METRO PLANNING COMMITTEE
OF THE TOWN PLANNING BOARD

MPC Paper No. 11/14

For Consideration by the
Metro Planning Committee on 23.5.2014

PROPOSED AMENDMENTS TO
THE DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27

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1. Introduction

This paper is to seek Members' agreement that:

(a) the proposed amendments to the draft Kwai Chung Outline Zoning Plan (OZP) No. S/KC/27 as shown on the draft OZP No. S/KC/27A (**Attachment I**) and its Notes (**Attachment II**) are suitable for exhibition under section 7 of the Town Planning Ordinance (the Ordinance); and

(b) the revised Explanatory Statement (ES) of the OZP (**Attachment III**) should be adopted as an expression of the Town Planning Board (the Board)'s planning intentions and objectives for the various land use zonings of the OZP and is suitable for exhibition together with the draft OZP.

2. Status of the Current Draft Kwai Chung OZP No. S/KC/26

2.1 On 31.5.2011, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Kwai Chung OZP which was subsequently renumbered as S/KC/25. On 4.10.2011, the CE in C referred the approved OZP to the Board for amendments under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 14.10.2011 under section 12(2) of the Ordinance.

2.2 On 20.4.2012, the draft Kwai Chung OZP No. S/KC/26 (**Plan 1a**), incorporating amendments mainly to impose building height (BH) restrictions for various development zones, to designate non-building areas and building gaps as well as to rezone a number of sites to reflect their existing uses and planning intentions was exhibited for public inspection under section 5 of the Ordinance. Upon expiry of the two-month exhibition period on 20.6.2012, a total of 13 representations were received. On 29.6.2012, the 13 representations were published for 3 weeks for public comments and a total of 1,925 comments were received.

2.3 On 12.10.2012, after giving consideration to 7 representations and the related comments, the Board decided not to uphold these representations. On 26.10.2012, the Board considered the remaining 6 representations and comments which were related to the BH restrictions imposed on the Kwai Chung Container Terminals under the "OU" annotated "Container Terminal" ("OU(CT)") zoning. The Board decided to defer consideration of the representations and requested Planning Department (PlanD) to liaise with the representers regarding their

expansion proposals and to carry out further assessments to assess the cumulative impact of their proposals. The findings of the technical assessments should be submitted to the Board for further consideration. Further consideration of the representations is tentatively scheduled in mid 2014.

2.4 On 11.1.2013, a judicial review (JR) application was filed against the Board's decision of not upholding a representation in respect of the BH restriction imposed on a "Comprehensive Development Area" site and to seek an interim stay of the submission of the OZP to CE in C pending the final determination of the JR proceedings. On 5.2.2013, the Court of First Instance granted leave to the JR and an interim stay of the submission of the OZP to the CE in C. The date of hearing of the JR is yet to be fixed.

2.5 On 9.5.2014, the draft Kwai Chung OZP No. S/KC/27 (**Plan 1b**), mainly to rezone a site at Tai Lin Pai Road for commercial use and two sites for columbarium developments at Tsing Tsuen Road and Wing Lap Street, was exhibited for public inspection under section 7 of the Ordinance.

3. The Proposed Amendments

Background

3.1 It was stated in the 2013 Policy Address that the Government would adopt a multi-pronged approach to build up land reserve with a view to meeting housing and other development needs. "Government, Institution or Community" ("G/IC") sites with no designated use would be reviewed for housing purpose. The development intensity of Government's unallocated residential sites would also be increased as far as allowable in planning terms. It was reaffirmed in the 2014 Policy Address that the Government would continue to review various land uses and rezone sites as appropriate for residential use. The current proposed amendments to the OZP are related to the zoning amendments of 3 sites for housing purposes (**Attachment I and Plan 2)** :

- Site A located at Tai Wo Hau Road proposed to be rezoned from "Open Space" ("O") and "Residential (Group A)" ("R(A)") to "Residential (Group A)2" ("R(A)2") (Amendment Items A1 and A2 on **Plan 3a**);
- Site B at Kwai Shing Circuit proposed to be rezoned from "G/IC" and "O" to "R(A)2" (Amendment Items B1 and B2 on **Plan 3a**) and;
- Site C at Lai Kong Street proposed to be rezoned from "G/IC" to "R(A)2" (Amendment Item C on **Plan 3b**).

3.2 The 2014 Policy Address also announced that except for the north of Hong Kong Island and Kowloon Peninsula, which are more densely populated, the Government considers it feasible to generally increase the maximum domestic plot ratio (PR) currently permitted for the other "density zones" in the territory by around 20% as appropriate. In implementing these measures, the Government will duly consider factors such as traffic and infrastructural capacities, local characteristics, existing development intensity and the various possible impacts of the proposed development on the areas concerned.

3.3 In general, the maximum PR for Kwai Chung falls within Density Zone R2 (i.e. PR of 5). To maximize the development potential of housing land as announced in the Policy Address, a PR of 6 is proposed for the three housing sites identified, which is equivalent to the maximum of Density Zone 2 (i.e. PR 5) with a 20% increase. To ascertain the technical feasibility of the proposed housing sites and the related increase in PR, various technical assessments including traffic, sewerage, drainage, water supply and environmental impacts have been undertaken. It has been confirmed that the proposed amendments would not cause insurmountable problems on traffic and other infrastructural capacity as well as on the environmental aspects. The findings of the technical assessments for the three housing sites in Kwai Chung are detailed respectively in paragraphs 3.8 and 3.9 below.

3.4 According to the Housing, Planning and Lands Bureau Technical Circular No. 1/06 on Air Ventilation Assessments (AVA) setting out the guidance for applying AVA for government projects, AVA would be required for sites located within breezeways. Site A and Site B are located at the breezeways as identified in the AVA (Expert Evaluation) for the Kwai Chung Area (AVA EE for Kwai Chung Area) while a very minor northern portion of Site C encroaches onto an air path (see the existing air path network is at **Plan 8a**). AVAs have been conducted to assess the likely impacts of all the proposed housing developments on the pedestrian wind environment. For details, please see paragraphs 3.8.7 and 3.9.6 below.

3.5 To assess the visual impact of the proposed rezoning sites, visual appraisal for all the proposed residential developments have been conducted to assess the visual impact of the proposed developments on the surrounding area. For details, please see paragraphs 3.8.8 to 3.8.10 and 3.9.7 to 3.9.10 below.

3.6 There are existing trees and vegetation within Site A and along the periphery boundary of Site B. Inevitably, the vegetation will be affected by the proposed developments and substantial tree felling within Site A will be necessary. Tree preservation and compensatory planting proposals will be provided for future housing developments in accordance with Development Bureau (DEVB) Technical Circular (Works) No. 10/2013 for Government projects and Lands Department (LandsD) LAO Practice Note No. 7/2007 for private projects. Requirements for preserving existing trees as far as possible and provision of at-grade amenity treatment will be included in the planning brief[1]. Site C is currently a paved land and no vegetation on the site.

3.7 Commissioner for Transport (C for T) advises that the anticipated traffic flow of the proposed three housing sites in Kwai Chung are about 106 passenger car unit per hour (pcu/hr) in 2-way at peak hour, which are less than 2 pcu/minute. Due to small size of the sites, traffic generated/ attracted to each site is relatively low and the traffic impact is expected to be insignificant.

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[1] A planning brief is a planning document to guide the development of public housing sites and Comprehensive Development Area. It sets out the development parameters, planning concepts and various planning requirements for the developer/Housing Authority to follow.

3.8 <u>Proposed Public Rental Housing Developments at Site A and Site B</u> (Amendment Items A1 to A2 and B1 to B2)

3.8.1 Site A (including Amendment Items A1 and A2) is located at Tai Wo Hau Road and Site B (including Amendment Items B1 and B2) is located at Kwai Shing Circuit (**Plans 2 and 3a**). The two sites are identified for public rental housing (PRH) development at the request of some Kwai Tsing District Council (K&TDC) members and locals in 2012 for providing more PRH and community facilities/pedestrian link in Kwai Chung.

3.8.2 Site A (Amendment Items A1 and A2) is currently vacant and vegetated with natural terrain and several platforms (**Plan 6b**). It was previously occupied by the Asbury Estate which was completed in 1959 and demolished in late 1980s. Majority of the site is currently zoned "O" with a minor portion zoned as "R(A)" in the OZP. LCSD does not have implementation programme for the "O" portion and has no objection to the rezoning.

3.8.3 Site B is paved and currently used as Kwai Shing Driving Test Centre (the DTC) (**Plan 6c**). Majority of the site is zoned as "G/IC" with a portion zoned as "O". To vacate the site for the proposed PRH development, the DTC will be relocated to a vacant site at Wing Kei Road, Kwai Chung (**Plan 10**). LCSD does not have implementation programme for the concerned "O" zone and has no objection to the rezoning.

3.8.4 In the surrounding area, there are high rise residential developments (Kwai Chung Estate, Kwai Shing East Estate, Kwai Shing West Estate) (**Plans 2 and 6a**), GIC facilities, open space and vacant land.

3.8.5 It is proposed to rezone : (**Plans 2, 3a and 5a**)

Amendment Item	Site Area (m^2)	Proposed Rezoning
<u>Site A</u>		
Item A1	3,116	from "O" to "R(A)2"
Item A2	55	from "R(A)" to "R(A)2"
<u>Site B</u>		
Item B1	2,439	from "G/IC" to "R(A)2"
Item B2	673	from "O" to "R(A)2"

3.8.6 The proposed development parameters are as follows:

<u>Site A</u>

Site Area	: about 0.32ha
Maximum PR	: 6/9.5 (domestic/ non-domestic)
Maximum BH	: 160mPD
No. of Block	: 1

No. of Flats	:	about 400
Other Facilities	:	A neighbourhood elderly centre A multi-purpose venue A footbridge linking up Kwai Chung Estate, Site A and Site B (**Plan 8b**)

<u>Site B</u>		
Site Area	:	about 0.31ha
Maximum PR	:	6/9.5 (domestic/ non-domestic)
Maximum BH	:	190mPD
No. of Block	:	1
No. of Flats	:	about 400

Air Ventilation Assessment

3.8.7 As shown in **Plan 8a**, Site A and Site B are located within the breezeway. However, high rise residential developments including Kwai Chung Estate, Kwai Shing East Estate, and Kwai Shing West Estate are found in the north of Site A and south of Site B. To assess the air ventilation performance of the proposed developments and the surroundings, HD has conducted a quantitative AVA (**Attachment IVa**). It is demonstrated that the design of the proposed PRH have taken into account the said breezeway and serve to convert the said breezeway into two breezeways with minimum widths of 50m and 20m to facilitate the penetration of annual prevailing easterly winds (**Plan 8c**). The former one falls within an area currently zoned as "O" and the later one falls within an area shown as 'Road' (i.e. Kwai Shing Circuit) which help to protect the breezeways. With the two breezeways, the quantitative AVA concludes that the air ventilation performance with and without the proposed PRH is largely the same. The provision of breezeways will be included in the ES and planning brief to guide the future developments of Site A and Site B.

Visual and Landscape Appraisals

3.8.8 The proposed maximum BH of 160mPD for Site A and 190mPD for Site B demonstrate a stepped height profile which is sympathetic and compatible with the surrounding housing developments where the PRH blocks of Kwai Chung Estate to the north of Site A is subject to a maximum BH restriction of 170mPD while the PRH blocks of Kwai Shing East Estate to the south of Site B are subject to a maximum BH restriction of 160mPD/190mPD.

3.8.9 HD has conducted a visual appraisal for Site A and Site B (**Attachment Va**). When viewing from the bus stop alongside Kwai Shing Circuit (Vantage Point A), the proposed PRH developments at Sites A and B would blend in with the existing built environment in terms of residential character and compatible BH (**Plan 6d**). The proposed maximum BH of 160mPD and 190mPD at Site A and Site B would further amplify the interesting variation of stepped BH profile

between Kwai Shing East Estate (of a maximum BH of 190mPD) and Kwai Chung Estate (of a maximum BH of 170mPD). Though the PRH development of 190mPD would screen off certain portion of the skyline, the proposed BH at Sites A and B are generally in harmony with the BH of existing Kwai Chung Estate and Kwai Shing East Estate. Visual impact is considered moderate and acceptable for this transient view of the commuters along Kwai Shing Circuit near this bus stop.

3.8.10 Only Site A of the proposed PRH would be visible from the pedestrian crossing at Kwai Shing Circuit (Vantage Point B) and footbridge (Vantage Point C) linking Chui Kwai House over Tai Wo Hau Road (**Plans 6e and 6f**). There would be little change in the visual composition and quality. The tree line along Tai Wo Hau Road would help soften the visual impact. The overall visual impact is considered moderate and acceptable.

3.8.11 The existing trees at Sites A and B would be affected by the proposed PRH development (**Plans 6b and 6c**). Provision of tree preservation and landscape requirements will be included in the planning brief to minimise the impact.

Traffic Aspects

3.8.12 C for T advises that Site A will be connected to the existing Tai Wo Hau Road which is a single carriageway with three lanes with 2-way capacity of 3100 pcu/h and Site B will be connected to Kwai Shing Circuit which is a single carriageway with 2 lanes with 2-way capacity of 2000 pcu/h. The additional traffic flow of the proposed development will be about 30 pcu/h in 2-way at peak hour each for the two sites. The proposed PRH development would not pose major traffic impact on the district-wide traffic condition.

3.8.13 In terms of public transport services, C for T further advises that the passenger demand in the vicinity would be closely monitored. As an established practice, Transport Department, together with the public transport operators (i.e. KMB and the concerned Green Minibus (GMB) operators), will suitably adjust the level of public transport services to cope with the possible additional passenger demand generated by the proposed residential development to ensure adequate provision of public transport services. In view of the above, C for T has no comments on the proposed amendments.

3.8.14 C for T advised that under the Bus Route Development Programme (BRDP)[2] 2014-2015 of Kwai Tsing District, Kowloon Motor Bus (KMB) suggested rationalising the existing bus routes in Tsing Yi and adjusting the services in Kwai Chung area on an "Area Approach" to

[2] BRDP is one of the policy priorities mentioned by the Chief Executive in his Policy Address in 2013 and 2014, which helps minimise wastage due to duplication of resources and enhance the efficiency of the bus network. Apart from easing traffic congestion, this helps improve air quality and alleviate the pressure for fare increase.

meet the passenger demand and utilise the resources more efficiently. KMB also recommends to increase the frequency of several routes to meet the passenger need. When the three housing sites are confirmed for development, C for T would review and strengthen the bus services surrounding the sites with KMB according to the established procedure to meet the passenger demand generated by future developments.

Environmental and Technical Aspects

3.8.15 Concerned government departments including Environmental Protection Department (EPD), Transport Department (TD), Highways Department (HyD), Civil Engineering and Development Department (CEDD), Drainage Services Department (DSD) and Water Supplies Department (WSD) have no adverse comment on the proposed PRH developments from environmental, traffic, and infrastructural points of views. To address the potential traffic noise and air issues arising from the adjacent road networks, HD has conducted an Environmental Assessment Study (EAS). An executive summary of the EAS is **Attachment VI**. The Director of Environmental Protection (DEP) has no comment on the EAS. Provision of appropriate noise mitigation measures such as fix windows for addressing traffic noise requirements will be included in the planning brief to minimise the impact.

3.9 Proposed Private Residential Development at Site C (Amendment Item C)

3.9.1 Site C under Amendment Item C is located at Lai Kong Street (**Plans 2, 3b**). It is a piece of vacant government land which was used as a temporary works area. The site is currently zoned "G/IC", without a designated government use for the site (**Plan 7b**).

3.9.2 It is proposed to rezone this site from "G/IC" to "R(A)2" for private residential development (**Plan 5b**). The site has an area of about 0.38 ha. In response to the local's request, a public transport interchange (PTI) will be provided within Site C to accommodate GMB terminus currently occupied at Lai Kong Street.

3.9.3 A high-rise sandwich class housing, Highland Park (BH restriction on OZP: 260mPD), is at the opposite side of Lai Kong Street. Other medium-rise and high-rise buildings such as Princess Margaret Hospital Lai King Building (BH restriction on OZP: 7 storeys), Lai King Disciplined Services Quarters (BH restriction on OZP: 260mPD) and Tsui Yiu Court (BH restriction on OZP: 195mPD) are found in the south and northeast. Low-rise GIC facility such as a fire station with BH at about 116mPD (BH restriction on OZP: 3 storeys) is located to the further east (**Plans 2, 3b and 7a**).

3.9.4 The proposed development parameters of Site C are as follows:

Site Area	:	About 0.38ha
Maximum PR	:	6/9.5 (domestic/ non-domestic)
Maximum BH	:	240mPD
No. of Flats	:	about 410
Other Facilities	:	PTI
Building Gap	:	a 30m wide building gap at 10m above ground (i.e. 163mPD) shall be provided

3.9.5 The proposed maximum BH of 240mPD which is sympathetic and compatible with the surrounding housing developments with BH restriction ranging from 195mPD to 260mPD. It demonstrates a BH profile stepping down from the west to the east (**Plan 2**).

Air Ventilation Assessment

3.9.6 According to the AVA EE for Lai Kong Street conducted by PlanD (**Attachment IVb**), with a long lot frontage of about 140m in north-south direction and a maximum BH restriction of 240mPD, the proposed development would have no significant effect on the surrounding sites when prevailing winds come from the southwest and south (**Plan 9a**). They are able to reach the surrounding sites through Lai Kong Street and open spaces between Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building. However, when prevailing wind comes from the northeast, east and southeast, the proposed development may create some wake areas on the leeward sides which will affect the air ventilation of Highland Park and the pedestrian level of Lai Kong Street. To facilitate the penetration of the easterly winds into the west of the proposed development and channel the easterly wind down to the ground due to downwash effects, a 30m wide building gap at 10m above ground level (i.e.163mPD) is required to be provided (**Plans 9b to 9d**). Furthermore, the proposed PTI at ground level should also be carefully designed to increase the permeability of the podium structure facing the easterly winds to alleviate the impact on the air ventilation in the street level. Both of these design requirements would be incorporated into the Plan, Notes and ES to guide the future development of the site.

Visual and Landscape Appraisals

3.9.7 A total of three vantage points are selected to assess the visual impacts of the proposed residential development at Site C (**Attachment Vb**).

3.9.8 The platform of Wah Yuen Chuen is selected as Vantage Point A. It is easily accessible by the public. Photomontage at **Plan 7c** illustrates that with the proposed maximum BH of 240mPD at the site and the Highland Park at 260mPD as the backdrop and a low-rise fire station at

the foothill, a stepped height profile at this part of Ha Kwai Chung is formed. The proposed building blocks at the subject site blend in with the adjacent residential development Highland Park and other high-rise developments with similar building heights and bulk in the area nearby. The 30m-wide building gap requirement mentioned in paragraphs 3.9.4 and 3.9.6 above could also serve as a visual corridor from Wah Yuen Chuen to Highland Park. The visual character of the area would not be affected and no visual incompatibility with the surroundings would be created.

3.9.9 The second vantage point B is the open space next to Lai King Sports Centre, which provides a place for recreational/leisure purposes for nearby residents and the general public. Photomontage at **Plan 7d** shows that a majority part of the proposed development would be shielded off by the vegetated slope and Highland Park as well as Kai Min House of Cho Yiu Estate. The visual impact brought about by the proposed development is negligible. No visual incompatibility with the surroundings would be created.

3.9.10 Vantage point C is taken at the pedestrian sidewalk near the entrance of the Princess Margaret Hospital Lai King Building. The pedestrian sidewalk is usually used by the residents of Highland Park and the facility users of the hospital building. Photomontage at **Plan 7e** demonstrates that the building height of the proposed development is visually tally with Highland Park and Lai King Disciplined Services Quarters. The visual impact brought about by the proposed development is moderate and acceptable.

3.9.11 The site is currently a paved land and no vegetation on the site. Thus, there is no landscape impact brought by the proposed development.

Traffic Aspects

3.9.12 C for T advises that the proposed development will be connected to the existing Lai Kong Street, which is a single carriageway with 2 lanes with 2-way capacity of 2000 pcu/h. The additional traffic flow of the proposed development will be about 46 pcu/h in 2-way at peak hour, and the traffic impact brought by the proposed development is insignificant.

3.9.13 In terms of public transport services, C for T comments that the current level of public transport services for Lai Kong Street/Lai King hill area is able to meet the present passenger demand. Recent survey shows that during morning peak hours at Lai Kong Street, all passengers of GMB routes 91, 91A and 411 could get on the first arriving GMB, and those of GMB routes 46M and 90M were able to board a GMB in about 10 minutes and 6 minutes respectively. This situation is considered not unusual during peak hours. Furthermore, a PTI would be incorporated into the proposed development to accommodate the existing GMB terminus on Lai Kong Street, thereby

improving the existing traffic condition. In view of the above, C for T has no comments on the proposed amendment.

Environmental and Technical Aspects

3.9.14 Concerned government departments including EPD, TD, HyD, CEDD, DSD and WSD have no adverse comment on the proposed development from environmental, traffic, and infrastructural points of views. A Noise Impact Assessment (NIA) is required by DEP to identify the potential noise impacts from the roads nearby including Lai Chi Leng Road, Princess Margaret Road and the noise mitigation measures. Sewerage Impact Assessment (SIA) is also required by DEP to ascertain that local sewers would have sufficient capacity with necessary mitigation measures. These requirements would be incorporated into the lease so as to ensure that they would be undertaken by the future developer.

4. Summary of Rezoning Proposals for Housing Developments

Based on the above housing proposals, it is estimated that a total of about 1,210 flats would be provided. The population increase due to the amendments is about 3,300 persons. The planned total population in Kwai Chung OZP coverage area is about 338,400.

5. Provision of GIC Facilities and Open Space in Kwai Chung

5.1 The provision of GIC facilities and open space in the Kwai Chung OZP planning area has been assessed. A table on the provision of major community facilities and open space in Kwai Chung OZP area is at **Attachment VII**. Based on a planned population of about 338,400 for the OZP, including the population of the proposed housing developments relating to the amendment items, the planned provision of major GIC facilities in the district is generally sufficient. There will also be a surplus provision of local open space and district open space in the Kwai Chung OZP planning area.

5.2 There is an overall deficit in the provision of primary school of about 107 classrooms. According to the Education Bureau, the assessment for their requirement is based on a wider district. The Education Bureau has no objection to the proposed amendments to the Kwai Chung OZP. Further requirement of additional school site will be considered based on the demand assessment by the Education Bureau as and when opportunity arises.

6. Proposed Amendment to the Matters shown on the OZP

6.1 Amendment Item A1

Rezoning of a site at Tai Wo Hau Road from "O" to "R(A)2" and stipulation of

BHR of 160mPD (**Plan 3a**).

6.2 Amendment Item A2

Rezoning of a site at Tai Wo Hau Road from "R(A)" to "R(A)2" and amending the BHR from 100mPD to 160 mPD (**Plan 3a**).

6.3 Amendment Item B1
Rezoning of a site at Kwai Shing Circuit from "G/IC" to "R(A)2" and amending the BHR from 1 storey to 190 mPD (**Plan 3a**).

6.4 Amendment Item B2
Rezoning of a site at Kwai Shing Circuit from "O" to "R(A)2" and stipulation of BHR of 190mPD (**Plan 3a**).

6.5 Amendment Item C
Rezoning of a site at Lai Kong Street from "G/IC" to "R(A)2" and amending the BHR from 1 storey to 240mPD for the northern and southern portions of the site and 163mPD for the middle portion of the site to provide a building gap (**Plan 3b**).

7. Proposed Amendment to the Notes of the OZP

The proposed amendments to the Notes of the OZP with additions in ***bold and italics*** and deletions in '~~crossed out~~' are at **Attachment II** for Members' consideration. The proposed amendments are summarised as follows:

7.1 The Notes of the "R(A)" zone is updated to include remarks for sub-zones "R(A)2" to reflect the maximum PR and BH restrictions as mentioned in paragraph 3 above.

7.2 Building gap requirement for the "R(A)2" zone at Lai Kong Street is incorporated in the Notes.

8. Revision to the Explanatory Statement of the OZP

The Explanatory Statement (ES) of the OZP has been revised to take into account the proposed amendments as mentioned in the above paragraphs. Opportunity has also been taken to update the general information for the various land use zones to reflect the latest status and planning circumstances of the OZP. Major amendments include updating of planned population, building gap requirement for the "R(A)2" site at Lai Kong Street and the requirement of providing two breezeways for the "R(A)2" sites at Tai Wo Hau Road and Kwai Shing Circuit. A copy of the revised ES with the proposed additions highlighted in ***bold and italics*** and deletions in '~~crossed out~~' is at **Attachment III**.

9. Plan Number

Upon exhibition for public inspection, the Plan will be renumbered as S/KC/28.

10. Consultation

10.1 Departmental Circulation

The proposed amendments have been circulated to the following relevant bureau/departments for comments. Their comments have been incorporated where appropriate. Concerned bureau/departments have no objection to or no adverse comments on the proposed amendments and no insurmountable problem have been raised by the Government departments consulted:

(a) Secretary for Development;
(b) Secretary for Transport and Housing;
(c) Secretary for Education;
(d) Director of Food and Environmental Hygiene;
(e) District Lands Officer/Tsuen Wan and Kwai Tsing, Lands Department;
(f) District Officer/Kwai Tsing;
(g) Director-General of Trade and Industry;
(h) Commissioner for Transport;
(i) Commissioner of Police;
(j) Director of Housing;
(k) Director of Environmental Protection;
(l) Director of Social Welfare;
(m) Director – General of Civil Aviation;
(n) Director of Leisure and Cultural Services;
(o) Chief Architect/Central Management Division 2, Architectural Services Department;
(p) Chief Building Surveyor/New Territories West, Buildings Department;
(q) Chief Engineer/Development(2), Water Supplies Department;
(r) Chief Engineer Mainland South, Drainage Services Department;
(s) Chief Highway Engineer/New Territories West, Highways Department;
(t) Director of Electrical and Mechanical Services;
(u) Director of Fire Services;
(v) Director of Health;
(w) Director of Agriculture, Fisheries and Conservation;
(x) Head of the Geotechnical Engineering Office, Civil Engineering and Development Department;
(y) Project Manager (New Territories North and West), Civil Engineering and Development Department; and
(z) Chief Town Planner/Urban Design and Landscape, Planning Department.

10.2 Public Consultation

10.2.1 On 3.12.2013, Housing Affairs Committee (HAC) of Kwai Tsing District Council (K&TDC) was consulted by Housing Department on the proposed PRH development in Sites A and B and HAC of K&TDC has no in-principle objection to the proposed PRH development.

10.2.2 On 13.3.2014, PlanD consulted K&TDC on the proposed amendments to the OZP for five proposed housing developments in Kwai Tsing district, including Sites A, B and C and two sites in Tsing Yi. During the

meeting, two of the four motions passed were related to Kwai Chung. One motion objected to the proposed public housing developments in Site A and Site B on grounds of lacking of improvement to the existing public transport services, and the other motion objected to the proposed private housing development in Site C without giving any reasons (**Attachment VIIIa**).

10.2.3 On 8.5.2014, Development Bureau and PlanD consulted K&TDC again. During the meeting, five motions were passed objecting to (i) rezoning the sites for residential purpose in Kwai Tsing without support from K&TDC and without a comprehensive planning for the whole district on the improvement in community and transport services; (ii) the proposed public housing development in Sites A and B without improving the existing public transport services and implementing the proposed hillside escalator links and elevator systems in Kwai Chung; and (iii) the proposed private housing development in Site C (**Attachment VIIIb**).

10.2.4 The main points raised by K&TDC during the two meetings are similar and summarized as below:

Traffic

(a) There is a general concern on the inadequate provision of transport facilities and services to support the proposed housing developments. In particular, DC members expressed concern on the impact of the BRDP 2014-2015 of Kwai Tsing District on surrounding public housing estate of Site A and Site B. With the implementation of the BRDP 2014-2015 of Kwai Tsing District and the completion of Site A and Site B, the public transport services cannot meet the demand of local residents. Furthermore, DC members also observed that the provision of public transport services are operational matters which largely relies on the KMB, thus requested relevant government departments to speed up the implementation programme of the proposed hillside escalator links and elevator systems in Kwai Chung area. DC members also raised concern on the potential traffic impact brought by the proposed development in Site C which would adversely affect the public transport services in Lai Kong Street and Lai King Hill and worsen the traffic condition in surrounding road junctions.

Provision of community facilities

(b) DC members stated that the increase in housing developments should also be planned with corresponding increase in the provision of GIC facilities and open space.

10.2.5 The responses provided by PlanD and relevant Government departments at the K&TDC meeting on 13.3.2014 and 8.5.2014 are summarised below:

Traffic

(a) Regarding the provision of public transport services, C for T advised that when the three housing sites were confirmed for development, C for T would review and strengthen the public services surrounding the sites with KMB and other public transport operators according to the established procedure to meet the passenger demand generated by future developments.

(b) In response to the concern on the potential traffic impact brought by the proposed development in Site C (i.e. Lai Kong Street), C for T advised that the traffic impact would be insignificant. C for T also advised that the existing public transport services would be sufficient to meet the demand of the local residents according to C for T's recent survey. A public transport terminus would be provided in the future housing development to accommodate the existing GMB terminus along Lai Kong Street in order to improve the future traffic condition.

Provision of community facilities

(c) As a general practice in rezoning sites for residential uses, PlanD would take into account all planning factors including GIC facilities, open space, etc. According to the Hong Kong Planning Standards and Guidelines, the provision of existing and planned GIC facilities in Kwai Tsing district would be sufficient to meet the needs of the local community as well as proposed housing developments at Sites A, B and C. Also, relevant Government departments indicated that no additional GIC facilities would be required to cater for the anticipated population increase.

10.2.6 The views of K&TDC have been fully considered and incorporated into the proposed amendments as appropriate.

10.2.7 K&TDC will be consulted again on the proposed amendments during the statutory exhibition period of the draft Kwai Chung OZP No. S/KC/27A (to be renumbered to S/KC/28 upon exhibition) under section 7 of the Ordinance.

11. Decision Sought

Members are invited to :

(a) agree that the proposed amendments to the draft Kwai Chung OZP No. S/KC/27 and that the draft Kwai Chung OZP No. S/KC/27A at **Attachment I** (to be renumbered to S/KC/28 upon exhibition) and its Notes at **Attachment II** are suitable for exhibition for public inspection under section 7 of the Ordinance; and

(b) adopt the revised ES at **Attachment III** for the draft Kwai Chung OZP No. S/KC/27A as an expression of the planning intention and objectives of the Board for various land use zones on the Plan and agree that the revised ES is suitable for exhibition together with the OZP.

12. Attachments

Attachment I	Draft Kwai Chung Outline Zoning Plan No. S/KC/27A
Attachment II	Revised Notes of the draft Kwai Chung Outline Zoning Plan No. S/KC/27A
Attachment III	Revised Explanatory Statement of the draft Kwai Chung Outline Zoning Plan No. S/KC/27A
Attachment IVa	Air Ventilation Assessment for Site A and Site B
Attachment IVb	Air Ventilation Assessment for Site C
Attachment Va	Visual Appraisal Report for Site A and Site B
Attachment Vb	Visual Appraisal Report for Site C
Attachment VI	Executive Summary of EAS for Site A and Site B
Attachment VII	Provision of Major Community Facilities in Kwai Chung Area
Attachment VIIIa	Motion passed by KTDC at its meeting on 13.3.2014
Attachment VIIIb	Motion passed by KTDC at its meeting KTDC meeting on 8.5.2014

Plan 1a	Draft Kwai Chung Outline Zoning Plan No. S/KC/26 (Reduced Size)
Plan 1b	Draft Kwai Chung Outline Zoning Plan No. S/KC/27 (Reduced Size)
Plan 2	Location Plan of Amendment Items A1 to C
Plan 3a	Site Plan of Amendment Items A1, A2, B1 and B2
Plan 3b	Site Plan of Amendment Item C
Plan 4a	Aerial Photo of Sites A and B
Plan 4b	Aerial Photo of Site C
Plan 5a	Comparison of Existing and Proposed Zonings on the OZP for Amendment Items A1, A2, B1 and B2
Plan 5b	Comparison of Existing and Proposed Zonings on the OZP for Amendment Item C
Plan 6a	Overview Plan of Sites A and B
Plan 6b	Site Photo of Site A
Plan 6c	Site Photo of Site B
Plan 6d	Photomontage for Sites A and B from Vantage Point A
Plan 6e	Photomontage for Sites A and B from Vantage Point B
Plan 6f	Photomontage for Sites A and B from Vantage Point C
Plan 7a	Overview Plan of Site C
Plan 7b	Site Photo of Site C
Plan 7c	Photomontage for Site C Vantage Point 1
Plan 7d	Photomontage for Site C Vantage Point 2
Plan 7e	Photomontage for Site C Vantage Point 3
Plan 8a	Existing Air Path Network for the Kwai Chung Area
Plan 8b	Section of Proposed Developments at Sites A and B
Plan 8c	Proposed Building Gap for Sites A and B
Plan 9a	Air Path Surrounding Site C

Plan 9b	Proposed Building Gap for Site C
Plans 9c &9d	Benefits of the Proposed Building Gap for Site C
Plan 10	Relocation of the Kwai Shing Driving Test Centre to Wing Lap Street

PLANNING DEPARTMENT
MAY 2014

Attachment I of
MPC Paper No. 11/14

香港城市規劃委員會依據城市規劃條例擬備的葵涌分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KWAI CHUNG - OUTLINE ZONING PLAN

SCALE 1:7500 比例尺

※ METRES 200 0 200 400 600 800 1 000 METRES ※

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/KC/27A**

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7條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 7 OF THE TOWN PLANNING ORDINANCE

草圖編號 S/KC/27 的修訂
AMENDMENTS TO DRAFT PLAN No. S/KC/27

按照城市規劃條例第7條展示的修訂
AMENDMENTS EXHIBITED UNDER SECTION 7 OF THE TOWN PLANNING ORDINANCE

修訂項目A1項 AMENDMENT ITEM A1
修訂項目A2項 AMENDMENT ITEM A2
修訂項目B1項 AMENDMENT ITEM B1
修訂項目B2項 AMENDMENT ITEM B2
修訂項目C項 AMENDMENT ITEM C

（參看附表）
(SEE ATTACHED SCHEDULE)

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）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
INDUSTRIAL	I	工業
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
GREEN BELT	GB	綠化地帶

COMMUNICATIONS 交通

RAILWAY AND STATION	鐵路及車站
RAILWAY AND STATION (UNDERGROUND)	鐵路及車站（地下）
RAILWAY AND STATION (ELEVATED)	鐵路及車站（高架）
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
PLANNING AREA NUMBER	規劃區編號
BUILDING HEIGHT CONTROL ZONE BOUNDARY	建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	最高建築物高度（樓層數目）
PETROL FILLING STATION	加油站
NON-BUILDING AREA	非建築用地

土地用途及面積一覽表 SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	5.45	0.53	商業
COMPREHENSIVE DEVELOPMENT AREA	6.35	0.62	綜合發展區
RESIDENTIAL (GROUP A)	165.25	16.13	住宅（甲類）
RESIDENTIAL (GROUP B)	15.28	1.49	住宅（乙類）
RESIDENTIAL (GROUP E)	3.92	0.38	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	2.55	0.25	鄉村式發展
INDUSTRIAL	41.33	4.03	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	119.17	11.63	政府、機構或社區
OPEN SPACE	114.88	11.21	休憩用地
OTHER SPECIFIED USES	174.91	17.07	其他指定用途
GREEN BELT	263.34	25.70	綠化地帶
MAJOR ROAD ETC.	112.27	10.96	主要道路等
TOTAL PLANNING SCHEME AREA	1024.70	100.00	規劃範圍總面積

Attachment II
of MPC Paper No. 11/14

DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27*A*

(Being a Draft Plan for the Purposes of the Town Planning Ordinance)

NOTES

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

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

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

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

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

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

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

- a use in existence before the publication of the first plan which has continued since it came into existence; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and

(ii) after the publication of the first plan,

- a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or
- a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved.

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

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

(6) Temporary uses (expected to be 5 years or less) of any land or 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 Notes of individual zones:

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

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

(c) maintenance or repair of watercourse and grave.

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

toll plaza, on-street vehicle park and railway track.

(9) 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.

(10) 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.

"New Territories Exempted House" means a domestic building other than a guesthouse or a hotel; or a building primarily used for habitation, other than a guesthouse or a hotel, the ground floor of which may be used as 'Shop and Services' or 'Eating Place', the building works in respect of which are exempted by a certificate of exemption under Part III of the Buildings Ordinance (Application to the New Territories) Ordinance (Cap. 121).

DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27*A*

Schedule of Uses

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 Wholesale Trade	Broadcasting, Television and/or Film Studio Flat (excluding land designated "C(2)") Government Refuse Collection Point Hospital (excluding land designated "C(2)") Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Residential Institution (excluding land designated "C(2)")

Planning Intention

This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment and eating place, functioning mainly as local commercial and shopping centre(s).

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

(1) On land designated "Commercial" ("C"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater.

(2) On land designated "Commercial (1)" ("C(1)") and "C(2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum total gross floor area (GFA) specified below, or the GFA of the existing building, whichever is the greater:

Sub-area	Restrictions
C(1)	Maximum GFA of 11 000m^2
C(2)	Maximum GFA of 74 340m^2

(3) On land designated "C", "C(1)" and "C(2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

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

(5) 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 or GFA for the building on land to which paragraph (1) or (2) 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 or GFA specified in paragraphs (1) and (2) above may thereby be exceeded.

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

COMMERCIAL (3)

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 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 Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Shop and Services Training Centre Utility Installation for Private Project Wholesale Trade	Broadcasting, Television and/or Film Studio Educational Institution Government Refuse Collection Point Hospital Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Public Clinic Religious Institution Residential Institution Social Welfare Facility

Planning Intention

This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment and eating place, functioning mainly as local commercial and shopping centre(s).

(Please see next page)

COMMERCIAL (3) (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater.

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

(3) A minimum of 5m set back from the lot boundary abutting Tai Lin Pai Road shall be provided.

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

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

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

(7) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the set back restriction stated in paragraph (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

COMPREHENSIVE DEVELOPMENT AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
	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 Research, Design and Development Centre Residential Institution School Shop and Services Social Welfare Facility Training Centre Utility Installation for Private Project

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Planning Intention

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

Remarks

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

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

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

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

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

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

(f) programmes of development in detail;

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

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

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

(j) an air ventilation assessment report to examine any possible air ventilation problems that may be caused to or by the proposed development and the proposed mitigation measures to tackle them; and

(Please see next page)

COMPREHENSIVE DEVELOPMENT AREA (Cont'd)

Remarks (Cont'd)

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

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

(3) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 5.0 for the site north of Lai King Hill Road and a maximum total plot ratio of 6.36 for the site at Cheung Wing Road, or the plot ratio of the existing building, whichever is the greater.

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

(5) In determining the maximum plot ratio for the purposes of paragraph (3) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, 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.

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

RESIDENTIAL (GROUP A)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Flat Government Use (not elsewhere specified) House Library Market Place of Recreation, Sports or Culture Public Clinic Public Transport Terminus or Station (excluding open-air terminus or station) Residential Institution Rural Committee/Village Office 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) Religious Institution School (not elsewhere specified) Shop and Services Training Centre
In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room :	
Eating Place Educational Institution Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Private Club Public Convenience Recyclable Collection Centre School Shop and Services Training Centre	

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

Remarks

(1) On land designated "Residential (Group A)" ("R(A)"), no new development for a domestic or non-domestic building shall exceed a maximum domestic plot ratio of 5.0 or a maximum non-domestic plot ratio of 9.5, as the case may be. For new development of a building that is partly domestic and partly non-domestic, the plot ratio of the domestic part of the building shall not exceed the product of the difference between the maximum non-domestic plot ratio of 9.5 and the actual non-domestic plot ratio proposed for the building and the maximum domestic plot ratio of 5.0 divided by the maximum non-domestic plot ratio of 9.5.

(2) On land designated "Residential (Group A)2" ("R(A)2"), no new development for a domestic or non-domestic building shall exceed a maximum domestic plot ratio of 6.0 or a maximum non-domestic plot ratio of 9.5, as the case may be. For new development of a building that is partly domestic and partly non-domestic, the plot ratio of the domestic part of the building shall not exceed the product of the difference between the maximum non-domestic plot ratio of 9.5 and the actual non-domestic plot ratio proposed for the building and the maximum domestic plot ratio of 6.0 divided by the maximum non-domestic plot ratio of 9.5.

(~~2~~***3***) For the purposes of paragraph***s*** (1) ***and (2)*** above, on land designated "R(A)" ***and "R(A)2)"***, no addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the relevant maximum domestic and/or non-domestic plot ratio(s), or the domestic and/or non-domestic plot ratio(s) of the existing building, whichever is the greater, subject to, as applicable :

(a) 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

(b) 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.

(~~3~~***4***) On land designated "Residential (Group A) 1" ("R(A)1"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum domestic gross floor area (GFA) of 42 700m² and a maximum non-domestic GFA of 9 346m², or the GFA of the existing building, whichever is the greater.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

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

(~~5~~***6***) On land demarcated for a building gap of varying widths (ranging from 35m to 217m) between Kwai Chung Road and Lai King Hill Road as shown on the Plan, no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall exceed the maximum building height restriction of 24mPD.

(7) On land demarcated for a 30m-wide building gap for the "R(A)2" site at Lai Kong Street as shown on the Plan, no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall exceed the maximum building height restriction of 163mPD.

(8) A public transport terminus shall be provided at the "R(A)2" site at Lai Kong Street.

(~~6~~***9***) A minimum 3.5m-wide non-building area from the lot boundary abutting Ta Chuen Ping Street (except 29A-33, 37-39, 41-43 and 47 Ta Chuen Ping Street) shall be provided.

(~~7~~***10***) In determining the relevant maximum plot ratio for the purposes of paragraph***s*** (1), ***(2) and (3)*** above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating Government, institution or community facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

(~~8~~***11***) In determining the maximum plot ratio for the purposes of paragraph***s*** (1), ***(2*** **) *and (3)*** above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, 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.

(~~9~~***12***) In determining the relevant maximum GFA for the purposes of paragraph (~~3~~***4***) 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 public transport facilities, as required by the Government, may also be disregarded.

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Remarks (Cont'd)

(~~10~~***13***) 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~~/or~~ GFA for the building on land to which paragraph (1), (2), ***(3)*** or (~~3~~***4***) applies may be increased by the additional plot ratio by which the permitted plot ratio***/GFA*** is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio/GFA specified in paragraphs (1), (2). ***(3)*** or (~~3~~***4***) above may thereby be exceeded.

(~~11~~***14***) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/GFA/building height/building gap restrictions stated in paragraphs (1)***, (2), (4) to (7)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(~~12~~***15***) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restrictions as shown on the Plan or stated in paragraph ~~(6)~~ ***(9)*** above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUP B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) 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 School (not elsewhere specified) Shop and Services Social Welfare Facility Training Centre

Planning Intention

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

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks

(1) On land designated "Residential (Group B) 1" ("R(B)1") to "R(B)7", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum total plot ratio/gross floor area (GFA), site coverage and building height in terms of number of storeys as specified below or metres above Principal Datum as stipulated on the Plan, or the plot ratio/GFA/site coverage/building height of the existing building, whichever is the greater:

Sub-area	Restrictions
"R(B)1"	maximum plot ratio of 2.0, maximum site coverage of 66.6%, and maximum building height of 3 storeys in addition to 1 storey of carport
"R(B)2"	maximum GFA of 139 860m²
"R(B)3"	maximum GFA of 23 310m²
"R(B)4"	maximum domestic GFA of 40 209m², and maximum non-domestic GFA of 316m²
"R(B)5"	maximum GFA of 11 804m²
"R(B)6"	maximum plot ratio of 2.0
"R(B)7"	maximum domestic GFA of 15 300m², and maximum non-domestic GFA of 3 336m²

(2) On land designated "R(B)2", any new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance with the support of a layout plan and the following information:

(a) the proposed total site area and total GFA for various uses;

(b) the nature, position, dimensions, and heights of all buildings to be erected in the area;

(c) a visual impact assessment to examine any visual problems that may be caused by the new development or redevelopment and the proposed mitigation measures to tackle them; and

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

(Please see next page)

RESIDENTIAL (GROUP B) (Cont'd)

Remarks (Cont'd)

(3) In determining the maximum plot ratio/GFA/site coverage for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, 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.

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

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
Market
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrance
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
Public Vehicle Park (excluding container vehicle)
Religious Institution
Residential Institution
School
Shop and Services
Social Welfare Facility
Training Centre

(Please see next page)

RESIDENTIAL (GROUP E) (Cont'd)

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

Eating Place
Educational Institution
Institutional Use (not elsewhere specified)
Library
Off-course Betting Centre (excluding land designated "R(E)1")
Office
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club (excluding land designated "R(E)1")
Public Clinic
Public Convenience
Recyclable Collection Centre
School
Shop and Services
Social Welfare Facility
Training Centre (excluding land designated "R(E)1")

(Please see next page)

RESIDENTIAL (GROUP E) (Cont'd)

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

Schedule II : for existing industrial or industrial-office building [@]
(excluding land designated "R(E)1")

Ambulance Depot
Eating Place (Canteen only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Office (Audio-visual Recording Studio, Design and Media Production, Office Related to Industrial Use only)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Research, Design and Development Centre
Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only)
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)
Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only)
Industrial Use (not elsewhere specified)
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Off-course Betting Centre
Office (not elsewhere specified)
Petrol Filling Station
Place of Recreation, Sports or Culture
Private Club
Shop and Services (not elsewhere specified) (ground floor only except Ancillary Showroom[#] which may be permitted on any floor)
Vehicle Repair Workshop
Wholesale Trade

(Please see next page)

RESIDENTIAL (GROUP E) (Cont'd)

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

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

$^{\Delta}$ Dangerous Goods refer to substances classified as Dangerous Goods and requiring a licence for their use/storage under the Dangerous Goods Ordinance (Cap. 295).

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

(Please see next page)

RESIDENTIAL (GROUP E) (Cont'd)

Planning Intention

This zone is intended primarily for phasing out of existing industrial uses through redevelopment (or conversion) for residential use on application to the Town Planning Board. Whilst existing industrial uses will be tolerated, new industrial developments are not permitted in order to avoid perpetuation of industrial/residential interface problem.

The sub-area "Residential (Group E) 1" is intended for public rental housing development with specific environmental mitigation measures requirements. This zoning is to facilitate appropriate planning control over the scale, design and layout of development, taking into account various environmental constraints.

Remarks

(1) On land designated "Residential (Group E)" ("R(E)") and "Residential (Group E) 1" ("R(E)1"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 5.0, or the plot ratio of the existing building, whichever is the greater.

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

(3) On land designated "R(E)" and "R(E)1", in determining the relevant maximum plot ratio for the purposes of paragraph (1) above, area of any part of the site that is occupied or intended to be occupied by free-standing purpose-designed buildings (including both developed on ground and on podium level) solely for accommodating Government, institution or community facilities including school(s) as may be required by Government shall be deducted in calculating the relevant site area.

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

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

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

VILLAGE TYPE DEVELOPMENT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Government Use (Police Reporting Centre, Post Office only) House (New Territories Exempted House only) On-Farm Domestic Structure Religious Institution (Ancestral Hall only) Rural Committee / Village Office	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) # House (not elsewhere specified) Institutional Use (not elsewhere specified) # 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) Religious Institution (not elsewhere specified) # Residential Institution # School # Shop and Services Social Welfare Facility # Utility Installation for Private Project
In addition, the following uses are always permitted on the ground floor of a New Territories Exempted House :	
Eating Place Library School Shop and Services	

Planning Intention

The planning intention of this zone is primarily for the provision of land for the retention and expansion of existing villages as well as reservation of land for the reprovisioning of village houses affected by Government projects. Selected commercial and community uses serving the needs of the villagers and in support of the village development are always permitted on the ground floor of a New Territories Exempted House. Other commercial, community and recreational uses may be permitted on application to the Town Planning Board.

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building (except development or redevelopment to those annotated with #) shall result in a total development and/or redevelopment in excess of a maximum building height of 3 storeys (8.23m), or the height of the existing building, whichever is the greater.

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

INDUSTRIAL

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 Bus Depot Cargo Handling and Forwarding Facility (not elsewhere specified) Eating Place (Canteen, Cooked Food Centre only) Government Refuse Collection Point Government Use (not elsewhere specified) Industrial Use (not elsewhere specified) Information Technology and Telecommunications Industries Office (Audio-visual Recording Studio, Design and Media Production, Office Related to Industrial Use only) Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Recyclable Collection Centre Research, Design and Development Centre Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only) Utility Installation for Private Project Vehicle Repair Workshop Warehouse (excluding Dangerous Goods Godown)	Asphalt Plant/Concrete Batching Plant Broadcasting, Television and/or Film Studio Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only) Container Vehicle Park/Container Vehicle Repair Yard Dangerous Goods Godown Eating Place (not elsewhere specified) (in wholesale conversion of an existing building only) Educational Institution (in wholesale conversion of an existing building only) Exhibition or Convention Hall Industrial Use (Bleaching and Dyeing Factory, Electroplating/Printed Circuit Board Manufacture Factory, Metal Casting and Treatment Factory/Workshop only) Institutional Use (not elsewhere specified) (in wholesale conversion of an existing building only) Marine Fuelling Station Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Offensive Trades Office (not elsewhere specified) Open Storage Petrol Filling Station Pier Place of Entertainment (in wholesale conversion of an existing building only) Place of Recreation, Sports or Culture Private Club Public Clinic (in wholesale conversion of an existing building only) Religious Institution (in wholesale conversion of an existing building only) Ship-building, Ship-breaking and Ship-repairing Yard Shop and Services (not elsewhere specified) (ground floor only, except in wholesale conversion of an existing building and Ancillary Showroom[#] which may be permitted on any floor)

(Please see next page)

INDUSTRIAL (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
	Training Centre (in wholesale conversion of an existing building only) Vehicle Stripping/Breaking Yard Wholesale Trade
In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/ unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion :	In addition, the following use may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the use is separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion :
Eating Place Educational Institution Exhibition or Convention Hall Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Religious Institution Shop and Services Training Centre	Social Welfare Facility (excluding those involving residential care)

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

Planning Intention

This zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet demand from production-oriented industries. Information technology and telecommunications industries and office related to industrial use are also always permitted in this zone.

(Please see next page)

INDUSTRIAL (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater.

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

(3) On land demarcated for a 15m-wide building gap from Wing Yip Street to Kwai On Road and a 50m-wide building gap between Tsuen Wan Road and Kwai Fuk Road as shown on the Plan, no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall exceed the maximum building height restrictions of 18mPD and 24mPD respectively.

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

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

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

(7) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restrictions as shown on the Plan may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

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

Schedule I: for "Government, Institution or Community" and "Government, Institution or Community (2)"

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
Pier
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
Rural Committee/Village Office
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)
Firing Range
Flat
Funeral Facility
Helicopter Fuelling Station
Helicopter Landing Pad
Holiday Camp
Hotel
House
Marine Fuelling Station
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
Utility Installation for Private Project

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

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

Schedule II: for "Government, Institution or Community (1)"

Ambulance Depot
Eating Place (Canteen, Cooked Food Centre only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Market
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Recyclable Collection Centre
Research, Design and Development Centre

Animal Boarding Establishment
Animal Quarantine Centre
Broadcasting, Television and/or Film Studio
Columbarium
Correctional Institution
Crematorium
Driving School
Eating Place (not elsewhere specified)
Educational Institution
Exhibition or Convention Hall
Firing Range
Funeral Facility
Helicopter Fuelling Station
Helicopter Landing Pad
Institutional Use (not elsewhere specified)
Library
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Off-course Betting Centre
Office
Petrol Filling Station
Place of Entertainment
Place of Recreation, Sports or Culture
Private Club
Public Clinic
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Refuse Disposal Installation (Refuse Transfer Station only)
Religious Institution
Service Reservoir
Sewage Treatment/Screening Plant
Shop and Services
Social Welfare Facility (excluding those involving residential care)
Training Centre
Utility Installation for Private Project
Wholesale Trade

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Planning Intention

This zone is intended primarily for the provision of Government, institution or community (GIC) facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments. The "Government, Institution or Community (1)" ("G/IC(1)") sub-area covers land within industrial area. In view of the environmental conditions of such land, only selected GIC facilities are permitted on land designated "G/IC(1)". Some other community and social welfare facilities may be permitted on application to the Town Planning Board.

Remarks

(1) On land designated "Government, Institution or Community" ("G/IC") and "G/IC(1)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building heights in terms of number of storeys or metres above Principal Datum as stipulated on the Plan, or the height of the existing building, whichever is the greater.

(2) On land designated "G/IC(2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum building height of 3 storeys as stipulated on the Plan, except for a drill tower up to 9 storeys, or the height of the existing building, whichever is the greater.

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

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

OPEN SPACE

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

Planning Intention

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

OTHER SPECIFIED USES

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

For "Cemetery" and "Funeral Parlours and Crematorium" Only

Columbarium
Crematorium
Funeral Facility
Government Use (not elsewhere specified)
Grave
Public Convenience
Refreshment Kiosk
Place of Recreation, Sports or Culture
Public Transport Terminus or Station
Public Utility Installation
Religious Institution
Shop and Services
Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of cemetery and funeral facilities.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

For "Container Terminal" Only

Cargo Handling and Forwarding Facility
Container Storage/Repair Yard
Container Vehicle Park/Container Vehicle Repair Yard
Eating Place (Canteen, Cooked Food Centre only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Pier
Private Club
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park
Shop and Services (Service Trades only)
Warehouse (excluding Dangerous Goods Godown)
Ambulance Depot
Dangerous Goods Godown
Eating Place (not elsewhere specified)
Industrial Use
Marine Fuelling Station
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Petrol Filling Station
Place of Recreation, Sports or Culture
Public Clinic
Refuse Disposal Installation
Shop and Services (not elsewhere specified)
Social Welfare Facility
Utility Installation for Private Project
Vehicle Repair Workshop

Planning Intention

This zone is intended primarily to cater for the development of container terminals and the associated port back-up facilities.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

For "Container Related Uses" Only

Cargo Handling and Forwarding Facility
Container Storage/Repair Yard
Container Vehicle Park/Container Vehicle Repair Yard
Eating Place (Canteen, Cooked Food Centre only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park
Shop and Services (Service Trades only)
Warehouse (excluding Dangerous Goods Godown)

Ambulance Depot
Dangerous Goods Godown
Eating Place (not elsewhere specified)
Industrial Use
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Petrol Filling Station
Place of Recreation, Sports or Culture
Public Clinic
Refuse Disposal Installation
Shop and Services (not elsewhere specified)
Social Welfare Facility
Utility Installation for Private Project
Vehicle Repair Workshop

Planning Intention

This zone is intended primarily to cater for the container related uses and port back-up facilities. Port related development such as container freight station, logistics centre, container vehicle park and container storage and repair yard are permitted within this zone.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

For "Business" Only

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Business" Only (Cont'd)

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

Schedule II: for industrial or industrial-office building[@]

Ambulance Depot
Bus Depot
Cargo Handling and Forwarding Facility (not elsewhere specified)
Eating Place (Canteen only)
Government Refuse Collection Point
Government Use (not elsewhere specified)
Information Technology and Telecommunications Industries
Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods[Δ])
Office (excluding those involving direct provision of customer services or goods)
Public Convenience
Public Transport Terminus or Station
Public Utility Installation
Public Vehicle Park (excluding container vehicle)
Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation
Recyclable Collection Centre
Research, Design and Development Centre
Shop and Services (Motor-vehicle Showroom on ground floor, Service Trades only)
Utility Installation for Private Project
Warehouse (excluding Dangerous Goods Godown)

Broadcasting, Television and/or Film Studio
Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only)
Industrial Use (not elsewhere specified)
Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Off-course Betting Centre
Office (not elsewhere specified)
Petrol Filling Station
Place of Recreation, Sports or Culture
Private Club
Shop and Services (not elsewhere specified) (ground floor only except Ancillary Showroom[#] which may be permitted on any floor)
Vehicle Repair Workshop
Wholesale Trade

In addition, for building without industrial undertakings involving offensive trades or the use/storage of Dangerous Goods[Δ], the following use is always permitted :

Office

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Business" Only (Cont'd)

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

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

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

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

Planning Intention

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

For "Business" Only (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater.

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

(3) On land demarcated for a 15m-wide building gap from Castle Peak Road to the east-west aligned section of Tai Lin Pai Road as shown on the Plan, no new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building shall exceed the maximum building height restriction of 25mPD.

(4) A minimum 4m-wide non-building area from the lot boundary abutting Lam Tin Street and a minimum 3.5m-wide non-building area from the lot boundary abutting Chun Pin Street (except 1 Chun Pin Street) and Ta Chuen Ping Street (except 26-38, 68, 70, 85-89 and 93 Ta Chuen Ping Street) shall be provided.

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

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

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

(8) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restrictions as shown on the Plan or stated in paragraph (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

Planning Intention

This zone is intended primarily to provide land for the development of sewage treatment/screen plants.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Cargo Handling Area" Only	
Cargo Handling Area	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Utility Installation not ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the development of cargo handling facilities.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Petrol Filling Station" Only	
Petrol Filling Station	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Utility Installation not ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the development of petrol filling stations.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Slaughter House" Only	
Slaughter House	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Utility Installation not ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the development of a slaughter house.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Electricity Substation" Only	
Electricity Substation	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Utility Installation not ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the development of electricity substations.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

For "Railway Related Facilities" Only

Railway Emergency Access Point

Planning Intention

This zone is intended primarily to provide land for the railway emergency access point.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Ventilation Building" Only	
Ventilation Building	Government Use Utility Installation not ancillary to the Specified Use

Planning Intention

This zone is intended primarily to provide land for the development of ventilation building.

Remarks

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

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

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

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
For "Columbarium" Only	
Columbarium Garden of Remembrance Government Use	Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily for land intended for columbarium and garden of remembrance uses.

Remarks

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

(2) The total number of columbarium niches shall not exceed 20 000 and the total number of memorial plaques in the garden of remembrance shall not exceed 2 000.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of building height restriction / number of niches/ number of memorial plaques as stipulated in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(Please see next page)

OTHER SPECIFIED USES (Cont'd)

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

For "Columbarium (1)" Only

Columbarium
Public Utility Installation
Utility Installation for Private Project

Planning Intention

This zone is primarily for land intended for columbarium.

Remarks

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

(2) The total number of columbarium niches shall not exceed 23 000.

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

GREEN BELT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Barbecue Spot Country Park * Government Use (Police Reporting Centre only) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Public Convenience Tent Camping Ground Wild Animals Protection Area	Animal Boarding Establishment Broadcasting, Television, and/or Film Studio Columbarium (within a Religious Institution or extension of existing Columbarium only) Crematorium (within a Religious Institution or extension of existing Crematorium only) Field Study/Education/Visitor Centre Flat Government Refuse Collection Point Government Use (not elsewhere specified) Grave Helicopter Landing Pad Holiday Camp House Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Religious Institution Residential Institution Rural Committee/Village Office School Service Reservoir Social Welfare Facility Utility Installation for Private Project

* Country Park means a country park or special area as designated under the Country Parks Ordinance (Cap. 208). All uses and developments require consent from the Country and Marine Parks Authority and approval from the Town Planning Board is not required.

Planning Intention

The planning intention of this zone is primarily for the conservation of the existing natural environment amid the built-up areas/at the urban fringe, to safeguard it from encroachment by urban type development, and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone.

Attachment III
of MPC Paper No. 11/14

DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27*A*

EXPLANATORY STATEMENT

DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27*A*

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DRAFT KWAI CHUNG OUTLINE ZONING PLAN NO. S/KC/27*A*

(Being a Draft Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

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

1. INTRODUCTION

This explanatory statement is intended to assist an understanding of the draft Kwai Chung Outline Zoning Plan (OZP) No. S/KC/27. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the various land use zonings of the Plan.

2. AUTHORITY FOR THE PLAN AND PROCEDURES

2.1 On 1 September 1961, the first statutory plan for Tsuen Wan (No. LTW/57) covering part of Kwai Chung was exhibited for public inspection under section 5 of the Town Planning Ordinance (the Ordinance). On 26 November 1971, OZP No. LTW/132 for the Kwai Chung Area was exhibited for public inspection under section 5 of the Ordinance. Subsequent amendments had been made to the OZP to reflect the changing circumstances.

2.2 On 9 November 1999, the Chief Executive in Council (CE in C) approved the draft Kwai Chung OZP under section 9(1)(a) of the Ordinance, which was subsequently renumbered as S/KC/14. On 10 October 2000, the CE in C, under section 12(1)(b)(ii) of the Ordinance, referred the approved OZP to the Board for amendment. The OZP was subsequently amended six times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.3 On 29 June 2004, the CE in C approved the draft Kwai Chung OZP under section 9(1)(a) of the Ordinance, which was subsequently renumbered as S/KC/21. On 5 June 2007, the CE in C, under section 12(1)(b)(ii) of the Ordinance, referred the approved OZP to the Board for amendment. The OZP was subsequently amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.

2.4 On 31 May 2011, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Kwai Chung OZP, which was subsequently renumbered as S/KC/25. On 4 October 2011, the CE in C referred the approved OZP No. S/KC/25 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 14 October 2011 under section 12(2) of the Ordinance.

2.5 On 20 April 2012, the draft Kwai Chung OZP No. S/KC/26, incorporating amendments mainly to impose new building height (BH) restrictions for various development zones, to designate non-building areas and building gaps as well as to rezone a number of sites to reflect their existing uses and planning intentions, was exhibited for public inspection under section 5 of the Ordinance. Upon expiry of the two-month exhibition period on 20 June 2012, a total of 13 representations were received. On 29 June 2012, the 13 representations were published for 3 weeks for public comments and a total of 1925 comments were received.

2.6 On 12 October 2012, after giving consideration to 7 of the 13 representations and the related comments, the Board decided not to uphold these representations. On 26 October 2012, the Board considered the remaining representations and comments which were related to the BH restrictions imposed on the Kwai Chung Container Terminals under the "OU" annotated "Container Terminal" ("OU(CT)") zoning. The Board decided to defer consideration of the representations and requested Planning Department (PlanD) to liaise with the representers regarding their expansion proposals and to carry out further assessments to assess the cumulative impact of their proposals.

2.7 On 9 May 2014, the draft Kwai Chung OZP No. S/KC/27~~(the Plan)~~, mainly to rezone a site at Tai Lin Pai Road for commercial use and two sites at Tsing Tsuen Road and Wing Lap Street for columbarium developments, was exhibited for public inspection under section 7 of the Ordinance.

2.8 On xx June 2014, the draft Kwai Chung OZP No. S/KC/27A (the Plan), mainly to amend the zoning of a site at Tai Wo Hau Road, a site at Kwai Shing Circuit and a site at Lai Kong Street for residential developments, was exhibited for public inspection under section 7 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 the development and redevelopment of land in Kwai Chung can be put under statutory planning control.

3.2 The Plan is intended to illustrate the broad principles of development and to provide guidance for more detailed planning within the planning scheme area (the Area). It is a small-scale plan and the road alignments and boundaries between the land use zones may be subject to minor adjustments as detailed planning and development proceeds.

3.3 Since the Plan is to show broad land use zonings, there would be situations in which small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted as non-building area or for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas

should not be taken into account in plot ratio and site coverage calculations. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the Kwai Chung area and not to overload road network in this area.

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 and in particular zones 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 better control of development to meet changing needs.

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

5. THE PLANNING SCHEME AREA

5.1 The Area covers about 1 025 hectares (ha) of land. It is situated in Tsuen Wan New Town within the Kwai Tsing Administration District. It includes various parts of Kwai Chung Valley to the north-east and the container terminals on reclaimed land to the south-west. To the east, the Area adjoins the Kam Shan Country Park, whilst to the south, it is bounded by Ching Cheung Road. To the west, the Area is bounded by the sea, whilst to the north, it is delimited by Tsing Tsuen Road, Texaco Road, Castle Peak Road, Wo Yi Hop Road and Cheung Pei Shan Road. The boundary of the Area is shown in a heavy broken line on the Plan. For planning and reference purposes, the Area is subdivided into a number of smaller planning areas, each with an area number, which are shown on the Plan.

5.2 Most of the flat land in Kwai Chung has been formed by reclaiming the adjacent seabed with fill materials excavated from nearby hills, which in turn have been formed into levelled platforms for building developments.

5.3 As an integral part of Tsuen Wan New Town, Kwai Chung provides housing, employment, recreational, cultural and other community facilities to the residents of the New Town as a whole, and also in turn relies on certain facilities which are, or will be, provided elsewhere in the New Town. It also accommodates some of the major facilities of territory-wide significance, such as the container terminals.

6. POPULATION

According to the 2011 Census, the population of the Area was about 321 200. It is estimated that the planned population of the Area would be about ~~335 100~~***338,400***.

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, a review of the Kwai Chung OZP has been undertaken with a view to incorporating appropriate building height restrictions for various zones. In the absence of building height control, excessively tall buildings may proliferate at random locations and the scale may be out of context in the locality, resulting in negative impacts on the visual quality of the Area. In order to prevent excessively tall or out-of-context buildings and to provide better control on the building heights of developments in the Area, building height restrictions are imposed on various zones on the Plan.

7.2 The building height restrictions have taken into account the topography, foothill setting, waterfront setting, site levels, local character, existing predominant land use and building height profile, areas of local attractions or historical significance, building height restrictions under the lease, the compatibility in terms of building height with the surrounding areas and the Urban Design Guidelines. The building height concept aims at exemplifying the valley-like terrain of the Area while preserving the mountain backdrop of Golden Hill, as well as complementing the existing twin-nodal development around the Mass Transit Railway (MTR) Kwai Fong and Kwai Hing stations. Lower height bands of 90 to 120 metres above Principal Datum (mPD) are imposed on buildings at the valley floor, with commercial developments near the two MTR stations having higher building height restrictions of 150mPD and 170mPD. The height bands progressively step up toward the foothill of the Golden Hill in the east and the knoll at Kwai Shing in the northwest. On the other hand, the relatively low-rise building profile of developments along the waterfront area is maintained so as to safeguard the coastal area for visual and air ventilation purposes. The height bands help preserve vistas to the ridgelines and achieve a stepped height profile for visual permeability and wind penetration and circulation.

7.3 Building height restrictions, which are imposed on "Government, Institution or Community" ("G/IC") and "Other Specified Uses" ("OU") zones (except "OU" annotated "Business" ("OU(B)")) in terms of mPD or number of storeys, are mainly to reflect the existing building heights of the developments. Unless there are committed proposals for known developments or a need to meet the minimum height requirements, in general, the existing uses and the lower building heights will broadly be kept. Such developments, particularly for those which are low-rise, serve to provide visual and spatial relief to the densely built-up environment of the Area.

7.4 Low-rise developments in "G/IC" and "OU" zones (except "OU(B)"), normally with a height of not more than 13 storeys, will be subject to building height restrictions in terms of number of storeys (excluding basement floor(s)) so as to allow more design flexibility, in particular for Government, institution or community (GIC) facilities with specific functional requirements, unless such developments fall within visually prominent locations and/or major breathing

spaces. For taller developments, usually more than 13 storeys, the building height restrictions are specified in terms of mPD to provide certainty and clarity of the planning intention.

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

7.6 The annual prevailing wind comes from the northeast, east and southeast, whereas the summer prevailing wind from the southeast, south and southwest. Major roads in the Area that are generally aligned with the directions of the prevailing wind (including the north-south aligned Kwai Chung Road, Cheung Wing Road and Castle Peak Road; the northeast-southwest aligned Kwai Tsing Road, Hing Fong Road and Shek Pai Street; and the southeast-northwest aligned Tsuen Wan Road and Kwai Fuk Road), together with the adjoining open spaces and low-rise GIC facilities, serve as air paths and facilitate the penetration of prevailing winds into the Area, especially for the valley floor area. Also, the connected open spaces and low-rise GIC developments distributed over the Area (such as those between Tai Wo Hau Road and Kwai Shing Circuit, along Tai Pak Tin Street and Shek Pai Street, and to the east of Cho Yiu Chuen) provide additional opportunity to channel prevailing wind and create breathing spaces in the built-up environment, that are particularly important to the air ventilation of the developments on higher grounds, e.g. the knoll at Kwai Shing and the foothill of the Golden Hill where straight roads are generally lacking.

7.7 To facilitate better air ventilation in the Area, the AVA has recommended that the existing major roads, open spaces and low-rise GIC developments in the Area should be maintained. In particular, Kwai Chung Road serves as an important air path to direct southerly/southwesterly and northeasterly prevailing wind to the centre of the Area. The AVA has also suggested that opportunity should be taken to improve wind permeability of the building clusters zoned "Industrial" ("I") and "OU(B)" along Tai Lin Pai Road, Wo Yi Hop Road and Tsuen Wan Road by creating/widening air paths.

7.8 In addition, to further improve air ventilation condition of the Area, future developments are encouraged to adopt suitable design measures to minimise any possible adverse air ventilation impacts. These include greater permeability of podium, wider gap between buildings for better ventilation and minimising the blocking of air/wind flow through positioning of building towers and podiums to align with the prevailing wind directions, as appropriate.

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

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

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

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

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

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

(f) other factors such as site constraints, the need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality, provided that no adverse landscape and visual impacts would be resulted from the innovative building design.

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

Non-Building Areas

7.11 The AVA has recommended the following non-building areas (NBAs) within the "OU(B)", "I" and "Residential (Group A)" ("R(A)") zones to facilitate air ventilation of the Area:

(a) to facilitate east-west air flow at pedestrian level, a 9m-wide NBA aligning with Lam Tin Street between Chun Pin Street and Castle Peak Road is designated on an existing 9m-wide gap between the buildings at 10-18 Chun Pin Street, 4-30 and 32-50 Lei Muk Road, 49-53 and 57-61 Ta Chuen Ping Street (all zoned "OU(B)") and 482 Castle Peak Road (zoned "R(A)") (see **Plan 1**);

(b) to cater for the long-term road widening proposal and enhance the air permeability of the business/industrial area on Wo Yi Hop Road, a minimum 4m-wide NBA from the lot boundary abutting Lam Tin Street and a minimum 3.5m-wide NBA from the lot boundary abutting Chun Pin Street and Ta Chuen Ping Street are imposed. As the lot boundaries at 1 Chun Pin Street, 33 Wo Yi Hop Road, 26-38, 29A-33, 37-39, 41-43, 47, 68, 70, 85-89 and 93 Ta Chuen Ping Street have already been set back, hence NBA for these sites are not required (see **Plan 1**);

(c) to maintain the flow of northeasterlies along existing air path from Wo Yi Hop Road to Wah Sing Street, the existing public footpath which straddles "OU(B)" and "I" zones between these two roads and portion of 21-33 Tai Lin Pai Road abutting this footpath is designated as an NBA;

(d) to link up the north-south air path along Kwai Wing Road and Kwai Cheong Road, a 15m-wide NBA is designated on a 8m-wide public footpath and a strip of land of minimum 7m in width measured from the western lot boundary of 8 Kwai Cheong Road abutting this footpath;

(e) a 15m-wide east-west aligned NBA between Kwai Chung Road and Tai Lin Pai Road aligning with Kung Yip Street to the east is designated on a 9m-wide public footpath and a strip of land of minimum 3m in width measured from the lot boundary abutting this footpath on both sides;

(f) a 15m-wide east-west aligned NBA between Kwai Chung Road and Tai Lin Pai Road aligning with Tai Lin Pai Road Playground to the east is designated on a 7m-wide public footpath and a strip of land of minimum 4m in width measured from the lot boundary at grade abutting this footpath on both sides;

(g) a 15m-wide east-west aligned NBA connecting Kwai Chung Road with Kwai Cheong Road is designated on a strip of 4m-wide government land, now being a planting area, and a strip of land of minimum 11m in width measured from the southern lot boundary of 90-98 Kwai Cheong Road abutting this government land;

(h) a 15m-wide east-west aligned NBA is designated on an existing 8m-wide public footpath between Kwai Chung Road and Kwai Ting Road and a strip of land of minimum 3.5m in width measured from the lot boundary abutting this footpath on both sides; and

(i) to facilitate the penetration of the southwesterlies to the industrial area northeast of the proposed Kwai Chung Park, a 15m-wide NBA aligned with Kwai Lok Street is designated on a piece of planned industrial land between Tsuen Wan Road and Kwai Hei Street.

7.12 The intention for the designation of the NBAs is for air ventilation above ground and such a restriction will not apply to underground developments.

Building Gaps

7.13 Gaps between buildings play a key role in creating air paths by appropriate design and disposition of building blocks. The AVA has recommended the following building gaps:

(a) a 15m-wide building gap above 25mPD (to tally with the road surface level of Castle Peak Road) between Castle Peak Road and the east-west aligned section of Tai Lin Pai Road, comprising a strip of land of minimum 7.5m in width above 25mPD measured from the northwestern

lot boundary of 21-33 Tai Lin Pai Road and a strip of land of minimum 7.5m in width above 25mPD measured from the southeastern lot boundary of 433-441 Castle Peak Road to facilitate the northeasterly wind reaching Tai Lin Pai Road;

(b) a 15m-wide building gap above 18mPD (to tally with the road surface level of Wing Yip Street) passing through 103-133 Tai Lin Pai Road and the southwestern corner of 11-19 Wing Yip Street to create an east-west air path extending the Wing Yip Street air path onto Kwai On Road;

(c) a 50m-wide building gap above 24mPD (to tally with the road surface level of Kwai Fuk Road) aligning with Kwai Hei Street is imposed between Tsuen Wan Road and Kwai Fuk Road to maintain the current wind entry of sea breeze from the southwest to the inland; ~~and~~

(d) a building gap of varying widths (ranging from 35m to 217m) above 24mPD (to tally with the road surface level of Lai King Hill Road) is imposed on a piece of open land to the immediate north of Lai King Estate, now occupied by an existing bus terminus, car park and adjoining slopes, to preserve the air path channelling southeasterly wind to Tsuen Wan Road~~.~~***, and***

(e) a 30m-wide building gap above 163mPD shall be provided in the middle of the "R(A)2" site at Lai Kong Street to facilitate penetration of easterly wind into the inland.

7.14 The above NBAs and building gaps should be taken into account upon future development/redevelopment of the sites. A minor relaxation clause has been incorporated in the Notes of the relevant zones to allow minor relaxation of the stated NBA restrictions under exceptional circumstances.

8. LAND USE ZONINGS

8.1 Commercial ("C") : Total Area 5.45 ha

8.1.1 This zoning is intended primarily for commercial developments to include office, shop, services, place of entertainment and eating place, functioning mainly as a local commercial and shopping centre. This zoning covers commercial developments including the Metroplaza and the Kwai Fong Multi-storey Car Park near MTR Kwai Fong Station, Sun Kwai Hing Plaza and Kwai Chung Centre near MTR Kwai Hing Station, the commercial complex at Wonderland Villas, The Apex and a multi-storey carpark cum commercial building on Wo Yi Hop Road.

8.1.2 Development within "C" and "C(3)" zones are subject to a maximum total plot ratio of 9.5.

8.1.3 Developments and redevelopments within the "C" zone are subject to maximum building heights of 90mPD near MTR Kwai Hing Station and Kwai Fong Station, 120mPD on Wo Yi Hop Road and 170mPD at

Metroplaza.

8.1.4 The 2-storey commercial complex at Wah King Hill Road forms part of Wonderland Villas and serves the local residents. The site is zoned "C(1)" and subject to a maximum total gross floor area (GFA) of 11 000m² and a maximum building height of 225mPD.

8.1.5 The "C(2)" zone covers The Apex which comprises a hotel block and two service apartment blocks on Wo Yi Hop Road. To reflect the nature of the development, no residential or related uses are allowed on land designated "C(2)". A maximum total GFA of 74 340m² and a maximum building height of 190mPD are imposed to reflect the as-built development intensity and height.

8.1.6 The "C(3)" zone covers a site at Tai Lin Pai Road for commercial development. Developments and redevelopments within the "C(3)" zone are subject to a maximum plot ratio of 9.5 and a maximum building height of 105mPD. A minimum of 5m set back from the lot boundary abutting Tai Lin Pai Road shall be provided in order to provide a consistent visual openness along this part of Tai Lin Pai Road and to minimise the visual impact arising from the proposed commercial development. Roadside tree planting in the set back area is encouraged. Minor relaxation of set back restriction may be considered by the Board on application under section 16 of the Ordinance. To address the potential noise impact from the adjacent road and industrial developments, the proposed commercial development at the site is advised to be equipped with central air-conditioning system.

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

8.1.8 Development/redevelopment within this zone is subject to maximum plot ratio/GFA/building height restrictions as stipulated on the Plan or in the Notes of the Plan, or the plot ratio/GFA/building height of the existing building, whichever is the greater. Minor relaxation of such restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.2 Comprehensive Development Area ("CDA") : Total Area 6.35 ha

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

8.2.2 Pursuant to section 4A(1) of the Ordinance, any development/ redevelopment within the "CDA" zone would require the approval of the Board through planning application under section 16 of the Ordinance. Except as otherwise expressly provided that it is not required by the Board, a Master Layout Plan (MLP) should be submitted in accordance with the requirements as stipulated in the Notes of the Plan for the approval of the Board pursuant to section 4A(2) of the Ordinance. A copy of the approved MLP would be made available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.

"CDA" to the North of Lai King Hill Road, Kau Wa Keng (4.84 ha)

8.2.3 This "CDA" zone covers the Kau Wa Keng valley floor and the area occupied by the Kau Wa Keng Old Village in Planning Area 43. The planning intention for this "CDA" zone is to ensure that the residential development would be carried out in a comprehensive manner. Development of the area would entirely rely on the initiatives of private sector. A Planning Brief has also been prepared to guide the development. According to the Planning Brief, the area should be developed in a comprehensive manner as a single project and should contain adequate GIC facilities, open space and commercial provision to serve the residential development. The maximum total plot ratio would be restricted to 5 on a net site basis excluding area for vehicular access road, public open space and GIC facilities. The layout of the development should take account of the scale of adjacent development, existing land-forms, and the existing vegetation and landscape features. In addition, a pedestrian access should be provided to the Kau Wa Keng San Tsuen at all times. The layout should also take particular account of building relationships and design aspects, and appropriate phasing and programming of development. The AVA by expert evaluation recommended that a further AVA should be conducted upon development/redevelopment of the site to maintain/enhance air ventilation. A maximum building height restriction of 120mPD is imposed.

8.2.4 The timing of implementation would depend on when the developer could assemble all the required private land and complete procedures such as obtaining approval of the Board and modification of lease documents. As it may take some time to implement the "CDA", the Notes for the zone have also included 'House' use to allow villagers of the existing Kau Wa Keng Old Village to seek planning permission

from the Board for the building of new village houses or redeveloping existing houses.

"CDA" at Cheung Wing Road (1.51 ha)

8.2.5 The planning intention for the "CDA" at the junction of Cheung Wing Road and Kwok Shui Road is to ensure that redevelopment of the existing low-rise industrial buildings takes place with due consideration of traffic and environmental matters. Any development on this site will be subject to the approval of the Board. The maximum plot ratio and building height are restricted to 6.36 and 120mPD respectively.

8.2.6 The area is not adequately served by the existing road network at present. Due to its prominent location at Cheung Wing Road and its proximity to the Cheung Wing Road gyrator which acts as a major interchange within Kwai Chung, it is necessary to ensure that suitable additional road access is provided from Tai Yuen Street to Cheung Wing Road before development within this "CDA" is permitted.

8.2.7 The Board is also concerned with the type of industrial uses to be permitted within the development, the provision of improvements to the adjacent streets, and the traffic and transport implications of any proposed development. Any development on the site must also contain appropriate environmental control measures to ensure that nearby sensitive land-uses will not be affected by any adverse environmental impacts. To promote better planning and building design to improve air ventilation at the site, an AVA should be conducted upon development/redevelopment of the site.

8.2.8 Development/redevelopment within this zone is subject to maximum plot ratio/building height restrictions as stipulated on the Plan or in the Notes of the Plan, or the plot ratio/building height of the existing building, whichever is the greater. Minor relaxation of such restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.3 Residential (Group A) ("R(A)") : Total Area ~~164.24~~ ***165.25*** ha

8.3.1 This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

8.3.2 Developments or redevelopments within the "R(A)" zone are subject to a maximum domestic plot ratio of 5.0 or a maximum non-domestic plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater. ***Developments or redevelopments within the "R(A)2" zone are subject to a maximum domestic plot ratio of 6.0 or a maximum non-domestic plot ratio of 9.5, or the plot ratio of the existing building, whichever is greater.*** In calculating the GFA for these developments/ redevelopments, land for free-standing purpose-designed buildings that are solely for accommodating school or other GIC facilities, including those located on ground and on building podium, shall be deducted in calculating the relevant site area.

8.3.3 Existing public rental housing estates include Shek Yam Estate, Shek Yam East Estate, On Yam Estate and Shek Lei Estate ***(an area adjacent to Shek Foon House (previously known as Tai Pak Tin Street public rental housing) is reserved for the development of an indoor recreation centre to meet the needs of the community)*** in Planning Area 9; Kwai Chung Estate, Kwai Shing East Estate, Kwai Shing West Estate, Kwai Luen Estate, Kwai Fong Estate, Tai Wo Hau Estate and High Prosperity Terrace in Planning Area 10; Cho Yiu Chuen, Lai Yiu Estate and Lai King Estate in Planning Area 11; Kwai Hing Estate in Planning Area 17; and Wah Lai Estate in Planning Area 43. There are nine existing Home Ownership Schemes in the Area, amongst which eight are under this zoning and one is zoned "Residential (Group B) 7" ("R(B)7"). ***Two sites zoned "R(A)2" at Tai Wo Hau Road and Kwai Shing Circuit are planned for public rental housing developments, namely 'Tai Wo Hau Road Phase 1' and 'Tai Wo Hau Road Phase 2' respectively.***

8.3.4 Within these public rental housing estates, adequate community facilities, retail facilities and open spaces are provided in accordance with planning standards. The five primary schools in On Yam Estate, Shek Lei Estate, Kwai Shing West Estate, Kwai Fong Estate and the proposed public rental housing developments at Kwai Shing Circuit in Planning Area 10, which are free-standing buildings, are zoned "R(A)" on the OZP so as to allow flexibility in the comprehensive planning and development of these large residential sites.

8.3.5 Private residential developments under this zoning are mainly located along Wo Yi Hop Road (Planning Area 9), Hing Fong Road (Planning Area 10), Kwai Chung Road (Planning area 17), Castle Peak Road (Planning Area 27) and Lai King Hill Road (Planning Area 43), while Sandwich Class Housing projects, namely Hibiscus Park and Highland Park, are located in Planning Areas 10 and 42 respectively. ***A site zoned "R(A)2" at Lai Kong Street is planned for private residential development. A public transport terminus shall be provided within the development to accommodate the green minibus bays currently occupied at Lai Kong Street, which is accountable for plot ratio***

calculation. The development shall also be carefully designed with porous features to increase permeability of the podium structure.

8.3.6 A private residential development, Nob Hill (KCTL 474) with a commercial podium over a public transport terminus, which was completed in 2002, is zoned "R(A)1". Any development/ redevelopment at this site is restricted to a maximum domestic GFA of 42 700m² and a maximum non-domestic GFA of 9 346m², or the GFA of the existing building, whichever is the greater.

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

8.3.8 Developments and redevelopments within "R(A)", ~~and~~ "R(A)1" ***and "R(A)2"*** zones are subject to maximum building heights ranging from 90mPD to 260mPD, or the height of the existing building, whichever is the greater. In general, residential developments located along Kwai Chung Road are subject to lower building height bands, whereas those located at the foothill of the Golden Hill and at the knoll at Kwai Shing are subject to higher building height bands due to higher elevations.

8.3.9 For public rental housing developments, in accordance with the established administrative procedure, the future development/ redevelopment would be guided by a planning brief. To demonstrate that the development/ redevelopment is acceptable, the Housing Department would be required to undertake relevant assessments, including traffic impact assessment, visual impact assessment, AVA, etc., as appropriate. Low-rise free-standing GIC and ancillary facility buildings should be kept as breathing spaces and visual relief to the building masses. No new addition, alteration and/or modification to or redevelopment of these existing individual free-standing GIC and ancillary facility buildings shall result in a height exceeding that of the existing building. Upon the future redevelopment of the estates, the layout and design of these GIC and ancillary facility buildings should be comprehensively reviewed with the support of relevant impact assessments on air ventilation and visual aspects. In view of the larger site area of public rental housing development sites, caution should be exercised to ensure that building blocks do not obstruct the wind flow and air paths should be reserved subject to AVA studies at building design stage. In particular, to maintain existing air paths and to improve air ventilation, the AVA for the redevelopment of the following estates should pay heed to the following issues:

(a) Kwai Shing West Estate and Kwai Shing East Estate: building gaps of adequate width should be provided to facilitate penetration of southeasterly wind to the northwest (including connection with Yeung Uk Road in Tsuen Wan). Obstruction to the northeast-

southwest air path which aligns "Green Belt" ("GB"), "G/IC" and "Open Space" ("O") zones along the northern side of the estates should be minimised;

(b) Tai Wo Hau Estate: the layout and disposition of the building blocks should maintain the wind flow from the southeast to Tsuen Wan area (including connection with Sha Tsui Road) to the northwest, as well as the existing north-south air path along Texaco Road and along Tai Wo Hau Road/Tai Ha Street;

(c) Kwai Chung Estate: the north-south air path along the slopes between Tai Wo Hau Road/Tai Ha Street and Sheung Kok Street should be maintained/ enhanced and connected to Castle Peak Road;

(d) Kwai Hing Estate: opportunity should be sought to enhance the east-west air penetration, e.g. by creating an east-west air path across the estate to connect with Tai Lin Pai Road to the east. The openness of the section of Hing Fong Road within the estate should be maintained upon the estate redevelopment as it together with the adjoining Kwai Chung Road serves as an important air path;

(e) Shek Yam East Estate: an air path within the estate should be provided to align with Lei Muk Road so as to facilitate the northeasterly wind; and

(f) Shek Lei Estate: an air path within the estate should be maintained and aligned with Wai Kek Street.

(g) Tai Wo Hau Road Phase 1 and Tai Wo Hau Road Phase 2: two breezeways with minimum widths of 50m (from east to west between the building blocks of Tai Wo Hau Road Phase 1 and Tai Wo Hau Road Phase 2 developments) and 20m (from east to west between Tai Wo Hau Road Phase 2 development and Kwai Shing East Estate to its immediate south) as recommended in the AVA for the subject projects shall be provided to facilitate the penetration of annual prevailing easterly wind.

8.3.10 A building gap of varying widths (ranging from 35m to 217m) above 24mPD to the immediate north of Lai King Estate ***and a building gap of 30m wide above 163mPD for the "R(A)2" site at Lai Kong Street*** shall be provided.

8.3.11 For large housing development sites (including public rental housing sites), it is required to provide varying building height profile within the same building height band to avoid wall effect of buildings, add variation to the sites and help wind penetration at street level.

8.3.12 Minor relaxation of the plot ratio/GFA/building height/building gap

restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.3.14 A NBA of 9m wide from the southern lot boundary of 482 Castle Peak Road is designated to extend the NBA of the same width in the adjoining "OU(B)" zone in order to improve the pedestrian air ventilation condition. A minimum 3.5m-wide NBA from the lot boundary abutting Ta Chuen Ping Street (except 29A-33, 37-39, 41-43 and 47 Ta Chuen Ping Street) shall be provided (see **Plan 1**).

8.3.15 The above NBAs are required for air ventilation purpose above ground and such restriction will not apply to underground developments. Under exceptional circumstances, minor relaxation of the NBA restrictions may be considered by the Board on application under section 16 of the Ordinance.

8.4 Residential (Group B) ("R(B)") : Total Area 15.28 ha

8.4.1 This zoning is generally intended to provide for medium-density residential development. Within this zone, commercial uses are prohibited unless otherwise permitted by the Board through the planning permission system.

8.4.2 Land zoned for this purpose is mainly located in the southeastern part of Kwai Chung in Planning Areas 42, 43 and 44 and has been developed predominantly for private residential development.

8.4.3 Chung Shan Terrace is a scenic area where the existing developments are of low-rise in nature. In view of the substandard road access and with a view to maintaining the existing character of the area, it is designated as "R(B)1" on the Plan. It is intended to maintain the scale of development in the area to the existing level or to a maximum plot ratio of 2.0, maximum site coverage of 66.6% and maximum building height of 3 residential storeys in addition to 1 storey of carport.

8.4.4 Wonderland Villas is designated as "R(B)2" and subject to a maximum total GFA of 139 860m^2. The development occupies a visually prominent location on an exposed ridgeline. The design of the development has adopted a height variation approach to respect the vertical variance of the nearby hill ridges. However, due to its length, height and massing, the development is considered out of context with the upland setting. Having regard to the urban fringe character of the

area, the high elevation, the sloping topography, the upland setting, the stepped height concept and taking into account the permissible GFA under the OZP, maximum building heights of 260mPD, 275mPD and 290mPD are imposed on the site. Any new development (except minor addition, alteration and/or modification not affecting the building height of the existing building) or redevelopment of an existing building within this zone requires permission from the Board under section 16 of the Ordinance with the support of a layout plan, visual impact assessment and any other information as may be required by the Board to ensure that the building height, massing, disposition and layout of the future development would be acceptable in visual and planning terms. Variation of building heights to create visual interest is also encouraged.

8.4.5 Other developments located within this zoning include Regency Park ("R(B)3") and Wah Yuen Chuen ("R(B)4") at Wah King Hill Road, Happy Villa ("R(B)5") and Lai King Terrace ("R(B)6") at Lai King Hill Road and Tsui Yiu Court ("R(B)7") at Lai Chi Ling Road. Development within each of these "R(B)" sites is subject to a maximum plot ratio/GFA as permitted under the lease conditions in general. Developments and redevelopments within "R(B)3" to "R(B)7" zones are subject to different building height restrictions which are intended to reflect the existing building heights.

8.4.6 Development/redevelopment within this zone is subject to maximum plot ratio/GFA/site coverage/building height restrictions as stipulated on the Plan or in the Notes of the Plan, or the plot ratio/GFA/site coverage/building height of the existing building, whichever is the greater. Minor relaxation of such restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.5 Residential (Group E) ("R(E)") : Total Area 3.92 ha

8.5.1 This zoning is intended to encourage the phasing out of industrial uses. It provides an opportunity for redevelopment of existing obsolete industrial buildings. Residential development may be permitted with or without conditions on application to the Board. The developers will be required to submit adequate information to demonstrate that the new residential development will be environmentally acceptable, and suitable mitigation measures, if required, will be implemented to address the potential industrial/residential (I/R) interface problems.

8.5.2 Under this zoning, existing industrial uses will be tolerated but new industrial development will not be permitted upon redevelopment of existing industrial buildings in order to avoid the perpetuation or aggravation of the I/R interface problems with the new residential development during the redevelopment process. In existing industrial buildings, new developments involving offensive trades will not be permitted. Any modification of use from non-industrial to industrial uses within existing industrial buildings will also require the permission of the Board.

8.5.3 The former Kwai Chung Factory Estate and an existing industrial lot to the west of Kin Chuen Street are zoned "R(E)" with a view to phasing out the remaining industrial uses and to eliminate the I/R interface problems on Kwai Chung Estate to its south. The former Kwai Chung Factory Estate site has been developed into public rental housing development forming part of Kwai Chung Estate, subject to a maximum building height of 150mPD. The existing industrial lot to the west of Kin Chuen Street is occupied by a warehouse, subject to a maximum building height of 130mPD.

8.5.4 The "R(E)1" zone is intended for public rental housing development with specific environmental mitigation measures requirements. The zoning is to facilitate appropriate planning control over the scale, design and layout of the development, taking into account environmental constraints.

8.5.5 The former Kwai Chung Police Married Quarters site at Kwai Yi Road is zoned "R(E)1" under which residential development would require planning permission from the Board. This is to ensure that the proposed residential development will not be subject to excessive traffic noise impacts from the surrounding areas, especially from Kwai Chung Road and all possible environmental mitigation measures will be submitted for the consideration of the Board at planning application stage under section 16 of the Ordinance. Development and redevelopment within this zone is subject to a maximum building height of 90mPD. Based on the development proposal approved by the Board, the proposed public rental housing is scheduled for completion in about 2018 and the associated PTI at Container Port Road will be open to public in about 2017.

8.5.6 Developments within "R(E)" and "R(E)1" zones are subject to a maximum total plot ratio of 5.0. On land designated "R(E)" and "R(E)1", in calculating the GFA for these developments/ redevelopments, the land for free-standing purpose-designed buildings that are solely used for accommodating school or other GIC facilities, including those located on ground and on building podium, shall be deducted in calculating the relevant site area.

8.5.7 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio may be increased by what is permitted to be exceeded under Regulation 22. This is to

maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.

8.5.8 Development/redevelopment within this zone is subject to maximum plot ratio/building height restrictions as stipulated on the Plan or in the Notes of the Plan, or the plot ratio/building height of the existing building, whichever is the greater. Minor relaxation of such restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.6 Village Type Development ("V") : Total Area 2.55 ha

8.6.1 The planning intention of this zone is primarily for the provision of land for the retention and expansion of existing villages as well as reservation of land for the reprovisioning of village houses affected by Government projects. This zoning is mainly to reflect the extent of existing Ha Kwai Chung Village in Planning Area 11.

8.6.2 Development/redevelopment within this zone is subject to a maximum building height restriction as stipulated in the Notes of the Plan, or the height of the existing building, whichever is the greater. Minor relaxation of such restriction may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.7 Industrial ("I") : Total Area 41.33 ha

8.7.1 The planning intention of the "I" zone is to reserve land primarily for general industrial uses to ensure an adequate supply of industrial floor space. Information technology and telecommunications industries are considered suitable to operate in industrial buildings. Office related to industrial use, being an integral part of industrial function, is also permitted as of right in the "I" zone. However, general commercial and office uses, other than those permitted on the purpose-designed non-industrial portion on the lower floors of an existing building

separated by a buffer floor, will require planning permission from the Board.

8.7.2 Provision of industrial land in the Area has been made in conjunction with the industrial land planned for Tsuen Wan and Tsing Yi to ensure that sufficient industrial land is reserved to provide employment opportunities for the labour force of Tsuen Wan New Town as a whole.

8.7.3 Industrial sites are located in Planning Areas 10, 26, 29, 37 and 38. Industrial activities in these areas are vibrant and there are no I/R interface problems. Some of the industrial areas are close to the existing container terminals.

8.7.4 Taking into consideration the traffic, environmental, infrastructural constraints and the trend of industries towards high-technology production, a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater, is imposed on all land designated "I" on the Plan.

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

8.7.6 Developments and redevelopments within the "I" zone between Tai Lin Pai Road and Castle Peak Road are subject to maximum building heights of 120mPD and 135mPD, whereas those along Tsuen Wan Road are subject to maximum building height restrictions of 90mPD, 105mPD, 120mPD and 140mPD, or the height of the existing building, whichever is the greater.

8.7.7 To enhance the local air ventilation performance, a 15m-wide building gap above 18mPD between Wing Yip Street and Kwai On Road, and a 50m-wide building gap above 24mPD between Tsuen Wan Road and Kwai Fuk Road shall be provided.

8.7.8 Minor relaxation of the plot ratio/building height/building gap restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.7.10 A 15m-wide NBA aligned with Kwai Lok Street is designated on land

between Tsuen Wan Road and Kwai Hei Street. An existing footpath between Wo Yi Hop Road and Wah Sing Street is designated as an NBA to maintain the existing air path. These NBAs are required for air ventilation purpose above ground and such restrictions will not apply to underground developments. Under exceptional circumstances, minor relaxation of the NBA restrictions may be considered by the Board on application under section 16 of the Ordinance.

8.8 Government, Institution or Community ("G/IC") : Total Area 119.~~79~~***17***ha

8.8.1 Land zoned for this purpose is intended to provide a wide range of GIC facilities to meet 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, organisations providing social services to meet community needs, and other institutional establishments. Such developments, particular for those which are low-rise, serve to provide visual and spatial relief to the densely built-up environment of the Area. Some facilities, such as the Princess Margaret Hospital and Kwai Chung Hospital in Planning Area 43, serve a much wider area.

8.8.2 Other major GIC facilities include the Kwai Tsing Theatre and the Kwai Shing Swimming Pool Complex in Planning Area 10, Lai King Correctional Institution in Planning Area 42 and service reservoirs in Planning Areas 41 and 60. Other GIC facilities in the Area include schools, markets, clinics and Government Quarters.

8.8.3 The "G/IC" site to the southwest of the Rambler Channel Typhoon Shelter is reserved as the barging point for the transportation of construction wastes to dumping grounds.

8.8.4 This zoning also covers a number of existing schools, community centre/hall and sports centre within public rental housing estates. The roof garden above Shek Lei Community Hall, the car park and children's playground of the Tai Wo Hau Sports Centre, and the basement car park of Tai Wo Hau Estate Community Centre are common facilities shared by the residents of the concerned estates.

8.8.5 Electricity substations on Tai Lin Pai Road, Kwai Fuk Road and Container Port Road; refuse collection point and latrine along Tai Lin Pai Road; Ka Ting Cooked Food Market at the junction of Tai Lin Pai Road and Ka Ting Road; and Kwai Shun Street Cooked Food Market, refuse collection point and playground at Kwai Shun Street are located within industrial area. In view of the environmental conditions of such land, these sites are zoned "G/IC(1)" and only selected GIC facilities are permitted while some other community and social welfare facilities may be permitted on application to the Board.

8.8.6 Developments and redevelopments within this zone are subject to building height restrictions in terms of number of storeys (excluding basement floors(s)) or mPD as stipulated on the Plan, or the height of the

existing building, whichever is the greater. Building height restrictions for most of the "G/IC" zones and all "G/IC(1)" sub-zones are stipulated in terms of number of storeys except that the relatively high-rise GIC uses, such as Kwai Chung Police Station in Planning Area 10, Lai King Disciplined Services Quarters in Planning Area 42, and Kwai Chung Hospital, Princess Margaret Hospital and Princess Margaret Hospital School of Nursing and Quarters in Planning Area 43, are stipulated in terms of mPD so as to provide a clearer control over the building height profile. The "G/IC(2)" sub-zone covering Lai King Fire Station is subject to a maximum building height of 3 storeys as stipulated on the Plan, and a drill tower up to 9 storeys is allowed as specified in the Notes.

8.8.7 Minor relaxation of the building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.9 Open Space ("O") : Total Area ~~115.26~~ ***114.88*** ha

8.9.1 This zoning is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public. While passive recreational facilities are provided in the existing Central Kwai Chung Park in Planning Area 42, active recreational facilities are provided in the existing Kwai Chung Sports Ground and Kwai Chung San Kui Park in Planning Area 10 and the future Kwai Chung Park with land reserved in Planning Area 37.

8.9.2 Local open spaces at various locations are also provided to meet local demands.

8.10 Other Specified Uses ("OU") : Total Area 174.91 ha

8.10.1 This zoning covers land allocated for specific uses which include the following:-

(a) the container terminals in Planning Area 30 and 37 and container-related uses in Planning Areas 10 and 30;

(b) the cargo handling areas in Planning Areas 26 and 37;

(c) the petrol filling stations in Planning Areas 10, 28, 29 and 44;

(d) the slaughter house in Planning Area 26;

(e) the cemetery, crematorium and funeral facilities in Planning Area 26;

(f) the sewage treatment works in Planning Area 37 and sewage screening plant in Planning Area 30;

(g) the electricity substation at the junction of Yiu Wing Street and Wo Tong Tsui Street in Planning Area 28;

(h) the Lai King Ventilation Building for the MTR Tsuen Wan Line in Planning Area 11;

(i) the two emergency access points for MTR West Rail Line at Kwai Fong and at a site sandwiched between Tsuen Wan Road and Wing Kei Road;

(j) areas bounded by Cheung Wing Road, Tai Yuen Street, Lei Muk Road and Wo Yi Hop Road and the area at the junction of Cheung Wing Road and Castle Peak Road in Planning Area 27; the areas bounded by Castle Peak Road, Yiu Wing Street, Wo Tong Tsui Street and Kin Chuen Street in Planning Area 28; and the areas bounded by Tai Lin Pai Road, Kwai Chung Road and Castle Peak Road in Planning Area 29 are zoned "OU(B)". Development within this zone is subject to a maximum total plot ratio of 9.5, or the plot ratio of the existing building, whichever is the greater, as stipulated in the Notes; and

(k) two proposed columbarium sites at Tsing Tsuen Road and No. 2-6 Wing Lap Street in Planning Area 26.

8.10.2 Developments and redevelopments within this zone are subject to building height restrictions in terms of number of storeys (excluding basement floors(s)) or mPD as stipulated on the Plan, or the height of the existing building, whichever is the greater. Building height restrictions for most of the sites within this zone are stipulated in terms of number of storeys except the "OU(B)" zone, "OU(Columbarium)", "OU(Columbarium)(1)" and the relatively high-rise buildings within the "OU" annotated "Container Terminal" zone.

8.10.3 The "OU(Columbarium)" zone is intended for a public columbarium and garden of remembrance uses. A traffic impact assessment (TIA) for 3 proposed public columbarium sites in Kwai Chung including the site at Tsing Tsuen Road and two sites near Kwai Tai Road was completed in July 2012. The TIA confirmed that the proposed columbarium development at Tsing Tsuen Road with recommended appropriate traffic and transport improvement measures could accommodate the anticipated increase in traffic and pedestrian flows. Development within the zone is restricted to a maximum number of niches of 20 000, 2 000 memorial plaques and a maximum building height of 45mPD. As the Tsing Tsuen Road site covers more than 3 hectares of land, there may be scope for future expansion in order to provide more public niches to meet the market demand. However, any development

proposal for more than 20 000 niches and 2 000 memorial plaques at the site would require a new TIA to be conducted to confirm there will be no adverse traffic impact arising from the expansion proposal. Minor relaxation of the restrictions on maximum number of niches, memorial plaques and building height may be considered by the Board under section 16 of the Ordinance.

8.10.4 A proposed private columbarium development at Wing Lap Street is zoned "OU(Columbarium)(1)". Development within the zone is restricted to a maximum number of niches of 23 000 and a maximum building height of 50mPD. In order to ensure proper control and monitoring of the proposed columbarium development, 'Columbarium' use requires planning permission from the Board so that the applicant can be requested to fulfil relevant departments' requirement such as the proposed transport/traffic/crowd management measures, building design and landscaping through the imposition of approval conditions. To allow design flexibility for proposed columbarium development, e.g. higher floor to floor height, wider circulation corridor and greening on upper floors to enhance the ventilation, circulation and outlook of the building, minor relaxation of the building height restriction may be considered by the Board under section 16 of the Ordinance.

8.10.5 As Container Terminal Nos. 1 to 5 are located at the gateway of breezeway and adjacent to the visual corridor of Rambler Channel, the building height restrictions for the relatively taller buildings, including 75mPD for Modern Terminal Warehouse Building, 25mPD for Modern Terminals Limited Administration Building, 60/110mPD for ATL Logistics Centre, 65mPD for Hutchison Logistics Centre and 35mPD for Hong Kong International Terminals Limited Towers 1, 2 and 3 in Planning Area 30 are stipulated to reflect the existing building height so as to provide a clearer control over the building height profile. A maximum building height of 2 storeys is imposed on the open area of the container terminals to reflect the predominant height of the existing 1- to 2-storey small-scale buildings and to allow flexibility for ancillary structures. The 2-storey building height restriction does not apply to container stacks and crane structures. The rights of redeveloping the building to its existing height would be respected on the OZP. In order to facilitate the future development of the logistics industry and to provide flexibility to cater for the fast-changing requirements of the industry, relaxation of the building height restrictions may be considered by the Board on application under section 16 of the Ordinance. The application may need to be supported with technical assessments including air ventilation assessment, traffic impact assessment, visual impact assessment and any other information as may be required by the Board.

8.10.6 The planning intention of the "OU(B)" zone is primarily for general business uses. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business"

buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in existing industrial or industrial-office (I-O) buildings. As it is not possible to phase out existing polluting and hazardous industrial uses all at once, it is necessary to ensure compatibility of the uses within the same industrial building, I-O building or industrial area in Kwai Chung until the whole area is transformed to cater for the new non-polluting business uses. Upon redevelopment of the existing electricity substation site bounded by Castle Peak Road and Yiu Wing Street in Planning Area 28, adequate provision should be made within the site for the construction of a new primary electricity substation, if required. Development within this zone should make reference to the relevant Town Planning Board Guidelines.

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

8.10.8 Developments and redevelopments within the "OU(B)" zone are subject to maximum building heights of 105mPD along Tai Lin Pai Road, 105/130mPD along Wo Tong Tsui Street/Yiu Wing Street, 130mPD along Wo Yi Hop Road and 150mPD at Kowloon Commerce Centre, or the height of the existing building, whichever is the greater.

8.10.9 A 15m-wide building gap above 25mPD between Castle Peak Road and the east-west aligned section of Tai Lin Pai Road under the "OU(B)" zone shall be provided to facilitate northeasterly wind reaching Tai Lin Pai Road.

8.10.10 Minor relaxation of the plot ratio/building height/building gap restrictions may be considered by the Board on application under section 16 of the Ordinance. The criteria given in paragraph 7.9 above would be relevant for the assessment of minor relaxation of building height restrictions. Each application will be considered on its own merits.

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

8.10.12 To cater for the long-term road widening proposal and to improve air ventilation of the "OU(B)" zone bounded by Castle Peak Road and Wo Yi Hop Road, a minimum 4m-wide NBA from the lot boundary abutting Lam Tin Street, and a minimum 3.5m-wide NBA from the lot boundary abutting Chun Pin Street (except 1 Chun Pin Street) and Ta Chuen Ping Street (except 26-38, 68, 70, 85-89 and 93 Ta Chuen Ping Street) shall

be provided. A 9m-wide NBA aligning with Lam Tin Street between Chun Pin Street and Castle Peak Road is also imposed (see **Plan 1**).

8.10.13 To improve air ventilation of the "OU(B)" zone along Tai Lin Pai Road, the following six NBAs are designated on the Plan:

(a) the existing public footpath which straddles "OU(B)" and "I" zones between Wo Yi Hop Road and Wah Sing Street and portion of 21-33 Tai Lin Pai Road abutting this footpath is designated as an NBA;

(b) a 15m-wide north-south NBA aligning with Kwai Wing Road and Kwai Cheong Road;

(c) two 15m-wide east-west aligned NBAs between Kwai Chung Road and Tai Lin Pai Road;

(d) a 15m-wide east-west aligned NBA connecting Kwai Chung Road with Kwai Cheong Road; and

(e) a 15m-wide east-west aligned NBA between Kwai Chung Road and Kwai Ting Road.

8.10.14 The NBAs are required for air ventilation purpose above ground and such restriction will not apply to underground development. Under exceptional circumstances, minor relaxation of the NBAs restrictions may be considered by the Board on application under section 16 of the Ordinance.

8.11 Green Belt ("GB") : Total Area 263.34ha

8.11.1 This zoning covers mainly steep hill-slopes in the eastern part of the Area, and is intended to define the outer limits of Tsuen Wan New Town and for the conservation of areas with prominent, high scenic and high value landscape features, e.g. the Kau Wa Keng San Tsuen area. This zoning also provides additional outlets for passive recreational uses. Generally, there is a presumption against development in this zone and development proposals will be assessed on individual merits taking into account relevant Town Planning Board Guidelines.

8.11.2 The "GB" zone in the Kau Wa Keng valley is intended to keep the existing character of the area. In particular, the relationship between the existing buildings of the Kau Wa Keng San Tsuen, the land-forms and the vegetation should be retained. The area of high landscape value in the valley should be preserved. Any development or redevelopment proposal would have to demonstrate that the existing mature trees and character of the valley would not be adversely affected. In the case of the Kau Wa Keng valley, any development application will, as a general principle, be restricted to the existing building bulk.

9. COMMUNICATIONS

9.1 Roads

9.1.1 Kwai Chung is currently linked to the main urban areas by Castle Peak Road and Kwai Chung Road. To the north, Cheung Pei Shan Road which links up Sha Tin and Tsuen Wan has an interchange near Lei Muk Shue Estate for access to the Area. The Tsuen Wan Road running along the south-western part of the Area is a by-pass for through traffic to and from Tsuen Wan, Tuen Mun and Yuen Long and has improved the traffic conditions in Central Kwai Chung. The Tsing Tsuen Bridge provides a second road link to Tsing Yi and has released the traffic pressure on Kwai Tsing Bridge.

9.1.2 Tsing Sha Highway is part of Route 8 and is a strategic road linking Tsing Yi and Sha Tin. The section between Cheung Sha Wan and Sha Tin, which is an elevated road passing through Butterfly Valley in the south-eastern part of the Area, has been commissioned in March 2008. The remaining section of Route 8 between Tsing Yi and Cheung Sha Wan has also been commissioned in December 2009.

9.1.3 The proposed Kwai Chung Circumferential Road will provide a direct link between northern and central Kwai Chung and the MTR Kwai Fong Station. Moreover, Tsing Kwai Highway passes through the Area and provides an additional road link between the urban area and the New Territories.

9.2 Railways

9.2.1 The MTR Tsuen Wan Line runs through the Area with three stations, namely Kwai Hing, Kwai Fong and Lai King, which are conveniently located to cover a wide catchment. The section of the Tsuen Wan Line between Lai King Estate and Kwai Hing Estate is elevated whilst the other sections are underground.

9.2.2 The MTR Airport Railway consists of two lines: the Tung Chung Line connects North Lantau and Central while the Airport Express links the airport with Central. The Lai King Station provides a point of interchange between the Tung Chung Line and the Tsuen Wan Line.

9.2.3 The MTR West Rail Line is a sub-regional passenger rail link connecting the northwest New Territories to the urban areas. It was opened in December 2003 to provide domestic passenger services from Nam Cheong Station in West Kowloon to Tuen Mun Station. With the opening of the Kowloon Southern Link in August 2009, the West Rail Line is extended to Hung Hom. The MTR Kwai Fong Ancillary Building accommodating a traction station and ventilation building is at Kwai Chung Road.

9.2.4 The Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link runs through the Area in underground tunnels, with a ventilation building situated at Wing Yip Street. Construction of the project commenced in early 2010 for completion in mid-2015.

9.3 Others

Various other modes of public transport such as buses, taxis and green minibuses are also provided to complement the MTR service. Bus termini, taxi stands and minibus stops have been provided within major residential areas.

10. UTILITY SERVICES

Fresh water is supplied from the Tsuen Wan Water Treatment Works located to the north outside the Area. Land has been developed for major fresh and salt water service reservoirs in Planning Areas 10, 41, 42, 43, 44, 60 and 61. Electricity, gas and telephone services are also available and no difficulties are anticipated in meeting the future requirements.

11. CULTURAL HERITAGE

11.1 Within the boundary of the Plan, there is a Graded III historic building, i.e. Tsang Residence, No. 22 Kau Wa Keng Old Village.

11.2 The Antiquities Advisory Board (AAB) also released a list of new items in addition to the list of 1,444 historical buildings. These items are subject to grading assessment by the AAB. Details of the list of 1,444 historic buildings and the new items have been uploaded onto the website of the AAB at http://www.aab.gov.hk.

11.3 Prior consultation with the Antiquities and Monuments Office of Leisure and Cultural Services Department should be made if any development, redevelopment or rezoning proposal might affect the above sites of archaeological interest, graded historic buildings/structures, new items pending grading assessments and their immediate environs.

12. IMPLEMENTATION

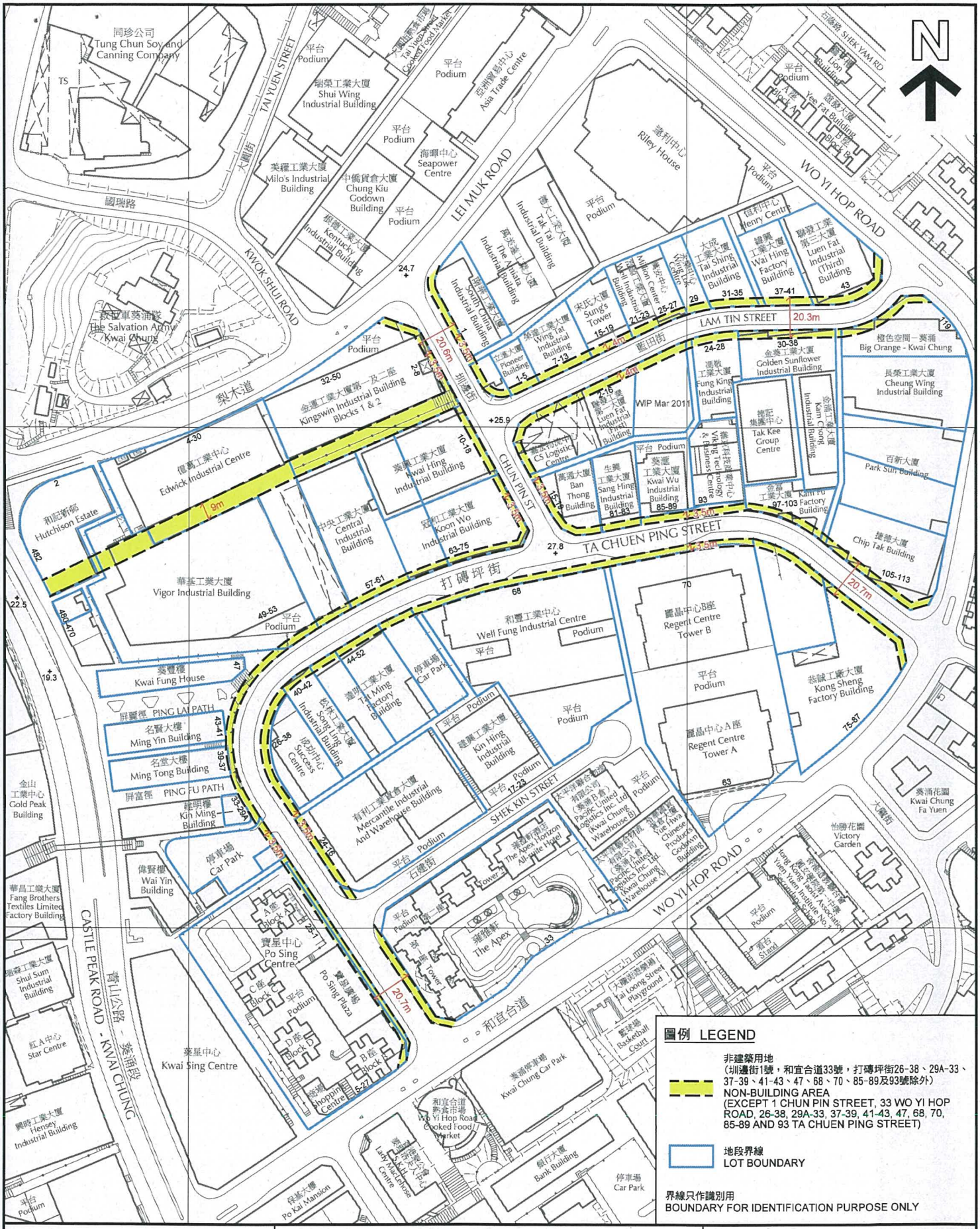
12.1 Although existing uses non-conforming to the statutory zonings are tolerated, any material change of use and any other development/redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Board. The Board has published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

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

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

Index of Figure (for indicative purpose only)
Plan 1 – Non-Building Area Restrictions

TOWN PLANNING BOARD
May 2014



本摘要圖於2012年4月16日擬備，所根據的資料為測量圖編號 7-SW-17C/17D/22A/22B

EXTRACT PLAN PREPARED ON 16.4.2012 BASED ON SURVEY SHEETS No. 7-SW-17C/17D/22A/22B

非建築用地限制

NON-BUILDING AREA RESTRICTIONS

SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/12/5

圖 PLAN
1

Hong Kong Housing Authority

Proposed Public Rental Housing Development at Tai Wo Hau Road Phase 1 & 2

Air Ventilation Assessment - Initial Study Report

REP/213232/10/R001

Rev C | 9 May 2014

Job number --

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ARUP

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		Name	Jimmy Yam	Antony Ho	Vincent Cheng
		Signature			
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		Name	Jimmy Yam	Antony Ho	Vincent Cheng
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			Prepared by	Checked by	Approved by
		Name	Jimmy Yam	Antony Ho	Vincent Cheng
		Signature			
			Issue Document Verification with Document		✓

Contents

Appendices

1 Introduction

1.1 Background of the Study

Ove Arup & Partners Hong Kong Ltd. (Arup) was commissioned by the Hong Kong Housing Authority (HKHA) to carry out a quantitative Air Ventilation Assessment (AVA) for the proposed public rental housing developments at Tai Wo Hau Road Phase 1 and Phase 2.

The development sites fall within the Kwai Chung OZP No. S/KC/26. Phase 1 is located in an area mainly zoned as "Open Space" ("O"), while Phase 2 is located at Kwai Shing Circuit in an area mainly zoned "Government, Institution or Community" ("G/IC"). Rezoning of these two sites to "Residential (Group A)" ("R(A)") is required for the proposed developments and AVA is conducted to assess the air ventilation impact of the proposed developments in the area for consideration of the rezoning proposal.

1.2 Objective of the Study

The objective of the study is to investigate the air ventilation performance of the proposed developments using the methodology for Air Ventilation Assessment (AVA) as stipulated in the "Technical Circular No. 1/06 – Air Ventilation Assessments" (Technical Circular) and Annex A to the Technical Circular "Technical Guide for Air Ventilation Assessment for Developments in Hong Kong"(Technical Guide) jointly issued by Housing, Planning and Lands Bureau and Environmental, Transport and Works Bureau on 19th July 2006.

1.3 Scope of the Study

The main scope of the study is to carry out a quantitative AVA study to assess the ventilation performance of the proposed development and surrounding environment.

The deliverables of this study can be summarised as follows:

- Evaluation of the wind performance to gather the typical wind characteristics
- Identification of the general ventilation performance and problem areas over the assessment area
- Assessment of air ventilation performance at Focus Areas
- Recommendation of further wind enhancement features

2 Background Information

2.1 Site and Surrounding Area Characteristics

Two proposed developments, i.e. Tai Wo Hau Road Phase 1 & Phase 2, are considered in this Study. The proposed developments are located at Kwai Chung which is on a relatively high elevation which gradually increases towards the north where Tai Mo Shan locates. The proposed development site is also located on a slope, and as a result, the ground floors of Phases 1 & 2 are 37.5 mPD and 76.6 mPD respectively. The Phase 1 Site is located next to the Kwai Chung Estate (approximately 164mPD) and bounded by the Kwai Chung Estate Yan Kwai House (approximately 102mPD) to the east and Tai Wo Hau Road to the north and west, with a site area of about 0.31 hectare. For Phase 2 Site, it is located at the existing site for the Kwai Shing Driving Test Centre at Kwai Shing Circuit, with a site area of about 0.31 hectare. It is located to the north of Kwai Shing East Estate, with the nearest block being Shing Wo House (approximately 142mPD).

The major high-rise residential clusters located at the surroundings are Kwai Chung Estate to the north, Kwai Hing Estate (ranging from approximately 83mPD to 106mPD) to the East, Kwai Shing East Estate (ranging from approximately 124mPD to 187mPD) to the south and Tai Wo Hau Estate (ranging from approximately 57mPD to 148mPD) to the west.

There are also many playground and open spaces exist in the surrounding (those green areas in Figure 1), including the Tai Wo Hau Estate Playground No.7 and Tai Wo Hau Road South Playground to the west of the Development.

Figure 1: Site Plan of the proposed development and surrounding area (Image Source: Google Maps)

2.2 Study Scenarios

Three schemes are compared in this AVA study, namely the Baseline Scheme, Proposed Public Rental Housing (PRH) Scheme and Enhanced PRH Scheme.

2.2.1 Baseline Scheme

The Baseline Scheme reflects the existing condition of the site, i.e. no building at Phase 1 site and a single-storey block of the Kwai Shing Driving Test Centre at Phase 2 site.

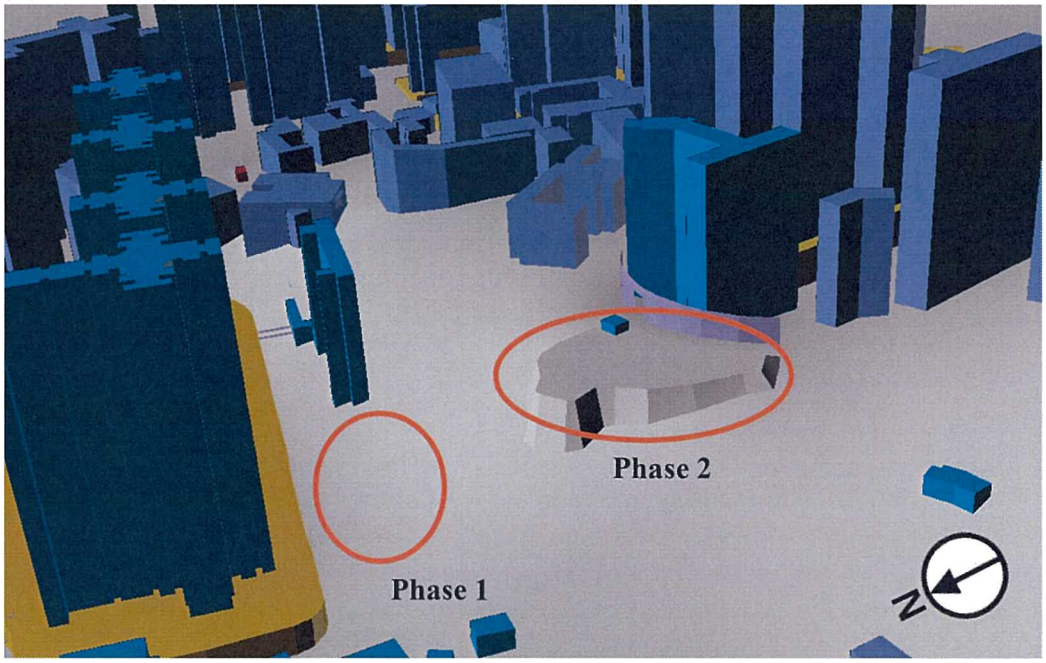


Figure 2 Baseline Scheme of the Development at Tai Wo Hau

2.2.2 Proposed PRH Scheme

This scheme comprises the construction of two phases: Phase 1 and Phase 2. Between the two phases a wind channel is accommodated to reserve a breezeway as per recommendation in the Expert Evaluation on Air Ventilation Assessment of Kwai Chung Area [1]. The Master Layout Plan of this scheme is shown in Appendix A1.

There is a footbridge of 5m high at the height of around 76mPD linking the blocks of the two phases. As the massing of this bridge is relatively small, it is expected that this bridge would not bring significant air ventilation impact.

Phase 1

1 no. of domestic block reaching 170mPD with building height 132.5m in a site of about 0.31 hectare. There would be 1 storey of community facilities at the podium level, which covers about 15% of the site area. The building is Y-shaped

[1] AVR/G/68 Term Consultancy for AVA Services – Expert Evaluation on Air Ventilation Assessment of Kwai Chung Area (www.pland.gov.hk/pland_en/info_serv/ava_register/government.html)

consisting of three similarly-sized wings jutting out towards approximately ENE, SSW and NW respectively. To accommodate the podium which comprises the ground level lobby, E&M plant rooms and community facilities, site formation would be carried out such that the terrain within the site will be sunken and flattened compared to the sloping baseline condition, as shown in Figure 4.

Phase 2

1 no. of domestic block reaching 190mPD with a building height of 113.4m in a site of about 0.31 hectare. Similar to Phase 1, the building block is also Y-shaped consisting of three wings with the longer wing extending towards ENE and the other two extending S and NW respectively. The existing hilly terrain would be retained and modelled in the simulation.

Table 1 Proposed PRH Scheme Development Parameters

	Phase 1	**Phase 2**
Maximum Building Height (mPD)	170	190
Level of Ground Floor (mPD)	37.5	76.6
Building height (m)	132.5	113.4

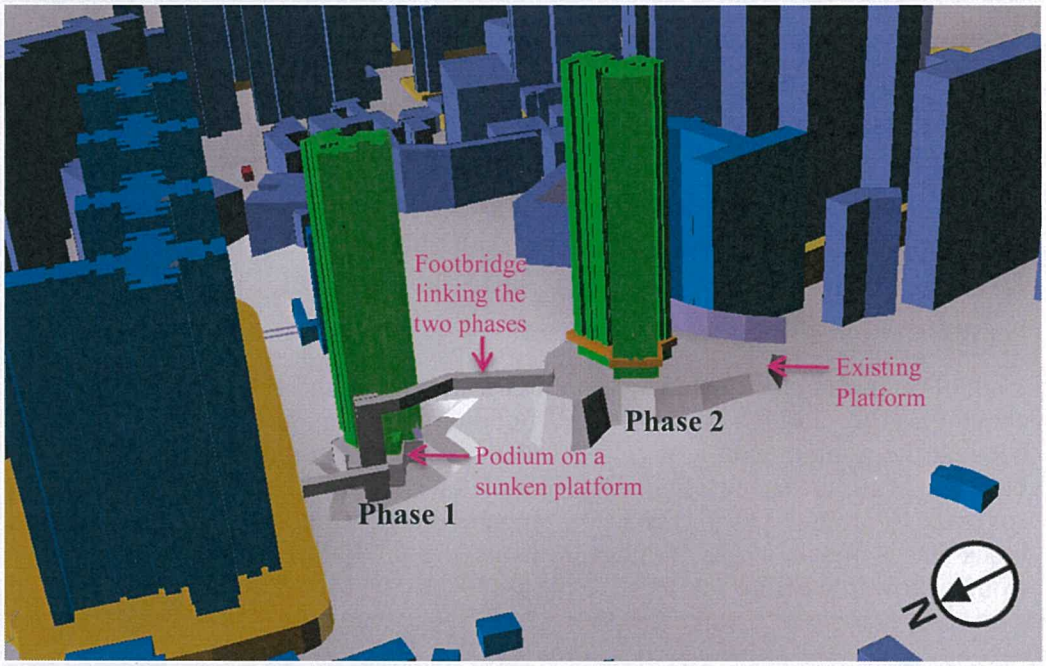


Figure 3: Proposed PRH Scheme of the Development

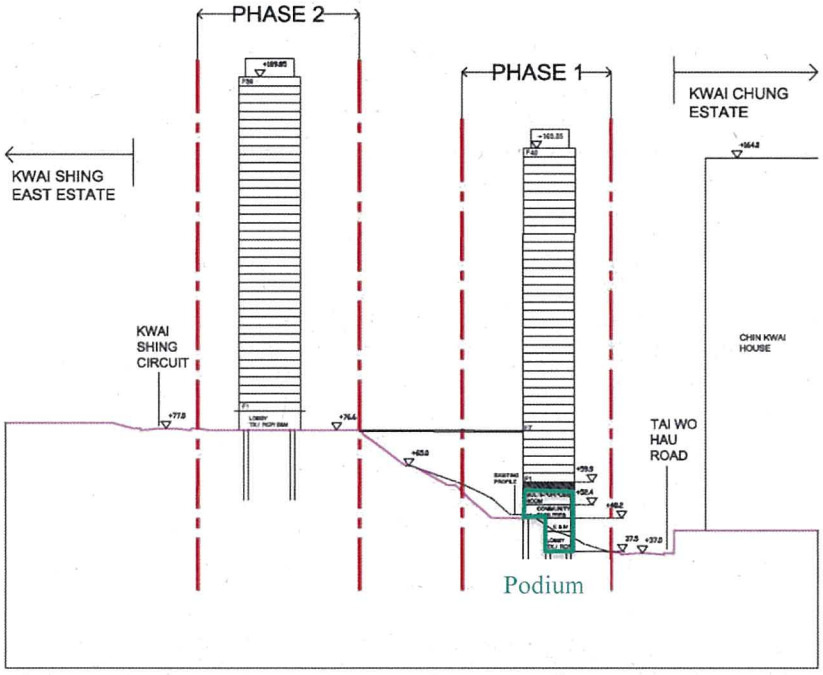


Figure 4 Section of Proposed PRH Scheme

2.2.3 Enhanced PRH Scheme

Similar to the Proposed PRH Scheme, this scheme also consists of two phases with one block at each phase comprising domestic flats and community facilities. There is also a footbridge linking the two phases:-

Phase 1

1 no. of domestic block reaching 160mPD with building height 122.5m in a site of about 0.31 hectare. There would be a podium reaching the level of 56.1mPD housing the ground level lobby, E&M plant rooms and community facilities. The block is linear in shape aligning in parallel with the Tai Wo Hau Road, with coverage of around 25% of the site. Compared to the Proposed PRH Scheme, this block has a much wider frontage towards the NNE direction but a narrower frontage towards ESE.

Phase 2

1 no. of domestic block reaching 190mPD with building height 113.4m in a site of about 0.31 hectare. Compared to the Proposed PRH Scheme, this block has a slightly wider frontage toward the S direction but a narrower frontage towards ENE.

Table 2: Development Parameters

	Phase 1	Phase 2
Maximum Building Height (mPD)	160	190
Level of Ground Floor (mPD)	37.5	76.6
Building height (m)	122.5	113.4

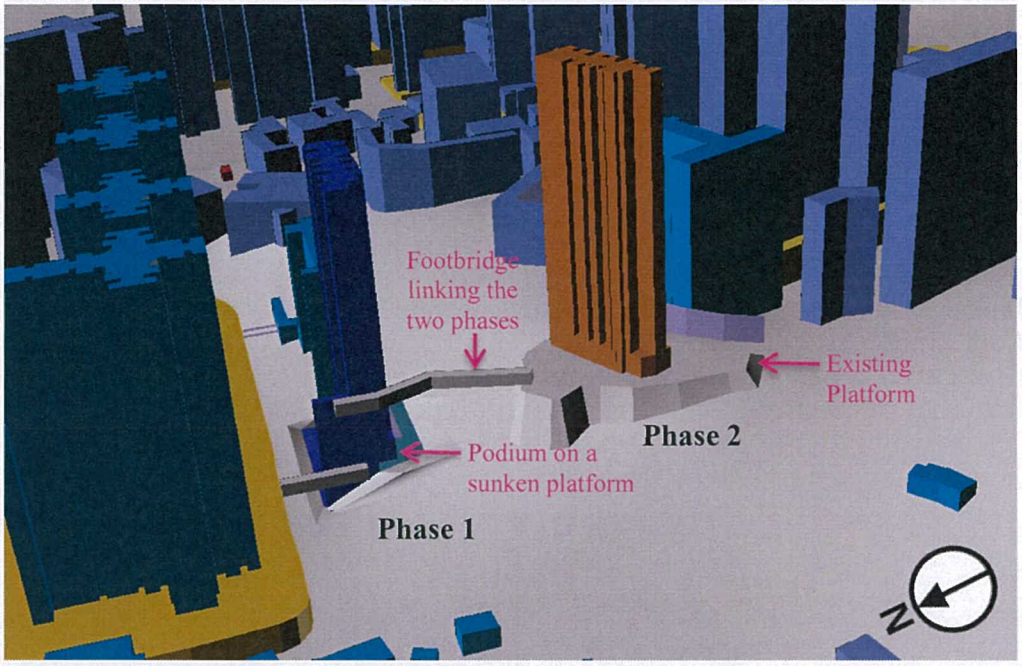


Figure 5 Enhanced PRH Scheme of the Development

3 Methodology of AVA Study

This study adopted the AVA methodology for initial study as stipulated in Annex A of the Technical Circular on "Technical Guide for Air Ventilation Assessment for Developments in Hong Kong" (Technical Guide).

3.1 Wind Availability

Based on the methodology of AVA, the site wind availability data was obtained from the Report of Expert Evaluation on Air Ventilation Assessment for Kwai Chung Area available on PlanD website. The annual wind rose demonstrating the frequency of occurrence of different wind directions is shown below.

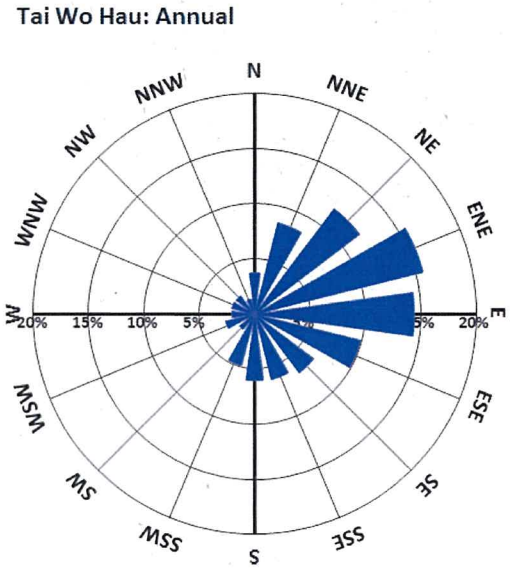


Figure 6: Wind rose for the Development under Annual Wind Condition (Source: HKUST)

3.1.1 Annual Prevailing Wind

Eight prevailing wind directions (highlighted in Red colour in Table 3) are considered in the current study which covers 79.3% of the total annual wind frequency. They are north-north-easterly (8.6%), north-easterly (11.9%), east-north-easterly (15.7%), easterly (14.4%), east-south-easterly (9.9%), south-easterly (6.7%), south-south-easterly (6.1%) and southerly (6.1%) winds.

Table 3: Annual wind frequency of the wind directions considered in this study with reference to Term Consultancies for Air Ventilation Assessment Services Under Agreement No. PLNQ 35/2009: Category A1 – Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment for An Instructed Project for Kwai Chung Area

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	3.7%	8.6%	11.9%	15.7%	14.4%	9.9%	6.7%	6.1%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	6.1%	4.8%	1.8%	2.7%	2.1%	2.2%	2.0%	1.4%	79.4%

** The wind frequency showing in red colour represents the selected winds for the CFD simulation.*

3.1.2 Wind Profile

The vertical discretization of the velocity profile is approximated by using an exponential law, which is a function of ground roughness and height:

$$U_Z = U_G\left(\frac{z}{z_G}\right)^n$$

where

U_G = reference velocity at height z_G

Z_G = reference height

Z = height above ground

U_Z = velocity at height z

$\boldsymbol{n}$ = power law exponent

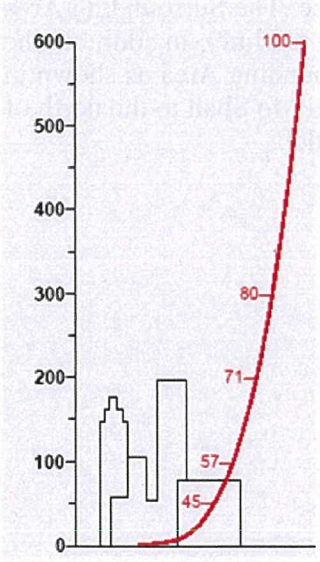


Figure 7: Wind Profile applied in the AVA Study

The power $\boldsymbol{n}$ is related to the ground roughness. A larger value of the power **n** represents the higher roughness of the ground i.e. the dense city. Alternatively, smaller n represents the lower ground roughness i.e. the sea surface.

Terrain crossed by approaching wind	n-value
Sea and open space	~0.15
Suburban or mid-rise	~0.35
City centre or high-rise	~0.50

As the developments are located in the urban city and surrounded by high rise building in NNE, NE, ENE, E, ESE, SE, SSE and S directions, the n-value was assumed to be 0.35 for wind from these directions.

Table 4: n-value for the prevailing wind directions

Wind Direction	NNE	NE	ENE	E	ESE	SE	SSE	S
n-value	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35

3.2 Study Area

3.2.1 Project Assessment Area and Surrounding Areas

With reference to the Technical Guide, the areas of evaluation and assessment should include all area measured from the site boundary as well as a belt up to 1H, where H is the height of the tallest building of the proposed development, around the site boundary.

For this project, the Assessment Area (shown in green line) covers not only up to a distance of 1H (about 133m) from the site boundary, but also include a number of open space in the vicinity which is beyond 1H distance. The Surrounding Area covers a further 1H from the Assessment Area (shown in red line). In addition, the model domain covered the hilly terrain beyond the Surrounding Area as shown in Figure 11. The Golden Hill to the east and the edge of Tai Mo Shan to the north of the Project Site have been incorporated into the CFD model.

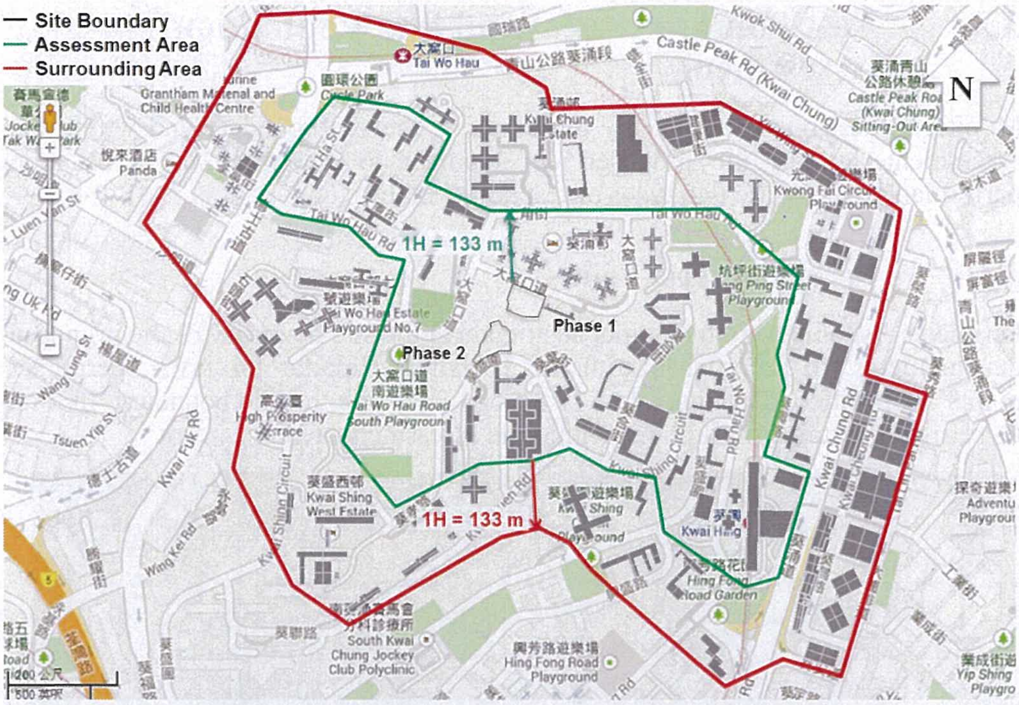


Figure 8: Site boundary, Assessment Area and Surrounding Area for the study (Image Source: Google Maps)

3.2.2 Assessment Parameter

The Wind Velocity Ratio (VR) as proposed by the Technical Circular is employed to assess the ventilation performances of the proposed development and surrounding environment. Higher VR implies better ventilation. The calculation of VR is given by the following formula:

$$VR = \frac{V_p}{V_\infty} \qquad (2)$$

V_∞= the wind velocity at the top of the wind boundary layer (typically assumed to be around 596m above the centre of the site of concern, or at a height where wind is unaffected by the urban roughness below).

V_P= the wind velocity at the pedestrian level (2m above ground) after taking into account the effects of buildings.

The Average VR is defined as the weighted average VR with respect to the percentage of occurrence of all considered wind directions. This gives a general idea of the ventilation performance at the considered location on an annual basis.

3.3 Test Point for Local and Site Ventilation Assessment

Monitoring test points are evenly placed along the site boundary and within the assessment area of the proposed development to determine the ventilation performance. There are two types of test points in the study:

3.3.1 Perimeter Test Points

Perimeter test points are the points positioned at the site boundary of the proposed developments. In accordance with the Technical Circular for AVA, perimeter points are positioned at interval of 10 – 15m alongside the site boundary. In total there are 43 perimeter test points within the assessment area.

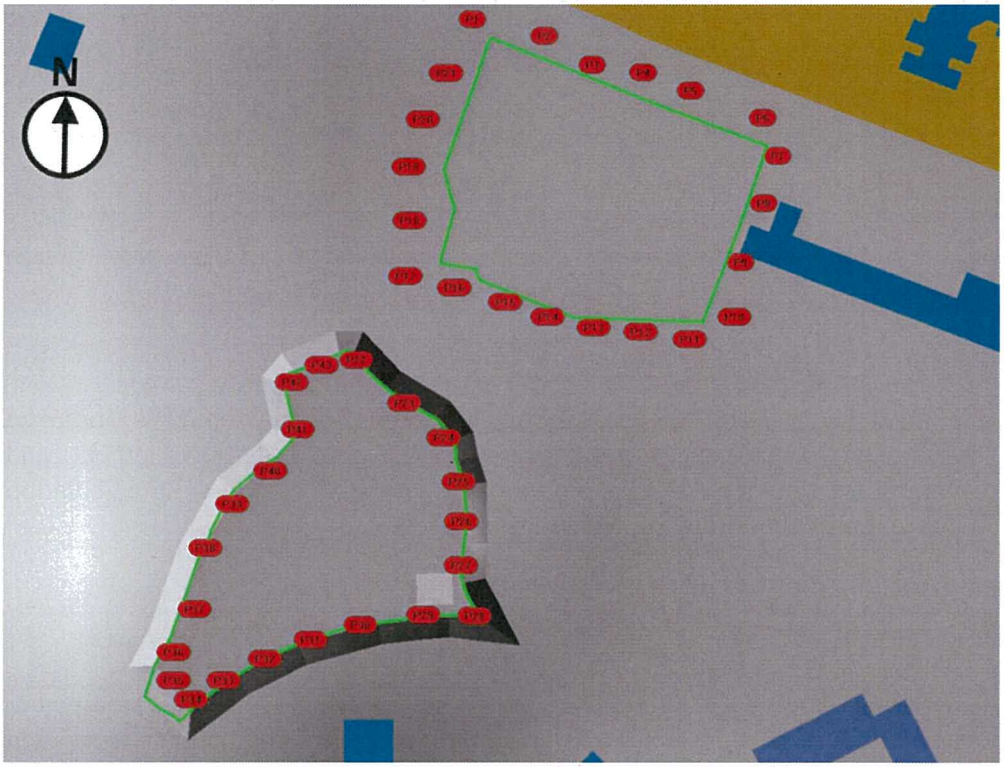


Figure 9 Locations of Perimeter Points

3.3.2 Overall Test Points

Overall test points are those points evenly positioned in the open space on the streets and places where pedestrian frequently access within the assessment area. In total there are 144 overall test points within the assessment area. It should be noted that the surrounding area includes areas of wilderness where test points were not placed.

Figure 10 Locations of Overall Points

3.4 Assessment Tools

Computational Fluid Dynamics (CFD) technique is utilized for this AVA Study. The CFD software Star-CCM+ was used in this study. With the use of three-dimensional CFD method, the local airflow distribution can be visualised in detail. The air velocity distribution within the flow domain, being affected by the site-specific design and the surrounding buildings, has been simulated under the prevailing wind conditions round the year.

3.4.1 CFD Model

The size of the CFD model (Figure 11) for this Study is approximately 5500m (L) x 5500m (W) x 1500m (H). The whole CFD domain covers the entire development and the surrounding buildings. The model also takes information of the surrounding buildings and site topography via Geographical Information System (GIS) platform. Body-fitted unstructured grid technique is used to fit the geometry to reflect the complexity of the development geometry. A prism layer of 3m above ground (totally 6 layers and each layer is 0.5m) is incorporated in the meshing so as to better capture the approaching wind. The expansion ratio is 1.5 while the maximum blockage ratio is less than 2%.

Finer grid system (with the smallest grid size of 0.5m) is applied to the most concerned area based on preliminary judgement, while coarse grid system (grid size of more than 20m at location far away from the site) is applied to the area of surrounding buildings for better computational performance while maintaining satisfactory result.

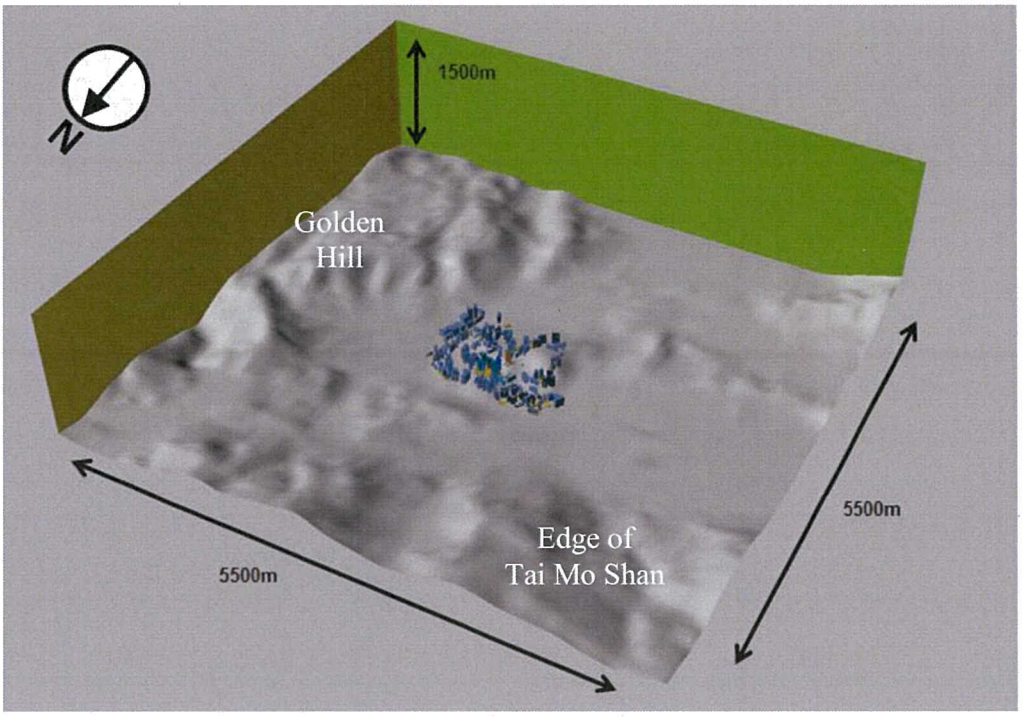


Figure 11 3D Domain of the CFD Model

The different views of the Enhanced PRH Scheme are shown in Figure 12 through Figure 15 below.

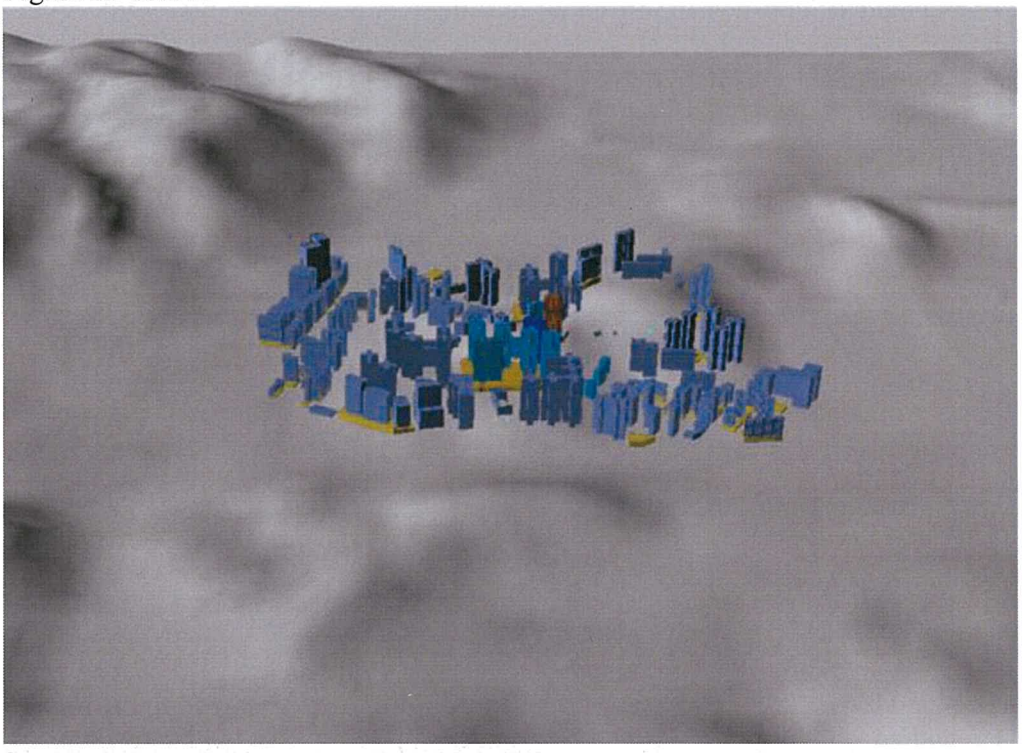


Figure 12 Northern View of the Enhanced PRH Scheme

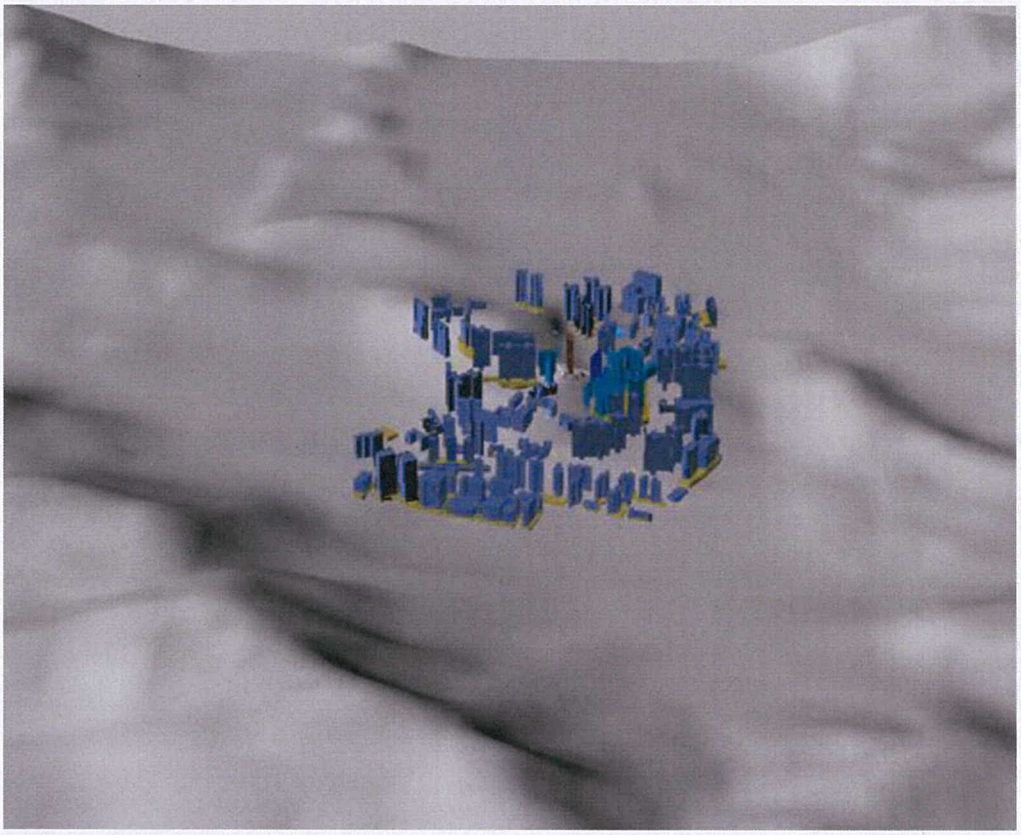


Figure 13 Eastern View of the Enhanced PRH Scheme

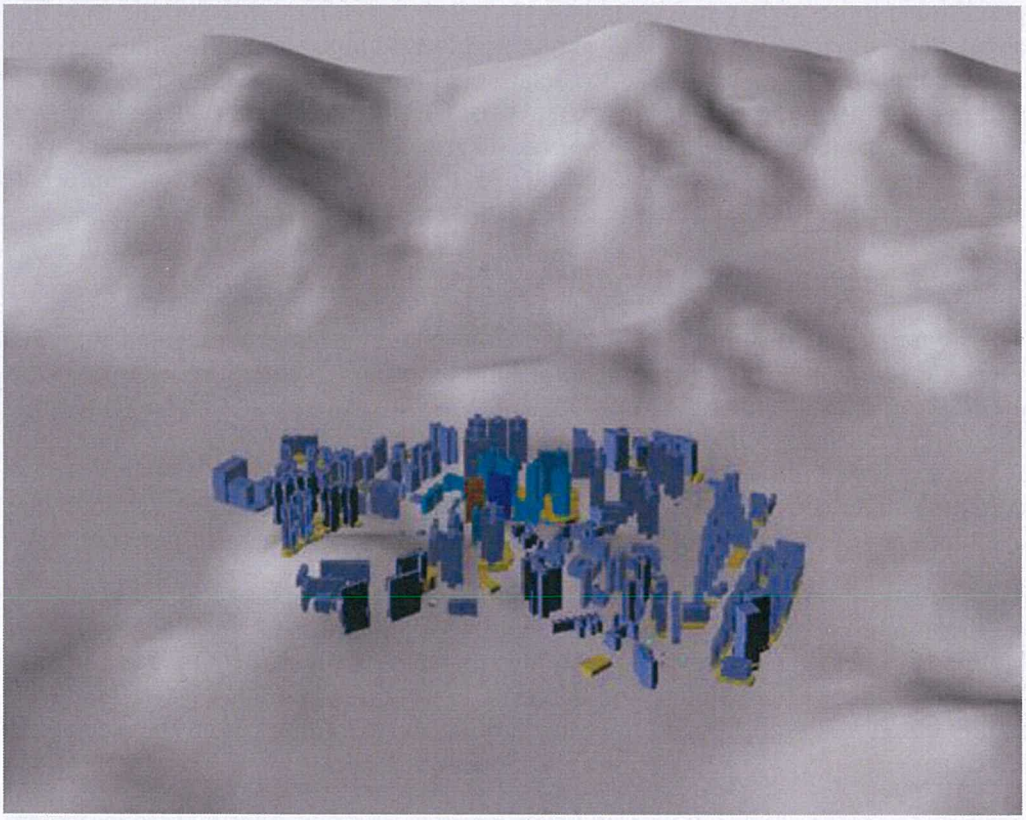


Figure 14 Southern View of the Enhanced PRH Scheme

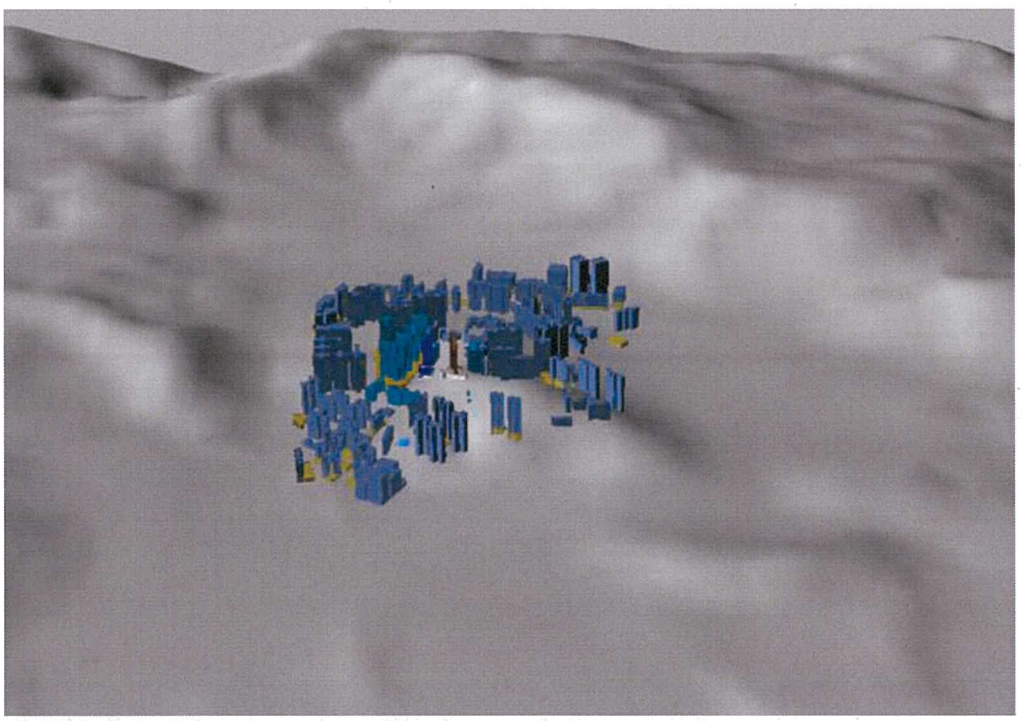


Figure 15 Western View of the Enhanced PRH Scheme

3.4.2 Turbulence Model

As highlighted in recent academic and industrial research literatures by CFD practitioners, the widely used standard k - ε turbulence model technique may not adequately model the effects of large scale turbulence around buildings and ignores the wind gusts leading to the relatively poor prediction in the recirculation regions around building. Therefore in this CFD simulation, realizable k – ε turbulence modelling method is applied. This technique provides more accurate representation of the levels of turbulence that can be expected in an urban environment.

3.4.3 Calculation Method

The Segregated Flow model solves the flow equations in a segregated manner. The linkage between the momentum and continuity equations adopted the predictor-corrector approach. A collocated variable arrangement and a Rhie-and-Chow-type pressure-velocity coupling combined with a SIMPLE-type algorithm. A higher order differencing scheme is applied to discretize the governing equations. The convergence criterion is set to 0.0005 on mass conservation. The calculation will repeat until the solution satisfies this convergence criterion.

The prevailing wind direction as mentioned in Section 3.1 is set to inlet boundary of the model with wind profile as detailed in Section 3.1.2. The downwind boundary is set to pressure with value of atmospheric pressure. The top and side boundaries are set to symmetry. In addition, to eliminate the boundary effects, the model domain is built beyond the Surrounding Area as required in the Technical Circular.

3.4.4 AVA Study Parameters

CFD simulations have been conducted to study the wind environment. As specified in the Technical Circular, indicator of ventilation performance should be the Wind Velocity Ratio (VR), defined as the ratio of the wind velocity at the pedestrian level (2m above ground) to the wind velocity at the top of the wind boundary layer. Site spatial average velocity ratio (SVR) and a Local spatial average velocity ratio (LVR) should be determined. The details of the assessment result for the scheme would be presented in the next section.

Table 5: Terminology of the AVA Study

Terminology	Description
Velocity Ratio (VR)	The velocity ratio (VR) represents the ratio of the air velocity at the measurement position to the value at the reference points.
Site spatial average velocity ratio (SVR)	The SVR represent the average VR of all perimeter test points at the site boundary which identified in the report.
Local spatial average velocity ratio (LVR)	The LVR represent the average VR of all points, i.e. perimeter and overall test points at the site boundary which identified in the report.

4 Result and Discussion

4.1 Overall Pattern of Ventilation Performance

4.1.1 Annual Weighted Average

The annual weighted VR contour plot at 2m above the ground is shown in Figure 16 through Figure 18 for the Baseline, Proposed PRH and Enhanced PRH Schemes respectively.

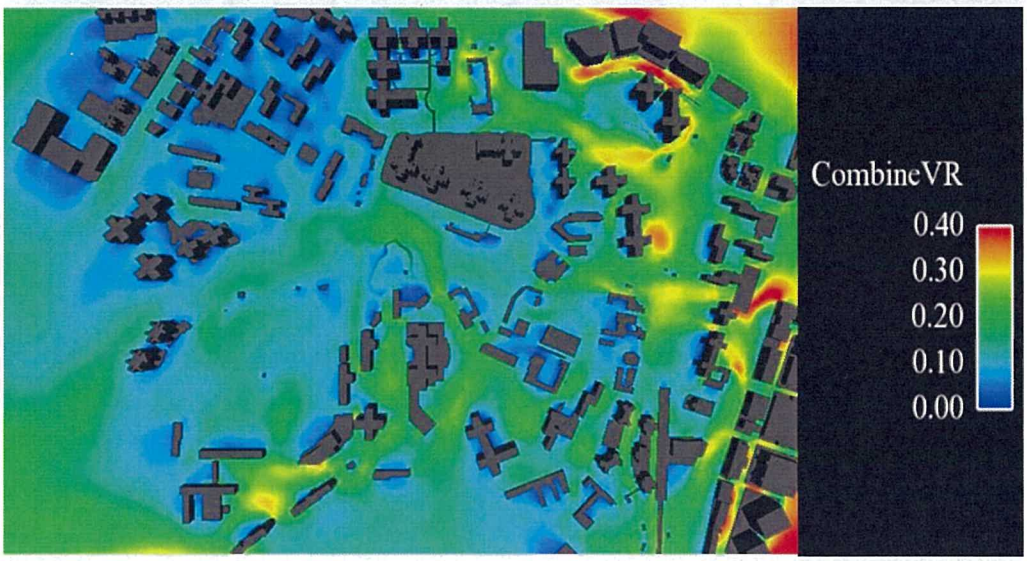


Figure 16 Annual weighted VR Contour plot at pedestrian level for Baseline Scheme

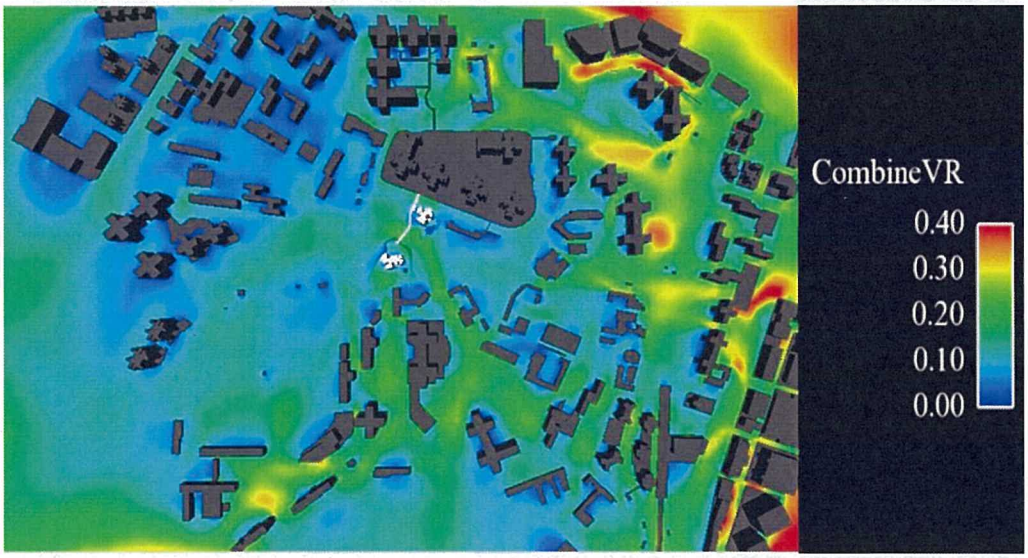


Figure 17 Annual weighted VR Contour plot at pedestrian level for Proposed PRH Scheme

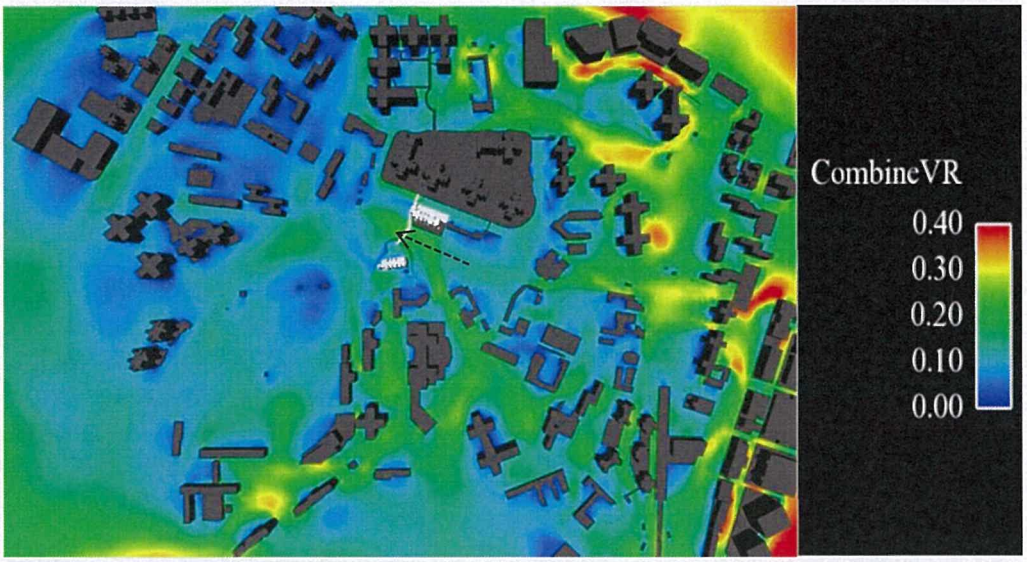


Figure 18 Annual weighted VR Contour plot at pedestrian level for Enhanced PRH Scheme

Due to the small size of the two development phases relative to the surrounding buildings, there is no significant difference among Baseline, Proposed PRH and Enhanced PRH Schemes. The many surrounding high rise developments, including Kwai Chung Estate to the north and northeast and Kwai Shing East estate to the south, and the mountainous topography dominantly affect the wind performance in the region (to be further discussed in Section 4.2). In the Planning Department's Expert Evaluation, a 120m-wide breezeway aligned with easterly winds is proposed. In the Proposed PRH Scheme and Enhanced PRH Scheme, the developments occupy part of the breezeways. The development design takes into account the breezeway and serve to convert the one 120m-wide breezeway into one breezeway of 50m width aligned with ESE winds and another breezeway of 20m width aligned with E winds, as shown in Figure 19. The effects of this open wind channel, especially the one between Phase 1 and Phase 2, can be seen in the combined contour plots.

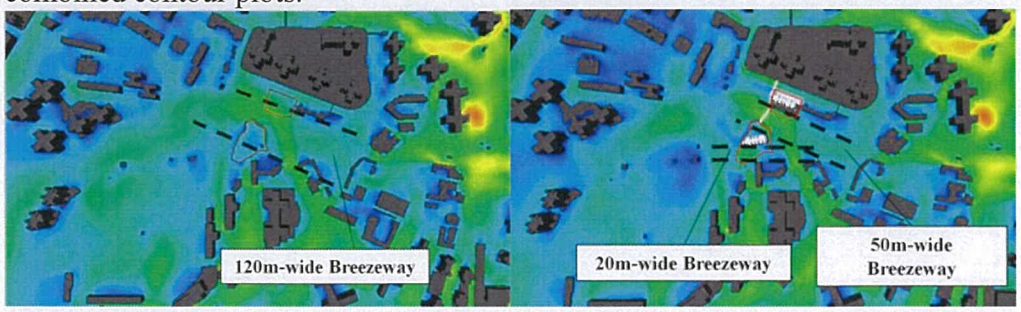


Figure 19 Breezeway Modification from Baseline (left) to Enhanced (right) schemes (annual weighted VR Contour plots)

4.2 Directional Analysis

4.2.1 North-North-Easterly (NNE) Wind Direction

NNE wind has an annual frequency of 8.6%. The NNE wind flows down from Tai Mo Shan and reaches the high-rise Kwai Chung Estate immediate to the upwind direction of the Project Site.

Compared to the Baseline Scheme with no high-rise buildings in Phases 1 & 2, the air ventilation at Tai Wo Hau Road (black dotted region in Figure 20 through Figure 22) is enhanced under the Proposed PRH Scheme. This is due to the downwash effect by the Phase 1 Block (orange arrow) which directs the wind flowing through the building gap of the Kwai Chung Estate to this area (Figure 23). Such phenomenon is more visible in the Enhanced PRH Scheme due to a larger frontage of the Phase 1 Block, which creates more downwash wind.

On the other hand, the Enhanced PRH Scheme has a slightly adverse impact around Kwai Shing Circuit (purple dotted region) when compared with the Baseline Scheme and Proposed PRH Scheme. It is because the larger frontage of the Phase 1 Block reduces the building gap between Phase 1 and Yan Kwai House (red dotted area) for the NNE wind to flow to the leeward area.

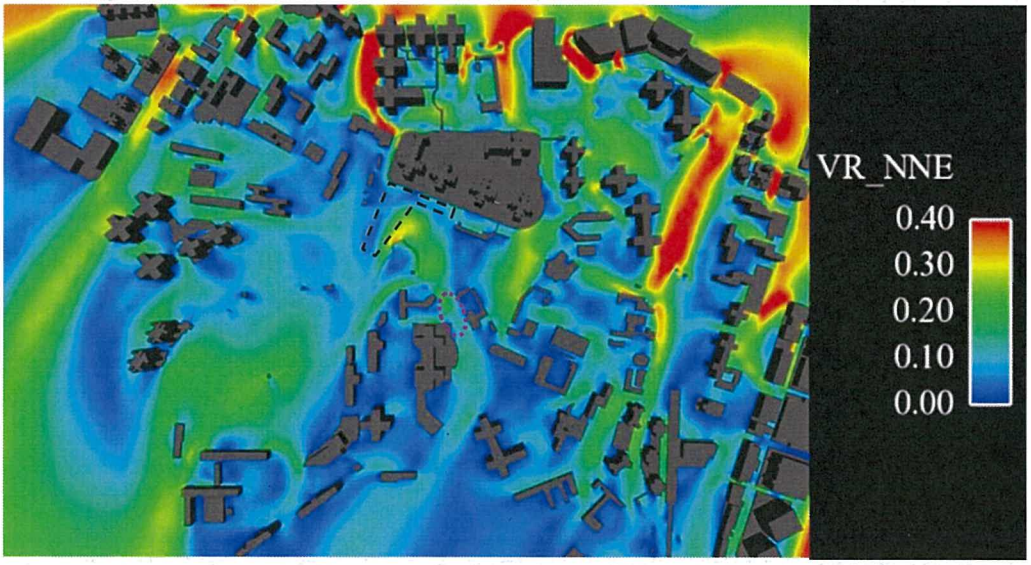


Figure 20 VR Contour Plot for the Baseline Scheme (NNE Wind Condition)

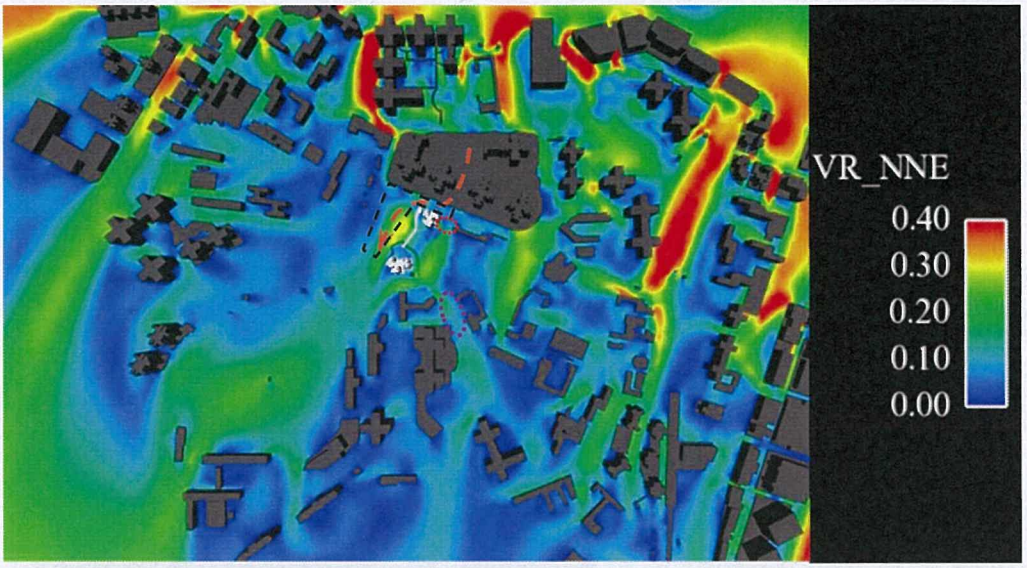


Figure 21 VR Contour Plot for Proposed PRH Scheme (NNE Wind Condition)

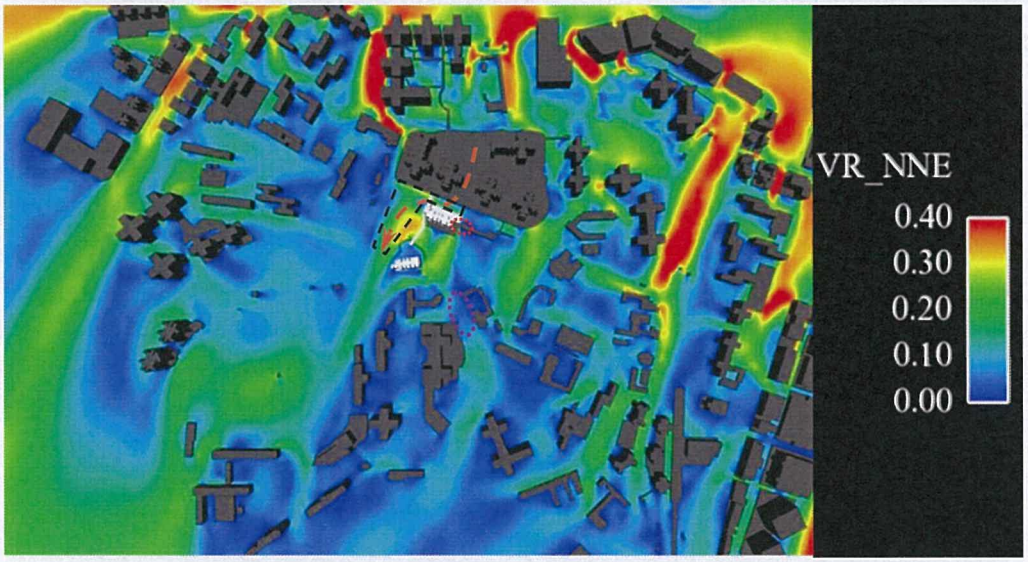


Figure 22 VR Contour Plot for Enhanced PRH Scheme (NNE Wind Condition)

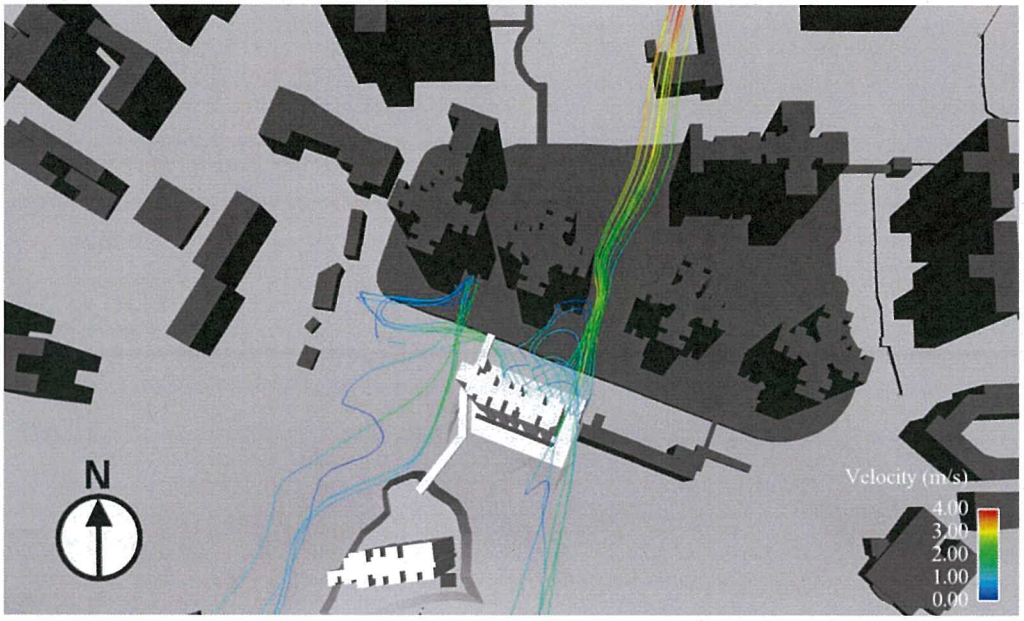


Figure 23 Downwash wind to Tai Wo Hau Road due to wind deflection by the Phase 1 Block.

4.2.2 North-Easterly (NE) Wind Direction

NE wind has an annual frequency of 11.9%. Similar to NNE wind, the NE wind passes through the building gaps o Kwai Chung Estate to the Project Site after flowing downhill.

When compared to the Baseline Scheme, the Proposed PRH Scheme and Enhanced PRH Scheme have better ventilation performance at the part of Kwai Shing Circuit immediately behind Phase 2 (pink dotted region in Figure 24 through Figure 26). It is because the block deflects the approaching NE wind downward to this area (orange arrow).

When compared with the Baseline Scheme, the Proposed PRH Scheme has better wind performance at the Tai Wo Hau Estate Playground No. 7 (purple dotted region). It is because the approaching NE wind is deflected by the Phase 1 Block to this area.

When compared with the Baseline Scheme and Proposed PRH Scheme, the Enhanced Scheme has a better wind performance along the part of Tai Wo Hau Road between Phase 1 and Kwai Chung Estate (black dotted region) due to similar downwash effect as observed under NNE wind.

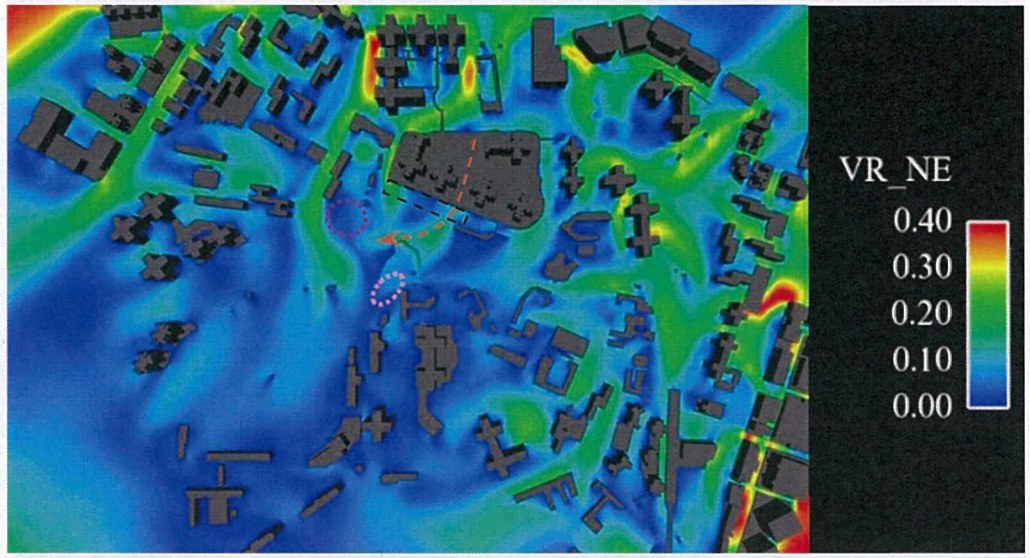


Figure 24 VR Contour Plot for Baseline Scheme (NE Wind Condition)

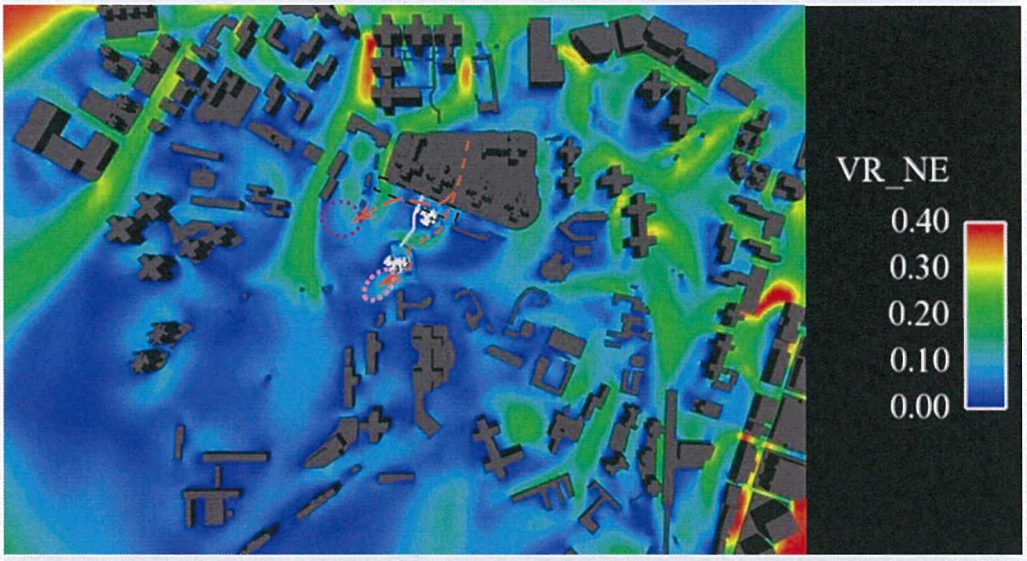


Figure 25 VR Contour Plot for Proposed PRH Scheme (NE Wind Condition)

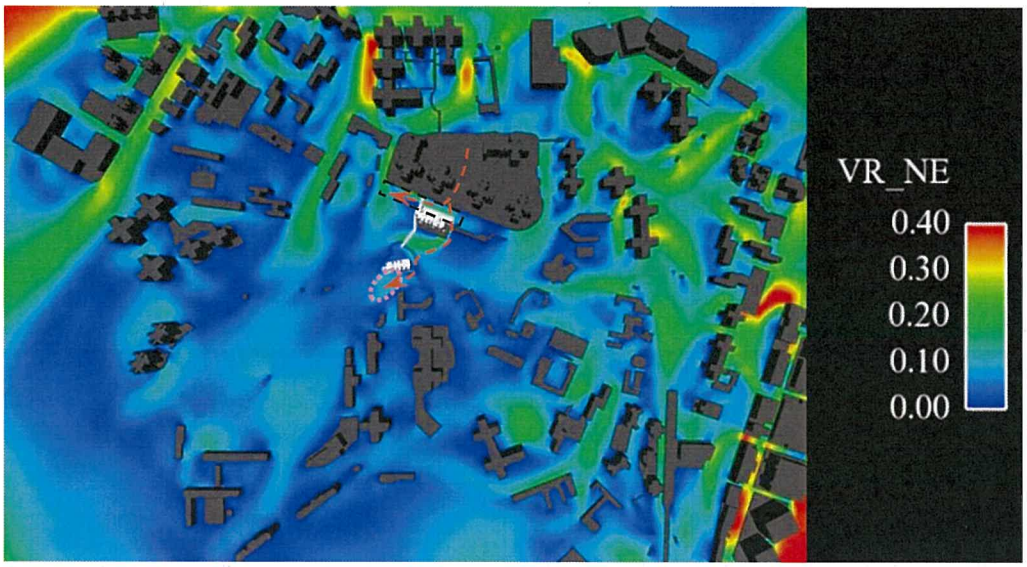


Figure 26 VR Contour Plot for Enhanced PRH Scheme (NE Wind Condition)

4.2.3 East-North-Easterly (ENE) Wind Direction

ENE is the most frequent wind direction with an annual frequency of 15.7%. Similar to NNE and NE wind conditions, the wind flow to the Project Site is affected by the high-rise developments on the upwind area. The wind flow pattern of the Proposed PRH Scheme and Enhanced PRH Scheme are quite similar.

There is certain ventilation enhancement at Tai Wo Hau Road for the Enhanced PRH Scheme compared with the Baseline Scheme and Proposed PRH Scheme (black dotted region in Figure 27 and Figure 29), as the longer frontage of the Phase 1 block along the road help downwashing the approaching ENE wind (orange arrow).

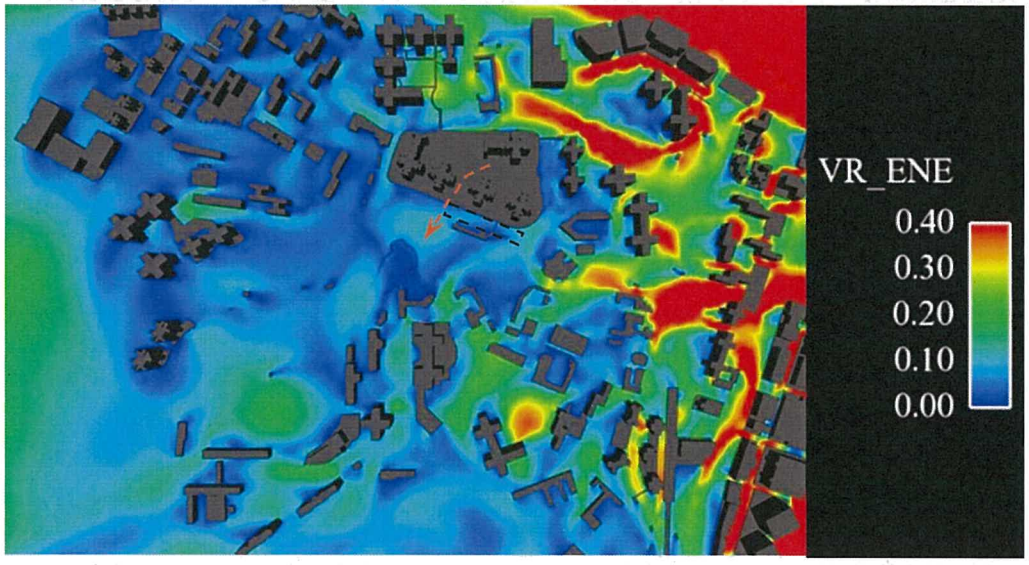


Figure 27 VR Contour Plot for Baseline Scheme (ENE Wind Condition)

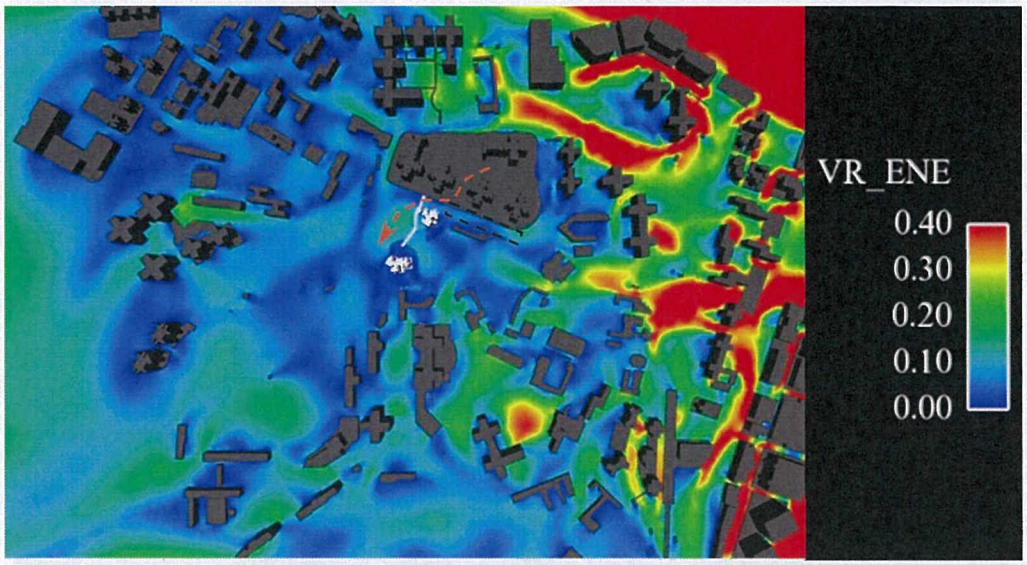


Figure 28 VR Contour Plot for Proposed PRH Scheme (ENE Wind Condition)

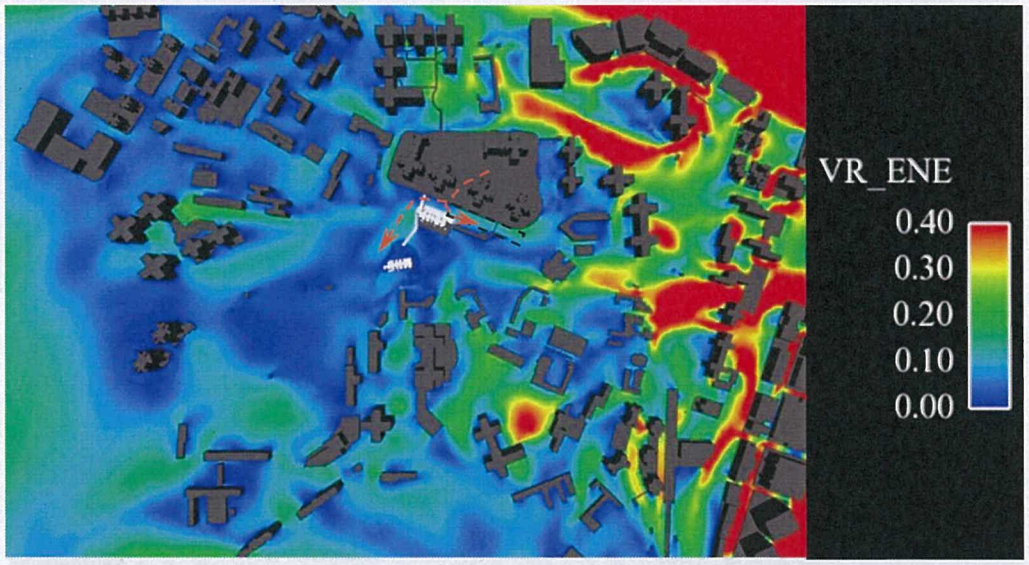


Figure 29 VR Contour Plot for Enhanced PRH Scheme (ENE Wind Condition)

4.2.4 Easterly (E) Wind Direction

E wind is the second most frequent wind after ENE, with an annual frequency of 14.4%. The approaching airflows to the Project Site come from two directions. One is from the wind penetrating through the building gaps of Kwai Hing Estate and passing over the low-rise school cluster (black arrow in Figure 30). The other is the airstream passing along the south boundary of the Kwai Hing Estate and deflected by the Kwai Shing East Estate (orange arrow). Further downstream the wind will be deflected downward by the Tai Wo Hau Estate to the open space on the western side of Kwai Shing East Estate (i.e. Tai Wo Hau Road South Playground).

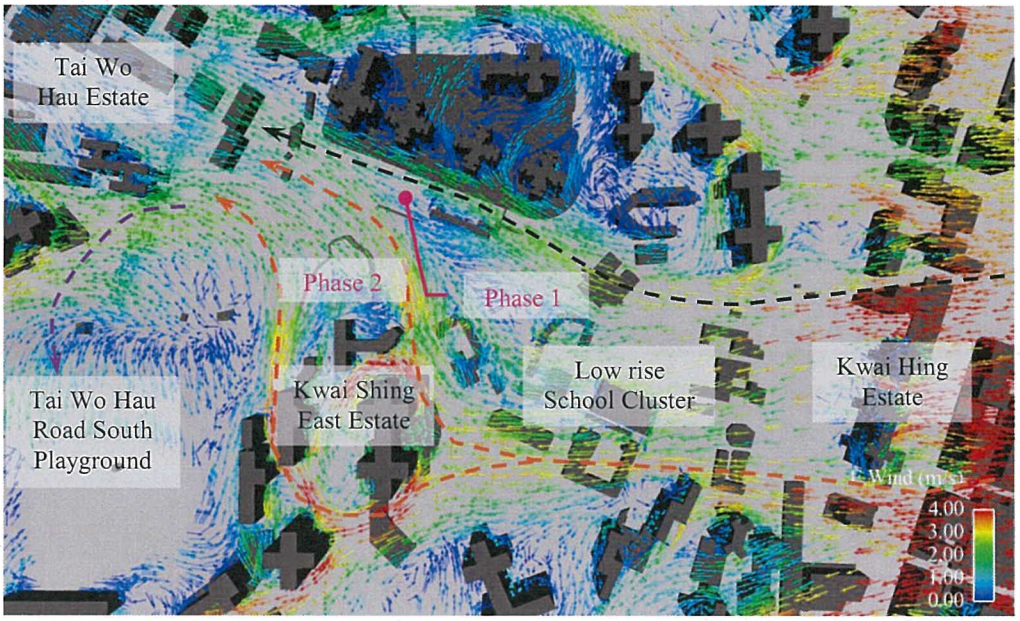


Figure 30 Airflow pattern to the Development sites under E wind condition

It is observed that both the Proposed PRH Scheme and Enhanced PRH Scheme enhance the air ventilation at Kwai Shing Circuit (black dotted region in Figure 31 through Figure 33) compared with the Baseline Scheme. It is because downwash wind is captured from Phase 2 Block (orange arrow in Figure 32 and Figure 33).

On the other hand, it is observed that the air ventilation at Tai Wo Hau Estate Playground No.7 (purple dotted region) and Tai Wo Hau Road South Playground (red dotted region) to the west of the Development are adversely affected for the Proposed PRH Scheme and Enhanced PRH Scheme when compared with the Baseline Scheme. For the former, it is due to the wind shadowing effect by the Phase 2 Block. For the latter, it is because the airflow has been deflected downward by the Phase 2 Block to Kwai Shing Circuit rather than flowing towards west.

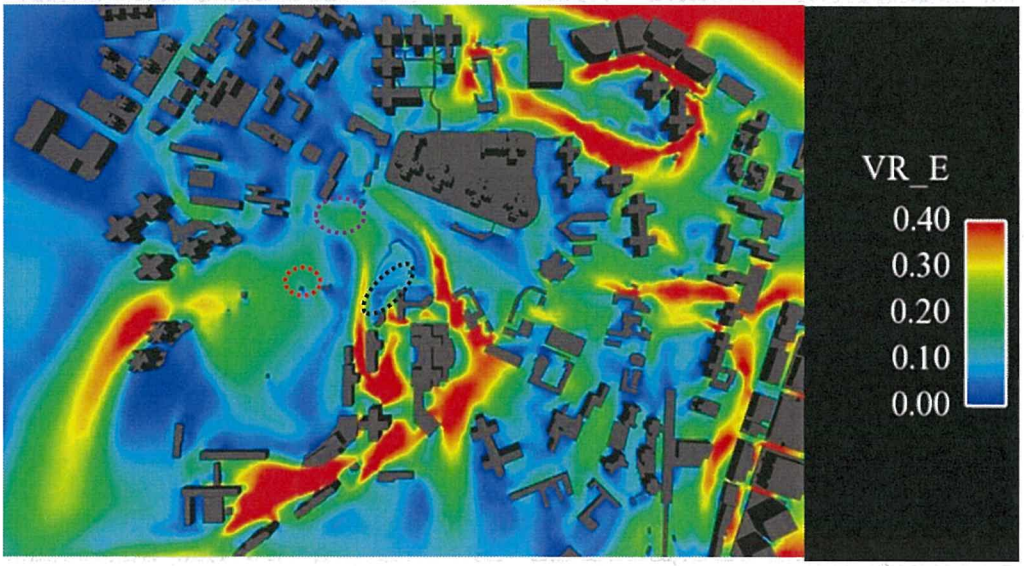


Figure 31 VR Contour Plot for Baseline Scheme (E Wind Condition)

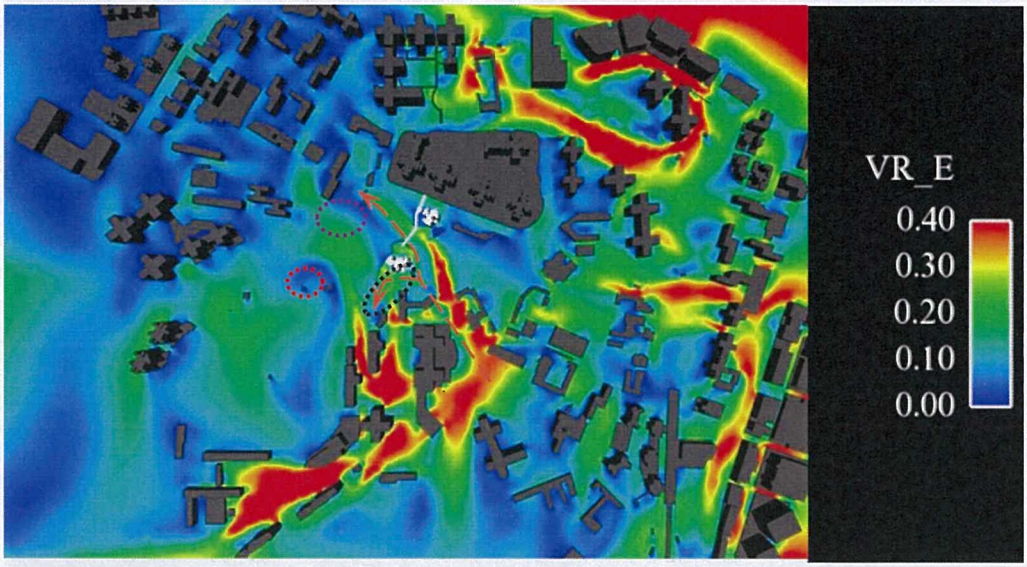


Figure 32 VR Contour Plot for Proposed PRH Scheme (E Wind Condition)

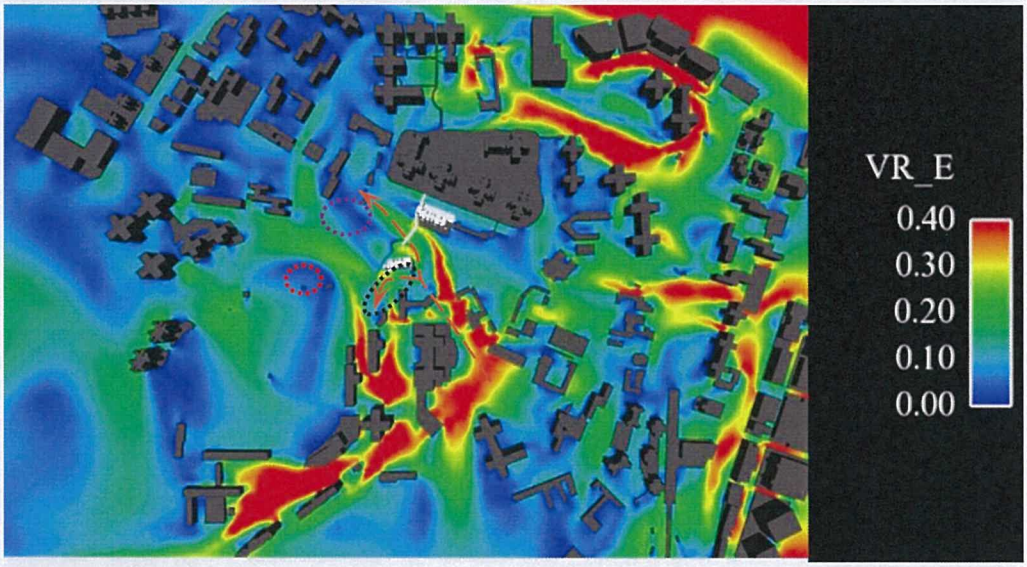


Figure 33 VR Contour Plot for Enhanced PRH Scheme (E Wind Condition)

4.2.5 East-South-Easterly (ESE) Wind Direction

Under ESE wind (annual frequency of 9.9%), the wind flow comes mainly through the low-rise institutional developments immediate to southeast direction of the Project Site, after passing over Golden Hill and the high-rise residential developments.

The air ventilation performances at Tai Wo Hau Road (black dotted region in Figure 34 through Figure 36) and Kwai Shing Circuit (purple dotted region) in the vicinity of Phases 1 & 2 are improved for the Proposed PRH Scheme and Enhanced PRH Scheme compared with the Baseline Scheme. It is because of the wind channelling effects between Phase 1 and Kwai Chung Estate, and Phase 2 and Shing Wo House of Kwai Shing East Estate respectively.

Meanwhile, due to this wind redirection, the airflow to Tai Wo Hau Estate Playground No.7 (red dotted region) on the leeward location is reduced for the two development schemes compared with the Baseline Scheme.

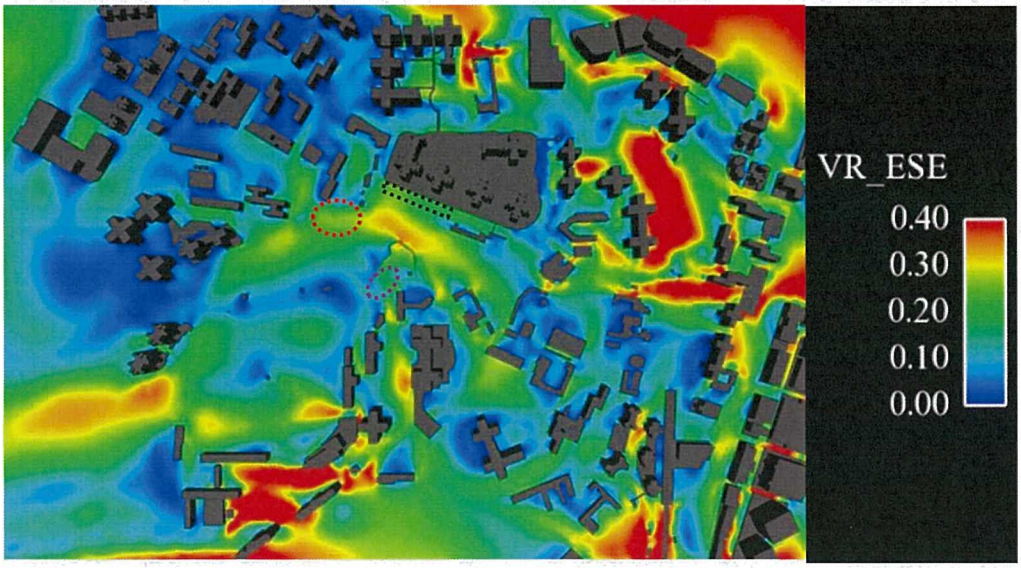


Figure 34 VR Contour Plot for Baseline Scheme (ESE Wind Condition)

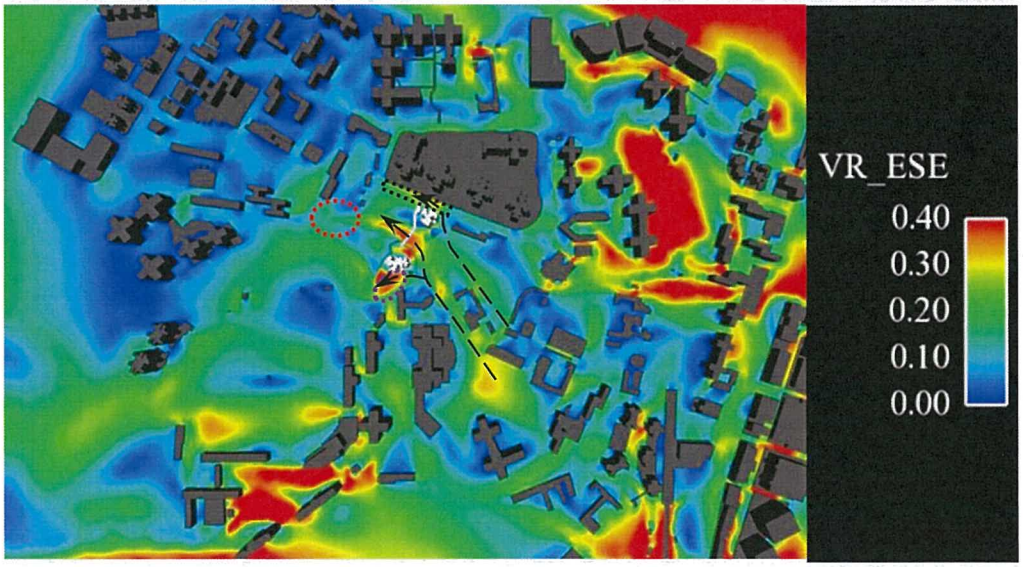


Figure 35 VR Contour Plot for Proposed PRH Scheme (ESE Wind Condition)

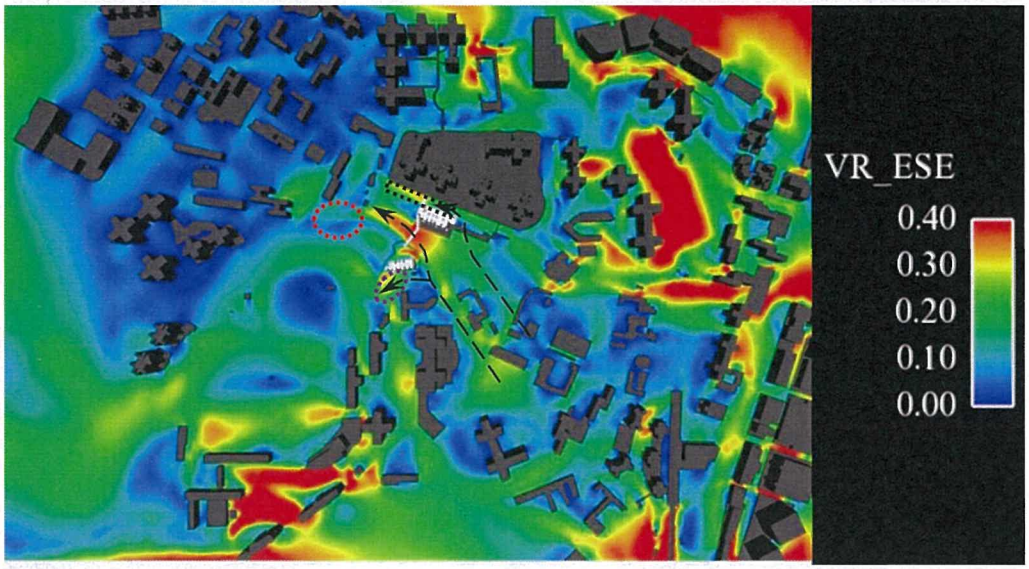


Figure 36 VR Contour Plot for Enhanced PRH Scheme (ESE Wind Condition)

4.2.6 South-Easterly (SE) Wind Direction

SE wind has an annual frequency of 6.7%. Similar to ESE wind condition, the wind flows from Golden Hill, passing through the building gaps of the high-rise residential developments, flowing over the low-rise institutional developments and reaches the Project Site.

The wind channelling effect observed under the ESE wind condition is also found at Tai Wo Hau Road (black dotted region in Figure 37 through Figure 39) and Kwai Shing Circuit (purple dotted region) under this wind direction, with more significant effect observed at the Tai Wo Hau Road.

Further, the wind channelling effect along the major breezeway between Phase 1 and Phase 2 is more visible for the Enhanced PRH Scheme when compared with the Proposed PRH Scheme, owing to the more linear built form of the domestic blocks. This help enhancing the air ventilation at the open space to the west of the Development, i.e. the Tai Wo Hau Estate Playground No. 7 (pink dotted region in Figure 38 and Figure 39).

Nonetheless, the wind flow towards the southwest areas such as Tai Wo Hau Road South Playground and the area around High Prosperity Terrace (purple dotted area) are altered by both Proposed PRH and Enhanced PRH Schemes, in which the wind needs to flow around Kwai Shing East Estate, encounters more turbulence and ultimately results in lower wind speed as compared with the Baseline Scheme (see Figure 40 to Figure 42). In comparison, the Enhanced PRH Scheme has less adverse impact than the Proposed PRH Scheme.

Wind flow to the downstream area, e.g. Fu Wai Path within Tai Wo Hau Estate (red dotted area), is also slightly reduced for the Proposed PRH Scheme and Enhanced PRH Scheme compared with the Baseline Scheme due to the wind deflection.

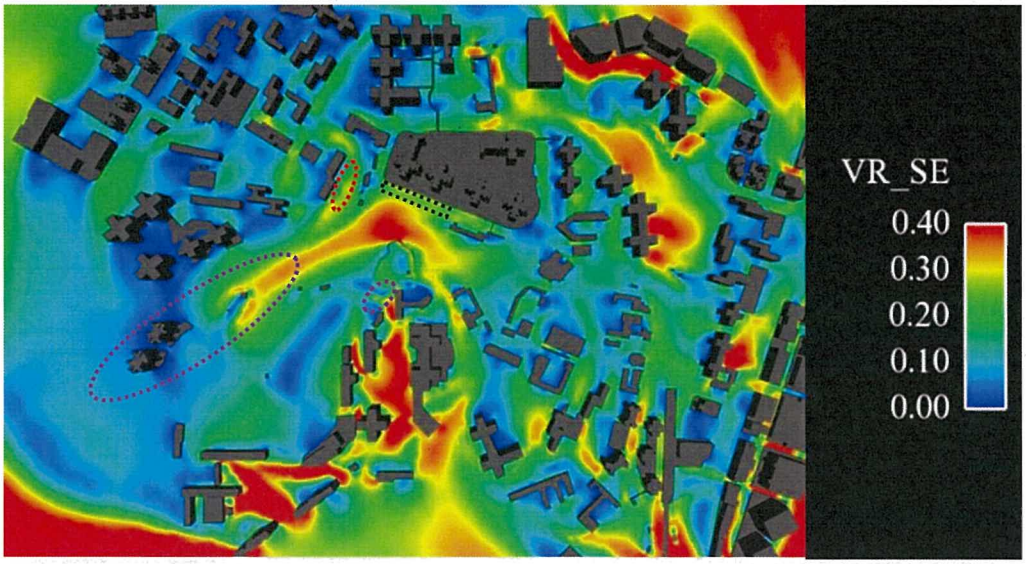


Figure 37 VR Contour Plot for Baseline Scheme (SE Wind Condition)

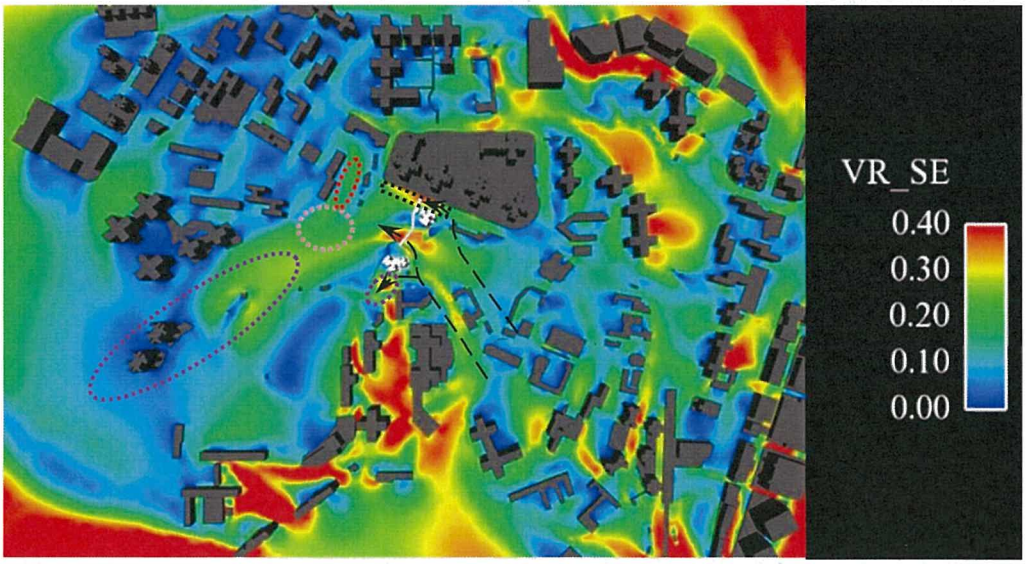


Figure 38 VR Contour Plot for Proposed PRH Scheme (SE Wind Condition)

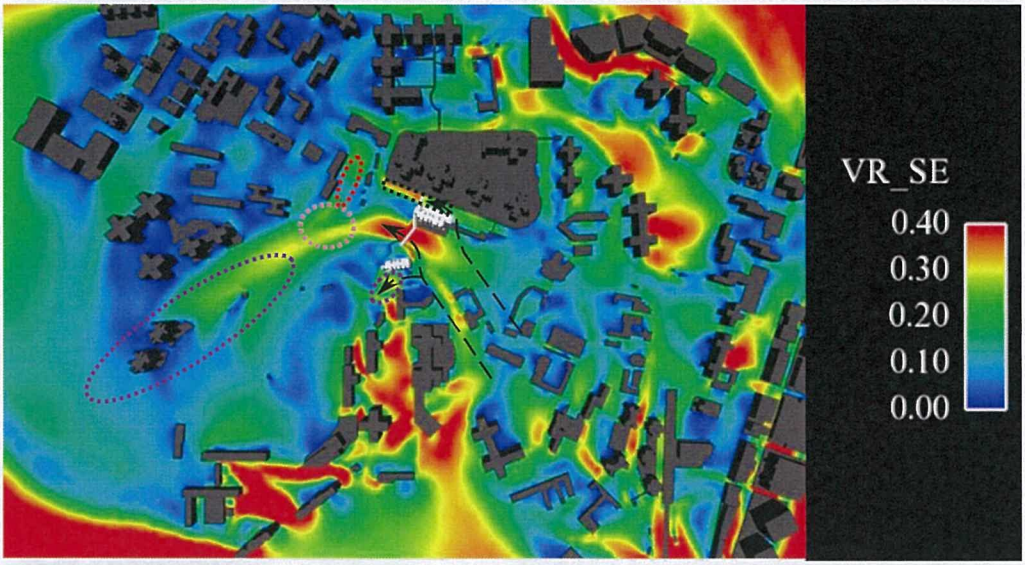


Figure 39 VR Contour Plot for Enhanced PRH Scheme (SE Wind Condition)

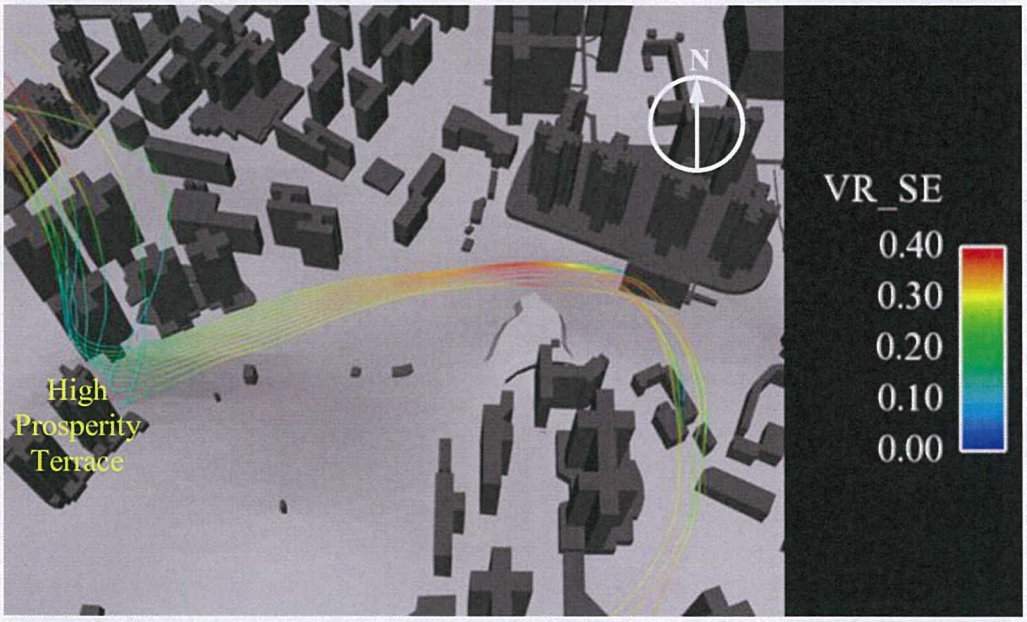


Figure 40 Streamline Plot for Baseline Scheme (SE Wind Condition)

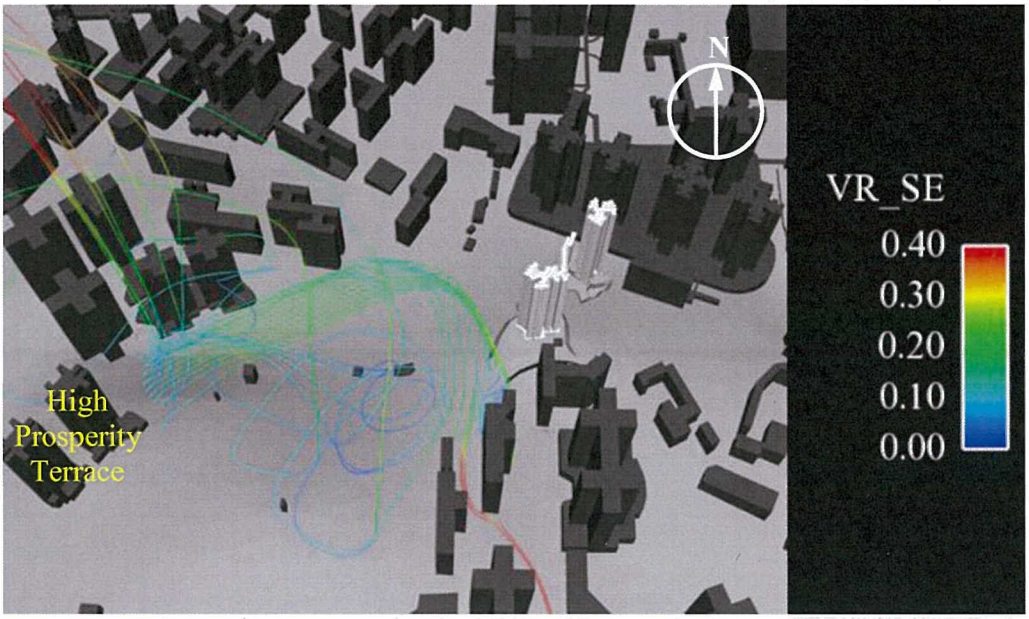


Figure 41 Streamline Plot for Proposed PRH Scheme (SE Wind Condition)

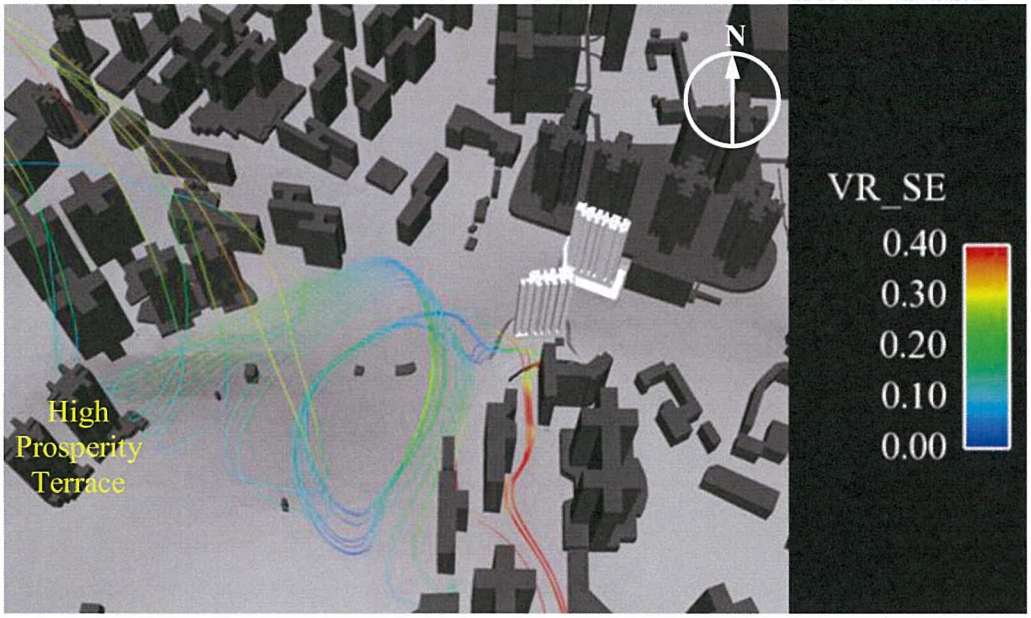


Figure 42 Streamline Plot for Enhanced PRH Scheme (SE Wind Condition)

4.2.7 South-South-Easterly (SSE) Wind Direction

Under SSE wind (annual occurrence of 6.1%), air ventilation enhancements are observed at the Tai Wo Hau Road (black dotted region in Figure 43 through Figure 45) and Kwai Shing Circuit (purple dotted region) due to the wind channelling effect by the blocks at the two sites, similar to ESE wind and SE wind conditions.

Notwithstanding, the air ventilation at Fu Kwai Path within the Tai Wo Hau Estate (red dotted region) is adversely affected for the Proposed PRH Scheme and Enhanced PRH Scheme compared with the Baseline Scheme due to the wind deflection mentioned above. When compared with the Proposed PRH Scheme, the

Enhanced PRH Scheme has less adverse impact on the air ventilation at this area. It is because the long frontage of the Phase 1 Block for the Enhanced PRH Scheme brings stronger wind channelling effect along Tai Wo Hau Road to the Fu Kwai Path.

Within the Project Site, the air ventilation is noticeably reduced for the Proposed PRH and Enhanced PRH Schemes compared to the Baseline Scheme, especially in the area between Phase 1 and 2. It is because the wind flow is somehow obstructed by the proposed domestic blocks for the two schemes, while the SSE wind can flow more freely for the Baseline Scheme with comparatively wider wind channel (see Figure 46 through Figure 48).

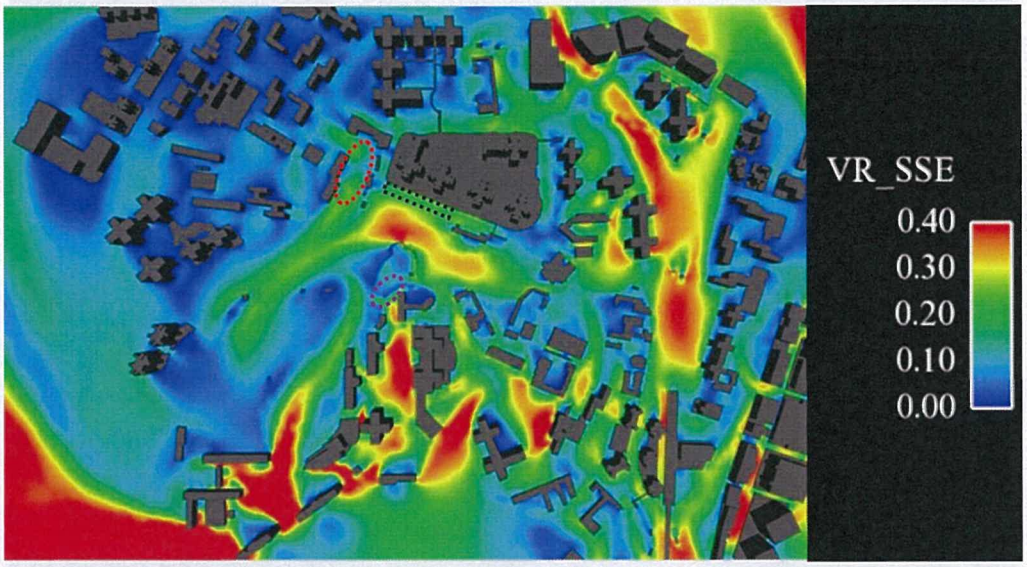


Figure 43 VR Contour Plot for the Baseline Scheme (SSE Wind Condition)

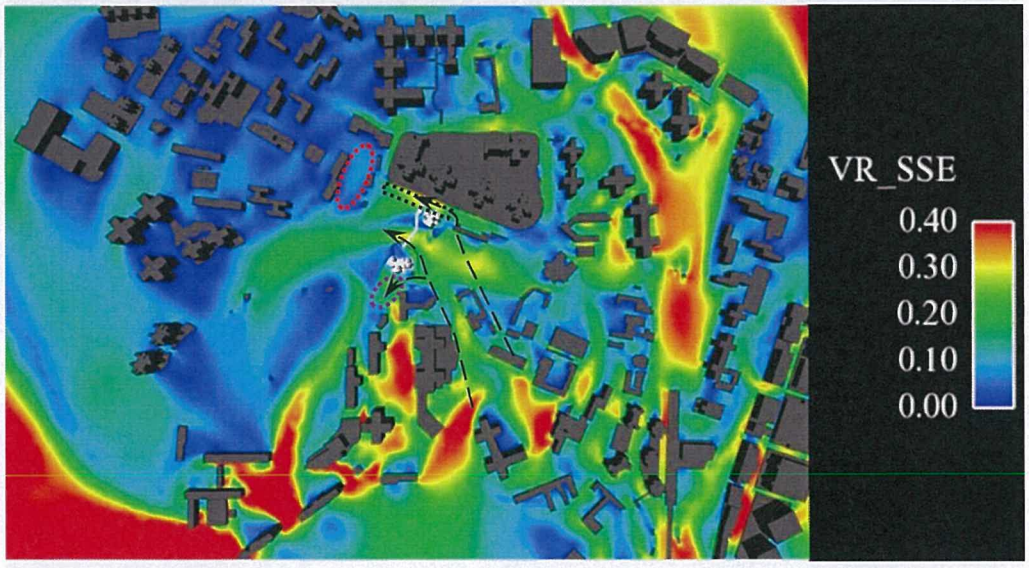


Figure 44 VR Contour Plot for the Proposed PRH Scheme (SSE Wind Condition)

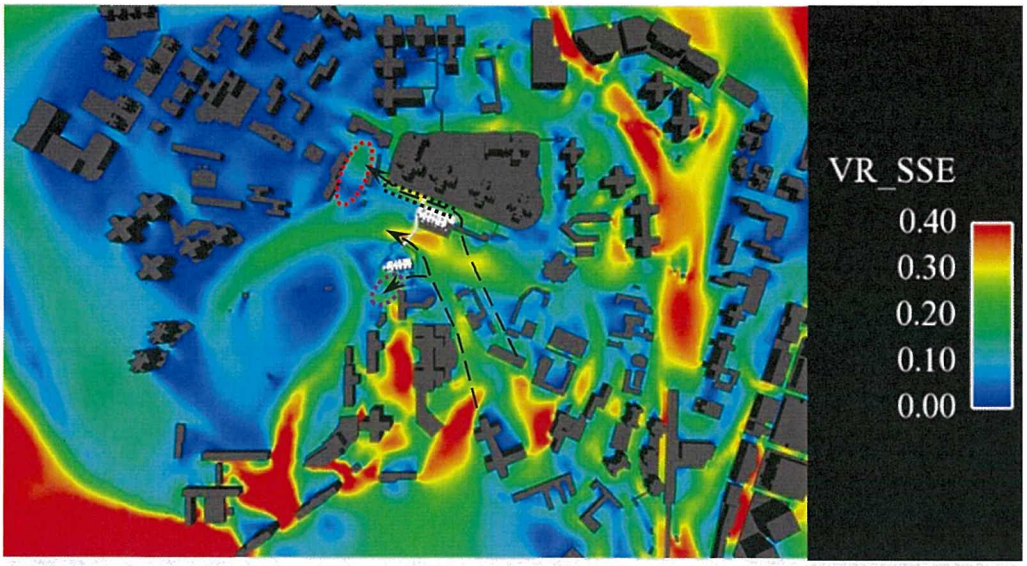


Figure 45 VR Contour Plot for the Enhanced PRH Scheme (SSE Wind Condition)

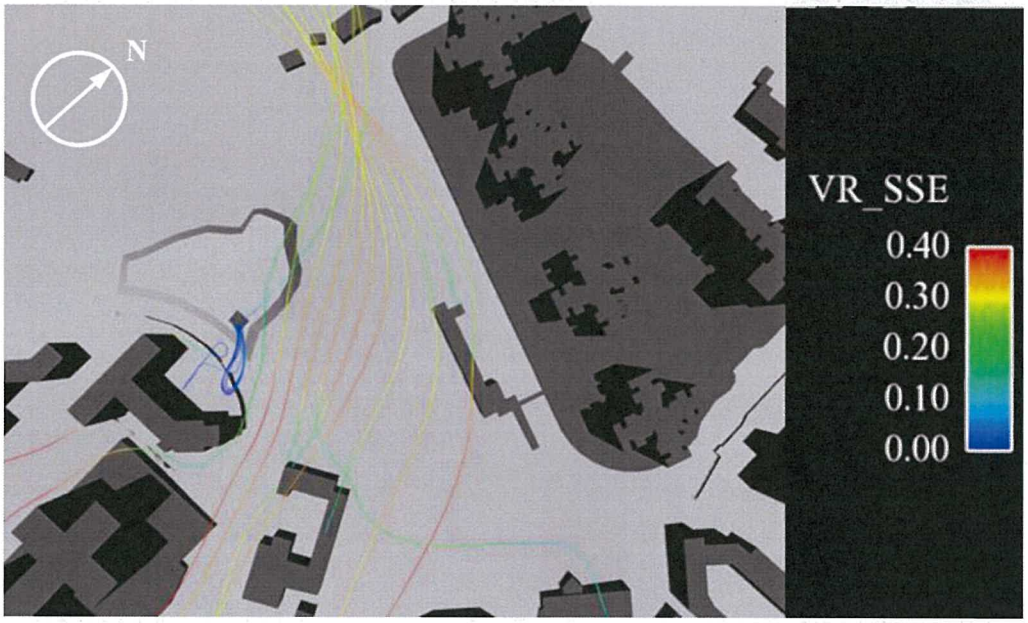


Figure 46 Streamline Plot for the Baseline Scheme (SSE Wind Condition)

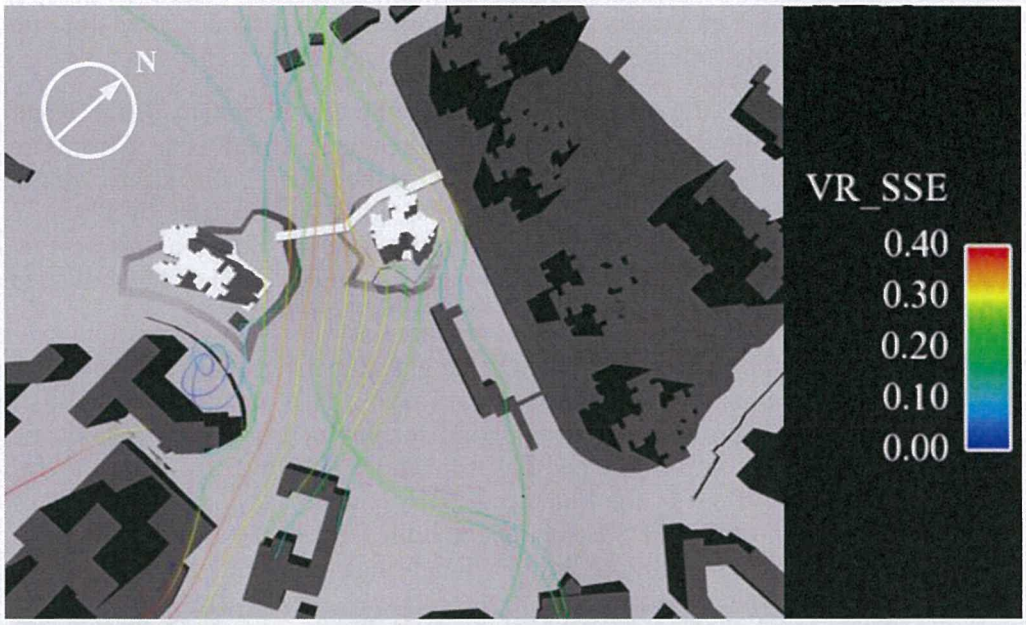


Figure 47 Streamline Plot for the Proposed PRH Scheme (SSE Wind Condition)

Figure 48 Streamline Plot for the Enhanced PRH Scheme (SSE Wind Condition)

4.2.8 Southerly (S) Wind Direction

Under S wind (6.1% annual frequency), the Proposed PRH Scheme has a better wind performance at Kwai Yip Street (pink dotted region in Figure 49 and Figure 50) and Kwai Shing Circuit (purple dotted region) compared with the Baseline Scheme.

For the wind enhancement at Kwai Yip Street, it is due to the wind deflection by the Phase 1 Block. The southern wind flows through the open area to the west of Kwai Shing East Estate, deflected by the high-rise blocks of Tai Wo Hau Estate, and diverted eastward to Phase 1. The Phase 1 Block then directs the airflow

further east to Kwai Yip Street. Similar phenomenon is also observed for the Enhanced PRH Scheme (orange arrow in Figure 50 and Figure 51).

For Kwai Shing Circuit, the airflow comes along the east boundary of the Kwai Shing East Estate, while there is another airstream approaching Phase 2 from the west as discussed in the preceding paragraph. With the Phase 2 Block providing a larger wake zone (along the whole building height) on the east of Phase 2 (highlighted in black solid line) compared with the Baseline Scheme, this airflow is accelerated in the Proposed PRH Scheme and Enhanced PRH Scheme due to the increased pressure difference.

On the other hand, the Proposed PRH Scheme and Enhanced PRH Scheme have adverse ventilation impact on the section of Tai Wo Hau Road to the west of Phase 1 (red dotted region), owing to the wind shadowing effect by the domestic block at the site on the wind flow coming from the west (deflected from the Tai Wo Hau Estate). Nonetheless, the Enhanced PRH Scheme has comparatively less impact than the Proposed PRH Scheme, as the built form of the Phase 1 Block of the Enhanced PRH Scheme is more linear which brings less wind obstruction.

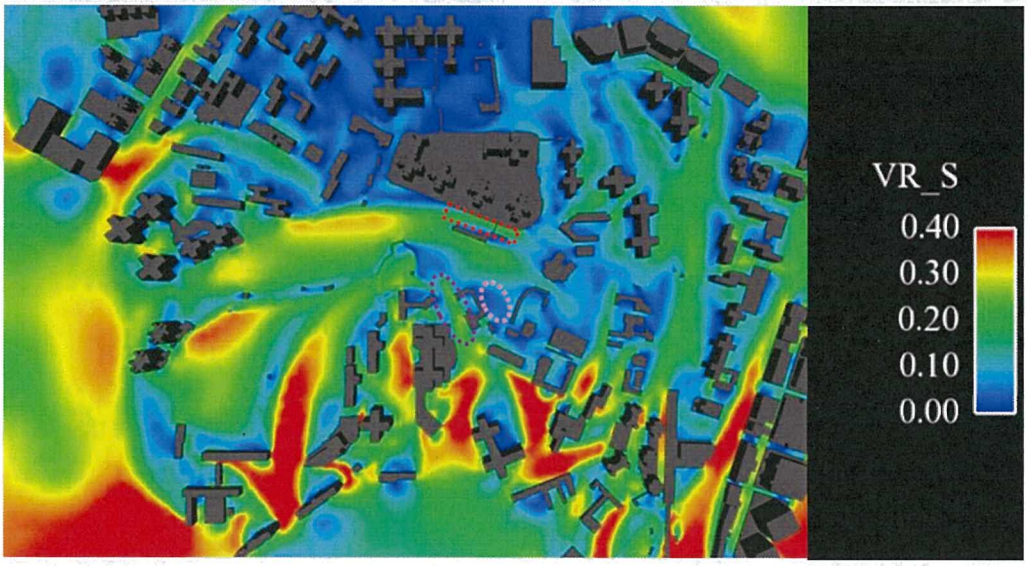


Figure 49 VR Contour Plot for the Baseline Scheme (S Wind Condition)

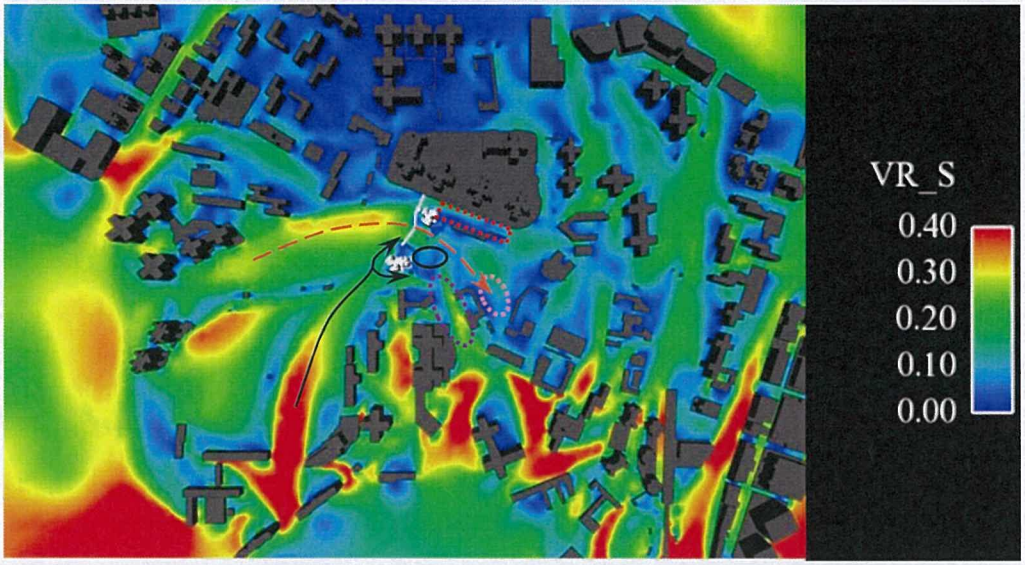


Figure 50 VR Contour Plot for the Proposed PRH Scheme (S Wind Condition)

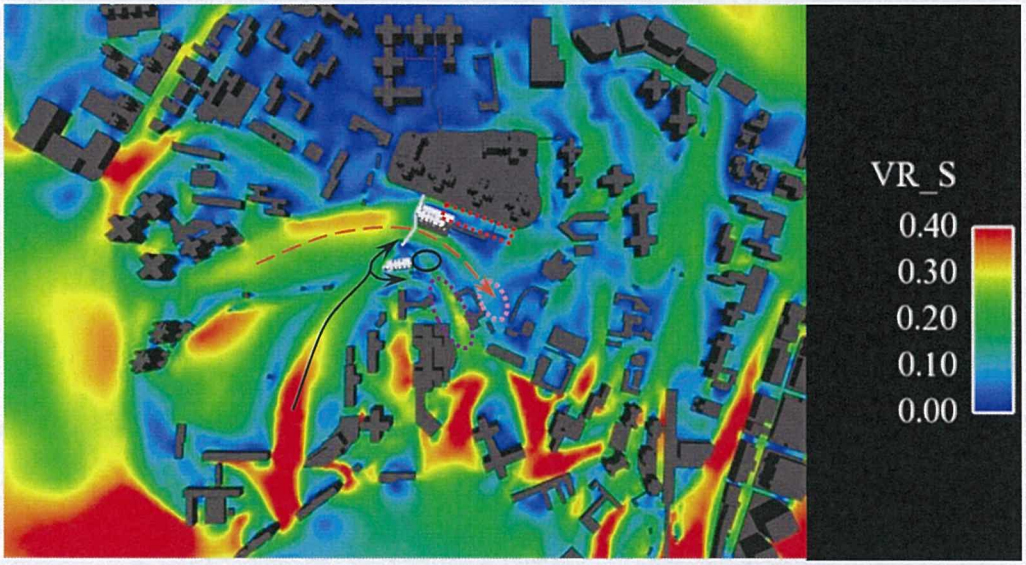


Figure 51 VR Contour Plot for the Enhanced PRH Scheme (S Wind Condition)

4.3 VR of Test Points

As specified in the Technical Circular, three ratios are to be determined to give a simple quantity to summarize the ventilation performance:

- **Site spatial average Velocity Ratio (SVR)** – This gives a hint of how the Development impacts the wind environments of its immediate vicinity. This is the average of VR values of all perimeter test points;
- **Local spatial average velocity ratio (LVR)** – This gives a hint of how the Development impacts the wind environment of the local area. This is the average of VR values of all overall and perimeter test points;

The following table summarizes the values of SVR and LVR for the three studied schemes. Results show that the SVR and LVR of all three schemes are identical.

Table 6 Comparison of the velocity ratio for Baseline, Proposed PRH and Enhanced PRH Schemes

		Baseline Scheme	Proposed PRH Scheme	Enhanced PRH Scheme
Annual Weighted	SVR	0.14	0.14	0.14
	LVR	0.15	0.15	0.15

The respective averaged SVR and LVR for the three schemes are the same (Table 6). This suggests that the Proposed PRH Scheme and Enhanced PRH Scheme, with two breezeways of 50m and 20m wide respectively, would not render adverse AVA impact to the surrounding due to effective airflow diversion with these accommodated wind channel and the relatively small building bulk compared with the existing high-rise, high density building context in the surrounding area.

Nevertheless, it should also be prudent in identifying the localized impacts to areas of interests. As such, 11 Focus Areas have been identified in Table 6 over the public realm and open spaces for appreciating the impacts from the changes in the airflow pattern.

4.4 Focus Areas

To further assess the impact of the Development on the wind environment in its vicinity, 11 Focus Areas near the Development are identified for comparison purposes and marked in Figure 52.

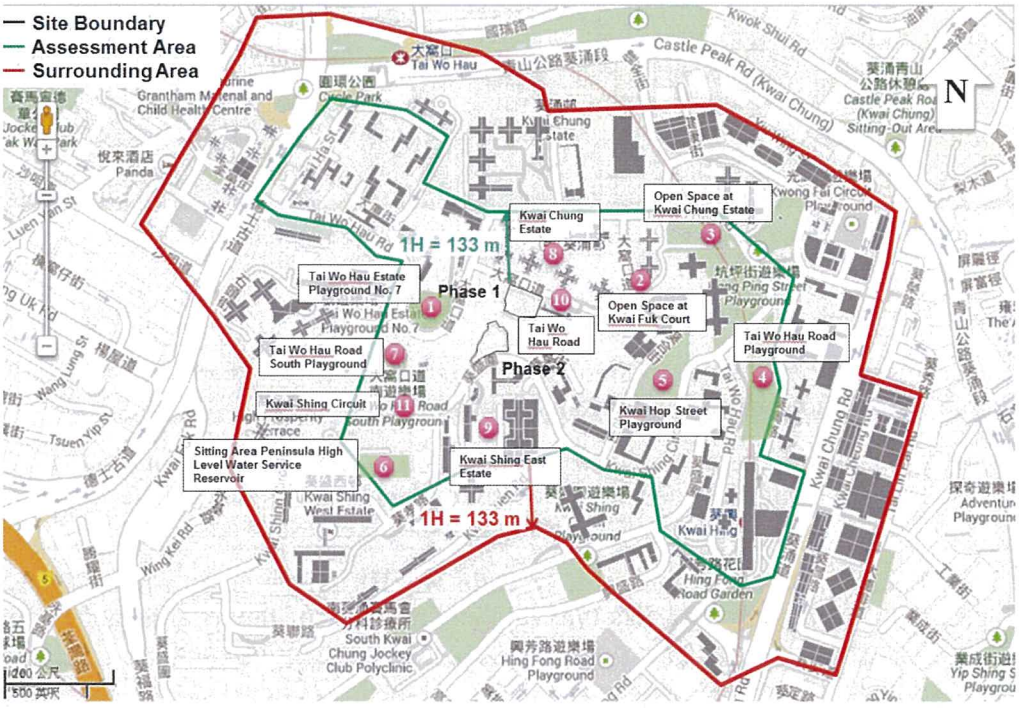


Figure 52 Locations of the Focus Areas

Table 7 Comparison of average velocity ratios for all Focus Areas for Baseline, Proposed PRH and Enhanced PRH Schemes

Focus Areas	Test Points	Baseline Case	Proposed PRH Scheme	Enhanced PRH Scheme
1. Tai Wo Hau Estate Playground No. 7	O7, O56-57	0.13	0.14	0.13
2. Open Space at Kwai Fuk Court Lok Kwai House (Tin Hau Temple)	O77-79	0.09	0.09	0.09
3. Open Space at Kwai Chung Estate (next to Ha Kwai House and Chau Kwai House)	O80-88	0.29	0.29	0.29
4. Tai Wo Hau Road Playground	O31-35, O131	0.24	0.24	0.24
5. Kwai Hop Street Playground	O93-95	0.16	0.15	0.15
6. Sitting out area next to Peninsula High Level Salt Water Service Reservoir	O134-135	0.13	0.10	0.11
7. Tai Wo Hau Road South Playground	O103-105	0.14	0.13	0.13
8. Kwai Chung Estate	O66-78	0.12	0.13	0.13
9. Kwai Shing East Estate	O138-144	0.15	0.15	0.15
10. Tai Wo Hau Road	O12-18	0.12	0.13	0.14
11. Kwai Shing Circuit	O106-116, O121-125	0.15	0.16	0.15

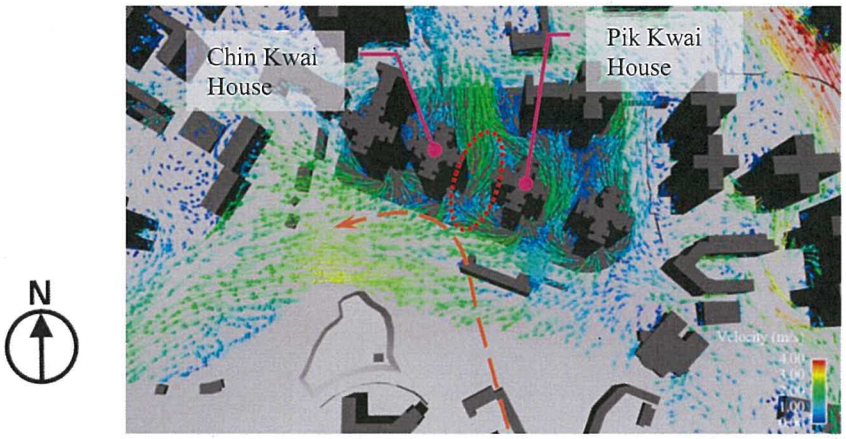
Despite not having any high rise building on the Development site, the Baseline Case has better wind performance than the Proposed PRH and Enhanced PRH schemes at three Focus Areas (#5, #6, and #7) which are public open spaces. The Proposed PRH Scheme improves upon the Baseline Scheme at four Focus Areas (#1, #8, #10, and #11).

The improvement at Tai Wo Hau Road (#10) is to downwash effect from wind encountering Phase 1 from northerly to easterly wind directions as discussed in Section 4.2.

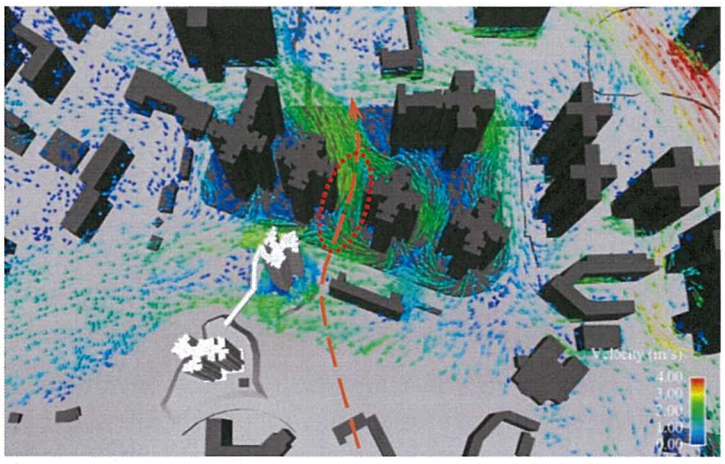
Similarly, the slight improvement at Kwai Shing Circuit (#11) can be attributed to downwash from E, ESE, SE and SSE wind encountering Phase 2 and redirecting to the pedestrian level.

The improvement at Tai Wo Hau Estate Playground No. 7 (#1) is due to wind deflection by the Phase 1 Block under the more frequent NE wind as discussed in Section 4.2.2.

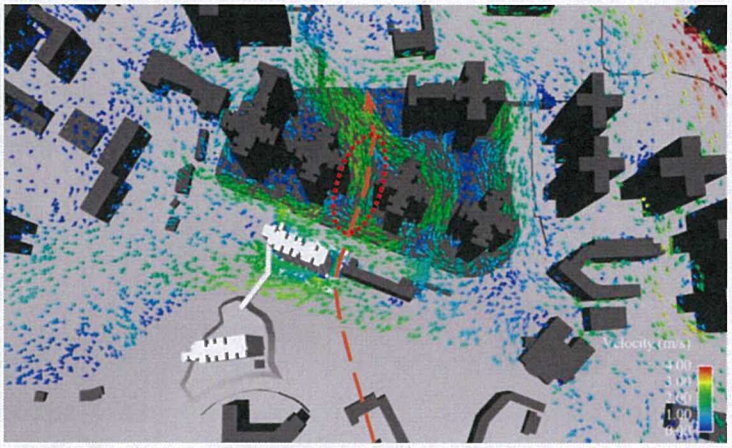
For Kwai Chung Estate (#8), the Phase 1 Block of the Proposed PRH Scheme diverts more wind flow from the southeastern quadrant to the building gap between Chin Kwai House and Pik Kwai House of the Estate (red dotted region), while in the Baseline Scheme some of the wind hits the Chin Kwai House and deflected to the west region (Figure 53). Similar phenomenon is also found for the Enhanced PRH Scheme.



(a) Baseline Scheme



(b) Proposed PRH Scheme



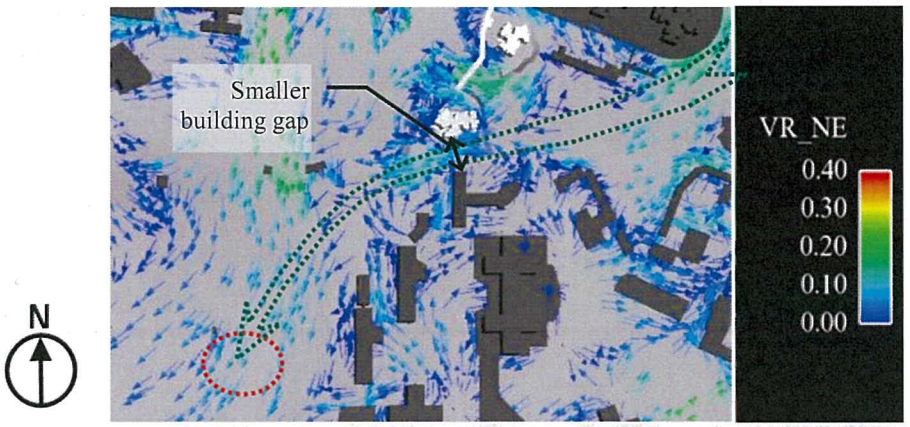
(c) Enhanced PRH Scheme

Figure 53 Comparison of airflow pattern under SSE wind at the Kwai Chung Estate between the Baseline Scheme, Proposed PRH Scheme and Enhanced PRH Scheme

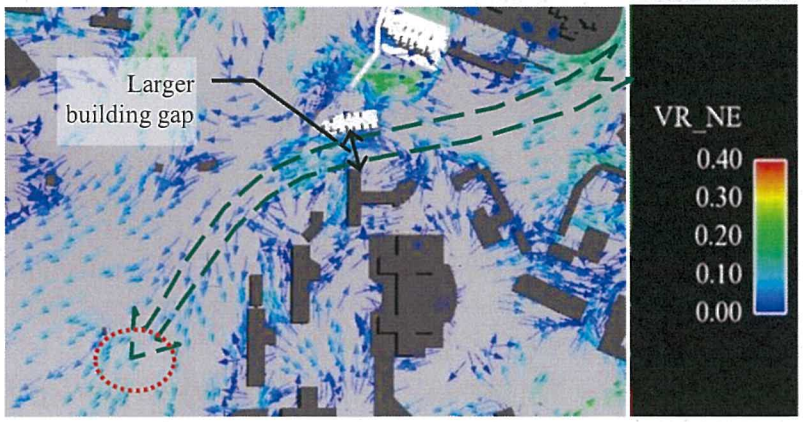
The Enhanced PRH Scheme has slightly worse ventilation performance at Tai Wo Hau Estate Playground No.7 (#1) and Kwai Shing Circuit (#11) than the Proposed PRH Scheme. For the former, the reduced ventilation is due to wind shadowing effect by the Development under E and ESE Wind. For the latter, the difference is due to more significant wind shadowing effect by the Enhanced PRH Scheme under NNE wind as discussed in Section 4.2.1.

The Enhanced PRH Scheme outperforms the Proposed PRH Scheme at the Sitting Out Area next to Peninsula High Level Salt Water Service Reservoir (#6) and Tai Wo Hau Road (#10). For the latter, it is due to the linear built form of the Phase 1 Block which makes the wind channelling effect from northerly to easterly directions more significant.

For Focus Area 6 – the Sitting Out Area next to Peninsula High Level Salt Water Service Reservoir (red dotted region in Figure 54), differences between the Enhanced PRH Scheme and Proposed PRH Scheme are actually noticeable under NE wind. The linear building layout of the Phase 2 Block of the Enhanced PRH Scheme creates a comparatively larger building gap between Phase 2 and Shing Wo House of the Kwai Shing East Estate compared with the Proposed PRH Scheme, which leads to smoother air penetration to the Sitting Out Area.



(a) Proposed PRH Scheme



(b) Enhanced PRH Scheme

Figure 54 Comparison of wind flow patterns between the Proposed PRH Scheme and Enhanced PRH Scheme under NE wind condition

In the other 7 Focus Areas, the Proposed PRH Scheme and the Enhanced PRH Scheme have the same wind performance.

5 Conclusion

An Air Ventilation Assessment (AVA) Initial Study was conducted to assess the ventilation performance of the proposed Public Rental Housing estate at Tai Wo Hau and immediate surroundings of the sites in accordance with the Technical Circular No. 1/06, Environment, "Transport and Works Bureau – Technical Circular No. 1/06" both issued on 19th July 2006 and Annex A of Technical Circular – Technical Guide for Air Ventilation Assessment for Development in Hong Kong".

Three schemes – Baseline Scheme, Proposed PRH Scheme and Enhanced PRH Scheme were assessed using Computational Fluid Dynamics (CFD) techniques. A series of CFD simulations using Realizable k-ε turbulence model were performed with reference to the Air Ventilation Assessment (AVA) methodology for Initial Study as stipulated in the Technical Circular. Eight wind directions were considered to investigate the wind performance under annual conditions: NNE, NE, ENE, E, ESE, SE and SSE which cover 79.4% of annual wind availability. The effect of surrounding buildings and the hilly terrain on the wind flow pattern were studied.

The Velocity Ratio (VR) as proposed by the Technical Circular was employed to assess the ventilation performance of the Proposed Development under different schemes and its impact to the surroundings. With reference to the Technical Guide, 44 perimeter test points and 144 overall test points were selected to assess the ventilation performance of the Developments. Upon CFD simulation, the Baseline, Proposed PRH and Enhanced PRH schemes achieve the same measurable ventilation performances in terms of SVR and LVR.

Table 8 Summary of AVA Results

		Baseline Scheme	Proposed PRH Scheme	Enhanced PRH Scheme
Annual Weighted	SVR	0.14	0.14	0.14
	LVR	0.15	0.15	0.15

It is clear from the study that there is little to distinguish the performances of the Baseline Scheme, the Proposed PRH Scheme and the Enhanced PRH Scheme. Despite differences in their development plans, the three schemes have the same SVR and LVR results. While the Baseline Scheme, being without any high-rise development on the site, has a noticeably different wind distribution from the other two schemes, it still has the same SVR and LVR.

In terms of Focus Areas, the Baseline Scheme outperforms both the Proposed PRH Scheme and Enhanced PRH Scheme at 3 Focus Areas, whereas the Enhanced PRH Scheme outperforms the Proposed PRH Scheme in two areas while underperforming in other two. The major breezeway along the E-W axis recommended in the Report of Expert Evaluation on Air Ventilation Assessment of Kwai Chung Area is reserved. Nonetheless, surrounding developments, including the Kwai Chung Estate to the north and northeast of the site, the Kwai Shing Estate to the south, and the mountainous topography are the dominant factors influencing the regional wind environment, overshadowing the effects of this proposed Development.

Appendix A

Architectural Drawings for Proposed and Enhanced PRH Schemes

A1 Proposed PRH Scheme Architectural Drawings

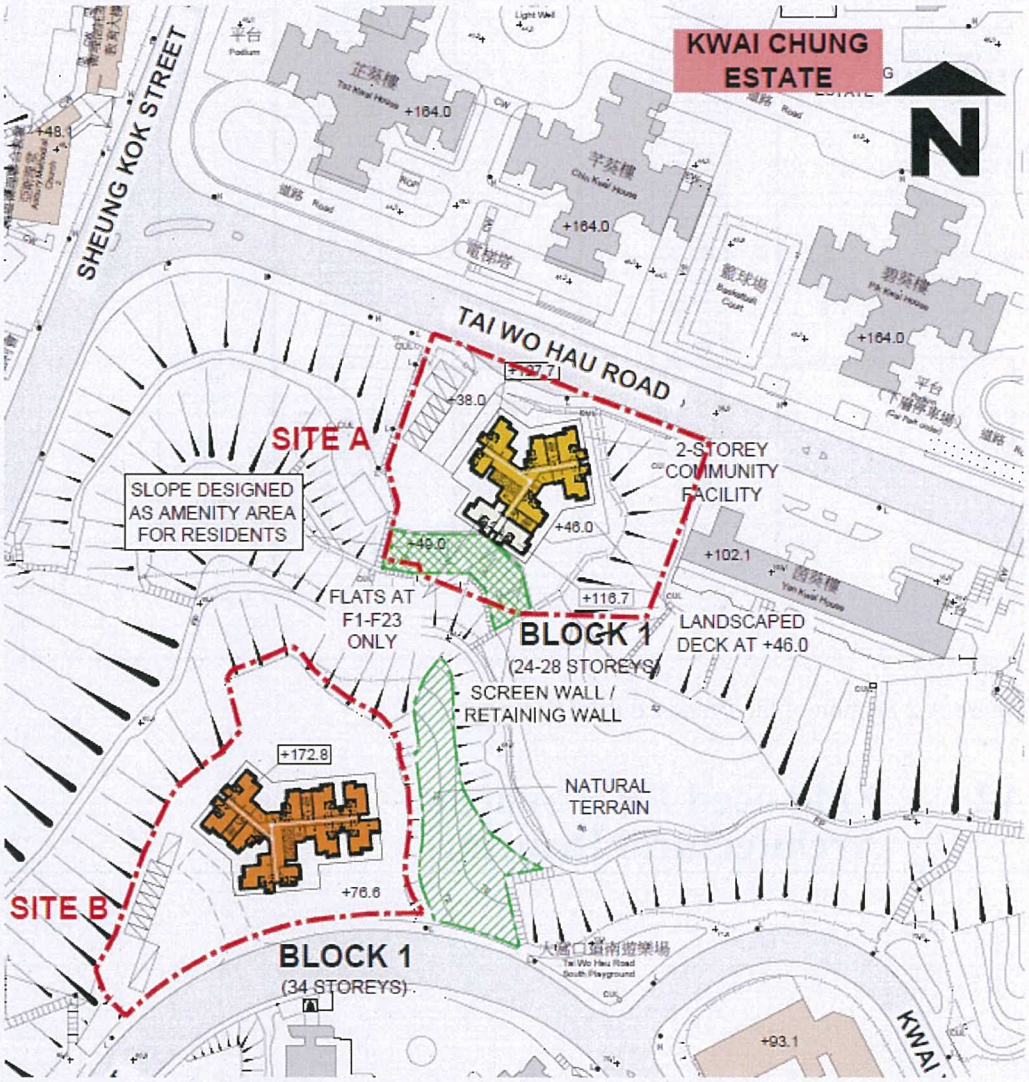


Figure A 1 Master Layout Plan of the Proposed PRH Scheme

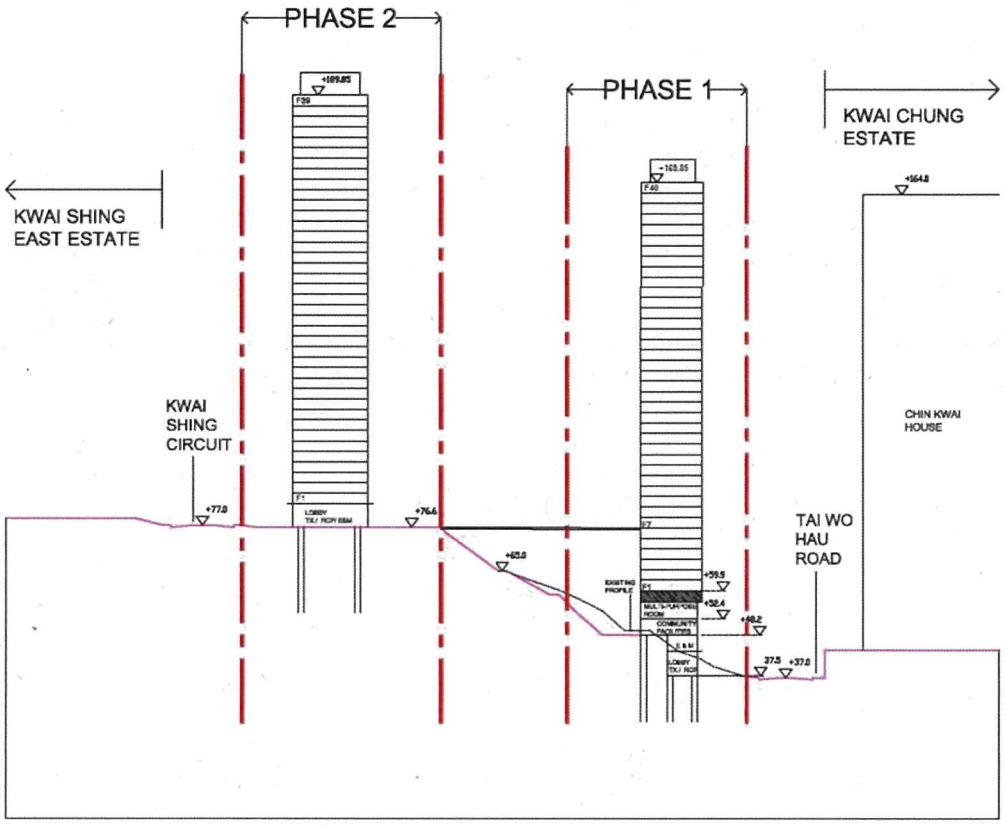


Figure A 2 Section of the Proposed PRH Scheme

A2 Enhanced PRH Scheme – Phase 1 Architectural Drawings

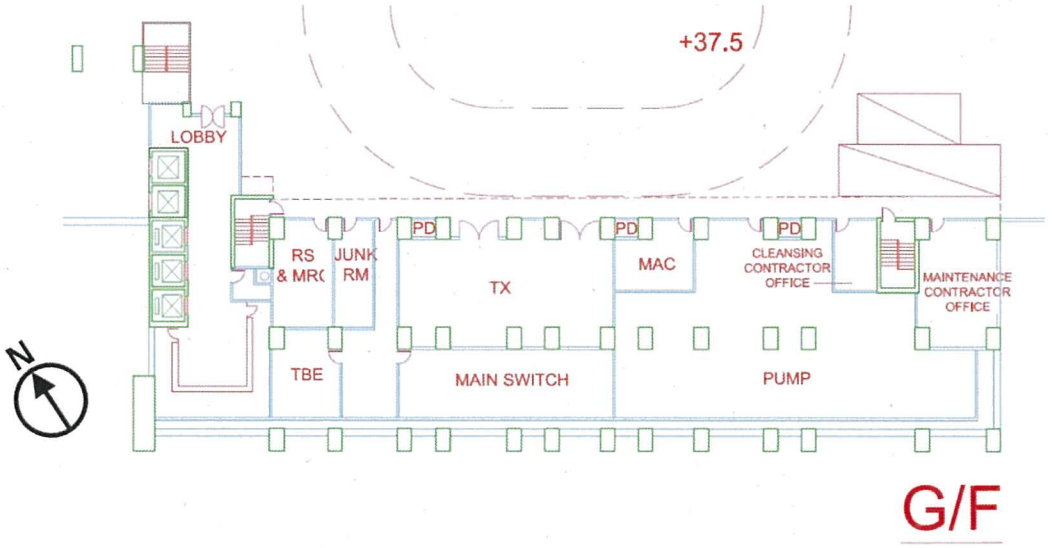


Figure A 3 G/F of Enhanced PRH Scheme Phase 1

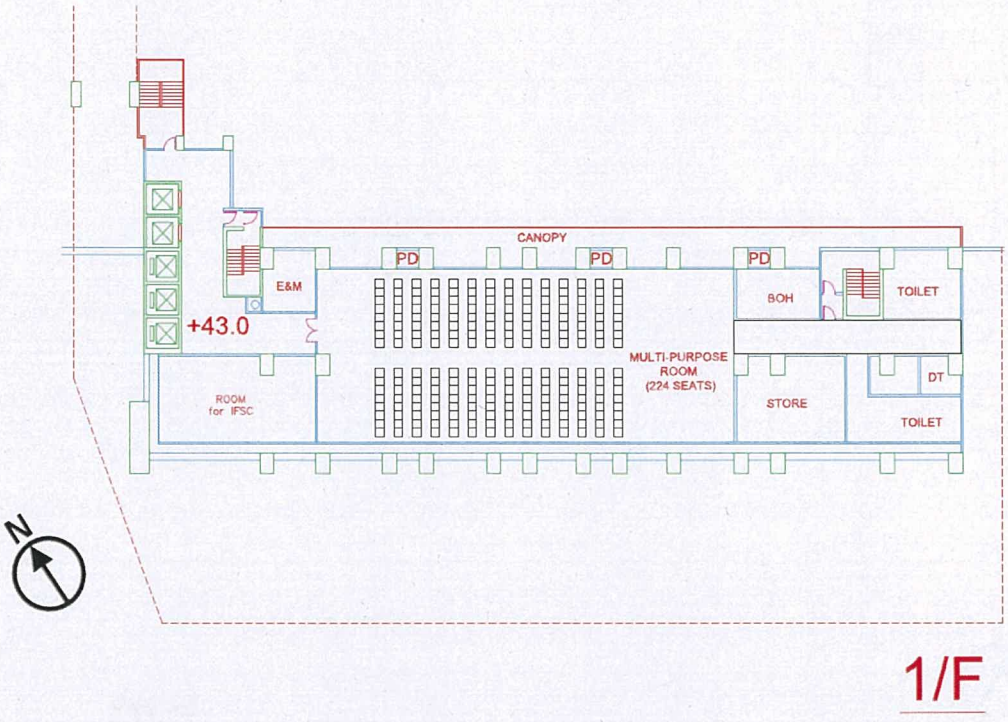


Figure A 4 1/F of Enhanced PRH Scheme Phase 1

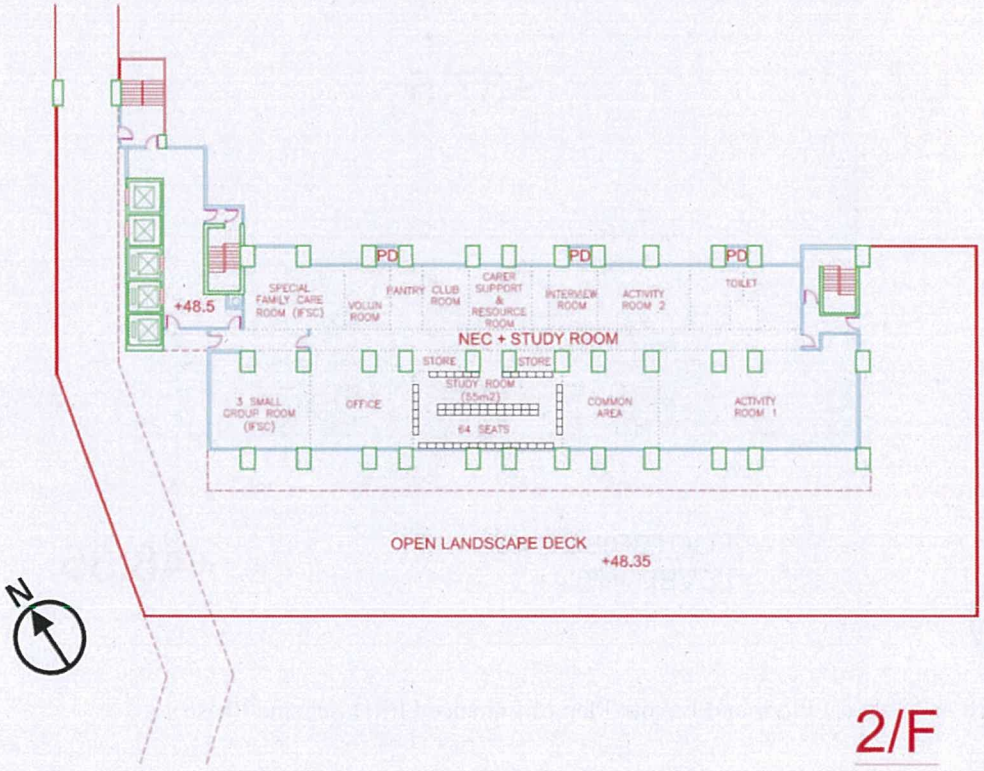


Figure A 5 2/F of Enhanced PRH Scheme Phase 1

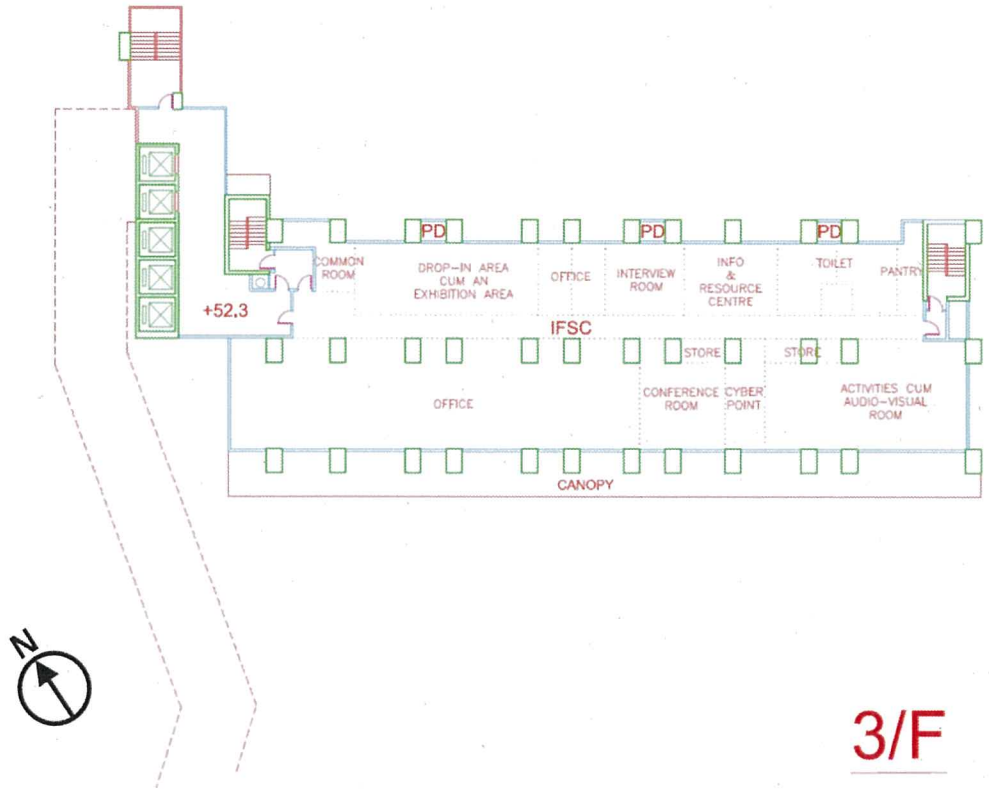


Figure A 6 3/F of Enhanced PRH Scheme Phase 1

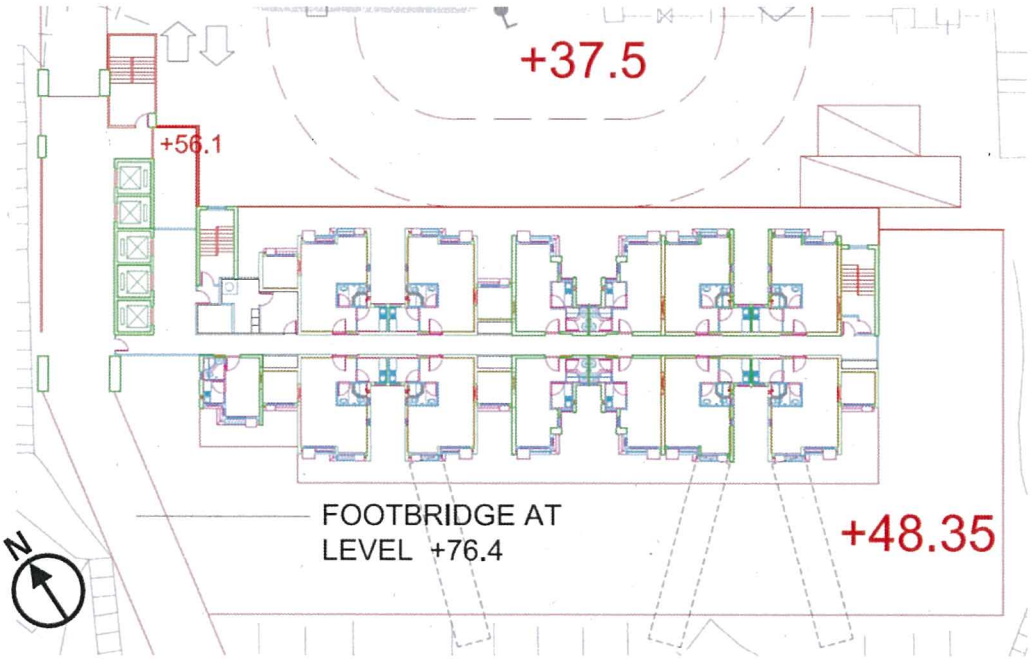


Figure A 7 Typical Floor and Layout Plan of Enhanced PRH Scheme Phase 1

A3 Enhanced PRH Phase 2 Architectural Drawings

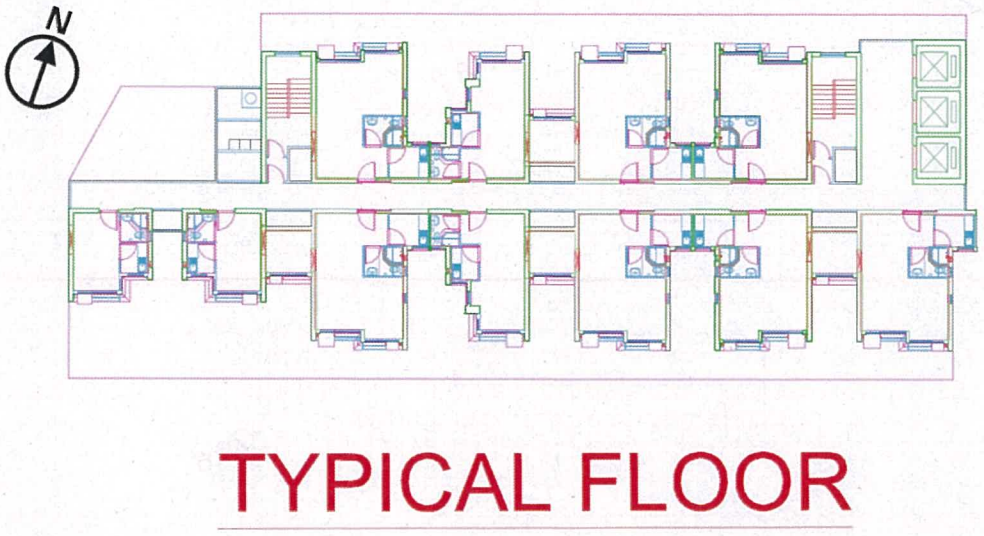


Figure A 8 Typical Floor Plan of Enhanced PRH Scheme Phase 2

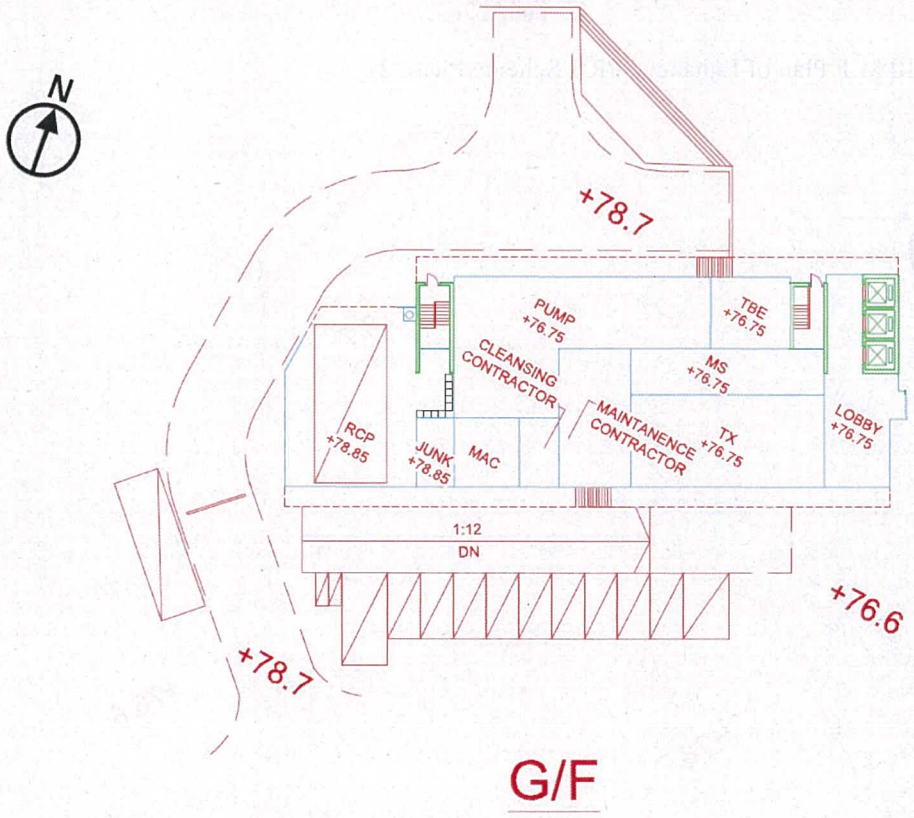


Figure A 9 G/F Plan of Enhanced PRH Scheme Phase 2

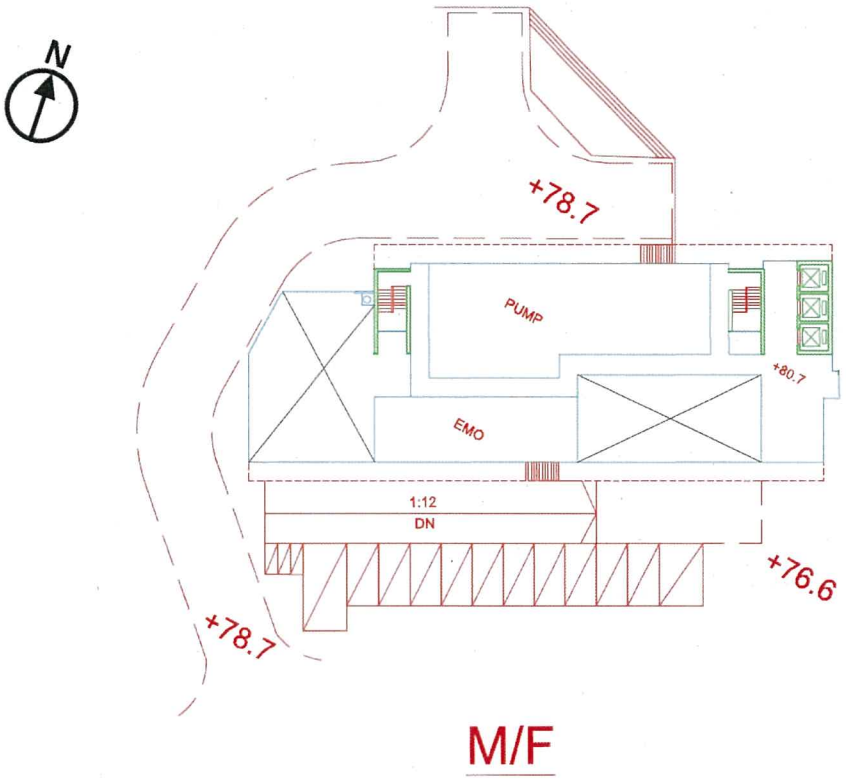


Figure A 10 M/F Plan of Enhanced PRH Scheme Phase 2

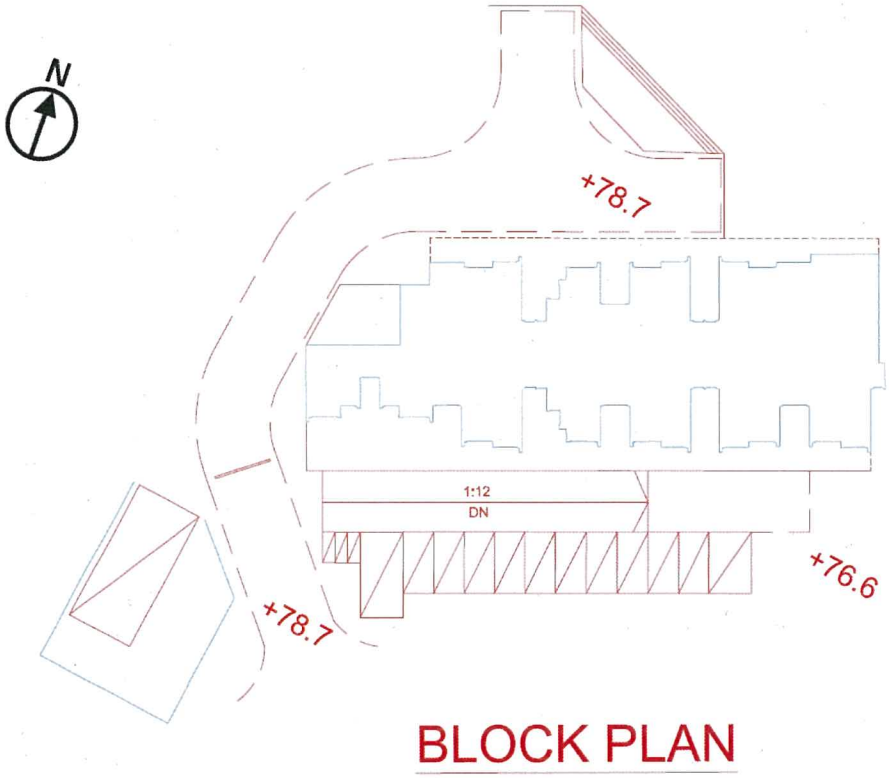


Figure A 11 Plan of Enhanced PRH Scheme Phase 2

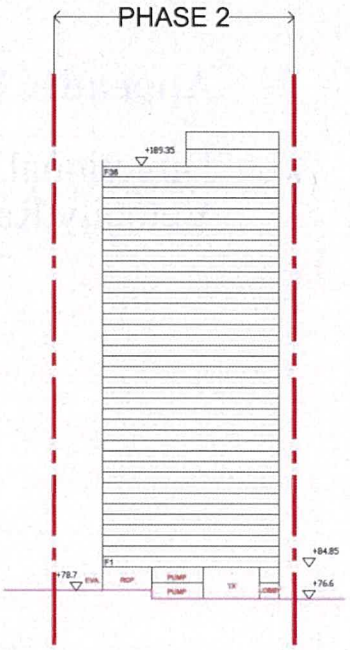


Figure A 12 Section Plan of Enhanced PRH Scheme Phase 2

Appendix B

Directional Contour Plots of Velocity Ratio

B1 NNE Wind

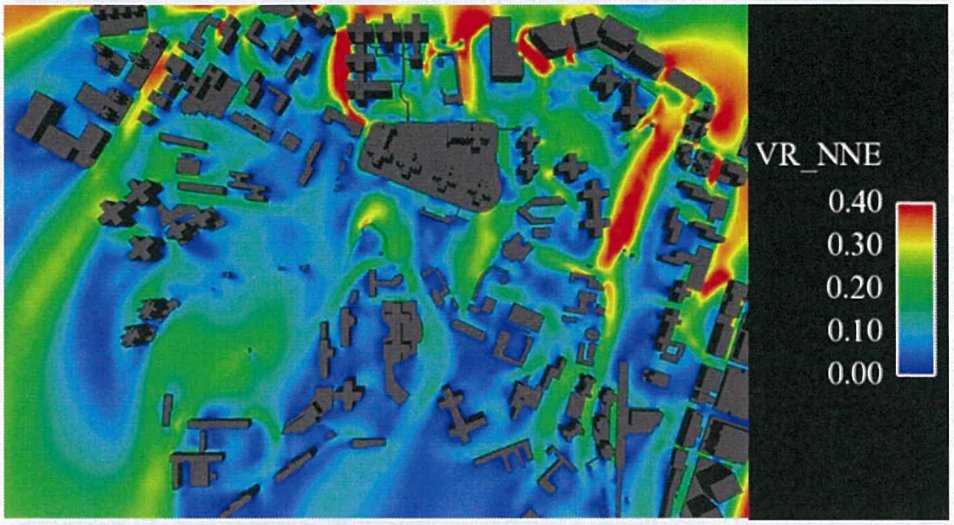


Figure B 1 VR contour plot of Baseline Scheme

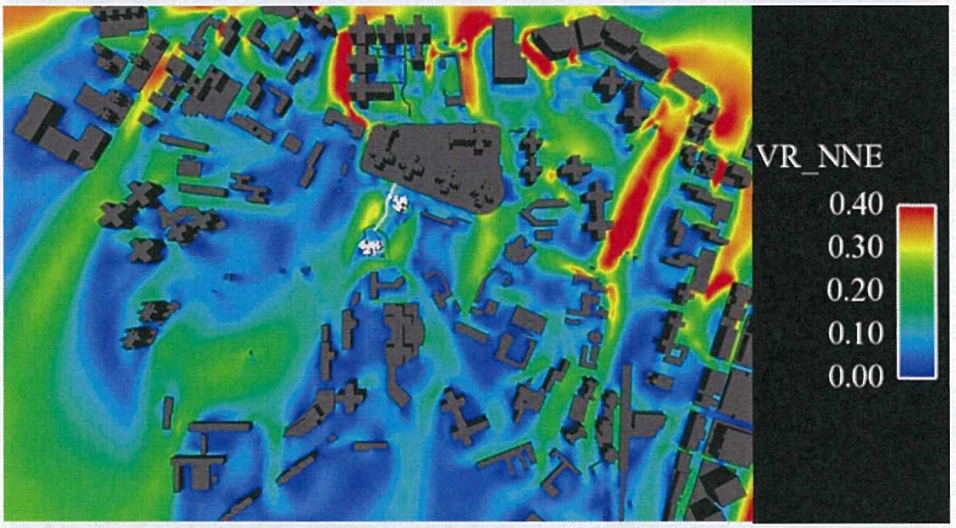


Figure B 2 VR contour plot of Proposed PRH Scheme

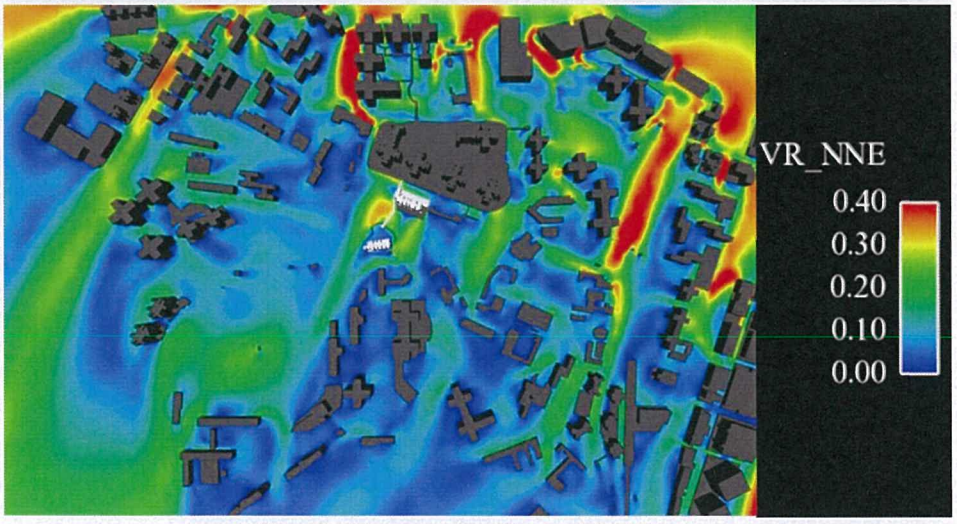


Figure B 3 VR contour plot of Enhanced PRH Scheme

B2 NE Wind

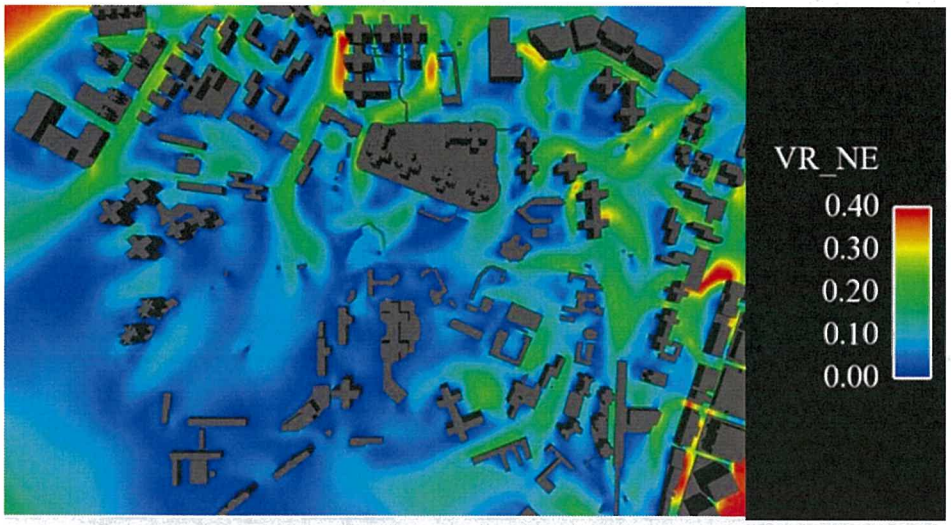


Figure B 4 VR contour plot of Baseline Scheme

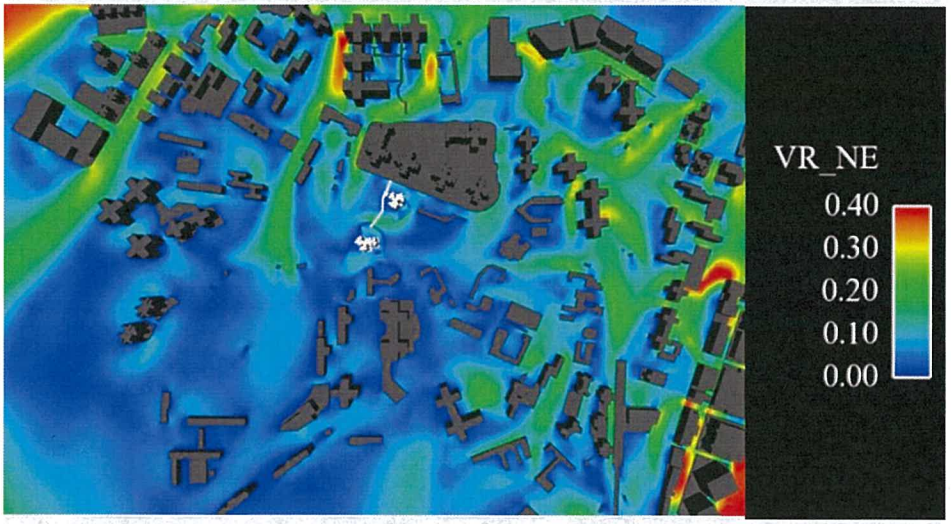


Figure B 5 VR contour plot of Proposed PRH Scheme

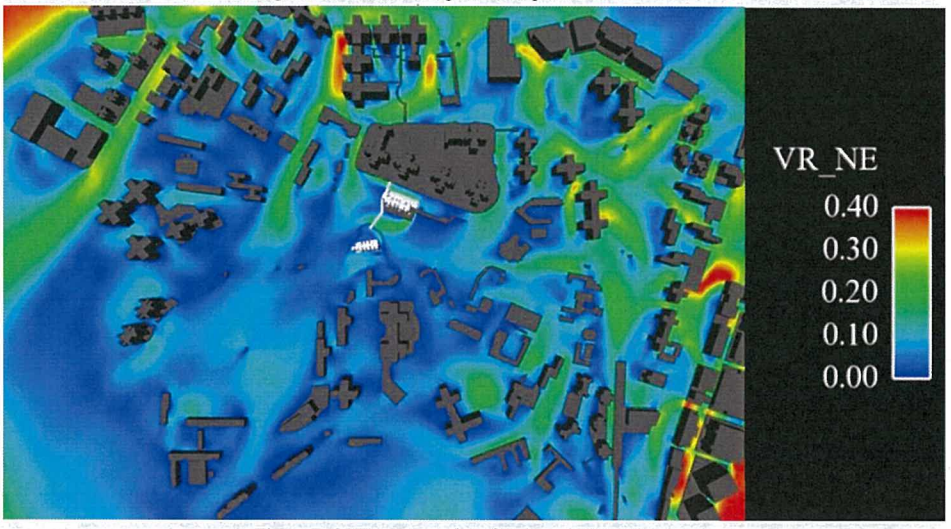


Figure B 6 VR contour plot of Enhanced PRH Scheme

B3 ENE Wind

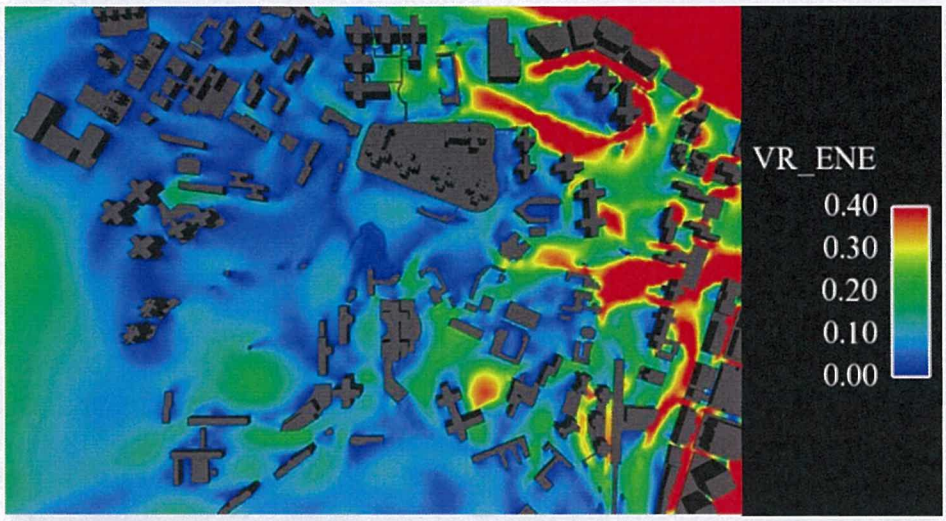


Figure B 7 VR contour plot of Baseline Scheme

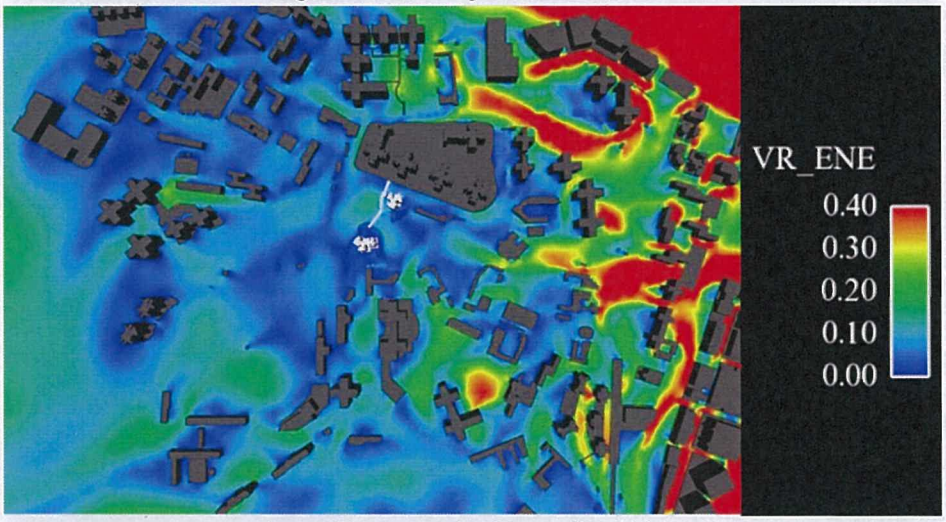


Figure B 8 VR contour plot of Proposed PRH Scheme

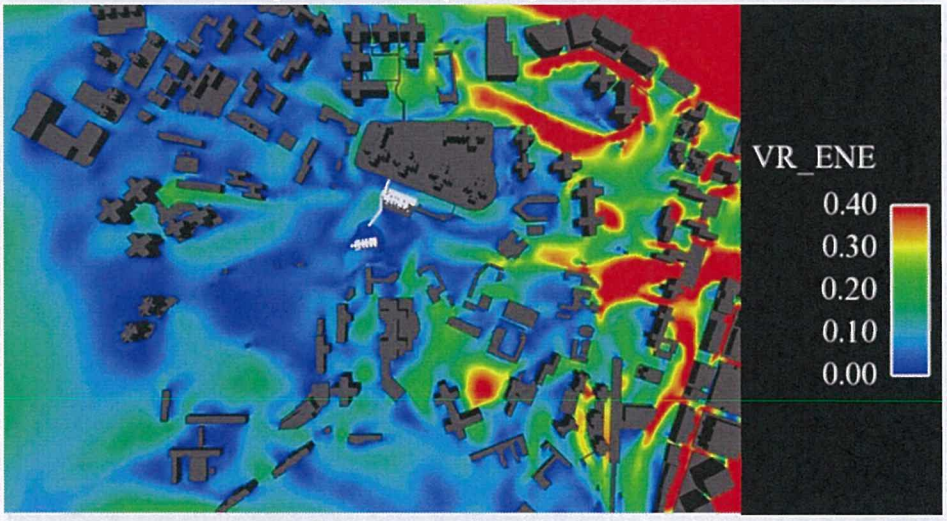


Figure B 9 VR contour plot of Enhanced PRH Scheme

B4 E Wind

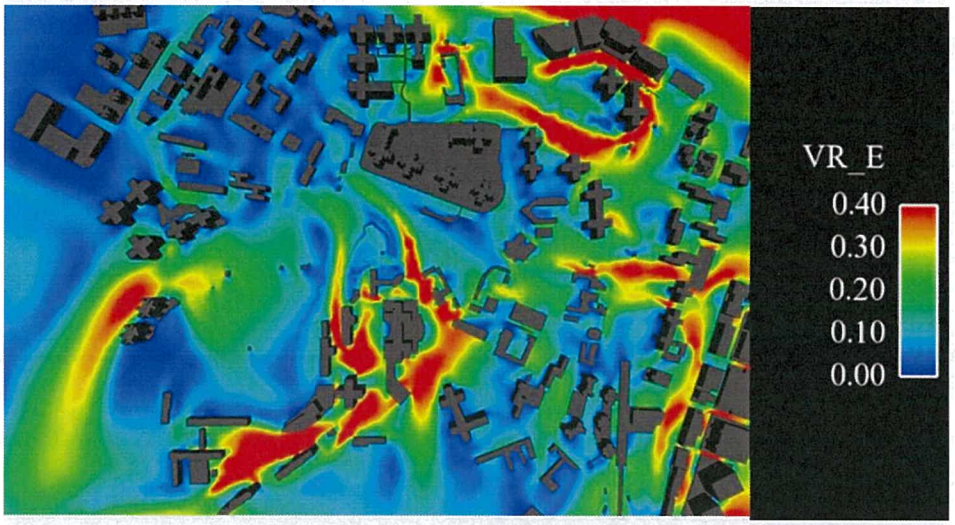


Figure B 10 VR contour plot of Baseline Scheme

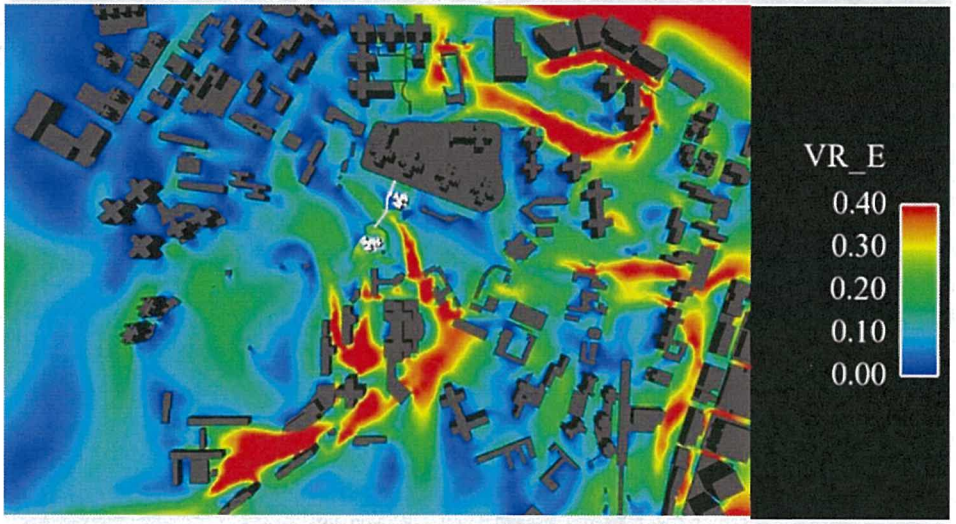


Figure B 11 VR contour plot of Proposed PRH Scheme

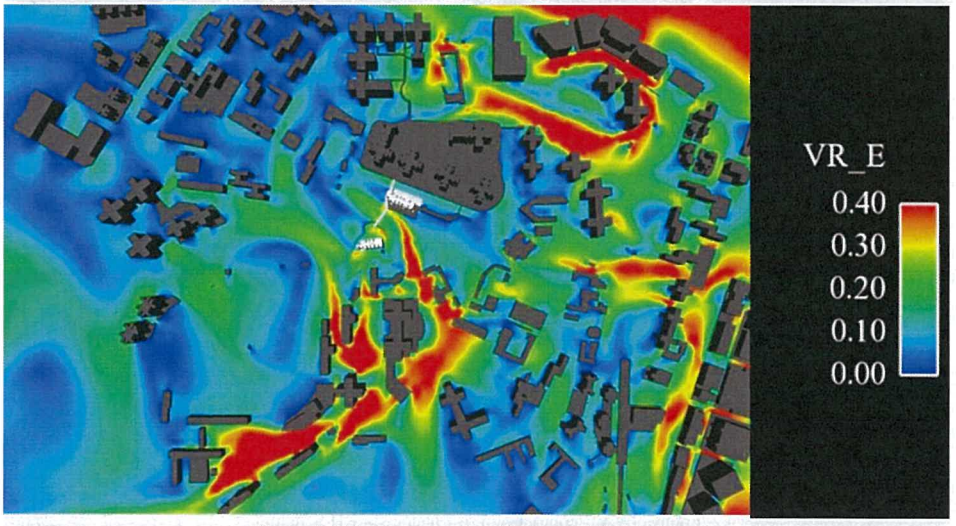


Figure B 12 VR contour plot of Enhanced PRH Scheme

B5 ESE Wind

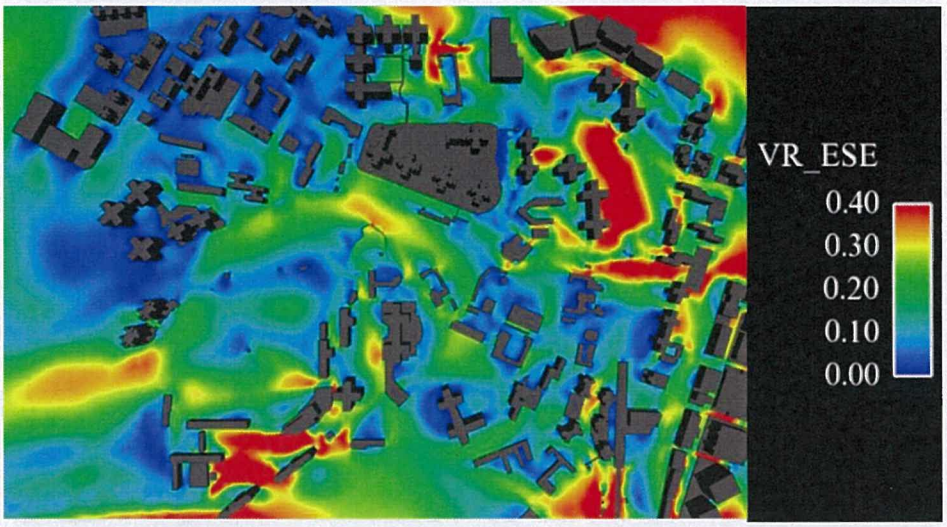


Figure B 13 VR contour plot of Baseline Scheme

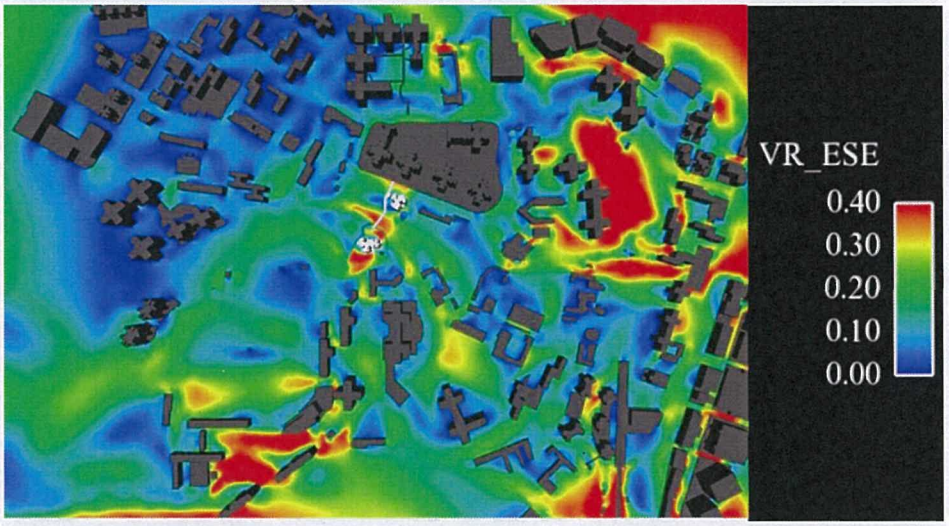


Figure B 14 VR contour plot of Proposed PRH Scheme

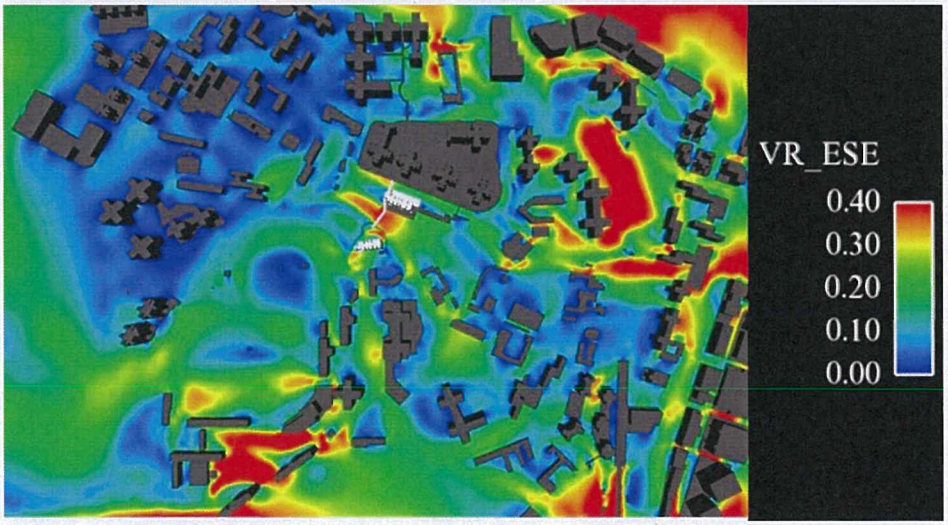


Figure B 15 VR contour plot of Enhanced PRH Scheme

B6 SE Wind

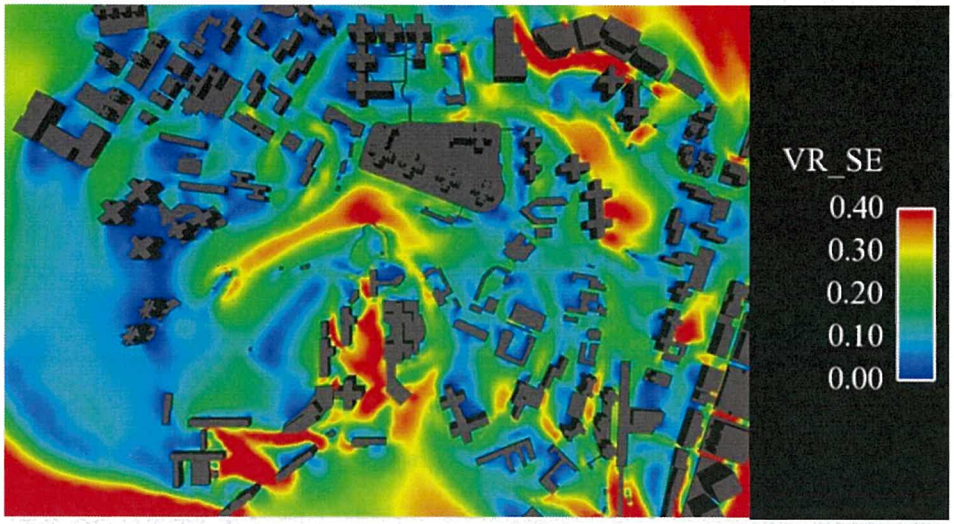


Figure B 16 VR contour plot of Baseline Scheme

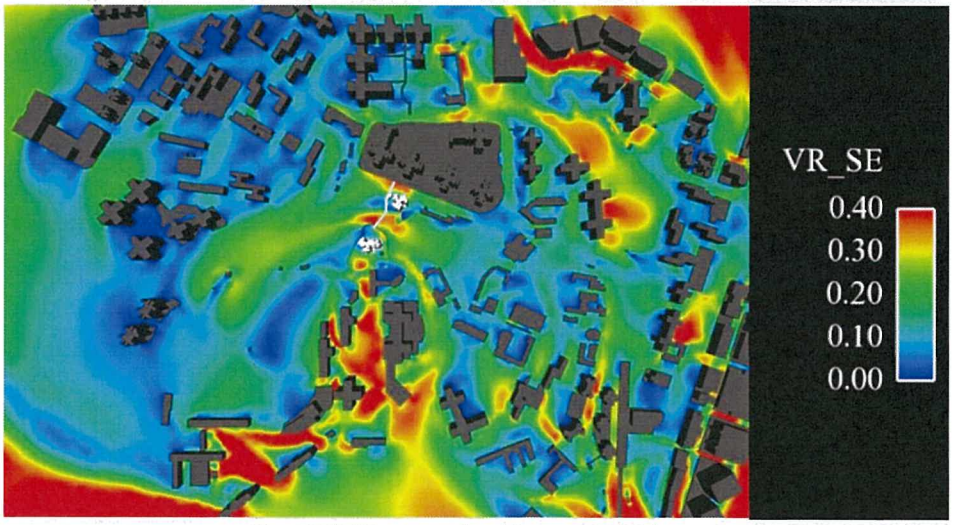


Figure B 17 VR contour plot of Proposed PRH Scheme

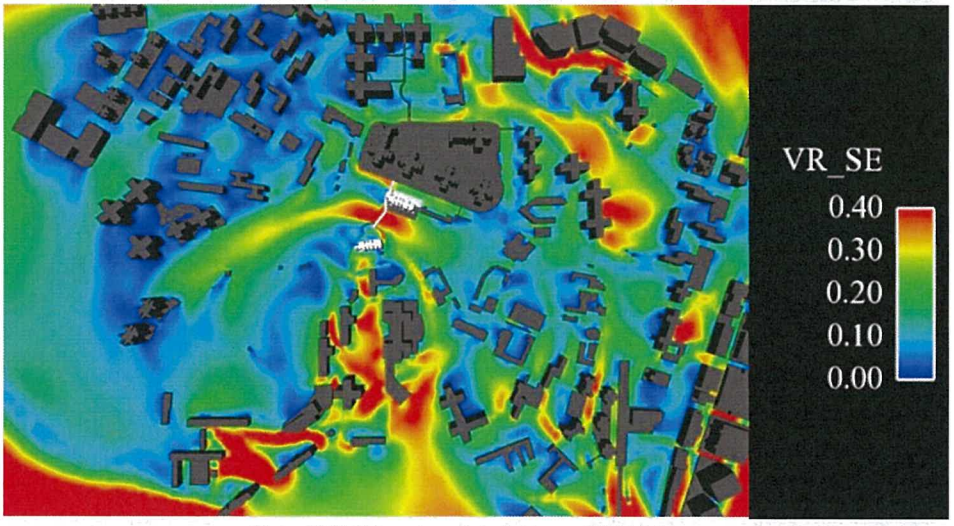


Figure B 18 VR contour plot of Enhanced PRH Scheme

B7 SSE Wind

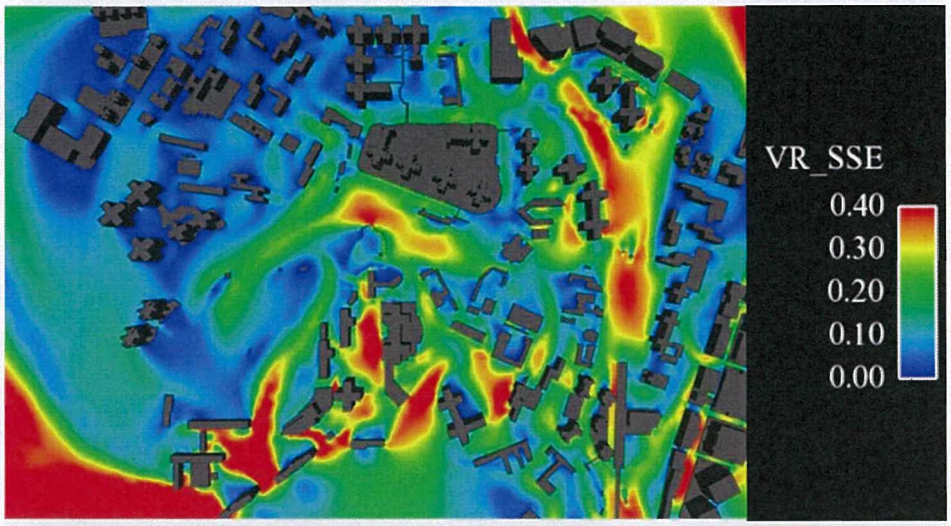


Figure B 19 VR contour plot of Baseline Scheme

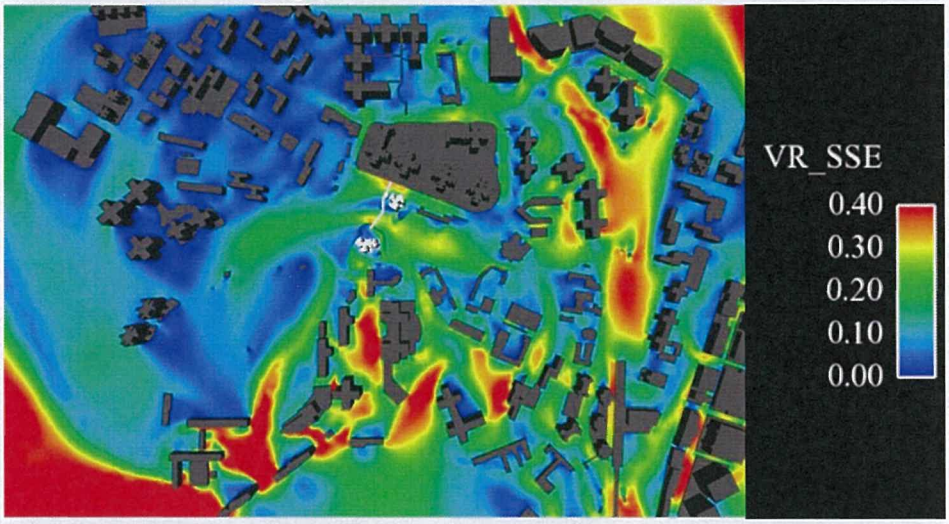


Figure B 20 VR contour plot of Proposed PRH Scheme

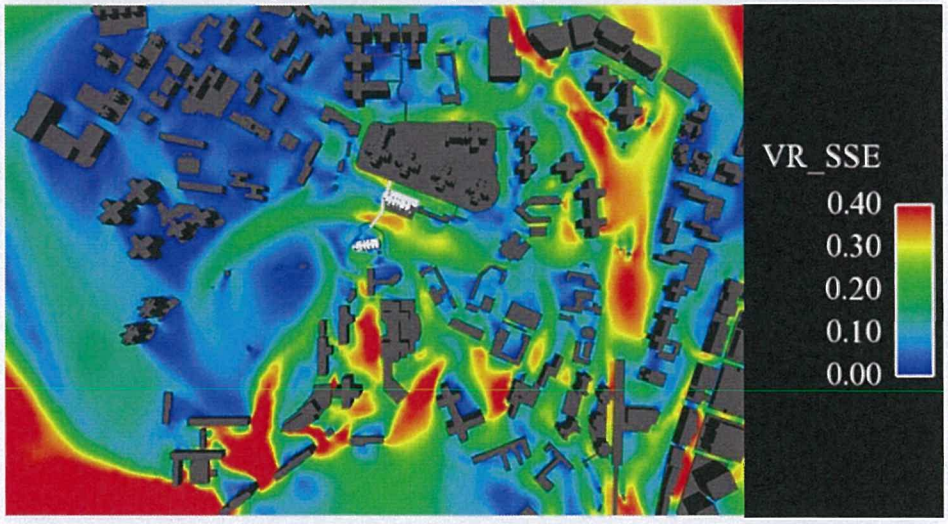


Figure B 21 VR contour plot of Enhanced PRH Scheme

B8 S Wind

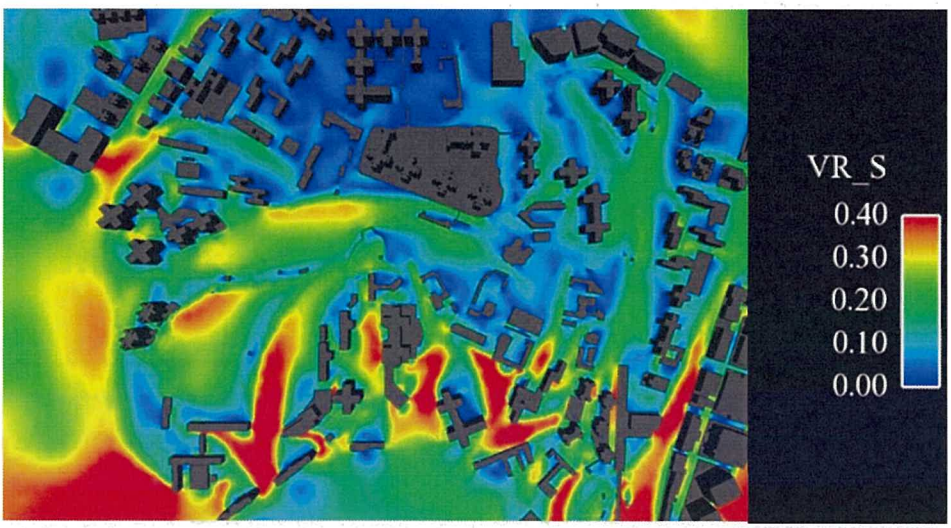


Figure B 22 VR contour plot of Baseline Scheme

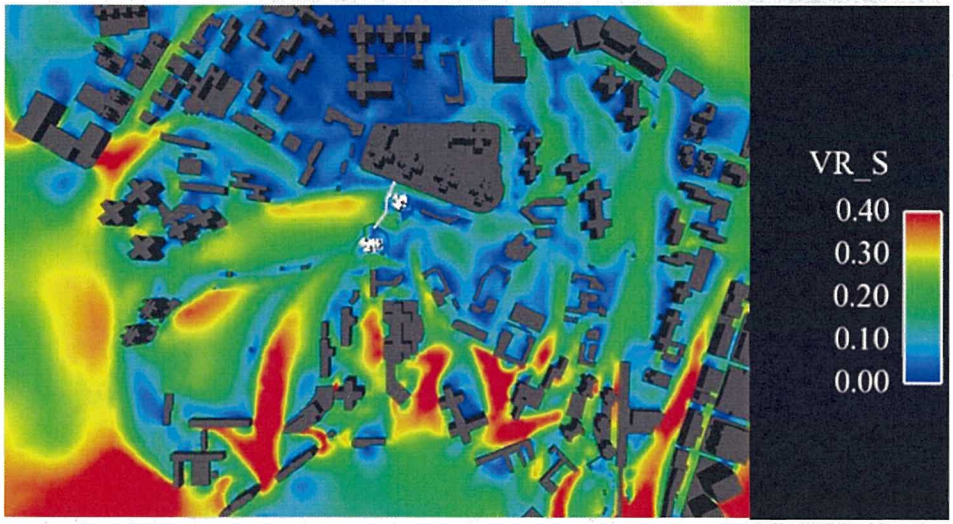


Figure B 23 VR contour plot of Proposed PRH Scheme

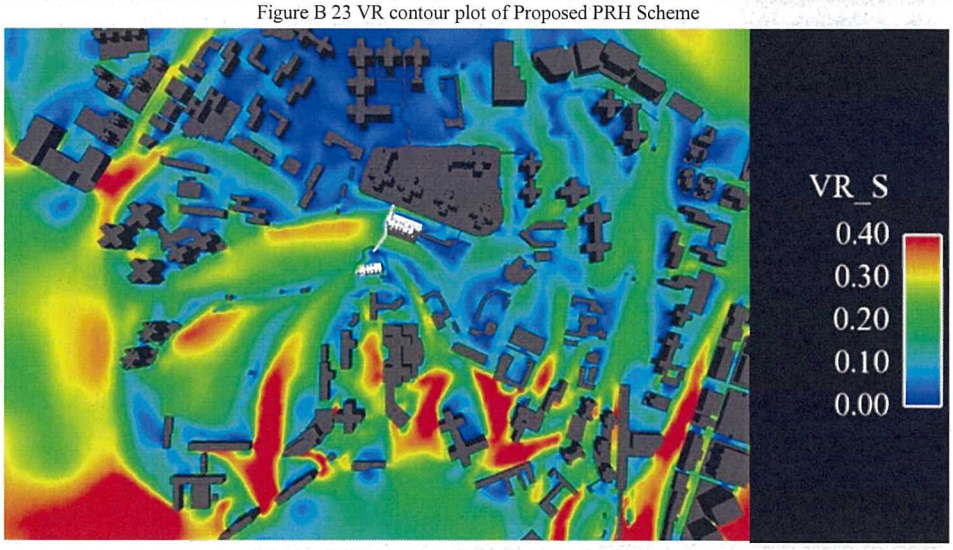


Figure B 24 VR contour plot of Enhanced PRH Scheme

B9 Annual Averaged

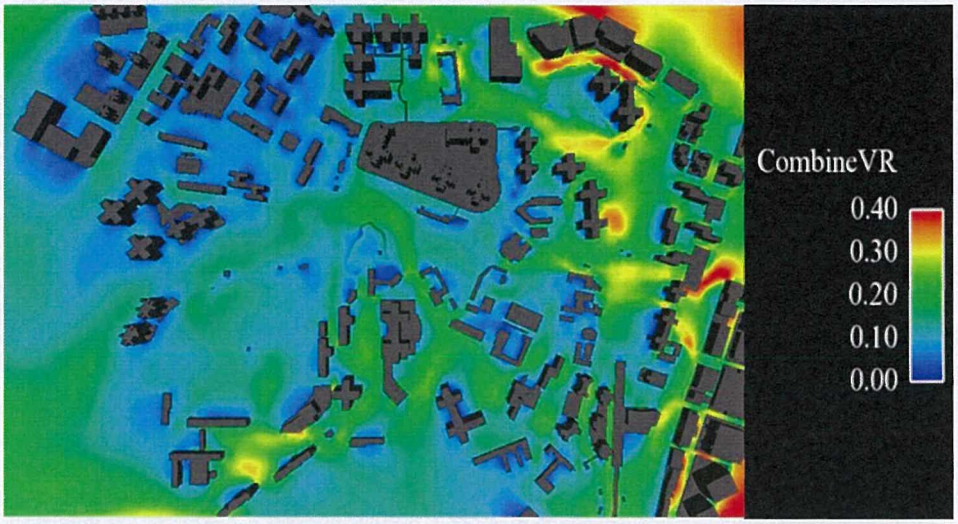


Figure B 25 VR contour plot of Baseline Scheme

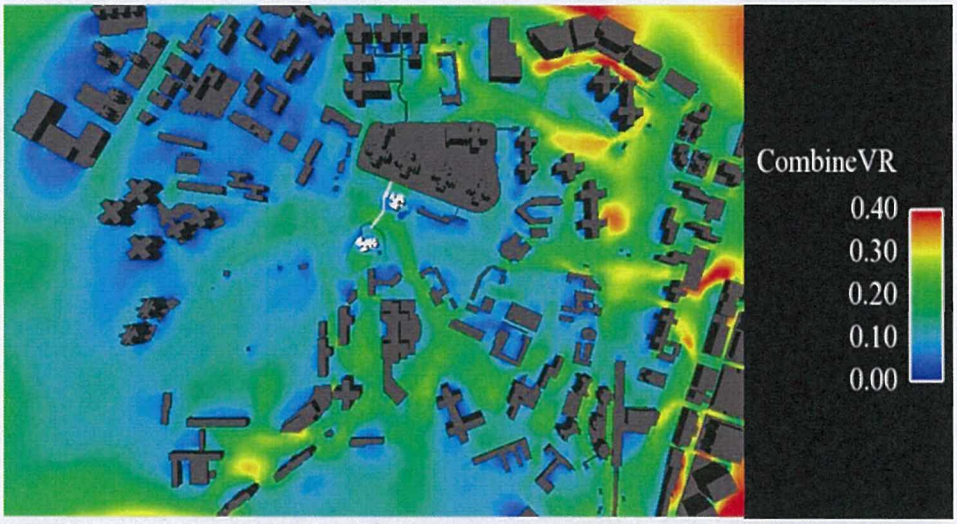


Figure B 26 VR contour plot of Proposed PRH Scheme

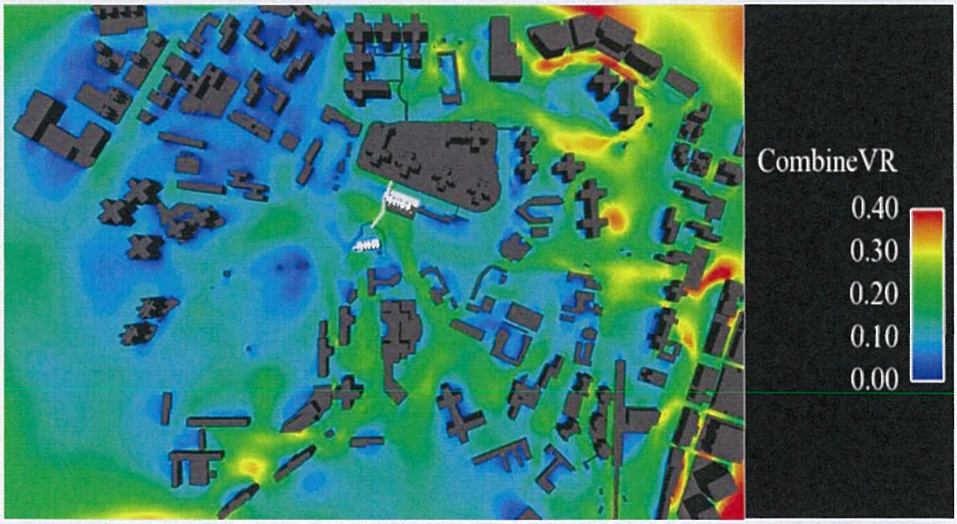


Figure B 27 VR contour plot of Enhanced PRH Scheme

Appendix C

Directional Vector Plots

C1 NNE Wind

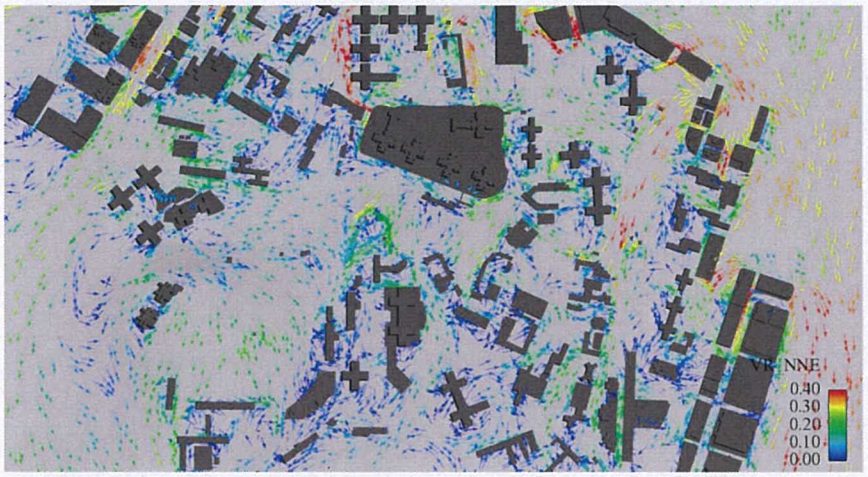


Figure C 1Vector plot of Baseline Scheme

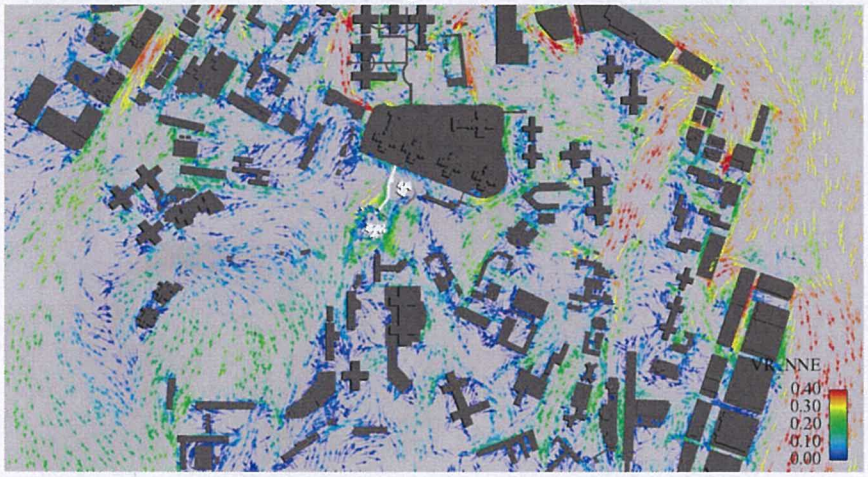


Figure C 2 Vector plot of Proposed PRH Scheme

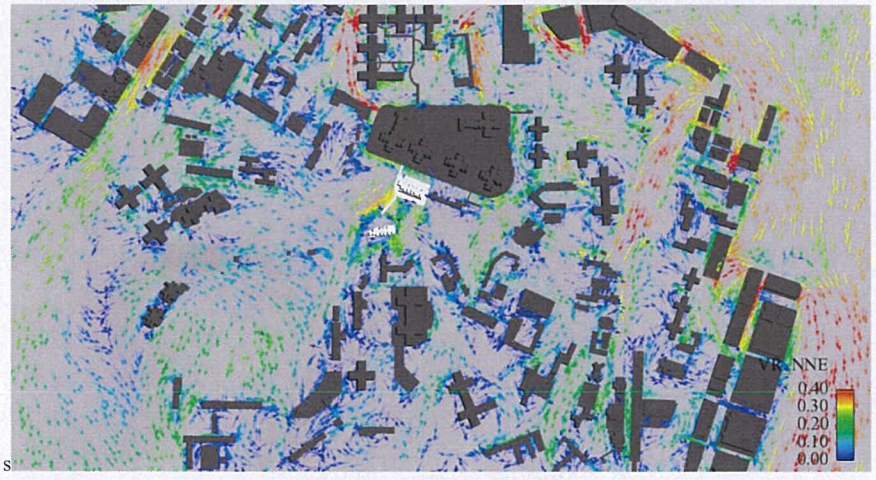


Figure C 3 Vector plot of Enhanced PRH Scheme

C2 NE Wind

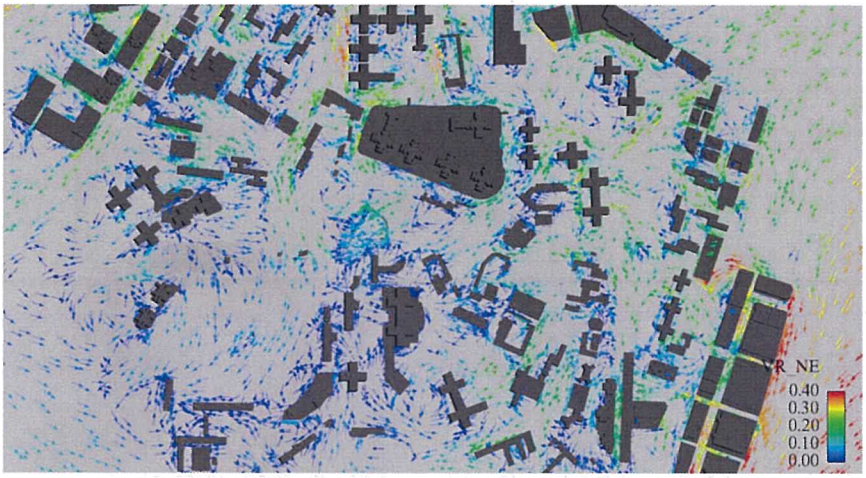


Figure C 4 Vector plot of Baseline Scheme

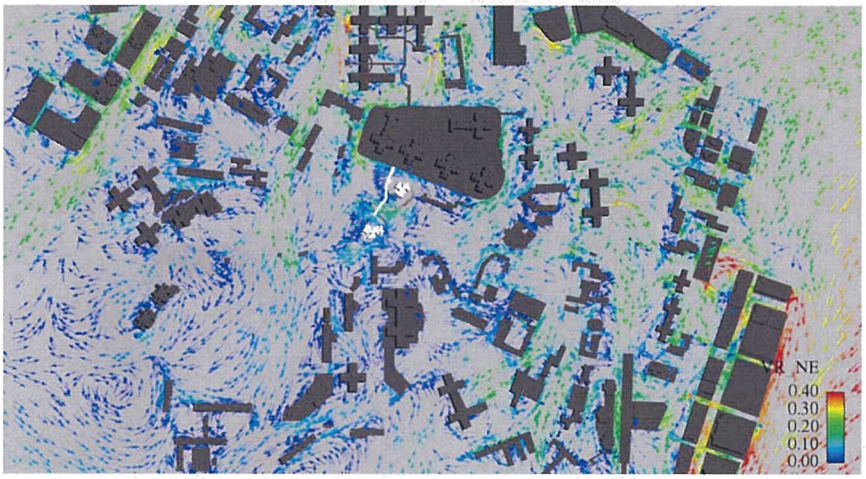


Figure C 5 Vector plot of Proposed PRH Scheme

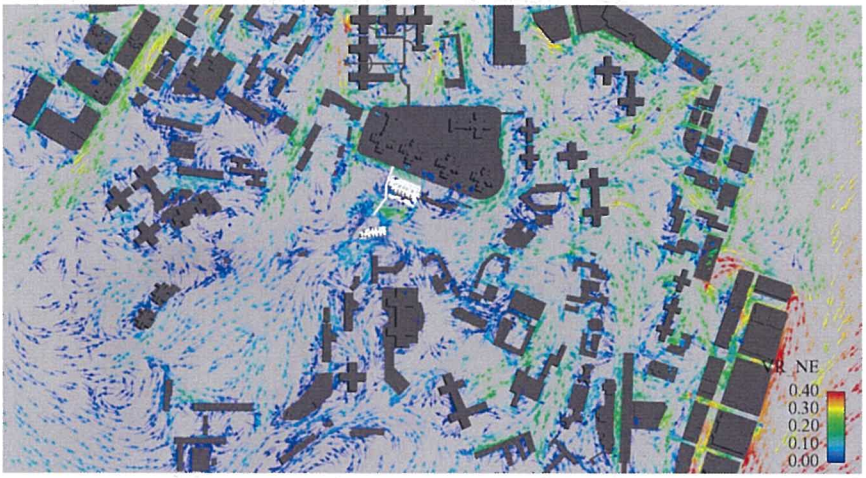


Figure C 6 Vector plot of Enhanced PRH Scheme

C3 ENE Wind

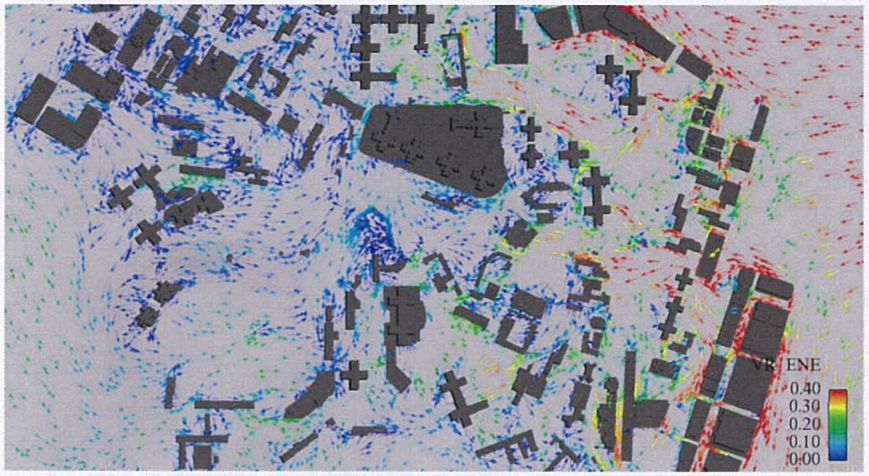


Figure C 7 Vector plot of Baseline Scheme

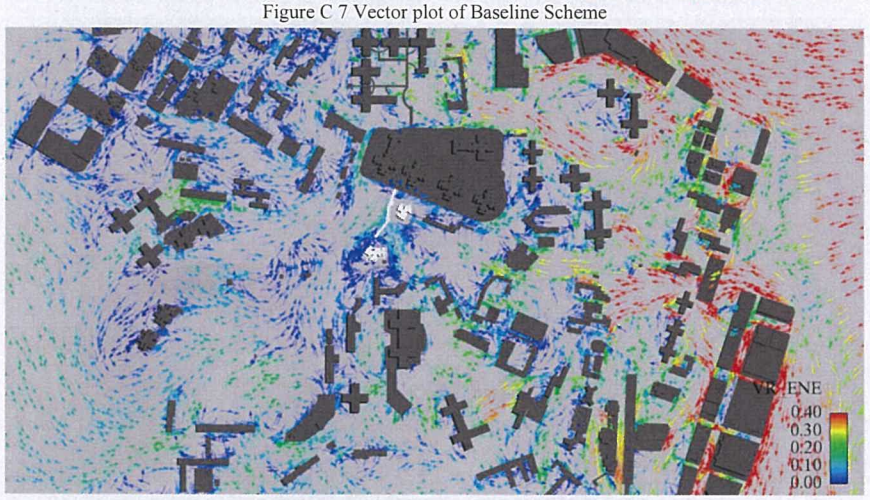


Figure C 8 Vector plot of Proposed PRH Scheme

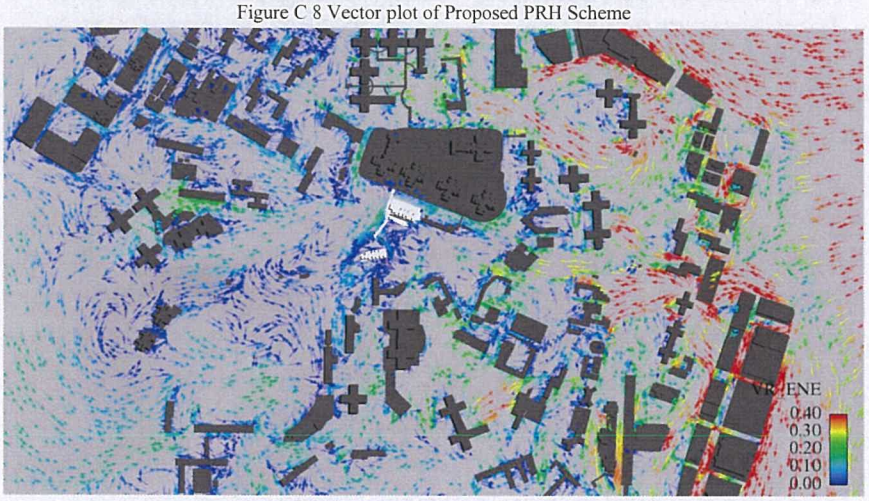


Figure C 9 Vector plot of Enhanced PRH Scheme

C4 E Wind

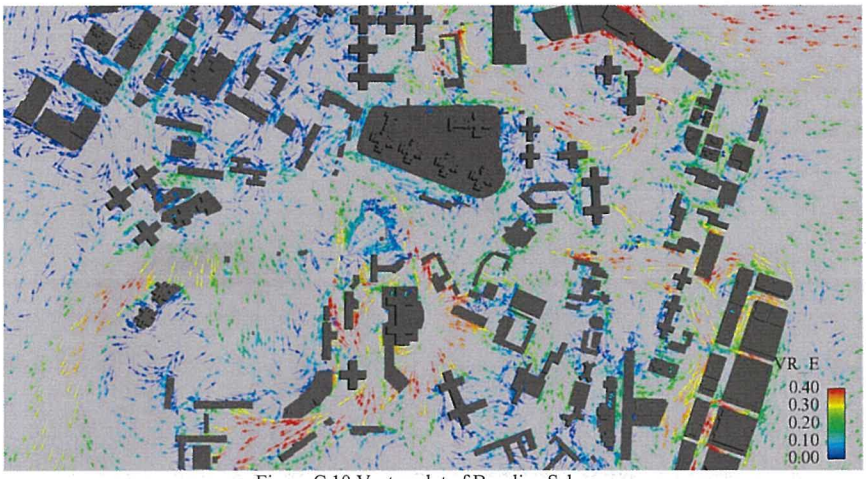


Figure C 10 Vector plot of Baseline Scheme

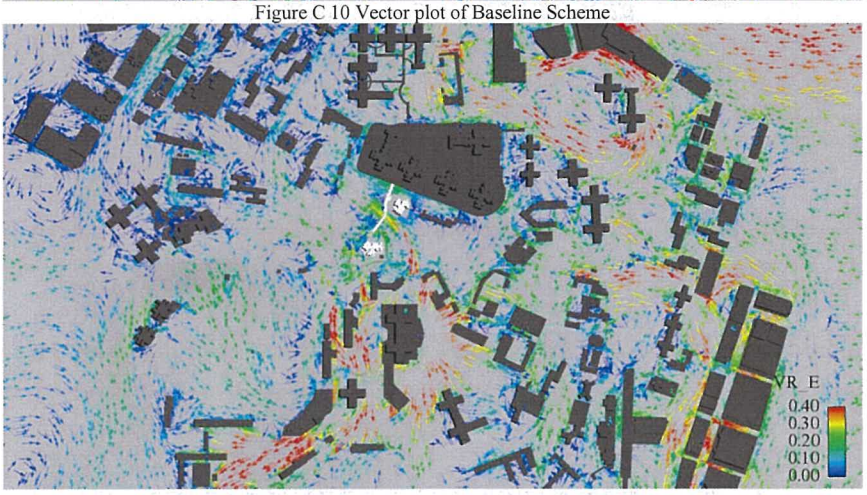


Figure C 11 Vector plot of Proposed PRH Scheme

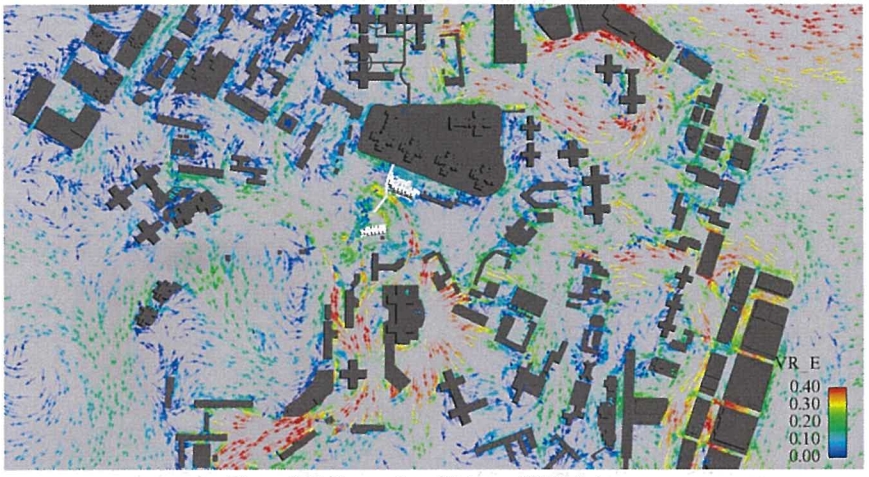


Figure C 12 Vector plot of Enhanced PRH Scheme

C5 ESE Wind

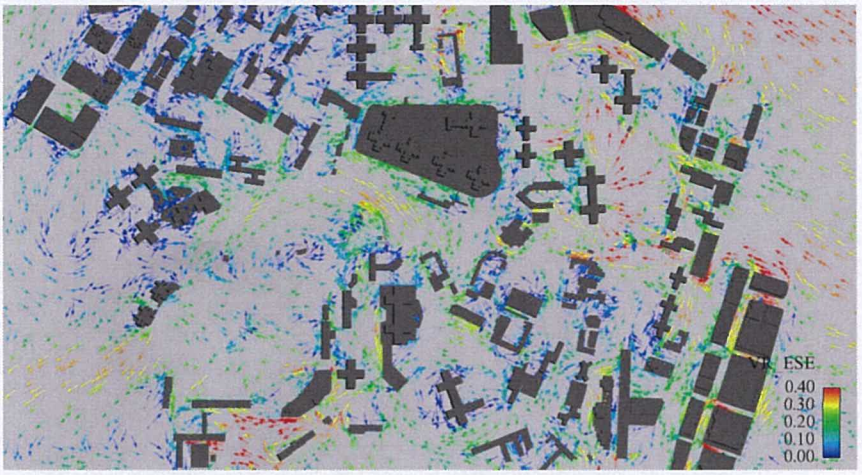


Figure C 13 Vector plot of Baseline Scheme

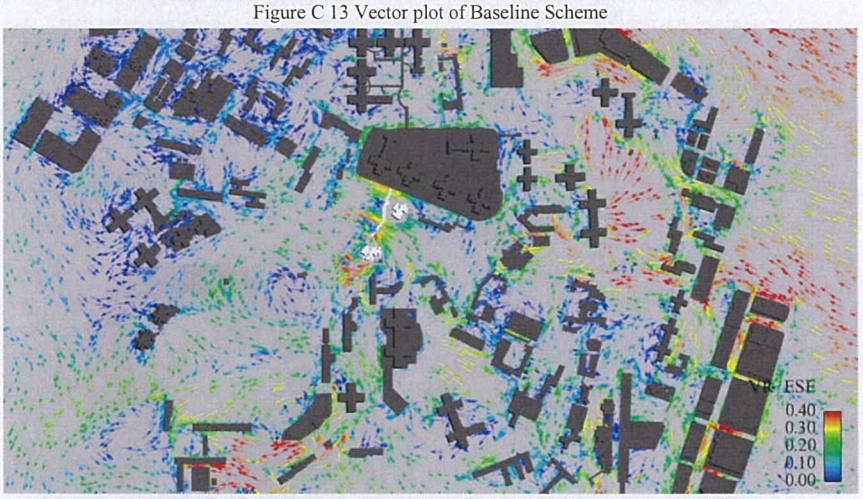


Figure C 14 Vector plot of Proposed PRH Scheme

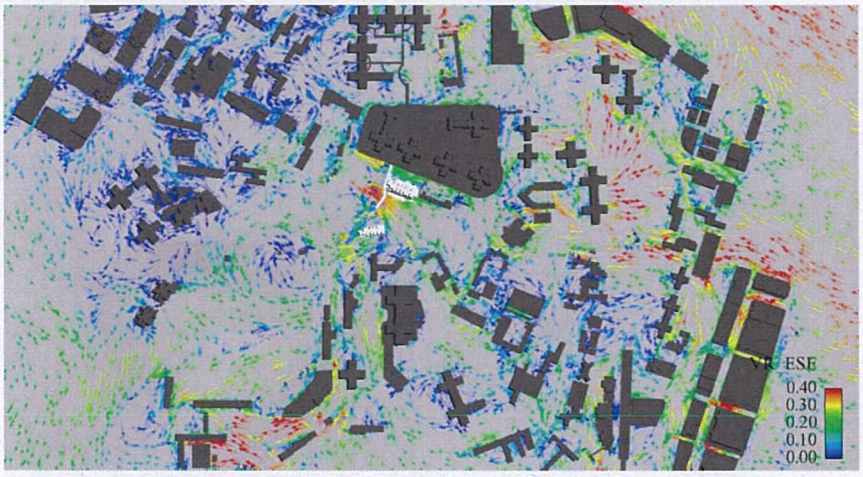


Figure C 15 Vector plot of Enhanced PRH Scheme

C6 SE Wind

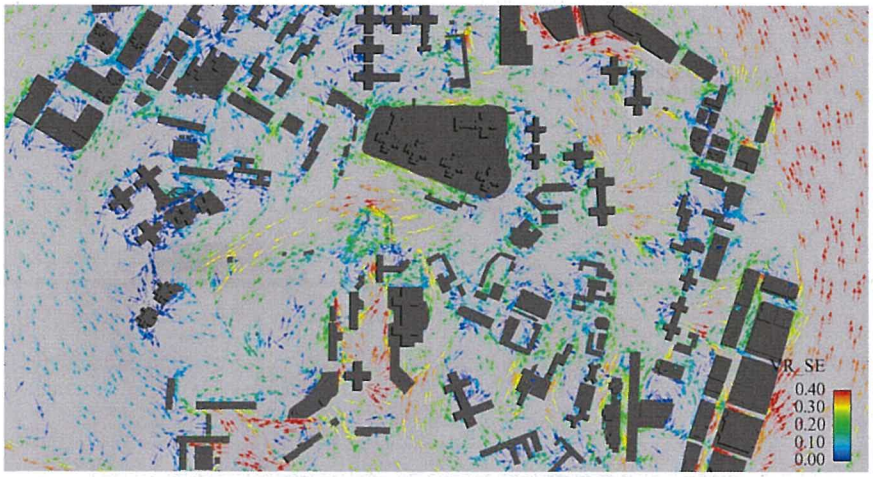


Figure C 16 Vector plot of Baseline Scheme

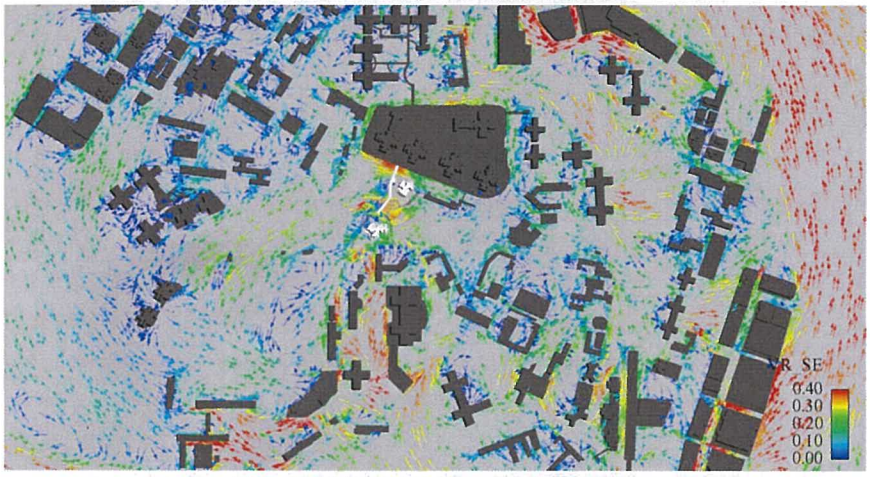


Figure C 17 Vector plot of Proposed PRH Scheme

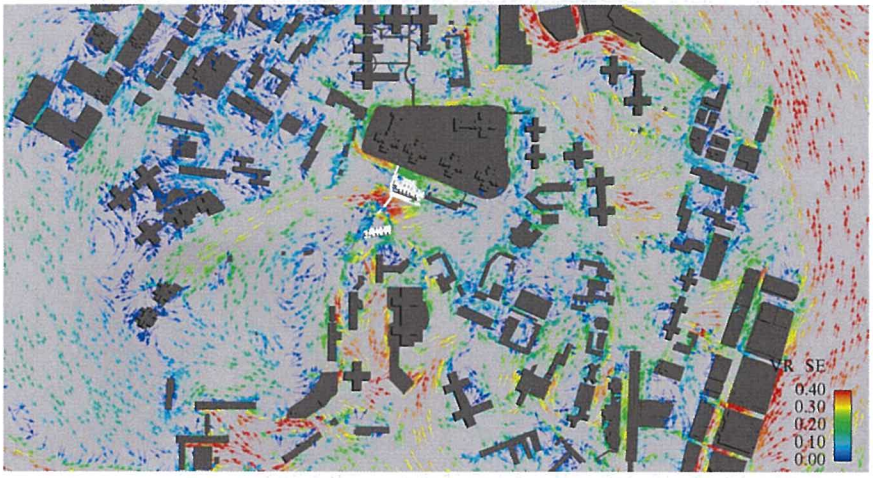


Figure C 18 Vector plot of Enhanced PRH Scheme

C7 SSE Wind

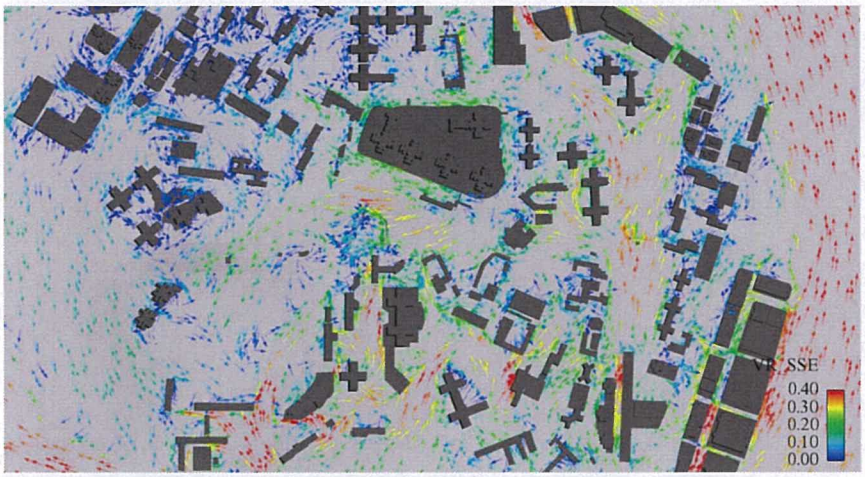


Figure C 19 Vector plot of Baseline Scheme

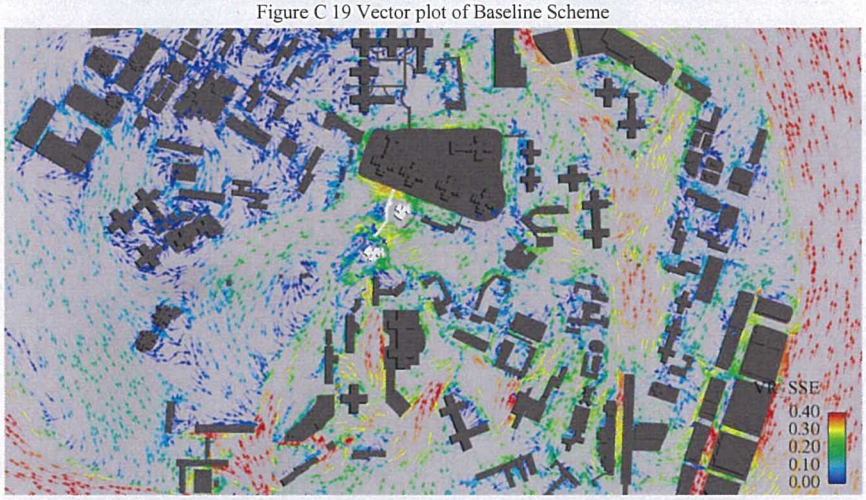


Figure C 20 Vector plot of Proposed PRH Scheme

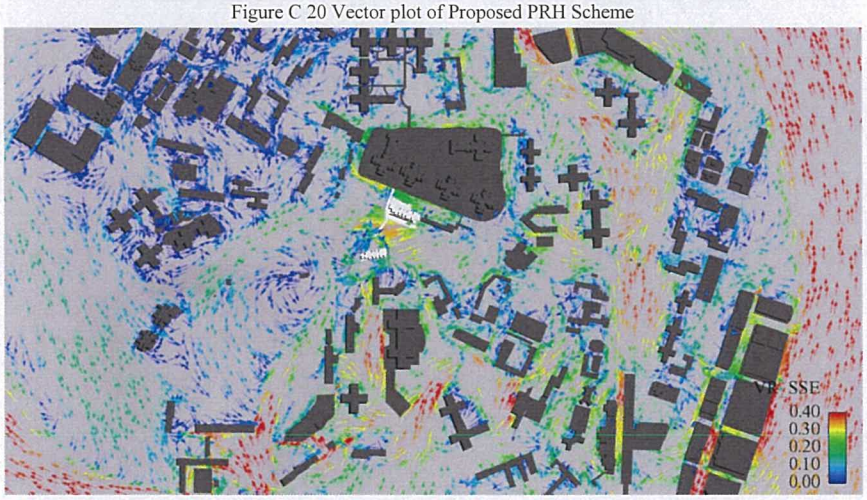


Figure C 21 Vector plot of Enhanced PRH Scheme

C8 S Wind

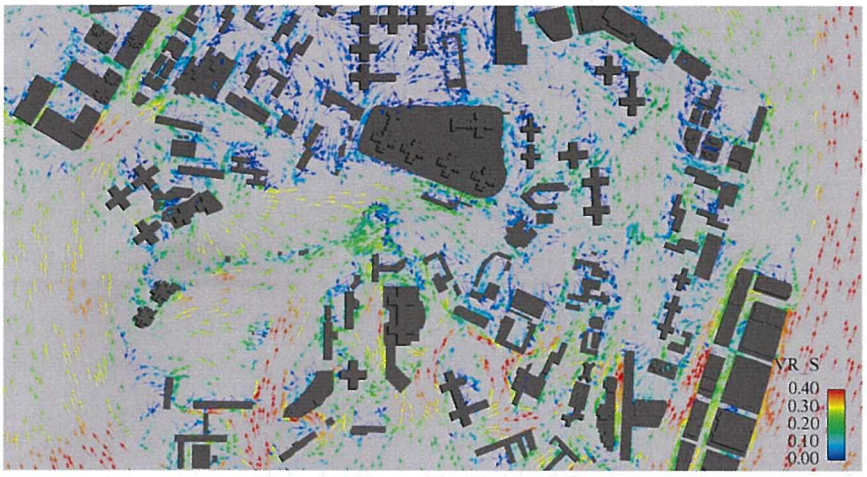


Figure C 22 Vector plot of Baseline Scheme

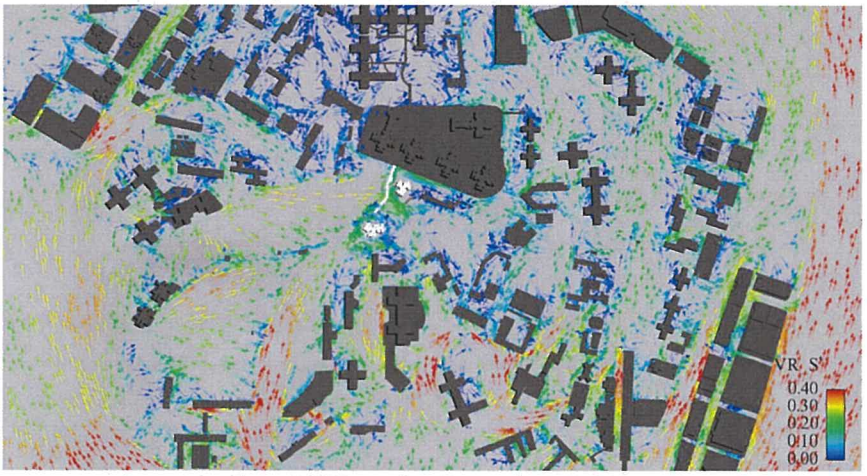


Figure C 23 Vector plot of Proposed PRH Scheme

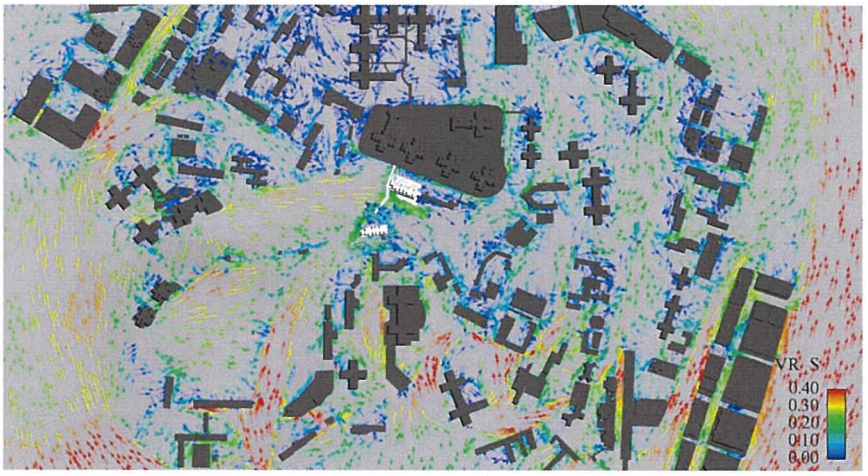


Figure C 24 Vector plot of Enhanced PRH Scheme

Appendix D

Velocity Ratios of Test Points

D1 Baseline Scheme

D1.1 Perimeter Test Points

	NNE	NE	ENE	E	ESE	SE	SSE	S	Overall
Freq	8.6%	11.9%	15.7%	14.4%	9.9%	6.7%	6.1%	6.1%	79.4%
P1	0.06	0.05	0.05	0.10	0.22	0.25	0.21	0.01	**0.11**
P2	0.09	0.02	0.06	0.09	0.20	0.25	0.21	0.05	**0.11**
P3	0.08	0.05	0.07	0.09	0.20	0.26	0.22	0.10	**0.12**
P4	0.08	0.08	0.06	0.09	0.20	0.26	0.22	0.12	**0.12**
P5	0.12	0.11	0.07	0.09	0.20	0.23	0.21	0.15	**0.13**
P6	0.08	0.09	0.06	0.11	0.14	0.19	0.19	0.05	**0.11**
P7	0.05	0.09	0.03	0.09	0.11	0.08	0.05	0.01	**0.07**
P8	0.09	0.09	0.04	0.06	0.13	0.05	0.06	0.01	**0.07**
P9	0.16	0.12	0.07	0.07	0.10	0.17	0.18	0.11	**0.11**
P10	0.17	0.12	0.05	0.05	0.04	0.16	0.19	0.05	**0.09**
P11	0.09	0.09	0.10	0.11	0.28	0.26	0.27	0.19	**0.16**
P12	0.14	0.14	0.10	0.17	0.30	0.30	0.31	0.19	**0.19**
P13	0.15	0.16	0.11	0.35	0.30	0.33	0.33	0.20	**0.23**
P14	0.17	0.16	0.11	0.34	0.31	0.34	0.34	0.21	**0.24**
P15	0.23	0.15	0.11	0.21	0.31	0.36	0.35	0.22	**0.22**
P16	0.27	0.13	0.11	0.09	0.32	0.38	0.37	0.24	**0.20**
P17	0.29	0.11	0.11	0.05	0.33	0.39	0.37	0.25	**0.20**
P18	0.30	0.06	0.11	0.21	0.31	0.36	0.37	0.26	**0.22**
P19	0.27	0.01	0.11	0.27	0.29	0.33	0.32	0.26	**0.21**
P20	0.19	0.02	0.10	0.19	0.23	0.33	0.30	0.23	**0.18**
P21	0.10	0.04	0.08	0.12	0.21	0.30	0.27	0.15	**0.14**
P22	0.22	0.16	0.04	0.10	0.34	0.35	0.30	0.11	**0.18**
P23	0.22	0.15	0.05	0.09	0.28	0.28	0.23	0.08	**0.16**
P24	0.13	0.13	0.03	0.09	0.27	0.16	0.07	0.17	**0.12**
P25	0.18	0.14	0.03	0.09	0.27	0.36	0.28	0.20	**0.16**
P26	0.20	0.12	0.02	0.11	0.24	0.34	0.29	0.21	**0.16**
P27	0.23	0.12	0.02	0.10	0.21	0.37	0.33	0.16	**0.16**
P28	0.24	0.09	0.03	0.11	0.16	0.32	0.30	0.14	**0.14**
P29	0.08	0.07	0.01	0.13	0.16	0.26	0.23	0.23	**0.12**
P30	0.11	0.08	0.01	0.10	0.11	0.16	0.13	0.25	**0.10**
P31	0.11	0.08	0.01	0.10	0.14	0.20	0.12	0.26	**0.11**
P32	0.12	0.08	0.01	0.09	0.17	0.21	0.12	0.25	**0.11**
P33	0.12	0.07	0.05	0.07	0.14	0.15	0.09	0.24	**0.10**
P34	0.11	0.06	0.09	0.07	0.12	0.13	0.07	0.26	**0.10**

P35	0.11	0.07	0.10	0.10	0.12	0.13	0.07	0.27	**0.11**
P36	0.11	0.07	0.09	0.11	0.13	0.15	0.06	0.24	**0.11**
P37	0.07	0.09	0.07	0.07	0.16	0.21	0.10	0.22	**0.11**
P38	0.11	0.09	0.05	0.12	0.22	0.24	0.15	0.19	**0.13**
P39	0.11	0.10	0.05	0.12	0.26	0.25	0.15	0.19	**0.14**
P40	0.04	0.10	0.05	0.12	0.27	0.20	0.11	0.17	**0.12**
P41	0.06	0.09	0.02	0.13	0.27	0.18	0.08	0.09	**0.11**
P42	0.15	0.09	0.03	0.14	0.34	0.19	0.06	0.21	**0.14**
P43	0.18	0.11	0.04	0.13	0.35	0.13	0.07	0.18	**0.14**

D1.2 Overall Test Points

	NNE	NE	ENE	E	ESE	SE	SSE	S	Overall
Freq.	8.6%	11.9%	15.7%	14.4%	9.9%	6.7%	6.1%	6.1%	**79.4%**
O1	0.16	0.09	0.06	0.04	0.04	0.13	0.02	0.14	**0.08**
O2	0.11	0.06	0.07	0.10	0.03	0.10	0.02	0.05	**0.07**
O3	0.14	0.12	0.07	0.05	0.09	0.05	0.05	0.24	**0.10**
O4	0.11	0.09	0.04	0.04	0.14	0.06	0.09	0.19	**0.08**
O5	0.12	0.06	0.08	0.06	0.16	0.24	0.10	0.17	**0.11**
O6	0.06	0.17	0.03	0.13	0.23	0.11	0.07	0.17	**0.12**
O7	0.07	0.21	0.08	0.07	0.20	0.08	0.06	0.14	**0.11**
O8	0.07	0.18	0.06	0.11	0.16	0.33	0.21	0.18	**0.14**
O9	0.10	0.06	0.03	0.05	0.15	0.30	0.15	0.24	**0.11**
O10	0.06	0.07	0.01	0.21	0.26	0.35	0.30	0.24	**0.16**
O11	0.08	0.05	0.07	0.10	0.25	0.28	0.24	0.31	**0.14**
O12	0.06	0.18	0.10	0.13	0.20	0.14	0.09	0.22	**0.14**
O13	0.06	0.13	0.01	0.13	0.25	0.25	0.20	0.09	**0.13**
O14	0.10	0.03	0.06	0.09	0.20	0.25	0.21	0.06	**0.11**
O15	0.12	0.11	0.06	0.09	0.20	0.23	0.21	0.03	**0.12**
O16	0.07	0.07	0.07	0.12	0.21	0.26	0.23	0.11	**0.13**
O17	0.12	0.07	0.07	0.14	0.17	0.21	0.17	0.21	**0.13**
O18	0.02	0.11	0.08	0.11	0.16	0.12	0.07	0.21	**0.11**
O19	0.23	0.14	0.13	0.14	0.08	0.04	0.05	0.21	**0.13**
O20	0.04	0.13	0.01	0.13	0.14	0.16	0.16	0.10	**0.10**
O21	0.19	0.15	0.05	0.08	0.03	0.21	0.17	0.11	**0.11**
O22	0.20	0.12	0.03	0.07	0.01	0.19	0.13	0.10	**0.09**
O23	0.08	0.14	0.19	0.15	0.14	0.19	0.16	0.11	**0.15**
O24	0.08	0.10	0.49	0.48	0.11	0.18	0.14	0.10	**0.25**
O25	0.24	0.02	0.40	0.38	0.04	0.32	0.13	0.10	**0.23**
O26	0.19	0.03	0.22	0.13	0.34	0.32	0.42	0.09	**0.20**
O27	0.12	0.04	0.35	0.30	0.45	0.28	0.41	0.14	**0.27**

	NNE	NE	ENE	E	ESE	SE	SSE	S	Overall
Freq.	8.6%	11.9%	15.7%	14.4%	9.9%	6.7%	6.1%	6.1%	79.4%
O28	0.06	0.14	0.24	0.24	0.42	0.24	0.31	0.18	**0.23**
O29	0.38	0.14	0.23	0.20	0.40	0.26	0.33	0.15	**0.25**
O30	0.38	0.10	0.26	0.17	0.35	0.29	0.32	0.20	**0.25**
O31	0.41	0.23	0.19	0.14	0.49	0.39	0.30	0.23	**0.28**
O32	0.33	0.16	0.22	0.16	0.45	0.42	0.19	0.19	**0.25**
O33	0.15	0.17	0.25	0.22	0.18	0.14	0.21	0.18	**0.19**
O34	0.38	0.21	0.28	0.13	0.09	0.29	0.27	0.11	**0.22**
O35	0.27	0.05	0.44	0.27	0.08	0.21	0.23	0.05	**0.22**
O36	0.23	0.01	0.21	0.07	0.12	0.23	0.17	0.17	**0.14**
O37	0.18	0.05	0.14	0.11	0.28	0.35	0.29	0.11	**0.17**
O38	0.24	0.12	0.27	0.12	0.34	0.34	0.25	0.32	**0.23**
O39	0.16	0.07	0.34	0.12	0.28	0.18	0.29	0.27	**0.21**
O40	0.04	0.03	0.13	0.14	0.27	0.25	0.25	0.27	**0.16**
O41	0.09	0.12	0.23	0.22	0.08	0.20	0.26	0.06	**0.16**
O42	0.04	0.03	0.04	0.05	0.06	0.04	0.04	0.35	**0.07**
O43	0.13	0.12	0.07	0.08	0.10	0.05	0.04	0.04	**0.08**
O44	0.28	0.24	0.03	0.02	0.04	0.03	0.05	0.08	**0.09**
O45	0.18	0.13	0.07	0.06	0.03	0.06	0.04	0.05	**0.08**
O46	0.06	0.09	0.07	0.07	0.08	0.09	0.04	0.06	**0.07**
O47	0.06	0.02	0.02	0.10	0.06	0.15	0.05	0.01	**0.06**
O48	0.08	0.01	0.06	0.05	0.04	0.12	0.12	0.05	**0.06**
O49	0.06	0.04	0.02	0.07	0.18	0.18	0.08	0.02	**0.08**
O50	0.08	0.05	0.05	0.06	0.04	0.21	0.04	0.10	**0.07**
O51	0.14	0.07	0.11	0.08	0.07	0.16	0.05	0.12	**0.10**
O52	0.24	0.09	0.08	0.07	0.08	0.13	0.04	0.07	**0.10**
O53	0.37	0.29	0.03	0.06	0.04	0.14	0.06	0.04	**0.13**
O54	0.05	0.02	0.02	0.02	0.02	0.03	0.03	0.10	**0.03**
O55	0.12	0.08	0.06	0.09	0.03	0.12	0.07	0.05	**0.08**
O56	0.11	0.07	0.05	0.08	0.22	0.26	0.20	0.05	**0.11**
O57	0.12	0.02	0.05	0.17	0.27	0.29	0.25	0.29	**0.16**
O58	0.08	0.07	0.03	0.02	0.03	0.22	0.19	0.27	**0.09**
O59	0.06	0.07	0.02	0.12	0.22	0.22	0.13	0.02	**0.10**
O60	0.16	0.28	0.11	0.07	0.10	0.19	0.10	0.05	**0.13**
O61	0.31	0.22	0.08	0.13	0.13	0.19	0.18	0.03	**0.15**
O62	0.19	0.21	0.04	0.03	0.21	0.23	0.19	0.04	**0.13**
O63	0.12	0.01	0.20	0.08	0.19	0.17	0.16	0.01	**0.12**
O64	0.09	0.10	0.17	0.07	0.11	0.19	0.05	0.05	**0.11**
O65	0.26	0.08	0.09	0.06	0.12	0.26	0.15	0.05	**0.12**
O66	0.27	0.09	0.16	0.06	0.22	0.16	0.13	0.05	**0.14**
O67	0.42	0.11	0.20	0.04	0.23	0.21	0.22	0.10	**0.18**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O68	0.17	0.19	0.17	0.03	0.13	0.27	0.26	0.13	**0.15**
O69	0.39	0.29	0.01	0.06	0.06	0.27	0.25	0.13	**0.16**
O70	0.21	0.16	0.08	0.06	0.11	0.04	0.04	0.16	**0.11**
O71	0.30	0.06	0.06	0.18	0.16	0.25	0.22	0.05	**0.15**
O72	0.18	0.01	0.04	0.10	0.08	0.19	0.16	0.12	**0.09**
O73	0.22	0.03	0.03	0.10	0.15	0.05	0.13	0.10	**0.09**
O74	0.02	0.07	0.02	0.02	0.05	0.01	0.05	0.02	**0.03**
O75	0.21	0.06	0.22	0.20	0.14	0.11	0.11	0.04	**0.15**
O76	0.09	0.05	0.03	0.06	0.26	0.12	0.06	0.04	**0.08**
O77	0.13	0.21	0.06	0.01	0.18	0.11	0.13	0.07	**0.11**
O78	0.13	0.07	0.09	0.05	0.07	0.07	0.09	0.13	**0.08**
O79	0.13	0.13	0.01	0.05	0.08	0.17	0.12	0.06	**0.08**
O80	0.23	0.11	0.49	0.49	0.14	0.35	0.15	0.06	**0.29**
O81	0.22	0.28	0.37	0.36	0.35	0.09	0.20	0.08	**0.28**
O82	0.21	0.18	0.37	0.36	0.45	0.36	0.40	0.13	**0.32**
O83	0.19	0.18	0.28	0.29	0.38	0.33	0.29	0.14	**0.26**
O84	0.14	0.21	0.26	0.26	0.46	0.31	0.39	0.12	**0.27**
O85	0.35	0.17	0.14	0.20	0.54	0.32	0.36	0.17	**0.26**
O86	0.16	0.34	0.43	0.33	0.40	0.42	0.30	0.20	**0.34**
O87	0.43	0.22	0.23	0.17	0.52	0.38	0.37	0.15	**0.29**
O88	0.03	0.38	0.40	0.31	0.24	0.17	0.30	0.21	**0.28**
O89	0.18	0.07	0.06	0.11	0.12	0.11	0.04	0.20	**0.10**
O90	0.14	0.02	0.03	0.03	0.13	0.17	0.25	0.13	**0.09**
O91	0.13	0.02	0.07	0.09	0.15	0.14	0.14	0.07	**0.09**
O92	0.04	0.03	0.11	0.21	0.35	0.21	0.38	0.09	**0.17**
O93	0.26	0.19	0.36	0.25	0.24	0.16	0.25	0.15	**0.25**
O94	0.05	0.09	0.19	0.10	0.13	0.12	0.15	0.05	**0.12**
O95	0.06	0.10	0.07	0.22	0.11	0.15	0.10	0.09	**0.12**
O96	0.09	0.09	0.02	0.15	0.30	0.22	0.26	0.08	**0.13**
O97	0.04	0.01	0.09	0.20	0.03	0.05	0.05	0.08	**0.08**
O98	0.18	0.06	0.02	0.13	0.20	0.11	0.06	0.05	**0.10**
O99	0.14	0.05	0.08	0.27	0.09	0.18	0.05	0.04	**0.12**
O100	0.03	0.08	0.23	0.41	0.26	0.11	0.10	0.10	**0.19**
O101	0.04	0.04	0.07	0.05	0.07	0.12	0.17	0.28	**0.09**
O102	0.04	0.05	0.23	0.34	0.28	0.05	0.25	0.04	**0.18**
O103	0.11	0.03	0.05	0.15	0.20	0.30	0.23	0.25	**0.14**
O104	0.08	0.08	0.04	0.15	0.22	0.27	0.24	0.25	**0.14**
O105	0.09	0.06	0.06	0.16	0.14	0.35	0.25	0.13	**0.14**
O106	0.13	0.05	0.08	0.19	0.13	0.21	0.16	0.16	**0.13**
O107	0.15	0.08	0.06	0.12	0.19	0.06	0.07	0.25	**0.12**

	NNE	NE	ENE	E	ESE	SE	SSE	S	Overall
Freq.	8.6%	11.9%	15.7%	14.4%	9.9%	6.7%	6.1%	6.1%	79.4%
O108	0.08	0.06	0.09	0.08	0.12	0.13	0.27	0.30	**0.12**
O109	0.16	0.02	0.11	0.27	0.14	0.13	0.07	0.24	**0.14**
O110	0.21	0.07	0.01	0.05	0.19	0.12	0.03	0.10	**0.09**
O111	0.14	0.07	0.01	0.15	0.13	0.17	0.19	0.20	**0.12**
O112	0.17	0.04	0.19	0.50	0.29	0.27	0.20	0.19	**0.24**
O113	0.13	0.01	0.05	0.43	0.22	0.31	0.31	0.16	**0.20**
O114	0.14	0.05	0.15	0.32	0.13	0.22	0.18	0.27	**0.18**
O115	0.08	0.04	0.23	0.37	0.27	0.15	0.16	0.24	**0.20**
O116	0.03	0.08	0.12	0.17	0.20	0.20	0.36	0.26	**0.16**
O117	0.06	0.01	0.09	0.05	0.05	0.06	0.03	0.44	**0.08**
O118	0.09	0.08	0.16	0.24	0.09	0.09	0.14	0.09	**0.13**
O119	0.01	0.18	0.33	0.21	0.33	0.13	0.15	0.08	**0.20**
O120	0.05	0.01	0.21	0.14	0.23	0.14	0.26	0.08	**0.14**
O121	0.03	0.11	0.20	0.07	0.06	0.18	0.26	0.08	**0.12**
O122	0.18	0.20	0.10	0.23	0.05	0.30	0.34	0.32	**0.19**
O123	0.13	0.17	0.08	0.13	0.13	0.20	0.28	0.38	**0.16**
O124	0.09	0.11	0.06	0.18	0.16	0.14	0.19	0.35	**0.14**
O125	0.07	0.06	0.06	0.13	0.11	0.05	0.03	0.20	**0.09**
O126	0.18	0.17	0.19	0.19	0.21	0.33	0.25	0.14	**0.20**
O127	0.16	0.16	0.06	0.23	0.14	0.11	0.21	0.41	**0.17**
O128	0.25	0.18	0.15	0.19	0.07	0.16	0.33	0.11	**0.17**
O129	0.09	0.08	0.02	0.07	0.14	0.14	0.26	0.28	**0.11**
O130	0.11	0.12	0.10	0.14	0.07	0.16	0.13	0.25	**0.13**
O131	0.18	0.17	0.39	0.41	0.45	0.03	0.35	0.21	**0.30**
O132	0.07	0.16	0.12	0.15	0.15	0.02	0.19	0.02	**0.12**
O133	0.04	0.10	0.17	0.17	0.13	0.06	0.14	0.14	**0.13**
O134	0.24	0.07	0.15	0.15	0.10	0.14	0.08	0.15	**0.13**
O135	0.22	0.08	0.16	0.11	0.20	0.05	0.04	0.14	**0.13**
O136	0.06	0.01	0.05	0.13	0.12	0.22	0.13	0.30	**0.11**
O137	0.10	0.01	0.05	0.55	0.22	0.40	0.10	0.17	**0.20**
O138	0.05	0.02	0.07	0.35	0.08	0.30	0.13	0.09	**0.14**
O139	0.01	0.01	0.10	0.36	0.40	0.46	0.46	0.11	**0.22**
O140	0.05	0.03	0.13	0.20	0.18	0.29	0.34	0.44	**0.18**
O141	0.12	0.04	0.07	0.29	0.08	0.18	0.17	0.31	**0.15**
O142	0.12	0.04	0.17	0.12	0.10	0.16	0.16	0.19	**0.13**
O143	0.13	0.05	0.14	0.15	0.12	0.24	0.25	0.10	**0.14**
O144	0.16	0.04	0.08	0.12	0.10	0.18	0.18	0.20	**0.12**

D2 Proposed PRH Scheme

D2.1 Perimeter Test Points

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Annual 79.4%
P1	0.14	0.06	0.02	0.13	0.28	0.34	0.32	0.09	**0.15**
P2	0.13	0.08	0.09	0.15	0.31	0.36	0.32	0.17	**0.18**
P3	0.08	0.06	0.07	0.16	0.29	0.34	0.31	0.15	**0.16**
P4	0.08	0.10	0.08	0.17	0.30	0.35	0.32	0.13	**0.17**
P5	0.09	0.09	0.07	0.12	0.19	0.25	0.23	0.12	**0.13**
P6	0.07	0.08	0.07	0.06	0.12	0.19	0.19	0.10	**0.10**
P7	0.08	0.06	0.08	0.06	0.11	0.21	0.21	0.04	**0.10**
P8	0.09	0.05	0.01	0.02	0.03	0.04	0.03	0.02	**0.03**
P9	0.02	0.01	0.09	0.08	0.16	0.18	0.20	0.09	**0.09**
P10	0.11	0.04	0.05	0.07	0.14	0.20	0.22	0.09	**0.10**
P11	0.16	0.08	0.03	0.08	0.15	0.22	0.23	0.11	**0.11**
P12	0.21	0.13	0.03	0.10	0.17	0.28	0.26	0.13	**0.14**
P13	0.20	0.16	0.04	0.25	0.23	0.32	0.29	0.17	**0.19**
P14	0.08	0.13	0.06	0.22	0.17	0.29	0.24	0.17	**0.16**
P15	0.08	0.15	0.08	0.32	0.32	0.36	0.29	0.22	**0.22**
P16	0.15	0.13	0.09	0.25	0.33	0.35	0.28	0.20	**0.21**
P17	0.27	0.14	0.12	0.19	0.39	0.37	0.29	0.23	**0.23**
P18	0.28	0.07	0.14	0.22	0.17	0.13	0.06	0.19	**0.16**
P19	0.28	0.06	0.14	0.16	0.06	0.03	0.03	0.21	**0.12**
P20	0.21	0.04	0.14	0.03	0.05	0.11	0.12	0.20	**0.10**
P21	0.05	0.03	0.09	0.07	0.21	0.27	0.26	0.15	**0.12**
P22	0.05	0.03	0.05	0.08	0.03	0.07	0.05	0.03	**0.05**
P23	0.16	0.12	0.05	0.26	0.37	0.31	0.24	0.05	**0.19**
P24	0.16	0.10	0.05	0.27	0.38	0.36	0.30	0.09	**0.20**
P25	0.18	0.07	0.01	0.21	0.29	0.33	0.28	0.10	**0.16**
P26	0.17	0.05	0.01	0.12	0.19	0.18	0.12	0.04	**0.10**
P27	0.22	0.08	0.02	0.16	0.12	0.28	0.22	0.04	**0.13**
P28	0.30	0.08	0.02	0.13	0.16	0.28	0.27	0.10	**0.15**
P29	0.13	0.07	0.04	0.21	0.21	0.17	0.04	0.20	**0.13**
P30	0.16	0.09	0.03	0.19	0.35	0.22	0.12	0.20	**0.16**
P31	0.17	0.11	0.02	0.22	0.41	0.27	0.19	0.20	**0.18**
P32	0.16	0.11	0.02	0.22	0.40	0.34	0.25	0.16	**0.19**
P33	0.14	0.11	0.02	0.20	0.35	0.35	0.24	0.16	**0.18**
P34	0.13	0.11	0.01	0.16	0.32	0.29	0.19	0.18	**0.16**
P35	0.09	0.11	0.01	0.15	0.33	0.26	0.17	0.21	**0.15**
P36	0.08	0.11	0.02	0.17	0.38	0.25	0.16	0.20	**0.16**
P37	0.04	0.10	0.02	0.27	0.45	0.27	0.20	0.19	**0.18**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Annual 79.4%
P38	0.10	0.03	0.03	0.30	0.29	0.15	0.18	0.14	**0.15**
P39	0.09	0.02	0.03	0.14	0.17	0.04	0.07	0.19	**0.09**
P40	0.07	0.02	0.03	0.13	0.17	0.04	0.04	0.18	**0.08**
P41	0.11	0.10	0.02	0.19	0.27	0.06	0.06	0.24	**0.13**
P42	0.05	0.10	0.03	0.21	0.07	0.07	0.05	0.16	**0.10**
P43	0.15	0.04	0.05	0.13	0.04	0.10	0.05	0.14	**0.08**

D2.2 Overall Test Points

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O1	0.13	0.12	0.09	0.05	0.02	0.09	0.07	0.14	**0.09**
O2	0.12	0.07	0.07	0.01	0.07	0.08	0.05	0.05	**0.06**
O3	0.12	0.04	0.10	0.11	0.11	0.03	0.05	0.24	**0.10**
O4	0.11	0.04	0.08	0.17	0.08	0.03	0.04	0.19	**0.09**
O5	0.11	0.03	0.09	0.19	0.10	0.12	0.05	0.19	**0.11**
O6	0.03	0.18	0.10	0.05	0.18	0.05	0.07	0.18	**0.11**
O7	0.06	0.21	0.12	0.20	0.06	0.14	0.15	0.14	**0.14**
O8	0.07	0.11	0.08	0.20	0.21	0.22	0.09	0.21	**0.14**
O9	0.09	0.03	0.02	0.21	0.19	0.18	0.11	0.23	**0.12**
O10	0.03	0.02	0.02	0.15	0.14	0.28	0.21	0.23	**0.11**
O11	0.04	0.12	0.01	0.15	0.16	0.21	0.17	0.30	**0.13**
O12	0.03	0.15	0.08	0.09	0.18	0.20	0.19	0.21	**0.13**
O13	0.05	0.09	0.04	0.13	0.26	0.30	0.28	0.11	**0.14**
O14	0.13	0.08	0.06	0.16	0.31	0.37	0.32	0.10	**0.17**
O15	0.07	0.07	0.10	0.11	0.18	0.23	0.22	0.13	**0.13**
O16	0.06	0.06	0.11	0.11	0.16	0.21	0.21	0.17	**0.13**
O17	0.08	0.04	0.12	0.13	0.15	0.19	0.18	0.14	**0.12**
O18	0.14	0.10	0.15	0.09	0.11	0.08	0.07	0.11	**0.11**
O19	0.25	0.15	0.11	0.15	0.16	0.07	0.05	0.14	**0.14**
O20	0.02	0.14	0.05	0.13	0.17	0.16	0.18	0.09	**0.11**
O21	0.13	0.17	0.05	0.08	0.10	0.21	0.21	0.18	**0.12**
O22	0.12	0.16	0.04	0.06	0.06	0.17	0.16	0.17	**0.10**
O23	0.15	0.07	0.18	0.21	0.10	0.23	0.19	0.14	**0.16**
O24	0.06	0.12	0.49	0.47	0.06	0.19	0.12	0.16	**0.25**
O25	0.26	0.06	0.40	0.39	0.05	0.31	0.11	0.13	**0.24**
O26	0.22	0.06	0.22	0.20	0.37	0.32	0.42	0.13	**0.23**
O27	0.18	0.03	0.35	0.32	0.46	0.33	0.40	0.13	**0.28**
O28	0.12	0.14	0.23	0.24	0.44	0.24	0.30	0.15	**0.23**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O29	0.37	0.13	0.22	0.19	0.44	0.25	0.33	0.12	**0.25**
O30	0.39	0.09	0.27	0.19	0.39	0.31	0.33	0.17	**0.26**
O31	0.41	0.21	0.21	0.13	0.53	0.37	0.30	0.21	**0.28**
O32	0.33	0.15	0.21	0.17	0.42	0.39	0.21	0.19	**0.25**
O33	0.16	0.16	0.27	0.21	0.20	0.11	0.20	0.20	**0.20**
O34	0.39	0.19	0.29	0.14	0.11	0.27	0.24	0.15	**0.22**
O35	0.29	0.06	0.43	0.27	0.10	0.23	0.23	0.05	**0.23**
O36	0.23	0.01	0.20	0.11	0.11	0.25	0.17	0.16	**0.15**
O37	0.17	0.04	0.10	0.10	0.23	0.38	0.29	0.11	**0.15**
O38	0.22	0.09	0.27	0.12	0.33	0.37	0.25	0.33	**0.23**
O39	0.15	0.06	0.33	0.12	0.24	0.18	0.29	0.26	**0.20**
O40	0.04	0.03	0.13	0.14	0.25	0.24	0.25	0.25	**0.15**
O41	0.09	0.13	0.22	0.22	0.07	0.22	0.26	0.07	**0.16**
O42	0.03	0.01	0.01	0.07	0.05	0.02	0.01	0.34	**0.05**
O43	0.12	0.11	0.06	0.07	0.11	0.06	0.01	0.04	**0.08**
O44	0.31	0.24	0.02	0.05	0.05	0.02	0.01	0.09	**0.10**
O45	0.21	0.13	0.05	0.05	0.01	0.05	0.01	0.05	**0.07**
O46	0.08	0.08	0.06	0.06	0.07	0.08	0.03	0.05	**0.07**
O47	0.06	0.02	0.03	0.10	0.05	0.08	0.05	0.05	**0.05**
O48	0.05	0.01	0.05	0.15	0.05	0.08	0.04	0.04	**0.06**
O49	0.07	0.03	0.04	0.23	0.11	0.09	0.04	0.04	**0.09**
O50	0.05	0.02	0.05	0.08	0.02	0.09	0.03	0.11	**0.05**
O51	0.14	0.06	0.07	0.08	0.08	0.05	0.03	0.12	**0.08**
O52	0.23	0.11	0.06	0.07	0.10	0.05	0.02	0.07	**0.09**
O53	0.38	0.30	0.03	0.06	0.02	0.05	0.03	0.05	**0.12**
O54	0.05	0.02	0.01	0.02	0.01	0.02	0.01	0.10	**0.03**
O55	0.16	0.09	0.04	0.06	0.01	0.13	0.06	0.02	**0.07**
O56	0.10	0.11	0.12	0.23	0.10	0.27	0.18	0.05	**0.15**
O57	0.08	0.13	0.10	0.20	0.09	0.18	0.13	0.28	**0.14**
O58	0.04	0.15	0.06	0.04	0.07	0.09	0.10	0.31	**0.09**
O59	0.05	0.12	0.02	0.13	0.17	0.21	0.12	0.04	**0.10**
O60	0.18	0.23	0.16	0.10	0.12	0.19	0.17	0.06	**0.15**
O61	0.26	0.15	0.10	0.14	0.13	0.25	0.19	0.01	**0.15**
O62	0.16	0.17	0.04	0.05	0.16	0.23	0.18	0.02	**0.12**
O63	0.11	0.02	0.18	0.21	0.20	0.22	0.18	0.03	**0.15**
O64	0.09	0.10	0.08	0.02	0.13	0.21	0.05	0.08	**0.09**
O65	0.29	0.06	0.09	0.03	0.10	0.26	0.18	0.06	**0.12**
O66	0.26	0.10	0.20	0.07	0.27	0.06	0.08	0.03	**0.14**
O67	0.41	0.11	0.25	0.09	0.24	0.32	0.32	0.05	**0.21**
O68	0.23	0.20	0.20	0.07	0.13	0.28	0.28	0.10	**0.18**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O69	0.37	0.29	0.03	0.12	0.25	0.29	0.26	0.10	**0.19**
O70	0.22	0.16	0.07	0.03	0.05	0.06	0.11	0.11	**0.09**
O71	0.28	0.05	0.06	0.17	0.23	0.29	0.25	0.09	**0.16**
O72	0.17	0.02	0.02	0.12	0.12	0.22	0.16	0.11	**0.10**
O73	0.23	0.05	0.01	0.10	0.16	0.17	0.17	0.05	**0.10**
O74	0.04	0.07	0.02	0.01	0.10	0.01	0.07	0.11	**0.05**
O75	0.14	0.06	0.20	0.18	0.12	0.12	0.10	0.09	**0.13**
O76	0.04	0.05	0.03	0.05	0.23	0.10	0.07	0.02	**0.07**
O77	0.14	0.19	0.05	0.03	0.14	0.12	0.14	0.08	**0.10**
O78	0.16	0.09	0.08	0.05	0.09	0.09	0.09	0.15	**0.09**
O79	0.14	0.09	0.02	0.04	0.05	0.16	0.11	0.08	**0.08**
O80	0.26	0.18	0.49	0.49	0.17	0.34	0.13	0.08	**0.31**
O81	0.26	0.27	0.32	0.34	0.29	0.15	0.19	0.12	**0.27**
O82	0.26	0.18	0.36	0.36	0.50	0.35	0.40	0.18	**0.33**
O83	0.19	0.18	0.27	0.29	0.41	0.32	0.30	0.15	**0.26**
O84	0.12	0.22	0.24	0.26	0.48	0.28	0.38	0.14	**0.26**
O85	0.33	0.16	0.11	0.20	0.55	0.31	0.35	0.13	**0.25**
O86	0.16	0.34	0.44	0.32	0.40	0.42	0.30	0.18	**0.34**
O87	0.42	0.20	0.23	0.18	0.54	0.40	0.36	0.12	**0.29**
O88	0.01	0.37	0.39	0.31	0.25	0.19	0.29	0.20	**0.28**
O89	0.18	0.06	0.09	0.11	0.15	0.08	0.09	0.24	**0.12**
O90	0.13	0.02	0.03	0.03	0.16	0.16	0.24	0.13	**0.09**
O91	0.13	0.01	0.05	0.09	0.13	0.10	0.05	0.10	**0.08**
O92	0.04	0.03	0.10	0.21	0.37	0.21	0.36	0.15	**0.17**
O93	0.25	0.16	0.33	0.25	0.24	0.17	0.24	0.11	**0.23**
O94	0.04	0.09	0.12	0.09	0.15	0.11	0.15	0.10	**0.11**
O95	0.10	0.09	0.06	0.22	0.15	0.11	0.10	0.07	**0.12**
O96	0.08	0.09	0.05	0.15	0.25	0.19	0.21	0.04	**0.13**
O97	0.05	0.01	0.10	0.22	0.04	0.05	0.04	0.12	**0.09**
O98	0.19	0.06	0.04	0.13	0.18	0.10	0.05	0.07	**0.10**
O99	0.01	0.04	0.10	0.28	0.07	0.15	0.04	0.09	**0.11**
O100	0.02	0.08	0.23	0.42	0.25	0.15	0.09	0.09	**0.19**
O101	0.04	0.03	0.03	0.14	0.05	0.11	0.17	0.16	**0.08**
O102	0.04	0.04	0.21	0.34	0.28	0.12	0.24	0.03	**0.18**
O103	0.06	0.16	0.07	0.09	0.18	0.27	0.20	0.25	**0.14**
O104	0.03	0.19	0.09	0.13	0.19	0.26	0.20	0.24	**0.15**
O105	0.09	0.10	0.04	0.06	0.17	0.26	0.08	0.14	**0.10**
O106	0.07	0.07	0.01	0.16	0.15	0.15	0.08	0.15	**0.10**
O107	0.11	0.06	0.04	0.09	0.09	0.04	0.05	0.24	**0.08**
O108	0.14	0.05	0.10	0.14	0.09	0.10	0.26	0.32	**0.13**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O109	0.18	0.02	0.05	0.08	0.08	0.16	0.07	0.23	**0.09**
O110	0.26	0.12	0.09	0.28	0.38	0.32	0.15	0.08	**0.21**
O111	0.18	0.08	0.01	0.17	0.15	0.19	0.20	0.06	**0.12**
O112	0.17	0.03	0.20	0.49	0.34	0.27	0.17	0.14	**0.24**
O113	0.13	0.03	0.11	0.39	0.21	0.31	0.30	0.22	**0.20**
O114	0.16	0.05	0.16	0.33	0.25	0.24	0.18	0.30	**0.20**
O115	0.10	0.04	0.21	0.38	0.33	0.24	0.15	0.20	**0.22**
O116	0.03	0.08	0.23	0.19	0.26	0.20	0.36	0.31	**0.20**
O117	0.08	0.01	0.05	0.06	0.07	0.06	0.03	0.44	**0.08**
O118	0.08	0.08	0.13	0.24	0.10	0.04	0.14	0.11	**0.12**
O119	0.01	0.17	0.31	0.19	0.26	0.12	0.14	0.15	**0.19**
O120	0.04	0.01	0.20	0.13	0.24	0.14	0.25	0.19	**0.14**
O121	0.03	0.11	0.22	0.07	0.12	0.17	0.26	0.07	**0.13**
O122	0.18	0.19	0.09	0.24	0.14	0.29	0.34	0.32	**0.20**
O123	0.11	0.16	0.07	0.15	0.10	0.20	0.28	0.38	**0.16**
O124	0.05	0.10	0.06	0.18	0.21	0.10	0.19	0.35	**0.14**
O125	0.07	0.06	0.07	0.12	0.14	0.05	0.03	0.26	**0.09**
O126	0.20	0.18	0.16	0.16	0.22	0.35	0.25	0.21	**0.20**
O127	0.18	0.16	0.04	0.21	0.14	0.11	0.21	0.41	**0.16**
O128	0.24	0.17	0.13	0.14	0.11	0.23	0.34	0.12	**0.17**
O129	0.08	0.08	0.06	0.07	0.15	0.22	0.26	0.28	**0.12**
O130	0.12	0.12	0.09	0.15	0.10	0.11	0.12	0.26	**0.12**
O131	0.17	0.15	0.38	0.40	0.43	0.08	0.34	0.19	**0.29**
O132	0.08	0.16	0.12	0.12	0.14	0.02	0.19	0.03	**0.12**
O133	0.04	0.10	0.16	0.17	0.11	0.05	0.15	0.14	**0.12**
O134	0.24	0.07	0.08	0.16	0.02	0.10	0.08	0.15	**0.11**
O135	0.22	0.08	0.06	0.10	0.03	0.07	0.02	0.13	**0.09**
O136	0.14	0.04	0.07	0.15	0.14	0.17	0.15	0.31	**0.13**
O137	0.12	0.07	0.10	0.54	0.19	0.43	0.12	0.18	**0.22**
O138	0.01	0.04	0.09	0.36	0.12	0.31	0.11	0.09	**0.15**
O139	0.04	0.06	0.05	0.36	0.19	0.45	0.45	0.11	**0.19**
O140	0.05	0.02	0.15	0.24	0.07	0.27	0.33	0.43	**0.17**
O141	0.13	0.05	0.03	0.24	0.13	0.19	0.17	0.31	**0.14**
O142	0.15	0.03	0.14	0.14	0.08	0.13	0.15	0.19	**0.12**
O143	0.13	0.04	0.13	0.15	0.12	0.23	0.25	0.12	**0.14**
O144	0.17	0.03	0.07	0.10	0.16	0.17	0.17	0.22	**0.12**

D3 Enhanced PRH Scheme

D3.1 Perimeter Test Points

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Annual 79.4%
P1	0.19	0.05	0.01	0.17	0.32	0.34	0.30	0.13	**0.17**
P2	0.22	0.15	0.08	0.13	0.24	0.28	0.25	0.20	**0.17**
P3	0.19	0.15	0.08	0.11	0.18	0.21	0.19	0.02	**0.13**
P4	0.17	0.14	0.06	0.12	0.19	0.22	0.20	0.14	**0.14**
P5	0.15	0.14	0.07	0.12	0.18	0.21	0.21	0.08	**0.14**
P6	0.11	0.12	0.11	0.11	0.19	0.21	0.21	0.09	**0.14**
P7	0.08	0.09	0.15	0.11	0.14	0.25	0.26	0.04	**0.13**
P8	0.04	0.05	0.07	0.01	0.05	0.02	0.03	0.05	**0.04**
P9	0.03	0.01	0.05	0.08	0.16	0.16	0.17	0.07	**0.08**
P10	0.10	0.02	0.06	0.07	0.23	0.24	0.26	0.14	**0.12**
P11	0.22	0.12	0.02	0.07	0.20	0.25	0.25	0.20	**0.14**
P12	0.27	0.20	0.02	0.12	0.26	0.31	0.30	0.22	**0.18**
P13	0.18	0.18	0.01	0.29	0.31	0.35	0.32	0.23	**0.21**
P14	0.06	0.14	0.01	0.34	0.32	0.37	0.33	0.22	**0.20**
P15	0.15	0.12	0.01	0.27	0.35	0.39	0.33	0.22	**0.21**
P16	0.27	0.12	0.08	0.18	0.37	0.42	0.32	0.21	**0.22**
P17	0.31	0.12	0.11	0.22	0.38	0.41	0.31	0.22	**0.24**
P18	0.32	0.03	0.13	0.25	0.34	0.34	0.22	0.18	**0.21**
P19	0.31	0.05	0.15	0.12	0.20	0.15	0.06	0.17	**0.15**
P20	0.20	0.05	0.14	0.08	0.09	0.09	0.10	0.17	**0.11**
P21	0.06	0.02	0.09	0.05	0.10	0.10	0.09	0.17	**0.08**
P22	0.12	0.05	0.04	0.07	0.06	0.12	0.09	0.02	**0.07**
P23	0.15	0.10	0.05	0.31	0.35	0.28	0.22	0.04	**0.19**
P24	0.15	0.13	0.02	0.33	0.39	0.37	0.28	0.10	**0.21**
P25	0.16	0.11	0.02	0.30	0.33	0.35	0.27	0.11	**0.19**
P26	0.17	0.05	0.03	0.20	0.17	0.21	0.15	0.07	**0.12**
P27	0.29	0.05	0.01	0.19	0.04	0.20	0.17	0.16	**0.12**
P28	0.28	0.06	0.04	0.12	0.11	0.17	0.18	0.09	**0.12**
P29	0.04	0.08	0.04	0.10	0.12	0.10	0.08	0.12	**0.08**
P30	0.07	0.09	0.05	0.19	0.19	0.22	0.20	0.22	**0.14**
P31	0.13	0.10	0.07	0.22	0.24	0.30	0.23	0.20	**0.17**
P32	0.12	0.10	0.08	0.23	0.26	0.31	0.21	0.14	**0.17**
P33	0.12	0.10	0.08	0.23	0.27	0.25	0.15	0.14	**0.16**
P34	0.11	0.10	0.09	0.22	0.28	0.19	0.13	0.17	**0.16**
P35	0.09	0.10	0.09	0.24	0.30	0.18	0.12	0.20	**0.16**
P36	0.07	0.10	0.09	0.27	0.31	0.21	0.15	0.17	**0.17**
P37	0.04	0.11	0.08	0.35	0.37	0.25	0.19	0.18	**0.20**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Annual 79.4%
P38	0.07	0.04	0.01	0.07	0.08	0.13	0.17	0.20	**0.08**
P39	0.07	0.04	0.03	0.16	0.17	0.09	0.04	0.24	**0.10**
P40	0.07	0.04	0.02	0.14	0.21	0.13	0.09	0.20	**0.10**
P41	0.08	0.05	0.02	0.24	0.32	0.15	0.08	0.10	**0.13**
P42	0.11	0.04	0.04	0.22	0.04	0.09	0.08	0.14	**0.09**
P43	0.10	0.05	0.04	0.23	0.05	0.12	0.08	0.03	**0.09**

D3.2 Overall Test Points

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O1	0.13	0.12	0.08	0.02	0.05	0.10	0.04	0.06	**0.07**
O2	0.11	0.07	0.07	0.01	0.08	0.10	0.04	0.25	**0.08**
O3	0.12	0.06	0.09	0.06	0.04	0.07	0.02	0.19	**0.08**
O4	0.11	0.02	0.08	0.10	0.02	0.01	0.03	0.18	**0.07**
O5	0.11	0.02	0.09	0.09	0.06	0.07	0.02	0.18	**0.08**
O6	0.04	0.16	0.11	0.18	0.20	0.11	0.07	0.14	**0.13**
O7	0.06	0.19	0.09	0.15	0.08	0.19	0.15	0.17	**0.13**
O8	0.07	0.06	0.05	0.25	0.19	0.16	0.09	0.24	**0.13**
O9	0.08	0.05	0.02	0.18	0.18	0.12	0.05	0.24	**0.11**
O10	0.03	0.06	0.03	0.04	0.16	0.32	0.21	0.31	**0.11**
O11	0.07	0.12	0.07	0.17	0.28	0.15	0.11	0.24	**0.15**
O12	0.09	0.16	0.10	0.11	0.19	0.19	0.07	0.06	**0.12**
O13	0.20	0.09	0.03	0.14	0.28	0.30	0.25	0.07	**0.15**
O14	0.18	0.11	0.05	0.15	0.27	0.29	0.25	0.18	**0.16**
O15	0.11	0.10	0.06	0.12	0.19	0.20	0.20	0.18	**0.13**
O16	0.04	0.03	0.13	0.13	0.22	0.24	0.24	0.13	**0.13**
O17	0.10	0.01	0.13	0.14	0.19	0.20	0.19	0.13	**0.13**
O18	0.11	0.11	0.15	0.08	0.19	0.09	0.08	0.12	**0.12**
O19	0.24	0.15	0.14	0.15	0.10	0.05	0.05	0.10	**0.13**
O20	0.03	0.14	0.04	0.13	0.20	0.17	0.18	0.18	**0.12**
O21	0.14	0.17	0.06	0.08	0.11	0.22	0.21	0.18	**0.13**
O22	0.15	0.16	0.05	0.06	0.05	0.17	0.15	0.14	**0.11**
O23	0.12	0.09	0.17	0.19	0.10	0.22	0.19	0.17	**0.15**
O24	0.06	0.13	0.49	0.47	0.09	0.20	0.12	0.14	**0.26**
O25	0.25	0.06	0.41	0.40	0.04	0.32	0.10	0.13	**0.24**
O26	0.21	0.06	0.22	0.20	0.36	0.32	0.42	0.13	**0.23**
O27	0.17	0.03	0.35	0.31	0.46	0.30	0.40	0.15	**0.27**
O28	0.11	0.13	0.23	0.24	0.44	0.23	0.30	0.12	**0.23**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O29	0.36	0.13	0.22	0.19	0.43	0.26	0.33	0.17	**0.25**
O30	0.39	0.09	0.27	0.18	0.39	0.31	0.33	0.23	**0.26**
O31	0.42	0.22	0.21	0.12	0.52	0.40	0.30	0.20	**0.28**
O32	0.32	0.15	0.22	0.17	0.44	0.40	0.22	0.21	**0.25**
O33	0.16	0.16	0.27	0.22	0.20	0.11	0.20	0.16	**0.20**
O34	0.40	0.20	0.29	0.14	0.12	0.24	0.22	0.05	**0.21**
O35	0.27	0.06	0.44	0.27	0.08	0.23	0.23	0.16	**0.23**
O36	0.23	0.01	0.21	0.10	0.07	0.26	0.17	0.11	**0.14**
O37	0.16	0.04	0.11	0.10	0.35	0.38	0.29	0.32	**0.19**
O38	0.22	0.10	0.28	0.12	0.27	0.37	0.25	0.26	**0.22**
O39	0.15	0.07	0.33	0.12	0.28	0.18	0.29	0.22	**0.20**
O40	0.04	0.02	0.13	0.14	0.24	0.25	0.25	0.07	**0.13**
O41	0.09	0.13	0.22	0.22	0.05	0.21	0.26	0.33	**0.18**
O42	0.03	0.01	0.01	0.07	0.02	0.02	0.01	0.04	**0.03**
O43	0.12	0.12	0.06	0.10	0.11	0.11	0.04	0.08	**0.09**
O44	0.30	0.24	0.03	0.01	0.04	0.01	0.01	0.06	**0.09**
O45	0.20	0.13	0.05	0.04	0.03	0.04	0.01	0.04	**0.07**
O46	0.08	0.08	0.07	0.06	0.07	0.07	0.06	0.05	**0.07**
O47	0.07	0.03	0.01	0.09	0.06	0.07	0.05	0.03	**0.05**
O48	0.09	0.03	0.04	0.13	0.04	0.06	0.04	0.03	**0.06**
O49	0.08	0.03	0.03	0.17	0.04	0.08	0.05	0.10	**0.08**
O50	0.05	0.01	0.05	0.06	0.01	0.09	0.05	0.12	**0.05**
O51	0.13	0.06	0.07	0.10	0.04	0.05	0.03	0.07	**0.07**
O52	0.23	0.11	0.06	0.06	0.08	0.09	0.06	0.05	**0.09**
O53	0.39	0.29	0.03	0.07	0.04	0.05	0.03	0.10	**0.12**
O54	0.06	0.02	0.02	0.02	0.01	0.01	0.01	0.02	**0.02**
O55	0.16	0.08	0.04	0.02	0.01	0.07	0.04	0.03	**0.06**
O56	0.11	0.05	0.05	0.16	0.09	0.30	0.18	0.29	**0.13**
O57	0.07	0.05	0.11	0.10	0.15	0.21	0.13	0.33	**0.12**
O58	0.05	0.09	0.06	0.03	0.04	0.05	0.06	0.04	**0.05**
O59	0.04	0.09	0.02	0.13	0.17	0.23	0.15	0.07	**0.10**
O60	0.12	0.23	0.17	0.09	0.11	0.17	0.17	0.02	**0.14**
O61	0.28	0.09	0.10	0.14	0.15	0.25	0.20	0.03	**0.15**
O62	0.18	0.17	0.03	0.04	0.17	0.25	0.19	0.02	**0.12**
O63	0.09	0.01	0.18	0.21	0.17	0.24	0.18	0.09	**0.15**
O64	0.08	0.10	0.09	0.01	0.16	0.22	0.05	0.07	**0.09**
O65	0.28	0.07	0.07	0.07	0.11	0.26	0.17	0.03	**0.12**
O66	0.27	0.09	0.20	0.09	0.21	0.13	0.12	0.06	**0.15**
O67	0.41	0.11	0.25	0.07	0.20	0.31	0.31	0.10	**0.21**
O68	0.23	0.20	0.21	0.07	0.08	0.27	0.28	0.10	**0.17**

Freq.	NNE 8.6%	NE 11.9%	ENE 15.7%	E 14.4%	ESE 9.9%	SE 6.7%	SSE 6.1%	S 6.1%	Overall 79.4%
O69	0.35	0.27	0.04	0.08	0.29	0.28	0.27	0.06	**0.19**
O70	0.23	0.16	0.08	0.05	0.04	0.06	0.10	0.13	**0.10**
O71	0.29	0.04	0.04	0.17	0.22	0.29	0.26	0.13	**0.16**
O72	0.18	0.02	0.04	0.11	0.16	0.20	0.18	0.04	**0.11**
O73	0.26	0.04	0.01	0.10	0.12	0.16	0.16	0.14	**0.11**
O74	0.04	0.08	0.03	0.01	0.05	0.01	0.07	0.09	**0.04**
O75	0.14	0.06	0.19	0.19	0.13	0.12	0.10	0.02	**0.13**
O76	0.05	0.05	0.04	0.05	0.26	0.10	0.07	0.08	**0.08**
O77	0.13	0.19	0.06	0.03	0.17	0.12	0.13	0.15	**0.11**
O78	0.15	0.09	0.07	0.05	0.11	0.10	0.10	0.08	**0.09**
O79	0.14	0.09	0.03	0.04	0.07	0.17	0.11	0.07	**0.08**
O80	0.25	0.17	0.49	0.49	0.10	0.35	0.13	0.12	**0.30**
O81	0.26	0.26	0.33	0.35	0.33	0.16	0.19	0.18	**0.28**
O82	0.25	0.17	0.36	0.36	0.47	0.35	0.41	0.15	**0.32**
O83	0.19	0.18	0.27	0.29	0.39	0.33	0.30	0.15	**0.26**
O84	0.13	0.22	0.23	0.26	0.47	0.29	0.38	0.14	**0.26**
O85	0.32	0.15	0.11	0.21	0.54	0.31	0.35	0.18	**0.25**
O86	0.13	0.34	0.44	0.32	0.39	0.42	0.30	0.12	**0.33**
O87	0.42	0.20	0.23	0.18	0.54	0.40	0.36	0.20	**0.30**
O88	0.02	0.37	0.39	0.30	0.26	0.20	0.30	0.24	**0.28**
O89	0.18	0.06	0.09	0.12	0.16	0.08	0.09	0.13	**0.11**
O90	0.14	0.02	0.04	0.04	0.12	0.16	0.24	0.11	**0.09**
O91	0.12	0.01	0.07	0.09	0.14	0.10	0.05	0.15	**0.08**
O92	0.04	0.03	0.10	0.21	0.37	0.21	0.35	0.10	**0.16**
O93	0.25	0.16	0.33	0.25	0.25	0.18	0.23	0.10	**0.23**
O94	0.04	0.09	0.12	0.10	0.09	0.10	0.15	0.06	**0.10**
O95	0.08	0.09	0.06	0.22	0.09	0.12	0.10	0.05	**0.11**
O96	0.09	0.10	0.05	0.14	0.20	0.19	0.21	0.13	**0.13**
O97	0.03	0.01	0.11	0.22	0.06	0.05	0.05	0.07	**0.09**
O98	0.18	0.05	0.04	0.13	0.12	0.10	0.06	0.10	**0.09**
O99	0.05	0.04	0.10	0.27	0.08	0.15	0.03	0.07	**0.11**
O100	0.06	0.07	0.23	0.42	0.28	0.15	0.08	0.19	**0.21**
O101	0.02	0.02	0.03	0.10	0.11	0.11	0.16	0.02	**0.07**
O102	0.03	0.04	0.22	0.35	0.28	0.16	0.19	0.24	**0.20**
O103	0.11	0.10	0.12	0.05	0.17	0.28	0.13	0.26	**0.13**
O104	0.08	0.13	0.11	0.22	0.18	0.29	0.15	0.25	**0.17**
O105	0.11	0.08	0.05	0.04	0.08	0.20	0.07	0.22	**0.09**
O106	0.08	0.09	0.01	0.15	0.16	0.15	0.09	0.25	**0.11**
O107	0.10	0.05	0.02	0.07	0.13	0.09	0.04	0.28	**0.08**
O108	0.16	0.07	0.07	0.15	0.10	0.15	0.24	0.23	**0.13**

	NNE	NE	ENE	E	ESE	SE	SSE	S	Overall
Freq.	**8.6%**	**11.9%**	**15.7%**	**14.4%**	**9.9%**	**6.7%**	**6.1%**	**6.1%**	**79.4%**
O109	0.12	0.03	0.05	0.04	0.14	0.17	0.06	0.08	**0.08**
O110	0.20	0.12	0.07	0.24	0.31	0.36	0.21	0.03	**0.18**
O111	0.17	0.06	0.02	0.15	0.08	0.07	0.09	0.12	**0.09**
O112	0.06	0.05	0.20	0.49	0.28	0.26	0.17	0.22	**0.23**
O113	0.06	0.04	0.09	0.43	0.22	0.31	0.30	0.29	**0.21**
O114	0.14	0.04	0.17	0.33	0.13	0.24	0.18	0.20	**0.18**
O115	0.10	0.03	0.22	0.38	0.27	0.25	0.15	0.32	**0.22**
O116	0.02	0.08	0.22	0.19	0.18	0.21	0.36	0.43	**0.19**
O117	0.06	0.02	0.05	0.05	0.03	0.06	0.03	0.11	**0.05**
O118	0.06	0.08	0.13	0.24	0.07	0.03	0.14	0.14	**0.12**
O119	0.02	0.17	0.31	0.19	0.36	0.12	0.13	0.19	**0.20**
O120	0.04	0.01	0.19	0.13	0.26	0.15	0.25	0.08	**0.14**
O121	0.03	0.10	0.21	0.08	0.08	0.17	0.26	0.32	**0.14**
O122	0.18	0.19	0.10	0.23	0.09	0.29	0.34	0.38	**0.20**
O123	0.11	0.16	0.06	0.14	0.07	0.20	0.28	0.35	**0.15**
O124	0.07	0.11	0.06	0.18	0.13	0.10	0.19	0.27	**0.13**
O125	0.06	0.05	0.06	0.12	0.09	0.06	0.03	0.22	**0.08**
O126	0.20	0.17	0.16	0.17	0.20	0.35	0.25	0.41	**0.22**
O127	0.18	0.16	0.05	0.21	0.15	0.12	0.22	0.12	**0.15**
O128	0.24	0.18	0.14	0.15	0.09	0.22	0.34	0.28	**0.19**
O129	0.08	0.08	0.05	0.07	0.10	0.21	0.26	0.26	**0.11**
O130	0.12	0.12	0.09	0.14	0.08	0.11	0.12	0.20	**0.12**
O131	0.18	0.16	0.38	0.40	0.43	0.08	0.34	0.04	**0.28**
O132	0.07	0.16	0.13	0.15	0.14	0.03	0.19	0.14	**0.13**
O133	0.04	0.10	0.17	0.17	0.12	0.05	0.15	0.15	**0.13**
O134	0.25	0.06	0.10	0.15	0.04	0.13	0.08	0.14	**0.12**
O135	0.22	0.10	0.07	0.09	0.04	0.09	0.02	0.23	**0.10**
O136	0.05	0.07	0.04	0.15	0.13	0.21	0.14	0.15	**0.11**
O137	0.07	0.07	0.09	0.53	0.23	0.45	0.11	0.09	**0.22**
O138	0.03	0.04	0.10	0.35	0.18	0.31	0.11	0.12	**0.16**
O139	0.05	0.07	0.05	0.35	0.36	0.45	0.44	0.42	**0.24**
O140	0.04	0.02	0.14	0.20	0.10	0.28	0.33	0.30	**0.16**
O141	0.12	0.04	0.04	0.23	0.08	0.23	0.18	0.21	**0.13**
O142	0.11	0.03	0.12	0.13	0.07	0.15	0.14	0.14	**0.11**
O143	0.11	0.03	0.13	0.14	0.12	0.23	0.25	0.22	**0.14**
O144	0.16	0.02	0.08	0.11	0.10	0.16	0.18	0.14	**0.11**

CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES

Cat. A1– Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ 56/2012)

Final Report
For an Instructed Project at Lai Kong Street, Kwai Chung

May 2014

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by Professor Edward Ng
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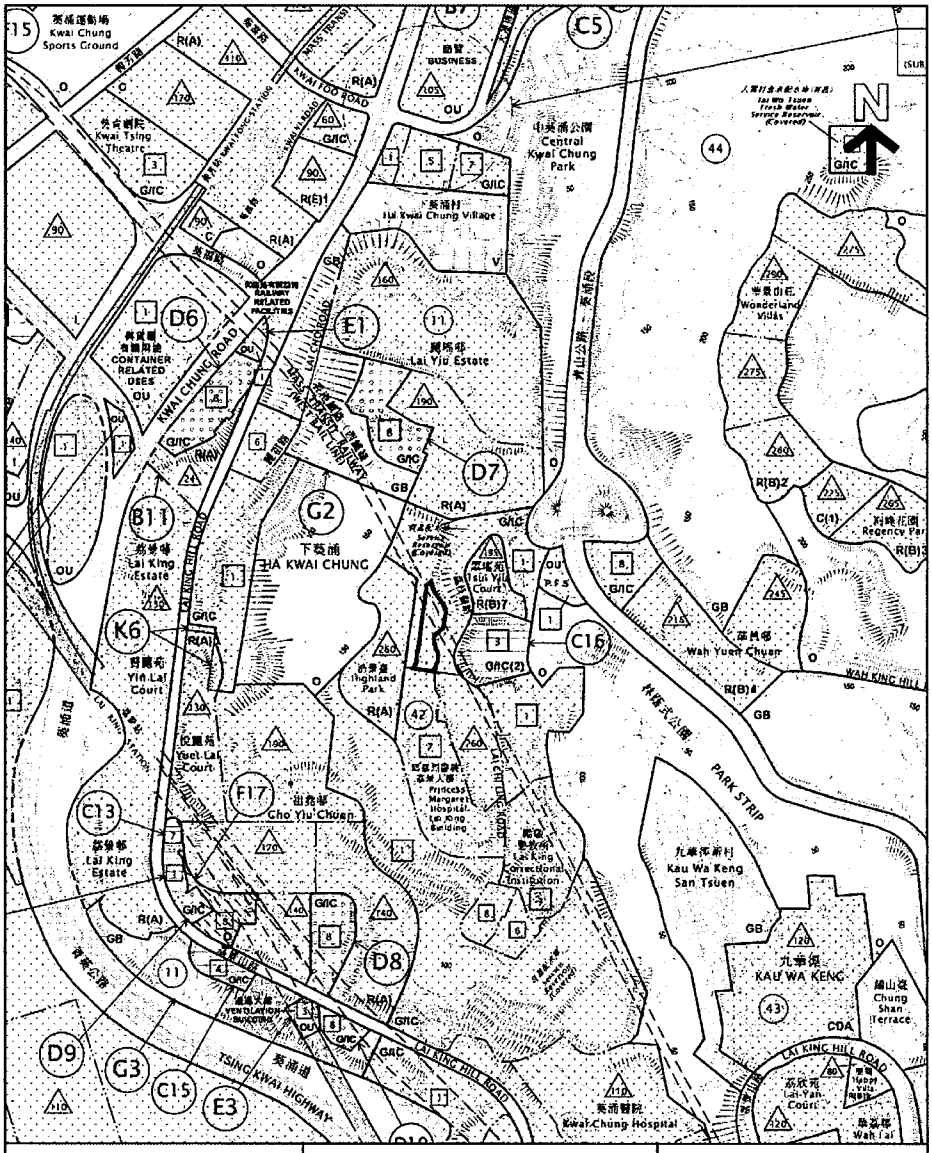
The Project area



Reference Extracted from OZP Plan No. : S/KC/26 Exhibition Date : 20-April-2012 Date : 24-January-2014	Project Area Air Ventilation Assessment By Export Evaluation for a Site at Lai Kong Street, Kwai Chung Scale 1: 7500 Site Boundary Subject to Detailed Land Survey	PLANNING DEPARTMENT Plan 1

Expert Evaluation Report
of an Instructed Project at Lai Kong Street, Kwai Chung

Executive summary

0.1 Wind Availability

(a) The annual wind of the project area mainly comes from the northeast (NE). The summer wind of this area mainly comes from the east (E) and southerly quarters including southwest (SW), south (S) and southeast (SE).

0.2 Existing Conditions

(a) Several mid-rise and high-rise developments are located nearby the project area. They include Highland Park to the west, Tsui Yiu Court to the northeast, Lai Yiu Estate to the north, and Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building to the south.

(b) The frontal width of Tsui Yiu Court is small (around 40m). The project area has a relatively open exposure to winds from the northeast and east. The frontal width of Lai King Disciplined Services Quarters facing the south-easterly wind is small (around 40m) and there is a gap between Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building. It is likely that the southerly and south-easterly winds can penetrate into the project area. Due to the wall-like developments of Highland Park, it is likely that the south-westerly winds will be affected by Highland Park.

0.3 Expert Evaluation of the Project Area

(a) In general, due to Hong Kong's high-density urban morphology, it is not advisable to only rely on building height restriction (or minor changes of building heights) to maintain and/or improve air ventilation. As for most of the areas, air ventilation can achieve better performance if more effective measures, such as breezeways, air paths, open spaces, gaps between buildings and building permeability especially near ground level, are applied as well.

(b) When prevailing winds come from the northeast, east and southeast, the proposed development in the project area is likely to create some wake areas on the leeward sides which will affect Highland Park and the pedestrian level of Lai Kong Street. Given that there would be a Public Transport Interchange (PTI) on G/F, one 30m wide building gap at 10m above ground level in the middle of the project area along an east-west direction to align with the existing building gap of Highland Park between Blocks 3/4 and Blocks 5/6 is recommended to be incorporated at the planning stage. The proposed building gap at 10m above ground level could avoid wall-like developments in the project area to facilitate the penetration of the easterly winds into the west of the project area and channel the easterly wind down to the ground due to the downwash effects. It is also recommended that the proposed PTI

should be carefully designed to increase the permeability of podium structure facing the easterly winds to alleviate the impact on the air ventilation in the street level.

(c) The project area is close to Highland Park separated by Lai Kong Street (about 10m wide). Without detailed information of the proposed developments (including the proposed PTI on G/F), it is difficult to evaluate the extent of the impact caused by the further developments in the project area on Highland Park and the pedestrian level of Lai Kong Street under easterly winds at the Expert Evaluation Stage. It is recommended that, at the building design stage, a quantitative AVA study should be conducted to minimize the negative effects of the project area on its surroundings.

0.4 Further Work

(a) Without detailed information of the proposed developments, it is difficult to evaluate the extent of the impact caused by the future developments. As such, it is recommended that, at building design stage, a quantitative AVA study should be conducted to minimize the negative effects of the project area on its surroundings.

Expert Evaluation Report
of an Instructed Project at Lai Kong Street, Kwai Chung

1.0 The Assignment

1.1 This Instructed Project is to assess the air ventilation impacts of a proposed residential development with a Public Transport Interchange on G/F and some retail shops on the lowest three floors at the project area.

1.2 This expert evaluation report is based on the materials given by Planning Department to the Consultant including:

Site Plan of the project area
Existing building height of surrounding buidings
Kwai Chung OZP zoning ("G/IC", "O" and "GB")
Expert Evaluation on Air Ventilation Assessment of Kwai Chung Area

1.3 The consultant has studied the foregoing materials. During the preparation of the report, the consultant has visited the site and conducted working sessions with Planning Department.

2.0 Background

2.1 Planning Department's study: "Feasibility Study for Establishment of Air Ventilation Assessment System" (Feasibility Study) has recommended that it is important to allow adequate air ventilation through the built environment for pedestrian comfort.

2.2 Given Hong Kong's high density urban development, the study opines that: "more air ventilation, the better" is the useful design guideline.

2.3 The Feasibility Study summarizes 10 qualitative guidelines for planners and designers. For the OZP level of consideration, breezeways/air paths, street grids and orientations, open spaces, non-building areas, waterfront sites, scales of podium, building heights, building dispositions, and greeneries are all important strategic considerations.

2.4 The Feasibility Study also suggests that Air Ventilation Assessment (AVA) be conducted in three stages: Expert Evaluation, Initial Studies, and Detailed Studies. The suggestion has been adopted and incorporated into Housing Planning and Lands Bureau (HPLB) and Environment, Transport and Works Bureau (ETWB) Technical Circular no. 1/06. The key purposes of Expert Evaluation are to the following:

(a) Identify good design features.

(b) Identify obvious problem areas and propose some mitigation measures.
(c) Define "focuses" and methodologies of the Initial and/or Detailed studies.
(d) Determine if further study should be staged into Initial Study and Detailed Study, or Detailed Study alone.

2.5 To conduct the Expert Evaluation systematically and methodologically, it is necessary to undertake the following information analyses:

(a) Analyse relevant wind data as the input conditions to understand the wind environment of the Area.
(b) Analyse the topographical features of the study area, as well as the surrounding areas.
(c) Analyse the greenery/landscape characteristics of the study area, as well as the surrounding areas.
(d) Analyse the land use and built form of the study area, as well as the surrounding areas.

Based on the analyses:

(e) Estimate the characteristics of the input wind conditions of the study area.
(f) Identify the wind paths and wind flow characteristics of the study area through slopes, open spaces, streets, gaps and non-building areas between buildings, and low rise buildings; also identify stagnant/problem areas, if any.
(g) Estimate the need of wind for pedestrian comfort.

Based on the analyses of the EXISTING urban conditions:

(h) Evaluate the strategic role of the study area in air ventilation term.
(i) Identify problematic areas which warrant attention.
(j) Identify existing "good features" that needs to be kept or strengthened.

Based on an understanding of the EXISTING urban conditions:

(k) Compare the prima facie impact, merits or demerits of the different development restrictions as proposed by Planning Department on air ventilation.
(l) Highlight problem areas, if any. Recommend improvements and mitigation measures if possible.
(m) Identify focus areas or issues that may need further studies. Recommend appropriate technical methodologies for the study if needed.

3.0 The Wind Environment

3.1 Hong Kong Observatory (HKO) stations provide useful and reliable data on the wind environment in Hong Kong (Figure 3.1). There are some 46 stations operated by HKO in Hong Kong. Together, these stations allow for a very good general understanding of the wind environment especially near ground level.

Figure 3.1 Some of the HKO stations in Hong Kong. This is a screen capture at 3pm on 17 July 2012 from the HKO website. The arrows show the wind directions and speeds at the given time.

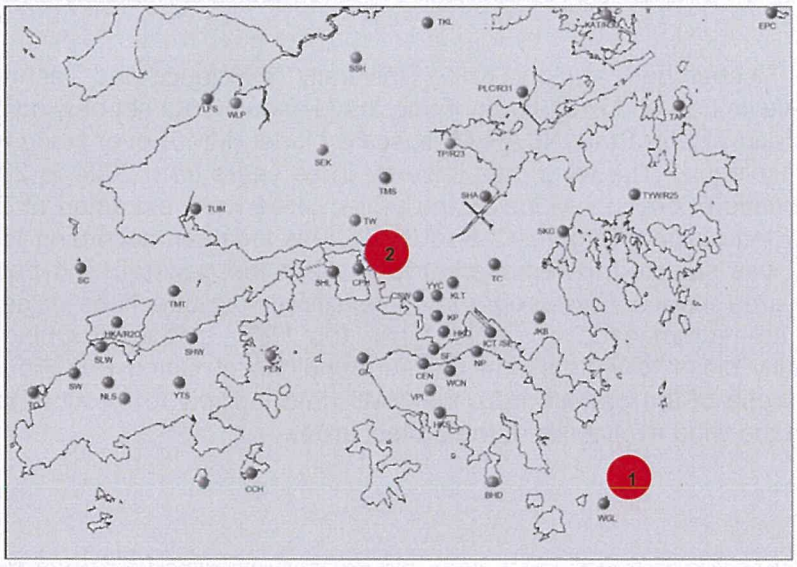


Figure 3.2 The HKO stations at 1: Waglan Island (WGL), 2: Ching Pak House (CPH).

3.2 The HKO station at Waglan Island (WGL) is normally regarded by wind engineers as the reference station for wind related studies (Location 1 in Figure 3.2). The station has a very long measurement record, and is unaffected by Hong Kong's complex topography. However it is known not to be able to capture the thermally induced local wind circulation like sea breezes very well. Based on WGL wind data, studies are typically employed to estimate the site wind availability taking into account the topographical features around the site.

3.3 Based on the annual wind rose of WGL (Figure 3.3), it is apparent that the annual prevailing wind in Hong Kong is from the east. A major component of wind also comes from the northeast; and there is a minor, but nonetheless observable component from the southwest. WGL has weak to moderate wind (0.1m/s to 8.2 m/s) approximately 70% of the time.

3.4 For the study, seasonally or monthly wind environment should be understood (Figures 3.4 and 3.5). During winter, the prevailing wind comes from the northeast, whereas during summer, it comes from the southwest. As far as AVA is concerned, in Hong Kong, the summer wind is very important and beneficial for thermal comfort. Hence, based on WGL data, it is very important to plan our city, on the one hand, to capture the annual wind characteristics, and on the other hand, to maximize the penetration of the summer winds (mainly from the South-West) into the urban fabric.

3.5 Apart from WGL, the wind data of Ching Pak House were also extracted from HKO for reference (Figure 3.6 to Figure 3.8) as the nearest station for understanding the wind environment of the project area in Ha Kwai Chung. It can be observed that the annual prevailing winds are mainly from the east northeast, southeast and south. The summer prevailing winds are mainly from the southeast, south and south southwest.

3.6 Researchers at Hong Kong University of Science and Technology (HKUST), Prof Alexis Lau and Prof Jimmy Fung, have simulated a set of wind data using Fifth-Generation Penn State/NCAR Mesoscale Model (MM5) over Hong Kong with 100m grid resolution. The wind data covered three years from 2004 to 2006[1]. Data from one location (location A) inside the project area were extracted at 230m and 450m above the ground[2] (Figures 3.9 to 3.13). This location, according to the theories of MM5, was selected to representatively reflect the general wind patterns within the study area induced by topography. Prevailing wind directions of each location and level are summarised in Table 1. As the HKO station at Ching Pak House is relatively close to waters and the surroundings of Ching Pak House are different from those of the project area, the MM5 data is likely to be more representative to reflect the wind availability of the project area.

[1] Wind data from 2004 to 2006 simulated by MM5 are the latest available data from the Institute for the Environment (IENV), the Hong Kong University of Science and Technology (HKUST).
[2] The height above sea level of the ground at Location A is about 153mPD.

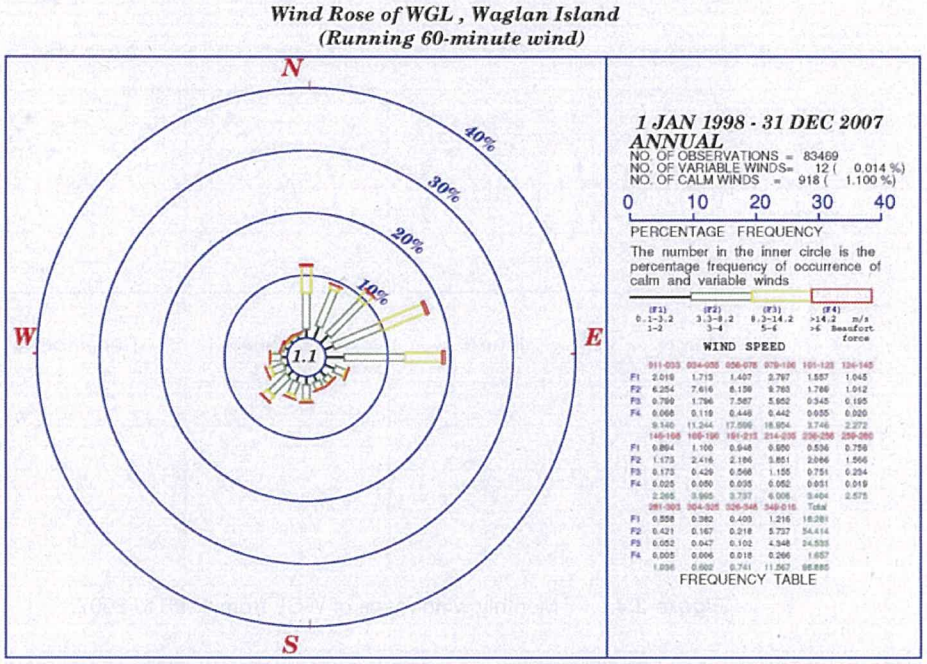


Figure 3.3 Wind rose of WGL from 1998 to 2007[1] (annual).

[1] Wind data from 1998 to 2007 are the latest available 10-year data from HKO to the consultant.

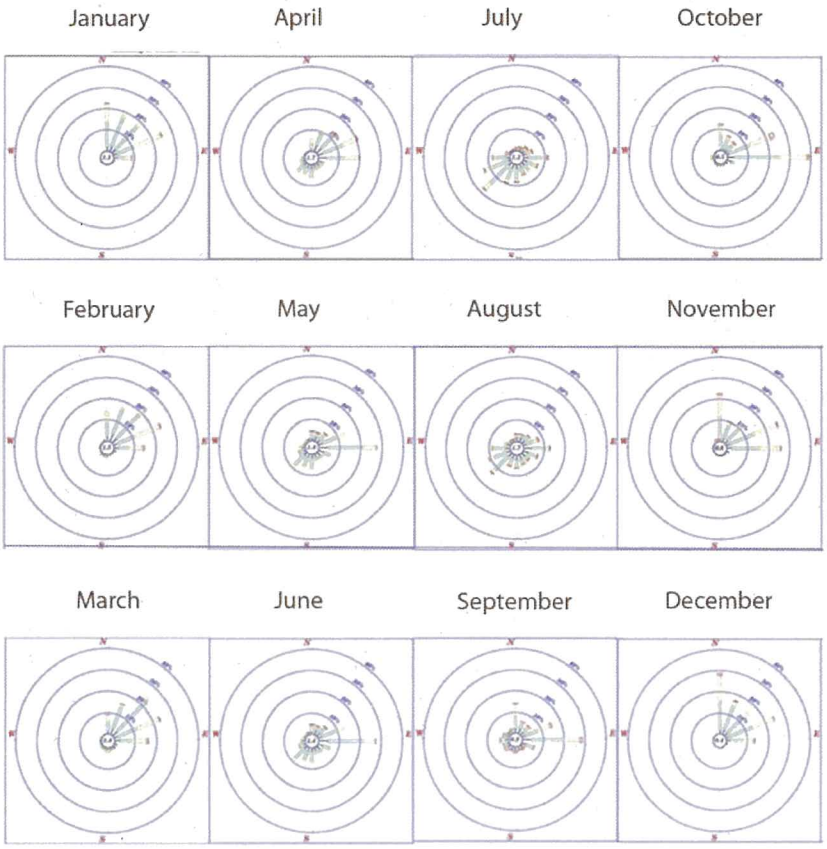


Figure 3.4 Monthly wind roses of WGL from 1998 to 2007.

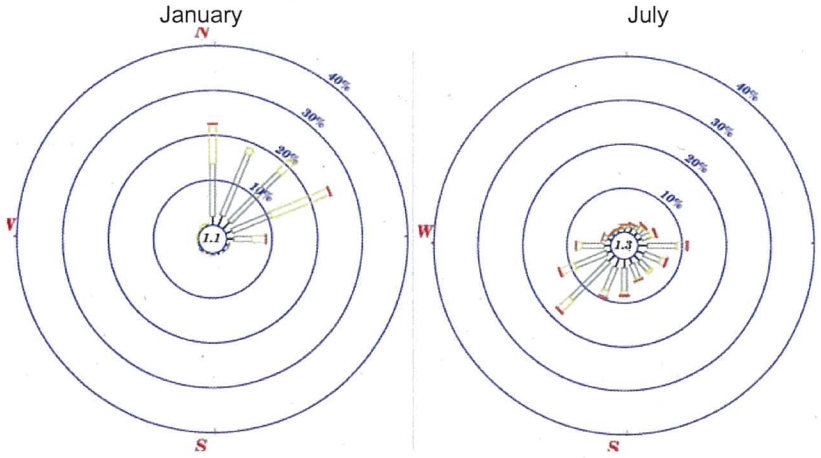


Figure 3.5 Wind roses of WGL from 1998 to 2007 (Jan and July).

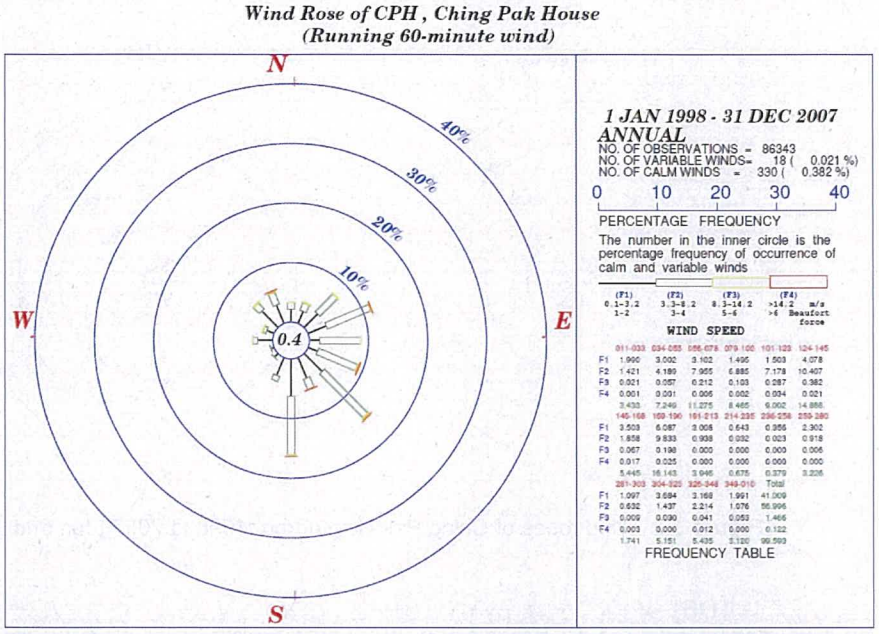


Figure 3.6 Wind rose of Ching Pak House from 1998 to 2007 (annual)

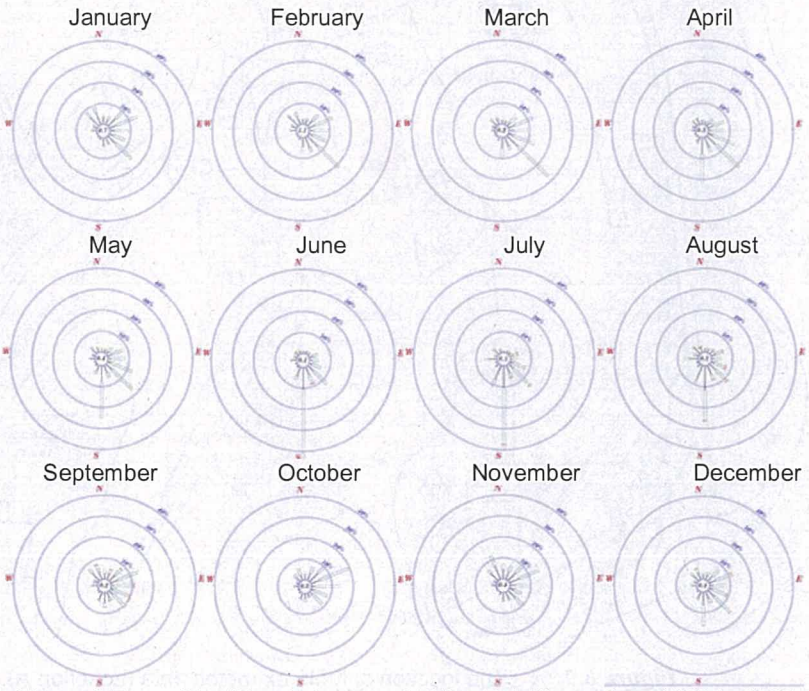


Figure 3.7 Monthly wind roses of Ching Pak House from 1998 to 2007

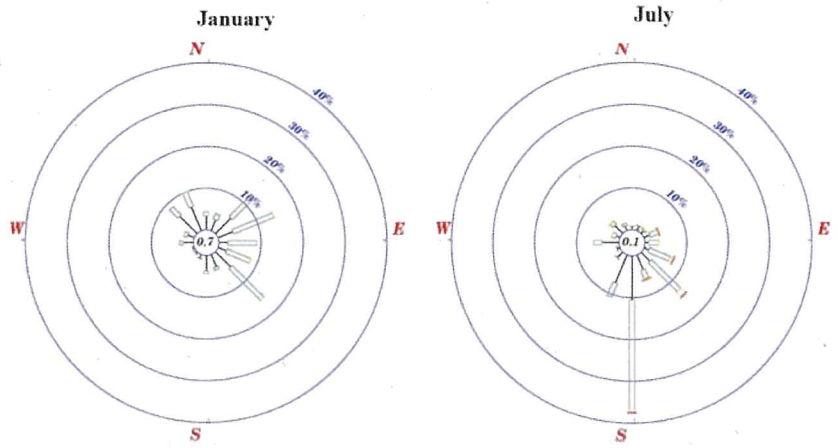


Figure 3.8 Wind roses of Ching Pak House from 1998 to 2007 (Jan and July)

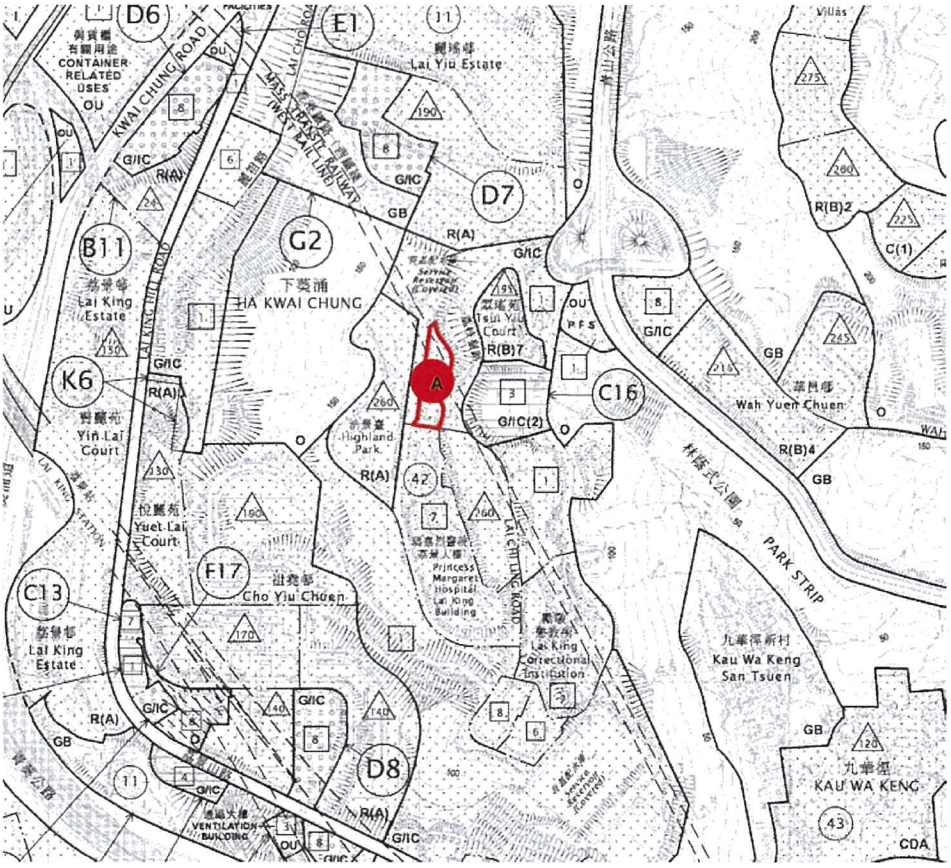


Figure 3.9 The location of MM5 extracted data (Location A).

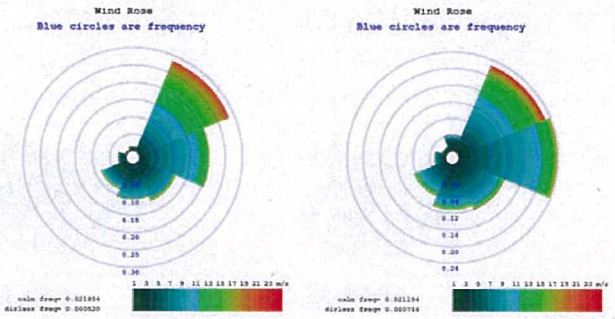


Figure 3.10 Annual Wind roses (2004 - 2006) at A (left: 230 m; right: 450 m).

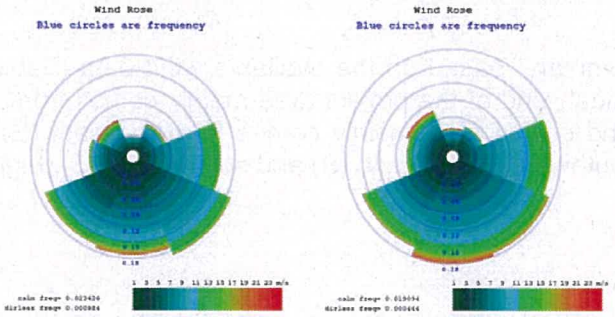


Figure 3.11 Summer Wind roses (2004) at A (left: 230 m; right: 450 m).

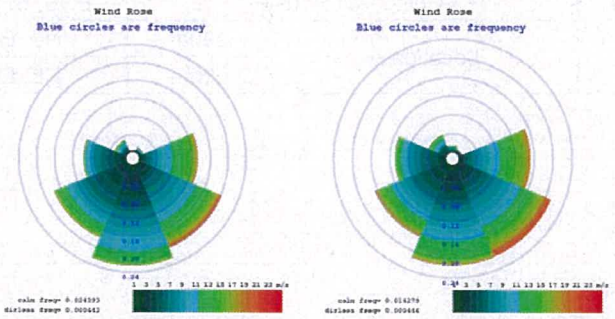


Figure 3.12 Summer Wind roses (2005) at A (left: 230 m; right: 450 m).

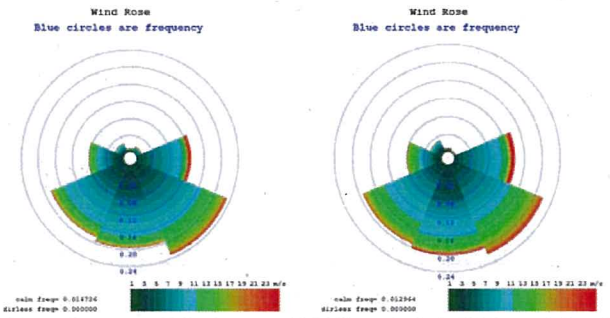


Figure 3.13 Summer Wind roses (2006) at A (left: 230 m; right: 450 m).

3.7 In summary, based on the available wind data (Table 1), one may conclude that the annual wind of the project area mainly comes from the northeast (NE). The summer wind of this area mainly comes from the east (E) and southerly quarters including southwest (SW), south (S) and southeast (SE) (Figure 3.14).

Table 1 Summary of Prevailing Wind Directions

			Period	
			Annual	Summer
HKO station	Ching Pak House		ENE, S, SE	S, SE, SSW
MM5 Simulation	Location A	230m	NE, E	E, SW, S, SE
		450m	NE, E	E, SW, S, SE

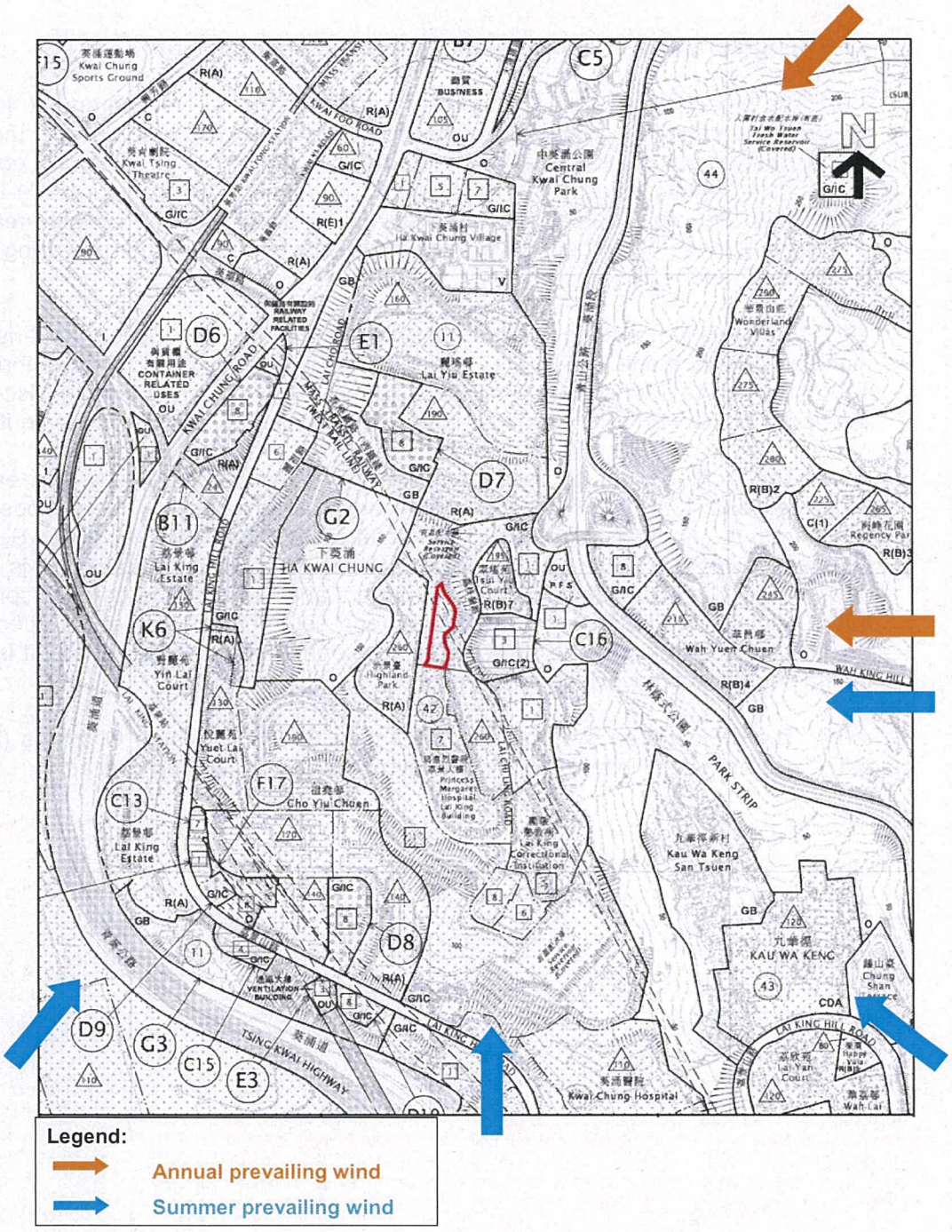


Figure 3.14 A summary of the prevailing winds of the project area.

4.0 Topography, Existing Conditions and Wind Environments

4.0.1 The project area has a ground elevation about 153mPD. The ground level of the project area is topographically higher than its surrounding areas except the area to the west where Highland Park is located (Figures 4.1 to 4.3). The hills near the Kam Shan Country Park to the northeast (blue dotted circle in Figure 4.1) is also higher than the project area, but it is relatively far away from the project area. It is unlikely that these hills would have significant shelter effects on the prevailing winds (Figures 4.2 and 4.3).

4.0.2 The existing building heights are shown in Figure 4.4. Several mid-rise and high-rise developments are located nearby. They include Highland Park to the west, Tsui Yiu Court to the northeast, Lai Yiu Estate to the north, and Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building to the south.

4.0.3 The frontal width of Tsui Yiu Court facing the north-easterly and easterly winds (around 40m) is small. The project area has a relatively open exposure to winds from the northeast and east. The frontal width of Lai King Disciplined Services Quarters facing the south-easterly wind (around 40m) is small and there is a gap between Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building. It is likely that the southerly and south-easterly winds can penetrate into the project area. Due to the wall-like developments of Highland Park, it is likely that the south-westerly winds will be affected by Highland Park.

4.0.4 The project area is surrounded by some "G/IC", "GB" and "O" zones (Figure 4.5). They are useful in terms of forming air paths and generating cool air.

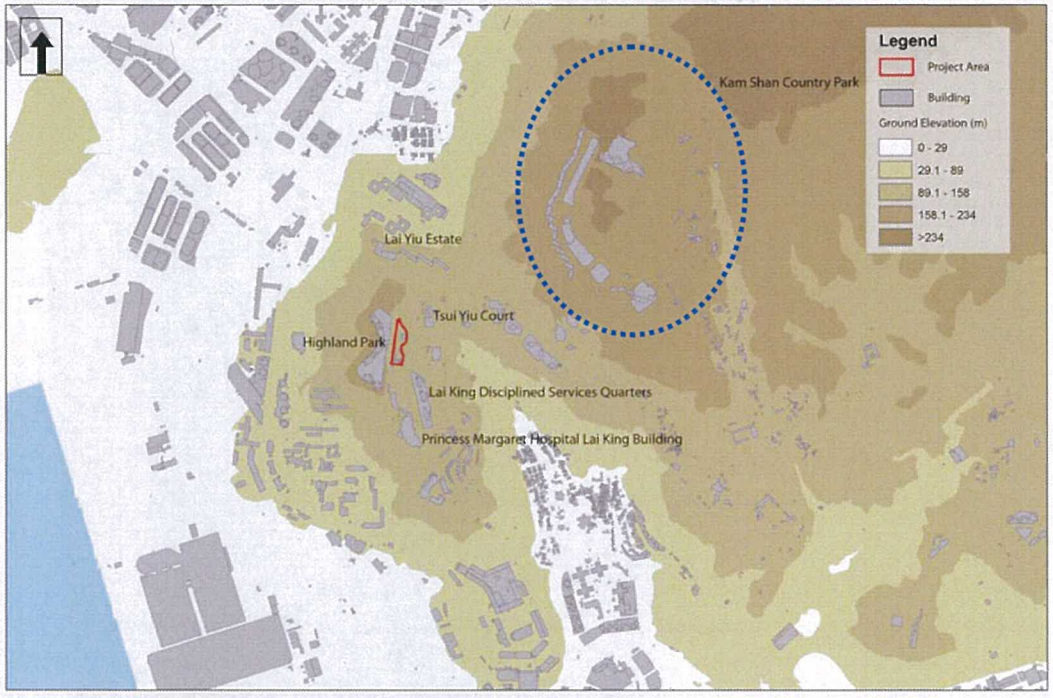


Figure 4.1 A digital elevation map of the project area and its surroundings.

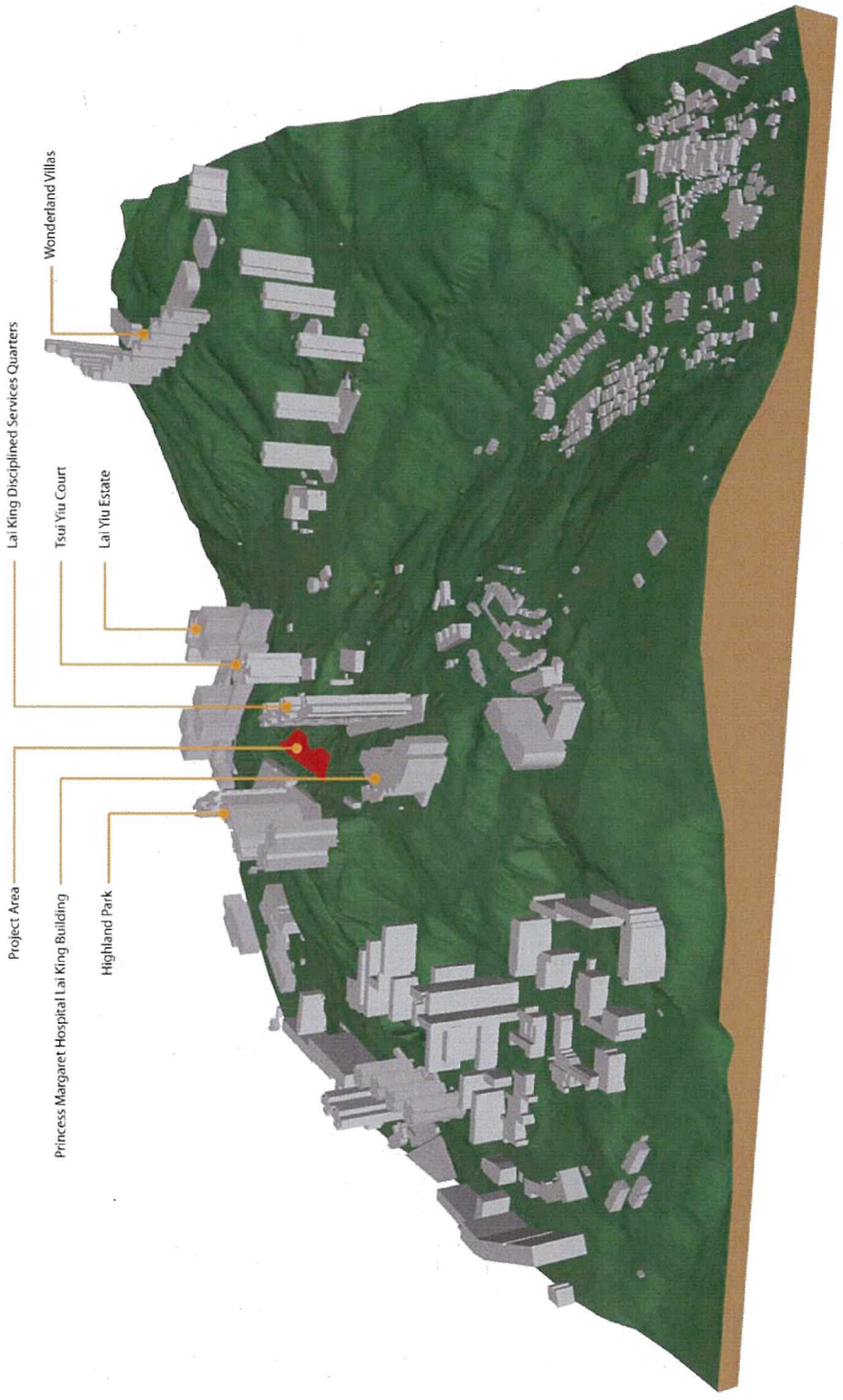


Figure 4.2 A 3D view of the project area and its surroundings.

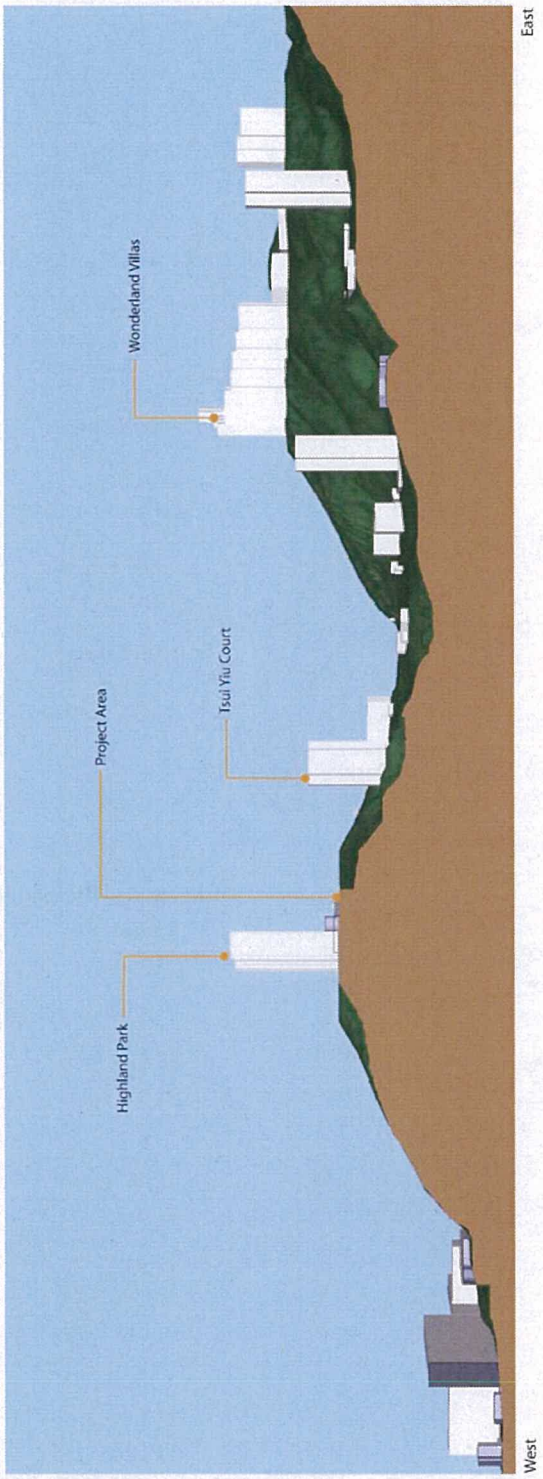


Figure 4.3 An east-west cross section of the project area and its surroundings.

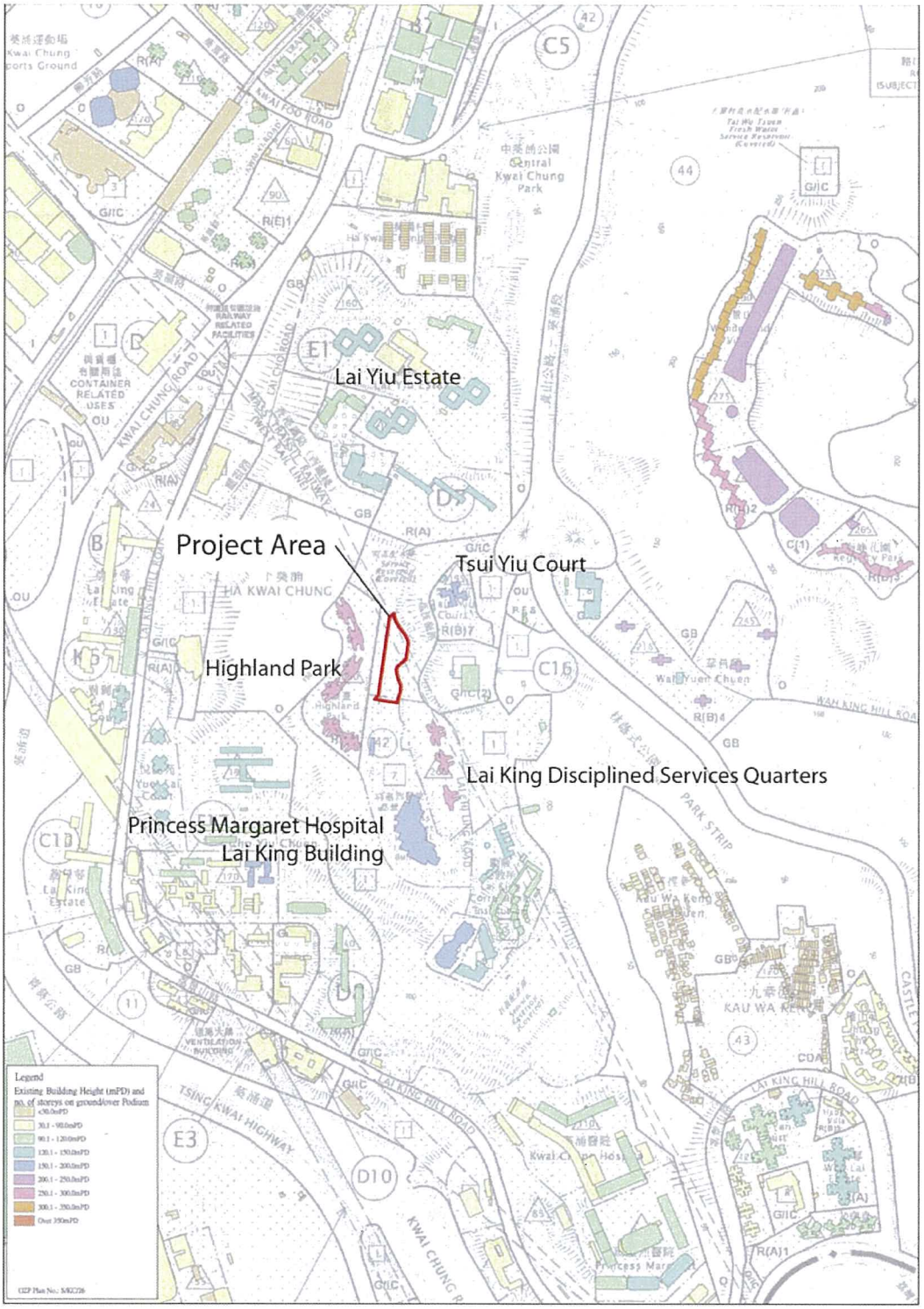


Figure 4.4 The existing building height of surrounding buildings (in mPD).

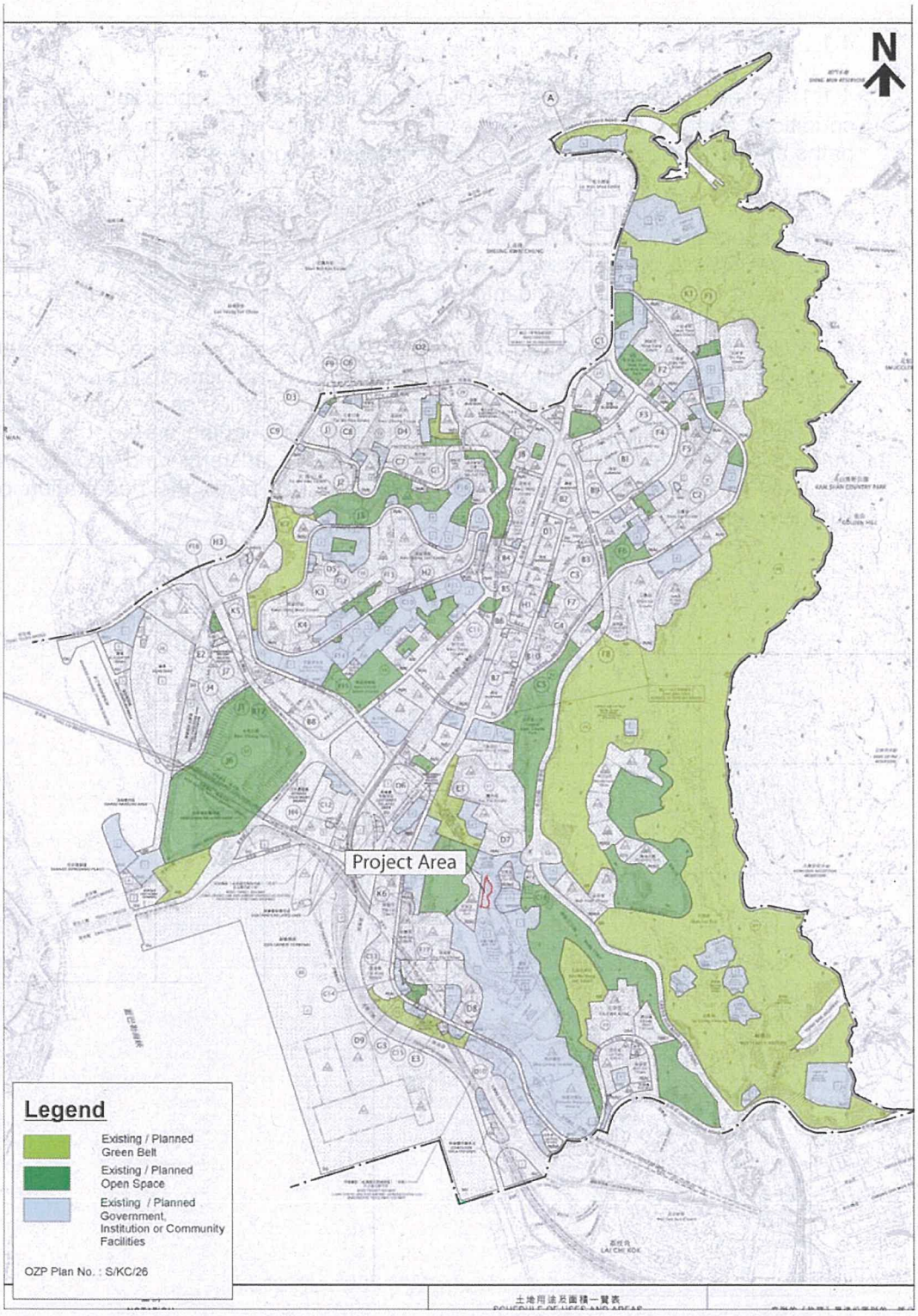


Figure 4.5 Existing "G/IC", "GB" and "O" zones surrounding the project area.

4.1 Air Paths

4.1.1 Based on the analysis of the prevailing winds, the topography, the existing conditions and the findings from the previous studies in Kwai Chung Area[1], the air paths around the project area can be summarized (Figures 4.6 to 4.7).

4.1.2 Under annual prevailing winds, Lai Kong Street and open spaces to the west of the project area can function as air paths to facilitate the penetration of the north-easterly wind into the surrounding areas. It is likely that the project area will block the penetration of the easterly wind into the area to the west of the project area.

4.1.3 Under summer prevailing winds, Lai Kong Street, open spaces between Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building, and open spaces to the west of the project area can function as air paths to facilitate the winds from the south and southeast into the surrounding areas. It is likely that that the project area will block the penetration of the easterly wind into the area to the west of the project area and Highland Park will block the penetration of the south-westerly wind into the project area.

[1] Final Report of Term Consultancy for Expert Evaluation on Air Ventilation Assessment for Kwai Chung Area. Available at http://www.pland.gov.hk/pland_en/info_serv/ava_register/ProjInfo/AVRG68_ExpReport.pdf

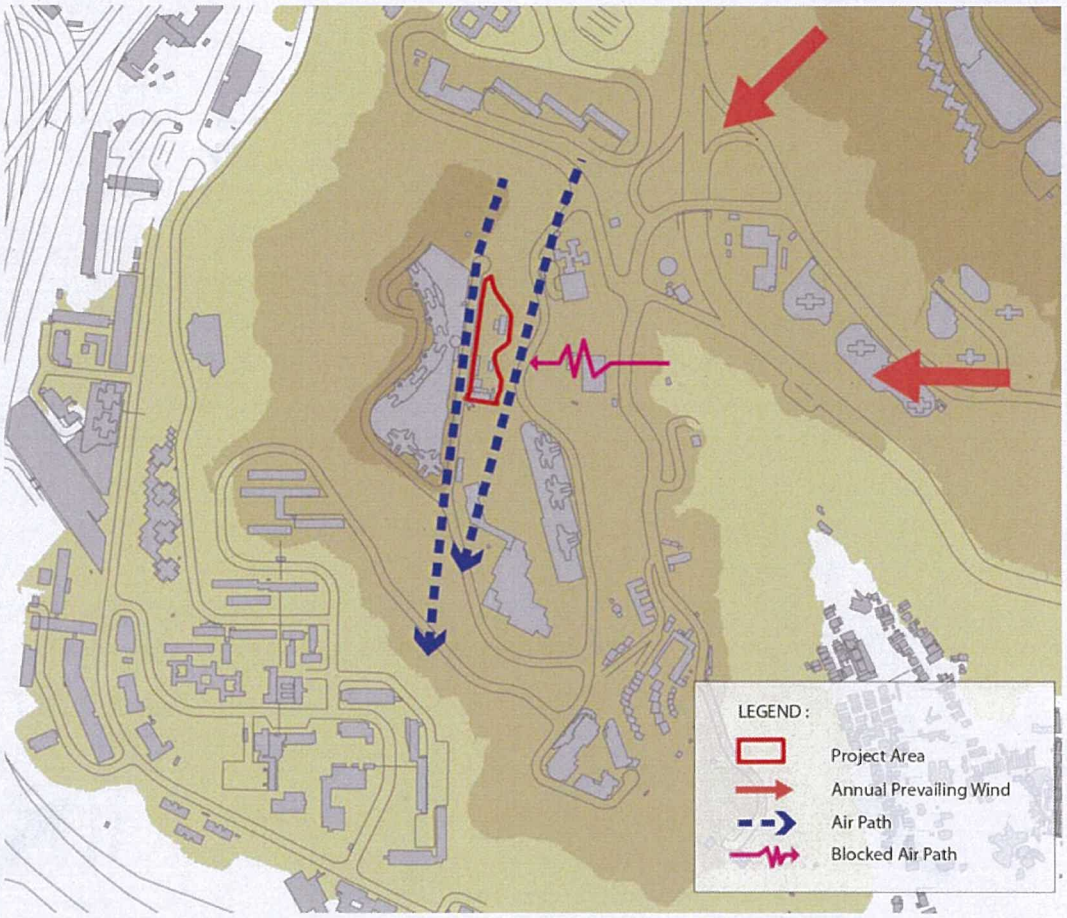


Figure 4.6 Air paths surrounding the project area (annual condition).

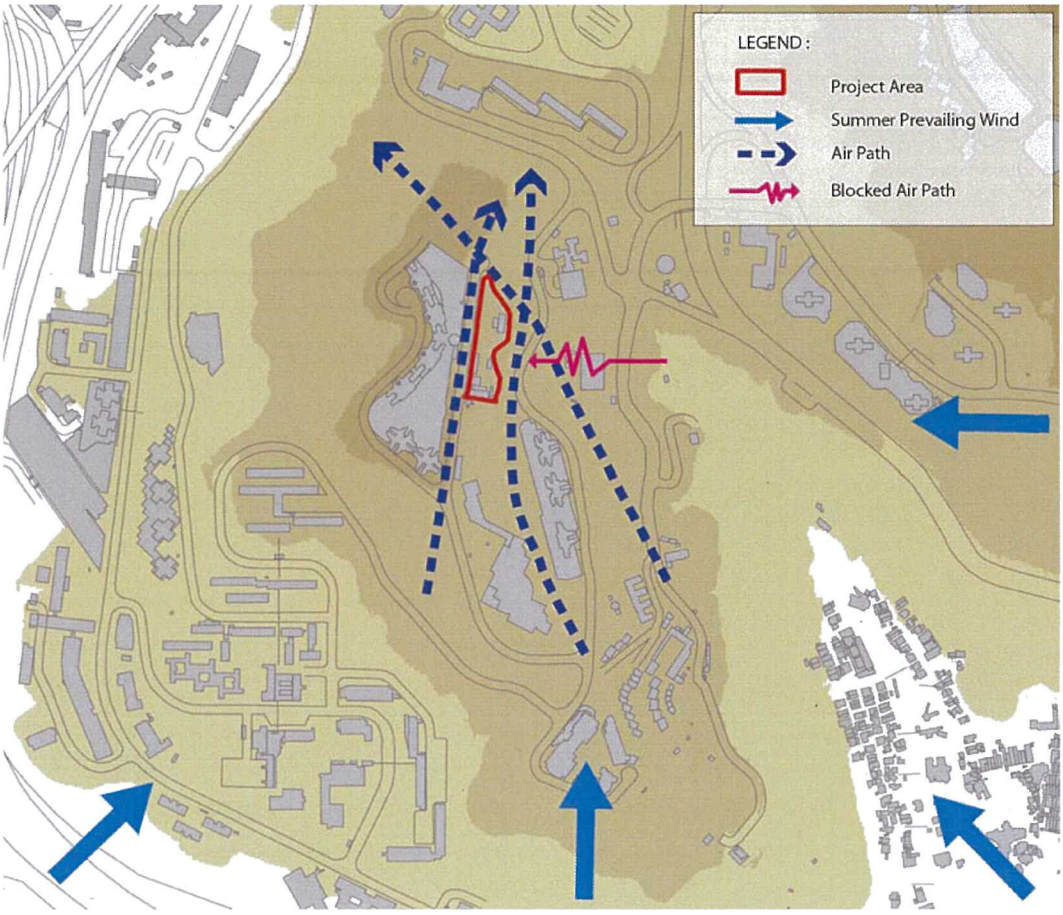


Figure 4.7 Air paths surrounding the project area (summer condition).

5.0 Expert Evaluation of the Project Area

5.1 In general, due to Hong Kong's high-density urban morphology, it is not advisable to only rely on building height restriction (or minor changes of building heights) to maintain and/or improve air ventilation. For most areas, air ventilation can achieve better performance if more effective measures, such as breezeways, air paths, open spaces, gaps between buildings and building permeability especially near ground level, are applied as well.

5.2 The project area is located near Highland Park, Kwai Chung. It is zoned "Government, Institution or Community" ("G/IC") on the draft Kwai Chung Outline Zoning Plan (OZP) No. S/KC/26 and is subject to a maximum building height restriction of one storey. It is about 0.38ha. The project area is proposed to be rezoned to residential development with a Public Transport Interchange (PTI) on G/F and some retail shops on the lowest three floors at the project area. The proposed development would be 240mPD. The proposed development restrictions for the project area would be subjected to a maximum domestic plot ratio of 6 or a maximum non-domestic plot ratio of 9.5.

5.3 The project area has a long lot frontage about 140m in a north-south direction. The maximum building height of the proposed development would be 240 mPD. When prevailing winds come from the southwest and south, the proposed development in the project area is unlikely to have significant effects on the surrounding sites as the southwest and south winds are able to reach the surrounding sites through Lai Kong Street, open spaces between Lai King Disciplined Services Quarters and Princess Margaret Hospital Lai King Building, and open spaces nearby (Figure 4.7). When prevailing winds come from the northeast, east and southeast, the proposed development in the project area is likely to create some wake areas on the leeward sides which will affect Highland Park and the pedestrian level of Lai Kong Street.

5.4 According to the qualitative guidelines on air ventilation in Chapter 11 of HKPSG[1], it is recommended to designate non-building areas for sub-division of large land parcels to avoid wall-like developments at the site level and create voids in facades of podium structure facing wind direction. Based on the generic understanding of the wind regimes in canyons (Figure A-1 in Appendix A), possible wall-like developments in the project area will form a deep canyons with an H/W ratio of above 6 to cause little or no air ventilation at the pedestrian level under easterly winds (Figure 5.2). Given that there would be a PTI on G/F, one 30m wide[2] building gap at 10m above ground level in the middle of the project area along an east-west direction to align with the existing building gap of Highland Park between Blocks 3/4 and Blocks 5/6 is recommended to be incorporated at the planning stage (Figure 5.3). The proposed building gap at 10m above ground level could avoid wall-like developments in the project area to facilitate the penetration of the easterly winds into the west of the project area (Figure 5.4) and channel the easterly wind down to

[1] Hong Kong Planning Department. (2011). Hong Kong Planning Standards and Guidelines (HKPSG).
[2] Referring to Sustainable Building Design Guidelines (APP-152), for 140m long site, 30m wide building gap can provide at least 20% building permeability at 10m above the ground level.

the ground (Figure 5.5) due to the downwash effects (Figure A-1 in Appendix A). In addition, it is recommended that the proposed PTI should be carefully designed to increase the permeability of podium structure facing the easterly winds to alleviate the impact on the air ventilation in the street level.

5.5 The project area is close to Highland Park separated by Lai Kong (about 10m wide). Without detailed information of the proposed developments (including the proposed PTI on G/F), it is difficult to evaluate the extent of the impact caused by the future developments in the project area on Highland Park and the pedestrian level of Lai Kong Street under easterly winds at the Expert Evaluation Stage. It is recommended that, at the building design stage, a quantitative AVA study should be conducted to minimize the negative effects of the project area on its surroundings.

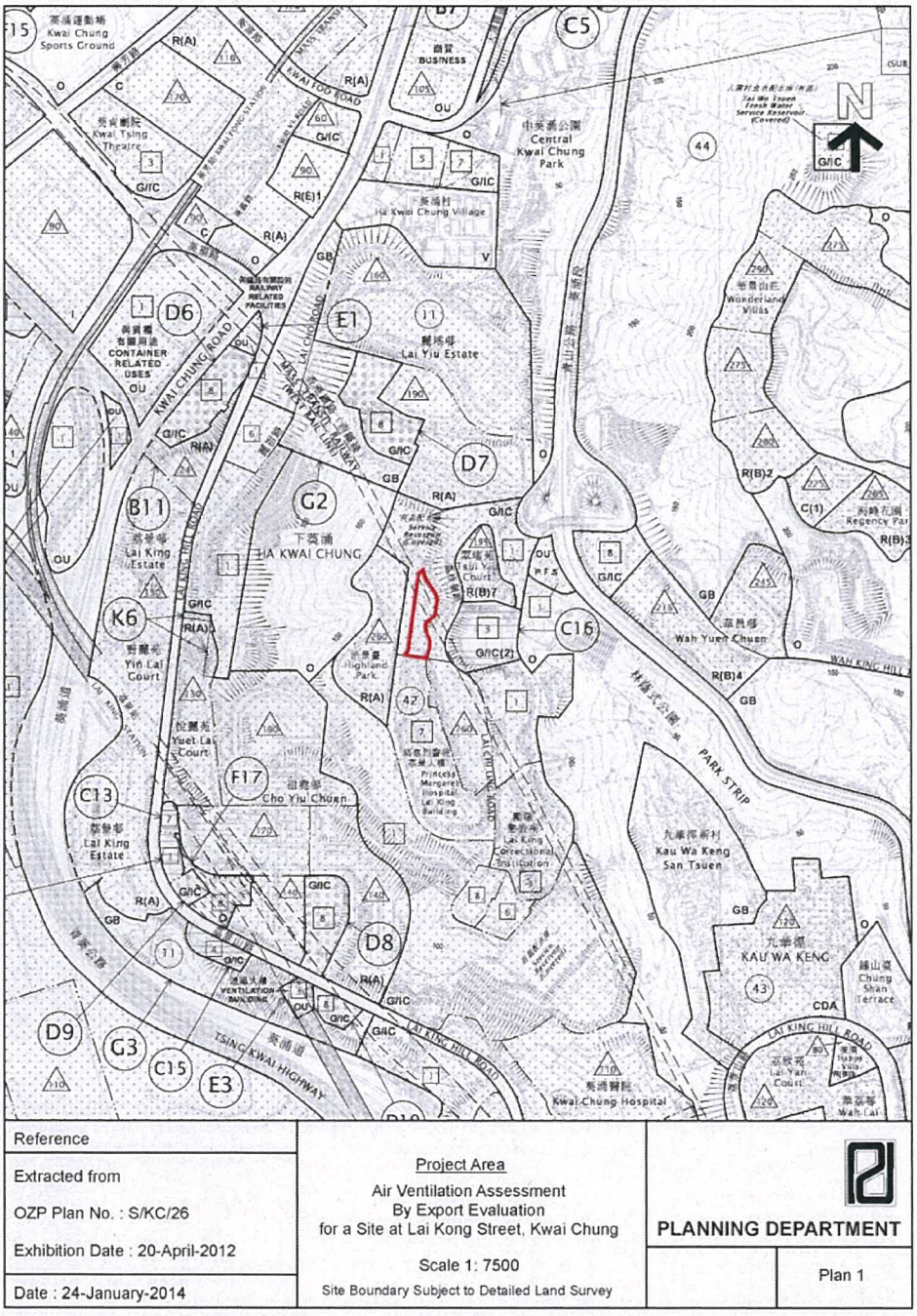


Figure 5.1 Site plan of the project area.

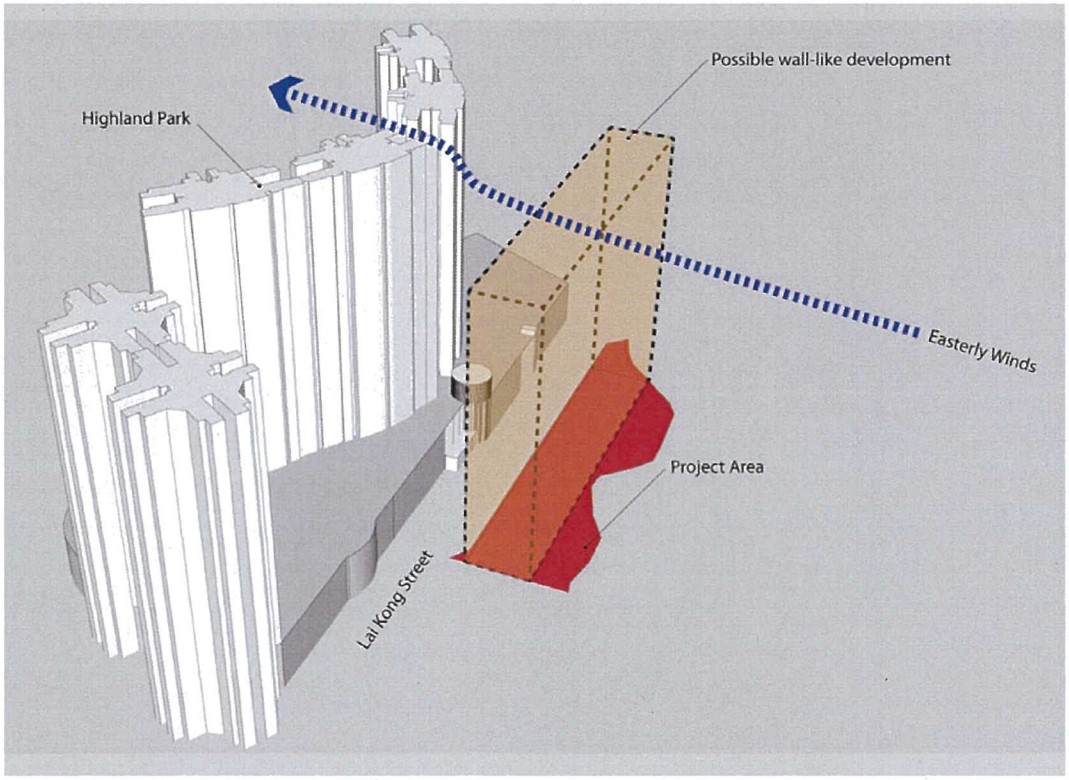


Figure 5.2 Deep street canyon by possible wall-like development in the project area.

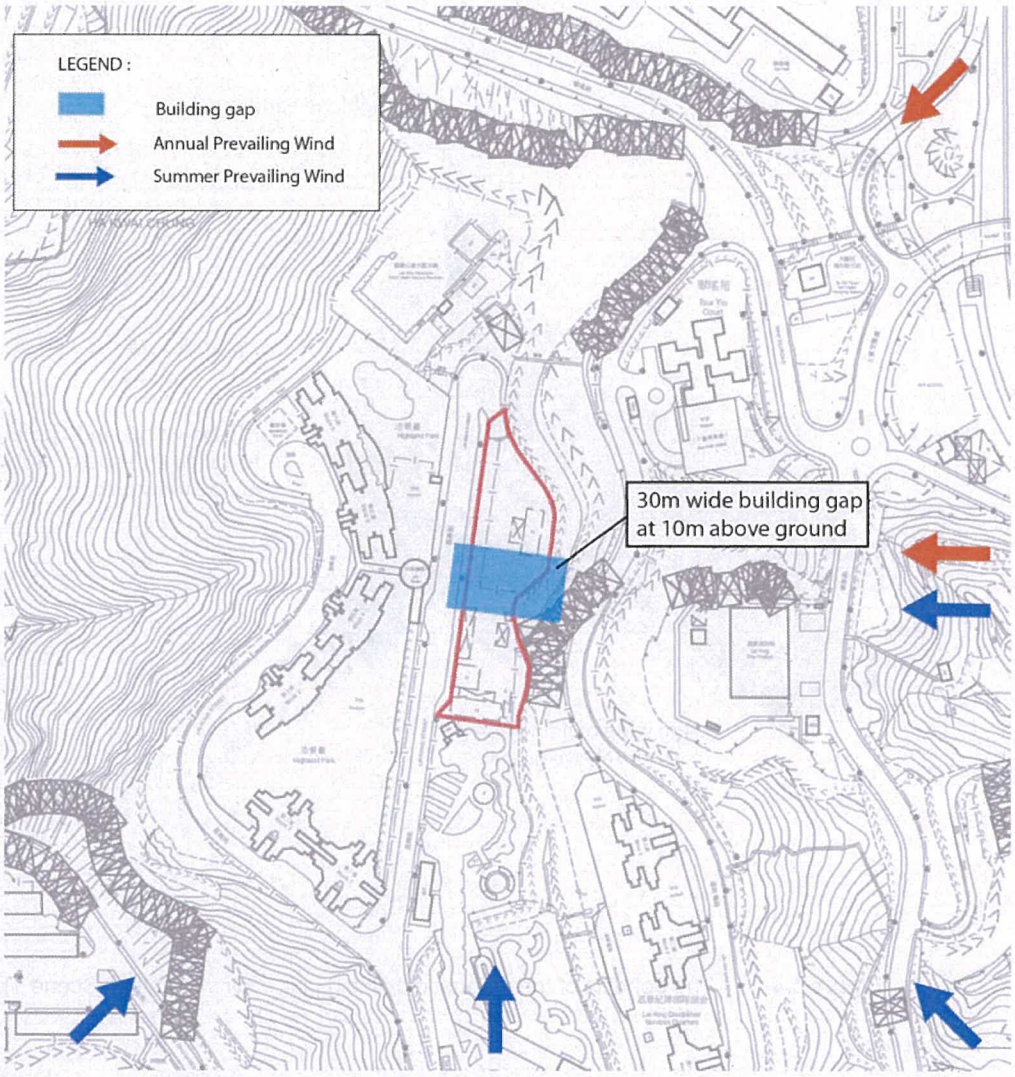


Figure 5.3 The proposed building gap for the project area.

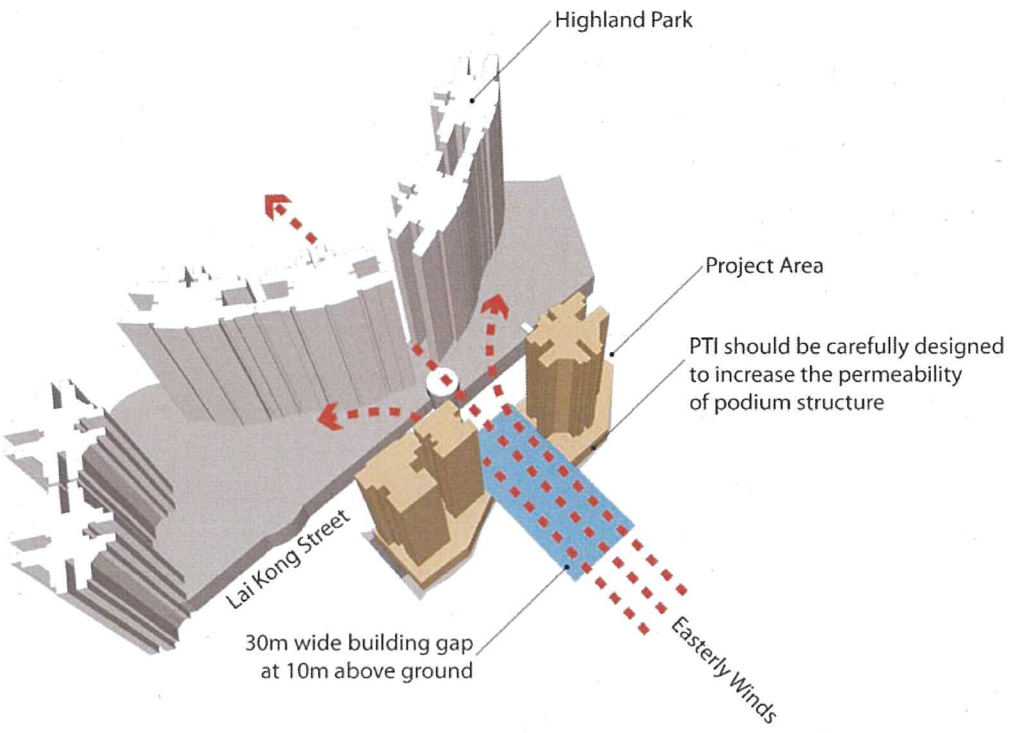


Figure 5.4 The benefits of the proposed building gap to air ventilation (Scene 1).

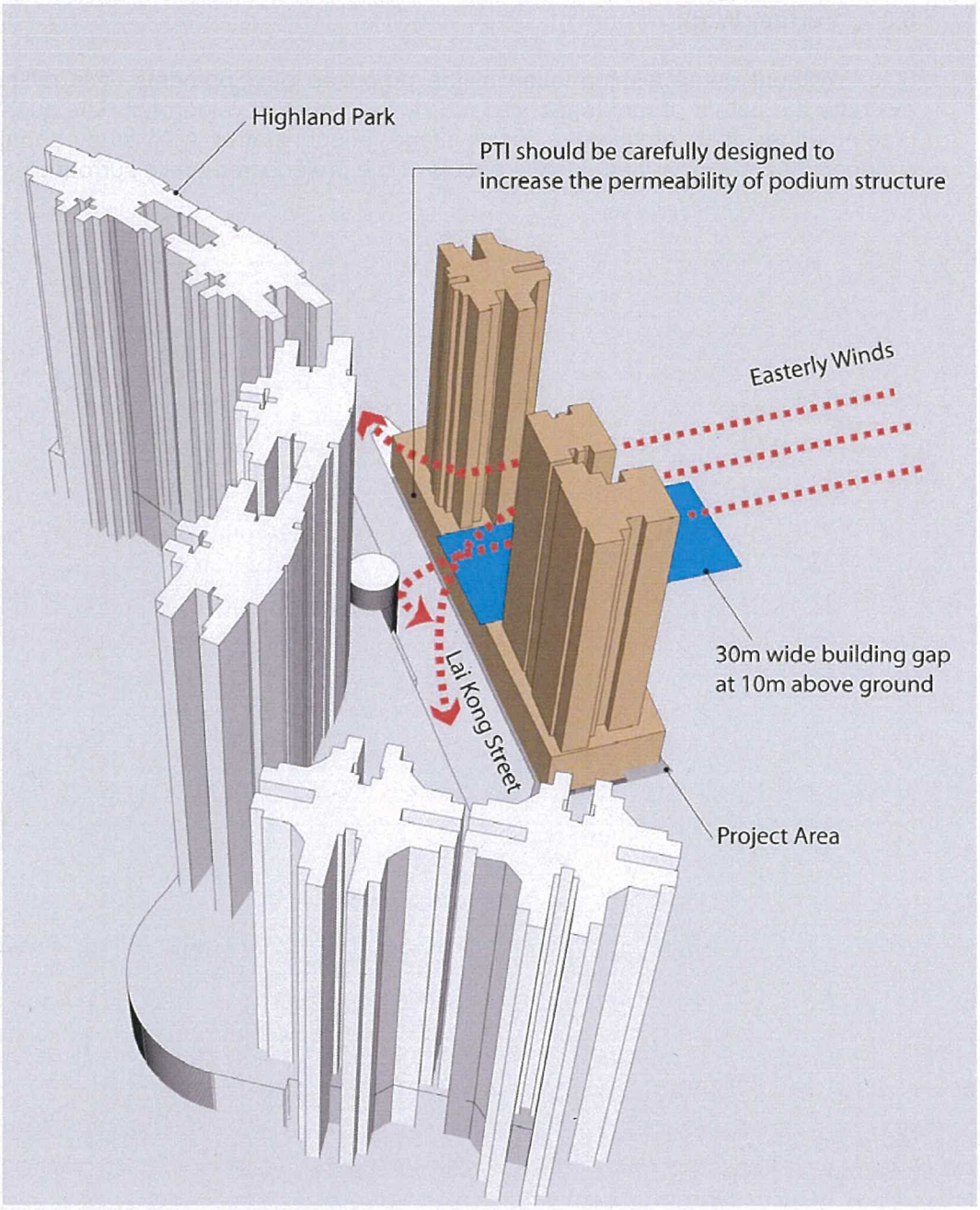


Figure 5.5 The benefits of the proposed building gap to air ventilation (Scene 2).

6.0 Further Work

6.1 Without detailed information of the proposed developments, it is difficult to evaluate the extent of the impact caused by the future developments. As such, it is recommended that, at building design stage, a quantitative AVA study should be conducted to minimize the negative effects of the project area on its surroundings.

Appendix A: A generic understanding of the wind regimes in canyons

With wind from directions perpendicular to the canyons, downwashes due to the differentials in building heights is occasionally likely when building heights are very different. Otherwise, with smaller building height differences, this is unlikely. It is known that for long and deep canyons with an H/W ratio of 2 and above, a double vortex phenomenon will be observed (see Figure A-1). For long and deep canyons with an H/W ratio of 5 and above, there will be little or no air ventilation at the pedestrian level due to winds moving above the urban canopy. In these cases, air ventilation will only pass through building gaps, streets parallel to the wind, and open spaces. Otherwise, air mass exchange will only be due to the local thermal differentials and diffusions, and buoyancy effects; they provide weak air ventilation to the otherwise stagnant zones near the ground.

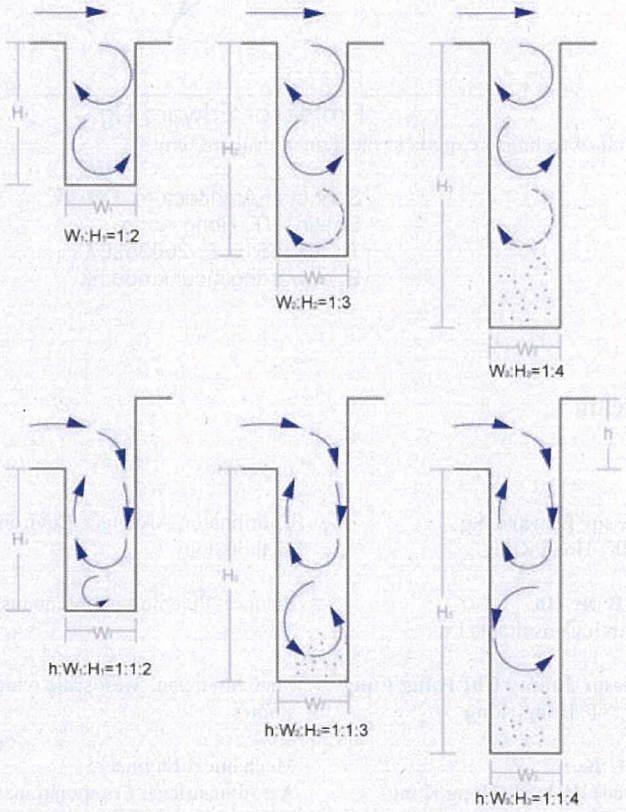


Figure A-1 The figure shows a generic understanding of the wind regimes in canyons, and canyons with downwashes. Beyond a H/W ratio of 2:1, the ground level of canyons, even with the so call downwash effects, will have very weak eddies and air ventilation.

[Reference: A. KOVAR-PANSKUS, P. LOUKA, J.-F. SINI, E. SAVORY, M. CZECH, A. ABDELQARI, P. G. MESTAYER and N. TOY, INFLUENCE OF GEOMETRY ON THE MEAN FLOWWITHIN URBAN STREET CANYONS – A COMPARISON OF WIND TUNNEL EXPERIMENTS AND NUMERICAL SIMULATIONS, Water, Air, and Soil Pollution: Focus 2: 365–380, 2002, Kluwer Academic Publishers.]

Prepared by

Date: 12 May 2014

Dr. Justin Ho

Endorsed by

Date: 12 May 2014

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On behalf of technical experts in the term consultant term

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Tai Wo Hau Road Phase 1 and Phase 2 PRH Development
Visual Appraisal (May 2014)

1. Purpose

The Visual Appraisal Report is prepared in support of the proposed public rental housing (PRH) development at Tai Wo Hau Road Phases 1 & 2 (Subject Site). Please refer to Plans 1 & 2 for site plans. The proposed development features:

Phase 1 160 mPD (maximum building height at main roof)
Phase 2 190 mPD (maximum building height at main roof)

The Subject Site falls within the "O", "G/IC" and 'R(A)" zonings on the draft Kwai Chung OZP No. S/KC/26 (Plan 1). It is proposed to rezone the Subject Site to "R(A)" to allow the proposed 2-block PRH development for PR 6. This Report aims at reviewing how the visual concerns are addressed to seek TPB's favourable considerations. Kindly note that the layout plan and building design adopted are subject to change in detailed design.

2. Visual Envelope - Identification of Vantage Points

In the interest of the public, it is prioritized to protect views at public viewpoints particularly those easily accessible and popular to the public. They include key pedestrian nodes, popular areas used by the public or tourists for outdoor activities, recreation, rest, sitting-out, leisure, walking, sight-seeing, and prominent travel routes where travellers' visual attention may be caught by the proposed development. As such, we have conducted a photographic survey over the public viewpoints in the visual envelop, i.e. the surrounding area within which there would be visual impacts (Plans 3, 4a & 4b). Based on the survey as presented in Table 1, we have identified four public viewpoints with prominent views or overview (VP3, VP4, VP6 & VP13) from different directions for preparation of photomontages for visual impact analysis. The remaining viewpoints have only glimpse or no views in the normal field of vision of the development and are thus not adopted for further analysis. The selected viewpoints could assess the concerned visual impacts at pedestrian nodes (VP3, VP6 & VP13) and at open space (VP4) respectively. They would also be representative of the overall visual impacts as views from various directions have been considered.

Table 1 (Plans 3, 4a & 4b)

View Point ID and Name	Type of View Point	View of Development	Distance and Direction	Photomontage Analysis
VP1 – Carpark of Peninsula High Level Salt Water Service Reservoir	Transient views / Not popular	Glimpse	400 m SW	No
VP2 – Peninsula High Level Salt Water Service Reservoir	Public views / Not popular	Glimpse	300 m SW	No
VP3 – Bus stop, Kwai Shing Circuit	**Transient views / Pedestrian node**	**Prominent**	**300 m SW**	**Yes (Vantage Point A)**
VP4 – Tai Wo Hau Road South Playground	**Public views / Popular for outdoor activities**	**Overview for Phase 2**	**150 m W**	**Yes (Vantage Point D)**
VP5 – Tai Wo Hau Estate Playground No. 7	Public views / Popular for sports activities	Glimpse	100 m W	No
VP6 – Footbridge by Chui Kwai House over Tai Wo Hau Road	**Transient views / Pedestrian node**	**Prominent for Phase 1**	**100 m E**	**Yes (Vantage Point C)**
VP7 –Tai Wo Hau Road near Lok Kwai House	Transient views / Pedestrian passageway	Glimpse	100 m NE	No
VP8 – Kwai Chung San Kui Park (near On Kwai Court)	Public views / Popular as sitting area	Not visible	300 m NE	No

View Point ID and Name	Type of View Point	View of Development	Distance and Direction	Photomontage Analysis
VP9 – Central Plaza of Kwai Chung San Kui Park	Public views / Popular as sitting area	Not visible	450 m NE	No
VP10 – Football Field of Tai Wo Hau Road Playground	Public views / Popular for leisure activities	Not visible	450 m E	No
VP11 – Skating Area of Tai Wo Hau Road Playground	Public views / Popular for outdoor activities	Not visible	450 m SE	No
VP12 – Kwai Hop Street Playground	Public views / Popular for outdoor activities	Not visible	250 m SE	No
VP13 – Pedestrian crossing at Kwai Shing Circuit near Chinese YMCA.	**Transient views / pedestrian node**	**Prominent for Phase 1**	**200 m SE**	**Yes (Vantage Point B)**

3. Visual Impact Analysis

a. The Vantage Points

The Vantage Points A, B, C & D are shown on Plan 5 with the corresponding coordinates and viewing height. We are aware that viewing points should be at human eye level for a realistic presentation of normal views. Nevertheless, the viewpoints could also help assess the overall building mass in relation to the neighbourhood. As such, we would use the wide angle lens as necessary to capture the whole proposed building massing while making reference to the normal field of vision at 60^0 vertically and horizontally respectively without straining the human eyes with a standard lens.

b. Visual Appraisal (Plans 7, 8, 9 & 10)

Vantage Point	**Location**	**Visual Appraisal**
A	Bus stop, Kwai Shing Circuit (300 m SW)	The proposed PRH development would blend in with the existing built environment in terms of the same residential character and compatible building heights. With the proposed stepped height (160/190mPD), an interesting variation of building heights would be further amplified due to the added variations over the Kwai Chung Estate neighbourhood (max BH 170mPD) to the left and over the Kwai Shing East Estate neighbourhood (Max BH 190 mPD) to the right respectively. Visual impact is considered moderate and acceptable for this transient view of the commuters along Kwai Shing Circuit near the bus stop.
B	Pedestrian crossing at Kwai Shing Circuit near Chinese YMCA (200 m SE)	Only Phase 1 would be visible at the vantage point as a new building in front of Kwai Chung Estate. There is little change in the visual composition and quality. Visual impact is considered moderate and acceptable.
C	Footbridge by Chui Kwai House over Tai Wo Hau Road (100m E)	Only Phase 1 would be visible as continuation of the building front of Yan Kwai House. Nevertheless, the tree line along Tai Wo Hau Road would help soften the visual impact. Visual impact is considered moderate and acceptable. The footbridge connecting Phase 1 and Kwai Chung Estate can be viewed from this vantage point. However, visual impact arising from the footbridge is considered negligible as the structure blends in with the existing built environment.

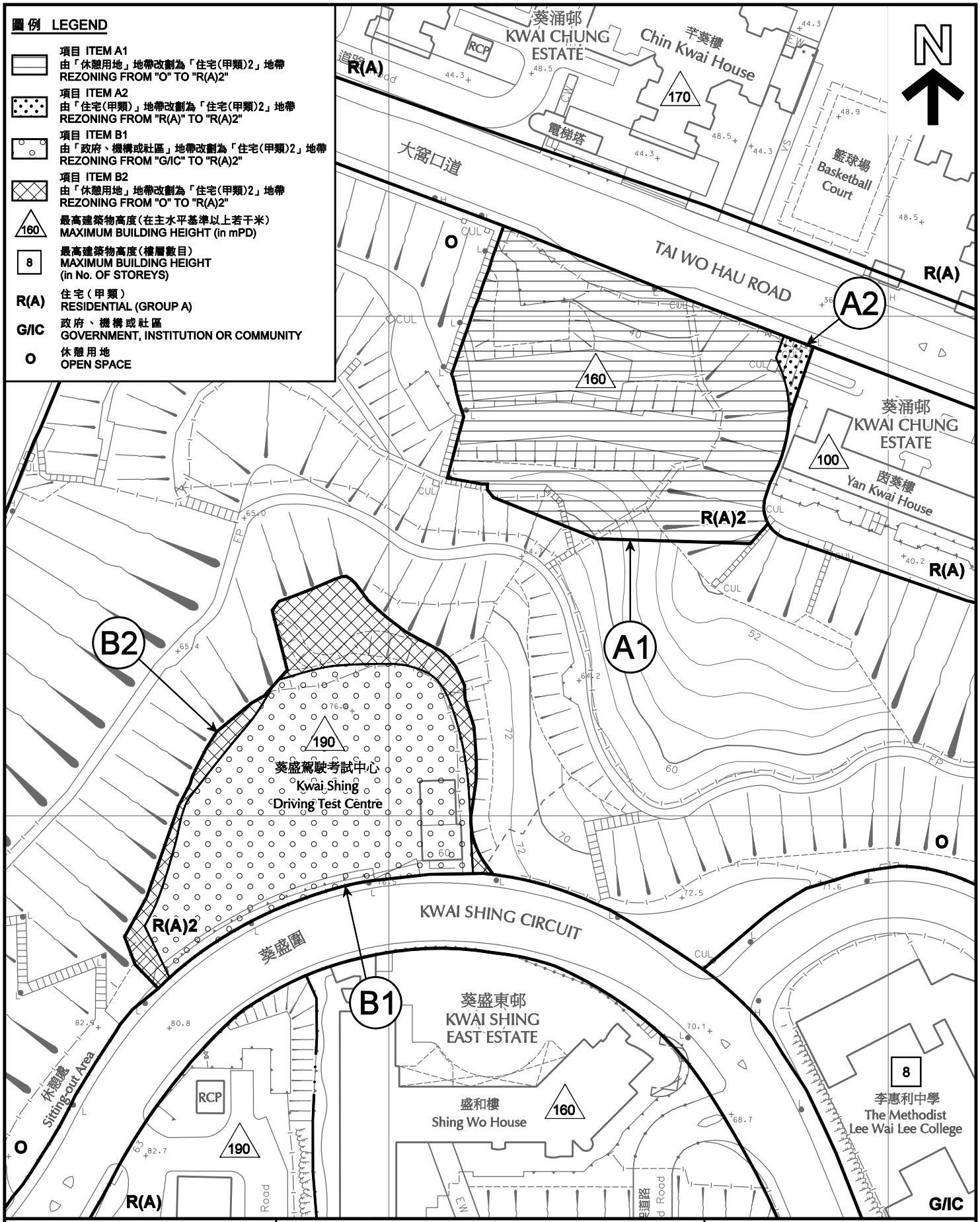
Vantage Point	Location	Visual Appraisal
D	Tai Wo Hau Road South Playground (150 m W)	Only Phase 2 will be visible as Phase 1 screened by the trees. This vantage point will allow a glimpse overview of the skyline over the Kwai Shing East Estate neighbourhood which is subject to Max BH 190 m. In this area, there is a good mix of old and new public housing which presents an variation of building form, facade and building height. Phase 2 will be a compatible member in the vibrant development of the neighbourhood that there may be redevelopments of BH 190 mPD in the future. Visual impact is considered moderate but acceptable for the users of the football playground as the usual views in the recreational activities are likely to have the existing trees in the background.

4. Conclusion

We have comprehensively studied the view characteristics in the viewshed and identified the four vantage points for visual impact analysis. The proposed development has caused no significant visual impacts to the public viewpoints in the neighbourhood in terms visual characters and permeability. As such, it is considered that the overall visual impact is acceptable.

Housing Department
May 2014

List of Plans



本摘要圖於2014年5月20日擬備，所根據的資料為測量圖編號 7-SW-16D/21B

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON SURVEY SHEETS No. 7-SW-16D/21B

平面圖 - 項目A1、A2、B1及B2
SITE PLAN - ITEMS A1, A2, B1 AND B2

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

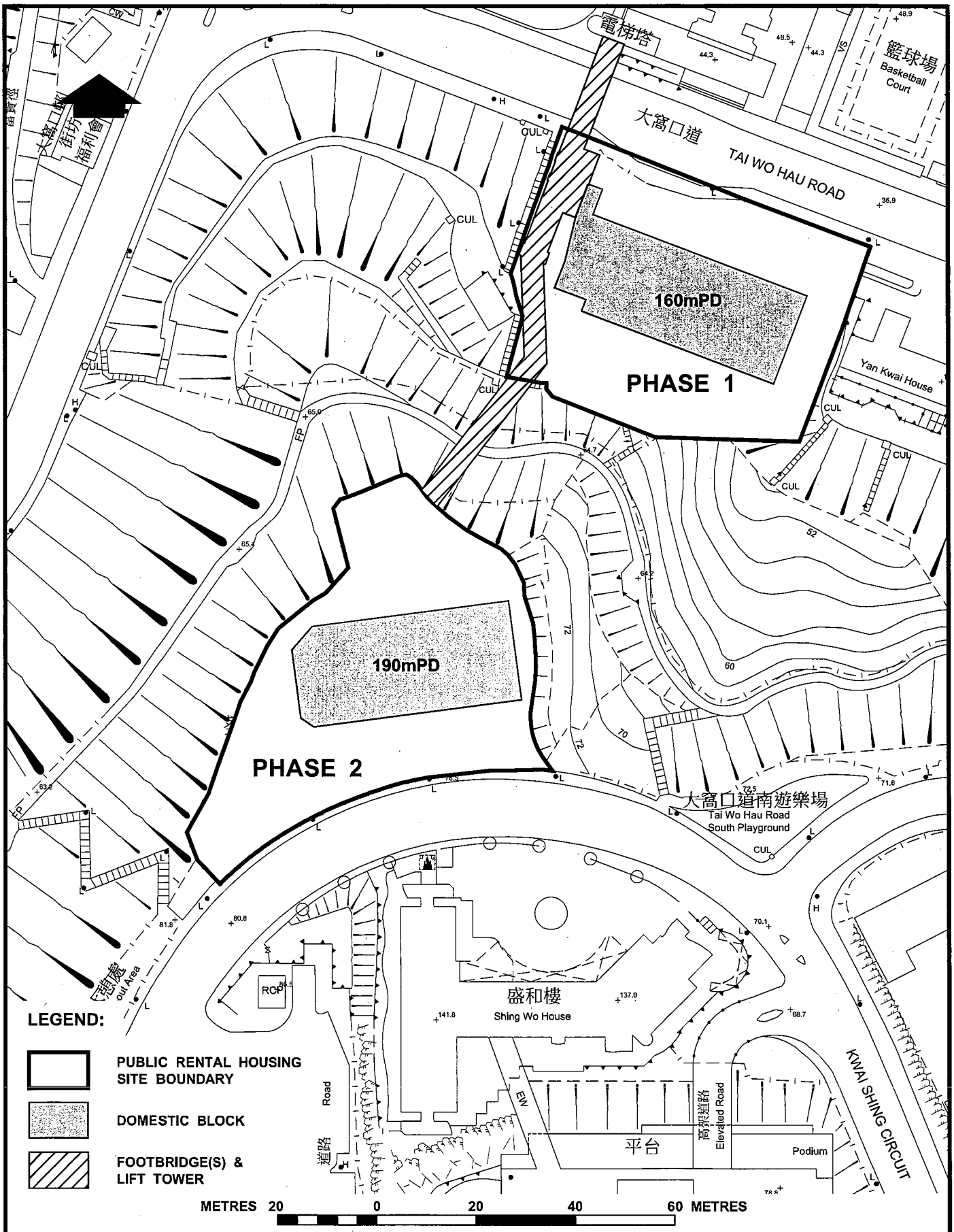
SCALE 1 : 1 000 比例尺

米 METRES 20 0 20 40 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/2

圖 PLAN
1



SITE PLAN
TAI WO HAU ROAD PHASE 1 AND PHASE 2

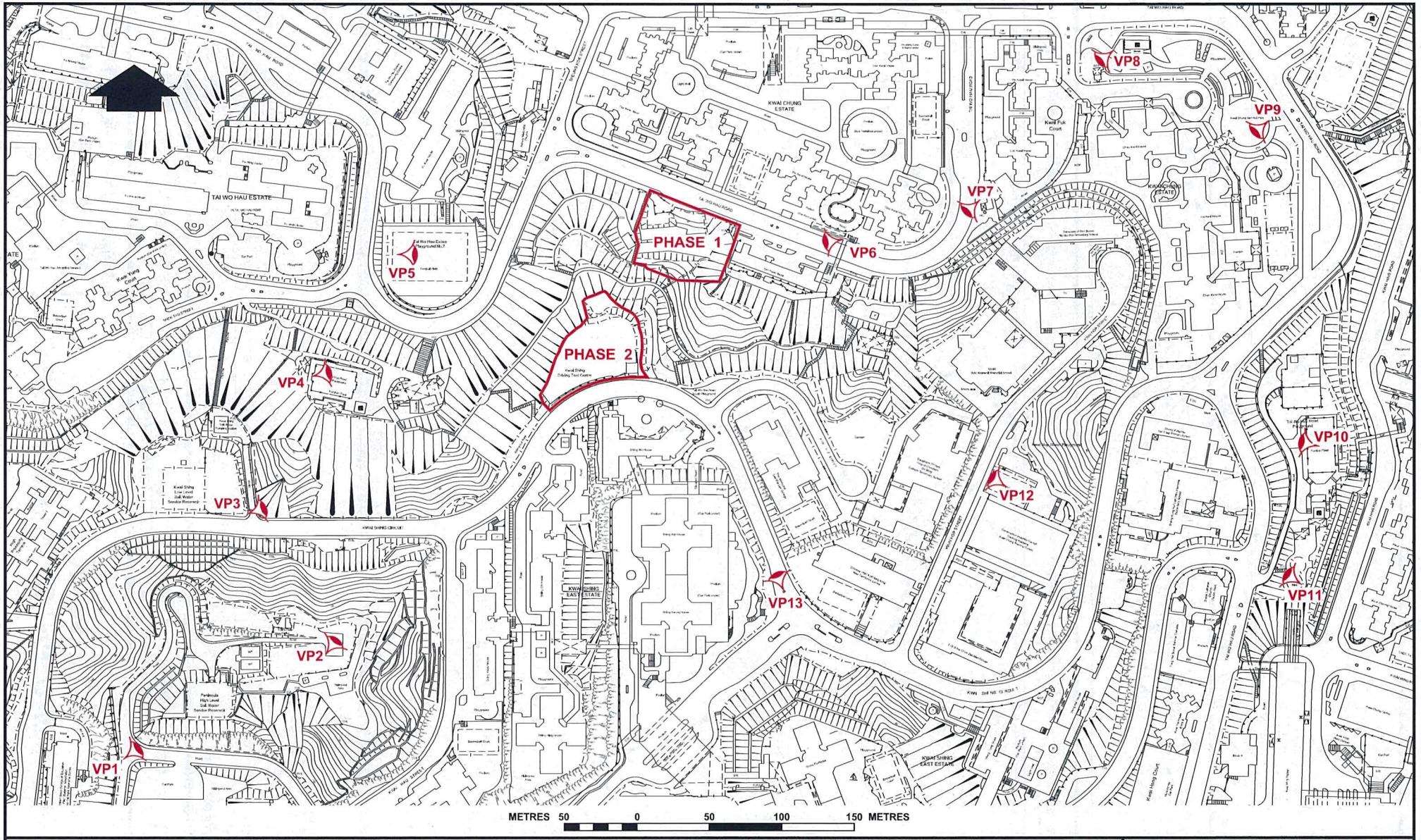
HOUSING DEPARTMENT
PLANNING SECTION

PLAN 2

DATE : May 2014

BASE EXTRACTED FROM SHT. Nos. 7-SW-16D & 21B

14_0486KT



TAI WO HAU ROAD PHASE 1 AND PHASE 2 - IDENTIFICATION OF VANTAGE POINTS

HOUSING DEPARTMENT
PLANNING SECTION

PLAN 3

DATE : May 2014

BASE EXTRACTED FROM SHT. Nos. 11-SE-19B, 19D, 20A & 20C

14_0487KT

VP1

VP2

VP3

VP4

VP5

VP6

TAI WO HAU ROAD PHASE 1 AND PHASE 2
- VIEWSHED CHARACTERISTICS (LIST OF PHOTOS)

HOUSING DEPARTMENT
PLANNING SECTION

PLAN 4a

DATE :
May 2014

14_0487KT_Plan4a

VP7

VP8

VP9

VP10

VP11

VP12

VP13

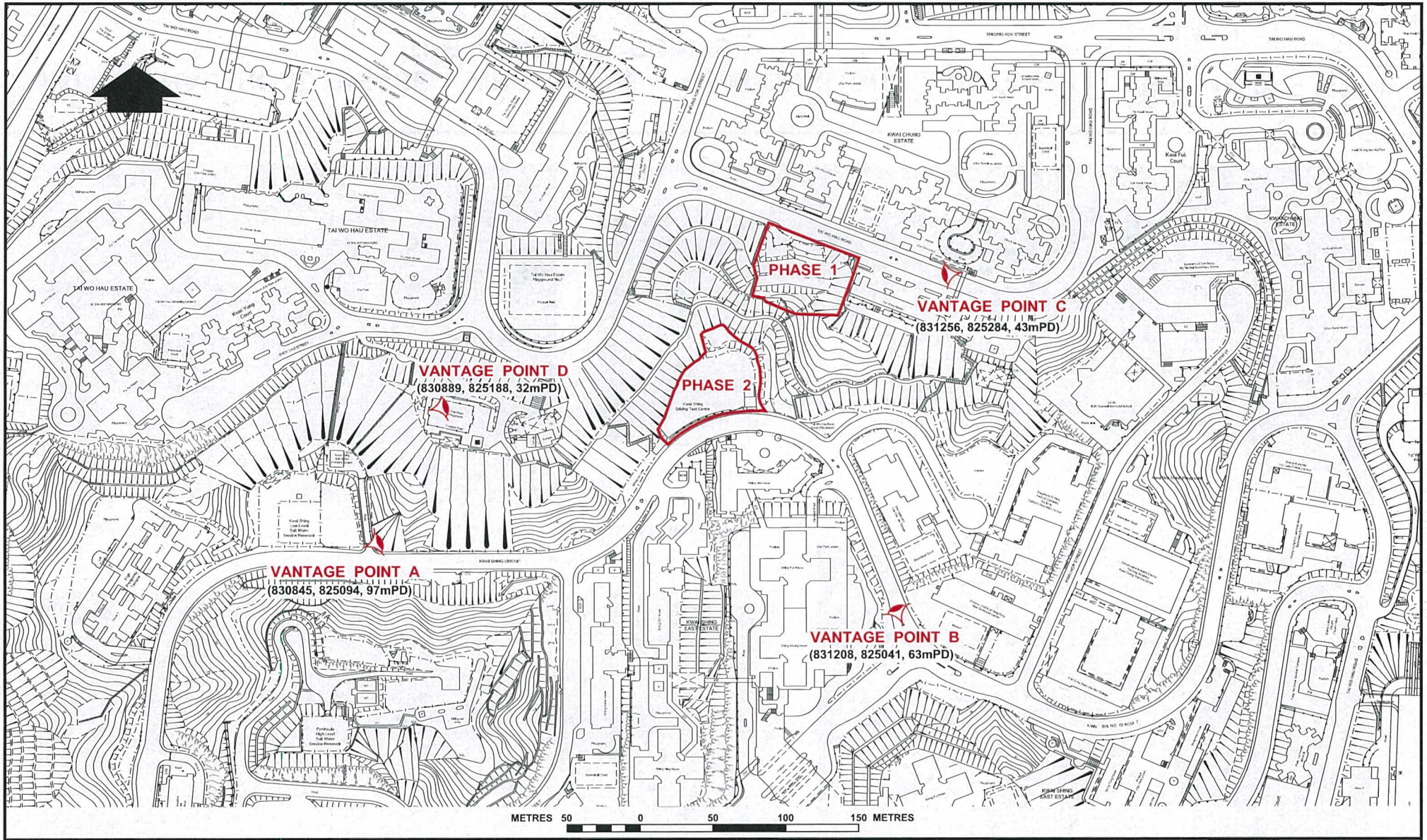
TAI WO HAU ROAD PHASE 1 AND PHASE 2
- VIEWSHED CHARACTERISTICS (LIST OF PHOTOS)

HOUSING DEPARTMENT
PLANNING SECTION

PLAN 4b

DATE :
May 2014

14_0487KT_Plan4b



TAI WO HAU ROAD PHASE 1 AND PHASE 2 - THE VANTAGE POINTS FOR VISUAL APPRAISAL

HOUSING DEPARTMENT
PLANNING SECTION

PLAN 5

DATE :
May 2014

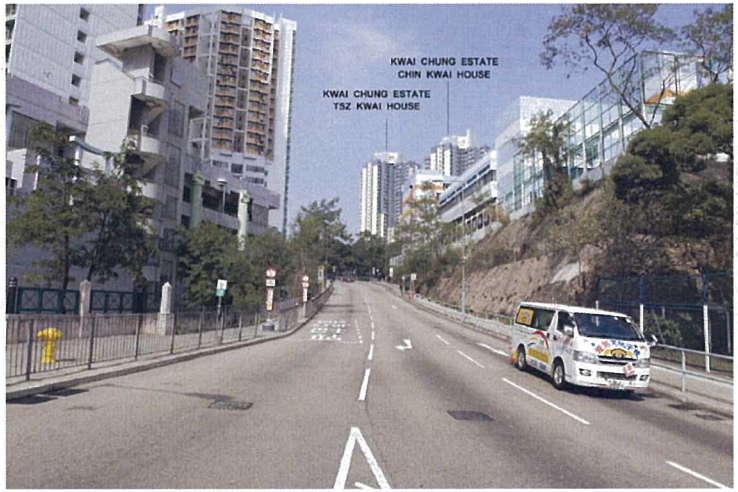
BASE EXTRACTED FROM SHT. Nos. 11-SW-16D & 21B

14_0488KT

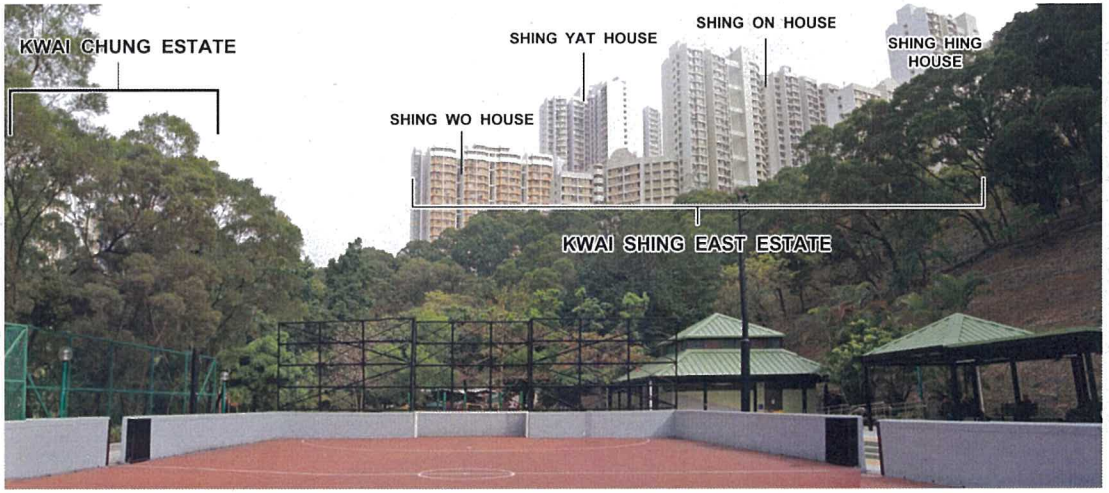
VANTANGE POINT A

VANTANGE POINT C

VANTANGE POINT B



VANTANGE POINT D



TAI WO HAU ROAD PHASE 1 AND PHASE 2 - EXISTING SITE PHOTOS AT THE VANTAGE POINTS

HOUSING DEPARTMENT
PLANNING SECTION

PLAN 6

DATE :
May 2014

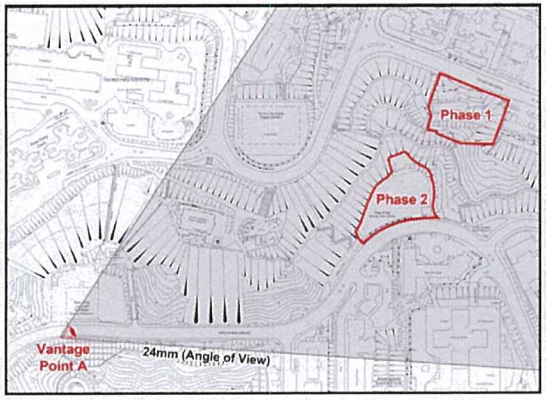
14_0488KT_Plan6

Merged 27 mm

Existing Site Photo

Merged 27 mm

Photomontage (with proposed development)



Angle of View

Merged 27 mm

Relation to Standard Lens

The proposed PRH development would blend in with the existing built environment in terms of the same residential character and compatible building heights. With the proposed stepped height (160/190mPD), an interesting variation of building heights would be further amplified due to the added variations over the Kwai Chung Estate neighbourhood (max BH 170mPD) to the left and over the Kwai Shing East Estate neighbourhood (Max BH 190 mPD) to the right respectively. Visual impact is considered moderate and acceptable for this transient view of the commuters along Kwai Shing Circuit near the bus stop.

Visual Appraisal

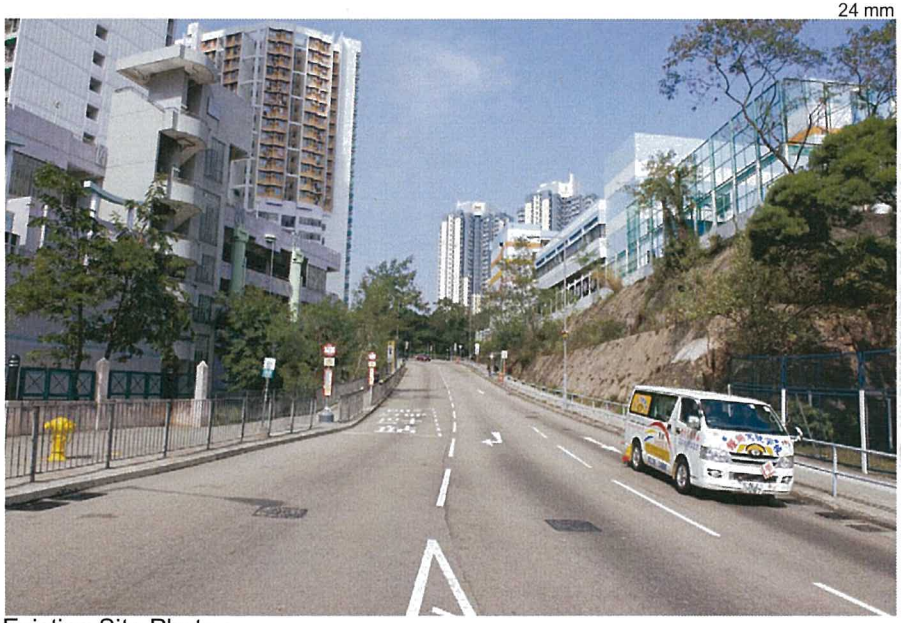
TAI WO HAU ROAD PHASE 1 & PHASE 2 - Visual Appraisal at Vantage Point A

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 7

DATE : May 2014

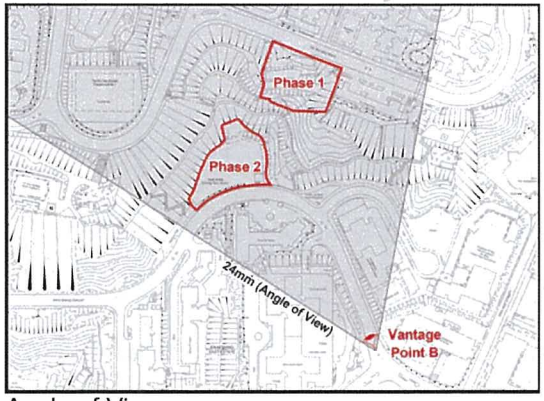
24 mm



Existing Site Photo

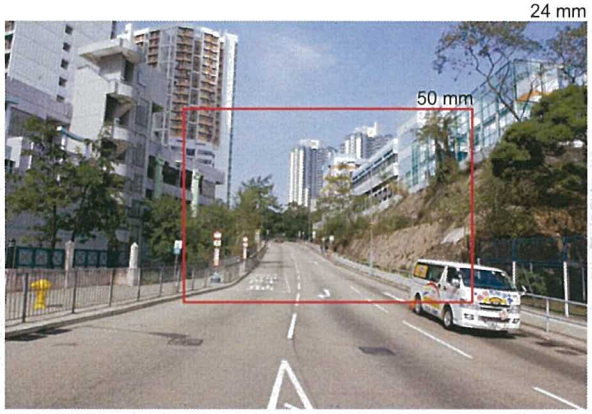
24 mm

Photomontage (with proposed development)



Angle of View

24 mm



Relation to Standard Lens

Only Phase 1 would be visible at the vantage point as a new building in front of Kwai Chung Estate. There is little change in the visual composition and quality.

Visual impact is considered moderate and acceptable.

Visual Appraisal

TAI WO HAU ROAD PHASE 1 & PHASE 2 - Visual Appraisal at Vantage Point B

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 8

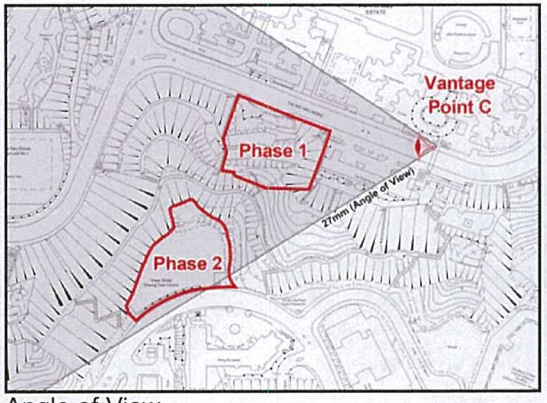
DATE :
May 2014

27 mm

Existing Site Photo

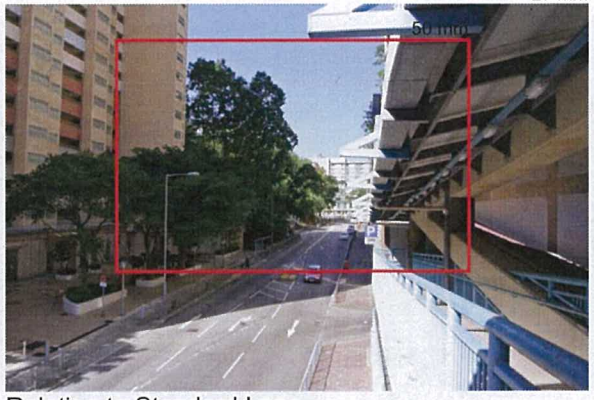
27 mm

Photomontage (with proposed development)



Angle of View

27 mm



Relation to Standard Lens

Only Phase 1 would be visible as continuation of the building front of Yan Kwai House. Nevertheless, the tree line along Tai Wo Hau Road would help soften the visual impact. Visual impact is considered moderate and acceptable.

The footbridge connecting Phase 1 and Kwai Chung Estate can be viewed from this vantage point. However, visual impact arising from the footbridge is considered negligible as the structure blends in with the existing built environment.

Visual Appraisal

TAI WO HAU ROAD PHASE 1 & PHASE 2 - Visual Appraisal at Vantage Point C

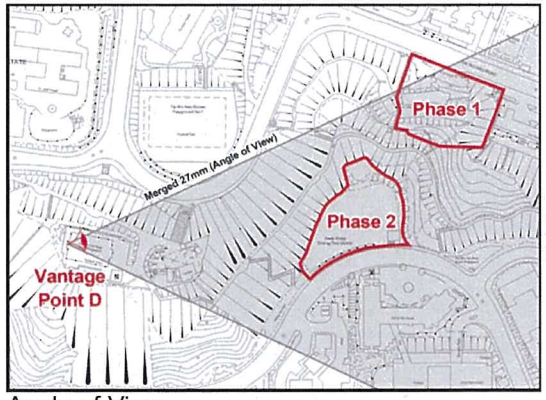
HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 9

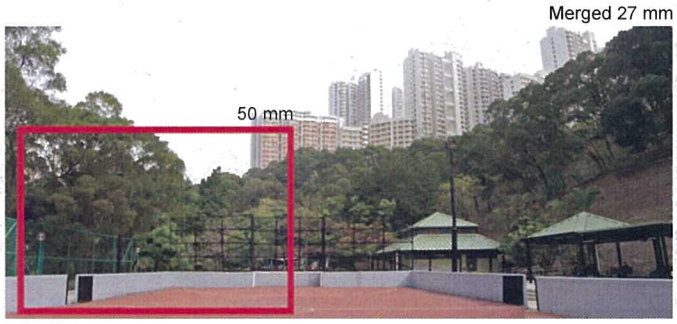
DATE :
May 2014

Existing Site Photo

Photomontage (with proposed development)



Angle of View



Relation to Standard Lens

Only Phase 2 will be visible as Phase 1 screened by the trees. This vantage point will allow a glimpse overview of the skyline over the Kwai Shing East Estate neighbourhood which is subject to Max BH 190 m. In this area, there is a good mix of old and new public housing which presents an variation of building form, facade and building height. Phase 2 will be a compatible member in the vibrant development of the neighbourhood that there may be redevelopments of BH 190 mPD in the future. Visual impact is considered moderate but acceptable for the users of the football playground as the usual views in the recreational activities are likely to have the existing trees in the background.

Visual Appraisal

TAI WO HAU ROAD PHASE 1 & PHASE 2 - Visual Appraisal at Vantage Point D

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 10

DATE : May 2014

Attachment Vb of
MPC Paper No. 11/14

VISUAL APPRAISAL FOR A PROPOSED RESIDENTIAL DEVELOPMENT AT LAI KONG STREET, KWAI CHUNG

PLANNING DEPARTMENT
MAY 2014

1. Purpose

1.1 To meet the pressing need for housing, a number of amendments to the draft Kwai Chung Outline Zoning Plan (OZP) No. S/KC/27 are proposed including a proposed residential development at Lai Kong Street, Kwai Chung (the subject site). It is currently zoned "Government, Institution or Community" ("G/IC") on the OZP (**Plans 2 and 3b**).

1.2 In view of the plot ratio (PR) increase and the building height (BH) proposed, the proposed residential development would have visual impact on the surrounding areas in terms of the development scale, form, massing, and its spatial relationship with the overall townscape or surrounding landscape. The purpose of this appraisal is to assess the potential visual impact. The appraisal could facilitate the Metro Planning Committee of the Town Planning Board to visualise the three-dimensional relationship of the developments in the proposed residential development with the surrounding context.

2. Methodology

The visual impact of the proposed residential development at Lai Kong Street will be assessed by adopting the following methodology:

(a) Identification of the overall visual context and character within the wider contexts of the areas in Kwai Chung.

(b) Illustration of the overall visual impact of the proposed residential development at the subject site by using computer-generated photomontages to present a bird-eye view with indicated layout of the development.

(c) Identification and selection of the vantage points in allowing visual impact to be assessed locally for the subject site. The vantage points should be easily accessible and popular to the public and/or tourists and be able to demonstrate the visual impact of the proposed residential development on the adjacent neighbourhood area. Important views to special landmarks, valued landscape features, the harbour, ridgelines, etc should be assessed where possible.

(d) Identification of the scale of the proposed development. Using computer-generated photomontages to illustrate the visual impact and their significance from the vantage points. Providing visual appraisal by evaluating the overall visual impact of the proposed residential development. Any design features or mitigation measures that help moderate the visual impact of the developments shall be discussed.

3. The Subject Site

3.1 The subject site is located at the high ground of Ha Kwai Chung connected to the nearby Lai King area via Lai Kong Street (**Plan 2**). It is a piece of formed land previously used by the Water Supplies Department as a temporary works area. It is now vacant with minibus stops located to its immediate west along Lai Kong Street (**Plan 7b**).

3.2 To the west of the site across Lai Kong Street is an existing Sandwich Class Housing development Highland Park which comprises 6 residential blocks with Building Height Restriction (BHR) at 260mPD. It was completed in 1998. Apart from Highland Park, the wider area is mostly occupied by medium to high-rise developments including Tsui Yiu Court and Lai King Disciplined Services Quarters to the east of the site and some low-rise GIC facilities found to the further east of the site (**Plan 2**).

3.3 To the immediate east of the subject site is a steep vegetated slope. To the south of the site is an electrical sub-station and to the further south is a high-rise Princess Margaret Hospital Lai King Building which is currently operated by the Hospital Authority with BHR at 7 storey (about 195mPD in height). The eastern side is Lai King Disciplined Services Quarters at Lai Chi Ling Road which comprises 3 blocks with BHR at 260mPD. To the immediate north of the site is a vegetated slope while the single-block Homeownership Scheme Tsui Yiu Court is located at its north-east with BHR at 195mPD. The existing BH profile of the surrounding developments is shown at **Plan 2**.

4. The Development Proposal

4.1 The subject site is proposed to be rezoned from "G/IC" to "R(A)2". The existing minibus stops on Lai Kong Street will be relocated to the proposed public transport interchange (PTI) within the subject site. According to the recommendation of the Air Ventilation Assessment (Expert Evaluation) for the proposed residential development at the subject site, a 30m wide building gap at 10m above ground level (i.e.163mPD) shall be provided at the site in order to allow penetration of the easterly wind from the eastern side to Highland Park via the development at the subject site. This requirement would be shown on the Plan and incorporated into the Notes and ES of the OZP.

4.2 The proposed development parameters of the subject site are summarized as follows:

Site Area :	About 0.38 ha
Maximum PR :	6/9.5 (domestic/ non-domestic)
Maximum Building Height :	240mPD
Other Facilities:	PTI, shops are allowed on the lowest 3 floors
Building Gap :	30m wide at 10m above ground level (i.e. 163mPD)

5. Visual Appraisal

5.1 A total of three vantage points are selected to assess the visual impacts of the proposed residential development at the subject site.

5.2 The podium platform of Wah Yuen Chuen is selected as Vantage Point 1. It is easily accessible by the public. Photomontage at **Plan 7c** illustrates that with the proposed maximum BH of 240mPD at the site and the Highland Park at 260mPD as the backdrop. The existing stepped height profile at this part of Ha Kwai Chung is maintained. The proposed building blocks at the subject site blend in with the adjacent residential development Highland Park and other high-rise developments and other high-rise developments with similar building heights and bulk in the area nearby. The building gap requirement mentioned in paragraph 4 above help to maintain the visual openness currently enjoyed by this vantage point. The visual character of the area would not be affected and the proposed development is considered visually compatible with the surroundings.

5.3 The second vantage point 2 is the open space next to Lai King Sports Centre, which provides a place for recreational/leisure purposes for nearby residents and the general public. Photomontage at **Plan 7d** shows that the proposed development would be largely shielded off by the vegetated slope and Highland Park as well as Kai Min House of Cho Yiu Estate. The visual impact brought about by the proposed development is negligible.

5.4 Vantage point 3 is taken at the pedestrian sidewalk near the entrance of the Princess Margaret Hospital Lai King Building. The pedestrian sidewalk is usually used by the residents of Highland Park and the facility users of the hospital building. Photomontage at **Plan 7e** demonstrates that the building height of the proposed development is visually in harmony with Highland Park and Lai King Disciplined Services Quarters. Although the proposed development would slightly affect the openness of the existing sky view, the visual impact brought about by the proposed development is considered acceptable.

6. Conclusion

With the adoption of a stepped height concept, i.e. 260mPD for Highland Park at the top of the mountain, 240mPD for the subject site in the middle and 195 mPD for Tsui Yiu Court at the lower part of the mountain, the visual impact brought about by the proposed development at the subject is insignificant from the three selected vantage points. The 30m wide building gap requirement could help improve building permeability and reduce the perceived building bulk of the proposed developments. However, visual enhancement measures, such as building set-back and façade treatment etc., could be explored to further mitigate the visual impact. To conclude, the proposed residential development at Lai Kong Street would be insignificant and compatible to the surrounding developments such as Highland Park across the road and the nearby Lai King Disciplined Services Quarters and Tsui Yiu Court.

Attachments (Refer to the attachments of the main paper)

Plan 2	**Location Plan**
Plan 3b	**Site Plan**
Plan 7b	**Site Photo**
Plans 7c to 7e	**Photomontages**

PLANNING DEPARTMENT
MAY 2014

TAI WO HAU ROAD, KWAI TSING SITE

Environmental Assessment Study - Executive Summary for Option 24C

1. Background

The Hong Kong Housing Authority (HKHA) proposes to develop a new potential housing development at Tai Wo Hau Road.

Atkins China Ltd (ACL) was commissioned by HKHA to undertake an Environmental Assessment Study (EAS) for the proposed housing development scenario Option 24C.

2. Proposed Development

The proposed housing development scenario Option 24C comprises of two residential blocks, namely Phase 1 which is located to the south of Tai Wo Hau Road and Phase 2 which is located to the north of Kwai Shing Circuit. Phase 1 includes a 30-storey residential building block while Phase 2 includes a 36-storey residential building block and the population intake of the housing development is expected to be in 2019. The total number of flats of the development is about 780.

3. Road Traffic Noise

Based on the given development layout for Option 24C, the predicted peak hourly road traffic noise levels at representative noise sensitive facades resulting from 2034 traffic flows and the traffic noise compliance rates obtained is 99.6%.

With the provision of noise mitigation measure using non-openable (maintenance) windows at units where traffic noise exceedances have been predicted for Option 24C, a traffic noise compliance rate of 100% is achieved.

4. Air Quality

Vehicular Emissions

The horizontal setback distance from the residential block of Phase 1 to the Tai Wo Hau Road road kerb is approximately 11m and the horizontal setback distance from the residential block of Phase 2 to the Kwai Shing Circuit road kerb is approximately 13m.

According to the Annual Traffic Census (2012) published by the Transport Department, the corresponding sections of Tai Wo Hau Road and Kwai Shing Circuit are classified as District Distributor. The setback distances from both residential blocks to the nearest road kerb would comply with the HKPSG recommended buffer distance.

5. Conclusion

Environmental Assessment Study (EAS) was conducted for the proposed housing development at Tai Wo Hau Road for layout scheme Option 24C. Road traffic noise impact assessment indicated that a noise compliance rate of 100% can be achieved for the proposed development with the adoption of non-

openable (maintenance) windows. Air quality impact assessment indicated that the proposed development will not be subject to adverse impact on air quality from vehicular emissions. It is concluded that Tai Wo Hau Road Phase 1 and Phase 2 is suitable for housing development.

Provision of Major Community and Open Space Facilities in Kwai Chung

(Existing Population: 321,200)
(Planned Population: 338,400) (1)

Type of Facilities	Hong Kong Planning Standards and Guidelines (HKPSG)	HKPSG Requirement (based on planned population)	Provision		Surplus/ Shortfall (against planned provision)
			Existing Provision	Planned Provision	
District Open Space	10 ha per 100,000 persons	31.59 ha (2)	11.53 ha	34.68 ha	3.09 ha
Local Open Space	10 ha per 100,000 persons	31.59 ha (2)	65.56 ha	71.30 ha	39.71 ha
Secondary School	1 whole-day classroom for 40 persons aged 12-17	374 classrooms	686	686	312 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11	566 classrooms	459	459	-107 classrooms
Kindergarten/ Nursery	26 classrooms for 1,000 children aged 3-6	164 classrooms	243	243	79 classrooms
District Police Station	1 per 200,000 to 500,000 persons	1	0	0	-1
Divisional Police Station	1 per 100,000 to 200,000 persons	1	1	1	0
Hospital	5.5 beds per 1,000 persons	1,861 beds	2,375	2,375	514 beds
Specialist Clinic/Polyclinic	1 specialist clinic/polyclinic whenever a regional or district hospital is built	NA	2	2	NA
Clinic/Health Centre	1 per 100,000 persons	3	2	2	-1
Post Office	1 per 30,000 persons	10	5	5	-5
Magistracy (with 8 courtrooms)	1 per 660,000 persons	NA	0	0	NA
Market	No set standard	NA	336 stalls	336 stalls	NA
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24	4	11	11	7
Integrated Family Services Centres	1 for 100,000 to 150,000 persons	2	3	3	1
Library	1 district library for every 200,000 persons	2	2	2	0
Sports Centre	1 per 50,000 to 65,000 persons	5	4	5	0
Sports Ground/ Sport Complex	1 per 200,000 to 250,000 persons	1	2	2	1
Swimming Pool Complex - standard	1 complex per 287,000 persons	1	2	2	1

Note: (1) The planned population for the area is 315,900 (usual residents and mobile residents). If the transient population of 22,500 (e.g. tourists) is included, the figure will be 338,400.

(2) The demand for open space is calculated based on the planned population of about 315,900 excluding the transient population.

(3) Some facilities are assessed on a wider district basis by the relevant departments, e.g. secondary school, primary school, sports ground, etc. The shortfall in the OZP area could be addressed by the provision in the adjoining area, subject to the assessment of concerned departments. The provision of primary school classrooms will be assessed by the Education Bureau separately.

(4) The Kwai Tsing District Police Headquarters located at Tsing Yi serves the requirement for district police station in Kwai Chung district.

二零一四年三月十三日
葵青區議會
第八十八次會議(二零一四)

致：葵青區議會

動議人：盧慧蘭議員

和議人：梁耀忠議員、梁國華議員

日期：二零一四年三月十三日

臨時動議：

"葵青區議會反對在荔崗街「政府、機構或社區」用地興建住宅。"

"K&TDC opposes to the proposed residential development at the "Government, Institution or Community" zone on Lai Kong Street."

二零一四年三月十三日
葵青區議會
第八十八次會議(二零一四)

致：葵青區議會

動議人：林立志議員

和議人：許祺祥議員、林紹輝議員、徐生雄議員、梁國華議員、
黃炳權議員、吳劍昇議員、周奕希議員

日期：二零一四年三月十三日

臨時動議：

"葵青區議會強烈反對在長亨邨/長宏邨北(即 409 小巴總站)以「見縫插針」式改建 170 個私樓單位。"

"K&TDC strongly opposes to the piecemeal development of 170 private flats at the land to the north of Cheung Hang Estate/Cheung Wang Estate (i.e. GBM terminus of Route 409)."

二零一四年三月十三日
葵青區議會
第八十八次會議(二零一四)

致：葵青區議會

動議人：李志強議員

和議人：潘志成議員

日期：二零一四年三月十三日

臨時動議：

"葵青區議會強烈反對修訂青衣區規劃大綱的建議，包括鄰近長宏邨及美景花園的修訂。"

"K&TDC strongly objects to the proposed amendments to the Tsing Yi Outline Zoning Plan, including the proposed amendments adjacent to Cheung Wang Estate and Mayfair Gardens."

二零一四年三月十三日
葵青區議會
第八十八次會議(二零一四)

致：葵青區議會

動議人：黃潤達議員、梁志成議員、梁錦威議員

和議人：周偉雄議員、梁耀忠議員

日期：二零一四年三月十三日

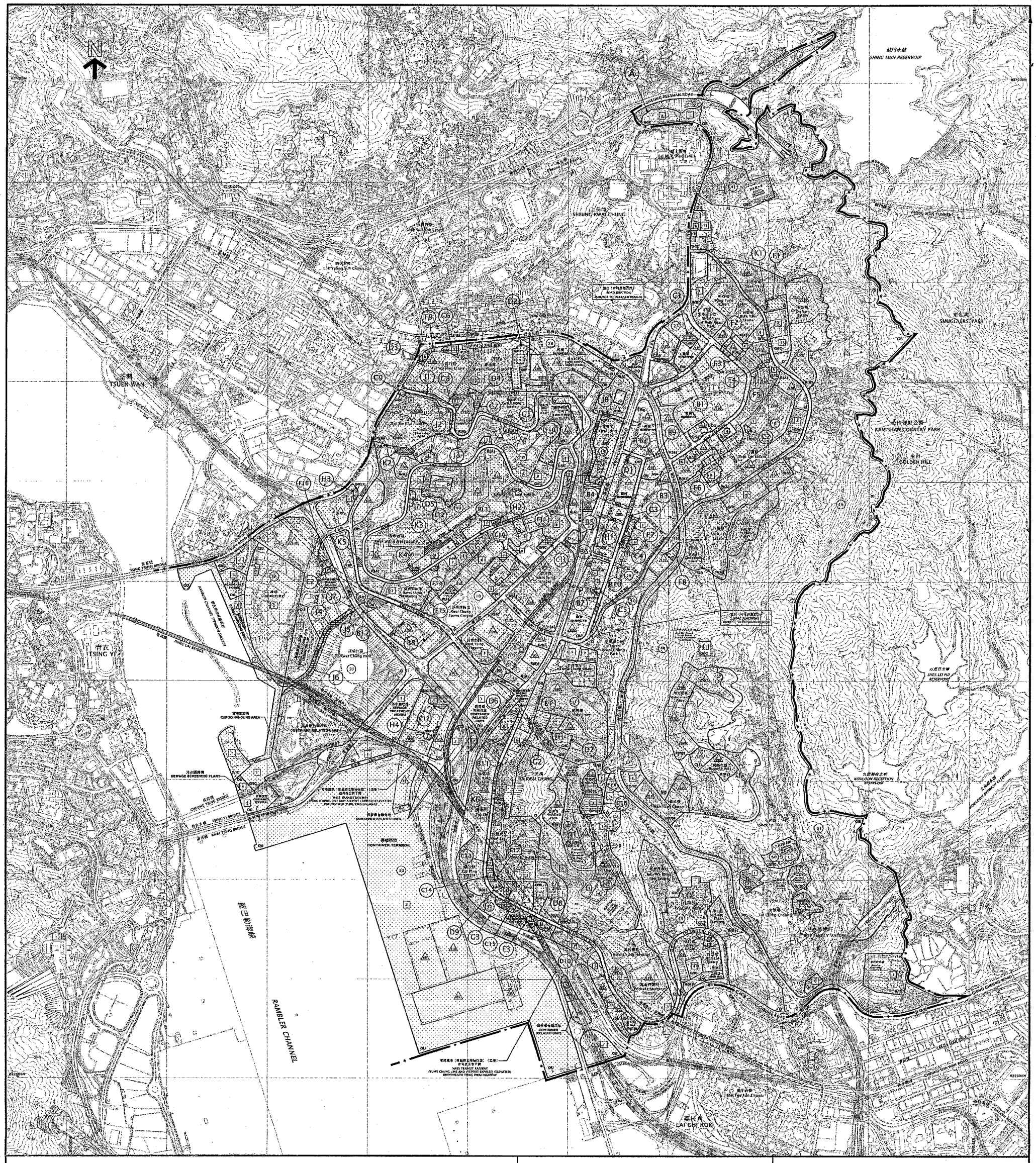
臨時動議：

"葵青區議會反對改變葵涌規劃大綱圖，在未改善現有地區交通問題，反對更改葵涌邨茵葵樓旁及葵盛駕駛學院用地作為住屋用途。"

"K&TDC opposes to the proposed amendments to the Kwai Chung Outline Zoning Plan. Before there is an improvement to the existing traffic conditions within the district, K&TDC opposes to rezone both the land adjoining Yan Kwai House, Kwai Chung Estate and the land of the existing Kwai Shing Driving Test Centre for residential uses."

Attachment VIIIb of MPC Paper No. 11/14

	動議	結果
(1)	葵青區議會反對規劃署在未有具體規劃, 包括改善社區及交通等環境改善配套措施和得到葵青區議支持前, 將建議中位於葵青區之13幅土地更改為住宅用途。 Kwai Tsing District Council (K&TDC) objects to Planning Department's proposal to rezone the 13 land parcels within Kwai Tsing District for residential use due to lack of comprehensive planning for the whole district on improvement to community facilities and transport enhancement and due to lack of support from K&TDC.	23票支持、 1票棄權、無人反對。 通過 23 affirmative vote, 1 abstention vote, no dissenting vote **Motion Passed**
(2)	葵青區議會強烈反對在荔崗街「政府、機構或社區」用地興建住宅。 K&TDC strongly objects to the proposed residential development at the "Government, Institution or Community" zone at Lai Kong Street.	19票支持、 無人棄權或反對。 通過 19 affirmative vote, no abstention vote and dissenting vote **Motion Passed**
(3)	葵青區議會反對改變葵涌規劃大綱圖。在未改善現有地區交通服務及落實興建往光輝圍升降機塔及葵盛圍升降機塔之時間表前, 本議會反對更改葵涌邨茵葵樓旁及葵盛駕駛學院用地作住宅用途。 K&TDC opposes to the proposed amendments to the Kwai Chung Outline Zoning Plan. Before there is any improvement to the existing traffic condition within the district and any concrete work programme for constructing elevator systems leading to Kwong Fai Circuit and Kwai Shing Circuit, K&TDC opposes to rezone both the land adjoining Yan Kwai House, Kwai Chung Estate and the land of the existing Kwai Shing Driving Test Centre for residential uses.	18票支持、 3票棄權、無人反對。 通過 18 affirmative vote, 3 abstention vote and no dissenting vote **Motion Passed**
(4)	葵青區議會強烈反對將美景花園西面之綠化地帶改為住宅用地。 K&TDC strongly opposes to rezoning the "Green Belt" zone to the west of Mayfair Gardens for residential purpose.	20票支持、 無人棄權或反對。 通過 20 affirmative vote, no abstention vote and dissenting vote **Motion Passed**
(5)	葵青區議會強烈反對在長亨邨 / 長宏邨北(即409小巴總站)以"見縫插針"式興建樓宇, 在未有解決交通配套, 道路承載量, 社區設施承載力等的居民憂慮, 要求永久擱置有關改劃用途的計劃。 K&TDC strongly opposes to the proposed piecemeal development to the north of Cheung Hang Estate/Cheung Wang Estate (i.e. existing GBM terminus for Route 409). Before addressing the resident's concerns over transport facilities, road capacity and carrying capacity of the community facilities, K&TDC requests shelving the rezoning proposal permanently.	28票支持、 無人棄權或反對。 通過 28 affirmative vote, no abstention vote and dissenting vote **Motion Passed**



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）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
INDUSTRIAL	I	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	G/C	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS / 交通

RAILWAY AND STATION	鐵路及車站
RAILWAY AND STATION (UNDERGROUND)	鐵路及車站（地下）
RAILWAY AND STATION (ELEVATED)	鐵路及車站（高架）
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
PLANNING AREA NUMBER	規劃區編號
BUILDING HEIGHT CONTROL ZONE BOUNDARY	建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	最高建築物高度（樓層數目）
PETROL FILLING STATION	加油站
NON-BUILDING AREA	非建築用地

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	6.33	0.62	商業
COMPREHENSIVE DEVELOPMENT AREA	6.35	0.62	綜合發展區
RESIDENTIAL (GROUP A)	164.24	16.03	住宅（甲類）
RESIDENTIAL (GROUP B)	15.28	1.49	住宅（乙類）
RESIDENTIAL (GROUP E)	3.82	0.36	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	2.55	0.25	鄉村式發展
INDUSTRIAL	46.60	4.55	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	120.88	11.80	政府、機構或社區
OPEN SPACE	115.53	11.27	休憩用地
OTHER SPECIFIED USES	173.05	16.89	其他指定用途
GREEN BELT	260.56	25.43	綠化地帶
MAJOR ROAD ETC.	110.39	10.77	主要道路等
TOTAL PLANNING SCHEME AREA	1024.70	100.00	規劃範圍總面積

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

核准圖編號 S/KC/25 的修訂
AMENDMENTS TO APPROVED PLAN No. S/KC/25

按照城市規劃條例第5條展示的修訂
AMENDMENTS EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

- 修訂項目A項 AMENDMENT ITEM A
- 修訂項目B1至B12項 AMENDMENT ITEMS B1 TO B12
- 修訂項目C1至C16項 AMENDMENT ITEMS C1 TO C16
- 修訂項目D1至D10項 AMENDMENT ITEMS D1 TO D10
- 修訂項目E1至E3項 AMENDMENT ITEMS E1 TO E3
- 修訂項目F1至F17項 AMENDMENT ITEMS F1 TO F17
- 修訂項目G1至G3項 AMENDMENT ITEMS G1 TO G3
- 修訂項目H1至H4項 AMENDMENT ITEMS H1 TO H4
- 修訂項目J1至J8項 AMENDMENT ITEMS J1 TO J8
- 修訂項目K1至K6項 AMENDMENT ITEMS K1 TO K6

（參看附表）
(SEE ATTACHED SCHEDULE)

2012年4月20日 按照城市規劃條例第5條展示的核准圖編號 S/KC/25 的修訂
AMENDMENTS TO APPROVED PLAN No. S/KC/25 EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON 20 APRIL 2012

Ophelia Y. S. WONG 黃綺霞
SECRETARY 城市規劃委員會秘書
TOWN PLANNING BOARD

香港城市規劃委員會依據城市規劃條例擬備的葵涌分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KWAI CHUNG - OUTLINE ZONING PLAN

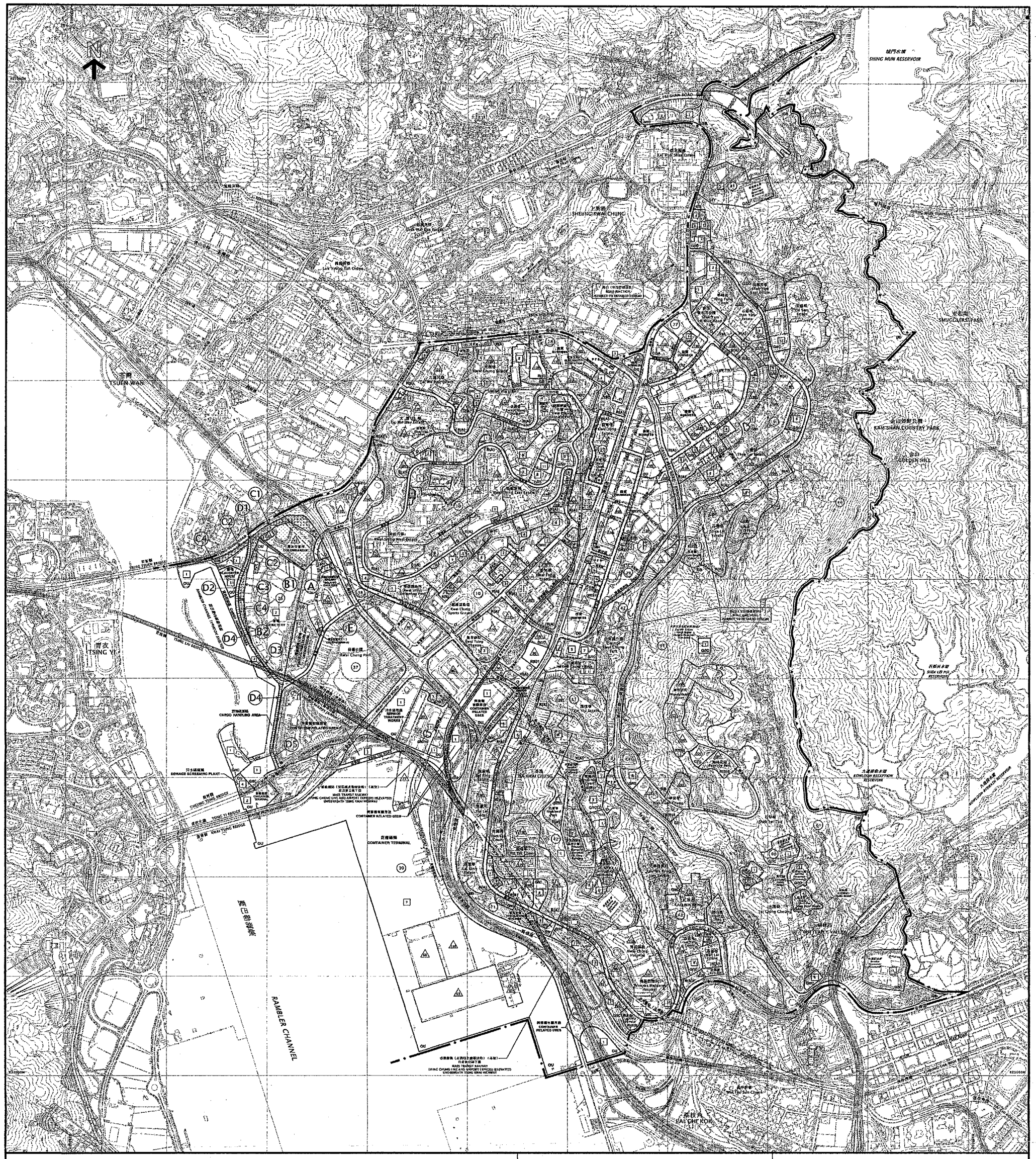
SCALE 1:7500 比例尺

0 100 200 400 600 800 1000 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/KC/26

參考編號 REFERENCE No. M/KC/14/6 圖 PLAN 1a



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）
VILLAGE TYPE DEVELOPMENT	V	鄉村式發展
INDUSTRIAL	I	工業
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
GREEN BELT	GB	綠化地帶

COMMUNICATIONS / 交通

RAILWAY AND STATION	鐵路及車站
RAILWAY AND STATION (UNDERGROUND)	鐵路及車站（地下）
RAILWAY AND STATION (ELEVATED)	鐵路及車站（高架）
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
PLANNING AREA NUMBER	規劃區編號
BUILDING HEIGHT CONTROL ZONE BOUNDARY	建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	最高建築物高度（樓層數目）
PETROL FILLING STATION	加油站
NON-BUILDING AREA	非建築用地

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 分項 HECTARES	% 百分率	用途
COMMERCIAL	5.45	0.53	商業
COMPREHENSIVE DEVELOPMENT AREA	6.35	0.62	綜合發展區
RESIDENTIAL (GROUP A)	164.24	16.03	住宅（甲類）
RESIDENTIAL (GROUP B)	15.28	1.49	住宅（乙類）
RESIDENTIAL (GROUP E)	3.92	0.38	住宅（戊類）
VILLAGE TYPE DEVELOPMENT	2.55	0.25	鄉村式發展
INDUSTRIAL	41.33	4.03	工業
GOVERNMENT, INSTITUTION OR COMMUNITY	119.79	11.69	政府、機構或社區
OPEN SPACE	115.26	11.25	休憩用地
OTHER SPECIFIED USES	174.81	17.07	其他指定用途
GREEN BELT	263.34	25.70	綠化地帶
MAJOR ROAD ETC.	112.28	10.96	主要道路等
TOTAL PLANNING SCHEME AREA	1024.70	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 7 條展示。
THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 7 OF THE TOWN PLANNING ORDINANCE

草圖編號 S/KC/26 的修訂
AMENDMENTS TO DRAFT PLAN No. S/KC/26

按照城市規劃條例第 7 條展示的修訂
AMENDMENTS EXHIBITED UNDER SECTION 7 OF THE TOWN PLANNING ORDINANCE

修訂項目 A 項 AMENDMENT ITEM A	修訂項目 D 1 至 D 5 項 AMENDMENT ITEMS D1 TO D5
修訂項目 B 1 至 B 2 項 AMENDMENT ITEMS B1 TO B2	修訂項目 E 項 AMENDMENT ITEM E
修訂項目 C 1 至 C 4 項 AMENDMENT ITEMS C1 TO C4	修訂項目 F 項 AMENDMENT ITEM F

（參看附表）
(SEE ATTACHED SCHEDULE)

參考編號 REFERENCE No. M/KC/14/6
圖則 PLAN 1b

2014年5月9日 按照城市規劃條例第 7 條展示的草圖編號 S/KC/26 的修訂
AMENDMENTS TO DRAFT PLAN No. S/KC/26 EXHIBITED UNDER SECTION 7 OF THE TOWN PLANNING ORDINANCE ON 9 MAY 2014

Ophelia Y. S. WONG 黃婉霞
SECRETARY 城市規劃委員會秘書
TOWN PLANNING BOARD

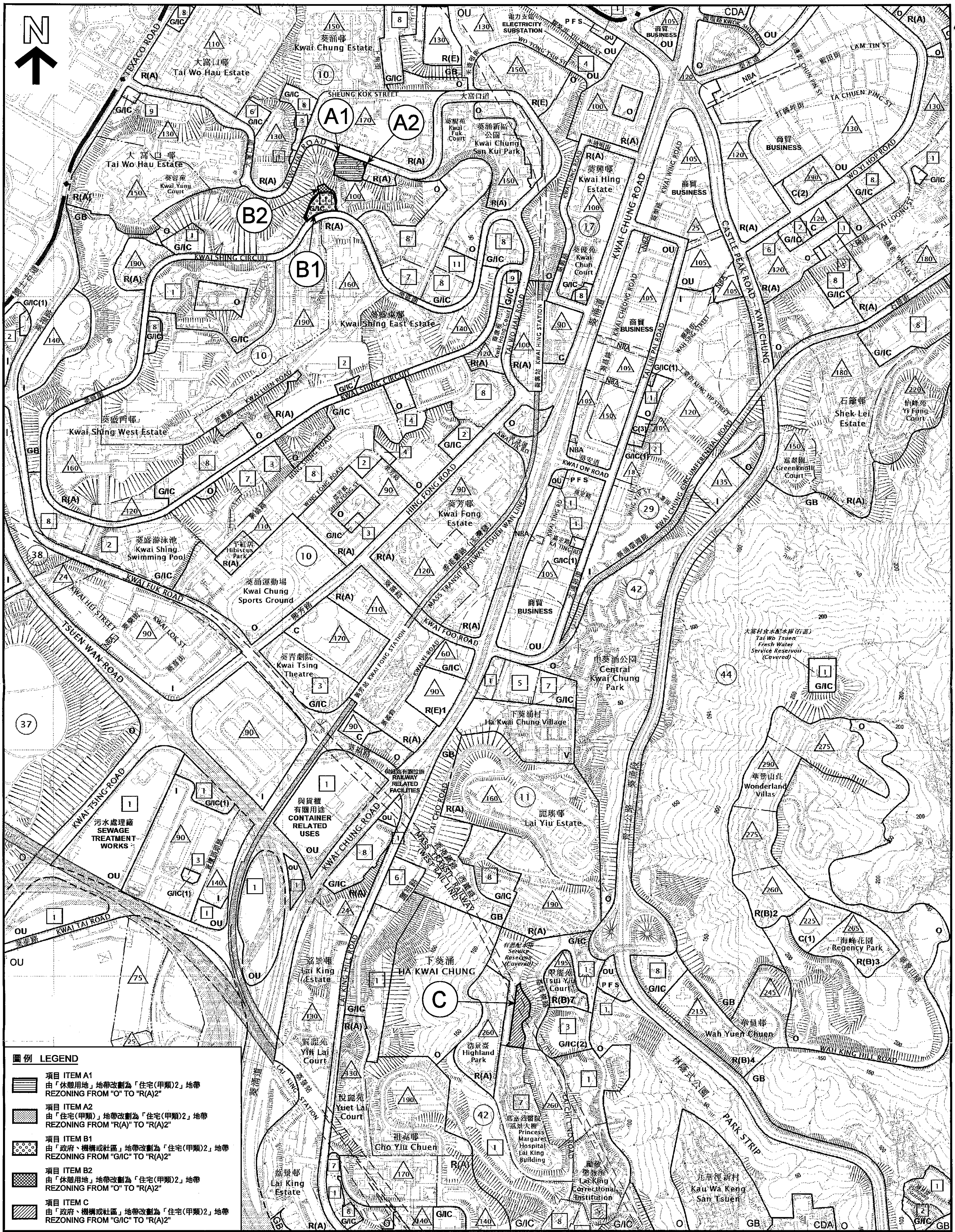
香港城市規劃委員會依據城市規劃條例擬備的葵涌分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
KWAI CHUNG - OUTLINE ZONING PLAN

SCALE 1:7500 比例尺

0 200 400 600 800 1000 METRES 米

規劃署謹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/KC/27



本摘要圖於2014年5月20日擬備，所根據的資料為於2014年5月9日展示的分區計劃大綱圖編號S/KC/27

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON OUTLINE ZONING PLAN No. S/KC/27 EXHIBITED ON 9.5.2014

位置圖 - 項目A1至C

LOCATION PLAN - ITEMS A1 TO C

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目

PROPOSED AMENDMENTS TO DRAFT KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

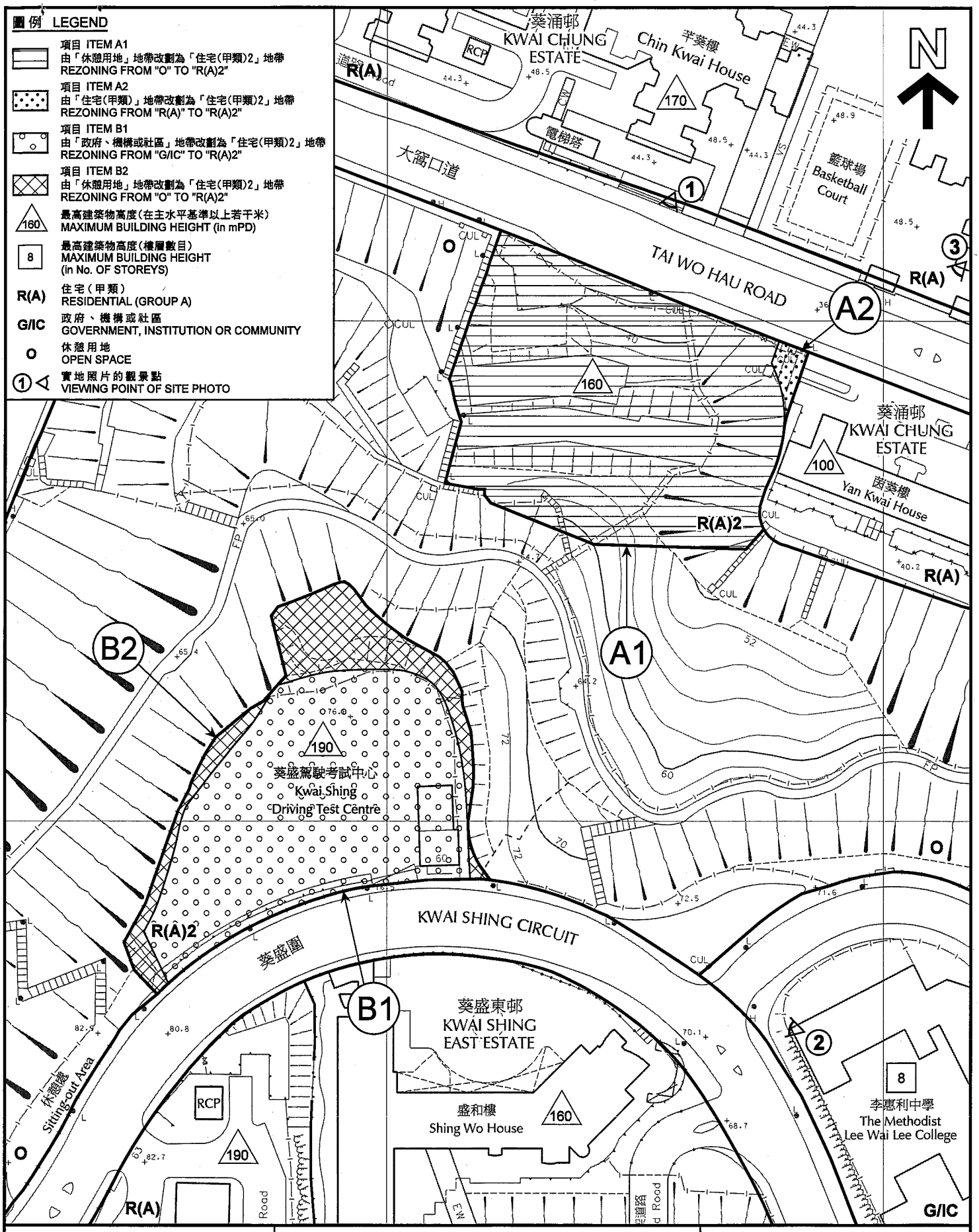
SCALE 1 : 7 500 比例尺

米 METRES 100 0 100 200 300 400 500 600 700 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號 REFERENCE No. M/KC/14/6

圖 PLAN 2



本摘要圖於2014年5月20日擬備，所根據的資料為測量圖編號 7-SW-16D/21B

EXTRACT PLAN PREPARED ON 20.5.2014
BASED ON SURVEY SHEETS No.
7-SW-16D/21B

平面圖 - 項目A1、A2、B1及B2
SITE PLAN - ITEMS A1, A2, B1 AND B2

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT
KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

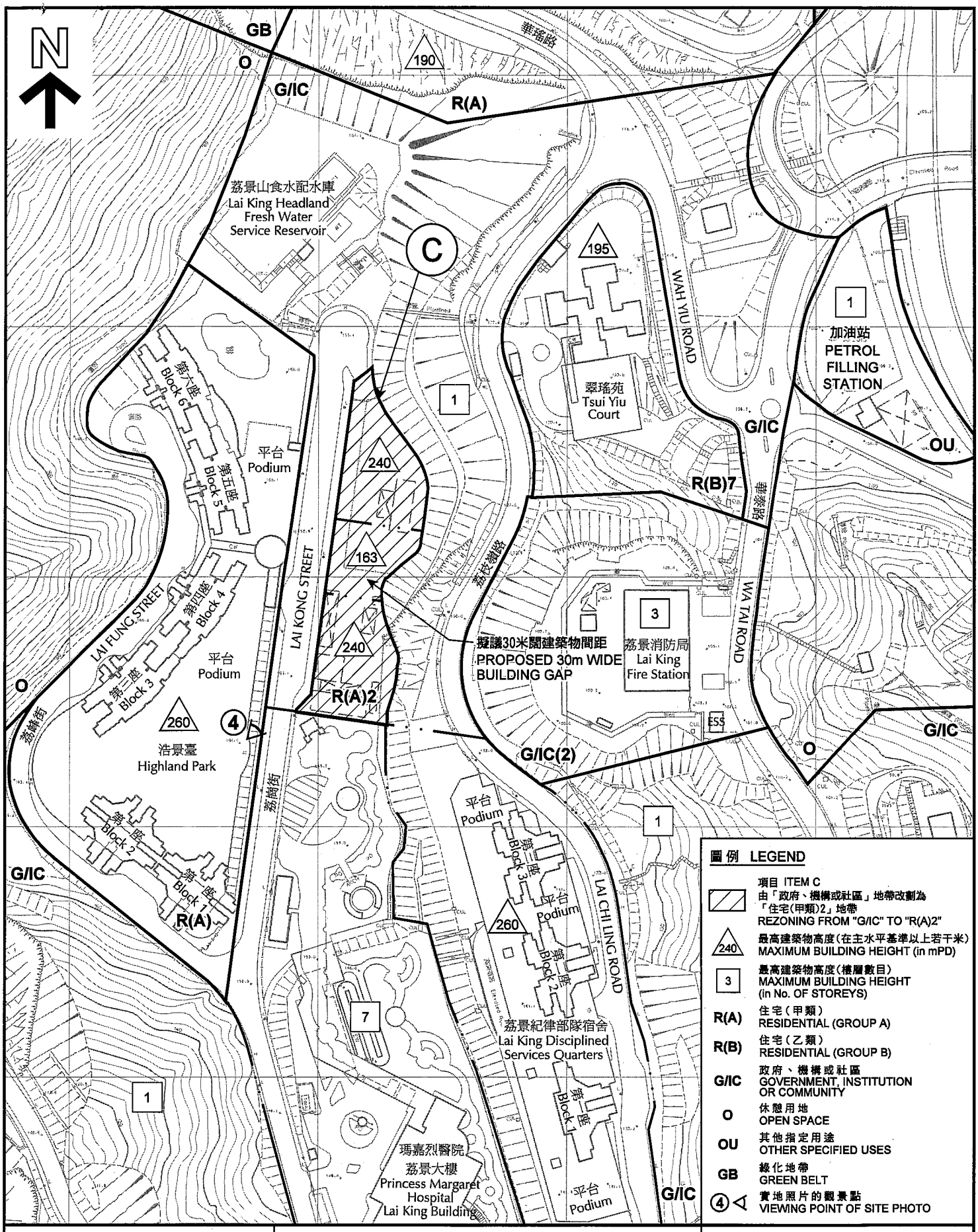
SCALE 1 : 1 000 比例尺

米 METRES 20 0 20 40 米 METRES

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
3a



圖例 LEGEND

	項目 ITEM C 由「政府、機構或社區」地帶改劃為「住宅(甲類)2」地帶 REZONING FROM "G/IC" TO "R(A)2"
240	最高建築物高度(在主水平基準以上若干米) MAXIMUM BUILDING HEIGHT (in mPD)
3	最高建築物高度(樓層數目) MAXIMUM BUILDING HEIGHT (in No. OF STOREYS)
R(A)	住宅(甲類) RESIDENTIAL (GROUP A)
R(B)	住宅(乙類) RESIDENTIAL (GROUP B)
G/IC	政府、機構或社區 GOVERNMENT, INSTITUTION OR COMMUNITY
O	休憩用地 OPEN SPACE
OU	其他指定用途 OTHER SPECIFIED USES
GB	綠化地帶 GREEN BELT
④◁	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

本摘要圖於2014年5月20日擬備，所根據的資料為測量圖編號 11-NW-1B/1D/2A/2C

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON SURVEY SHEETS No. 11-NW-1B/1D/2A/2C

平面圖 - 項目C
SITE PLAN - ITEM C

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

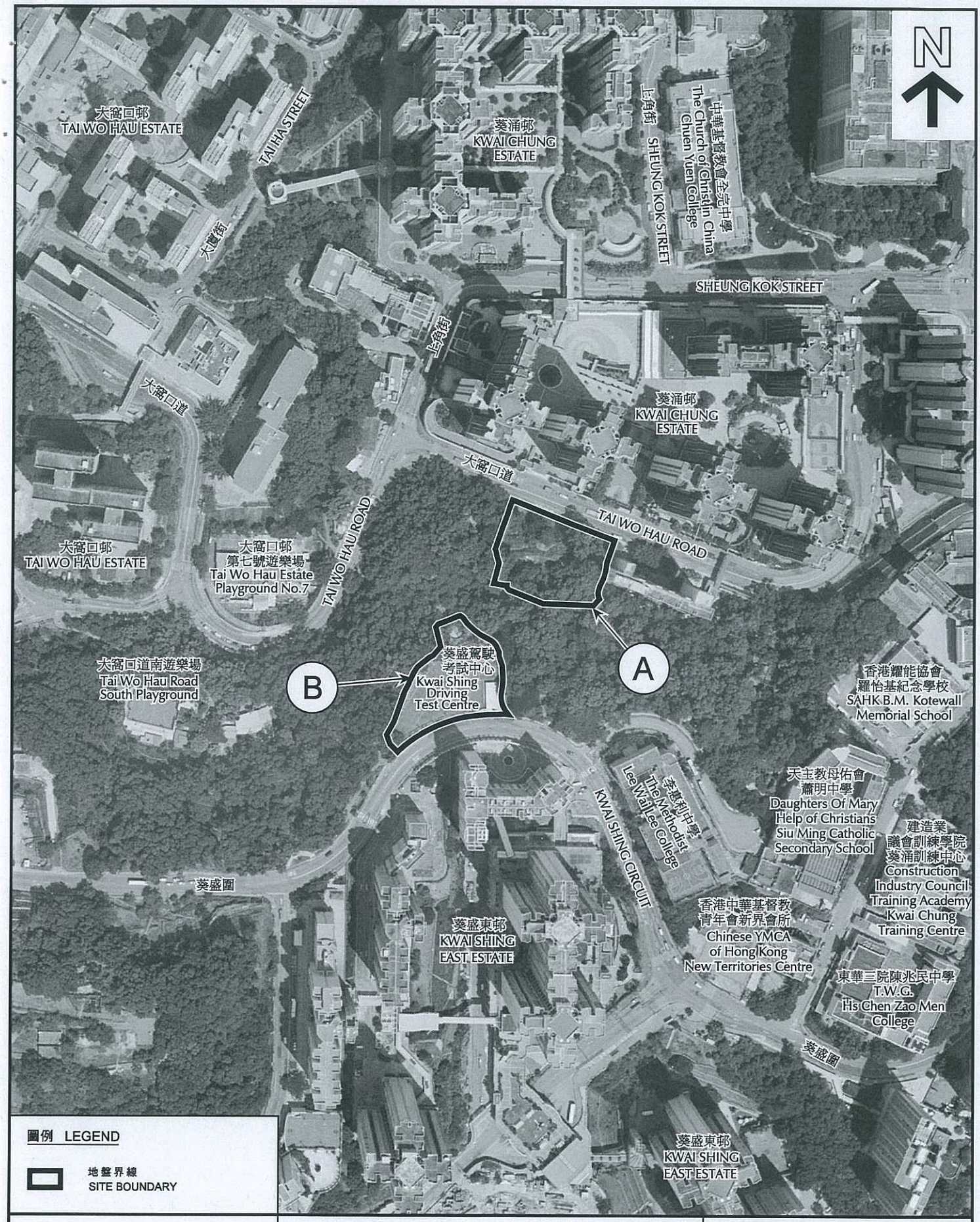
SCALE 1 : 2 000 比例尺

米 METRES 40 0 40 80 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
3b



圖例 LEGEND

地盤界線
SITE BOUNDARY

本摘要圖於2014年5月12日擬備，所根據的資料為地政總署於2013年9月7日拍得的航攝照片編號 CS45786

EXTRACT PLAN PREPARED ON 12.5.2014 BASED ON AERIAL PHOTO No. CS45786 TAKEN ON 7.9.2013 BY LANDS DEPARTMENT

航攝照片 - 地盤A及B
AERIAL PHOTO - SITES A AND B

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
4a

本摘要圖於2014年5月9日擬備，所根據的資料為地政總署於2013年8月27日拍得的航攝照片編號 CS45088

EXTRACT PLAN PREPARED ON 9.5.2014 BASED ON AERIAL PHOTO No. CS45088 TAKEN ON 27.8.2013 BY LANDS DEPARTMENT

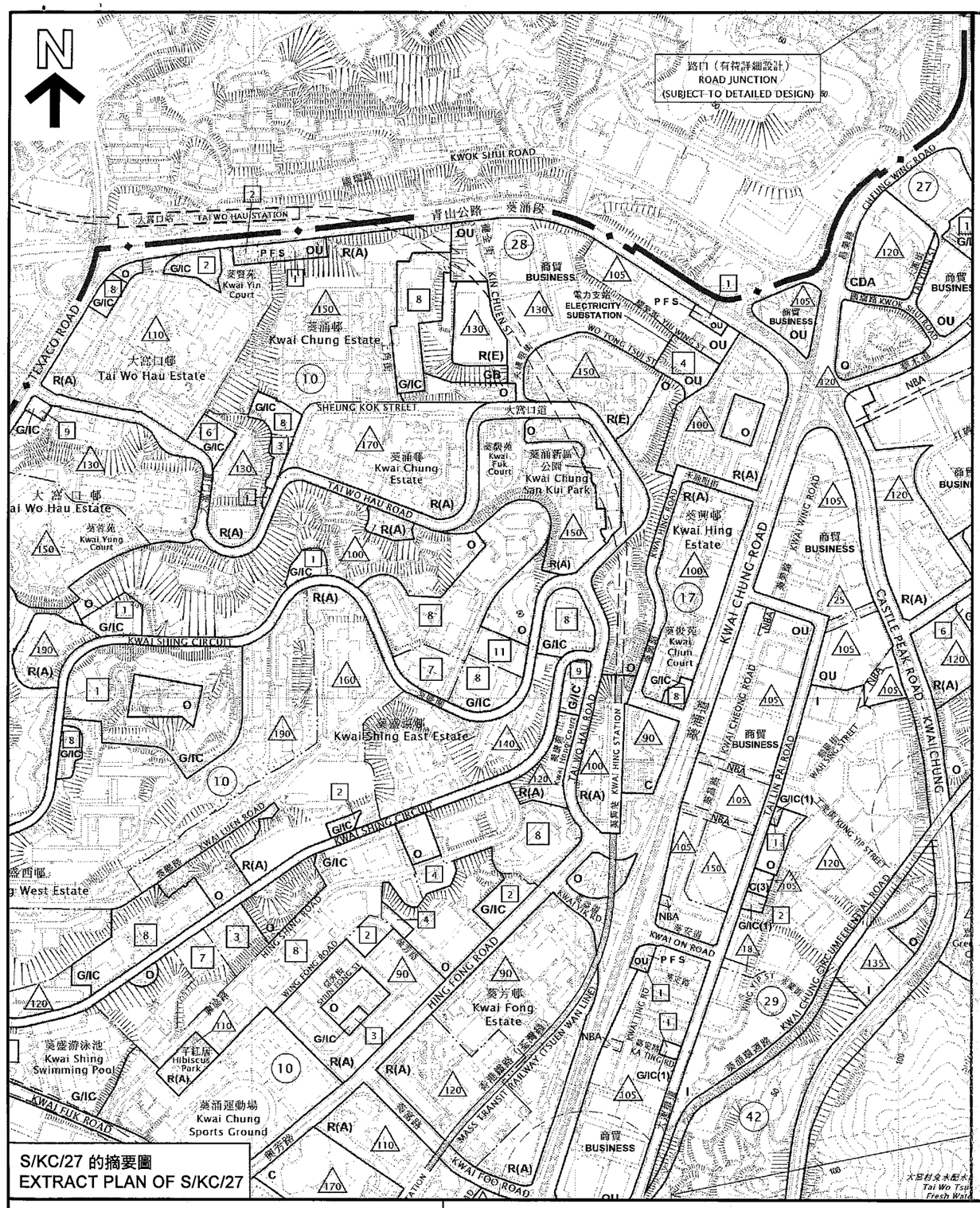
航攝照片 - 地盤C
AERIAL PHOTO - SITE C

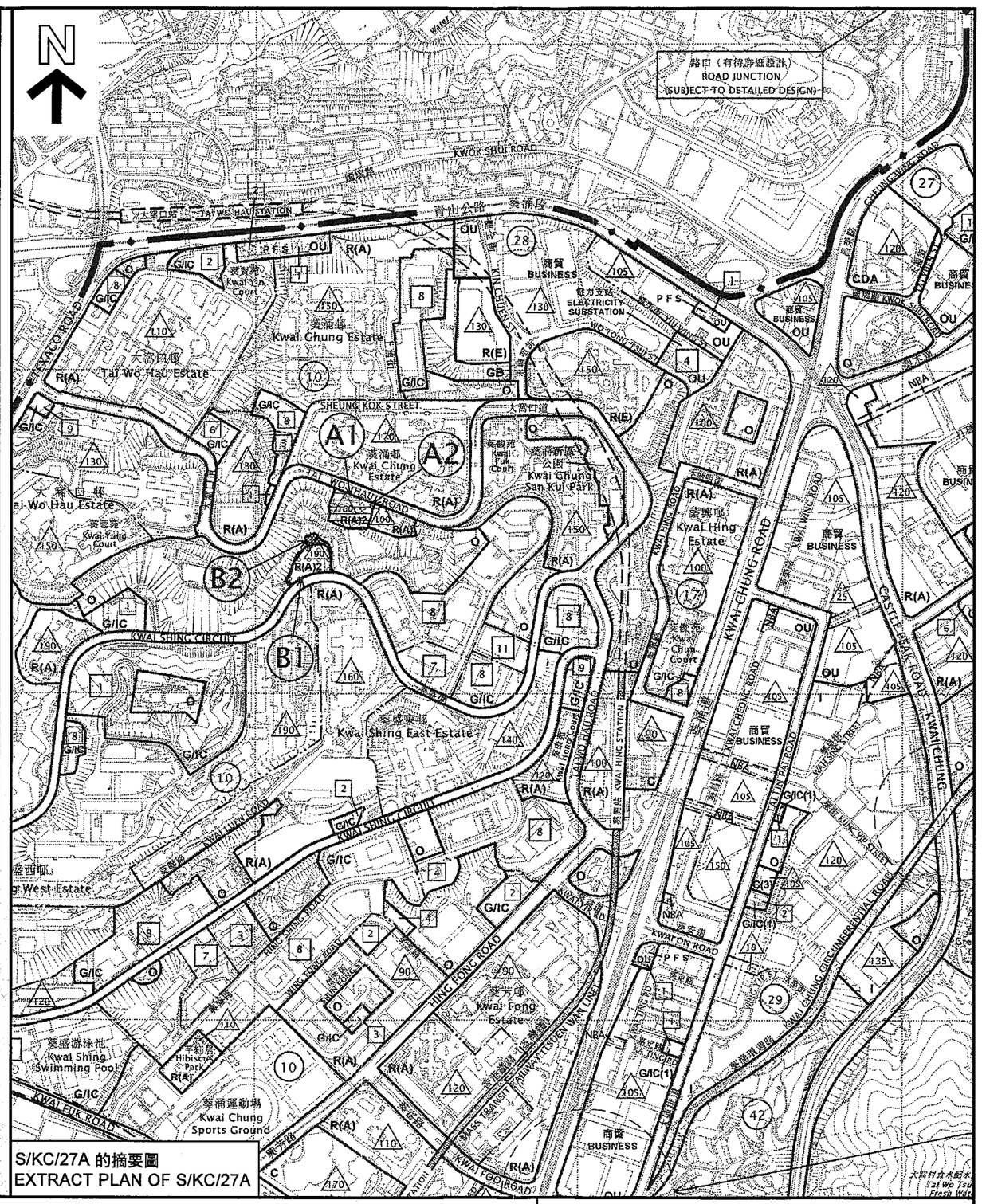
葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
4b





本摘要圖於2014年5月20日擬備，所根據的資料為葵涌分區計劃大綱草圖編號 S/KC/27 及 S/KC/27A

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON DRAFT KWAI CHUNG OUTLINE ZONING PLANS No. S/KC/27 AND S/KC/27A

修訂項目A1、A2、B1及B2項葵涌分區計劃大綱圖上的現有與擬議用途地帶的比較
COMPARISON OF EXISTING AND PROPOSED ZONINGS ON THE KWAI CHUNG OUTLINE ZONING PLAN FOR AMENDMENT ITEMS A1, A2, B1 AND B2

SCALE 1 : 7 500 比例尺

米 METRES 100 0 100 200 300 400 500 600 700 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
5a

S/KC/27 的摘要圖
EXTRACT PLAN OF S/KC/27

S/KC/27A 的摘要圖
EXTRACT PLAN OF S/KC/27A

本摘要圖於2014年5月20日擬備，所根據的資料為葵涌分區計劃大綱草圖編號 S/KC/27 及 S/KC/27A

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON DRAFT KWAI CHUNG OUTLINE ZONING PLANS No. S/KC/27 AND S/KC/27A

修訂項目C項葵涌分區計劃大綱圖上的現有與擬議用途地帶的比較
COMPARISON OF EXISTING AND PROPOSED ZONINGS ON THE KWAI CHUNG OUTLINE ZONING PLAN FOR AMENDMENT ITEM C

SCALE 1 : 7 500 比例尺

米 METRES 100 0 100 200 300 400 500 600 700 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
5b

本圖於2014年5月12日擬備，所根據的資料為攝於2013年11月25日的實地照片

PLAN PREPARED ON 12.5.2014
BASED ON SITE PHOTO TAKEN ON
25.11.2013

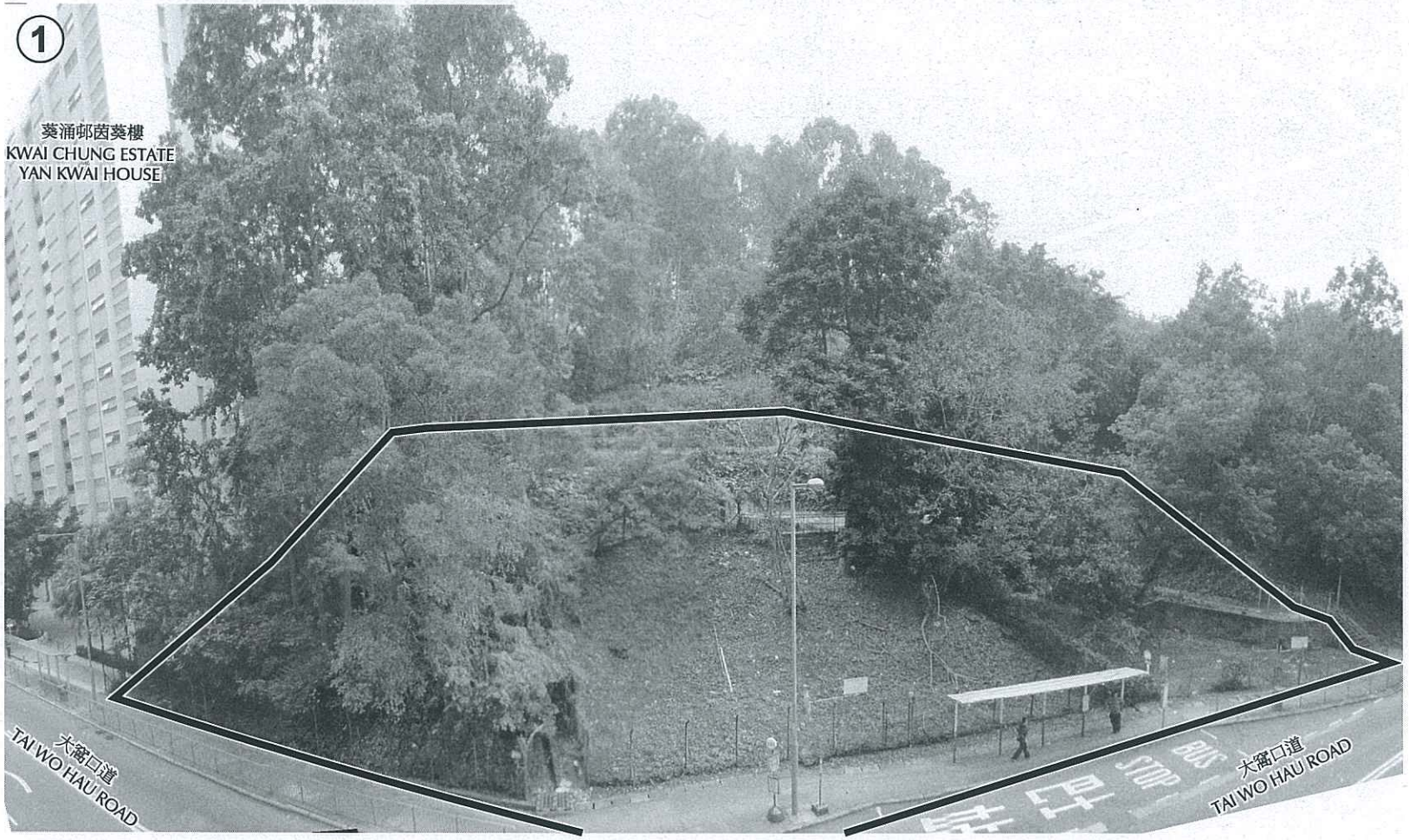
俯視圖
OVERVIEW PLAN

由西北方俯視地盤A及B
OVERVIEW OF SITES A AND B FROM THE NORTH WEST

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
6a



圖例 LEGEND

地盤界線
SITE BOUNDARY

本圖於2014年5月12日擬備，所根據的資料為攝於2013年12月13日的實地照片

PLAN PREPARED ON 12.5.2014
BASED ON SITE PHOTO TAKEN ON 13.12.2013

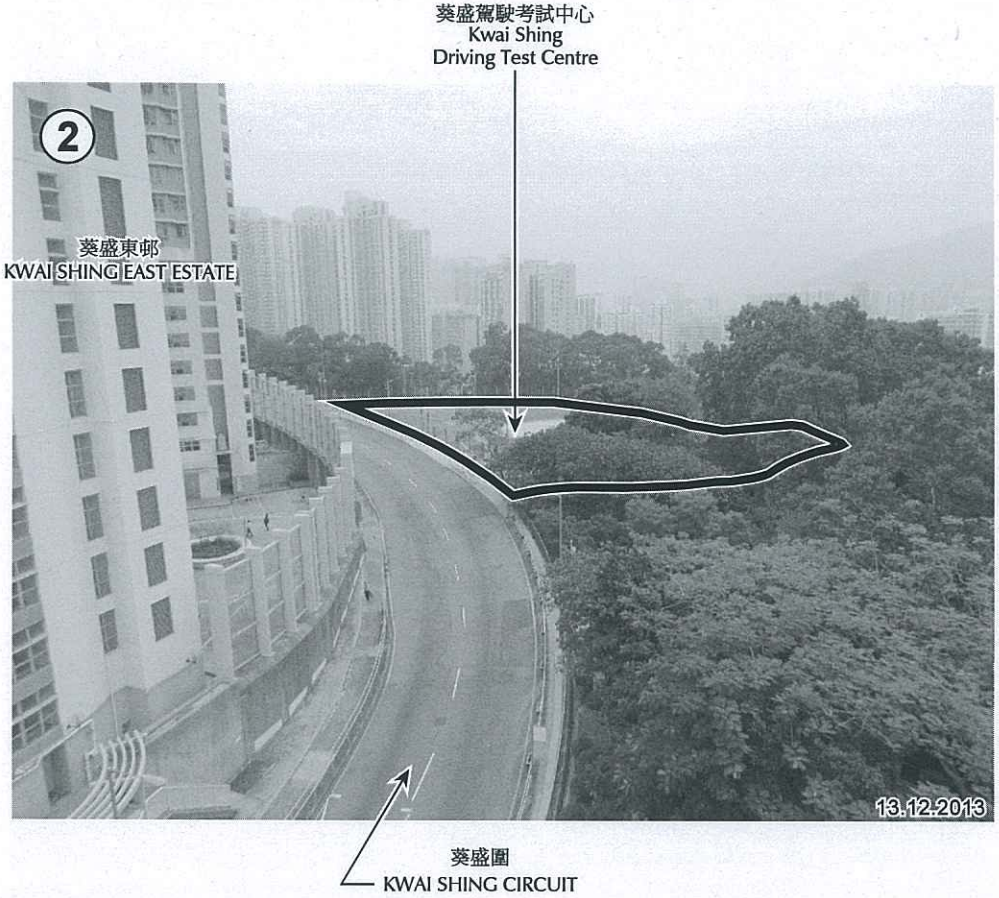
實地照片 - 地盤A
SITE PHOTO - SITE A

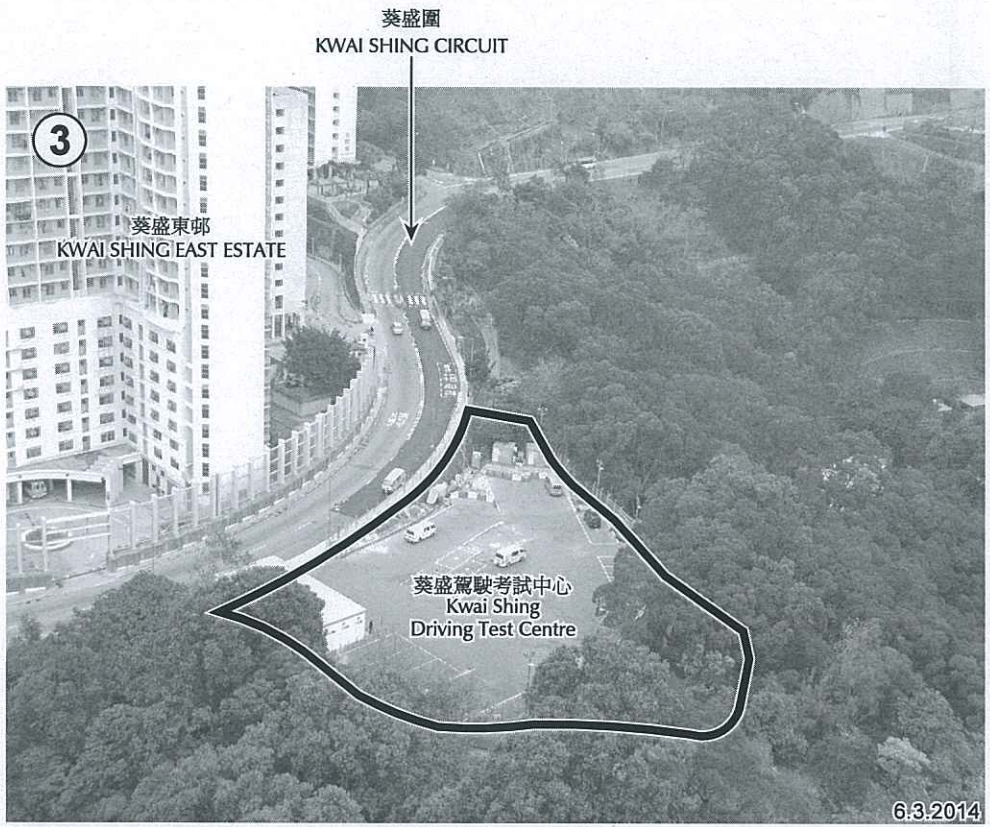
葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT
KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
6b





圖例 LEGEND

地盤界線
SITE BOUNDARY

本圖於2014年5月9日擬備，所根據的資料為攝於2013年12月13日及2014年3月6日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTOS TAKEN
ON 13.12.2013 AND 6.3.2014

實地照片 - 地盤B
SITE PHOTOS - SITE B

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT
KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
6c

擬議發展
PROPOSED DEVELOPMENT

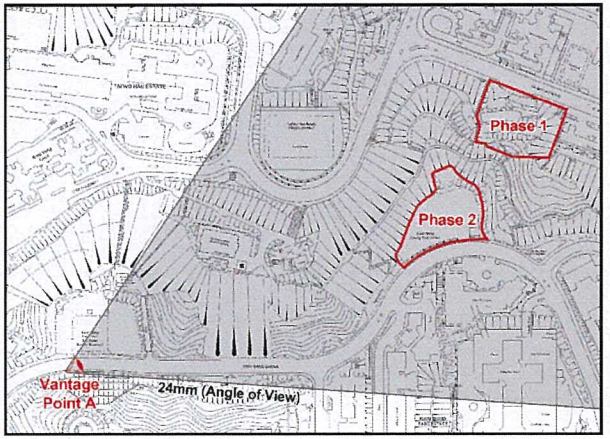
Merged 27 mm

Existing Site Photo

Merged 27 mm

Photomontage (with proposed development)

合成照片的觀景點的位置圖
LOCATION PLAN OF
VIEWING POINT OF PHOTOMONTAGE



SOURCE : PLAN 7 OF VISUAL APPRAISAL
FROM PLANNING SECTIONS,
HOUSING DEPARTMENT

本圖於2014年5月9日擬備
PLAN PREPARED ON 9.5.2014

合成照片 - 大窩口道第一及第二期
PHOTOMONTAGE - TAI WO HAU ROAD PHASE 1 & PHASE 2

由瞭望點A觀望
VIEW FROM VANTAGE POINT A

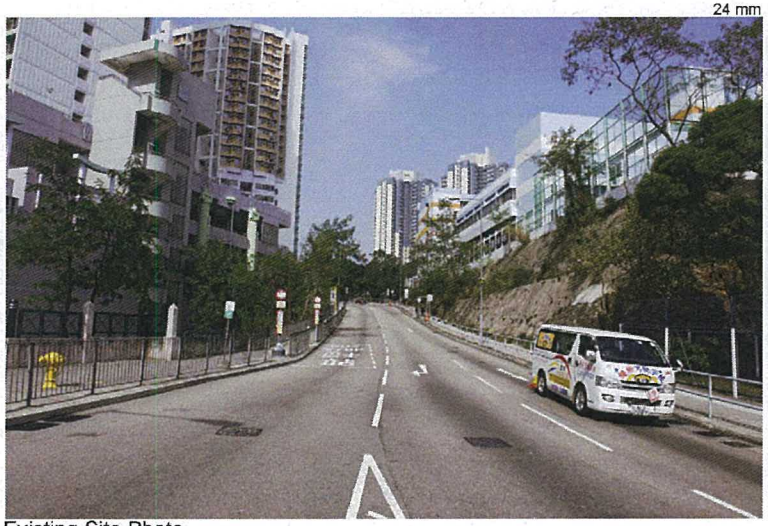
規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
6d

擬議發展
PROPOSED DEVELOPMENT

24 mm

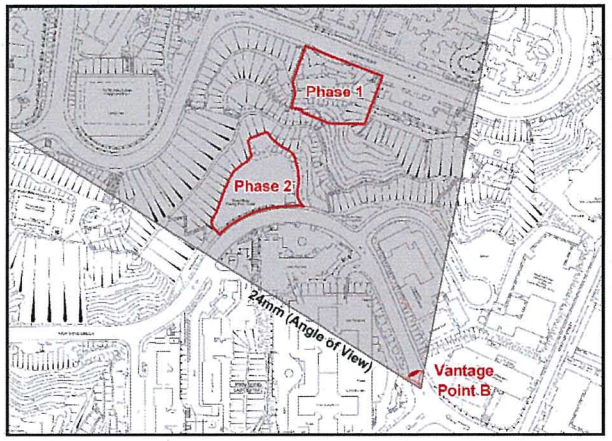


Existing Site Photo

24 mm

Photomontage (with proposed development)

合成照片的觀景點的位置圖
LOCATION PLAN OF
VIEWING POINT OF PHOTOMONTAGE



SOURCE : PLAN 8 OF VISUAL APPRAISAL
FROM PLANNING SECTIONS,
HOUSING DEPARTMENT

本圖於2014年5月9日擬備
PLAN PREPARED ON 9.5.2014

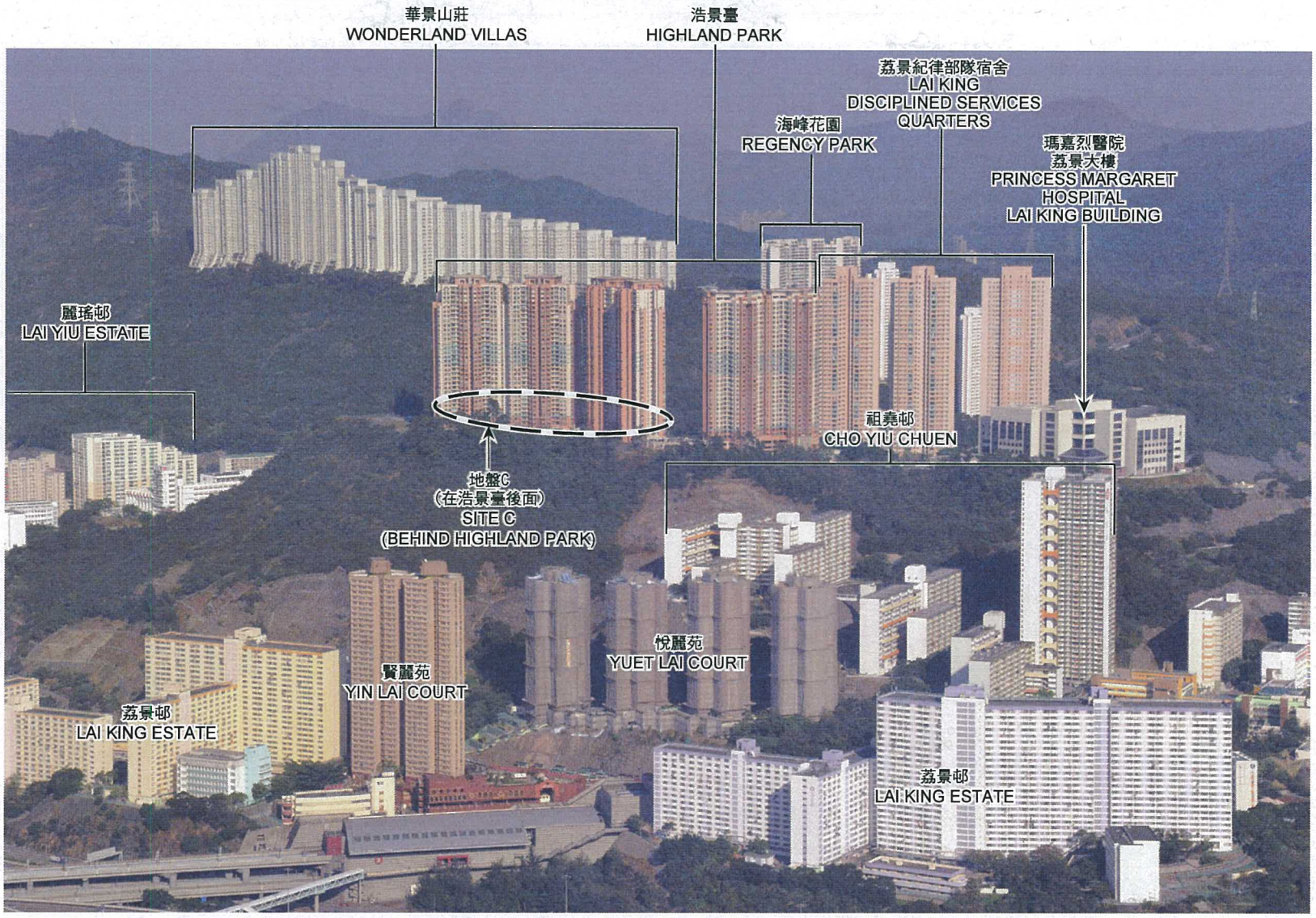
合成照片 - 大窩口道第一及第二期
PHOTOMONTAGE - TAI WO HAU ROAD PHASE 1 & PHASE 2

由瞭望點B觀望
VIEW FROM VANTAGE POINT B

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
6e



本圖於2014年5月9日擬備，所根據的資料為攝於2013年11月25日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTO TAKEN ON 25.11.2013

俯視圖
OVERVIEW PLAN

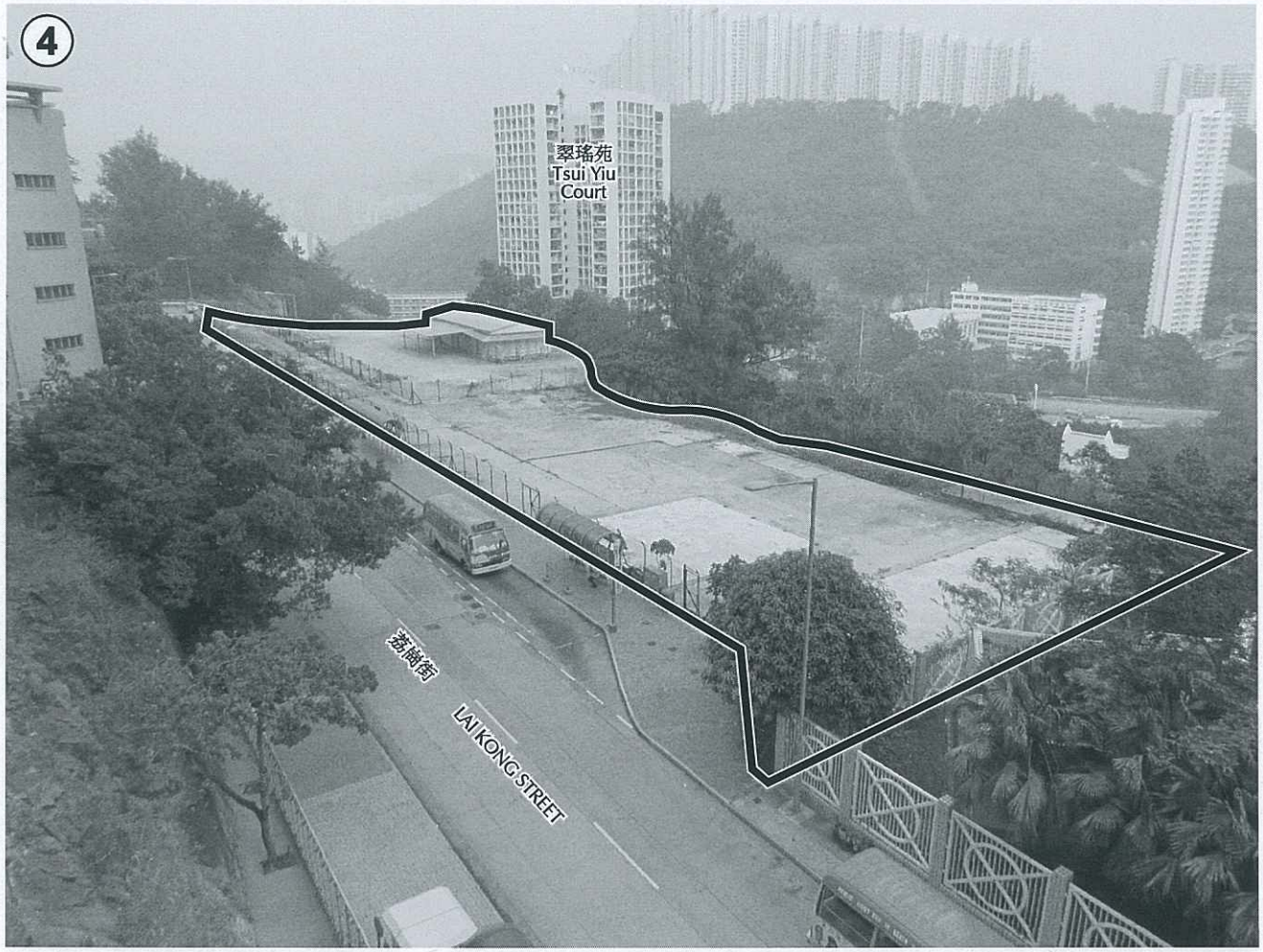
由西方俯視地盤C

OVERVIEW OF SITE C FROM THE WEST

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
7a



圖例 LEGEND

地盤界線
SITE BOUNDARY

本圖於2014年5月9日擬備，所根據的資料為攝於2013年12月13日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTO TAKEN
ON 13.12.2013

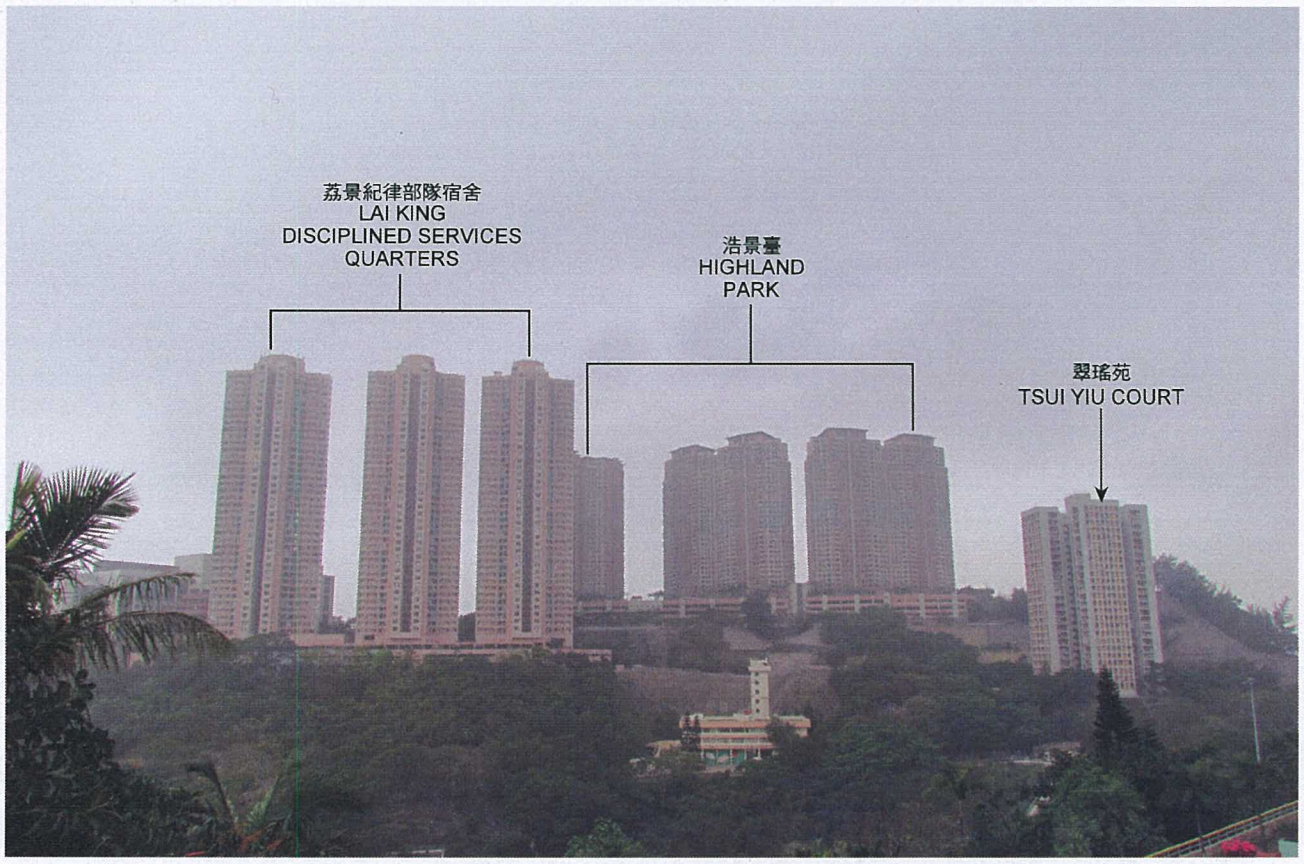
實地照片 - 地盤C
SITE PHOTO - SITE C

葵涌分區計劃大綱草圖編號S/KC/27的擬議修訂項目
PROPOSED AMENDMENTS TO DRAFT
KWAI CHUNG OUTLINE ZONING PLAN No. S/KC/27

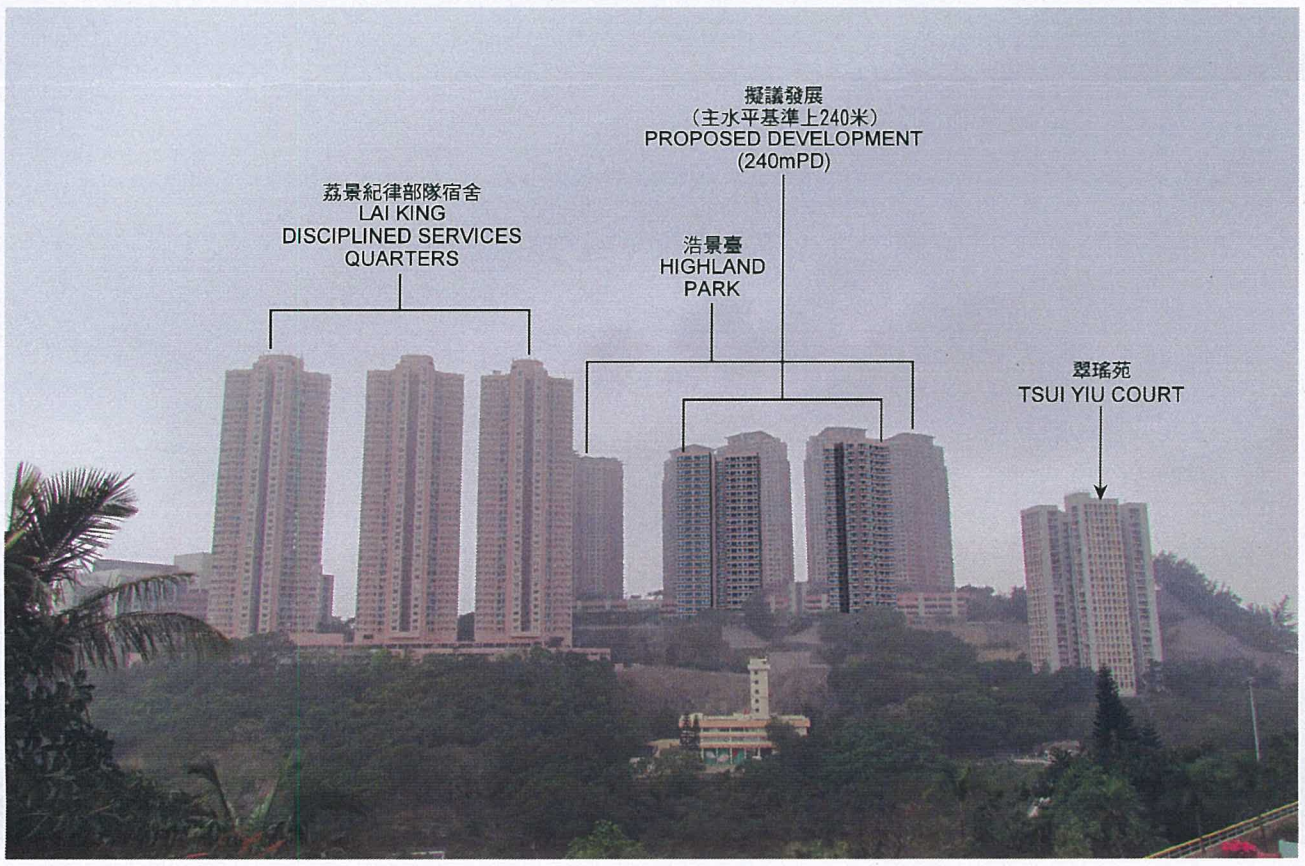
規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
7b

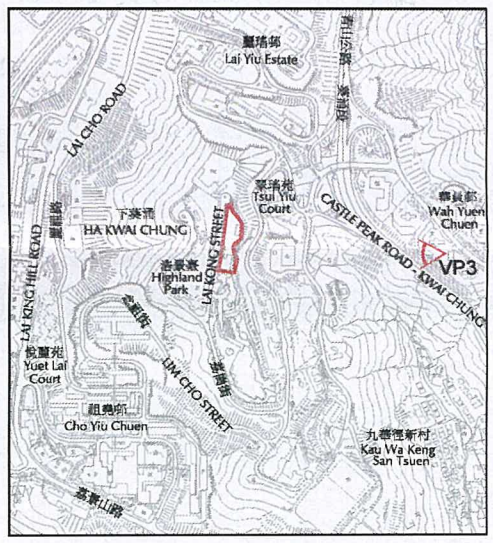


現有景觀
EXISTING VIEW



合成照片
PHOTOMONTAGE

合成照片的觀景點的位置圖
LOCATION PLAN OF
VIEWING POINT OF PHOTOMONTAGE



SCALE 1 : 15 000 比例尺

合成照片上只是粗略地描畫大廈輪廓
THE OUTLINE CONFIGURATIONS OF BUILDINGS AS SHOWN ON PHOTOMONTAGES ARE INDICATIVE ONLY

本圖於2014年5月9日擬備，所根據的資料為攝於2014年3月12日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTO TAKEN ON 12.3.2014

合成照片 - 地盤C
PHOTOMONTAGE - SITE C
由VP3觀望
VIEW FROM VP3

規劃署
PLANNING DEPARTMENT

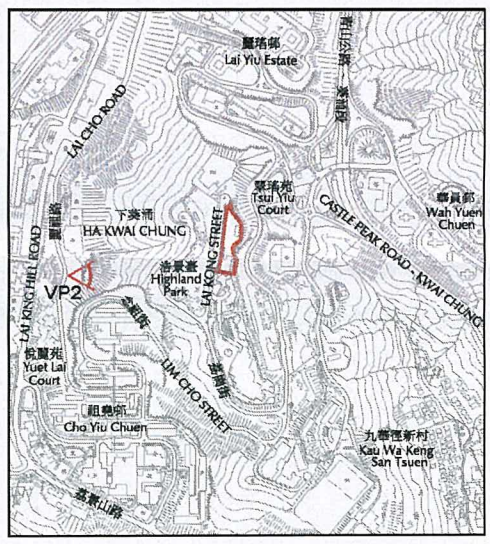
參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
7c

現有景觀
EXISTING VIEW

合成照片
PHOTOMONTAGE

合成照片的觀景點的位置圖
LOCATION PLAN OF
VIEWING POINT OF PHOTOMONTAGE



SCALE 1 : 15 000 比例尺

合成照片上只是粗略地描畫大廈輪廓
THE OUTLINE CONFIGURATIONS OF BUILDINGS AS SHOWN ON PHOTOMONTAGES ARE INDICATIVE ONLY

本圖於2014年5月9日擬備，所根據的資料為攝於2014年3月6日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTO TAKEN ON 6.3.2014

合成照片-地盤C
PHOTOMONTAGE - SITE C
由VP2觀望
VIEW FROM VP2

規劃署
PLANNING DEPARTMENT

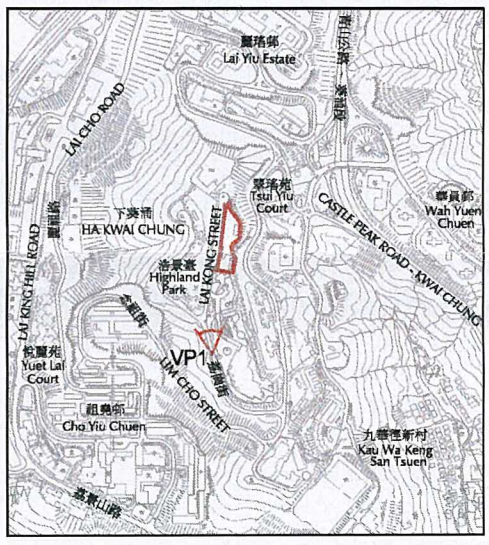
參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
7d

現有景觀
EXISTING VIEW

合成照片
PHOTOMONTAGE

合成照片的觀景點的位置圖
LOCATION PLAN OF
VIEWING POINT OF PHOTOMONTAGE



SCALE 1 : 15 000 比例尺

合成照片上只是粗略地描畫大廈輪廓
THE OUTLINE CONFIGURATIONS OF BUILDINGS AS SHOWN ON PHOTOMONTAGES ARE INDICATIVE ONLY

本圖於2014年5月9日擬備，所根據的資料為攝於2014年3月6日的實地照片

PLAN PREPARED ON 9.5.2014
BASED ON SITE PHOTO TAKEN ON 6.3.2014

合成照片 - 地盤C
PHOTOMONTAGE - SITE C
由VP1觀望
VIEW FROM VP1

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
7e

圖例 LEGEND

規劃範圍界線
PLANNING SCHEME BOUNDARY

用途地帶界線
ZONING BOUNDARY

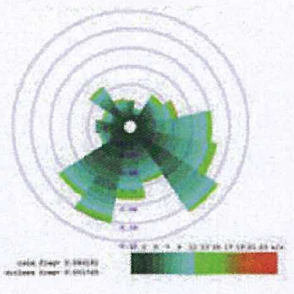
1 通風廊
BREEZEWAY

A 空氣路徑
AIR PATH

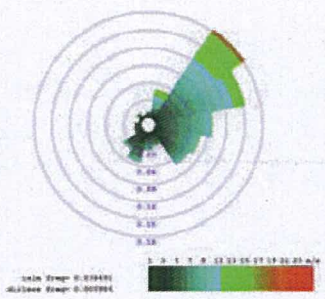
夏季盛行風
PREVAILING SUMMER WIND

全年盛行風
PREVAILING ANNUAL WIND

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY



Wind Rose (Summer)



Wind Rose (Annual)

WIND ROSE (2004)

N

荃灣
TSUEN WAN

上葵涌
SHEUNG KWAI CHUNG

青山公路 葵涌段

昌榮路
CHEUNG WING ROAD

CHEUNG PEI SHAN ROAD

城門水塘
SHING MUN RESERVOIR

WO YI HOP ROAD

金山郊野公園
KAM SHAN COUNTRY PARK

金山
GOLDEN HILL

石梨貝水塘
SHEK LEI PUI RESERVOIR

九龍接收水塘
KOWLOON RECEPTION RESERVOIR

TAI WO HAU ROAD

大窩口道

KWAI SHING CIRCUIT

KWAI FUK ROAD

HING KEONG ROAD

KWAI CHUNG ROAD

CASTLE PEAK ROAD - KWAI CHUNG

石排街 SHEK PAI ST.

青荃橋
TSING TSUEN BRIDGE

荃灣華人永遠墳場
Tsuen Wan Chinese Permanent Cemetery

WING KEI ROAD

KWAI HEI STREET

TSUEN WAN ROAD

青葵路

青山公路 荃灣段

青磡橋
TSING LAI BRIDGE

葵涌火葬場及骨灰龕
Kwai Chung Crematorium & Columbarium

擬議葵涌公園
Proposed Kwai Chung Park

葵涌公眾殮房
Kwai Chung Public Mortuary

KWAI TSING ROAD

港鐵西鐵綫 MTR RAILWAY TRACK

中葵涌公園
Central Kwai Chung Park

下葵涌村
Ha Kwai Chung Village

荔景邨
Lai King Estate

與貨櫃有關用途
CONTAINER RELATED USES

長青橋
CHEUNG TSING BRIDGE

青衣大橋
TSING YI BRIDGE

葵青橋
KWAI TSING BRIDGE

藍巴勒海峽
RAMBLER CHANNEL

青衣
TSING YI

TSING KWAI HIGHWAY

LAI KING HILL ROAD

CHING CHEUNG ROAD

TSING SHA HIGHWAY

荔枝角
LAI CHI KOK

A1 A2 B1 B2 C C1 C2 C3 D1 D2 E F1 F2

1 2 3 4 5 A B

本摘要圖於2014年5月20日擬備，所根據的資料為地圖組別HM20C圖則編號6/7/10及11

EXTRACT PLAN PREPARED ON 20.5.2014 BASED ON MAP SERIES HM20C SHEETS No. 6/7/10 AND 11

現有通風走廊
EXISTING AIR PATH NETWORK

SCALE 1 : 15 000 比例尺

米 METRES 200 0 200 400 600 800 1 000 1 200 1 400 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
8a

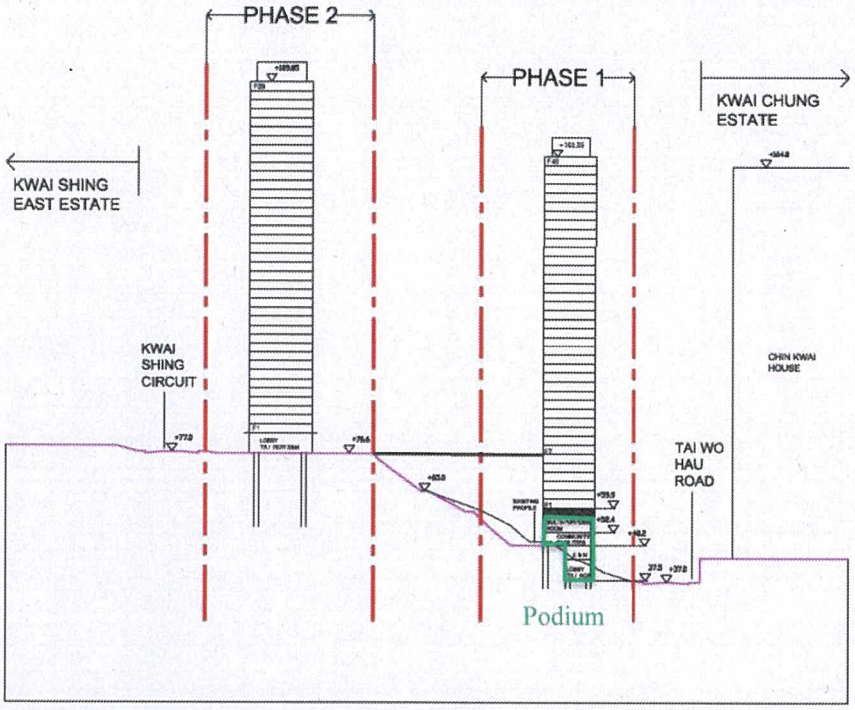


Figure 4 Section of Proposed PRH Scheme

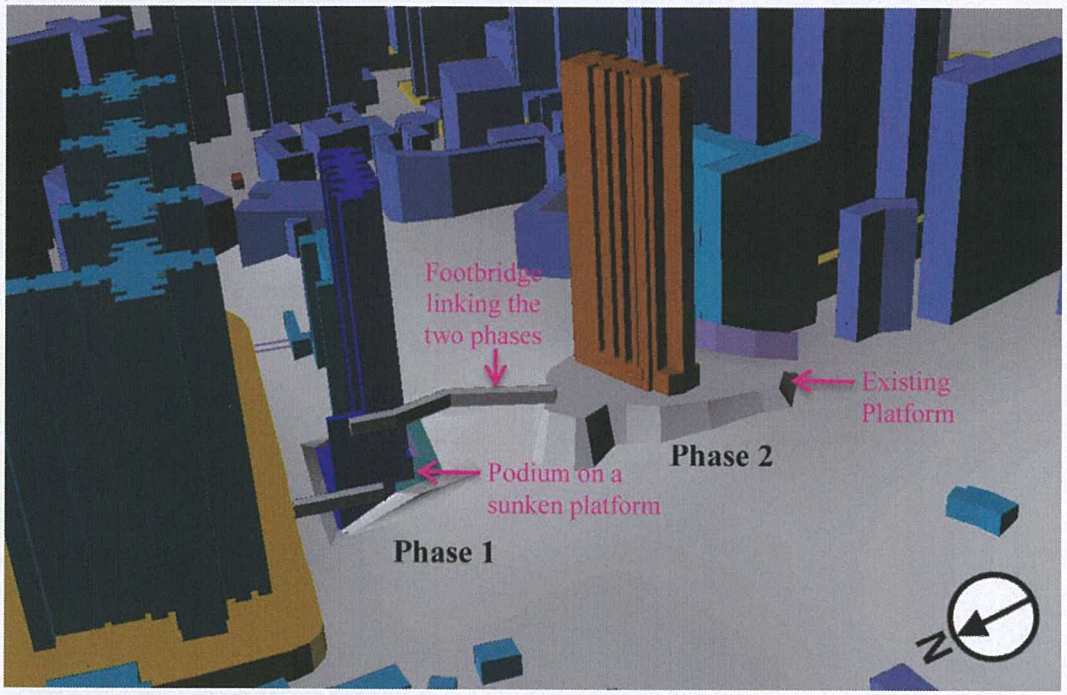
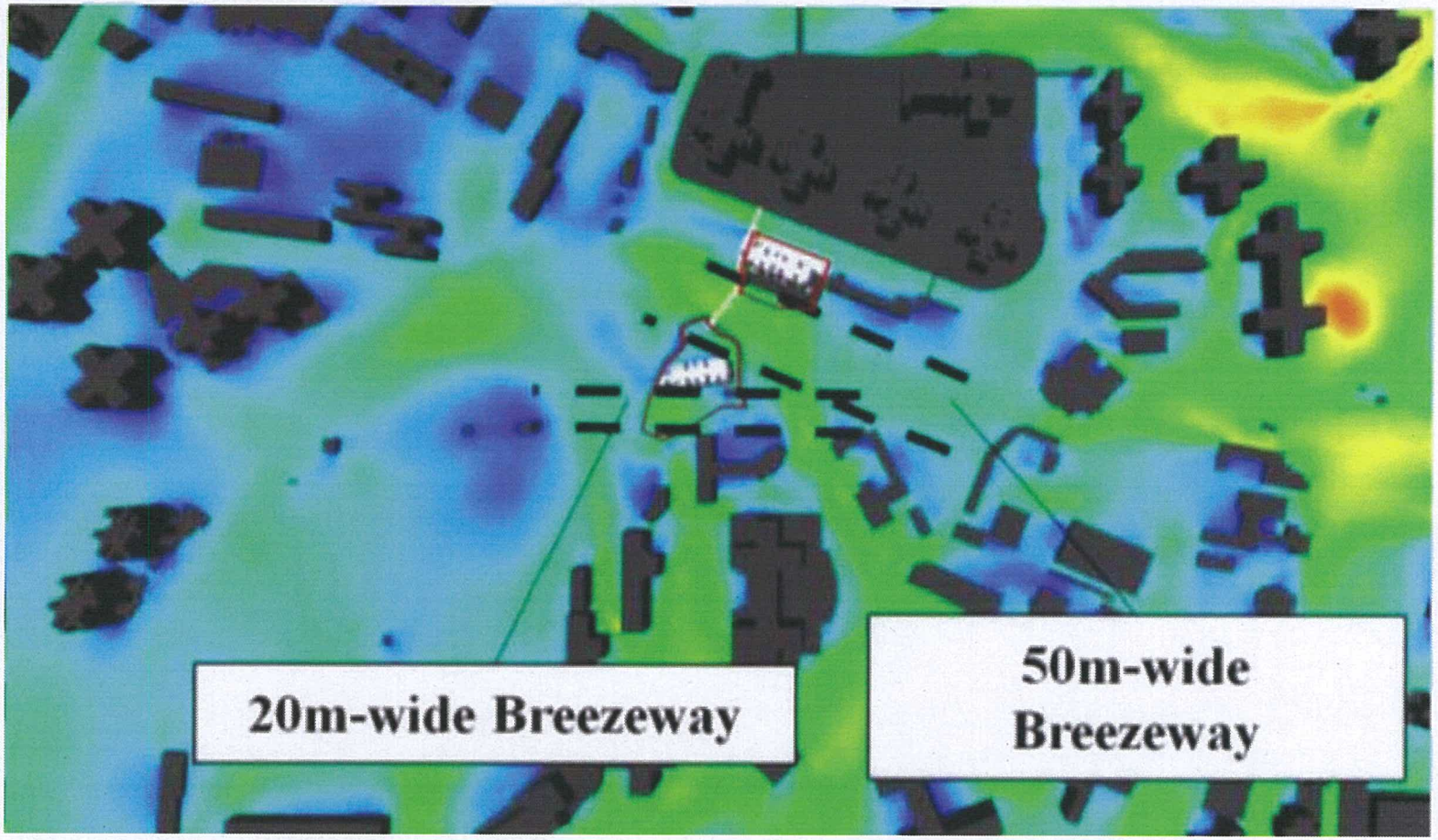


Figure 5 Enhanced PRH Scheme of the Development

SOURCE : PROPOSED PUBLIC RENTAL HOUSING DEVELOPMENT AT TAI WO HAU ROAD PHASE 1 & 2
AIR VENTILATION ASSESSMENT - INITIAL STUDY REPORT

本圖於2014年5月12日擬備 PLAN PREPARED ON 12.5.2014	在地盤A及B的擬議發展截面圖 SECTION OF PROPOSED DEVELOPMENTS AT SITES A AND B	規劃署 PLANNING DEPARTMENT 參考編號 REFERENCE No. M/KC/14/6 圖 PLAN 8b



SOURCE : PROPOSED PUBLIC RENTAL HOUSING DEVELOPMENT AT TAI WO HAU ROAD PHASE 1 & 2
AIR VENTILATION ASSESSMENT - INITIAL STUDY REPORT

本圖於2014年5月12日擬備
PLAN PREPARED ON 12.5.2014

地盤A及B之間的擬議建築物間距
PROPOSED BUILDING GAP FOR SITES A AND B

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
8c

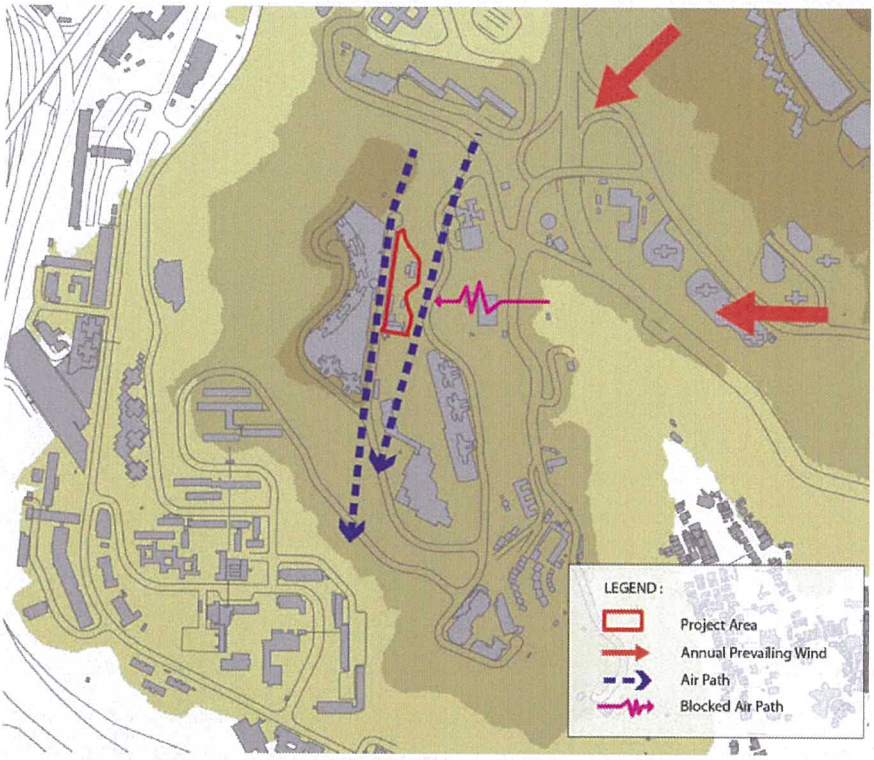


Figure 4.6 Air paths surrounding the project area (annual condition).

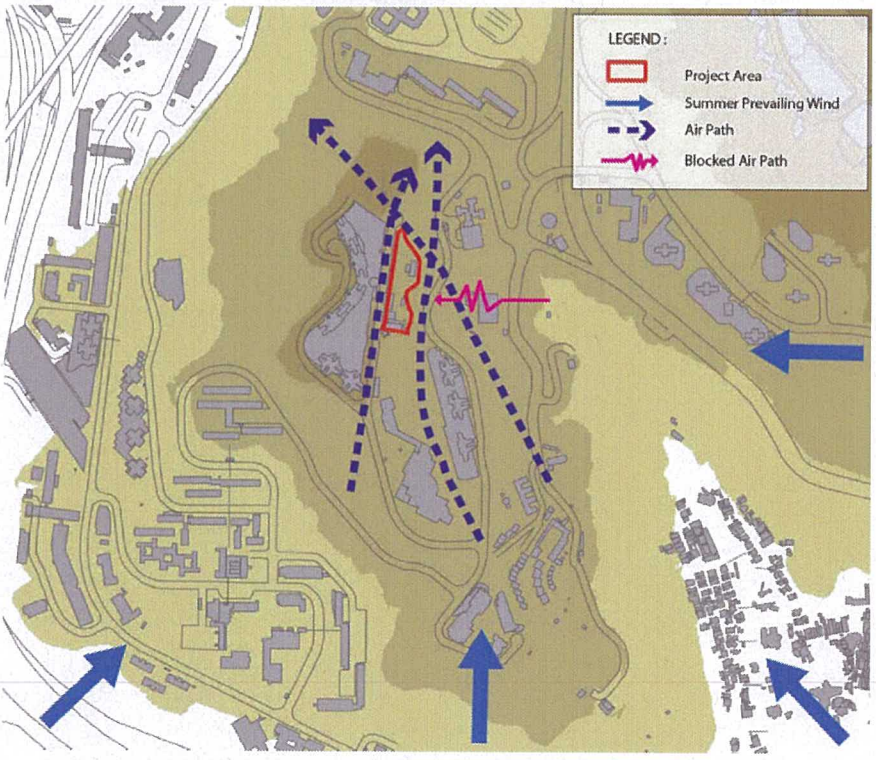


Figure 4.7 Air paths surrounding the project area (summer condition).

SOURCE : CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES
DRAFT FINAL REPORT FOR AN INSTRUCTED PROJECT AT LAI KONG STREET, KWAI CHUNG

本圖於2014年5月9日擬備 PLAN PREPARED ON 9.5.2014	圍繞地盤C的空氣路徑 AIR PATHS SURROUNDING SITE C	規劃署 PLANNING DEPARTMENT 參考編號 REFERENCE No. M/KC/14/6 圖 PLAN 9a

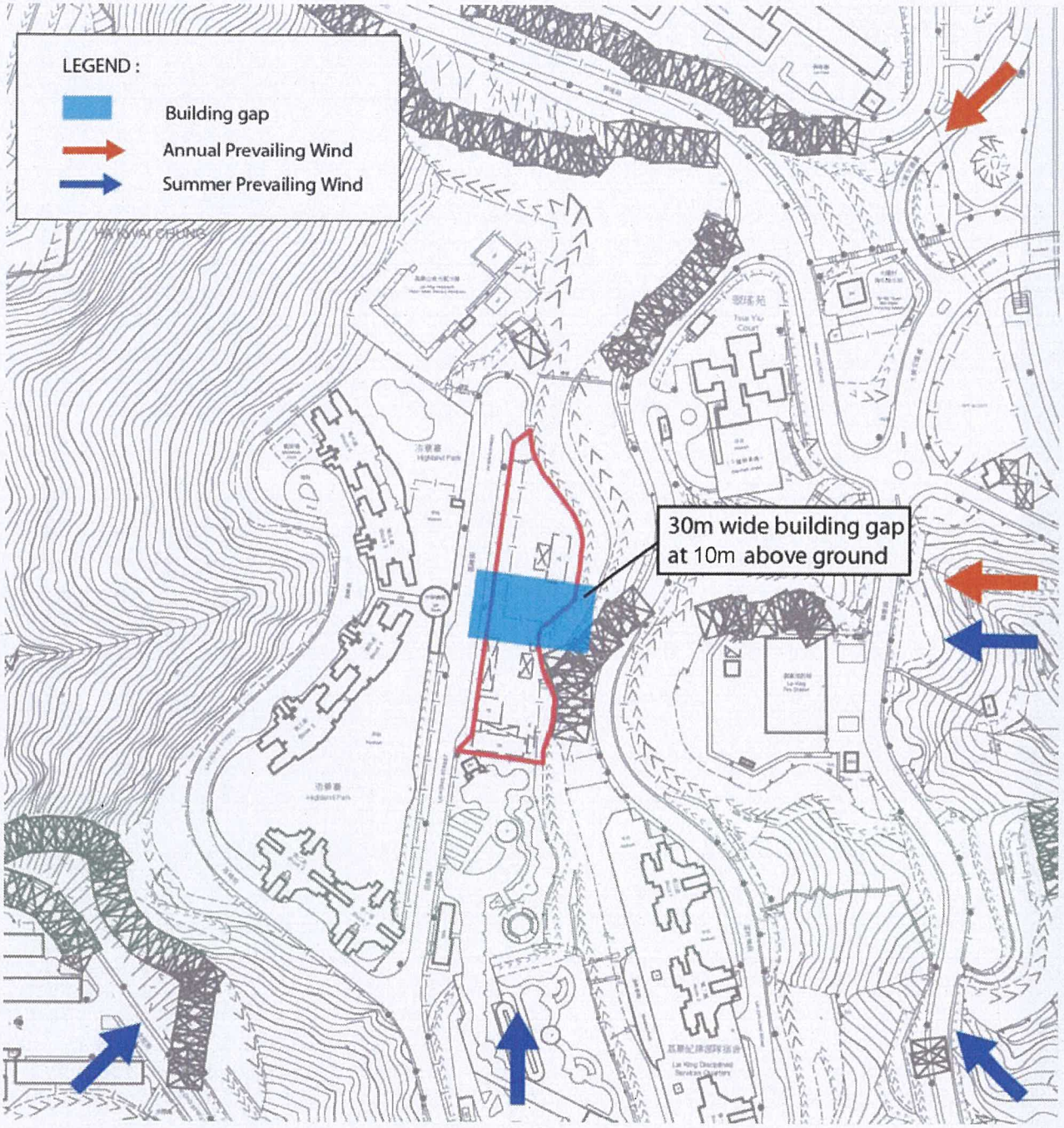


Figure 5.3 The proposed building gap for the project area.

SOURCE : CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES
DRAFT FINAL REPORT FOR AN INSTRUCTED PROJECT AT LAI KONG STREET, KWAI CHUNG

本圖於2014年5月12日擬備 PLAN PREPARED ON 12.5.2014	地盤C內的擬議建築物間距 PROPOSED BUILDING GAP FOR SITE C	規劃署 PLANNING DEPARTMENT 參考編號 REFERENCE No. M/KC/14/6 圖 PLAN 9b

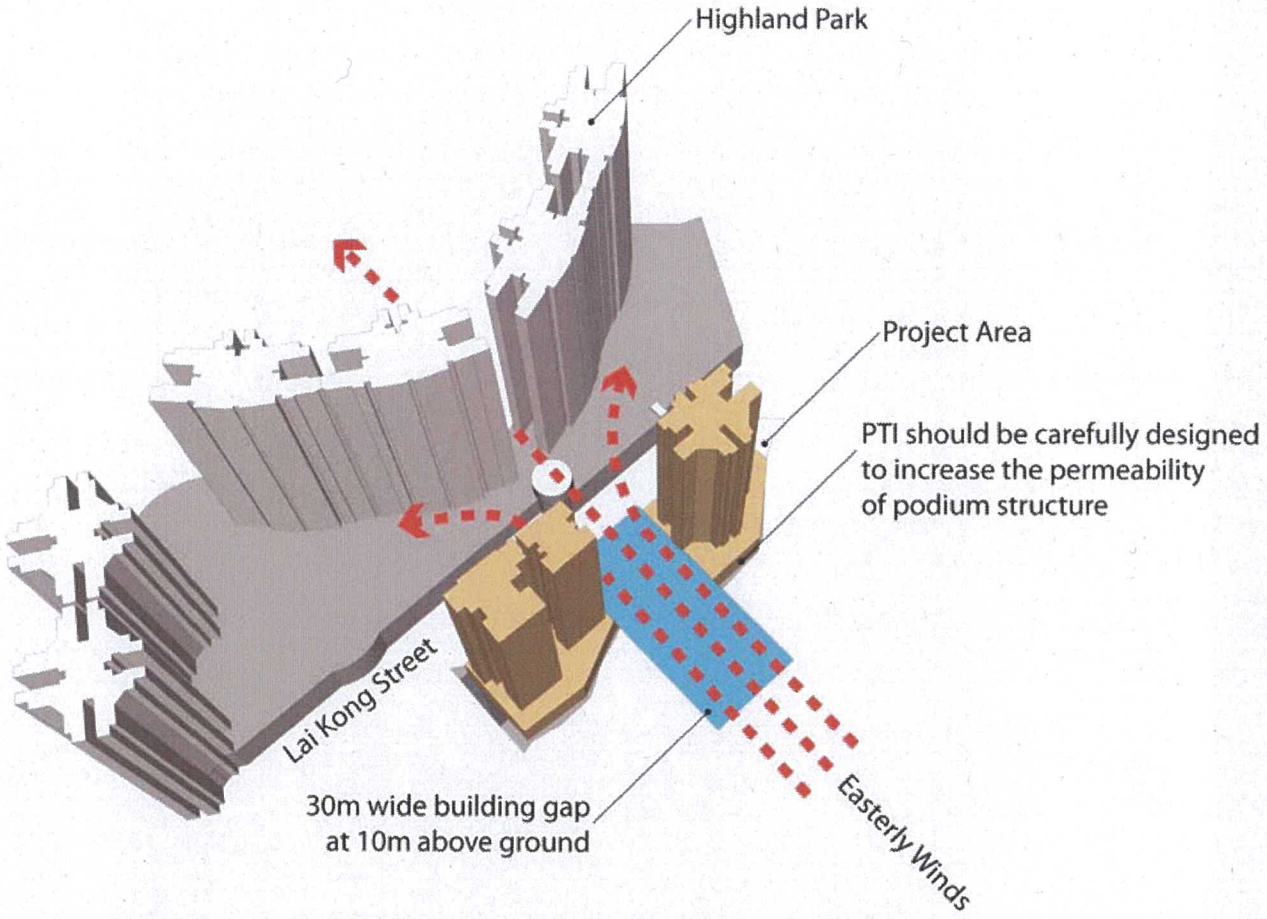


Figure 5.4 The benefits of the proposed building gap to air ventilation (Scene 1).

SOURCE : CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES
DRAFT FINAL REPORT FOR AN INSTRUCTED PROJECT AT LAI KONG STREET, KWAI CHUNG

本圖於2014年5月12日擬備 PLAN PREPARED ON 12.5.2014	地盤C內的擬議建築物間距所帶來的正面影響 BENEFITS OF THE PROPOSED BUILDING GAP FOR SITE C	規劃署 PLANNING DEPARTMENT	
		參考編號 REFERENCE No. M/KC/14/6	圖 PLAN 9c

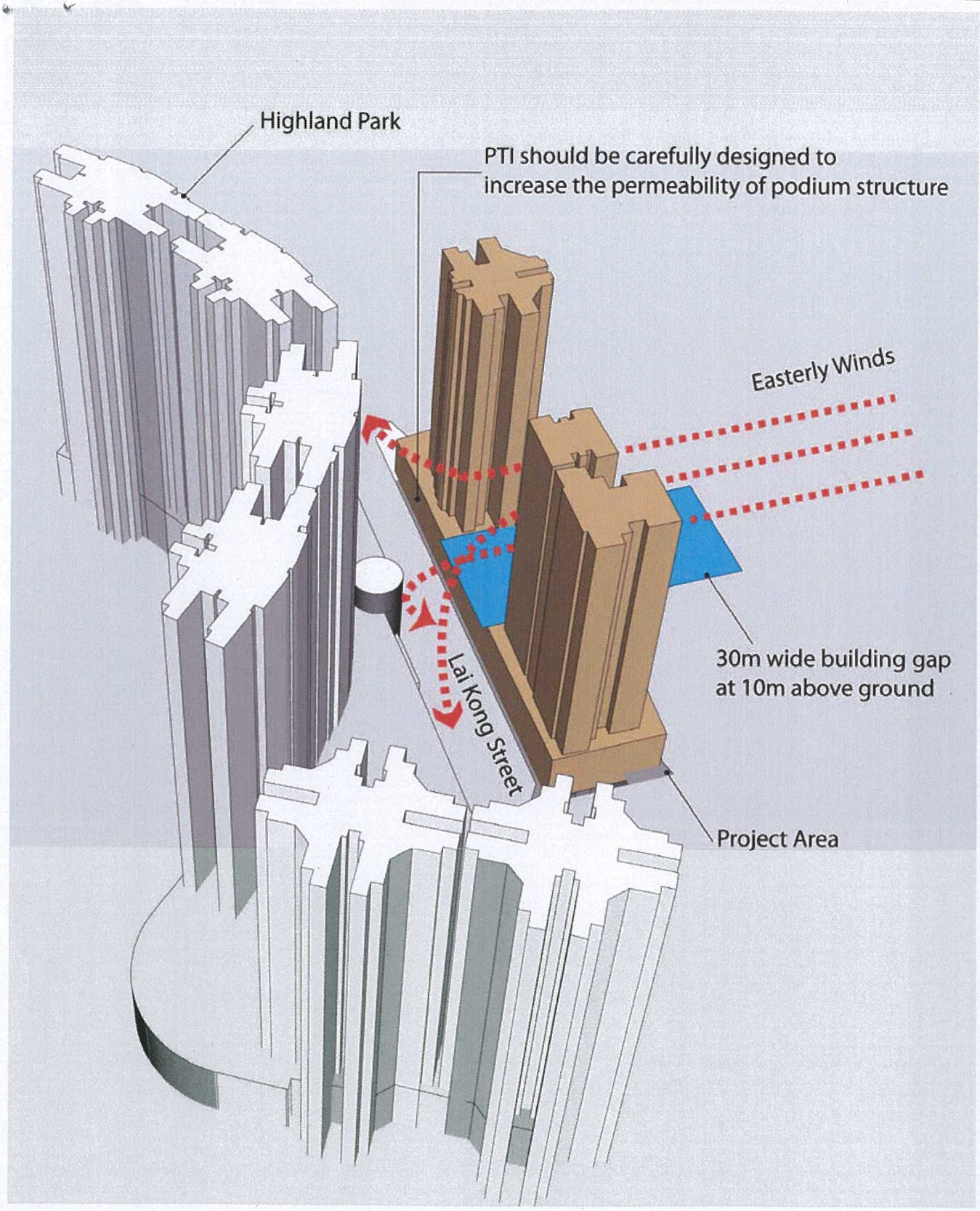
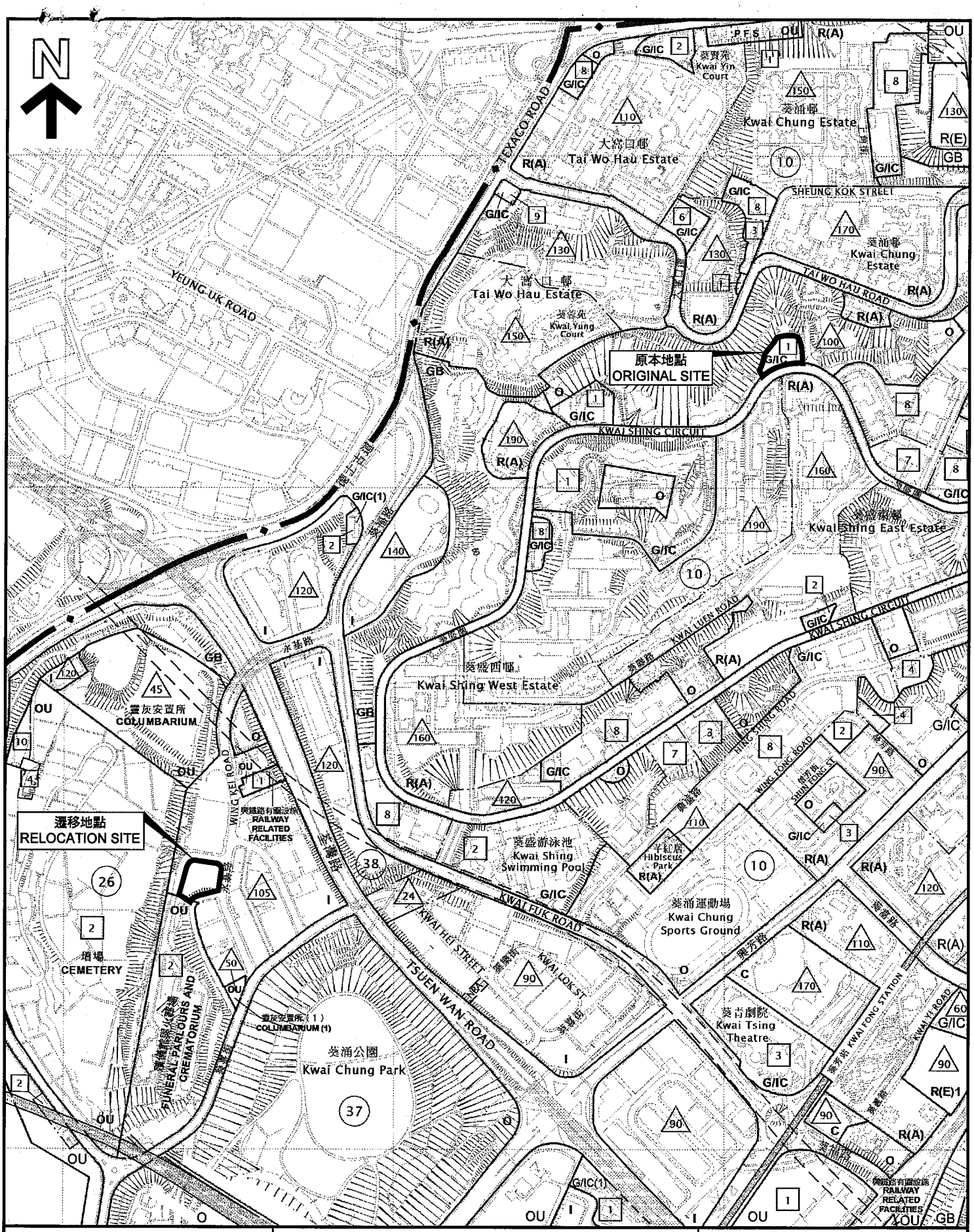


Figure 5.5 The benefits of the proposed building gap to air ventilation (Scene 2).

SOURCE : CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES
DRAFT FINAL REPORT FOR AN INSTRUCTED PROJECT AT LAI KONG STREET, KWAI CHUNG

本圖於2014年5月12日擬備 PLAN PREPARED ON 12.5.2014	地盤C內的擬議建築物間距所帶來的正面影響 BENEFITS OF THE PROPOSED BUILDING GAP FOR SITE C	規劃署 PLANNING DEPARTMENT 參考編號 REFERENCE No. M/KC/14/6 圖 PLAN 9d



本摘要圖於2014年5月9日擬備，所根據的資料為於2014年5月9日展示的分區計劃大綱圖編號 S/KC/27

EXTRACT PLAN PREPARED ON 9.5.2014 BASED ON OUTLINE ZONING PLAN No. S/KC/27 EXHIBITED ON 9.5.2014

位置圖 LOCATION PLAN

重置葵盛駕駛考試中心於永基路

RELOCATION OF THE KWAI SHING DRIVING TEST CENTRE TO WING KEI ROAD

SCALE 1 : 7 500 比例尺

米 METRES 100 0 100 200 300 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/KC/14/6

圖 PLAN
10