	10"x32"	89·1	116·5	∓ 10·4	∓ 15·45	F-9	9·4	3	62·53	80·8	81·033	62·56
C-8A	10"x30"	89·1	116·5	± 0·4	∓ 15·45							
C-11	15"x36"	161·2	197·1	± 14·15	± 30·2	F-10	12·0	4	33·6	66·55	81·65	36·6
C-11A	15"x36"	161·2	197·1	∓ 1·0	± 30·2							



3/8" DETAIL OF 16"x 16" R. C. C. PRECAST PILE



SEC. 'X'-'X'

Approved
PRO BUILDING AUTHORITY
15 MAY 1970

GUY W. K. CHAN
Authorised Architect

RECEIVED
14 APR 1970
BUILDING SERVICES OFFICE
BUILDINGS DEPARTMENT

AMENDED PLAN
- 8 APR 1970

P. 1/1.

R. C. C. PRECAST PILE & PILING PLAN FOR PROPOSED BUILDING ON N.K.I.L. 1815 & 1717, AT NO. 69 & 71, KAI TAK ROAD, KOWLOON.

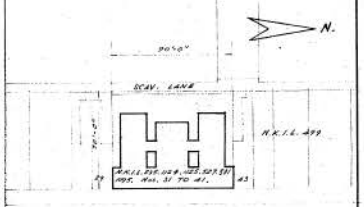
SCALE : As shown

PRECAST CONCRETE PILING BY
WAH YIP & CO.
TEL. : H-2284-26

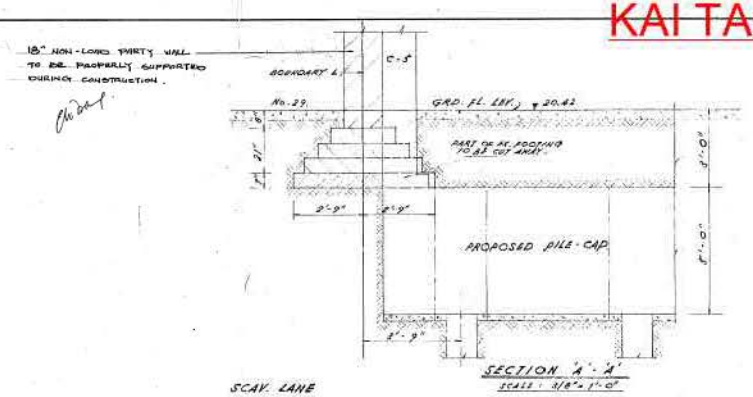
GUY W. K. CHAN
AUTHORIZED ARCHITECT

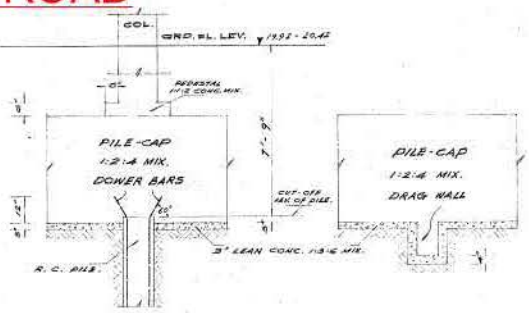
KAI TAK ROAD

BUILDINGS ORDINANCE OFFICE
B.O.O. REF No. 3/4132/63



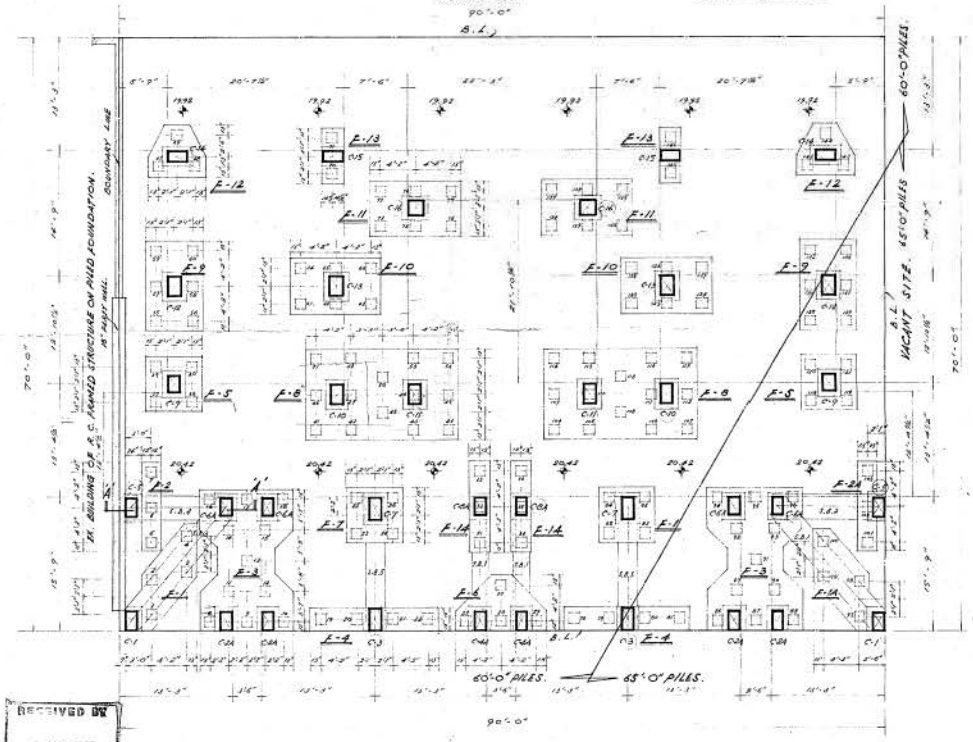
BLOCK PLAN.
SCALE: 1" = 50'-0"



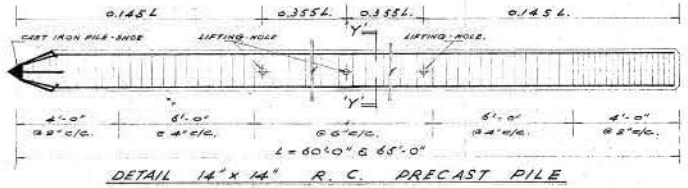


DETAIL SHOWING CUT-OFF LEVEL OF PILES
SCALE: 1/8" = 1'-0"

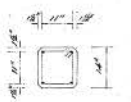
DETAIL FOR DRAG WALL
SCALE: 1/8" = 1'-0"



PILING PLAN SCALE: 1/8" = 1'-0"



DETAIL 14" x 14" R.C. PRECAST PILE



SEC. 'Y'-'Y'

LOADING SCHEDULE

COLUMN		LOADING T		WIND LOAD T		WIND SHEAR K		FOOTING MARK	WT. OF PILE-CAP	Nos. OF PILE	WORKING LOAD PER PILE T			
MARK	SIZE	D.L.	D.+L.	X-X ⟷	Y-Y ↕	X-X ⟷	Y-Y ↕				D.L.	D.+L.	D.+L.+W.	D.+W.
C-1	16"x28"	135	151	±10	-44	3.0	6.0	F-1	14	4	37.3	43.5	61.0	51.5
C-5	16"x28"	116	129	24	40	4.0	6.0	F-2	7.2	3	51.4	56.7	73.6	64.4
C-1'	16"x28"	135	151	±10	-44	3.0	6.0	F-1A	14	4	54.7	61.0	77.5	68.1
C-5'	16"x28"	116	129	24	40	4.0	6.0	F-2A	7.2	3	46.9	51.8	67.1	57.4
C-2A	16"x27"	111	131	-14	-28	2.0	4.0							
C-2A'	16"x27"	111	131	+14	-28	2.0	4.0							
C-6A	16"x27"	126	146	-7	±22	3.0	4.0	F-3	45	11	47.2	54.8	68.3	57.5
C-6A'	16"x27"	126	146	+7	±22	3.0	4.0							
C-3	18"x32"	210	249	-7	-67	5.0	10.0	F-4	13	4	53.8	63.6	80.3	67.1
C-9	19"x35"	208	246	±19	±26	5.0	5.0	F-5	13	4	53.2	64.8	71.2	66.8
C-4A	16"x27"	89	112	±13	-28	2.0	4.0	F-6	13	4	51.2	63.4	78.6	66.0
C-4A'	16"x27"	89	112	±13	-28	2.0	4.0							
C-7	18"x32"	186	215	±1	±60	6.0	10.0	F-7	14	4	52.8	60.5	76.5	66.9
C-10	18"x30"	223	279	±33	-26	5.0	7.0	F-8	63	14	46.1	54.9	62.0	53.4
C-11	18"x30"	345	426	-44	±1	5.0	8.0							
C-12	20"x29"	235	273	±103	±10	16.0	7.0	F-9	22	6	43.0	49.2	66.3	55.6
C-13	20"x29"	198	241	-103	±23	16.0	7.0	F-10	22	6	36.7	43.8	61.0	49.5
C-16	23"x23"	223	261	±73	-30	13.0	5.0	F-11	22	6	40.8	47.2	59.3	48.7
C-14	29"x16"	120	135	±49	±29	9.0	2.0	F-12	9	3	43.0	48.0	64.3	54.7
C-15	29"x16"	98	116	-28	±23	9.0	2.0	F-13	4.2	2	51.1	60.1	71.6	57.1
C-6A	16"x27"	116	136	±6	±22	3.0	4.0	F-14	9	3	41.7	48.3	55.7	44.3

Approved
PWD BUILDING AUTHORITY
- 4 MAR 1965

NOTES:
<1> ALL PILES TO BE R.C. PRECAST PILES.
<2> ALL PILES TO BE FIXED WITH CAST IRON PILE SHOES.
<3> ALL PILES TO BE LIFTED AT THREE LIFTING HOLES.
<4> SIZE OF AGGREGATES 3/4".
<5> USE STEEL PILE DRIVING TRUSS.
<6> USE STEEL HELMET & STEEL FOLLOWER (WT. = 880# L = 10'-0")
<7> USE PLASTIC DOLLY.
<8> CUT-OFF LEVEL OF PILES TO BE 7'-9" BELOW GRD. FL. LEV..
<9> ALL PILES TO BE FOLLOWED DOWN ABOUT 6'-6" BELOW GRD. FL. LEVEL.
<10> CONC. MIX. FOR ALL PILES TO BE 1:1:2 Q.A.
<11> CONC. MIX. FOR ALL PILE-CAPS TO BE 1:2:4
<12> CONC. MIX. FOR ALL PEDESTALS TO BE 1:1:2
<13> CONC. COVER TO MAIN REINFORCEMENT:
2" COVER FOR STRAP BEAMS & BELOW GRD. FL. LEV..
3" COVER FOR FOOTINGS.
<14> SPACING OF PILES: 4'-2"
<15> HEIGHT OF BUILDING: 106'-0"
<16> DRIVING DATA:

PILE SIZE	PILE LENGTH	WT. OF HAMMER	HT. OF FALL	LAST PENETRATION WITH FOLLOWER	LAST PENETRATION WITHOUT FOLLOWER
14"X14"	60'-0"	5 1/2 T	3'-6"	6 BLOWS/IN.	4 BLOWS/IN
	65'-0"			8 BLOWS/IN.	6 BLOWS/IN.

TSANG CHUN KI (B. ARCH)
AUTHORIZED ARCHITECT

26 JAN 1965

P 1/1

RECEIVED BY
- 2 MAR 1965
BUILDINGS ORDINANCE OFFICE
K.W.G.

RECEIVED BY
28 JAN 1965
BUILDING ORDINANCE OFFICE
KOWLOON

R. C. C. PRECAST PILE & PILING PLAN FOR PROPOSED BUILDING ON N.K.I.L. Nos. 535. 1124. 1125. 527. 531 & 1095, AT Nos. 31 TO 41, KAI TAK ROAD.

SCALE: 1/8" = 1'-0"

PRECAST CONCRETE PILING BY WAH YIP & CO. TEL. 228426

TSANG CHUN KI
AUTHORIZED ARCHITECT

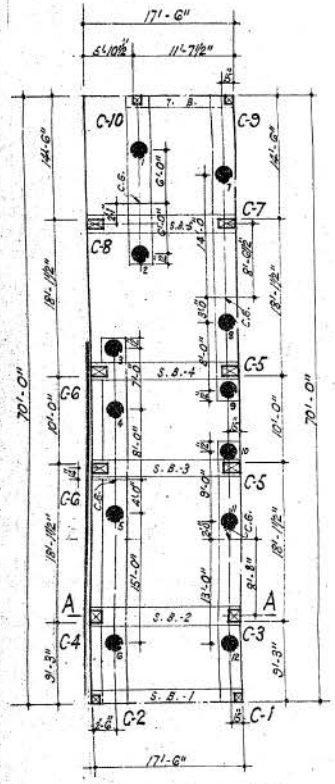
KAI TAK ROAD

B.O.O. REF. No. 3/4476/70.

PRESSURE PILING DETAILS			
Tube diameter	18½"	Pile Nos.	12
Authorized load	89"	Design load	89·0"
Spacing	4'-10"	Depth of bars	30'-0"
Conc. Mix. in piles	1:2:4	Conc. Mix. in caps	1:2:4 A.

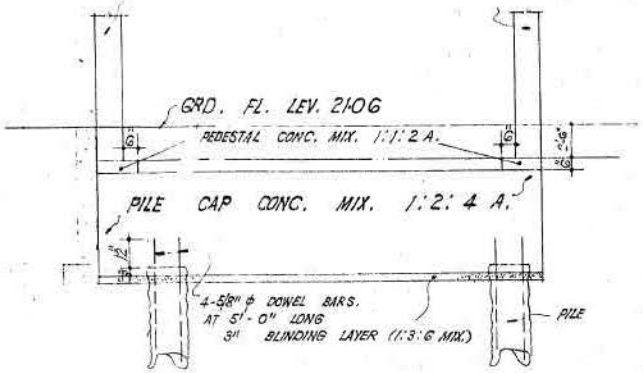
Soil Data hard pink, white & brown clayey silt with well graded sand & fine gravel.

NOTE:
1. THE HEIGHT OF BUILDING = 64'-5".

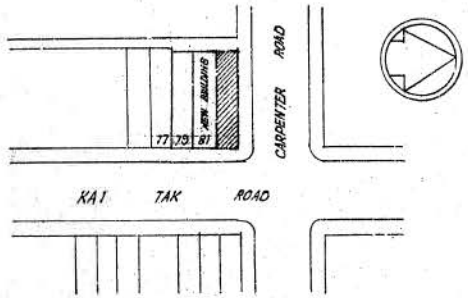


KAI TAK ROAD

PILING PLAN



SECTION A-A
SHOWING THE TOP LEVEL OF PILE CAP
(SCALE : 3/8" = 1'-0")



BLOCK PLAN
(SCALE : 1" = 50'-0")

COL.	SIZE	LOADING (TONS) D.L.	L.L.	D.+L.	WIND LOAD (TONS) ↓	←	WIND SHEAR (LBS) ↓	←	WEIGHT OF PILE CAP	No. OF PILE 18½" ϕ	LOAD PER PILE (TONS) D.L.	D.+L.	D.+L.+W. ↓	D.+L.+W ←	2/3 D.-W.	DEPTH OF PILE CAP
C-2	10"X10"	10·0	3·0	13·0	∓7·0	±2·0	1700	1675	40	4	62·0	73·2	85·5	108·6	9·6	4'-0"
C-4	15"X15"	42·0	8·0	50·0	∓5·0	±25·0	8600	11280								
C-6	12"X21"	71·0	13·0	84·0	∓4·0	±43·0	6150	16470								
C-6	12"X21"	71·0	13·0	84·0	∓4·0	±43·0	6150	16470								
C-1	10"X10"	13·0	5·0	18·0	∓10·0	∓2·0	2530	1675	26	3	68·8	89·0	103·5	111·2	10·9	4'-0"
C-3	15"X15"	73·0	14·0	87·0	∓6·0	∓25·0	11750	11280								
C-5	12"X21"	103·0	18·0	121·0	∓9·0	∓43·0	8400	16470								
C-5	12"X21"	103·0	18·0	121·0	∓9·0	∓43·0	8400	16470	26	3	64·8	79·8	89·9	110·5	15·6	4'-0"
C-7	12"X21"	79·0	14·0	93·0	±10·0	∓25·0	8400	13150								
C-9	10"X10"	11·0	3·0	14·0	±5·0	∓3·0	2350	1960								
C-8	12"X21"	46·0	7·0	53·0	±12·0	±25·0	6150	13150	20	2	50·0	56·4	67·8	81·6	11·6	4'-0"
C-10	10"X10"	12·0	1·0	13·0	±2·0	±3·0	3070	1960								

Approved
PRO BUILDING AUTHORITY
24 MAR 1972

KHO KIEM AN B. ARCH. (HONS)
AUTHORIZED ARCHITECT
KHO KIEM AN ASSOCIATES
ARCHITECTS & ENGINEERS
[illegible]

RECEIVED BY
24 MAR 1972
P.W.D.

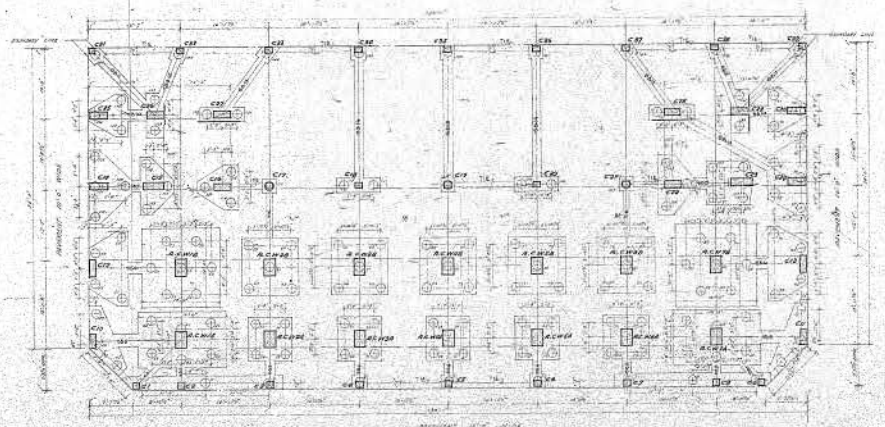
A REMOVED EX. PARTY WALL & CHANGING PILE POSITION 10-7-1972

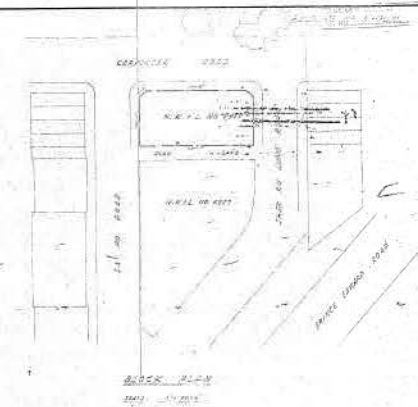
PRESSURE PILING CO.
DESIGN TJ | DATE 15-4-71 | YEAR 71
CHECKED TK | SCALE 1/8"=1'-0" | T. NO. 312
DRAWN TJ | C. NO. 986 | SHEET 1A

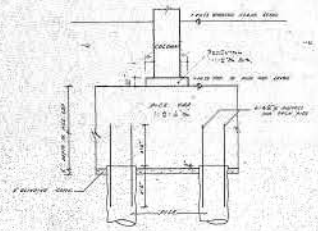
PROPOSED PRESSURE PILING PLAN ON N. K. I. L. 1716, S.A.R.P. AT No. 83 KAI TAK ROAD.

CARPENTER ROAD

CARPENTER ROAD







TYPICAL DETAIL SHOWING TOE LEV. OF TOP OF PILE-CAP.

NOTES..

1. ALL CONCRETE WORKS TO BE OF 1:2:4 GRADE A EXCEPT OTHERWISE NOTED
2. MIN LAP LENGTH FOR TENSION BARS TO BE 60D WHEN THE TENSILE STRESS IS MORE THAN 1/2 MIN LAP LENGTH FOR COMPRESSION BARS TO BE 45D.
3. ALL FOUNDATIONS SHOULD BE RESTED ON PILES.
4. PROVIDES 3" THICK LEAN CONC. (1:3:6) FOR THE UNDERSIDE OF ALL REINFORCED FOUNDATIONS AND THE BEAM.
5. CONC. PROTECTION FOR REINFORCEMENT... 3" WHERE THE CONC. IS IN CONTACT WITH THE GROUND.
6. TOTAL RISE/GOP BELOW = 150 m"

Approved
for Building Authority
29 JUN 1988

LESLIE OUYANG
for District Surveyor

AMENDED 19.5.89

AMENDED 12 JUN 1990

ENGINEER'S COPY
10 JAN 1989

RECEIVED
29 MAR 1988

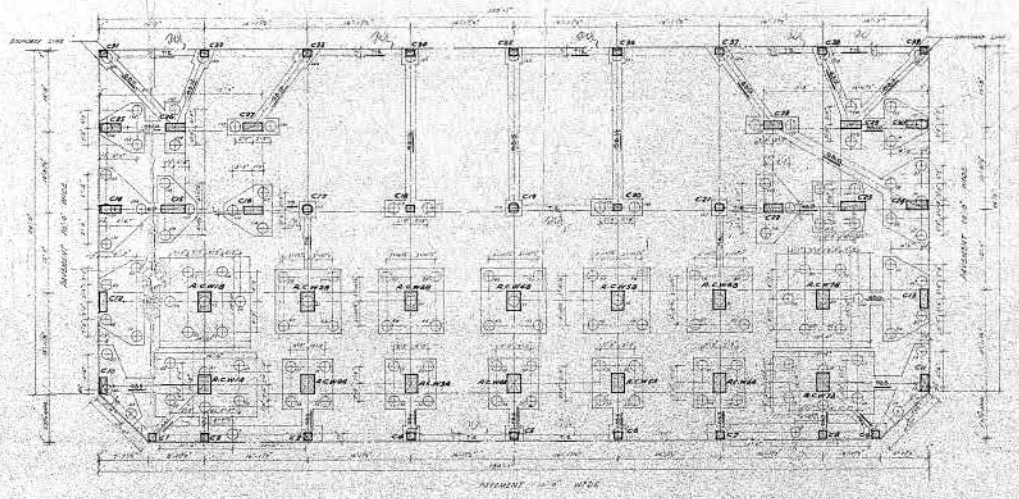
SPECIFICATION		
TYPE (CONC)	○	
DIA OF PILE	0.6	
MIN PILE DIA	0.6	
MAX SPACING	2.4	
MAX ALLOWABLE LOAD / PILE	450	
MAX WORKING LOAD / PILE	450	
DEPTH OF EMBED	4	
TYPE OF HOOP	SPIRAL	
DEPTH OF SPIRAL	4	
PITCH OF SPIRAL(MIN)	4	
TYPE LEADER	4#16	
TYPE SHOE	4.2	
TYPE STIRRUPS	10	
INITIAL TEST LENGTH	24	
FINAL TEST LENGTH	24	TEST ACCEPTED AGAINST CRITERIA
DRIVE SHOES SUPPLIED	BY CONTR	
FINAL PR OF PILES	140	
SPACE PR	0.70 MIN	
CONCRETE MIX	1:1:2	1 - 1944
DATE	17-1-1989	J-6342
REVISIONS	PILING PLAN	
A 24 JAN 1989		
B		
C	SCALE: 1:50	
D		

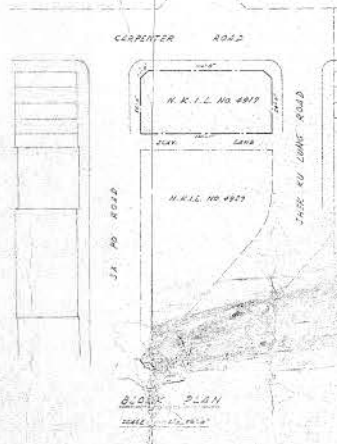
ARCHITECTS & ENGINEERS: WONG HO WING AND ASSOCIATES

SUB-SOILS DRILLING & FOUNDATION CO.

PROPOSED COMPOSITE BUILDING AT N.K.I.L. NO. 6917 ON SA PO ROAD, CARPENTER ROAD AND SHEK KU LUNG ROAD, KOWLOON.

CARPENTER ROAD





COLUMN MARK	COLUMN SECTION (mm x mm)	O.L. (mm)	AL. c.s.a. (mm²)	WIND LOAD (SHEAR) ALONG X-X DIRECTION	WIND LOAD (SHEAR) ALONG Y-Y DIRECTION	WIND SHEAR (MOMENT) ALONG X-X DIRECTION	WIND SHEAR (MOMENT) ALONG Y-Y DIRECTION	NO. OF PILES REQUIRED	LOAD PER PILE (TONNES) ALLOWED CAP. KIP	O.L.*	A.C.V.S.I. CAP.	W.L. CAPACITY	A.C.V.S.I. OVERTURNING	O.K. UNDER O.L. + WIND LOAD	DEPTH OF PILE CAP
* C 1	1000 x 1000	33	980	2 - 32	2 - 32	0.2	0.2								
* C 2	"	33	980	2 - 32	2 - 32	0.2	0.2								
* C 3	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 4	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 5	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 6	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 7	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 8	"	"	980	2 - 32	2 - 32	0.2	0.2								
* C 9	"	32 K.N.	980	2 - 32	2 - 32	0.2	0.2								
* C 10	"	34 K.N.	980	2 - 32	2 - 32	0.2	0.2								
* A.C.W.1	1400 x 1400	33	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.2	"	33	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.3	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.4	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.5	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.6	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.7	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.8	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.9	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.10	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.11	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.12	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.13	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.14	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.15	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.16	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.17	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.18	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.19	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.20	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.21	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.22	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.23	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.24	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.25	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.26	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.27	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.28	"	"	1960	2 - 64	2 - 64	0.4	0.4								
A.C.W.29	"	"	1960	2 - 64	2 - 64	0.4	0.4								
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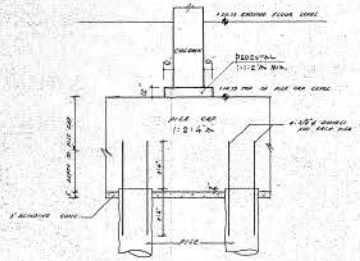


TYPICAL DETAIL SHOWING THE LEV. OF TOP OF PILE-CAP.

NOTES:

1. ALL CONCRETE WORKS TO BE OF 1:2:4, GRADE 'A' EXCEPT OTHERWISE NOTED.
2. MIN. LAP LENGTH FOR TENSION BARS TO BE 40D WHEN THE TENSILE STRESS IS 18000 p.s.i. MIN. LAP LENGTH FOR COMPRESSION BARS TO BE 24D.
3. ALL FOUNDATIONS SHALL BE RESTED ON PILES.
4. PROVIDED 3" THICK LEAN CONC. (1:3:6 MIX) TO UNDERSIDE OF ALL REINFORCED FOUNDATIONS AND TIE BEAM.
5. CONC. PROTECTION FOR FOUNDATIONS: 3" WHERE THE CONC. IS IN CONTACT WITH THE GROUND.
6. TOTAL HIGHTOP BUILDING = 150'-0"

Approved
PRO BUILDING AUTHORITY
- 1 FEB 1966

LESLIE CHEUNG
B.Sc. (CIVIL ENGINEERING)
REGISTERED STRUCTURAL ENGINEER
14/1/66.

SPECIFICATION		
TYPE (SHAPE)	○	
DIA. OF PILE	11"	
MAIN PILE BAR	12	
PILE SPACING	2'-6"	
MAX. ALLOWABLE LOAD / PILE	110	
MAX. WORKING LOAD / PILE	110	
WEIGHT OF HAMMER	3T	
TYPE OF PILES	PRECAST	
WEIGHT OF STRIKER	1T	
FINAL SET (BLOWS/INCH)	8	
PILE LENGTH	50'-0"	
PILE WEIGHT	0.2T	
PILE THICKNESS	5"	
EXTRA WET LENGTH	0'-0"	
EXTRA DRY LEN.	10'-0"	MAIN DRAWING FOR DETAIL
EXTRA SPIRAL REINFORCE	SPIRAL	
PILES IN 'M' PILES	144	
SPIRAL NO.	1'-0" c/c	
CONCRETE MIX. 1:2:4	SIZE OF REINFORCE ½" dia 170"	2-12002
DATE: 17-1-1966		JOB NO. 1-6342
REVISIONS:	PILING PLAN	DRAWING NO.
2. 20-1-1966		PL-1/1
3.	SCALE: 1/8"=1'0"	DRAWN BY: C.Y.Au
4.		CHECKED BY: ARTHUR
ARCHITECTS & ENGINEERS: WONG NG CHEUNG AND ASSOCIATES	THE HONG PILING & INTERNATIONAL FOUNDATION CO. LTD. HONG KONG	

RECEIVED BY
18 JAN 1966
BUILDING SERVICES OFFICE
P.W.D.

17 JAN 1966

PROPOSED COMPOSITE BUILDING AT N.K.I.L. NO. 4917 ON SA PO ROAD, CARPENTER ROAD AND SHEK KU LUNG ROAD, KOWLOON.

CARPENTER ROAD

BD REF NO: 3/4083/10

GENERAL NOTES:

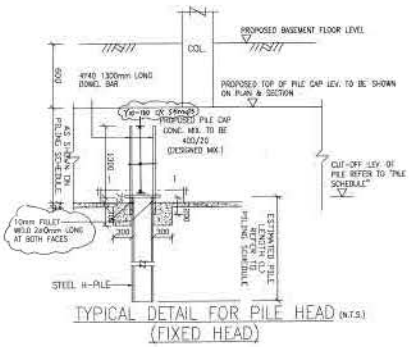
1. ALL PILES TO BE COMPLY WITH BS EN 10025 : 2004

SIZE OF PILES		305x305x223kg/m GRADE S450 J0 H-PILE	
WORKING CAPACITY (kN) (COMPRESSION)	WITHOUT GROUP FACTOR	D+L	3564
		D+L+W	4560
	WITH GROUP REDUCTION	D+L	3123
		D+L+W	3996
MIN. SPACING OF PILES		1330mm	

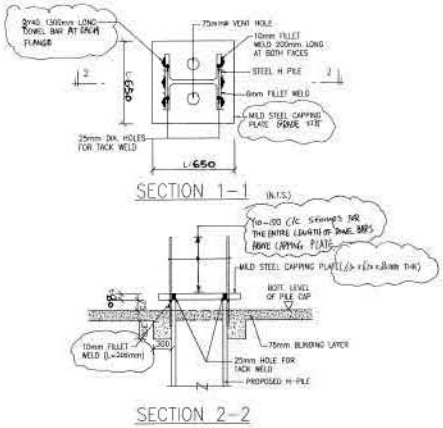
2. ALL PILES TO BE STEEL H-PILE GRADE S450 J0 305x305x223kg/m WITH MINIMUM YIELD STRESS $R_y(s)$ = 430 N/mm² COMPLYING WITH BS EN 10025 GRADE S450 J0 STEEL & COMPLY WITH "THE STRUCTURE USE OF STEEL 2011"
3. GROUP REDUCTION FACTOR OF 0.7 TO BE PROVIDED TO THE WORKING LOAD OF PILE WHERE 5 OR MORE PILES UNDER A COMBINED CAP.
4. UPPER 6m OF PILE MEASURED FROM CUT-OFF LEVEL TO BE COATED EXTERNALLY WITH BITUMEN FOR PROTECTION AGAINST CORROSION.
5. ALL CAPPING PLATE AND SPLICE PLATES TO BE COMPLY WITH BS EN 10025 GRADE S275 STEEL CLASS 1.
6. ALL WELDING WORK OF JOINTS SHOULD BE COMPLIED TO BSen 1011: PART II.
7. ALL DIMENSION ARE IN MILLIMETERS AND LEVEL IN METERS UNLESS OTHERWISE STATED.
8. PILE SHALL BE INSTALLED WITH THE ORIENTATION OF PILE AS SHOWN ON PLAN.
9. ALL VERTICAL LOADS TO BE RESISTED BY H-PILES & PILE CAP TO BE DESIGNED AS FLEXIBLE CAP.
10. THE LATERAL LOAD TO BE RESISTED BY H PILE WITH GROUP REDUCTION FACTOR=0.4.
11. COEFFICIENT OF HORIZONTAL SUBGRADE REACTION TO BE 1.3 MN/m³.
12. FACTOR OF SAFETY OF OVERTURNING STABILITY DUE TO WIND LOAD TO BE MINIMUM 1.5.
13. PILE CAP & ELS DETAILS TO BE SUBMITTED SEPARATELY.
14. THE DESIGN OF PILING TO BE ACCORDING WITH "HONG KONG BUILDING (CONSTRUCTION) REGULATION 1990" , "THE STRUCTURAL USE OF STEEL 2005", "THE STRUCTURAL USE OF CONCRETE 2004" AND "THE CODE OF PRACTICE FOR FOUNDATION, 2004"
15. CONCRETE MIX. FOR PILE CAP TO BE GRADE 400/20 DESIGNED MIX. COMPLY WITH "COP FOR THE STRUCTURAL USE OF CONCRETE 2004"
16. LIVE LOAD ON GROUND FLOOR TO BE 7.5kPA. OTHERWISE TO BE STATED.
17. DESIGNED GROUND WATER LEVEL TO BE +8.11mPD (PROPOSED GROUND FLOOR LEVEL).
18. DURING THE PILING WORKS, VIBRATION SHOULD BE MONITORED.
19. THE TENTATIVE PILE LENGTH TO BE REFER TO PILING SCHEDULE.
20. FIXED HEAD ASSUMPTION FOR PILES TO RESIST LATERAL LOAD.
21. THE ALLOWABLE PILE TOLERANCE AS FOLLOW:
    a) OFF SET FROM PLAN POSITION = 75mm (MAX)
    b) OUT OF PLUMB (VERTICAL) = 1 : 75 (MAX)
22. DURING THE PILE DRIVING, VERTICALITY SHOULD BE CHECKED BY SPIRIT LEVEL RULER AT 2000mm INTERVAL.
23. THE LENGTH OF PILES ARE ROUGHLY ESTIMATED AS FOLLOW:

Bore Hole Mark		V01	V02	V03	V04
EXISTING GROUND	(mPD)	+8.11	+6.18	+6.10	+6.67
ESTIMATED PILE DEPTH	(M)	34.7	48.7	36.7	42.7
ESTIMATED PILE TOE LEVEL (N>=200)	(mPD)	-26.59	-42.52	-30.6	-36.03

24. QUALITY SUPERVISION AND SITE SAFETY SHALL BE STRICTLY IN ACCORDANCE WITH "CODE OF PRACTICE FOR SITE SUPERVISION 2009".
25. AFTER THE PILING WORKS COMPLETED, THE PILING REPORT, PILING RECORD PLAN, WELD TEST REPORT AND FINAL SET RECORD WITH BA14 SHALL BE SUBMITTED TO BUILDING AUTHORITY FOR CONSIDERATION.
26. DEPTH OF SOIL BACKFILL TO BE 600mm

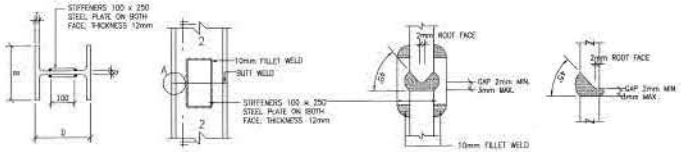


TYPICAL DETAIL FOR PILE HEAD (N.T.S.)
(FIXED HEAD)



SECTION 1-1 (N.T.S.)

SECTION 2-2



TYPICAL DETAIL FOR PILING CONNECTION (N.T.S.)

STEEL H-PILES						CAPPING PLATE (S275)	
SIZE (mm)	D	B	t	T	AREA (cm²)	L (mm)	THICKNESS t (mm)
305x305x223 kg/m (DRAGON STEEL) GRADE S450 J0 STEEL H-PILE	337.9	325.7	30.4	30.3	284.0	500	45
305x305x223 kg/m (LAIWU) GRADE S450 J0 STEEL H-PILE	338.0	325.4	30.5	30.5	285		

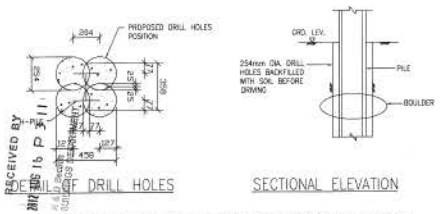
TYPE OF PILE	CHEMICAL COMPOSITION SPECIFICATION									Carbon Equivalent Value
	C max %	Si max %	MN max %	P max %	S max %	N max %	Cu max %	V max %	Nb max %	CEV max %
305X305X223Kg/M GRADE S450 J0 STEEL H-PILE (DRAGON STEEL)	0.2	0.55	1.7	0.030	0.030	0.025	0.55	0.13	0.05	0.45
305X305X223Kg/M GRADE S450 J0 STEEL H-PILE (LAIWU)	0.2	0.55	1.7	0.030	0.030	0.025	0.55	0.13	0.05	0.45

NOTE:
1. BRAND NAME OF EACH PILE SHALL BE SHOWN IN RECORD PLAN.
2. ONE BRAND SHALL BE USED IN ONE WHOLE PILE.

NOTES OF MONITORING:
1. INSTALL THE VIBRATION, MOVEMENT & SETTLEMENT CHECK POINTS AS SHOWN ON PLAN BEFORE THE COMMENCEMENT OF PILING WORKS.
2. THE INITIAL READINGS SHOULD BE SUBMITTED TO BUILDING AUTHORITY BEFORE WORK COMMENCE.
3. THE MONITORING POINTS SHOULD BE MONITORED DAILY, AND THE RECORD SHOULD BE KEPT OF SITE FOR INSPECTION AND SUBMITTED TO THE AP/RSE AND BUILDING AUTHORITY AT TWO WEEKS INTERVAL.
4. SHOULD ANY UNDUE MOVEMENT, SETTLEMENT IS FOUND, OR THE PEAK PARTICLE VELOCITY(PPV) EXCEEDING 7.5 mm/s, THE PILING WORK SHOULD BE SUSPENDED IMMEDIATELY, THE RSE AND BUILDING AUTHORITY SHOULD BE INFORMED AND REMEDIAL PROPOSAL SHOULD BE SUBMITTED FOR CONSIDERATION & APPROVAL PRIOR TO RESUMING OF PILING WORKS.
5. THE PROPOSED ALERT LEVEL, ALARM LEVEL AND ACTION LEVEL FOR MONITORING ARE :

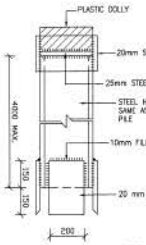
			ALERT LEVEL	ALARM LEVEL	ACTION LEVEL
GROUND SETTLEMENT CHECK POINT ON GROUND		GP1-GP4	10mm	12mm	15mm
TILTING CHECK POINT	TILTING	TTP1-TTP3	1/750	1/600	1/500
	SETTLEMENT		10mm	12mm	15mm
VIBRATION CHECK POINT		VB1-VB4	5.5mm/sec.	6.5mm/sec.	7.5mm/sec.

a) WHENEVER ANY CHECK POINT REACHED ALERT LEVEL, THE ENGINEER SHALL BE INFORMED. THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONARY MEASURES.
b) WHENEVER ANY CHECK POINT REACHED ALARM LEVEL, THE FREQUENCY OF SITE SUPERVISION BY RSE('S) AND RSC(T4) STREAMS SHOULD BE INCREASED TO NOT LESS THAN TWICE A WEEK.
c) WHENEVER ANY CHECK POINT REACHED ACTION LEVEL, ALL WORKS SHALL BE CEASE IMMEDIATELY, AND THE ENGINEER, BD SHALL BE INFORMED. NO WORKS SHALL BE RE-STARTED UNTIL A REMEDIAL PROPOSAL HAVE BEEN SUBMITTED, APPROVED BY BD AND IMPLEMENTED.



METHOD STATEMENT OF OVERCOMING OBSTRUCTION DURING THE PILE DRIVING
(FOR UNDER GROUND OBSTRUCTION ONLY)

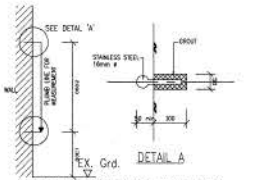
1. IF BOULDER IS ENCOUNTERED DURING PILE DRIVING , THE PILE WILL BE EXTRACTED.
2. TOTAL 4 NOS. 254mm DIAMETER HOLES AS SHOWN IN SECTIONAL ELEVATION WILL BE DRILLED THROUGH THE BOULDERS.
3. DRILL THE HOLE & FILL THE DRILLED HOLE WITH GRANULAR SOIL ONE BY ONE.
4. RE-DRIVE THE PILE TO THE REQUIRED LEVEL WITH CONTINUOUS REFILL OF GRANULAR SOIL DURING DRIVING.



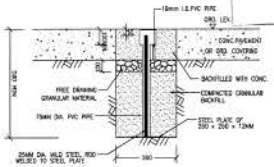
DETAIL OF 4.0m STEEL FOLLOWER

WELDING PROCEDURE FOR GRADE S450 J0 STEEL H-PILE

1) PLANT – 400 AMP, 346 VOLTS, AC WELDING SET
2) ELECTRODE – A) KOBELCO, LB-62 THE STRENGTH LEVEL MUST BE ADAPTED TO GRADE S450 J0.
   B) DIAMETER RANGE: 4mm AND 5mm
   C) THE ELECTRODES SHOULD BE STORED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER
3) JOINT PREPARATION – BEVELLING BY MANUAL FLAME CUTTING
   JOINT TYPE – SINGLE BEVEL (45O) WITH BACKING
   THE GAP SHOULD BE 2.5 ~ 4mm
4) WELD METAL BUILD UP – A) ELECTRODE 4mm FOR ROOT LAYER
   ELECTRODE 5mm FOR SUBSEQUENT LAYERS
   B) INTER RUN CLEANING
   EACH RUN OF WELD METAL SHOULD BE THOROUGHLY CLEANED BY HAND TOOLS BEFORE A FURTHER LAYER IS APPLIED
5) NO PREHEAT, INTERPASS TEMPERATURE AND POST WELD HEAT TREATMENT REQUIREMENTS.
6) WELD POSITION : ASME – 2G
7) WELDING CURRENT : (FOR ELECTRODE) 4mmø – 130~180 AMP (WELDING SPEED=2mm/S)
   5mmø – 180~240 AMP (WELDING SPEED=2mm/S)



DETAILS OF SETTLEMENT AND TILTING CHECK POINT ON EXISTING STRUCTURE (N.T.S.)



DETAILS OF SETTLEMENT CHECK POINTS ON GROUND (N.T.S.)

The works shown on these plans are Type II works in respect of which the Building Authority's consent is applied for.

BD AMENDMENT

W.K. TSE
B Sc(Eng) MIStructE
MHKIE C Eng RPE
Registered Structural Engineer

B	JUN 2012	REVISED PILE PROPERTY
	MAY 2012	B.D. APPROVED
A	APR 2012	REVISED PILING LAYOUT
REV.	DATE	DESCRIPTION

PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT AT NOS. 75 TO 81 SA PO ROAD, KOWLOON, HONG KONG N.K.I.L. 1105 R.P., S.B.R.P., N.K.I.L. 1105 S.A.R.P., N.K.I.L. 1433 R.P., N.K.I.L. 1741 R.P.

Plan Approved
HO Shu-fun
Senior Structural Engineer
for BUILDING AUTHORITY
13 SEP 2012

DRAWING TITLE
NOTES & TYPICAL DETAILS

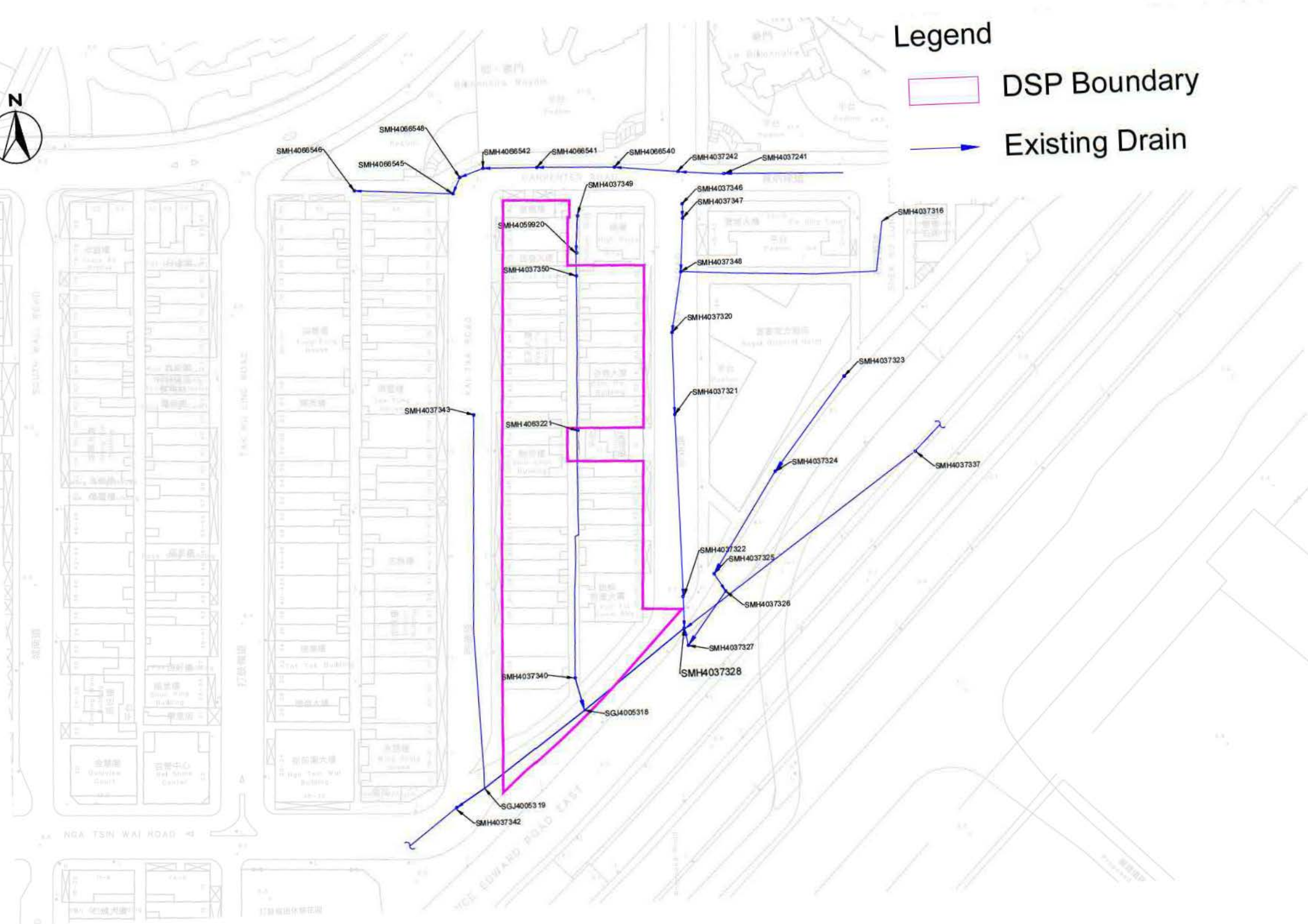
JOB NO.	DESIGNED
DATE OCT 2011	DRAWN
SCALE 1:100	CHECKED JYL TAN
DRG. NO.	HP-05

ARCHITECT
ARK

ENGINEER
C M WONG & ASSOCIATES LTD

APPENDIX C

Information Retrieved from DSD


Legend
DSP Boundary
Existing Drain
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SMH4066546
SMH4066545
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SMH4037241
SMH4037349
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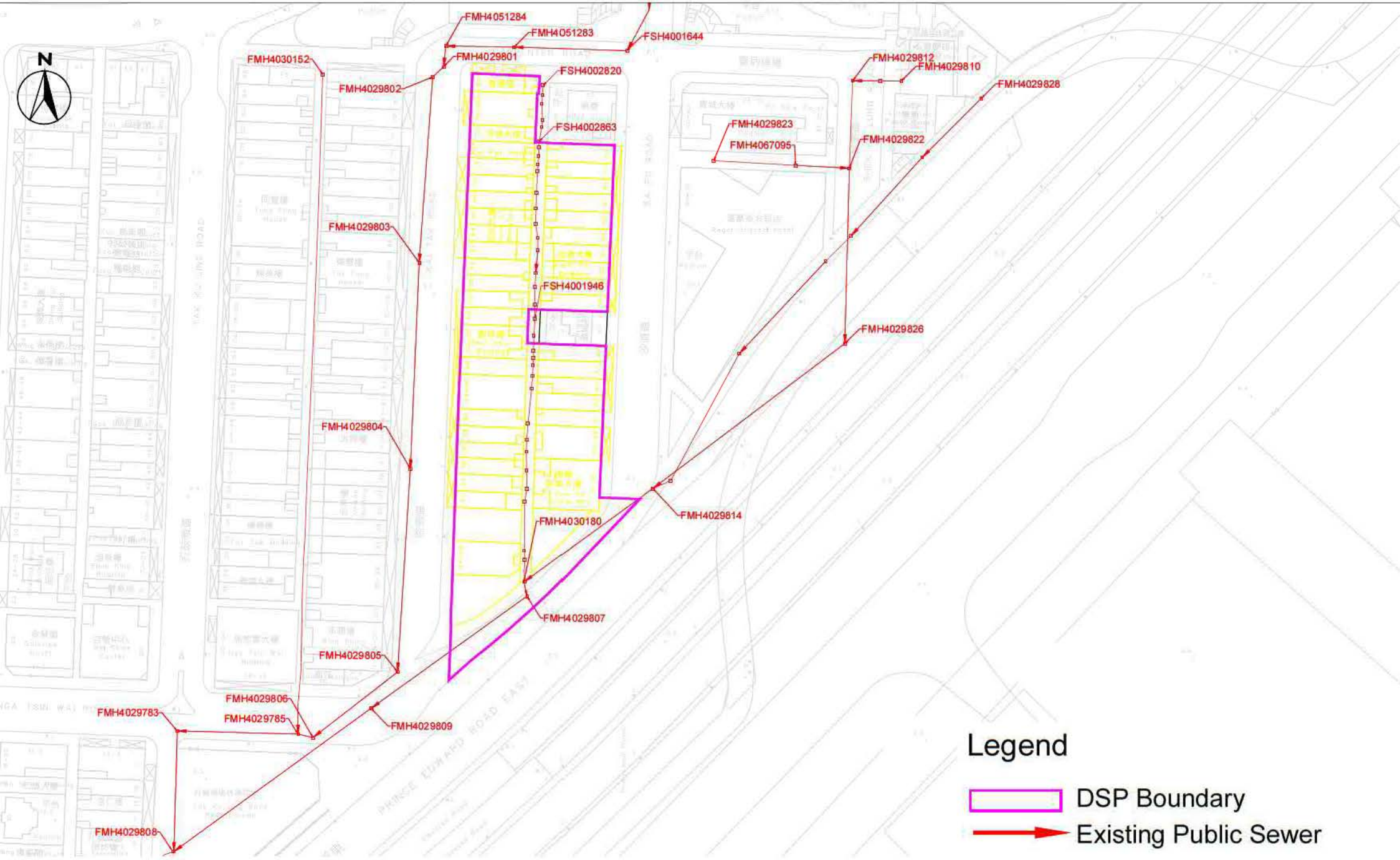
SMH4037342
NGA TSIN WAI ROAD
PRINCE EDWARD ROAD EAST


N
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FMH4029810
FMH4029828
FSH4002863
FMH4029823
FMH4067095
FMH4029822
FMH4029803
FSH4001946
FMH4029826
FMH4029804
FMH4029814
FMH4030180
FMH4029807
FMH4029805
FMH4029806
FMH4029783
FMH4029785
FMH4029809
FMH4029808
Legend
DSP Boundary
Existing Public Sewer

APPENDIX D

Ground Investigation Records


南角道
NAM KOK ROAD
龍崗道
LUNG KONG ROAD
城南道
SOUTH WALL ROAD
NGA TSIN WAI ROAD
打鼓嶺道
TAK KU LING ROAD
啓德道
KAI TAK ROAD
PRINCE EDWARD ROAD EAST
CARPENTER ROAD
沙浦道
SA PO ROAD
賈炳達道
石鼓壟道
SHEK KU LUNG ROAD
WIP Oct 2018
BH 1
BH 2
BH 3
BH 4
BH 5
BH 6
BH 8
BH18
TB1
TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
SA-IP 1

DRiLTECH

CONTRACT NO. GE/2013/04
GROUND INVESTIGATION – URBAN
(TERM CONTRACT)

Works Order No. GE/2013/04.22
Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

FINAL FIELD WORK REPORT

Certified as Checked by

Raymond Chu
Geotechnical Engineer

Certified as Completed by

Alex Chu
Contractor's Representative

CONTRACTOR
DRiLTECH Ground Engineering Limited
Blk A & B, 9/F.,
Hong Kong Spinners Industrial Bldg., Phase VI,
481 – 483 Castle Peak Road,
Kowloon

November 2013

DrilTech Ground Engineering Ltd.
BLK A & B, 9/F, HONG KONG SPINNERS IND. BLDG, PHASE VI,481-483 CASTLE PEAK RD, KLN, HONG KONG
TEL: 2371 0008 FAX: 2744 1037 E-Mail: driltech@driltech.com.hk WEBSITE: driltech.com.hk

CONTRACT DATA SUMMARY

Project Name & No. *Ground Investigation - Urban (Term Contract)*	**Site Name** *Works Order No.: GE/2013/04.22* *Agreement No. CE 30/2008(CE)* *Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction* *Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)*	**Date:** *09-Aug-13* to *04-Nov-13* **Official Only** **G.E.O. Data Bank No.**
G.I. Contractor *DrilTech Ground Engineering Limited*	**Client** *Geotechnical Engineering Office* *Civil Engineering and Development Department*	
Contract No. *GE/2013/04*	**Consulting Engineer** *AECOM Asia Co. Limited*	**File Ref.**

FIELD WORK SUMMARY

Drillhole:	**No.**	*6*	**Method:**	*Rotary Cored*		**Date:**	*21-Aug-13*	to	*02-Nov-13*
Trial Pit:	**No.**	*Nil*	**Inspection Pit:**	**No.**	*Nil*				
Corehole:	**No.**	*Nil*	**Stripping:**	**No.**	*Nil*	**Probe:**	**No.**		*Nil*
Piezometer:	**No.**	*2*	**Standpipe:**	**No.**	*Nil*	**Piezometer Bucket:**	**No.**		*20*
Insitu Test:	**No.**	*144*	**Type:** *Standard Penetration Test (135), Constant Head Permeability Test (4), Pressuremeter Test (3) and Response Test (2)*						
Geophysic:	**No.**	*Nil*	**Type:** -						

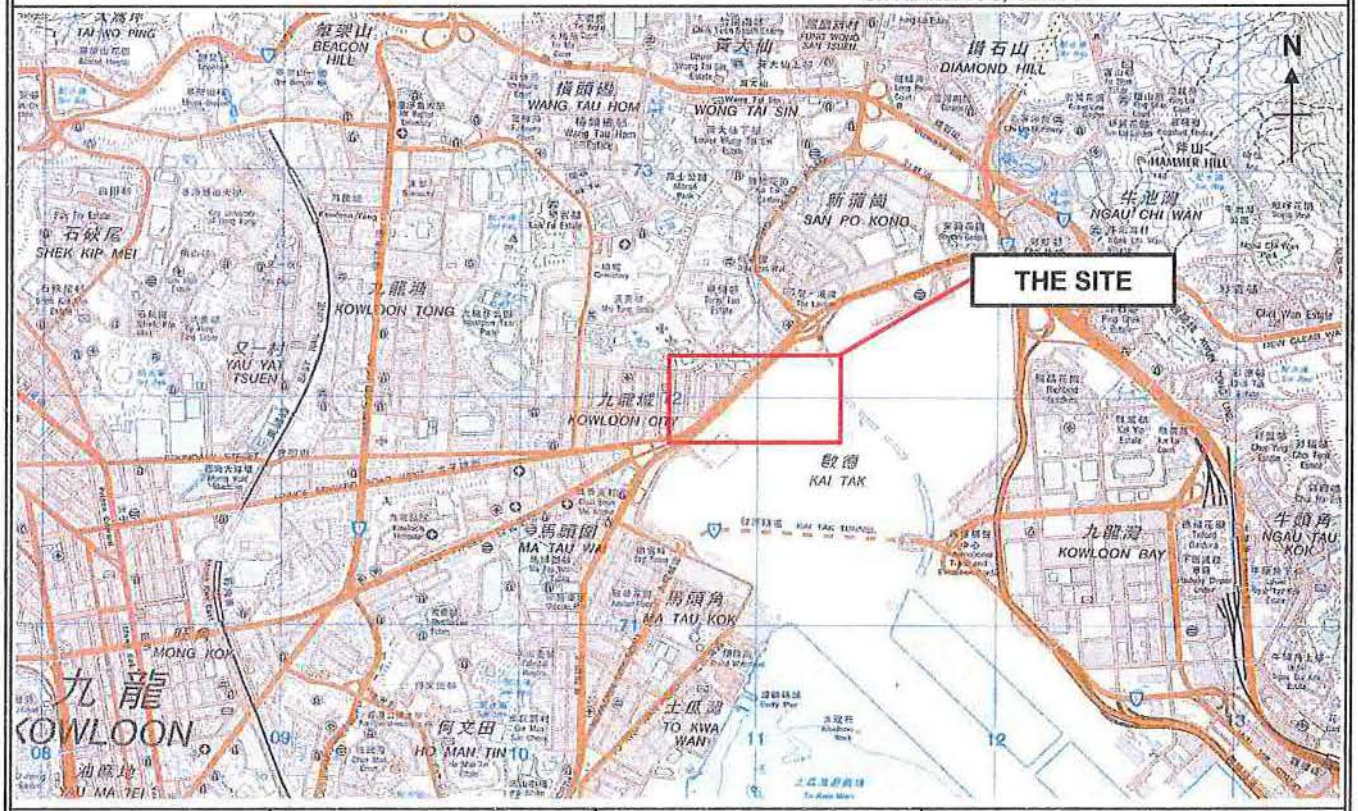
LABORATORY TESTING SUMMARY

No. of each type of test: Date: - to -

SOIL	Physical Properties	LL -	PL -	PSD -	MC -		
		SG -		DD -			
	Strength Tests	CUS -		UU -	Shear Box -		
	Compaction & CBR Tests	Stan -		Proctor -	CBR -		
	Oedometer & Perm. Tests	Cv -	k -				
	Others	Split Mazier -					
ROCK		Pt Load -	UC -	Shear Box -	US Vel. -		

NOT APPLICABLE

LOCATION PLAN Scale *N.T.S.* Derived from: *Survey & Mapping Office, Lands Department Series HM20C, Sheet 11*



	G. I.	Laboratory	Geotechnical Engineering Office
Contractor	*DrilTech Ground Engineering Ltd.*	---	CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
Works Order No.:	*GE/2013/04.22*	---	

CONTRACT NO. GE/2013/04

GROUND INVESTIGATION – URBAN (TERM CONTRACT)

Works Order No. GE/2013/04.22

Agreement No. CE 30/2008(CE)

Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction

Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

FINAL FIELD WORK REPORT

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Contract Data Summary

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2 Site Location 3
3 Geology 3
4 Fieldwork 5
4.1 Drillhole 5
4.2 Field Test 6
4.2.1 Standard Penetration Test 6
4.2.2 Constant Head Permeability Test 6
4.2.3 Pressuremeter Test 7
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Ground Investigation Plan

Drawing No. - D588/04.22/GI/D001

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Table 3 - Summary of Field Testing and Field Installation

Appendices

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Appendix B - Legends for Use on Drillhole Records
Appendix C - Drillhole Records
Appendix D - Core Box Photographs of Drillhole
Appendix E - Constant Head Permeability Test Results
Appendix F - Pressuremeter Test Results
Appendix G - Piezometer Detail and Response Test Record Sheets
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Appendix I - Piezometer (Halcrow) Buckets Installation Records
Appendix J - Digital Data Records (AGS and PDF in CD-ROM)

1 Introduction

On 26 March 2013, DRiLTECH Ground Engineering Limited was awarded a Term Contract from the Geotechnical Engineering Office, Civil Engineering and Development Department of the Government of Hong Kong Special Administrative Region to carry out ground investigation works in Hong Kong Island, Ap Lei Chau, Kowloon and other areas in the territory of Hong Kong as assigned by the Engineer.

This report presents the results of ground investigation works for Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1), under Works Order No. GE/2013/04.22. The fieldwork was carried out in the period between 21st August 2013 and 2nd November 2013 under the supervision of AECOM Asia Co. Limited.

2 Site Location

The exact location of the site is at the runway and north apron of former Hong Kong Kai Tak International Airport, Kowloon. The investigation stations are bounded within the following co-ordinates:

- 837 825E, 821 286N
- 838 295E, 821 286N
- 838 295E, 821 073N
- 837 825E, 821 073N

The locations of the investigation stations are shown in Ground Investigation Plan with drawing no. D588/04.22/GI/D001 and the coordinates and levels of all completed investigation stations are shown in the survey record of Table 1.

3 Geology

According to the 1:20,000 scale, Sheet 11 of HGM20 Series Solid and Superficial Geology Map published by the Geotechnical Control Office, the site may be underlain by bedrock of equigranular medium-grained biotite granite (Kowloon Granite, Lion Rock Suite) of Cretaceous, Mesozoic.

3 Geology (Cont'd)

The findings of the ground investigation are generally in accordance with the geological map. The results of investigation reveal that the site is composed of Superficial Deposits (Fill, Marine Deposit and Alluvium), Saprolite (Completely decomposed and Highly decomposed Granite) and the bedrock of Granite.

Superficial Deposits

Fill layer is encountered in all drillholes with thickness ranged from 3.60m to 7.10m, which mainly comprised of clayey sandy silt, clayey silty fine to coarse sand, clayey silty sandy fine to coarse gravel and cobble of rock fragments and locally with boulder of moderately decomposed granite fragments.

Marine Deposit layer is encountered only in drillhole BH6 with thickness of 0.95m, which mainly comprised of slightly clayey silty fine to coarse sand.

Alluvium layer is encountered in all drillholes except BH4 with thickness ranged from 11.20m to 20.40m, which mainly comprised of silty sandy clay, clayey sandy silt, clayey silty fine to coarse sand and clayey silty sandy fine to coarse gravel of quartz and rock fragments.

Saprolite

Completely decomposed and Highly decomposed Granite layer is encountered in all drillholes except BH4 with minimum thickness of 30.00m, which mainly comprised of clayey sandy silt, clayey silty fine to coarse sand, clayey silty sandy fine to coarse gravel and cobble of highly decomposed granite fragments and locally with corestones of moderately decomposed and slightly decomposed granite.

Bedrock

The rock type encountered in the investigation is medium grained Granite. Bedrock was found in drillholes BH6 and BH27 with reduced levels ranged from -63.88mPD to -67.36mPD.

Detailed descriptions of each stratum were given in the logs presented in Appendix C.

The depth and thickness of each stratum encountered during drilling were given in Table 2.

4 Fieldwork

Fieldworks included sampling, field testing and field installation in six (6) drillholes (BH4 to BH7 and BH26 to BH27) with associated in-situ testing were carried out at locations shown in the Ground Investigation Plan with Drawing No. D588/04.22/GI/D001 as specified in the Works Order.

4.1 Drillhole

The fieldworks at the drillholes (BH4 to BH7 and BH26 to BH27) were carried out using the hydraulic rotary drilling rig with water as flushing medium. SW, PW and HW sized casings equipped with tungsten carbide cutting shoes were used to advance the holes. The drillholes were terminated at specified depths.

Undisturbed Mazier samples were taken in soil generally at 2.00m or 3.00m intervals commencing at the base of inspection pit by using a modified Mazier triple tube retractable core barrel, which was fitted with a detachable 74mm I.D., 1000mm long clear ABS plastic liner. A retractable cutting shoe projecting from the tungsten carbide core bit was used to penetrate the materials being sampled and to protect the sample from being disturbed by the drilling fluid.

The recovered sample were sealed with metal foil disc and wax and protected with rubber cap at both ends. Small disturbed samples were retrieved from the cutting shoes and were kept in airtight jars as jar samples.

Groundwater sample was taken at the bottom of drillhole BH5.

Where rock materials were encountered, rock core samples were taken using T6-146, T2-120 and T2-101 double tubes core barrels.

Inspection pits at drillhole location were manually excavated by hand tools to 2.50m or 3.00m depths prior to drilling commencement to ensure that the investigation works would not damage underground utilities.

The disturbed and undisturbed samples and rock core samples are reported at relevant depths in the Drillhole Record sheets in Appendix C. Record photographs of the jar samples and core samples are included in Appendix D.

4.2 Field Test

4.2.1 Standard Penetration Test

Standard penetration test with liner samples were carried out at specified depths. The tests were conducted according to BS1377 (1990 Part 9 Method 3.3) with modifications suggested in Geoguide 2 and the Contract Specification.

The numbers of blows to drive a standard split spoon sampler for the first 150mm penetration (seating drive) in 75mm increments and those for each 75mm penetration for the subsequent 300mm penetration were recorded. The 'N' value was taken as the sum of numbers of blows for the last 300mm penetration. Where the full penetration for seating drive was not achieved after 50 blows, the number of blows and the penetration achieved was recorded. During the test, the water level in the drillhole was maintained at or above the observed ground water level. Disturbed samples were retrieved from the cutting shoes as jar samples.

Liner samples were taken with the SPTs by including a liner sample tube in the split barrel sampler in each test.

The depths of tests and the 'N' values are presented in the Drillhole Record sheets in Appendix C.

4.2.2 Constant Head Permeability Test

Four (4) constant head permeability tests were carried in drillholes BH5 and BH6 at specified sections.

The test section was formed by surrounding a 40mm I.D. G.I. standpipe, which was perforated over the test section, with filter materials and sealed with bentonite pellets according to the figure 27 of Geoguide 2.

The water table in the standpipe after installation was allowed to equalize with the ambient groundwater level before commencement of the test. This water level was measured and recorded. Fresh water was then fed at a constant rate into the standpipe to raise the water level in the standpipe to the top of the pipe. This water level was maintained by adjusting the rate of inflowing water. The inflow rates to maintain the constant water level were recorded at the intervals as specified in the Specification. The test was terminated when the inflow rates differed less than 10% in an interval of 10 minutes.

The test data and the test results are presented in Appendix E.

4.2.3 Pressuremeter Test

Three (3) pressuremeter tests were carried out in drillholes BH5 and BH6 at specified depths, using a Menard (G-Am) type equipment. The test pockets were formed by penetrating a Fugro sampler. The pressuremeter test results including test data and graphic plots are presented in Appendix F.

4.3 Field Installation

4.3.1 Piezometer

Two (2) piezometers of Casagrande type were installed with 25mm I.D. PVC riser pipes in drillhole BH5 at depths of 23.50m and 53.50m respectively. The piezometer tip was surrounded by clean sand of grading between 200 and 1,210 microns and was sealed with bentonite pellets to form response zone of specified length.

Halcrow type piezometer buckets were installed in all piezometers. The bucket strings were fabricated in accordance with the Figure 23 of Geoguide 2.

Response tests were carried out on the piezometers after completion of installation. The details of installations and the response test results are included in Appendix G. The details of bucket installation are presented in Appendix I and a summary of installation is presented in Table 3.

Readings of water levels in the piezometers were taken daily for 7 working days following the completion of response test. The results are presented in Appendix H.

5 Soil and Rock Description

The soils and rocks encountered in the investigation have generally been described according to the Geoguide 3, Guide to Rock and Soil Description, except for the following terms, which are used for the secondary constituents other than clay, silt and sand, in composition of common ground:

- "with occasional" for less than 5%;
- "with some" for between 5% and 20%; and
- "with much or many" for greater than 20%.

The classification and definitions of the descriptive terms are presented in Appendix A.

5 Soil and Rock Description (Cont'd)

The delineation of various strata was primarily based on examination of disturbed samples and core samples recovered from the drillholes. The results are presented in Appendix C in form of Drillhole Records, which have been finalized by incorporating comments provided by AECOM Asia Co. Limited.

The legends used in these records are summarized in Appendix B.

6 Surveying

The locations of investigation stations were surveyed using the theodolite and the results are related to the Hong Kong Grid System. The co-ordinates and levels of these investigation stations are presented on the relevant records and are summarized in Table 1.

7 Digital Data Record

The data of the ground investigation works are also provided in an electronic format. The format complies with the 3rd edition of the Association of Geotechnical and Geoenvironmental Specialists (AGS) Publication 'Electronic Transfer of Geotechnical and Geoenvironmental Data'.

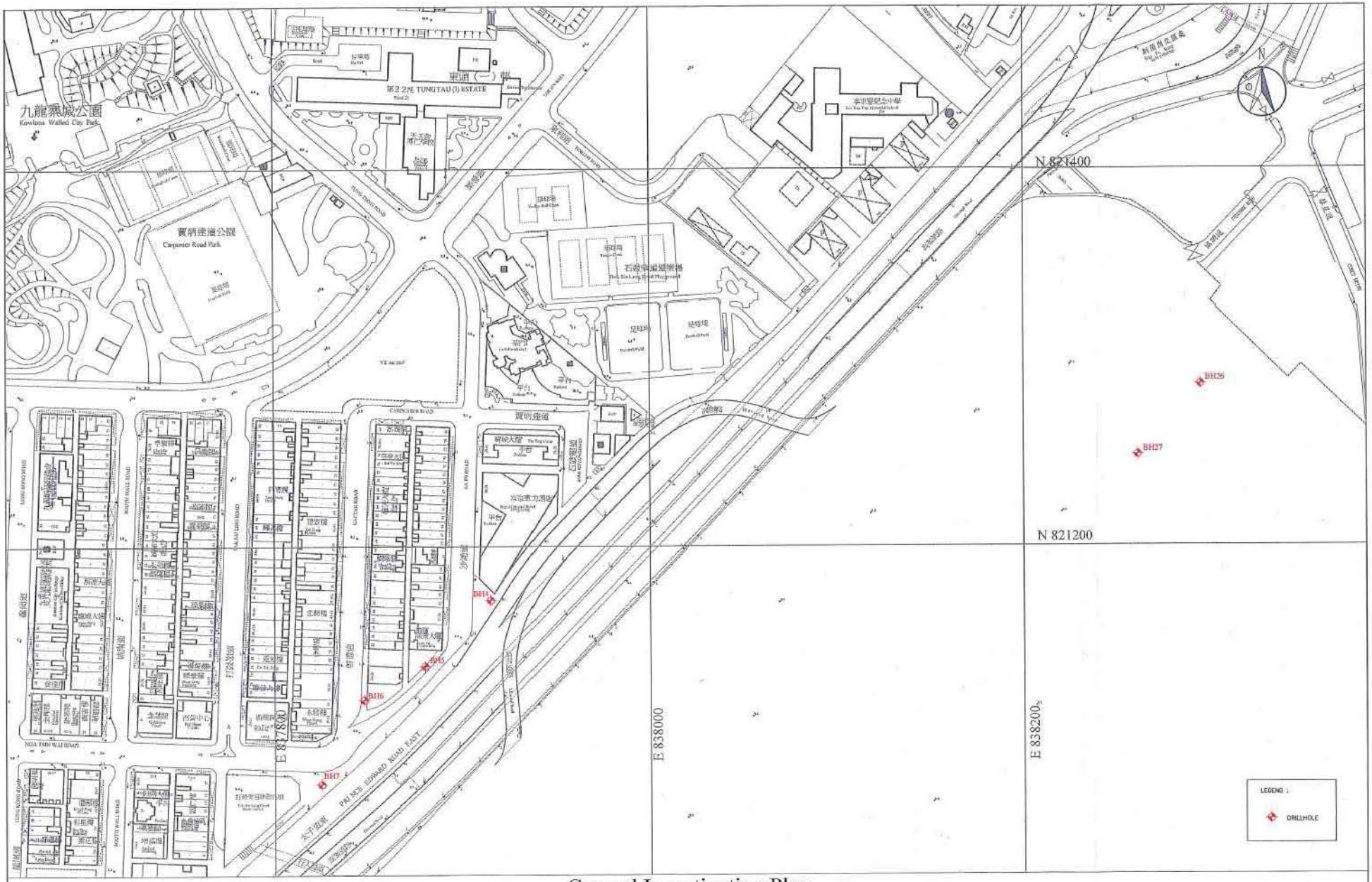
The final field work report was also created in Acrobat format and stored together with AGS on a CD-ROM in Appendix J.

8 References

1. Geotechnical Control Office, Geological Map of Hong Kong HGM20, Sheet 11, (1:20,000)
2. Geotechnical Engineering Office, (2nd Reprint, 1994), Guide to Rock and Soil Descriptions (Geoguide 3)
3. Geotechnical Engineering Office, (4th Reprint, 2000), Guide to Site Investigation (Geoguide 2)
4. Association of Geotechnical & Geoenvironmental Specialists (1999), Electronic Transfer of Geotechnical and Geoenvironmental Data, 3rd edition
5. BS5930:1981, the "Code of Practice for Site Investigation"

Ground Investigation Plan

(Drawing No. D588/04.22/GI/D001)



Ground Investigation Plan

Contract No. GE/2013/04
Ground Investigation - Urban (Term Contract)
Works Order No. GE/2013/04.22
Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Drawing No. : D588/04.22/GI/D001
Date : November 2013
Scale 1 : 2000

DRILTECH

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Contract No. GE/2013/04
Ground Investigation - Urban (Term Contract)

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Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Final Field Work Report

Table 1 - Survey Record

Station No.	Ground Level / Reference Level (mPD)	Easting	Northing	Remark
BH 4	+5.79	837915.78	821171.35	Drillhole
BH 5	+5.83	837880.22	821136.47	Drillhole
BH 6	+5.98	837847.96	821118.61	Drillhole
BH 7	+6.38	837825.18	821073.90	Drillhole
BH26	+5.42	838294.19	821285.18	Drillhole
BH27	+5.30	838260.80	821247.90	Drillhole

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Final Field Work Report

Table 2 - Summary of Rock and Soil Strata in Drillhole

Drillhole No.	Ground Level / Reference Level (mPD)	Fill		Marine Deposit		Alluvium		Grade V to Grade IV Rock		Grade III or better Rock Top Level (mPD)	Rock Type	End of Hole (mPD)	Remark
		Bottom Level (mPD)	Thickness (m)	Bottom Level (mPD)	Thickness (m)	Bottom Level (mPD)	Thickness (m)	Level (mPD)	Thickness (m)				
BH 4	+5.79	+1.59 '*'	4.20 '^'	-	-	-	-	-	-	-	-	+1.59	-
BH 5	+5.83	+2.23	3.60	-	-	-18.17	20.40	-18.17 to -48.17 '*'	30.00 '^'	-	Medium grained GRANITE	-48.17	-
BH 6	+5.98	+1.98	4.00	+1.03	0.95	-17.07	18.10	-17.07 to -67.36	50.29	-67.36	Medium grained GRANITE	-76.50	-
BH 7	+6.38	+1.38	5.00	-	-	-15.57	16.95	-15.57 to -82.42 '*'	66.85 '^'	-	Medium grained GRANITE	-82.42	-
BH26	+5.42	-1.58	7.00	-	-	-12.78	11.20	-12.78 to -83.80 '#' '*'	71.02 '^'	-	Medium grained GRANITE	-83.80	-
BH27	+5.30	-1.80	7.10	-	-	-13.90	12.10	-13.90 to -63.88 '#'	49.98	-63.88	Medium grained GRANITE	-69.26	-

Remarks:

1. Where stratum descriptions straddle two decomposition grades, the most decomposed grade is reported in the above table.
2. '*' Bottom level of the stratum cannot be determined.
3. '#' Corestone was found in the stratum of Grade V to Grade IV rock.
4. '^' This is only the minimum thickness as bottom level of the stratum cannot be determined.

DRILTECH

Contract No. GE/2013/04
Ground Investigation - Urban (Term Contract)
Works Order No. GE/2013/04.22

Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Final Field Work Report

Table 3 - Summary of Field Testing and Field Installation

Station No.	Type of Test	Test Zone / Test Depth (m bgl)	Type of Installation	Installation Tip / End Depth (m bgl)	Response Zone (m bgl)	Halcrow Bucket Installation Detail		Remark
						Depth (m bgl)	Spacing (m)	
BH 5	Constant	6.50 to 8.00 28.00 to 29.50	Piezometer	23.50	22.70 to 24.00	0.50 to 5.00	0.50	Total 10 nos. of buckets installed
	Pressure	10.35 to 10.68 25.95 to 26.28	Piezometer	53.50	52.70 to 54.00	1.50 to 6.00	0.50	Total 10 nos. of buckets installed
BH 6	Constant	10.50 to 12.00 24.50 to 26.00	-	-	-	-	-	-
	Pressure	3.45 to 3.78	-	-	-	-	-	-

Notes:

IP	- Impression Packer Survey	Rising	- Rising Head Permeability Test	Pressure	- Pressuremeter Test
Vane	- Vane Shear Test	Constant	- Constant Head Permeability Test	Packer	- Water Absorption Test
Sand	- In-situ Density Test	Falling	- Falling Head Permeability Test	GCOP	- Dynamic Probing Test
BHTV	- Digital Acoustic Borehole Televiewer Survey				

Appendix A

Checklists for Rock and Soil Descriptions

CHECKLIST FOR ROCK DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH

Term	Identification
Extremely weak	Easily crumbled by hand; indented deeply by thumbnail.
Very weak	Crumbled with difficulty; scratched easily by thumbnail; peeled easily by pocket knife.
Weak	Broken into pieces by hand; scratched by thumbnail; peeled by pocket knife; deep indentations (to 5 mm) by point of geological pick; hand-held specimen easily broken by single light hammer blow.
Moderately weak	Broken with difficulty in two hands; scratched with difficulty by thumbnail; difficult to peel but easily scratched by pocket knife; shallow indentations easily made by point of pick; hand-held specimen usually broken by single light hammer blow.
Moderately strong	Scratched by pocket knife; shallow indentations made by firm blow with point of pick; hand-held specimen usually broken by single firm hammer blow. Point load strength (PLS) 0.5 - 2 MPa.
Strong	Firm blows with point of pick cause only superficial surface damage; hand-held specimen requires more than one firm hammer blow to break. PLS 2 - 4 MPa.
Very strong	Many hammer blows required to break specimen. PLS 4 - 8 MPa.
Extremely strong	Specimen only chipped by hammer blows. PLS > 8 MPa.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light pinkish grey spotted with black).

State whether sample was wet or dry when described.

3. TEXTURE/FABRIC

Texture Terms (Applicable Mainly to Igneous Rocks)
Equigranular, Inequigranular, Megacrystic, Porphyritic, Crystalline, Cryptocrystalline, Aphanitic

Fabric
Describe preferred orientation of grains/crystals where apparent.

Describe intensity, spacing, continuity and any preferred orientation of microfractures where apparent.

4. MATERIAL WEATHERING/ALTERATION

Decomposition Term	Grade Symbol	Typical Characteristics
Residual Soil	VI	Original rock texture completely destroyed; can be crumbled by hand and finger pressure into constituent grains.
Completely Decomposed	V	Original rock texture preserved; can be crumbled by hand and finger pressure into constituent grains; easily indented by point of geological pick; slakes in water; completely discoloured compared with fresh rock.
Highly Decomposed	IV	Can be broken by hand into smaller pieces; makes a dull sound when struck by hammer; not easily indented by point of pick; does not slake in water; completely discoloured compared with fresh rock.
Moderately Decomposed	III	Cannot usually be broken by hand; easily broken by hammer; makes a dull or slight ringing sound when struck by hammer; completely stained throughout.
Slightly Decomposed	II	Not broken easily by hammer; makes a ringing sound when struck by hammer; fresh rock colours generally retained but stained near joint surfaces.
Fresh Rock	I	Not broken easily by hammer; makes a ringing sound when struck by hammer; no visible signs of decomposition (i.e. no discolouration).

This classification is applicable to igneous and volcanic rocks and other rocks of equivalent strength in fresh state.

Disintegration
Describe small-scale cracking and fracturing caused by mechanical weathering, where apparent.

Alteration
Describe state of alteration (e.g. mineralised, kaolinised) where apparent.

5. ROCK NAME (Including Grain Size)

Igneous	:	Coarse- (6-20 mm), Medium- (2-6 mm) & Fine- (0.06-2 mm) grained GRANITE; GRANODIORITE. Very Fine-grained (< 0.06 mm) RHYOLITE; BASALT. (Common types only, see Geoguide 3 for others).
Pyroclastic	:	PYROCLASTIC BRECCIA (> 60 mm), Lapilli TUFF (2-60 mm), Coarse ash TUFF (0.06-2 mm), Fine ash TUFF (< 0.06 mm).
Metamorphic	:	Foliated - SCHIST (> 0.06 mm), PHYLLITE (< 0.06 mm). Non-foliated - MARBLE, QUARTZITE, FAULT BRECCIA.
Sedimentary	:	CONGLOMERATE, BRECCIA (> 2 mm), SANDSTONE (0.06-2 mm), MUDSTONE (< 0.06 mm) = SILTSTONE (0.002-0.06 mm) + CLAYSTONE (< 0.002 mm). (Common types only).

If rock name cannot be identified, describe grain size quantitatively, including textural term where appropriate.

6. STRUCTURE

Structural Term	Rock Type
Bedded, Laminated, Massive	Sedimentary
Massive, Flow-banded	Igneous, Pyroclastic
Foliated, Banded, Cleaved	Metamorphic

Spacing of Planar Structures
Very thick (> 2 m), Thick (0.6-2 m), Medium (200-600 mm),
Thin (60-200 mm), Very thin (20-60 mm),
Thickly-laminated (Sedimentary) (6-20 mm) or Narrow (Igneous, Metamorphic) (6-20 mm),
Thinly-laminated (Sedimentary) (< 6 mm) or Very narrow (Igneous, Metamorphic) (< 6 mm).

Examples: Thickly-bedded SANDSTONE. Narrowly flow-banded RHYOLITE.

7. DISCONTINUITIES

Nature (Type of Discontinuity)

Fault zone	Cleavage	Fissure	Bedding
Fault	Schistocity	Tension crack	
Joint	Shear plane	Foliation	

Location and Orientation
Record location as co-ordinates or relative position along datum line, preferably on map or plan.

Record orientation as dip direction/dip in degrees (e.g. 032/55).

Spacing
Extremely widely-spaced (> 6 m), Very widely-spaced (2-6 m),
Widely-spaced (0.6-2 m), Medium-spaced (200-600 mm),
Closely-spaced (60-200 mm), Very closely-spaced (20-60 mm),
Extremely closely-spaced (< 20 mm).

In exposures, supplement spacing with description of rock block shape where possible. Descriptors: Blocky, Tabular, Columnar, Polyhedral.

Persistence (Areal extent or size of a discontinuity within a plane)
Measured maximum persistence dimension should be used where possible (e.g. the discontinuity trace length on the surfaces of rock exposures). For general descriptions of different discontinuity sets, relative terms should be used.

Roughness
Waviness (large-scale): Estimate/measure wavelength and amplitude in metres.
Unevenness (small-scale), use one term from the following:

Rough stepped	Smooth stepped	Slickensided stepped
Rough undulating	Smooth undulating	Slickensided undulating
Rough planar	Smooth planar	Slickensided planar

Aperture Size
Wide (> 200 mm), Moderately wide (60-200 mm), Moderately narrow (20-60 mm), Narrow (6-20 m), Very narrow (2-6 mm), Extremely narrow (> 0-2 mm), Tight (zero).

Infilling (Nature)

Clean	Surface staining	Decomposed/ disintegrated rock
Non-cohesive soil	Cohesive soil	Quartz
Calcite	Manganese	Kaolin
Other (Specify)		

Give full description of infill materials/minerals where appropriate.

Seepage
Dry Damp/wet Seepage present (estimate quantity in l/sec or l/min)

Fracture State
In borehole cores, measure the following: Total Core Recovery (TCR), Solid Core Recovery (SCR), Rock Quality Designation (RQD), Fracture Index (FI). See Geoguide 3 for definitions.

8. MASS WEATHERING

Term	Zone Symbol	Typical Characteristics
Residual Soil	RS	**Residual soil derived from insitu weathering; mass structure and material texture/fabric completely destroyed: 100% soil**
Partially Weathered Rock	PW	**Less than 30% rock**
	0/30	**Soil retains original mass structure and material texture/fabric (i.e. saprolite)**
		Rock content does not affect shear behaviour of mass, but relict discontinuities in soil may do so.
		Rock content may be significant for investigation and construction.
	PW	**30% to 50% rock**
	30/50	Both rock content and relict discontinuities may affect shear behaviour of mass.
	PW	**50% to 90% rock**
	50/90	Interlocked structure.
	PW	**Greater than 90% rock**
	90/100	Small amount of the material converted to soil along discontinuities.
Unweathered Rock	UW	**100% rock**
		May show slight discolouration along discontinuities.

9. ADDITIONAL GEOLOGICAL INFORMATION

Record geological formation name if known. Avoid conjecture. Refer to HKGS maps & memoirs for further information.

NOTES:

1. Rock material description normally includes: strength, colour, texture/fabric, material weathering/alteration and ROCK NAME.
2. Rock mass description normally includes: strength, colour, structure, mass weathering , ROCK NAME, discontinuities and additional geological information. Can be supplemented with more detailed information on texture/fabric and material weathering/alteration of different materials within the mass where necessary.

CHECKLIST FOR SOIL DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH (Compactness & Consistency)

Soil Type	Term	Identification
Very Coarse (COBBLES & BOULDERS)	Loose	By inspection of voids and particle packing in the field.
	Dense	
Coarse (SANDS & GRAVELS)	Very loose	SPT 'N' value 0-4.
	Loose	SPT 4-10; can be excavated with spade; 50 mm peg easily driven.
	Medium dense	SPT 10-30.
	Dense	SPT 30-50; requires pick for excavation; 50 mm peg hard to drive.
	Very dense	SPT > 50.
Fine (CLAYS & SILTS)	Very soft	Undrained shear strength (USS) < 20 kPa; exudes between fingers when squeezed in hand.
	Soft	USS 20-40 kPa; moulded by light finger pressure.
	Firm	USS 40-75 kPa; can be moulded by strong finger pressure.
	Stiff	USS 75-150 kPa; cannot be moulded by fingers; can be indented by thumb.
	Very stiff or hard	USS > 150 kPa; can be indented by thumbnail.
Organic (ORGANIC CLAYS, SILTS SANDS & PEATS)	Compact	Fibres already compressed together.
	Spongy	Very compressible and open structure.
	Plastic	Can be moulded in hand and smears fingers.

Terms applicable only to transported soils. For soils derived from insitu rock weathering, record actual values of quantitative tests (e.g. SPT 'N' value) as part of the description, where appropriate.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light yellowish brown mottled with red).

State whether sample was wet or dry when described.

3. PARTICLE SHAPE & COMPOSITION

Characteristic	Terms
Form	Equidimensional, Flat, Elongate, Flat & Elongate
Angularity	Angular, Subangular, Subrounded, Rounded
Surface Texture	Smooth, Rough, Glassy, Honeycombed, Pitted, Striated

Describe composition of coarse particles where appropriate. Gravel and larger particles are usually rock fragments (e.g. granite, tuff); sand particles are usually individual minerals (e.g. quartz, feldspar).

4. STRUCTURE

Soil Type	Term	Identification
Coarse & Fine	Homogenous	Deposit consists essentially of one type.
	Interstratified (Interbedded or Interlaminated)	Alternating layers of varying types or with bands or lenses of other materials.
Coarse	Heterogenous	A mixture of types.
Fine	Fissured	Breaks into polyhedral fragments along fissures.
	Intact	No fissures.
Organic	Fibrous	Plant remains recognizable & retain some strength.
	Amorphous	No recognizable plant remains.

Describe spacing of bedding planes, fissures, shell bands, etc using the spacing terms given in items 6 & 7 for rock description (see other side).

Above terms applicable only to transported soils. For soils derived from insitu rock weathering, describe relict structures in accordance with item 6 of rock description (see other side).

5. WEATHERING

Soils Derived from Insitu Weathering of Rocks

There are two main types: saprolites (rock texture/structure retained) and residual soils (rock texture/structure completely destroyed). Describe state of weathering in accordance with items 4 & 8 for rock description (see other side).

Sedimentary (Transported) Soils

Coarse soils: Describe overall discolouration of soil and degree of decomposition of gravel and larger particles (see item 4, other side). Also note any signs of disintegration of large particles where apparent.

Fine Soils: Describe overall discolouration of soil where apparent.

6. SOIL NAME

A. Basic Soil Types

Soil Type	Particle Sizes (mm)		Identification
BOULDERS	--	> 200	Only seen complete in pits or exposures.
COBBLES	--	60 - 200	Often difficult to recover from boreholes.
GRAVELS	Coarse	20 - 60	Easily visible to naked eye; particle shape and grading can be described.
	Medium	6 - 20	Well-graded: wide range of grain sizes.
	Fine	2 - 6	Poorly-graded: not well-graded (split further into uniform or gap-graded).
SANDS	Coarse	0.6 - 2	Visible to naked eye; very little or no cohesion; grading can be described.
	Medium	0.2 - 0.6	May be well-graded or poorly-graded (uniform or gap-graded) as for gravel.
	Fine	0.06 - 0.2	
SILTS	Coarse	0.02 - 0.06	Only coarse silt barely visible to naked eye; exhibits little plasticity and marked dilatancy; slightly granular or silky to the touch. Disintegrates in water; lumps dry quickly; possesses cohesion but can be powdered easily between fingers.
	Medium	0.006 - 0.02	
	Fine	0.002 - 0.006	
CLAYS	--	< 0.002	Dry lumps can be broken by hand but not powdered between the fingers. Disintegrates in water more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying, usually showing cracks. These properties more noticeable with increasing plasticity.
ORGANIC CLAYS, SILTS OR SANDS	--	varies	Contains much organic vegetable matter; often has a noticeable smell and changes colour on oxidation.
PEATS	--	varies	Predominantly plant remains; usually dark brown or black in colour, often with distinctive smell; low bulk density.

B. Composite Soil Types (Mixtures of Basic Types)

Principal Soil Type	Terminology Sequence	Term for Secondary Constituent	% of Secondary Constituent
Very coarse (BOULDERS & COBBLES) (> 50% of soil > 60 mm)	Secondary constituents (finer material) ▲ after principal	With a little	< 5
		With some	5 - 20
		With much	20 - 50
Coarse (GRAVELS & SANDS) (> 65% gravel & sand sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (silty, clayey or silty/clayey) ✱	< 5
		- (silty, clayey or silty/clayey) ✱	5 - 15
		Very (silty, clayey or silty/clayey) ✱ AND/OR	15 - 35
		Slightly (gravelly or sandy) ✱	< 5
		- (gravelly or sandy) ✱	5 - 20
		Very (gravelly or sandy) ✱	20 - 50
Fine (SILTS & CLAYS) (> 35% silt & clay sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (gravelly or sandy or both) ✱	< 35
		- (gravelly or sandy) ✱	35 - 65

▲ Full name of finer material should be given (see examples below).

✱ Secondary soil type as appropriate; use 'silty/clayey' when a distinction cannot be made between the two.

\+ If cobbles or boulders are also present in a coarse or fine soil, this can be indicated by using one of the following terms relating to the very coarse fraction after the principal: 'with occasional' (< 5), 'with some' (5-20), 'with many' (20-50), where figures in brackets are % very coarse material expressed as a fraction of the whole soil (see examples below).

Examples: Slightly silty/clayey, sandy GRAVEL. Slightly gravelly, sandy SILT. Very gravelly SAND. Sandy GRAVEL with occasional boulders. BOULDERS with much finer material (silty/clayey, very sandy gravel).

For fine soils, plasticity terms should also be described where possible, viz: 'non-plastic' (generally silts), 'intermediate plasticity' (lean clays), 'high plasticity' (fat clays).

7. DISCONTINUITIES

Full description of discontinuities, where necessary, should be made using the methods and terms given in item 7 for rock description (see other side).

8. ADDITIONAL GEOLOGICAL INFORMATION

Record geological name which indicates geological origin or soil type (e.g. Alluvium, Colluvium, Marine sand etc.). Refer to HKGS maps & memoirs for further information.

NOTES:

1. Mass characteristics of soils (i.e. structure, weathering, discontinuities) can only be described satisfactorily in undisturbed field exposures or large undisturbed samples.
2. For full descriptions of soils derived from insitu rock weathering:
   (a) saprolites - describe as rocks, supplemented by soil strength and soil name terms in brackets,
   (b) residual soils - describe as soils, supplemented by name of parent rock where apparent from field evidence.

Appendix B

Legends for Use on Drillhole Records

CLIENT IP : CG 1226
Driltech Ground Engineering Ltd Version 4.16.118

List of Material Names for the Legend Graphics on the Logging Records

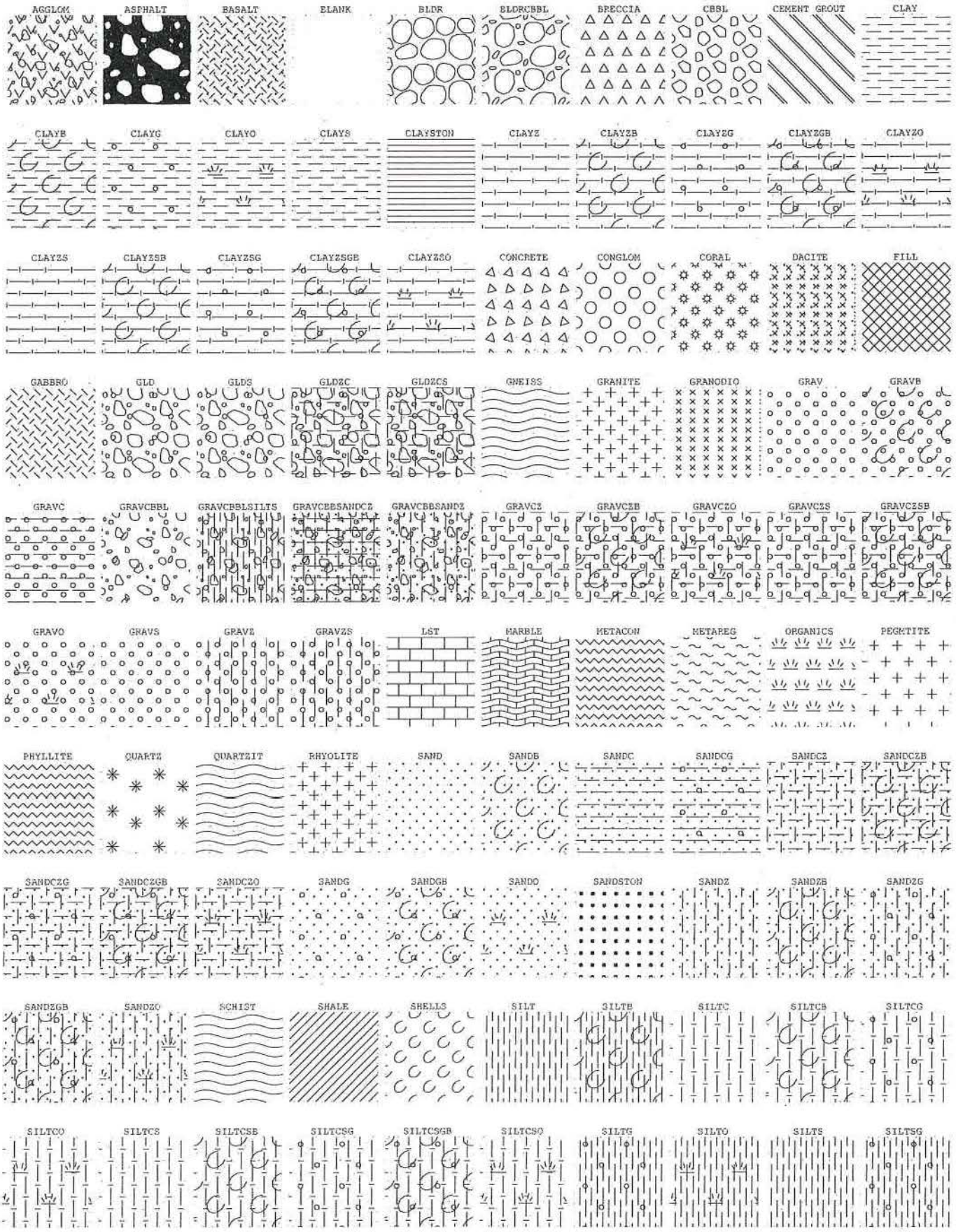
Name	Description
AGGLOM	PYROCLASTIC BRECCIA
ASPHALT	ASPHALT
BASALT	BASALT
BLANK	NO RECOVERY
BLDR	BOULDERS
BLDRCBBL	BOULDERS and COBBLES
BRECCIA	SEDIMENTARY BRECCIA
CBBL	COBBLE
CEMENT GROUT	Cement Grout
CLAY	CLAY
CLAYB	CLAY with shell fragments
CLAYG	Gravelly CLAY
CLAYO	CLAY with Peats
CLAYS	Sandy CLAY
CLAYSTON	CLAYSTONE / MUDSTONE
CLAYZ	Silty CLAY
CLAYZB	Silty CLAY with shells
CLAYZG	Silty CLAY with gravel
CLAYZGB	Silty CLAY with gravel and shell fragments
CLAYZO	Silty CLAY with peats
CLAYZS	Sandy silty CLAY
CLAYZSB	Sandy silty CLAY with shells
CLAYZSG	Sandy silty CLAY with gravel
CLAYZSGB	Sandy silty CLAY with gravel and shells
CLAYZSO	Sandy silty CLAY with peats
CONCRETE	CONCRETE
CONGLOM	CONGLOMERATE
CORAL	CORAL. NOT USED
DACITE	DACITE / LATITE / ANDESITE / TRACHYTE / TRACHYANDESITE
FILL	FILL (made ground)
GABBRO	GABBRO / LAMPROPHYRE
GLD	GRAVEL, COBBLES and BOULDERS
GLDS	GRAVEL, COBBLES and BOULDERS with sand
GLDZC	GRAVEL, COBBLES and BOULDERS with silt and clay
GLDZCS	GRAVEL, COBBLES and BOULDERS with sand, silt and clay
GNEISS	GNEISS
GRANITE	GRANITE
GRANODIO	GRANODIORITE / SYENITE / MONZONITE
GRAV	GRAVEL
GRAVB	GRAVEL with shell fragments
GRAVC	Clayey GRAVEL
GRAVCBBL	GRAVEL and COBBLES
GRAVCBBLSILTS	gravels & cobbles in sandy silt
GRAVCBBSANDCZ	gravel & cobble in silty sand
GRAVCBBSANDZ	gravel & cobble in silty sand
GRAVCZ	Silty clayey GRAVEL
GRAVCZB	Silty clayey GRAVEL with shell fragments
GRAVCZO	Silty clayey GRAVEL with peats
GRAVCZS	Sandy silty clayey GRAVEL
GRAVCZSB	Sandy silty clayey GRAVEL with shell fragments
GRAVO	GRAVEL with peats
GRAVS	Sandy GRAVEL
GRAVZ	Silty GRAVEL
GRAVZS	Sandy silty GRAVEL
LST	LIMESTONE

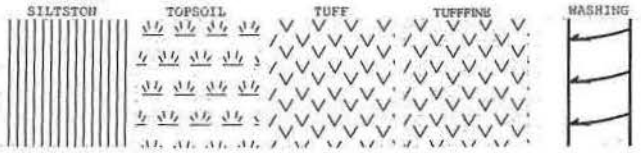
List of Material Names for the Legend Graphics on the Logging Records

Name	Description
MARBLE	MARBLE
METACON	Metamorphic Rocks - Contact
METAREG	Metamorphic Rocks - Regional
ORGANICS	PEAT
PEGMTITE	PEGMATITE, Coarse-grained GRANITE
PHYLLITE	PHYLLITE / MYLONITE
QUARTZ	Quartz
QUARTZIT	QUARTZITE
RHYOLITE	RHYOLITE
SAND	SAND
SANDB	SAND with shell fragments
SANDC	Clayey SAND
SANDCG	Clayey SAND with gravel
SANDCZ	Silty, clayey SAND
SANDCZB	Silty, clayey SAND with shells
SANDCZG	Silty, clayey SAND with gravel
SANDCZGB	Silty, clayey SAND with gravel and shells
SANDCZO	Silty, clayey SAND with peats
SANDG	Gravelly SAND
SANDGB	Gravelly SAND wth shell fragments
SANDO	SAND with Peat
SANDSTON	SANDSTONE
SANDZ	Silty SAND
SANDZB	Silty SAND with shell fragments
SANDZG	Silty SAND with gravels
SANDZGB	Silty SAND with gravels and shells
SANDZO	Silty SAND with peats
SCHIST	SCHIST
SHALE	SHALE
SHELLS	Shells
SILT	SILT
SILTB	SILT with shell fragments
SILTC	Clayey SILT
SILTCB	Clayey SILT wth shells
SILTCG	Clayey SILT wth gravel
SILTCO	Clayey SILT wth peat
SILTCS	Sandy Clayey SILT
SILTCSB	Sandy Clayey SILT with shells
SILTCSG	Sandy Clayey SILT with gravel
SILTCSGB	Sandy Clayey SILT with gravel and shells
SILTCSO	Sandy Clayey SILT with peat
SILTG	Gravelly SILT
SILTO	SILT with peat
SILTS	Sandy SILT
SILTSG	Gravelly sandy SILT
SILTSTON	SILTSTONE
TOPSOIL	Topsoil
TUFF	Coarse Ash TUFF, Lapilli Tuff
TUFFFINE	Fine Ash TUFF
WASHING	Wash Boring

Graphics Used for the Legends on the Logging Records

1/2




SILTSTON
TOPSOIL
TUFF
TUFFFINE
WASHING

Appendix C

Drillhole Records

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 4**

SHEET 1 of 1

PROJECT **Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**

METHOD **ROTARY**	CO-ORDINATES E **837915.78** N **821171.35**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD27**		DATE **09.10.2013** to **09.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.79** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
09.10.2013	SW								0.00	+5.79 +5.73	0.00 0.06			Dark grey (10YR 4/1), BRICK. (PAVEMENT)
									1 0.45					Brown (7.5YR 5/4), slightly silty fine to coarse SAND with some angular to subangular fine to coarse gravel of rock fragments and with some concrete fragments. (FILL)
									2 0.95					
									3 1.45					
									4 1.95					
									5 2.45					
									6 2.95	+2.79	3.00			
			80	80					7 3.00					Dense, greyish brown (10YR 5/2), clayey silty fine to coarse SAND with much angular to subangular fine to medium gravel of quartz and rock fragments and with some wood fragments. (FILL)
09.10.2013	SW 4.20m	Dry at 1800						3,47/15mm 100/10mm 100b/s/10mm	8 4.00 9 4.19	+1.59	4.20			End of hole at 4.20 m.

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **09.10.2013**

CHECKED **R. Chu**

DATE **10.10.2013**

REMARKS

1. An inspection pit was excavated to 3.00m deep by hand tools.
2. The drillhole was terminated due to encountering concrete.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 5**

SHEET 1 of 6

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837880.22** N **821136.47**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD4**		DATE **24.09.2013** to **04.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.83** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
24.09.2013	SW								0.00	+5.83	0.00			Dark grey (10YR 4/1), BRICK. (PAVEMENT)
									1 0.45	+5.77	0.06			Light reddish brown (5YR 6/3) and light yellowish brown (10YR 6/4), clayey sandy SILT with some subangular fine to coarse gravel of rock fragments. (FILL)
									2 0.95					
									3 1.45	+4.33	1.50			
									4 1.95	+3.83	2.00			Pale yellow (2.5Y 7/4), slightly clayey silty fine to coarse SAND with some subangular fine gravel of rock fragments. (FILL)
									5 2.45					Soft, light yellowish brown (10YR 6/4) spotted very pale brown, clayey sandy SILT with some angular to subangular fine gravel of rock fragments. (FILL)
			70	100					6 2.50					
									7 3.50	+2.23	3.60			
								2,2 2,2,3,3 N=10	8 3.60					Medium dense, grey (2.5Y 6/1), slightly silty fine to medium SAND. (ALLUVIUM)
									9 4.00					
								B=19	4.50	+1.33	4.50			Medium dense, light grey (2.5Y 7/2), slightly silty fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
				0										
								B=49	10 4.95					
				100					11 5.40					
								2,2 2,3,4,5 N=14	12 5.50					
	SW 6.00m								13 5.85	-0.07	5.90			
	PW													Dense, light yellowish brown (2.5Y 6/4), fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
									14 6.90					
									15 7.90	-2.17	8.00			
24.09.2013		1.52 at 1800												
25.09.2013		2.11 at 0800							16 8.00					Soft, light grey (2.5Y 7/2) dappled orange, silty sandy CLAY. (ALLUVIUM)
			70	100										
									17 9.00	-3.27	9.10			
								1,1 1,1,2,2 N=6	18 9.10					Loose, light grey (2.5Y 7/2) mottled very pale brown, silty very clayey fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
									19 9.50					
25.09.2013		2.02 at 1800								-4.17	10.00			
26.09.2013		2.12												

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **09.10.2013**

CHECKED **R. Chu**

DATE **10.10.2013**

REMARKS

1. An inspection pit was excavated to 2.50m deep by hand tools.
2. Constant head permeability tests were carried out at sections from 6.50m to 8.00m and 28.00m to 29.50m.
3. Pressuremeter tests were carried out at sections from 10.35m to 10.68m and 25.95m to 26.28m.
4. Groundwater sample was taken at 54.00m.
5. Piezometers were installed with tips at 23.50m and 53.50m respectively.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 5**

SHEET **2** of **6**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837880.22** N **821136.47**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD4**		DATE **24.09.2013** to **04.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.83** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
		at 0800												As sheet 1 of 6.
11			70	100					20 10.80 21 10.90					
12								2,2 2,1,2,4 N=9	22 11.80 23 12.00 24 12.40					
13			70	100					25 12.90					
14								2,4 5,10,18,26 N=59	26 13.90 27 14.00	-8.17	14.00			
26.09.2013 27.09.2013		1.96 at 1800 3.10 at 0800							28 14.40					Very dense, light grey (2.5Y 7/2), clayey silty fine to coarse SAND with some subangular fine gravel of quartz fragments. (ALLUVIUM)
15			80	100					29 14.90					
16								2,3 7,11,12,13 N=43	30 15.90 31 16.00 32 16.40	-10.17	16.00			Dense, brownish yellow (10YR 6/6), silty fine SAND. (ALLUVIUM)
17			80	100					33 16.90	-11.07	16.90			Medium dense, very pale brown (10YR 7/3), silty very clayey fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
18								3,4 4,4,5,11 N=24	34 17.90 35 18.00 36 18.40					
19			80	100					37 18.90	-13.07	18.90			Very stiff, very pale brown (10YR 7/3), clayey sandy SILT. (ALLUVIUM)
20									38 19.90	-14.17	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **09.10.2013**

CHECKED **R. Chu**

DATE **10.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 5**

SHEET 3 of 6

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837880.22 N 821136.47	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD4		DATE 24.09.2013 to 04.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.83 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
27.09.2013		0.80 at 1800						3,4 5,5,7,11 N=28	39 20.00					Medium dense, very pale brown (10YR 7/3), clayey silty fine SAND. (ALLUVIUM)
28.09.2013		3.30 at 0800							40 20.40					
21			85	0					20.90	-15.07	20.90			Dense, very dark grey (10YR 3/1), slightly clayey silty fine to coarse SAND with some subangular fine gravel of quartz fragments. (ALLUVIUM)
22									41 21.90	-16.17	22.00			
			85	40					42 22.00					Subangular, brownish yellow (10YR 6/6), clayey silty sandy fine to coarse GRAVEL of quartz and rock fragments. (ALLUVIUM)
23								20,19 15,13,13,17 N=58	43 23.00 44 23.10					
									45 23.50					
24									46 24.00	-18.17	24.00		V	Extremely weak to weak, pink (5YR 7/4) spotted white, completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with occasional angular fine gravel of quartz fragments and with some kaolin infilled (<3mm) relict joints)
			85	100										
25	PW 25.10m								47 25.00 48 25.10					
	HW							5,6 8,9,9,12 N=38						
26.09.2013		0.80 at 1800							49 25.50					
30.09.2013		3.50 at 0800												
26									50 26.40 51 26.50					
27			85	100										
									52 27.50 53 27.60					
								4,7 11,17,22,34 N=84	54 28.00					
28														
									55 28.50					
29			85	100										
									56 29.50 57 29.60					
30		0.80 at						4,8 12,19,25,31 N=87		-24.17	30.00			

I SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE

STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED L. Zhang
DATE 09.10.2013
CHECKED R. Chu
DATE 10.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 5**

SHEET 4 of 6

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837880.22 N 821136.47	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD4		DATE 24.09.2013 to 04.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.83 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
02.10.2013		2.11 at 0800							58 30.00				V	As sheet 3 of 6.
			85	100					59 30.50					
31									60 31.50					
								5,9 13,19,25,39 N=96	61 31.60					
32									62 32.00					
									63 32.50	-26.67	32.50		V	Very weak, pink (5YR 7/4) spotted light grey, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with some angular fine gravel of quartz fragments)
			85	100					64 33.50					
33									65 33.60					
								6,9 15,20,27,35 N=97	66 34.00					
34									67 34.50					
			85	85					68 35.50					
35									69 35.60					
								6,9 13,20,27,38 N=98	70 36.00					
36									71 36.50	-30.67	36.50		V	Very weak, pink (5YR 7/4) mottled brown, spotted white, completely decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with some angular fine gravel of quartz fragments)
			85	100					72 37.50					
37									73 37.60 37.69					
								35,15/15mm 100/50mm 100bls/50mm						
38														
									74 38.50					
39			85	100										
02.10.2013		0.70 at 1800							75 39.50					
03.10.2013		3.56 at 0800						50/50mm 100/50mm 100bls/50mm	76 39.69	-34.17	40.00			
40														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 09.10.2013

CHECKED R. Chu

DATE 10.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 5**

SHEET **5** of **6**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837880.22** N **821136.47**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD4**		DATE **24.09.2013** to **04.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.83** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
													V	As sheet 4 of 6.
									77 40.50	-34.67	40.50		IV	Weak to moderately weak, pink (5YR 7/4) mottled brown, spotted white, highly decomposed medium grained GRANITE. (Angular, slightly sandy fine to coarse GRAVEL and occasional cobble of highly decomposed granite fragments) From 43.60m to 44.70m and 46.70m to 47.60m: Extremely weak and completely decomposed.
41			85	45					78 41.50 79 41.60					
42			85	35					80 42.50 81 42.70					
43								150/30mm 100/30mm 100b/s/30mm						
									82 43.60	-37.77	43.60		V	
44			85	100					83 44.60 84 44.70	-38.87	44.70		IV	
45								150/20mm 100/30mm 100b/s/30mm						
46			85	100					85 45.60 86 46.60 87 46.70	-40.87	46.70		V	
03.10.2013		0.70 at 1800												
04.10.2013 47		3.44 at 0800						150/20mm 100/50mm 100b/s/50mm						
									88 47.60	-41.77	47.60		V	Extremely weak, very pale brown (10YR 7/4), completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with occasional angular fine gravel of quartz and granite fragments)
48			85	41					89 48.60 90 48.70					
49			85	60					91 49.70 92 49.80 49.85	-44.17	50.00			
50								150/50mm 100/50mm						

‡ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
▲ WATER SAMPLE
U100 SAMPLE

↓ STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **09.10.2013**
CHECKED **R. Chu**
DATE **10.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 5**

SHEET **6** of **6**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **837880.22** N **821136.47**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD4**		DATE **24.09.2013** to **04.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.83** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								100blis/50mm					V	As sheet 5 of 6.
										-44.87	50.70			
51			85	80					93 50.70				IV	Weak, pink (5YR 7/4) spotted white, grey and brown, highly decomposed medium grained GRANITE. (Angular, clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
52								50/50mm 100/40mm 100blis/40mm	94 51.70 95 51.80 51.84					
53			85	100					96 52.70					
04/10/2013	HW 54.00m	1.00 at 1800						50/40mm 100/30mm 100blis/30mm	97 53.70 98 53.88 53.92	-48.17	54.00			
55														End of hole at 54.00 m.
56														
57														
58														
59														
60														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **09.10.2013**

CHECKED **R. Chu**

DATE **10.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET 1 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD14**	E **837847.96** N **821118.61**	DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
10.10.2013	SW								0.00	+5.98	0.00			Dark grey (10YR 4/1), BRICK. (PAVEMENT)
										+5.92	0.06			
									1 0.45	+5.48	0.50			Reddish yellow (7.5YR 6/6), silty fine to coarse SAND with some angular to subangular fine to coarse gravel of rock fragments and with some concrete fragments. (FILL)
1									2 0.95	+4.98	1.00			Red (10R 5/6) spotted white, clayey sandy SILT with occasional angular to subangular fine gravel of quartz fragments. (FILL)
									3 1.45	+4.48	1.50			Yellow (10YR 7/8) spotted light red and white, clayey sandy SILT with occasional angular to subangular fine gravel of quartz fragments. (FILL)
2									4 1.95					
									5 2.45					Red (2.5YR 6/8) spotted white and reddish yellow, clayey sandy SILT with occasional angular to subangular fine gravel of quartz fragments. (FILL)
3									6 2.95	+2.98	3.00			
														Firm, reddish yellow (5YR 7/8) and light yellowish brown (2.5Y 6/4), slightly sandy very clayey SILT with much angular fine gravel of quartz. (FILL)
4									7 3.95	+1.98	4.00			
				80				B=38	8 4.00					Loose, grey (2.5Y 5/1), slightly clayey silty fine to coarse SAND. (MARINE DEPOSIT)
				100				B=90	9 4.45					
5								1,2 2,2,2,4 N=10	10 4.90	+1.03	4.95			
									11 4.95					Medium dense, light grey (2.5Y 7/2), fine to coarse SAND with some angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
									12 5.35					
6				0				B=50	6.00					
				0				B=118	6.45					
7								2,2 3,5,5,7 N=20	13 6.90 6.95					
									14 7.35					
8	SW 8.00m PW			0				B=36	8.00	-2.02	8.00			
				0				B=81	8.45					Dense, light grey (2.5Y 7/2) and reddish yellow (7.5YR 6/8), medium to coarse SAND with some angular to subangular fine gravel of quartz and rock fragments. (ALLUVIUM)
9								3,3 6,10,11,13 N=40	15 8.90 8.95					
									16 9.35					
10										-4.02	10.00			

↕ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
▲ WATER SAMPLE
U100 SAMPLE
↓ STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **25.10.2013**
CHECKED **R. Chu**
DATE **29.10.2013**

REMARKS
1. An inspection pit was excavated to 3.00m deep by hand tools.
2. Pressuremeter test was carried out at section from 3.45m to 3.78m.
3. Constant head permeability tests were carried out at sections from 10.50m to 12.00m and 24.50m to 26.00m.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **2** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
				0				B=24	17 10.00					Soft, very pale brown (10YR 7/4) and grey (10YR 6/1), silty sandy CLAY. (ALLUVIUM)
				89				B=79	18 10.45					
11								2,3 3,3,4,4 N=14	19 10.90	-4.97	10.95			Medium dense, grey (2.5Y 6/1), clayey silty fine to coarse SAND. (ALLUVIUM)
									20 10.95 11.35					
10.10.2013		1.75 at 1800								-6.02	12.00			
11.10.2013		3.00 at 0800		100				B=33	21 12.00					Medium dense, grey (2.5Y 6/1), clayey silty fine to coarse SAND with some angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=67	22 12.45					
13								2,3 3,3,3,4 N=13	23 12.90 24 12.95 25 13.35					
14				100				B=34	26 14.00	-8.02	14.00			Firm, very dark brown (10YR 8/2), clayey SILT with some wood fragments. (ALLUVIUM)
				100				B=65	27 14.45					
15								2,2 3,3,3,3 N=12	28 14.90 14.95 29 15.35					
16				100				B=23	30 16.00	-10.02	16.00			Stiff, white (2.5Y 8/1), silty sandy CLAY with occasional angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=40	31 16.45					
17								2,2 3,3,4,4 N=14	32 16.90 33 16.95 34 17.35					
18				89				B=24	35 18.00	-12.02	18.00			Soft, white (2.5Y 8/1), slightly sandy silty CLAY. (ALLUVIUM)
				100				B=43	36 18.45					
19								1,1 1,1,1,1 N=4	37 18.90 38 18.95 39 19.35					
20										-14.02	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **25.10.2013**

CHECKED **R. Chu**

DATE **29.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **3** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
21		1.66 at 1800 11.10.2013 – 12.10.2013 3.05 at 0800	85	90				3,6 11,17,23,27 N=78	40 20.00 41 21.00 42 21.10 43 21.50					Very dense, yellow (10YR 7/8), clayey silty fine to coarse SAND with much angular to subangular fine to coarse gravel of rock fragments. (ALLUVIUM)
22			85	55					44 22.00	-16.02	22.00			Angular to subangular, brown (7.5YR 5/4), clayey silty sandy fine GRAVEL of quartz fragments. (ALLUVIUM)
23									45 23.00	-17.07	23.05			
			85	100					46 23.10 47 24.10 48 24.20 49 24.60				V	Extremely weak, pink (7.5YR 7/4) mottled yellowish brown and light grey, spotted red and white, completely decomposed medium grained GRANITE. (Very stiff, slightly sandy clayey SILT with much angular fine gravel of quartz fragments)
24														
25								3,3 5,7,8,12 N=32		-19.12	25.10			
			85	100					50 25.10 51 26.10 52 26.20 53 26.60	-20.22	26.20		V	Extremely weak, pink (5YR 7/4) mottled red and yellowish brown, completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with some angular fine gravel of quartz fragments)
26														
42.10.2013 – 45.10.2013 27		1.64 at 1800 3.12 at 0800						3,3 4,7,9,11 N=31					V	Extremely weak, pinkish white (5YR 8/2) mottled yellowish brown, white and light grey, completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with some angular fine gravel of quartz fragments)
			85	100					54 27.10 55 28.10 56 28.20 57 28.60					
28								4,4 6,8,8,12 N=34						
29									58 29.10					
			85	100						-24.02	30.00			
30														

‡ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
▲ WATER SAMPLE
U100 SAMPLE

↓ STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **25.10.2013**
CHECKED **R. Chu**
DATE **29.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 6**

SHEET 4 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837847.96 N 821118.61	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD14		DATE 10.10.2013 to 22.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.98 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
													V	As sheet 3 of 9.
								33,17/25mm 73,27/25mm 100bls/100mm	59 30.10 60 30.20 61 30.35	-24.12	30.10		IV	Weak, yellow (10YR 7/8), highly decomposed medium grained GRANITE. (Angular, slightly silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
31										-25.12	31.10			
32			85	100					62 31.10 63 32.10 64 32.20 65 32.31				V	Extremely weak, light red (2.5YR 7/6) mottled white and light grey, completely decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with some angular fine gravel of quartz fragments)
								41,9/5mm 89,11/5mm 100bls/80mm						
33										-27.12	33.10			
34			85	100					66 33.10 67 34.10 68 34.20 34.32				V	Extremely weak, pink (7.5YR 8/4) spotted white, brown and light grey, completely decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with some angular fine gravel of quartz fragments)
								45,5/15mm 80,20/5mm 100bls/80mm						
35			85	90					69 35.10					
36	PW	1.68 at 1800							70 36.10 71 36.20 36.25					
15.10.2013 16.10.2013	36.20m HW	3.10 at 0600						50/50mm 100/50mm 100bls/50mm						
37										-31.12	37.10		IV	Weak, brown (7.5YR 5/4) spotted white, highly decomposed medium grained GRANITE. (Angular, clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
38			85	87					72 37.10 73 38.10 74 38.20 38.24					
								50/50mm 100/30mm 100bls/30mm						
39										-33.12	39.10		V	Very weak, pink (7.5YR 7/3) mottled dark grey, spotted yellowish brown and white, completely decomposed medium grained GRANITE. (Very stiff, slightly clayey sandy SILT with some angular fine gravel of quartz fragments)
40			85	100					75 39.10	-34.02	40.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
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- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 25.10.2013

CHECKED R. Chu

DATE 29.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **5** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
16.10.2013 17.10.2013		1.20 at 1800 3.10 at 0800											V	As sheet 4 of 9.
41			85	95				↓50/50mm 100/40mm 100bls/40mm	76 40.10 77 40.20 78 41.10					
42									79 42.10 80 42.20	-36.22	42.20		IV	Weak, pink (7.5YR 7/3) mottled dark brown, spotted white and light grey, highly decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with some to much angular fine to medium gravel of granite fragments)
43								↓50/40mm 100/30mm 100bls/30mm	81 43.10	-37.12	43.10		IV	Weak, yellow (10YR 7/8) mottled dark brown, spotted white and light grey, highly decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with some to much angular fine to medium gravel of granite fragments)
44			85	100					82 44.10 83 44.20					
45								↓50/40mm 100/30mm 100bls/30mm	84 45.10					
46			85	100					85 46.10 86 46.20					
47								↓50/30mm 100/30mm 100bls/30mm	87 47.10					
48			85	95					88 48.10 89 48.20					
49								↓50/40mm 100/30mm 100bls/30mm	90 49.10					
50			85	95						-44.02	50.00			

‡ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
▲ WATER SAMPLE
U100 SAMPLE

↓ STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **25.10.2013**
CHECKED **R. Chu**
DATE **29.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

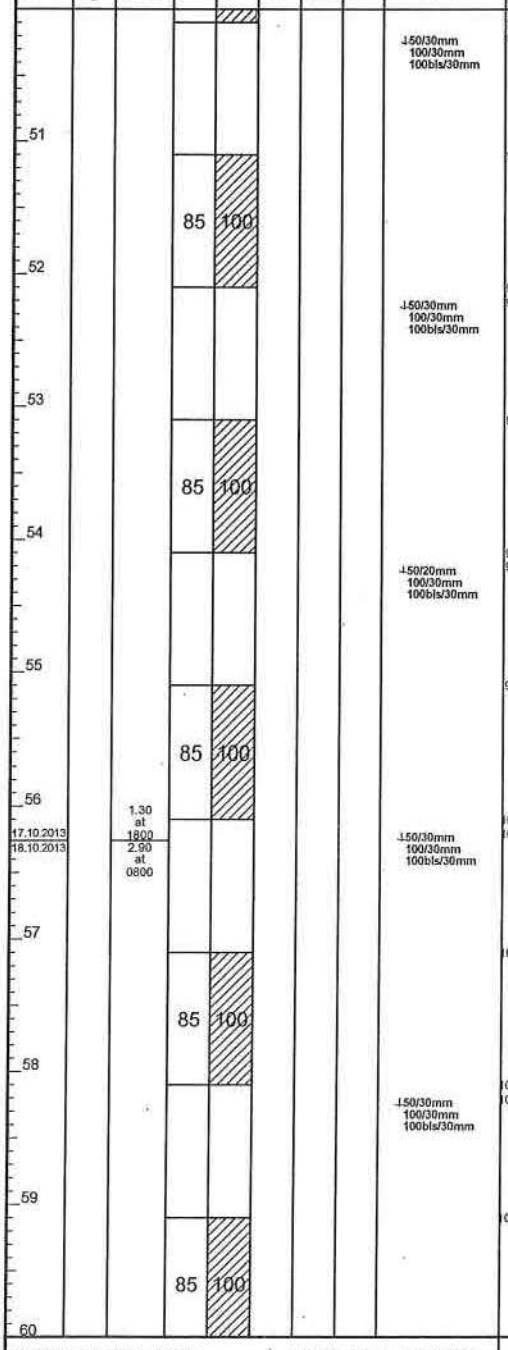
CONTRACT NO. GE/2013/04

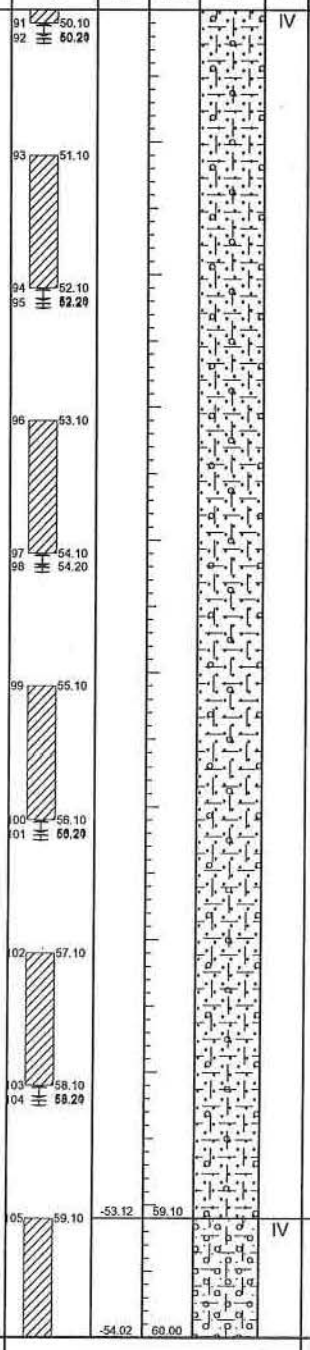
HOLE NO. **BH 6**

SHEET 6 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837847.96 N 821118.61	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD14		DATE 10.10.2013 to 22.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.98 mPD





Description

As sheet 5 of 9.

Weak, pink (7.5YR 7/3) spotted white and light grey, highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 25.10.2013

CHECKED R. Chu

DATE 29.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **7** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
61								+50/20mm 100/30mm 100bls/30mm	06 60.10 07 60.20				IV	As sheet 6 of 9.
62		1.60 at 1800	85	35					08 61.10					
18.10.2013									09 62.10					
19.10.2013		3.05 at 0800	85	100					10 62.20					
63								+50/20mm 100/30mm 100bls/30mm	11 63.20 12 63.30					
64			85	100					13 64.20					
65								+50/30mm 100/30mm 100bls/30mm	14 65.20 15 65.30					
66			85	100					16 66.20					
67								+50/20mm 100/30mm 100bls/30mm	17 67.20 18 67.30					
68			85	60					19 68.20					
69								+50/20mm 100/30mm 100bls/30mm	20 69.20 21 69.30	-64.02	70.00			
70														

I SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE

STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **25.10.2013**
CHECKED **R. Chu**
DATE **29.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **8** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
										-64.22	70.20		IV	As sheet 7 of 9.
			85	100					22 70.20				IV	Weak, pink (7.5YR 7/3) spotted white, highly decomposed medium grained GRANITE. (Angular, slightly silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
71									23 71.20	-65.32	71.30			
								+50/20mm 100/30mm 100bls/30mm	24 71.30				IV	Weak to moderately weak, pink (7.5YR 7/4) spotted brown and white, highly decomposed medium grained GRANITE. (Angular, slightly silty clayey sandy fine to coarse GRAVEL of highly decomposed granite fragments)
72			85	80					25 72.20					
73														
19.10.2013	HW 73.34m	1.35 at 1800							26 73.20	-67.36	73.34			
21.10.2013		2.98 at 0800							27 73.30					
			85	100	100	71	3.9						III	Moderately strong, brownish pink mottled yellowish brown, spotted white, moderately decomposed medium grained GRANITE. Joints are extremely closely to very closely spaced, occasionally closely spaced, rough planar and rough undulating, iron and manganese oxide stained, dipping at 0° to 10°, 40° to 50° and 60° to 70°. From 73.85m to 74.26m and 74.82m to 75.25m: With some extremely closely spaced microfractures dipping subhorizontally. From 74.19m to 74.36m, 74.50m to 74.74m and 76.66m to 77.14m: Moderately weak to moderately strong and moderately decomposed. From 75.38m to 75.51m: With a quartz vein (<40mm thick) dipping subvertically.
74							15.0		T2-101		73.85			
									74.26		74.45			
			85	100	84	59	2.6		T2-101		74.84			
75							13.3				75.14			
							>20		75.30		75.39			
							11.1				75.66			
			85	100	85	58	2.3		T2-101		76.09			
76														
							15.0		76.66					
			85	94	56	0			T2-101					
77									77.14	-71.16	77.14			
			85	100	100	100	4.1		T2-101				III	Moderately strong, pink mottled light grey, spotted white and brown, moderately decomposed medium grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar and rough undulating, iron and manganese oxide stained, dipping at 0° to 10°, 40° to 50° and subvertically from 78.58m to 79.05m. From 78.59m to 78.67m: Moderately weak to moderately strong and moderately decomposed.
78									78.04					
											78.61			
			85	100	89	66	>20		T2-101		78.77			
79							15.2				79.10			
							4.2				79.34			
							17.6		79.51		79.51			
											79.69			
									T2-101	-73.71			II	Strong, pink mottled light grey, spotted black, slightly
80										-74.02	80.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **25.10.2013**

CHECKED **R. Chu**

DATE **29.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 6**

SHEET **9** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **837847.96** N **821118.61**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD14**		DATE **10.10.2013** to **22.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.98** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
81		1.80 at 1600	85	100	65	56	8.0		T2-101		80.39		II	decomposed medium to coarse grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar and rough undulating, calcite and chlorite infilled (<3mm), dipping at 0° to 10°, 40° to 50°, 65° to 75° and subvertically from 79.69m to 80.31m.
21.10.2013							10.9				80.85			
22.10.2013		2.90 at 0800					7.4		81.05					
82			85	100	87	80	3.2		T2-101		81.53			
22.10.2013										-76.50	82.48			End of hole at 82.48 m.
83														
84														
85														
86														
87														
88														
89														
90														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **25.10.2013**

CHECKED **R. Chu**

DATE **29.10.2013**

REMARKS

DRILLHOLE RECORD

DRiLTECH

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 7**

SHEET **1** of **9**

PROJECT **Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**

METHOD **ROTARY**	CO-ORDINATES E **837825.18** N **821073.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD27**		DATE **02.10.2013** to **07.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+6.38** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
02.10.2013	SW								0.00	+6.38	0.00			Red (10R 4/8), BRICK. (PAVEMENT)
									1 0.45	+6.32	0.06			Reddish yellow (7.5YR 6/8), slightly clayey silty fine to coarse SAND with some angular to subangular fine to medium gravel of rock fragments. (FILL)
									2 0.95	+5.38	1.00			Brown (7.5YR 5/2), slightly clayey silty fine to coarse SAND with some angular to subangular fine to medium gravel of rock fragments and with some refuse fragments. (FILL)
									3 1.45					
									4 1.95					
									5 2.45					
									6 2.95	+3.38	3.00			
			80	85					7 3.00					Loose, brown (7.5YR 5/4) mottled orange, clayey silty fine to coarse SAND with some angular fine gravel of rock fragments. (FILL)
									8 4.00	+2.28	4.10			
								1,2 1,2,2,2 N=7	9 4.10					Firm, pink (5YR 7/4) mottled dark grey, clayey sandy SILT with some subangular fine gravel of quartz fragments. (FILL)
									10 4.50	+1.78	4.60			
			80	78					T2-120 4.60					Grey (10YR 6/1) spotted pink, BOULDER (<310mm) of moderately decomposed granite fragments. (FILL)
								B=23	11 5.00	+1.38	5.00			
				89				B=36	12 5.45					Medium dense, brownish yellow (10YR 6/8), slightly clayey silty fine to coarse SAND with some angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100					13 5.90					
								3,3 2,3,4,3 N=12	14 5.95					
									15 6.35					
								B=13	16 7.00	-0.62	7.00			Medium dense, light grey (2.5Y 7/1), clayey silty fine to coarse SAND with some angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=19	17 7.45					
				100					18 7.90					
								2,1 2,2,3,3 N=10	19 7.95	-1.57	7.95			Medium dense, light grey (2.5Y 7/1) mottled yellowish brown, silty very clayey fine to coarse SAND with occasional angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
									20 8.35					
	SW 9.00m									-2.62	9.00			
	PW							B=14	21 9.00					Loose, pale yellow (5Y 7/3), silty very clayey fine to coarse SAND. (ALLUVIUM)
				100				B=25	22 9.45					
				100					23 9.90	-3.62	10.00			

‡ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
WATER SAMPLE
U100 SAMPLE
↓ STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **11.10.2013**
CHECKED **R. Chu**
DATE **11.10.2013**

REMARKS
1. An inspection pit was excavated to 3.00m deep by hand tools.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 7**

SHEET 2 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837825.18 N 821073.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD27		DATE 02.10.2013 to 07.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +6.38 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								2,2 2,2,2,3 N=9	24 9.95 25 10.35					As sheet 1 of 9.
11				100				B=21	26 11.00	-4.62	11.00			Medium dense, dark grey (2.5Y 4/1) striped black, silty very clayey fine to coarse SAND. (ALLUVIUM)
				100				B=31	27 11.45					
12								2,3 3,3,4,4 N=14	28 11.90 29 11.95 30 12.35					
13				100				B=34	31 13.00	-6.62	13.00			Medium dense, light grey (2.5Y 7/1), clayey silty fine to coarse SAND. (ALLUVIUM)
				100				B=59	32 13.45					
14								3,4 4,5,6,7 N=22	33 13.90 34 13.95 35 14.35					
15				100				B=24	36 15.00	-8.62	15.00			Stiff, light grey (2.5Y 7/1), silty sandy CLAY with occasional angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=51	37 15.45					
16								2,3 4,5,7,7 N=23	38 15.90 39 15.95 40 16.35	-9.57	15.95			Medium dense, light grey (7.5YR 7/1), slightly clayey silty fine to coarse SAND. (ALLUVIUM)
17				100				B=19	41 17.00	-10.62	17.00			Medium dense, pale yellow (5Y 7/3), slightly clayey silty fine to coarse SAND. (ALLUVIUM)
				100				B=35	42 17.45					
18								2,2 2,3,3,3 N=11	43 17.90 44 17.95 45 18.35	-11.57	17.95			Stiff, white (2.5Y 8/1) mottled pale yellow, slightly sandy silty CLAY. (ALLUVIUM)
19				100				B=21	46 19.00					
				100				B=49	47 19.45					
20									48 19.90	-13.62	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 11.10.2013

CHECKED R. Chu

DATE 11.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 7**

SHEET **3** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD27**	E **837825.18** N **821073.90**	DATE **02.10.2013** to **07.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+6.38** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
02.10.2013 03.10.2013		2.11 at 1800 / 5.80 at 0800						2,2 2,3,3,4 N=12	49 19.95 / 50 20.35					As sheet 2 of 9.
21				89				B=36	51 21.00	-14.62	21.00			Medium dense, yellow (10YR 7/8), slightly clayey silty fine to coarse SAND. (ALLUVIUM)
				100				B=97	52 21.45 / 53 21.90	-15.57	21.95			
22								6,6 4,4,4,5 N=17	54 21.95 / 55 22.35				V	Extremely weak, pink (7.5YR 8/4) mottled light grey, brown and white, completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with much angular fine gravel of quartz fragments)
23			80	85					56 23.00					
24								3,3 5,6,8,11 N=30	57 24.00 / 58 24.10 / 59 24.50					
25									60 25.00					
26			80	70					61 26.00 / 62 26.10					
			80	100										
27								7,8 9,12,13,15 N=49	63 27.10 / 64 27.20 / 65 27.60					
28									66 28.10					
			80	100										
29								6,8 10,13,14,17 N=54	67 29.10 / 68 29.20 / 69 29.60					
30										-23.62	30.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **11.10.2013**

CHECKED **R. Chu**

DATE **11.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 7**

SHEET 4 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837825.18 N 821073.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD27		DATE 02.10.2013 to 07.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +6.38 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
31			80	95				7,13 15,19,21,22 N=77	70 30.10 71 31.10 72 31.20 73 31.60				V	As sheet 3 of 9.
32			80	100					74 32.10 75 33.10 76 33.20 77 33.60					
33								9,15 17,20,23,26 N=86						
34			80	90					78 34.10 79 35.10 80 35.20	-28.82	35.20			
35								11,18 20,22,26,30 N=98	81 35.60				V	Very weak, pale red (2.5YR 7/4) mottled light grey, white and brown, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine gravel of quartz fragments)
36	PW 36.10m HW								82 36.10					
37			80	100				11,19 23,26,31,20/35mm 100blS/260mm	83 37.20 84 85 37.56					
38									86 38.10					
39		2.55 at 1800	80	80					87 39.10 88 39.20 89 39.58					
03.10.2013 04.10.2013		5.90 at 0800						12,17 20,23,29,28/55mm 100blS/280mm						
40										-33.62	40.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 11.10.2013

CHECKED R. Chu

DATE 11.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 7**

SHEET **5** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD27**	E **837825.18** N **821073.90**	DATE **02.10.2013** to **07.10.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+6.38** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
41			80	60									V	As sheet 4 of 9.
42			80	82				13,19 24,29,47/60mm 100blS/210mm	90 40.10 91 41.10 92 41.20 93 42.20 94 42.30 95 42.61					
43			80	100					96 43.20 97 44.20 98 44.30 99 44.59					
44								17,21 27,40,33/40mm 100blS/190mm						
45			80	90					100 45.20 101 46.20 102 46.30 103 46.58					
46								20,27 30,41,29/30mm 100blS/180mm						
47			80	83					104 47.20 105 48.20 106 48.30 107 48.64					
48								18,23 23,29,36,12/15mm 100blS/240mm						
49			80	95					108 49.20	-43.62	50.00			
50														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **11.10.2013**

CHECKED **R. Chu**

DATE **11.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH 7**

SHEET 6 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837825.18 N 821073.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD27		DATE 02.10.2013 to 07.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +6.38 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
51								20,27 32,41,27/40mm 100blS/190mm	09 50.20 10 50.30 11 50.59				V	As sheet 5 of 9.
52			80	100				26,24/45mm 49,51/55mm 100blS/130mm	12 51.20 13 52.20 52.30 14 52.50					
53			80	90				30,20/35mm 54,46/35mm 100blS/110mm	15 53.20 16 54.20 54.30 17 54.47					
54														
55			80	100				27,23/35mm 64,36/25mm 100blS/100mm	18 55.20 19 56.20 56.30 20 56.46					
56														
57			80	100					21 57.20					
58		2.30 at 1800							22 58.20 58.30					
04.10.2013 05.10.2013		5.88 at 0800						28,22/25mm 59,41/35mm 100blS/110mm	23 58.46					
59									24 59.20					
60			80	55						-53.62	60.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 11.10.2013

CHECKED R. Chu

DATE 11.10.2013

REMARKS

DRILTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH 7**

SHEET **7** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **837825.18** N **821073.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD27**		DATE **02.10.2013** to **07.10.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+6.38** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
61			80	95				35,15/15mm 63,37/25mm 100bls/100mm	25 60.20 26 60.30 27 61.30 61.40 28 61.54				V	As sheet 6 of 9.
62										-55.92	62.30			
63			80	80				33,17/15mm 67,33/15mm 100bls/90mm	29 62.30 30 63.30 63.40 31 63.53				V	Very weak, pink (7.5YR 7/3) spotted light grey, brown and white, completely decomposed medium grained GRANITE. (Slightly clayey silty fine to coarse SAND with much angular fine gravel of quartz and granite fragments)
64														
65			80	95				50/60mm 73,27/15mm 100bls/90mm	32 64.30 33 65.30 65.40 34 65.50					
66														
67			80	100				50/70mm 70,30/15mm 100bls/90mm	35 66.30 36 67.30 67.40 37 67.51					
68														
69			80	100				50/50mm 72,28/15mm 100bls/90mm	38 68.30 39 69.30 69.40 40 69.49					
70										-63.62	70.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **11.10.2013**

CHECKED **R. Chu**

DATE **11.10.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

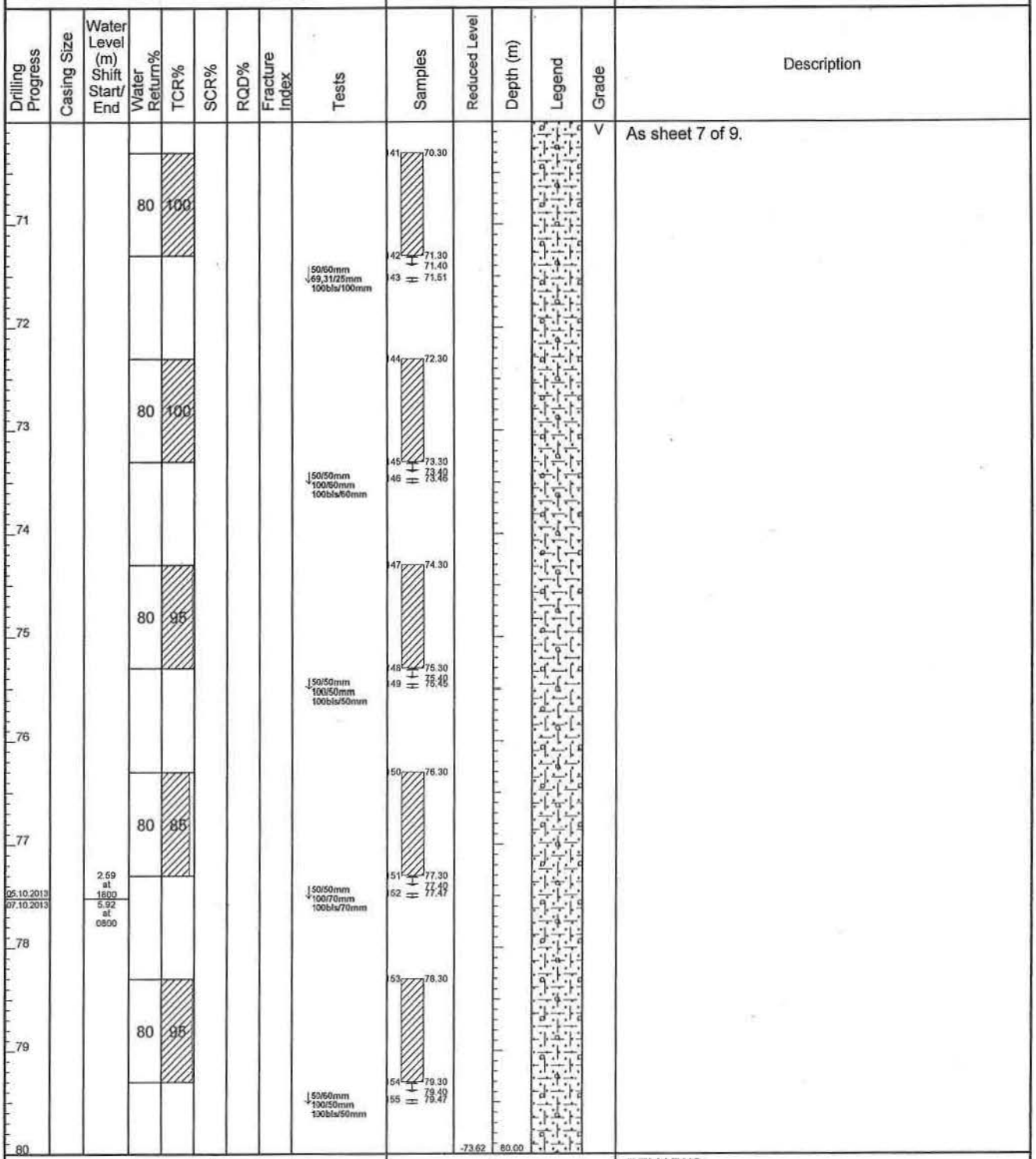
CONTRACT NO. GE/2013/04

HOLE NO. **BH 7**

SHEET 8 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837825.18 N 821073.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD27		DATE 02.10.2013 to 07.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +6.38 mPD



‡ SMALL DISTURBED SAMPLE
↓ STANDARD PENETRATION TEST
LARGE DISTURBED SAMPLE
V IN-SITU VANE SHEAR TEST
U76 SAMPLE
PACKER TEST
PISTON SAMPLE (76mm)
PERMEABILITY TEST
MAZIER SAMPLE
PRESSUREMETER TEST
SPT LINER SAMPLE
BOREHOLE TELEVIEWER
WATER SAMPLE
PIEZOMETER TIP
U100 SAMPLE
STANDPIPE TIP

LOGGED L. Zhang
DATE 11.10.2013
CHECKED R. Chu
DATE 11.10.2013

REMARKS

DRiLTECH	DRILLHOLE RECORD CONTRACT NO. GE/2013/04	HOLE NO. **BH 7** SHEET 9 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 837825.18 N 821073.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD27		DATE 02.10.2013 to 07.10.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +6.38 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
										-73.92	80.30		V	As sheet 8 of 9.
81			80	100				↓50/40mm 100/50mm 100bls/50mm	156 80.30 157 81.30 158 81.40 81.44				IV	Weak, pink (7.5YR 7/4) spotted light grey, white and brown, highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
82														
83			80	100				↓50/40mm 100/40mm 100bls/40mm	159 82.30 160 83.30 161 83.40 83.49					
84														
85			80	95				↓50/40mm 100/40mm 100bls/40mm	162 84.30 163 85.30 164 85.40 85.49					
86										-79.92	86.30			
87			80	100				↓50/30mm 100/40mm 100bls/40mm	165 86.30 166 87.30 167 87.40				IV	Weak to moderately weak, pink (7.5YR 7/4) mottled light grey, spotted white, highly decomposed medium grained GRANITE. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
88														
07.10.2013	HW 88.80m	5.85 at 1300	80	100					168 88.30 169 88.70	-82.42	88.80			
89														End of hole at 88.80 m.
90														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED	L. Zhang
DATE	11.10.2013
CHECKED	R. Chu
DATE	11.10.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

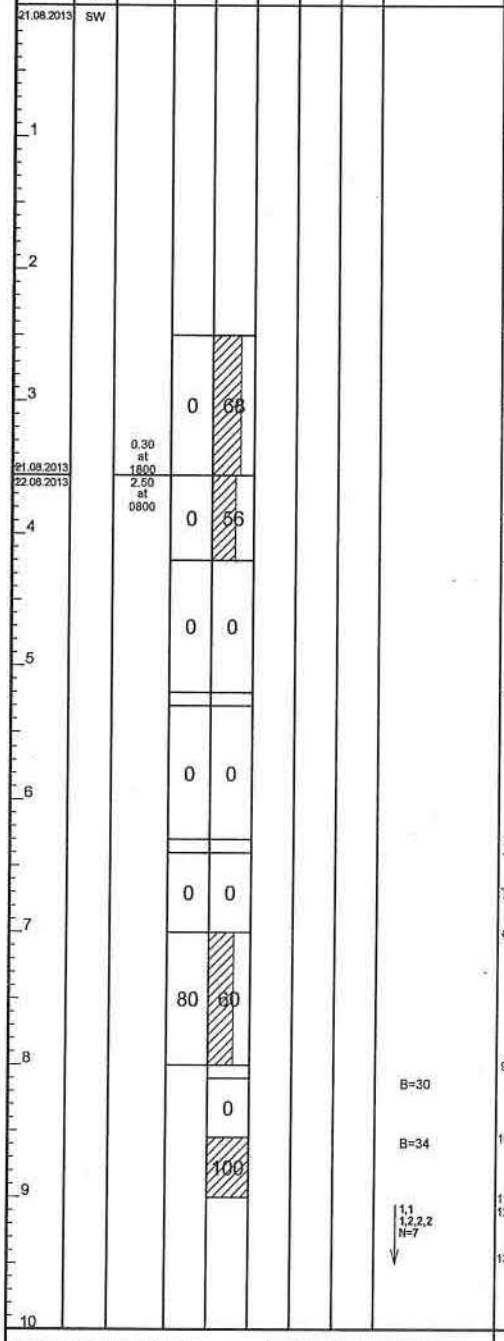
CONTRACT NO. **GE/2013/04**

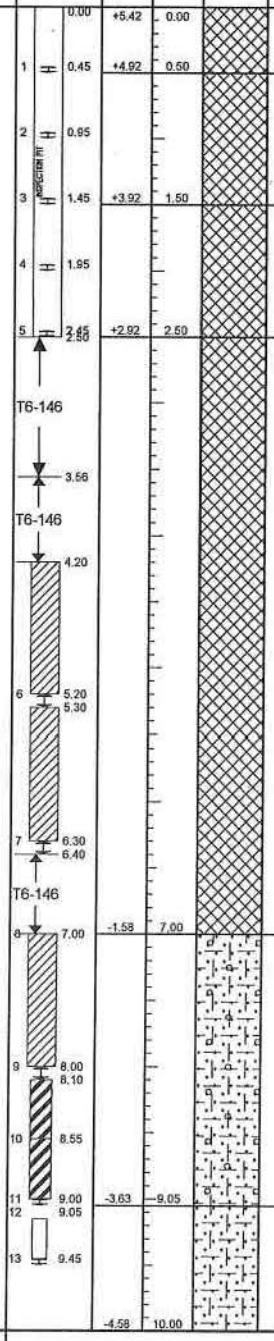
HOLE NO. **BH26**

SHEET 1 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD





Description
Light yellowish brown (10YR 6/4), slightly clayey silty fine to coarse SAND with some subangular fine to coarse gravel of rock fragments. (FILL)
Light reddish brown (5YR 6/3), clayey silty fine to coarse SAND with some subangular fine to coarse gravel of rock fragments. (FILL)
Subangular, light yellowish brown (10YR 6/4) and light grey (10YR 7/1), clayey silty sandy fine to coarse GRAVEL of rock fragments. (FILL)
Subangular, light grey (N7/), COBBLE and some medium to coarse gravel of rock fragments and concrete fragments. (FILL) From 6.40m to 7.00m: No recovery, assumed to be FILL.
Loose, light bluish grey (5B 7/1), clayey silty fine to coarse SAND with occasional subangular fine gravel of quartz and rock fragments. (ALLUVIUM)
Loose, light bluish grey (5B 7/1) mottled very pale brown, silty very clayey fine to coarse SAND with occasional subangular fine gravel of quartz and rock fragments. (ALLUVIUM)

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

1. An inspection pit was excavated to 2.50m deep by hand tools.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **2** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**	E **838294.19** N **821285.18**	DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
														As sheet 1 of 9.
11				56				B=77	14 10.10	-4.68	10.10			Medium dense, pale yellow (2.5Y 8/3), slightly clayey silty fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=176	15 10.55					
								1,2 2,1,2,4 N=9	16 11.00 11.05	-5.63	11.05			
12									17 11.45	-6.68	12.10			Loose, light grey (10YR 7/1), slightly clayey silty fine to coarse SAND with some subangular fine to medium gravel of quartz and rock fragments. (ALLUVIUM)
				100				B=71	18 12.10					
				100				B=128	19 12.55					Very dense, pale yellow (2.5Y 8/3) mottled light grey, clayey silty fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
13								2,3 5,12,17,20 N=54	20 13.00 21 13.05 22 13.45					
14			80	95					23 14.10	-8.68	14.10			Medium dense, light bluish grey (5B 7/1), silty very clayey fine to medium SAND. (ALLUVIUM)
15	SW 15.20m PW							1,1 2,3,4,6 N=15	24 15.10 25 15.20	-9.78	15.20			Stiff, light bluish grey (5B 7/1), very silty CLAY. (ALLUVIUM)
22.08.2013 23.08.2013 16		0.30 at 1800 1.20 at 0800							26 15.60 27 16.20	-10.78	16.20			Medium dense, light bluish grey (5B 7/1) mottled brown, silty very clayey fine SAND. (ALLUVIUM)
17			90	0					17.10	-11.68	17.10			Medium dense, light bluish grey (5B 7/1) mottled white, clayey silty fine to coarse SAND with occasional subangular fine gravel of quartz fragments. (ALLUVIUM)
18			90	100					28 18.10 29 18.20	-12.78	18.20		V	Extremely weak, white (2.5Y 8/1) spotted pink, completely decomposed, kaolinised, medium grained GRANITE. (Firm, clayey sandy SILT with occasional angular fine gravel of quartz fragments)
19								1,1 2,5,10,8 N=25	30 19.20 31 19.30 32 19.70					
20										-14.58	20.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET 3 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
										-14.78	20.20		V	As sheet 2 of 9.
									33 20.20				V	Extremely weak, pale yellow (2.5YR 8/2) spotted white, completely decomposed medium grained GRANITE. (Firm, clayey sandy SILT with occasional angular fine gravel of quartz fragments)
21									34 21.20					
22			90	100					35 22.20					
								2,2 2,4,9,9 N=24	36 22.30					
									37 22.70					
23									38 23.20					
24										-18.78	24.20			
									39 24.20				V	Extremely weak, red (10R 5/6) spotted white and light grey, completely decomposed medium grained GRANITE. (Stiff, clayey sandy SILT with some angular fine gravel of quartz fragments)
25			90	100					40 25.20					
								2,3 3,5,8,7 N=23	41 25.30					
26									42 25.70					
									43 26.20					
27														
			90	100					44 27.20					
28									45 28.20					
								2,2 4,5,7,9 N=26	46 28.30					
									47 28.70					
29														
23.08.2013		0.20 at 1800							48 29.20					
24.08.2013		0.95 at 0800												
30										-24.58	30.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **4** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
31			90	100				2,3 3,5,6,8 N=22	49 30.20 – 50 31.20 – 51 31.30 – 52 31.70 – 53 32.20				V	As sheet 3 of 9.
32														
33														
34			90	100				2,2 3,5,8,8 N=24	54 33.20 – 55 34.20 – 56 34.30 – 57 34.70 – 58 35.20					
35														
36														
37			90	100				2,3 4,6,8,8 N=26	59 36.20 – 60 37.20 – 61 37.30 – 62 37.70 – 63 38.20	-31.88	37.30		V	Extremely weak, pinkish white (5YR 8/2) spotted grey, completely decomposed medium grained GRANITE. (Clayey silty fine SAND with occasional angular fine gravel of quartz and granite fragments)
38														
39														
40			90	100					64 39.20	-34.58	40.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **5** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
41		0.20 at 1800						4,5 7,9,11,14 N=41	65 40.20 66 40.30 67 40.70 68 41.20				V	As sheet 4 of 9.
24.08.2013 26.08.2013		1.25 at 0800												
42	PW 42.00m HW		90	90					69 42.20					
43								8,10 13,15,18,27 N=73	70 43.20 71 43.30 72 43.70 73 44.20					
44														
45									74 45.20					
46			90	82					75 46.20 76 46.30 77 46.65					
47								11,19 21,25,35,19/25mm 100blo/250mm		-41.78	47.20			
48									78 47.20				V	Extremely weak to very weak, very pale brown (10YR 8/3) spotted white, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with some angular fine to medium gravel of quartz and granite fragments)
49			90	50					79 48.20 80 49.20 81 49.30					
50			90	82						-44.58	50.00			

‡ SMALL DISTURBED SAMPLE
↕ LARGE DISTURBED SAMPLE
U76 SAMPLE
PISTON SAMPLE (76mm)
MAZIER SAMPLE
SPT LINER SAMPLE
▲ WATER SAMPLE
U100 SAMPLE
↓ STANDARD PENETRATION TEST
V IN-SITU VANE SHEAR TEST
PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
BOREHOLE TELEVIEWER
PIEZOMETER TIP
STANDPIPE TIP

LOGGED **L. Zhang**
DATE **10.09.2013**
CHECKED **R. Chu**
DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **6** of **9**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
									82 50.30 83 50.40	-44.98	50.40		V	As sheet 5 of 9.
51								36,14/25mm 52,48/15mm 100bls/90mm	84 50.54 85 51.30				V	Extremely weak, yellowish brown (10YR 5/4) spotted white, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with occasional angular fine gravel of quartz and granite fragments)
52										-46.88	52.30			
53			90	100					86 52.30 87 53.30 88 53.40 89 53.80 90 54.30				V	Extremely weak to very weak, brownish yellow (10YR 6/6), completely decomposed BASALT. (Stiff, clayey sandy SILT)
54								7,9 13,14,17,22 N=66						
55										-49.88	55.30			
56			90	100					91 55.30 92 56.30 93 56.45				V	Very weak to weak, yellowish brown (10YR 5/6), completely decomposed BASALT. (Very stiff, clayey sandy SILT with some angular fine to coarse gravel of basalt fragments)
26.08.2013 27.08.2013		0.20 at 1800 1.40 at 0800						50/50mm 100/50mm 100bls/50mm						
57									56.96	-51.54	56.96		IV	Weak to moderately weak, yellowish brown (10YR 5/6) spotted white, highly decomposed BASALT. (Angular, COBBLE and some coarse gravel of highly decomposed basalt fragments)
			90	91	0	0	NI NA		T2-101	-51.84	57.26		V	
58							NI		58.17	-52.33	57.75		IV	Extremely weak, brownish yellow (10YR 6/6), completely decomposed BASALT. (Firm, clayey sandy SILT with some angular fine to coarse gravel and occasional cobble of basalt fragments)
			90	64	0	0			T2-101	-53.18	58.60			Weak to moderately weak, brownish yellow (10YR 6/6) spotted white, highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy COBBLE and some fine to coarse gravel of highly decomposed granite fragments) From 58.60m to 59.00m: No recovery, assumed to be completely decomposed GRANITE.
59							NR			-53.58	59.00		V	
			90	80					94 59.00				V	
60										-54.58	60.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRILTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **7** of **9**

PROJECT **Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**

METHOD	**ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
								39,11/25mm 66,34/15mm 100bls/90mm	95 60.00 60.10	-54.68	60.10		V	
									96 60.24				IV	Very weak, light grey (10YR 7/1) spotted pink and white, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with some angular fine gravel of granite fragments)
61									97 61.00	-55.58	61.00		IV	Weak, light grey (10YR 7/1) spotted pink and white, highly decomposed medium grained GRANITE. (Angular, fine to coarse GRAVEL of highly decomposed granite fragments)
										-56.58	62.00			Very weak, light grey (10YR 7/1) spotted pink and white, highly decomposed medium grained GRANITE. (Angular, clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
62			90	80					98 62.00				V	
63									99 63.00 100 63.10					Very weak, light grey (10YR 7/1) spotted pink and white, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with some angular fine gravel of granite fragments) From 64.20m to 64.25m: No recovery, assumed to be completely decomposed GRANITE.
			90	84										
64									101 64.10 102 64.20					
27.08.2013		0.30 at 1800						50/20mm 100/30mm 100bls/30mm						
28.08.2013		2.40 at 0800								-59.12	64.54			
							NI		64.54	-59.20	64.62		IV	
							NR			-59.38	64.80		V	
65			85	74	35	29	>20		T2-101		64.99		III	Moderately strong, pink mottled white and brown, moderately decomposed medium grained GRANITE. (CORESTONE) From 64.54m to 64.62m and 66.83m to 67.10m: Weak and highly decomposed. (Angular, slightly silty sandy fine to coarse GRAVEL and COBBLE of highly decomposed granite fragments) From 64.62m to 64.80m and 67.10m to 68.55m: No recovery, assumed to be completely decomposed GRANITE.
							19.3		65.23					
			85	100	40	20			T2-101		65.58			
							>20		65.83		65.83			
66							7.5				66.23			
			85	99	54	36			T2-101					
							>20		66.75					
										-61.41	66.83			
67							NI			-61.68	67.10		IV	
			85	29	0	0			T2-101				V	
							NR							
68									67.95					
			85	0	0	0			T2-101					
28.08.2013		4.50 at 1800												
29.08.2013		3.10 at 0800							68.55	-63.13	68.55		IV	
			85	77										Weak, pink (5YR 8/3) spotted white and grey, highly decomposed medium grained GRANITE. (Angular, sandy fine to coarse GRAVEL of highly decomposed granite fragments) From 69.70m to 70.20m and 70.30m to 71.40m: No recovery, assumed to be completely decomposed GRANITE.
69									69.20 69.30					
			85	100					69.60 69.70	-64.28	69.70			
									T2-101				V	
70										-64.58	70.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH26**

SHEET **8** of **9**

PROJECT **Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**

METHOD **ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
			85	0	0	0	NR		T2-101 67 70.20–70.30	-64.78 / -64.88	70.20 / 70.30		V / IV	As sheet 7 of 9.
			85	0	0	0	NR		T2-101 80 70.80–70.90		70.90		V	
71			85	0	0	0	NR		T2-101 69 71.40	-65.98	71.40		IV	
72			85	55					10 72.40–72.50	-67.08	72.50		IV	
29.08.2013		1.20 at 1800												
02.09.2013		3.70 at 0800	85	100	60	18	>20		T2-101	-67.52 / -67.57	72.94 / 72.99		III / V	Moderately strong, pink mottled brown, spotted white and grey, moderately decomposed medium grained GRANITE. (CORESTONE)
73									73.17		73.17		III	From 72.94m to 72.99m: Extremely weak and completely decomposed. (Slightly silty fine to coarse SAND with much angular fine to medium gravel of granite fragments)
			85	100	93	81	6.3		T2-101		73.65			
74							10.0		74.16		74.25			
							>20			-68.97	74.39		IV	Weak to moderately weak, light grey (10YR 7/1) spotted pink and green, highly decomposed, chloritised, medium grained GRANITE. (Angular, slightly silty sandy fine to coarse GRAVEL and COBBLE of highly decomposed granite fragments)
			85	64	24	10	NI		T2-101	-69.24	74.66		V	
75							NR			-69.68	74.76 / 75.10		IV	From 74.66m to 74.76m: Extremely weak and completely decomposed. (Firm, clayey sandy SILT with some angular fine to medium gravel of granite fragments)
			85	0					11 75.50–75.60		75.60			
							NI		T2-101	-70.58	76.00		III	From 74.76m to 75.10m and 77.30m to 77.58m: No recovery, assumed to be completely decomposed GRANITE.
76			85	98	29	25	9.1		76.62	-71.02	76.44		IV	
			85	100	0	0	NI		T2-101					From 76.00m to 76.44m: Moderately weak to moderately strong, microfractured and moderately decomposed. (CORESTONE)
77									77.30	-71.88	77.30			
02.09.2013		4.90 at 1600												
03.09.2013		3.50 at 0600					NR			-72.16	77.58		V	
			85	58	46	46	NI		T2-101	-72.24	77.66		IV	Moderately strong, pink (5YR 8/3) mottled brown, spotted white, moderately decomposed medium grained GRANITE. (CORESTONE) Joints are closely to medium spaced, occasionally very closely spaced, rough planar, iron and manganese oxide stained and kaolin coated, dipping at 5° to 15°, 45° to 55° and 65° to 75°.
							6.5		77.97		77.97		III	
78			85	100	100	95	4.2		T2-101					From 81.03m to 81.14m, 83.20m to 83.65m, 84.14m to 84.25m and 87.96m to 88.12m: No recovery, assumed to be completely decomposed GRANITE.
									78.77					
79			85	100	100	80			T2-101		79.16			From 83.08m to 83.20m, 83.65m to 83.80m, 84.04m
							13.8		79.37		79.45			
							3.8		T2-101					
80										-74.58	80.03			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH26**

SHEET 9 of 9

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD **ROTARY**	CO-ORDINATES E **838294.19** N **821285.18**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE **SD09**		DATE **21.08.2013** to **06.09.2013**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.42** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
			85	100	100	74	12.0		T2-101		80.22		III	to 84.14m and 86.55m to 87.15m: Weak to moderately weak and highly decomposed. (Angular, sandy fine to coarse GRAVEL and some cobble of highly decomposed granite fragments)
							6.2		80.54					
81										-75.61	81.03			From 85.68m to 85.74m: Moderately weak.
							NR			-75.72	81.14		V	
			85	92	92	77	4.5		T2-101				III	From 86.78m to 87.25m: Fine grained GRANITE.
82									82.00		81.80			
							12.0				82.30			
			85	100	58	48	>20		T2-101		82.70			
							7.9							
83		5.00 at 1600					NI			-77.66	83.08		IV	
03.09.2013										-77.78	83.20			
04.09.2013		3.50 at 0800							83.20				V	
	HW 83.65m	data at 1600	85	0	0	0	NR		T2-101					
04.09.2013									83.65	-78.23	83.65			
06.09.2013		3.10 at 0800					NI			-78.38	83.80		IV	
							16.7			-78.62	84.04		III	
84							NI			-78.72	84.14		IV	
			85	87	51	29	NR		T2-101	-78.83	84.25		V	
							7.1		84.49				III	
											84.95			
85			85	100	83	42	15.9		T2-101					
											85.58			
							>20		85.88		85.94			
86							3.3							
			85	100	59	43			T2-101	-81.13	86.55		IV	
							NI							
87									87.15	-81.73	87.15			
							>20				87.25		III	
			85	84	56	48	5.4		T2-101		87.62			
							>20			-82.54	87.96			
88							NR			-82.70	88.12		V	
							18.4		88.12				III	Moderately strong, pink (5YR 8/3) mottled brown, spotted white, moderately decomposed medium grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar and rough undulating, iron and manganese oxide stained and kaolin coated, dipping at 5° to 15°, 45° to 55° and 65° to 75°.
			85	100	81	59	4.2		T2-101		88.50			
89										-83.80	89.22			
06.09.2013		5.30 at 1600												End of hole at 89.22 m.
90														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **10.09.2013**

CHECKED **R. Chu**

DATE **12.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH27**

SHEET 1 of 8

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838260.80** N **821247.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD10**		DATE **24.08.2013** to **30.08.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.30** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
24.08.2013	SW								0.00	+5.30	0.00			Angular to subangular, grey (7.5YR6/1) and light brownish grey (10YR6/2), slightly silty sandy fine to coarse GRAVEL of rock fragments and with some concrete fragments and occasional refuse fragments. (FILL)
									0.45					
									0.95					
									1.45	+3.80	1.50			Reddish yellow (7.5YR 6/8), clayey sandy SILT with much angular to subangular fine to medium gravel of rock and quartz fragments. (FILL)
									1.95					
									2.50	+2.80	2.50			Angular to subangular. light grey (10YR 7/1), medium to coarse GRAVEL and some cobble of rock fragments and with some concrete, tile and refuse fragments. (FILL)
			0	70					T6-146 3.00					
			0	63					T6-146 3.80					
			0	72					T6-146 4.40					
			0	59					T6-146 5.40					
			0	80					T6-146 6.00	-0.70	6.00			Angular to subangular, light grey (10YR 7/1) and white (2.5Y 8/1), clayey silty sandy fine to coarse GRAVEL of quartz fragments and with some shell fragments. (FILL)
			0	0					7.00	-1.80	7.10			
				89				B=31	7.10					Stiff, light bluish grey (5B 7/1) striped brown and yellowish brown, clayey sandy SILT with occasional angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
				100				B=52	7.55					
								1,1 2,2,2,3 N=9	8.00 8.05					
									8.45					
			0	0					9.10	-3.80	9.10			Medium dense, light grey (7.5YR 7/1) dappled red and yellow, silty very clayey fine to coarse SAND with much angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
										-4.70	10.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
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- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **04.09.2013**

CHECKED **R. Chu**

DATE **05.09.2013**

REMARKS

1. An inspection pit was excavated to 2.50m deep by hand tools.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH27**

SHEET **2** of **8**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838260.80** N **821247.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD10**		DATE **24.08.2013** to **30.08.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.30** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
	SW 10.20m PW													A sheet 1 of 8.
				51				B=82	12 10.10	-4.90	10.20			Dense, light grey (10YR 7/1), slightly clayey silty fine to coarse SAND with some angular to subangular fine gravel of quartz fragments. (ALLUVIUM)
									13 10.20					
				100				B=133	14 10.65					
11									15 11.10					
								4,6 7,9,10,12 N=38	16 11.15					
		3.10 at 1800 24.08.2013							17 11.55					
		2.92 at 0800 26.08.2013												
12									18 12.20					
				29				B=42						
								B=79	19 12.65					
				100					20 13.10	-7.85	13.15			
13									21 13.15					Stiff, light grey (10YR 7/1), silty sandy CLAY. (ALLUVIUM)
								3,4 5,5,4,5 N=19	22 13.55					
14									23 14.20					
				100				B=118						
								B=106	24 14.65					
				100					25 15.10	-9.85	15.15			
15									26 15.15					Medium dense, light grey (10YR 7/1), clayey silty fine to medium SAND. (ALLUVIUM)
								3,4 4,4,2,3 N=13	27 15.55					
16										-10.90	16.20			
			40	83					28 16.20					Medium dense, light grey (5Y 7/1), clayey silty fine to coarse SAND with some angular to subangular fine to medium gravel of quartz fragments. (ALLUVIUM)
17									29 17.20					
								2,4 4,5,6,7 N=22	30 17.30					
									31 17.70					
18										-12.90	18.20			
									32 18.20					Medium dense, yellow (10YR 7/8), clayey silty fine to coarse SAND. (ALLUVIUM)
										-13.90	19.20			
19									33 19.20				V	Extremely weak, yellow (10YR 7/6) mottled red, spotted light grey, completely decomposed medium grained GRANITE. (Very stiff, clayey sandy SILT with some angular fine gravel of quartz fragments)
			40	80						-14.70	20.00			
20														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **04.09.2013**

CHECKED **R. Chu**

DATE **05.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH27**

SHEET **3** of **8**

PROJECT **Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**

METHOD	**ROTARY**	CO-ORDINATES E **838260.80** N **821247.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD10**		DATE **24.08.2013** to **30.08.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.30** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
													V	A sheet 2 of 8.
21			40	100				2,3 4,5,6,8 N=23	34 20.20 35 20.30 36 21.30 37 21.40 38 21.60 39 22.30	-15.00	20.30		V	Extremely weak, red (10R 5/8) dappled white and greyish brown, completely decomposed medium grained GRANITE. (Very stiff, slightly sandy very clayey SILT with some angular fine gravel of quartz fragments)
22														
23										-18.00	23.30			
24			40	100				2,3 4,5,8,9 N=27	40 23.30 41 24.30 42 24.40 43 24.80 44 25.30				V	Extremely weak, pink (5YR 8/3) mottled white, red and dark brown, completely decomposed medium grained GRANITE. (Very stiff, slightly clayey sandy SILT with some angular fine gravel of quartz fragments)
25														
26										-21.00	26.30			
27			40	100				4,5 8,10,13,15 N=46	45 26.30 46 27.30 47 27.40 48 27.80 49 28.30				V	Extremely weak, reddish yellow (5YR 7/8) mottled white, red and dark brown, completely decomposed medium grained GRANITE. (Very stiff, slightly clayey sandy SILT with some angular fine gravel of quartz fragments)
28														
29										-24.00	29.30			
30			40	100					50 29.30	-24.70	30.00		V	Extremely weak, pink (5YR 8/3) mottled white, red and dark brown, completely decomposed medium grained GRANITE. (Very stiff, slightly clayey sandy SILT with some angular fine gravel of quartz

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **04.09.2013**

CHECKED **R. Chu**

DATE **05.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH27**

SHEET 4 of 8

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 838260.80 N 821247.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD10		DATE 24.08.2013 to 30.08.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.30 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
26.08.2013 27.08.2013		0.60 at 1800 2.34 at 0800						5,7 9,10,14,17 N=50	51 30.30 52 30.40 53 30.80 54 31.30				V	fragments)
			70	100				8,9 13,21,30,35 N=99	55 32.30 56 33.30 57 33.40 58 33.80 59 34.30					
	PW 36.40m HW		70	96				5,7 8,11,16,25 N=60	60 35.30 61 36.30 62 36.40 63 36.80 64 37.30	-31.10	36.40		V	Extremely weak, pink (5YR 8/3) mottled white and brown, completely decomposed medium grained GRANITE. (Clayey silty fine to coarse SAND with much angular fine gravel of quartz fragments)
			70	93				50/75mm 100/75mm 100blr/75mm	65 38.30 66 39.30 39.40 67 39.50	-33.00	38.30		IV	Weak, pinkish white (7.5YR 8/2), highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
										-34.70	40.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U/76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 04.09.2013

CHECKED R. Chu

DATE 05.09.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2013/04**

HOLE NO. **BH27**

SHEET **5** of **8**

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	**ROTARY**	CO-ORDINATES E **838260.80** N **821247.90**	WORKS ORDER NO. **GE/2013/04.22**
MACHINE	**SD10**		DATE **24.08.2013** to **30.08.2013**
FLUSHING MEDIUM	**WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+5.30** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
									68 40.30				IV	A sheet 4 of 8.
41										-35.97	41.27			
									41.27				II	Strong, greyish pink spotted white and black, slightly decomposed medium grained GRANITE. (CORESTONE)
42			70	100	100	100			T2-101					From 43.25m to 43.50m: Moderately strong and moderately decomposed.
							0.9		42.75					
43			70	88	88	88			T2-101	-37.95	43.25		III	
27.08.2013		2.50 at 1600								-38.20	43.50			
28.08.2013		2.11 at 0800							69 43.50				V	Very weak, pink (5YR8/3) mottled white and dark greyish brown, completely decomposed medium grained GRANITE. (Slightly sandy silty fine to coarse SAND with some angular fine gravel of quartz fragments)
44			70	100					70 44.50 44.80					
								36,14/25mm 100/60mm 100bls/60mm	71 44.71					
45									72 45.50					
46														
									73 46.50					
47			70	100										
									74 47.50 47.60					
48								50/70mm 100/60mm 100bls/60mm	75 47.68					
									76 48.50	-43.20	48.50		IV	Weak, pinkish grey (7.5YR 7/2) spotted white, highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
49									49.40	-44.10	49.40			
										-44.26	49.56		III II	Strong, greyish pink spotted white and black, slightly decomposed medium grained GRANITE. (CORESTONE)
50			70	84	79	69	6.6		T2-101	-44.70	50.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED **L. Zhang**

DATE **04.09.2013**

CHECKED **R. Chu**

DATE **05.09.2013**

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH27**

SHEET 6 of 8

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 838260.80 N 821247.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD10		DATE 24.08.2013 to 30.08.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.30 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
							NR		T2-101	-44.86	50.16		II	From 49.40m to 49.56m: Moderately weak to moderately strong and moderately decomposed.
							NI		77 50.30	-45.00	50.30		V	
									50.40	-45.19	50.40		IV	From 50.16m to 50.30m and 50.85m to 51.00m: No recovery, assumed to be completely decomposed GRANITE.
			70	75	60	52	5.6		T2-101	-45.55	50.85		III	
							NR		78 51.00	-45.70	51.00		V	From 50.30m to 50.49m: Moderately weak and highly decomposed. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
51			70	100									IV	From 50.49m to 50.85m: Moderately strong and moderately decomposed.
								50/70mm 100/70mm 100bls/70mm	79 52.00 52.10 80 52.19					
52														
53									81 53.00					Weak, pinkish grey (7.5YR 7/2) spotted white and black, highly decomposed medium grained GRANITE. (Angular, slightly clayey silty sandy fine to medium GRAVEL of highly decomposed granite fragments)
54			70	100					82 54.00					
55								40,10/15mm 100/70mm 100bls/70mm	83 55.00 55.10 84 55.21					
56									85 56.00					
57			70	96					86 57.00					
58		0.83 at 1800						50/50mm 100/70mm 100bls/70mm	87 58.00 58.10 88 58.18					
28.08.2013 29.08.2013		2.08 at 0800												
59									89 59.00					
60										-54.70	60.00			

‡ SMALL DISTURBED SAMPLE
↓ STANDARD PENETRATION TEST
LARGE DISTURBED SAMPLE
V IN-SITU VANE SHEAR TEST
U76 SAMPLE
PACKER TEST
PISTON SAMPLE (76mm)
PERMEABILITY TEST
MAZIER SAMPLE
PRESSUREMETER TEST
SPT LINER SAMPLE
BOREHOLE TELEVIEWER
WATER SAMPLE
PIEZOMETER TIP
U100 SAMPLE
STANDPIPE TIP

LOGGED L. Zhang
DATE 04.09.2013
CHECKED R. Chu
DATE 05.09.2013

REMARKS

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH27**

SHEET 7 of 8

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 838260.80 N 821247.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD10		DATE 24.08.2013 to 30.08.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.30 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
														A sheet 6 of 8.
			70	78	64	61	NI 5.4 NR 13.8		T2-101	-54.83 -54.93 -55.30 -55.49	60.13 60.23 60.60 60.79		IV III V	Moderately strong, brownish pink, moderately decomposed medium grained GRANITE. (CORESTONE)
61			70	56	56	56	3.6 NR		61.00 T2-101	-55.98	61.00 61.28		III V	From 60.13m to 60.23m: Moderately weak and highly decomposed. (Angular, medium to coarse GRAVEL of highly decomposed granite fragments)
			70	83					91 61.50 92 61.90	-56.20	61.50		IV	From 60.60m to 60.79m and 61.28m to 61.50m: No recovery, assumed to be completely decomposed GRANITE.
62			70	52	52	38	7.7 NR		62.00 T2-101	-56.70 -56.96	62.00 62.26		III V	Weak to moderately weak, pinkish grey (7.5YR 7/2) spotted white, highly decomposed medium grained GRANITE. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
63			70	87					93 62.50 94 63.13	-57.20	62.50		IV	Moderately strong, greyish pink spotted white and black, moderately decomposed medium grained GRANITE. (CORESTONE)
			70	52	29	26	NI NR 12.0 NR		63.23 T2-101	-58.13 -58.26 -58.51 -58.80	63.23 63.43 63.56 63.81 64.10		IV V III V	From 62.26m to 62.50m: No recovery, assumed to be completely decomposed GRANITE.
64									95 64.15 64.25	-58.95	64.25		IV	Weak to moderately weak, pink (7.5YR 7/3) mottled brown, highly decomposed medium grained GRANITE. (Angular, medium to coarse GRAVEL of highly decomposed granite fragments)
			70	86	68	62	7.4 NI NR 3.6 NI		T2-101	-59.22 -59.32 -59.46 -59.74 -59.78	64.52 64.62 64.76 65.04 65.09		III IV V III IV	From 63.43m to 63.56m and 63.81m to 64.10m: No recovery, assumed to be completely decomposed GRANITE.
65			70	74	45	36	4.9 NI NR		65.28 T2-101	-60.20 -60.40 -60.58	65.50 65.70 65.88		III IV V	From 63.56m to 63.81m: Moderately strong and moderately decomposed.
29.08.2013		4.70 at 1800					7.4		65.97	-60.82	66.12		III	Moderately strong, greyish pink spotted white and dark brown, moderately decomposed medium grained GRANITE. (CORESTONE)
30.08.2013		1.88 at 0800	70	66	33	33	NI NR		T2-101 66.42	-60.97 -61.12	66.27 66.42		IV V	
67			70	100	100	88	7.1 >20 10.0		T2-101 67.46		66.84 67.09		III	From 64.52m to 64.62m, 65.04m to 65.09m, 65.50m to 65.70m and 66.12m to 66.27m: Weak to moderately weak and highly decomposed. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
68			70	100	43	14	>20		T2-101 68.44		67.69 68.44			From 64.62m to 64.76m, 65.70m to 65.88m and 66.27m to 66.42m: No recovery, assumed to be completely decomposed GRANITE.
			70	100	70	66	4.1		T2-101		68.93		IV	Moderately strong, greyish pink spotted white and black, moderately decomposed medium grained GRANITE. (CORESTONE)
69	HW 69.18m						NI		69.18	-63.63 -63.94	69.24			From 67.69m to 67.88m: Moderately weak to moderately strong and moderately decomposed.
			70	99	87	77	4.9		T2-101	-64.40 -64.52 -64.79	69.70 69.82 70.00		III II III	From 68.93m to 69.24m: Moderately weak and highly decomposed. (Angular, fine to coarse GRAVEL and COBBLE of highly decomposed granite fragments)
70														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 04.09.2013

CHECKED R. Chu

DATE 05.09.2013

REMARKS

DRILTECH

DRILLHOLE RECORD

CONTRACT NO. GE/2013/04

HOLE NO. **BH27**

SHEET 8 of 8

PROJECT Ground Investigation - Urban (Term Contract), Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

METHOD	ROTARY	CO-ORDINATES E 838260.80 N 821247.90	WORKS ORDER NO. GE/2013/04.22
MACHINE	SD10		DATE 24.08.2013 to 30.08.2013
FLUSHING MEDIUM	WATER	ORIENTATION VERTICAL	GROUND LEVEL +5.30 mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
										-64.61	70.11		III	
									T2-101	-65.13	70.43		IV	Strong, greyish pink spotted white and black, slightly decomposed medium grained GRANITE. Joints are closely to medium spaced, occasionally very closely spaced, rough planar and rough undulating, iron and manganese oxide stained, dipping at 0° to 10°, 40° to 50° and 65° to 75°.
									-70.08				II	
71										-65.92	71.22		III	From 69.18m to 69.70m, 69.82m to 70.43m, 71.22m to 71.57m, 72.18m to 72.68m, 73.05m to 73.16m and 73.48m to 73.80m: Moderately strong and moderately decomposed.
			70	100	100	87			T2-101	-66.27	71.57		II	
72							4.9		-72.18	-66.88	72.18		III	From 70.06m to 70.11m: Weak and highly decomposed. (Angular, slightly sandy fine to coarse GRAVEL of highly decomposed granite fragments)
										-67.38	72.68		II	
73			70	100	96	88			T2-101	-67.75	73.05		III	
										-67.86	73.16		II	
									-73.64	-68.18	73.48		III	
										-68.50	73.80		II	
74			70	100	98	98	0.0		T2-101					
30.08.2013		2.14 at 1800								-69.26	74.56			
														End of hole at 74.56 m.
75														
76														
77														
78														
79														
80														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- U100 SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- BOREHOLE TELEVIEWER
- PIEZOMETER TIP
- STANDPIPE TIP

LOGGED L. Zhang

DATE 04.09.2013

CHECKED R. Chu

DATE 05.09.2013

REMARKS

Appendix D

Core Box Photographs of Drillhole

DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH4

BOX NO. : 1 OF 1

DEPTH : 0.00 m TO 4.20 m

DATE OF PHOTOGRAPH: 9/10/2013



DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 5

BOX NO. : 1 OF 4

DEPTH : 0.00 m TO 12.90 m

DATE OF PHOTOGRAPH: 9/10/2013




DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22
JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)
HOLE NO. : BH 5
BOX NO. : 2 OF 4
DEPTH : 12.90 m TO 28.50 m
DATE OF PHOTOGRAPH: 9/10/2013
KODAK Color Control Patches
0m
1.0m
12.90
28.50

DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 5

BOX NO. : 3 OF 4

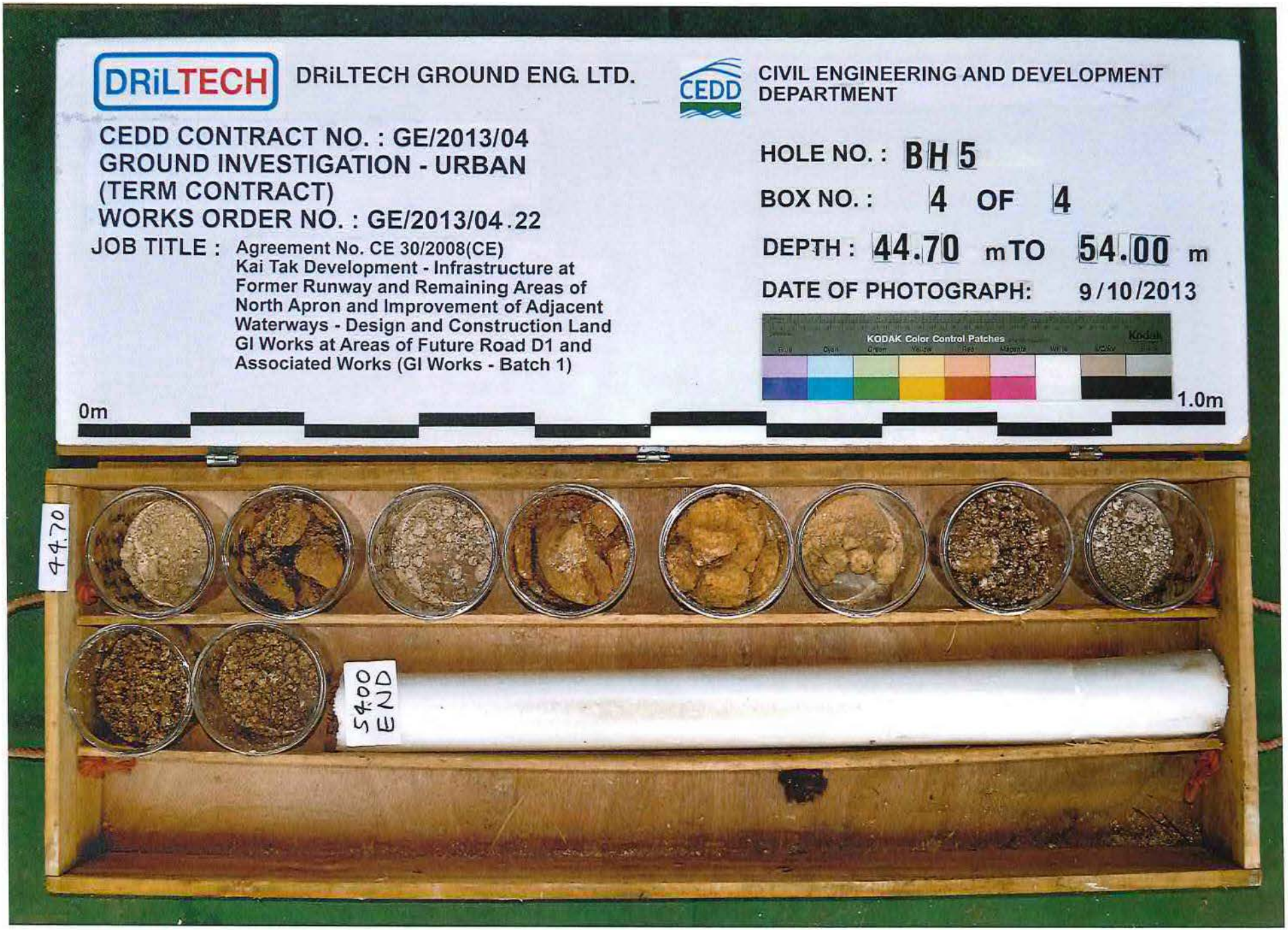
DEPTH : 28.50 m TO 44.70 m

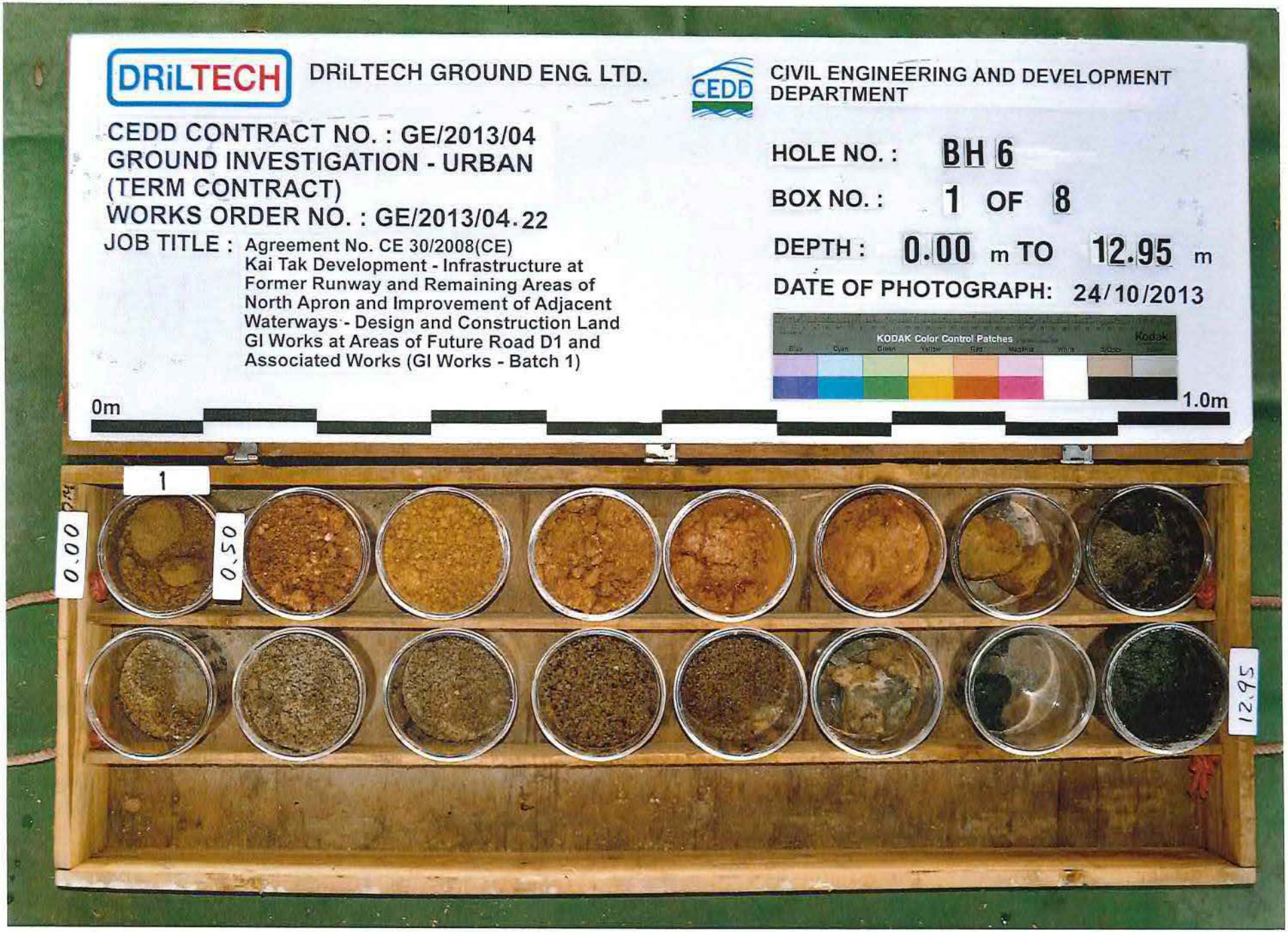
DATE OF PHOTOGRAPH: 9/10/2013



0m 1.0m




DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22
JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)
HOLE NO. : BH 5
BOX NO. : 4 OF 4
DEPTH : 44.70 m TO 54.00 m
DATE OF PHOTOGRAPH: 9/10/2013
KODAK Color Control Patches
0m
1.0m
44.70
54.00
END


DRiLTECH
DRiLTECH GROUND ENG. LTD.
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22
JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at
Former Runway and Remaining Areas of
North Apron and Improvement of Adjacent
Waterways - Design and Construction Land
GI Works at Areas of Future Road D1 and
Associated Works (GI Works - Batch 1)
HOLE NO. : BH 6
BOX NO. : 1 OF 8
DEPTH : 0.00 m TO 12.95 m
DATE OF PHOTOGRAPH: 24/10/2013
KODAK Color Control Patches
0m
1.0m
1
0.00
0.50
12.95

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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 6

BOX NO. : 2 OF 8

DEPTH : 12.95 m TO 28.65 m

DATE OF PHOTOGRAPH: 24/10/2013



0m 1.0m


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WORKS ORDER NO. : GE/2013/04.22
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Waterways - Design and Construction Land
GI Works at Areas of Future Road D1 and
Associated Works (GI Works - Batch 1)
HOLE NO. : BH 6
BOX NO. : 3 OF 8
DEPTH : 28.65 m TO 44.27 m
DATE OF PHOTOGRAPH: 24/10/2013
KODAK Color Control Patches
0m
1.0m
28.65
44.27


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HOLE NO. : BH 6
BOX NO. : 4 OF 8
DEPTH : 44.27 m TO 60.25 m
DATE OF PHOTOGRAPH: 24/10/2013
KODAK Color Control Patches
0m
1.0m
44.27
60.25

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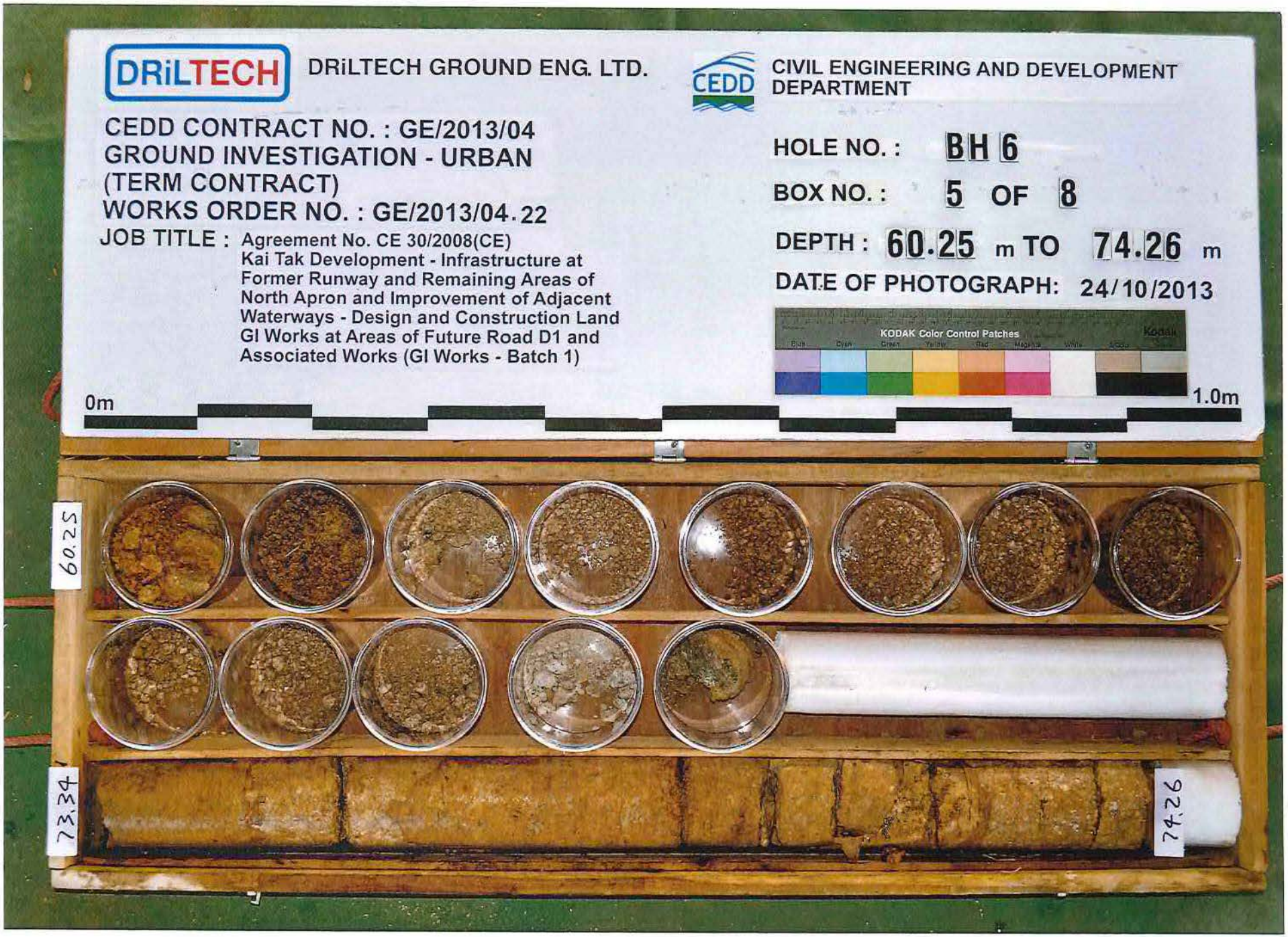
HOLE NO. : BH 6

BOX NO. : 5 OF 8

DEPTH : 60.25 m TO 74.26 m

DATE OF PHOTOGRAPH: 24/10/2013



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HOLE NO. : BH 6

BOX NO. : 6 OF 8

DEPTH : 74.26 m TO 77.14 m

DATE OF PHOTOGRAPH: 24/10/2013



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HOLE NO. : BH 6

BOX NO. : 7 OF 8

DEPTH : 77.14 m TO (79.76) m

DATE OF PHOTOGRAPH: 24/10/2013




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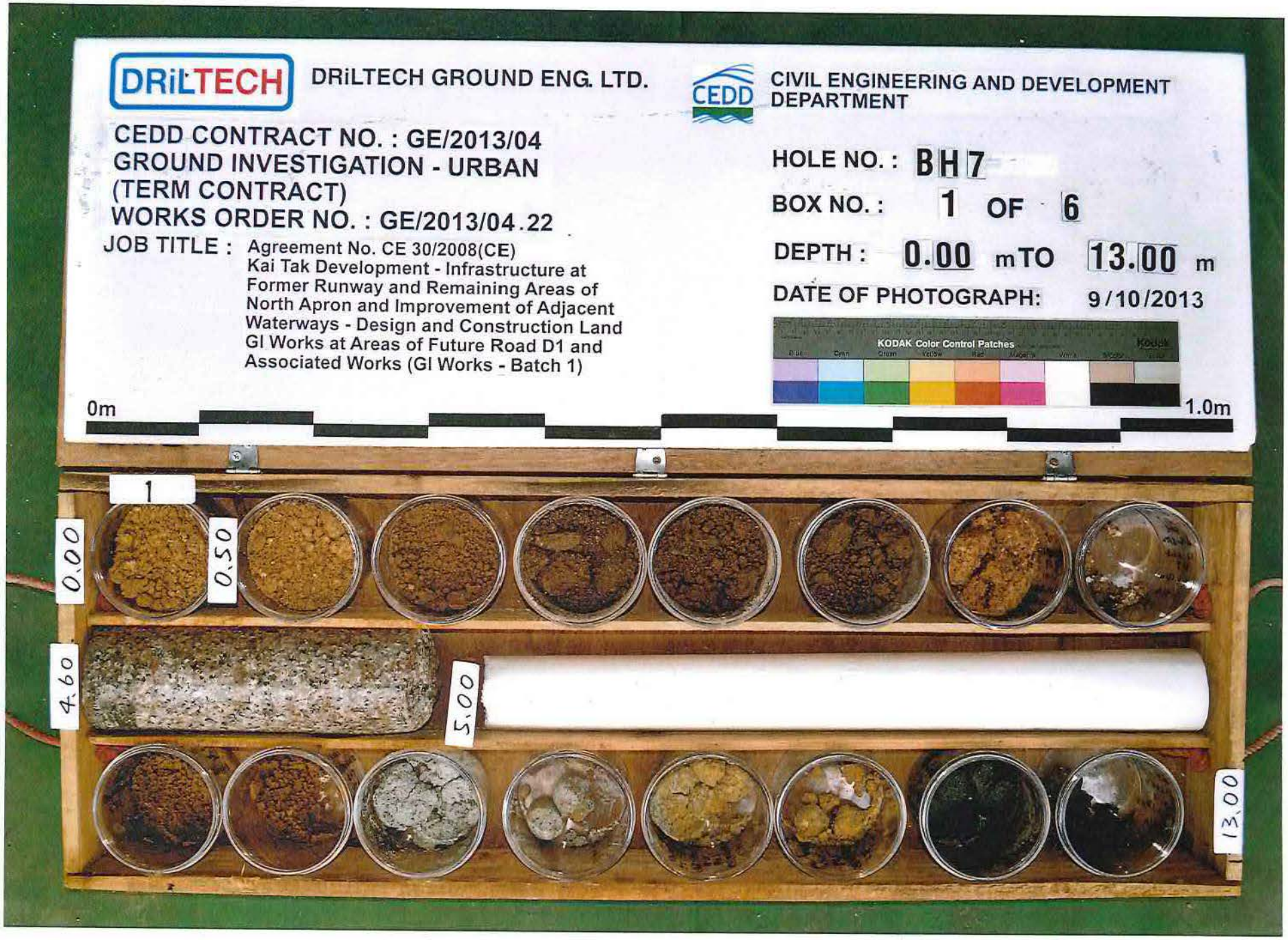
HOLE NO. : BH 6
BOX NO. : 8 OF 8
DEPTH : (79.76) m TO 82.48 m
DATE OF PHOTOGRAPH: 24/10/2013
KODAK Color Control Patches
0m
1.0m
Cont'd
(79.76)
81.05
82.48
END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CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
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HOLE NO. : BH7
BOX NO. : 1 OF 6
DEPTH : 0.00 m TO 13.00 m
DATE OF PHOTOGRAPH: 9/10/2013
KODAK Color Control Patches
0m
1.0m
1
0.00
0.50
4.60
5.00
13.00

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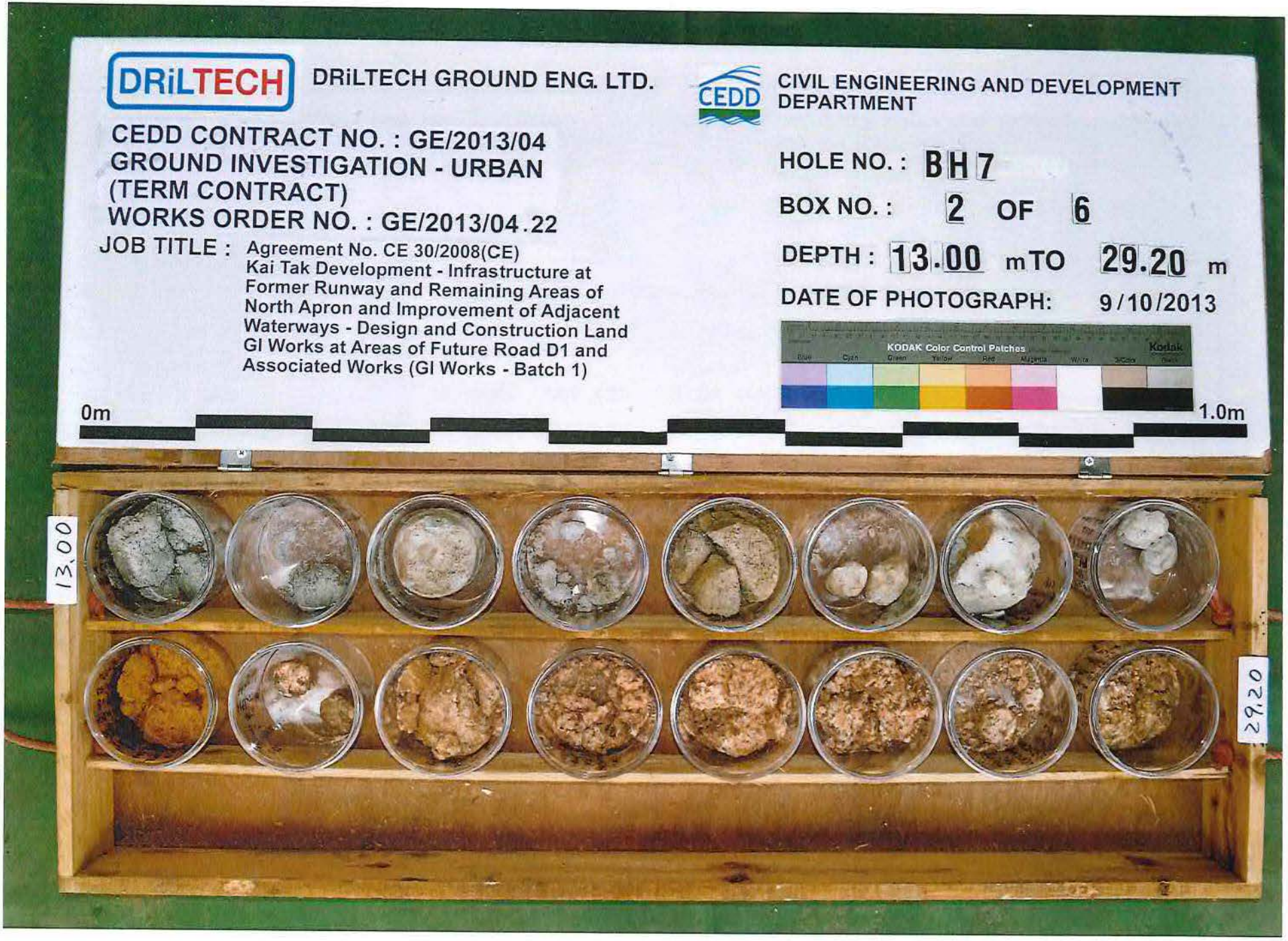
HOLE NO. : BH7

BOX NO. : 2 OF 6

DEPTH : 13.00 m TO 29.20 m

DATE OF PHOTOGRAPH: 9/10/2013



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HOLE NO. : BH7

BOX NO. : 3 OF 6

DEPTH : 29.20 mTO 45.20 m

DATE OF PHOTOGRAPH: 9/10/2013



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HOLE NO. : BH7

BOX NO. : 4 OF 6

DEPTH : 45.20 m TO 61.40 m

DATE OF PHOTOGRAPH: 9/10/2013



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HOLE NO. : BH7

BOX NO. : 5 OF 6

DEPTH : 61.40 m TO 77.40 m

DATE OF PHOTOGRAPH: 9/10/2013




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HOLE NO. : BH7
BOX NO. : 6 OF 6
DEPTH : 77.40 m TO 88.80 m
DATE OF PHOTOGRAPH: 9/10/2013
KODAK Color Control Patches
0m
1.0m
77.40
88.80
END

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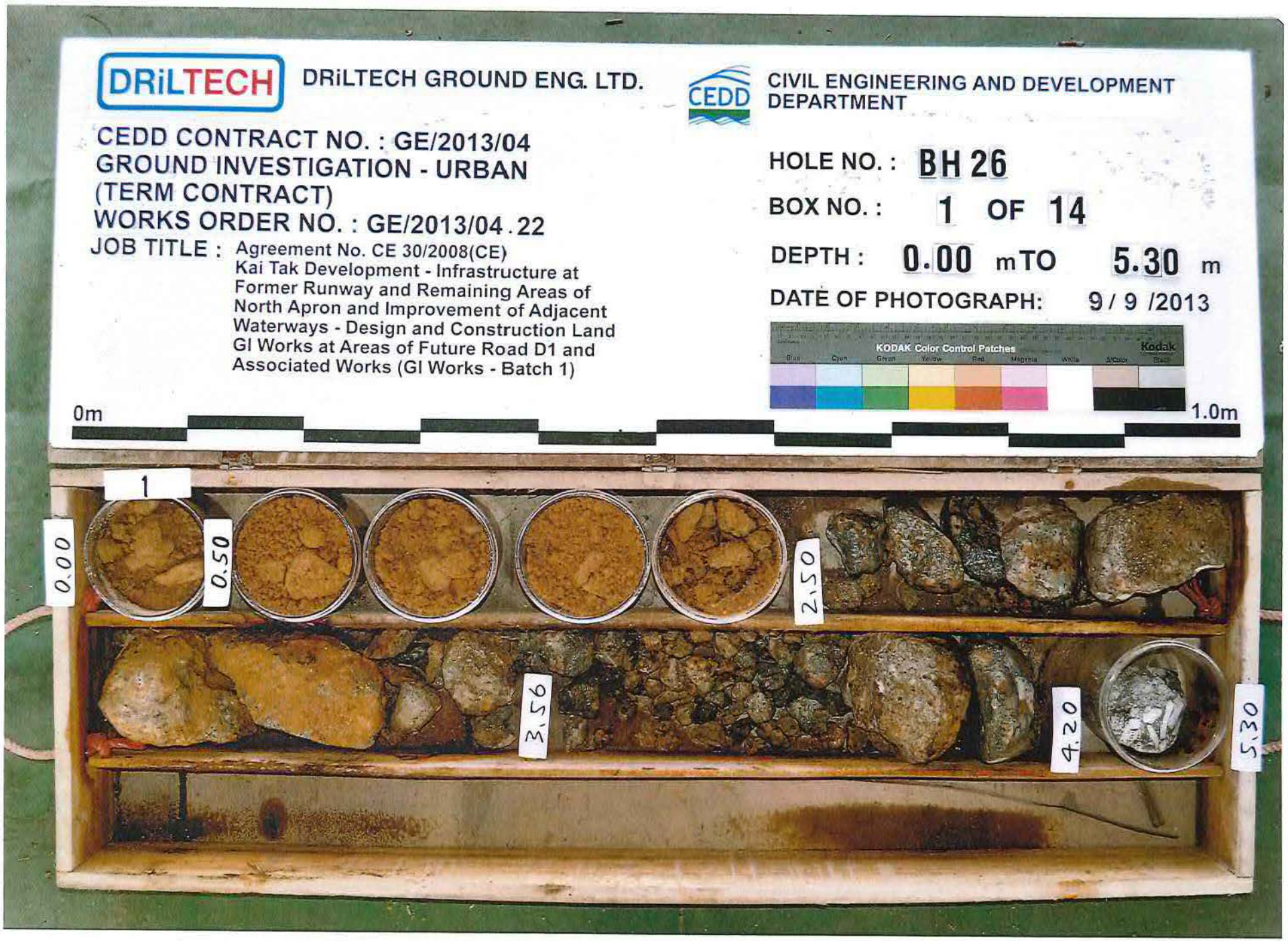
HOLE NO. : BH 26

BOX NO. : 1 OF 14

DEPTH : 0.00 m TO 5.30 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 2 OF 14

DEPTH : 5.30 m TO 17.10 m

DATE OF PHOTOGRAPH: 9 / 9 /2013

KODAK Color Control Patches

0m 1.0m



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HOLE NO. : BH 26

BOX NO. : 3 OF 14

DEPTH : 17.10 m TO 33.20 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



0m 1.0m

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HOLE NO. : BH 26

BOX NO. : 4 OF 14

DEPTH : 33.20 mTO 49.30 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 5 OF 14

DEPTH : 49.30 m TO 59.00 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 6 OF 14

DEPTH : 59.00 mTO 66.75 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 7 OF 14

DEPTH : 66.75 m TO 70.80 m

DATE OF PHOTOGRAPH: 9 / 9 /2013




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North Apron and Improvement of Adjacent
Waterways - Design and Construction Land
GI Works at Areas of Future Road D1 and
Associated Works (GI Works - Batch 1)
HOLE NO. : BH 26
BOX NO. : 8 OF 14
DEPTH : 70.80 m TO 74.16 m
DATE OF PHOTOGRAPH: 9 / 9 /2013
KODAK Color Control Patches
0m
1.0m
70.80
70.90
NR
71.40
72.50
73.17
74.16


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HOLE NO. : BH 26
BOX NO. : 9 OF 14
DEPTH : 74.16 mTO 77.30 m
DATE OF PHOTOGRAPH: 9 / 9 /2013
KODAK Color Control Patches
Kodak
0m
1.0m
74.16
NR
74.76~75.10
75.10
75.60
76.62
77.30

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HOLE NO. : BH 26

BOX NO. : 10 OF 14

DEPTH : 77.30 mTO 79.37 m

DATE OF PHOTOGRAPH: 9 / 9 /2013




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HOLE NO. : BH 26
BOX NO. : 11 OF 14
DEPTH : 79.37 m TO 82.00 m
DATE OF PHOTOGRAPH: 9 / 9 /2013
KODAK Color Control Patches
0m
1.0m
79.37
80.54
NR
81.03~81.14
82.00

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HOLE NO. : BH 26

BOX NO. : 12 OF 14

DEPTH : 82.00 m TO 84.49 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 13 OF 14

DEPTH : 84.49 m TO 87.15 m

DATE OF PHOTOGRAPH: 9 / 9 /2013



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HOLE NO. : BH 26

BOX NO. : 14 OF 14

DEPTH : 87.15 m TO 89.22 m

DATE OF PHOTOGRAPH: 9 / 9 /2013




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HOLE NO. : BH 27
BOX NO. : 1 OF 10
DEPTH : 0.00 m TO 5.40 m
DATE OF PHOTOGRAPH: 2 / 9 /2013
KODAK Color Control Patches
0m
1.0m
1
0.00
0.50
2.50
3.00
3.80
4.40
5.40

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HOLE NO. : BH 27

BOX NO. : 2 OF 10

DEPTH : 5.40 m TO 17.30 m

DATE OF PHOTOGRAPH: 2 / 9 /2013

KODAK Color Control Patches

0m 1.0m



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HOLE NO. : BH 27

BOX NO. : 3 OF 10

DEPTH : 17.30 m TO 33.40 m

DATE OF PHOTOGRAPH: 2 / 9 /2013



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HOLE NO. : BH 27

BOX NO. : 4 OF 10

DEPTH : 33.40 m TO (43.25) m

DATE OF PHOTOGRAPH: 2 / 9 /2013




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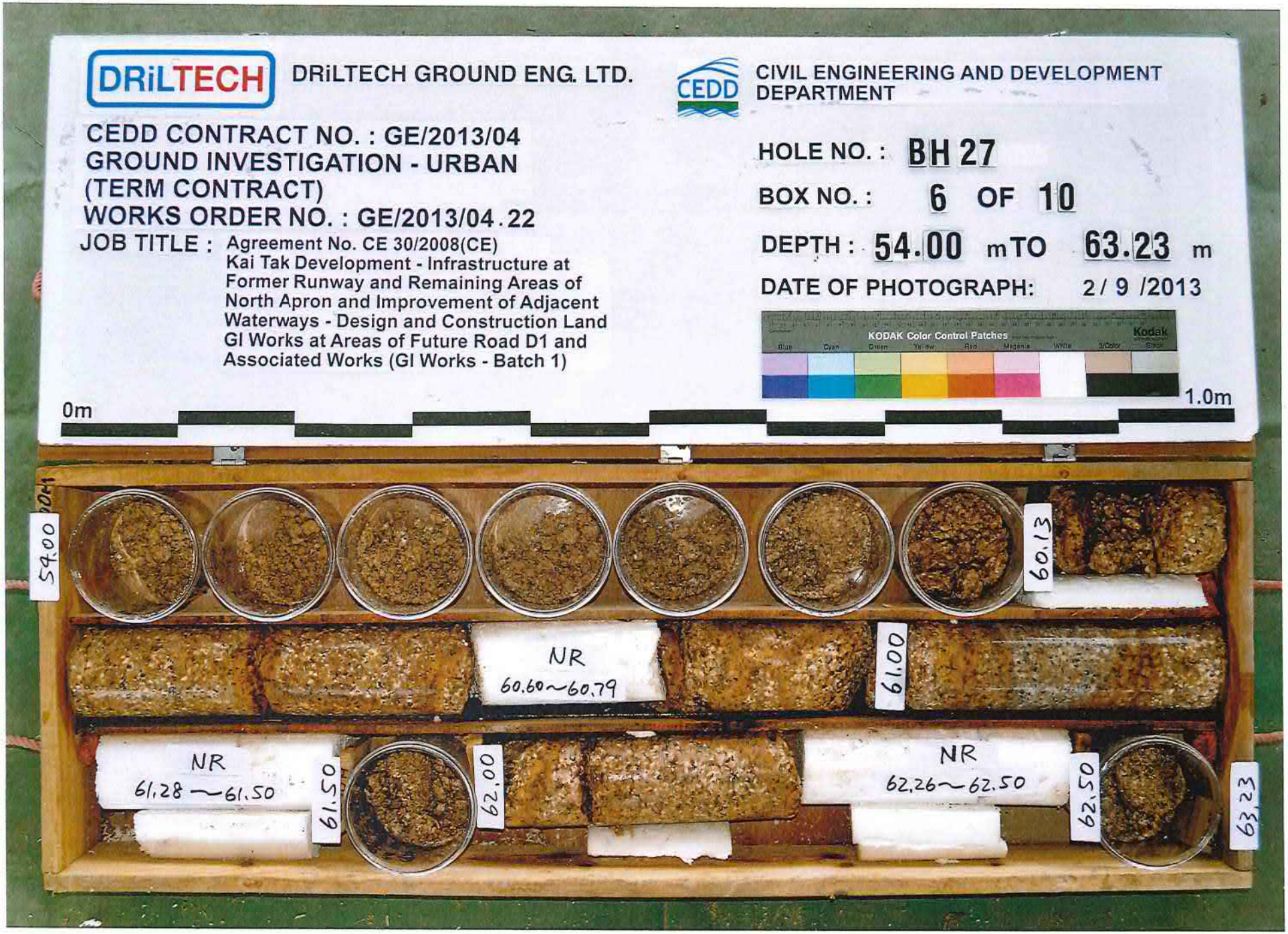
HOLE NO. : BH 27
BOX NO. : 5 OF 10
DEPTH : (43.25) m TO 54.00 m
DATE OF PHOTOGRAPH: 2 / 9 /2013
KODAK Color Control Patches
Kodak
0m
1.0m
Cont'd
(43.25)
43.50
49.40
NR
50.16~50.30
50.30
50.40
NR
50.85~51.00
51.00
54.00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HOLE NO. : BH 27
BOX NO. : 6 OF 10
DEPTH : 54.00 mTO 63.23 m
DATE OF PHOTOGRAPH: 2/9/2013
KODAK Color Control Patches
Kodak
0m
1.0m
54.00
60.13
NR
60.60~60.79
61.00
NR
61.28~61.50
61.50
62.00
NR
62.26~62.50
62.50
63.23

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GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 27

BOX NO. : 7 OF 10

DEPTH : 63.23 m TO (66.27) m

DATE OF PHOTOGRAPH: 2 / 9 /2013



DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 27

BOX NO. : 8 OF 10

DEPTH : (66.27) m TO (69.04) m

DATE OF PHOTOGRAPH: 2 / 9 /2013



DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 27

BOX NO. : 9 OF 10

DEPTH : (69.04) m TO (71.75) m

DATE OF PHOTOGRAPH: 2 / 9 /2013



DRiLTECH GROUND ENG. LTD.

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CEDD CONTRACT NO. : GE/2013/04
GROUND INVESTIGATION - URBAN
(TERM CONTRACT)
WORKS ORDER NO. : GE/2013/04.22

JOB TITLE : Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

HOLE NO. : BH 27

BOX NO. : 10 OF 10

DEPTH : (71.75) m TO 74.56 m

DATE OF PHOTOGRAPH: 2 / 9 /2013



Appendix E

Constant Head Permeability Test Results

DRiLTECH

CONSTANT HEAD PERMEABILITY TEST RECORD

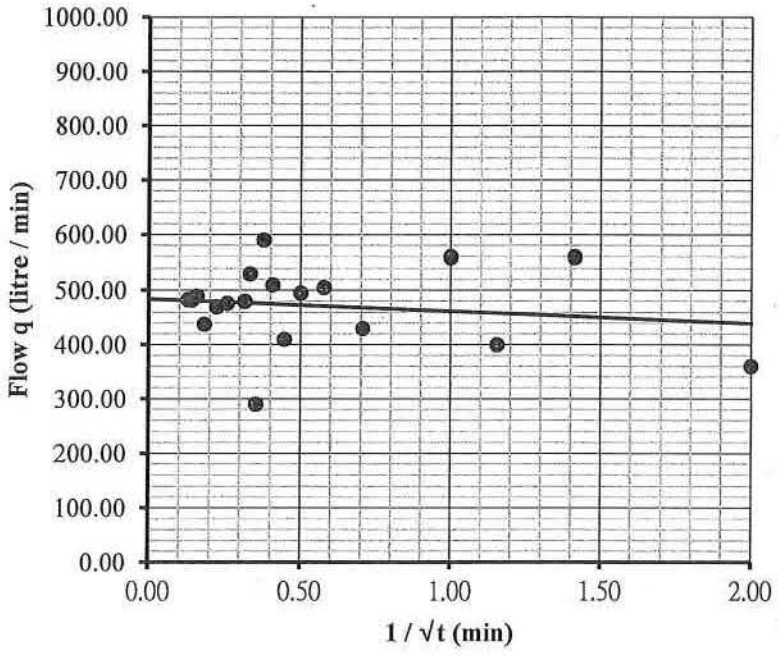
Drillhole No. **BH 5**

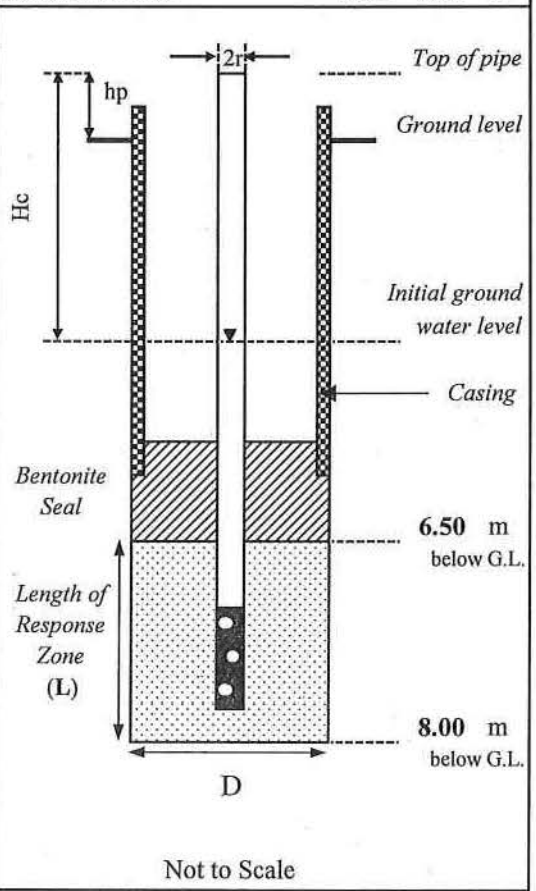
Contract No. : GE/2013/04
Works Order No. : GE/2013/04.22
Project :
Agreement No. CE 30/2008(CE)
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)
Test Supervised By : W.K. Wong
Flowmeter I.D. : DT-018-023

Date of Test : 25-Sep-13
Co-ordinates :
E : 837880.22
N : 821136.47
Ground Level : +5.83 mPD
Test Zone : 6.50 m to 8.00 m
Initial Water Level : 2.11 m below G.L.

Elapsed Time t (min)		1/√t (min)		Intake Flow Q (litre)		Flow q dQ/dt (litre / min)	
0	15	0.00	0.26	5900.0	12990.0	0.00	476.00
0.25	20	2.00	0.22	5990.0	15340.0	360.00	470.00
0.50	25	1.41	0.20	6130.0	17120.0	560.00	356.00
0.75	30	1.15	0.18	6230.0	19310.0	400.00	438.00
1	40	1.00	0.16	6370.0	24200.0	560.00	489.00
2	50	0.71	0.14	6800.0	29020.0	430.00	482.00
3	60	0.58	0.13	7305.0	33850.0	505.00	483.00
4		0.50		7800.0		495.00	
5		0.45		8210.0		410.00	
6		0.41		8720.0		510.00	
7		0.38		9310.0		590.00	
8		0.35		9600.0		290.00	
9		0.33		10130.0		530.00	
10		0.32		10610.0		480.00	

Internal diameter of the pipe	2r	=	0.040 m
Internal diameter of the drillhole	D	=	0.141 m
Length of test zone	L	=	1.50 m
Length of stick out of the pipe	hp	=	0.62 m
Constant water head	Hc	=	2.73 m





Not to Scale

Intake Factor

$$F = \frac{2.4\pi L}{\mathrm{Ln}[1.2L/D + \sqrt{(1+(1.2L/D)^2)}]}$$

F = **3.49** m

From the graph, when t tends to infinity (i.e. When 1/ √t tends to zero)

q = **484.67** l / min

which q = **8.08E-03** m^3 / sec

Permeability

k = q / (F Hc)

k = **8.48E-04** m/s

Filter Material : Marble Stone

Material Surrounding Response Zone :

From 6.50m to 8.00m: ALLUVIUM (Fine to coarse SAND)

Remarks :

Checked by : R. Chu
Date : 25-Sep-13

DRiLTECH

CONSTANT HEAD PERMEABILITY TEST RECORD

Drillhole No. **BH 5**

Contract No. : GE/2013/04
Works Order No. : GE/2013/04.22
Project :
Agreement No. CE 30/2008(CE)
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

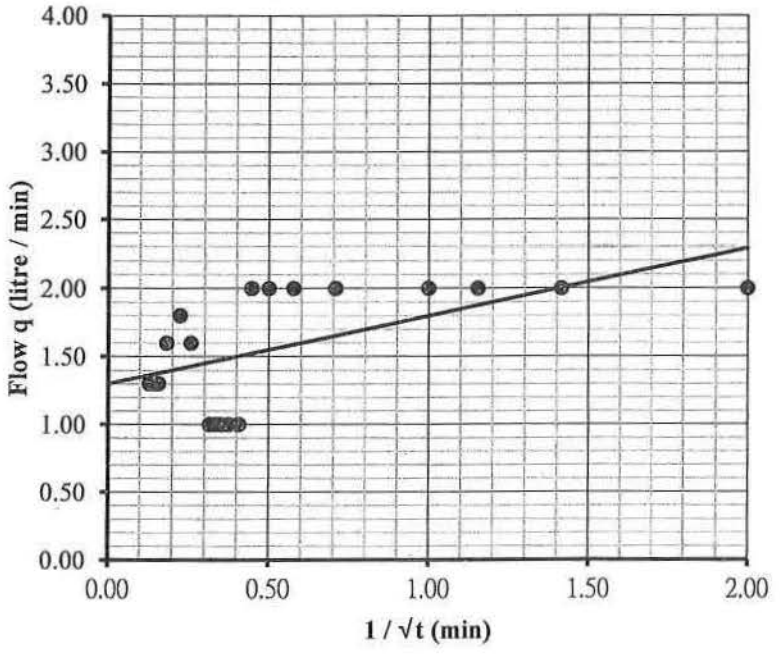
Test Supervised By : W.K. Wong
Flowmeter I.D. : DT-018-023

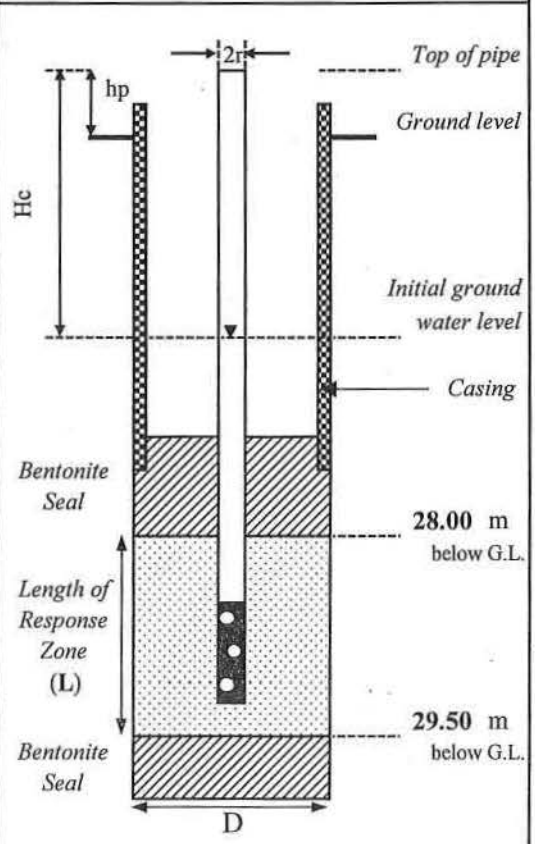
Date of Test : 02-Oct-13
Co-ordinates :
E : 837880.22
N : 821136.47

Ground Level : +5.83 mPD
Test Zone : 28.00 m to 29.50 m
Initial Water Level : 2.62 m below G.L.

Elapsed Time t (min)		1/√t (min)		Intake Flow Q (litre)		Flow q dQ/dt (litre / min)	
0	15	0.00	0.26	274.0	297.0	0.00	1.60
0.25	20	2.00	0.22	274.5	306.0	2.00	1.80
0.50	25	1.41	0.20	275.0	315.0	2.00	1.80
0.75	30	1.15	0.18	275.5	323.0	2.00	1.60
1	40	1.00	0.16	276.0	336.0	2.00	1.30
2	50	0.71	0.14	278.0	349.0	2.00	1.30
3	60	0.58	0.13	280.0	362.0	2.00	1.30
4		0.50		282.0		2.00	
5		0.45		284.0		2.00	
6		0.41		285.0		1.00	
7		0.38		286.0		1.00	
8		0.35		287.0		1.00	
9		0.33		288.0		1.00	
10		0.32		289.0		1.00	

Internal diameter of the pipe	2r =	0.040 m
Internal diameter of the drillhole	D =	0.118 m
Length of test zone	L =	1.50 m
Length of stick out of the pipe	hp =	0.48 m
Constant water head	Hc =	3.10 m





Not to Scale

Intake Factor

$$F = \frac{2.4\pi L}{\mathrm{Ln}[1.2L/D + \sqrt{(1+(1.2L/D)^2)}]}$$

F = **3.31** m

From the graph, when t tends to infinity (i.e. When 1/ √t tends to zero)

q = **1.30** l / min

which q = **2.17E-05** m^3 / sec

Permeability

k = q / (F Hc)

k = **2.11E-06** m/s

Filter Material : Marble Stone

Material Surrounding Response Zone :

From 28.00m to 29.50m: Grade V GRANITE (Clayey sandy SILT)

Remarks :

Checked by : R. Chu
Date : 02-Oct-13

DRiLTECH

CONSTANT HEAD PERMEABILITY TEST RECORD

Drillhole No. **BH 6**

Contract No. : GE/2013/04
Works Order No. : GE/2013/04.22
Project :
Agreement No. CE 30/2008(CE)
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

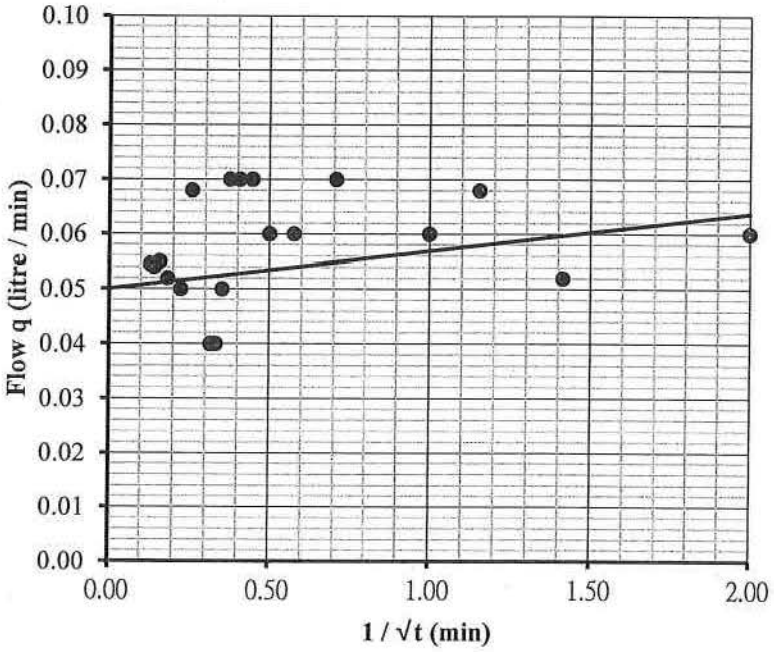
Test Supervised By : W.K. Wong
Flowmeter I.D. : DT-018-023

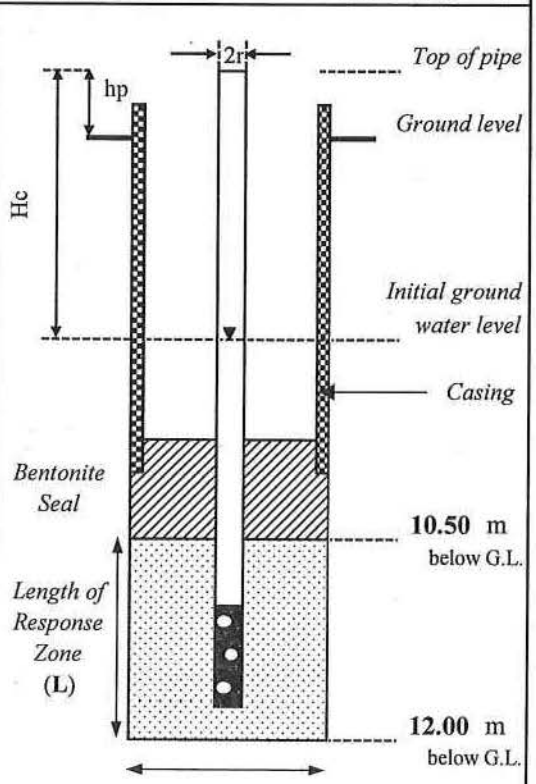
Date of Test : 11-Oct-13
Co-ordinates :
E : 837847.96
N : 821118.61

Ground Level : +5.98 mPD
Test Zone : 10.50 m to 12.00 m
Initial Water Level : 2.23 m below G.L.

Elapsed Time t (min)		1/√t (min)		Intake Flow Q (litre)		Flow q dQ/dt (litre / min)	
0	15	0.00	0.26	0.000	0.930	0.00	0.07
0.25	20	2.00	0.22	0.015	1.180	0.06	0.05
0.50	25	1.41	0.20	0.028	1.500	0.05	0.06
0.75	30	1.15	0.18	0.045	1.760	0.07	0.05
1	40	1.00	0.16	0.060	2.310	0.06	0.06
2	50	0.71	0.14	0.130	2.850	0.07	0.05
3	60	0.58	0.13	0.190	3.395	0.06	0.05
4		0.50		0.250		0.06	
5		0.45		0.320		0.07	
6		0.41		0.390		0.07	
7		0.38		0.460		0.07	
8		0.35		0.510		0.05	
9		0.33		0.550		0.04	
10		0.32		0.590		0.04	

Internal diameter of the pipe	2r	=	0.040 m
Internal diameter of the drillhole	D	=	0.141 m
Length of test zone	L	=	1.50 m
Length of stick out of the pipe	hp	=	1.00 m
Constant water head	Hc	=	3.23 m





Not to Scale

Intake Factor

$$F = \frac{2.4\pi L}{\mathrm{Ln}[1.2L/D + \sqrt{(1+(1.2L/D)^2)}]}$$

F = **3.49** m

From the graph, when t tends to infinity (i.e. When 1/ √t tends to zero)

q = **0.05** l / min

which q = **8.33E-07** m^3 / sec

Permeability

k = q / (F Hc)

k = **7.39E-08** m/s

Filter Material : Marble Stone

Material Surrounding Response Zone :

From 10.50m to 12.00m: ALLUVIUM (Silty sandy CLAY / Clayey sandy SILT)

Remarks :

Checked by : R. Chu
Date : 11-Oct-13

DRiLTECH

CONSTANT HEAD PERMEABILITY TEST RECORD

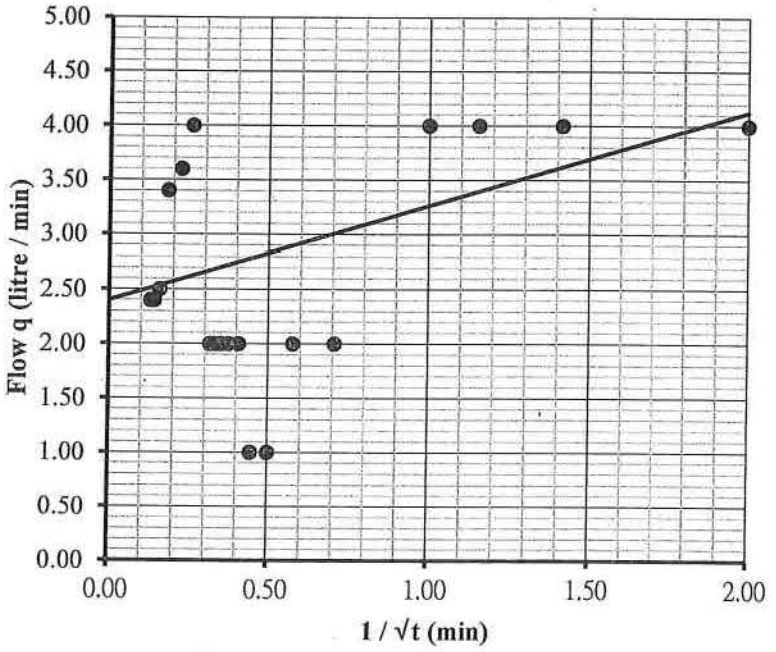
Drillhole No. **BH 6**

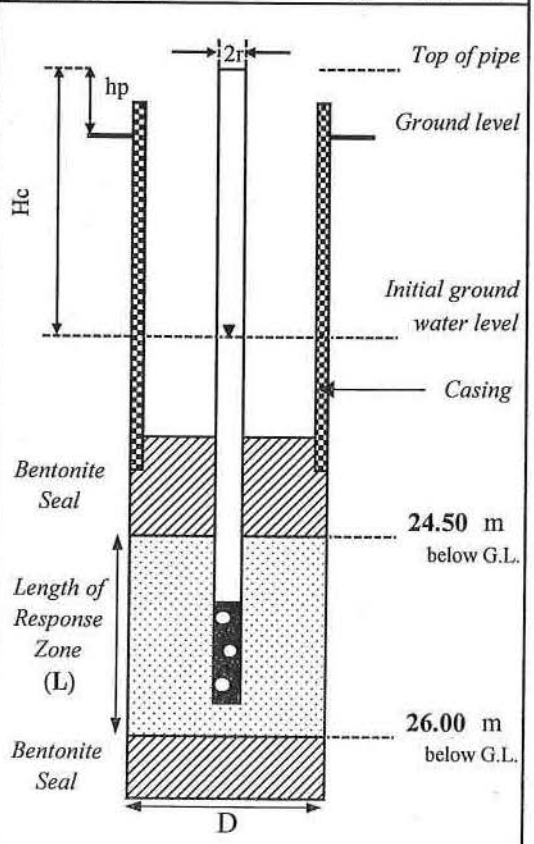
Contract No. : GE/2013/04
Works Order No. : GE/2013/04.22
Project :
Agreement No. CE 30/2008(CE)
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)
Test Supervised By : W.K. Wong
Flowmeter I.D. : DT-018-023

Date of Test : 12-Oct-13
Co-ordinates :
E : 837847.96
N : 821118.61
Ground Level : +5.98 mPD
Test Zone : 24.50 m to 26.00 m
Initial Water Level : 2.88 m below G.L.

Elapsed Time t (min)		1/√t (min)		Intake Flow Q (litre)		Flow q dQ/dt (litre / min)	
0	15	0.00	0.26	690.0	730.0	0.00	4.00
0.25	20	2.00	0.22	691.0	748.0	4.00	3.60
0.50	25	1.41	0.20	692.0	765.0	4.00	3.40
0.75	30	1.15	0.18	693.0	782.0	4.00	3.40
1	40	1.00	0.16	694.0	807.0	4.00	2.50
2	50	0.71	0.14	696.0	831.0	2.00	2.40
3	60	0.58	0.13	698.0	855.0	2.00	2.40
4		0.50		699.0		1.00	
5		0.45		700.0		1.00	
6		0.41		702.0		2.00	
7		0.38		704.0		2.00	
8		0.35		706.0		2.00	
9		0.33		708.0		2.00	
10		0.32		710.0		2.00	

Internal diameter of the pipe	2r = 0.040	m
Internal diameter of the drillhole	D = 0.141	m
Length of test zone	L = 1.50	m
Length of stick out of the pipe	hp = 0.85	m
Constant water head	Hc = 3.73	m





Not to Scale

Intake Factor

$$F = \frac{2.4\pi L}{\ln[1.2L/D + \sqrt{(1+(1.2L/D)^2)}]}$$

F = **3.49** m

From the graph, when t tends to infinity (i.e. When 1/√t tends to zero)

q = **2.40** l / min

which q = **4.00E-05** m^3 / sec

Filter Material : Marble Stone

Material Surrounding Response Zone :

From 24.50m to 26.00m: Grade V GRANITE (Slightly sandy clayey SILT / Clayey sandy SILT)

Remarks :

Permeability

k = q / (F Hc)

k = 3.07E-06 m/s

Checked by : R. Chu
Date : 12-Oct-13

Appendix F

Pressuremeter Test Results

PRESSUREMETER TEST

Client	: DrilTech Ground Engineering Ltd		Project No.	:	13 0062 04
Project	: Contract No. GE/2013/04 Ground Investigation – Urban (Term Contract)		Equipment Type	:	APAGEO
			Drillhole No.	:	BH5
Works Order No.	: GE/2013/04.22				
Location	: Kowloon City				
Test Date	: 26-09-2013				
Test Time	: 9:30				
Weather	: Fine				
Operator	: AN				

DRILLHOLE INFORMATION

Test Depth	:	from 10.35 m to 10.68 m
Drilling tool diameter	:	76 mm
Drilling tool	:	Fugro Sampler
Drilling fluid	:	Water
Water level below GL	:	2.12 m
Soil description	:	Light yellowish brown, clayey silty fine to coarse SAND. (ALLUVIUM)

PRESSUREMETER SETTING

Gauge no.	:	F0013
Probe no.	:	PM-FGS2
Probe diameter	:	70 mm
Probe calibration date	:	27-8-2013
Gauge height	:	1.10 m above ground level
Pocket length	:	1.00 m
Type of protective sheath	:	Metallic
Type of inner membrane	:	Rubber
Initial volume (Vo)	:	786 cm^3
Differential pressure	:	80 kPa

TEST RESULTS SUMMARY

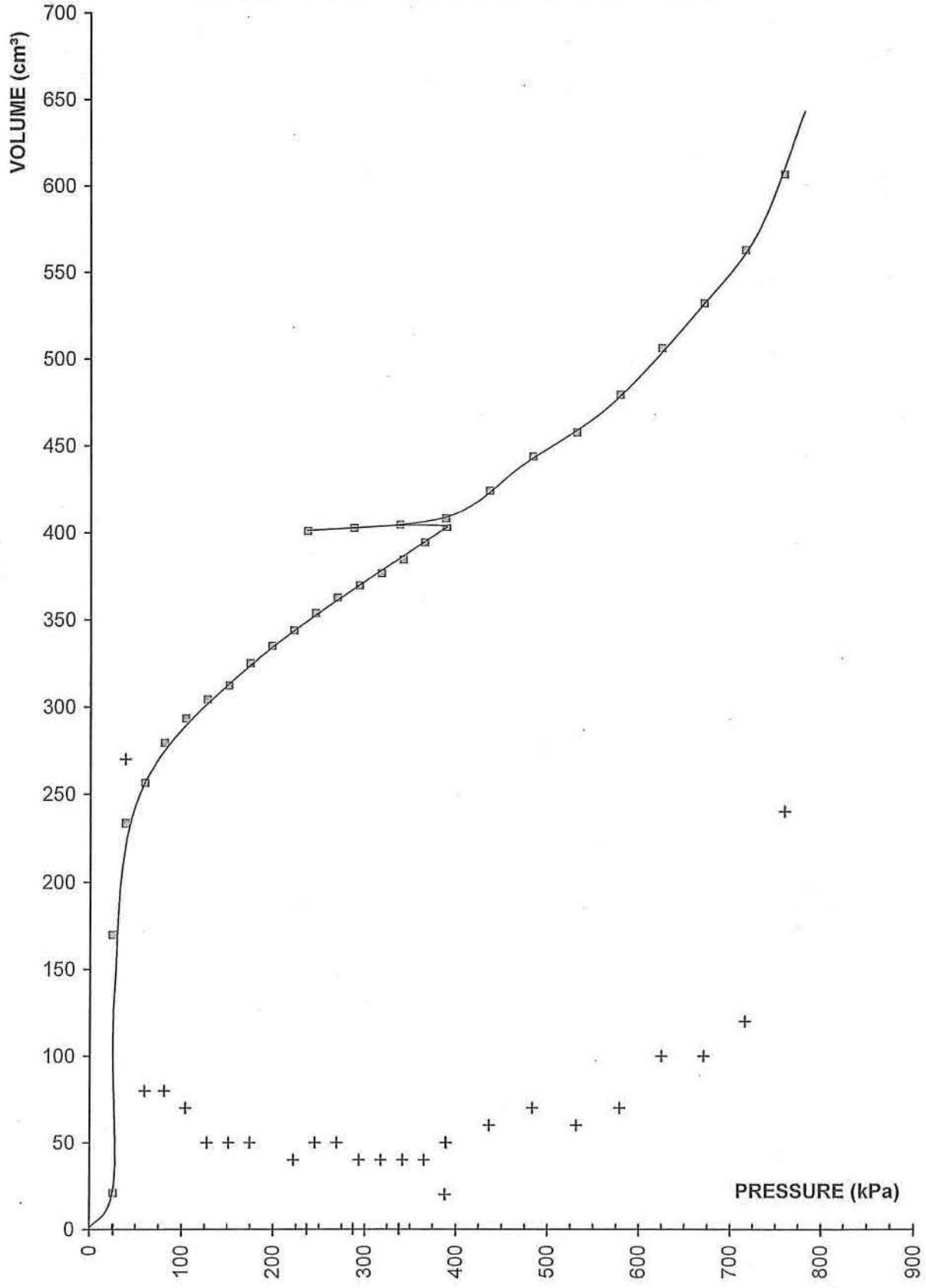
Limit pressure	:	1.57	MPa			
Pressure range						
- initial	:	174	kPa	to	389	kPa
- unload-reload (1)	:	237	kPa	to	313	kPa
Shear modulus						
- initial Gi	:	3.05	MPa			
- unload-reload (1) Gur	:	36.73	MPa			
Deformation modulus						
- initial Ep	:	8.12	MPa			
- unload-reload (1) E+	:	97.70	MPa			

Remarks :

1) All notations refer to 'Pressuremeter Testing - methods and interpretation' - Author : R J Mair & D M Wood.
2) The value of Poisson's ratio used for the computation of the modulus E is 0.33.
3) The test stopped due to equipment limit (Volume > 600cc)

Checked by : Date : 11/10/2013

VOLUME Vs PRESSURE PLOT (CORRECTED)

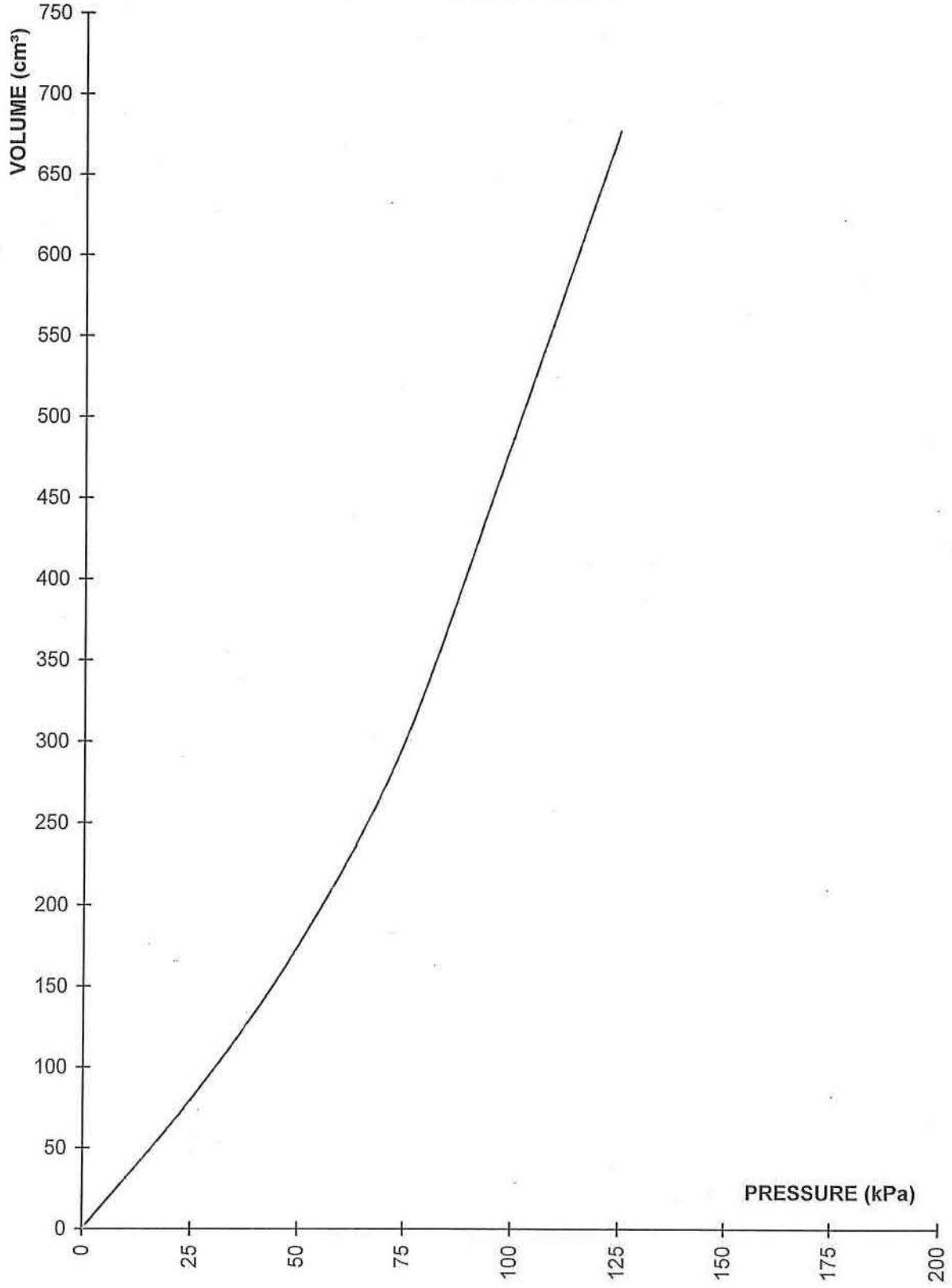


PROBE NO.: PM-FGS2
CALIBRATION DATE: 27-8-2013

CORRECTED VOLUME
\+ CREEP VOLUME × 10

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

CALIBRATION CURVE



PROBE NO.: PM-FGS2
CALIBRATION DATE: 27-8-2013

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

P R O G R A M P R E S S

PRESSUREMETER TEST

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

NPCAL	NUMBER OF PROBE CALIBRATION DATA	5
NP	NUMBER OF GAUGE PRESSURE AND VOLUME DATA	32

CSLOPE	SLOPE FROM CALIBRATION CURVE	0.0040 cm^3/kPa
GFCOR	GAUGE CORRECTION FACTOR	1.02
GAUCOR	GAUGE CORRECTION	9 kPa
GAUHT	GAUGE HEIGHT	1.10 m
GWL	GWL MEASURED BELOW GROUND LEVEL	2.12 m
HPCOR	HYDROSTATIC PRESSURE CORRECTION	32 kPa

P R O B E C A L I B R A T I O N D A T A

INIVOL	INITIAL VOLUMETER READING (AT ZERO APPLIED PRESSURE)	0.00 cm^3

No.	Pressure (kPa)	Volume (cm^3)
1	0	0.00
2	25	80.00
3	50	175.00
4	75	299.00
5	100	485.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

FIELD DATA

GAUGE PRESSURE (kPa)	VOLUMETER READING (cm³) 15S	30S	60S	90S	120S
0	13.00	14.00	16.00	20.00	21.00
25	56.00	85.00	123.00	156.00	170.00
50	194.00	207.00	218.00	230.00	234.00
75	247.00	249.00	250.00	254.00	257.00
100	269.00	272.00	275.00	278.00	280.00
125	285.00	287.00	290.00	292.00	294.00
150	298.00	300.00	303.00	304.00	305.00
175	307.00	308.00	310.00	311.00	313.00
200	320.00	321.00	323.00	325.00	326.00
225	330.00	32.00	334.00	335.00	336.00
250	340.00	341.00	343.00	344.00	345.00
275	348.00	350.00	352.00	354.00	355.00
300	357.00	359.00	362.00	363.00	364.00
325	365.00	367.00	369.00	370.00	371.00
350	373.00	374.00	376.00	377.00	378.00
375	380.00	382.00	384.00	385.00	386.00
400	390.00	392.00	394.00	395.00	396.00
425	398.00	400.00	402.00	404.00	405.00
375	405.00	405.00	405.00	405.00	405.00
325	404.00	404.00	404.00	404.00	404.00
275	402.00	402.00	402.00	402.00	402.00
325	404.00	404.00	404.00	404.00	404.00
375	405.00	406.00	406.00	406.00	406.00
425	408.00	408.00	409.00	409.00	410.00
475	419.00	420.00	423.00	425.00	426.00
525	435.00	439.00	444.00	445.00	446.00
575	453.00	454.00	457.00	459.00	460.00
625	473.00	475.00	478.00	480.00	482.00
675	495.00	499.00	502.00	506.00	509.00
725	521.00	525.00	530.00	533.00	535.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

FIELD DATA

GAUGE PRESSURE (kPa)	VOLUMETER READING (cm^3) 15S	30S	60S	90S	120S
775	551.00	554.00	559.00	563.00	566.00
825	582.00	586.00	596.00	605.00	610.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
0	120	21.00	21.00	-	0.16	20.84	14.94	25.80	0.000
	15	56.00							
	30	85.00							
	60	123.00							
	90	156.00							
25	120	170.00	170.00	85.00	0.26	169.74	41.65	24.48	0.156
	15	194.00							
	30	207.00							
	60	218.00							
	90	230.00							
50	120	234.00	234.00	27.00	0.37	233.63	53.11	38.41	0.209
	15	247.00							
	30	249.00							
	60	250.00							
	90	254.00							
75	120	257.00	257.00	8.00	0.47	256.53	57.21	59.70	0.226
	15	269.00							
	30	272.00							
	60	275.00							
	90	278.00							
100	120	280.00	280.00	8.00	0.57	279.43	61.32	80.98	0.243
	15	285.00							
	30	287.00							
	60	290.00							
	90	292.00							
125	120	294.00	294.00	7.00	0.67	293.33	63.81	103.88	0.252
	15	298.00							
	30	300.00							
	60	303.00							
	90	304.00							
150	120	305.00	305.00	5.00	0.77	304.23	65.77	127.32	0.260
	15	307.00							
	30	308.00							
	60	310.00							
	90	311.00							
175	120	313.00	313.00	5.00	0.87	312.13	67.19	151.29	0.265
	15	320.00							
	30	321.00							
	60	323.00							
	90	325.00							
200	120	326.00	326.00	5.00	0.98	325.02	69.50	174.37	0.274
	15	330.00							
	30	32.00							
	60	334.00							
	90	335.00							
225	120	336.00	336.00	304.00	1.08	334.92	71.28	197.99	0.280

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	340.00							
	30	341.00							
	60	343.00							
	90	344.00							
250	120	345.00	345.00	4.00	1.18	343.82	72.87	221.79	0.286
	15	348.00							
	30	350.00							
	60	352.00							
	90	354.00							
275	120	355.00	355.00	5.00	1.28	353.72	74.65	245.40	0.292
	15	357.00							
	30	359.00							
	60	362.00							
	90	363.00							
300	120	364.00	364.00	5.00	1.38	362.62	76.24	269.20	0.298
	15	365.00							
	30	367.00							
	60	369.00							
	90	370.00							
325	120	371.00	371.00	4.00	1.48	369.52	77.48	293.36	0.302
	15	373.00							
	30	374.00							
	60	376.00							
	90	377.00							
350	120	378.00	378.00	4.00	1.58	376.42	78.72	317.51	0.306
	15	380.00							
	30	382.00							
	60	384.00							
	90	385.00							
375	120	386.00	386.00	4.00	1.69	384.31	80.13	341.49	0.311
	15	390.00							
	30	392.00							
	60	394.00							
	90	395.00							
400	120	396.00	396.00	4.00	1.79	394.21	81.91	365.10	0.316
	15	398.00							
	30	400.00							
	60	402.00							
	90	404.00							
425	120	405.00	405.00	5.00	1.89	403.11	83.51	388.90	0.321
	15	405.00							
	30	405.00							
	60	405.00							
	90	405.00							
375	120	405.00	405.00	0.00	1.69	403.31	83.54	338.08	0.322
	15	404.00							
	30	404.00							
	60	404.00							
	90	404.00							
325	120	404.00	404.00	0.00	1.48	402.52	83.40	287.44	0.321

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

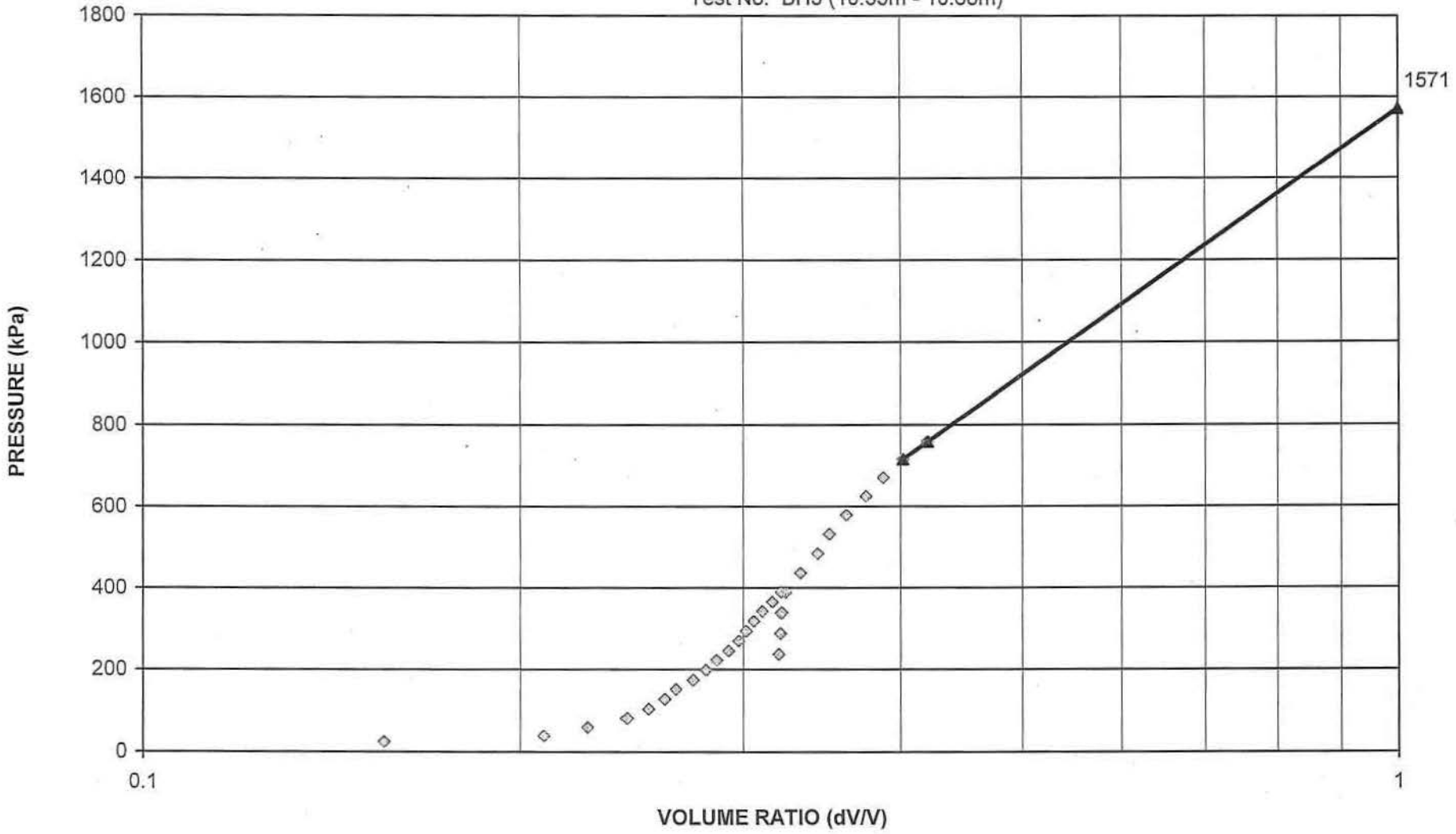
PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	402.00							
	30	402.00							
	60	402.00							
	90	402.00							
275	120	402.00	402.00	0.00	1.28	400.72	83.08	236.97	0.320
	15	404.00							
	30	404.00							
	60	404.00							
	90	404.00							
325	120	404.00	404.00	0.00	1.48	402.52	83.40	287.44	0.321
	15	405.00							
	30	406.00							
	60	406.00							
	90	406.00							
375	120	406.00	406.00	0.00	1.69	404.31	83.72	337.90	0.322
	15	408.00							
	30	408.00							
	60	409.00							
	90	409.00							
425	120	410.00	410.00	2.00	1.89	408.11	84.40	388.00	0.324
	15	419.00							
	30	420.00							
	60	423.00							
	90	425.00							
475	120	426.00	426.00	6.00	2.09	423.91	87.24	435.95	0.333
	15	435.00							
	30	439.00							
	60	444.00							
	90	445.00							
525	120	446.00	446.00	7.00	2.30	443.70	90.79	483.19	0.344
	15	453.00							
	30	454.00							
	60	457.00							
	90	459.00							
575	120	460.00	460.00	6.00	2.50	457.50	93.26	531.50	0.351
	15	473.00							
	30	475.00							
	60	478.00							
	90	480.00							
625	120	482.00	482.00	7.00	2.70	479.30	97.17	578.37	0.362
	15	495.00							
	30	499.00							
	60	502.00							
	90	506.00							
675	120	509.00	509.00	10.00	2.91	506.09	101.98	624.35	0.376
	15	521.00							
	30	525.00							
	60	530.00							
	90	533.00							
725	120	535.00	535.00	10.00	3.11	531.89	106.61	670.51	0.388

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 10.35m-10.68m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	551.00							
	30	554.00							
	60	559.00							
	90	563.00							
775	120	566.00	566.00	12.00	3.31	562.69	112.13	715.77	0.402
	15	582.00							
	30	586.00							
	60	596.00							
	90	605.00							
825	120	610.00	610.00	24.00	3.51	606.49	119.99	758.70	0.421

PRESSUREMETER TEST - LIMIT PRESSURE

Test No: BH5 (10.35m - 10.68m)



PRESSUREMETER TEST

Client	: DrilTech Ground Engineering Ltd		Project No.	:	13 0062 04
Project	: Contract No. GE/2013/04 Ground Investigation – Urban (Term Contract)		Equipment Type	:	APAGEO
			Drillhole No.	:	BH5
Works Order No.	: GE/2013/04.22				
Location	: Kowloon City				
Test Date	: 30-09-2013				
Test Time	: 10:00				
Weather	: Windy				
Operator	: HT				

DRILLHOLE INFORMATION

Test Depth	:	from	25.95 m	to	26.28 m	
Drilling tool diameter	:		76 mm			
Drilling tool	:		Fugro Sampler			
Drilling fluid	:		Water			
Water level below GL	:		2.00 m			
Soil description	:	Extremely weak, reddish brown, dappled white and black, completely decomposed medium to coarse grained GRANITE. (Sandy clayey SILT)				

PRESSUREMETER SETTING

Gauge no.	:	F0013
Probe no.	:	PM-FGS2
Probe diameter	:	70 mm
Probe calibration date	:	26-9-2013
Gauge height	:	1.10 m above ground level
Pocket length	:	1.00 m
Type of protective sheath	:	Metallic
Type of inner membrane	:	Rubber
Initial volume (Vo)	:	786 cm^3
Differential pressure	:	80 kPa

TEST RESULTS SUMMARY

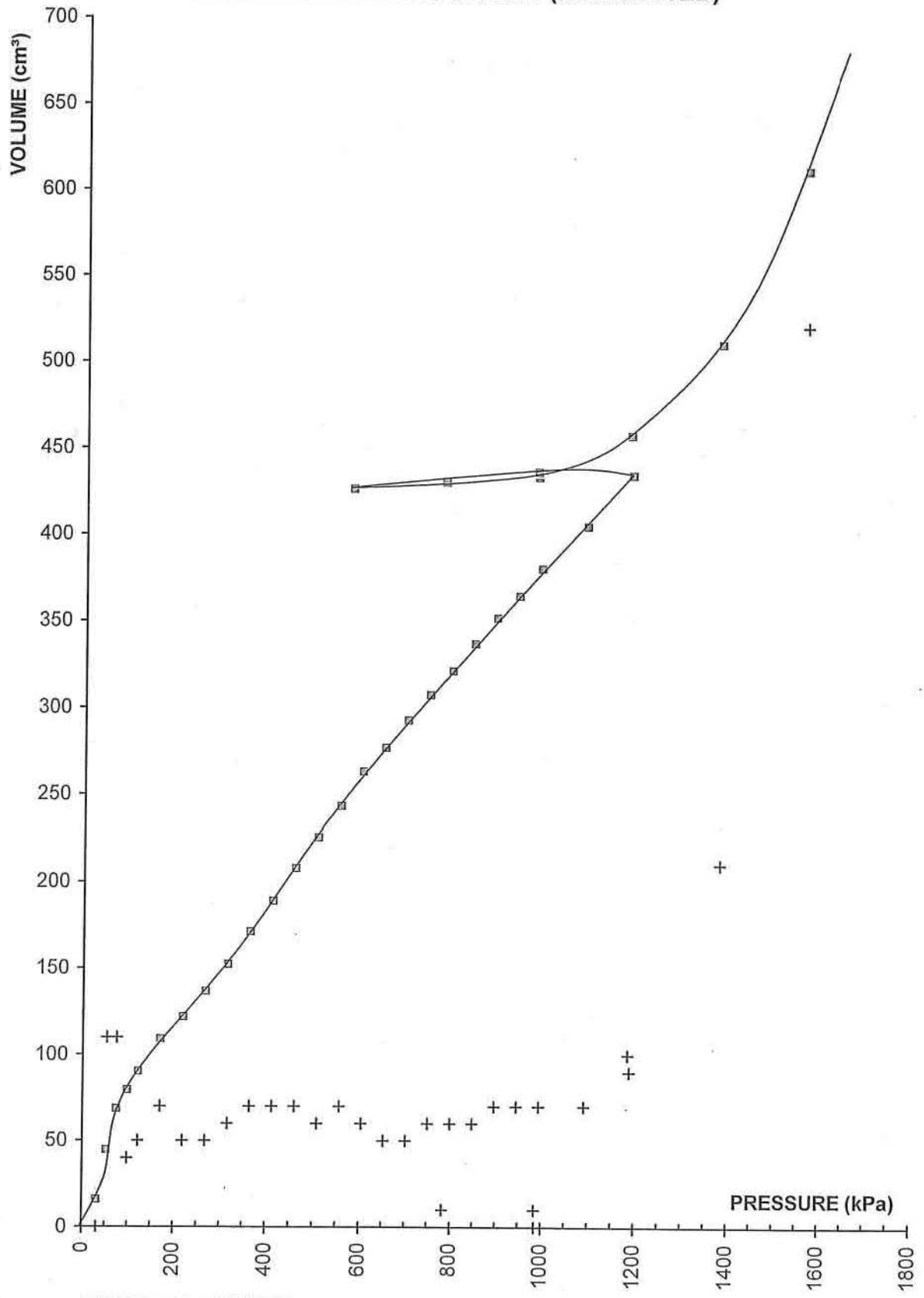
Limit pressure	:	3.02 MPa				
Pressure range						
- initial	:	605	kPa	to	1189	kPa
- unload-reload (1)	:	580	kPa	to	834	kPa
Shear modulus						
- initial Gi	:	4.47	MPa			
- unload-reload (1) Gur	:	56.31	MPa			
Deformation modulus						
- initial Ep	:	11.88	MPa			
- unload-reload (1) E+	:	149.78	MPa			

Remarks :

1) All notations refer to 'Pressuremeter Testing - methods and interpretation' - Author : R J Mair & D M Wood.
2) The value of Poisson's ratio used for the computation of the modulus E is 0.33.
3) The test stopped due to equipment limit (Volume > 600cc)

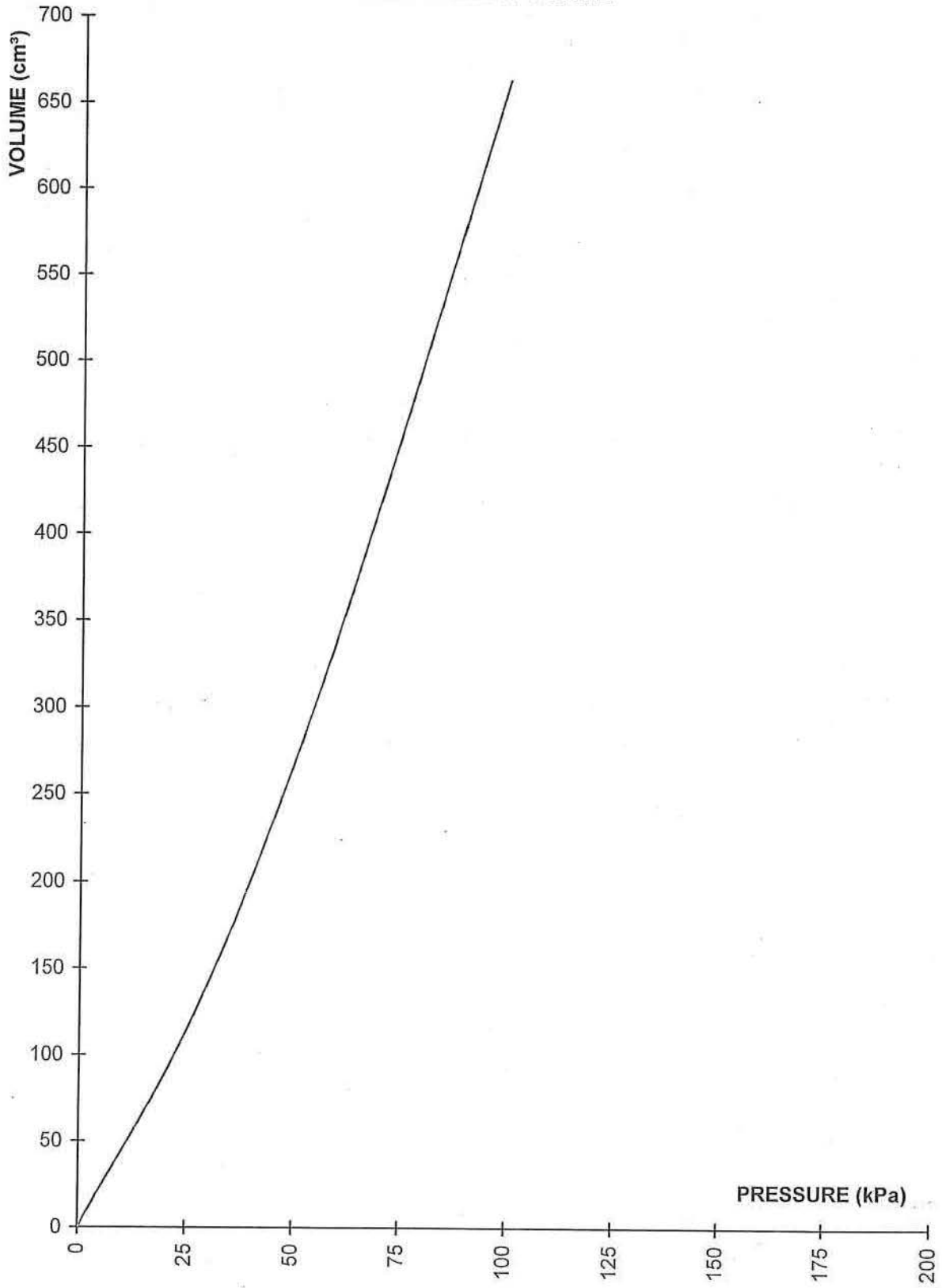
Checked by : Date : 11/10/2013

VOLUME Vs PRESSURE PLOT (CORRECTED)



JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

CALIBRATION CURVE



PROBE NO.: PM-FGS2
CALIBRATION DATE: 26-9-2013

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

PROGRAM PRESS

PRESSUREMETER TEST

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

NPCAL	NUMBER OF PROBE CALIBRATION DATA	5
NP	NUMBER OF GAUGE PRESSURE AND VOLUME DATA	33

CSLOPE	SLOPE FROM CALIBRATION CURVE	0.0047 cm³/kPa
GFCOR	GAUGE CORRECTION FACTOR	1.02
GAUCOR	GAUGE CORRECTION	9 kPa
GAUHT	GAUGE HEIGHT	1.10 m
GWL	GWL MEASURED BELOW GROUND LEVEL	2.00 m
HPCOR	HYDROSTATIC PRESSURE CORRECTION	30 kPa

PROBE CALIBRATION DATA

INIVOL	INITIAL VOLUMETER READING (AT ZERO APPLIED PRESSURE)	0.00 cm³

No.	Pressure (kPa)	Volume (cm³)
1	0	0.00
2	25	114.00
3	50	268.00
4	75	457.00
5	100	663.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

FIELD DATA

GAUGE PRESSURE	VOLUMETER READING (cm³)				
(kPa)	15S	30S	60S	90S	120S
0	0.00	3.00	4.00	10.00	16.00
25	28.00	34.00	39.00	43.00	45.00
50	55.00	58.00	63.00	66.00	69.00
75	74.00	76.00	78.00	79.00	80.00
100	84.00	86.00	89.00	90.00	91.00
150	100.00	103.00	107.00	109.00	110.00
200	115.00	118.00	120.00	122.00	123.00
250	129.00	133.00	135.00	137.00	138.00
300	145.00	148.00	150.00	153.00	154.00
350	163.00	166.00	169.00	172.00	173.00
400	180.00	184.00	188.00	190.00	191.00
450	199.00	203.00	206.00	209.00	210.00
500	219.00	222.00	225.00	227.00	228.00
550	236.00	239.00	243.00	245.00	246.00
600	254.00	260.00	264.00	265.00	266.00
650	272.00	275.00	277.00	279.00	280.00
700	288.00	291.00	293.00	295.00	296.00
750	302.00	305.00	308.00	310.00	311.00
800	316.00	319.00	322.00	324.00	325.00
850	332.00	335.00	339.00	340.00	341.00
900	347.00	349.00	352.00	354.00	356.00
950	360.00	362.00	365.00	367.00	369.00
1000	375.00	378.00	381.00	383.00	385.00
1100	400.00	403.00	406.00	408.00	410.00
1200	425.00	431.00	435.00	438.00	440.00
1000	438.00	438.00	438.00	438.00	438.00
800	436.00	436.00	436.00	435.00	435.00
600	430.00	430.00	430.00	429.00	429.00
800	433.00	433.00	433.00	434.00	434.00
1000	439.00	440.00	440.00	441.00	441.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

FIELD DATA

GAUGE PRESSURE	VOLUMETER READING (cm^3)				
(kPa)	15S	30S	60S	90S	120S
1200	451.00	453.00	456.00	459.00	463.00
1400	490.00	496.00	505.00	511.00	517.00
1600	554.00	567.00	586.00	600.00	619.00

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
0	120	16.00	16.00	-	0.19	15.81	7.90	31.66	0.000
	15	28.00							
	30	34.00							
	60	39.00							
	90	43.00							
25	120	45.00	45.00	11.00	0.31	44.69	12.17	52.78	0.035
	15	55.00							
	30	58.00							
	60	63.00							
	90	66.00							
50	120	69.00	69.00	11.00	0.42	68.58	15.70	74.64	0.062
	15	74.00							
	30	76.00							
	60	78.00							
	90	79.00							
75	120	80.00	80.00	4.00	0.54	79.46	17.31	98.42	0.074
	15	84.00							
	30	86.00							
	60	89.00							
	90	90.00							
100	120	91.00	91.00	5.00	0.66	90.34	18.92	122.20	0.085
	15	100.00							
	30	103.00							
	60	107.00							
	90	109.00							
150	120	110.00	110.00	7.00	0.90	109.10	21.70	170.21	0.104
	15	115.00							
	30	118.00							
	60	120.00							
	90	122.00							
200	120	123.00	123.00	5.00	1.14	121.86	23.59	219.11	0.117
	15	129.00							
	30	133.00							
	60	135.00							
	90	137.00							
250	120	138.00	138.00	5.00	1.38	136.62	25.77	267.71	0.131
	15	145.00							
	30	148.00							
	60	150.00							
	90	153.00							
300	120	154.00	154.00	6.00	1.62	152.38	28.10	316.16	0.146
	15	163.00							
	30	166.00							
	60	169.00							
	90	172.00							
350	120	173.00	173.00	7.00	1.86	171.14	30.88	364.17	0.162

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	180.00							
	30	184.00							
	60	188.00							
	90	190.00							
400	120	191.00	191.00	7.00	2.10	188.90	33.51	412.33	0.178
	15	199.00							
	30	203.00							
	60	206.00							
	90	209.00							
450	120	210.00	210.00	7.00	2.33	207.67	36.28	460.34	0.193
	15	219.00							
	30	222.00							
	60	225.00							
	90	227.00							
500	120	228.00	228.00	6.00	2.57	225.43	38.91	508.50	0.207
	15	236.00							
	30	239.00							
	60	243.00							
	90	245.00							
550	120	246.00	246.00	7.00	2.81	243.19	41.54	556.66	0.221
	15	254.00							
	30	260.00							
	60	264.00							
	90	265.00							
600	120	266.00	266.00	6.00	3.05	262.95	44.46	604.52	0.236
	15	272.00							
	30	275.00							
	60	277.00							
	90	279.00							
650	120	280.00	280.00	5.00	3.29	276.71	46.50	653.27	0.246
	15	288.00							
	30	291.00							
	60	293.00							
	90	295.00							
700	120	296.00	296.00	5.00	3.53	292.47	48.83	701.72	0.257
	15	302.00							
	30	305.00							
	60	308.00							
	90	310.00							
750	120	311.00	311.00	6.00	3.77	307.23	51.01	750.32	0.267
	15	316.00							
	30	319.00							
	60	322.00							
	90	324.00							
800	120	325.00	325.00	6.00	4.00	321.00	53.05	799.07	0.276
	15	332.00							
	30	335.00							
	60	339.00							
	90	340.00							
850	120	341.00	341.00	6.00	4.24	336.76	55.38	847.52	0.286

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

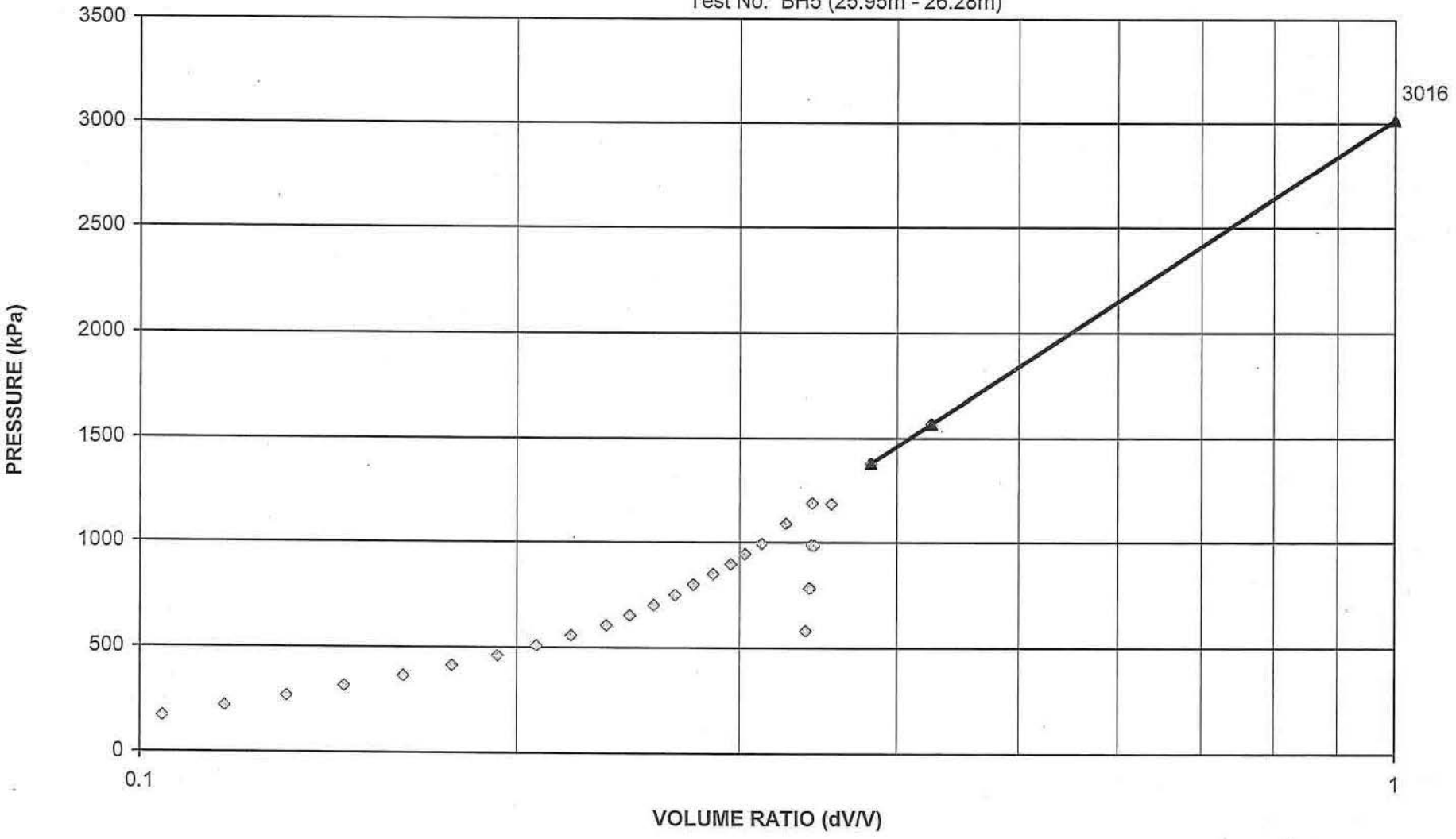
PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	347.00							
	30	349.00							
	60	352.00							
	90	354.00							
900	120	356.00	356.00	7.00	4.48	351.52	57.56	896.12	0.295
	15	360.00							
	30	362.00							
	60	365.00							
	90	367.00							
950	120	369.00	369.00	7.00	4.72	364.28	59.45	945.02	0.303
	15	375.00							
	30	378.00							
	60	381.00							
	90	383.00							
1000	120	385.00	385.00	7.00	4.96	380.04	61.78	993.47	0.312
	15	400.00							
	30	403.00							
	60	406.00							
	90	408.00							
1100	120	410.00	410.00	7.00	5.44	404.56	65.41	1091.42	0.327
	15	425.00							
	30	431.00							
	60	435.00							
	90	438.00							
1200	120	440.00	440.00	9.00	5.91	434.09	69.78	1188.62	0.343
	15	438.00							
	30	438.00							
	60	438.00							
	90	438.00							
1000	120	438.00	438.00	0.00	4.96	433.04	69.62	985.63	0.342
	15	436.00							
	30	436.00							
	60	436.00							
	90	435.00							
800	120	435.00	435.00	-1.00	4.00	431.00	69.32	782.80	0.341
	15	430.00							
	30	430.00							
	60	430.00							
	90	429.00							
600	120	429.00	429.00	-1.00	3.05	425.95	68.57	580.40	0.338
	15	433.00							
	30	433.00							
	60	433.00							
	90	434.00							
800	120	434.00	434.00	1.00	4.00	430.00	69.17	782.94	0.341
	15	439.00							
	30	440.00							
	60	440.00							
	90	441.00							
1000	120	441.00	441.00	1.00	4.96	436.04	70.07	985.19	0.344

JOB NO: 13 0062 04 DRILLHOLE: BH5 TEST DEPTH: 25.95m-26.28m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	451.00							
	30	453.00							
	60	456.00							
	90	459.00							
1200	120	463.00	463.00	10.00	5.91	457.09	73.18	1185.22	0.355
	15	490.00							
	30	496.00							
	60	505.00							
	90	511.00							
1400	120	517.00	517.00	21.00	6.87	510.13	81.03	1380.51	0.381
	15	554.00							
	30	567.00							
	60	586.00							
	90	600.00							
1600	120	619.00	619.00	52.00	7.82	611.18	95.98	1568.70	0.426

PRESSUREMETER TEST - LIMIT PRESSURE

Test No: BH5 (25.95m - 26.28m)



PRESSUREMETER TEST

Client	: DrilTech Ground Engineering Ltd		Project No.	:	13 0062 04
Project	: Contract No. GE/2013/04 Ground Investigation – Urban (Term Contract)		Equipment Type	:	APAGEO
			Drillhole No.	:	BH6
Works Order No.	: GE/2013/04.22				
Location	: Kowloon City				
Test Date	: 10-10-2013				
Test Time	: 9:15				
Weather	: Fine				
Operator	: AN				

DRILLHOLE INFORMATION

Test Depth	:	from	3.45 m	to	3.78 m
Drilling tool diameter	:		76 mm		
Drilling tool	:		Fugro Sampler		
Drilling fluid	:		Water		
Water level below GL	:		3.00 m		
Soil description	:	Firm, reddish brown, sandy clayey SILT with occasional angular fine gravel of quartz and moderately weak granite fragments. (FILL)			

PRESSUREMETER SETTING

Gauge no.	:	F0013
Probe no.	:	PM-FGS3
Probe diameter	:	70 mm
Probe calibration date	:	11-9-2013
Gauge height	:	1.20 m above ground level
Pocket length	:	1.00 m
Type of protective sheath	:	Metallic
Type of inner membrane	:	Rubber
Initial volume (Vo)	:	786 cm^3
Differential pressure	:	70 kPa

TEST RESULTS SUMMARY

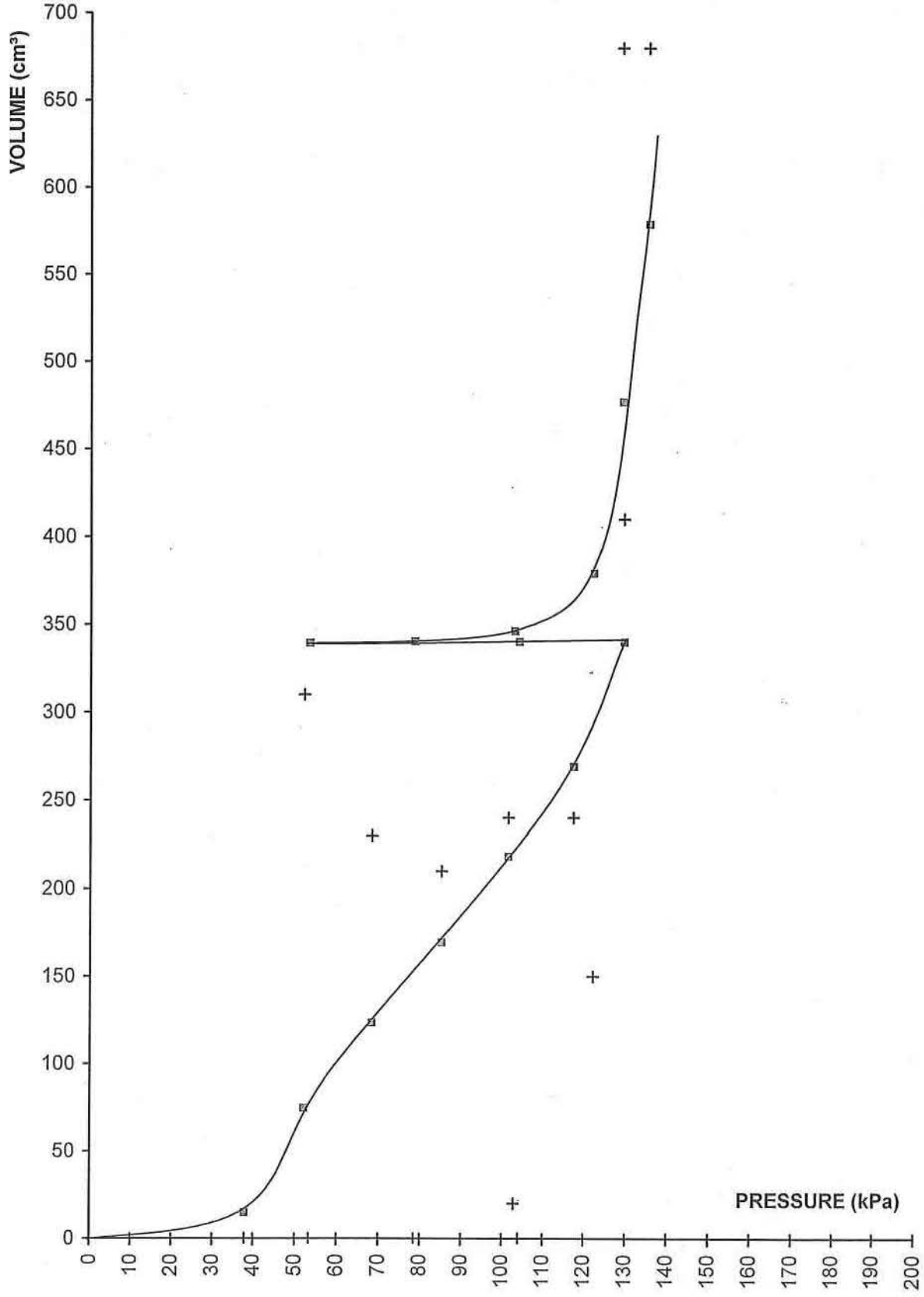
Limit pressure	:	0.18	MPa			
Pressure range						
- initial	:	52	kPa	to	117	kPa
- unload-reload (1)	:	53	kPa	to	91	kPa
Shear modulus						
- initial Gi	:	0.29	MPa			
- unload-reload (1) Gur	:	18.28	MPa			
Deformation modulus						
- initial Ep	:	0.77	MPa			
- unload-reload (1) E+	:	48.64	MPa			

Remarks :

1) All notations refer to 'Pressuremeter Testing - methods and interpretation' - Author : R J Mair & D M Wood.
2) The value of Poisson's ratio used for the computation of the modulus E is 0.33.
3) The test stopped due to equipment limit (Volume > 600cc)

Checked by : [signature] Date : 25/10/2013.

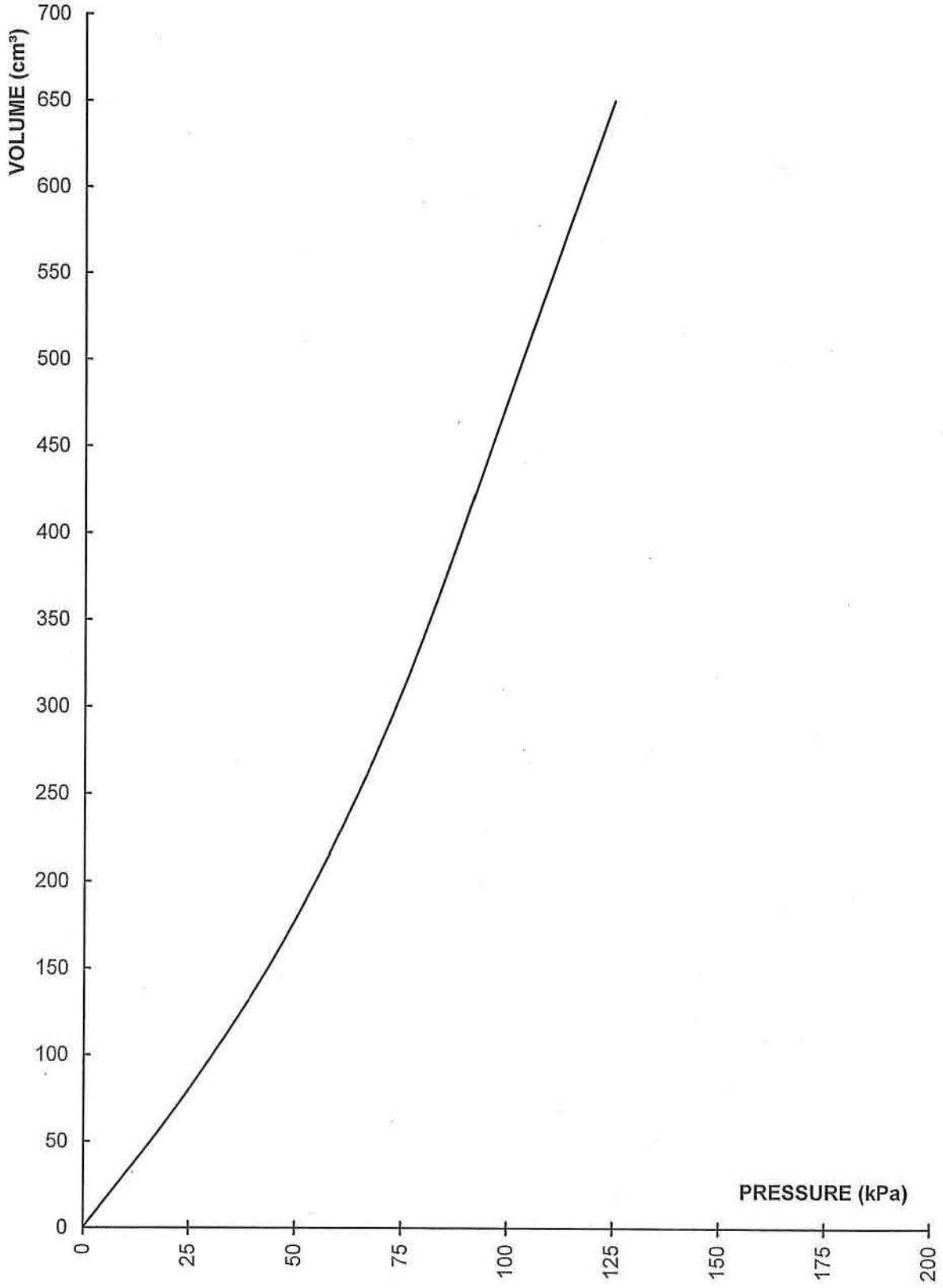
VOLUME Vs PRESSURE PLOT (CORRECTED)



PROBE NO.: PM-FGS3
CALIBRATION DATE: 11-9-2013

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

CALIBRATION CURVE



PROBE NO.: PM-FGS3
CALIBRATION DATE: 11-9-2013

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

P R O G R A M P R E S S

PRESSUREMETER TEST

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

NPCAL	NUMBER OF PROBE CALIBRATION DATA	6
NP	NUMBER OF GAUGE PRESSURE AND VOLUME DATA	15

CSLOPE	SLOPE FROM CALIBRATION CURVE	0.0047 cm³/kPa
GFCOR	GAUGE CORRECTION FACTOR	1.02
GAUCOR	GAUGE CORRECTION	9 kPa
GAUHT	GAUGE HEIGHT	1.20 m
GWL	GWL MEASURED BELOW GROUND LEVEL	3.00 m
HPCOR	HYDROSTATIC PRESSURE CORRECTION	41 kPa

P R O B E C A L I B R A T I O N D A T A

INIVOL	INITIAL VOLUMETER READING (AT ZERO APPLIED PRESSURE)	0.00 cm³

No.	Pressure (kPa)	Volume (cm³)
1	0	0.00
2	25	80.00
3	50	178.00
4	75	309.00
5	100	477.00
6	125	650.00

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

FIELD DATA

GAUGE PRESSURE (kPa)	VOLUMETER READING (cm^3) 15S	30S	60S	90S	120S
0	0.00	3.00	5.00	14.00	15.00
25	30.00	44.00	58.00	64.00	75.00
50	90.00	101.00	114.00	118.00	124.00
75	138.00	149.00	160.00	168.00	170.00
100	185.00	195.00	209.00	215.00	219.00
125	235.00	246.00	256.00	264.00	270.00
150	287.00	300.00	324.00	334.00	341.00
125	341.00	341.00	341.00	341.00	341.00
100	341.00	341.00	341.00	341.00	341.00
75	340.00	340.00	340.00	340.00	340.00
100	341.00	341.00	341.00	341.00	341.00
125	345.00	345.00	346.00	347.00	347.00
150	359.00	365.00	373.00	377.00	380.00
175	395.00	410.00	435.00	458.00	478.00
200	499.00	512.00	538.00	560.00	580.00
225	605.00				

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

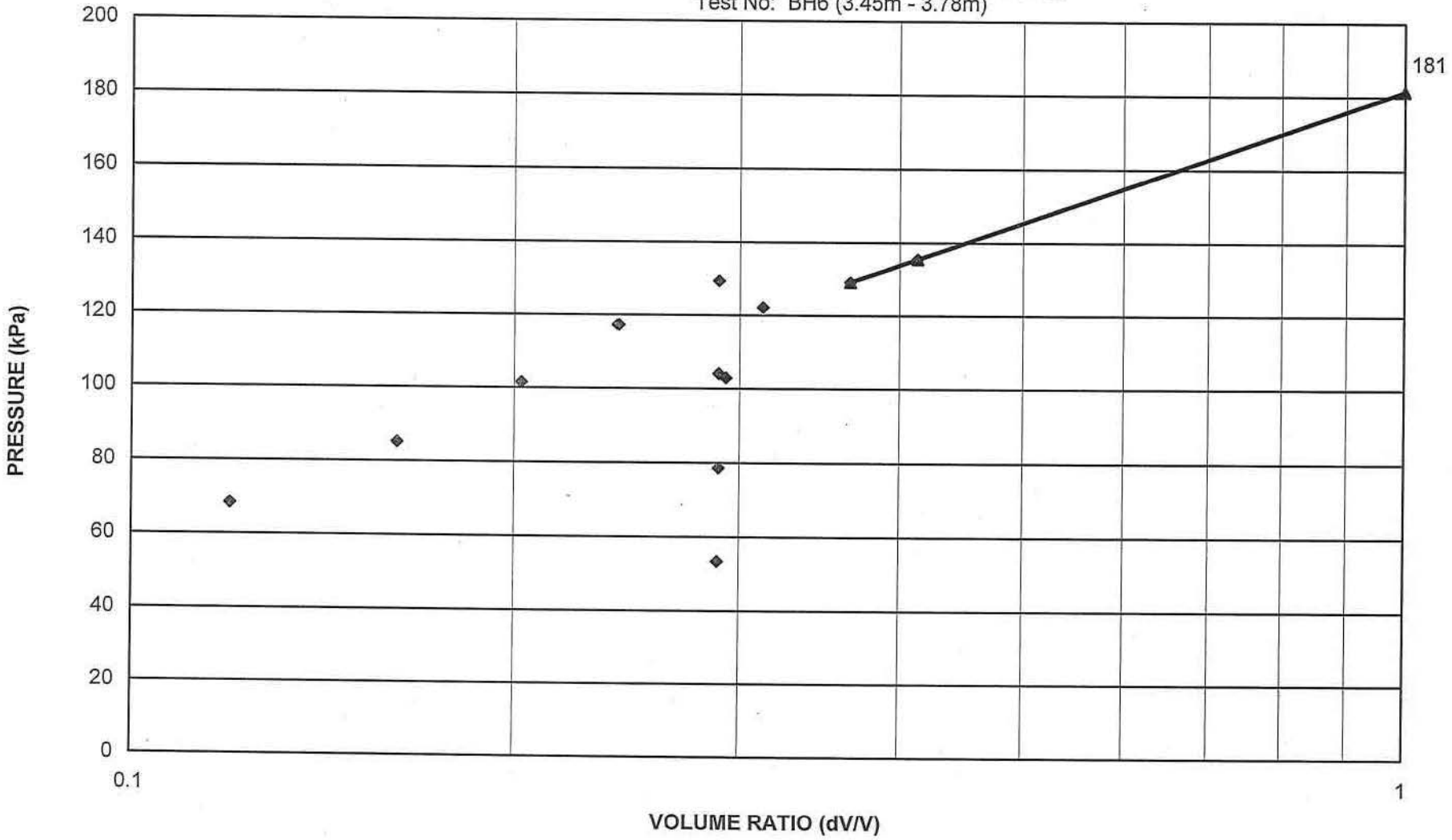
PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
0	120	15.00	15.00	-	0.24	14.76	12.42	37.93	0.000
	15	30.00							
	30	44.00							
	60	58.00							
	90	64.00							
25	120	75.00	75.00	31.00	0.36	74.64	23.62	52.12	0.070
	15	90.00							
	30	101.00							
	60	114.00							
	90	118.00							
50	120	124.00	124.00	23.00	0.48	123.52	32.77	68.36	0.120
	15	138.00							
	30	149.00							
	60	160.00							
	90	168.00							
75	120	170.00	170.00	21.00	0.59	169.41	41.36	85.16	0.162
	15	185.00							
	30	195.00							
	60	209.00							
	90	215.00							
100	120	219.00	219.00	24.00	0.71	218.29	50.51	101.41	0.203
	15	235.00							
	30	246.00							
	60	256.00							
	90	264.00							
125	120	270.00	270.00	24.00	0.83	269.17	60.04	117.27	0.241
	15	287.00							
	30	300.00							
	60	324.00							
	90	334.00							
150	120	341.00	341.00	41.00	0.95	340.05	73.30	129.40	0.289
	15	341.00							
	30	341.00							
	60	341.00							
	90	341.00							
125	120	341.00	341.00	0.00	0.83	340.17	73.33	103.98	0.289
	15	341.00							
	30	341.00							
	60	341.00							
	90	341.00							
100	120	341.00	341.00	0.00	0.71	340.29	73.35	78.57	0.289
	15	340.00							
	30	340.00							
	60	340.00							
	90	340.00							
75	120	340.00	340.00	0.00	0.59	339.41	73.18	53.34	0.288

JOB NO: 13 0062 04 DRILLHOLE: BH6 TEST DEPTH: 3.45m-3.78m

PRESSURE (kPa)	TIME (S)	VOLUME (cm^3)	VOLUME 120 S (cm^3)	CREEP VOLUME (cm^3)	VOLUME CORRECTION (cm^3)	CORRECTED VOLUME (cm^3)	ATM. PRESS CORRECTION (kPa)	CORRECTED PRESSURE (kPa)	CORRECTED VOLUME RATIO
	15	341.00							
	30	341.00							
	60	341.00							
	90	341.00							
100	120	341.00	341.00	0.00	0.71	340.29	73.35	78.57	0.289
	15	345.00							
	30	345.00							
	60	346.00							
	90	347.00							
125	120	347.00	347.00	2.00	0.83	346.17	74.45	102.86	0.293
	15	359.00							
	30	365.00							
	60	373.00							
	90	377.00							
150	120	380.00	380.00	15.00	0.95	379.05	80.60	122.10	0.313
	15	395.00							
	30	410.00							
	60	435.00							
	90	458.00							
175	120	478.00	478.00	68.00	1.07	476.93	98.92	129.17	0.366
	15	499.00							
	30	512.00							
	60	538.00							
	90	560.00							
200	120	580.00	580.00	68.00	1.19	578.81	117.99	135.49	0.413

PRESSUREMETER TEST - LIMIT PRESSURE

Test No: BH6 (3.45m - 3.78m)



Appendix G

Piezometer Detail and Response Test Record Sheets

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 5 (Upper)

Contract No. : GE/2013/04	**Date of Installation :** 7-Oct-13
Works Order No. : GE/2013/04.22	**Date of Test :** 9-Oct-13
Project: Ground Investigation - Urban (Term Contract) Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)	**Ground Level :** +5.83 mPD **Co-ordinates :** E 837880.22 N 821136.47
Initial Water Level : 2.42 m below G.L.	**Piezometer Tip Level :** -17.67 mPD
Tested / Supervised By : W.K. Wong	**Checked By :** R. Chu
Dip meter I.D. : DT-010-001	**Checked Date :** 9-Oct-13

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	1.15
0.50	1.89
0.75	2.21
1.00	2.30
1.50	2.31
2.00	2.32

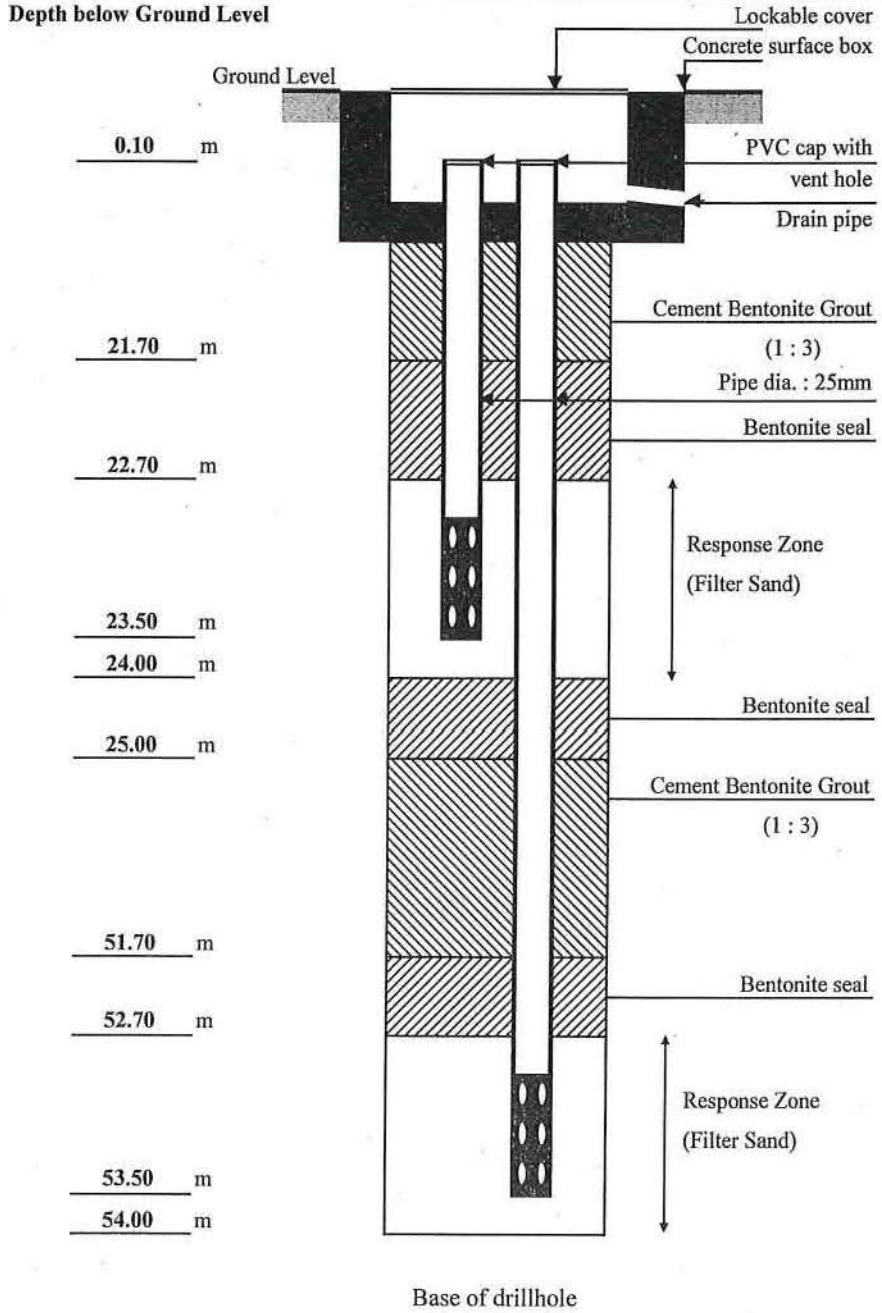
Filter Material: Sand

Material Surrounding Response Zone:

From 22.70m to 24.00m: ALLUVIUM
(Clayey silty sandy fine to coarse GRAVEL)

Remarks :

Depth below Ground Level



(N.T.S.)

DRiLTECH

DRILLHOLE PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Drillhole No. : BH 5 (Lower)

Contract No. : GE/2013/04	**Date of Installation :** 5-Oct-13
Works Order No. : GE/2013/04.22	**Date of Test :** 9-Oct-13
Project: Ground Investigation - Urban (Term Contract) Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction, Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)	**Ground Level :** +5.83 mPD **Co-ordinates :** E 837880.22 N 821136.47
Initial Water Level : 4.22 m below G.L.	**Piezometer Tip Level :** -47.67 mPD
Tested / Supervised By : W.K. Wong	**Checked By :** R. Chu
Dip meter I.D. : DT-010-001	**Checked Date :** 9-Oct-13

Time Elapsed (minutes)	Depth of Water from top of pipe (m)
0	0.00
0.25	0.05
0.50	0.08
0.75	0.13
1.00	0.17
1.50	0.18
2.00	0.19
3.00	0.20
4.00	0.22
5.00	0.23
6.00	0.24
7.00	0.25
8.00	0.26
9.00	0.27
10.00	0.28
15.00	0.34
20.00	0.38
25.00	0.43
30.00	0.47
45.00	0.62
60.00	0.83

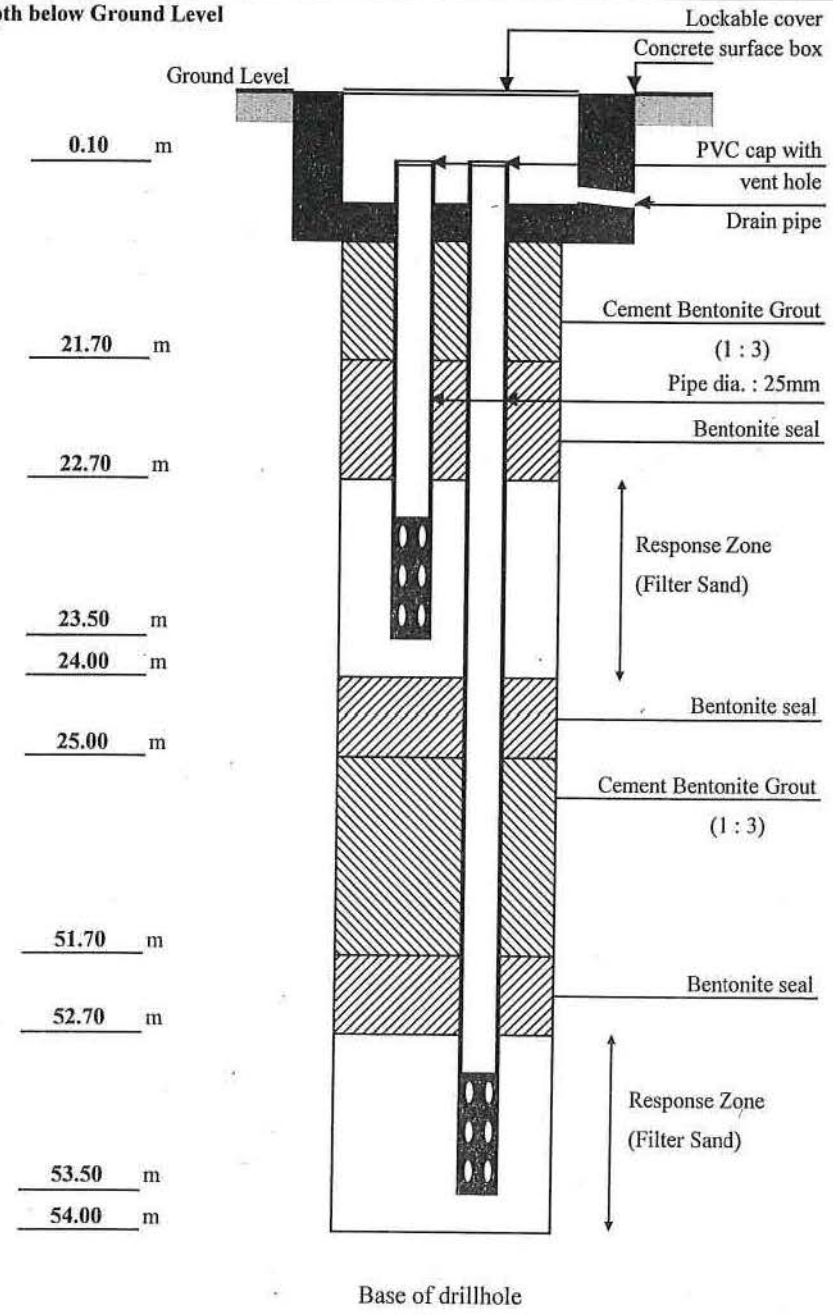
Filter Material: Sand

Material Surrounding Response Zone:

From 52.70m to 54.00m: Grade IV GRANITE (Clayey silty sandy fine to medium GRAVEL)

Remarks :

Depth below Ground Level



(N.T.S.)

Appendix H

Water Level Monitoring Records

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 5 (Upper)

Contract No. : GE/2013/04

Works Order No. : GE/2013/04.22

Project:

Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Date of Installation : 7-Oct-13

Measured By : W.K. Wong pp.

Piezometer

Co-ordinates : E 837880.22 N 821136.47

Ground Level : +5.83mPD

Depth : 23.50m

Tip Level : -17.67mPD

Dip Meter I.D. : DT-010-001

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
10-Oct-13	09:00	2.33	+3.50	Fine
11-Oct-13	09:10	2.32	+3.51	Fine
12-Oct-13	09:20	2.34	+3.49	Fine
15-Oct-13	09:05	2.35	+3.48	Fine
16-Oct-13	08:45	2.35	+3.48	Fine
17-Oct-13	08:30	2.35	+3.48	Fine
18-Oct-13	08:30	2.35	+3.48	Fine

Remarks :

DRiLTECH

WATER LEVEL MONITORING RECORD

Drillhole No. BH 5 (Lower)

Contract No. : GE/2013/04

Works Order No. : GE/2013/04.22

Project:

Agreement No. CE 30/2008(CE)
Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Date of Installation : 5-Oct-13

Measured By : W.K. Wong

Piezometer

Co-ordinates :

E 837880.22 N 821136.47

Ground Level : +5.83mPD

Depth : 53.50m

Tip Level : -47.67mPD

Dip Meter I.D. : DT-010-001

Date	Time	Ground Water Level		Weather
		Depth below Ground Level (m)	Reduced Level (mPD)	
10-Oct-13	09:05	4.13	+1.70	Fine
11-Oct-13	09:15	4.13	+1.70	Fine
12-Oct-13	09:25	4.14	+1.69	Fine
15-Oct-13	09:10	4.15	+1.68	Fine
16-Oct-13	08:50	4.15	+1.68	Fine
17-Oct-13	08:35	4.15	+1.68	Fine
18-Oct-13	08:35	4.15	+1.68	Fine

Remarks :

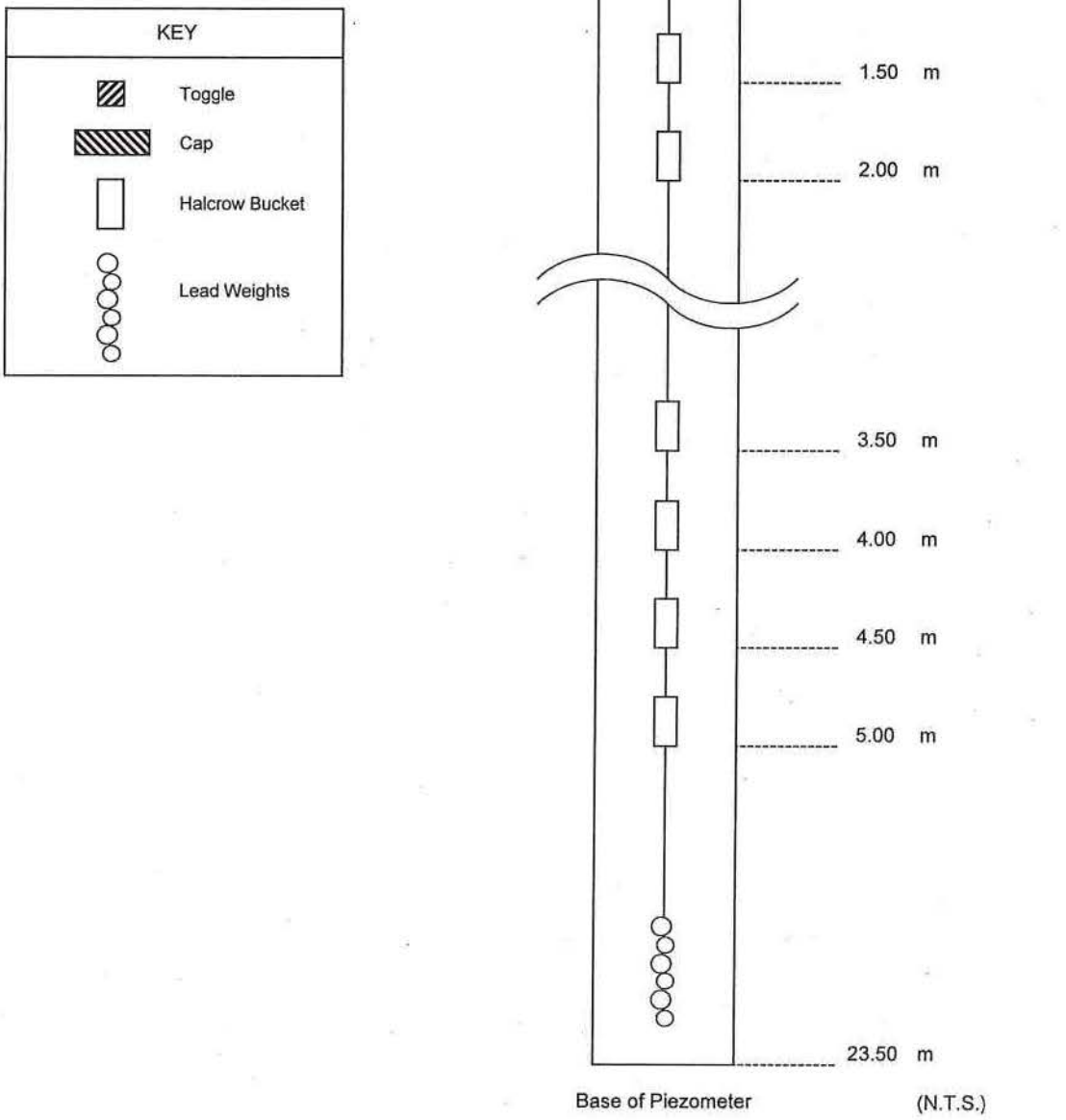
Appendix I

Piezometer (Halcrow) Buckets Installation Records

DRiLTECH	PIEZOMETER (HALCROW) BUCKET INSTALLATION RECORD Contact No.: GE/2013/04	Hole Number **BH 5 (Upper)**

Project: Ground Investigation - Urban (Term Contract)
Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Works Order No.	GE/2013/04.22	Co-ordinates		Piezometer Tip Level:	-17.67	mPD
Prepared By:	W.K. Wong	E	837880.22	Date of Installation:	2-Nov-13	
Date Prepared:	2-Nov-13	N	821136.47	Ground Level:	+5.83	mPD



Remarks:
Total 10 buckets installed

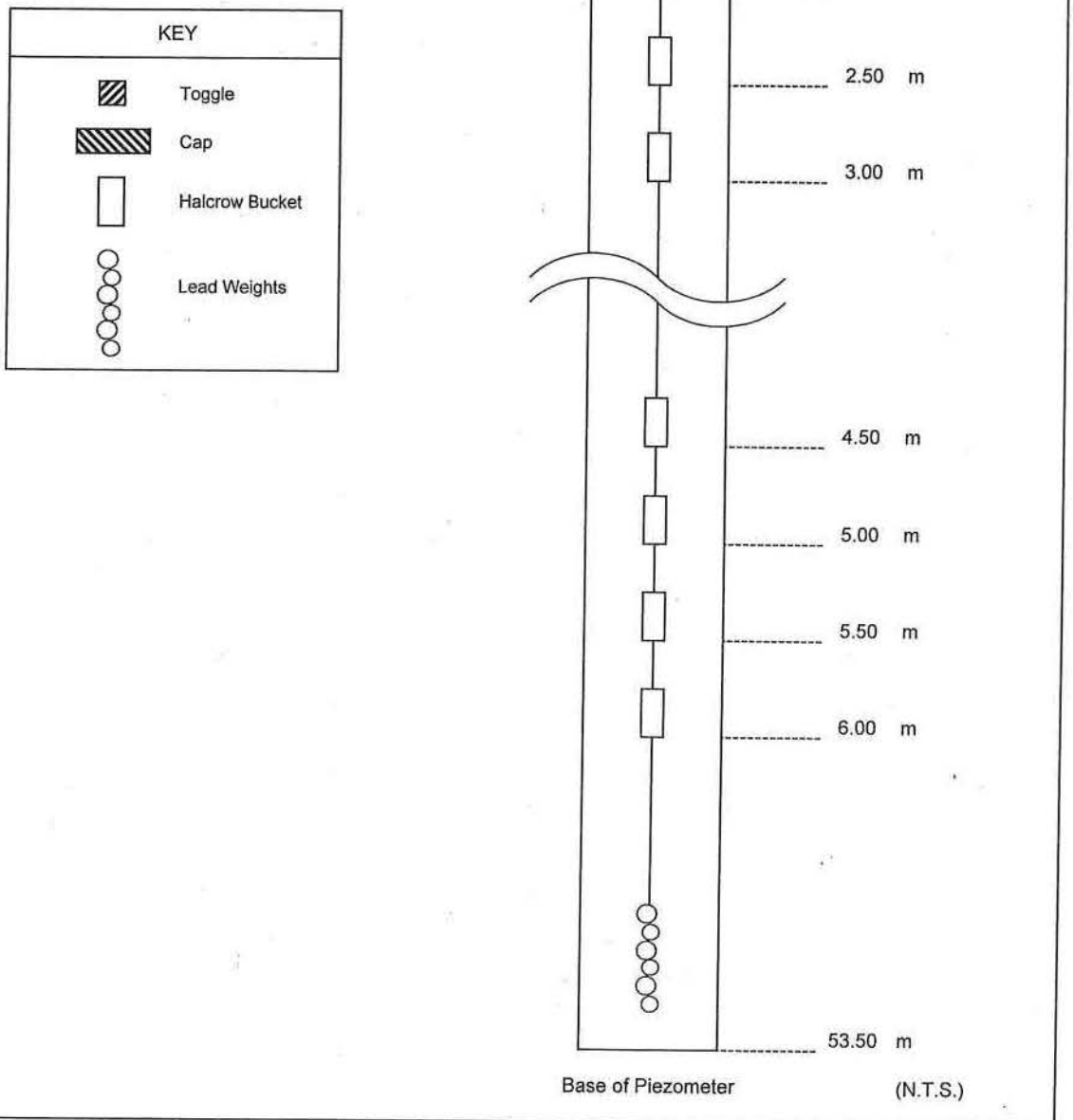
Checked By: R. Chu

Date Checked: 2-Nov-13

DRiLTECH	PIEZOMETER (HALCROW) BUCKET INSTALLATION RECORD Contact No.: GE/2013/04	Hole Number **BH 5 (Lower)**

Project: Ground Investigation - Urban (Term Contract)
Agreement No. CE 30/2008(CE), Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction
Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)

Works Order No.	GE/2013/04.22	Co-ordinates		Piezometer Tip Level:	-47.67	mPD
Prepared By:	W.K. Wong	E	837880.22	Date of Installation:	2-Nov-13	
Date Prepared:	2-Nov-13	N	821136.47	Ground Level:	+5.83	mPD



Remarks:
Total 10 buckets installed

Checked By: R. Chu

Date Checked: 2-Nov-13

Appendix J

Digital Data Records (AGS and PDF in CD-ROM)

DRiLTECH

Media Index Record

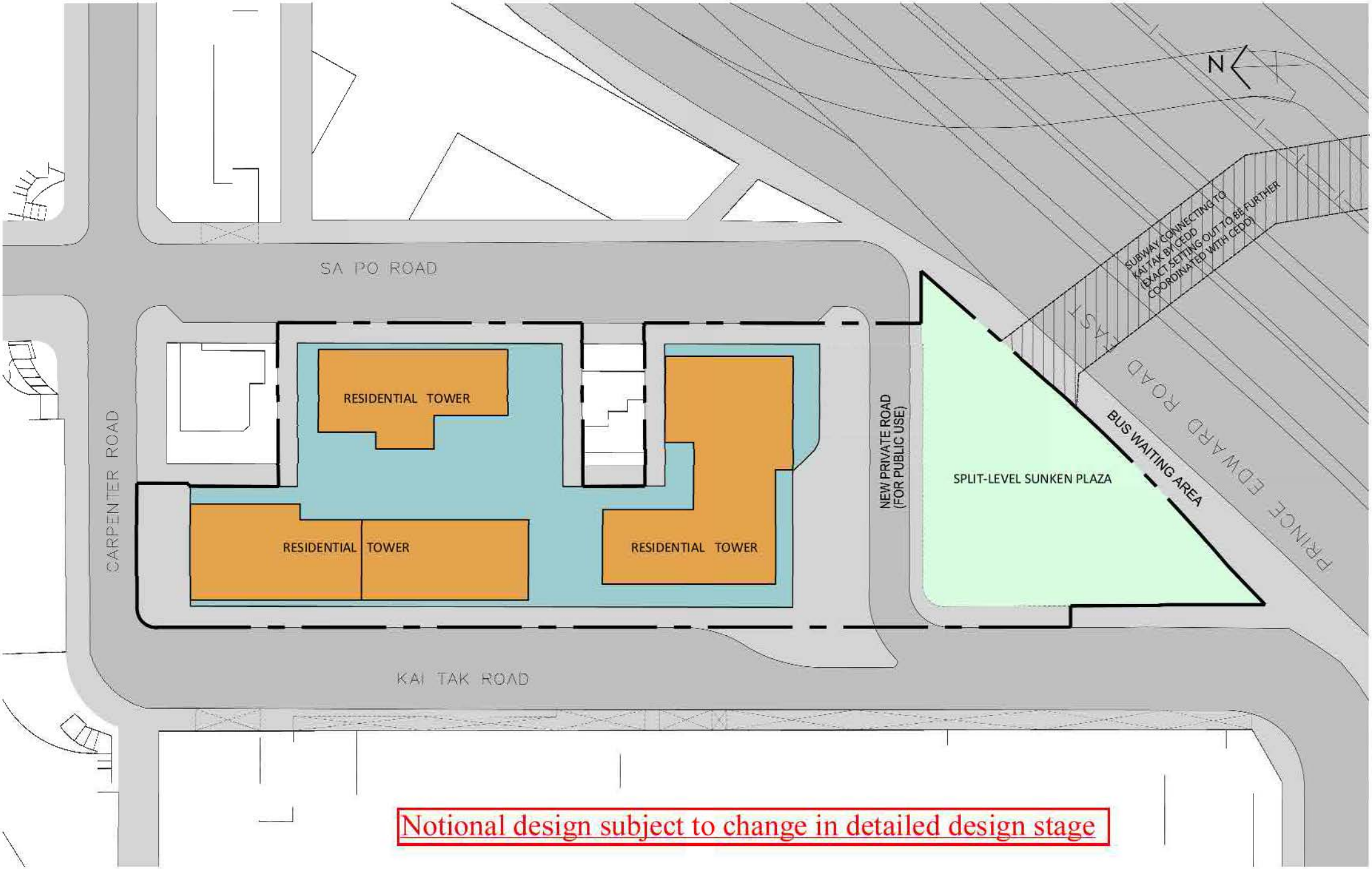
Project Identification	**D-588**
Project Name	**Contract No. GE/2013/04** **Ground Investigation - Urban (Term Contract)**
Works Order No.	**GE/2013/04.22**
Location	**Agreement No. CE 30/2008(CE),** **Kai Tak Development - Infrastructure at Former Runway and Remaining Areas of North Apron and Improvement of Adjacent Waterways - Design and Construction** **Land GI Works at Areas of Future Road D1 and Associated Works (GI Works - Batch 1)**
Client	**Geotechnical Engineering Office,** **Civil Engineering and Development Department**
From	**DrilTech Ground Engineering Ltd.**

Issue Sequence Number	**Date of Issue**	**Issued To**		**General Notes**
D588_GE201304.22.00	04-Nov-13	Geotechnical Engineering Office, Civil Engineering and Development Department		
File Name	**Creation Date**	**Creation Time**	**File Size in Bytes**	**General Description of Data Transferred**
GE201304.22.ags	04-Nov-13	10:44	109KB	Digital Data in AGS Format for Final Field Work Report
GE201304.22.pdf	02-Nov-13	11:43	76,841KB	Digital Data in PDF Format for Final Field Work Report
Photographs_201304.22.jpg	25-Sep-13	15:17	183MB	Digital Data in JPG Format for Final Field Work Report
Individual Investigation Stations.pdf	04-Nov-13	12:09	32MB	Digital Data in PDF Format for Final Field Work Report

End of Report

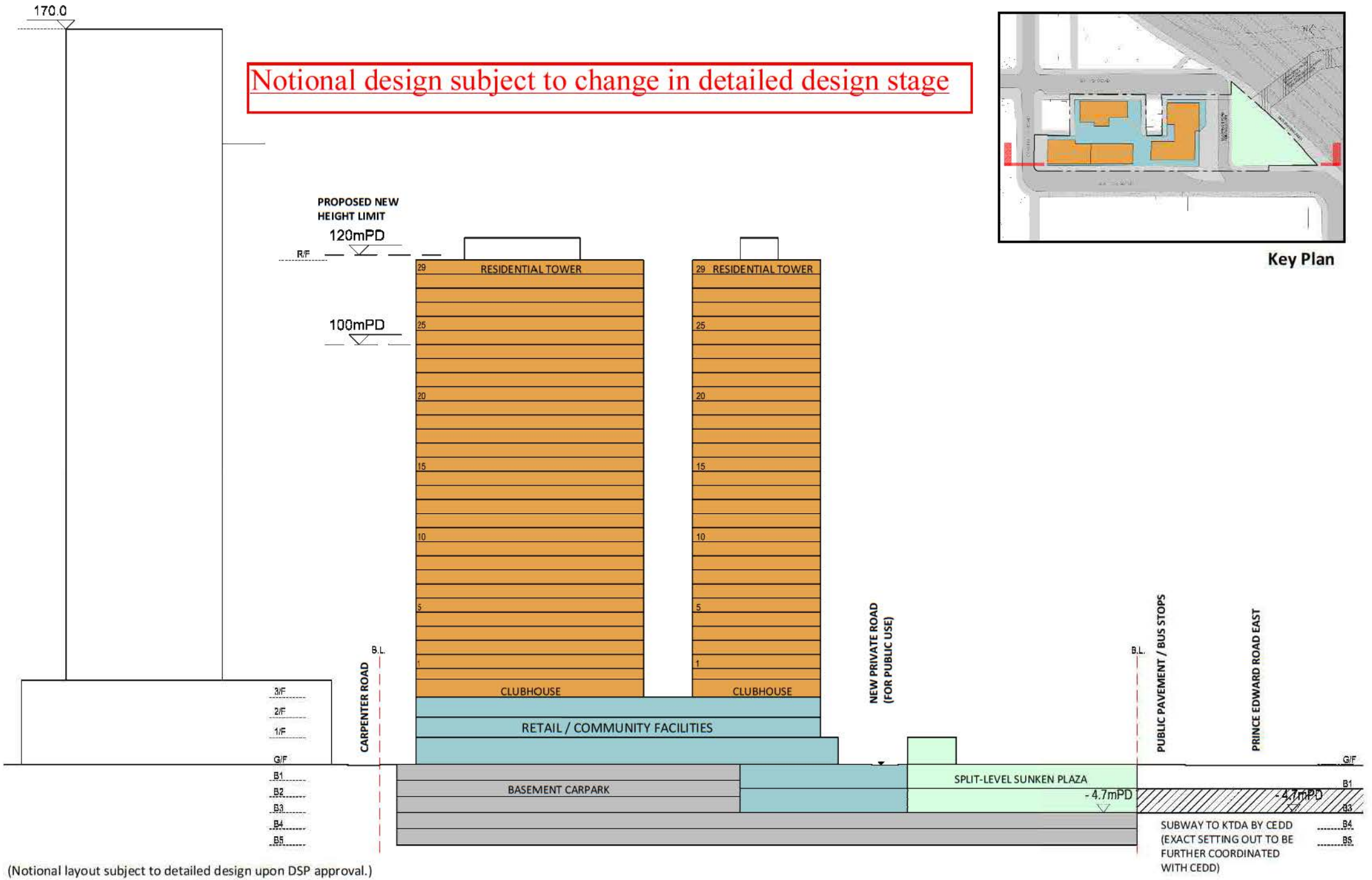
APPENDIX E

Schematic Building Plans



(Notional layout subject to detailed design upon DSP approval.)

URBAN RENEWAL AUTHORITY 市區重建局 URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)	Notional Design – Block Plan	**Figure 1.1**



(Notional layout subject to detailed design upon DSP approval.)

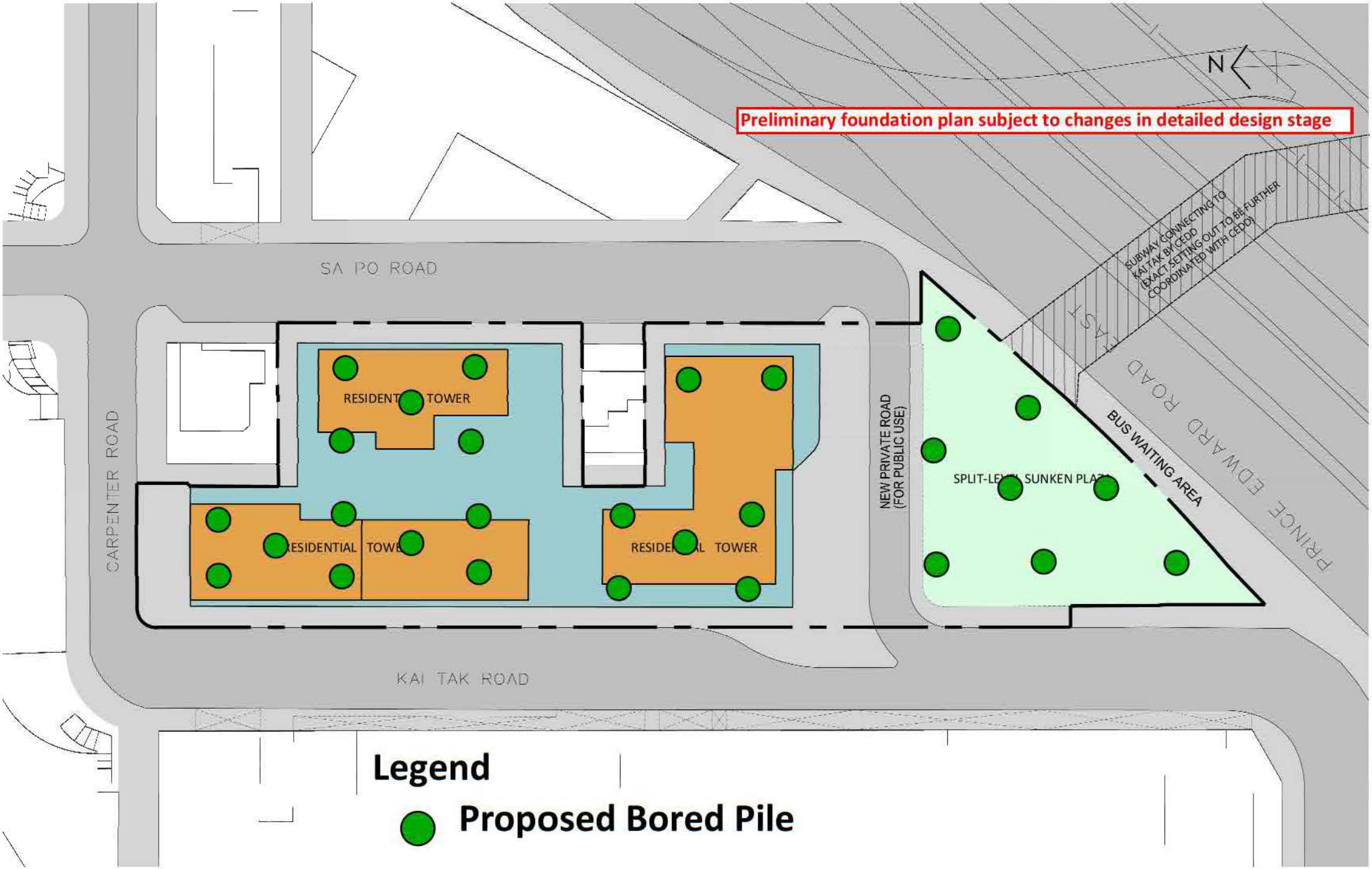
URA Kai Tak Road / Sa Po Road Development Scheme (KC-015)

Notional Design – Schematic Section

Figure 1.2

APPENDIX F

Preliminary Foundation Plans

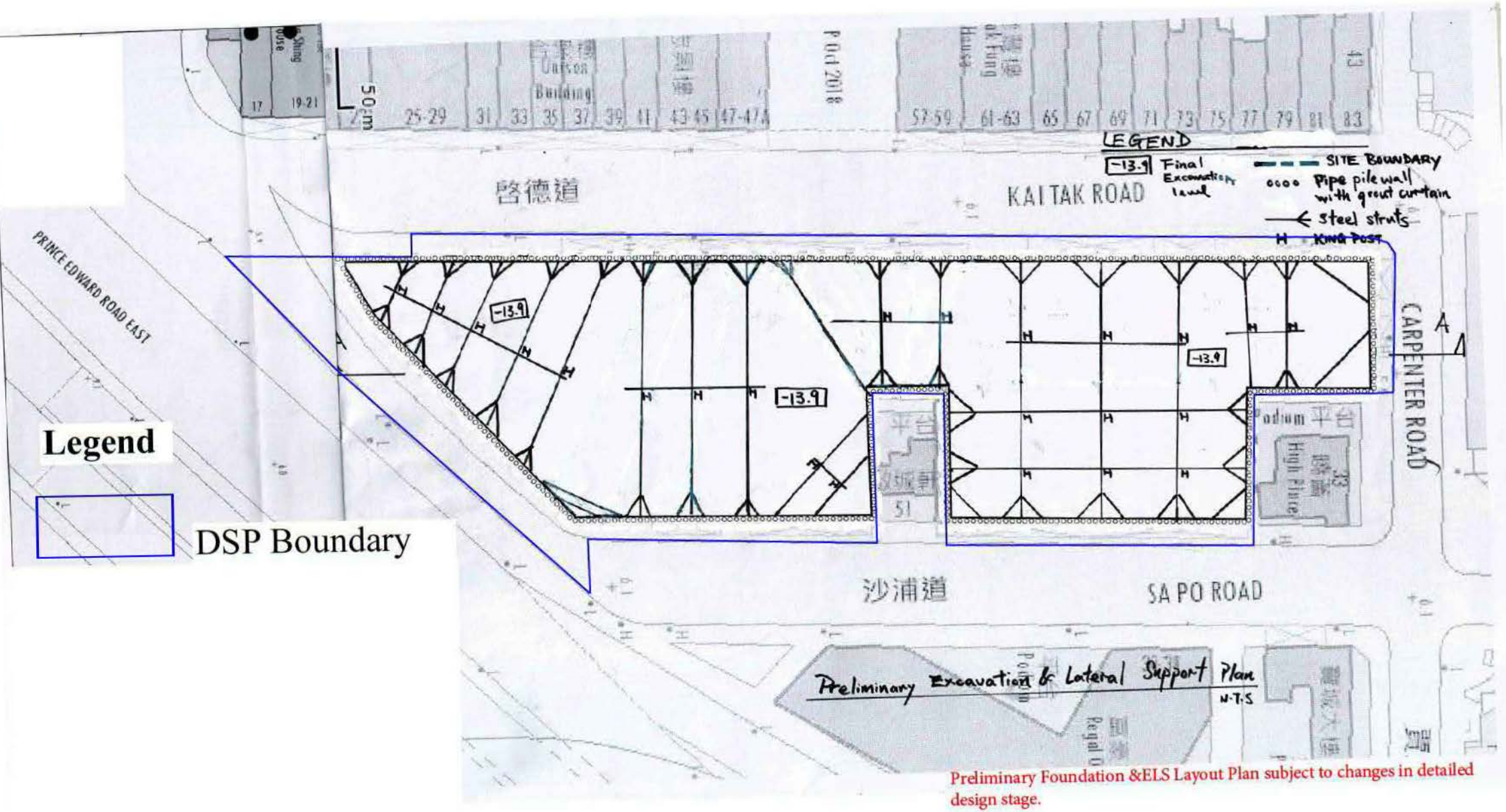


(Notional layout subject to detailed design upon DSP approval.)

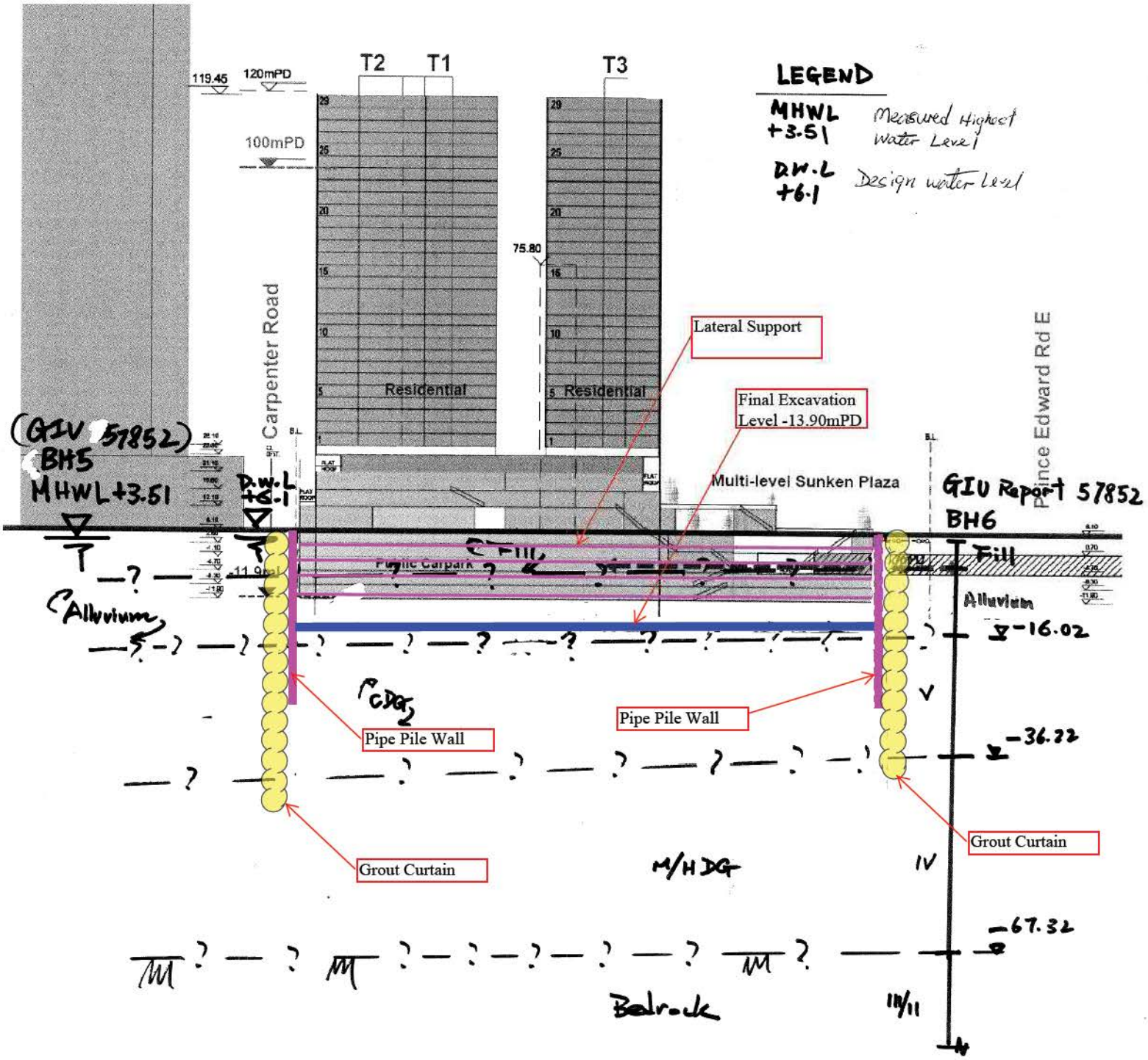
Preliminary Foundation Layout Plan (N.T.S.)

APPENDIX G

Preliminary ELS Plans



Preliminary Foundation &ELS Layout Plan subject to changes in detailed design stage.



Section A–A

N.T.S.

APPENDIX H

Settlement Analysis (Plaxis Model)

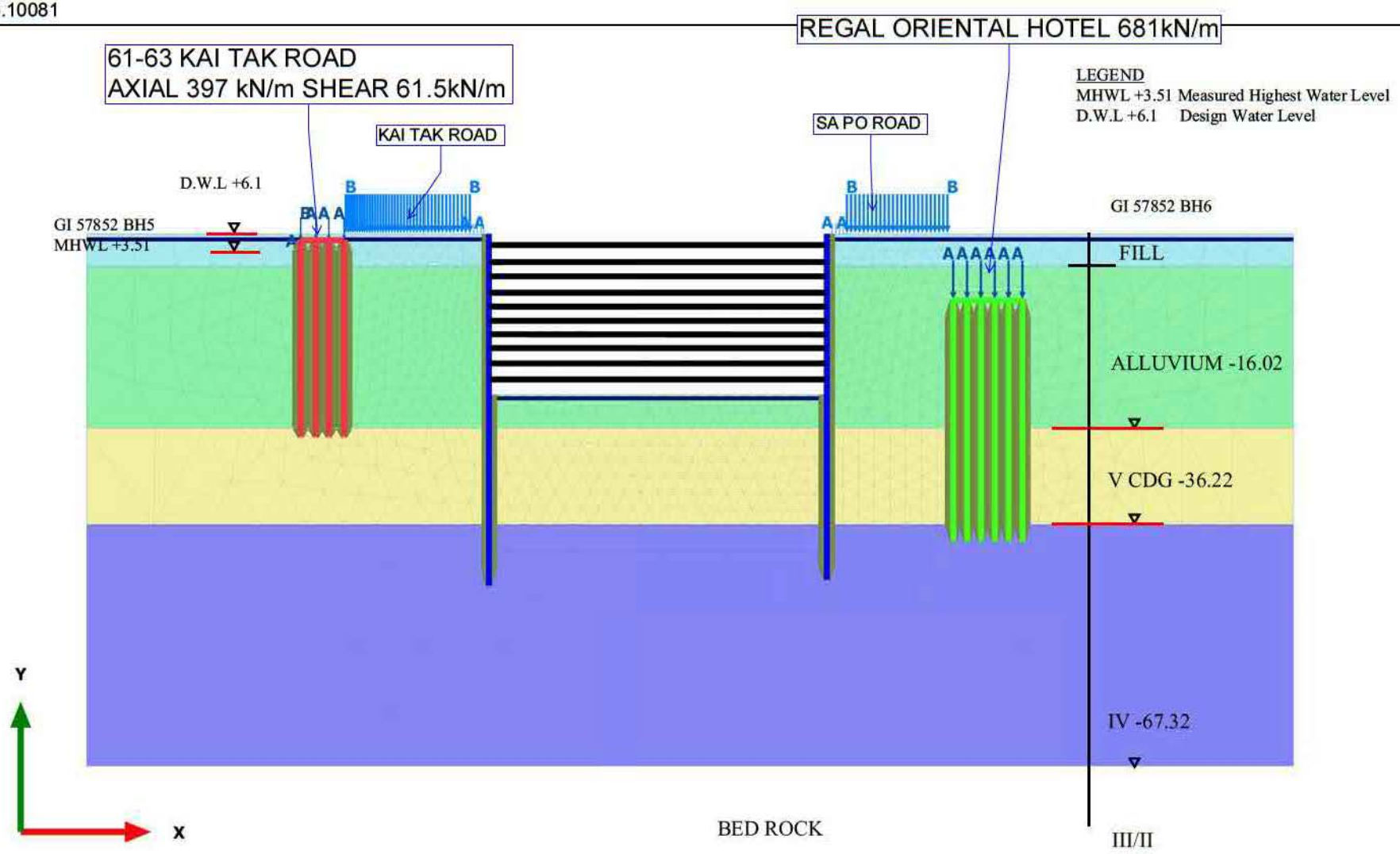
Survey and Mapping Office, Lands Department, Copyright Reserved. (Printed by CHENG HUNG WAI)



Title	
Division	
Scale	1:1000
Date	19/12/2018

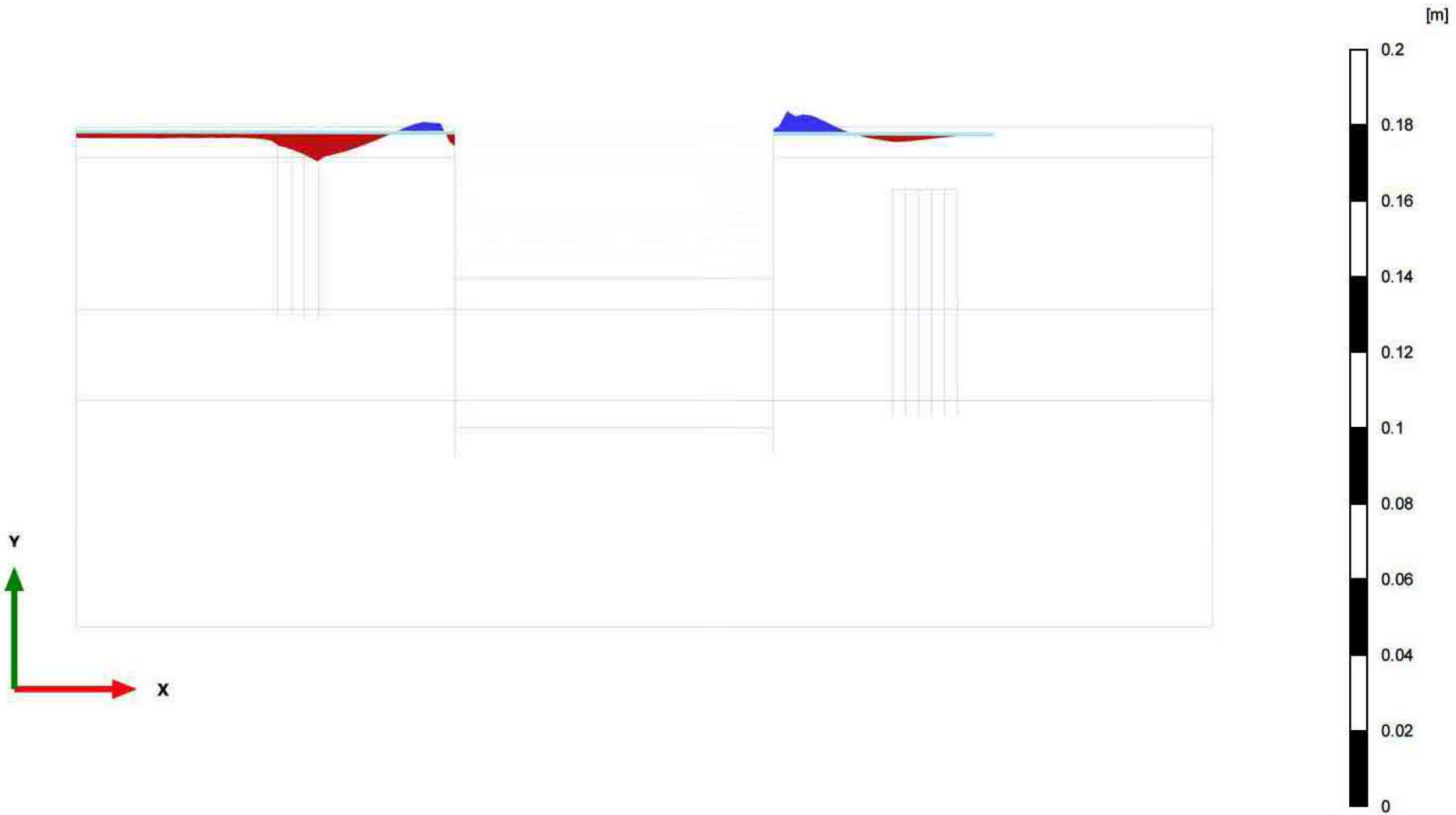
GEOTECHNICAL ENGINEERING OFFICE
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Reduced Print of Map Sheet(s) : 11NE-11A



Connectivity plot

PLAXIS	Project description: KC-015		Date: 12/24/2018
	Project filename: Section 1-1 (pipe pile + bui ...	Step: 235	User name: David S K Au & Associates Ltd



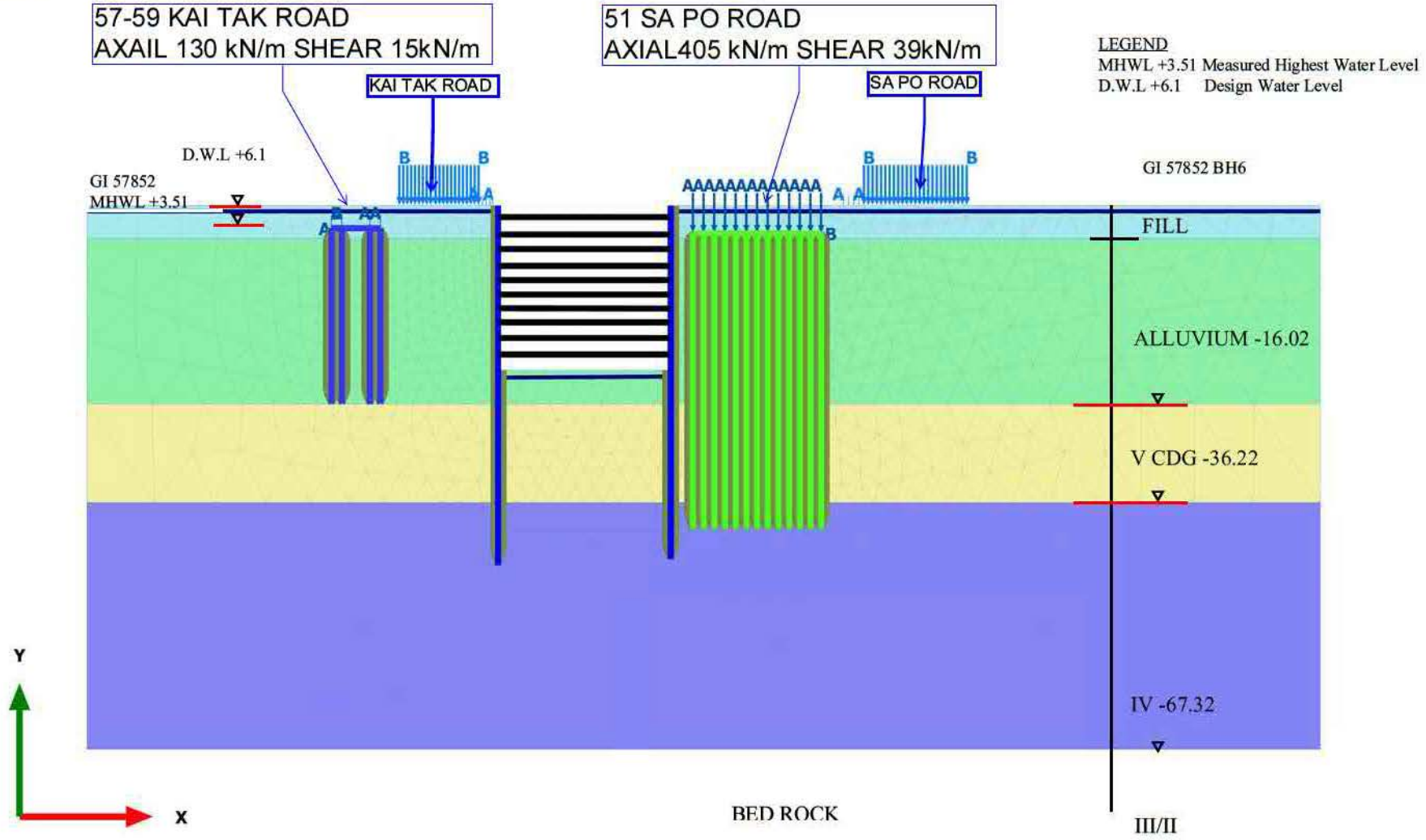
Total displacements u_y (scaled up 500 times)

Maximum value = $5.938*10^{-3}$ m

Minimum value = $-7.685*10^{-3}$ m

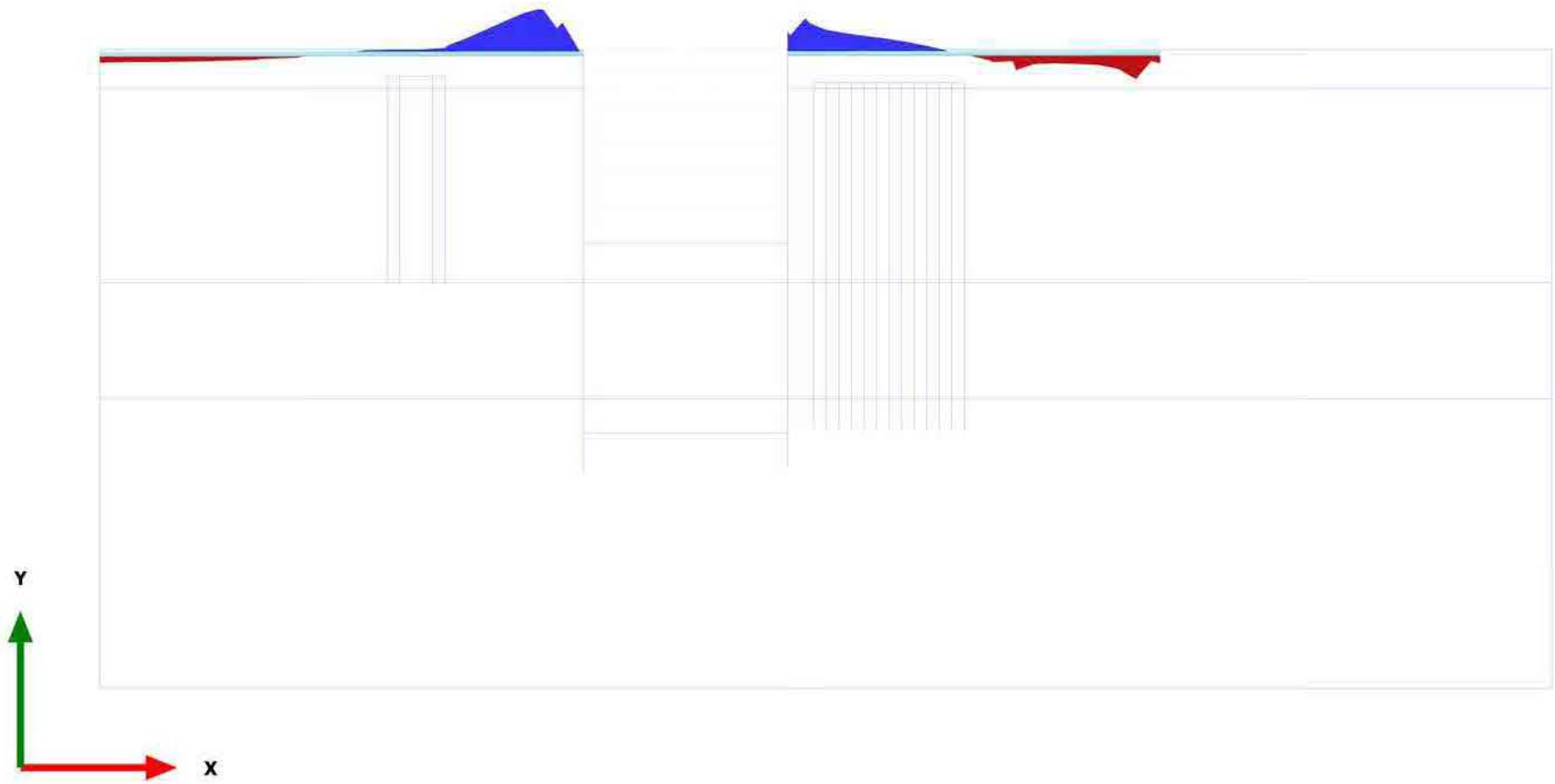
PLAXIS

Project description		Date
KC-015		12/24/2018
Project filename	*Step*	*User name*
Section 1-1 (pipe pile + bui ...	235	David S K Au & Associates Ltd



Connectivity plot

PLAXIS	Project description: KC-015		Date: 12/24/2018
	Project filename: Section 2-2 (pipe pile + bui ...	Step: 145	User name: David S K Au & Associates Ltd

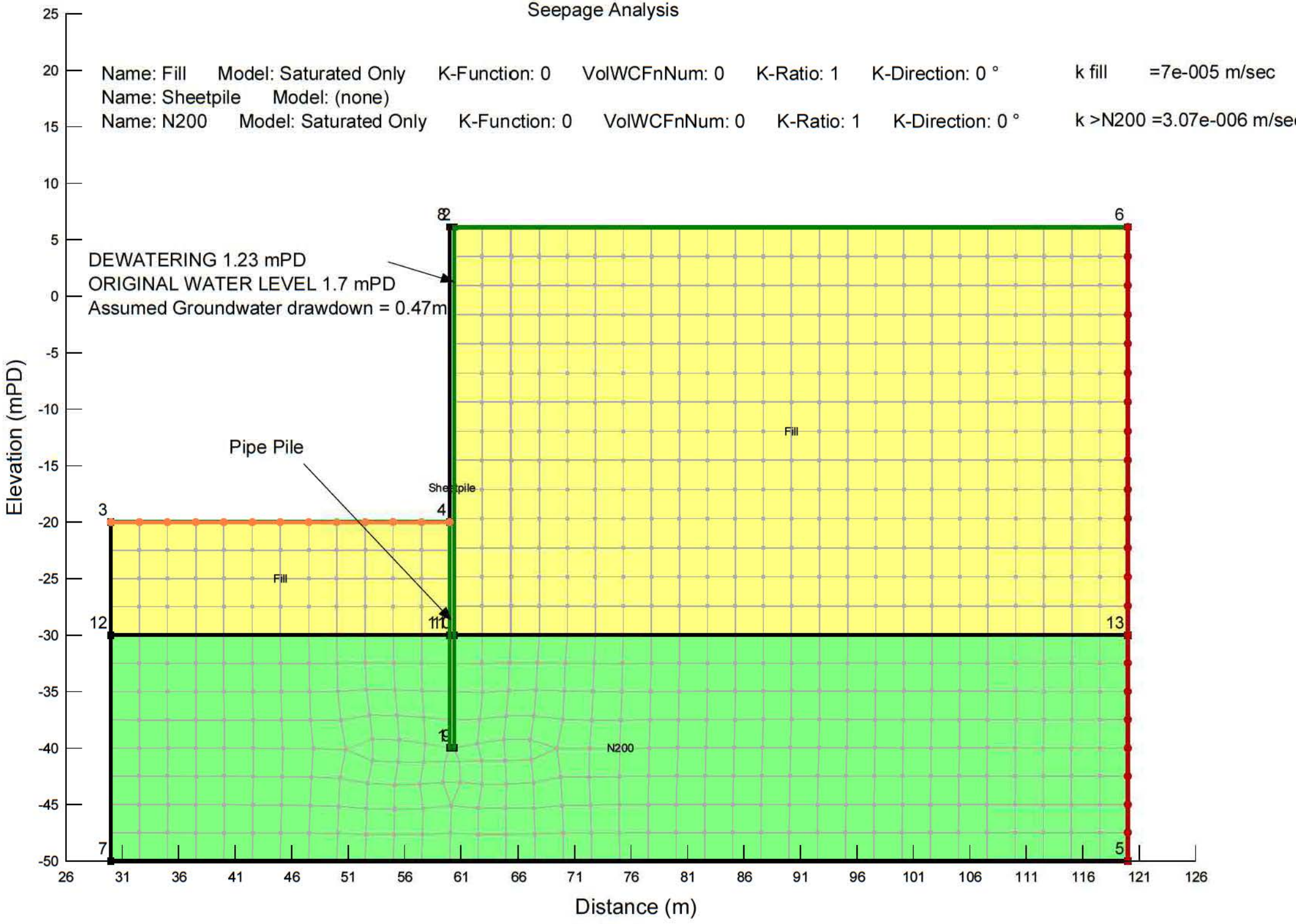


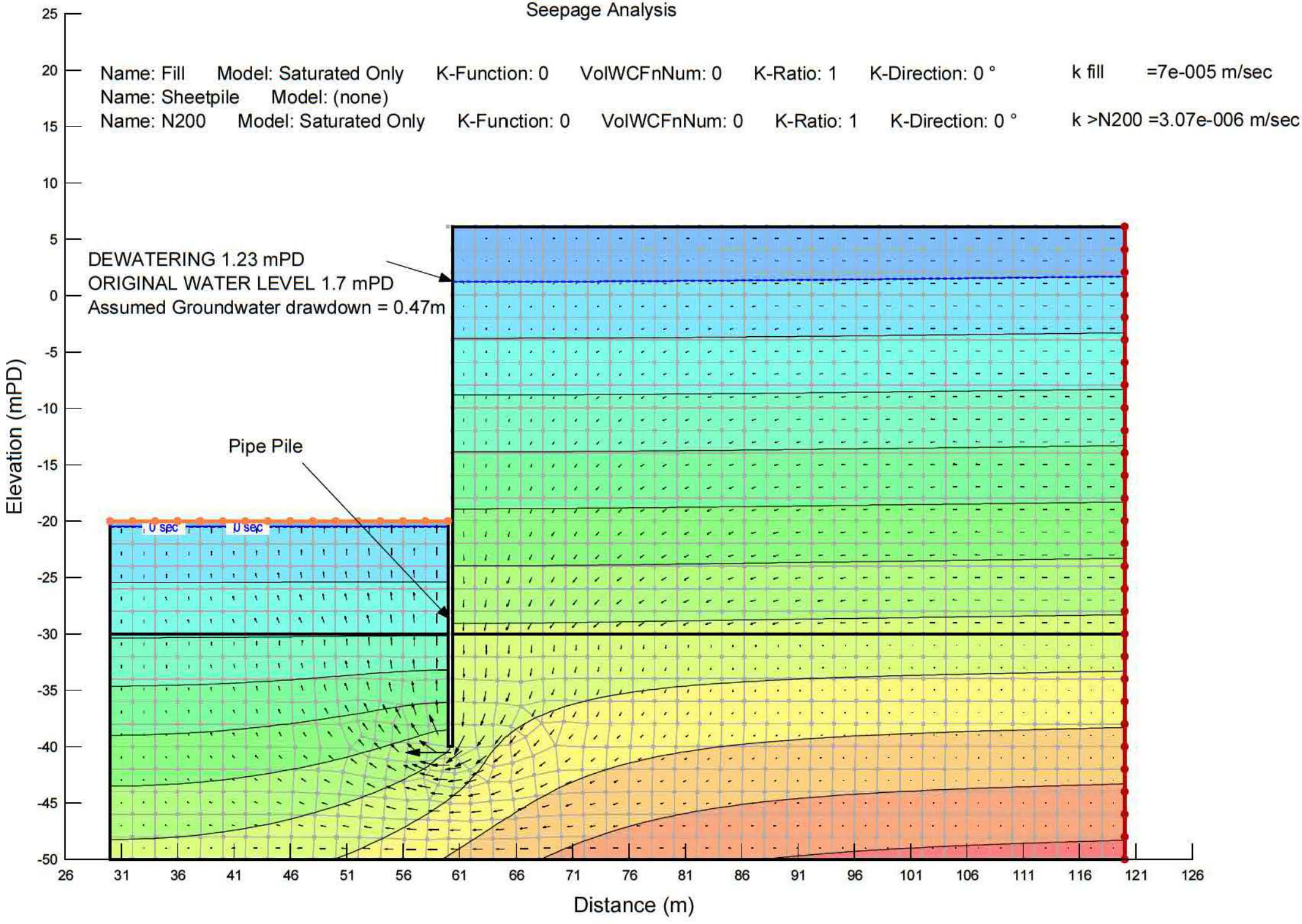
Total displacements u_y (scaled up 500 times)

Maximum value = $9.189*10^{-3}$ m

Minimum value = $-5.349*10^{-3}$ m

PLAXIS	*Project description* KC-015			*Date* 12/24/2018
	Project filename Section 2-2 (pipe pile + bui ...	*Step* 145	*User name* David S K Au & Associates Ltd	


Seepage Analysis
Name: Fill Model: Saturated Only K-Function: 0 VolWCFnNum: 0 K-Ratio: 1 K-Direction: 0 ° k fill =7e-005 m/sec
Name: Sheetpile Model: (none)
Name: N200 Model: Saturated Only K-Function: 0 VolWCFnNum: 0 K-Ratio: 1 K-Direction: 0 ° k >N200 =3.07e-006 m/sec
DEWATERING 1.23 mPD
ORIGINAL WATER LEVEL 1.7 mPD
Assumed Groundwater drawdown = 0.47m
Pipe Pile
Fill
Fill
N200
Elevation (mPD)
Distance (m)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Assumed Groundwater drawdown = 0.47m
Pipe Pile
Elevation (mPD)
Distance (m)

Project:	KAI TAK ROAD	Prepared by:	JY2
		Checked by:	-

Job No.:	DA16091-063	Date:	24-Dec-18	Page:	

Check Settlement due to excavation (From Plaxis Model)

The Settlement due to excavation = **13.00** mm

Check Settlement due to Groundwater drawdown outside the construction site

The Settlement due to dewatering is estimated as $s_c = d_v \times m_v \times z$

where
dv = increase in effective stress = 9.81 x H
mv = coefficient of volume compressiblity = 1 / E_o
where E_o = 1.35E
E = stiffness of soil
z = thickness of soil layer

Assumed Groundwater drawdown = 0.47 m

Increase E by Depth? YES

Soil Type	Top Level of Soil (mPD)	Bottom Level of Soil (mPD)	E (Mpa)	E'increase	m_v (Mpa^{-1})	d_v (kPa)	z (m)	S_c (mm)
Fill	6.10	-20.00	15	0	0.07	4.6107	26.10	8.02
Fill	-20.00	-24.00	35	0	0.03	4.6107	4.00	0.53

Settlement due to Groundwater Drawdown = **8.55** mm

Total Settlement

Groundwater Drawdown Settlement + Settlement due to excavation = **21.55** mm

< 25.0 OK

Appendix 9

Social Impact Assessment (Stage 1) Report

市區重建局
URBAN RENEWAL AUTHORITY

Kai Tak Road/Sa Po Road

Development Scheme (KC-015)



Stage 1 Social Impact Assessment

February 2019

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1. INTRODUCTION

1.1 In the new Urban Renewal Strategy (URS) issued by the Government in February 2011, the Urban Renewal Authority (URA) will carry out Social Impact Assessment (SIA) studies in the form of "*a Stage 1 social impact assessment ….. before the publication of any proposed redevelopment project in the Government Gazette*"; and "*a Stage 2 social impact assessment …. after the proposed project has been published in the Government Gazette*".

1.2 The URS also states "*Early social impact assessments will be initiated and conducted by the DURF (District Urban Renewal Forum) before redevelopment is recommended as the preferred option. The URA will update these assessments by DURF before implementing any specific redevelopment project.*" As the Scheme falls within the study area of Kowloon City DURF ("KC DURF"), reference has been made to the DURF SIA report, where appropriate, in preparation of this Stage 1 SIA.

1.3 According to the URS, the main elements of the Stage 1 SIA conducted by the URA before publication of a proposed project should include: -

- the population characteristics of the proposed project area;
- the socio-economic characteristics of the area;
- the housing conditions in the area;
- the characteristics of local business activities, including small shops and street stalls;
- the degree of overcrowding in the area;
- the availability of amenities, community and welfare facilities in the area;
- the historical background of the area;
- the cultural and local characteristics of the area;
- an initial assessment of the potential social impact of the proposed project; and
- an initial assessment of the mitigation measures required.

1.4 The Stage 2 SIA to be conducted after publication of the project will use factual information collected in the freezing survey at project commencement. The URS stipulates the URA should submit both Stage 1 and Stage 2 SIA reports to the Town Planning Board (TPB) when it submits a development scheme under section 25 of the Urban Renewal Authority Ordinance (URAO). It also stipulates the URA should release the reports for public information.

2. THE PROJECT BACKGROUND

2.1 The Kai Tak Road/ Sa Po Road Development Scheme (the Scheme) is located in Kowloon City District, which is bounded by Sa Po Road to the east, Prince Edward Road East to the south, Kai Tak Road to the west and Carpenter Road to the north (**Figure 2.1)**. It covers a gross site area of about 6,106 sq.m., involving two rows of buildings and land: 31-49 & 55-73 Sa Po Road (odd nos.) and 24-82 Kai Tak Road (even nos.), two pieces of government land in the southern part of the Scheme, a portion of Sa Po Road, a back lane, and portion of the surrounding public pavement. Apart from the residential buildings, there is one commercial building and one private vacant site (currently used as open carpark) within the Site. Two relatively young buildings at No.51 Sa Po Road and No.33 Carpenter Road built in 2006 and 2014 respectively are excluded. Subject to detailed design, the net site area used to calculate the development potential of the Scheme is about 5,352 sq.m..

2.2 The Scheme falls in Nga Tsin Wai Road Area defined in the Urban Renewal Plan (URP) prepared by KC DURF. The Nga Tsin Wai Road Area is positioned as a dining and cultural district, aiming to preserve the local street life and its historic and cultural characters and create a gateway to the KTDA in KC DURF's URP. The Scheme Area largely follows the proposed "Comprehensive Development Area" ("CDA") zoning boundary in the KD DURF's URP for mixed development with commercial, community and residential uses (**Figure 2.2**). The DURF SIA, in particular the community profile complied for this area, will be taken into consideration in this report.

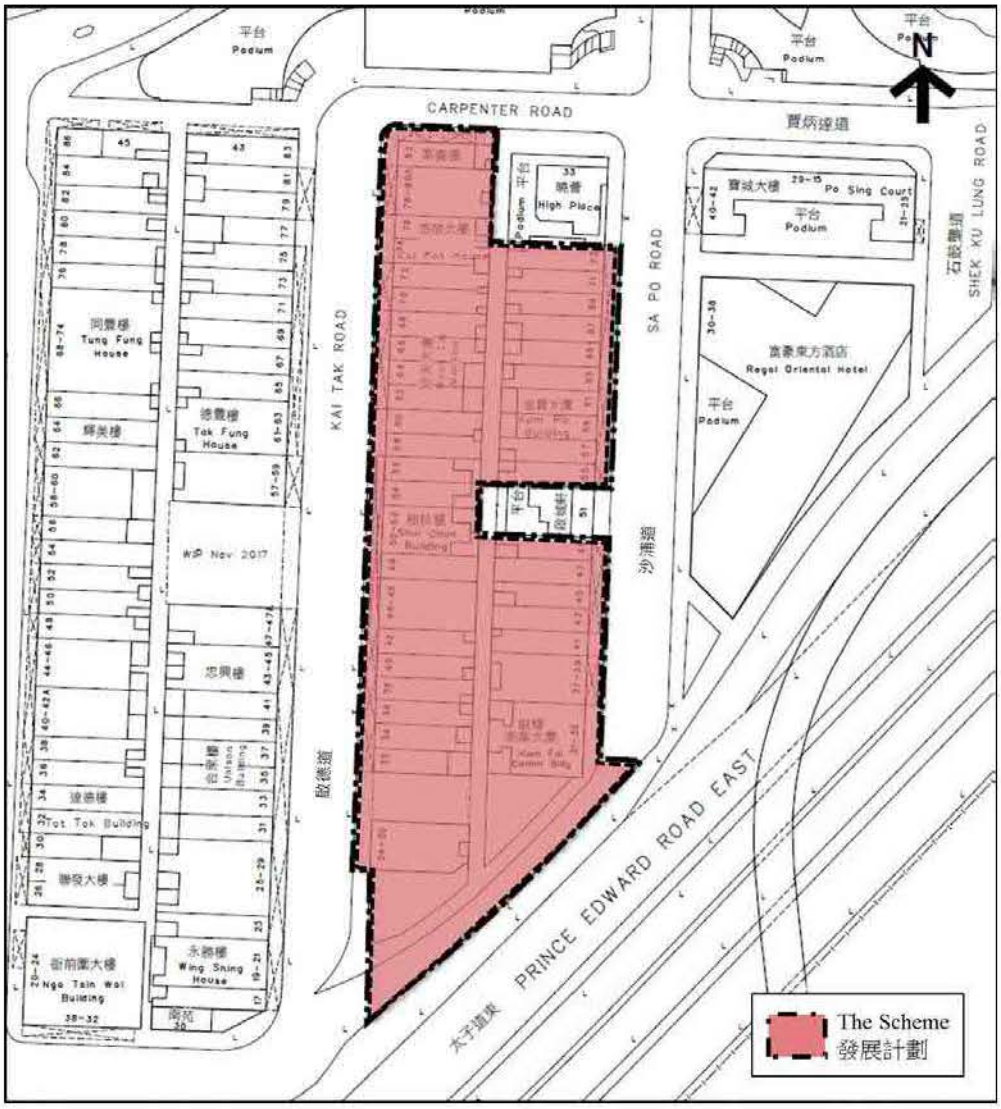


Figure 2.1 Location Plan

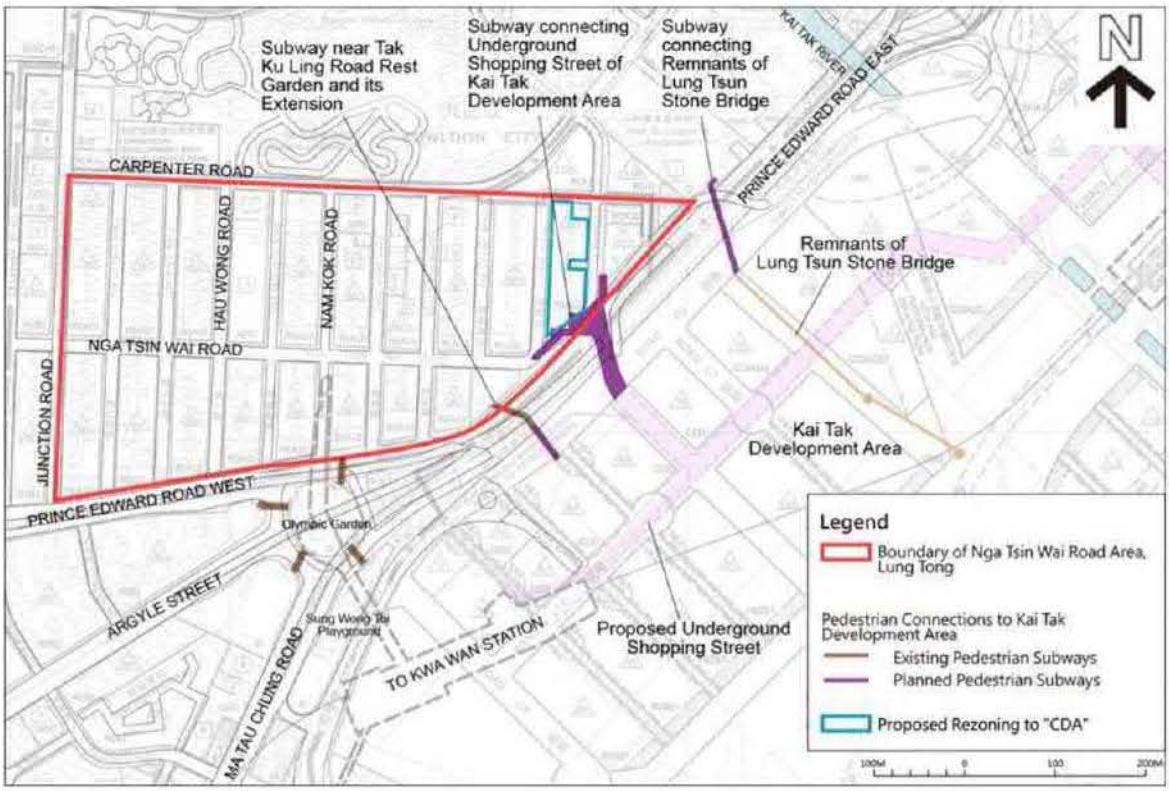


Figure 2.2 Nga Tsin Wai Road Area of KC DURF (Extract of the KC DURF URP)

2.3 The 2011 URS promulgates a comprehensive and holistic approach to carry out urban renewal with the following objectives:

- Restructuring and replanning of concerned urban areas;
- Designing more effective and environmentally-friendly local transport and road networks within the concerned urban areas;
- Rationalising land uses within the concerned urban areas; and
- Enhancing the townscape with attractive landscape and urban design.

2.4 In addition, the Scheme also seeks the opportunity to carry out comprehensive redevelopment to address the planning intentions of the area as recommended in the KC DURF's URP, which include:

- *a comprehensive development to facilitate mixed development with commercial and residential uses to strengthen the connection with the KTDA;*
- *creation of entrance plaza to tie in with the underground shopping street at KTDA and to serve as a gateway to create a sense of arrival;*
- *provision of commercial and community facility uses (such as multi-function rooms and elderly/rehabilitation related community facilities);*
- *provision of a public car park to alleviate the huge demand for car parking*

spaces of the Nga Tsin Wai Road area.

2.5 To achieve the objectives in URS and to take forward the recommendations in KC DURF, the Scheme will include the following proposals:

i. A split-level sunken plaza is proposed in the southern part of the Scheme leading to the Kai Tak Development Area (KTDA) and its Underground Shopping Street (USS). It will allow better connection between the old and new districts, continue the retail vibrancy, and enhance the walkability between this part of old district area and KTDA. The proposed split-level sunken plaza of about 1,000 sq.m. will be provided for public use within the Scheme, including covered and un-covered area and with hard and soft landscape, commercial/retail components, event space and place making elements at different levels for public enjoyment.

ii. The Scheme will rationalize land uses through the closure and realignment of Sa Po Road to provide a more comfortable and spacious connection with the existing pavement along Prince Edward Road East to provide solution space for existing bus queuing, improve pedestrian circulation, and enhance walkability.

iii. Through utilisation of underground space, the Scheme aims at alleviating part of the parking demand in the area by providing basement public vehicle park to accommodate about 300 private car parking spaces. It will also make way for solution space and opportunities for pavement widening and to enhance walkability of the area in long term.

iv. About 800 sq.m. GFA within the non-domestic portion of the proposed development will be reserved to provide appropriate community uses to meet community needs.

2.6 In addition to the above, the Scheme also provides an opportunity to enhance the walkability and provide a pedestrian friendly environment. As an integrated urban renewal approach, subject to further liaison works with relevant Government departments, implementation of related pavement improvement works could be carried out under revitalisation initiative to achieve the goal and enhance walkability of the area.

3. HISTORICAL BACKGROUND AND LOCAL CHARACTERISTICS

3.1. Kowloon City was named after the Kowloon Walled City that built in Qing Dynasty (1847) to strengthen the defense of the Kowloon Peninsula. The village settlement was mostly engaged in agriculture and fisheries, some also relied on the salt and quarry industries for a living. The waterfront areas spanning from the present-day Kowloon City, To Kwa Wan to Hung Hom were mooring places for merchant ships during the Sung and Ming periods, and the shops along the waterfront of Kowloon City at that time, i.e., the area from Kowloon Walled City Park to Prince Edward Road East at present, was a bazaar named "Kowloon Street".

3.2. Historical map records indicate that the Scheme Area was probably located near the coastline in the 1920s. The last phase of reclamation in Kowloon City was carried out in the 1960s and the reclaimed land was designated for development of the former Hong Kong International Airport (i.e. also known as Kai Tak Airport). The Kai Tak Airport was relocated to Chek Lap Kok in July 1998 and the relocation has offered an opportunity for new development plan in Kai Tak, which is named as the Kai Tak Development Area (KTDA). The KTDA is designated with mix of community, housing, business, tourism and infrastructural uses.

3.3. Since after the relocation of the Kai Tak Airport, the area is facing changing of landscape and urban context through redevelopment nowadays. With the removal of the airport height restrictions, some originally low-rise buildings were redeveloped into single high-rise towers in Kowloon City, resulting in sporadic redevelopments with a mixture of built forms and building height in the area. Such sporadic redevelopments under unrestricted leases and comprise two to three lots have no carpark provision and lead to increasing parking demand but shortage of parking spaces in the area.

3.4. The Scheme Area is situated in the part of Nga Tsin Wai Road Area in the KC DURF. This part of Lung Kong area is of distinctive characters and high pedestrian and traffic flow. Apart from being a residential area, it is one of the renowned specialty dining areas in Hong Kong with a variety of restaurants concentrated on the ground floors of the residential buildings. The area is particularly busy during dining times with people coming for dining by private cars or public transport.

Kowloon Walled City Park

3.5. To the north-west of the Scheme, opposite to the Carpenter Road is the Kowloon Walled City Park which was built on the original footprint of Kowloon Walled City. The former Yamen Building of Kowloon Walled City and Kowloon Walled City South Gate Remnants situated in the Park have been graded as the Declared Monument under the Antiquities and Monuments Ordinance.

Lung Tsun Stone Bridge

3.6. The Lung Tsun Stone Bridge in the KTDA was a landing pier built between 1873 and 1875 at the coastline of the old Kowloon City. The Lung Tsun Stone Bridge is a Site of Archaeological Interest recorded by AMO and in-situ preservation of the Bridge remnants were recommended in KTD. Apart from the extant sections of the Stone Bridge, the remnants of the Pavilion for Greeting Officials, Former Kowloon City Pier and segments of 1924 and 1930s seawalls were also identified in previous archaeological work.

Sung Wong Toi Garden

3.7. Sung Wong Toi Inscription Rock in the Sung Wong Toi Garden is a Government Historic Site identified by AMO. After the Sung Dynasty was overthrown by the Mongolian army in 1279, people inscribed the words "Sung Wong Toi" on the huge rock in memory of the fact that two Sung Emperors once took refuge there. In 1941, the Japanese army occupied Hong Kong and burst the huge rocks in order to expand the Kai Tak Airport. The rock with the words "Sung Wong Toi" remained intact by chance. After Hong Kong was liberated, "Sung Wong Toi Garden" was built to preserve the historical heritage.

Nga Tsin Wai Village

3.8. Nga Tsin Wai Village was a walled village in the urban area. About two-thirds of the village houses, mostly buildings of one or two storeys, had already been demolished by private owners over the past two decades, and the remaining structures are in very decrepit condition. The URA is currently undertaking an Archaeological Impact Assessment (AIA) for the proposed redevelopment at Nga Tsin Wai.

Themed Walking Trial of KC DURF

3.9. The Kowloon City District is rich in its historic and cultural resources. The URP

of KC DURF has proposed a "Themed Walking Trial" (**Figure 3.2**) to strengthen and highlight the historic and cultural characters of the district, aiming to attract potential visitors and create a distinctive image for the district.

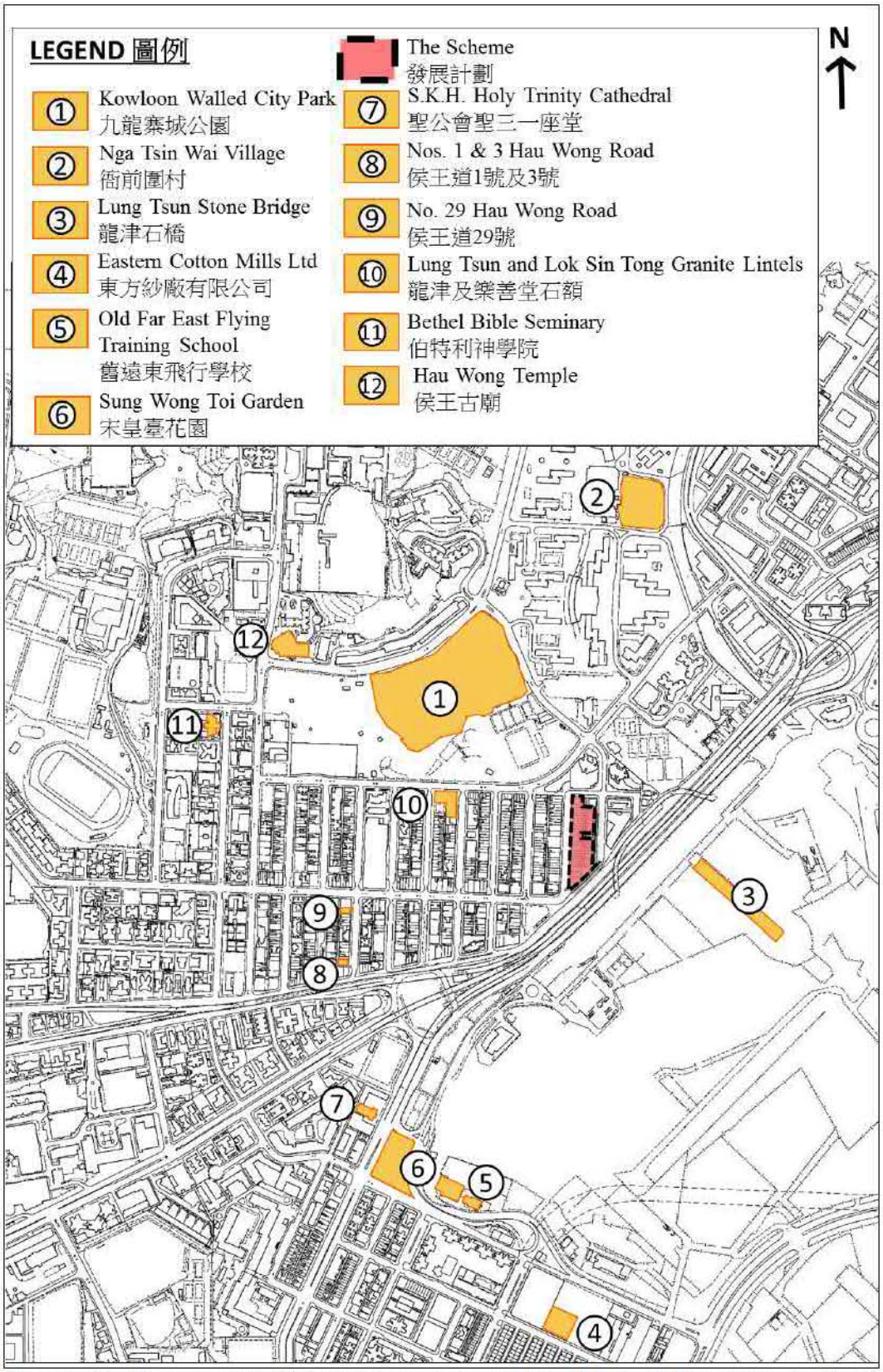


Figure 3.1 Places with Historical Background and Local Character in Kowloon City

Source: KC DURF's URP and Leisure and Cultural Services Department's website: Geographic Information System on Hong Kong Heritage, as of January, 2019.



Figure 3.2 Themed Walking Trial of KC DURF (Extract of the KC DURF URP)

4. POPULATION & SOCIO-ECONOMIC CHARACTERISTICS

4.1. To assess the population and socio-economic characteristics of the Scheme, a combination of sources has been used, including the 2016 Population By-Census and past experience from other URA projects. For the accommodation assessment, it is based on approved building plans and on-site non-obtrusive observation. Given the background of the (general and non-obtrusive nature) sources of the data available to carry out this Stage 1 SIA, the assessments derived should only be considered as indicative and for reference use only and subject to the Freezing Survey.

4.2. The Census and Statistics Department's (C&SD) website provides the 2016 Population By-Census results. Depending on the type of census data, the 'lowest' disaggregated data available may be down to Tertiary Planning Unit (TPU), Large Street Block Groups (LSBG) level or Small Street Block Groups (SSBG) levels and Constituency Area.

4.3. The Scheme falls within the Lung Shing Constituency (G10) of the Kowloon City (KC) District and within Tertiary Planning Unit (TPU) 285 (**Figure 4.1**).

4.4. The Scheme lies within the TPU Small Street Block Group (SSBG) 28513 (**Figure 4.2**). It falls within Large Street Block Group (LSBG) 28512L (**Figure 4.2**). The SSBG 28513 also includes High Place (No. 33 at Carpenter Road) and Carlson Court (No. 51 at Sa Po Road) which are relatively young buildings built in 2014 and 2006 respectively. High Place is a private residential development, while Carlson Court is an off-campus student residence managed by the Hong Kong Baptist University. The socio economic characteristics of those residing in a more modern building and student residence can be assumed to be different to those residing within the Scheme, which are mainly old buildings.

4.5. The DURF SIA report has suggested that the average household size within its study area is around 2.6-2.9. However, such figure corresponds to the wider study area of KC DURF, which may be less representative for older, dilapidated buildings with sub-divided flats that are in need of redevelopment. Based on past URA experience, the average household size of those within the Scheme is estimated to be around 2.1. A tenure split of about 30% owner occupied and 70% tenanted households is assumed in the preparation of this report. Site

observation indicates some existing units in the Scheme appear to have been converted into subdivided units or cubicle apartments. The actual number will be ascertained as far as practicable at Stage 2 SIA.

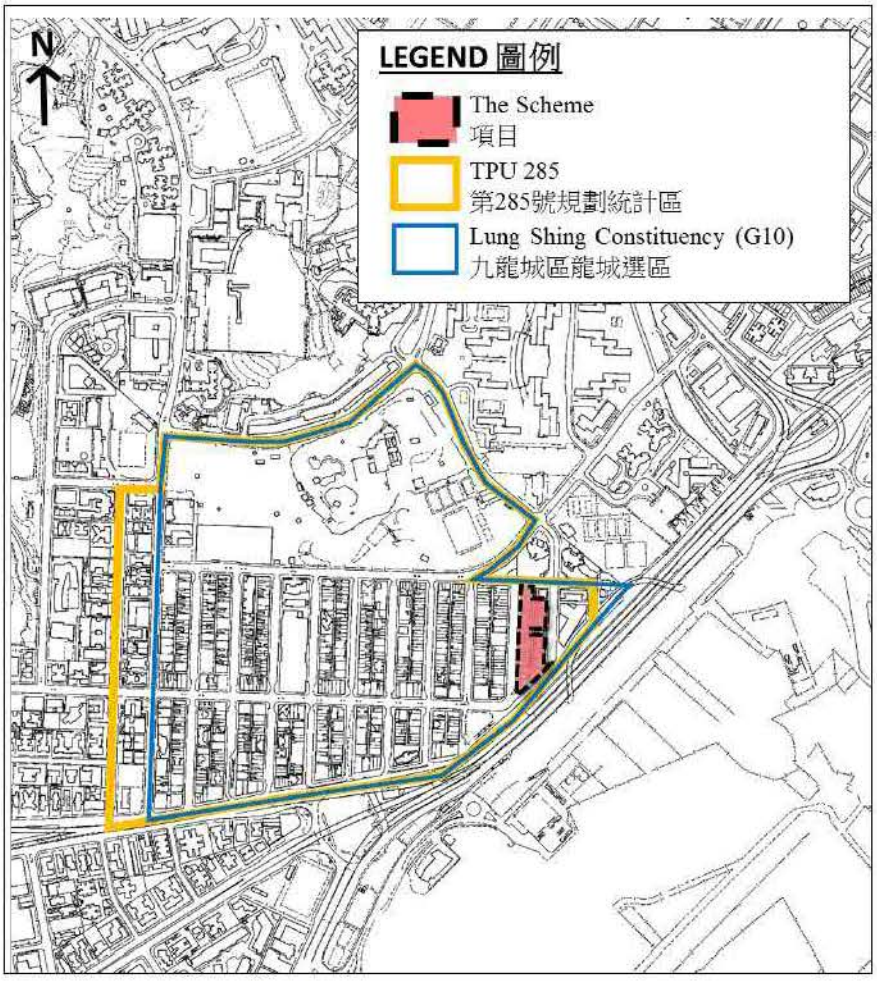


Figure 4.1 Boundary of Lung Shing Constituency (G10) and Tertiary Planning Unit (TPU) 285

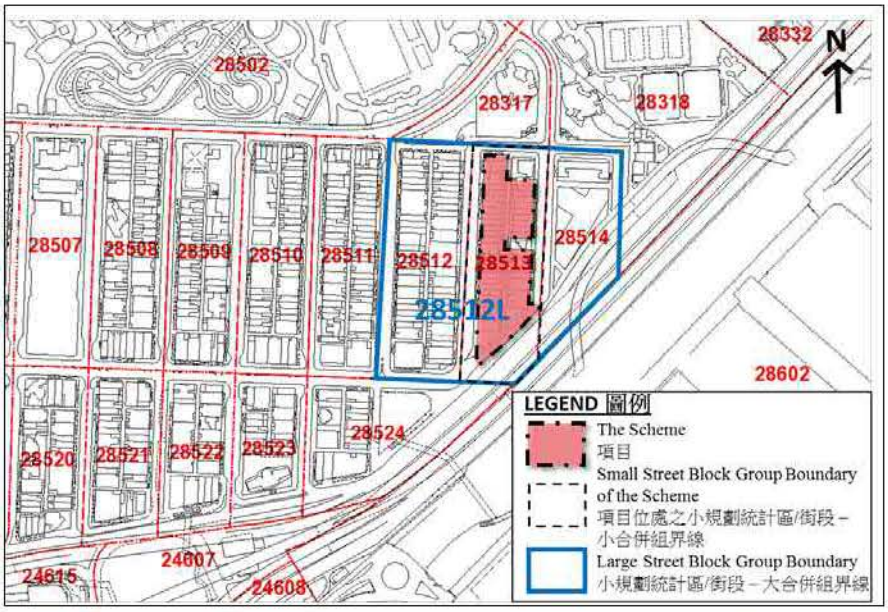


Figure 4.2 Street Block Boundaries of the Scheme (SSBG 28513 and LSBG 28512L)

Overview of Housing & Population Characteristics of Kowloon City District

4.6. As revealed in the 2016 By-census, the overall KC District has a population of about 418,732. In terms of monthly household income, the DURF SIA reported that the particular "Nga Tsin Wai Road Area" which covers the Scheme has a median monthly household income of $20,552, which is much lower than the average of the whole KC District (i.e. $25,500). The DURF SIA explained that the low income level might be related to the residents' occupations and the high proportion of residents with low educational attainment.

4.7. According to the 2016 By-Census, the majority of the living quarters in KC District are in private housing blocks (about 73%); only about 26% of living quarters are in public rental housings / subsidized home ownership housings. The remaining living quarters (about 1%) are in other types of housing. There is no Public Rental Housing (PRH) or Home Ownership Scheme (HOS) within the Scheme nor the Lung Shing Constituency. Being mainly built in the 1950s and 1960s, quite a number of private residential blocks in KC District appear to lack proper maintenance and management.

Household Composition

4.8. In accordance with the approved General Building Plan (GBP), the total number of upper floor residential units (excluding ground floor units for shops, and/or office uses) within the Scheme is 335. If adopting a degree of sharing of 2 based on URA experience for the upper floor domestic units, the total number of households is estimated to be about 670 households. It should be noted that the actual number of domestic units differs from that under the approved GBP due to the subdivided units. The household composition will be verified in the Freezing Survey upon commencement.

4.9. The assumed degree of sharing of 2 is higher than about 1.0 (i.e. no sharing) recorded for the KC District, and the Territory in the 2016 By-Census. This is based on actual experience of URA projects previously undertaken in various districts. It reflects the overcrowded and unsatisfactory living conditions, which are common characteristics found in URA redevelopment projects. This estimate shall be verified in the analysis of Freezing Survey in the Stage 2 SIA.

4.10. Applying the Census LSBG proportion of singleton (34%), doubletons (22%)

and 3-person or above households (44%), it gives a distribution of 228 singletons, 147 doubletons and 295 3-person or above households in the Scheme. The proportion of singleton households is higher than the territorial ratio. On the other hand, the doubleton households the proportion of 3-person or above households are both lower than the territorial ratio (see Table 4.1).

Table 4.1 Distribution of singletons, doubletons, and 3-person or above households

	Singletons	**Doubletons**	**3-person or above households**
LSBG 28512L	34% (228)	22% (147)	44% (295)
Territorial	18%	27%	55%

4.11. Based on past URA past experience as stated in Para. 4.5 above, the average household size of those within the Scheme is estimated to be around 2.1, which is lower than the average household sizes of the KC District (2.8) and the territory (2.8). This 'smaller' household size compared to district and territorial data could be a result of the presence of sub-divided units and/or cubicle apartments in previous URA projects, which can be assumed to be occupied by some singleton and doubleton households.

Population

4.12. An average household size of 2.1 has been assumed based on URA's experience as stated in Para 4.5. Assuming 670 households, the number of residents living within the Scheme is estimated to be around 1,410 persons. The number of households, living quarters and population affected will all be verified by the results of the Stage 2 SIA.

4.13. **Table 4.2** below compares the distribution of the percentage of working population, elderly residents over 65 and owner occupiers among the LSBG, Lung Shing Constituency (G10), KC District and the whole territory. Attention would be paid to elderly residents and their needs.

Table 4.2 Distribution of percentage of working population and elderly residents

	Percentage of working population	Percentage of elderly residents
LSBG 28512L	59%	8%
Lung Shing Constituency (G10)	58%	10%
KC District	52%	15%
Territorial	51%	16%

4.14. **Table 4.3** shows the comparison of percentage of owner-occupiers and tenanted occupiers among the LSBG, Lung Shing Constituency (G10), KC District and the whole territory. Based on URA's experience obtained from previous redevelopment projects which mainly involved old buildings, an assumption of 30% of the households will be owner occupiers and 70% being tenants is adopted. The composition will be ascertained in the Freezing Survey and reported in the SIA Stage 2 as far as practicable.

Table 4.3 Distribution of percentage of owner-occupiers and tenanted occupers

	Percentage of owner occupiers	Percentage of tenanted occupiers
LSBG 28512L	45%	55%
Lung Shing Constituency (G10)	50%	50%
KC District	47%	53%
Territorial	48%	52%

4.15. The median monthly domestic household rent for all housing types in the Lung Shing Constituency area is $7,500 under the 2016 By-Census. Median rent for the all housing types in KC District is $2,750, and the territorial level is $2,180. The high medium rent for the Constituency area than the KC District and the territory may be due to absence of Public Rental Housing but the presence of newer and more modern private residential developments in the Constituency area, such as High Place, Billionaire Avant, The Avery and other newer residential developments to the east of the Scheme. They are of much higher rent than the general old private housings and public housings.

4.16. In conclusion, the presence of High Place (No. 33 at Carpenter Road) and Carlson Court (No. 51 at Sa Po Road) within the LSBG may possibly have different household composition, which means such data should be used for reference only.

4.17. The Stage 2 SIA to be conducted upon project commencement will give clearer and accurate information concerning those living and working within the Scheme.

5. HOUSING & ENVIRONMENTAL CONDITIONS

Building Age

5.1. The Scheme consists of buildings of 5-12 storeys high. The buildings were completed between 1962 and 1990.

Building and Living Condition

5.2. Based on the ownership records in the Land Registry as of January 2019, there are two single-owned properties, including the vacant site at No. 28-30 Kai Tak Road and the building at 82 Kai Tak Road. Other buildings within the Scheme are under multiple ownerships. Based on the search in Land Registry's "Index of Owners' Corporations" (as of 02 January 2019) and Home Affairs Department- Building Management's "Database of Private Buildings in Hong Kong" (as of 02 January 2019), 16 buildings (62%) have Owners' Corporations (OCs). The rest of the buildings do not have OC for building management.

5.3. According to URA's Building Condition Survey (BCS) conducted in January 2019, about 70% of the buildings within the Scheme are in "Poor" (the worst category) and "Varied" conditions (the second worst category). Some structures on the roof of the buildings in the Scheme were suspected to be Unauthorized Building Works (UBWs). All the buildings within the Scheme Area (except the buildings at 31 – 35 Sa Po Road and 62 – 68 Kai Tak Road which have lift services) are buildings with no lift.

5.4. Based on Buildings Department's records and land search records in Lands Registry as of January 2019, most of the buildings within the Scheme have received Fire Safety Notices (FSDN) and some received building orders S26/26A and S28 respectively. Three buildings have completed building rehabilitation works by the Integrated Building Maintenance Assistance Scheme (IBMAS) within the Scheme (i.e. 47 Sa Po Road, 49 Sa Po Road and 59-61 Sa Po Road); and another three buildings are applying for the Common Area Repair Works Scheme (CAS) under IBMAS to carry out common area repair works. It is understood that the IBMAS works comprise mainly repairing defects (e.g. major cracks, spalling) in common or public areas of the buildings. Repair works to the interior of private units are not included. Based on past URA's experience in rehabilitation works, even buildings that have undergone repair works need to undertake comprehensive building rehabilitation every 5

to 6 years in order to avoid deterioration. Apart from those applied for IBMAS, three other buildings within the Scheme have carried out rehabilitation works by themselves but the dates are not known.

5.5. Non-obtrusive site observations conducted in January 2019 found that some of the original units as shown in the approved General Building Plans (GBPs) were suspected to be sub-divided into smaller units, which will be ascertained in the Freezing Survey.

Existing Uses

5.6. Based on non-obtrusive site observation conducted in January 2019, the two rows of buildings within the Scheme area are mainly residential in nature on the upper floors, except for the commercial building which is mainly office uses on the upper floors. All the ground floor units within the Scheme were used for non-domestic purposes including retail, car repair, light-engineering workshops, restaurants/cafes and service businesses. The detailed uses of the units will be verified in the Freezing Survey and reported in the SIA Stage 2 as far as practicable.

Planning Developments in the Vicinity

5.7. The Scheme is located at a strategic position in close proximity to the KTDA and its planned USS. Civil Engineering and Development Department (CEDD) will build a pedestrian tunnel underneath Prince Edward Road East to connect between the KTDA and the Nga Tsin Wai Road Area, which is published in the Government Gazette on 2 November, 2018. The Scheme Area, which is in front of the exit of the pedestrian tunnel, would provide an opportunity to enhance the connectivity and walkability of the Nga Tsin Wai Road area and towards the KTDA.

5.8. The Scheme is also located nearby the MTR Shatin-to-Central Link (SCL) Sung Wong Toi Station (previously named as To Kwa Wan Station). One of its exits will be located at Nam Kok Road, which is about 5-minute walking distance from the Scheme. The SCL is anticipated to be in operation in 2021.

Environmental Condition

5.9. To the immediate south of the Schema Area is the Prince Edward Road East, which is a trunk road and is a major traffic noise source. There are a number of

buses and minibuses running along Prince Edward Road East.

5.10. At present, long queuing at the bus and minibus stops often appear along the pavement of Prince Edward Road East including the portion adjoining the southern boundary of the Scheme, resulting in a crowded condition at the pavement. Further west from the Scheme to Tak Ku Ling Road Rest Garden, there is a pedestrian subway to cross the Prince Edward Road East to the bus stops on the opposite side of the road. The major pedestrian circulation is therefore concentrated along the pavement of Prince Edward Road East including the portion adjoining the southern boundary of the Scheme.

5.11. There are on-street parking spaces at Sa Po Road and Kai Tak Road. This part of Nga Tsin Wai Road Area is of distinctive cultural and dining characters as described in KC DURF that attracts people from other districts and create high level of pedestrian flow and also high parking demand and subsequently caused many illegal parking. Besides, sporadic and piecemeal redevelopments on some land of un-restricted leases in the area, which comprise two to three lots, have no carpark provision which lead to increasing demand for parking and shortage of parking spaces in the area. Double parking or even triple parking are often found on these local streets when the on-street parking spaces are all occupied, resulting a congested and unpleasant walking environment.

6. CULTURAL & LOCAL CHARACTERISTICS, AND CHARACTERISTICS OF LOCAL BUSINESS ACTIVITIES

6.1. The area is dominated by residential buildings to the west of Kai Tak Road, along Nga Tsin Wai Road and Carpenter Road. The area is a popular dining place with the concentration of Thai and Vietnam cuisine restaurants on the ground floor shops. This part of Nga Tsin Wai Road Area is of distinctive characters for specialty dining that attracted people from other districts and create high level of pedestrian flow and also high parking demand and subsequently caused many illegal parking activities. Apart from restaurants, there are also car repair workshops, building materials trades and grocery stores occupying ground floor shops.

6.2. About 43 shops were identified at ground floor of the Scheme during site visits in January 2019. Uses of the shops are observed to be retail, light engineering workshops, car repair services, and services businesses. Several shops were unidentified and suspected vacant, as they were closed during several attempts of site visits. The addresses and business nature of the shops are listed in **Table 6.1** below. The exact number of non-domestic operators / details and nature of the businesses within the Scheme will be verified in the Freezing Survey upon commencement of the Scheme and reported in the Stage 2 SIA.

Table 6.1 Ground Floor Business Activities

	Address	Current Use*
1.	24-26 Kai Tak Road	Chiropractic centre
2.	28-30 Kai Tak Road	Carpark
3.	32 Kai Tak Road	*(Unidentified)*
4.	34 Kai Tak Road	Car repair and services
5.	36 Kai Tak Road	Car repair and services
6.	38 Kai Tak Road	Food and beverage
7.	40 Kai Tak Road	Marble company
8.	42 Kai Tak Road	Food and beverage
9.	44-46 Kai Tak Road	Car repair and services
10.	48 Kai Tak Road	Aluminium engineering
11.	50 Kai Tak Road	Veterinary clinic
12.	52 Kai Tak Road	Storage/industrial company
13.	54 Kai Tak Road	Construction materials company
14.	56 Kai Tak Road	Refrigeration company
15.	58-60 Kai Tak Road	Paint company
16.	62 Kai Tak Road	Car repair and services
17.	64 Kai Tak Road	Joss and paper artifacts shop
18.	66 Kai Tak Road	Car repair and services
19.	68 Kai Tak Road	Renovation company
20.	70 Kai Tak Road	Hardware store
21.	72-78 Kai Tak Road	Kitchenware store
22.	78-80A Kai Tak Road	Food and beverage
23.	82 Kai Tak Road	*(Unidentified)*
24.	31-35 Sa Po Road	*(Unidentified)*
25.	31-35 Sa Po Road	Game arcade
26.	31-35 Sa Po Road	Car repair and services
27.	37 Sa Po Road	Car repair and services
28.	39 Sa Po Road	Logistic company
29.	41 Sa Po Road	Grocery store
30.	43 Sa Po Road	Car accessories
31.	45 Sa Po Road	Food and beverage
32.	47 Sa Po Road	Car repair and services
33.	49 Sa Po Road	Fitness club

	Address	Current Use*
34.	55 Sa Po Road	Car repair and services
35.	57 Sa Po Road	Food and beverage
36.	59 Sa Po Road	Hair salon
37.	61 Sa Po Road	Food and beverage
38.	63 Sa Po Road	Aluminium and steel engineering
39.	65 Sa Po Road	Food and beverage
40.	67 Sa Po Road	Car repair and services
41.	69 Sa Po Road	Storage/industrial company
42.	71 Sa Po Road	Storage/industrial company
43.	73 Sa Po Road	Wooden box wholesale

（Based on site visits conducted in January 2019）

* Nature/details of businesses subject to Freezing Survey and Stage 2 SIA

7. RECREATIONAL, AMENITY & COMMUNITY AND WELFARE FACILITIES

7.1. **Figure 7.1** shows the location of various government, institution and community (GIC) facilities and public open spaces within the 500m radius area of the Scheme Area. There are a number of public open spaces near the Scheme Area, the closest being Tak Ku Ling Rest Garden located to the southwest, Kowloon Walled City Park and Carpenter Road Park in the northwest, and Shek Ku Lung Road Playground in the northeast of the Scheme.

7.2. The major GIC facilities within 500m radius of the Scheme include Kowloon City Post Office, Kowloon City Market and Cooked Food Centre, and Kowloon City Lion Club Student Health Service Centre. There are also a number of educational facilities, including primary schools and secondary schools within 500m of the Scheme.

7.3. For existing social welfare facilities and services (refer to **Table 7.1**), services for the elderly, rehabilitation and medical social services are found in close proximity to the Scheme.

7.4. About 800 sq.m. non-domestic GFA will be reserved in the podium of the proposed Scheme for appropriate community uses to meet community needs, subject to consultation with the Kowloon City District Council.

7.5. A split-level sunken plaza of about 1,000 sq.m. will be provided for public use within the Scheme, with covered and un-covered area at different levels, with diversified uses such as event space for place making, and sitting and amenity space to enrich user experience and to strengthen its identity. It will also include retail components, to continue the street vibrancy from the future USS in KTDA to Kowloon City and enhance the connection between this part of old district area and the new KTDA. Opportunities for cohesive landscaping, tree planting and vertical greening to integrate with surrounding landscape will be explored, to improve the pedestrian friendly environment and create a sense of place for the local community.

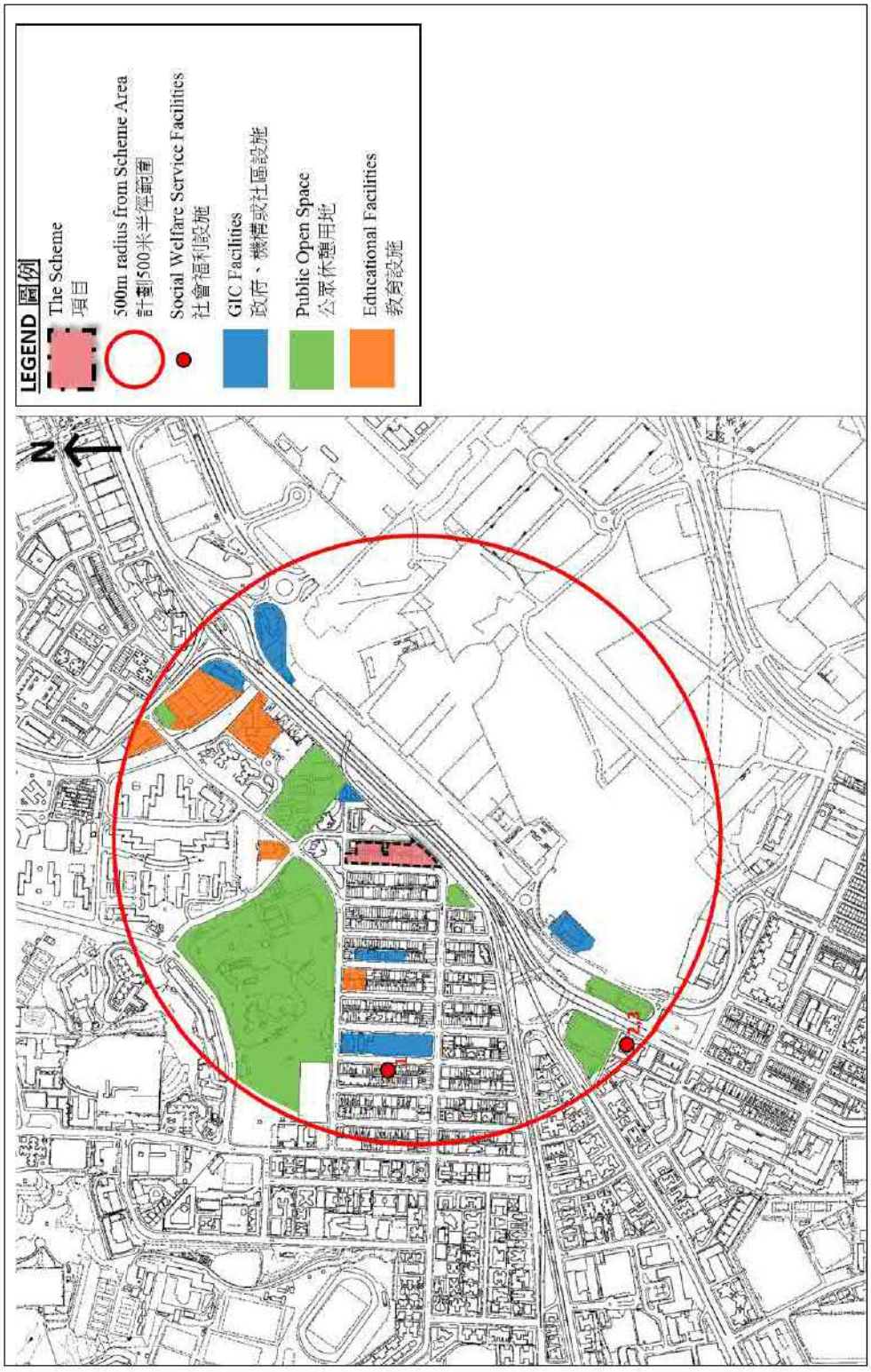


Figure 7.1 GIC and Amenity Facilities Within 500m Radius of the Scheme Area

Table 7.1: Social Welfare Facilities within 500m Radius of the Scheme Area

Service Unit	Operator	Address
A. Services for the Elderly		
Neighbourhood Elderly Centre		
1. Yan Chai Hospital Ng Wong Yee Man Neighbourhood Elderly Centre	Yan Chai Hospital	G/F, 55 Hau Wong Road, Kowloon City, Kowloon
B. Rehabilitation and Medical Social Services		
Agency-based Special Child Care Centre Service for Hearing Impaired Children		
2. HKSD Bradbury Child Care Centre	Hong Kong Society for the Deaf (The)	3/F, Holy Trinity Church, Centenary Bradbury Building, 135 Ma Tau Chung Road, Kowloon
Early Education & Training Centres		
3. HKSD Bradbury Child Care Centre	Hong Kong Society for the Deaf (The)	3/F, Holy Trinity Church, Centenary Bradbury Building, 135 Ma Tau Chung Road, Kowloon

Source: Social Welfare Department's website: Local District Service Profile: Welfare Service Units Managed or Funded by Social Welfare Department (Kowloon City), as of 02 January, 2019.

8. INITIAL ASSESSMENT OF POTENTIAL SOCIAL IMPACT, AND MITIGATION MEASURES

Potential Social Impact

8.1. The Scheme is estimated to affect 670 households, with 1,410 residents. About 43 shops were identified in the Scheme during site visits. Based on non-obtrusive observation, there are some original units appeared to be sub-divided into smaller units (sub-divided units/cubicles). The exact number of affected residents and shop operators will be verified at Stage 2 SIA.

8.2. The proposed redevelopment offers an opportunity to replan and restructure land uses, and improve the living environment of the affected households.

8.3. The Scheme, if implemented, will inevitably affect the domestic and non-domestic occupants within the Scheme. Generally, the most vulnerable resident groups in the Scheme are the elderly, the disabled, single parent families, low-income households, and those who rely heavily on their social network (including receiving support/care from their friends/relatives who live nearby). Upon implementation of the Scheme, the existing residents will be displaced to areas where they have to rebuild their social networks, whereas the existing shops will have to move to other locations to continue their businesses, depending on individual operator's needs.

8.4. During the Freezing and SIA surveys, needy cases such as households with single elderly, elderly couples, family members with disability or new immigrants worried about the impact of redevelopment on employment, living expenses and social network etc. will be identified. It is expected that the Social Service Team (SST) commissioned by the Urban Renewal Fund (URF) will provide assistance to those in need. This SST is independent of the URA and will directly report to the Board of the URF.

Mitigation Measures and Prevailing Compensation & Rehousing Policies

8.5. Upon implementation, compensation based on the prevailing URA Policy would be offered to the affected owners. For affected tenanted households, rehousing or ex-gratia allowance would be offered. Shortly after the Freezing and SIA Surveys, the URA will carry out briefing session(s) to the owners and tenants to explain the URA compensation and rehousing policies. An in-house URA engagement team will visit the affected owners and tenants accordingly as to care for those who are

unclear about compensation and require any other assistance.

8.6. If affected residents and/or business operators are not clear about the URA compensation and rehousing policies or future arrangement, the SST will endeavour to clarify their doubts with full support from the URA.

8.7. In handling problems related to different kinds of livelihood problems, the SST, apart from offering counselling, will mobilise different community resources to liaise closely with Government departments and work with the URA to resolve the residents' and operators' problems and reduce their anxiety. The SST will also provide orientation assistance for those in needs after moving home such as familiarisation with new neighbourhood, accommodation and local facilities.

8.8. For the vulnerable groups (including the elderly, disabled and single parent families), arrangements for assistance such as child care/ foster services, domestic help services, etc. offered by the Social Welfare Department, and other social service agencies would be made. For the low-income households, arrangement could be made with the Hong Kong Housing Authority or the Hong Kong Housing Society on public rental housing allocation if they are eligible. In addition, if practicable, those vulnerable groups would be re-housed on compassionate ground.

Prevailing Measures

8.9. The URA will offer an owner-occupier of domestic property the market value (valued on vacant possession basis) of his/her property plus an ex-gratia allowance, namely Home Purchase Allowance (HPA), for purchase of the property. The assessment of HPA is based on the unit rate of a notional replacement flat, which is defined as a hypothetical seven-year-old flat in a building of comparable quality, situated in a similar locality in terms of characteristics and accessibility, and located at the middle floor with average orientation. The HPA is the difference between the value of the notional replacement flat and the market value of the property being acquired.

8.10. The URA may also offer "flat-for-flat" (FFF) (subject to any changes in the relevant legislations) in a URA new development in-situ or in the same district or at available site(s) (as URA may select for the purpose provided that necessary approval / authorization has been obtained at the time of FFF offer), as an

additional choice to cash compensation to owner-occupiers of domestic units. The amount of cash compensation and ex-gratia payment offered to an owner-occupier will not be changed by his/her choice of using that amount, or part of it, to join the flat-for-flat arrangement or otherwise.

8.11. According to the new URS, the URA will offer an ex-gratia allowance to eligible elderly owners of tenanted domestic properties on compassionate ground in exceptional circumstances such as elderly owners who rely on the rental income from their properties for a living.

8.12. Eligible domestic tenants affected by URA's redevelopment projects are provided with rehousing to public housing, if eligible, or units at URA's rehousing blocks, subject to meeting URA's requirements, or Ex-gratia Allowance (EGA), which is calculated with a sliding scale that begins with the first $10,000 of the rateable value multiplied by 9, the second $10,000 of the rateable value multiplied by 8, and so on. The EGA for eligible domestic tenants will be subject to a minimum amount of $170,000 for one-person household and $190,000 for two-person or larger household. The minimum amount is subject to annual review.

8.13. Domestic tenants who are not provided re-housing due to various reasons or who decline re-housing, will be offered ex-gratia allowances. The amount of ex-gratia allowance will be dependent on, amongst other things, whether the domestic tenants have been living in the project area before and since the first date of the freezing survey and have no alternative accommodation.

8.14. In case where tenants were notified that their tenancies would not be renewed, URA will explain to their owners that they would not get more compensation by evicting the tenants. The URA has also introduced the "Domestic Tenants Compassionate Assistance Programme" to take care of those domestic tenants whose tenancies commenced before the Freezing Survey of this Scheme and moved out from the properties because they have been required to move out from their properties by their landlords upon expiry or termination of their tenancies and before URA purchases the properties. In general, eligible domestic tenants who meet the criteria under this programme will be offered special ex-gratia allowance based on the sliding scale as mentioned in paragraph 8.12, or public housing, if eligible, or units at URA's rehousing blocks, subject to meeting URA's requirements.

8.15. For owner-occupied non-domestic premises, the market value of the affected property plus an ex-gratia allowance of 4 times the rateable value or 35% of the market value of the affected property, whichever is the higher, will be offered. Owner-occupiers may lodge a claim for business loss in lieu of both the ex-gratia allowance and the Ex-gratia Business Allowance (EGBA) as stated in the next paragraph. For owners of tenanted or vacant non-domestic properties, the market value of the affected property plus an ex-gratia allowance of 1 time the rateable value or 10% of the market value of the affected property, whichever is the higher, will be offered.

8.16. For non-domestic tenants of non-domestic premises, an ex-gratia allowance of 3 times the rateable value of the affected premises will be offered. An additional payment of EGBA is also payable to tenants who commenced occupying the premises for business before the date of Freezing Survey. The amount is subject to a minimum of $110,000 and a maximum of $700,000, depending on the number of years of continuous operation by the tenant-operator as business owner in the property. The EGBA arrangement will also be applicable to non-domestic owner-operators occupying the properties for their own businesses. Those non-domestic tenant-operators who have occupied the properties before Freezing Survey and are evicted by their landlords before acquisition of the properties by the URA, can apply for the Special EGBA. The minimum payment of EGBA will be subject to annual review.

8.17. According to the new URS, if requested, the URA will help identify suitable premises in the district of the redevelopment projects to enable the affected shop operators to relocate and continue operation in the same district as far as practicable. For the shops with special characteristics, URA will consider and depend on the demand from the shop operators to provide special arrangements similar to C&W-005 (for dried seafood shops), subject to the findings of SIA2 and the approval of URA Board.

8.18. The acquisition, compensation and rehousing policies are subject to prevailing policies at the time of issuing acquisition policies. The policies are published on the URA's website and will be communicated to affected persons when acquisition of property interests for this Scheme commences. Prevailing policies relating to property acquisition, rehousing and ex-gratia allowances will be reviewed by the URA from time to time.

8.19. The Stage 2 SIA to be conducted after the Freezing Survey will further assess the impact of the Scheme in detail on both domestic and non-domestic occupants and propose mitigation measures. It may also be able to highlight the psychological stress and worry for some of the affected within the Scheme. Special measures may have to be adopted under exceptional circumstances.

9. CONCLUSION

9.1. The local community and the surrounding neighbourhoods are likely to experience gains and losses due to the proposed redevelopment. Residents, business operators and their employees within the Scheme will be affected in different ways and to various degrees depending on their particular circumstances. Those who currently live in overcrowded or poor building condition within the Scheme may welcome the opportunity to improve their living environment through cash compensation or rehousing if eligible; whilst others (e.g. some business operators) may prefer to remain undisturbed and maintain the status quo. The various degrees of concerns and social impacts to the affected residents, business operators and their employees within the Scheme will be assessed in the Stage 2 SIA in detail.

9.2. This Stage 1 SIA study provides a general profile of the Scheme. Based on past URA experience of similar scale and context of redevelopment projects, it can be expected that there will be some sharing of living quarters and a relatively low average household income for those within the Scheme. The assumptions in this report will be verified by the Stage 2 SIA to be carried out after the freezing survey. The needs of the affected households will be assessed and appropriate arrangements to minimise major adverse social impact, if any, from the Scheme will be proposed in the Stage 2 SIA.

9.3. For the non-domestic uses, a number of ground floor shops are witnessed in the Scheme, whereas the upper floor non-domestic uses, if any, are to be recorded in the freezing survey upon commencement of the Scheme under section 23 of the URAO. The needs of the affected non-domestic occupants will be assessed in the Stage 2 SIA.

9.4. The holistic urban renewal planning driven approach adopted for this Scheme has proposed the following major initiatives:

i. make reference to the recommendations of KC DURF and to take forward the planning objectives;
ii. rationalize land uses through the closure and realignment of Sa Po Road to create a sunken plaza and provide solution space to improve pedestrian circulation and the environment. A split-level sunken plaza is proposed to extend retail vibrancy and create a sense of place by providing a sunken

plaza with retail facilities and well-designed landscape to connect with the USS in KTDA for the benefit of the community;

iii. utilize underground space by development of underground car park to alleviate insufficient parking spaces in the area and make way for solution space and opportunities for pavement widening and improve walkability and pedestrian environment of the area;

iv. provide space for community uses to meet the community needs.

9.5. The commencement of KC-015 Development Scheme also provides an opportunity for a more efficient use of land by replanning and restructuring of land uses, and to improve the pedestrian friendly environment and to enhance the walkability of the neighbourhood. As an integrated urban renewal approach, subject to further liaison works with relevant Government departments, implementation of related traffic and pavement improvement works could be carried out to achieve the goal.

9.6. With these initiatives as well as the overall urban renewal works in this area, it is anticipated that the local urban environment and residents will be benefited from a more coordinated restructuring resulting in a more walkable neighbourhood with quality street environment.

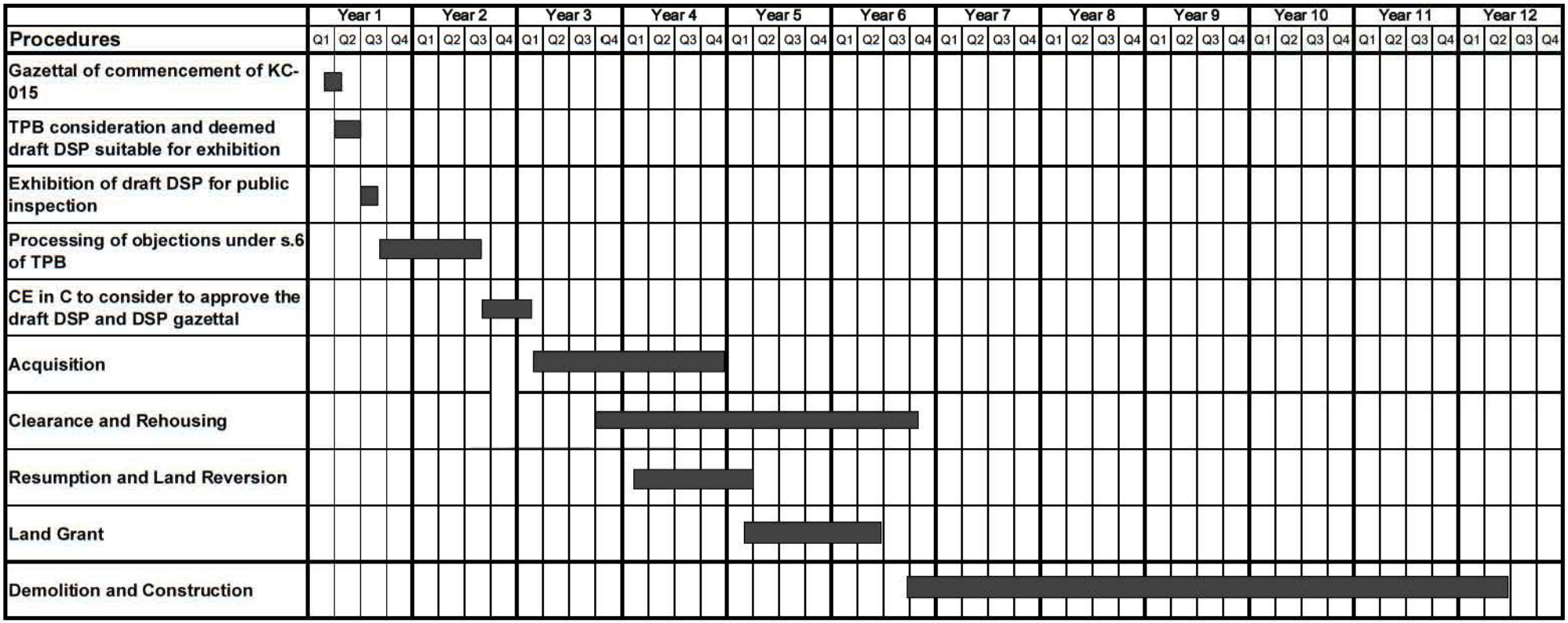
URBAN RENEWAL AUTHORITY
February 2019

Appendix 10

Tentative Implementation Programme

KC-015 URA Kai Tak Road / Sa Po Road Development Scheme

Tentative Implementation Programme



Appendix 11

Acquisition and Resumption of Affected Properties

Principles Adopted by the Urban Renewal Authority in Property Acquisition (Other than Industrial Properties)

This leaflet briefly outlines the Urban Renewal Authority ("URA")'s principles in the acquisition of properties (other than industrial properties) from owners affected by URA's urban renewal projects.

Domestic Properties

1. URA will offer an owner-occupier of domestic property the market value (valued on vacant possession basis) of his property plus an ex-gratia allowance, namely Home Purchase Allowance ("HPA"), for purchase of the property. The amount of HPA payable to individual owners is the difference between the value of a notional replacement flat and the market value of the property being acquired. The notional replacement flat is based on a seven-year-old flat of a size similar to the resumed flat and in the same locality. The notional replacement flat is assumed to be in a comparable quality building, situated in a similar locality in terms of characteristics and accessibility. The notional replacement flat will be situated at the middle floor of a notional building with average orientation, i.e. not facing south or west, and without sea view.

2. "Owner-occupier" here means an owner who occupies his property as his sole residence. If an owner does not reside in his property as his sole residence, the occupancy status of his property will be treated as "Vacant" and will be offered Supplementary Allowance ("SA") instead of HPA. SA is a percentage of HPA. The criteria for determining whether an owner occupies his property as his "sole residence" will be determined by URA according to URA's prevailing policy.

3. An owner-occupier will be offered HPA for no more than three properties in a redevelopment project. (Please see Appendix I for example of calculation of HPA and Appendix II for HPAs available in different scenarios.)

4. Property used as sole residence by an owner's "immediate family members" will be treated as being occupied by the owner himself as sole residence for the purpose of ascertainment of his eligibility to HPA. "Immediate family members" of an owner means parents, children, dependent brothers and sisters, grandparents, grandchildren, stepparents, spouse's parents and spouse's stepparents.

5. An owner who leaves his property vacant will be offered the market value (valued on vacant possession basis) of his property plus SA.

6. An owner who lets his property out will be offered the market value (valued on vacant possession basis) of his property plus SA.

7. An owner of tenanted or vacant properties will be offered SA for no more than two properties in a redevelopment project. (Please see Appendix I for examples of calculation of SA and Appendix II for different SAs available in different scenarios.)

8. If a property is owned by joint owners (whether as joint tenants or tenants in common) / a company, each joint owner / shareholder of that company will be subject to the same principles applicable to individual owners. The HPA and SA will be calculated

pro rata to the shares of each joint owner and the shareholdings of each shareholder in the company.

9. In addition to HPA or SA, URA will offer an incidental cost allowance ("ICA") to owners of domestic properties to assist payment of removal expenses and expenditure relating to the purchase of a domestic replacement flat. The actual amount of ICA shall be determined and announced by URA as and when an offer to purchase is made for each individual project.

10. If the amount of necessary and reasonable expenses actually incurred by the owner of a domestic property in purchasing a domestic replacement flat (i.e. removal cost, stamp duty, agency fee and legal cost) exceeds the amount of ICA offered by URA, the owner may be reimbursed with the difference ("the Expense"). The owner can only submit one single reimbursement claim for each domestic property sold to URA, and must fulfill the following eligibility criteria:

    (i) The owner must have accepted the initial acquisition offer of URA within the validity period of the offer;
    (ii) The reimbursement claim must be made within 12 months from the date of execution of assignment of the property sold to URA, and the reimbursable amount must be the actual expenses already paid by the owner within 12 months after the property is sold to URA;
    (iii) The domestic replacement flat must be located in Hong Kong and must be purchased after the date of issuance of initial acquisition offer by URA; and
    (iv) The owner should be the sole registered owner or one of the registered owners of the domestic replacement flat, and his/her interest in the property must be recorded in the land register.

11. In general, the principles in assessing the reimbursable amount of the Expense as described in Paragraph 10 above are:

    (i) The reimbursable amount for stamp duty should be calculated at the lower rates (Scale 2) of ad valorem stamp duty payable for a domestic replacement flat;
    (ii) The reimbursable amount for real estate agency fee will be subject to a ceiling with reference to general market practice;
    (iii) The reimbursable amount of the aforesaid two items will be subject to a ceiling to be calculated on the basis of 110% of the market value of the property plus the sum of HPA/SA stipulated in the initial acquisition offer of URA;
    (iv) URA will only reimburse the Expense which is reasonable, absolutely necessary and actually paid by the owner in relation to his/her purchase of a domestic replacement flat and his/her removal from the property sold to URA;
    (v) The owner should provide sufficient documentary evidence for the Expenses submitted in the reimbursement claim;
    (vi) URA will consider each reimbursement claim on its own merits, and URA has the sole discretion in determining the amount of the Expenses reimbursable in each case.

12. If a property has been sub-divided into several flats ("sub-divided flat") and an owner of a sub-divided flat elects not to receive the HPA, subject to eligibility criteria and other requirements, the owner will be offered re-housing.

13. The HPA is payable to an owner-occupier of non-domestic property which has been issued with an occupation permit other than for domestic use but nevertheless has been used for domestic purpose for a long time (generally about 10 years) provided that such use is not prohibited under the Government lease of the property.

14. For URA redevelopment projects which are commenced after the promulgation of the new Urban Renewal Strategy on 24 February 2011:

    (i) Subject to the conditions and provisions contained in the "Urban Renewal Authority Flat-for-Flat Pamphlet" ("the Pamphlet"), domestic owner-occupiers of properties in the redevelopment projects, who will be offered HPA, can opt to participate in URA's "Flat-for-Flat" Scheme ("the Scheme"). Please refer to the Pamphlet for details of the Scheme.

    For redevelopment projects implemented under Demand-led Redevelopment Project (Pilot Scheme), URA will provide the details and option under the Scheme to eligible domestic owner-occupiers only upon the fulfillment of the conditions precedent stipulated in the conditional acquisition offers; and

    (ii) Elderly owners of tenanted domestic properties in the redevelopment project will be offered an Elderly Domestic Owner-Landlords Compassionate Allowance ("Allowance"), in addition to the market values of their properties and SA as described in Paragraph 6 above, by URA subject to the elderly owners concerned meeting the eligibility criteria set by URA. Eligible elderly owners can apply for the Allowance after they have accepted the initial acquisition offer from URA both unconditionally and within the validity period of the offer. Please refer to the pamphlet of "Elderly Domestic Owner-Landlords Compassionate Allowance" for details of the eligibility criteria and the arrangement.

    For redevelopment projects implemented under Demand-led Redevelopment Project (Pilot Scheme), URA will release the Allowance to the eligible elderly owners of tenanted domestic properties only upon satisfactory proof of the elderly owners' eligibility to the Allowance and the fulfillment of the conditions precedent stipulated in the conditional acquisition offers.

Non-domestic Properties (Other than Industrial Properties)

15. An owner of non-domestic property (other than industrial property) will receive the market value of his property (valued on vacant possession basis). URA will also pay the owner an allowance. The allowance for tenanted or vacant non-domestic property (other than industrial property) is 10% of its market value (valued on vacant possession basis) or one time its Rateable Value, whichever is higher. The allowance for owner-occupied non-domestic property (other than industrial property) is 35% of its market value (valued on vacant possession basis) or 4 times its Rateable Value, whichever is higher. "Owner-occupier" here means an owner who occupies and operates his business at the property.

16. In addition to the allowance described in Paragraph 15 above, an additional payment of ex-gratia business allowance ("EGBA") is payable to any owner-occupier of non-domestic property (other than industrial property) who had commenced occupying the premises for business use before the date of Freezing Survey of the project and have accepted the initial acquisition offer from URA both unconditionally and within

the validity period of the offer. The amount is directly proportional to the number of years of continuous operation by the owner-occupier as business owner in the property. In calculating the number of years of continuous operation, the expiry date of continuous operation is 2 years from the date which URA issues initial acquisition offer to property owners. The amount of the EGBA is payable at a rate of 0.1 times the Rateable Value for each year that the owner-occupier has operated the business as the business owner in the property concerned, subject to a maximum of 30 years. For an incomplete year, the amount of EGBA is calculated on a pro-rata basis to the nearest month. The amount of EGBA is subject to a maximum amount of $700,000 and a minimum amount as described in the table below:

Years of Continuous Operation	Minimum EGBA
10 years or less	HK$110,000 (amount is subject to annual review)
More than 10 years (maximum of 30 years)	Additional HK$10,000 for each completed year

In the application for EGBA, the owner-occupier is required to substantiate the period of continuous operation in the property as business owner.

For redevelopment projects implemented under Demand-led Redevelopment Project (Pilot Scheme), URA will release the EGBA to eligible owner-occupiers of non-domestic property (other than industrial property) only upon satisfactory proof of the owner-occupiers' eligibility to the EGBA and the fulfillment of the conditions precedent stipulated in the conditional acquisition offers.

17. An owner-occupier may choose to claim for business loss as an alternative to the above two allowances.

    For redevelopment projects implemented under Demand-led Redevelopment Project (Pilot Scheme), if an owner-occupier of non-domestic property interest (other than industrial property) has accepted the conditional acquisition offer from URA within the validity period of the conditional acquisition offer and has entered into a legally binding agreement for sale and purchase of the property with URA, the owner shall be taken as not having chosen to claim for business loss as an alternative to the above two allowances.

Domestic Properties being used for Non-domestic Purposes

18. If a property with an occupation permit for domestic use is used for non-domestic purpose, an owner-occupier will be offered market value (valued on vacant possession basis) of his property and the allowance for Non-domestic Properties (Other than Industrial Properties) or SA, whichever is higher. An owner of tenanted property will be offered market value (valued on vacant possession basis) of his property and the allowance for Non-domestic Properties (Other than Industrial Properties) or SA less 3 times the Rateable Value of the property, whichever is higher.

Separate Roof Top Interest (Not ancillary to any Domestic/Non-Domestic Property)

19. The title of the rooftop property must be legal. An owner of tenanted or vacant rooftop property will be offered the market value of the property on an open roof basis (disregarding any illegal structure or any rent passing) plus an allowance at 10% of the said market value.

20. An owner-occupier of a rooftop property will be offered the market value of the property on an open roof basis (disregarding any illegal structure). If the owner-occupier meets the normal Hong Kong Housing Authority and Hong Kong Housing Society eligibility criteria, he may elect for re-housing. However, if he does not elect for re-housing, URA will also pay the owner an allowance at 10% of the said market value.

Buildings in Single Ownership

21. A building in single ownership is valued either on (i) its existing use value plus ex-gratia allowances for shops and HPA/SA and incidental cost allowance for domestic units in multiple ownership (whichever is applicable) or (ii) its redevelopment value (assuming redevelopment of the building on its own) plus an ex-gratia allowance of 5%, whichever is higher.

Vacant Sites

22. A vacant site is valued on its redevelopment value basis (assuming redevelopment of the site on its own). URA will also pay the owner 5% of the redevelopment value of a vacant site as ex-gratia allowance.

Other General Rules

23. Calculation of the market value of a property is based on the saleable area of the property. The definition of saleable area shall follow the Code of Measuring Practice issued in March 1999 and the Supplement to the Code of Measuring Practice issued in July 2014 by the Hong Kong Institute of Surveyors. Subject always to the owner having good title to the property or any part thereof, area calculations may be based on the boundary of the property as delineated on the assignment plan and the area as measured from the latest relevant building plans approved by the Buildings Department (if any).

24. For the purpose of calculating the value of the notional replacement flat, URA will appoint seven professional surveyor firms to provide the assessment.

25. URA will provide an allowance to the owners, who have employed the services of a professionally qualified surveyor to assess the market value of his/her property interest (which shall not include any ex-gratia allowance, such as Home Purchase Allowance and Supplementary Allowance etc.) as a subsidy for the owner's surveyor's fees for the services. Please refer to the pamphlet of "Allowance for Surveyor's Fees" for details of the arrangement.

26. If an owner only purchased his property in the project after the date of the Freezing Survey, URA will not pay to the new owner any HPA / SA, Elderly Domestic Owner-Landlords Compassionate Allowance, Allowance for Non-Domestic Use, EGBA, Allowance for Separate Roof Interest, Allowance for Single-owned Building on its Redevelopment Value Basis or Allowance for Vacant Site on its Redevelopment Value Basis, whichever is applicable.

27. URA will consider acquiring property from a holder with valid adverse possessory order granted by the Court in favour of him. Depending on the circumstances of individual cases, URA may impose appropriate additional requirements to safeguard the interest of URA when acquiring properties with adverse possessory title.

28. URA will not purchase a structure which is not erected in compliance with the Buildings Ordinance or the terms of the Government lease and no value, compensation or allowance will be paid by URA in respect of such structure.

29. If an owner is found to have given false or misleading information to URA, URA reserves the right to revise its offers and/or take legal action against such owner and/or report the matter to relevant enforcement authorities.

30. URA's offer to purchase is made by reference to the occupancy status of an owner's property on the date of Freezing Survey of the project and in accordance with the URA's prevailing principles and practice for property acquisition. One of such prevailing principles is that an owner whose property was owner-occupied on the date of Freezing Survey but is let out at the time URA's offer to purchase is made will only be offered allowances for the acquisition of his property on a tenanted basis.

31. Particularly, URA would draw the attention to owners whose properties had been tenanted out on the date of Freezing Survey that URA will not consider offering a higher offer to them to acquire their properties in the following situations: -

    (a) properties being left vacant; or
    (b) owners entering into new tenancies, whether with the existing tenants or new tenants; or
    (c) owners occupying their properties for their own self-use [URA will not offer HPA to owners in this situation. Such owners will be offered SA].

32. URA would remind owners that it is an offence for a landlord to unlawfully deprive a tenant of occupation of property or to make an unwarranted demand with menaces with a view to gain for himself or others or to defraud against URA. URA will report to the enforcement authorities on all cases of suspected criminal offences.

This leaflet is issued for the purpose of general reference only. The information contained herein is with reference to the principles and practice of the Urban Renewal Authority prevailing at the date of issue of this leaflet. It shall not constitute any representation on the part of the Urban Renewal Authority or give rise to any expectation whatsoever and shall not be relied on as such. Each case will be considered on its own merits having regard to all factors and circumstances. The terms of acquisition to be offered are subject to the principles and practice of the Urban Renewal Authority prevailing at the time the offer of acquisition is made and are subject to review from time to time as the Urban Renewal Authority shall at its absolute discretion consider appropriate. The Urban Renewal Authority's right to add to, amend or delete the whole or any part of this leaflet is hereby reserved.

For enquiries, please call URA External Relations Department:
Hotline: 2588 2333
Fax: 2827 0176
Address: 26/F, COSCO Tower, 183 Queen's Road Central, Hong Kong

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November 2018

Appendix I

Examples (Domestic Properties)

(Figures are based on assumption and for reference only)

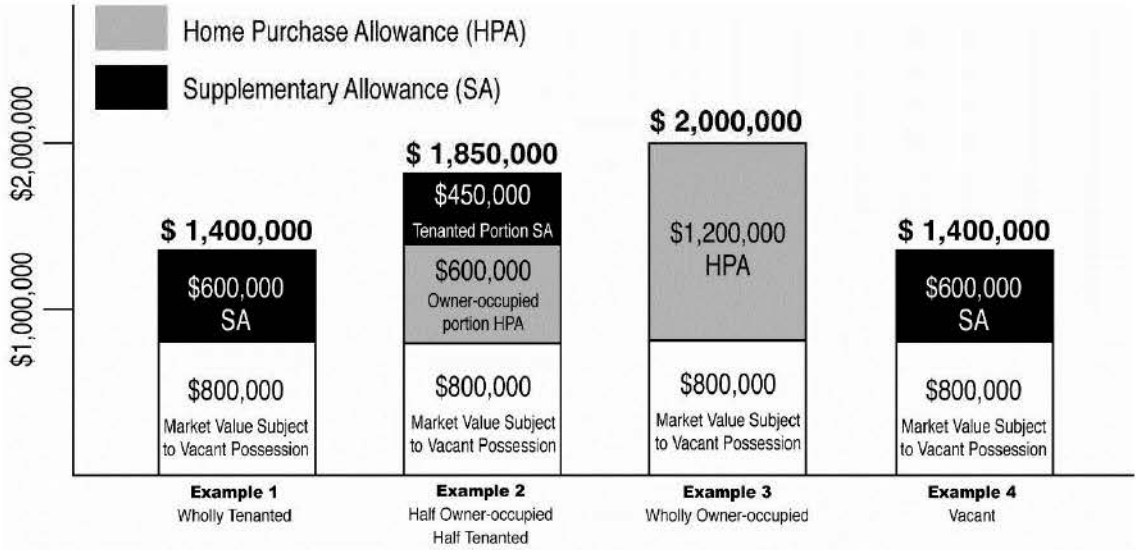
Assuming the market value of a domestic flat on vacant possession (VP) basis is HK$800,000 and the value of a notional replacement flat is HK$2,000,000. The HPA will then assume to be HK$1,200,000.

Example One
An owner of the above domestic flat who lets out the entire flat
This owner will get the market value of his flat (on vacant possession basis) of HK$800,000 and SA of HK$600,000 (HK$1,200,000 x 50%). In total, this owner will receive HK$1,400,000.

Example Two
An owner of the above domestic flat who occupies half of the flat and leases out the other half
This owner will get the market value of his flat (on vacant possession basis) of HK$800,000 and HPA of HK$600,000 for the owner-occupied portion and SA of HK$450,000 (HK$600,000 x 75%) for the tenanted portion. In total, this owner will receive HK$1,850,000.

Example Three
An owner of the above domestic flat who occupies the entire flat for his own use
This owner will get the market value of his flat (VP), which is HK$800,000, plus HPA which is HK$1,200,000. In total, this owner will receive HK$2,000,000.

Example Four
An owner of the above domestic flat who leaves the entire flat vacant
The owner will get the market value of his flat (VP), which is HK$800,000, plus SA of HK$600,000 (HK$1,200,000 x 50%). In total, this owner will receive HK$1,400,000.



Appendix II : Domestic Properties - Diagramatic Illustration of HPA, SA & EUV

One Flat

Occupation Status	HPA	SA	Market Value
1 Owner-occupied	100%		EUV(VP)
2 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
3 Wholly Tenanted		50%	EUV(VP)
4 Vacant		50%	EUV(VP)

Two Flats

Occupation Status	HPA	SA	Market Value
5 Owner-occupied	100%		EUV(VP)
Owner-occupied	100%		EUV(VP)
6 Owner-occupied	100%		EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
7 Owner-occupied	100%		EUV(VP)
Wholly Tenanted		50%	EUV(VP)
8 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
9 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Wholly Tenanted		50%	EUV(VP)
10 Wholly Tenanted		50%	EUV(VP)
Wholly Tenanted		25%	EUV(VP)
11 Vacant		50%	EUV(VP)
Vacant		25%	EUV(VP)

Three Flats

Occupation Status	HPA	SA	Market Value
12 Owner-occupied	100%		EUV(VP)
Owner-occupied	100%		EUV(VP)
Owner-occupied	100%		EUV(VP)
13 Owner-occupied	100%		EUV(VP)
Owner-occupied	100%		EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
14 Owner-occupied	100%		EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
15 Owner-occupied	100%		EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Wholly Tenanted		50%	EUV(VP)
16 Owner-occupied	100%		EUV(VP)
Owner-occupied	100%		EUV(VP)
Wholly Tenanted		50%	EUV(VP)
17 Owner-occupied	100%		EUV(VP)
Wholly Tenanted		50%	EUV(VP)
Wholly Tenanted		25%	EUV(VP)

Occupation Status	HPA	SA	Market Value
18 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
19 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Wholly Tenanted		50%	EUV(VP)
20 Partially Owner-occupied & Partially Tenanted	Owner-occupied portion : 100%	Tenanted portion : 75%	EUV(VP)
Wholly Tenanted		50%	EUV(VP)
Wholly Tenanted		25%	EUV(VP)
21 Wholly Tenanted		50%	EUV(VP)
Wholly Tenanted		25%	EUV(VP)
Wholly Tenanted			EUV(VP)
22 Vacant		50%	EUV(VP)
Vacant		25%	EUV(VP)
Vacant			EUV(VP)

Abbreviations:

HPA Home Purchase Allowance
SA Supplementary Allowance
EUV Existing Use Value
VP Vacant Possession

Appendix 12

Rehousing and Ex-Gratia Payment Package for Domestic and Non-domestic Tenants

Principles Adopted by the Urban Renewal Authority for Tenant Re-housing and Ex-gratia Allowance for Projects announced under the Urban Renewal Authority Ordinance (Not applicable to Tenants of Industrial Premises)

This leaflet briefly outlines the current principles and policies adopted by the Urban Renewal Authority ("URA") for providing re-housing and ex-gratia allowance to affected tenants of projects announced by the URA under the Urban Renewal Authority Ordinance ("URAO") (other than tenants of industrial premises).

(A) Re-housing for Domestic Tenants

(I) Public Rental Housing ("PRH")

Re-housing Arrangement

1. Eligible domestic tenants living in acquired properties of the URA will be re-housed in units provided by the Hong Kong Housing Authority ("HKHA") or the Hong Kong Housing Society ("HKHS"). In addition, they may opt for other subsidized housing schemes provided by the HKHA and the HKHS, if available.

Re-housing Eligibility

2. Domestic tenants must have been genuinely living in the project area before and since the first day of Freezing Survey of the project ("the date of Freezing Survey") conducted by the URA and have no alternative accommodation.

3. Domestic tenants must fulfill the prevailing eligibility criteria for PRH of the HKHA and the HKHS.

Re-housing Eligibility of Illegal Rooftop Structure Occupiers

4. Since there is no difference between the illegal rooftop structures within the URA's redevelopment project areas and the illegal rooftop structures in other domestic buildings, the re-housing eligibility of illegal rooftop structure occupiers for PRH of the HKHA is the same as the eligibility criteria adopted by the HKHA in re-housing the illegal rooftop structure occupiers in domestic buildings affected by the enforcement actions taken by the Buildings Department. Therefore, in addition to the general eligibility criteria for PRH of the HKHA, occupiers of illegal rooftop structures have to satisfy that they have been genuinely living in the

structures within the project area two years before the date of Freezing Survey and that the structures were built on or before 1 June 1982 in order to be eligible for PRH of the HKHA.

5. Occupiers of the illegal rooftop structures who can only fulfill the requirement of having been genuinely living in the relevant illegal rooftop structures before and since the date of Freezing Survey will be eligible for re-housing in the PRH of the HKHS subject to meeting the eligibility criteria for PRH of the HKHS.

(II) URA Re-housing Block

Re-housing Arrangement

1. Domestic tenants living in URA acquired properties, who due to various reasons are not provided PRH re-housing as described in Part (A)(I) above, may be re-housed in units of Re-housing Block provided by the URA subject to fulfillment of the following eligibility criteria of the URA.

Re-housing Eligibility

2. Tenants must have been genuinely living in the project area before and since the date of Freezing Survey and have no alternative accommodation.

3. All members of tenants must be legally residing in Hong Kong without any conditions of stay (excluding a time limit of stay).

4. All members of tenants, whether personally or through a company, must not own nor have any interest in any domestic property in Hong Kong.

5. Both total monthly income and total net assets of all members of tenants must not exceed the prevailing Subsidy Income Limits and Net Assets Limits under the Policy on Safeguarding Rational Allocation of Public Housing Resources of the HKHA (the special condition that the net assets limits for a 1-person to 3-persons household with all members aged over 55 is treated the same as that of a 4-persons household does not apply in this criterion).

6. Tenants, who are eligible for registration on the Application for PRH of the HKHA, must make the application accordingly.

7. Allocation of re-housing unit is governed by the prevailing policy of the URA on household composition.

(III) Ex-gratia Removal Allowance

1. Domestic tenants who accepted rehousing arrangement will be offered an ex-gratia removal allowance. These allowances are in line with the HKHA's rates. Tenants will be informed of the allowance receivable individually according to their household size and the prevailing rates.

(IV) Compassionate Re-housing

1. Domestic tenants who do not fulfill the above rehousing eligibility criteria may be re-housed on compassionate grounds if they have genuine hardship arising from factors such as ill health, disability or special family circumstances.

(B) Ex-gratia Allowances

(I) Domestic Tenants

1. According to Landlord and Tenant (Consolidation) Ordinance, domestic tenants are required to move out from the properties and are not entitled to any compensation or forms of payments if their tenancies are terminated and are not renewed. However, for tenants of the URA acquired properties who decline re-housing as described in Part (A) above or who are not provided re-housing due to various reasons and agreed to move out from the properties, the URA will still offer to them an appropriate amount of ex-gratia allowances as described below.

Tenants who commenced occupying the properties before the date of Freezing Survey

2. Subject to the exceptions described in Paragraph 4 below, the URA will offer an ex-gratia allowance to tenants who had commenced occupying the properties under valid tenancies before the date of Freezing Survey. Based on the rateable value of the properties concerned, the ex-gratia allowance is calculated according to the method as listed in **Table 1** below:

Table 1

Rateable Value ("RV")	Ex-gratia Allowance
1st HK$10,000	9 times RV
2nd HK$10,000	8 times RV
3rd HK$10,000	7 times RV
4th HK$10,000	6 times RV
5th HK$10,000	5 times RV
6th HK$10,000	4 times RV
7th HK$10,000	3 times RV
8th HK$10,000	2 times RV
9th HK$10,000 and above	1 times RV

3. Subject to the exceptions described in Paragraph 4 below, the total amount of ex-gratia allowance is subject to a minimum amount of HK$170,000 (1) for an one-person household and a minimum amount of HK$190,000 (1) for a two-person or larger household. The minimum amount is subject to annual review.

4. The ex-gratia allowance described in Paragraph 2 above and the minimum amount described in Paragraph 3 above do not apply to tenants who,
   (i) have alternative accommodation; or
   (ii) are not genuinely residing in their properties within the project.

   Tenants who fall under any of these circumstances will be offered an ex-gratia allowance equal to 3 times the prevailing ex-gratia allowance offered by the Lands Department on resumption by the Government ("Government EGA"). However, if the tenants are not legal Hong Kong residents holding valid Hong Kong Identity Card ("HKIC"), they will only be offered 2 times the Government EGA.

Tenants who commenced occupying the properties on or after the date of Freezing Survey

5. Subject to the exceptions described in Paragraph 6 below, the URA will only offer an ex-gratia allowance equal to 2 times Government EGA to tenants who had commenced occupying the properties under valid tenancies on or after the date of Freezing Survey.

6. The ex-gratia allowance described in Paragraph 5 above does not apply to tenants who,

   (i) have alternative accommodation; or
   (ii) are not genuinely residing in their properties within the project; or

Note: (1) Effective from 1 April 2018

(iii) have received from the URA within two years prior to the date of Freezing Survey or at any time after the date of Freezing Survey any of the following allowances or arrangement: -
(a) allowances for owners of domestic properties but excluding the incidental cost allowance; or
(b) Ex-gratia allowances for domestic tenant being higher than Government EGA; or
(c) Relocation Assistance; or
(d) re-housing; or

(iv) are not legal Hong Kong residents holding valid HKIC.

Tenants who fall under any of these circumstances will only be offered an ex-gratia allowance equal to 1 times Government EGA.

Principal Tenants

7. Subject to the exceptions described in Paragraph 8 below, for principal tenants who had commenced occupying their properties and whose tenancies commenced before the date of Freezing Survey, the URA will offer to them an ex-gratia allowance equal to the ex-gratia allowance described in Paragraph 2 above subject to a minimum amount described in Paragraph 3 above, plus an additional ex-gratia allowance equal to 24 months' profit rent (i.e. rent received from the sub-tenants after deduction of the rent payable by them to their landlords).

8. The ex-gratia allowance and minimum amount described in Paragraph 7 above does not apply to principal tenants who,

(i) have alternative accommodation; or
(ii) are not genuinely residing in their properties within the project.

Principal tenants who fall under any of these circumstances will be offered an ex-gratia allowance equal to 3 times Government EGA plus 24 months' profit rent. However, if the principal tenants are not legal Hong Kong residents holding valid HKIC, they will only be offered 2 times the Government EGA plus 24 months' profit rent.

9. Principal tenants occupying the properties and whose tenancies commenced on or after the date of Freezing Survey will be offered an ex-gratia allowance according to Paragraphs 5 or 6 above, whichever is applicable.

10. For those principal tenants who do not occupy their properties and whose tenancies commenced before the date of Freezing Survey, they will be offered a minimum amount of HK$20,000 (1) (amount is subject to annual review), or 24 months' profit rent, whichever is the higher. No ex-gratia

Note: (1) Effective from 1 April 2018

allowance will be offered to principal tenants whose tenancies commenced on or after the date of Freezing Survey.

11. Principal tenants will be offered rental reduction from the URA. Where any sub-tenant surrenders his leased portion to the URA before the principal tenant delivers vacant possession, the rent payable by principal tenant will be reduced accordingly.

(II) Non-domestic Tenants (Other than Tenants of Industrial Premises)

Ex-gratia Allowance

1. According to the Landlord and Tenant (Consolidation) Ordinance, non-domestic tenants are required to move out from their properties and are not entitled to any compensation or other payments if their tenancies are terminated and are not renewed. However, the URA will still offer an ex-gratia allowance equals to 3 times the RV of the affected properties to non-domestic tenants (other than tenants of industrial premises) who agreed to move out from their properties.

2. In addition to the ex-gratia allowance described in Paragraph 1 above, additional payment of ex-gratia business allowance ("EGBA") is payable to any tenant-operator of non-domestic property (other than tenants of industrial premises) who had commenced occupying their properties for business use before the date of Freezing Survey and have accepted the ex-gratia allowance offer from the URA both unconditionally and within the validity period of the offer and agreed to move out from their properties. The amount is directly proportional to the number of years of continuous operation by the tenant-operator as business owner in the property. In calculating the number of years of continuous operation, the expiry date of continuous operation is 2 years from the date which the URA issues initial acquisition offers to property owners. The amount of EGBA is payable at a rate of 0.1 times the RV for each year, subject to a maximum of 30 years. For an incomplete year, the amount of EGBA is calculated on a pro-rata basis to the nearest month. The amount of EGBA is subject to a maximum amount of $700,000 and a minimum amount as described in **Table 2** below.

Table 2

Years of Continuous Operation	Minimum EGBA
10 years or less	HK$110,000 (1) (amount is subject to annual review)
More than 10 years (maximum of 30 years)	Additional HK$10,000 for each completed year

3. In the application for EGBA, the Tenant-operator is required to substantiate the period of continuous operation in the property as business owner. "Tenant-operator" here means a tenant who occupies his property, which is a legal premises, for his own business.

4. A tenant-operator may choose to claim for business loss as an alternative to the above two allowances (if applicable).

(C) Payment Arrangement

1. All applicable allowance mentioned above, half will be paid upon the execution of surrender agreement and the remaining half will be paid after the delivery of vacant possession.

(D) Other General Rules

1. Trespassers occupying properties (domestic or non-domestic) in the project, who move in on or after the date of Freezing Survey, will be required to move out without any allowance or re-housing.

2. In cases where the property is occupied for domestic and non-domestic uses simultaneously, the URA will determine whether the tenancy is domestic or non-domestic in accordance with the provisions of the Landlord and Tenant (Consolidation) Ordinance.

3. If tenants (domestic or non-domestic) refuse to accept ex-gratia allowance or re-housing offer or execute surrender documents, the URA will recover vacant possession of their properties in accordance with the laws.

4. Domestic tenants whose tenancy commenced before the date of Freezing Survey and who was requested by their landlord to move out from the affected properties due to the expiry or termination of their tenancies before the URA acquired the affected properties successfully and who are unable to receive the ex-gratia allowances according to Part (B)(I) (the "affected domestic tenants") can apply for the URA's "Domestic Tenants

Note: (1) Effective from 1 April 2018

Compassionate Assistance Programme" ("DTCAP"). The affected domestic tenants should submit application to the URA with tenancy agreement, rent receipts, termination notice served by the landlord to the affected domestic tenants and residential proof etc., at least 1 month before moving out from the affected properties, to facilitate the URA to conduct initial assessment on their eligibility of receiving Special Ex-gratia Allowance or Special Re-housing. The Special Ex-gratia Allowance is equal to the ex-gratia allowance described in Paragraph 2 and Paragraph 3 of Part (B)(I) above.

5. To become eligible for DTCAP, the affected domestic tenants should fulfill the following eligibility criteria:

(i) they have been genuinely residing with valid tenancy in the affected properties before and since the date of Freezing Survey and have been genuinely residing in the affected properties for at least 6 months before moving out from the affected properties; and
(ii) they do not have alternative accommodation elsewhere; and
(iii) they are required to leave the affected properties not because of their breach of tenancy on their part; and
(iv) after the expiry of their tenancies, they have not refused to renew their tenancies due to unreasonable grounds and circumstances; and
(v) they have not received any compensation or other payment from their landlords for vacating the affected properties; and
(vi) they are legal Hong Kong residents holding valid HKIC; and
(vii) their landlords have not served the termination notice to them before the date of Freezing Survey; and
(viii) they have registered on the Application for PRH of the HKHA; and
(ix) if Special Re-housing is to be offered, they have to fulfill the eligibility criteria of PRH laid down by the HKHA and/or HKHS or of URA re-housing.

Tenants who moved in on or after the date of Freezing Survey are not eligible for DTCAP.

6. If the affected domestic tenants are eligible for DTCAP, the URA will pay Special Ex-gratia Removal Allowance in advance. The amount is equal to the ex-gratia removal allowance as described in Part (A)(III) above. The pre-paid amount will be deducted from the future payment of Special Ex-gratia Allowance.

After completion of the acquisition or government resumption of the affected properties, the URA will assess the eligibility of the affected domestic tenants in receiving the Special Ex-gratia Allowance or Special Re-housing.

7. Domestic tenants, who undergo the same situation as mentioned in Paragraph 4 above and are not eligible for DTCAP, can apply for the URA's Relocation Assistance. The affected domestic tenants must fulfill the eligibility criteria mentioned in items (i) to (vi) of Paragraph 5 above, and should submit application and provide sufficient evidence to the URA at least 1 month before moving out from the affected properties for URA's verification and assessment.

8. The URA will pay Relocation Assistance to the affected domestic tenants after they have moved out from the affected properties. Affected domestic tenants who have received Relocation Assistance are not eligible to apply for DTCAP described in Paragraph 4 above in the same project.

9. Domestic tenants who opt for receiving any ex-gratia allowance of a total amount more than 1 times the Government EGA (but excluding the 24 months' profit rent) or Relocation Assistance as described in Paragraph 7 above have to agree to give up their rights to public housing assistance for the next 2 years. Such tenants are only allowed to submit fresh applications for PRH and other public housing assistance after the expiry of the 2-years period.

10. Non-domestic tenant-operator (except tenants of industrial premises) whose tenancy commenced before the date of Freezing Survey and who was requested by their landlord to move out from the affected properties due to the expiry or termination of their tenancies before the URA acquired the affected properties successfully and moving out from the affected non-domestic properties after the date of Freezing Survey and who are unable to receive the ex-gratia allowances according to Part (B)(II) (the "affected non-domestic tenants") can apply for the URA's Special EGBA. The amount is equal to EGBA as described in Paragraph 2 of Part (B)(II) above. The affected non-domestic tenants should provide sufficient evidence of business operation, including tenancy agreements, rental receipts, termination notice served by their landlord and other relevant documents, at least 1 month before moving out from the affected non-domestic properties, to facilitate the URA to conduct initial assessment on their eligibility of receiving Special EGBA.

11. To become eligible for Special EGBA, the affected non-domestic tenants should fulfill the following criteria:

    (i) they are operating in a legal premises; and
    (ii) they have commenced operating business in the affected properties with valid tenancy before and since the date of Freezing Survey and have been in operation for at least 6 months before moving out from the affected properties; and
    (iii) they are required to leave the affected properties not because of his/her breach of tenancy terms; and

(iv) the tenancy is terminated or not renewed by the landlord and they have not terminated the tenancy early at their own will; and
(v) they have received no compensation or other payment from their landlord for vacating the affected properties; and
(vi) after the expiry of the tenancy, they have not refused to renew their tenancy due to unreasonable grounds and circumstances.

After completion of the acquisition or government resumption of the affected properties, the URA will assess the eligibility of the affected non-domestic tenants in receiving the Special EGBA.

12. The URA has drawn to the attention of landlords whose properties had been tenanted out on the date of Freezing Survey that the URA will not consider making a higher offer to them to acquire their properties in the following situations: -

(i) properties being left vacant; or
(ii) landlords entering into new tenancies, whether with the existing tenants or new tenants; or
(iii) landlords occupying their properties for their own use.

13. The URA would remind landlords / tenants that it is an offence for landlords to unlawfully deprive a tenant of occupation of property or to make an unwarranted demand with menaces with a view to gain for himself or others or to defraud against the URA. The URA will report to the enforcement authorities on all cases of suspected criminal offences.

14. The information contained in this leaflet applies to projects announced by the URA under the URAO only (i.e. not applicable to tenants of industrial premises). The URA reserves the right to adopt different policies and procedures for its other projects.

15. The principles for rehousing and ex-gratia allowance contained in this leaflet applies to the following types of tenants only:

(i) tenants who are, on 13 June 2017, still in occupation of the relevant property in redevelopment projects which have been published for implementation under the URAO and acquisition has already commenced before 13 June 2017; and
(ii) tenants of property in redevelopment projects which have been published for implementation under the URAO before 13 June 2017 but acquisition has not yet commenced; and
(iii) tenants of property in redevelopment projects to be published for implementation under the URAO after 13 June 2017.

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