METRO PLANNING COMMITTEE
OF THE TOWN PLANNING BOARD

MPC Paper No. 5/19
For Consideration by the
The Metro Planning Committee on 3.5.2019

FURTHER CONSIDERATION OF
PROPOSED AMENDMENTS TO
THE APPROVED WONG NAI CHUNG
OUTLINE ZONING PLAN NO. S/H7/19

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FURTHER CONSIDERATION OF PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19

1. Background

1.1 On 8.3.2019, the Planning Department (PlanD) sought Members' agreement to the proposed amendments to the approved Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19 as shown on the draft OZP No. S/H7/19A (**Attachment II in F-Appendix I**) as well as its Notes (**Attachment III in F-Appendix I**) and the Explanatory Statement (ES) of the OZP (**Attachment IV in F-Appendix I**) for exhibition for public inspection under section 5 of the Town Planning Ordinance (the Ordinance). The proposed amendments are to facilitate the District Court and commercial development at the site at the junction of Caroline Hill Road and Leighton Road (the CHR Site).

1.2 The proposed development intensity of the CHR Site is proposed with due regard to the carrying capacity of the local road network. Based on findings of the Traffic Review, the maximum gross floor area (GFA) of the whole CHR Site is proposed to be 170,000m^2, with District Court and commercial development each accounting for a GFA of 70,000m^2 and 100,000m^2 respectively. The proposed maximum building height (BH) of 135mPD is in line with the BH restriction (BHR) of "Commercial" zone in Causeway Bay across Leighton Road. Public facilities will be provided within the commercial development, including District Health Centre (DHC), Child Care Centre (CCC), 6,000m^2 public open space, public transport facility for minibuses and public car parking spaces.

1.3 Members generally agreed with the land use zonings, development density, public facilities detailed in paragraph 1.2 above, and provision of local open space. However, after deliberation, the Committee decided to defer a decision on the proposed amendments to the OZP and requested PlanD to provide more information on (i) justifications for the locations of District Court and commercial development; (ii) block disposition in connection with the locations of the public open space; (iii) pedestrian connectivity within and outside the CHR Site and (iv) government's priority of providing various social welfare facilities at the commercial site. An extract of the minutes of the MPC meeting held on 8.3.2019 is attached **F-Appendix II**.

2. Consideration in Layout Formulation

2.1 In formulating the zoning boundary, the following considerations have been taken into account :

(a) the CHR Site is planned for the development of commercial uses and District Court which will be implemented separately by different agents. Given the nature and operational requirements of the District Court, no other public facilities are proposed for co-location;

(b) all other public facilities will be provided within the commercial site by the future developer; and

(c) a new access road with connection points on both sides of CHR (i.e. East and West) to allow flexibility of access to the commercial development and District Court in two directions would be required (**Plan 6 in F-Appendix I**). These two connection points are tied in with the junction improvements at Leighton Road/Hoi Ping Road and CHR/Link Road including a roundabout and at CHR(East) to facilitate smooth traffic movements (**Plan 6 in F-Appendix I**).

3. Further Information in Response to Members' Concerns

3.1 The responses to the Committee's concerns in paragraph 1.3 above are detailed below :

Justifications for the locations of District Court and commercial development

3.2 The areas to the north across Leighton Road are zoned "Commercial" ("C") which are the core commercial and business areas of Causeway Bay (**Plan FC-1**) and the CHR Site is located at the fringe of this commercial core. To the south and east of the CHR Site comprises an area of "Other Specified Uses" and "G/IC" zones which are used for sports and recreation clubs, sports ground, schools and hospital. The proposed site allocation is based on the following considerations:

(a) locating the commercial developments at the southern portion fronting Leighton Road is a natural extension of the "C" zone from the commercial core of Causeway Bay;

(b) given the public facilities such as public open space, public transport facility for minibuses, DHC, CCC and public car park are to be located in the commercial site, it is considered more appropriate to locate such facilities at a more central location abutting Leighton Road;

(c) if the District Court site is swapped with the commercial site, the former site area would be substantially reduced compared with the southern site. The Judiciary indicated that they would not accept a district court of reduced area not fully meeting its functional and operational requirements; and

(d) security screening shall be implemented for the District Court for security reason, which means that no public thoroughfare will be provided within the District Court. Swapping the sites would result in no pedestrian connection between Causeway Bay business area and the commercial development via the District Court, no matter through at-grade footpath or pedestrian subway.

Block disposition

3.3 The conceptual layout was prepared only for the purpose of illustrating the feasibility and for conducting various technical assessments. The disposition, layout and detailed design are subject to the consideration of the future developer (for commercial site) and the Architectural Services Department (for District Court).

3.4 To address Members' concern on the set back from CHR(West), the building blocks of the District Court can be located at a more central location allowing set back on both sides through swapping the two building blocks as a possible design option (**Plan FC-3**). For the OVT within the District Court, landscaping areas may also be provided to integrate better with the OVT. However, due to the security reason, the landscape areas together with the OVT would not serve as public open space. The visual impact as viewed from the vantage point at Hong Kong Stadium will be slightly improved (**Plan FC-4**).

3.5 The future developer is required to provide 6,000m^2 public open space in the commercial site to address the shortfall in local open space and serve the immediate local community. The locations of the open space indicated in the conceptual plan are only one of the possible designs. The future developer is only encouraged to provide open space fronting Leighton Road and Caroline Hill Road, while the locations of open space and recreation areas in the vicinity of the CHR Site are shown on **Plan FC-2**. If an open space is to be provided in south-eastern part of the commercial site, its connection with the remaining portion of the site would be through underground link, at grade crossing or elevated link to ensure its accessibility (**Plan FC-3**).

Pedestrian Connectivity

3.6 The pedestrians in Caroline Hill area rely on at-grade footpaths and pedestrian crossings including signalised and cautionary crossings along CHR(East), CHR (West) and Leighton Road to/from the central area of Causeway Bay, MTR Station and public transport facilities. The major pedestrian corridors from the MTR Station to the CHR Site are mainly along Leighton Road and Yun Ping Road (**Plan FC-5**). The future developer of the commercial site will be required to reserve an underground opening for possible pedestrian connection to MTR Station which is subject to further feasibility study.

Provision of GIC facilities

3.7 Based on a planned population of about 185,000 persons, there is no shortfall of major GIC facilities in Wan Chai area. As indicated in paragraph 2.1(b) above, some public facilities are proposed to be provided in the commercial site. Among the premises-based facilities, the DHC is a new facility announced in the Chief Executive's Policy Address 2017 which would be set up in each district. For CCC, there is no population-based standard in the Hong Kong Planning Standards and Guidelines (HKPSG) and the provision of which is based on the estimated demand, socio-economic factors, district characteristics and the provision of other child care support services for the area.

3.8 For the Residential Care Home for the Elderly (RCHE) and civic centre as suggested by the Wan Chai District Council (WCDC), there is a provision of 572 RHCE places in Wan Chai District representing a deficit of 686 places. However, as advised by the Social Welfare Department, if both subvented and self-financing RCHE are included, the total number of RCHE within the district is 770. Multi-pronged approaches would be adopted to increase the residential care places for the elderly. For the CHR site, given its location and the demand for health and child care services in the Wan Chai District, priority has been given to the DHC and CCC. According to the Leisure and Cultural Services Department, civic centre was planned on a district-wide basis and the current provision of which on Hong Kong Island was considered sufficient.

4. Public Consultation

As mentioned in paragraph 8 of the previous MPC Paper in **F-Appendix I**, WCDC was consulted on 8.5.2018 and 8.1.2019 on the proposed developments at the CHR Site and the related proposed amendments to the OZP. On 9.4.2019, the Development, Planning and Transport Committee of WCDC passed a motion demanding abandonment of the subject proposed amendment item until further consultation with WCDC (together with all technical assessment reports) and public (**F-Appendix III**). The Government had endeavoured to address local/DC concerns through two DC consultations in 2018 and 2019, and provided supplementary information. WCDC will be further consulted during the exhibition period of the draft Wong Nai Chung OZP No. S/H7/20 for public inspection under section 5 of the Ordinance. During the exhibition period of OZP, members of the public and DC members are able to express their views on the proposal.

5. Decision Sought

Members are invited to:

(a) agree to the proposed amendments to the approved Wong Nai Chung OZP and that the draft Wong Nai Chung OZP No. S/H7/19A at **Attachment II in F-Appendix I** (to be renumbered to S/H7/20 upon exhibition) and its Notes at **Attachment III in F-Appendix I** are suitable for exhibition under section 5 of the Ordinance; and

(b) adopt the revised ES at **Attachment IV in F-Appendix I** for the draft Wong Nai Chung OZP No. S/H7/19A as an expression of the planning intentions and objectives of the Board for the various land use zonings of the OZP and the revised ES will be published together with the OZP.

6. Attachments

F-Appendix I	MPC Paper No. 1/19 for consideration by the Metro Planning Committee on 8.3.2019
F-Appendix II	Extract of the Minutes of the Metro Planning Committee meeting held on 8.3.2019
F-Appendix III	Motion passed by the Development, Planning and Transport Committee of Wan Chai District Council on 9.4.2019

Plan FC-1	Location Plan Showing the Zoning in the vicinity of the CHR Site
Plan FC-2	Location Plan Showing the Open Space and Recreation Uses in the vicinity of the CHR Site
Plan FC-3	Comparison of Original and Revised Conceptual Layout for CHR Site
Plan FC-4	Photomontage (Vantage Point at the Hong Kong Stadium)
Plan FC-5	Major Pedestrian Routes for the CHR Site

PLANNING DEPARTMENT
MAY 2019

MPC Paper No. 1/19
For Consideration by the
Metro Planning Committee
on 8.3.2019

PROPOSED AMENDMENTS TO
THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19

1. Introduction

This paper is to seek Members' agreement that:

(a) the proposed amendments to the approved Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19 as shown on the draft OZP No. S/H7/19A (**Attachment II**) (to be renumbered as S/H7/20 upon exhibition) and its Notes (**Attachment III**) are suitable for exhibition for public inspection under section 5 of the Town Planning Ordinance (the Ordinance); and

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

2. Status of the Current OZP

2.1 On 16.8.2016, the Chief Executive in Council (CE in C) under section 9(1)(a) of the Ordinance approved the draft Wong Nai Chung OZP. On 26.8.2016, the approved Wong Nai Chung OZP No. S/H7/19 (**Attachment I**) was exhibited for public inspection under section 9(5) of the Ordinance.

2.2 On 31.10.2017, the CE in C referred the approved Wong Nai Chung OZP back to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. On 10.11.2017, the reference back of the OZP was notified in the Gazette under section 12(2) of the Ordinance.

3. Background

3.1 The site at the junction of Caroline Hill Road and Leighton Road (the CHR Site) has been subject to land use review in the past. The Government had commissioned consultancy studies in 2013 reviewing the development options and assessing the development potential of the CHR Site. As announced in the Policy Address of the Chief Executive in October 2017, the Government is committed to improving court facilities, including the construction of a District Court comprising the District Courts, Family Courts and Lands Tribunal at CHR. The 2017-18 Budget also indicated that to maintain Hong Kong's status as an international financial centre, it is necessary to ensure a continual supply of office space, especially Grade A office space. To meet the long-term needs of District Court-level judicial facilities and to make good use of government land in the core

business district, the CHR Site is proposed for District Court (DC) and commercial development.

3.2 The CHR Site (about 2.66 hectares) is currently occupied by the ex-Electrical and Mechanical Services Department (EMSD) Headquarters, the ex-Civil Aid Service (CAS) Headquarters, the ex-Post Office Recreation Club and the PCCW Recreation Club. All except the ex-EMSD Headquarters and ex-CAS Headquarters are low-rise buildings. Vehicular accesses to the CHR Site are via eastern and western sections ends of CHR. The Site is generally demarcated by two platforms at about 10mPD (fronting Leighton Road) and 15mPD (fronting South China Athletic Association (SCAA)).

4. Development Proposal

4.1 The CHR Site is at the fringe of the core commercial and business areas of Causeway Bay. The northern portion of the Site abutting Leighton Road is proposed for commercial development which is compatible with other commercial developments across Leighton Road. The southern portion adjoining the SCAA is for the development of the DC. A new access road will be constructed within the CHR Site connecting eastern and western sections of CHR to serve the DC and the commercial development. A conceptual layout (**Plan 5**) and major development parameters have been drawn up to illustrate the land use distributions serving as the basis of carrying out various technical assessments. Block disposition and layout will be subject to future design at the implementation stage.

4.2 The proposed development intensity of the CHR Site is proposed with due regard to the carrying capacity of the local road network. Based on findings of the Traffic Review, the maximum gross floor area (GFA) of the whole CHR Site is proposed to be 170,000m^2. As advised by the Judiciary, a total GFA of 70,000m^2 would be required for the DC. A total of 100,000m^2 GFA would then be used for commercial development including office, hotel and retail uses. The proposed maximum building height (BH) of 135mPD is in line with the BH restriction (BHR) of "Commercial" zone in Causeway Bay across Leighton Road. Public facilities will be provided within the commercial development, including District Health Centre (DHC), Child Care Centre (CCC), public open space, public transport facility for minibuses and public car parking spaces. Major development parameters of the conceptual scheme and layout are shown in the table below:

Total Site Area			**26,583m^2**	
Total Development Site Area			19,573m^2	
			Commercial	**District Court**
Site Area (Zoning Area)			15,963m^2	10,620m^2
Development Site Area			8,953m^2	10,620m^2
GFA	Commercial		100,000m^2 (including GIC facilities, namely DHC and CCC)	N/A
	GIC			70,000m^2
	Total		170,000m^2	
PR[1]			About 11.17	About 6.6
Maximum BH			Not exceeding 135mPD	Not exceeding 135mPD
No. of Storeys (incl. refuge floor)			28-35	to be determined
No. of Blocks			2	2
Open Space for Public			Not less than 6,000m^2	Nil
Parking Spaces[2]		Private Car/ LGV	300	135
		Motorcycle:	30	5
Loading/Unloading (L/UL) Facilities[2]		LGV	28	14 (for vehicles of Correctional Services Department and others)
		HGV/Coach	18	
		Taxi & Private Car	7	
No. of Public Parking Spaces			125 including 100 for private car and 25 for commercial vehicles[3]	Nil
Public Transport Facilities			GMB Lay-bys: 105m[4]	Nil

[1] Based on a development site area.

[2] The number of ancillary car parking spaces and L/UL facilities is derived based on a mix of 46,000m^2 office, 44,000m^2 hotel and 10,000m^2 retail uses based on Hong Kong Planning Standards and Guidelines (HKPSG). It is subject to refinement upon adjustment in the mix at detailed design stage upon land disposal.

[3] The parking spaces for commercial vehicle shall include 15 for light goods vehicles, 5 for medium/heavy goods vehicle and 5 for coaches.

[4] Subject to further consideration of the Transport Department.

4.3 Demolition of the existing buildings is underway and is targeted for completion in Q4 2019 the earliest. Subject to agreement of the Committee and completion of relevant statutory procedures, the estimated completion date of the proposed developments at the CHR Site is 2026 the earliest.

5. Proposed Amendments to the OZP

5.1 To take forward the development proposal in paragraph 4 above, the northern and north-eastern portion of the Site is proposed to be rezoned for commercial development while the southern portion of the Site is proposed to be retained as "G/IC" but with amendment to the BHR to facilitate the DC development.

Amendment Item A

5.2 Amendment Item A (about 1.60ha) is bounded by Leighton Road to the north, CHR on the east and west and the ex-EMSD Headquarters to the south. The site is currently zoned "Other Specified Uses" annotated "Sports and Recreation Club" ("OU(SRC)") and "Government, Institution or Community" ("G/IC") and subject to a maximum BH of 2 and 3 storeys respectively (**Plan 1**). It consists of the ex-EMSD Headquarters, the ex-CAS Headquarters and the ex-Post Office Recreation Club and the PCCW Recreation Club (**Plan 2**). All the facilities within the government land have been vacated, while the land for the PCCW Recreation Club is renewed on a quarterly basis. Under the current lease, no reprovisioning is required for the recreation club.

5.3 According to the conceptual scheme, the commercial development will have a total GFA of 100,000m^2 which is equivalent to a plot ratio (PR) of about 11 based on a development site area of about 8,953m^2 and the proposed BH is 135mPD. The PR is lower than the general development intensity of high-rise commercial buildings under the Building (Planning) Regulations (B(P)R) (i.e. a PR of 15) in view of the limited traffic capacity of the local area. As reflected in the Traffic Review, retail uses would generally generate comparatively more traffic than other commercial uses like office and hotel. To minimise the traffic impact of the future commercial development, it is also intended to restrict the maximum retail GFA of the commercial development to 10,000m^2 (i.e. about 10% of the total GFA). A new access road is also proposed across the site in a northeast-southwest direction, which will serve the commercial development and the DC (under Amendment Item B). In addition, apart from the ancillary parking spaces and loading/unloading facilities which will be provided in accordance with the requirements under the Hong Kong Planning Standards and Guidelines (HKPSG), a public car park of 100 private car and 25 commercial parking spaces[5] will also be provided. As requested by TD, loading/unloading facilities for GMB[6] will also be reserved within the commercial development to address the general demand of the district.

5.4 While there is an overall surplus of open space in the Wan Chai District, there is a deficit of local open space in the area. In response to the District Council's previous request, a

[5] The parking spaces for commercial vehicle shall include 15 for light goods vehicles, 5 for medium/heavy goods vehicle and 5 for coaches.

[6] A total length of 105m of GMB lay-by is reserved to serve the proposed developments at the CHR Site and to cater for the relocation of GMB routes from Lan Fong Road/ Lee Garden Road in Causeway Bay. The Transport Department (TD) will take into account the actual traffic condition and conduct consultation at an appropriate time in determining the detailed arrangement of the loading/unloading facilities for GMB.

public open space of not less than 6,000m^2 will be provided within the site. Besides, in response to the suggestions from the Wan Chai District Council (WCDC) on the provision of community facilities on the CHR Site to serve the Wan Chai District, one DHC and one CCC will be provided within the site. The scope of services to be provided by the DHC will be determined in accordance with the health profile of the population in the district. The proposed CCC will provide 100 subvented child care places for children of 3 years old or below to serve the working parents in the district.

5.5 The scale of the proposed commercial development is not incompatible with the surrounding area, which are primarily high-rise commercial/residential developments. A building gap of not less than 25m in width across the central portion of the site generally aligning with the Old and Valuable Tree (OVT) (No. HKP WCH/1) abutting Leighton Road (**Plan 4F**) was assumed to be provided within the site in the conceptual scheme to facilitate air ventilation (**Plan 5**). The existing OVT abutting Leighton Road will be preserved. The stone retaining walls (including drainage pipes) at the northern and eastern peripheries of the site and trees growing on the stone retaining walls (**Plan 4G**) will also be preserved in-situ as far as possible.

5.6 In view of the above, the site is proposed to be rezoned to "Commercial (2)" ("C(2)") with maximum BH of 135mPD and maximum GFA of 100,000m^2. Under the Notes of the "C(2)" zone, the requirement of the provision of open space of not less than 6,000m^2, a public transport facility for minibuses, a public car park of not less than 125 parking space, a DHC and a CCC will be stipulated. To provide design flexibility, it will be specified in the ES of the OZP that quantitative Air Ventilation Assessment (AVA) will be conducted at the detailed design stage to identify the exact alignment of the building gap and/or other enhancement measures and the retail GFA of the commercial development will be restricted to 10,000m^2. The requirements for submission of quantitative AVA, preservation of the OVT, protection of the stone retaining walls and trees thereon, submission of Landscape Plan (LP) (para. 6.20 below) and compliance with the Sustainable Building Design Guidelines would be incorporated in the land sale conditions.

Amendment Item B

5.7 Amendment Item B (about 1.06ha) is located to the north of the SCAA and abuts CHR (West). The site is currently zoned "G/IC" subject to a maximum BH of 3 storeys. It is a piece of government land comprising the ex-EMSD Headquarters and a minor portion of the ex-CAS Headquarters (**Plans 1 and 2**).

5.8 After a comprehensively review of other sites on Hong Kong Island for DC development, the Judiciary accepted that the CHR Site, being located at the prime business district on Hong Kong Island that is convenient to legal professionals and users, is the most suitable one to meet the requirements of the Judiciary. The DC will consist of the District Court, Family Court and Lands Tribunal with the former two relocated from the Wan Chai Government Offices Compound while latter from Gascoigne Road, Kowloon. The DC could provide flexibility to mobilise human resources (including judges and supporting staff) and judicial and other related facilities. The proposed DC is in line with the planning intention of the "G/IC" zone and not incompatible with the surrounding high-rise commercial/residential developments.

5.9 According to the conceptual scheme (**Plan 5**), the DC will have a non-domestic GFA of 70,000m^2 which is equivalent to PR of about 6.6 based on a development site area of about 10,600m^2 and a proposed BH of 135mPD. The site will be served by the new access road along the northern boundary. Given the nature of the DC, no other public facilities will be co-located within the site. Ancillary parking spaces and loading/unloading facilities will be provided according to DC's operational needs. The existing OVT (No. EMSD WCH/1) (**Plan 4F**) at the northern boundary of the site will be preserved and the stone retaining wall at the southern periphery of the site and tree growing on the stone retaining wall (**Plan 4G**) will be preserved in-situ as far as possible. A building gap of not less than 20m in width in a northwest-southeast direction generally aligning with the OVT is assumed to be provided in the conceptual scheme.

5.10 In view of the above, the site is proposed to be rezoned to "G/IC(2)" subject to maximum BH of 135mPD and maximum GFA of 70,000m^2. To provide design flexibility, it will be specified in the ES of the OZP that quantitative Air Ventilation Assessment (AVA) will be conducted at the detailed design stage to identify the exact alignment of the building gap and/or other enhancement measures. The requirements for submission of quantitative AVA, preservation of the OVT and protection of the stone retaining walls and trees thereon will be incorporated into the land allocation for the DC where applicable.

6. Technical Assessments for the Two Sites

6.1 Various technical assessments have been conducted which demonstrate that the proposed developments will not induce unacceptable impact to the local area in terms of traffic, environmental, visual, air ventilation and landscape aspects. Details of technical assessments, including the road junction improvement works are set out below.

Traffic Impacts

6.2 An engineering feasibility study has been conducted to assess and ascertain the road scheme to the CHR Site for supporting the development of the Site. A Traffic Review was conducted to assess the traffic impact arising from the proposed development at the CHR Site on the surrounding road network, to review the provision of public transport facilities and to assess the adequacy of the pedestrian facilities. A summary of the Traffic Review is provided at the following paragraphs and the Traffic Review Report is at **Attachment V**.

6.3 The design year of the Traffic Review is five years after the completion of the proposed developments at the CHR Site, i.e. year 2031. In assessing the traffic impact, major committed/planned developments in the vicinity of the Site have been taken into consideration, including the redevelopment of Po Leung Kuk Headquarters at 66 Leighton Road and other planned redevelopment projects known at the time of review. Trip generation and attraction rates are generally adopted from the Transport Planning and Design Manual published by TD. For special uses, including the DC, DHC, CCC, public car park and GMB facilities, trip rates are derived from similar existing facilities through trip generation surveys or by estimations.

6.4 According to the Traffic Review, the proposed developments will not generate unacceptable traffic impact after implementation of the proposed road junction

improvement works. Part of the CHR Site will be used for the proposed road junction improvement works (**Plan 6**) which include:

(i) modification of the existing priority junction at CHR (West)/ Link Road into a roundabout-like circulation;
(ii) provision of a right-turn pocket outside the eastern access of the Site (i.e. southbound of CHR (East));
(iii) provision of a dedicated left-turning traffic lane at the westbound of Leighton Road/ CHR (West)/ Hoi Ping Road junction; and
(iv) modification of the left-turn lane to "left-turn and right-turn" shared lane at the northbound of Leighton Road/ CHR (West)/ Hoi Ping Road junction.

All key junctions will operate with reserved capacity with the implementation of junction improvement works in design year 2031 (**Table 5.1** of **Attachment V**). Ingress/ egress to the DC and commercial development will be via the new access road thereby minimising the impact to Leighton Road. To avoid tailing back of traffic to Leighton Road or adjoining areas, subject to detailed design by the future developer of the commercial development, the commercial development should provide sufficient stacking length or waiting area inside to accommodate the vehicles waiting to enter the car park.

6.5 Regarding pedestrian footpath and crossing facilities, the following improvements (**Plan 7**) are proposed under the Traffic Review to facilitate the pedestrian circulation:

(i) widening of the eastern footpath along CHR (West) to 3.5m;
(ii) widening of the signalised crossing across Leighton Road to the east of CHR (West) to 4m;
(iii) removal of the pedestrian crossing at CHR (West) outside Po Leung Kuk in order to commensurate with the future road design;
(iv) provision of an additional pedestrian crossing outside the eastern access of the Site at CHR (East) such that pedestrians travelling between Leighton Road and the Site can use the wider eastern footpath along CHR (East) opposite to the Site; and
(v) increasing the green time for pedestrian crossing across Leighton Road at the junction of Leighton Road/ Yun Ping Road/ Pennington Street/ CHR (East) in order to improve the level of service of footpaths.

The performances of major pedestrian crossings incorporating the above improvements are shown in **Table 7.3** of **Attachment V.**

6.6 Upon implementation of the above improvement works, all pedestrian crossings and footpaths would be operating with at least level of service (LOS) C or better except the crossing at the junction of Leighton Road/ Yun Ping Road/ Pennington Street/ CHR (East) and the western footpath of Pennington Street, which will be operating at LOS D. In this regard, the future developer of the commercial site will be required to reserve an underground opening to connect the possible pedestrian connection to MTR Station which is subject to further feasibility study (**Plan 5**). This requirement will be incorporated in the land sale conditions.

6.7 In the Traffic Review, it is assumed that 105m in length of GMB lanes will be provided in the commercial development. The rearrangement of the existing GMB services in Causeway Bay is to be further considered by TD in due course taking into account the prevailing traffic condition and stakeholders' views.

Environmental Impacts

6.8 The proposed commercial development and DC will provide central air-conditioning systems and non-openable windows. The proposed developments will not be subject to adverse environmental impacts. As advised by the Director of Environmental Protection (DEP), the proposed developments will not have insurmountable environmental impacts.

Visual Impacts

6.9 The conceptual illustrations for the CHR Site can be found on **Plans 8 to 11** and a Visual Appraisal (VA) for the CHR Site is provided at **Attachment VI**. The Site is located at the fringe of the core commercial/business area of Causeway Bay bordering the generally open areas of various sports and recreation uses to the south and high-rise residential developments to the west and southwest. It is characterised by high-rise commercial/office developments with cluster of low- to high-rise GIC and recreational uses.

6.10 Viewing points with direct sightlines to the CHR Site including popular open space and recreation facility, Leighton Road, Sunning Road, the Hong Kong Stadium and Victoria Park are selected as main local viewing points in the VA whereas the viewing point from Stubbs Road Lookout provides a panoramic view of the proposed developments and the skyline when viewing towards Victoria Harbour from the green backdrop of Mount Cameron. Happy Valley Recreation Ground, being a sizable popular public open space in the vicinity, is also selected as one of the VPs. Besides, one strategic viewing point from the Cultural Complex in Tsim Sha Tsui as specified in the HKPSG is also included in the VA to assess if there are any visual implications on the ridgelines and the Harbour.

6.11 According to the VA and the photomontages (**Plans F to L** at **Attachment VI**) prepared for conceptual scheme, the proposed developments with maximum BH of 135mPD is compatible with the character of the area and does not have significant adverse visual effects to the identified key public viewing points. The proposed building gaps of 25m and 20m under the conceptual scheme, and the new access road together with the open space fronting Leighton Road will retain visual permeability through the Site and break up the building mass of the proposed developments. The requirement for open space, preservation of the existing stone retaining walls and vegetation as well as the widened section of CHR (West) will also provide certain visual relief, which help mitigate the visual impact. In overall terms, the proposed developments will not result in unacceptable visual impact.

Air Ventilation Impacts

6.12 An AVA by CFD for the proposed developments at the CHR Site has been conducted (**Attachment VII**). Baseline Scheme (representing the existing condition of the Site) and Conceptual Scheme (with building gaps of 25m and 20m for the commercial development and the DC respectively) are assessed under the annual and summer wind conditions.

6.13 The annual prevailing wind in the local area is east, east-northeast and northeast and the summer prevailing wind is southwest, south-southwest and south. The high-rise nature of the proposed developments would cause downwash effect (except SSW wind), where

mid- to high-level annual and summer wind will be directed towards pedestrian level thus slightly improving the ventilation at the site boundary as well as nearby areas including St. Paul's Convent School and CHR.

6.14 The AVA has identified that the access road along the northeast-southwest axis, the building gaps of 25m and 20m along the northwest-southeast axis and the open spaces are good design features for wind enhancement for the CHR Site. The access road and the building gaps will create a wind entrance and allow more wind flow to penetrate through the Site. They are essential in improving the wind performance at the site boundary and immediate downstream areas of the Site, including Yee Wo Street, Leighton Road, Lee Garden Road, Sun Wui Road and Link Road. The open spaces are also essential in promoting air ventilation as it reduces ground coverage thus increasing air volume at pedestrian level and facilitating wind penetration around the building structures to enhance air flow to the downstream regions.

6.15 According to the AVA, the good design features mentioned in paragraph 6.14 above have slightly improved the ventilation performance of the site boundary when compared to the existing condition. Further, the ventilation performance of the local area of the proposed developments would not be worse-off than the existing condition.

6.16 As recommended in the AVA, further quantitative AVA by CFD or wind tunnel shall be carried out by the future developer of the commercial site and the project proponent of the DC to reflect the latest surrounding building environment and ascertain the alignment of building gaps and other enhancement features. The future developer and the project proponent of DC should demonstrate that the wind environment shall not be worse-off than the current conceptual scheme.

Landscape Impacts

6.17 A Preliminary Landscape Assessment for the CHR Site is provided at **Attachment VIII**. According to the tree survey carried out in December 2016 in support of the demolition works, a total of 125 trees were found within and at the periphery of the Site. Amongst the 125 trees, 6 of them were dead and the remaining 119 living trees (including two OVTs) are commonly found native or amenity trees in Hong Kong.

6.18 Two OVTs, i.e. *Ficus elastica* and *Ficus virens*, are located within/ at the periphery of the CHR Site (**Plan 4F**). One of the OVTs (*Ficus elastica*) is located on slope along Leighton Road and another OVT (*Ficus virens*) is located at the existing roundabout of the ex-EMSD site **Photo 4 of Plan 4C** and **Photo 9 of Plan 4E**). An Important Tree (T82, *Ficus microcarpa*) is located in an area between the ex-CAS site and the PCCW Recreation Club, which will be close to the boundary of the "C(2)" and "G/IC(2)" zones. Other existing trees within and at the periphery of the CHR Site are dominated by native species, as well as some common landscape trees and fruit trees. None of the identified tree species are rare or ecologically protected species under the Forests and Countryside Ordinance (Cap 96) or the Protection of Endangered Species and Plants Ordinance (Cap 586).

6.19 The two OVTs will be preserved in-situ in accordance with Environment, Transport and Works Bureau Technical Circular (Works) No. 29/2004 'Registration of Old and Valuable Trees, and Guidelines for their Preservation'. The Important Tree is likely to be affected as reflected in the conceptual scheme, however, the future developer of the

commercial site would be encouraged to consider if there would be any scope to preserve or transplant this tree at the detailed design stage.

6.20 According to the Architectural Services Department (ArchSD), about 33 trees are proposed to be felled (including 6 dead trees) due to the demolition works. These trees are of low amenity value and are either wall trees growing on those existing buildings to be demolished or located in close proximity to the buildings identified to be demolished. In addition, it is estimated that another 32 trees may be in conflict with the proposed development and junction improvement works and are recommended to be felled/transplanted if possible. However, given that the proposed developments and the internal roads are subject to detailed design by the future developer/project proponent, hence the number of trees to be felled/ transplanted at this stage is only an initial estimate for reference. Nonetheless, project proponent and the developer are required to follow the corresponding Technical Circulars of the Development Bureau and the Practice Notes of the Lands Administration Office to minimise the impact of the proposed developments on the existing trees as far as possible and provide appropriate landscape measures as well as feasible tree protection and compensatory planting proposals. The future developer is required to submit a LP which will be incorporated into the future land sale conditions. Since the existing CHR Site is primarily hard-paved and occupied by buildings, given the efforts in tree protection and the provision of 6,000m^2 open space, it is expected that the landscape quality may generally improve compared with the current conditions.

Utility Infrastructures and Geotechnical Impacts

6.21 Relevant government departments, including the Drainage Services Department (DSD), Electrical and Mechanical Services Department (EMSD), Water Supplies Department (WSD), and Geotechnical Engineering Office of the Civil Engineering and Development Department (CEDD) have no adverse comments on the proposed amendments from drainage/sewerage, water supply and infrastructural works perspectives. Nonetheless, as requested by DSD, the future developer and project proponent of the Site will be required to carry out Drainage Impact Assessment and Sewerage Impact Assessment for future development and implement the necessary upgrading works.

7. Provision of GIC Facilities and Open Space

7.1 A table on the provision of major GIC facilities in Wan Chai area is at **Attachment IX**. Based on a planned population of about 185,000 persons, there is no shortfall on major GIC facilities in the area.[7]

7.2 The total provision of existing and planned local and district open space in the Wan Chai District is able to meet the population-based standards under the HKPSG. There will be about 56.19ha of open space, including 15.83ha local open space and 40.36ha district open space in the Wan Chai District, which is equivalent to about 3m^2 per person. Despite an overall surplus of open space, there will be a deficit of local open space of

[7] The population-based planning standards for elderly services and facilities were reinstated in the Hong Kong Planning Standards and Guidelines on 28.12.2018. The revised standards reflect the long-term target towards which the provision of elderly services and facilities would be adjusted progressively. It may not be appropriate to compare the standards with the provision of elderly services and facilities for the existing population.

about 2.7ha. As such, a public open space of not less than 6,000m^2 has been proposed within the "C(2)" site to serve as a local open space for the core commercial area and the adjacent residential developments.

7.3 The proposed public open space should be provided in the northern portion of the CHR Site fronting Leighton Road and in the eastern portion of the Site facing CHR(East). To ensure proper location and disposition of the open space thereby facilitating easy accessibility by the public, the future developer is required to submit a LP. Besides, the future developer is required to follow DEVB's "Public Open Space in Private Developments Design and Management Guidelines" in designing and managing the public open space.

8. Consultation with District Council

8.1 On 8.5.2018, the Planning Department (PlanD) consulted the Wan Chai District Council (WCDC) on the proposed developments at the CHR Site and the related proposed amendments to the OZP. Majority of the WCDC members objected to the proposed amendments to the OZP primarily on the traffic ground. Some members considered that commercial development should not be provided in CHR Site or at least it had to be scaled down. Individual members considered that GIC facilities such as civic centre and Residential Care Home for the Elderly (RCHE) that would benefit the Wan Chai District should be provided in the Site. A copy of the WCDC minutes is enclosed in **Attachment X**.

8.2 In response to the suggestion of providing community facilities on the Site, after consultation with related government departments, one DHC and one CCC are proposed to be provided in the commercial development to serve the Wan Chai District. On 8.1.2019, PlanD further consulted the WCDC on the above revised development proposals. Majority of the WCDC members supported the provision of DHC and CCC but some members considered that more G/IC facilities, e.g. civic centre and RCHE should be provided. WCDC still had a general concern on the traffic impacts of the proposed developments at the CHR Site.

9. Proposed Amendments to the Matters shown on the Plan

The proposed amendments as shown on the draft Wong Nai Chung OZP No. S/H7/19A (**Attachment II**) are as follows:

Item A (about 1.60ha)

9.1 Rezoning of the northern and eastern part of CHR Site fronting Leighton Road from "OU(SRC)" and "G/IC" to "C(2)" with revision to the maximum BH from 2 and 3 storeys to 135mPD.

Item B (about 1.06ha)

9.2 Rezoning of the southern part of CHR Site from "G/IC" to "G/IC(2)" with revision to the maximum BH from 3 storeys to 135mPD.

10. Amendments to Notes of the OZP

10.1 Amendments to the Notes of the OZP in relation to Amendment Items A and B are proposed as follows:

(a) the Notes of the "C" zone is updated to include the remarks for sub-zone "C(2)" with GFA restriction and requirement of the provision of public open space and GIC facilities and addition of an exemption clause on maximum GFA for the sub-zone;

(b) the Notes of the "G/IC" zone is updated to include the remarks for sub-zone "G/IC(2)" with GFA restriction; and

(c) other minor textual amendments.

10.2 The Board has promulgated a revised set of Master Schedule of Notes to Statutory Plans on 11.1.2019 with 'market' being subsumed under 'shop and services'. To effectuate such changes, updates have been made to the Notes of "C", "Residential (Group A)", "Residential (Group B)" and "G/IC" zones.

10.3 The proposed amendments to the Notes of the OZP with additions in ***bold and italics*** and deletions in ~~'crossed out'~~ are at **Attachment III** for Members' consideration.

11. Revision to the Explanatory Statement of the OZP

The 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 various land use zones to reflect the latest status and planning circumstances of the OZP. The proposed amendments to the ES of the OZP (with additions in ***bold and italics*** and deletions in ~~'crossed out'~~) are at **Attachment IV**.

12. Plan Number

Upon exhibition for public inspection, the OZP will be renumbered as S/H7/20.

13. Consultation

Departmental Consultation

13.1 The proposed amendments have been circulated to relevant bureaux/departments for comments. Their comments have been incorporated in the proposed amendments where appropriate. The consulted bureaux/departments include the following:

- Chief Secretary for Administration
- Chief Justice of the Court of Final Appeal
- Secretary for Development
- District Lands Officer/Hong Kong West & South, Lands Department (LandsD)
- Commissioner for Transport

- Head of the Geotechnical Engineering Office, CEDD
- Project Manager (South), CEDD
- Chief Architect/ Central Management Division 2, ArchSD
- Chief Project Manager 103, ArchSD
- District Officer (Wan Chai), Home Affairs Department
- Chief Highway Engineer/New Territories East, HyD
- Chief Highway Engineer/Hong Kong, HyD
- Chief Engineer/Railway Development 2-2, HyD
- Director of Social Welfare
- Director of Food and Environmental Hygiene
- Director of Environmental Protection
- Chief Building Surveyor/Hong Kong East & Heritage, Buildings Department
- Government Property Administrator
- Chief Engineer/Construction, WSD
- Chief Engineer/Hong Kong & Islands, DSD
- Director of Leisure and Cultural Services
- Director of Fire Services
- Director of Agriculture, Fisheries and Conservation
- Commissioner of Police
- Director of Electrical and Mechanical Services
- Chief Town Planner/ Urban Design & Landscape, PlanD
- Chief Town Planner/Studies and Research, PlanD
- Chief Town Planner/Housing & Office Land Supply, PlanD

Public Consultation

13.2 As mentioned in paragraph 8 above, WCDC was consulted on 8.5.2018 and 8.1.2019 on the proposed developments at the CHR Site and the related proposed amendments to the OZP. WCDC will be further consulted during the exhibition period of the draft Wong Nai Chung OZP No. S/H7/20 for public inspection under section 5 of the Ordinance.

14. Decision Sought

Members are invited to:

(a) agree to the proposed amendments to the approved Wong Nai Chung OZP and that the draft Wong Nai Chung OZP No. S/H7/19A at **Attachment II** (to be renumbered to S/H7/20 upon exhibition) and its Notes at **Attachment III** are suitable for exhibition under section 5 of the Ordinance; and

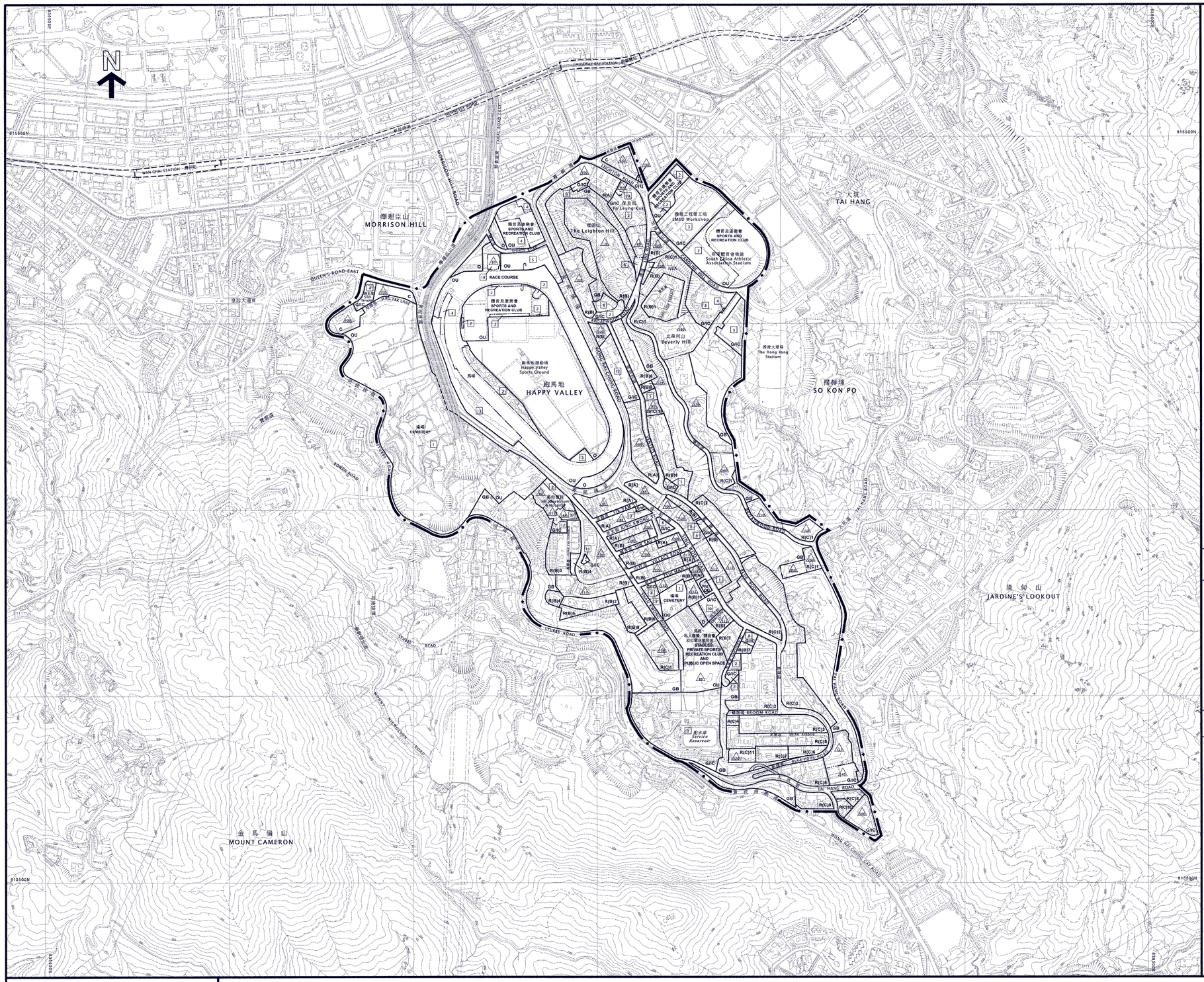
(b) adopt the revised ES at **Attachment IV** for the draft Wong Nai Chung OZP No. S/H7/19A as an expression of the planning intentions and objectives of the Board for the various land use zonings of the OZP and the revised ES will be published together with the OZP.

15. Attachments

Attachment I	Approved Wong Nai Chung OZP No. S/H7/19 (Reduced Size)
Attachment II	Draft Wong Nai Chung OZP No. S/H7/19A
Attachment III	Notes of the Draft Wong Nai Chung OZP No. S/H7/19A
Attachment IV	Explanatory Statement of the Draft Wong Nai Chung OZP No. S/H7/19A
Attachment V	HyD's Traffic Review for the CHR Site
Attachment VI	Visual Appraisal on Rezoning of the CHR Site
Attachment VII	Air Ventilation Assessment for the CHR Site
Attachment VIII	Preliminary Landscape Assessment on Rezoning of the CHR Site
Attachment IX	Provision of Major Community Facilities in Wan Chai Area
Attachment X	Minutes of WCDC meeting dated 8.5.2018
Plan 1	Comparison of Existing and Proposed Zonings on the OZP for Proposed Amendment Items A and B
Plan 2	Site Plan of Amendment Items A and B
Plan 3	Aerial Photo of Amendment Items A and B
Plan 4A to 4G	Site Photos of Amendment Items A and B
Plan 5	Conceptual Layout for the CHR Site
Plan 6	Proposed Junction Improvement Works
Plan 7	Proposed Improvement Works for Pedestrian Crossing Facilities
Plans 8 to11	Conceptual Illustrations for the CHR Site

PLANNING DEPARTMENT
MARCH 2019

Attachment I of MPC Paper No. 1/19



圖例 NOTATION

ZONES 地帶

COMMERCIAL	C	商業
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS 交通

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

MISCELLANEOUS 其他

BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	100	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	2	最高建築物高度（樓層數目）
PETROL FILLING STATION	P F S	加油站
NON-BUILDING AREA	NBA	非建築用地

土地用途及面積一覽表 SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & %		用途
	公頃 HECTARES	% 百分率	
COMMERCIAL	1.24	0.90	商業
RESIDENTIAL (GROUP A)	5.65	4.10	住宅（甲類）
RESIDENTIAL (GROUP B)	15.40	11.19	住宅（乙類）
RESIDENTIAL (GROUP C)	17.83	12.95	住宅（丙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	14.32	10.40	政府、機構或社區
OPEN SPACE	9.34	6.78	休憩用地
OTHER SPECIFIED USES	35.50	25.78	其他指定用途
GREEN BELT	20.60	14.96	綠化地帶
MAJOR ROAD ETC.	17.80	12.94	主要道路等
TOTAL PLANNING SCHEME AREA	137.68	100.00	規劃範圍總面積

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

行政長官會同行政會議於２０１６年８月１６日 根據城市規劃條例第９（１１）（ａ）條核准的圖則
APPROVED BY THE CHIEF EXECUTIVE IN COUNCIL UNDER SECTION 9(1)(a) OF THE TOWN PLANNING ORDINANCE ON 16 AUGUST 2016

Ms Kinnie WONG 黃潔怡女士
CLERK TO THE EXECUTIVE COUNCIL 行政會議秘書

香港城市規劃委員會依據城市規劃條例擬備的黃泥涌（港島規劃區第７區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
HONG KONG PLANNING AREA No. 7 - WONG NAI CHUNG - OUTLINE ZONING PLAN

SCALE 比例尺
米 METRES 100 0 200 400 600 800 METRES 米

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

圖則編號 PLAN No. S/H7/19



圖例
NOTATION

ZONES — 地帶

COMMERCIAL	C	商業
RESIDENTIAL (GROUP A)	R(A)	住宅（甲類）
RESIDENTIAL (GROUP B)	R(B)	住宅（乙類）
RESIDENTIAL (GROUP C)	R(C)	住宅（丙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政府、機構或社區
OPEN SPACE	O	休憩用地
OTHER SPECIFIED USES	OU	其他指定用途
GREEN BELT	GB	綠化地帶

COMMUNICATIONS — 交通

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

MISCELLANEOUS — 其他

BOUNDARY OF PLANNING SCHEME		規劃範圍界線
BUILDING HEIGHT CONTROL ZONE BOUNDARY		建築物高度管制區界線
MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	100	最高建築物高度（在主水平基準上若干米）
MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)	2	最高建築物高度（樓層數目）
PETROL FILLING STATION	P F S	加油站
NON-BUILDING AREA	NBA	非建築用地

土地用途及面積一覽表
SCHEDULE OF USES AND AREAS

USES	大約面積及百分率 APPROXIMATE AREA & % 公頃 HECTARES	% 百分率	用途
COMMERCIAL	2.84	2.06	商業
RESIDENTIAL (GROUP A)	5.65	4.10	住宅（甲類）
RESIDENTIAL (GROUP B)	15.40	11.19	住宅（乙類）
RESIDENTIAL (GROUP C)	17.83	12.95	住宅（丙類）
GOVERNMENT, INSTITUTION OR COMMUNITY	13.48	9.79	政府、機構或社區
OPEN SPACE	9.34	6.78	休憩用地
OTHER SPECIFIED USES	34.74	25.23	其他指定用途
GREEN BELT	20.60	14.96	綠化地帶
MAJOR ROAD ETC.	17.80	12.94	主要道路等
TOTAL PLANNING SCHEME AREA	137.68	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/H7/19 的修訂
AMENDMENTS TO APPROVED PLAN No. S/H7/19

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

（參看附表）
(SEE ATTACHED SCHEDULE)

香港城市規劃委員會依據城市規劃條例擬備的黃泥涌（港島規劃區第 7 區）分區計劃大綱圖
TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
HONG KONG PLANNING AREA No. 7 - WONG NAI CHUNG - OUTLINE ZONING PLAN

SCALE 1:5000 比例尺

米 METRES 100 0 200 400 600 800 METRES 米

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

圖則編號 PLAN No. **S/H7/19A**

Attachment III of
MPC Paper No.1/19

HONG KONG PLANNING AREA NO. 7

~~*APPROVED*~~ *DRAFT* WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19*A*

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

NOTES

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

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

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

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

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

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

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

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

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

(ii) after the publication of the first plan,

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

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

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

(5) Road junctions, alignments of roads and railway/tram 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/tram/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, railway track and tram 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.

HONG KONG PLANNING AREA NO. 7

~~APPROVED~~ *DRAFT* WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19*A*

Schedule of Uses

	Page
COMMERCIAL	1
RESIDENTIAL (GROUP A)	3
RESIDENTIAL (GROUP B)	5
RESIDENTIAL (GROUP C)	7
GOVERNMENT, INSTITUTION OR COMMUNITY	10
OPEN SPACE	12
OTHER SPECIFIED USES	13
GREEN BELT	18

S/H7/19***A***

COMMERCIAL

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

Planning Intention

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

(Please see next page)

COMMERCIAL (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan 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 restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.~~

~~(3)~~***(2)*** ~~In addition, o~~***O***n land designated "Commercial(1)", a gross floor area of not less than 715m^2 for Government, institution or community (G/IC) facilities should be provided.

(3) On land designated "Commercial (2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area of 100,000m^2, or the gross floor area of the existing building, whichever is the greater, and it shall include the gross floor area of G/IC facilities as required by the Government. A public transport facility for minibuses and a public vehicle park of not less than 125 parking spaces shall be provided. A public open space of not less than 6,000m^2 shall also be provided.

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

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height/ gross floor area and the provision of public vehicle parking space stated in paragraphs (1) and (3) above, and any reduction in total gross floor area provided for GIC facilities as stated in paragraph (2) 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 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 ***(not elsewhere specified)*** Training Centre

(Please see next page)

RESIDENTIAL (GROUP A) (Cont'd)

Column 1 Uses always permitted
In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room :
Eating Place Educational Institution Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Private Club Public Convenience Recyclable Collection Centre School Shop and Services Training Centre

Planning Intention

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

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, as stipulated on the Plan 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 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 B)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Flat Government Use (Police Reporting Centre, Post Office only) House Library Residential Institution School (in free-standing purpose-designed building only) Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) ~~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) 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 plot ratio/gross floor area and/or the building height specified below and/or the maximum building height as stipulated on the Plan, or the plot ratio/gross floor area and/or height of the existing building, whichever is the greater:

Sub-area	Restriction
R(B) 1	Maximum 3 storeys in addition to 1 storey of carports
R(B) 2	Maximum 4 storeys including carports
R(B) 3	Maximum 5 storeys including carports
R(B) 4	Maximum 5 storeys in addition to 1 storey of carports
R(B) 5	Maximum 8 storeys in addition to 1 storey of carports
R(B) 6	Maximum plot ratio of 5 and maximum building height of 115 metres above Principal Datum
R(B) 7	Maximum 14 storeys including carports
R(B) 8	Maximum plot ratio of 5 and maximum building height of 130 metres above Principal Datum
R(B) 9	Maximum building height of 115 metres above Principal Datum and maximum gross floor area of 2,985m^2
R(B) 10	Maximum building height of 115 metres above Principal Datum, maximum domestic gross floor area of 15,495m^2 and maximum non-domestic gross floor area of 8,687m^2 of which a gross floor area of not less than 2,251m^2 should be provided for Government, institution or community facilities. A public car park of not less than 200 parking spaces should be provided.

(2) In determining the maximum plot ratio/gross floor area 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.

(3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/gross floor area/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 C)

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 Utility Installation for Private Project	Ambulance Depot Eating Place Educational Institution Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Hotel Institutional Use (not elsewhere specified) Library Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Residential Institution School Shop and Services Social Welfare Facility Training Centre

Planning Intention

This zone is intended primarily for low to 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 C) (Cont'd)

Remarks

(1) On land designated "R(C)1" to "R(C)10", 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 plot ratio and/or building height specified below, or the plot ratio and/or height of the existing building, whichever is the greater:

Sub-area	Restriction
R(C)1	Maximum plot ratio of 5 and maximum building heights as stipulated on the Plan
R(C)2	Maximum 6 storeys in addition to 1 storey of carports
R(C)3	Maximum building height of 89 metres above Principal Datum
R(C)4	Maximum building height of 92 metres above Principal Datum
R(C)5	Maximum building height of 98 metres above Principal Datum
R(C)6	Maximum building height of 116 metres above Principal Datum
R(C)7	Maximum building height of 122.7 metres above Principal Datum
R(C)8	Maximum building height of 138 metres above Principal Datum
R(C)9	Maximum building height of 145 metres above Principal Datum
R(C)10	Maximum building height of 155 metres above Principal Datum

(2) On land designated "R(C)11", 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 130 metres above Principal Datum.

(Please see next page)

RESIDENTIAL (GROUP C) (Cont'd)

Remarks (Cont'd)

(3) In addition, 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 site coverage specified below, or the site coverage of the existing building, whichever is the greater:

Height - No. of Storeys Used for Domestic Purposes	Percentage Site Coverage		
	Class of Site		
	A	B	C
3 and below	55	66.6	72.5
4	45	54	60
5	40	48	53
6	35	42	46
7	30	36	39.5
8	30	36	39.5
9	30	36	39.5
10	27.5	33	36
11	27.5	33	36
12	27.5	33	36
13	25	30	33
14	25	30	33
15	25	30	33
16	25	30	33
17	25	30	33
18	25	30	33
19	25	30	33
20	25	30	33
More than 20	Any development above 20 storeys shall not have a permitted site coverage in excess of that permitted for 20 storeys.		

(4) In determining the maximum plot ratio and site coverage for the purpose of paragraphs (1) 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.

(5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio/building height/site coverage restrictions stated in paragraphs (1), (2) and (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

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

Planning Intention

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

(Please see next page)

GOVERNMENT, INSTITUTION OR COMMUNITY (Cont'd)

Remarks

(1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of number of storeys and/or metres above Principal Datum, as stipulated on the Plan or the height of the existing building, whichever is the greater. The provision for development/redevelopment to the height of the existing building is not applicable to the part of the Hong Kong Sanatorium and Hospital site which is subject to a maximum building height of 2 storeys as stipulated on the Plan.

(2) On land designated "Government, Institution or Community (1)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 5 and a maximum site coverage of 62% (not exceeding 15m above ground level) and 46% (over 15m above ground level), or the plot ratio and site coverage of the existing building, whichever is the greater. In addition, a building gap with a minimum width of 4m in an east-west direction above 25mPD (except for fence wall not exceeding 2m in height) shall be provided between the buildings at the northern and southern parts of the zone as demarcated by a pecked line on the Plan.

(3) On land designated "Government, Institution or Community (2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area of 70,000m^2, or the gross floor area of the existing building, whichever is the greater.

~~(3)~~***(4)*** For the Hong Kong Sanatorium and Hospital site, the total number of hospital beds should not be in excess of 800 beds and not more than 15% of the total non-domestic ~~GFA~~ ***gross floor area*** of the development shall be used for clinic purpose.

~~(4)~~***(5)*** In determining the relevant maximum number of storeys for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.

~~(5)~~***(6)*** Based on the individual merits of a development or redevelopment proposal, minor relaxation of the plot ratio, ~~GFA~~ ***gross floor area,*** site coverage and building height restrictions stated in paragraphs (1) ~~and~~***to*** (~~2~~***3***) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

~~(6)~~***(7)*** Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the building gap requirement as stated in paragraph (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
Field Study/Education/Visitor Centre	Eating Place
Park and Garden	Government Refuse Collection Point
Pavilion	Government Use (not elsewhere specified)
Pedestrian Area	Holiday Camp
Picnic Area	Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances
Playground/Playing Field	Place of Entertainment
Public Convenience	Place of Recreation, Sports or Culture
Sitting Out Area	Private Club
Zoo	Public Transport Terminus or Station
	Public Utility Installation
	Public Vehicle Park (excluding container vehicle)
	Religious Institution
	Service Reservoir
	Shop and Services
	Tent Camping Ground
	Utility Installation for Private Project

Planning Intention

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

OTHER SPECIFIED USES

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

For "Cemetery" only

Columbarium	Place of Recreation, Sports or Culture
Crematorium	Public Transport Terminus or Station
Funeral Facility	Public Utility Installation
Government Use	Religious Institution
Grave	Shop and Services (Retail Shop only)
Public Convenience	Utility Installation for Private Project

Planning Intention

This zone is primarily to provide/reserve land intended for cemetery and such ancillary 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 height, in terms of number of storey, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storey 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 "Sports and Recreation Club" only

Place of Recreation, Sports or Culture Private Club	Eating Place Government Refuse Collection Point Government Use (not elsewhere specified) Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Public Utility Installation Public Vehicle Park (excluding container vehicle) Religious Institution Shop and Services Social Welfare Facility Utility Installation for Private Project

Planning Intention

This zone is primarily to provide/reserve land for sports and recreation club 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 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) For land where no maximum building height is stipulated on the Plan, any new development, or redevelopment of an existing building (except in-situ redevelopment of an existing building up to its existing building height) requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

(4) 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 "Stables, Private Sports/Recreation Club and Public Open Space" only	
Animal Boarding Establishment (stables only) Park and Garden Place of Recreation, Sports or Culture Playground/Playing Field Private Club	Flat (Staff Quarters not ancillary to the Specified Uses only) Off-course Betting Centre Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily to reserve land intended for stables, private sports/recreation club and public open space 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, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(2) An at-grade public open space of not less than 5,000m^2 shall be provided.

(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 "Race Course" only	
Race Course Private Club	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended primarily to provide/reserve land for race course and its ancillary 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 number of storeys, and/or metres above Principal Datum, as stipulated on the Plan or the height of the existing building, whichever is the greater.

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

(3) For land where no maximum building height is stipulated on the Plan, any new development, or redevelopment of an existing building (except in-situ redevelopment of an existing building up to its existing building height) requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance.

(4) 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 "Petrol Filling Station" only	
Petrol Filling Station	Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision for petrol filling station.

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 storey, as stipulated on the Plan or the height of the existing building, whichever is the greater.

(2) In determining the relevant maximum number of storey 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.

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 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 Cable Car Route and Terminal Building 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) 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 School Service Reservoir Social Welfare Facility Utility Installation for Private Project Zoo

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 IV of
MPC Paper No.1/19

HONG KONG PLANNING AREA NO. 7

~~APPROVED~~ *DRAFT* WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19*A*

EXPLANATORY STATEMENT

HONG KONG PLANNING AREA NO. 7

~~APPROVED~~ *DRAFT* WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19*A*

EXPLANATORY STATEMENT

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HONG KONG PLANNING AREA NO. 7

~~APPROVED~~ *DRAFT* WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19*A*

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

EXPLANATORY STATEMENT

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

1. INTRODUCTION

This explanatory statement is intended to assist an understanding of the approved Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19. 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 29 August 1969, the draft Wong Nai Chung OZP No. LH 7/6, being the first statutory plan covering the Wong Nai Chung area, was exhibited for public inspection under section 5 of the Town Planning Ordinance (the Ordinance). On 10 March 1970, the then Governor in Council (G in C) approved the draft OZP. On 23 September 1975, the then G in C referred the approved OZP to the Board for amendment. Since then, the OZP had been amended eight times and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.

2.2 On 7 December 1993, the then G in C, under section 9(1)(a) of the Ordinance, approved the draft Wong Nai Chung OZP, which was subsequently renumbered as S/H7/4. On 30 November 1999, the then G in C referred the approved OZP No. S/H7/4 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP had been amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.

2.3 On 19 June 2001, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Wong Nai Chung OZP, which was subsequently renumbered as S/H7/8.

2.4 On 25 September 2001, the CE in C referred the approved OZP No. S/H7/8 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP had been amended twice and exhibited for public inspection under sections 5 and 7 of the Ordinance respectively to reflect the changing circumstances.

2.5 On 29 April 2003, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Wong Nai Chung OZP, which was subsequently renumbered as S/H7/11.

2.6 On 16 December 2003, the CE in C referred the approved Wong Nai Chung OZP No. S/H7/11 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP had been amended five times and exhibited for public inspection under sections 5 and 7 of the Ordinance respectively to reflect the changing circumstances.

2.7 On 8 July 2014, the CE in C under, section 9(1)(a) of the Ordinance, approved the draft Wong Nai Chung OZP, which was subsequently renumbered as S/H7/17. On 18 July 2014, the approved Wong Nai Chung OZP No. S/H7/17 was exhibited for public inspection under section 9(5) of the Ordinance.

2.8 On 21 July 2015, the CE in C referred the approved Wong Nai Chung OZP No. S/H7/17 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP had been amended once and exhibited for public inspection under section 5 of the Ordinance to reflect the changing circumstances.

2.9 On 16 August 2016, the CE in C under, section 9(1)(a) of the Ordinance, approved the draft Wong Nai Chung OZP, which was subsequently renumbered as S/H7/19. On 26 August 2016, the approved Wong Nai Chung OZP No. S/H7/19 ~~(the Plan)~~ was exhibited for public inspection under section 9(5) of the Ordinance.

2.10 On 31 October 2017, the CE in C referred the approved Wong Nai Chung OZP No. S/H7/19 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP for amendment was notified in the Gazette on 10 November 2017 under section 12(2) of the Ordinance.

2.11 On xx xxxx 2019, the draft Wong Nai Chung OZP No. S/H7/20 (the Plan), incorporating amendments mainly to rezone a site at the junction of Caroline Hill Road and Leighton Road from "Other Specified Uses (Sports and Recreation Club)" and "Government, Institution or Community" to "Commercial (2)" and "Government, Institution or Community (2)" with stipulations of maximum building height, maximum gross floor area and other requirements was exhibited for public inspection under section 5 of the Ordinance.

3. OBJECT OF THE PLAN

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

3.2 The Plan is to illustrate only the broad principles of development within the Area. It is a small-scale plan and the transport alignments and boundaries between land use zones may be subject to minor adjustments as detailed planning 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 Wong Nai Chung area and not to overload the road network in this area.

4. NOTES OF THE PLAN

4.1 Attached to the Plan is a set of Notes 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 control of development to meet changing needs.

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

5. THE PLANNING SCHEME AREA

5.1 The Area is shown by a heavy broken line on the Plan. The Area covers about 138 hectares of land. It is bounded by Leighton Road in the north, Hong Kong Stadium and Tai Hang Road in the east, Wong Nai Chung Gap Road in the south and Stubbs Road in the west. The Area has been mostly developed except the "Green Belt" areas.

5.2 The southern part of the Area is predominantly residential, while the northern part, comprising the areas generally known as Happy Valley and Caroline Hill, has been developed predominantly for sports and recreation clubs. The race course and the South China Athletic Association Stadium are important landmarks in the Area. There are other specified uses including some cemeteries in the western and southern parts of the Area.

6. POPULATION

~~*According to*~~ ***Based on*** the ~~2011~~ ***2016*** Population Census, the population of the Area was ***estimated by the Planning Department to be*** about ~~32,900~~ ***34,300***. It is estimated that the planned population of the Area would be about ~~40,000~~ ***38,700***.

7. BUILDING HEIGHT RESTRCTIONS IN WONG NAI CHUNG PLANNING SCHEME 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 Wong Nai Chung OZP has been taken with a view to incorporating appropriate building height restrictions in the Notes for various development zones. In the absence of building height control, 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, to preserve some key urban design attributes for the Area (e.g. stepped building height from the racecourse) and to provide better control on building height profile of the Area, appropriate building height restrictions are imposed for the "C", "R(A)", "R(B)", "R(C)", "G/IC" and "OU" zones on the Plan.

7.2 The building height restrictions are to preserve the views to the ridgelines near Wong Nai Chung Gap from public view points and to maintain a stepped building height concept recommended in the Urban Design Guidelines Study with lower building along the racecourse, taking account of the local area context, the local wind environment, and the need to maintain visually compatible building masses in the wider setting. There are four main building height bands – 85 metres above Principal Datum (mPD), 100mPD, 115mPD and 130mPD for the "C", "R(A)" and "R(B)" zones at the valley floor area – increasing progressively from the racecourse to the valley floor and upper hill areas. The building height bands help preserve views to the ridgelines, achieve a stepped height profile for visual permeability and wind penetration and circulation. Building height restrictions of 150mPD, 170mPD, 180mPD, 210mPD and 240mPD are imposed for the medium to high-rise residential developments within the "R(B)" and "R(C)1" zones along Broadwood Road.

7.3 Specific building height restrictions for the "G/IC" and "OU" zones in terms of mPD and/or number of storeys, which mainly reflect the existing and planned building heights of developments, have been incorporated into the Plan to provide visual and spatial relief to the high density environment of the Wong Nai Chung Area.

7.4 An Air Ventilation Assessment (AVA ***2008***) by expert evaluation has been undertaken to assess the likely impact of the building heights of the development sites within the Wong Nai Chung Area on the pedestrian wind

environment. The building height bands shown on the Plan have taken into account the findings of the AVA as appropriate.

7.5 A minor relaxation clause in respect of building height restrictions is incorporated into the Notes of the Plan in order to provide incentive for 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 relaxation are as follows:

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

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

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

(d) providing separation between buildings to enhance air 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 need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality and would not cause adverse landscape and visual impacts.

7.6 However, for existing buildings with building heights already exceeding the building height restrictions in terms of mPD and/or number of storeys as shown on the Notes of the Plan and/or stipulated on the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

8. LAND USE ZONINGS

8.1 Commercial ("C") : Total Area ~~1.24~~ ***2.84*** ha

8.1.1 This zone is intended primarily for commercial developments, which may include uses such as office, shop, services, place of entertainment, eating place and hotel, functioning as territorial business/financial centre(s) and regional or district commercial/shopping centre(s). These areas are usually major employment nodes. The sites zoned for this purpose are located to the south of Queen's Road East, at Stubbs Road, ~~and~~ the junction of Leighton Road and Hysan Avenue***, and the junction of Caroline Hill Road and Leighton Road***. ***Developments and redevelopments***

in the "C" sites are subject to maximum building heights ~~of 100mPD~~ as stipulated on the Plan.

~~8.1.2 Developments and redevelopments in the "C" sites are subject to maximum building heights of 100mPD as stipulated on the Plan. Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.~~

8.1.~~3~~***2*** A gross floor area ~~(GFA)~~ of not less than 715m^2 for Government, institution or community (GIC) facilities should be provided at the "C(1)" site at Leighton Road.

8.1.3 For the "C(2)" site, development and/or redevelopment is restricted to a maximum non-domestic gross floor area of 100,000m^2 of which not more than 10,000m^2 shall be allocated to retail uses, with due consideration of the traffic capacity in the area. A District Health Centre with a NOFA of about 1,000m^2 and Child Care Centre with a NOFA of about 531m^2 shall be provided. A public transport facility for minibuses (underground), a public car park (underground) of not less than 100 private cars parking spaces and 25 commercial vehicles parking spaces shall be provided. A minimum of 6,000m^2 of open space shall also be provided and open to the public. To enhance visual openness and to ensure easy accessibility by public, the open space shall be provided in the eastern portion facing Caroline Hill Road and at-grade in the northern portion fronting Leighton Road. The future developer will be required to submit a landscape plan under lease. The Old and Valuable Tree (OVT No. HKP WCH/1) and stone retaining walls along the northern and eastern peripheries of the site (except the portions being affected by the road improvement works) shall be preserved. Existing trees found within the site and trees situating on and/or abutting the stone retaining walls shall also be preserved as far as possible. According to the findings of AVA 2018, a clear building gap of not less than 25m in width across the central portion of the site (assuming podium-free design) in a northwest-southeast direction involving the OVT (No. HKP WCH/1) shall be provided to facilitate better air ventilation in the area. The future developer shall undertake a quantitative AVA at the detailed design stage to identify the exact alignment of the building gap and/or other enhancement measures and to ascertain their effectiveness. Podium-free design is also encouraged with a view to maximising the opportunities for at-grade greening, tree preservation and enhancement of air ventilation at pedestrian level. Besides, the future developer shall reserve an underground connection point within the site for the possible pedestrian subway to MTR Station which is subject to further feasibility study.

8.1.4 Minor relaxation of building height/ gross floor area restrictions and provision of public vehicle parking spaces may be considered by the Board on application under section 16 of the Ordinance. Each application will be considered on its own merits.

8.2 Residential (Group A) ("R(A)") : Total Area 5.65 ha

8.2.1 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. Commercial uses on any upper floors will require planning permission from the Board.

8.2.2 The areas zoned for this purpose include the existing residential developments along Leighton Road, Wong Nai Chung Road and Sing Woo Road.

8.2.3 Developments and redevelopments in the "R(A)" sites are subject to maximum building heights of 85mPD, 100mPD and 115mPD as stipulated on the Plan. Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.

8.3 Residential (Group B) ("R(B)") : Total Area 15.40 ha

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

8.3.2 Areas zoned for this purpose include the Leighton Hill, areas along Link Road and south of the race course in Shan Kwong Road, Village Road, Sing Woo Road, etc. Developments and redevelopments in the "R(B)" sites are subject to maximum building heights of 100mPD, 115mPD, 130mPD and 170mPD as stipulated on the Plan, and/or other building height restrictions as specified in the Notes of the Plan.

8.3.3 Some areas along Fung Fai Terrace, Happy View Terrace, Ventris Road, Shan Kwong Road and Hawthorn Road are defined as sub-areas in the "R(B)" zone with restrictions on plot ratio and/or building height. These restrictions are specified in the 'Remarks' column in the Notes of the Plan. They are mainly based on the need to maintain the character of the areas and the restriction previously imposed administratively in the Special Control Area (SCA) due to the poor access of the areas.

8.3.4 Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system

pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.

8.4 Residential (Group C) ("R(C)") : Total Area 17.83 ha

8.4.1 This zone is intended primarily for low to medium-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to the Board. This zone covers areas situated in the southern part of the Area along Blue Pool Road, Briar Avenue, Tai Hang Road and Shan Kwong Road as well as in the eastern part of the Area along Broadwood Road. The sloping areas surrounding Happy View Terrace are zoned "R(C)1", and these areas together with Happy View Terrace serve as the main wind corridor for the Area. These sloping areas are designated as non-building area on the Plan to preserve the wind corridor.

8.4.2 In land use terms, the "R(C)" zone is slightly more restrictive than the "R(B)" zone. For example, office use would not be permitted under this zone. Moreover, developments in this zone are subject to specific control on building bulk and building height. These restrictions, based on the restrictions previously imposed administratively in the SCA, are stipulated for a variety of reasons, such as the limited capacity of access road, the need to preserve views and to maintain the existing character/amenity of the area. These development restrictions are shown in the Notes of the Plan and/or stipulated on the Plan.

8.4.3 Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.

8.4.4 The building at 32 Green Lane with a building height of 146mPD is considered incompatible with the stepped height profile of the surrounding developments. It is zoned "R(C)11" with the intention to restrict the building height of the future development to a maximum of 130mPD upon redevelopment to respect the stepped height profile in the surrounding areas.

8.4.5 The "R(C)1" zones along Broadwood Road have been developed into medium to high-rise residential developments. For future redevelopment of these sites, it is encouraged that sufficient gaps should be provided between buildings to facilitate the penetration of north-easterly prevailing wind through these sites to the valley area.

8.5 Government, Institution or Community ("G/IC") : Total Area ~~14.32~~ ***13.48*** ha

8.5.1 This zone is intended primarily for the provision of GIC facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments. The areas zoned for this use include existing schools, market, churches, temples, Hong Kong Sanatorium and Hospital (HKSH), Po Leung Kuk, ~~Government offices and workshop,~~ service reservoir and police station. A fire station is planned at Hawthorn Road ***and a district court is planned at Caroline Hill Road***.

8.5.2 Developments and redevelopments in the "G/IC" sites are subject to maximum building heights in terms of mPD and/or number of storeys as stipulated on the Plan. Building height restriction for most of the "G/IC" sites is stipulated in terms of number of storeys while school developments in SCA and some other sites are controlled in terms of mPD. ~~Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.~~

8.5.3 A site at 17A Ventris Road designated as "G/IC(1)" is for the provision of church and elderly facilities. If the development on the site involves elderly housing, which is regarded as 'Residential Institution' use, planning permission from the Board is required. Development within the zone is restricted to maximum building height of 5 storeys and 90mPD for the northern and southern parts of the zone respectively, a maximum plot ratio of 5 and a maximum site coverage of 62% (not exceeding 15m above ground level) and 46% (over 15m above ground level). In addition, a building gap with a minimum width of 4m in an east-west direction above 25mPD (except for fence wall not exceeding 2m in height) shall be provided between the buildings for church and elderly facilities at the northern and southern parts of the zone respectively in order to facilitate air ventilation through the site and to provide a visual break. ~~Minor relaxation of the plot ratio, site coverage and building height restrictions may be considered by the Board through the planning permission system. Under exceptional circumstances, minor relaxation of the building gap requirement may be considered by the Board on application. Each application for minor relaxation will be considered on its own merits.~~

8.5.4 For the HKSH site at 2 Village Road, the total number of hospital beds is restricted to 800 and not more than 15% of the total non-domestic ~~GFA~~ ***gross floor area*** of the development shall be

used for clinic purpose in order to minimize any adverse traffic impact.

8.5.5 For Po Leung Kuk at 66 Leighton Road, any new development or redevelopment within the site should respect the Main Building, which is a Grade 2 historic building. Responsive building design for the new development or redevelopment, such as appropriate setback distance and stepped building height profile, should be adopted to respect the setting of the historic building. Other design measures such as building setback along Link Road and roof garden with a level comparable to Leighton Hill Road to the west of the site should also be considered with a view to improving the visual amenity of the new development or redevelopment and facilitating air ventilation of the area. In addition, any affected social welfare and educational facilities within the site should be duly reprovisioned.

8.5.6 The "G/IC(2)" site at Caroline Hill Road is earmarked for accommodating a district court for future expansion of judiciary facilities. Development and/or redevelopment is restricted to a maximum gross floor area of 70,000m^2. The Old and Valuable Tree (OVT No. EMSD WCH/1) and stone retaining wall along the southern periphery of the site shall be preserved. Existing trees found within the site including those situating on and/or abutting the stone retaining wall shall also be preserved and protected as far as possible throughout the development process with sensitive construction method and building design. According to the findings of AVA 2018, a clear building gap of not less than 20m in width above 22mPD in a northwest-southeast direction involving the OVT (No. EMSD WCH/1) across the site shall be provided for facilitating better air ventilation in the area. A quantitative AVA shall be undertaken at the detailed design stage to identify the exact alignment of the building gap and/or other enhancement measures and to ascertain their effectiveness.

8.5.7 Minor relaxation of the building height, plot ratio/gross floor area and site coverage restrictions may also be considered by the Board on application under section 16 of the Ordinance. Under exceptional circumstances, minor relaxation of the building gap requirement in paragraph 8.5.3 above may be considered by the Board on application. Each application will be considered on its own merits.

8.6 Open Space ("O") : Total Area 9.34 ha

This zone is intended primarily for 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. It covers five existing open spaces including the Happy Valley Sports Ground in the middle of the race course, two at both sides of Sports Road, one along the southern bend of Wong Nai Chung Road and one at Kwai Fong Street.

8.7 Other Specified Uses ("OU") : Total Area ~~35.50~~ ***34.74*** ha

8.7.1 This zone is primarily to provide/reserve land for specific purposes and uses with low-rise developments. The areas zoned for these uses include the race course, the sports and recreation clubs to its north, the South China Athletic Association Stadium, the Jockey Club stables, private sports/recreation clubs and a public open space at the southern end of Shan Kwong Road, the petrol filling station at Sing Woo Road, and the cemeteries to the west of Wong Nai Chung Road and at Shan Kwong Road.

8.7.2 The "OU" zone is intended to serve as spatial and visual relief to the urban environment. In order to preserve the existing character of some "OU" sites, on land designated "OU(SRC)" and "OU(Race Course)", any new development, or redevelopment of an existing building (except in-situ redevelopment of an existing building up to its existing building height) on land where no maximum building height is stipulated on the Plan requires permission from the Board under section 16 of the Ordinance. For the "OU" annotated "Stables, Private Sports/Recreation Club and Public Open Space" zone, an at-grade public open space of not less than 5,000m^2 shall be provided.

8.7.3 Developments and redevelopments in the "OU" sites are subject to maximum building heights in terms of mPD and/or number of storeys as stipulated on the Plan. Minor relaxation of the building height restrictions may be considered by the Board through the planning permission system pursuant to paragraph 7.5 above. Each application for minor relaxation of building height restriction will be considered on its own merit.

8.8 Green Belt ("GB") : Total Area 20.60 ha

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. Development within this zone will be carefully controlled and development proposals will be assessed on individual basis taking into account the relevant Town Planning Board Guidelines. The hillsides along Stubbs Road on the south-western periphery of the Area as well as those along Broadwood Road and Tai Hang Road on the eastern periphery are zoned for this purpose.

9. COMMUNICATIONS

9.1 Roads

The major routes serving the Area are Morrison Hill Road, Leighton Road, Wong Nai Chung Road, Blue Pool Road and Sing Woo Road. There is an elevated road system connecting Aberdeen Tunnel with Canal Road Flyover.

9.2 Public Transport

The Area is served by various modes of public transport including buses, tram, public light buses and taxis to nearby districts including Causeway Bay.

10. UTILITY SERVICES

The Area is ~~well~~ ***currently*** served with piped water supply, drainage and sewerage systems. ***No insurmountable difficulties are anticipated in meeting the future development subject to the completion of the associated drainage and sewerage impact assessment.*** Electricity, gas and telephone services are also available and no difficulties are anticipated in meeting the future requirements for utility services upon full development.

11. CULTURAL HERITAGE

11.1 ***There are one declared monument, Tung Lin Kok Yuen at Shan Kwong Road and*** ~~There are~~ twenty ~~two~~***eight*** graded historic buildings in the Area including No. 11 and No. 15 Yuk Sau Street, ***No. 92,*** No. 118 and No. 120 Blue Pool Road, the Chapel in Jewish Cemetery, the Chapel in Hong Kong Cemetery, the Pavilion, Service Hall and Gardener's House in Parsee Cemetery, ~~Tung Lin Kok Yuen at Shan Kwong Road,~~ St. Margaret's Church at Broadwood Road, St. Paul's Primary Catholic School and Hindu Temple at Wong Nai Chung Road, Sikh Temple at Queen's Road East, Gateway and St. Michael's Cemetery Chapel in St. Michael's Catholic Cemetery, Main Building in Po Leung Kuk, No. 16, No. 17, No. 23 and No. 24 Fung Fai Terrace***,*** ~~and~~ Pioneer Memorial Church of Seventh-day Adventists at Ventris Road***, No. 5 and No. 7 Broom Road and No. 4, No. 6, No. 8 and No. 10 Green Lane***.

11.2 Prior consultation with the Antiquities and Monuments Office (AMO) ~~of the Leisure and Cultural Services Department~~ should be made if any development, redevelopment and/or rezoning proposals might affect the above ***declared monument and*** graded historic buildings and their immediate environs. Details of the declared monuments and historic buildings could be obtained from the official website of AMO.

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 Government departments. Disposal of sites is undertaken by the Lands Department. Public works projects are co-ordinated by the Civil Engineering and Development Department in conjunction with the client departments and the works departments, such as the Highways Department and the Architectural Services Department. In the course of implementation of the Plan, the Wan Chai 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's consideration of the planning applications will take into account all relevant planning considerations which may include the departmental outline development plans/layout plans and the guidelines published by the Board. The outline development plans and layout plans are available for public inspection at the Planning Department. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of the Planning Department. Application forms and Guidance Notes for planning applications can be downloaded from the Board's website and are available from the Secretariat of the Board, 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.

TOWN PLANNING BOARD
~~AUGUST 2016~~*MARCH* 2019

Attachment V of
MPC Paper No.1/19

HIGHWAYS DEPARTMENT
路政署

Agreement No. CE 57/2015 (HY)

Road Works in Connection with Proposed Sites for Housing / Commercial Development (Package 1) – Feasibility Study

Traffic Review Report - LSDP-202: Caroline Hill Road, Causeway Bay (Issue 2)

March 2019








AECOM

Highways Department

Agreement No. CE 57/2015 (HY)
Road Works in Connection with Proposed Sites for
Housing / Commercial Development (Package 1) – Feasibility Study

Traffic Review Report – LSDP-202: Caroline Hill Road, Causeway Bay (Issue 2)

March 2019

AECOM ASIA COMPANY LIMITED

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1 INTRODUCTION

1.1 Background

1.1.1 In the 2015 Policy Address announced in mid-January 2015, the Chief Executive set out that increasing land supply is fundamental to the implementation of the long term housing strategy as well as sustaining Hong Kong's social and economic development. Government would continue to optimize the use of developed land through land use rezoning as appropriate. In this connection, early identification of essential road works to facilitate development of land with access issues to be resolved is required to increase and expedite land supply.

1.1.2 Planning Department (PlanD) and Lands Department (LandsD) together with other relevant Government departments have jointly identified, amongst other sites, LSDP-202: Caroline Hill Road, Causeway Bay (the Site) with potential for development.

1.1.3 An engineering feasibility study (EFS) is required to assess and ascertain the road scheme(s) to the Site (the Proposed Road Scheme) and determine the scope of the essential infrastructures, including roads, structures, flyovers, footbridges, geotechnical features and environmental mitigation measures which should be provided for supporting the development of the Site (the Road Works).

1.1.4 On 21 March 2016, Highways Department (HyD) commissioned AECOM Asia Company Limited (AECOM) as the Consulting Engineer to undertake an EFS (i.e. this CE57/2015 Assignment) to carry out all the necessary studies, inquiries and assessments for the purpose of coming up with the scope of the Road Works and provide support for the rezoning of the Sites and gazetting of the Road Works.

1.2 Previous Study Commissioned by Planning Department

1.2.1 Prior to this EFS, Planning Department (PlanD) commissioned a consultancy study entitled "PLNQ: 44/2014 – PLNQ: Review of Development Option for Caroline Hill Road Site" (hereafter called "PlanD's Study") in 2014 to review the development options of the Caroline Hill Road (CHR) Site. In which, a Traffic Impact Assessment (TIA) was conducted to review the traffic impact on the surrounding road network arisen by the Site. It was proposed in the TIA that road improvement schemes at the junctions of Leighton Road / CHR (West) / Hoi Ping Road and Link Road / CHR (West) would be required to support the development of the Site.

1.3 Purpose of this Report

1.3.1 Based on the findings in the TIA Report of PlanD's Study and the latest development parameters given by PlanD, this Traffic Review (TR) Report was prepared to review the Proposed Road Scheme (which were derived from the road improvement schemes proposed in PlanD's Study), assess the traffic impact on the road network in the vicinity arisen from the Proposed Road Scheme, present the schematic temporary traffic management schemes for construction of the Road Works, review the provision of the public transport facilities and assess the sufficiency of the walkways adjacent to the Site.

1.4 Content of this Report

1.4.1 Apart from this introductory section, there are other sections of the TR as follows:

- Section 2 presents the Proposed Road Scheme;
- Section 3 describes the existing traffic condition;

- Section 4 presents traffic forecast;
- Section 5 shows the traffic impact assessment results for the operation stage of the Proposed Road Scheme;
- Section 6 discusses the construction impact assessment;
- Section 7 presents the future pedestrian facilities and assessment;
- Section 8 discusses the existing and the demand for public transport facilities; and
- Section 9 presents the summary and conclusion.

2 PROPOSED ROAD SCHEME

2.1 Proposed Road Scheme

2.1.1 Based on the road improvement schemes recommended in PlanD's Study, Proposed Road Scheme was formulated for the Site. The major elements of the Proposed Road Scheme are described below.

2.1.2 As illustrated in **Figure 2.1**, the priority junction of CHR (West) / Link Road would be modified to a roundabout-like circulation with connection to the western access of the Site. With this modification, the numerous conflicting movements would be separately handled at three different points along the circulation, so that smoother traffic flow would be resulted.

2.1.3 At the junction of Leighton Road / CHR (West) / Hoi Ping Road, an additional dedicated left-turning traffic lane would be provided at the westbound approach. Due to the constraints of existing Old and Valuable Tree (OVT) and masonry retaining walls at the southern side of Leighton Road, only an approximately 20m long left-turning flared lane could be provided. The eastern signalised crossing across Leighton Road would be widened by 1.5m to 4m to enhance the capacity of the pedestrian crossing.

2.1.4 At the eastern access of the Site, to avoid blocking the CHR (East) southbound by the ingress traffic right-turning to the Site, a 20m long and 3m wide right-turn pocket would be provided outside the eastern access. Additional pedestrian crossing would be provided to the immediate north of the right-turn pocket, so that the pedestrian walking to/from Leighton Road could use the wider footpath opposite to the Site.

2.1.5 The nearside lane of CHR (West) northbound at its junction with Leighton Road would be modified from left-turn lane to "left-turn and right-turn" shared lane. Such modification could resolve the existing weaving problem at CHR (West) northbound between Link Road and Leighton Road, and further reduce the conflicting movements at the junction of Link Road / CHR (West).

2.1.6 With the above lane modification, the Method-of-Control (MOC) of the junction of Leighton Road / CHR (West) / Hoi Ping Road would be adjusted so that (i) the northbound left-turn and right-turn movements would be discharged in the same stage, and (ii) northbound left-turn movement would no longer be discharged together with the right-turn movement from the opposite approach. Comparing with the existing MOC, in which the northbound left-turn traffic still has to give way to Hoi Ping Road southbound right-turn movement even though it is permitted to discharge under green signal, the adjusted MOC could avoid confusion by eliminating the give-way arrangement in the signalised junction, and in turns enhance the traffic safety.

3 EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 Leighton Road is a district distributor serving the southern part of Causeway Bay. It connects Causeway Road to the north and Wong Nai Chung Road to the south. Leighton Road is generally a two-way road with 1 to 3 traffic lanes in each direction, except that the section between Tung Lo Wan Road and CHR (East) is operating in one-way southbound direction.

3.1.2 CHR is a U-shape local distributor serving the developments near the Hong Kong Stadium. It is a single two-way carriageway, except that the section between Eastern Hospital Road and Cotton Path is operating in one-way northbound direction. For easy identification, the section connecting to the junction of Leighton Road / Pennington Street / Yun Ping Road is named as CHR (East), while the section in connection to the junction of Leighton Road / Hoi Ping Road is named as CHR (West). In particular, the section of CHR (West) between Leighton Road and Link Road is busy during peak periods.

3.1.3 Link Road is a single-2 carriageway connecting to CHR (West) to the north and Broadwood Road to the south. It mainly serves the local residential developments and is one of the corridors leading to Jardine's Lookout area.

3.2 Traffic Survey and Traffic Assessment for Existing Condition

3.2.1 Manual classified traffic count survey was conducted during 08:00 – 10:00 and 17:00 – 19:00 on a typical weekday in March 2017 at the nearby key junctions. The surveyed junctions were the same as those in the PlanD's Study, which are presented in **Figure 3.1**. The existing junction layouts are illustrated in **Figures 3.2** to **3.6**.

3.2.2 In urban area with the road junctions closely packed, the traffic condition is mainly governed by the junction performances, instead of volume to capacity ratio (i.e. v/c ratio) of road links. Therefore, the performances of the junctions were assessed based on the existing traffic flows as shown in **Figure 3.7**. The Reserve Capacity (RC) and Design Flow/Capacity ratio (DFC) were used to indicate the performances of signalised junctions and priority junctions respectively. The existing junction performances are presented in **Table 3.1**.

Table 3.1 Existing Junction Performance

No.	Junction Name	Junction Type (1)	RC (2) / DFC (3)	
			AM	PM
J1	Leighton Road / Percival Street / Hysan Avenue	S	24%	25%
J2	Leighton Road / CHR (West) / Hoi Ping Road	S	17%	16%
J3	Leighton Road / Yun Ping Road / Pennington Street / CHR (East)	S	46%	25%
J4	Causeway Road / Leighton Road / Irving Street / Tung Lo Wan Road	S	40%	47%
J5	Tung Lo Wan Road / Eastern Hospital Road	S	87%	80%
J6	CHR (West) / Link Road	P	0.43	0.45
J7	Hennessy Road / Percival Street	S	64%	33%
J8	Matheson Street / Percival Street / Russell Street	S	>100%	>100%
J9	Leighton Road / Wong Nai Chung Road	S	>100%	>100%

No.	Junction Name	Junction Type [1]	RC [2] / DFC [3]	
			AM	PM
J10	Wong Nai Chung Road / Sports Road	S	>100%	>100%
J11	Link Road / Broadwood Road	S	50%	62%
J12	Leighton Road / Leighton Lane / Hysan Avenue	S	>100%	>100%
J13	Pennington Street / Jardine's Bazaar / Irving Street	S	>100%	88%
J14	Broadwood Road / Ventris Road	P	0.47	0.67
J15	Leighton Road / Sun Wui Road	P	0.10	0.10
J16	Leighton Road / Sunning Road	P	0.32	0.42
J17	CHR / Cotton Path	P	0.18	0.14

Notes:
(1) S – Signalised Junction; P – Priority Junction
(2) RC: Reserve Capacity in percentage (%) for signalised junctions (S). A positive RC indicates that the junction is operating with spare capacity which is acceptable.
(3) DFC: Design Flow / Capacity ratio for priority junctions and roundabouts. DFC less than 0.85 is considered reasonable.

3.2.3 From **Table 3.1**, all the junctions are operating within capacities, which means that there are currently no capacity problems for the above junctions. Nonetheless, at J2 - Junction of Leighton Road / CHR (West) / Hoi Ping Road, it was observed that queue was occasionally found along the far side lane at CHR (West) northbound approach. The reason is that the demand for northbound right-turn movement is high but only one traffic lane is provided for that movement.

4 TRAFFIC FORECAST

4.1 Design Years

4.1.1 It is assumed that the Proposed Road Scheme and the Site would be completed at the same time. According to the information provided by PlanD, the developments in the Site would be completed by 2025/2026. Five years after the completion, i.e. 2031, was adopted as the design year for the operation stage of the Proposed Road Scheme.

4.1.2 For the design year for the construction stage, the last year in the construction period, i.e. 2026, was adopted as a conservative approach.

4.2 Overview of the Modelling Methodology

4.2.1 The main purpose of establishing a transport demand model for the Study was developed to estimate the traffic activities in the vicinity of the Proposed Road Scheme and to determine the demand and requirement of the transport infrastructure in order to cater for the transport demand. Thus, it was important to establish a transport demand model that incorporates the latest planning data and assumptions such as demographic and land use data, highway infrastructure and railway network assumptions, etc.

4.2.2 The new highway infrastructure in the vicinity would be "Central – Wan Chai Bypass (CWB)", which would be in place before 2021. With the bypass, the vehicles travelling among Central, Wan Chai and North Point would be diverted from the existing trunk roads to the new road. Thus, it would relieve the traffic congestion along Gloucester Road and would slightly reduce the traffic flows on Hennessy Road and Yee Wo Street. Regarding the roads in the hinterland including Leighton Road, the traffic relief brought by CWB would be insignificant.

4.2.3 Regarding the railway infrastructure, there is no committed new rail station in the vicinity of the Proposed Road Scheme. With reference to the latest planning data provided by PlanD, the population and employment numbers in Causeway Bay as well as the entire Hong Kong Island would decrease from 2014 to 2031, i.e. the annual growth rates would be negative. Notwithstanding the decreasing trend, it was conservatively assumed a nominal growth factor of 0.1% per year in the traffic forecast.

4.3 Base Year Traffic Development

4.3.1 In all, the highway-based local area traffic model was developed on SATURN platform which is equipped with detailed junction simulation capability. This allows traffic behaviour at junctions including junction delays, traffic queues and platoon effects to be taken into account in a combined traffic simulation and assignment process.

4.3.2 The HK1 and HK2 Base District Traffic Models (BDTMs) were adopted as a starting point to develop a new Local Area Traffic Model (LATM). HK1 and HK2 BDTMs cover Island North including Causeway Bay, out of the total three BDTMs in Hong Kong Island. The LATM zoning system was reviewed and refined to match the Study purpose. In addition, the LATM road network was also updated / refined based on the latest information received or site inventory data. This enabled the traffic route choice patterns and any congestion or access issues in Causeway Bay area to be properly accounted for in the traffic assignment process.

4.3.3 The development of the LATM involves validating the base year models and establishment of forecasting models for design year 2031. The base year model was

developed and validated against the observed junction flows to year 2017 traffic conditions representing the morning peak (AM) and afternoon peak (PM) on weekday.

4.3.4 The LATM validation guidelines were adopted the same as the BDTM, as set out in **Table 4.1**. Recognizing the percentage difference of links can often be misleading due to numbers of relatively small magnitude, the GEH statistic was also used to assess validation. Use of the GEH statistic reduces the significance of relatively large percentage differences between two small numbers, thereby a combination of percentage difference and GEH statistics was used to assess the acceptance of the base year models. The model validation results are shown in **Appendix A**.

Table 4.1 Validation Guidelines for Local Area Traffic Model

Validation Criteria	Validation Target
1. Link Flows	85% within ± 10% 100% within ± 20%
2. GEH statistics	GEH 6 or less on 70% of links GEH 7 or less on 80% of links GEH 10 or less on 95% of links

4.4 Forecast Year Traffic Development

4.4.1 The design year LATMs were established based on the population and employment change and year 2031 LATM road network to produce 2031 reference traffic flows (i.e. without the Site and Proposed Road Scheme) on weekday. The 2031 reference flows have included additional traffic generated by adjacent major planned and committed developments which will be further discussed in the following sections.

4.4.2 In view that the Proposed Road Scheme would only be a local road improvement works which would not generate additional traffic and it shall be implemented by the completion of the Site, the trip generations of the Site were considered in the design scenario for conducting the traffic impact assessment for the Proposed Road Scheme. Year 2031 design traffic flows (i.e. with the Site and Proposed Road Scheme) were thus estimated by adding the development traffic of the Site to the 2031 reference traffic flows.

4.5 Committed / Planned Major Developments in the Vicinity of Proposed Road Scheme

4.5.1 There would be several major committed / planned developments and redevelopments in the close proximity of the CHR Site, which are expected to be completed by the time of implementation of the Proposed Road Scheme and should be taken into consideration in the traffic forecast on top of the developments assumed in LATMs. The development parameters of the major developments and re-developments are presented in the following sections.

The Site

4.5.2 According to the information from PlanD, the Site would accommodate "Government, Institution or Community" (GIC) and "Commercial" uses accounting for a total Gross Floor Area (GFA) of 170,000m^2. While the exact splitting of the GFA among the commercial uses (i.e. office/hotel/retail) will be determined in due course, the following combination of the three uses, which represent the worst-case scenario in terms of traffic generation, was adopted for assessment as a conservative approach. Apart from GIC and Commercial uses, the transport facilities for public use would also be provided within the Site. Details of each item are listed as follows:

(a) Commercial Use

(i) Office: 42,726m^2

(ii) Hotel: 44,000m^2 (approximately 630 rooms)

(iii) Retail: 10,000m^2

(b) GIC Uses

- Judicial Complex for District Court (JCDC) including District Court, Family Court and Lands Tribunal: 70,000m^2
- Child Care Centre (CCC) Note (1): 1,074m^2
- District Health Centre (DHC) Note (1): 2,200m^2

[Note (1): the actual GFA of CCC and DHC is subject to the detailed design.]

(c) Other Transport Facilities

(i) Public car parks including 100 private vehicles parking spaces and 25 commercial vehicles parking spaces

(ii) Public Transport Facilities:

- In order to serve the Site, total 105m long Green Minibus (GMB) lay-bys would be provided to cater for the relocation of the GMB routes from Lan Fong Road / Lee Garden Road to the Site. However, the exact GMB routes to be relocated and the revised routings are currently not available.

- Owing to the junction capacity constraints, relocation of all GMB routes would not be acceptable from traffic viewpoint. Thus, it could only assume that some of the GMB routes would be relocated in this Study.

- Based on the principle that re-routing of GMB should not deviate much from their original routings, such that it would not cause extra traffic loading to the nearby critical road junctions, it was therefore assumed that GMB Route No. 14M (including the main route, special route and two short-journey routes) and 30 would be relocated to the Site.

- The assumed routings for GMB 14M and 30 (Causeway Bay bound) would follow the existing ones except that the section along CHR(West) would additionally route through the Site. For GMB 30 (Happy Valley bound), after passing Percival Street, it would be detoured via Hysan Avenue, Hoi Ping Road, CHR (West) southbound, the Site, CHR(West) northbound, Leighton Road and then follow the original routing.

- It should be noted that the above GMB assumption is an example only and would not pre-empt the future decision for the GMB relocation. Some of the existing GMB routes may be potentially relocated to the Site of which they would either terminate at or pass through the Site. How the GMB routes would be adjusted in future would be subject to the prevailing passenger travelling pattern and the result of local consultation. The review of GMB routes is not covered under the scope of this EFS.

Redevelopment of Po Leung Kuk Headquarters (PLKHQ)

4.5.3 With reference to the "Final Report of the Updated Junction Analysis for the Proposed Redevelopment of the East Wing of Po Leung Kuk Headquarters at 66 Leighton Road, Causeway Bay" (PLK Report), which was available on the website of Town Planning Board, the anticipated completion year of the proposed redevelopment of the existing PLKHQ is stated to be 2018. However, it is noted that the construction works for PLKHQ redevelopment has not been commenced yet. As a conservative approach, it is assumed that the redevelopment of the existing PLKHQ would be completed by 2026.

Redevelopment of South China Athletic Association (SCAA)

4.5.4 According to the information given by SCAA, the redevelopment of SCAA would mainly involve the modification of the south stand, but not the staff quarters. In view that the redevelopment is related to recreation use, it was assumed that the redevelopment would not generate additional trips during commuting peak hour periods.

Redevelopment of Causeway Bay Crowne Plaza Hotel

4.5.5 The planning application no. A/H7/172 "Proposed Office, Shop and Services and Eating Place in "Residential (Group A)" Zone, 8 Leighton Road" (i.e. re-development of Causeway Bay Crowne Plaza Hotel (CBCP Hotel)) was approved by Town Planning Board on 22 December 2017. According to the approved Traffic Impact Assessment Report for the redevelopment of CBCP Hotel, the above redevelopment would not induce additional traffic loading to the adjacent local road network, thus the existing trip generation was adopted in this Traffic Review as a conservative approach.

Other Redevelopments

4.5.6 There are other redevelopments with construction underway. They are anticipated to be completed by the design year. The additional trip generation of these redevelopments were taken into account traffic forecast. The redevelopments include:

- 4-14 Hoi Ping Road and 10 Hysan Avenue: Office and Retail – Total 43,430.2m^2 GFA
- 103-105 Caroline Hill Road: Residential – 3,340.9m^2 GFA
- 5-19 Jardine's Bazaar: Retail – 4,756m^2 GFA
- 36 Jardine's Bazaar: Office – 979m^2 GFA
- 60-66 Jardine's Bazaar: Office – 4,471m^2 GFA

4.6 Trip Generation and Attraction

4.6.1 The trip rates of the common land uses such as office, hotel, retail and residential generally adopt the mean rates as recommended in the Transport Planning and Design Manual (TPDM) published by Transport Department (TD). However, it is noted that lower limit of TPDM trip generation rates were used for office and hotel in PlanD's Study. In view of this, the adoption of the above trip rates for office and hotel was verified by trip generation surveys and found to be appropriate. For the special uses including JCDC, CCC, DHC, public car park and GMB lay-bys, the corresponding trip rates and generations are not available in TPDM and should be estimated on a case-by-case basis. Detailed trip rates are listed in **Table 4.2**.

Table 4.2 Trip Rates Adopted for the Committed / Planned Major Developments

Type of Development	Reference / Assumption	Unit	Trip Rates			
			AM		PM	
			Gen.	Att.	Gen.	Att.
The Site						
Office	TPDM / Lower Limit	pcu / hr / 100m^2 GFA	0.1045	0.1646	0.1217	0.0840
Hotel	TPDM / Lower Limit	pcu / hr / guest room	0.0843	0.0832	0.0883	0.0908
Retail	TPDM / Mean	pcu / hr / 100m^2 GFA	0.2296	0.2434	0.3100	0.3563
JCDC	Trip rates were derived by trip generation survey for the existing District Court, Family Court and Lands Tribunal	pcu / hr / 100m^2 GFA	0.0786	0.1243	0.0414	0.0257
CCC	Trip rates were derived by trip generation survey for the existing creche	pcu / hr / no. of places	0.0781	0.0781	0.0313	0.0313
DHC	Trip rates were derived by trip generation survey for the existing General Out-patient Clinic	pcu / hr / 100m^2 GFA	0.6782	0.9864	0.7398	0.6165
Public Car Park for Private Vehicles	Trip rates were reference to existing public car park	pcu / hr / parking space	0.0356	0.1577	0.1373	0.0488
Public Car Park for Commercial Vehicles			0.2879	0.0758	1.0000	0.3485

Type of Development	Reference / Assumption	Unit	Trip Rates			
			AM		PM	
			Gen.	Att.	Gen.	Att.
GMB	Trip generations were estimated by the frequencies of GMB routes. The assumption of GMB routes refer to Para. 4.5.2 (c) (ii).	N/A	N/A	N/A	N/A	N/A
Redevelopment of PLKHQ						
Administration and Social Welfare Services	Additional trip generation were reference to PLK Report.	N/A	N/A	N/A	N/A	N/A
Other Redevelopments						
Office	TPDM / Lower Limit	pcu / hr / $100m^2$ GFA	0.1045	0.1646	0.1217	0.0840
Retail	TPDM / Mean	pcu / hr / $100m^2$ GFA	0.2296	0.2434	0.3100	0.3563
Residential	TPDM / Mean	pcu / hr / flat	0.0718	0.0425	0.0286	0.0370

4.6.2 By applying the adopted trip rates, the total traffic generation of the Site as well as the committed and planned major developments were estimated and are summarised in **Table 4.3**.

Table 4.3 Total Traffic Generation of the Committed / Planned Major Developments

Component		Traffic Generation (pcu/hr)			
		AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
The Site	Commercial	121	147	139	129
	JCDC	55	87	29	18
	CCC	8	8	3	3
	DHC	15	22	16	14
	Public Car Parks	11	18	39	14
	Public Transport Facilities (1)	116	116	105	105
	Total	**326**	**398**	**331**	**283**
Redevelopment of PLKHQ (additional trip generations)		14	15	7	6
Redevelopment of Lee Garden Three		55	78	67	57

Component	Traffic Generation (pcu/hr)			
	AM Peak		PM Peak	
	Gen.	Att.	Gen.	Att.
Redevelopment at 103-105 Caroline Hill Road	4	2	2	2
Redevelopment at 5-19 Jardine's Bazaar	11	12	15	17
Redevelopment at 36 Jardine's Bazaar	1	2	1	1
Redevelopment at 60-66 Jardine's Bazaar	5	7	5	4

Note:
(1) The trip generations of GMB are counted at the accesses of the Site, but only some of the trips (30 pcu/hr (AM) and 34 pcu/hr (PM) for the re-routed GMB 30 (Happy Valley bound)) would impose additional loadings on the critical road junctions. The GMB 14M (both bounds) and 30 (Causeway Bay bound) would not affect the performances of the critical junctions.

4.7 Junction Improvement Scheme

4.7.1 As advised by TD, there is no committed/planned junction improvement scheme in the vicinity of the Proposed Road Scheme.

4.8 Traffic Forecast

4.8.1 Traffic forecasts were prepared for the reference scenario (without the Proposed Road Scheme and without the Site) and design scenario (with the Proposed Road Scheme and the Site) in year 2031. The traffic flows for the reference and design scenarios should refer to the following figures:

- Reference scenario – **Figure 4.1**
- Design scenario – **Figure 4.2**

5 TRAFFIC IMPACT ASSESSMENT FOR OPERATION STAGE

5.1 Junction Capacity Analysis

5.1.1 The performances of the critical junctions were assessed based on the traffic forecasts for the reference and design scenarios. The junction performances are summarised in **Table 5.1**.

Table 5.1 Junction Performance in Year 2031

No.	Junction Name	Junction Type (1)	RC (2) / DFC (3)			
			Reference Scenario		Design Scenario	
			AM	PM	AM	PM
J1	Leighton Road / Percival Street / Hysan Avenue	S	19%	21%	14%	17%
J2	Leighton Road / CHR (West) / Hoi Ping Road	S	14%	9%	14%	10%
J3	Leighton Road / Yun Ping Road / Pennington Street / CHR (East)	S	27%	12%	27%	11%
J4	Causeway Road / Leighton Road / Irving Street / Tung Lo Wan Road	S	27%	40%	19%	36%
J5	Tung Lo Wan Road / Eastern Hospital Road	S	85%	75%	64%	57%
J6	CHR (West) / Link Road	P	0.44	0.46	N/A	N/A
J6A	CHR (West) Southbound / U-turn (4)	P	N/A	N/A	0.45	0.46
J6B	CHR (West) Southbound / Proposed Access Road (4)	P	N/A	N/A	0.44	0.43
J6C	CHR (West) Southbound / CHR (West) Northbound / Link Road Southbound (4)	P	N/A	N/A	0.29	0.37
J7	Hennessy Road / Percival Street	S	71%	27%	71%	27%
J8	Matheson Street / Percival Street / Russell Street	S	>100%	>100%	>100%	>100%
J9	Leighton Road / Wong Nai Chung Road	S	>100%	>100%	>100%	>100%
J10	Wong Nai Chung Road / Sports Road	S	>100%	>100%	>100%	>100%
J11	Link Road / Broadwood Road	S	45%	56%	45%	56%
J12	Leighton Road / Leighton Lane / Hysan Avenue	S	>100%	>100%	>100%	>100%
J13	Pennington Street / Jardine's Bazaar / Irving Street	S	89%	76%	86%	73%
J14	Broadwood Road / Ventris Road	P	0.47	0.70	0.47	0.70

No.	Junction Name	Junction Type (1)	RC (2) / DFC (3)			
			Reference Scenario		Design Scenario	
			AM	PM	AM	PM
J15	Leighton Road / Sun Wui Road	P	0.10	0.10	0.10	0.10
J16	Leighton Road / Sunning Road	P	0.45	0.59	0.45	0.59
J17	CHR / Cotton Path	P	0.18	0.15	0.30	0.27
J18	CHR (East) / Proposed Access Road	P	N/A	N/A	0.16	0.18

Notes:
(1) S – Signalised Junction; P – Priority Junction
(2) RC: Reserve Capacity in percentage (%) for signalised junctions (S). A positive RC indicates that the junction is operating with spare capacity which is acceptable.
(3) DFC: Design Flow / Capacity ratio for priority junctions and roundabouts. DFC less than 0.85 is considered reasonable.
(4) New junctions to be formed under the proposed road scheme.

5.1.2 From **Table 5.1**, all the critical junctions would still operate within capacities under the Design Scenario, i.e. with the Proposed Road Scheme and the Site, which are considered acceptable. To maintain the acceptable traffic condition, the internal road layout of the Site, subject to the detailed design by the future owner of the Site, should provide sufficient stacking length to accommodate the expected vehicular queue and avoid tail back to the public roads.

6 CONSTRUCTION TRAFFIC IMPACT ASSESSMENT

6.1 Overview

6.1.1 The construction of the Road Works would undoubtedly induce traffic impact to the surrounding road network which should be assessed. As mentioned in paragraph 4.1.2, the design year of traffic impact assessment for the construction of Road Works was assumed to be 2026. In view that it is very likely that the Road Works would be carried out simultaneously with the development site, therefore there would be construction traffic for both the CHR Site and Road Works. Taking into considerations the background traffic growth and the construction traffic flow, the traffic forecast for reference scenario (with CHR Site construction traffic but without Road Works construction traffic) and design scenario (with both CHR Site and Road Works construction traffic) were derived and should refer to the following figures:

- Reference scenario – **Figure 6.1**
- Design scenario – **Figure 6.2**

6.1.2 Based on the past experience, it is assumed that the one-way construction traffic generated by the Road Works construction would be 10 vehicles per hour during the construction period whereas that generated by the CHR Site construction would be 20 vehicles per hour. It is expected that the construction traffic of the CHR Site would be mainly related to site formation (i.e. landfill), therefore it is assumed that all construction vehicles of the CHR Site would use the existing run-in/out at CHR (East) for ingress and egress. Since the bituminous/concrete batching plant is mainly located in New Territories or Kowloon, it is expected that the construction vehicles would travel via Canal Road Flyover, Leighton Road to/from CHR (East) / CHR (West).

6.1.3 In order to minimise such traffic impact, appropriate Temporary Traffic Management (TTM) measures should be implemented at different stages of the construction works.

6.2 General Principles and Requirements for Designing TTM Schemes

6.2.1 In formulating the TTM schemes for the affected carriageways and footpaths, the following general principles have been adopted:

i. Disruption of existing vehicular and pedestrian traffic should be minimised. The existing number of traffic lanes should be maintained along the affected roads, and the existing footpath should be maintained as far as possible or short diversion route should be provided when the footpath is inevitably closed.
ii. The design of the scheme should allow sufficient space for a safety zone which provides horizontal safety clearance between the working space and moving traffic.
iii. Sight lines should be considered from both the highway design perspective where the road users' needs are considered, and also from the operatives' point of view (i.e. the design of works access/egress).
iv. The TTM schemes should be carried out in accordance with HyD's publication "Code of Practice for the Lighting, Signing and Guarding of Road Works", and "Guidelines on Traffic Impact Assessment & Day-time Ban Requirements for Road Works on Traffic Sensitive Routes".

6.3 Temporary Traffic Arrangement for Road Works

6.3.1 TTM schemes were formulated to facilitate the Road Works, including the formation of proposed carriageway and footpath, drainage works, diversion of underground

utilities. Details of each TTM stage for the Proposed Road Scheme are presented as follows:

6.3.2 The construction would consist of 2 parts including Part A: Road Works at CHR (East) and Part B: Road Works at CHR (West). 7-stage and 2-stage TTMs were devised for Part A (i.e. Stages A1 – A7) and Part B (i.e. Stages B1 – B2) respectively.

Stage A1 (**Figure 6.3**)

6.3.3 The area to the east of CHR (West) and to the south of Leighton Road would be closed to form the permanent footpath and carriageway. The existing carriageway and footpath along CHR (West) and Leighton Road would not be affected, except the existing staircase fronting the ex-headquarters of Electrical and Mechanical Services Department (EMSD) would be demolished and modified into ramp to match the adjacent footpath.

6.3.4 The existing triangular traffic islands at the junction of Leighton Road / CHR (West) / Hoi Ping Road would be partially demolished. Half of the existing crossing width would be maintained at the crossings across CHR (West) northbound and Leighton Road.

Stage A2 (**Figure 6.4**)

6.3.5 A portion of the southern footpath of Leighton Road and the eastern footpath of CHR (West) between Leighton Road and Link Road would be closed for the carriageway conversion; pedestrians would be guided to use the temporary footpath with a minimum width of 1.5m to bypass the works area. At least half of the existing crossing width at signalised and cautionary crossings would be maintained.

6.3.6 Another section of the existing triangular traffic islands at the junction of Leighton Road / CHR (West) / Hoi Ping Road would be demolished. Similarly, half of the existing crossing width would be maintained at the crossings across CHR (West) and Leighton Road.

6.3.7 The existing central refuge of the cautionary crossing across CHR (West) near Link Road would be demolished. A short section of the western footpath of CHR (West) would be closed for the removal of existing drop kerb; minimum 1.5m footpath would be maintained for pedestrian passage. The existing cautionary crossing across CHR (West) near Link Road would be suspended permanently.

Stage A3 (**Figure 6.5**)

6.3.8 The works would occupy the same area as Stage 2, except that another half of the pedestrian crossing to be closed for the carriageway conversion; another section of the existing triangular traffic island at the junction of Leighton Road / CHR (West) / Hoi Ping Road would be demolished. The existing central refuge of the signalised crossing across Leighton Road to the east of Hoi Ping Road would be modified. Half of the existing crossing width would be maintained at the crossings across CHR (West) and Leighton Road.

6.3.9 Another short section of the western footpath at CHR (West) would be closed for the removal of the existing drop kerb; minimum 1.5m footpath would be maintained for pedestrian passage.

Stage A4 (**Figure 6.6**)

6.3.10 The area to the east of CHR (West) would continue to be closed for the construction of permanent site access. The permanent traffic islands at CHR (West) would be constructed. U-turn traffic lanes would be provided to serve vehicles to/from PLK Headquarters. Vehicles would use the as-constructed permanent road layout while pedestrians would use the as-constructed footpath to cross the road.

Stage A5 (**Figure 6.7**)

6.3.11 This stage is identical to Stage 5 except the U-turn lane serving vehicles from Link Road to CHR (West) southbound would be shifted southwards.

Stage A6 (**Figure 6.8**)

6.3.12 The area to the east of CHR (West) would continue to be closed for the construction of permanent site access. A section of the permanent triangular island at the junction of Leighton Road / CHR (West) / Hoi Ping Road would be constructed; half of the existing crossing width would be maintained at the crossings across CHR (West) northbound and Leighton Road.

Stage A7 (**Figure 6.9**)

6.3.13 This stage is identical to Stage 6 except another section of the permanent triangular island at the junction of Leighton Road / CHR (West) / Hoi Ping Road would be constructed. Similarly, half of the existing crossing width would be maintained at the crossings across CHR (West) northbound.

Stage B1 (**Figure 6.10**)

6.3.14 The area to the west of CHR (East) would be closed for the construction of permanent site access. Existing footpath and carriageway at CHR (East) would not be affected.

Stage B2 (**Figure 6.11**)

6.3.15 A section of the eastern and western footpath at CHR (East) would be closed for construction of drop kerb and carriageway conversion respectively; minimum 1.5m footpath would be provided to bypass the works area.

6.3.16 A short section of the carriageway at CHR (East) would be closed; minimum 3m carriageway would be maintained for vehicle passage.

6.3.17 It should be noted that the details of the TTM schemes for the Proposed Road Scheme should be further reviewed subject to the actual construction method and sequence to be confirmed at the detailed design stage.

6.4 Traffic Impact Assessment for the Construction of Road Works

6.4.1 During the road works construction at CHR (West) (i.e. Part A), the existing traffic operation and lane configuration of CHR (East), CHR (West) and Leighton Road could be maintained from Stages A1 to A3, so that there would not be significant impact on the vehicular and pedestrian access. From Stage A4 onwards, the permanent road layout (i.e. Proposed Road Scheme) would be implemented at CHR (West). Similarly, the existing traffic movements and pedestrian connection could be maintained. The performances of the existing and newly formed junctions during the construction of Road Works/TTM stages have been assessed and presented in **Table 6.1**.

6.4.2 For the road works construction at CHR (East) (i.e. Part B), the existing footpaths and carriageway could be maintained during the construction of Proposed Road Scheme. Therefore, the traffic impact caused by the proposed TTM schemes would be minimal at CHR (East).

Table 6.1 Junction Performance in Year 2026

No.	Junction Name		Junction Type [1]	RC [2] / DFC [3]			
				Reference Scenario		Design Scenario	
				AM	PM	AM	PM
J1	Leighton Road / Percival Street / Hysan Avenue		S	19%	22%	17%	21%
J2	Leighton Road / CHR (West) / Hoi Ping Road	Existing Layout	S	14%	9%	N/A	N/A
		TTM Stage A1 – A3	S	N/A	N/A	12%	7%
		TTM Stage A4 – A7	S	N/A	N/A	38%	27%
J3	Leighton Road / Yun Ping Road / Pennington Street / CHR (East)		S	28%	13%	28%	13%
J4	Causeway Road / Leighton Road / Irving Street / Tung Lo Wan Road		S	26%	38%	26%	38%
J5	Tung Lo Wan Road / Eastern Hospital Road		S	76%	70%	76%	70%
J6	CHR (West) / Link Road	TTM Stage A1 – A3	P	0.44	0.46	0.44	0.46
J6A	CHR (West) Southbound / U-turn	TTM Stage A1 – A3	P	N/A	N/A	N/A	N/A
		TTM Stage A4	P	N/A	N/A	0.28	0.31
		TTM Stage A5 – A7	P	N/A	N/A	0.28	0.31
J6B	CHR (West) Southbound / Proposed Access Road	TTM Stage A1 – A7	N/A	N/A	N/A	N/A	N/A
J6C	CHR (West) Southbound / CHR (West) Northbound / Link Road Southbound	TTM Stage A1 – A3	N/A	N/A	N/A	N/A	N/A
		TTM Stage A4 – A7	P	N/A	N/A	0.19	0.35
J7	Hennessy Road / Percival Street		S	72%	27%	72%	27%
J8	Matheson Street / Percival Street / Russell Street		S	>100%	>100%	>100%	>100%
J9	Leighton Road / Wong Nai Chung Road		S	>100%	>100%	>100%	>100%
J10	Wong Nai Chung Road / Sports Road		S	>100%	>100%	>100%	>100%

No.	Junction Name		Junction Type [1]	RC [2] / DFC [3]			
				Reference Scenario		Design Scenario	
				AM	PM	AM	PM
J11	Link Road / Broadwood Road		S	48%	56%	48%	56%
J12	Leighton Road / Leighton Lane / Hysan Avenue		S	>100%	>100%	>100%	>100%
J13	Pennington Street / Jardine's Bazaar / Irving Street		S	89%	76%	89%	76%
J14	Broadwood Road / Ventris Road		P	0.47	0.67	0.47	0.67
J15	Leighton Road / Sun Wui Road		P	0.10	0.10	0.10	0.10
J16	Leighton Road / Sunning Road		P	0.44	0.59	0.44	0.59
J17	CHR / Cotton Path		P	0.23	0.20	0.23	0.20
J18	CHR (East) / Proposed Access Road	TTM Stage B1-B2	P	0.10	0.11	0.11	0.11

Notes:
(1) S – Signalised Junction; P – Priority Junction
(2) RC: Reserve Capacity in percentage (%) for signalised junctions (S). A positive RC indicates that the junction is operating with spare capacity which is acceptable.
(3) DFC: Ratio of Flow to Capacity for priority junctions and roundabouts (R). DFC less than 1.0 is considered reasonable.

6.4.3 During the construction of the Proposed Road Scheme, all the critical junctions would be operating within capacities, which are considered acceptable. To conclude, the construction of Road Works would not impose unacceptable traffic impact on the road network in the vicinity of the Proposed Road Scheme.

7 PEDESTRIAN FACILITIES AND ASSESSMENT

7.1 Existing Walkway Condition

7.1.1 The pedestrians in Caroline Hill area mostly rely on at-grade footpaths and pedestrian crossing facilities including signalised and cautionary crossings along CHR (East), CHR (West) and Leighton Road to/from the central area of Causeway Bay, MTR Station and public transport facilities. The major pedestrian corridors are mainly Leighton Road, Hoi Ping Road, Sunning Road, Yun Ping Road and Pennington Street.

7.1.2 A pedestrian count survey was carried out during the AM and PM peak periods on a typical weekday in March 2017 at the critical footpaths and crossings near the Proposed Road Scheme. The surveyed locations are indicated in **Figure 7.1** respectively.

7.1.3 A general approach using the walkway Level-of-Service (LOS) conditions based on the parameters set out in TPDM was adopted for this pedestrian assessment. Generally, LOS C is desirable for most design at streets with dominant 'living' pedestrian activities. The descriptions of the LOS conditions are presented in **Table 7.1**.

Table 7.1 LOS for Walkway

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

LOS	Flow Rate (ped/min/m)	Description
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

7.1.4 The existing pedestrian flows and the LOS of the critical pedestrian facilities in the vicinity of the Proposed Road Scheme are presented in **Table 7.2**.

Table 7.2 Existing Pedestrian Flows and LOS

Walkway	Effective Width (m)	Pedestrian Flow (ped/hr)		LOS	
		AM	PM	AM	PM
1	1.3	280	570	A	A
2	2.8	940	960	A	A
3	2.0	410	460	A	A
4	1.3	20	10	A	A
5	1.5	20	20	A	A
6	1.0	140	250	A	A
7	2.2	580	680	A	A
8	1.8	770	550	A	A
9	1.4	580	760	A	A
10	2.0	540	490	A	A
11	1.7	1100	1700	A	B
12	1.6	210	940	A	A
13	3.3	50	80	A	A
14	2.2	930	1220	A	A
15	0.7	40	30	A	A
16	1.9	590	680	A	A
17	1.3	470	780	A	A
18	1.8	900	400	A	A
19	2.2	110	240	A	A
20	2.2	40	40	A	A
A1	3.6	540	600	A	A
A2	3.4	200	350	A	A
A3	2.5	370	340	A	A

Walkway	Effective Width (m)	Pedestrian Flow (ped/hr)		LOS	
		AM	PM	AM	PM
A4	2.5	280	530	A	A
A5	2.5	220	410	A	A
B1	5.7	900	1190	A	A
B2	3.5	1020	1350	A	A
B3	4.1	1310	1890	B	B
B4	4.0	330	490	A	A
B5	6.1	1150	1920	A	A

7.1.5 The results show that all assessed walkways are currently operating at an acceptable LOS level (i.e. LOS C or better).

7.2 Future Walkway Condition

7.2.1 In the Proposed Road Scheme, the eastern footpath at CHR (West) would be widened to 3.5m. The existing cautionary crossing at CHR (West) outside Po Leung Kuk would be suspended permanently to match with the future road layout; pedestrians could make use of the nearby signalised pedestrian crossing and cautionary crossing to cross the roads.

7.2.2 As previously discussed, an additional cautionary pedestrian crossing across CHR (East) would be provided, so that the pedestrian travelling between the eastern site access and Leighton Road could use the wider footpath opposite to the Site.

7.2.3 The 2031 pedestrian forecast was derived from the existing pedestrian flows and the growth rate calculated from the latest planning data published by PlanD. By making reference to the existing split of the observed pedestrian flows and the planning parameters of the future developments, the distribution of pedestrian flows generated by the planned/committed developments was estimated. The pedestrian forecast for the reference and design scenarios are as follows:

- Reference Scenario – Without Proposed Road Scheme and without the Site
- Design Scenario – With Proposed Road Scheme and the Site

7.2.4 The pedestrian flows and the LOS of the critical pedestrian facilities in the reference and design scenarios are presented in **Table 7.3**.

Table 7.3 2031 Pedestrian Flows and LOS

Walkway	Effective Width (m)	2031 Reference				2031 Design			
		Pedestrian Flow (ped/hr)		LOS		Pedestrian Flow (ped/hr)		LOS	
		AM	PM	AM	PM	AM	PM	AM	PM
1	1.3	330	660	A	A	420	800	A	A
2	2.8	1090	1100	A	A	1250	1370	A	A
3	2.0	410	460	A	A	480	570	A	A
4	1.3	20	0	A	A	80	110	A	A
5	1.5	20	20	A	A	20	20	A	A
6	1.0	140	250	A	A	140	250	A	A
7	2.2	580	680	A	A	1450	1740	A	A
8	1.8	720	520	A	A	790	630	A	A
9	1.4	560	730	A	A	1600	1780	B	B
10	2.0	520	470	A	A	740	640	A	A
11	1.7	1060	1640	A	B	2100	3370	B	**D**
12	1.6	200	900	A	A	760	2150	A	B
13	3.3	50	80	A	A	80	130	A	A
14	2.2	870	1150	A	A	870	1150	A	A
15	0.7	50	30	A	A	540	940	A	B
16	1.9	630	730	A	A	1790	2840	A	C
17	1.3	530	870	A	A	N/A	N/A	N/A	N/A
	2.5	N/A	N/A	N/A	N/A	1850	2660	A	B
18	1.8	910	410	A	A	930	440	A	A
19	2.2	110	240	A	A	120	240	A	A
20	2.2	40	40	A	A	40	40	A	A
A1	3.6	620	690	A	A	750	900	A	A
A2	3.4	220	390	A	A	440	730	A	A
A3	2.5	400	360	A	A	480	490	A	A
A4	2.5	300	570	A	A	370	680	A	A
A5	2.5	240	440	A	A	N/A	N/A	N/A	N/A
	4.0	N/A	N/A	N/A	N/A	1280	1780	C	C
B1	5.7	970	1290	A	A	1350	2230	A	A
B2	3.5	1100	1460	A	A	2350	3480	B	C
B3	4.1	1430	2070	B	B	2520	3830	C	**D**
B4	4.0	350	510	A	A	910	1760	A	A

Walkway	Effective Width (m)	2031 Reference				2031 Design			
		Pedestrian Flow (ped/hr)		LOS		Pedestrian Flow (ped/hr)		LOS	
		AM	PM	AM	PM	AM	PM	AM	PM
B5	6.1	1220	2030	A	A	2870	5040	B	**D**

7.2.5 The results indicated that all pedestrian crossings and footpaths would be operating with at least LOS C, except that the crossing across Leighton Road (B3 & B5) and Pennington Street western footpath (11) would be operate with LOS D.

7.2.6 For the junction of Leighton Road / Yun Ping Road / Pennington Street / CHR (East), it is proposed to slightly increase the green time for the pedestrian phase across Leighton Road (B1, B3 and B5) by 3 seconds, so that the performances of the critical pedestrian crossing B5 with LOS D can be improved to LOS C. Vehicular queue lengths were also checked and no significant change was found.

8 PUBLIC TRANSPORT FACILITIES

8.1 Existing Public Transport Facilities

8.1.1 The area in the vicinity of the Proposed Road Scheme is currently well served by public transport (PT) services. Franchised Bus (FB) and GMB services are available at the adjacent roads including Leighton Road, Lan Fong Road and Lee Garden Road, which provide connection to the other districts in Hong Kong.

8.1.2 The locations of the existing franchised bus and GMB stops in the vicinity of the Proposed Road Scheme are illustrated in **Figure 8.1**.

8.2 Demand for Public Transport Facilities

8.2.1 In view that the Proposed Road Scheme would be the local road modification and would not alter the existing PT facilities including FB / GMB stops at the nearby roads, it is considered not necessary to provide additional PT facilities in the Proposed Road Scheme. As mentioned in paragraph 4.5.2, there would be potential relocation of the existing GMB routes from Lan Fong Road / Lee Garden Road to the Site where GMB lay-bys would be provided. How the GMB routes would be adjusted in future would be subject to the prevailing passenger travelling pattern and the result of local consultation. The review of GMB routes is not covered under the scope of this EFS. With the new GMB lay-bys to be provided within the Site and the existing FB / GMB stops in the vicinity of the Site, it is expected that these PT facilities should be sufficient upon the completion of the Site.

9 SUMMARY AND CONCLUSION

9.1.1 A TIA was conducted as part of the Study on 'Review of Development Option for Caroline Hill Road Site, Causeway Bay' commissioned by PlanD in 2014 (PlanD's Study). Although the proposed development mix assessed in the above study is different from that proposed in the subject Traffic Review, a set of road improvement measures was recommended.

9.1.2 Based on the road improvement scheme recommended in PlanD's Study, Proposed Road Scheme is formulated for the Site.

9.1.3 In the Proposed Road Scheme, it is proposed (i) to modify the priority junction of CHR (West) / Link Road to a roundabout-like circulation, (ii) to provide a right-turn pocket and additional pedestrian crossing outside eastern access of the Site, (iii) to provide an additional dedicated left-turning traffic lane at the western approach at the junction of Leighton Road / CHR (West) / Hoi Ping Road.

9.1.4 Furthermore, the nearside lane of CHR (West) northbound at its junction with Leighton Road would be modified from left-turn lane to "left-turn and right-turn" shared lane to (i) resolve the existing weaving problem at CHR (West) northbound between Link Road and Leighton Road and (ii) further reduce the conflicting movements at junction of Link Road / CHR (West). The MOC of the junction of Leighton Road / CHR (West) / Hoi Ping Road would be adjusted to suit with the modified lane configuration.

9.1.5 The Site is located at the south of Leighton Road between the eastern and western end portions of CHR. It is currently accessible via CHR near its junction with Link Road.

9.1.6 The existing vehicular access to/from the Site is via CHR (West) which connects to Leighton Road and Link Road. Another vehicular access to/from the Site is also available at CHR (East) which connects to Leighton Road and Cotton Path.

9.1.7 Traffic survey was conducted to obtain the existing traffic flows in the vicinity of the Site. All critical junctions are currently operating with space capacities, no capacity problem is identified.

9.1.8 Design years of 2026 and 2031 were adopted for traffic impact assessment of the Proposed Road Scheme at the construction and operational stages respectively. A LATM was development and validated based on the latest information received or site inventory data. With implementation of LATM, impact of planned/committed land use and infrastructure development on future traffic patterns were incorporated in the design year traffic forecast.

9.1.9 Based on the traffic impact assessment results for operation stage in year 2031, the critical junctions in the vicinity of the Site were found to be operating within capacity with the Proposed Road Scheme.

9.1.10 Preliminary TTM schemes for facilitating the construction of the Proposed Road Scheme were derived. In most of the TTM stages, the existing traffic operation of the CHR (East) and CHR (West) and the existing footpaths could be maintained. Junction performances of the existing/ newly formed junctions were also assessed during the construction of Road Works/TTM stages and it is found that all junctions would be operating with ample capacity during construction of the Proposed Road Scheme. Therefore, the traffic impact caused by the construction of Road Works would be minimal. The details of the TTM schemes for Proposed Road Scheme should be further reviewed subject to the actual construction method and sequence to be confirmed at the detailed design stage.

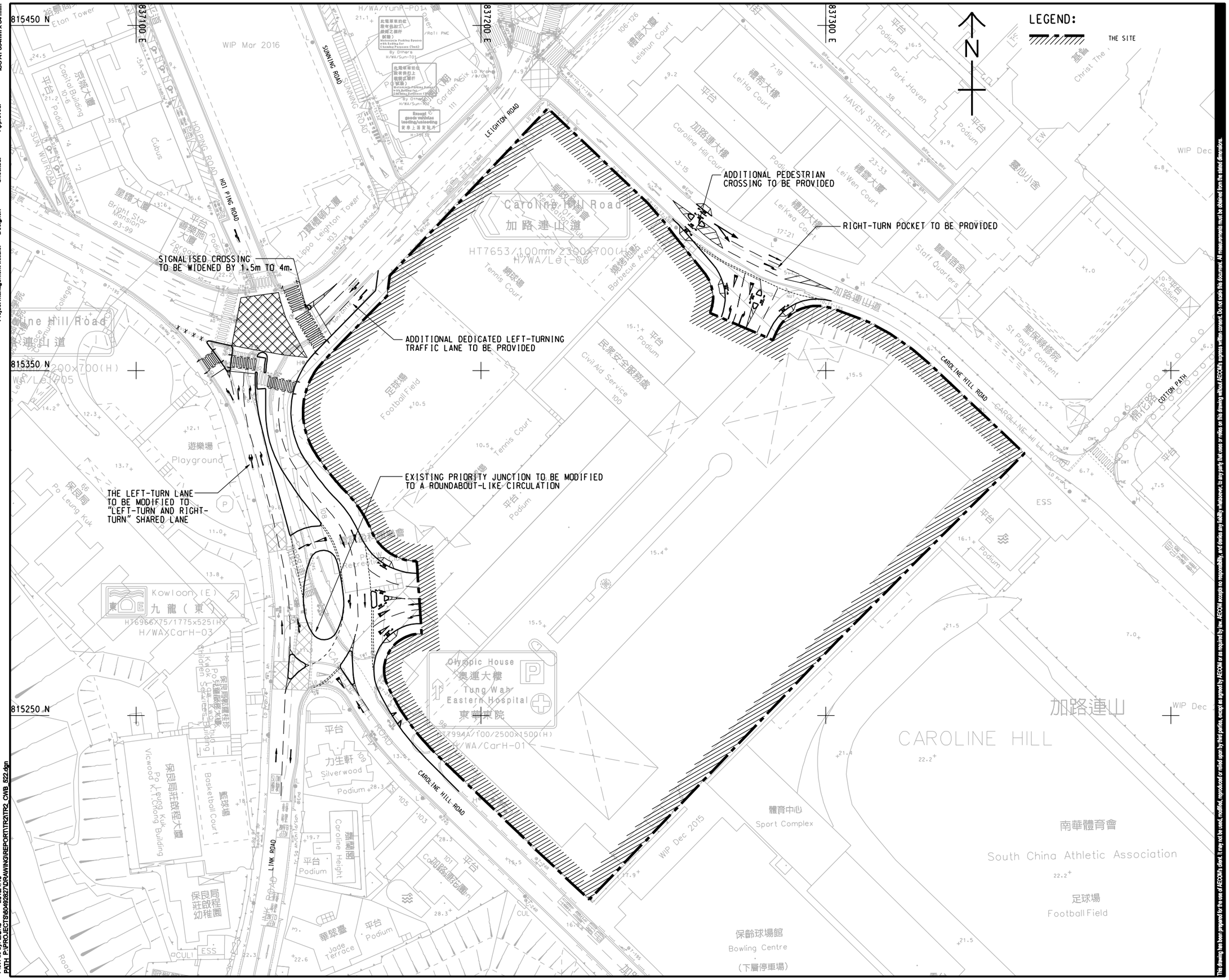
9.1.11 The eastern footpath at CHR (West) would be widened to 3.5m in the Proposed Road Scheme. The existing cautionary crossing at CHR (West) outside Po Leung Kuk would be suspended permanently to tie-in with the future road layout. At CHR (East), an additional cautionary pedestrian crossing would be provided outside the eastern site access, so that the pedestrian travelling between the eastern site access and Leighton Road could use the wider footpath opposite to the Site.

9.1.12 It is found that all pedestrian crossings and footpaths in year 2031 would be operating with LOS C or better except the crossings at the junction of Leighton Road / Yun Ping Road / Pennington Street / CHR (East) (i.e. B3 and B5) and the footpath at Pennington Street (i.e 11), which would be operating at LOS D. With the proposed improvement of the increase in green time for pedestrian phase across Leighton Road by 3 seconds, the performances of the critical pedestrian crossing B5 with LOS D can be improved to LOS C.

9.1.13 In view that the area in the vicinity of the Proposed Road Scheme is currently well served by PT services and the Proposed Road Scheme would be a local road modification which would not alter the existing nearby PT facilities including FB/GMB stops, it is considered not necessary to provide additional PT facilities in the Proposed Road Scheme. How the GMB routes would be adjusted in future would be subject to the prevailing passenger travelling pattern and the result of local consultation. It should be noted that the review of GMB routes is not covered under the scope of this EFS.

9.1.14 To conclude, the Proposed Road Scheme are technically feasible from traffic point of view and no unacceptable traffic impact would be caused on the nearby road network due to the development at the Site.

Figures



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PROJECT
項目

ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

CLIENT
業主

路政署 HIGHWAYS DEPARTMENT

CONSULTANT
工程顧問公司

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
現狀

SCALE 比例: A3 1 : 1000

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

PROPOSED ROAD SCHEME

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 2.1

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Project Management Initials:
Plot File by: LUH9 2019/11/15
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_522.dgn

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

LEGEND:

THE SITE

SURVEYED JUNCTIONS

J1 JUNCTION NO.

836800 E

837150 E

837400 E

815650 N

815350 N

815035 N

N

J1 J2 J3 J4 J5 J5A J5B J6 J6A J6B J6C J7 J8 J9 J10 J11 J12 J13 J14 J15 J16 J17 J18

HENNESSY ROAD

YEE WO STREET

IRVING STREET

PENNINGTON STREET

LEIGHTON ROAD

TUNG LO WAN ROAD

HYSAN AVENUE

CAROLINE HILL ROAD (EAST)

CAROLINE HILL ROAD (WEST)

WONG NAI CHUNG ROAD

INSET A

INSET B

INSET A
SCALE A3 1 : 1000

WITH PROPOSED ROAD SCHEME

INSET B
SCALE A3 1 : 1000

WITH PROPOSED ROAD SCHEME

Plot File by: LUIH9 2019/1/15
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項目

ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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STATUS
階段

SCALE
比例

A3 1 : 3000

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60492827

AGREEMENT NO.
協議編號

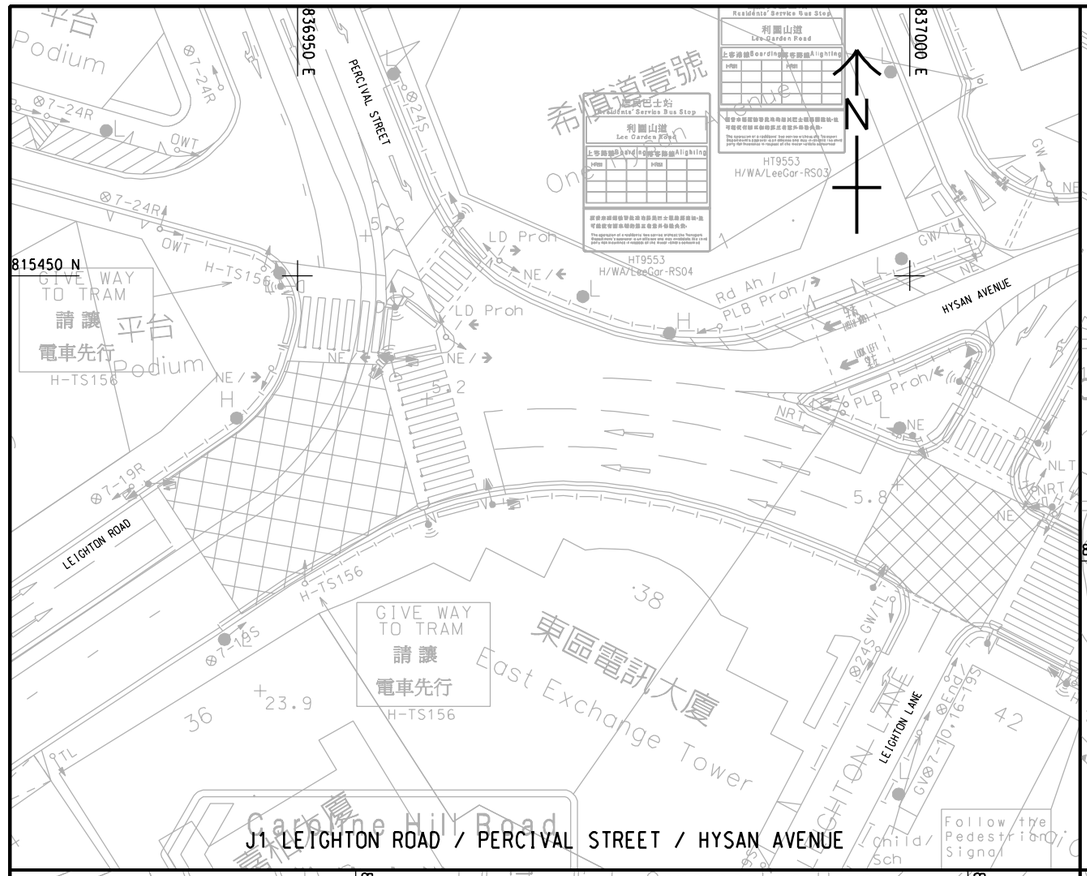
CE57/2015(HY)

SHEET TITLE
圖紙名稱

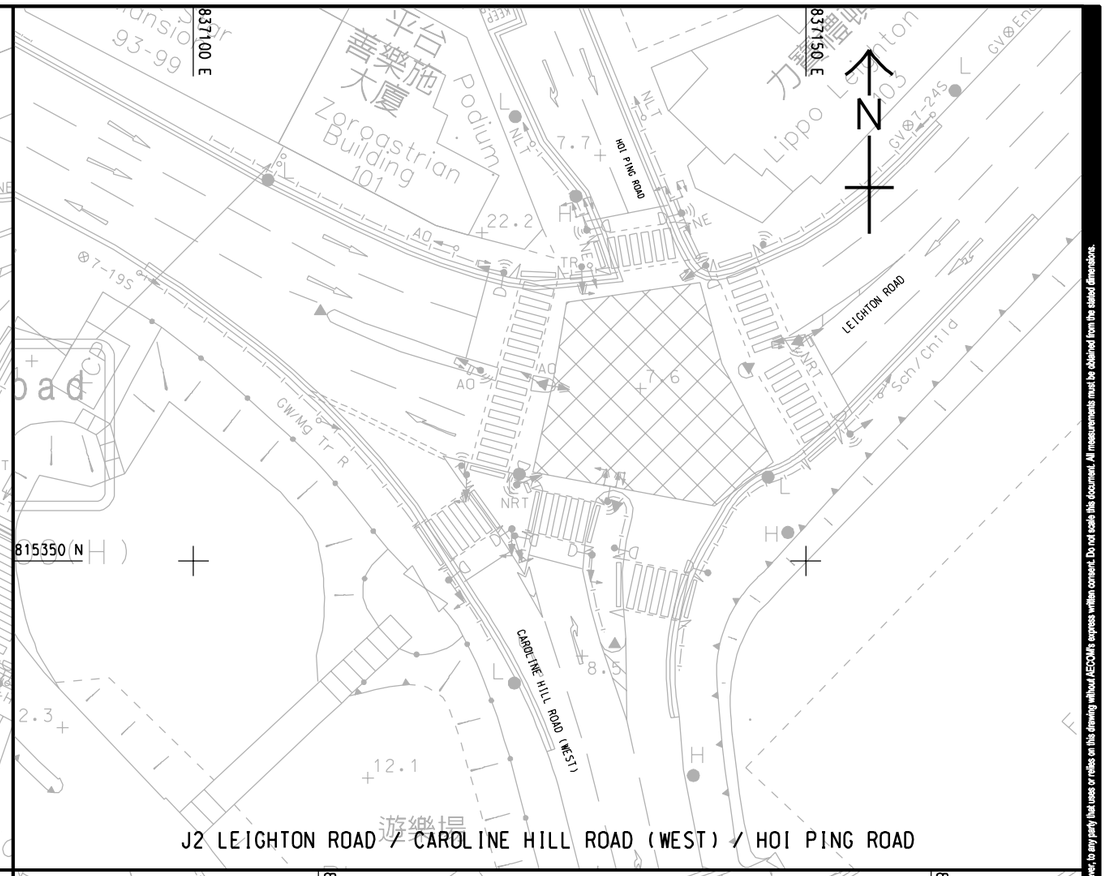
SURVEYED JUNCTIONS

SHEET NUMBER
圖紙編號

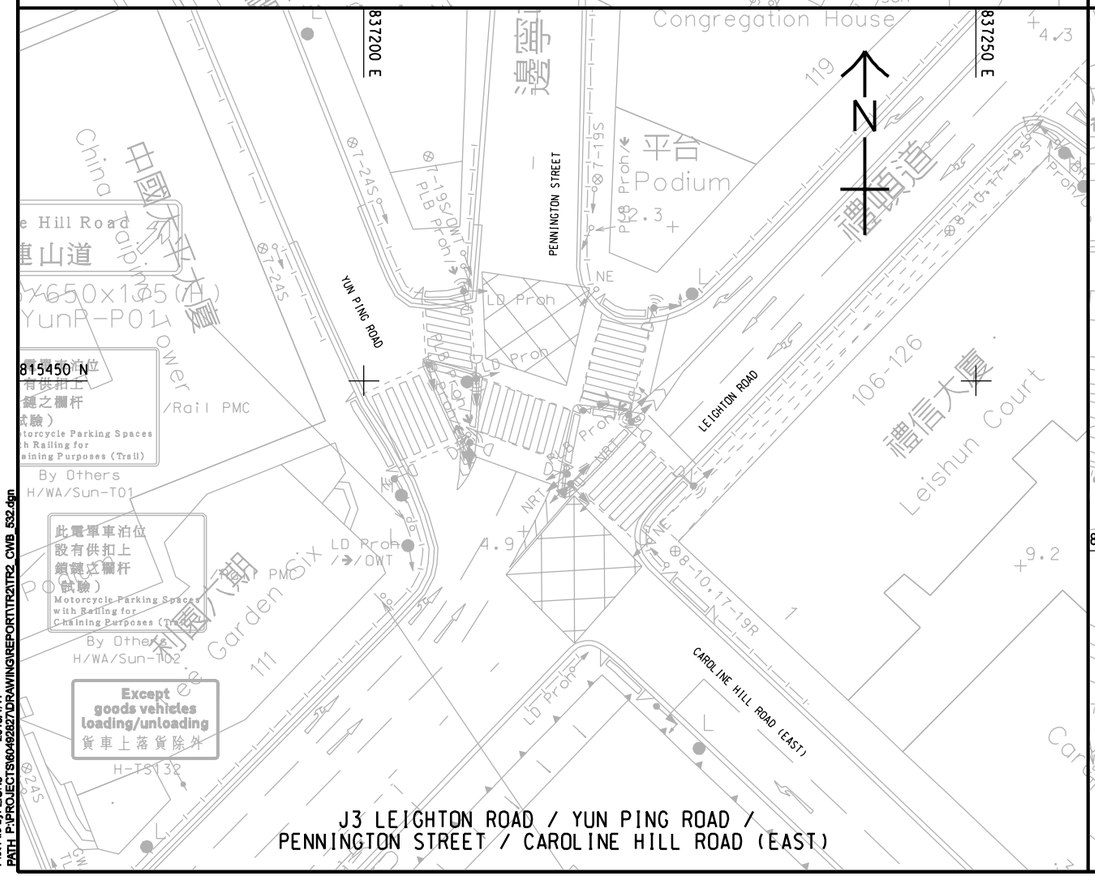
60492827/TR2/CWB_FIGURE 3.1



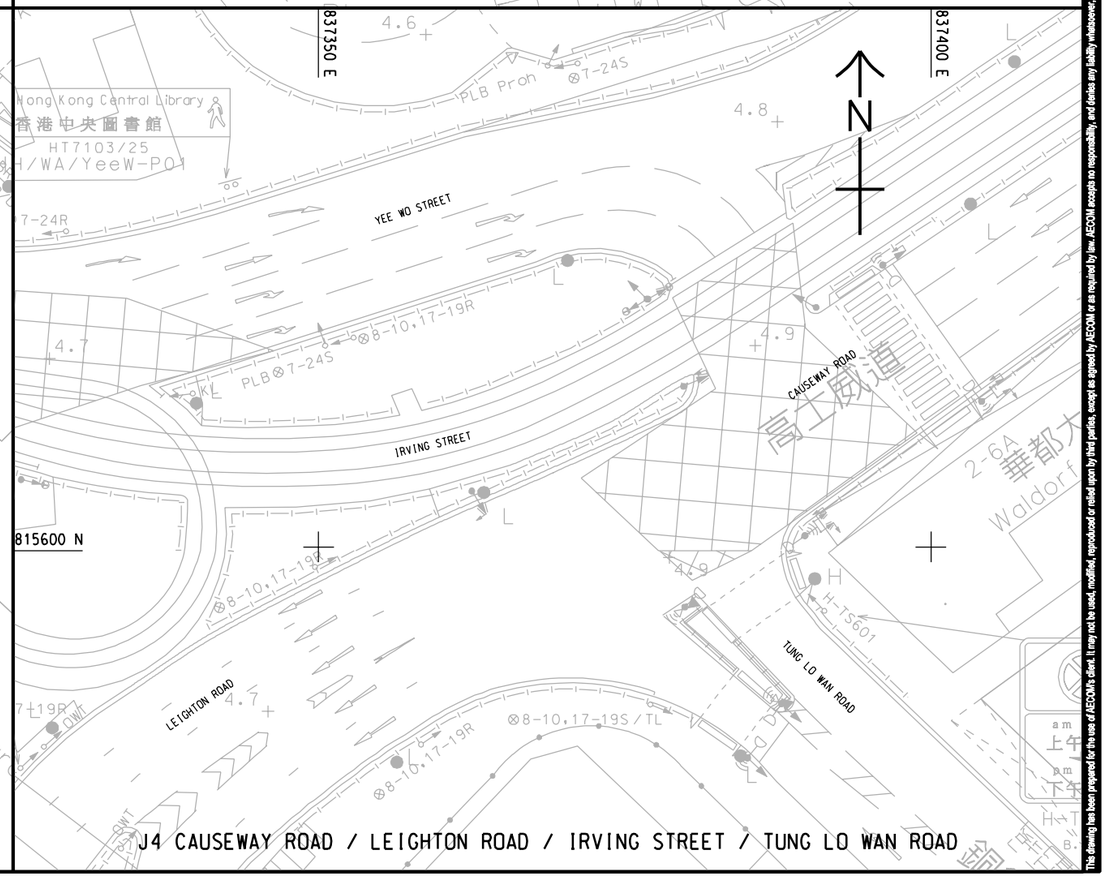
J1 LEIGHTON ROAD / PERCIVAL STREET / HYSAN AVENUE



J2 LEIGHTON ROAD / CAROLINE HILL ROAD (WEST) / HOI PING ROAD



J3 LEIGHTON ROAD / YUN PING ROAD / PENNINGTON STREET / CAROLINE HILL ROAD (EAST)



J4 CAUSEWAY ROAD / LEIGHTON ROAD / IRVING STREET / TUNG LO WAN ROAD

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

Plot File by: LIU HB
2019/1/11
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_532.dgn

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ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT

SHEET 1 OF 5

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 3.2

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ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

J5 TUNG LO WAN ROAD / EASTERN HOSPITAL ROAD

J6 CAROLINE HILL ROAD (WEST) / LINK ROAD

J7 HENNESSY ROAD / PERCIVAL STREET

J8 MATHESON STREET / PERCIVAL STREET / RUSSELL STREET

Plot File by: LUI HB
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_533.dgn
2019/11/1

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AECOM

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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
狀況

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

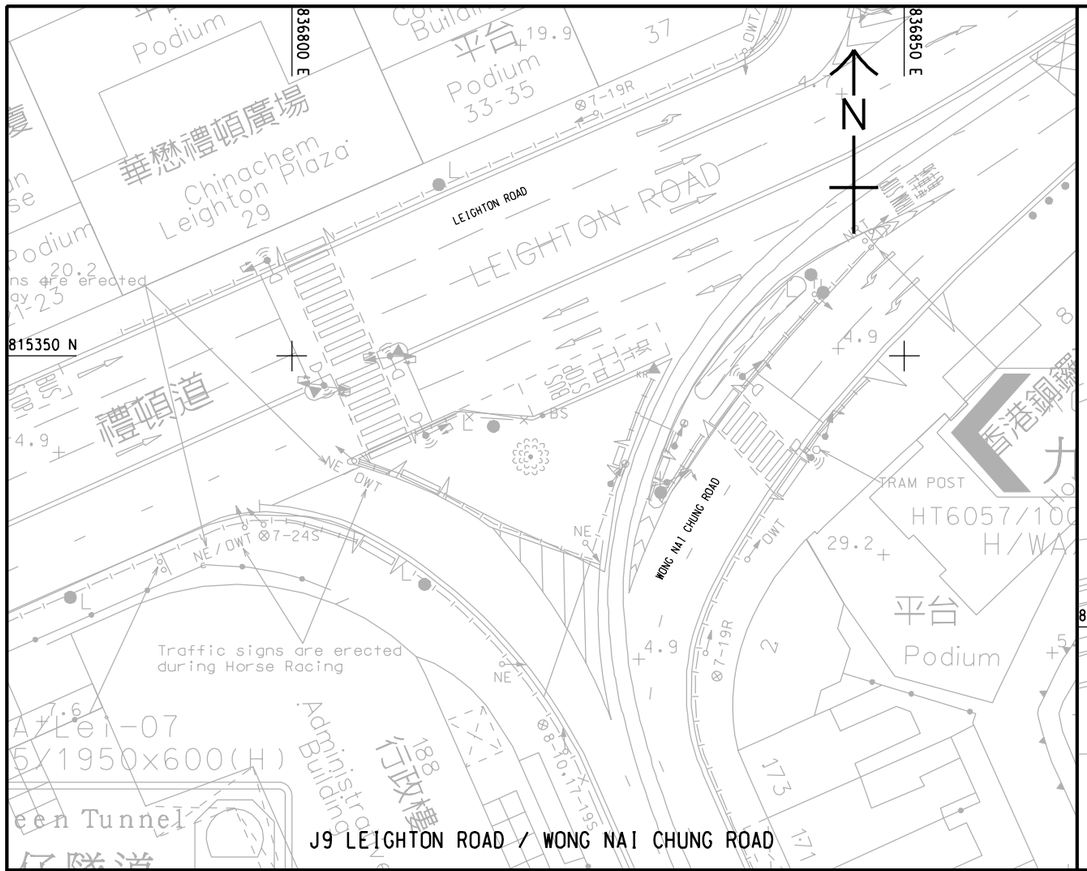
SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT

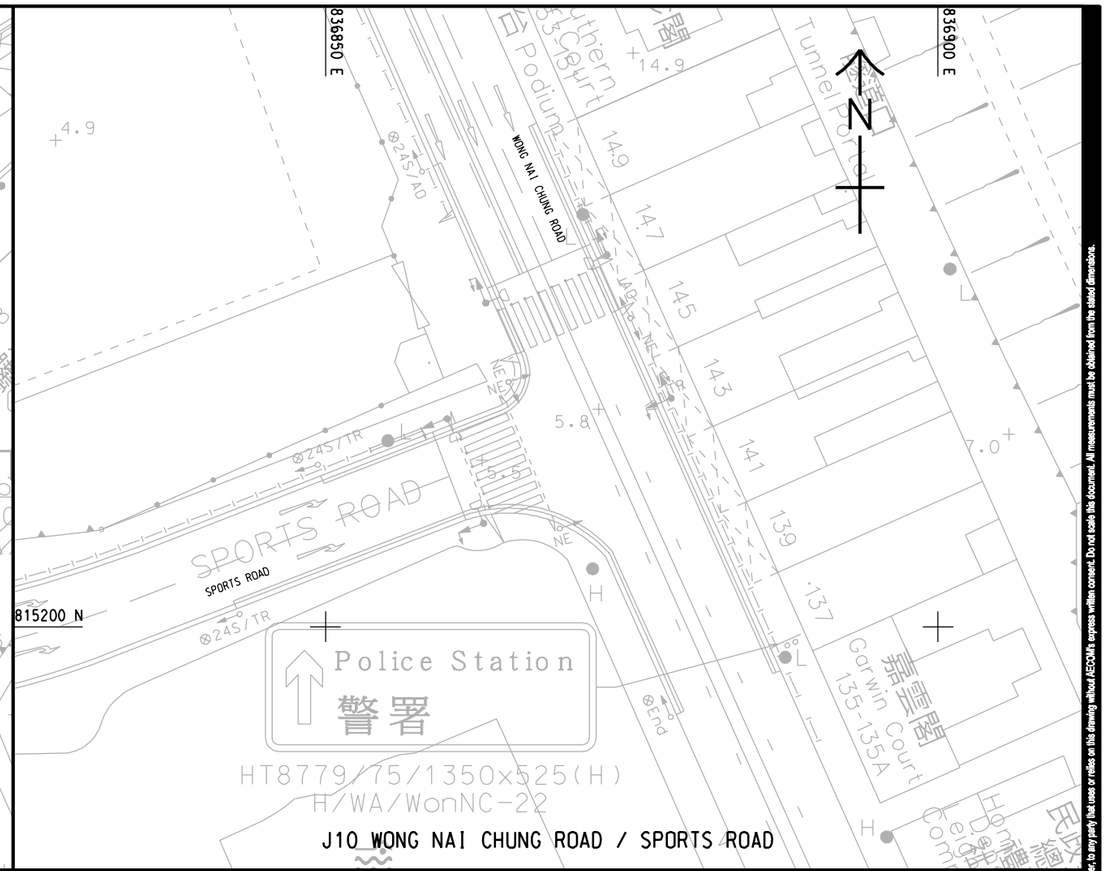
SHEET 2 OF 5

SHEET NUMBER
圖紙編號

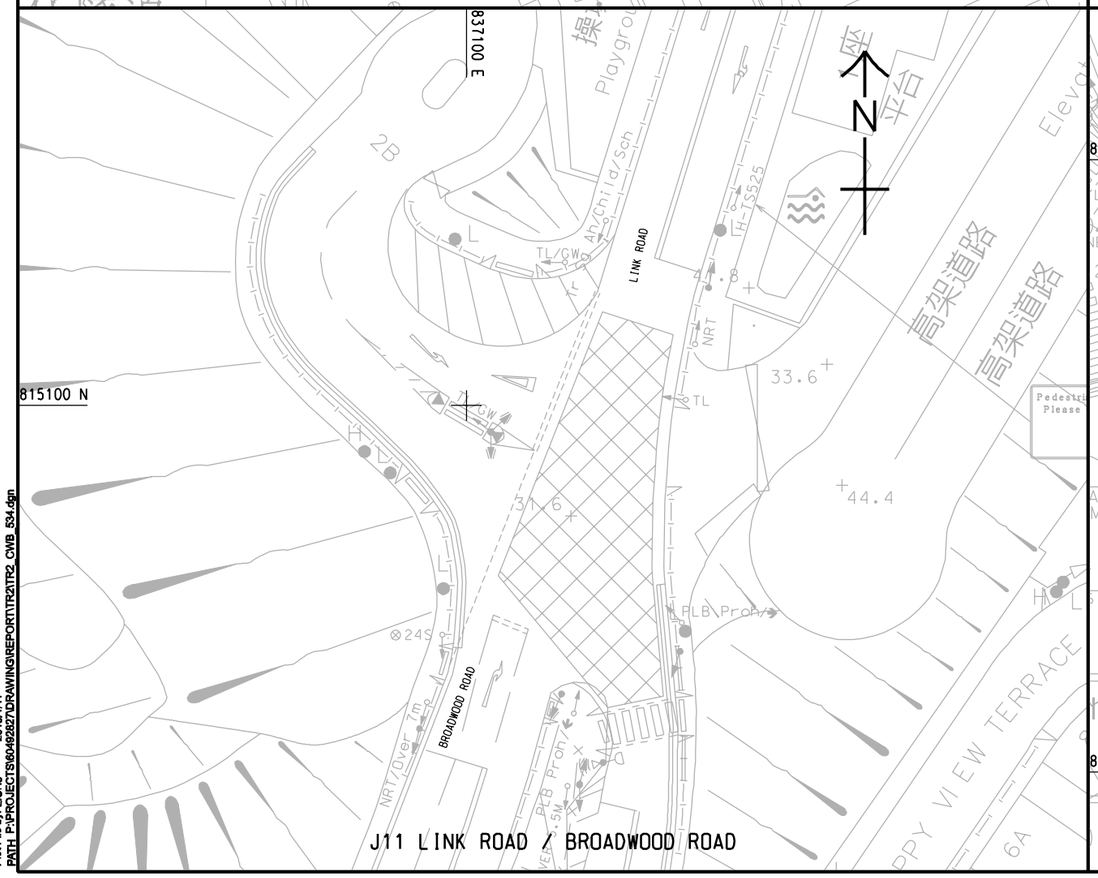
60492827/TR2/CWB_FIGURE 3.3



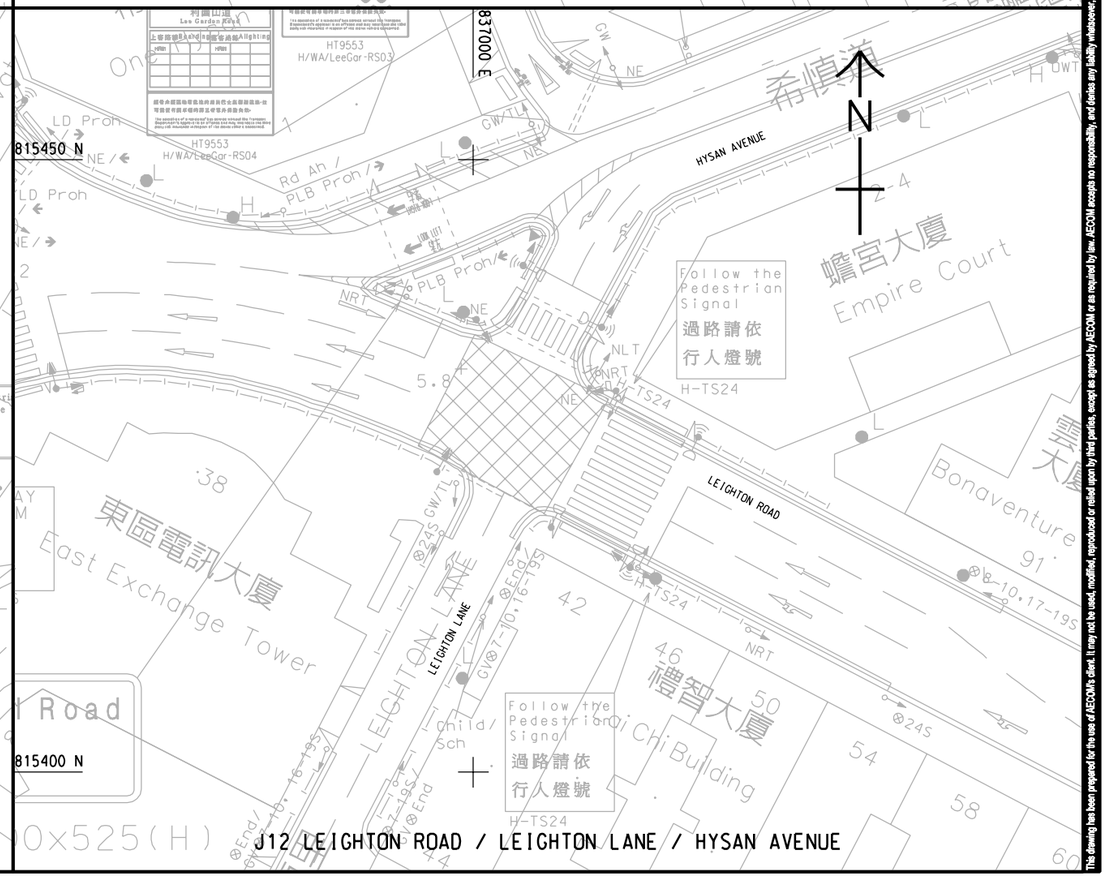
J9 LEIGHTON ROAD / WONG NAI CHUNG ROAD



J10 WONG NAI CHUNG ROAD / SPORTS ROAD



J11 LINK ROAD / BROADWOOD ROAD



J12 LEIGHTON ROAD / LEIGHTON LANE / HYSAN AVENUE

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ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT

SHEET 3 OF 5

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 3.4

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Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: LIUH9 2019/1/11
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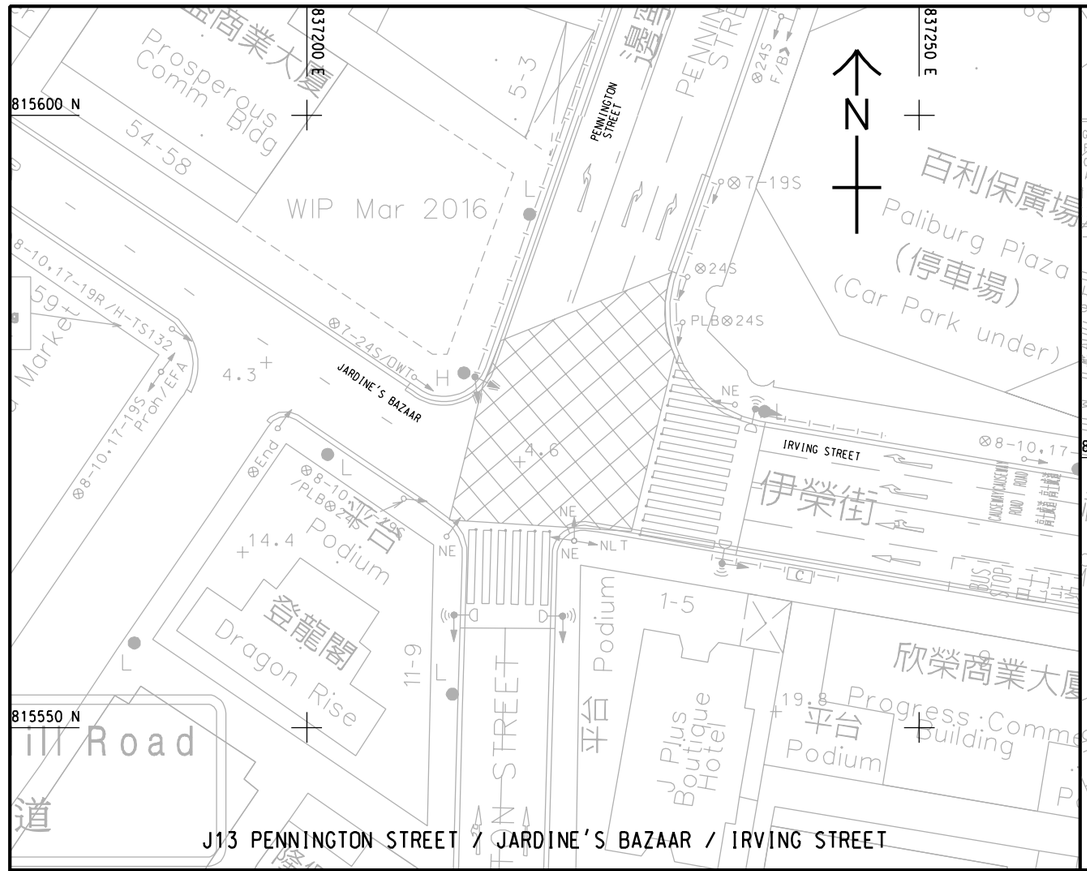
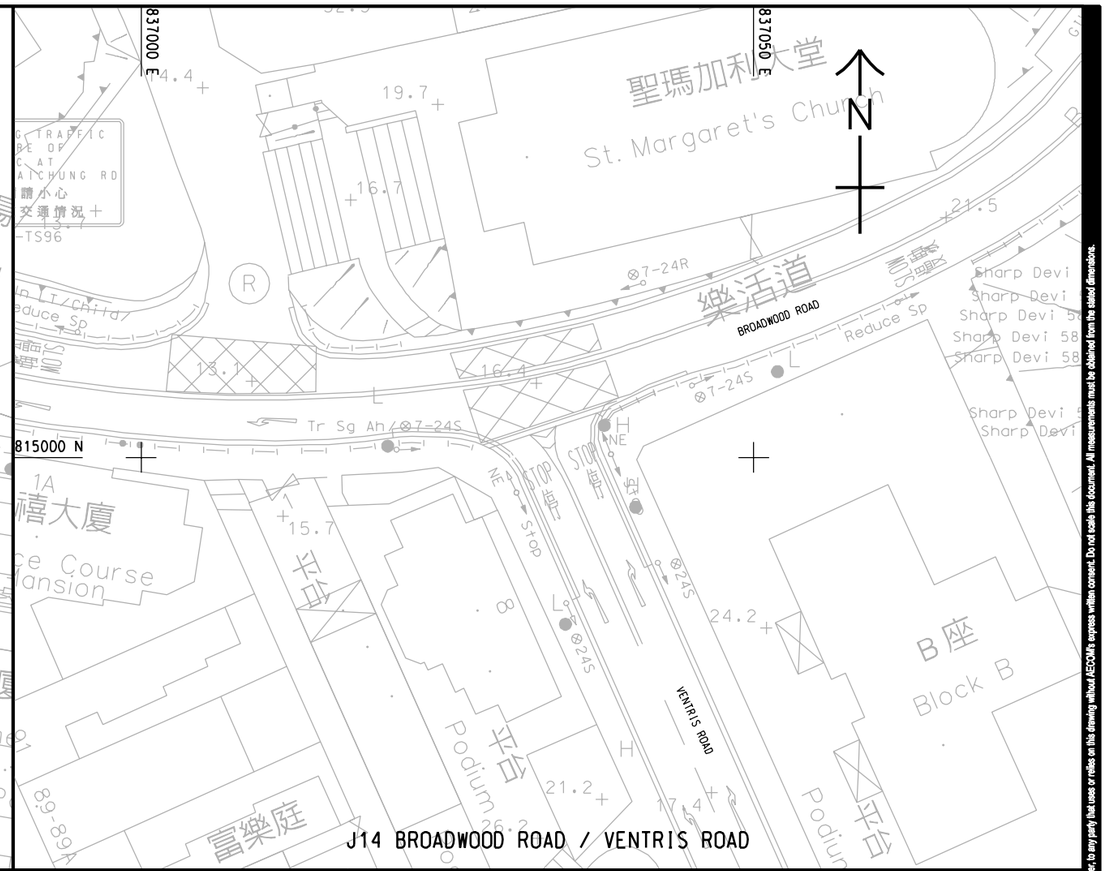
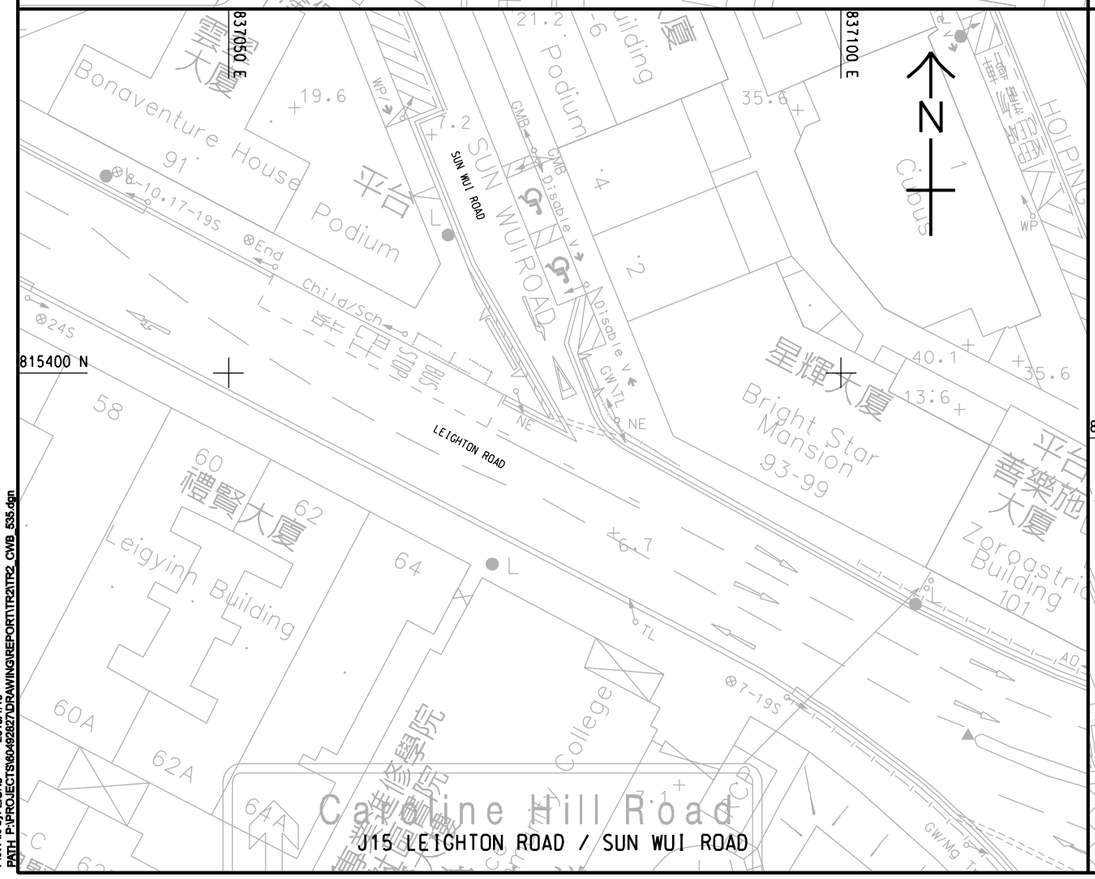


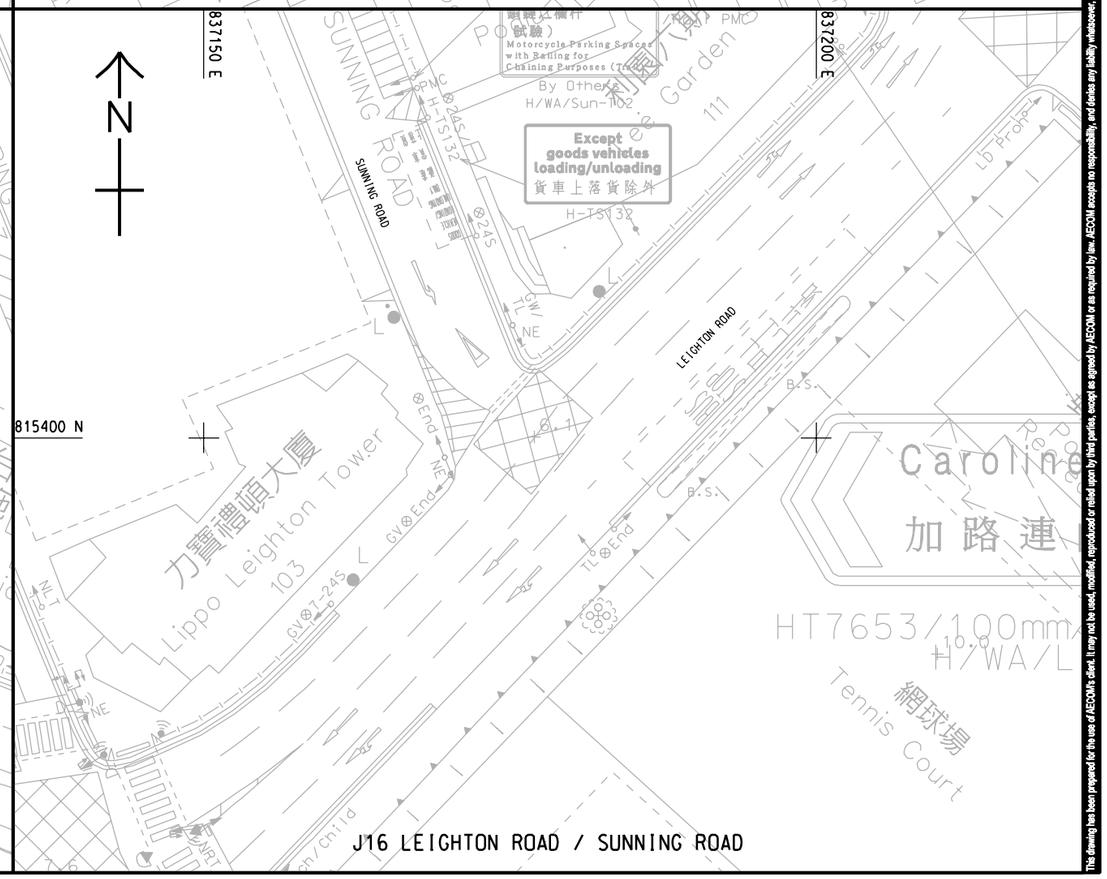
J13 PENNINGTON STREET / JARDINE'S BAZAAR / IRVING STREET



J14 BROADWOOD ROAD / VENTRIS ROAD



J15 LEIGHTON ROAD / SUN WUI ROAD



J16 LEIGHTON ROAD / SUNNING ROAD

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階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

EXISTING JUNCTION LAYOUT

SHEET 4 OF 5

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 3.5

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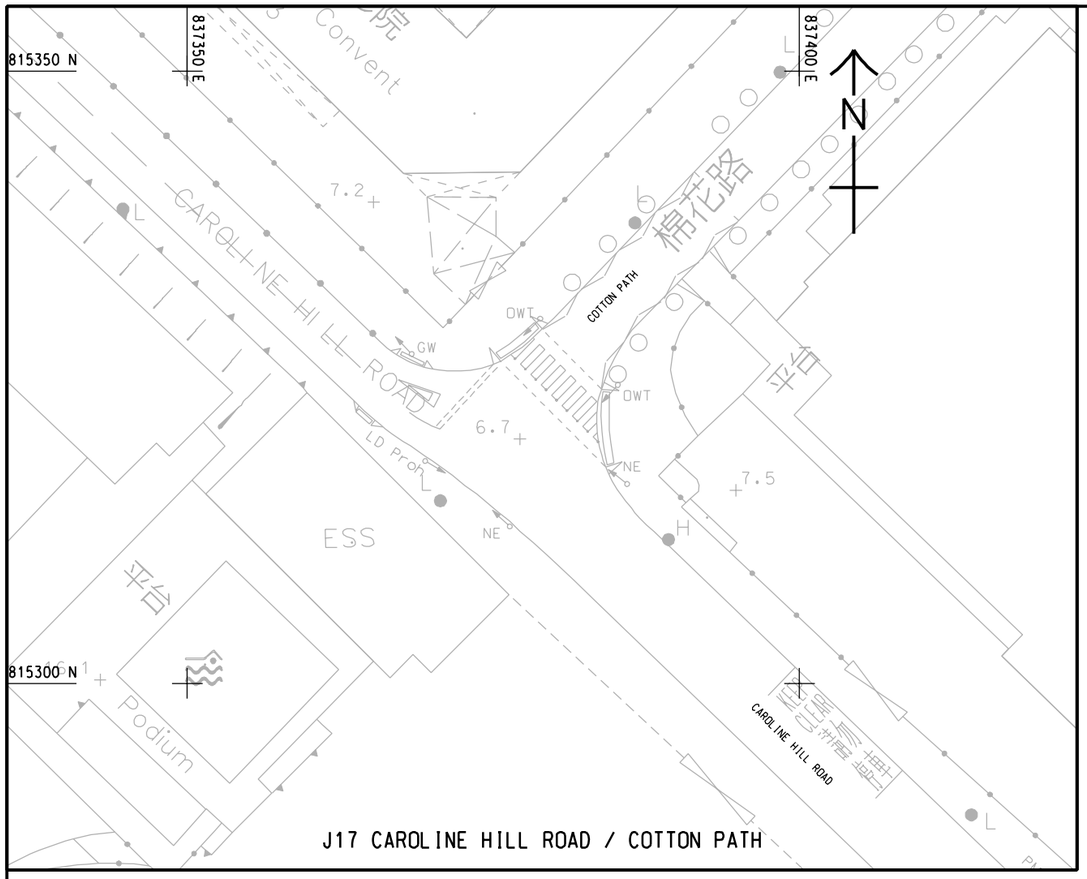
Plot File by: LIUH9 2019/1/15
PATH P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_535.dgn



J17 CAROLINE HILL ROAD / COTTON PATH

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

Plot File by: LUIH9 2019/1/11
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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

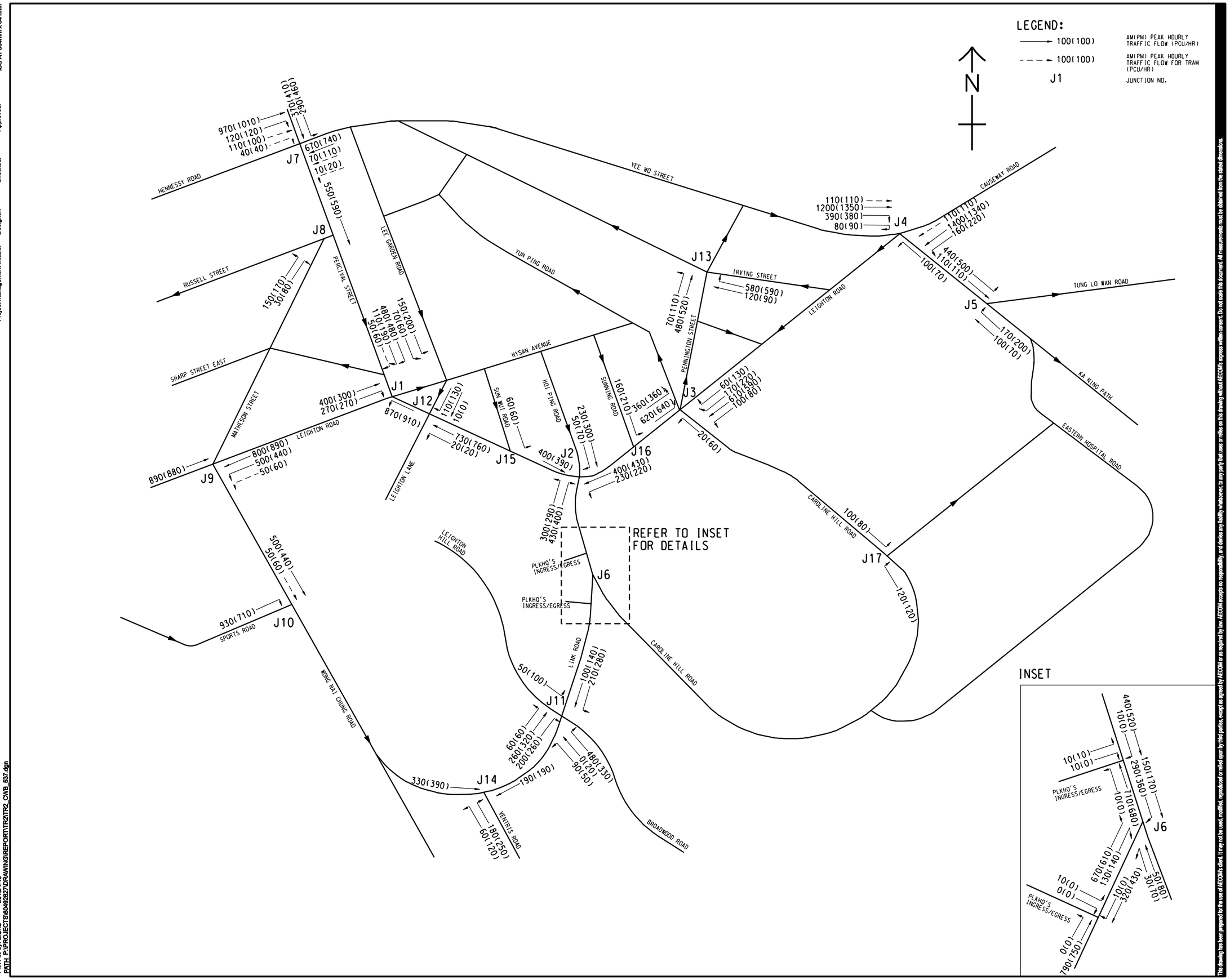
PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
EXISTING JUNCTION LAYOUT

SHEET 5 OF 5

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 3.6



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ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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STATUS
階段

SCALE 比例: SCHEMATIC

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

2017 OBSERVED TRAFFIC FLOWS

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 3.7

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Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: LIUH9 2019/1/15
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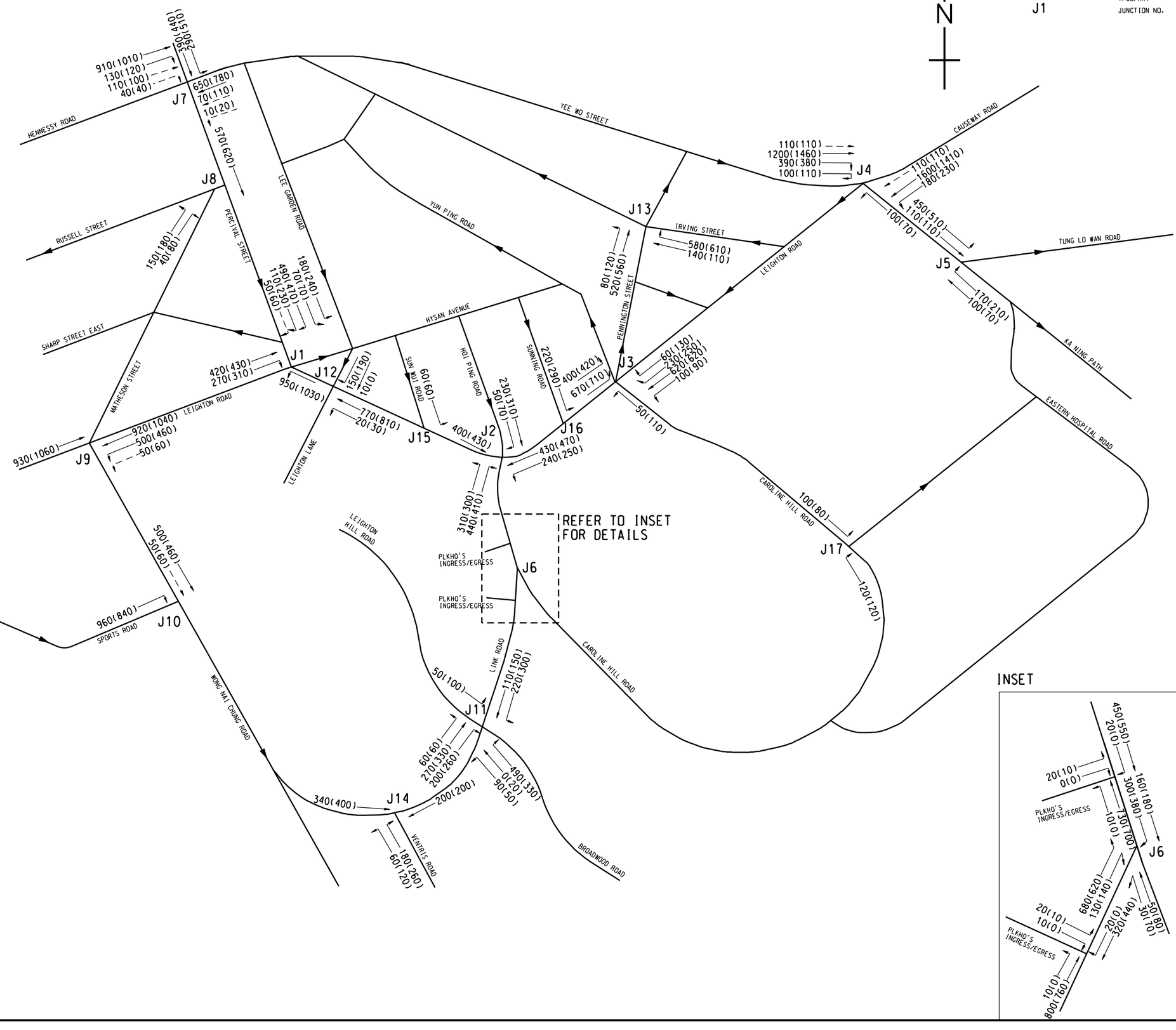
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



INSET

Plot File by: LUIH9 21/01/2019
PATH P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_541.dgn

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STATUS 階段

SCALE 比例: SCHEMATIC

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE 圖紙名稱

2031 REFERENCE TRAFFIC FLOWS

SHEET NUMBER 圖紙編號

60492827/TR2/CWB_FIGURE 4.1

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

LEGEND:

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

100(100) AM(PM) PEAK HOURLY TRAFFIC FLOW FOR TRAM (PCU/HR)

J1 JUNCTION NO.

N

HENNESSY ROAD
910(1010)
130(120)
110(100)
40(40)
260(210)
270(240)
170(150)
650(780)
70(110)
10(20)
600(650)
J7
J8
RUSSELL STREET
150(180)
40(80)
PERCIVAL STREET
LEE GARDEN ROAD
YEE WO STREET
YUN PING ROAD
220(280)
70(70)
480(450)
110(230)
50(60)
SHARP STREET EAST
HYSAN AVENUE
MATHESON STREET
500(530)
270(310)
J1
J12
1090(1170)
150(190)
10(0)
SUN WUI ROAD
60(60)
HOI PING ROAD
360(450)
50(70)
SUNNING ROAD
220(290)
400(420)
680(730)
J3
80(120)
540(580)
PENNINGTON STREET
J13
IRVING STREET
580(610)
140(110)
LEIGHTON ROAD
110(110)
1220(1470)
390(380)
110(120)
J4
CAUSEWAY ROAD
110(110)
1760(1460)
180(230)
450(510)
110(110)
100(70)
J5
TUNG LO WAN ROAD
240(280)
100(70)
KA NING PATH
EASTERN HOSPITAL ROAD
1010(1160)
J9
1040(1170)
500(460)
50(60)
LEIGHTON ROAD
910(960)
20(30)
J15
J2
400(430)
LEIGHTON LANE
J16
490(530)
350(280)
60(130)
210(250)
220(650)
160(110)
100(90)
60(20)
J18
110(170)
60(60)
70(80)
50(110)
0(0)
CAROLINE HILL ROAD
170(150)
J17
120(120)
380(380)
460(430)
REFER TO INSET
FOR DETAILS
TO/FROM
THE SITE
PLKHO'S
INGRESS/EGRESS
J6
PLKHO'S
INGRESS/EGRESS
500(460)
50(60)
960(840)
SPORTS ROAD
J10
LEIGHTON
HILL ROAD
LINK ROAD
CAROLINE HILL ROAD
WONG NAI CHUNG ROAD
50(100)
J11
110(150)
220(300)
60(60)
270(330)
200(260)
490(330)
0(20)
90(50)
340(400)
J14
200(200)
VENTRIS ROAD
180(260)
60(120)
BROADWOOD ROAD

INSET

280(210)
160(180)
250(340)
20(0)
20(10)
0(0)
PLKHO'S
INGRESS/EGRESS
150(150)
50(40)
J6
PLKHO'S
INGRESS/EGRESS
20(10)
10(0)
20(0)
320(440)
50(80)
30(70)
10(0)
810(760)

Plot File by: LUJH9 21/01/2019
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STATUS
狀況

SCALE 比例: SCHEMATIC
DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827
AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱
2031 DESIGN TRAFFIC FLOWS

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 4.2

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

LEGEND:

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

100(100) AM(PM) PEAK HOURLY TRAFFIC FLOW FOR TRAM (PCU/HR)

J1 JUNCTION NO.

N

HENNESSY ROAD
YEE WO STREET
CAUSEWAY ROAD
LEE GARDEN ROAD
YUN PING ROAD
IRVING STREET
LEIGHTON ROAD
TUNG LO WAN ROAD
RUSSELL STREET
PERCIVAL STREET
HYSAN AVENUE
PENNINGTON STREET
SHARP STREET EAST
MATHESON STREET
SUN HUI ROAD
HOI PING ROAD
SUNNING ROAD
KA NING PATH
EASTERN HOSPITAL ROAD
LEIGHTON LANE
LEIGHTON HILL ROAD
CAROLINE HILL ROAD
SPORTS ROAD
WONG NAI CHUNG ROAD
LINK ROAD
VENTRIS ROAD
BROADWOOD ROAD

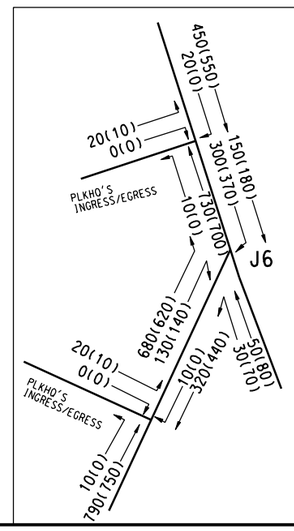
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10 J11 J12 J13 J14 J15 J16 J17 J18

900(1000)
130(120)
110(100)
40(40)
290(510)
290(140)
650(780)
70(110)
10(20)
560(620)
150(180)
40(180)
180(240)
70(70)
490(460)
110(250)
50(60)
420(430)
270(300)
970(1040)
930(1050)
500(460)
50(60)
920(1060)
500(460)
50(60)
960(830)
150(130)
10(0)
190(830)
20(30)
60(60)
400(430)
300(300)
440(410)
230(300)
50(70)
220(290)
400(420)
660(700)
450(490)
240(250)
80(120)
520(560)
110(110)
1200(1450)
380(380)
100(110)
580(610)
140(110)
60(130)
230(250)
610(610)
150(140)
70(120)
100(90)
50(50)
20(20)
30(30)
50(100)
0(0)
130(110)
120(120)
100(70)
110(110)
1630(1450)
180(230)
450(500)
110(100)
200(230)
100(70)
50(100)
110(150)
210(300)
60(60)
270(320)
200(260)
340(400)
200(200)
480(330)
0(20)
90(50)
180(250)
60(120)

REFER TO INSET FOR DETAILS

PLKHO'S INGRESS/EGRESS
PLKHO'S INGRESS/EGRESS

INSET



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CLIENT 業主
路政署 HIGHWAYS DEPARTMENT

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ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS 狀況

SCALE 比例: SCHEMATIC
DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60492827
AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE 圖紙名稱
2026 REFERENCE TRAFFIC FLOWS

SHEET NUMBER 圖紙編號
60492827/TR2/CWB_FIGURE 6.1

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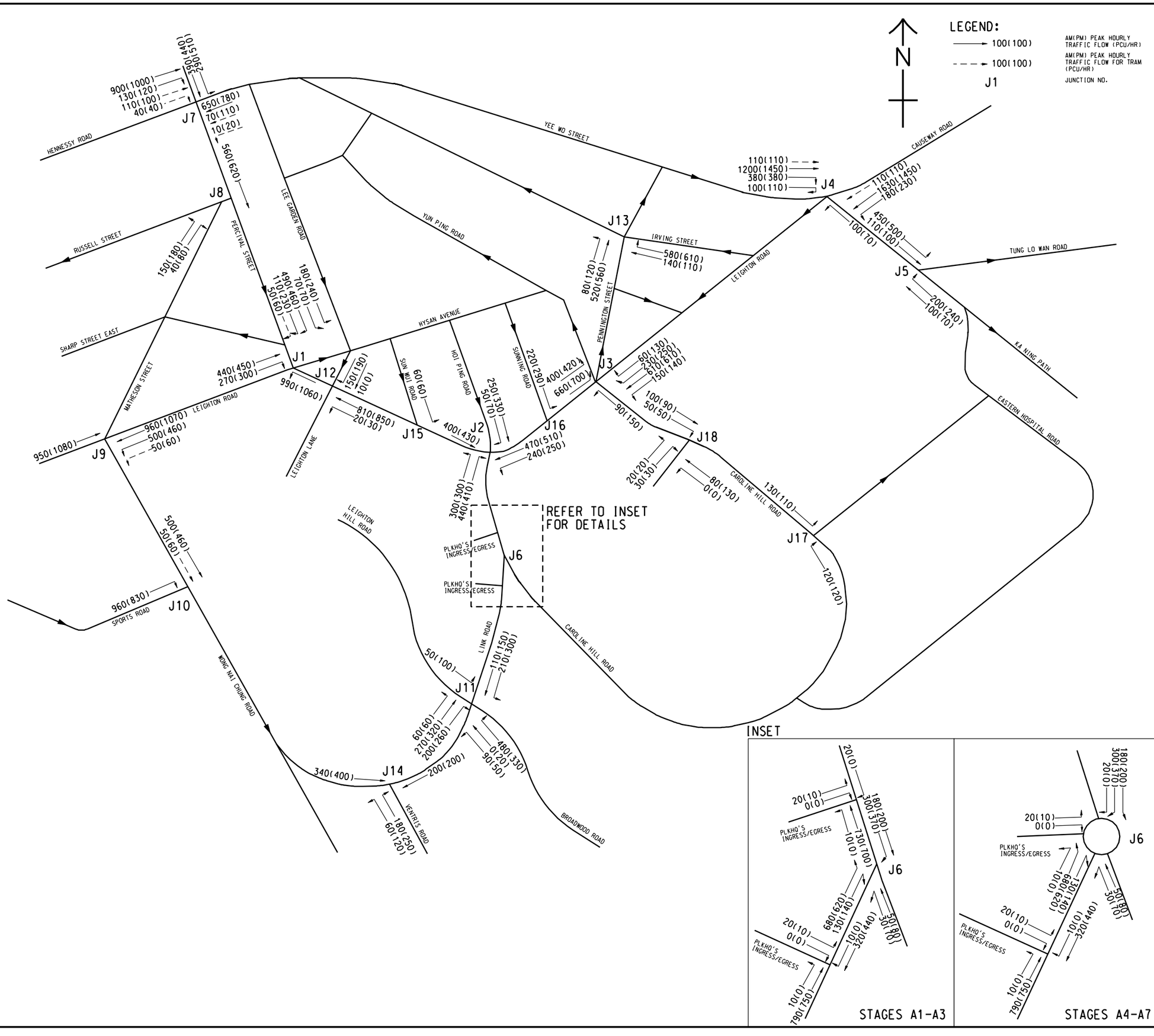
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm



Plot File by: LIUHB 2019/1/15
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STATUS 狀態

SCALE 比例: SCHEMATIC

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN 索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE 圖紙名稱

2026 DESIGN TRAFFIC FLOWS

SHEET NUMBER 圖紙編號

60492827/TR2/CWB_FIGURE 6.2

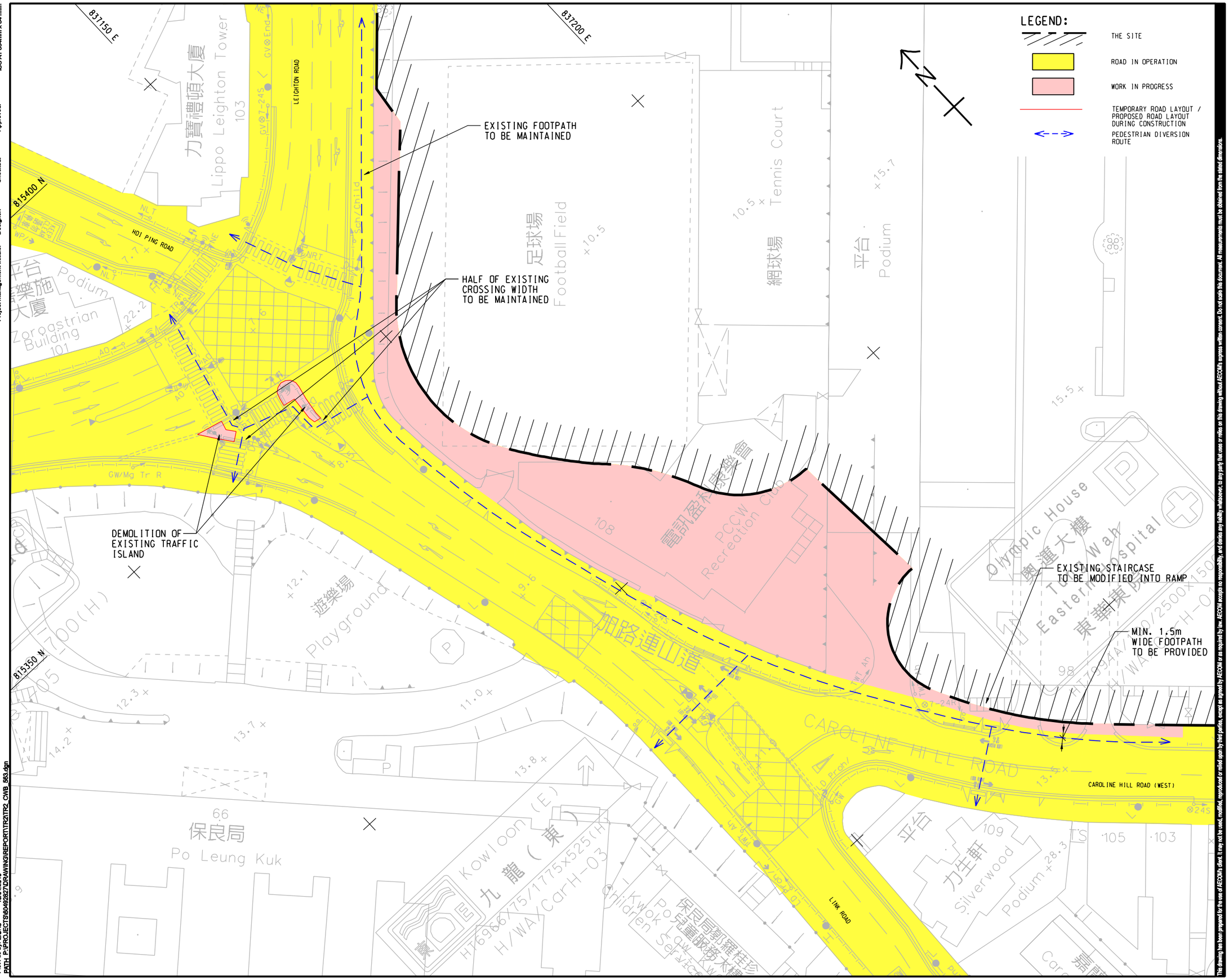
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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STATUS
狀態

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
TTA FOR PROPOSED ROAD SCHEME - STAGE A1

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 6.3

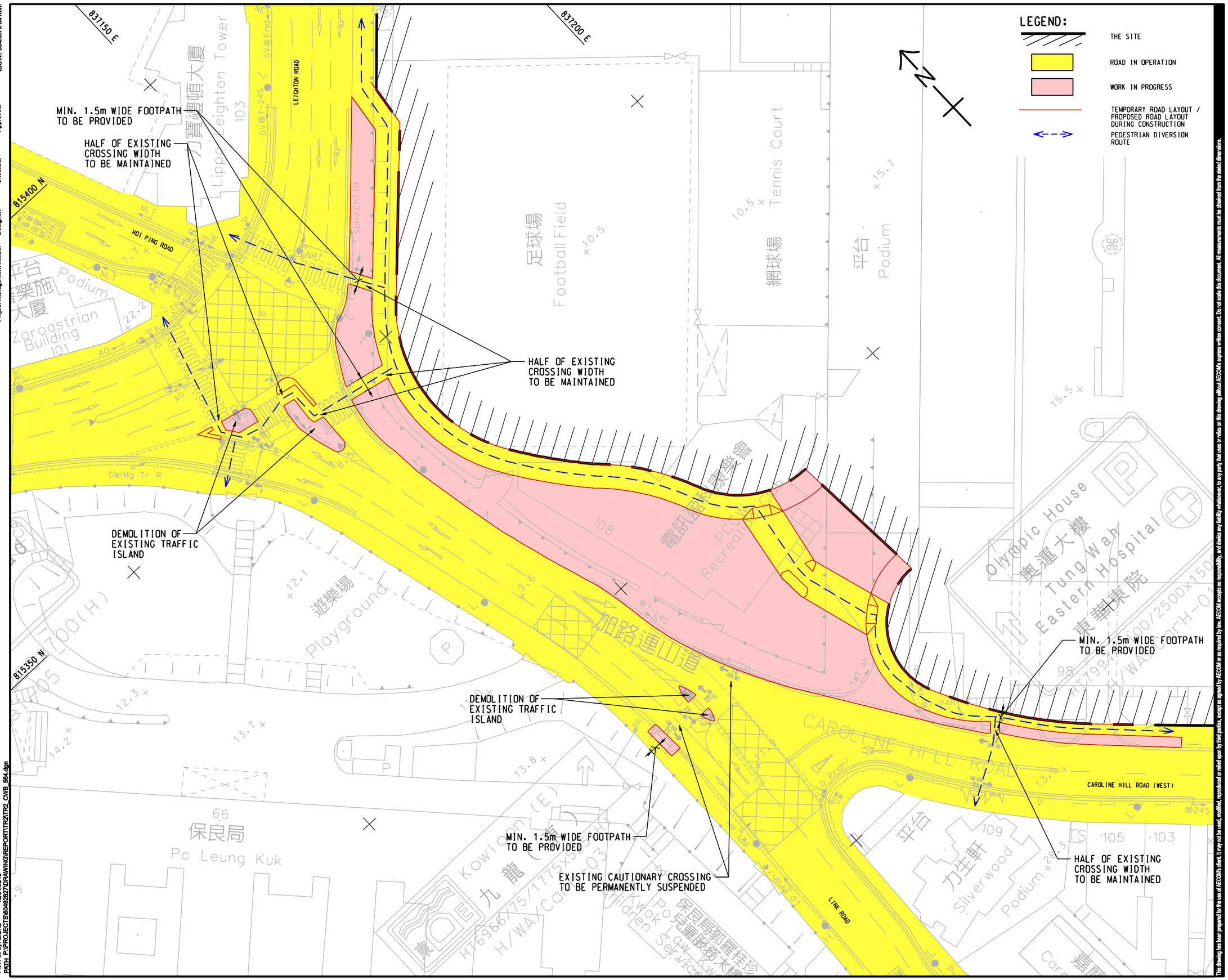
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LUI HB 19/01/2019
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STATUS
狀態

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

TTA FOR PROPOSED ROAD SCHEME - STAGE A2

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 6.4

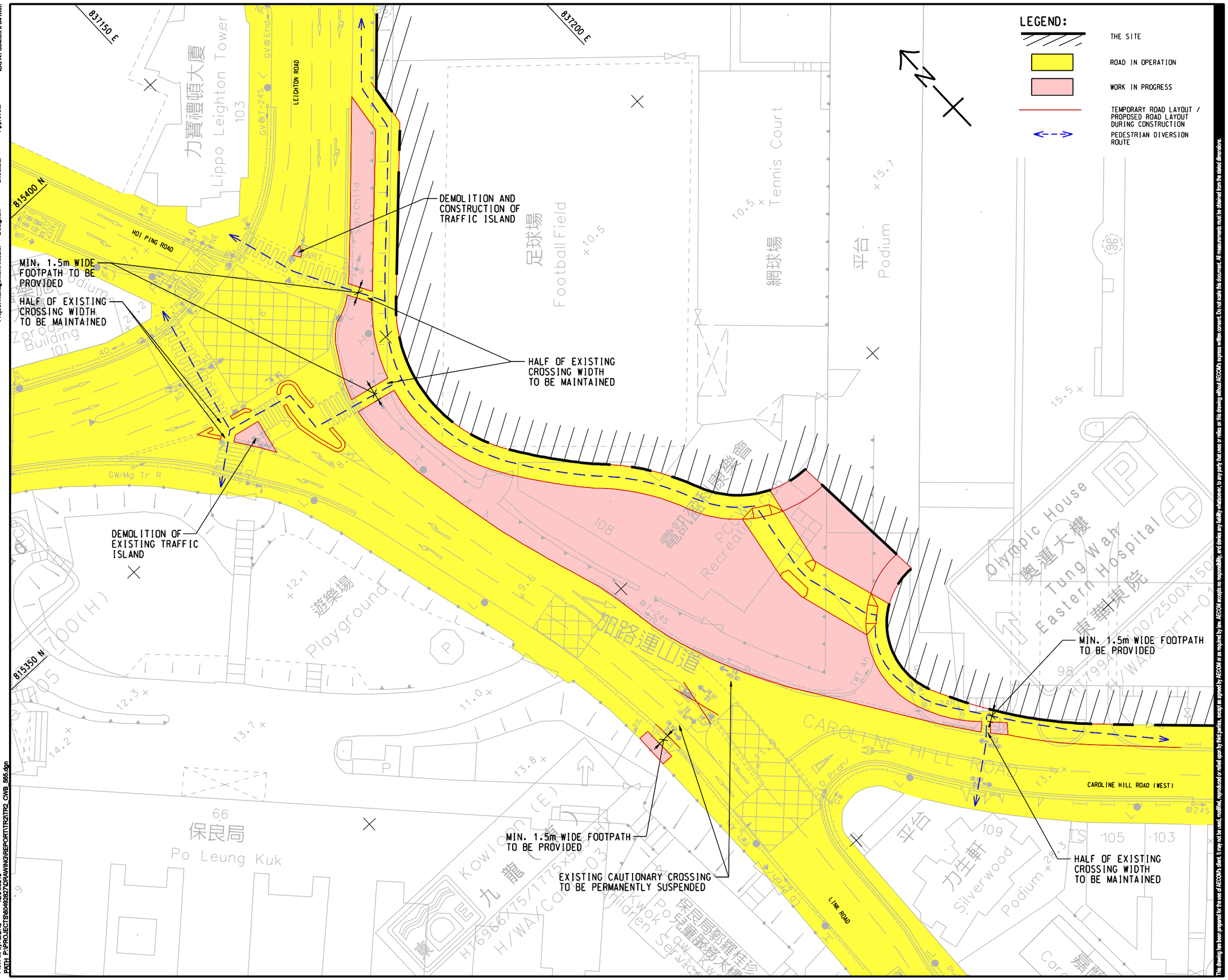
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LUI HB 18/01/2019
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STATUS
狀態

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
TTA FOR PROPOSED ROAD SCHEME - STAGE A3

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 6.5

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

837150 E

837200 E

815400 N

815350 N

LEIGHTON ROAD

HOI PING ROAD

CAROLINE HILL ROAD (WEST)

LINK ROAD

力寶禮頓大廈
Lippo Leighton Tower
103

足球場
Football Field

網球場
Tennis Court

平台
Podium

遊樂場
Playground

保良局
Po Leung Kuk

HALF OF EXISTING CROSSING WIDTH TO BE MAINTAINED

CONSTRUCTION OF TRAFFIC ISLAND

TEMPORARY U-TURN TO BE PROVIDED

CONSTRUCTION OF TRAFFIC ISLAND

LEGEND:

- THE SITE
- ROAD IN OPERATION
- WORK IN PROGRESS
- TEMPORARY ROAD LAYOUT / PROPOSED ROAD LAYOUT DURING CONSTRUCTION
- PEDESTRIAN DIVERSION ROUTE

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STATUS
階段

SCALE 比例: A3 1 : 500

DIMENSION UNIT 尺寸單位: METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60492827

AGREEMENT NO. 協議編號: CE57/2015(HY)

SHEET TITLE
圖紙名稱

TTA FOR PROPOSED ROAD SCHEME - STAGE A4

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 6.6

Plot File by: LUH8 21/01/2019
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_566.dgn

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

HALF OF EXISTING CROSSING WIDTH TO BE MAINTAINED

HALF OF EXISTING CROSSING WIDTH TO BE MAINTAINED

CONSTRUCTION OF TRAFFIC ISLAND

CONSTRUCTION OF TRAFFIC ISLAND

837150 E

837200 E

815400 N

815350 N

LEIGHTON ROAD

HOI PING ROAD

CAROLINE HILL ROAD (WEST)

LINK ROAD

力寶禮頓大廈 Lippo Leighton Tower 103

足球場 Football Field

網球場 Tennis Court

平台 Podium

遊樂場 Playground

保良局 Po Leung Kuk 66

Zoroastrian Building 101

奧運大樓 Olympic House

東華東院 Tung Wah Eastern Hospital

力生軒 Silverwood

九龍（東） Kowloon (E)

LEGEND:

THE SITE

ROAD IN OPERATION

WORK IN PROGRESS

TEMPORARY ROAD LAYOUT / PROPOSED ROAD LAYOUT DURING CONSTRUCTION

PEDESTRIAN DIVERSION ROUTE

Plot File by: LUIHB 22/01/2019
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_587.dgn

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STATUS
狀況

SCALE
比例
A3 1 : 500

DIMENSION UNIT
尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號
60492827

AGREEMENT NO.
協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
TTA FOR PROPOSED ROAD SCHEME - STAGE A5

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 6.7

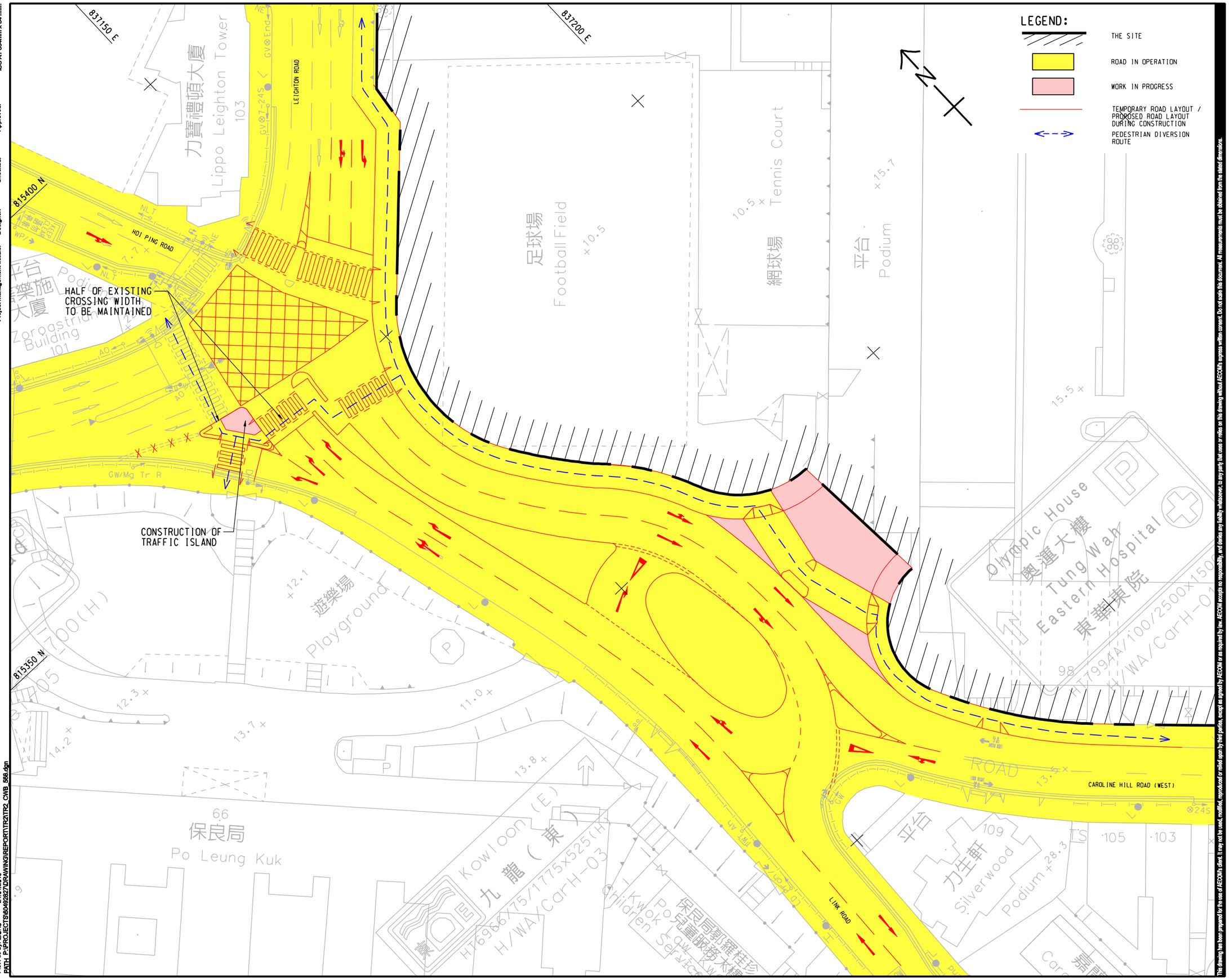
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LUIHB 21/01/2019
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_586.dgn

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STATUS
狀況

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

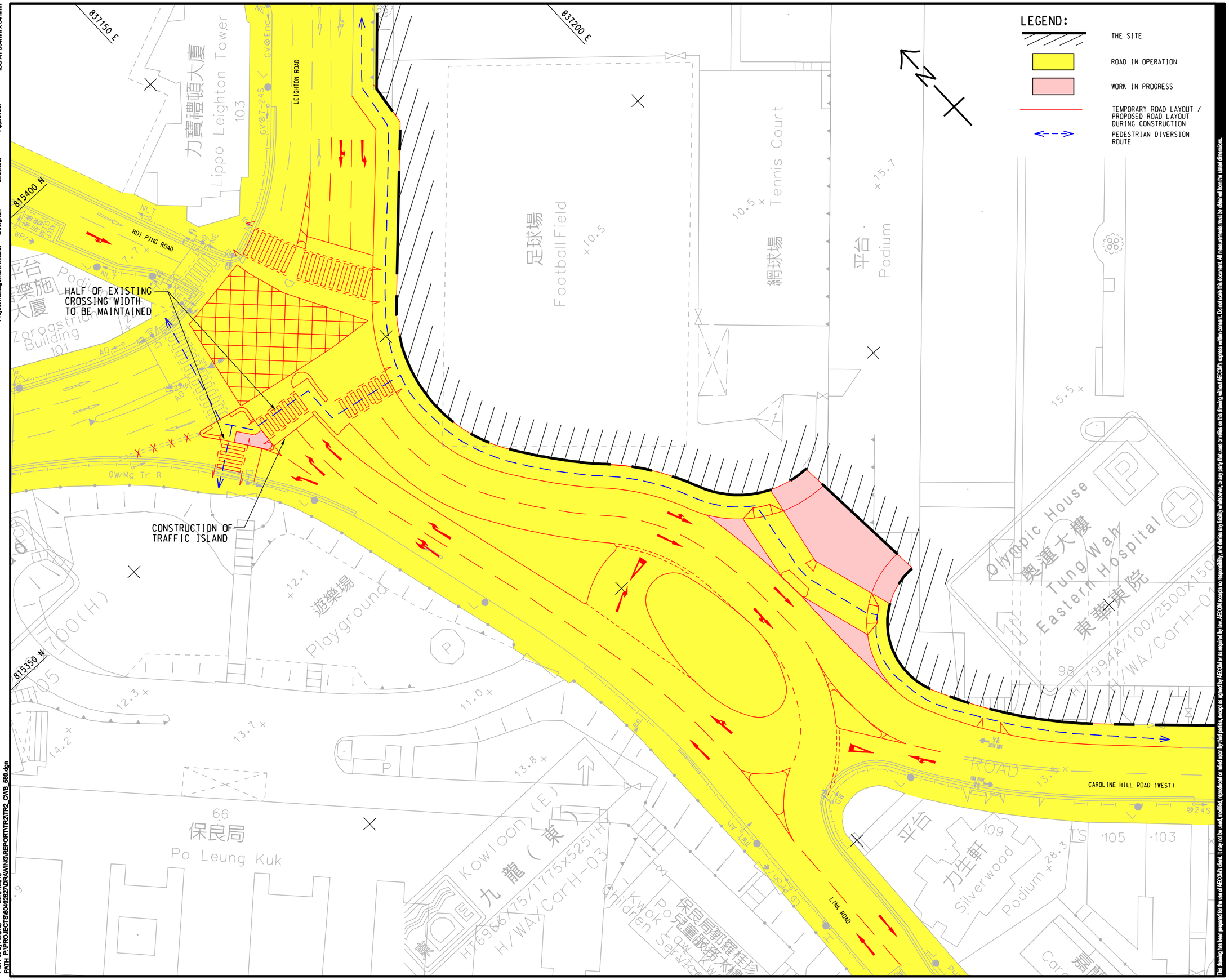
AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱

TTA FOR PROPOSED ROAD SCHEME - STAGE A6

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 6.8



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STATUS
階段

SCALE
比例

DIMENSION UNIT
尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號
60492827

AGREEMENT NO.
協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱

TTA FOR PROPOSED ROAD SCHEME - STAGE A7

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 6.9

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Plot File by: LIUH9 22/01/2019
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_569.dgn

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:

LEGEND:

THE SITE

ROAD IN OPERATION

WORK IN PROGRESS

EXISTING FOOTPATH TO BE MAINTAINED

HAVEN STREET

希雲街

CAROLINE HILL ROAD

加路連山道

837300 E

837350 E

815450 N

815400 N

2-30

38

1-5

7-19

禮希大樓
Lei Ha Court

23-33

禮雲大廈
Lei Wen Court

職員宿舍
Staff Quarters

聖保祿修院
St Paul's Convent
33

禮信大廈
Leishun Court

平台
Podium

禮加大樓
Lei Kwa Court

加路連大樓
Caroline Hill Court

郵政體育會
Post Office Recreation Club

燒烤地點
Barbecue Area

網球場
Tennis Court

民眾安全服務處
Civil Aid Service
100

HT7653/100mm/≤300/≤700/仆/WA/Le:-06

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ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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STATUS
狀況

SCALE
比例

A3 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60492827

AGREEMENT NO.
協議編號

CE57/2015(HY)

SHEET TITLE
圖紙名稱

TTA FOR PROPOSED ROAD SCHEME - STAGE B1

SHEET NUMBER
圖紙編號

60492827/TR2/CWB_FIGURE 6.10

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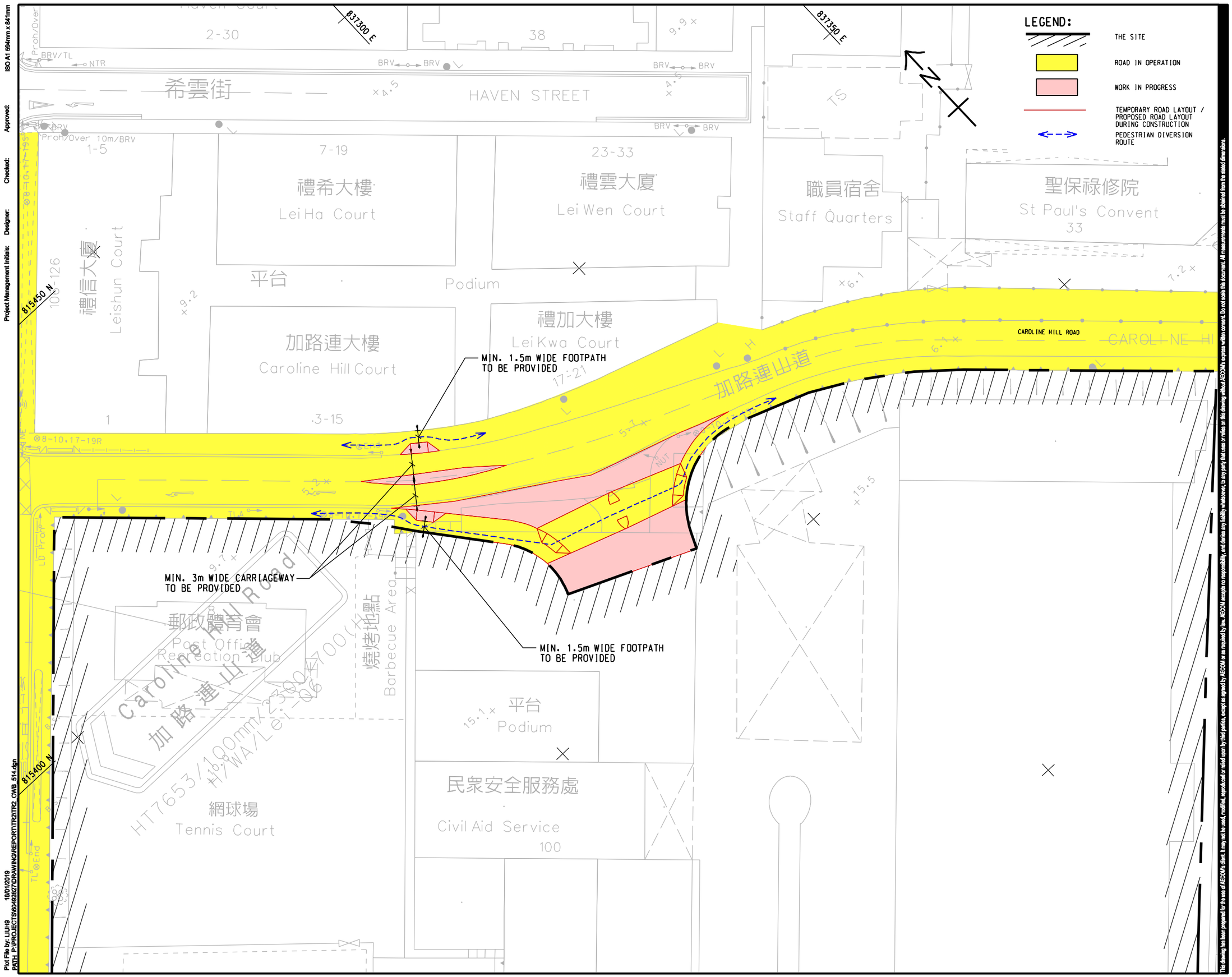

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

Plot File by: LUI HB 18/01/2019
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STATUS
階段

SCALE 比例
A3 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
TTA FOR PROPOSED ROAD SCHEME - STAGE B2

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 6.11

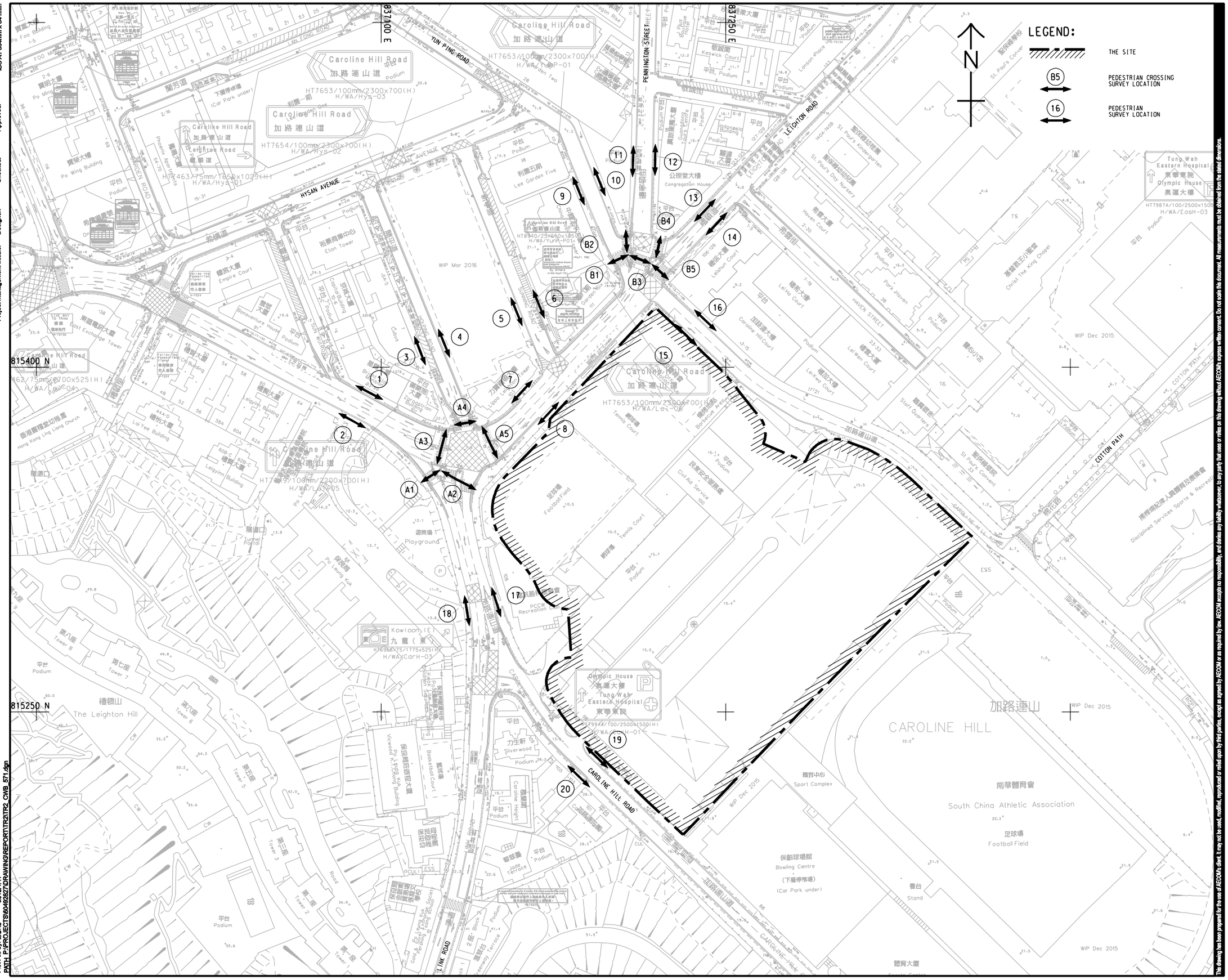
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



Plot File by: LUH9 2019/1/11
PATH: P:\PROJECTS\60492827\DRAWING\REPORT\TR2\TR2_CWB_571.dgn

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PROJECT
項目

ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

CLIENT
業主

路政署 HIGHWAYS DEPARTMENT

CONSULTANT
工程顧問公司

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核對

STATUS
階段

SCALE 比例
A3 1 : 1500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
INDEX FOR PEDESTRIAN FOOTPATHS AND CROSSINGS

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 7.1

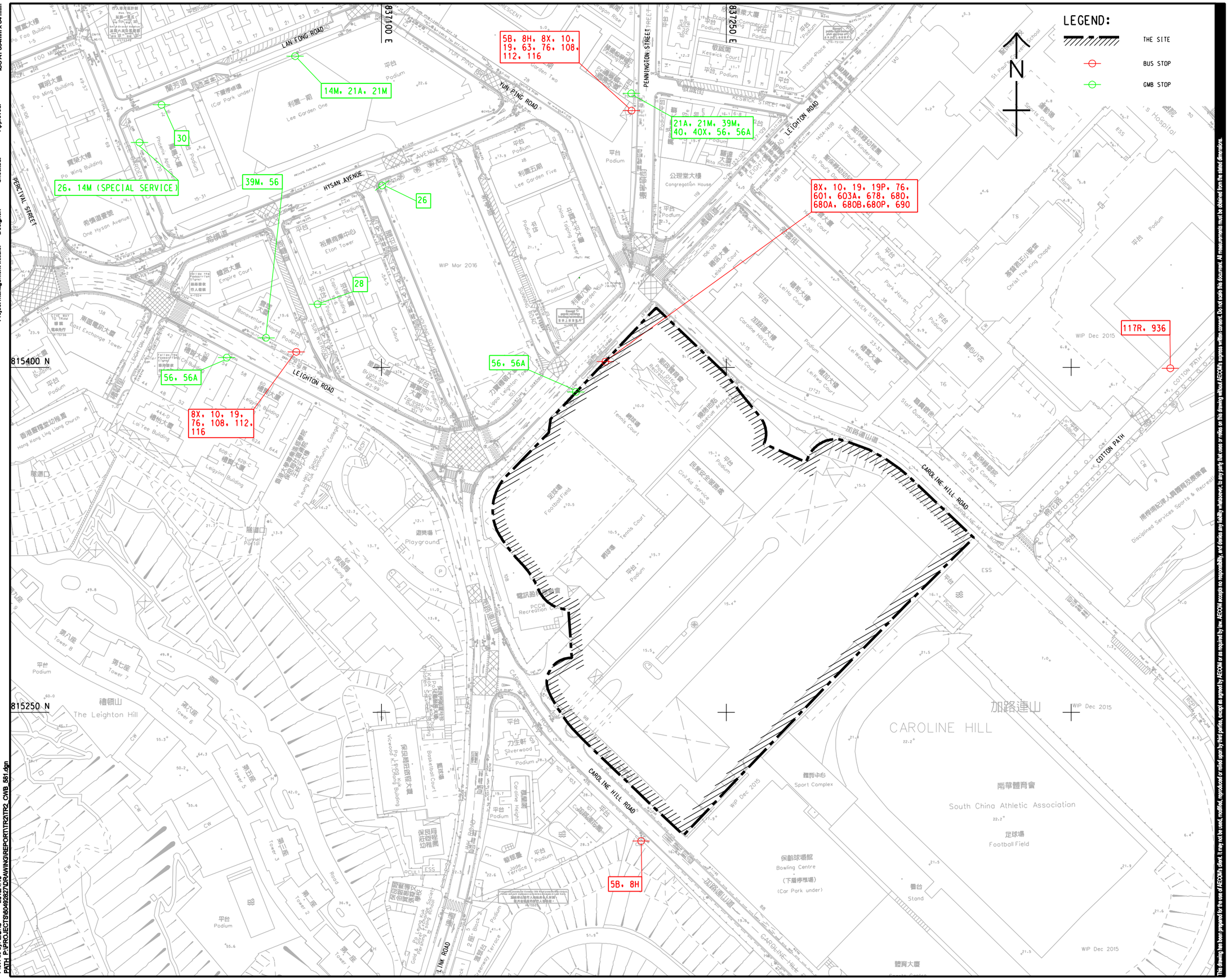
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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PROJECT
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ROAD WORKS IN CONNECTION WITH PROPOSED SITES FOR HOUSING / COMMERCIAL DEVELOPMENT (PACKAGE1) - FEASIBILITY STUDY

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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
狀況

SCALE 比例
A3 1 : 1500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60492827

AGREEMENT NO. 協議編號
CE57/2015(HY)

SHEET TITLE
圖紙名稱
EXISTING PUBLIC TRANSPORT FACILITIES

SHEET NUMBER
圖紙編號
60492827/TR2/CWB_FIGURE 8.1

Appendix A

Model Validation Results

Appendix A - Model Validation Results

Junction		AM				PM			
		OBS	MOD	MOD/OBS	GEH	OBS	MOD	MOD/OBS	GEH
Hennessy Road / Percival Street									
Hennessy Road East	In	1240	1071	0.9	5	1267	1265	1.0	0
Hennessy Road West	In	745	701	0.9	2	869	757	0.9	4
Percival Street North	In	662	704	1.1	2	872	822	0.9	2
ENTRY ARM - TOTAL		2647	2476	0.9	3	3008	2844	0.9	3
Hennessy Road East	Out	1364	1197	0.9	5	1574	1606	1.0	1
Percival Street South	Out	552	595	1.1	2	589	506	0.9	4
Hennessy Road West	Out	731	684	0.9	2	845	732	0.9	4
EXIT ARM - TOTAL		2647	2476	0.9	3	3008	2844	0.9	3
Percival Street / Leighton Road									
Leighton Road East	In	660	719	1.1	2	566	615	1.1	2
Leighton Road West	In	868	799	0.9	2	912	894	1.0	1
Percival Street	In	856	925	1.1	2	984	905	0.9	3
ENTRY ARM - TOTAL		2384	2443	1.0	1	2462	2414	1.0	1
Leighton Road East	Out	1404	1388	1.0	0	1448	1342	0.9	3
Leighton Road West	Out	333	306	0.9	2	329	359	1.1	2
Sharp Street	Out	106	126	1.2	2	189	180	1.0	1
Hysan Avenue		541	623	1.2	3	496	533	1.1	2
EXIT ARM - TOTAL		2384	2443	1.0	1	2462	2414	1.0	1
Wong Nai Chung Road / Leighton Road									
Leighton Road East	In	888	936	1.1	2	880	951	1.1	2
Leighton Road West	In	1350	1322	1.0	1	1388	1287	0.9	3
ENTRY ARM - TOTAL		2238	2258	1.0	0	2268	2238	1.0	1
Leighton Road East	Out	660	719	1.1	2	566	615	1.1	2
Wong Nai Chung Road	Out	552	460	0.8	4	503	451	0.9	2
Leighton Road West	Out	798	862	1.1	2	885	837	0.9	2
Matheson Street	Out	228	217	1.0	1	314	336	1.1	1
EXIT ARM - TOTAL		2238	2258	1.0	0	2268	2239	1.0	1
Caroline Hill Road / Link Road									
Caroline Hill Road South	In	456	506	1.1	2	524	558	1.1	1
Link Road	In	800	885	1.1	3	752	805	1.1	2
Caroline Hill Road North	In	82	75	0.9	1	146	162	1.1	1
ENTRY ARM - TOTAL		1338	1466	1.1	3	1422	1525	1.1	3
Caroline Hill Road South	Out	290	290	1.0	0	307	363	1.2	3
Link Road	Out	326	373	1.1	2	425	417	1.0	0
Caroline Hill Road North	Out	722	803	1.1	3	690	745	1.1	2
EXIT ARM - TOTAL		1338	1466	1.1	3	1422	1525	1.1	3
Caroline Hill Road / Leighton Road									
Leighton Road East	In	395	419	1.1	1	386	417	1.1	2
Caroline Hill Road	In	722	803	1.1	3	690	745	1.1	2
Leighton Road West	In	629	688	1.1	2	649	657	1.0	0
Hoi Ping Road	In	274	294	1.1	1	368	371	1.0	0
ENTRY ARM - TOTAL		2020	2204	1.1	4	2093	2190	1.0	2
Leighton Road East	Out	822	927	1.1	4	785	836	1.1	2
Caroline Hill Road	Out	450	500	1.1	2	523	552	1.1	1
Leighton Road West	Out	748	777	1.0	1	785	802	1.0	1
EXIT ARM - TOTAL		2020	2204	1.1	4	2093	2190	1.0	2
Pennington Street / Leighton Road									
Leighton Road East	In	925	880	1.0	1	1014	1105	1.1	3
Caroline Hill Road	In	982	898	0.9	3	998	1046	1.0	2
Leighton Road West	In	23	27	1.2	1	55	58	1.1	0
ENTRY ARM - TOTAL		1930	1805	0.9	3	2067	2209	1.1	3
Caroline Hill Road	Out	95	83	0.9	1	78	79	1.0	0
Leighton Road West	Out	629	633	1.0	0	649	735	1.1	3
Yun Ping Road	Out	525	429	0.8	4	578	511	0.9	3
Pennington Street	Out	681	660	1.0	1	762	884	1.2	4
EXIT ARM - TOTAL		1930	1805	0.9	3	2067	2209	1.1	3

Key Junctions Validation Summary

Validation Criteria	Target Values	Percentage of Key Junctions In/Out Flow within the Criteria	
		AM Peak	PM Peak
		Total	Total
GEH Statistics			
% of links with GEH 6 or less	70%	100%	100%
% of links with GEH 7 or less	80%	100%	100%
% of links with GEH 10 or less	100%	100%	100%

Attachment VI of
MPC Paper No. 1/19

VISUAL APPRAISAL ON REZONING OF THE CAROLINE HILL ROAD SITE, CAUSEWAY BAY, FOR COMMERCIAL USE AND DISTRICT COURT UNDER APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19

PLANNING DEPARTMENT
MARCH 2019

1. Purpose

1.1 The proposed amendments to the approved Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19 is to rezone the Caroline Hill Road (CHR) Site located at the junction of Leighton Road and CHR in Causeway Bay (the Site) for commercial use (Amendment Item A) and District Court (DC) (Amendment Item B) (**Plans A to C**).

1.2 The proposed amendments may have visual implication on the surrounding areas. The extent of visual impact depends on the layout, scale, form and massing etc. of the proposed developments and its spatial relationship with the overall townscape or surrounding landscape. The purpose of this visual appraisal is to illustrate the relationship of the proposed developments and their surrounding context and to assess the potential visual impact especially where visual amenities, visual resources and/or public viewers are affected.

2. Methodology

The visual impact of the Site is assessed by following the methodology set out in the Town Planning Board (TPB) Guidelines on Submission of Visual Impact Assessment for Planning Applications to the Town Planning Board (TPB PG-No. 41), which is summarised as follow:

(a) Review of the overall visual character within the wider existing and planned contexts of the areas in the Wong Nai Chung area where the Site is located.

(b) Appraise the effects of visual changes on the assessment area and sensitive public viewers. The appraisal will consider four aspects, (1) visual composition; (2) visual obstruction; (3) effect on public viewers; and (4) effect on visual resources.

(c) Illustration of the overall visual impact of the Site in the respective areas by using computer-generated photomontages to demonstrate the three-dimensional relationship of the proposed developments with the surrounding context.

3. The Proposals

3.1 The proposals are (i) to rezone the northern and eastern parts of the Site (area of about 1.60ha) from "Other Specified Uses" annotated "Sports and Recreation Club" ("OU(SRC)") and "Government, Institution or Community" ("G/IC") to "Commercial(2)" ("C(2)") and to revise the maximum building height (BH) from 2 and 3 storeys to 135mPD; and (ii) to rezone the remaining part of the Site (area of about 1.06ha) from "G/IC" to "G/IC(2)" and to revise the maximum BH from 3 storeys to 135mPD. The maximum total gross floor area (GFA) of the Site will be at 170,000m^2 (including 100,000m^2 for the commercial development and 70,000m^2 for the DC).

3.2 A new access road spanning across the Site will be constructed to serve the commercial development and the DC and open space of not less than 6,000m^2 will be provided within the commercial site. Two Old and Valuable Trees (OVTs) within the Site will be preserved in-situ. In addition, the masonry walls (including drainage pipes) at the northern, eastern and southern peripheries and tree growing on the stone wall will also be preserved in-situ without pre-empting the necessary road works. Besides, public facilities will be provided within the commercial site, including public car park and loading/unloading facilities for green minibus. The western boundary of the Site will be set back to provide space for road widening and improvement to the road junction of CHR (West) and Leighton Road.

3.3 To promote visual permeability, two building gaps are proposed in the conceptual layout (**Plan D**):

(a) a building gap of not less than 25m in width across the central portion of the "C(2)" site generally aligning with the OVT (No. HKP WCH/1) abutting Leighton Road; and

(b) a building gap of not less than 20m in width in a northwest-southeast direction generally aligning with the OVT (No. EMSD WCH/1) situated near the boundary of the "G/IC(2)" site.

3.4 The proposed access road across the Site in a northeast-southwest direction would also allow permeability and break up the building mass at the Site.

3.5 The exact alignments of the two building gaps are subject to findings of the quantitative air ventilation assessment to be carried out at the detailed design stage, while the exact alignment of the access road across the Site is subject to detailed design by future developer.

4. The Assessment

Baseline

4.1 The Site is located at the fringe of the core commercial/business area of Causeway Bay. It is occupied by the ex-Electrical and Mechanical Services Department (EMSD) Headquarters, the ex-Civil Aid Service (CAS) Headquarters, the ex-Post Office Recreation Club and the PCCW Recreation Club (**Plans A to C**). The Site is generally demarcated by two platforms at about 10mPD and 15mPD. The Site is generally occupied by low-rise buildings except a 11-storey building of the ex-EMSD Headquarters at the southwestern corner. There are two tennis courts and one football field within the recreation clubs adjacent to Leighton Road.

4.2 The areas to the north and northwest of the Site across Leighton Road are mainly high-rise commercial/office buildings which are zoned "C". These include the Lee Garden developments and the Lippo Leighton Tower. The areas to the east and south of the Site is a mixed-use area with commercial, residential, government, institution and community (GIC) uses, and sports and recreation clubs. These include the high-rise residential developments (with

commercial uses on lower floors) on both sides of Haven Street, the low- to high-rise GIC uses of St. Paul's Covent School and St. Paul's Hospital and the low-rise sports and recreation clubs, namely the Disciplined Services Sports and Recreation Club, Indian Recreation Club, and the South China Athletic Association (SCAA). The Hong Kong Stadium is located to the further south of the Site. To the southwest of the Site is mainly high-rise residential developments which is zoned "Residential (Group B)", including the Silverwood. To the west of the Site is mainly low- to high-rise GIC uses of Po Leung Kuk zoned "G/IC, and the high-rise residential development, Leighton Hill, is located to further west.

Visual Envelope

4.3 The extent of the assessment area is determined by the size of development, the site context and the distance and location of the sensitive viewers. The Site is located at the fringe of the core commercial/business area of Causeway Bay bordering the generally open areas of various sports and recreation uses to the south and high-rise residential developments to the west and southwest. The Site is largely visible from the surrounding areas and natural terrain to the further southwest, i.e. Mount Cameron, and is defined by the ridgelines/peaks as backdrop as formed by the natural terrain to the further southwest, i.e. Mount Cameron, from the Kowloon side. The assessment area is therefore not limited to the surrounding public viewing point but extended to the opposite side of the harbour. The Site can also be viewed from popular open space, i.e. Victoria Park and Hong Kong Stadium, in the vicinity.

Viewing Points (VPs)

4.4 In light of the widespread visual envelop, viewing points with direct sightlines to the Site including popular open space and recreation facility, Leighton Road and Sunning Road which are the major travel routes in the area, the Hong Kong Stadium and Victoria Park are selected as main local VPs in the visual appraisal whereas the VP from Stubbs Road Lookout provides a panoramic view of the proposed development and the skyline when viewing towards Victoria Harbour from the green backdrop of Mount Cameron. Happy Valley Recreation Ground, being a sizable popular public open space in the vicinity, is also selected as one of the VPs. Besides, one strategic viewing point from the Cultural Complex in Tsim Sha Tsui as specified in the Hong Kong Planning Standards and Guidelines (HKPSG) is also included in the visual appraisal to assess if there are any visual implications on the ridgelines and the Harbour (**Plan E**).

Important Visual Elements

4.5 Visual elements of amenity value in the context of the Site include the Victoria Harbour, ridgelines, Victoria Park and some landmark buildings including the 'funnel-shape' building at SCAA.

Appraisal of Visual Changes

Overview of Visual Composition

4.6 The visual context of the Site is characterised by high-rise commercial, residential and GIC developments with low- and medium rise residential, recreation and institutional uses with some parks and sports grounds situated in between. These developments include Lee Garden One (210mPD), Times Square Tower One (199mPD), HKU Space Po Leung Kuk Stanley Ho Community College (90mPD), Leishun Court (44mPD), Park Haven (100mPD), St. Paul's Hospital (118mPD), the SCAA (91mPD), Leighton Hill (171mPD) and Silverwood (108mPD). The proposed development with a BH restriction of 135mPD is in general compatible with the character in the wider context given its fringe location at the core commercial/business area and will unlikely change the visual composition of the area. It would be seen as an extension to the commercial/ business area to the further southeast of the area.

Overview of Visual Obstruction

4.7 The proposed redevelopment would not intrude the ridgeline when viewed from the strategic VP from across the harbour at the Hong Kong Cultural Centre and would not affect the view to the Victoria Harbour when viewed from the Stubbs Road Lookout. However, when viewed from VPs within the Causeway Bay area, there would have some localised visual obstruction and residential developments at the backdrop. While the proposed BH of 135mPD is not incompatible with the surrounding, the proposed building gaps and new access road could reduce the building mass of the proposed developments and provide a visual corridor/relief through the centre of the Site.

VP1

4.8 VP1 (**Plan F**) is at Leighton Road, located near the junction of Leighton Road and Hysan Avenue and is about 240m from the Site. It is easily accessible and pedestrians would get a close up view to the proposed development en-route to their destination. The sensitivity of the viewers from this VP is "low" as it is of transient nature.

4.9 The junction is lined by medium- to high-rise buildings. When viewed from VP1, the medium and high-rise towers frame the view in the foreground with open sky and long-range views to developments at a distance in the background. Upon redevelopment, the proposed development is not incompatible with the surrounding medium-high rise developments. However, a major portion of the sky view along most sections of Leighton Road will be obstructed by the proposed commercial towers.

4.10 The view would be significantly changed as the proposed development would reduce much of the visual openness along most sections of Leighton Road and given that VP1 is in close proximity to the Site, the effect of the visual change would be substantial. To mitigate the impact, it is required that a building gap of not less than 25m to be incorporated in the commercial development together with the widened section of CHR (West) near the junction with Link Road to

break up the visual mass and help retain certain visual openness. The requirement for provision of 6,000m^2 open space, preservation of the existing masonry walls, OVT and vegetation will also mitigate the visual impact by setting back the development from Leighton Road and providing visual relief. Besides, in a wider context, although the development will diminish the visual openness of the view at close-range, the proposed development is not incompatible in scale and proportion with the predominately high-rise context of the area.

VP2

4.11 VP2 (**Plan G**) is from the steps at the entrance of Hong Kong Stadium, which is sometimes visited by the locals and tourists during events. It is about 390m to the Site. The sensitivity of the viewers from this VP is "medium".

4.12 The SCAA with the signature 'funnel-shape' building is located at the foreground with a mix of commercial and residential developments such as Times Square and open view at the backdrop. The proposed development is not incompatible with the surrounding commercial and residential developments, including Times Square (199mPD), Windsor House (139mPD) and The Leighton Hill (171mPD). Upon redevelopment, the proposed development would potentially obstruct the views from the existing commercial developments to the north of the Site, i.e. Lee Garden One and Hysan Place and the partial view.

4.13 The view that is currently enjoyed by the pedestrians would change and the visual change would be moderate. The existing commercial developments to the north of the Site and the open view would be partially blocked though the visual openness of the area can generally be maintained. The building gaps of not less than 20m and 25m at the Site would provide visual permeability towards commercial buildings in Causeway Bay. The proposed BH is also not incompatible with the surrounding developments including Leighton Hill, Times Square and Lee Garden One.

VP3

4.14 VP3 (**Plan H**) is at the Victoria Park in Causeway Bay, which is a popular and sizeable open space, easily accessible and frequently visited by the locals and tourists. It is about 460m to the Site. The sensitivity of the viewers from this VP is "high".

4.15 The view currently consists of open-air ball courts in the foreground with a buffer of landscaping, trees, and roadside vegetation in middle-ground flanked by high-rise developments surrounding the park. Despite the obstruction of existing developments at the backdrop and loss of some of the open view, the proposed development is not incompatible with the surrounding high-rise developments and could blend in as the new backdrop of this VP.

4.16 The view of pedestrians that they currently enjoy would change and the visual change would be moderate. The proposed development would lead to blockage of existing developments at the backdrop and loss of some of the open view. To mitigate the impact, building gap of not less than 20m at the "G/IC"

site and proposed road layout would help break up the visual mass. Besides, the reduction in visual openness can only be experienced at limited part of Victoria Park viewing to the southwest direction.

VP4

4.17 VP4 (**Plan I**) is at the Stubbs Road Lookout and is frequently visited by the locals and tourists. It is about 1,300m to the Site. The sensitivity of the viewers from this VP is "medium". The view currently provides a panoramic view of the skyline of Hong Kong with trees and shrubbery in the foreground, Victoria Harbour and the ridgeline of Braemar Hill in the middle-ground and the skyline of Kowloon at a distance.

4.18 The character of the area and the view of pedestrians that they currently enjoy would not be affected as the proposed development of 135mPD is substantially blocked by an existing residential development, i.e. Leighton Hill (171mPD). The effect of the visual change is considered negligible.

VP5

4.19 VP5 (**Plan J**) is at the Hong Kong Cultural Complex in Tsim Sha Tsui, which is located at the waterfront of Kowloon side across Victoria Harbour and is easily accessible and frequently visited by the locals and tourists. This is one of the eight identified strategic vantage points in the HKPSG. It is about 2,400m to the Site. The sensitivity of the viewers from this VP is "high".

4.20 The view currently comprises the Victoria Harbour in the foreground, the densely built up landscape and the skyline and ridgeline of Hong Kong Island at the backdrop. The character of the area and the view of pedestrians that they currently enjoy would not be affected as the proposed development of 135mPD is substantially blocked by the developments along the waterfront and those surrounding high-rise commercial developments including Lee Garden One and Hysan Place. The effect of the visual change is considered negligible.

VP6

4.21 VP6 (**Plan K**) is at the Happy Valley Recreation Ground, which is a sizeable, popular and easily accessible open space and frequently visited by the locals and tourists. It is about 690m to the Site. The sensitivity of the viewers from this VP is "high".

4.22 The view currently consists of an open-air artificial turf pitch in the foreground and medium- to high-rise commercial and residential developments in the middle-ground and backdrop. As shown in the photomontage, the proposed development of 135mPD is mainly screened by The Leighton Hill of 171mPD. The effect of the visual change is considered negligible.

VP7

4.23 VP7 (**Plan L**) is at Sunning Road and is about 90m from the Site. It is easily accessible and pedestrians would get a close up view to the proposed development en-route to their destination. The sensitivity of the viewers from

this VP is “low” as it is of transient nature.

4.24 The entire Sunning Road is lined by high-rise buildings and is sandwiched between Lee Garden Five, Lee Garden Six and China Taiping Tower to its east and Lippo Leighton Tower and the new office/ retail development, Lee Garden Three, to the west. When viewed from VP7, the high-rise towers frame the view in the foreground with open and long-range views to developments at a distance in the background. Upon redevelopment, the proposed development is not incompatible with the surrounding high rise developments. However, a major portion of the open view along most sections of Sunning Road will be obstructed by the proposed development.

4.25 The view would be significantly changed as the proposed development would reduce much of the visual openness along Sunning Road and given that VP7 is in close proximity to the Site, the effect of the visual change would be substantial. To mitigate the impact, it is required that a building gap of not less than 25m and 20m to be incorporated in the commercial development and the DC respectively. The requirement for the provision of open space and preservation of the existing masonry walls, OVT and vegetation fronting Leighton Road will also mitigate the visual impact by setting back the proposed development from Leighton Road and providing visual relief. Besides, in a wider context, although the proposed development will diminish the visual openness of the view at close-range, it is not incompatible in scale and proportion with the predominately high-rise context of the area.

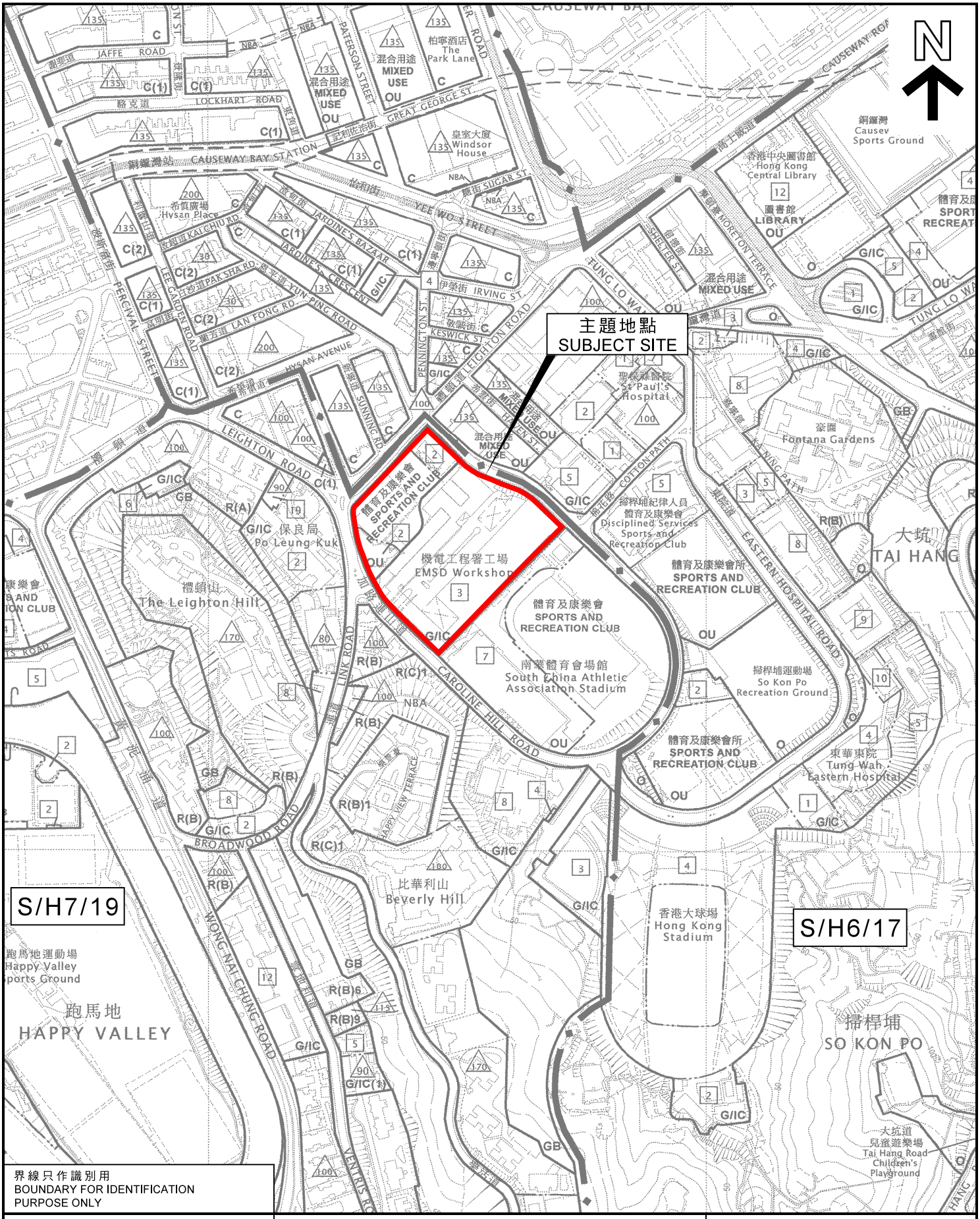
5. Conclusion

5.1 The proposed development is located at the fringe of the core commercial/ business area of Causeway Bay, which is characterised by high-rise commercial/office developments with cluster of low- to high-rise GIC and recreational uses. As shown in the photomontages, the proposed development with maximum BH of 135mPD is compatible with the character of the area and does not have significant adverse visual effects to the identified key public viewing points. The proposed building gaps and the new access road will retain visual permeability through the Site and break up the building mass of the proposed development. The requirement for open space, preservation of the existing masonry stone walls and vegetation as well as the widened section of CHR (West) will also provide certain visual relief, which help mitigate the visual impact. In overall terms, the proposed development will not result in unacceptable visual impact.

Attachments

Plan A	Location Plan of Proposed Amendment Items A and B
Plan B	Site Plan of Proposed Amendment Items A and B
Plan C	Site Photo of Proposed Amendment Items A and B
Plan D	Conceptual Layout for Caroline Hill Road Site
Plan E	Key Plan Showing the Viewing Points
Plans F to L	Photomontages of the Proposed Development from the Viewing Points

PLANNING DEPARTMENT
MARCH 2019



界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年2月28日擬備，所根據的資料為於2019年1月8日核准的分區計劃大綱圖編號S/H6/17及2016年8月16日核准的分區計劃大綱圖編號S/H7/19

EXTRACT PLAN PREPARED ON 28.2.2019
BASED ON OUTLINE ZONING PLAN No. S/H6/17
APPROVED ON 8.1.2019 AND S/H7/19 APPROVED
ON 16.8.2016

位置圖 LOCATION PLAN

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院
REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

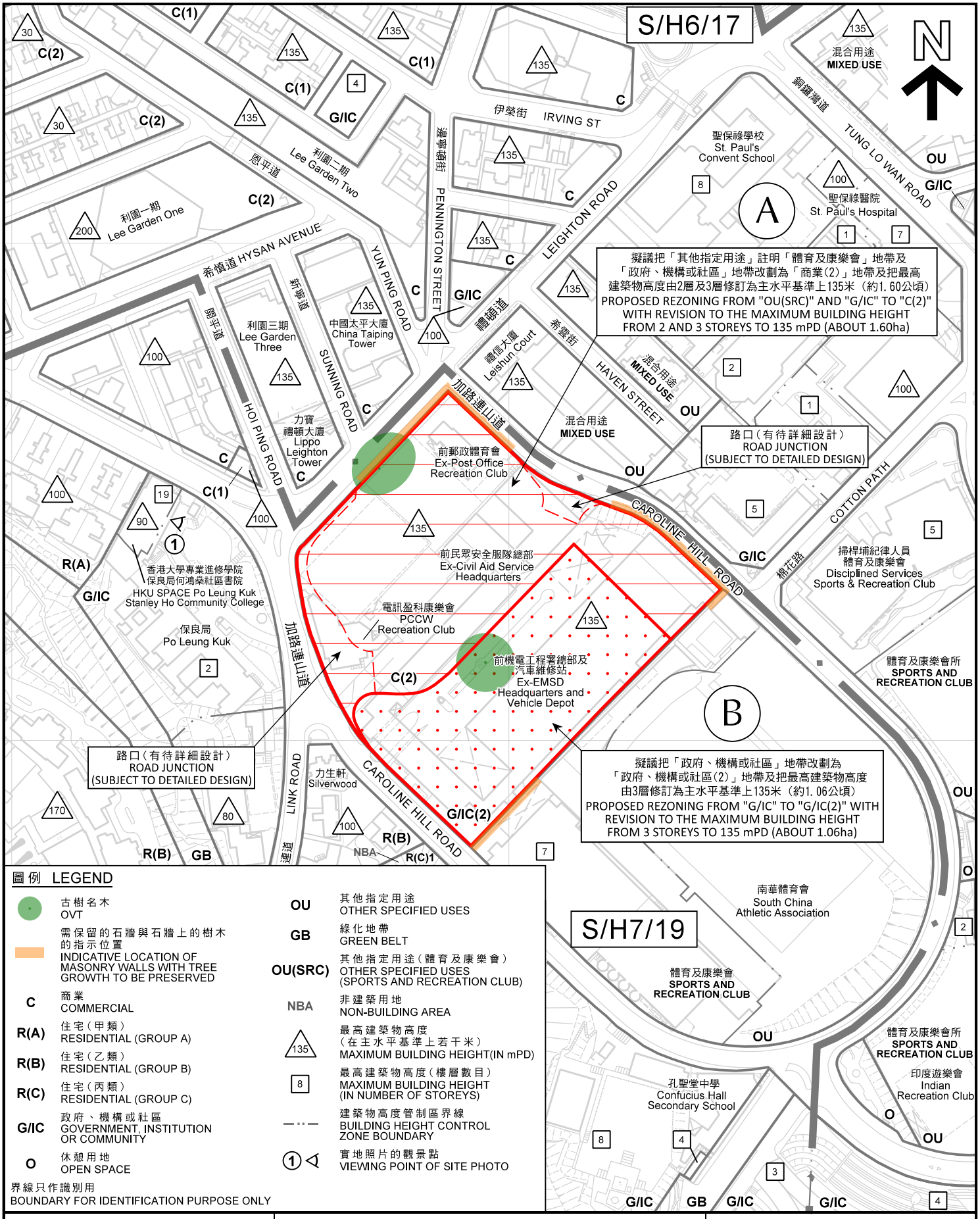
SCALE 1 : 5 000 比例尺

米 METRES 100 0 100 200 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/3

圖 PLAN
A



圖例 LEGEND

古樹名木 OVT	OU 其他指定用途 OTHER SPECIFIED USES
需保留的石牆與石牆上的樹木的指示位置 INDICATIVE LOCATION OF MASONRY WALLS WITH TREE GROWTH TO BE PRESERVED	GB 綠化地帶 GREEN BELT
C 商業 COMMERCIAL	OU(SRC) 其他指定用途（體育及康樂會） OTHER SPECIFIED USES (SPORTS AND RECREATION CLUB)
R(A) 住宅（甲類） RESIDENTIAL (GROUP A)	NBA 非建築用地 NON-BUILDING AREA
R(B) 住宅（乙類） RESIDENTIAL (GROUP B)	135 最高建築物高度（在主水平基準上若干米） MAXIMUM BUILDING HEIGHT(IN mPD)
R(C) 住宅（丙類） RESIDENTIAL (GROUP C)	8 最高建築物高度（樓層數目） MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)
G/IC 政府、機構或社區 GOVERNMENT, INSTITUTION OR COMMUNITY	建築物高度管制區界線 BUILDING HEIGHT CONTROL ZONE BOUNDARY
O 休憩用地 OPEN SPACE	① 實地照片的觀景點 VIEWING POINT OF SITE PHOTO

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

平面圖 SITE PLAN

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院
REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY FOR COMMERCIAL USE AND THE DISTRICT COURT

本摘要圖於2019年2月27日擬備，
所根據的資料為測量圖編號
11-SW-10D及15B

EXTRACT PLAN PREPARED ON 27.2.2019
BASED ON SURVEY SHEETS No.
11-SW-10D & 15B

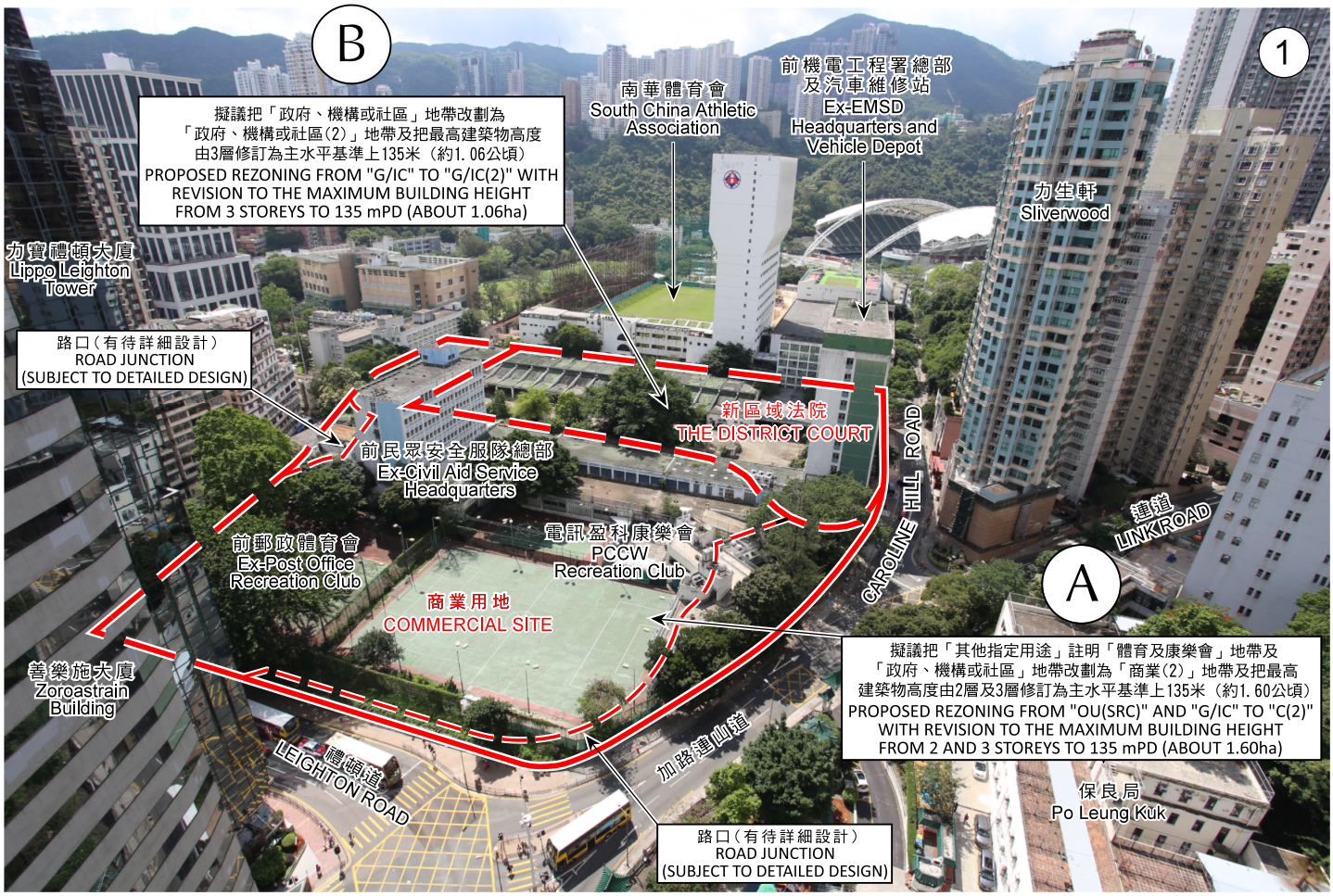
SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/3

圖 PLAN
B



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2018年5月16日的實地照片

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BASED ON SITE PHOTO
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院
REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

規劃署
PLANNING
DEPARTMENT

參考編號
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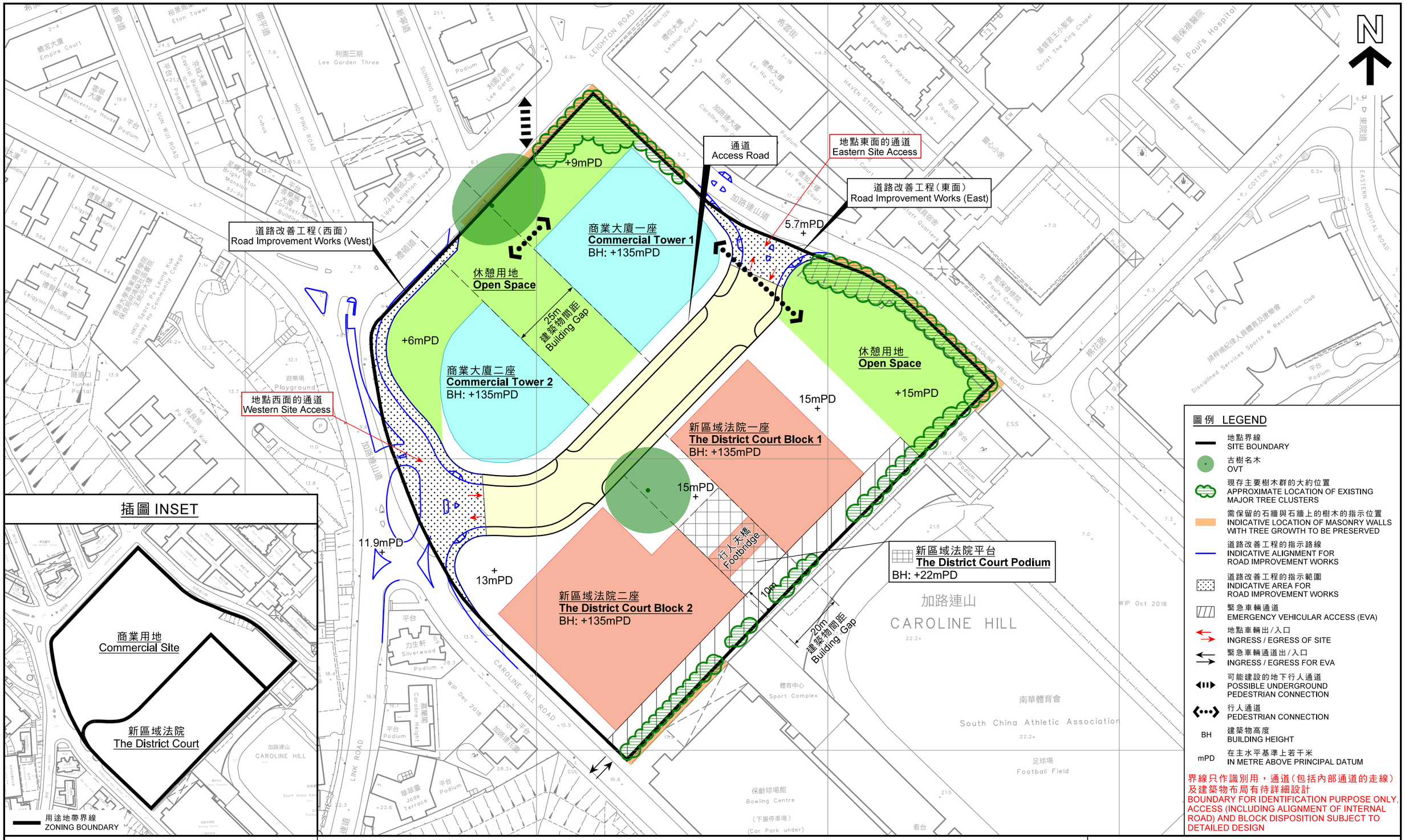
M/H7/19/3

圖 PLAN
C



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所根據的資料為測量圖編號
11-SW-15B

EXTRACT PLAN PREPARED ON 28.2.2019
BASED ON SURVEY SHEET No.
11-SW-15B

加路連山道用地的概念藍圖
CONCEPTUAL LAYOUT FOR CAROLINE HILL ROAD SITE

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

SCALE 1 : 1 200 比例尺

米 METRES 20 0 20 40 60 80 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/3

圖 PLAN
D

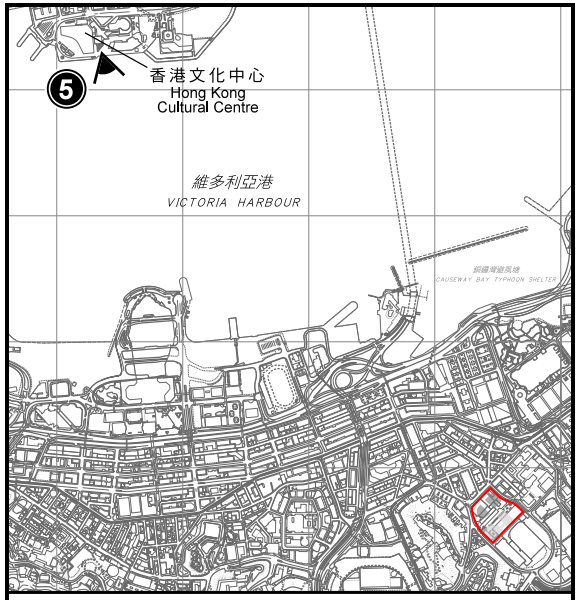

插圖 INSET

SCALE 1 : 30 000 比例尺

N

GLOUCESTER ROAD
告士打道
維多利亞公園
Victoria Park
軒尼詩道
希慎廣場
Hysan Place
HENNESSY ROAD
主題地點
SUBJECT SITE
LEIGHTON ROAD
時代廣場
Times Square
豪園
Fontana
Gardens
禮頓道
加路連山道
禮頓山
LEIGHTON HILL
掃桿埔運動場
So Kon Po
Recreation Ground
CAROLINE HILL ROAD
大坑
TAI HANG
比華利山
Beverly Hill
香港大球場
Hong Kong
Stadium
跑馬地
HAPPY VALLEY
瞭望台
Lookout

圖例 LEGEND

① 合成照片的觀景點
VIEWING POINT OF PHOTOMONTAGE

界線只作識別用
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11-SE-A及C和11-SW-B及D

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BASED ON SURVEY SHEETS No.
11-SE-A & C AND 11-SW-B & D

要覽圖 KEY PLAN

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院
REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

SCALE 1 : 10 000 比例尺

米 METRES 100 0 100 200 300 400 500 米 METRES

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DEPARTMENT

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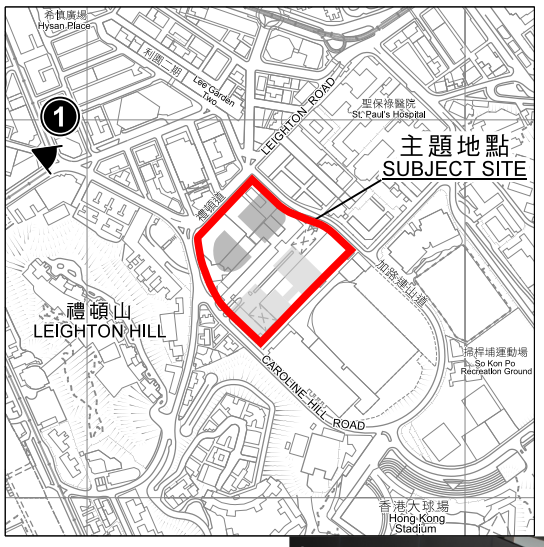
圖 PLAN
E



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從霎東街遠眺
VIEW FROM SHARP STREET EAST

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TAKEN ON 27.2.2019

合成照片 **PHOTOMONTAGE**

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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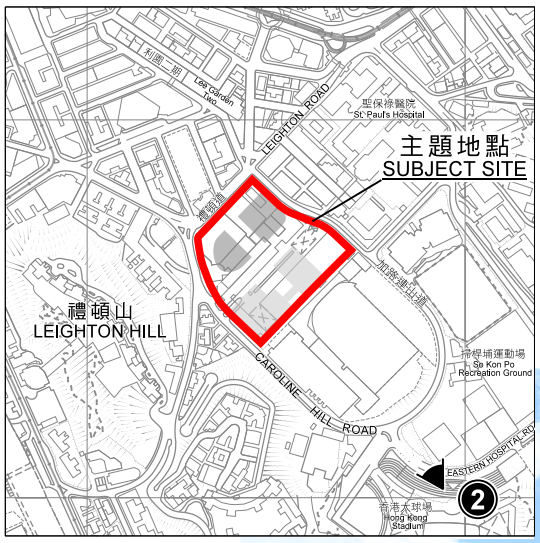
M/H7/19/3

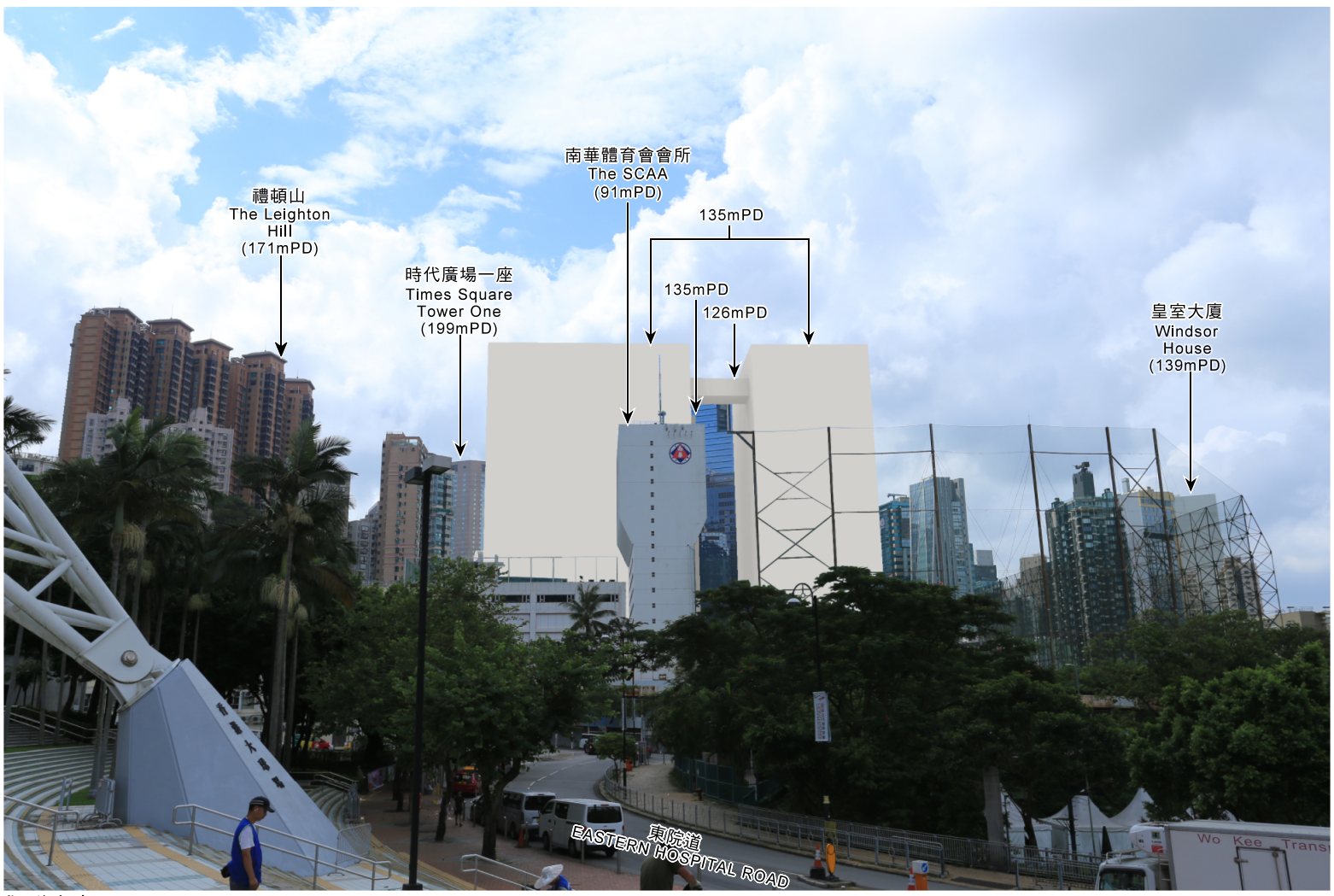
圖 PLAN
F



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從香港大球場遠眺
VIEW FROM HONG KONG STADIUM

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TAKEN ON 5.9.2017

合成照片 **PHOTOMONTAGE**

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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圖 PLAN
G



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從維多利亞公園遠眺
VIEW FROM VICTORIA PARK

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重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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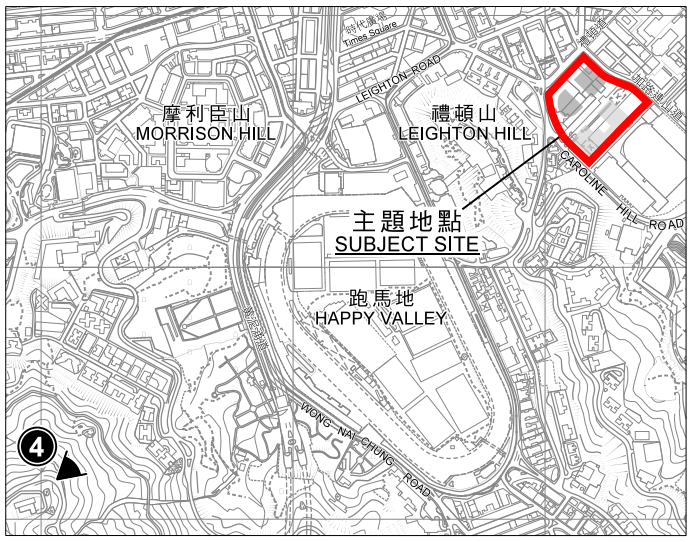
圖 PLAN
H



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從司徒拔道眺望處遠眺
VIEW FROM STUBBS ROAD LOOKOUT

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合成照片 **PHOTOMONTAGE**

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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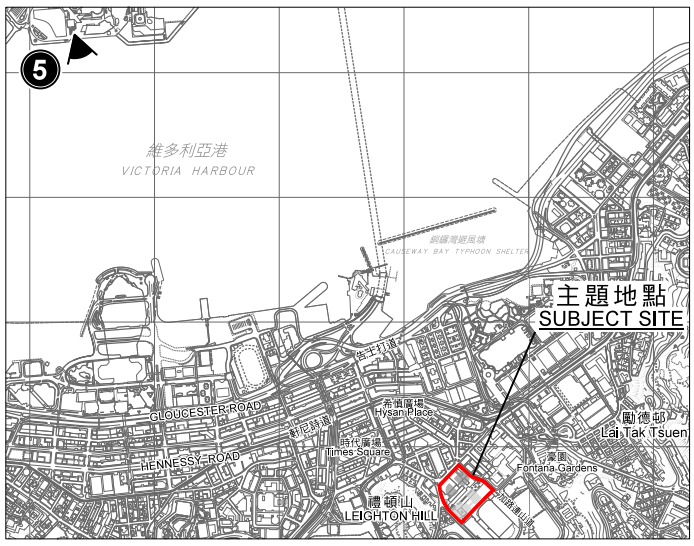
圖 PLAN
I



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從香港文化中心遠眺
VIEW FROM HONG KONG CULTURAL CENTRE

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合成照片 **PHOTOMONTAGE**

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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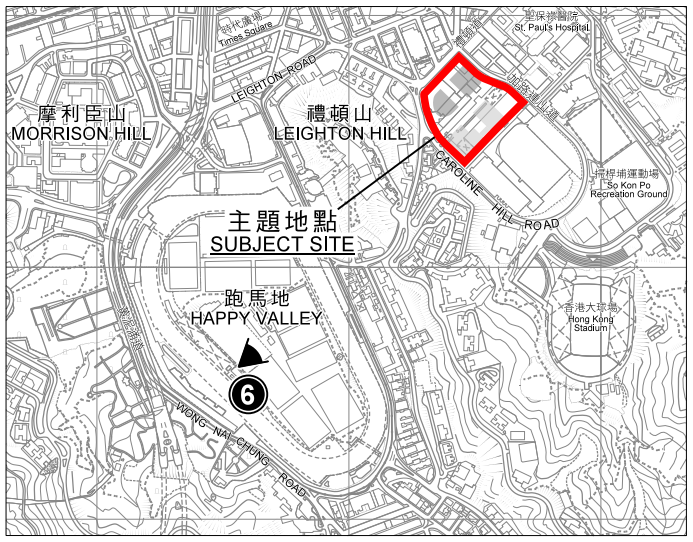
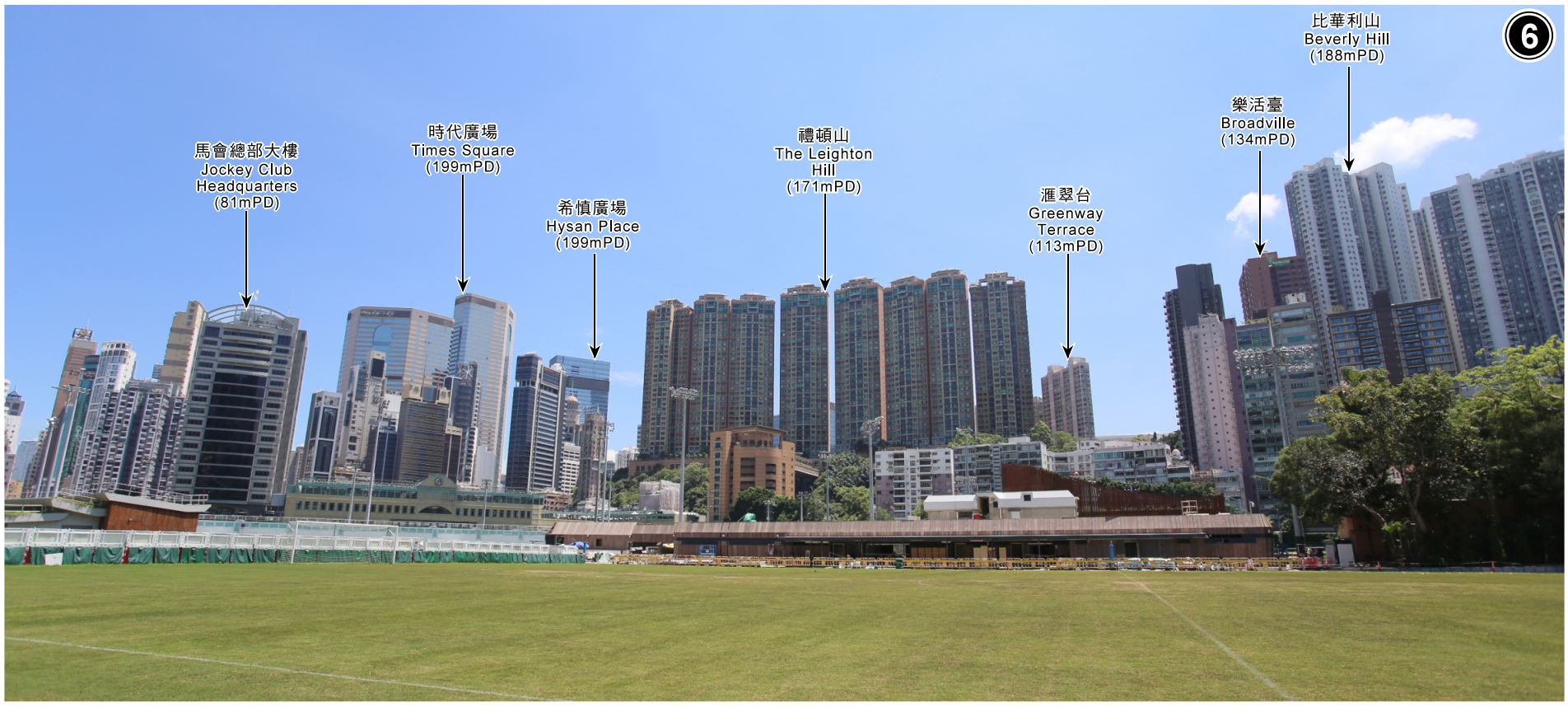
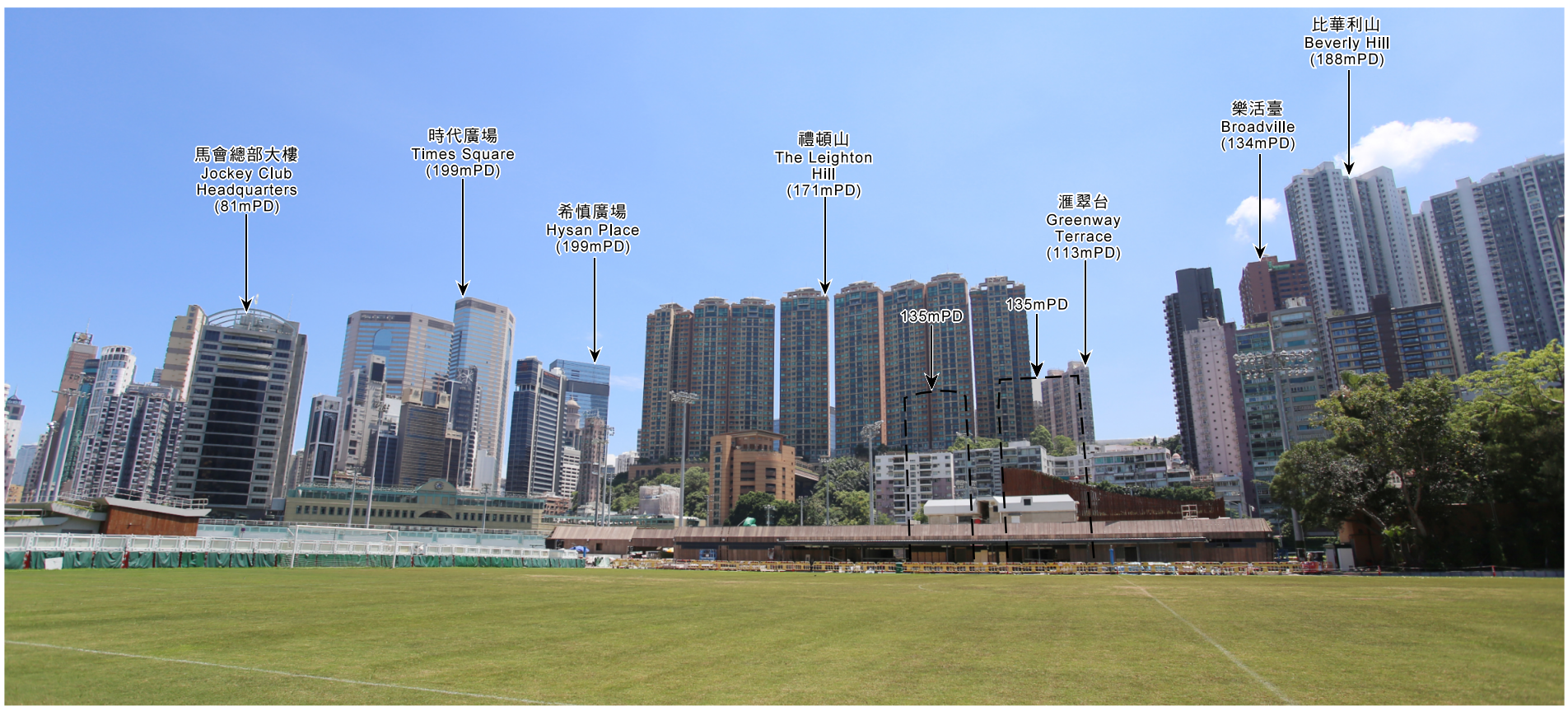
圖 PLAN
J



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從跑馬地遊樂場遠眺
VIEW FROM HAPPY VALLEY RECREATION GROUND

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2018年5月30日的實地照片

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TAKEN ON 30.5.2018

合成照片 **PHOTOMONTAGE**

重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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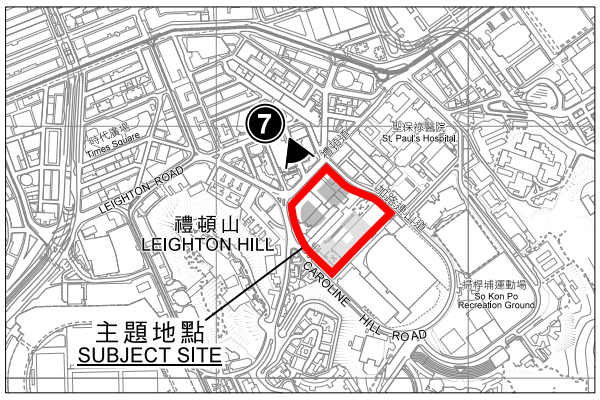
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/3

圖 PLAN
K



觀景點位置
LOCATION OF VIEWING POINT



現有景觀
EXISTING VIEW



擬議方案
PROPOSED SCHEME

從新寧道遠眺
VIEW FROM SUNNING ROAD

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重新發展銅鑼灣加路連山道用地
作商業用途及新區域法院

REDEVELOPMENT OF CAROLINE HILL ROAD SITE, CAUSEWAY BAY
FOR COMMERCIAL USE AND THE DISTRICT COURT

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PLANNING DEPARTMENT

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M/H7/19/3

圖 PLAN
L

CONSULTANCY STUDY FOR AIR VENTILATION ASSESSMENT SERVICES

CAT. B – TERM CONSULTANCY FOR AIR VENTILATION ASSESSMENTS BY COMPUTATIONAL FLUID DYNAMICS (PLNQ B-1/AVA 2015)

FINAL REPORT

FOR

PLNQ B-1/AVA 2015 FOR AN INSTRUCTED PROJECT IN CAUSEWAY BAY

28 December 2018

Ref: RT16129-CFD-03B

Submitted to:
Planning Department

Prepared By:

BeeXergy Consulting Limited (BXG)
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Project:	PLNQ B-1/AVA 2015 for an Instructed Project in Causeway Bay Final Report
Report No.:	RT16129-CFD-03B

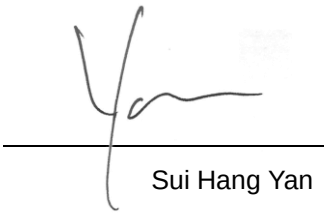
Revision	Issue Date	Description	Author	Checker	Approver
0	17/5/2018	Issued for Comment	CC	YS	HM
A	31/5/2018	Issued for Comment	CC	YS	HM
B	28/12/2018	Issued for Comment	CC	YS	HM

Prepared by:



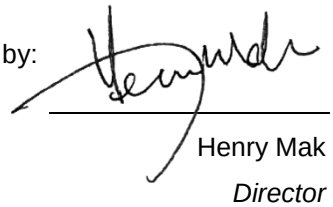
Curtis Chan
Environmental Consultant

Checked by:



Sui Hang Yan
Technical Director

Approved by:



Henry Mak
Director

Disclaimer:

- This report is prepared and submitted by Beexergy Consulting Limited with all reasonable skill to the best of our knowledge, incorporating our Terms and Conditions and taking account of the resources devoted to it by agreement with the client.
- We disclaim any responsibility to the client and others in respect of any matters outside the project scope.
- This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

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EXECUTIVE SUMMARY

BeeXergy Consulting Limited was commissioned by the Planning Department of Hong Kong Special Administrative Region Government to undertake an Air Ventilation Assessment (AVA) – Initial Study using Computational Fluid Dynamics (CFD) for an Instructed Project in Causeway Bay.

The objectives of this Instructed Project is to assess the air ventilation impacts of the redevelopment proposal with stipulated development parameters for the area. It is also the purpose of this Project to recommend any design improvements and/or mitigation measures which may be adopted to improve the pedestrian wind environment around the Project Area and its surrounding or to minimize any adverse air ventilation impact due to the redevelopment proposal.

A series of CFD simulations using realizable k- ε turbulence model were performed based on the Air Ventilation Assessment (AVA) methodology for the Initial Study as stipulated in the Technical Circular No. 1/06. Eleven wind directions covering about 78.5% occurrence of annual wind and about 80.6% of summer wind were studied. The ventilation performance for the proposed development at the Project Area and all focus areas within the assessment area were assessed and summarized below:

- The annual weighted Site Spatial Average Velocity Ratio (SVR) for the Baseline Scheme is 0.12 whereas the Proposed Scheme and Optional Scheme were 0.17. The summer weighted Site Spatial Average Velocity Ratio (SVR) for the Baseline Scheme is 0.11 whereas the Proposed Scheme and Optional Scheme were 0.17. This shows the good design features mentioned in Section 6 have slightly improved the ventilation performance of the site boundary in the Proposed and Optional Schemes when compared with the Baseline Scheme.
- The annual and summer weighted Local Spatial Average Velocity Ratio (LVR) for the Baseline Scheme, Proposed Scheme and Optional Scheme are all 0.16. This shows that the ventilation performance of the local area of all three schemes are comparable and that the Proposed Scheme and Optional Scheme would not be worse-off than the Baseline Scheme from an air ventilation perspective.
- Comparing the Proposed and Optional Schemes, the ventilation performance is generally similar as evident by comparable SVR and LVR for both annual and summer wind conditions. However, slight impact on the ventilation performance is observed around The District Court site due to the additional podium and reduced building gap

for both annual and summer wind conditions in the Optional Scheme. However, slight improvement on the ventilation performance is observed around the commercial site due to the approximately 5m shift of The District Court Block 1 towards the southwest.

- The 2018 Scheme will have insignificant impact to the ventilation performance as compared with the Optional Scheme given the various changes are minor.

The following good design features are recognized in all the development schemes:

- The new access road linking up the eastern and western section of Caroline Hill Road will create a wind entrance and allow more wind flow through the Project Area;
- All proposed building gaps are along the NW-SE axis which are essential in enhancing site permeability and wind penetration;
- The two open spaces at the northwestern and eastern portions are essential in promoting air ventilation as it reduces ground coverage thus increasing air volume at pedestrian level and facilitating wind penetration.

All improvements and mitigation measures should consider the following design principles at the detailed design stage:

- Adopt building permeability equivalent to 20% to 33.3% with reference to PNAP APP-152;
- Minimize podium bulk with ground coverage of no more than 65% where feasible;
- Adopt building setback with reference to PNAP APP-152;
- Incorporate greening measures with a target of not less than 30% for sites larger than 1 ha, and not less than 20% for sites below 1 ha, preferably through tree planting at grade;
- Avoid long continuous façades; and
- Make reference to the recommendations of good design measures in the Hong Kong Planning Standards and Guidelines.

Further quantitative AVA by CFD or wind tunnel should be carried out by the future developers and the project proponent of The District Court to reflect the latest surrounding building environment and ascertain the alignment of the building gap and other enhancement features.

行政摘要

香港特別行政區政府規劃署委託豐能顧問有限公司為銅鑼灣一個指定項目進行空氣通風評估(AVA) – 初步研究。利用計算流體力學（CFD）評估初步擬議發展對其周邊地區的空氣流通影響。

本項目的目標是評估重建項目的規定開發規模對空氣通風影響。本研究目的是建議一系列改善設計和/或緩解措施，以改善項目區及其周邊地區的行人風環境，或盡量減少因重建而產生的不利通風影響。

根據技術通告第 1/06 號中規定對初步研究的空氣流通評估方法，本研究進行了一系列利用 realizable k-ε 湍流模型的 CFD 模擬。總共研究了十一個風向包括全年盛行風 (發生率約 78.5%) 及夏季盛行風 (發生率約 80.6%)。在評估範圍內所有重點領域及擬議發展的通風表現進行的評估和總結如下：

- 基線方案全年地盤空間的平均風速比（SVR）為 0.12，而擬議方案和可選方案為 0.17。基線方案的夏季地盤空間的平均風速比(SVR)為 0.11 , 而擬議方案和可選方案為 0.17。這表明與基線方案相比 , 本報告第 6 節中提到的良好設計特徵改進了擬議方案和可選方案中場地邊界的通風表現。
- 基線方案、擬議方案和可選方案的全年和夏季地域性空間的平均風速比(LVR)均為 0.16。這表明，三個方案的地域性空間通風表現相若，並且從空氣通風角度來看擬議方案和可選方案不會比基線方案更差。
- 比較擬議方案和可選方案，全年和夏季盛行風情況下的 SVR 和 LVR 通風表現相似。然而，新區域法院場地周圍的通風表現受到輕微影響，原因在於可選方案中增加了平台並減少了建築物間距，影響全年和夏季盛行風通過。另外亦在可選方案中將新區域法院 Block 1 向西南方向移動了約 5m，使商業地盤周圍的通風表現亦因此略有改善。
- 由於與可選方案相比 , 2018 年方案各項變化不大 , 因此相信此方案將具有與可選方案相似的通風性能。

所有的開發方案都具備以下良好的設計特徵：

- 連接加路連山道東西段的新道路將形成通風口，容許更多主導風穿過項目區;
- 所有擬議的建築物間距都沿著西北/東南軸線，這能增強擬議發展的通透性及有助主導風的穿透;
- 於項目西北部和東部的兩個休憩用地有助促進空氣通風，因為它能減少地面覆蓋率，從而增加行人區的通風量並有助主導風的穿透。

所有改進和緩解措施應在詳細設計階段考慮以下設計原則：

- 參考 PNAP APP-152，提供相當於 20%至 33.3%建築物滲透率;
- 盡可能縮減平台體積，使地面覆蓋率不超過 65%;
- 參考 PNAP APP-152 將建築物後移;
- 大於 1 公頃的地盤需提供不低於 30%綠化覆蓋率，而 1 公頃以下的地盤則需提供不低於 20%綠化覆蓋率，並於地面種植樹木為佳;
- 避免過長的建築物; 及
- 參考《香港規劃標準與準則》中有關的良好通風設計措施的建議。

未來的發展商或新區域法院的項目負責人應通過 CFD 或風洞方式進行量化空氣流通評估，以反映當時的周邊建築環境，並確定建築物間距與其他優化措施。

1 INTRODUCTION

1.1 PROJECT BACKGROUND

BeeXergy Consulting Limited (BXG) was commissioned by the Planning Department (PlanD) to undertake an Air Ventilation Assessment (AVA) Initial Study using Computational Fluid Dynamics (CFD) for an Instructed Project in Causeway Bay.

A site with an area of about 2.7 ha in Causeway Bay has been identified for redevelopment (Project Area). According to the "Technical Circular No. 1/06 on Air Ventilation Assessments" jointly issued by Then Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Works Bureau (ETWB) in July 2006, "developments on sites of over 2 ha and with an overall plot ratio of 5 or above" (Item (d) under Paragraph 7 of the TC) require an AVA during the planning stage. Since the site has an area of over 2 ha and the proposed redevelopment would have an overall plot ratio exceeding 5, a site-specific quantitative air ventilation assessment is therefore required to assess the possible air ventilation impacts of the development proposal and to identify appropriate design improvement/mitigation measures to guide future development.

1.2 STUDY OBJECTIVES

This Instructed Project is to assess the air ventilation impacts of the redevelopment proposal with stipulated development parameters for the area. It is also the purpose of this Project to recommend any design improvements and/or mitigation measures which may be adopted to improve the air ventilation condition of the Project Area and its surrounding or to minimize any adverse air ventilation impact due to the redevelopment proposal.

1.3 FINDINGS OF PREVIOUS AVA STUDY

According to the AVA report "*Term Consultancy for Air Ventilation Assessment Services - Expert Evaluation on Wong Nai Chung Area*" (December 2008) by Ove Arup & Partners Hong Kong Ltd, the Project Area sits on the basin of the valley and is surrounded by green belt. This special topographical feature may result in a unique environment of the Wong Nai Chung Area as circulation wind may run down from the green area to built-up area along the slope. In addition, the low-rise site located at the area near Happy View Terrace may be treated as one of the main wind entrances and existing building gaps at the area along Broadwood Road allows certain amount of wind penetration for non-summer prevailing wind (i.e. NE wind). For summer prevailing winds (i.e. E to SW wind), wind flow is also confined by the valley and is channelled from SE to NW direction. The relative low-rise site located at the area near Happy

View Terrace may also allow summer wind from So Kon Po hill to penetrate to the Causeway Bay Area. Existing building gaps at the area along Broadwood Road also allows certain amount of summer wind penetration.

2 SITE CHARACTERISTICS

2.1 PROJECT AREA AND ITS SURROUNDING AREAS

The Project Area is about 2.7 ha. It is located at the junction of Leighton Road and Caroline Hill Road in Causeway Bay, which is covered by the approved Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19 gazetted under section 9(1)(a) on 26/08/2016 of the Town Planning Ordinance.

According to the approved Wong Nai Chung OZP No. S/H7/19, the Project Area is separated into two distinct regions along the NE-SW axis. The north-western portion of the Project Area is approximately 7623 m² in area and is currently zoned "Other Specified Uses (Sports and Recreation Club)". The building height restriction of this portion is 2 storeys except the central region where the existing ball courts are located. For the central region, no maximum building height in terms of mPD is stipulated on the OZP and any new development or redevelopment of an existing building (except in-situ redevelopment of an existing building up to its existing building height) requires permission from the Town Planning Board under section 16 of the Town Planning Ordinance. The south-eastern portion of the Project Area is approximately 18960 m² in area and is currently zoned "Government, Institution or Community" ("G/IC") with a building height restriction of 3 storeys.

The Project Area is currently occupied by several buildings including ex-Electrical and Mechanical Services Department Headquarters, ex-Civil Aid Service Headquarters, ex-Post Office Recreation Club and the PCCW Recreation Club with building heights ranging from approximately 13mPD to 54mPD. The aforementioned buildings are all located on several platforms with different site formation levels.

According to the draft Causeway Bay OZP No. S/H6/16, the region to the northwest and north of the Project Area is the commercial area of Causeway Bay with building heights ranging from approximately 20mPD (i.e. Tang Lung Chau Market) to 210mPD (i.e. Lee Garden One). To the northeast of the Project Area is a zone primarily intended for mixed non-industrial land uses with building heights ranging from approximately 43mPD (i.e. Lei Wen Court) to 100mPD (i.e. Park Haven) and "G/IC" area consisting of schools (i.e. St. Paul's Convent, St. Paul's Convent School and St. Paul's Kindergarten with building height of approximately 24mPD, 26mPD and 29mPD respectively), church (i.e. Christ The King Chapel with building height of

approximately 25mPD) and hospital (i.e. St. Paul's Hospital with building height of approximately 120mPD).

To the east and southeast of the Project Area are sports and recreation clubs, namely Disciplined Services Sports & Recreation Club, So Kon Po Recreation Ground, Indian Recreation Club and South China Athletic Association with building height up to approximately 36mPD, 20mPD, 15mPD and 91mPD respectively.

According to the approved Wong Nai Chung OZP No. S/H7/19, the region to the south of the Project Area mainly consists of medium to high-rise residential developments within the "Residential (Group B)" and "Residential (Group C)" zones with building height up to approximately 113mPD (i.e. Greenway Terrace) and 188mPD respectively (i.e. Beverly Hill).

To the west of the Project Area across Caroline Hill Road is the "G/IC" area of Po Leung Kuk with building height up to approximately 90mPD (i.e. HKU Space Po Leung Kuk Community College) and residential development of The Leighton Hill with building height up to approximately 171mPD.

The topography of the Project Area is slightly sloping upward towards the south, with ground elevation increasing slightly from approximately 10mPD to 15mPD for the sides fronting Leighton Road and South China Athletic Association respectively. Across Leighton Road is the commercial areas of Causeway Bay which is generally flat with site level of around 5mPD to 8mPD. Outside the Project Area, the topography also increases towards the southwest, south and southeast. Leighton Hill is located about 130m to the southwest and elevated to approximately 50mPD. Towards the south, Link Road and Caroline Hill Road is slightly sloping upward and elevated to approximately 32mPD and 15mPD respectively. To the further south lies Mount Nicholson, located about 1,700m away from the Project Area with hill top at approximately 400mPD. Towards the southeast, Jardine's Lookout is located about 1,300m away from the Project Area with hill top at approximately 430mPD. Towards the east, Siu Ma Shan and the Mount Butler is located about 2,200m and 2,400m respectively from the Project Area. Both hill tops are elevated to approximately 420mPD.

Figure 1 shows an overview of the Project Area and its surroundings. Figure 2 shows a close-up view of the Project Area and its surroundings as shown on the OZP.

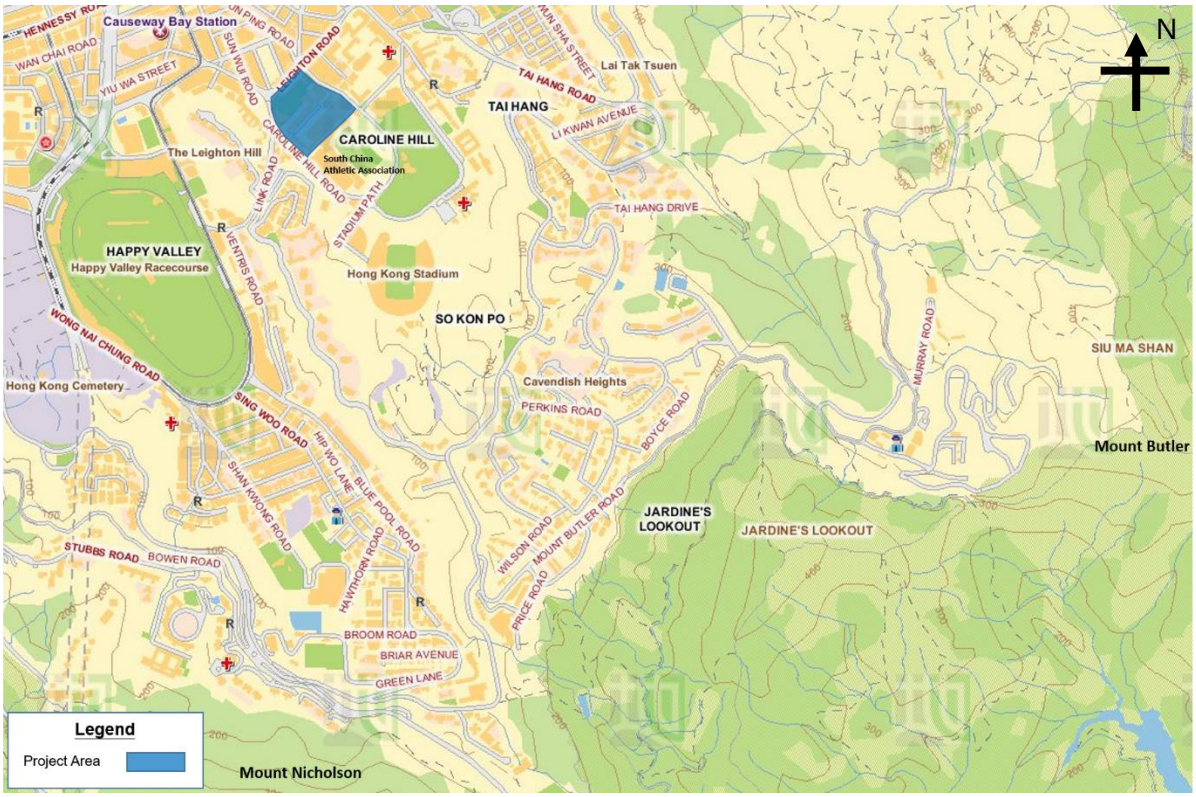


Figure 1 Overview of the Project Area and its Surroundings (Source: Lands Department)

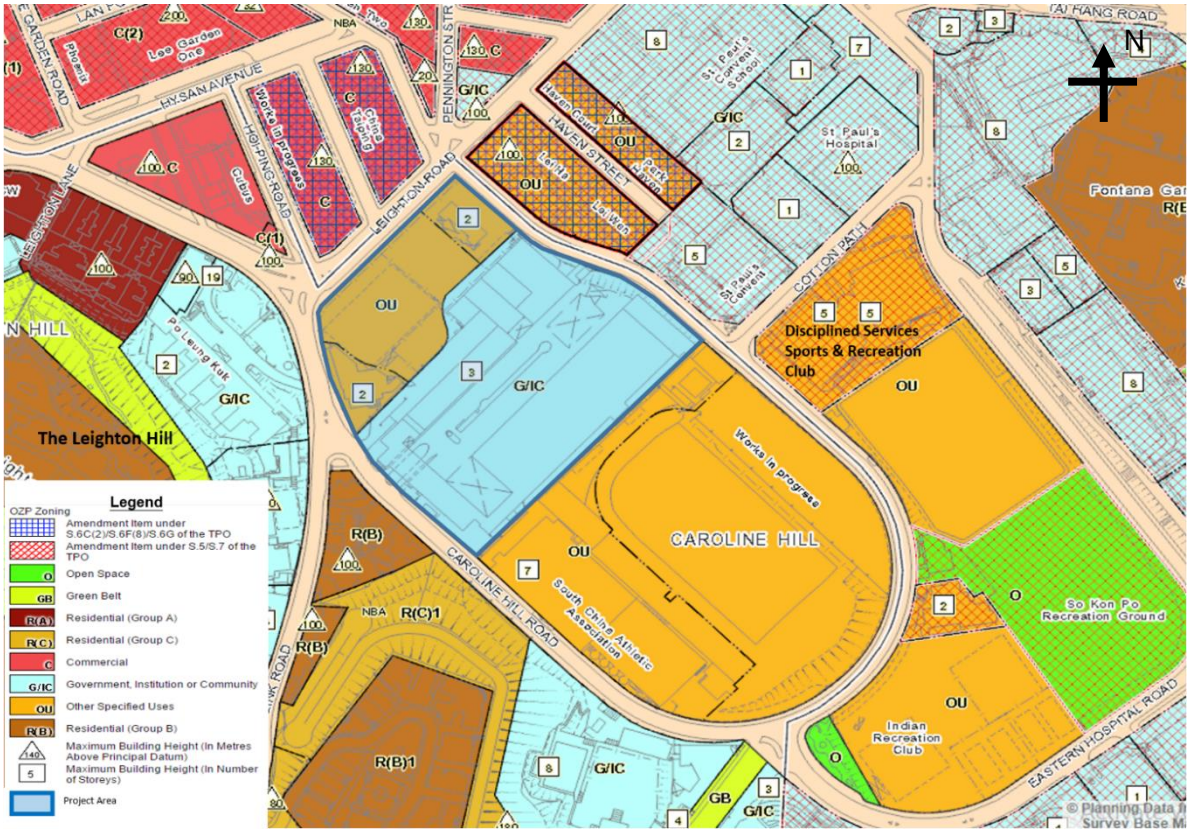


Figure 2 Close-up view of the Project Area and its Surroundings as shown on the OZP
(Source: Town Planning Board)

2.2 STUDIED SCENARIOS

Both the Baseline Scheme and Proposed Scheme as detailed in sections 2.2.1 and 2.2.2 below are assessed under annual and summer wind conditions. A 3D computer simulation model is built according to the GIS information provided by the PlanD. All major elevated structures have also been incorporated in the simulation model. Also, several known planned/committed developments, including those under approved planning applications, rezoning proposals and approved building plans within the surrounding area are also included in the model and tabulated in Table 1. Figure 3 shows the location of the committed developments around the Project Area. The isometric views of the 3D simulation model can be found in Figure 4 to Figure 8.

Table 1 Planned/Committed Developments around the Project Area

Location (No. as shown on Figure 3)	Building Height Restriction (BHR) in OZP	Existing BH (mPD)	Proposed BH – Main Roof (mPD)	Proposed Uses	Remarks
77, Leighton Road (1)	130	83.18	200	Commercial/ Office	
85 Percival Street (2)	130	Nil	9.68	Commercial	
33 Sharp Street East (3)	130	108	126.2 (33 Sharp Street East) 19.65 (11 Yiu Wa Street)	Hotel	
4-14 Hoi Ping Road & 10 Hysan Avenue & 1-11 Sunning Road (4)	130	Nil	130	Commercial	
36 Jardine's Bazaar, Hong Kong (5)	130	Nil	40.3	Commercial	
281 Gloucester Road, Hong Kong (6)	110	115.	119.55	Commercial	
7 Cannon Street, Hong Kong (7)	110	Nil	19.31	Commercial	
Moreton Terrace, Wan Chai, GLA-HK 976 (8)	No BHR	Nil	25.15	Recreation/Sport/ Culture	Application No. A/H6/74 (Approval Date: 6/2/2015)
18 Ventris Road (9)	100	Nil	37.8	Residential Development	

Location (No. as shown on Figure 3)	Building Height Restriction (BHR) in OZP	Existing BH (mPD)	Proposed BH – Main Roof (mPD)	Proposed Uses	Remarks
15 Ventris Road (10)	115	50	153.90	Residential	
17A and 17B Ventris Road, Happy Valley, Hong Kong (11)	5 storeys and 90	40-42	Church: 45 Composite Building: 89.9	Residential and Institution	Application No. A/H7/165 (Approval Date: 8/8/2014)
East Wing of Po Leung Kuk Headquarters (12)	80	62	80	G/IC	

Remarks

- *Developments with existing BH denoted as "Nil" signifies that redevelopments are in progress.*
- *This Table provides information on planned/committed developments, including those under approved planning applications, rezoning proposals and approved building plans within the surrounding area.*

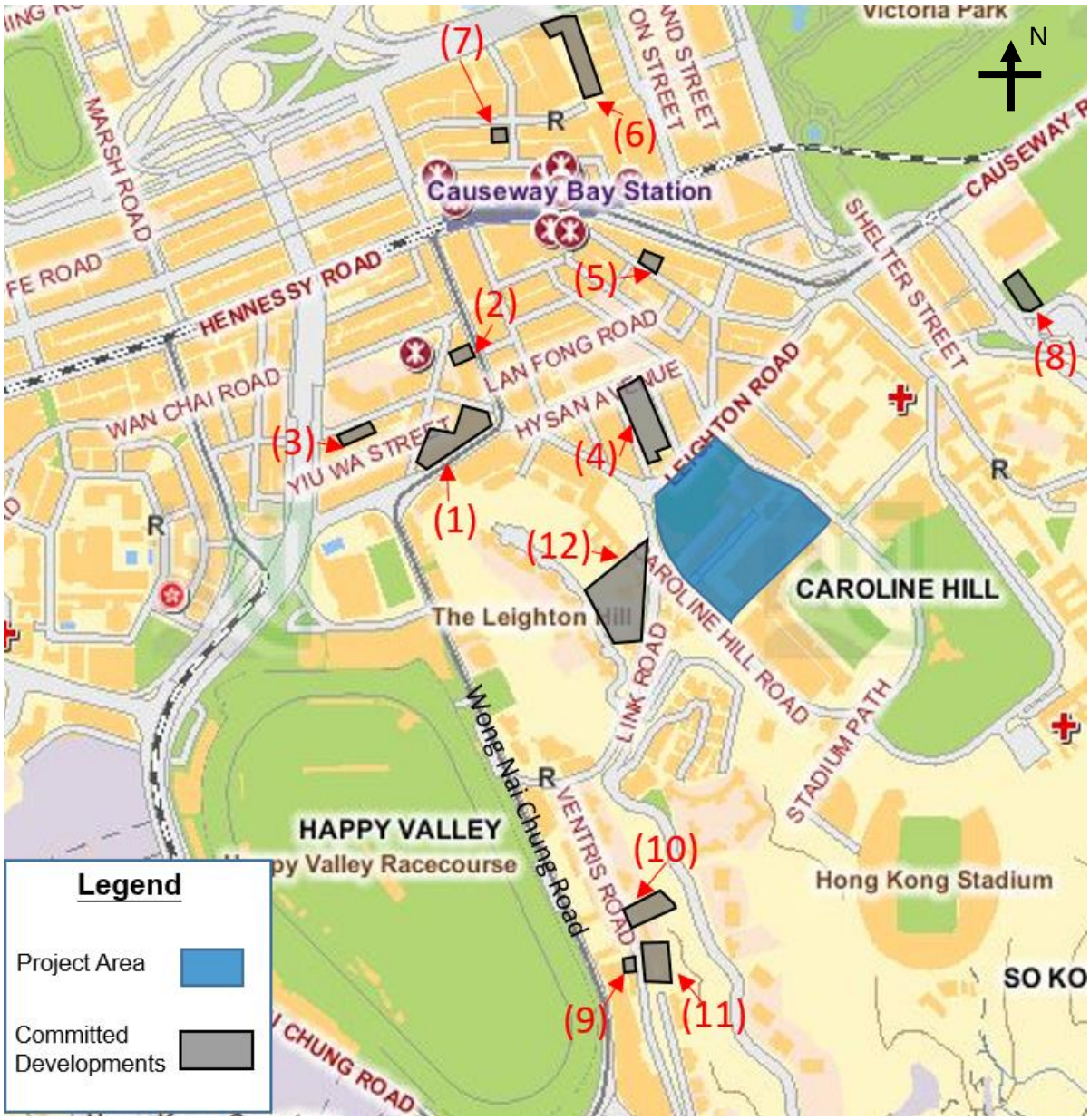


Figure 3 Location of the Planned/Committed Developments around the Project Area

(Source: Lands Department)

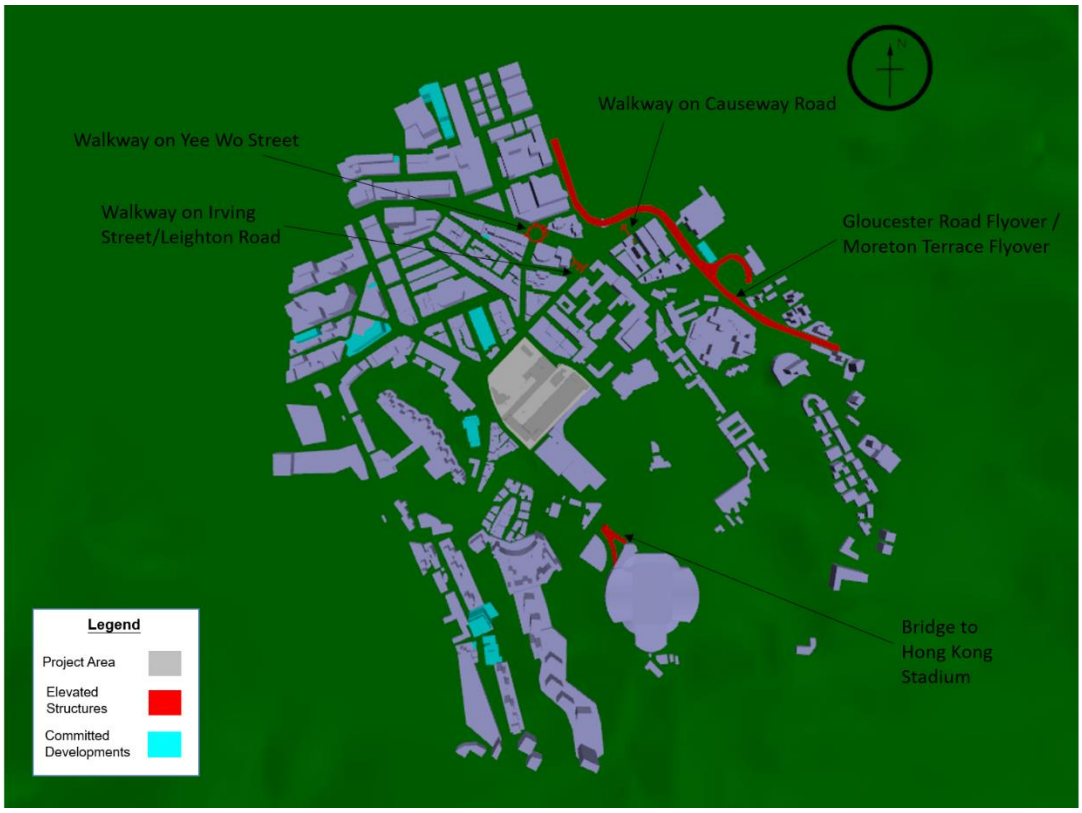


Figure 4 Overview of the 3D model

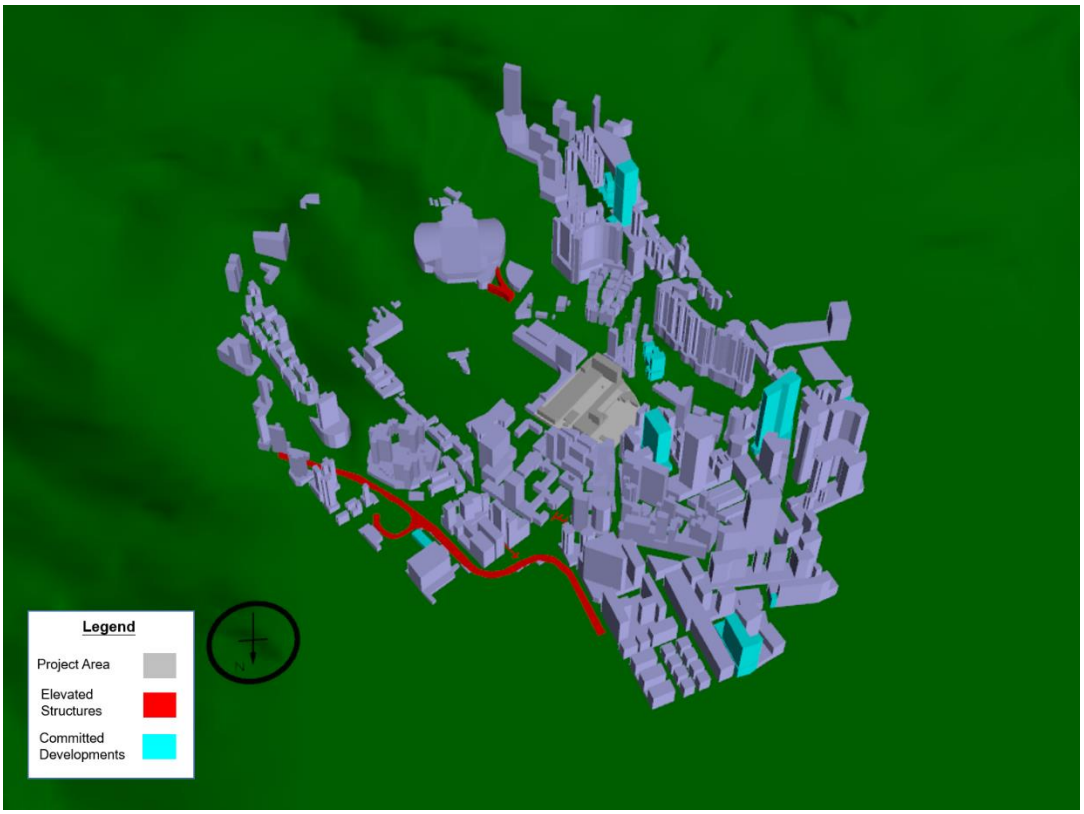


Figure 5 Overview of the 3D model from the north

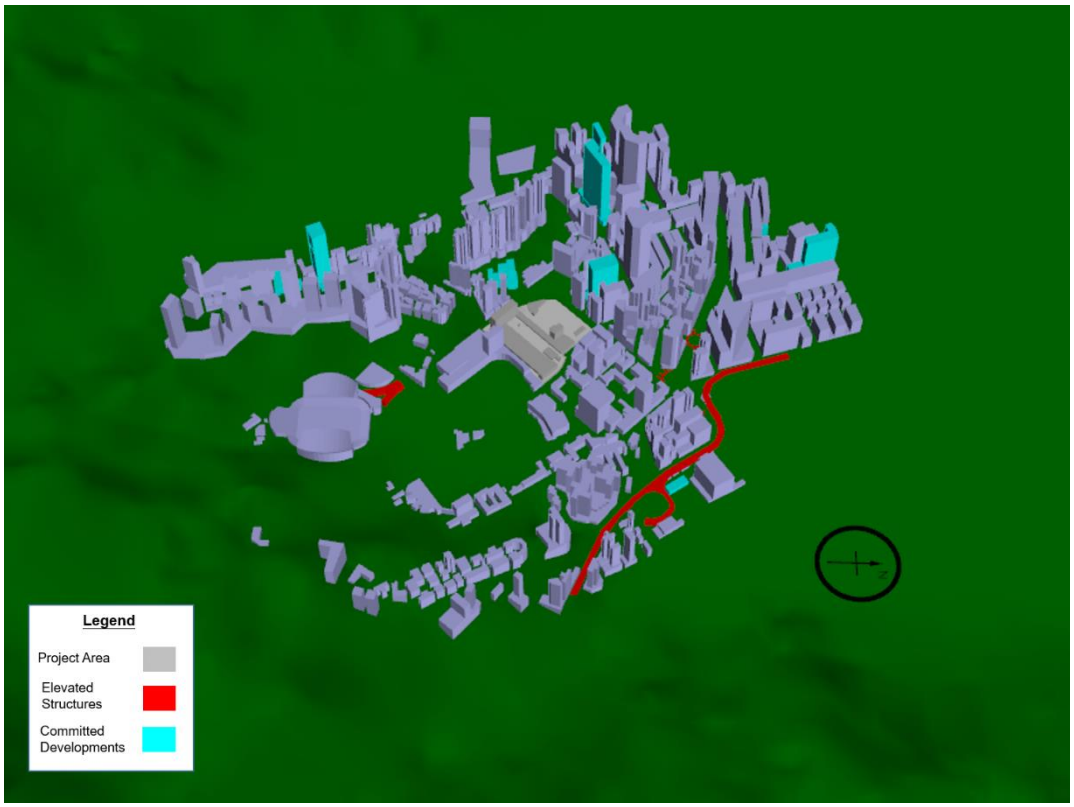


Figure 6 Overview of the 3D model from the east

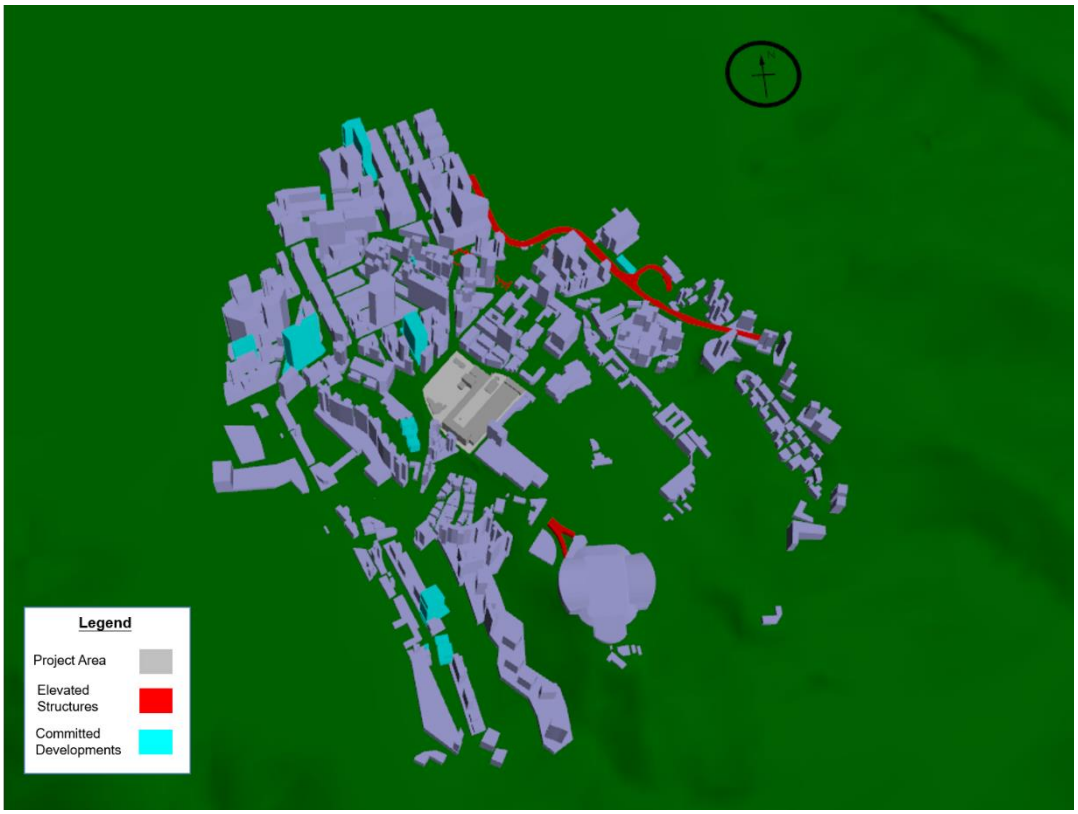


Figure 7 Overview of the 3D model from the south

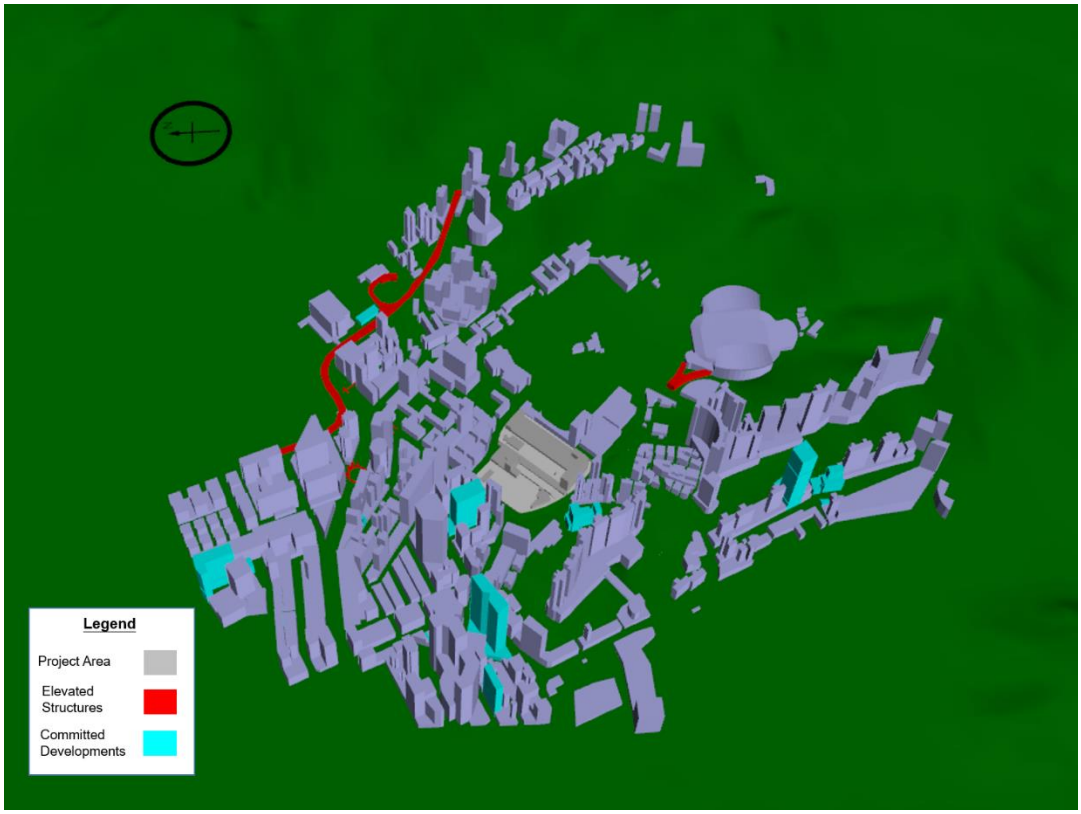


Figure 8 Overview of the 3D model from the west

2.2.1 Baseline Scheme

The Baseline Scheme represents the existing condition of the Project Area. As mentioned in Section 2.1, the Project Area currently consists of several buildings including ex-Electrical and Mechanical Services Department Headquarters, ex-Civil Aid Service Headquarters, ex-Post Office Recreation Club and the PCCW Recreation Club, which are all located on several platforms with different site formation levels and building heights as indicated on Figure 9. The existing buildings mainly occupy the southeast portion of the Project Area with maximum building height at 53.7mPD. In contrast, ball courts occupy the northwest portion of the Project Area which is relatively open.

Figure 9 shows the site plan of the Baseline Scheme. The isometric views of the Baseline Scheme model can be found in Figure 10 to Figure 13.

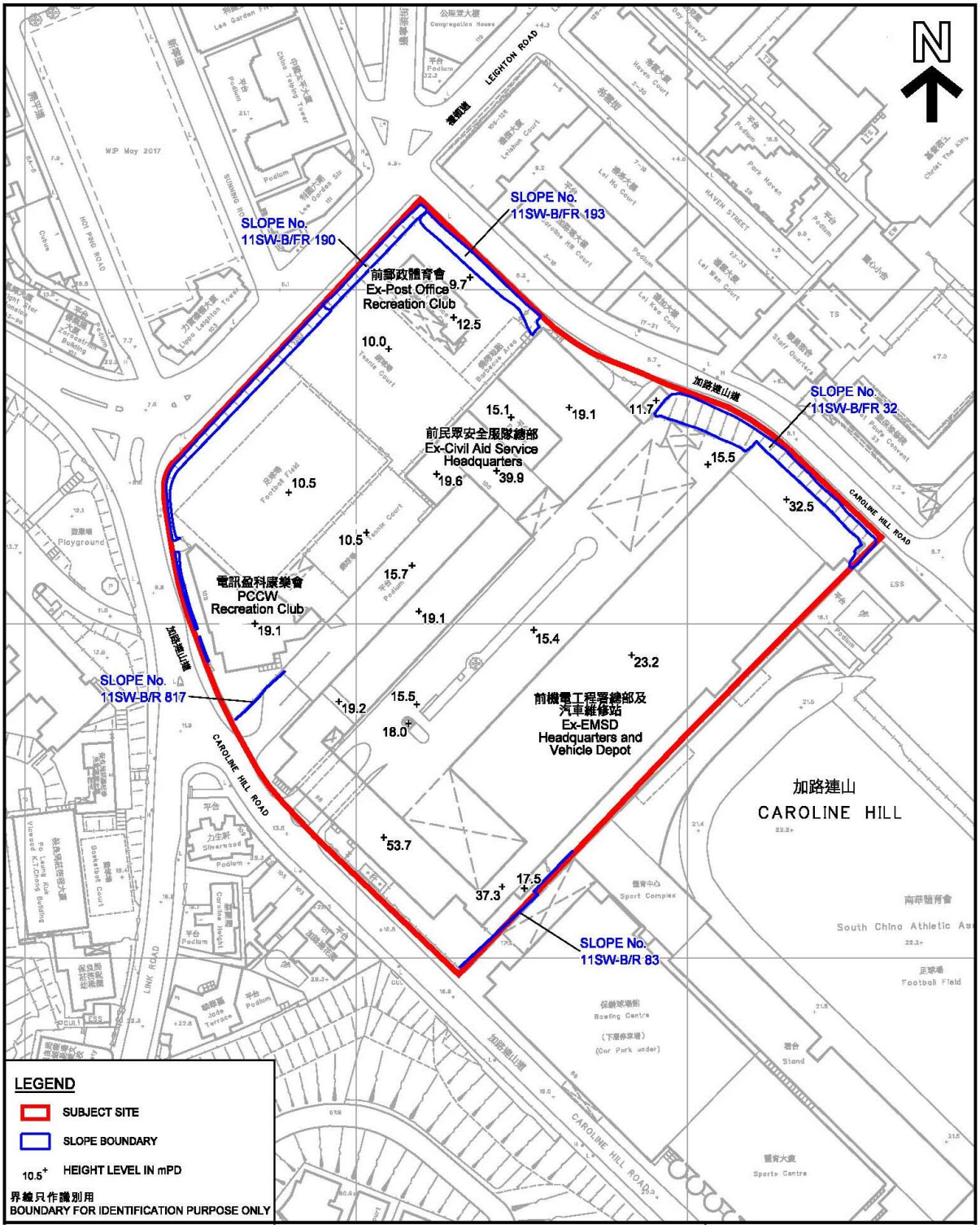


Figure 9 Site Plan of the Baseline Scheme (Source: Planning Department)

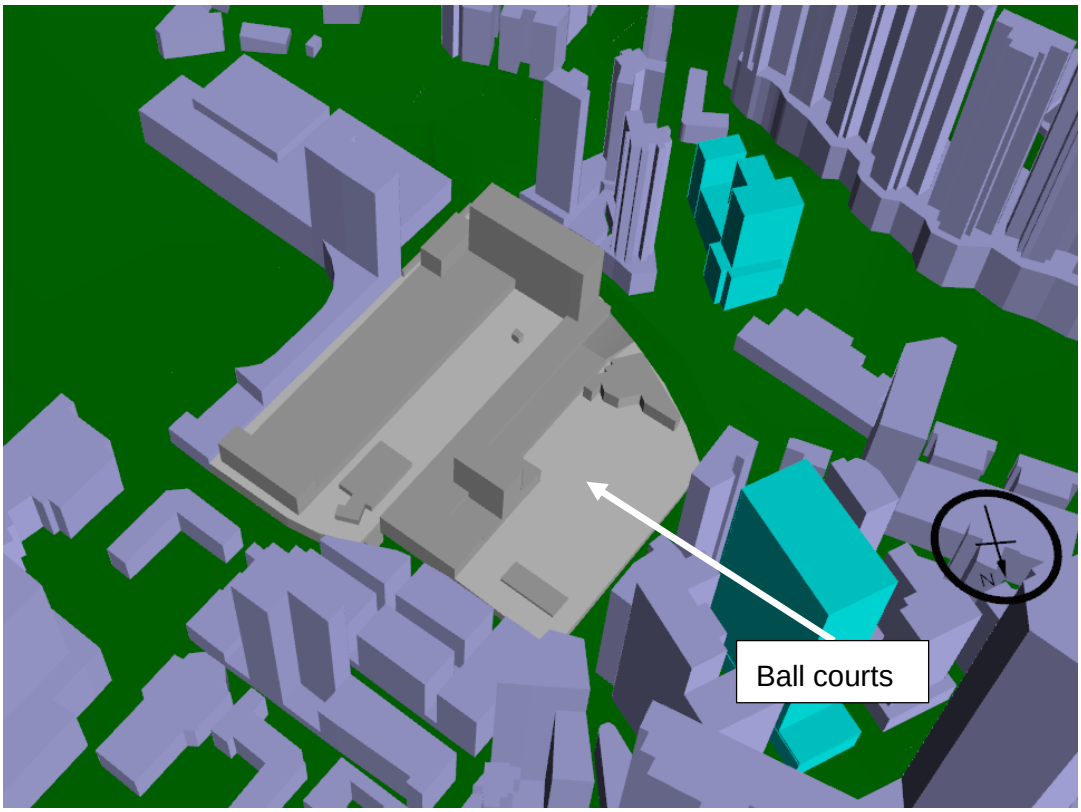


Figure 10 Zoomed-in view of 3D model for the Baseline Scheme from north

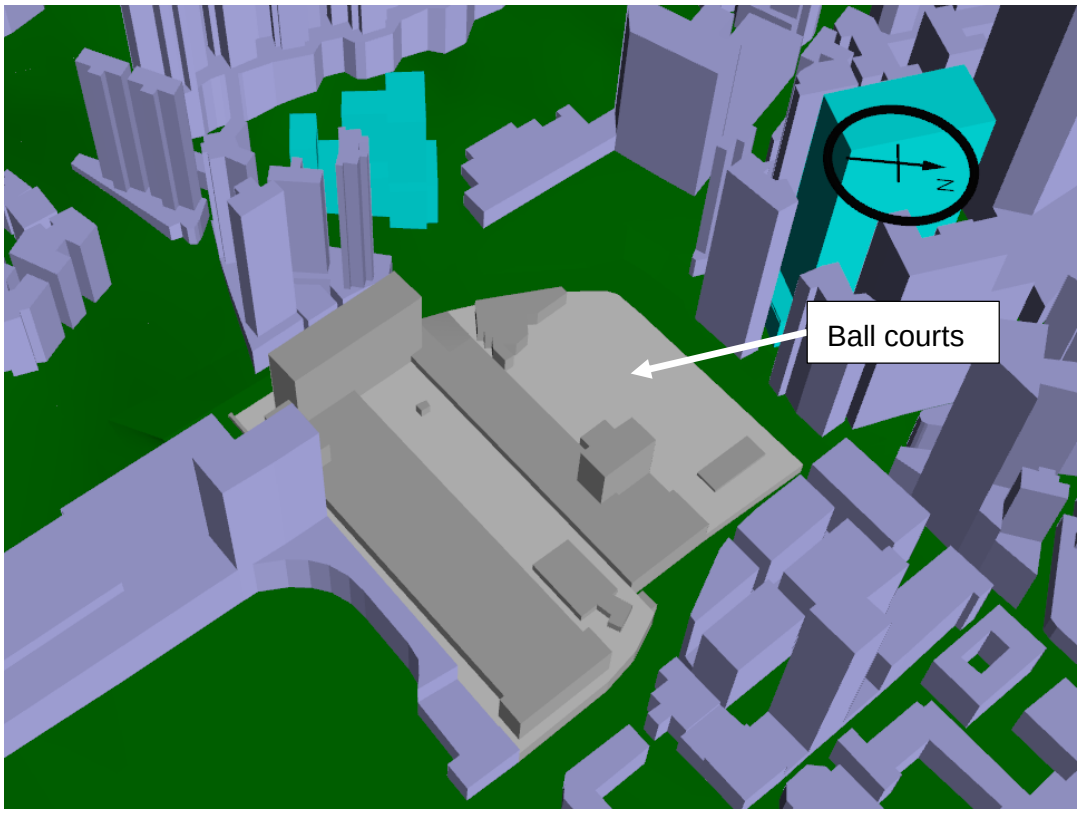


Figure 11 Zoomed-in view of 3D model for the Baseline Scheme from east

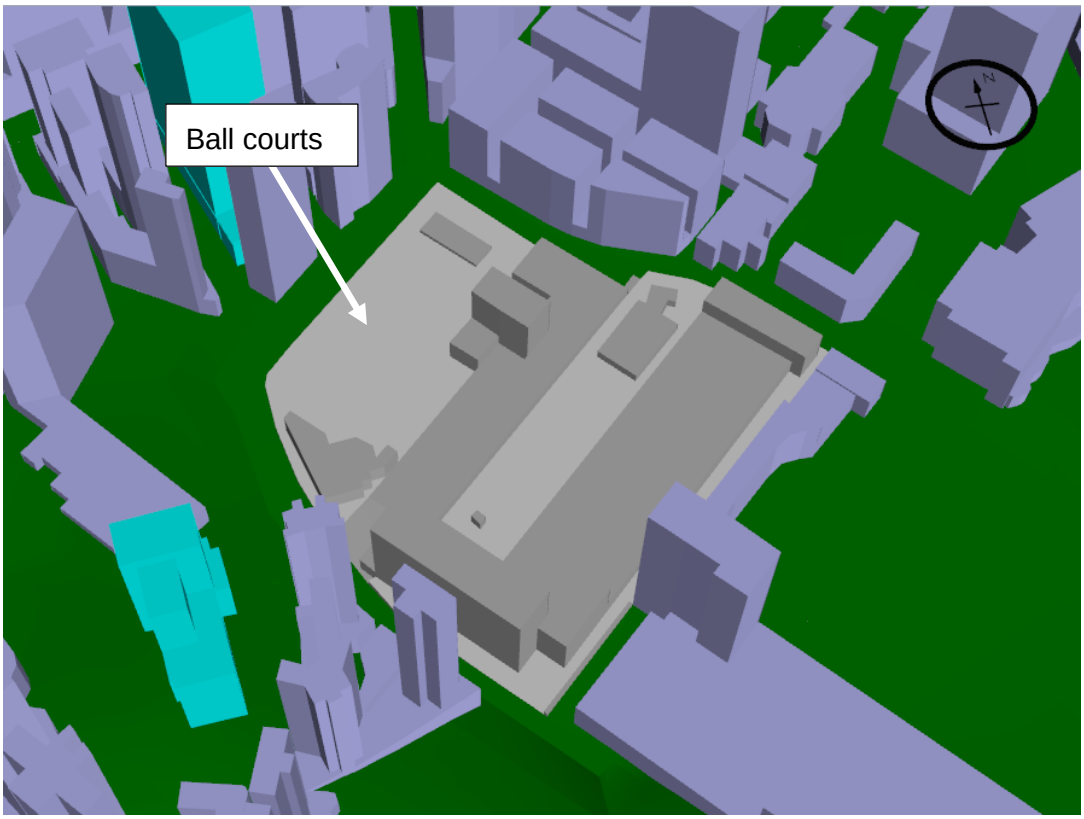


Figure 12 Zoomed-in view of 3D model for the Baseline Scheme from south

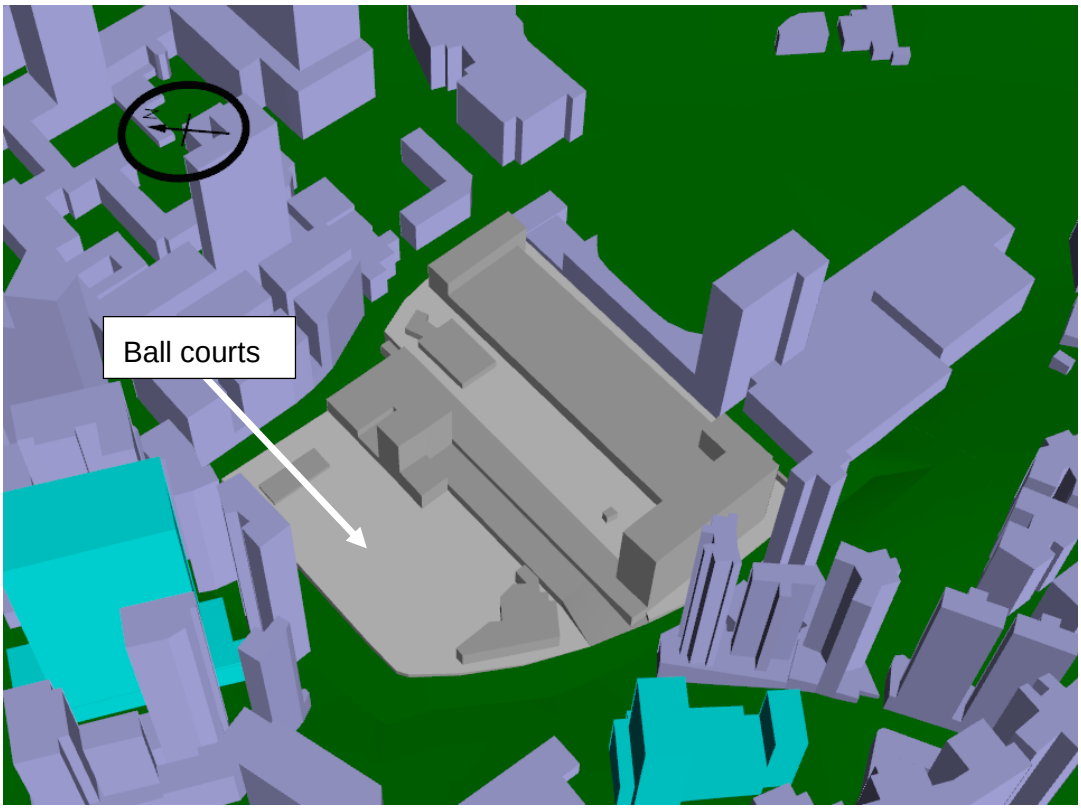


Figure 13 Zoomed-in view of 3D model for the Baseline Scheme from west

2.2.2 Proposed Scheme

The Proposed Scheme will be divided into two portions: i.e. the south-eastern portion for the development of The District Court and the north-western portion for commercial development with a Child Care Centre (CCC) and a District Health Centre (DHC). The maximum GFA of the whole site is 170,000m² (i.e. 70,000m² for The District Court and 100,000m² for the commercial development with a Child Care Centre (CCC) and a District Health Centre (DHC)). The proposed maximum building height for the site would be at 130mPD. A new access road linking the eastern and western Caroline Hill Road is proposed across the center of the Project Area. For both of the sites, a 25m building gap is proposed. For The District Court site, a link bridge of 6m high with underside at level 120mPD will connect the two blocks of The District Court. For the commercial development, two open spaces will be provided at the northwestern and eastern portions of the Project Area with a total area of about 6,000m².

Figure 14 shows the master layout plan of the Proposed Scheme. The isometric views of the Proposed Scheme model can be found in Figure 15 to Figure 18.

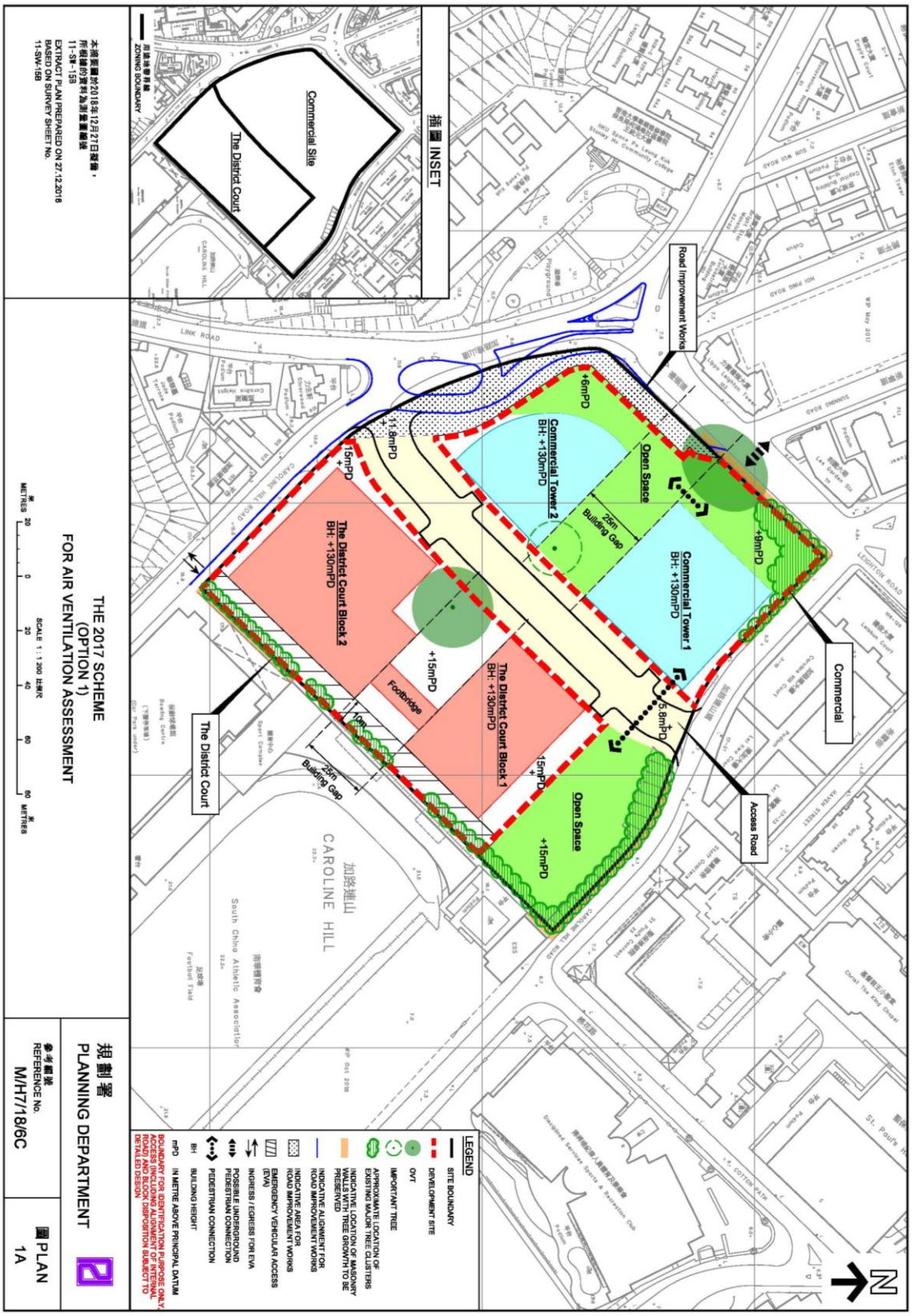


Figure 14 Master Layout Plan of the Proposed Scheme (Source: Planning Department)

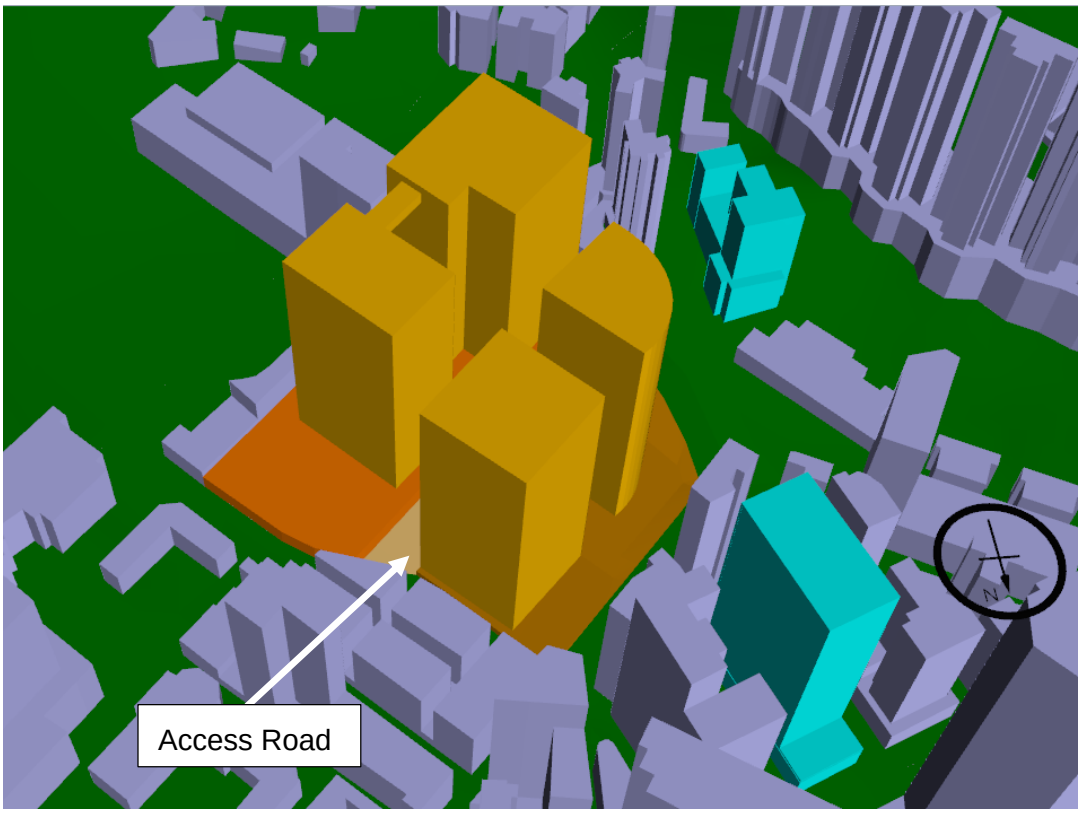


Figure 15 Zoomed-in view of 3D model for the Proposed Scheme from north

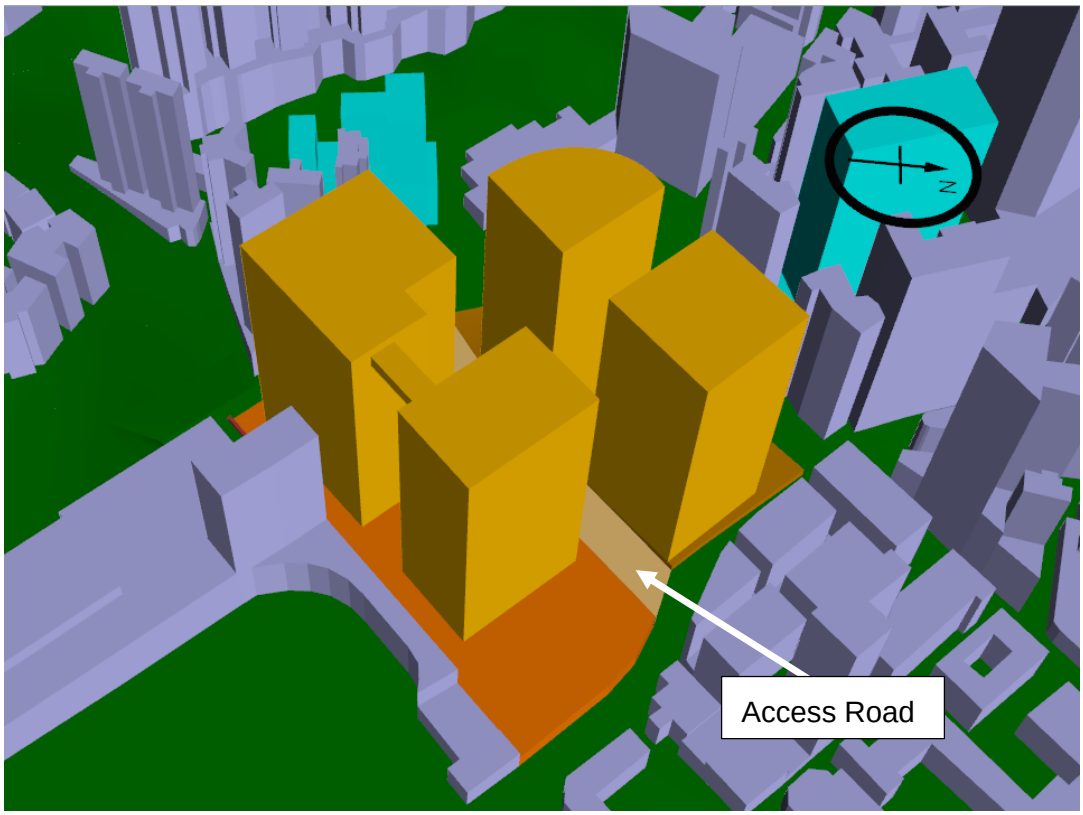


Figure 16 Zoomed-in view of 3D model for the Proposed Scheme from east

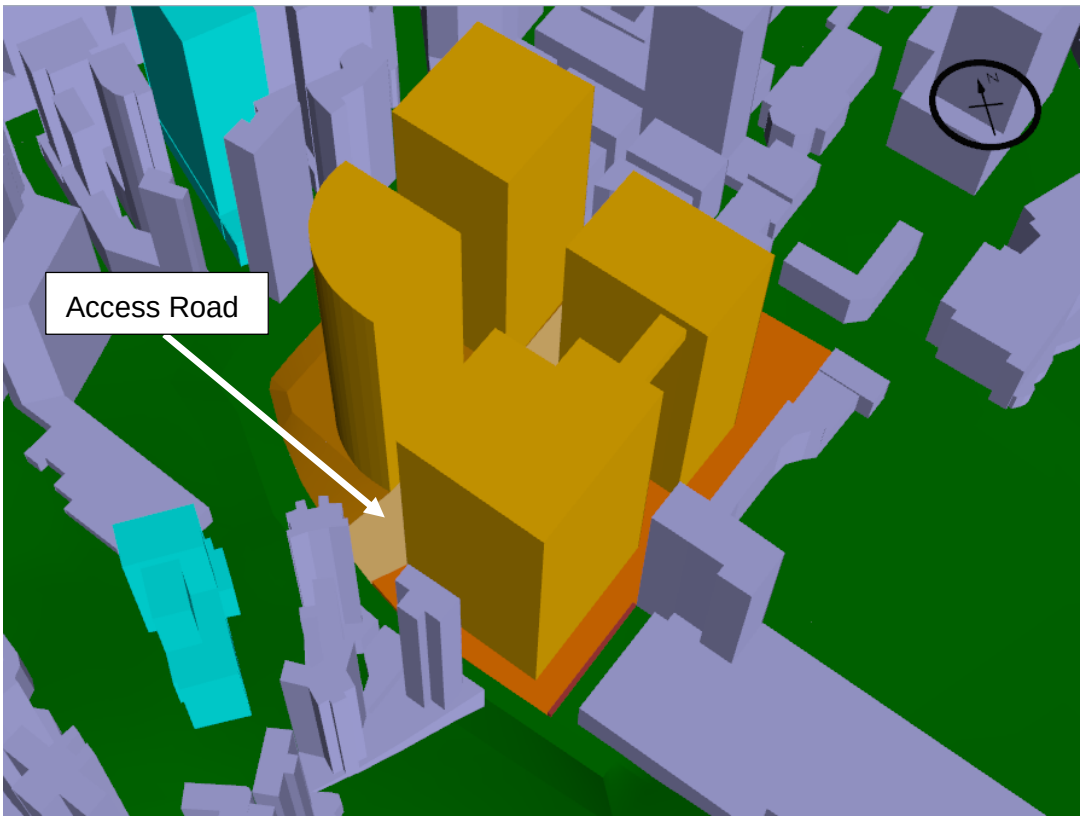


Figure 17 Zoomed-in view of 3D model for the Proposed Scheme from south

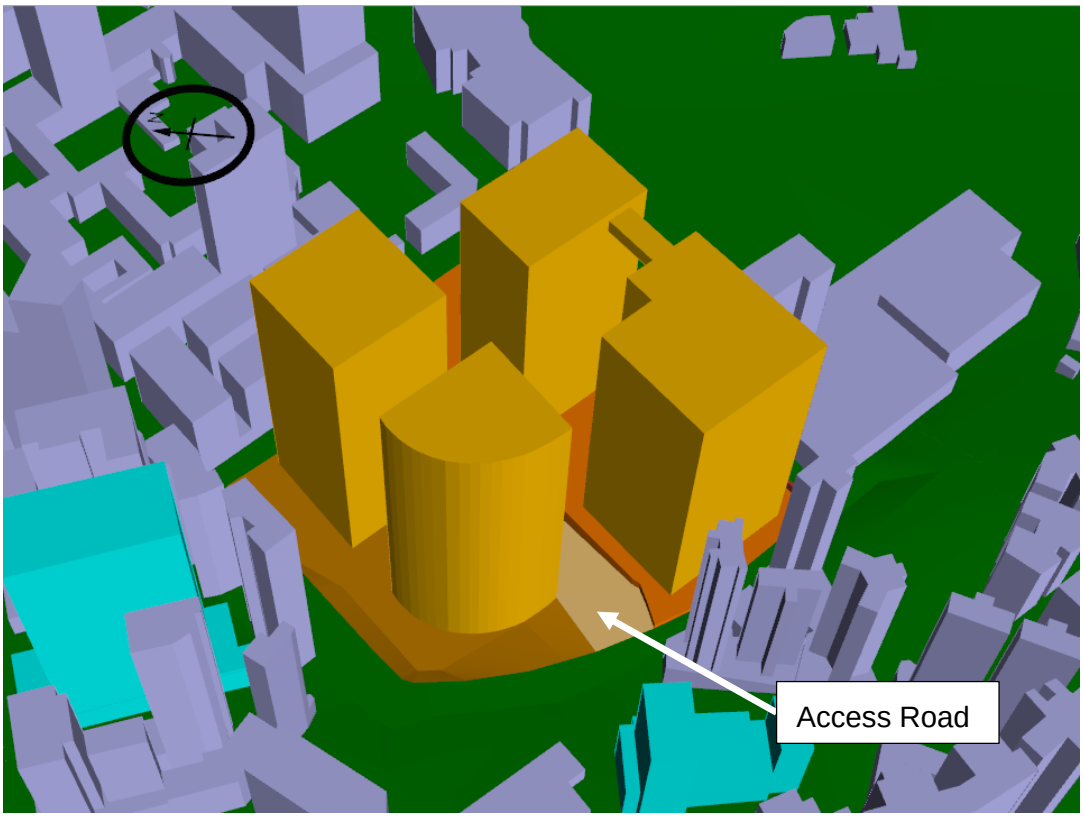


Figure 18 Zoomed-in view of 3D model for the Proposed Scheme from west

2.3 OPTIONAL SCHEME

As compared to the Proposed Scheme, the Optional Scheme will incorporate a 22mPD podium between the two blocks of The District Court. The building gap between the two blocks will also be reduced from 25m to 20m, resulting in the shifting of The District Court Block 1 to the south-west slightly.

Figure 19 shows the master layout plan of the Optional Scheme. The isometric views of the Optional Scheme model can be found in Figure 20 to Figure 23.

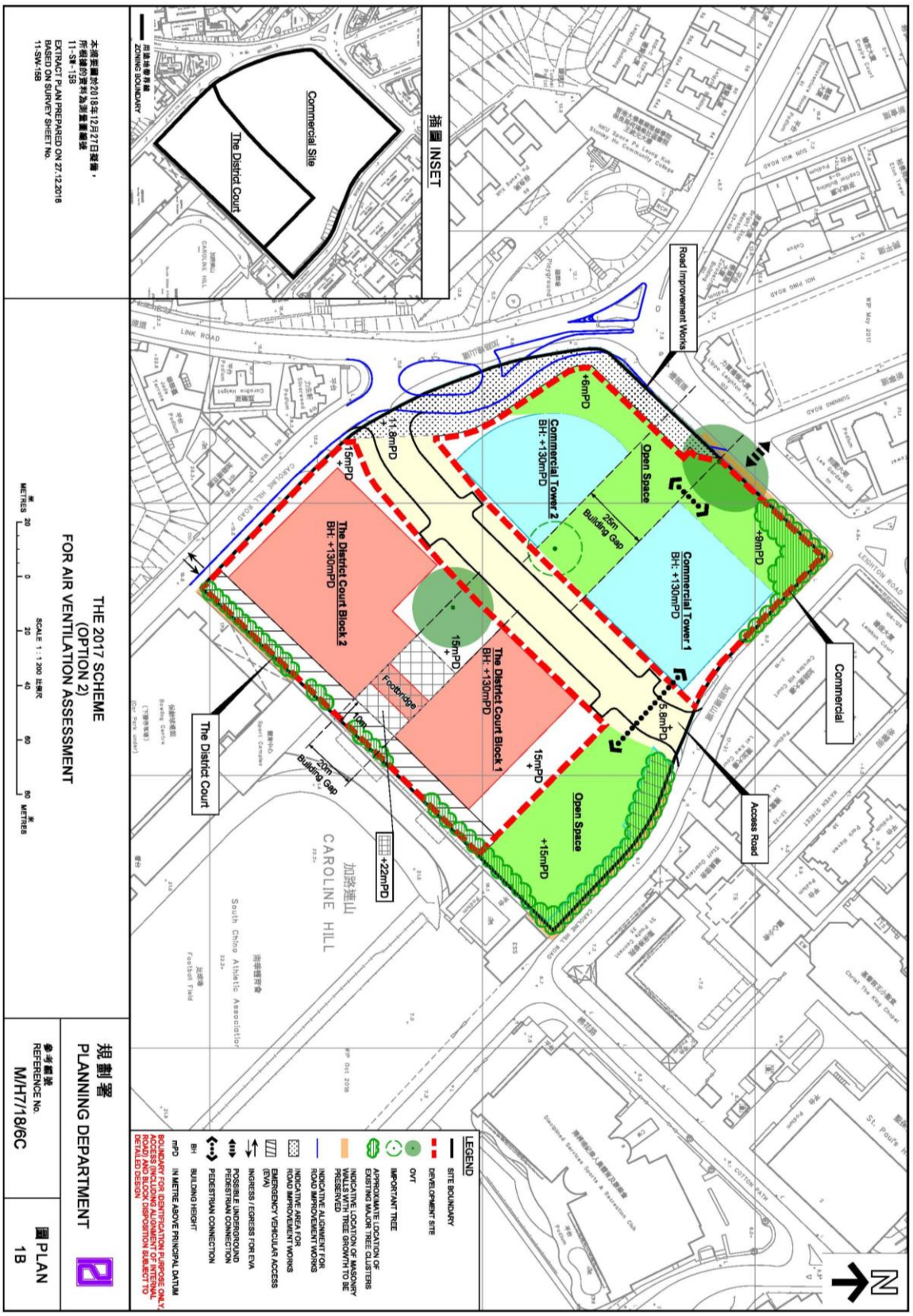


Figure 19 Master Layout Plan of the Optional Scheme (Source: Planning Department)

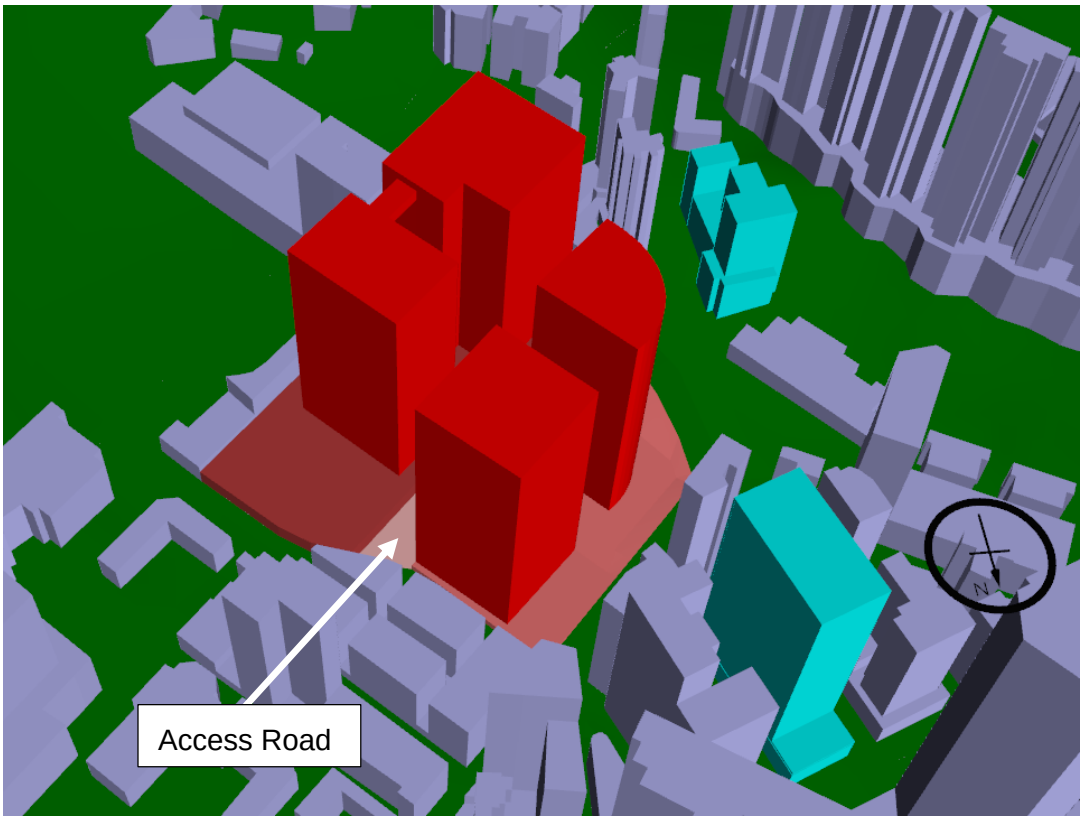


Figure 20 Zoomed-in view of 3D model for the Optional Scheme from north

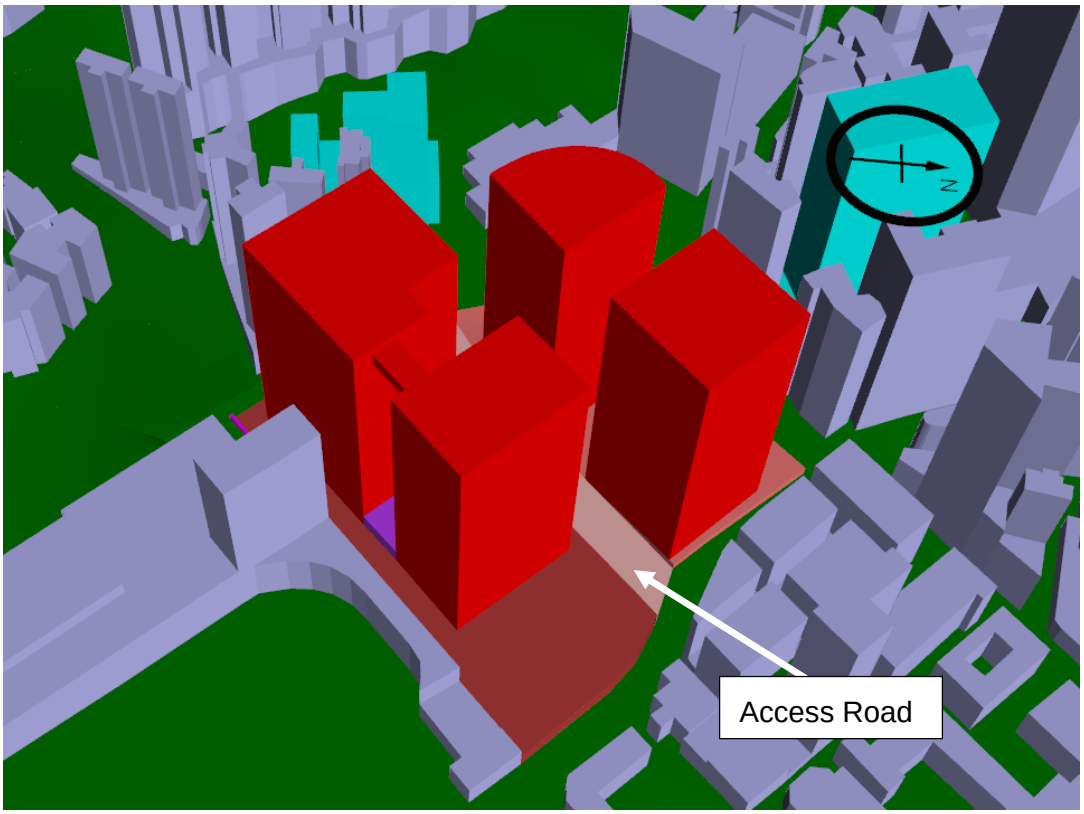


Figure 21 Zoomed-in view of 3D model for the Optional Scheme from east

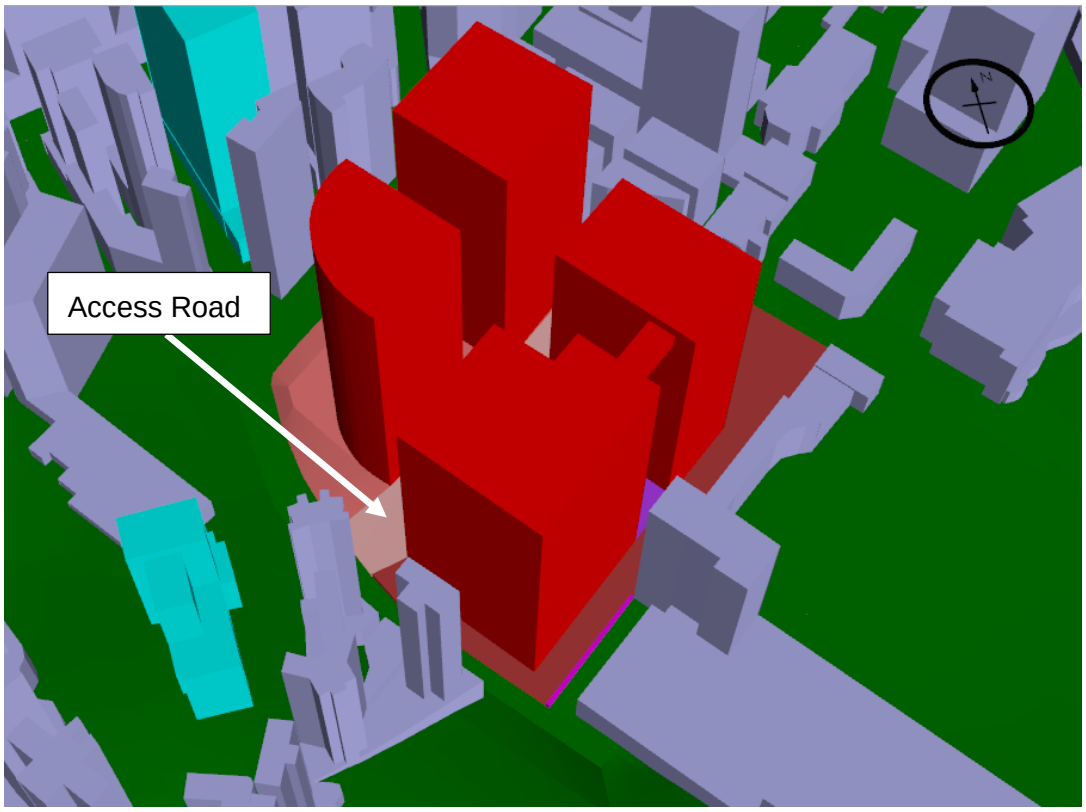


Figure 22 Zoomed-in view of 3D model for the Optional Scheme from south

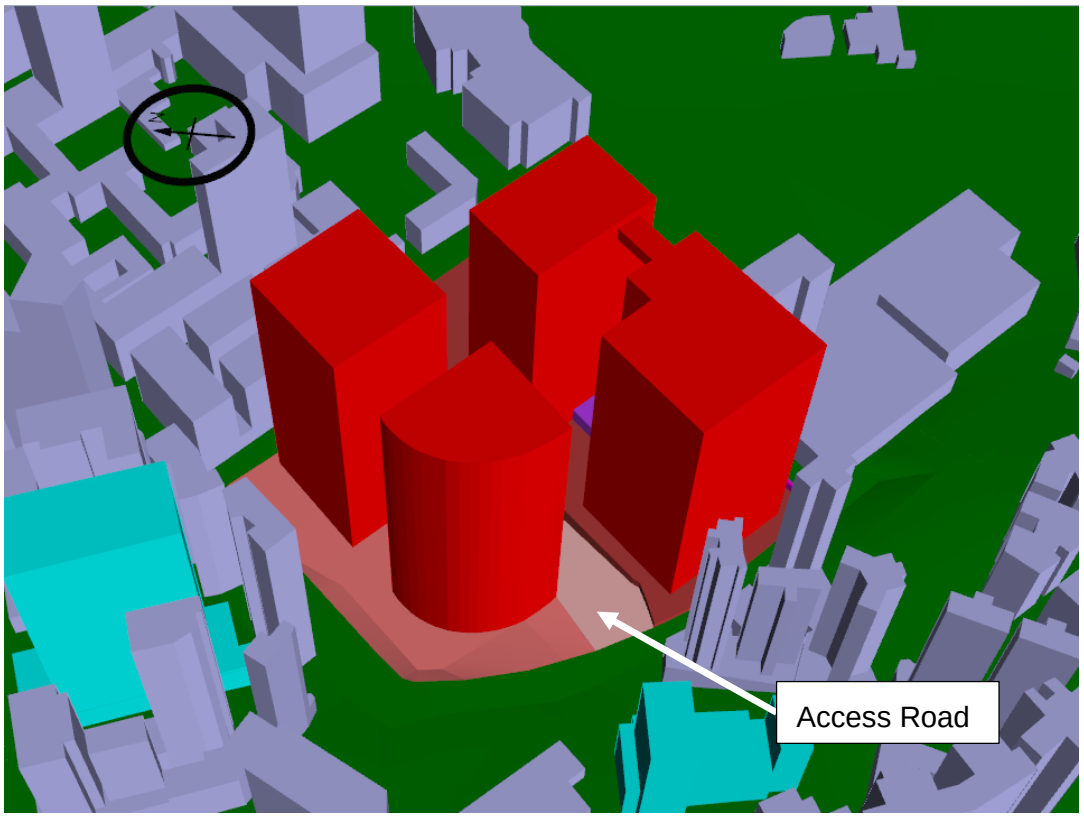


Figure 23 Zoomed-in view of 3D model for the Optional Scheme from west

3 SITE WIND AVAILABILITY

The characteristic of the site wind availability should be identified in order to investigate the wind performance of the Project Area. Site wind availability data could be used to assess the wind characteristics in terms of the magnitude and frequency of approaching wind from each wind direction. There are three sources of site wind data for the Project Area including the nearest Hong Kong Observatory (HKO) Weather Station – North Point Automatic Weather Station, relevant experimental site wind data from wind tunnel test and simulated Regional Atmospheric Modelling System (RAMS) wind data.

3.1 HONG KONG OBSERVATORY WEATHER STATION

The most prevailing wind direction for each month measured at the nearest weather station namely, North Point Automatic Weather Station, is obtained from the Hong Kong Observatory and tabulated in Table 2. The North Point Automatic Weather Station is located around 2km away from the Project Area. Figure 24 below shows the location of North Point Automatic Weather Station.

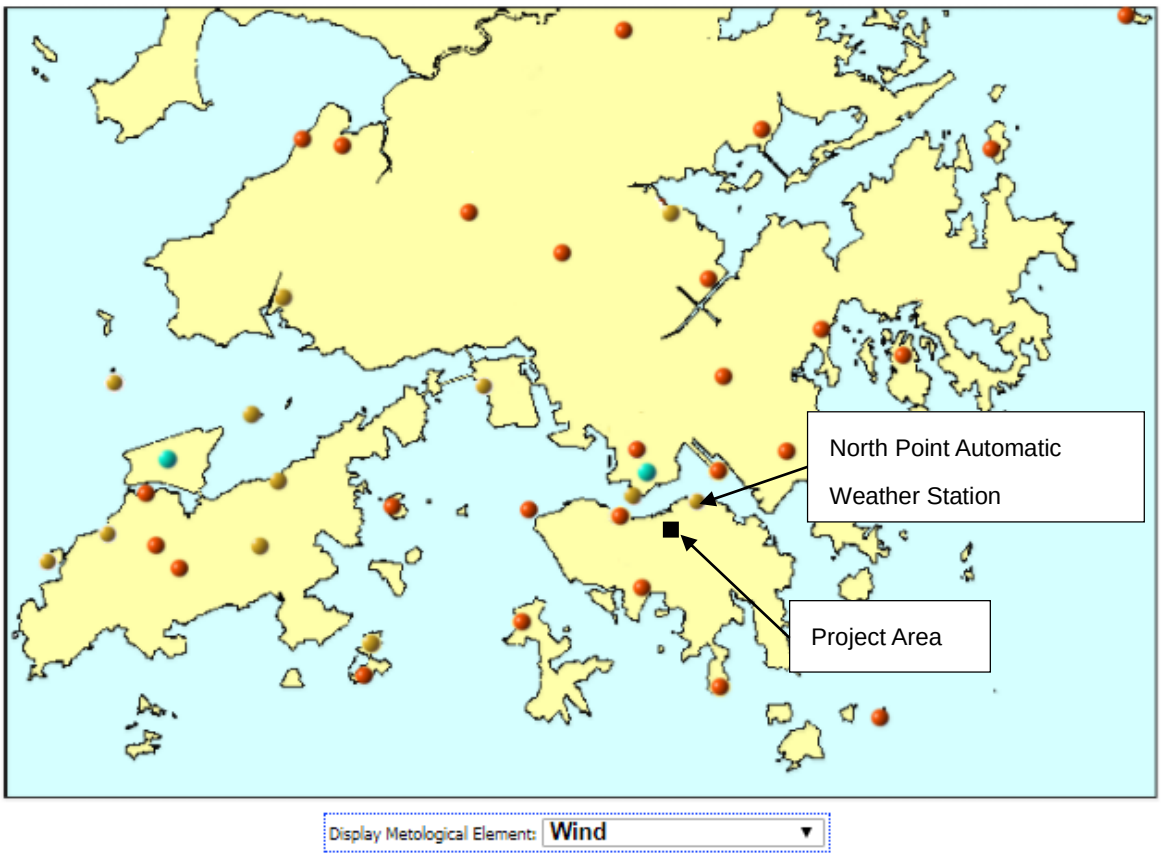


Figure 24 Location of the North Point Automatic Weather Station (Source: Hong Kong Observatory)

Table 2 Monthly Prevailing Wind Directions Recorded at North Point Automatic Weather Station

Month		Prevailing Wind Direction (°)
January		090
February		090
March		090
April		090
May		090
June	**(Summer)**	260
July		260
August		090
September		090
October		090
November		090
December		090

From Table 2, winds coming from 90° (i.e. E wind) is the annual prevailing wind direction whilst winds coming from 260° (i.e. approximately W wind) is the summer prevailing wind direction.

3.2 EXPERIMENTAL SITE WIND DATA FROM WIND TUNNEL TEST

A wind tunnel experiment was previously conducted for the *Experimental Site Wind Availability Study for Causeway Bay, Hong Kong* by the CLP Power Wind/Wave Tunnel Facility (WWTF) (June 2008) at The Hong Kong University of Science and Technology. The study area of the wind tunnel test was centred close to the junction of Hennessy Road and Great George Street with a radius of approximately 500m, which covers the Project Area as shown in Figure 25. The annual and summer wind roses for Causeway Bay at 500m are shown in Figure 26 and Figure 27 respectively.

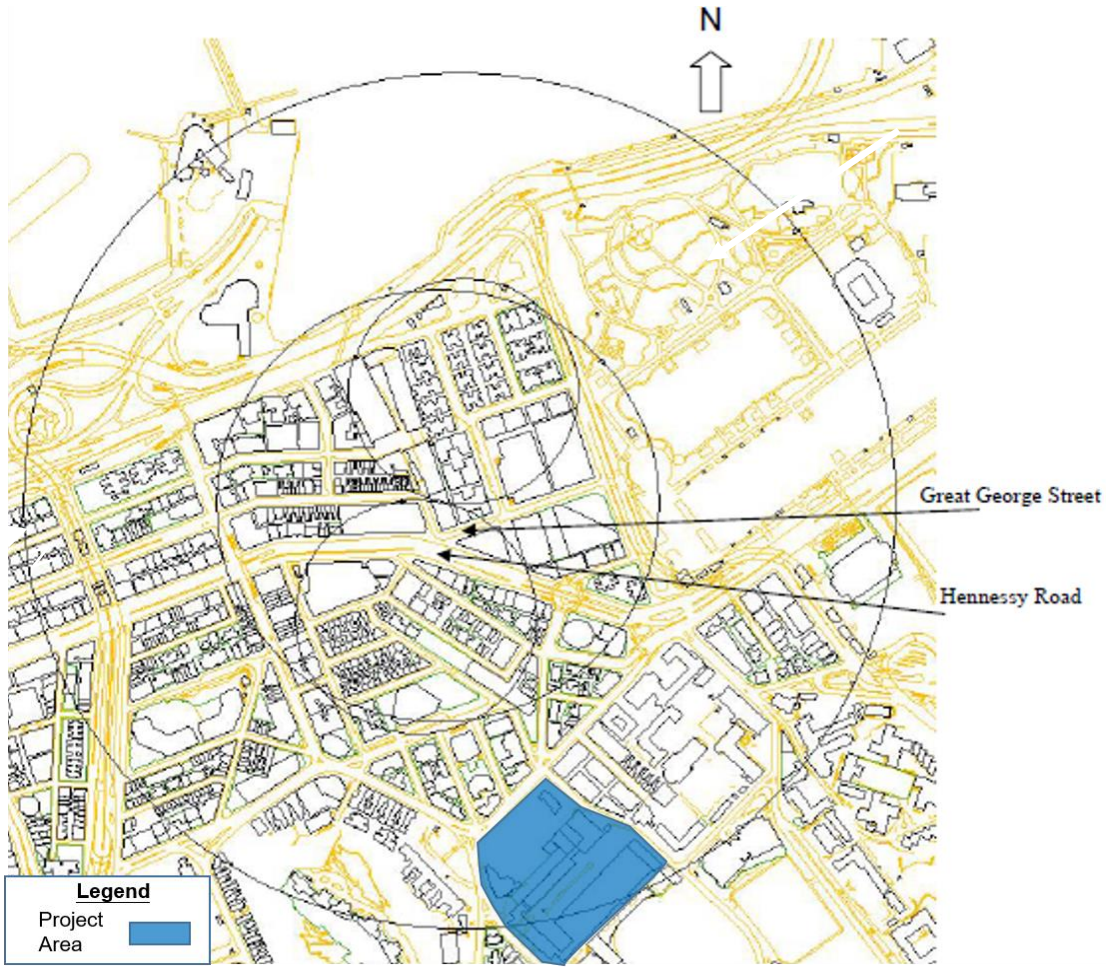


Figure 25 Location of the Causeway Bay Study Area from Wind Tunnel Test

(Source: *Experimental Site Wind Availability Study for Causeway Bay, Hong Kong - June 2008*)

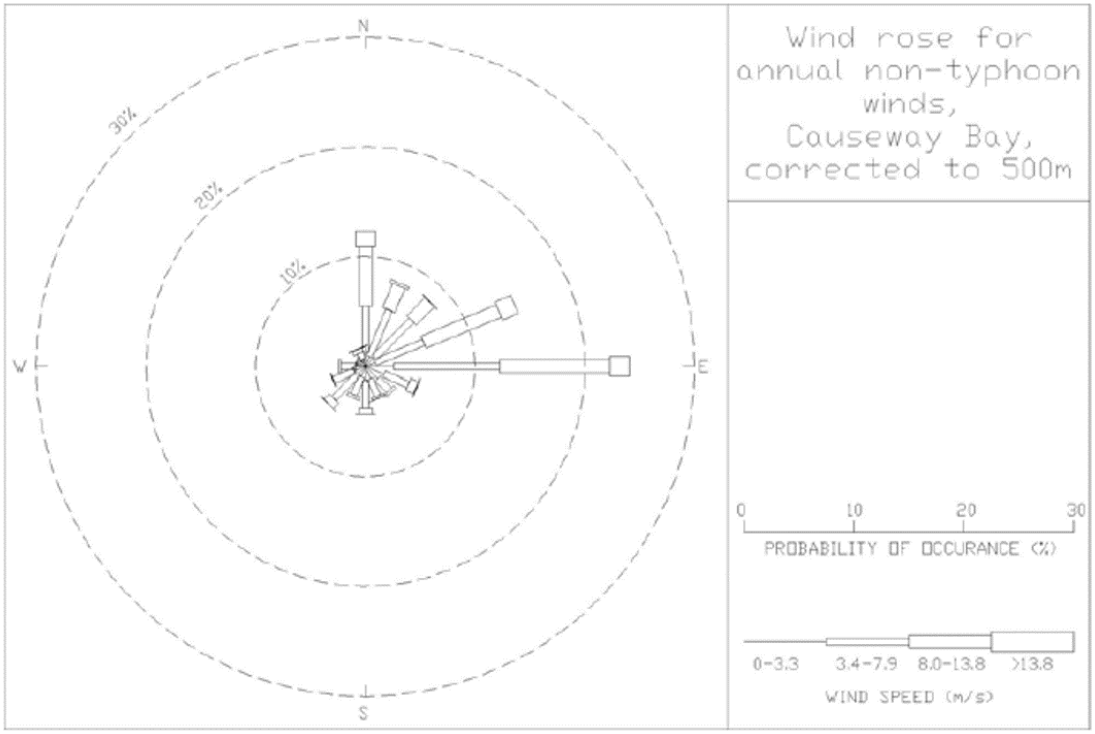


Figure 26 Annual Wind Rose for Causeway Bay Study Area from Wind Tunnel Test at 500m

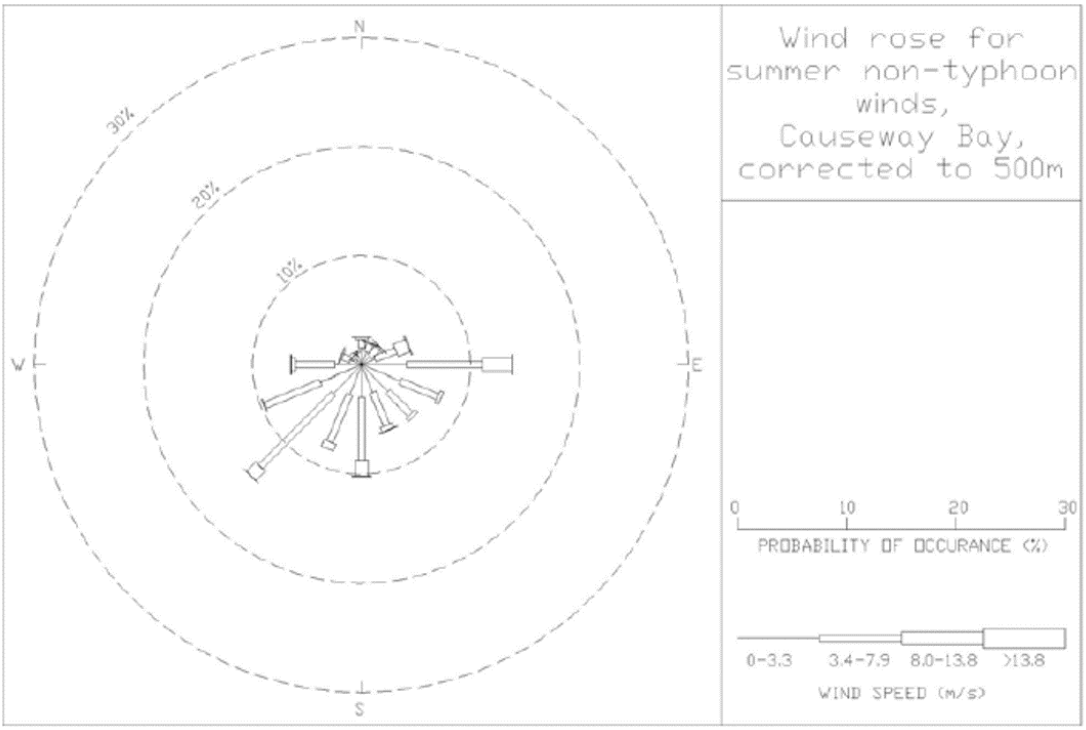


Figure 27 Summer Wind Rose for Causeway Bay Study Area from Wind Tunnel Test at 500m

Table 3 Prevailing Wind Directions identified from previous Wind Tunnel Test

	Annual	**Summer**
Prevailing Wind Direction	E, ENE, N	E, S, SW, WSW

As shown in Table 3, E, ENE and N winds are identified as the annual prevailing wind directions while E, S, SW and WSW winds are identified as the summer prevailing wind directions.

3.3 RAMS WIND DATA

In this study, the RAMS wind data will be adopted for the quantitative assessment as it is the most relevant to the Project Area in terms of location when compared to other wind data.

City University of Hong Kong (CityU) utilized the meso-scale numerical model Regional Atmospheric Modeling System (RAMS) to produce site wind availability data for Hong Kong and is available at PlanD's database[1]. Based on the archived dataset, wind statistics and wind roses for each 0.5km×0.5km gird box at different height levels could be extracted. Simulated data at grid (X083, Y033) corresponds to the location of the Project Area and both annual and summer wind conditions at 500m above ground are referenced in this study. The location of grid (X083, Y033) is shown in Figure 28. The extracted wind roses shows that north easterlies dominate under the annual wind condition while south-westerlies dominate under the summer wind condition. Figure 29 and Figure 30 shows the annual and summer wind roses at 500m above ground level for grid (X083, Y033) respectively.

[1] http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html

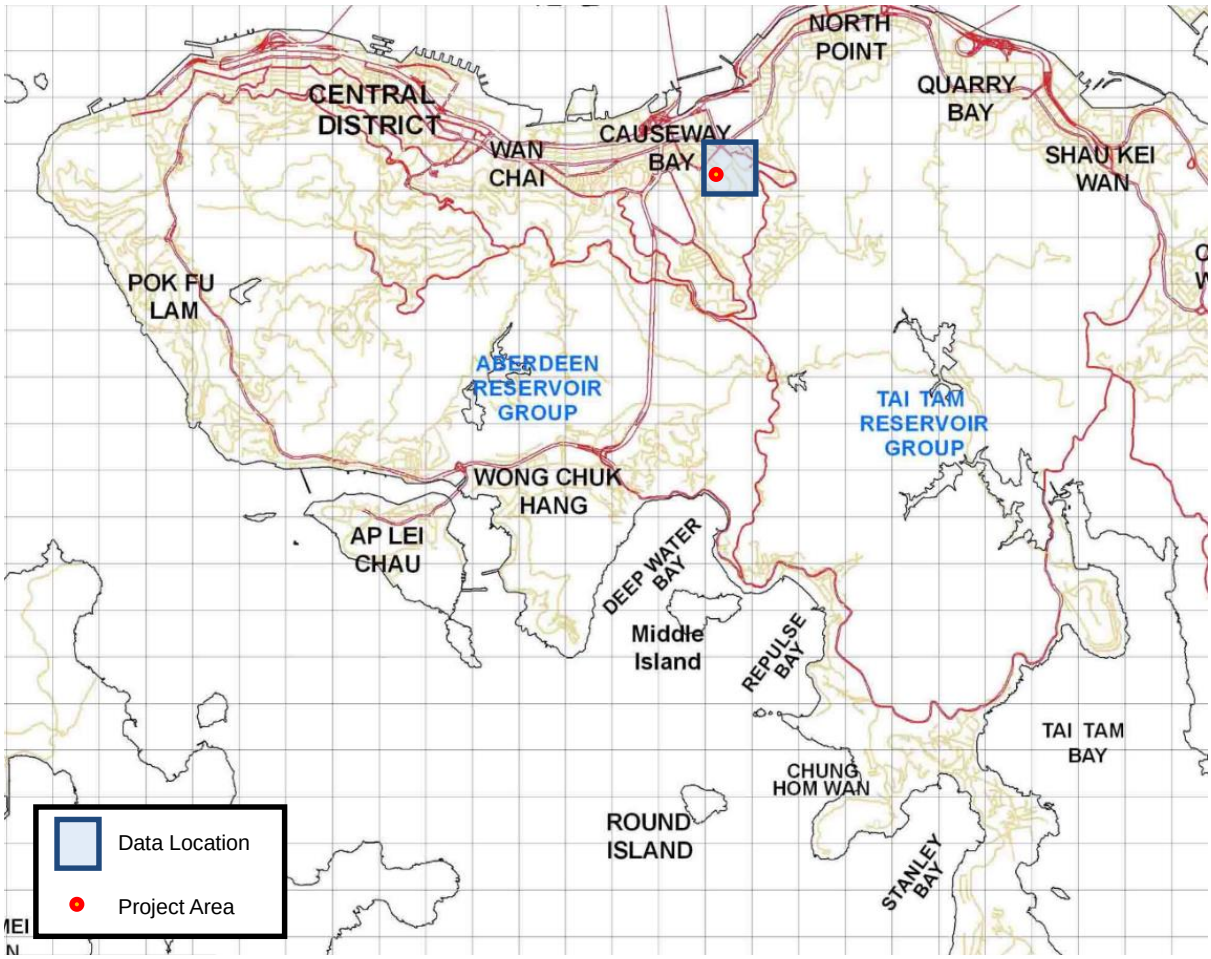


Figure 28 Location of the Selected RAMS Wind Data - Grid (X083, Y033)

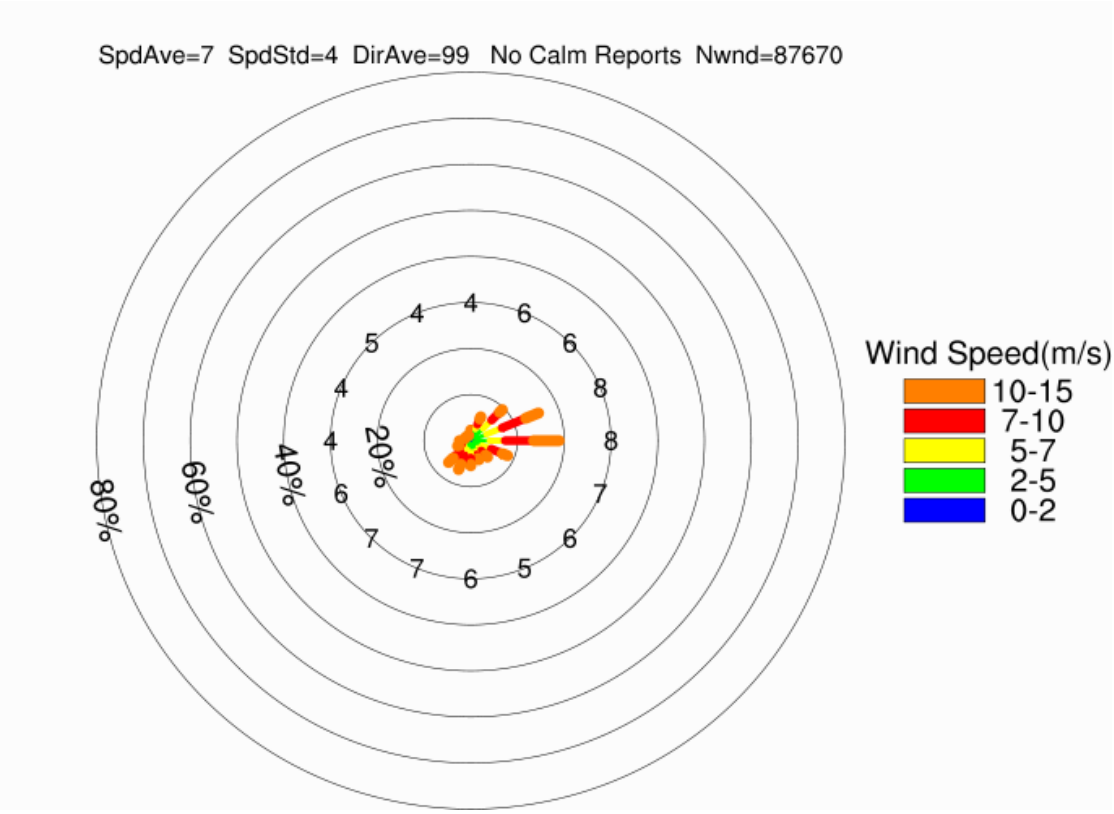


Figure 29 Annual Wind Rose at 500m - Grid (X083, Y033)

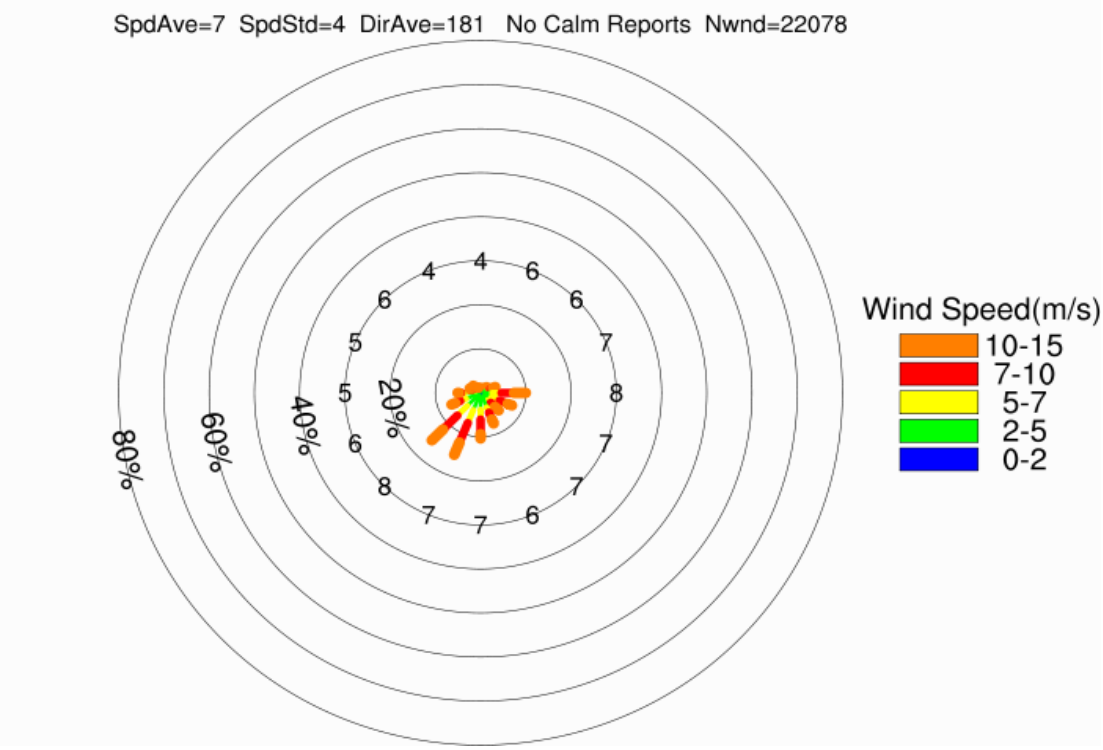


Figure 30 Summer Wind Rose at 500m - Grid (X083, Y033)

3.3.1 Annual Prevailing Wind

Eight prevailing wind directions (bolded in Table 4) are considered in this quantitative assessment which covers 78.5% of the total annual wind frequency. They are North-Northeast (5.6%), Northeast (9.6%), East-Northeast (16%), East (19.3%), East-Southeast (8.6%), South (5.6%), South-Southwest (6.9%) and Southwest (6.9%) winds.

Table 4 Annual Wind Frequency at 500m

Direction	N	**NNE**	**NE**	**ENE**	**E**	**ESE**	SE	SSE
Frequency (%)	2.3	**5.6**	**9.6**	**16**	**19.3**	**8.6**	5.1	4.5
Direction	**S**	**SSW**	**SW**	WSW	W	WNW	NW	NNW
Frequency (%)	**5.6**	**6.9**	**6.9**	3.1	2.4	1.3	1.3	1.3

3.3.2 Summer Prevailing Wind

Eight prevailing wind directions (bolded in Table 5) are considered in this quantitative assessment which covers 80.6% of the total summer wind frequency. They are East (10.4%), East-Southeast (7.6%), Southeast (5.9%), South-Southeast (7.6%), South (10.7%), South-Southwest (15.6%), Southwest (15.8%) and West-Southwest (7%) winds.

Table 5 Summer Wind Frequency at 500m

Direction	N	NNE	NE	ENE	**E**	**ESE**	**SE**	**SSE**
Frequency (%)	1.0	1.2	1.9	3.8	**10.4**	**7.6**	**5.9**	**7.6**
Direction	**S**	**SSW**	**SW**	**WSW**	W	WNW	NW	NNW
Frequency (%)	**10.7**	**15.6**	**15.8**	**7.0**	5.1	2.6	2.3	1.3

3.4 WIND PROFILE

RAMS wind data extracted from PlanD's Website will be adopted in this AVA Initial Study. The corresponding wind profile data from 10 – 500m will be directly adopted as it reflects the exact wind data whereas the power law equation will be used to approximate near ground wind profile (i.e. 0 – 10m). For wind data above 500m, wind velocity shall be assumed as the wind velocity at 500m. Appendix A shows the overall wind profile curve adopted for wind directions of 22.5º - 112.4º, 112.5º - 202.4º, 202.5º - 292.4º and 292.5º - 22.4º respectively.

The vertical discretization of 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 *UG = reference velocity at height zG* *UZ = velocity at height z*

ZG = reference height *n = power law exponent*

Z = height above ground

The power *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. Table 6 shows the *n* value adopted for CFD simulation.

Table 6 Value of *n* (Power Law Exponent) adopted for CFD Simulation

Direction	**NNE**	**NE**	**ENE**	**E**	**ESE**	**SE**	**SSE**	**S**
Value of *n*	0.15	0.35	0.35	0.15	0.5	0.5	0.5	0.5
Direction	**SSW**	**SW**	**WSW**					
Value of *n*	0.5	0.5	0.5					

Table 7 shows the data for each wind profile curve adopted in the current AVA Initial Study, which acts as the inlet boundary data in the CFD simulation.

Table 7 Wind Profile Data for All Wind Directions

Height (m)	Wind Speed (m/s)			
	22.5° – 112.4°	112.5° – 202.4°	202.5° – 292.4°	292.5° – 22.4°
0	0.00	0.00	0.00	0.00
10	3.12	1.67	2.01	2.22
20	3.22	1.71	2.04	2.25
40	3.43	1.78	2.11	2.31
60	3.59	1.84	2.17	2.34
80	3.72	1.91	2.20	2.37
100	3.86	1.97	2.24	2.39
150	4.26	2.16	2.33	2.44
200	5.17	2.73	2.55	2.67
250	5.92	3.50	2.75	2.63
300	6.48	4.15	3.18	2.77
350	6.94	4.62	3.59	3.08
400	7.31	5.01	3.97	3.39
450	7.61	5.38	4.29	3.69
500	7.74	5.60	4.58	3.96

4 METHODOLOGY FOR CFD SIMULATION

The AVA methodology for this study follows the guidelines stipulated in the Technical Circular No. 1/06. The following section describes the study methodology in detail.

4.1.1 Assessment and Surrounding Areas

With reference to the Technical Circular No. 1/06, the Assessment Area of the Instructed Project should include the project's surrounding up to a perpendicular distance H from the site boundary of the Project Area, where H is the height of the tallest building on site. The Surrounding Area will be up to a perpendicular distance of 2H from the site boundary of the Project Area.

As set out in the Project Brief, the coverage of the Assessment and Surrounding Areas are 200m and 400m respectively measured from the site boundary of the Project Area. Such extent is considered appropriate as the tallest building within the Assessment Area has a building height of approximately 200m (i.e. Lee Garden One). The model takes information on the surrounding buildings and site topography via the Geographical Information System (GIS) platform. The computational domain of the CFD model for this AVA Initial Study is approximately 3500m (L) x 3200m (W) x 2500m (H).

Figure 31 shows the size and location of the Project Area, Assessment Area, Surrounding Area and the computational domain.

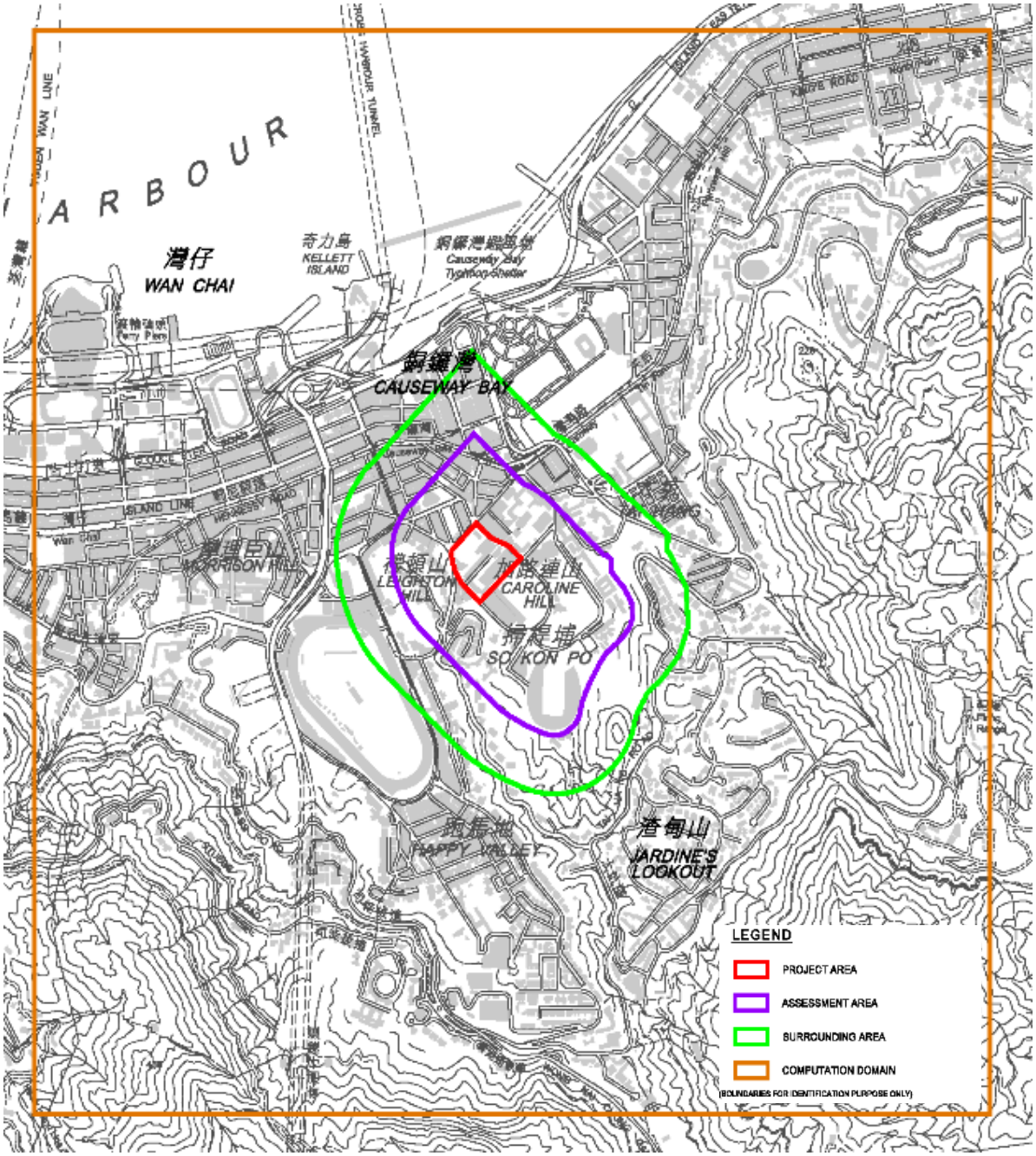


Figure 31 Project, Assessment and Surrounding Areas along with the Computational Domain

4.1.2 Modelling Tool

CFD technique was utilized for the current AVA Initial Study. A commercial CFD package ANSYS ICEM CFD and ANSYS-Fluent were used. Both software is widely adopted in the industry for AVA studies and other types of complex fluid flow related problems.

4.1.3 Mesh Setup

Body-fitted unstructured grid technique is used to fit the geometry to reflect the geometry details which is essential for proper modeling on turbulence flow. 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 near ground as shown in Figure 32. The expansion ratio is 1.3 while the maximum blockage ratio is 2%. The mesh distribution for the computational domain of the Baseline Scheme, Proposed Scheme and Optional Scheme is shown in Figure 33 to Figure 35 respectively.

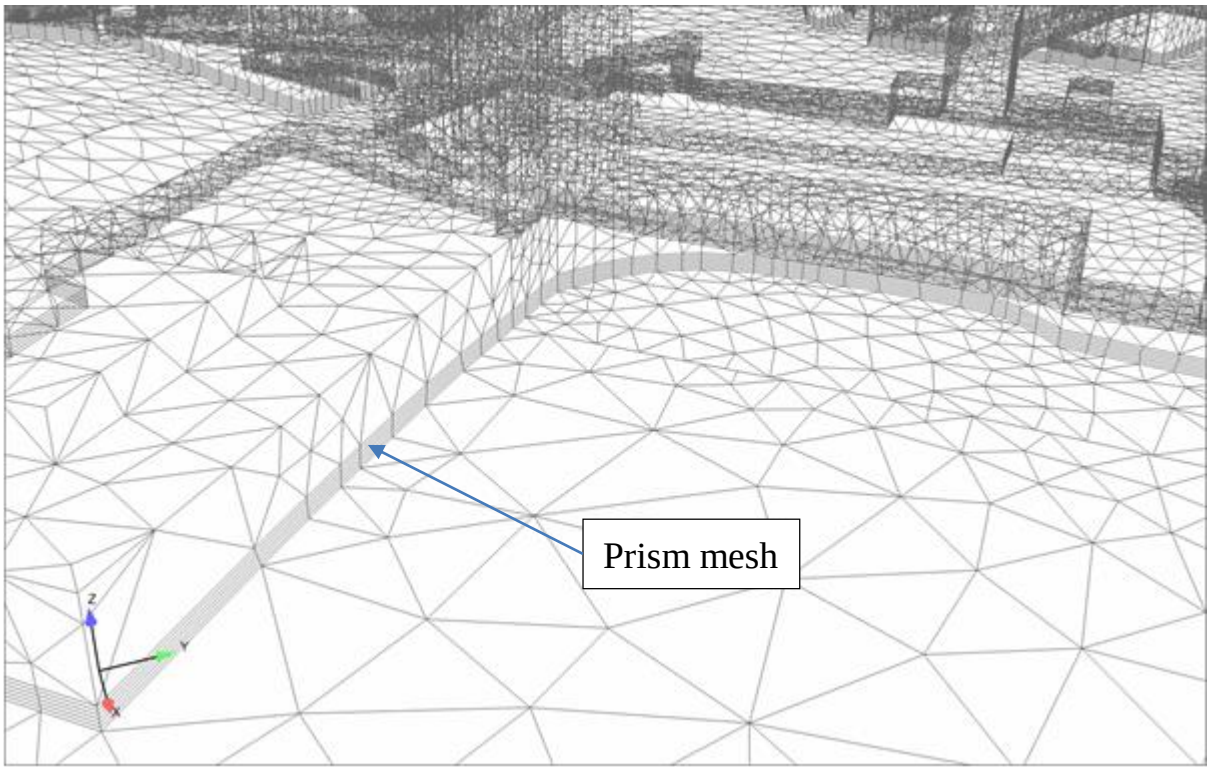


Figure 32 Prism Meshes at Ground Level

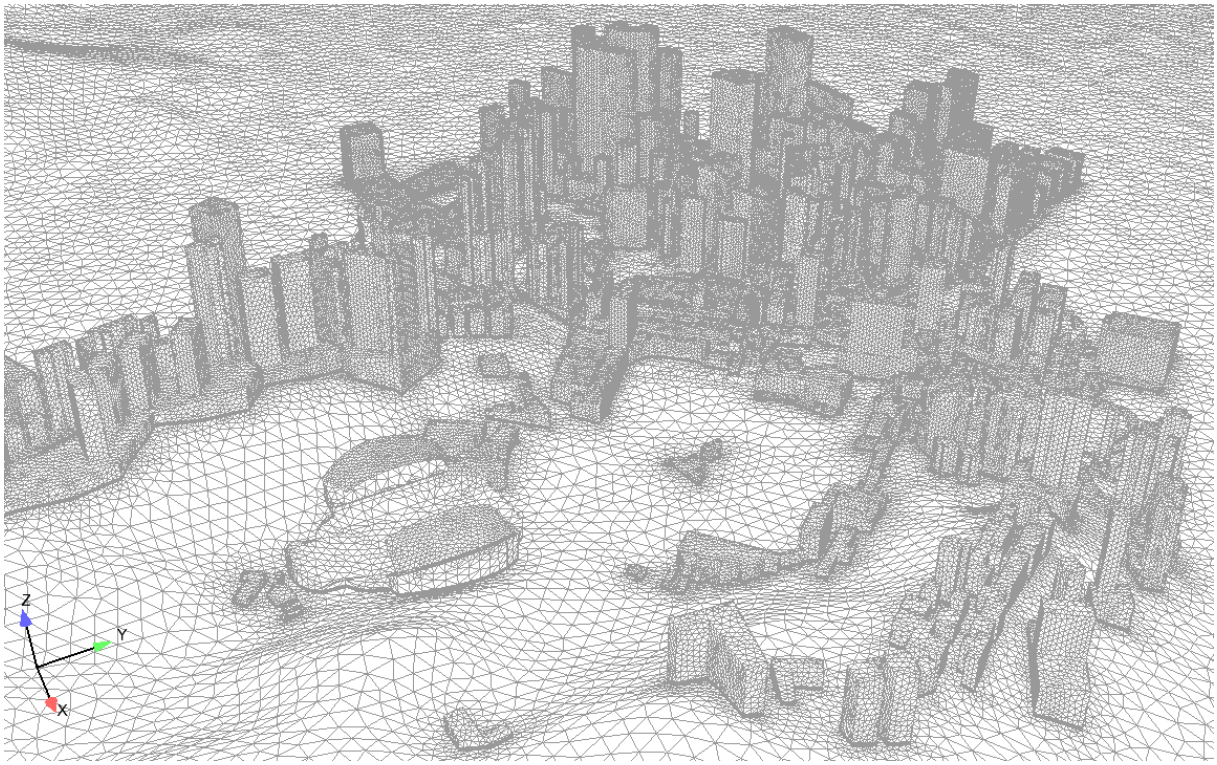


Figure 33 Mesh distribution of the Computational Domain under Baseline Scheme

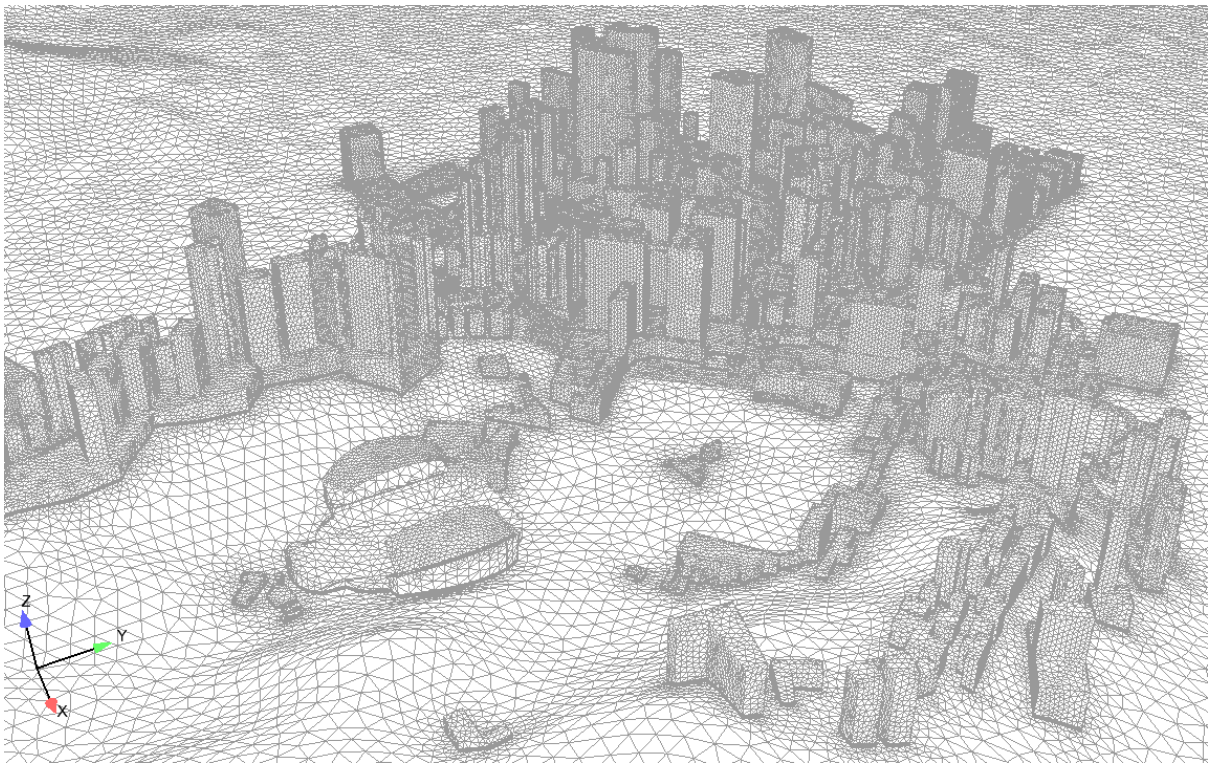


Figure 34 Mesh distribution of the Computational Domain under Proposed Scheme

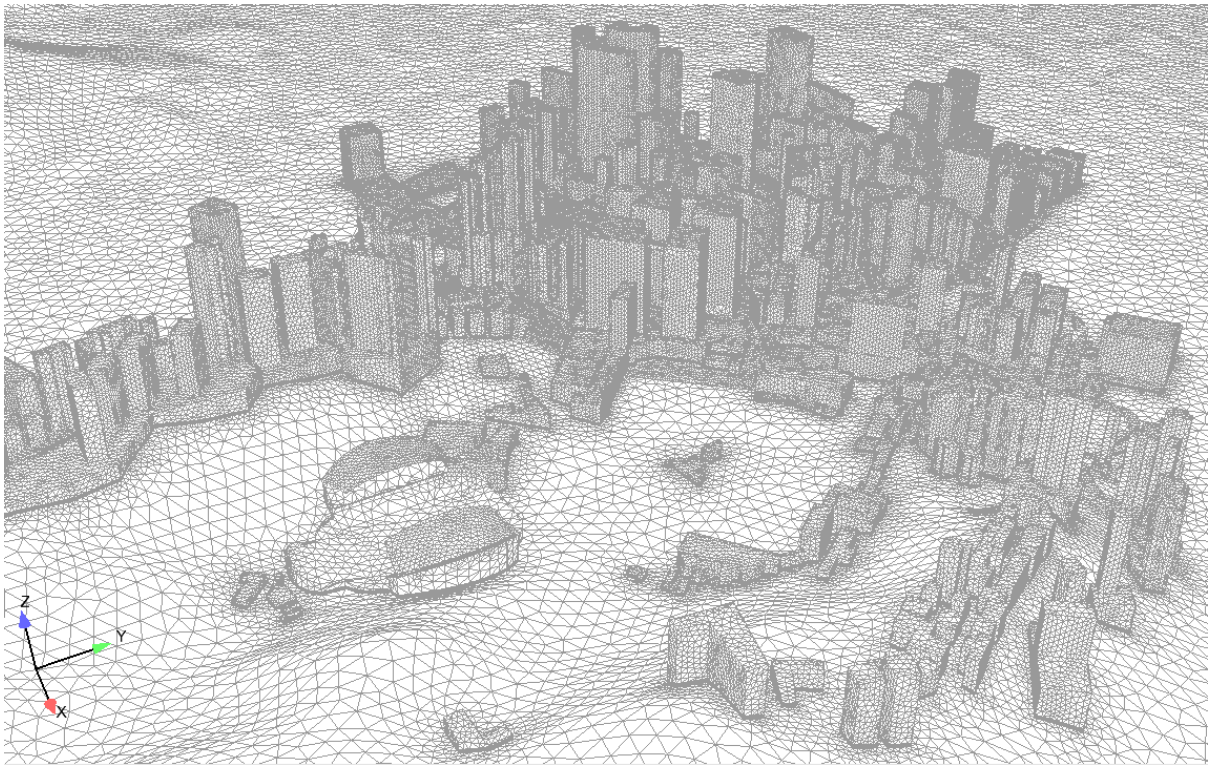


Figure 35 Mesh distribution of the Computational Domain under Optional Scheme

4.1.4 Turbulence Model

Nowadays, various turbulence models are available in the market which most of them are mature for industrial use.

According to COST Action C14 (2004)[2], realizable k – ε turbulence model could attenuate the stagnation point anomaly without leading to worse results in the wake. It is recommended for modeling pedestrian wind environment, as this technique provides more accurate representation of the levels of turbulence that can be expected in an urban environment.

4.1.5 Calculation Method and Boundary Condition

Pressure-Based segregated algorithm will be adopted to solve the governing equations. The pressure and velocity coupling will be handled by SIMPLE algorithm or its variation. A collocated variable arrangement with Rhie-and-Chow-type approach is also adopted to

[2] J. Franke, C. Hirsch, A.G. Jensen, H.W. Krüs, M. Schatzmann, P.S. Westbury, S.D. Miles, J.A. Wisse and N.G. Wright, Recommendations on the use of CFD in Wind Engineering, In J.P.A.J. van Beek (Ed.), Proc. Int. Conf. on Urban Wind Engineering and Building Aerodynamics: COST C14 – Impact of Wind and Storm on City life and Built Environment, Rhode-Saint-Genèse, 2004.

prevent checker board problem. A higher order differencing scheme is applied to discretize all governing equations. The convergence criterion is set to 0.0001 on mass, momentum and turbulence equations. The calculation will repeat until the solution satisfies this convergence criterion. The prevailing wind direction is set to inlet boundary of the model with respective wind profile as detailed in Section 3.4. 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 more than 5H from the Surrounding Area as recommended in the Technical Circular No. 1/06.

4.1.6 Summary

Based on previous sections, the detail parameters of the model are summarized below.

	CFD Model
Computational Model Scale	1:1 scale to real environment
Model details	Topography, Buildings blocks, Streets/highways, all major elevated structures and noise barriers are included. No minor structures like signboard, street light, trees, shrubs, turfs, etc are included in the simulation model.
Domain	3500m(L) x 3200m(W) x 2500m(H)
Assessment Area	Min. 200m from the Project Area
Surrounding building Area	Min. 400m from the Project Area
Turbulence Model	Realizable k-ε model
Grid Expansion Ratio	maximum expansion ratio = 1.3
Prismatic layer	6 layer of prismatic layers and 0.5m each (i.e. total 3m above ground)
Inflow boundary Condition	Respective wind profile obtained from RAMS
Outflow boundary	Pressure boundary condition with pressure equal to zero
Wall boundary condition	Logarithmic law boundary
Solving algorithms	SIMPLE with Rhie and Chow approach + Higher order differencing scheme
Blockage ratio	≤ 2%
Convergence criteria	≤ $1.0E^{-4}$

4.2 AVA INDICATOR

4.2.1 Wind Velocity Ratio

The Wind Velocity Ratio (VR) as proposed by the Technical Circular No. 1/06 was employed to assess the ventilation performance of the proposed development and its surrounding environment. Higher VR implies better ventilation. The calculation of VR is given by the following formula:

$$VR = \frac{V_p}{V_\infty}$$

V_P= the wind velocity at the pedestrian level (2m above ground or podium level).

V_∞= the wind velocity at the top of the wind boundary layer (typically assumed to be around 500m above the center of the site of concern, or at a height where wind is unaffected by the urban roughness below).

The Average VR is defined as the frequency 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 at both annual and summer wind conditions.

4.2.2 Spatial average velocity Ratio

CFD simulations were conducted to study the wind environment under annual and summer wind conditions. As specified in the Technical Circular No. 1/06, indicator of ventilation performance should be the Wind Velocity Ratio (VR), defined as the ratio of the wind velocity at the pedestrian level 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 SVR gives an idea of how the lower portion of the proposed development may affect the immediate surroundings. When problems are detected, it is likely that design changes may be needed for the lower portion of the development (e.g. the coverage of the podium).

The LVR gives an idea of how the upper portion of the proposed development may affect the local surroundings. When problems are detected, it is likely that design changes may be needed for the upper portion of the development (e.g. re-orientation of blocks and building height adjustment on the towers).

Table 8 Terminology of the AVA Initial Study

Terminology	*Description*
Site spatial average velocity ratio (SVR)	The SVR represents the average VR of all perimeter test points at the site boundary as identified in the report.
Local spatial average velocity ratio (LVR)	The LVR represents the average VR of all points, i.e. perimeter and overall test points within the Assessment Area, as identified in the report.

4.3 TEST POINTS FOR SVR AND LVR

Test points are evenly placed along the site boundary, open areas and open spaces, on the streets and places of the Project and Assessment Areas which are accessed frequently by pedestrians for determining the pedestrian ventilation performance. Test points will be placed 2m above ground or podium level for determining the pedestrian ventilation performance.

30 perimeter test points are evenly positioned at intervals of approximately 18m along the site boundary that are accessible to pedestrians. 154 overall test points are evenly positioned in the open areas/open spaces, on the streets and places where pedestrian frequently access within the Assessment Area. Additionally, 12 special test points are placed at the ball courts and podium in the Baseline Scheme whereas 18 special test points are placed at the proposed open areas/open spaces and access road in the Proposed and Optional Schemes.

Appendix B shows the location of the perimeter, overall and special test points.

4.3.1 Focus Areas

In addition to the SVR (i.e. P01-P30) and LVR (i.e. P01-30 and O1-O154), the spatial average wind velocity ratio of various focus areas will be presented for in-depth quantitative analysis.

Table 9 shows the various focus areas and their representative test points.

Figure 36 to Figure 50 shows the location of the focus areas.

Table 9 Focus Areas and their Representative Test Points

Focus Areas	Test Points	Focus Areas	Test Points	Focus Areas	Test Points
1. Yee Wo Street	O1 – O4	10. St. Paul's Hospital	O23 – O24	19. Sunning Road	O39 – O41
2. Pennington Street	O5, O9, O17, O29	11. St. Paul's Convent	O25	20. Leighton Lane	O48, O50
3. Jardine's Bazaar	O6 – O9	12. Haven Street	O26 – O28	21. Playground of Po Leung Kuk	O51 – O53
4. Fung Un Street	O7 , O13, O15	13. Yun Ping Road	O30 – O33	22. Leighton Hill Road	O54 – O60
5. Jardine's Crescent	O8, O14 – O16	14. Hysan Avenue	O31, O36 – O39	23. Link Road	O61 – O64
6. Irving Street	O9 – O11	15. Lan Fong Road	O33 – O34	24. Broadwood Road	O65 – O66
7. Leighton Road	O12, O19, O28, O44, O46-O49 P16, P18, P20	16. Lee Garden Road	O35 – O36	25. Elevated Road to Beverly Hill	O67 – O72
8. Keswick Street	O17 – O19	17. Sun Wui Road	O37, O45 – O46	26. Happy View Terrace	O73 – O77
9. St. Paul's Convent School	O20 – O22	18. Hoi Ping Road	O38, O42 – O44	27. Rest Garden on Broadwood Road	O78 – O79

Focus Areas	Test Points	Focus Areas	Test Points	Focus Areas	Test Points
28. Road south of Beverly Hill	O80 – O82	35. Eastern Hospital Road Sitting-out Area	O107 – O108	42. Disciplined Services Sports and Recreation Club	O143 – O146
29. Confucius Hall Secondary School	O83 – O85	36. Ka Ning Path Rest Garden	O112 – O113	43. So Kon Po Recreation Ground	O147 – O150
30. Stadium Path	O86 – O90	37. Sir Ellis Kadoorie (S) Primary School	O114 – O115	44. Indian Recreation Club	O151 – O154
31. Eastern Hospital Road Sitting-out Area	O91 – O92	38. Ka Ning Road	O122 – O125	45. Ball Courts within Project Area (Baseline Scheme)	S1-S6
32. Eastern Hospital Road	O93, O102 – O103, O109 – O111, O116 – O121	39. Cotton Path Road	O126 – O128	46. Pedestrian-Accessible Areas within Project Area (Baseline Scheme)	S7-S12
33. Hong Kong Stadium	O94 – O101	40. Caroline Hill Road	O128 – O136, P4, P6, P8, P10, P12, P14, P20, P22, P24, P26, P28, P30	47. Open space at Commercial Site (Proposed & Optional Scheme)	S1-S4
34. Tung Wah Eastern Hospital	O104 – O106	41. South China Athletic Association	O137 – O142	48. Building gap at Commercial Site (Proposed & Optional Scheme)	S2, S4, S7

Focus Areas	Test Points	Focus Areas	Test Points
49. Access Road within Project Area (Proposed & Optional Scheme)	S5-S9	51. Open space adjacent to The District Court Site (Proposed & Optional Scheme)	S11 – S14
50. Building gap at The District Court Site (Proposed & Optional Scheme)	S10, S16, S18	52. Pedestrian-Accessible Areas within The District Court Site (Proposed & Optional Scheme)	S15 – S17

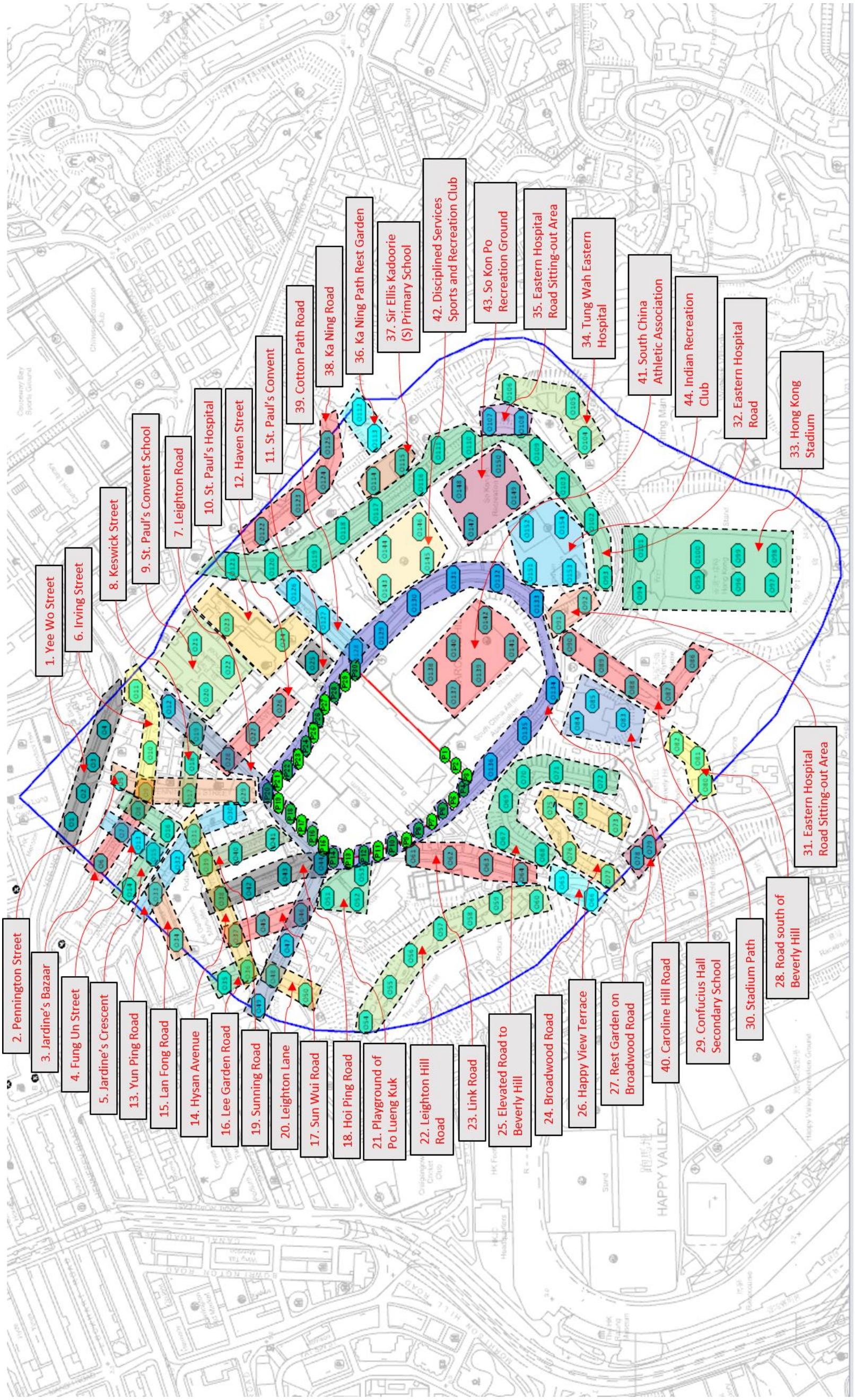


Figure 36 Location of the Focus Areas

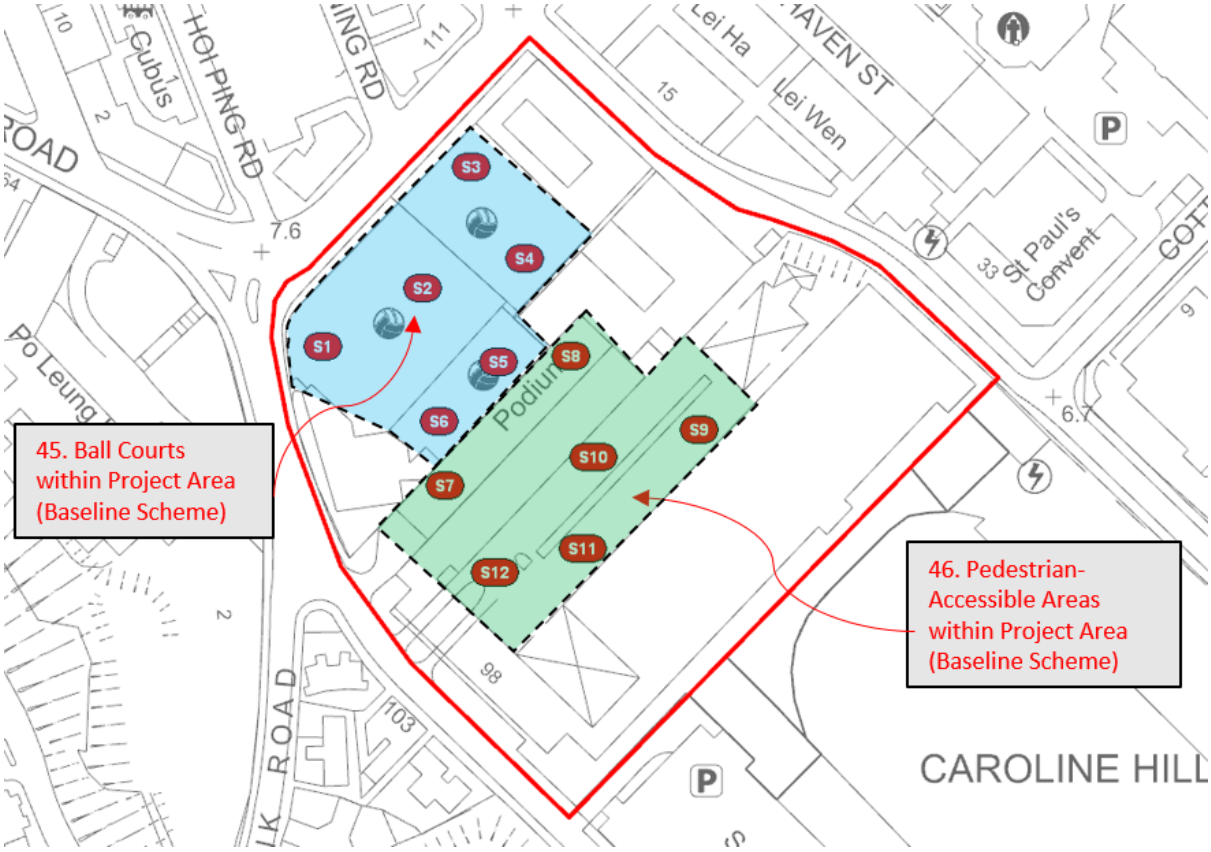


Figure 37 Location of the Focus Areas – Within Project Area (Baseline Scheme)



Figure 38 Location of the Focus Areas – Within Project Area (Proposed Scheme)



Figure 39 Location of the Focus Areas – Within Project Area (Optional Scheme)

5 QUALITATIVE ANALYSIS OF EXISTING WIND ENVIRONMENT AND THE PROPOSED AND OPTIONAL SCHEMES

The following sections present the qualitative analysis of existing wind environment and the Proposed and Optional Schemes under annual and summer wind conditions.

5.1.1 NNE & NE Wind

Under NNE & NE wind, incoming wind flow is anticipated to be obstructed by the commercial area of Causeway Bay to the north as well as the mixed non-industrial zone and “G/IC” area to the northeast of the Project Area. Leighton Road and Cotton Path are considered as the major air paths for the Project Area (Black Arrows in Figure 40 and Figure 43).

In the Baseline Scheme, potential impact is anticipated around Caroline Hill Road and within the Project Area due to the blockage effect induced by the commercial area and mixed non-industrial zone. However, more NNE & NE wind is expected to skim over the Project Area to reach the immediate downstream areas due to the low-rise nature of the Baseline Scheme.

In the Proposed Scheme, incoming NNE & NE wind is expected to skim over the existing low-rise developments north-east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) is expected to cause high-level wind to be downwashed to pedestrian level (White Arrows in Figure 41 and Figure 44). In addition, the access road at the central portion of the Project Area is expected to create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream areas (Magenta Arrows in Figure 41 and Figure 44).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) is expected to lower the wind performance in the open areas between The District Court Block 1 and The District Court Block 2 when compared with the Proposed Scheme.



Figure 40 Major Air Paths under NNE Wind for Baseline Scheme

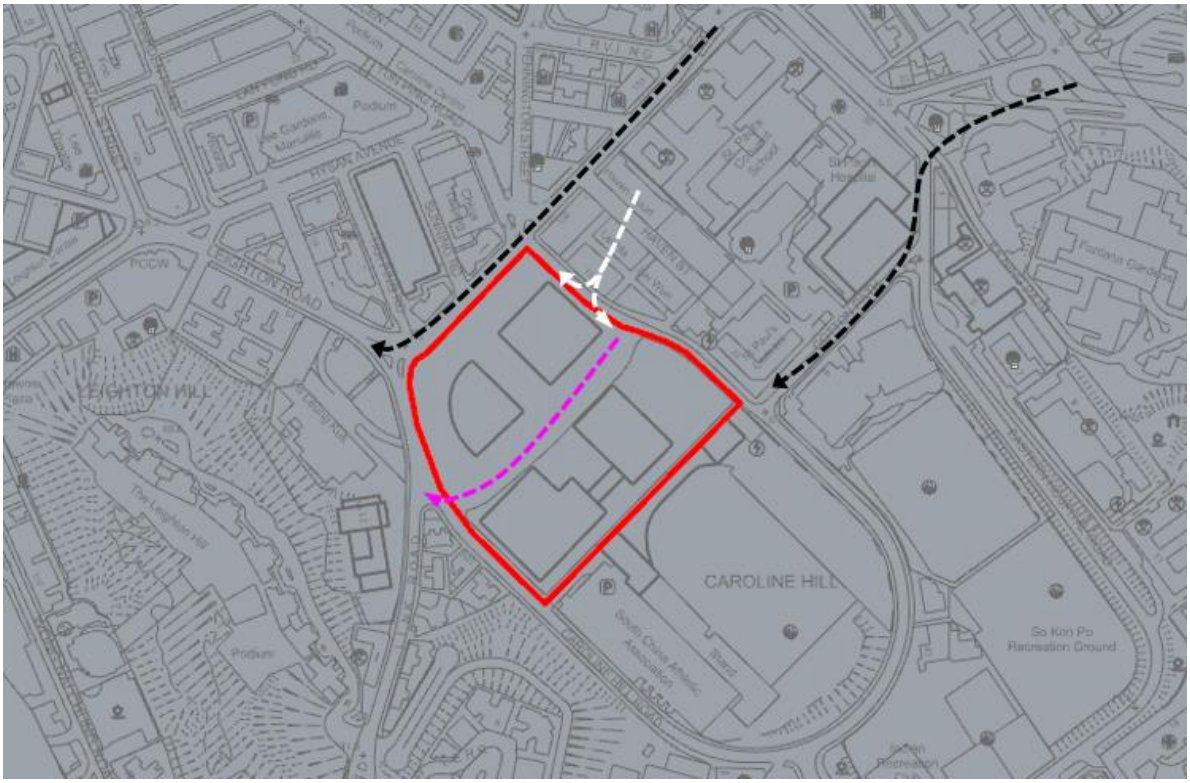


Figure 41 Major Air Paths under NNE Wind for Proposed Scheme

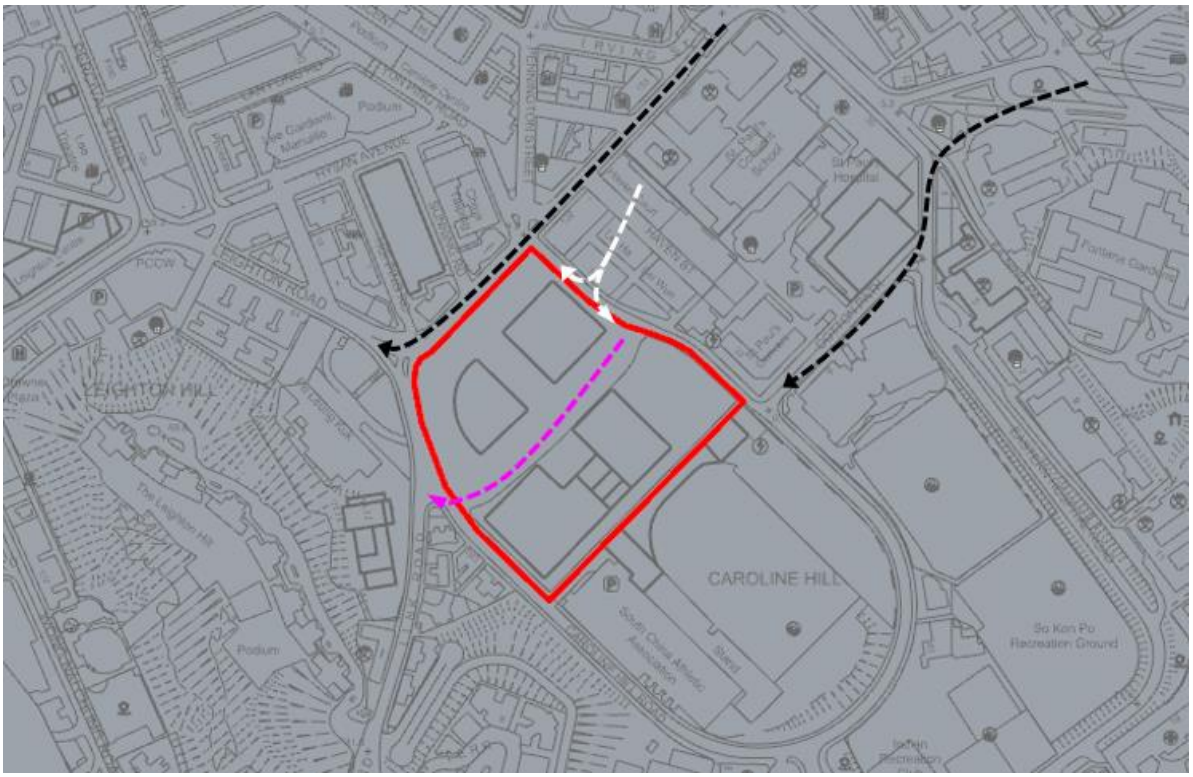


Figure 42 Major Air Paths under NNE Wind for Optional Scheme

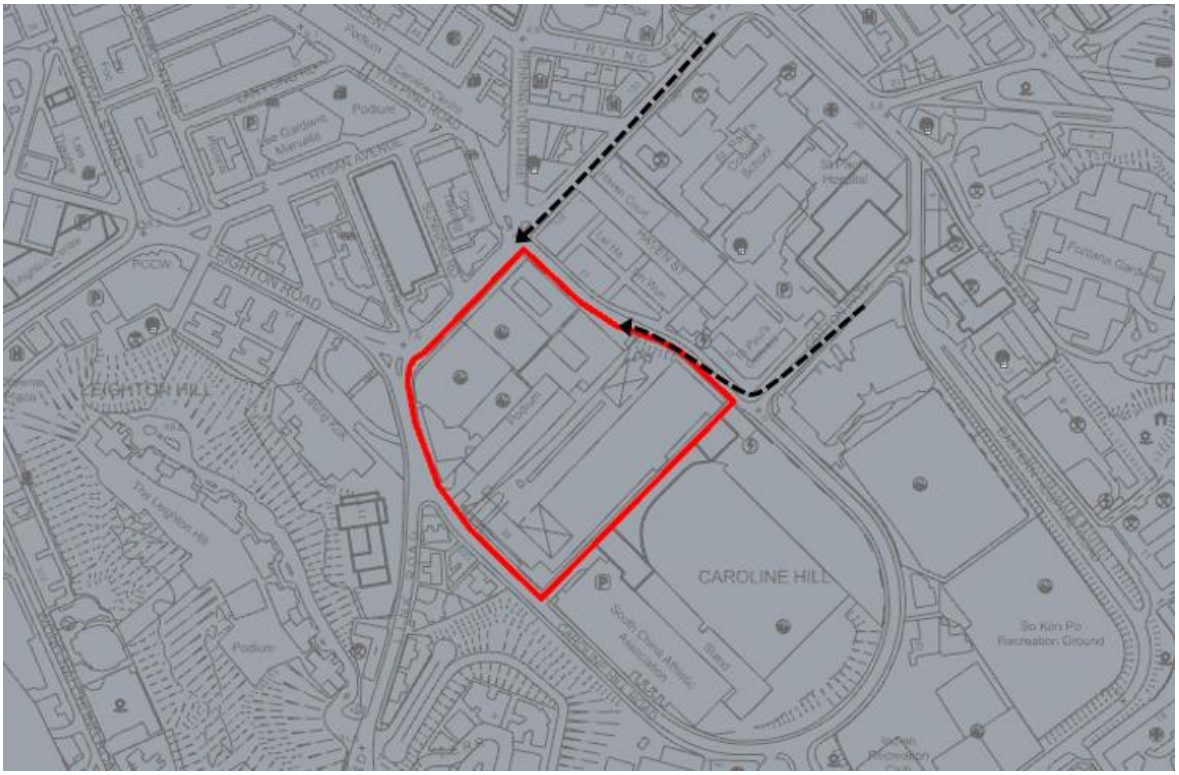


Figure 43 Major Air Paths under NE Wind for Baseline Scheme

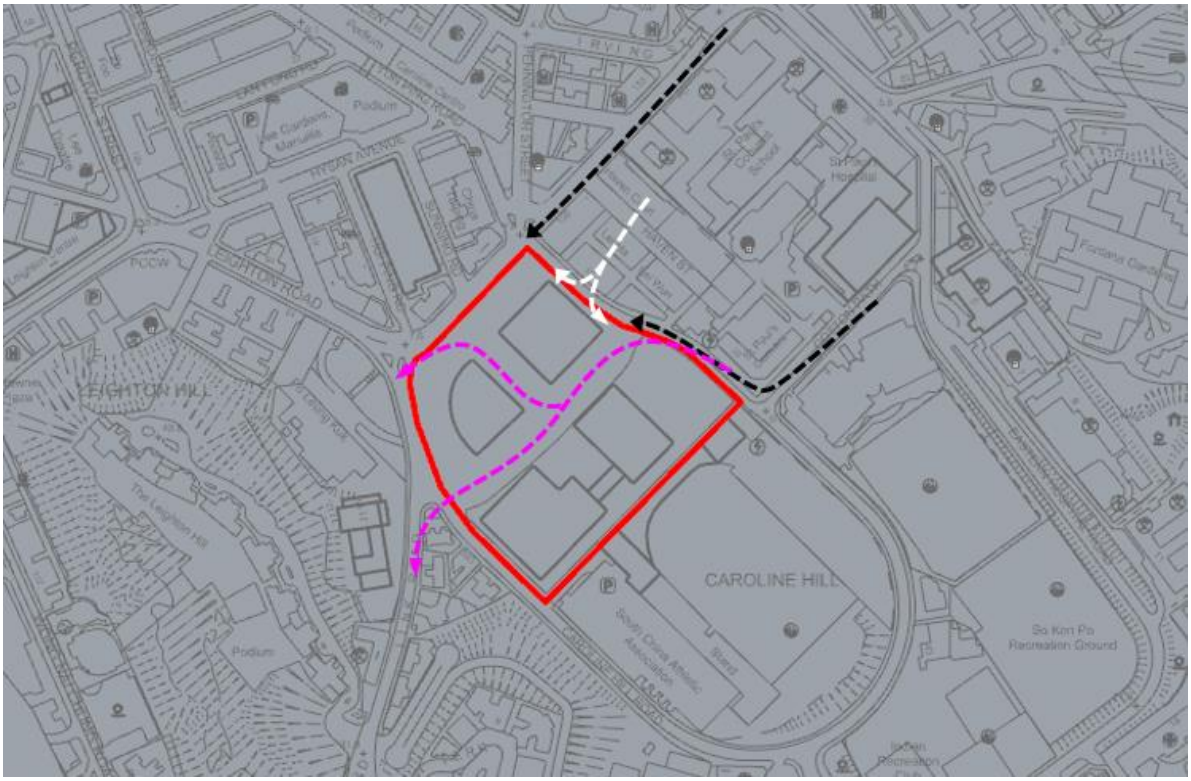


Figure 44 Major Air Paths under NE Wind for Proposed Scheme

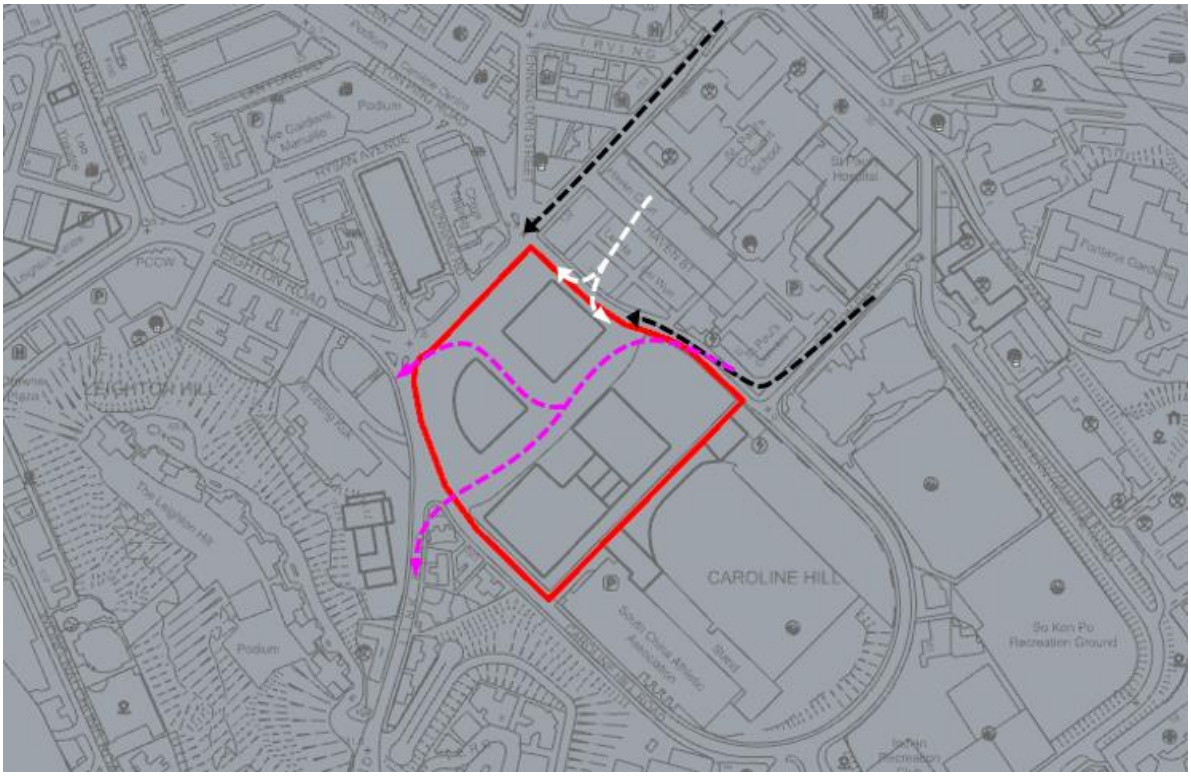


Figure 45 Major Air Paths under NE Wind for Optional Scheme

5.1.2 ENE Wind

Under ENE wind, incoming wind flow is anticipated to be obstructed by the commercial area of Causeway Bay to the north as well as the mixed non-industrial zone and “G/IC” area to the northeast of the Project Area. Leighton Road and Cotton Path are considered as the major air paths for the Project Area. In addition, a portion of ENE wind (i.e. circulation wind) is expected to come from Caroline Hill Road to the east of the Project Area and South China Athletic Association (Black Arrows in Figure 46).

In the Baseline Scheme, more ENE wind is expected to skim over the Project Area to reach the immediate downstream areas due to the low-rise nature of the Baseline Scheme. Minor adverse impact is anticipated within the Project Area due to the blockage effect induced by the commercial area and mixed non-industrial zone.

In the Proposed Scheme, incoming ENE wind is expected to skim over the existing low-rise developments north-east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) is expected to cause high-level wind to be downwashed to pedestrian level (Magenta Arrows in Figure 47). In addition, the access road at the central portion of the Project Area is expected to create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream areas (White Arrows in Figure 47).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition.

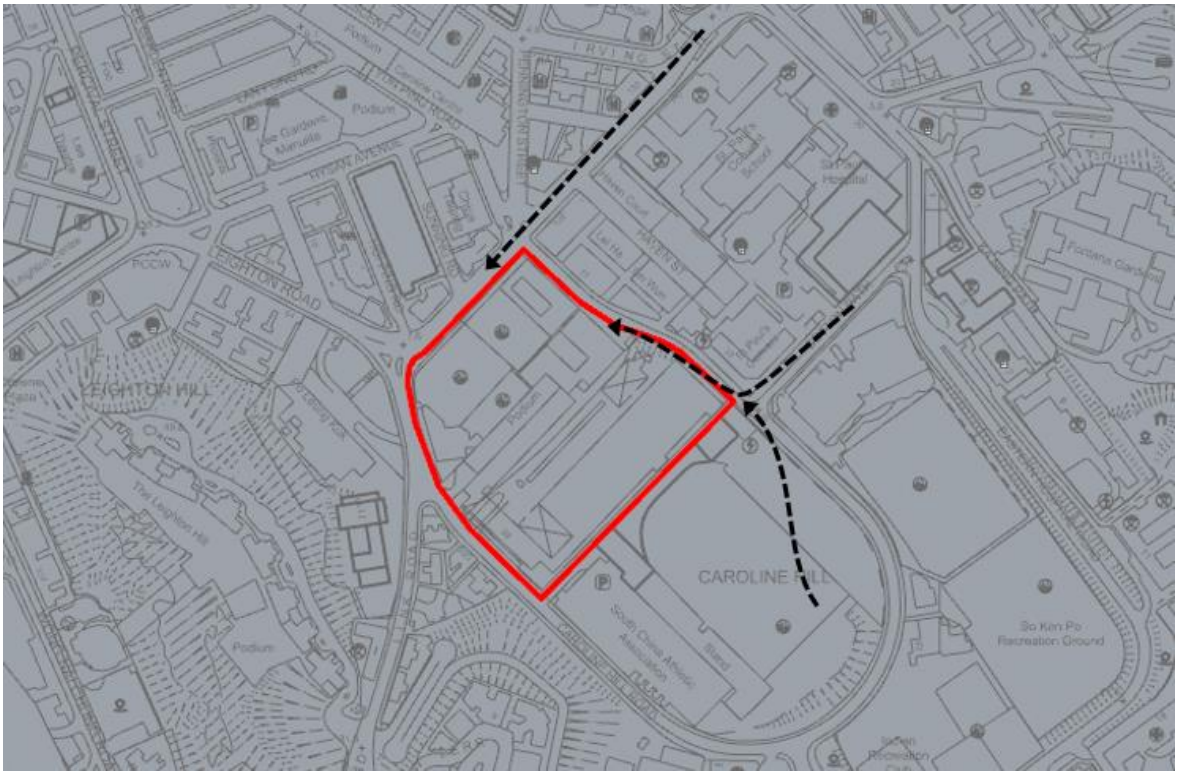


Figure 46 Major Air Paths under ENE Wind for Baseline Scheme

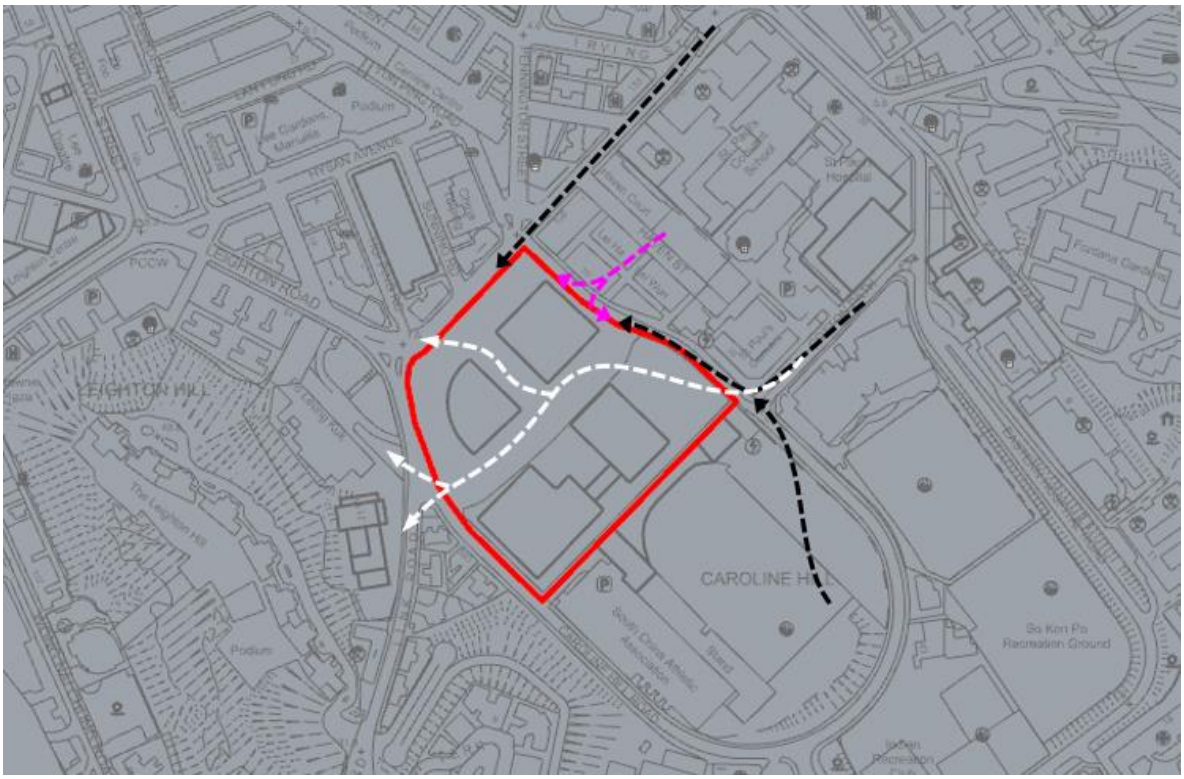


Figure 47 Major Air Paths under ENE Wind for Proposed Scheme

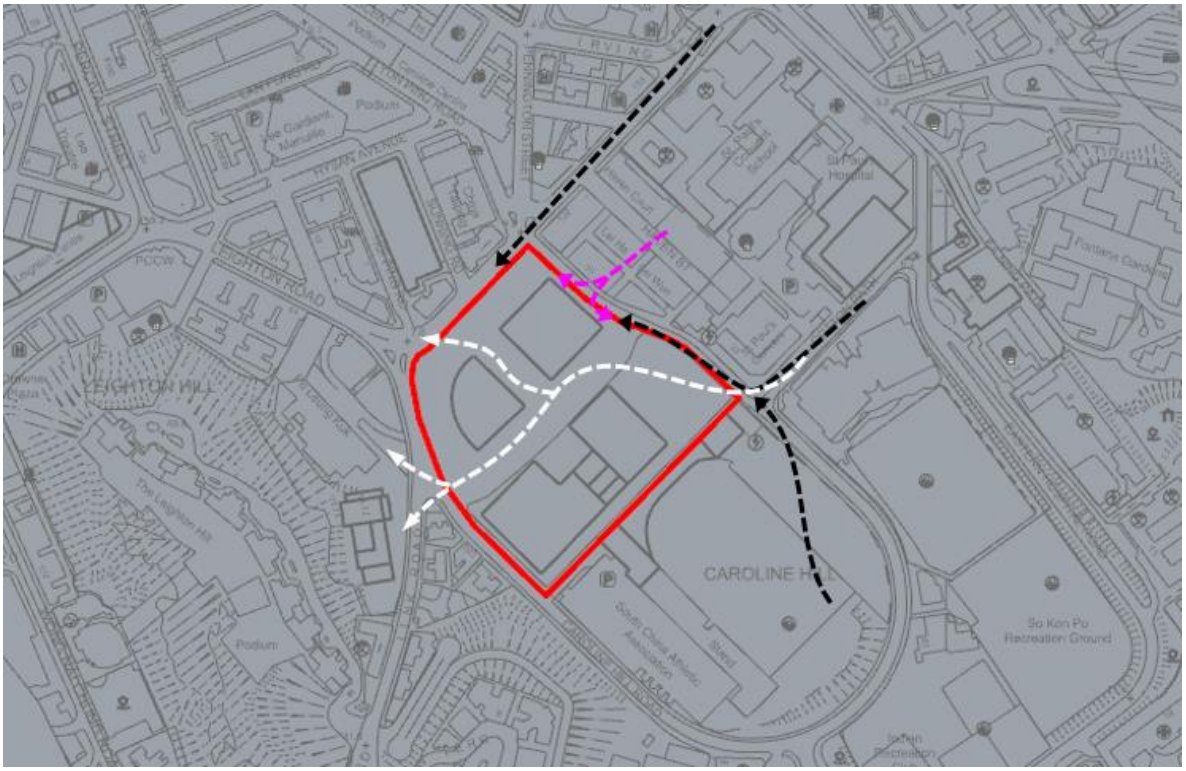


Figure 48 Major Air Paths under ENE Wind for Optional Scheme

5.1.3 E Wind

Under E wind, incoming wind flow is anticipated to be obstructed and diverted by Siu Ma Shan and the Tai Tam Country Park. Leighton Road and Cotton Path are considered as the major air paths for the Project Area (Black Arrows in Figure 49).

In the Baseline Scheme, more E wind is expected to skim over the Project Area to reach the immediate downstream areas due to the low-rise nature of the Baseline Scheme. Minor adverse impact is anticipated within the Project Area due to the blockage effect induced by the low-rise structures within the Project Area.

In the Proposed Scheme, incoming E wind is expected to skim over the existing low-rise developments east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) is expected to cause high-level wind to be downwashed to pedestrian level (Magenta Arrows in Figure 50). Additionally, the high-rise nature of The District Court Block 1 (i.e. building height of 130mPD) is also expected to cause E wind to be downwashed (White Arrows in Figure 50). Subsequently, the access road at the central portion of the Project Area is expected to create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream areas (White Arrows in Figure 50).

In both the Optional Scheme and Proposed Scheme, minor adverse impact is expected at Playground of Po Leung Kuk due to the wind shadow created by Commercial Tower 1. When comparing the Proposed Scheme and Optional Scheme, the exclusion of podium structure and wider building gap (i.e. 25m as opposed to 20m) between The District Court Blocks in the Proposed Scheme is expected to enhance site permeability.



Figure 49 Major Air Paths under E Wind for Baseline Scheme

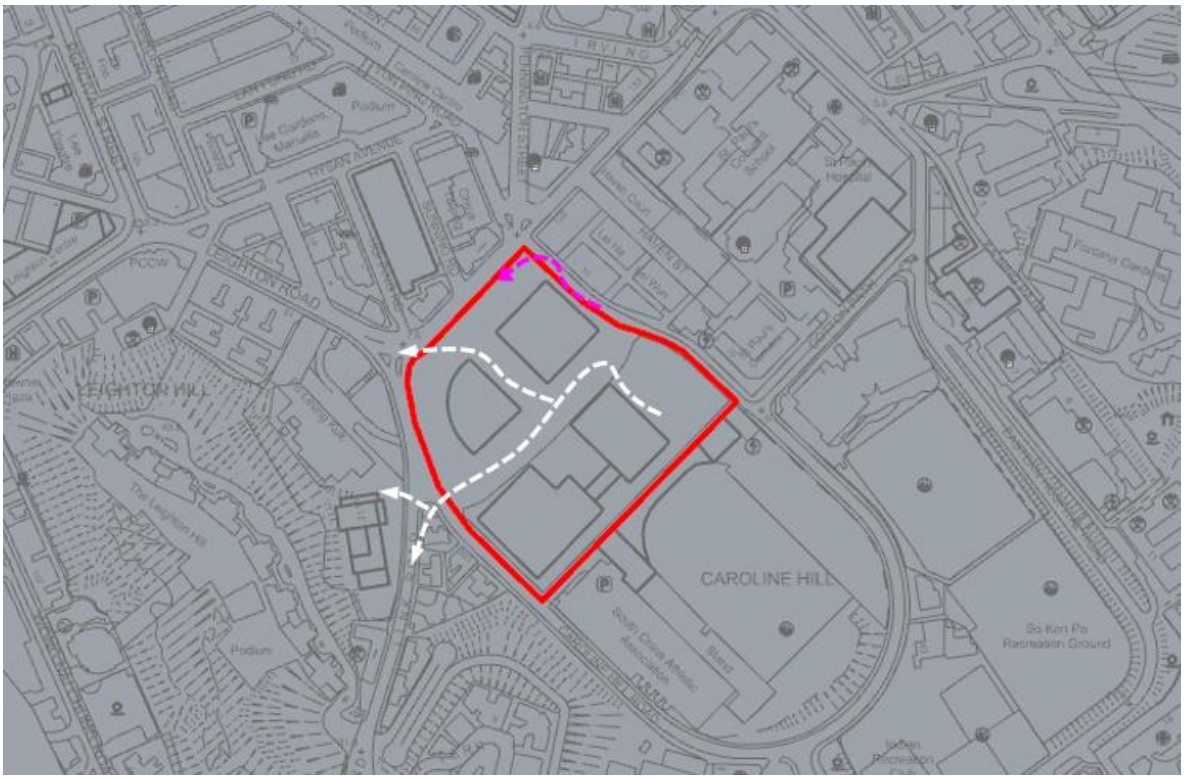


Figure 50 Major Air Paths under E Wind for Proposed Scheme



Figure 51 Major Air Paths under E Wind for Optional Scheme

5.1.4 ESE Wind

Under ESE wind, incoming wind flow is anticipated to be obstructed and diverted by Jardine's Lookout and Siu Ma Shan. Caroline Hill Road to the east and south of the Project Area are considered as the major air paths for the Project Area (Black Arrows in Figure 52).

In the Baseline Scheme, more ESE wind is expected to skim over the Project Area to reach the immediate downstream areas due to the low-rise nature of the Baseline Scheme. Minor adverse impact is anticipated within the Project Area and Playground of Po Leung Kuk.

In the Proposed Scheme, incoming ESE wind is expected to skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature of The District Court Block 1 and Block 2 (i.e. building height of 130mPD) is expected to cause ESE wind to be downwashed to pedestrian level (White and Magenta Arrows in Figure 53 respectively). However, the access road at the central portion of the Project Area is not expected facilitate wind penetration through the Project Area due to orientation. In contrast, the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 is expected to facilitate wind penetration through the Project Area.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. Less wind flow is expected to pass through the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 in the Optional Scheme when compared to the Proposed Scheme due to the increased blockage effect induced by the additional podium of 22mPD and reduced building gap between The District Court Blocks 1 & 2.

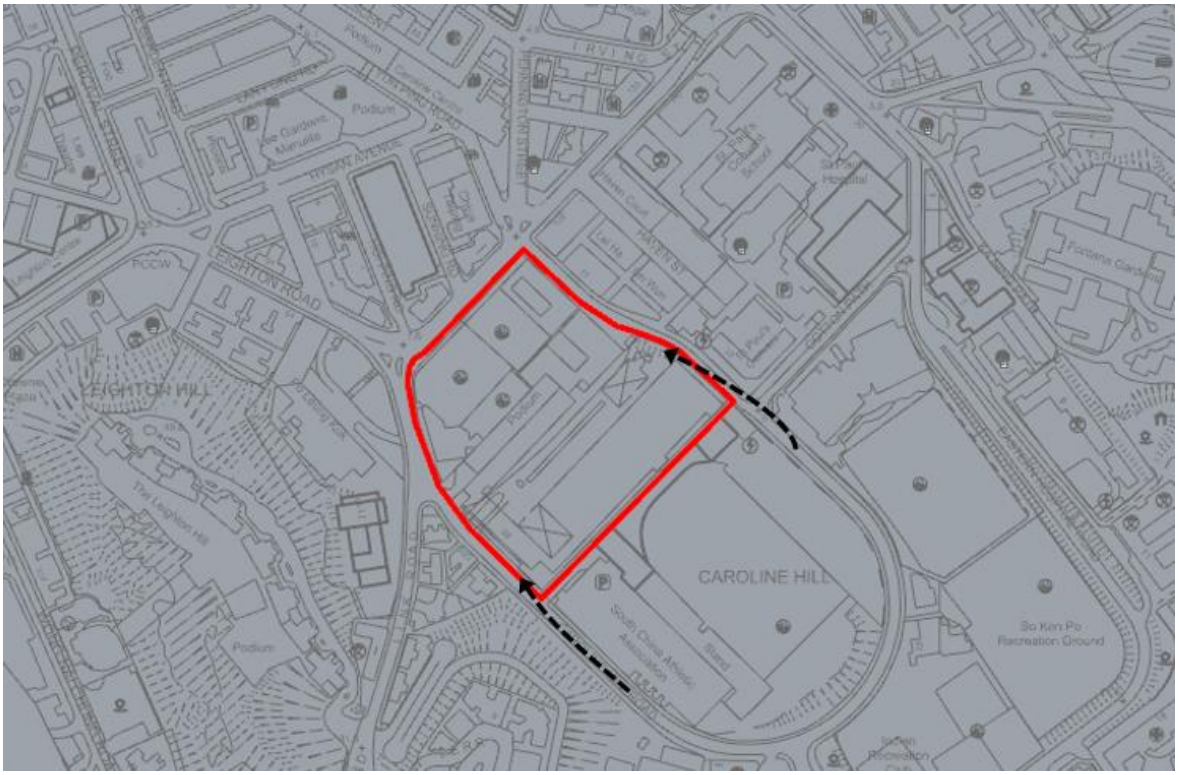


Figure 52 Major Air Paths under ESE Wind for Baseline Scheme

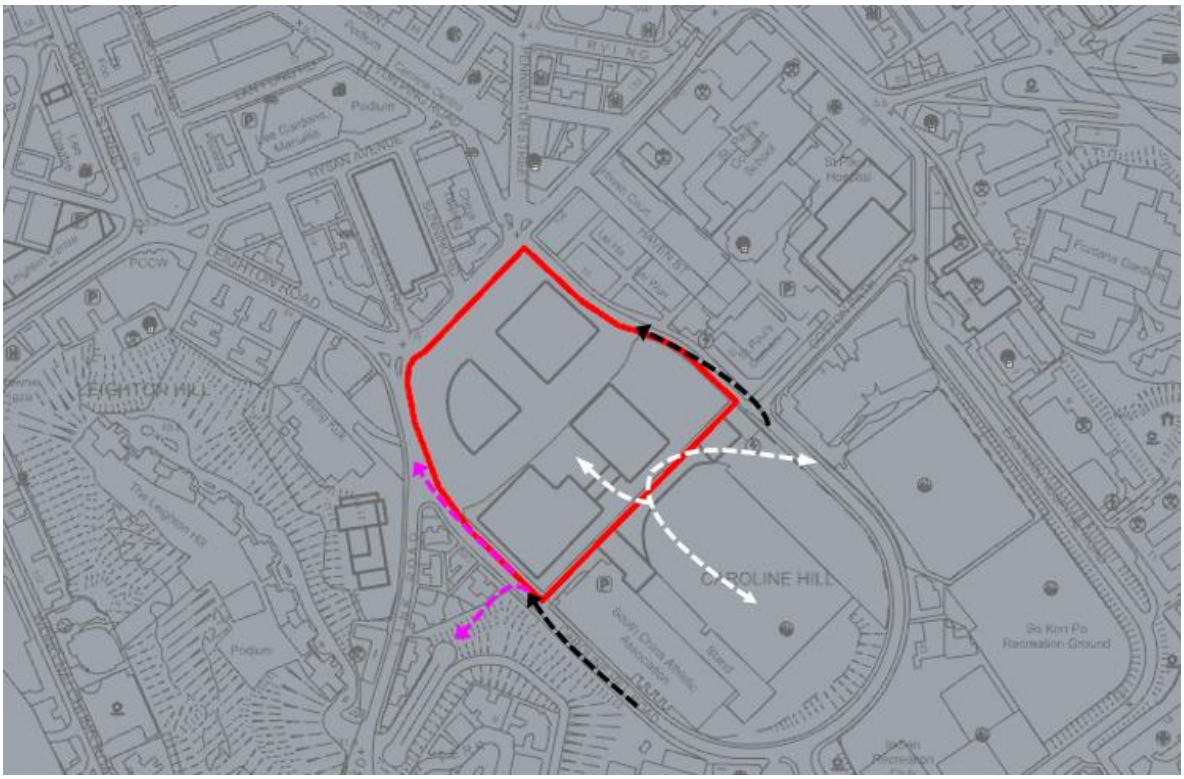


Figure 53 Major Air Paths under ESE Wind for Proposed Scheme

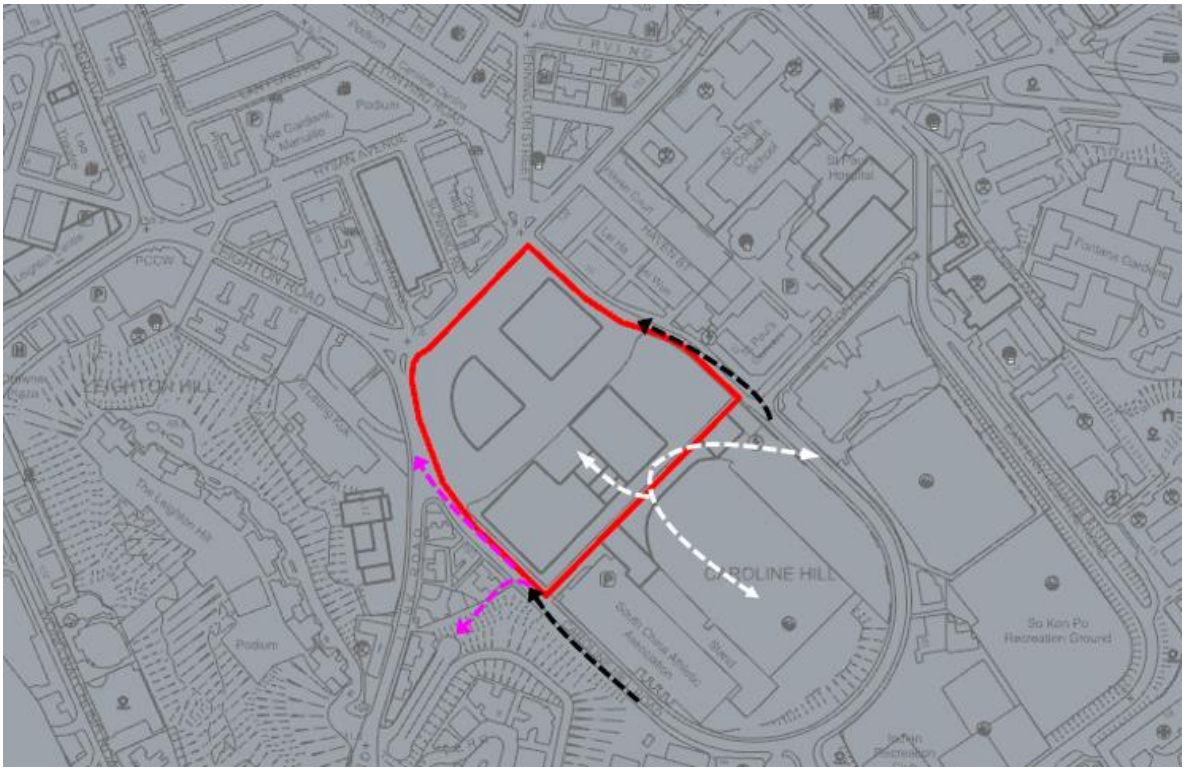


Figure 54 Major Air Paths under ESE Wind for Optional Scheme

5.1.5 SE Wind

Under SE wind, incoming wind flow is anticipated to be obstructed and diverted by Jardine's Lookout. Caroline Hill Road and South China Athletic Association to the east and south of the Project Area respectively are considered as the major air paths for the Project Area (Black Arrows in Figure 55).

In the Baseline Scheme, more SE wind is expected to skim over the Project Area to reach the immediate downstream areas due to the low-rise nature of the Baseline Scheme.

In the Proposed Scheme, incoming SE wind is expected to skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature of The District Court Block 1 and Block 2 (i.e. building height of 130mPD) is expected to cause SE wind to be downwashed to pedestrian level (White and Magenta Arrows in Figure 56 respectively). However, the access road at the central portion of the Project Area is not expected facilitate wind penetration through the Project Area due to orientation. In contrast, the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 is expected to facilitate wind penetration through the Project Area.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. Less wind flow is expected to pass through the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 in the Optional Scheme when compared to the Proposed Scheme due to the increased blockage effect induced by the additional podium of 22mPD and reduced building gap between The District Court Blocks 1 & 2.

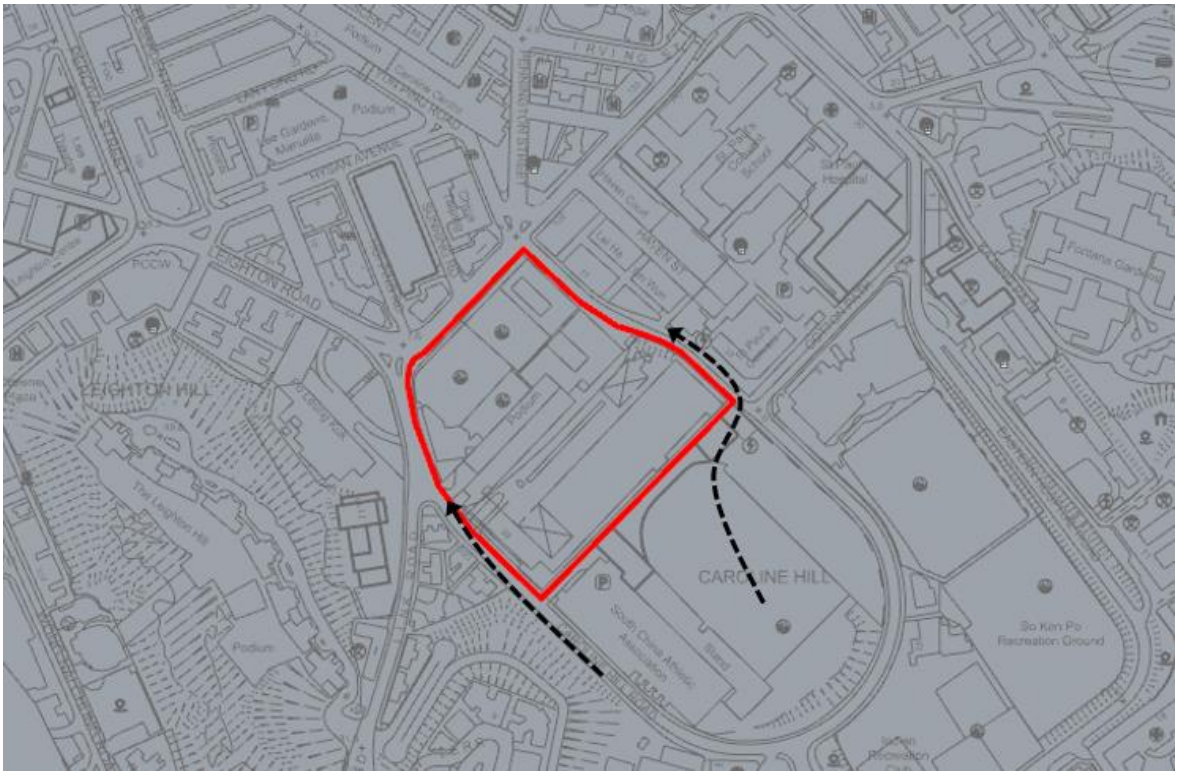


Figure 55 Major Air Paths under SE Wind for Baseline Scheme

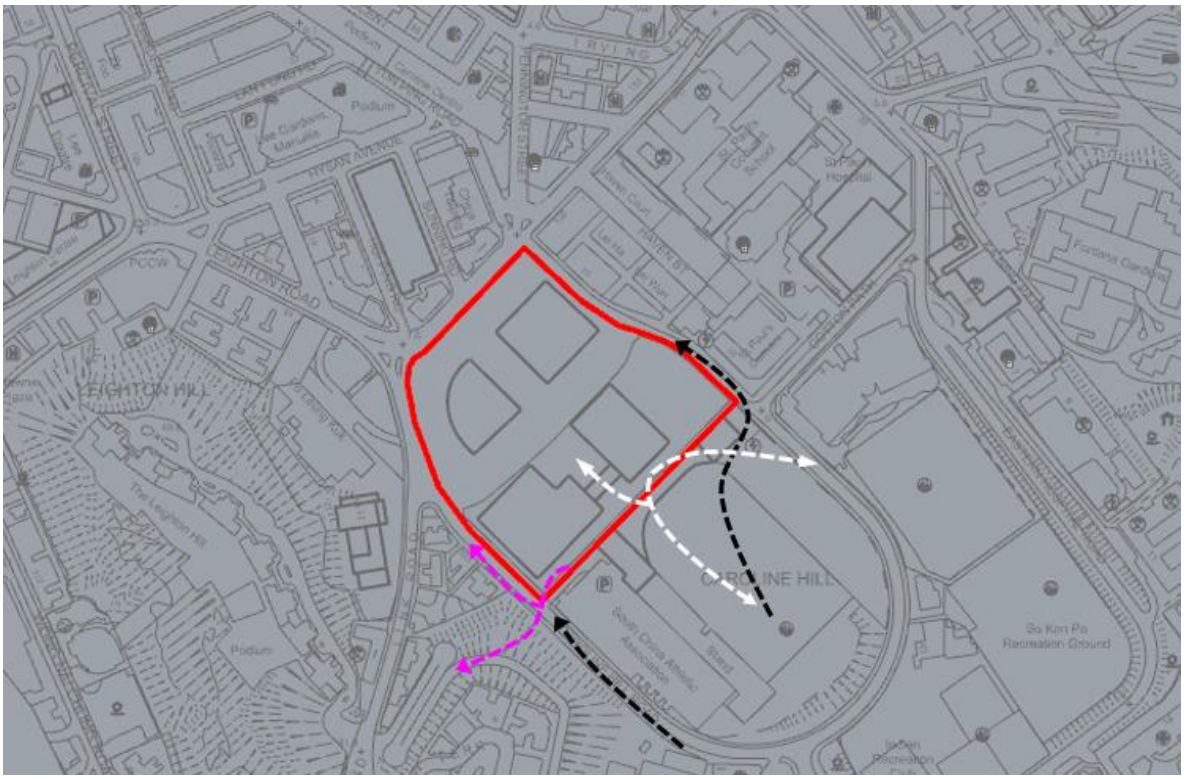


Figure 56 Major Air Paths under SE Wind for Proposed Scheme

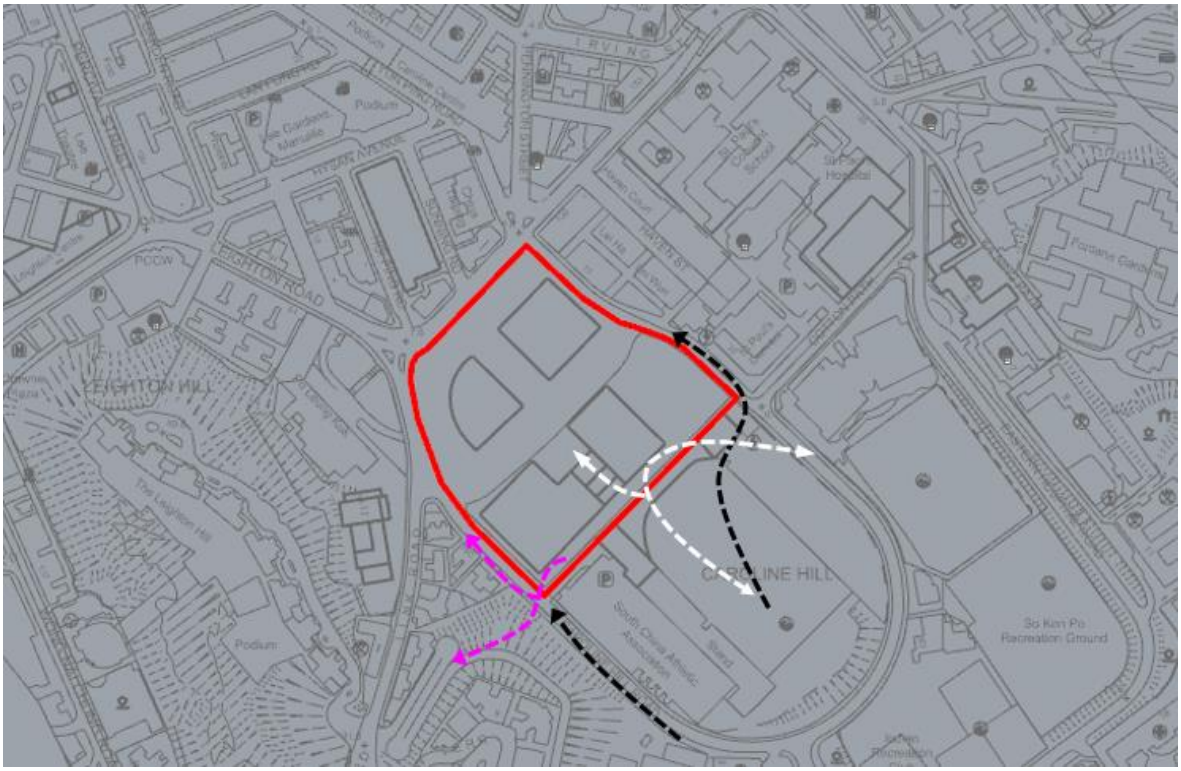


Figure 57 Major Air Paths under SE Wind for Optional Scheme

5.1.6 SSE Wind

Under SSE wind, incoming wind flow is anticipated to be obstructed and diverted by Jardine's Lookout. Project Area is located at the wake region created by Jardine's Lookout hence the Project Area is expected to be influenced by the backflow of the wake zone. Wind coming from the mixed non-industrial land and "G/IC" area to the northeast as well as South China Athletic Association are considered as the major air paths for the Project Area (Black Arrows in Figure 58).

In the Baseline Scheme, more SE wind is expected to skim over the Project Area to reach the further downstream areas due to the low-rise nature of the Baseline Scheme. However, low wind availability is expected at the immediate downstream regions (i.e. commercial area of Causeway Bay to the northwest of the Project Area) due to blockage effect induced by the upstream buildings.

In the Proposed Scheme, incoming SSE wind is expected to skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature of Commercial Tower 1 (i.e. building height of 130mPD) is expected to cause SSE wind to be downwashed to pedestrian level (White Arrows in Figure 59), with some SSE wind entering the access road (Magenta Arrows in Figure 59). The access road is expected to facilitate a portion of SSE wind to penetrate through the Project Area and subsequently reach the downstream area. The NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 is also expected to facilitate wind penetration through the Project Area.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. Less wind flow is expected to pass through the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 in the Optional Scheme when compared to the Proposed Scheme due to the increased blockage effect induced by the additional podium of 22mPD and reduced building gap between The District Court Blocks 1 & 2.



Figure 58 Major Air Paths under SSE Wind for Baseline Scheme

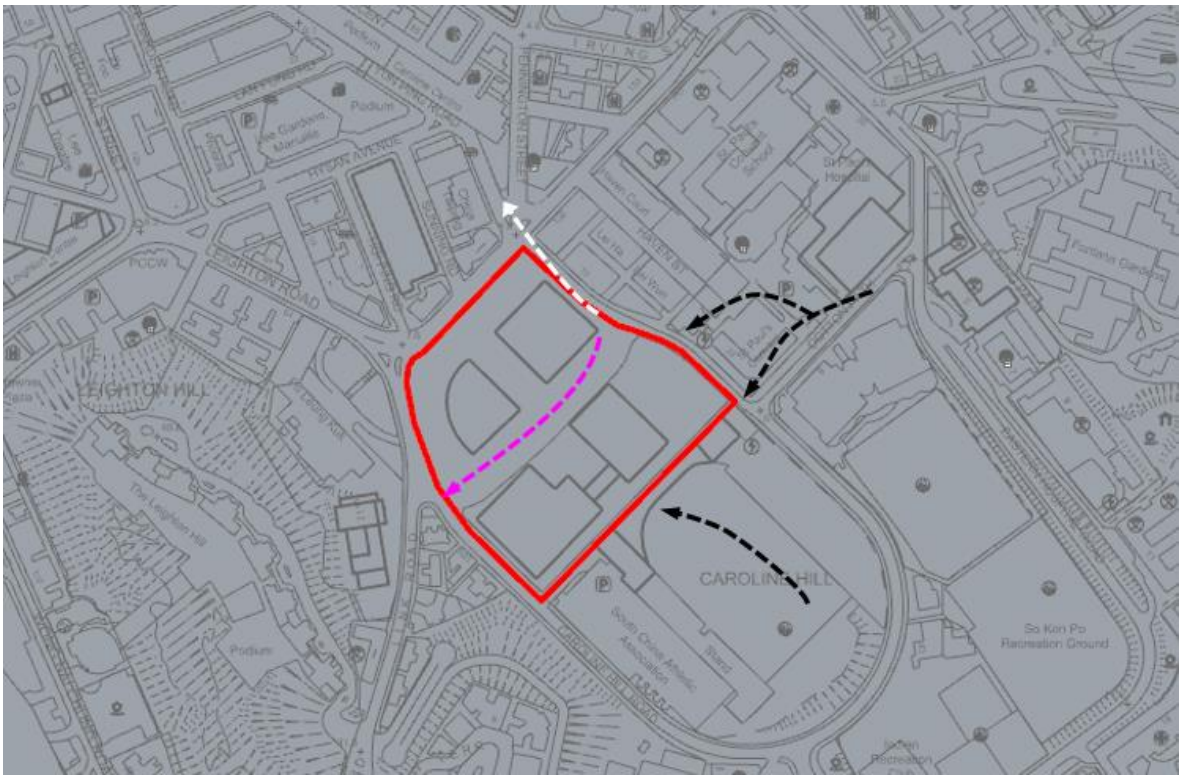


Figure 59 Major Air Paths under SSE Wind for Proposed Scheme



Figure 60 Major Air Paths under SSE Wind for Optional Scheme

5.1.7 S Wind

Under S wind, incoming wind flow is anticipated to be obstructed and diverted by Mount Nicholson and the high-rise residential developments, namely Beverly Hill, to the south. Wind coming from Leighton Hill, South China Athletic Association as well as the commercial area of Causeway Bay are considered as the major air paths for the Project Area (Black Arrows in Figure 61).

In the Baseline Scheme, more S wind is expected to skim over the Project Area to reach the further downstream areas due to the low-rise nature of the Baseline Scheme. Minor adverse impact is anticipated within the Project Area due to the blockage effect induced by the low-rise structures within the Project Area.

In the Proposed Scheme, the high-rise nature and curved building shape of Commercial Tower 2 is expected to create some downwash effect and divert some of the wind towards Link Road as well as the south western portion of the Project Area (White Arrows in Figure 62).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. Less wind flow is expected to pass through the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 in the Optional Scheme when compared to the Proposed Scheme due to the increased blockage effect induced by the additional podium of 22mPD and reduced building gap between The District Court Blocks 1 & 2. A greater portion of S wind is also expected to be downwashed by Commercial Tower 1 in the Optional Scheme when compared with the Proposed Scheme due to the 5m shift of The District Court Block 1 towards the southwest decreasing blockage of the incoming S wind (Dark Blue Arrows in Figure 63).

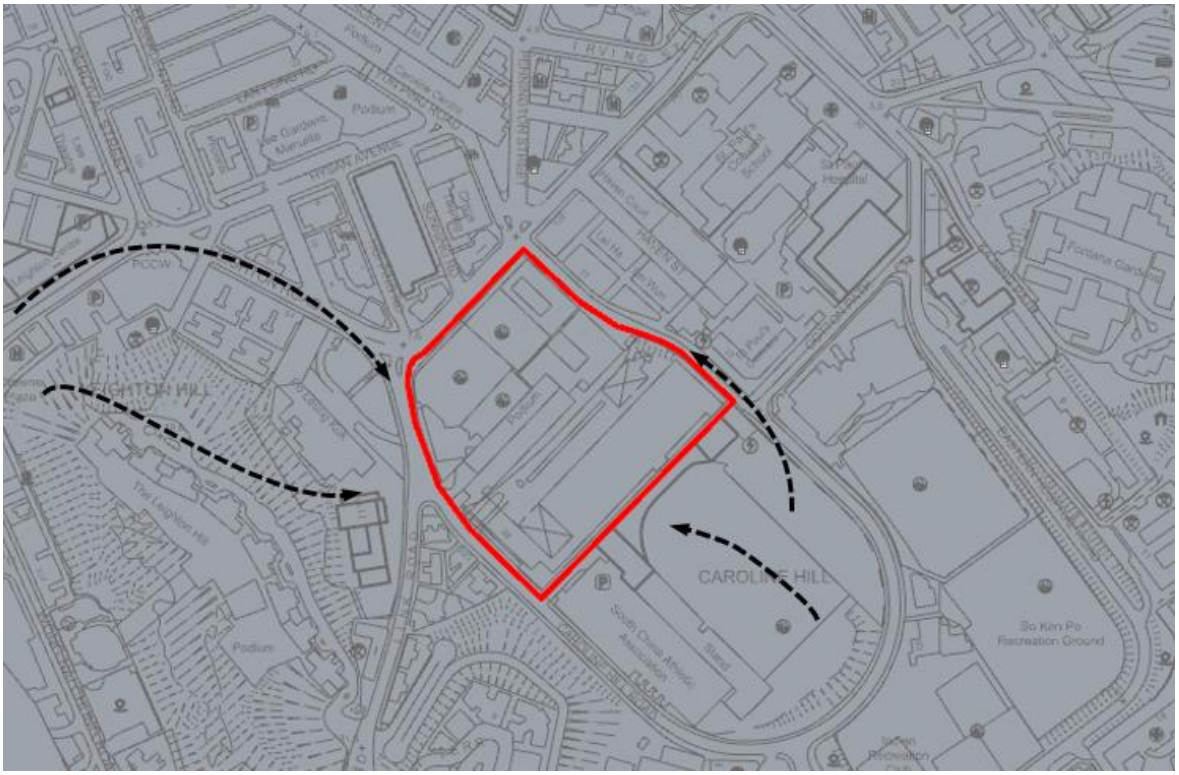


Figure 61 Major Air Paths under S Wind for Baseline Scheme

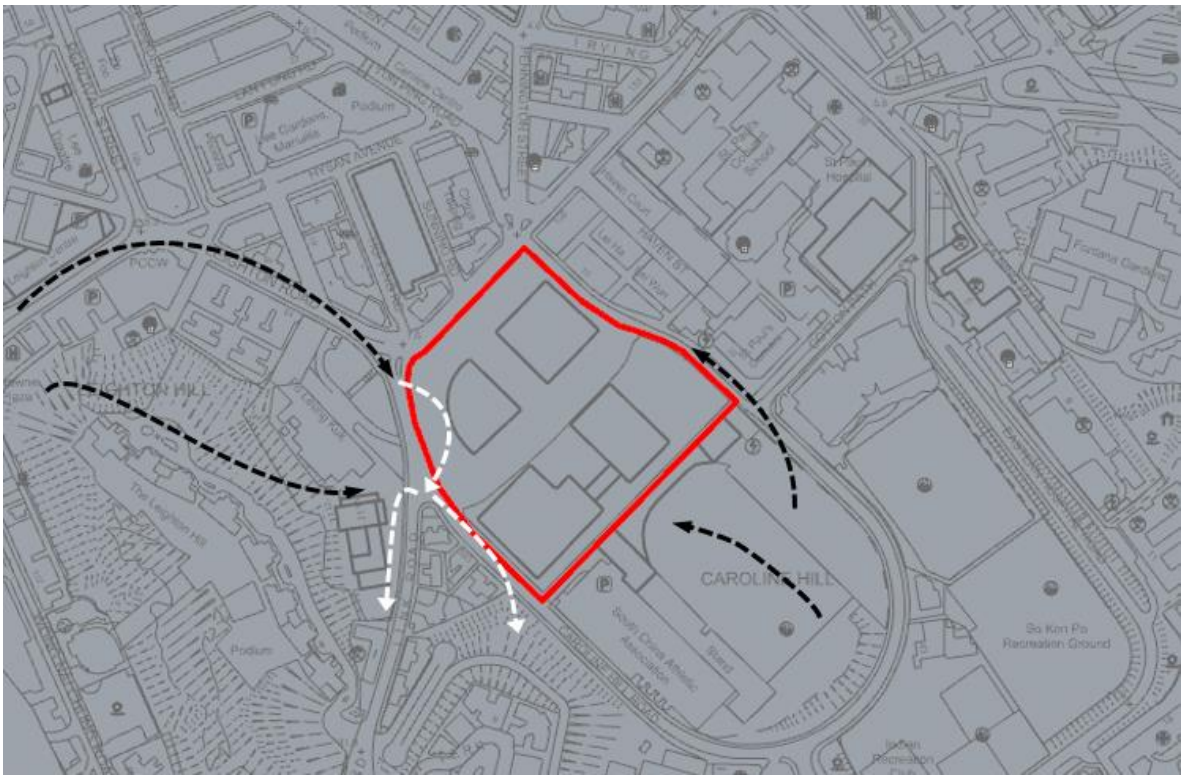


Figure 62 Major Air Paths under S Wind for Proposed Scheme

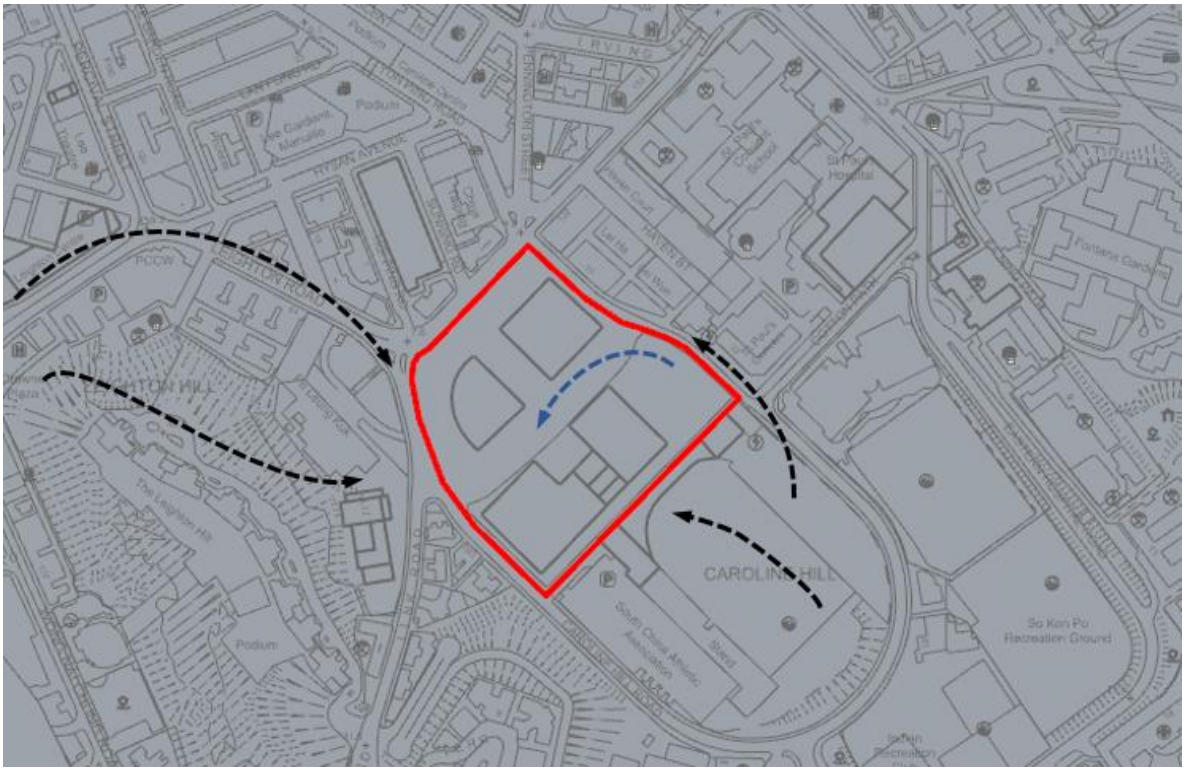


Figure 63 Major Air Paths under S Wind for Optional Scheme

5.1.8 SSW Wind

Under SSW wind, incoming wind flow is anticipated to be obstructed and diverted by Mount Nicholson and the high-rise residential developments, namely The Leighton Hill, to the southwest. Wind coming from Leighton Hill, South China Athletic Association as well as the commercial area of Causeway Bay are considered as the major air paths for the Project Area (Black Arrows in Figure 64).

As the Project Area is under the downwind region of The Leighton Hill, generally similar flow pattern is expected in the Baseline, Proposed and Optional Schemes.

In the Proposed Scheme, the 25m building gap between Commercial Tower 1 and Commercial Tower 2 is expected to allow slightly more SSW wind to penetrate through the Project Area to reach the eastern site boundary. This is expected to result in more wind flow to reach the open space at the eastern portion of the Project Area and downstream areas to the east of the Project Area (White Arrows in Figure 65).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) is expected to slightly lower wind performance in the open areas around The District Court blocks and the open space at the eastern boundary.

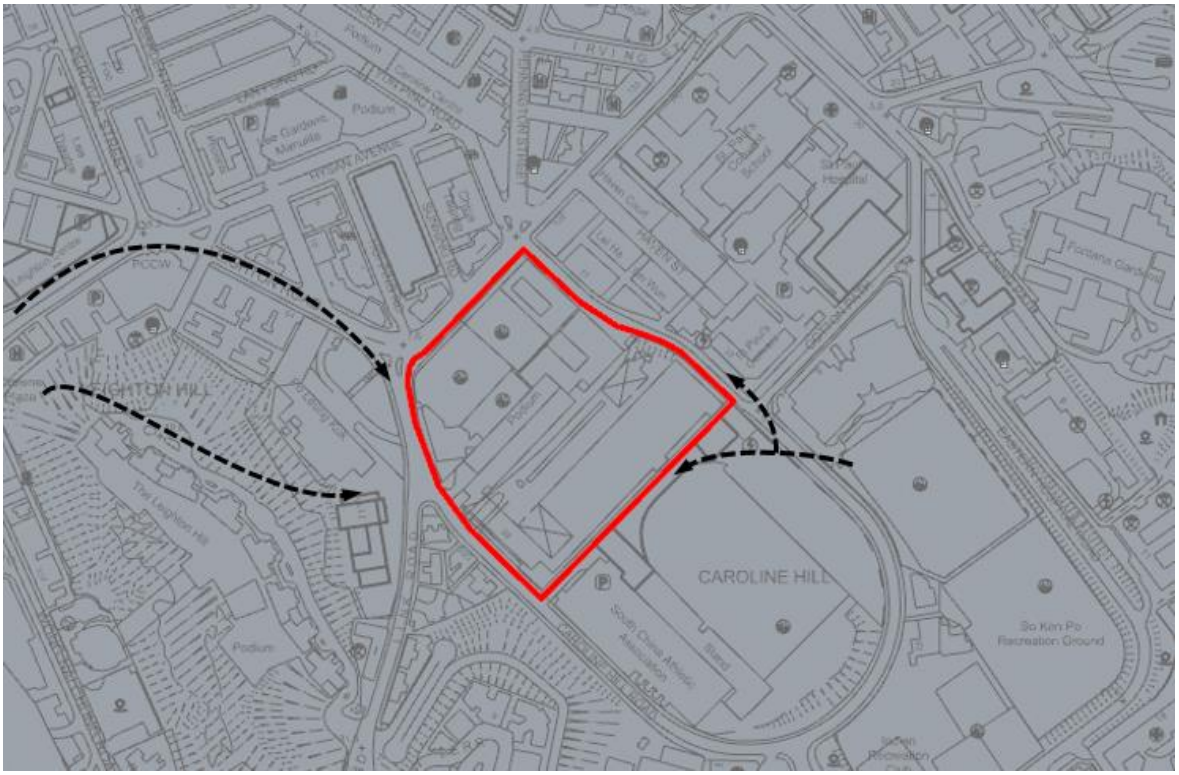


Figure 64 Major Air Paths under SSW Wind for Baseline Scheme

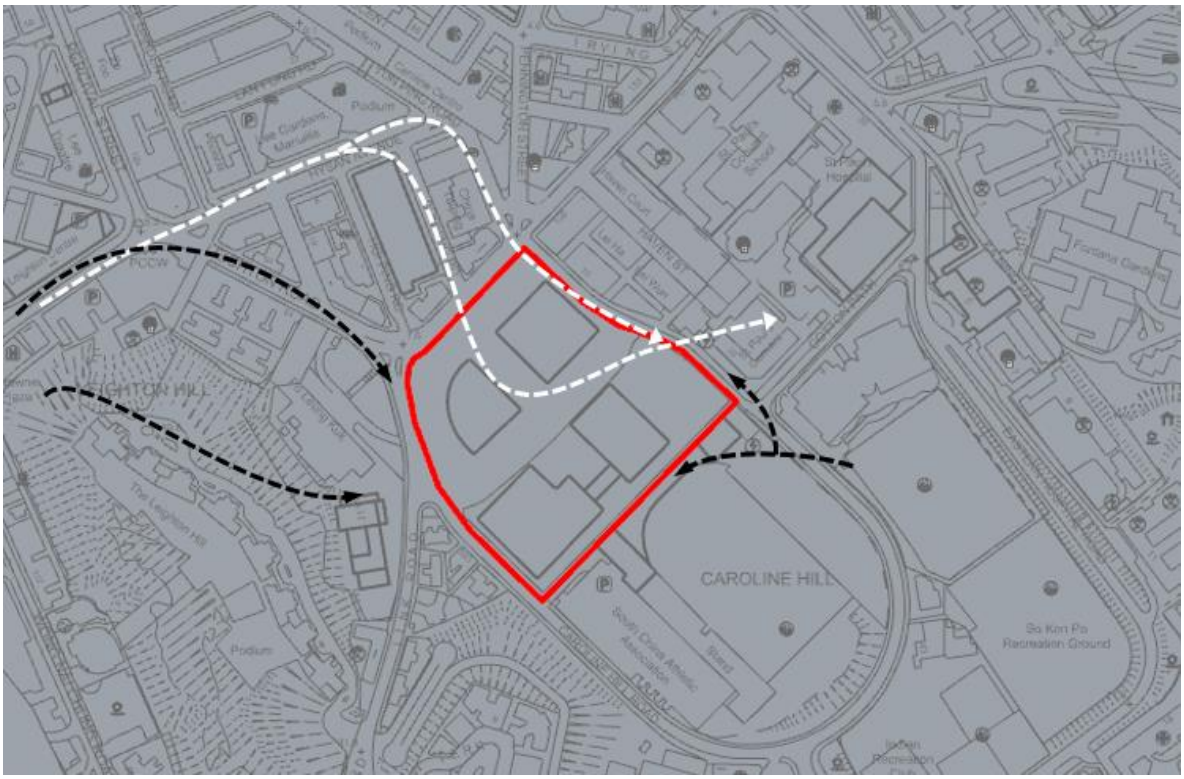


Figure 65 Major Air Paths under SSW Wind for Proposed Scheme

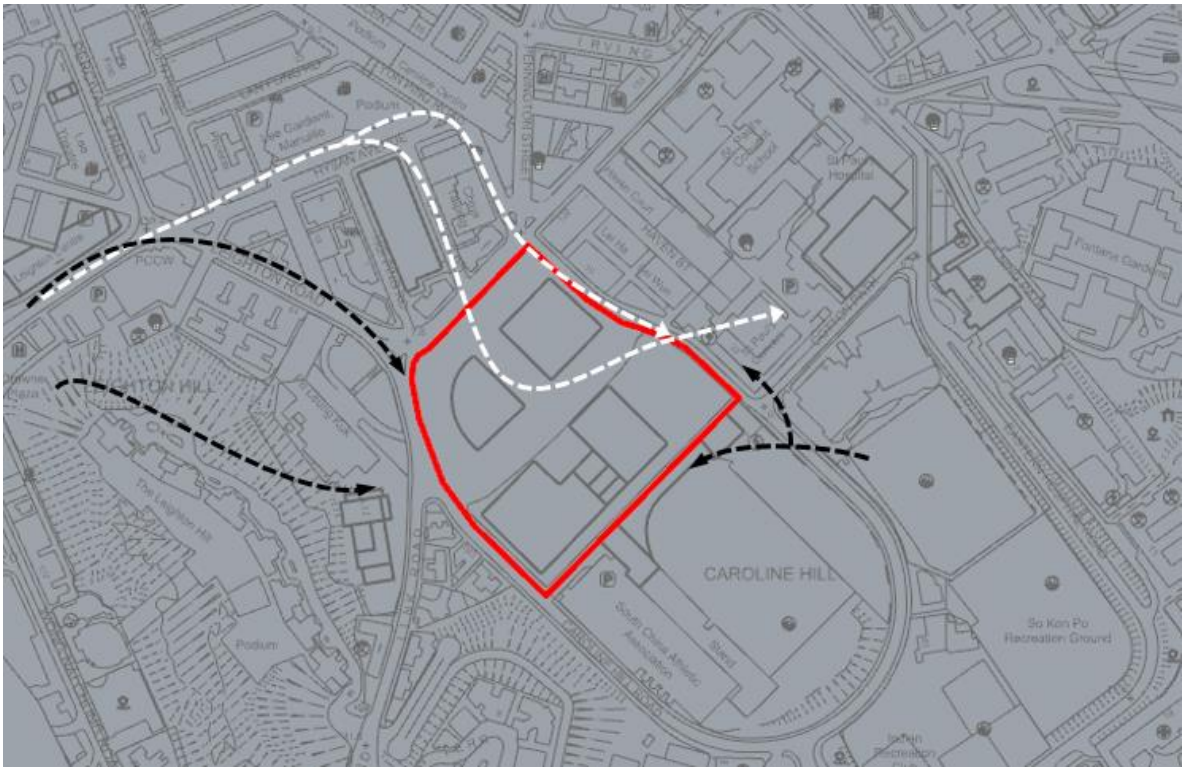


Figure 66 Major Air Paths under SSW Wind for Optional Scheme

5.1.9 SW Wind

Under SW wind, incoming wind flow is anticipated to be obstructed and diverted by Leighton Hill. Wind coming from Leighton Hill, Link Road and South China Athletic Association are considered as the major air paths for the Project Area (Black Arrows in Figure 67).

In the Baseline Scheme, wind flow is expected to enter the Project Area from the narrow carriageway of Link Road and dispersed at mid-level over the Project Area. Such sudden flow expansion is expected to reduce the momentum of the wind flow (Black Arrows in Figure 67).

In the Proposed Scheme, the high-rise nature and curved building shape of Commercial Tower 2 and The District Court Block 2 in the Proposed Scheme is expected to channel more wind flow from Link Road towards the downstream regions to the north (White Arrows in Figure 68).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. However, the 5m shift of The District Court Block 1 towards the southwest in the Optional Scheme is expected to allow more wind to reach the open space at the eastern portion of the Project Area (Dark Blue Arrow in Figure 69).



Figure 67 Major Air Paths under SW Wind for Baseline Scheme

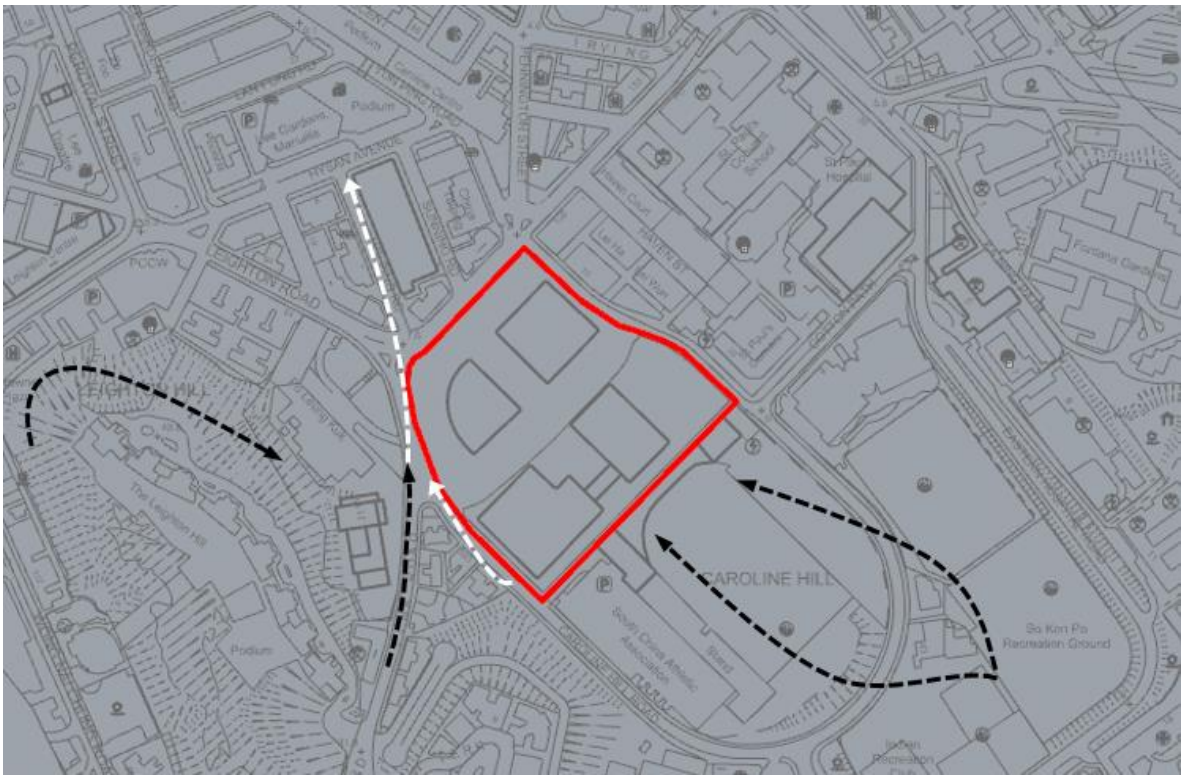


Figure 68 Major Air Paths under SW Wind for Proposed Scheme

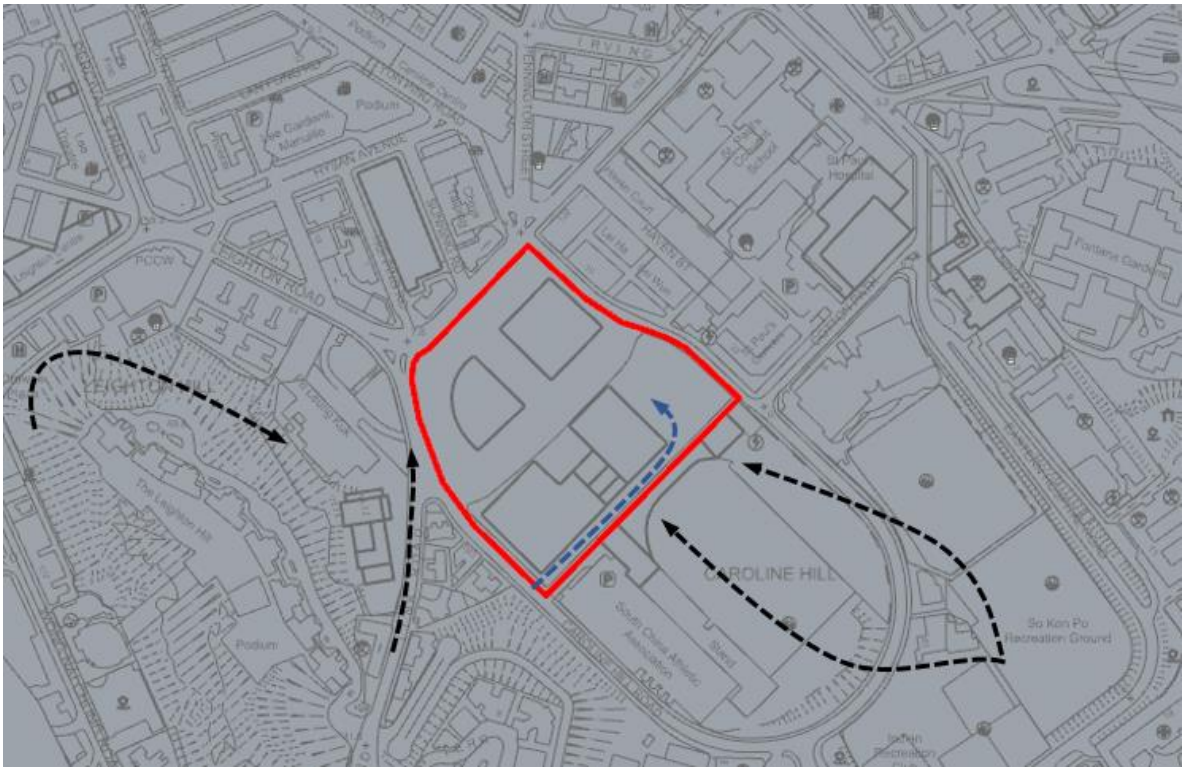


Figure 69 Major Air Paths under SW Wind for Optional Scheme

5.1.10 WSW Wind

Under WSW wind, incoming wind flow is anticipated to be obstructed and diverted by Leighton Hill. Wind coming from Leighton Hill, Link Road and South China Athletic Association are considered as the major air paths for the Project Area (Black Arrows in Figure 70).

In the Baseline Scheme, the Project Area is located at the wake region created by Leighton Hill hence wind availability of the Project Area for WSW wind is expected to be relatively low.

Wind flow is expected to enter the Project Area from the narrow carriageway of Link Road but is expected to be blocked by the PCCW Recreation Club at the western portion of the Baseline Scheme (Black Arrows in Figure 70). This is expected to create adverse impact to the open areas in the Baseline Scheme.

In the Proposed Scheme, the high-rise nature and curved building shape of Commercial Tower 2 is expected to channel wind towards the downstream regions to the north (White Arrows in Figure 71). In addition, downwash effect is also expected at The District Court Block 2 (Magenta Arrows in Figure 71) allowing high-level wind to be downwashed to pedestrian level.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is expected to be generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 is expected to slightly worsen the wind performance in the open areas between The District Court Block 1 and The District Court Block 2.



Figure 70 Major Air Paths under WSW Wind for Baseline Scheme

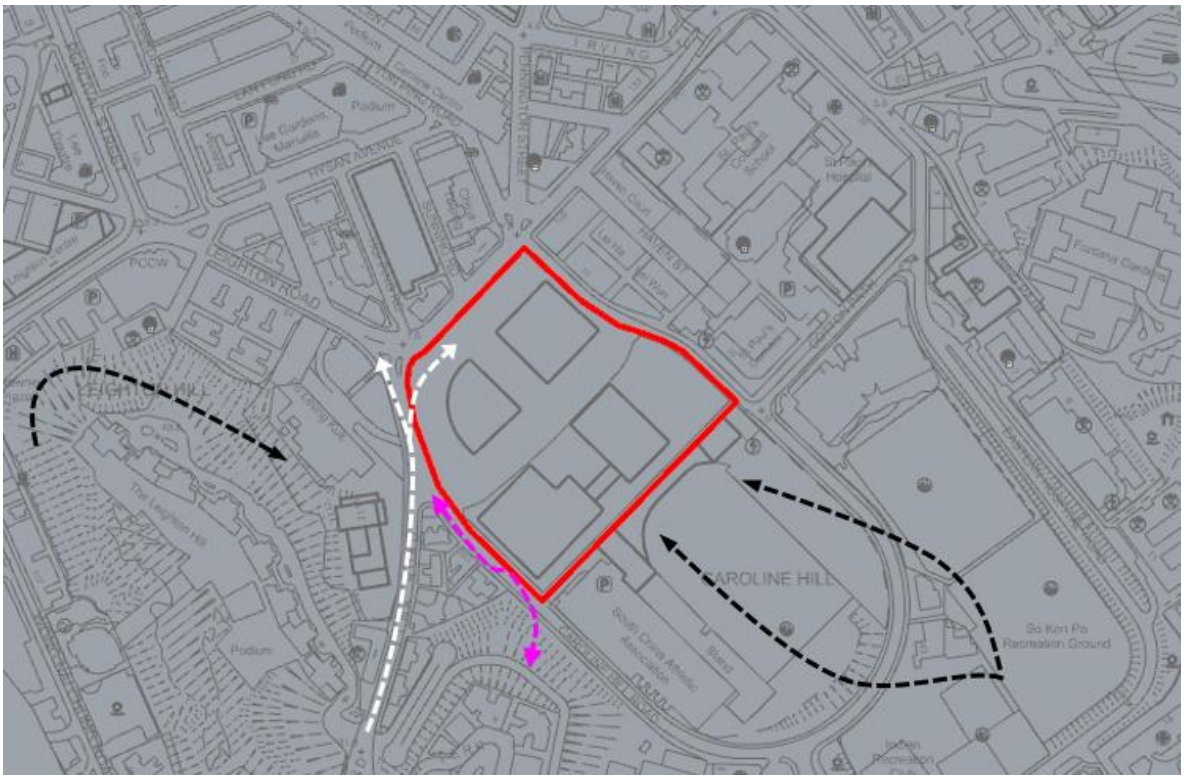


Figure 71 Major Air Paths under WSW Wind for Proposed Scheme

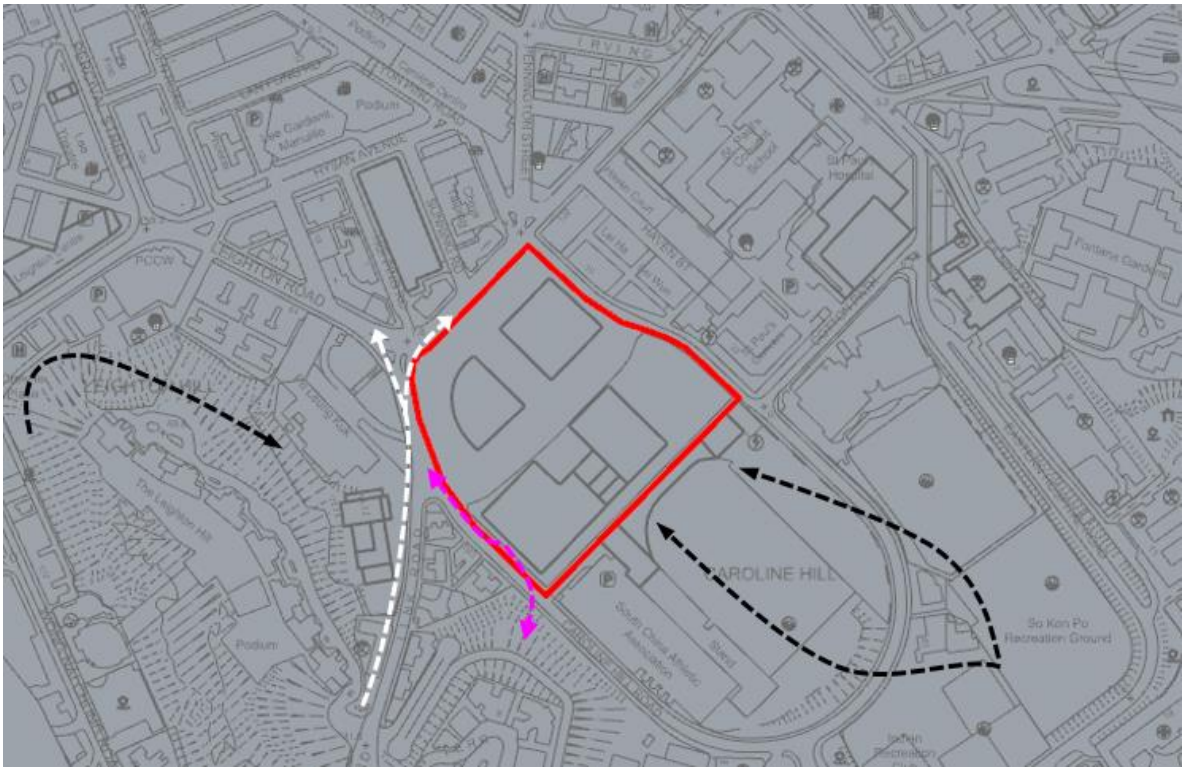


Figure 72 Major Air Paths under WSW Wind for Optional Scheme

6 RESULTS AND DISCUSSION OF THE QUANTITATIVE ASSESSMENT

The following sections present the SVR, LVR and spatial average velocity ratio (SAVR) results of all focus areas for the Baseline Scheme, Proposed Scheme and Optional Scheme under annual and summer wind conditions.

6.1 DIRECTIONAL ANALYSIS

6.1.1 NNE Wind

Under NNE wind, incoming wind flow is obstructed by the commercial area of Causeway Bay to the north as well as the mixed non-industrial zone and “G/IC” area to the northeast of the Project Area hence wind availability of the Project Area mainly relies on the wind flow coming from Leighton Road and Cotton Path (Black Arrows in Figure 73).

In the Baseline Scheme, wake regions are observed on Caroline Hill Road to the immediate northeast and immediate south of the Project Area due to the blockage effect induced by the commercial area and mixed non-industrial zone. Due to the low-rise nature of the Baseline Scheme, more NNE wind is able to skim over the Project Area and reach the playground of Po Leung Kuk and South China Athletic Association thus higher VR is observed in these areas when compared to the Proposed and Optional Schemes (Purple Arrows in Figure 73).

In the Proposed Scheme, incoming NNE wind would skim over the existing low-rise developments north-east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) would cause high-level wind to be downwashed to pedestrian level hence higher VR is observed along Caroline Hill Road to the immediate northeast when compared with the Baseline Scheme (White Arrows in Figure 75). In addition, the access road at the central portion of the Project Area will create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream area immediate south of the Project Area when compared with the Baseline Scheme (Magenta Arrow in in Figure 75).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused a slightly lower wind performance in the open areas between The District Court Block 1 and The District Court Block 2 when compared with the Proposed Scheme.

Figure 73, Figure 75 and Figure 77 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 74, Figure 76 and Figure 78 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

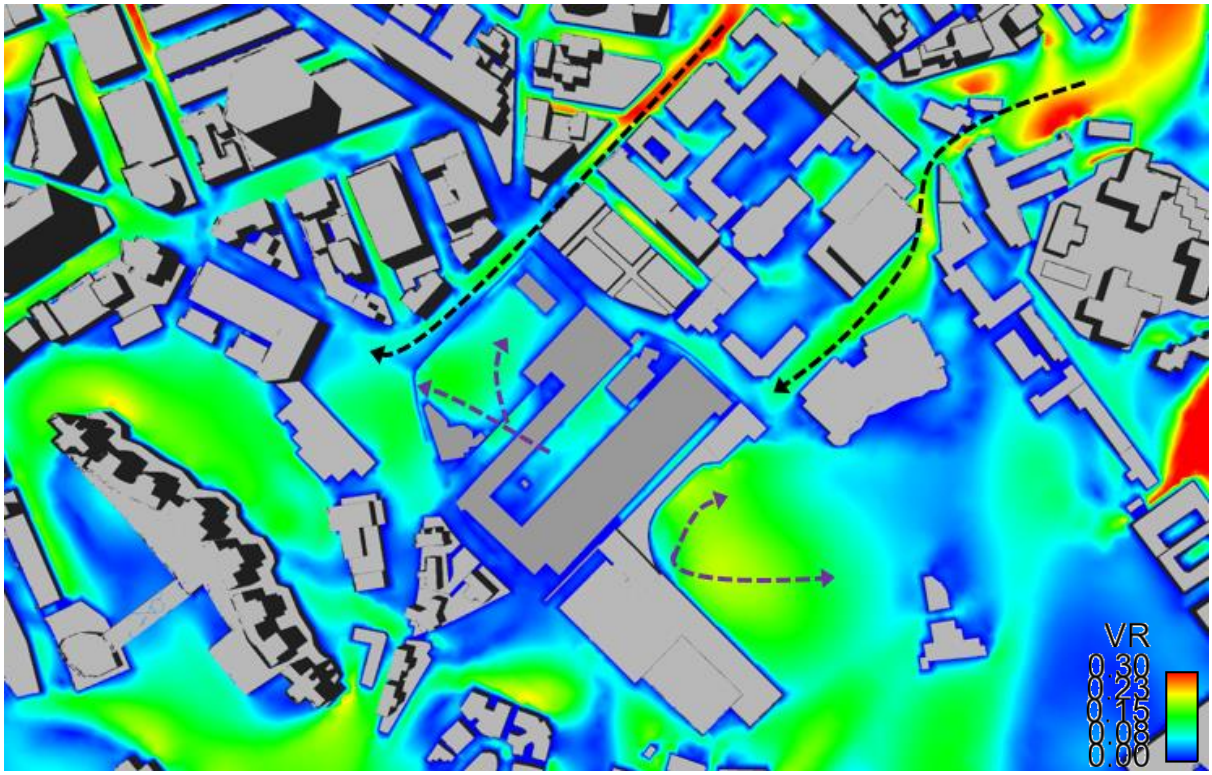


Figure 73 VR Contour Plot at Pedestrian Level under NNE Wind for Baseline Scheme

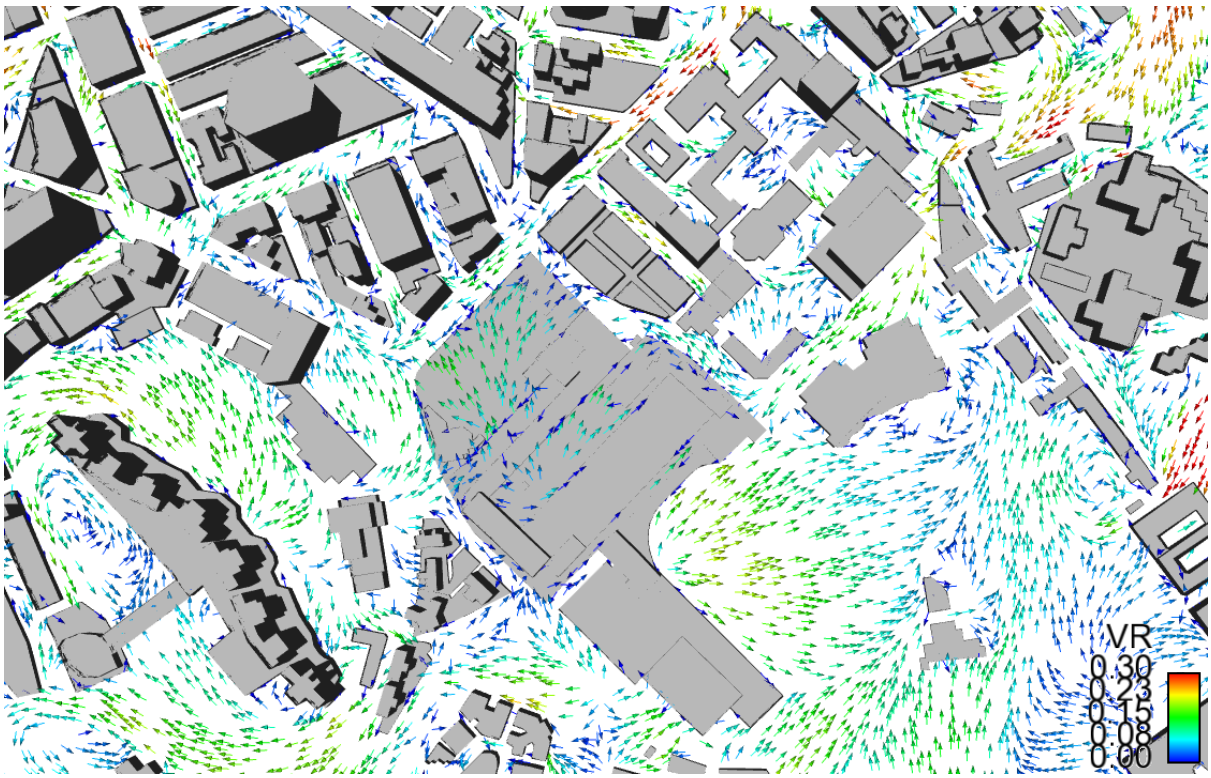


Figure 74 VR Vector Plot at Pedestrian Level under NNE Wind for Baseline Scheme

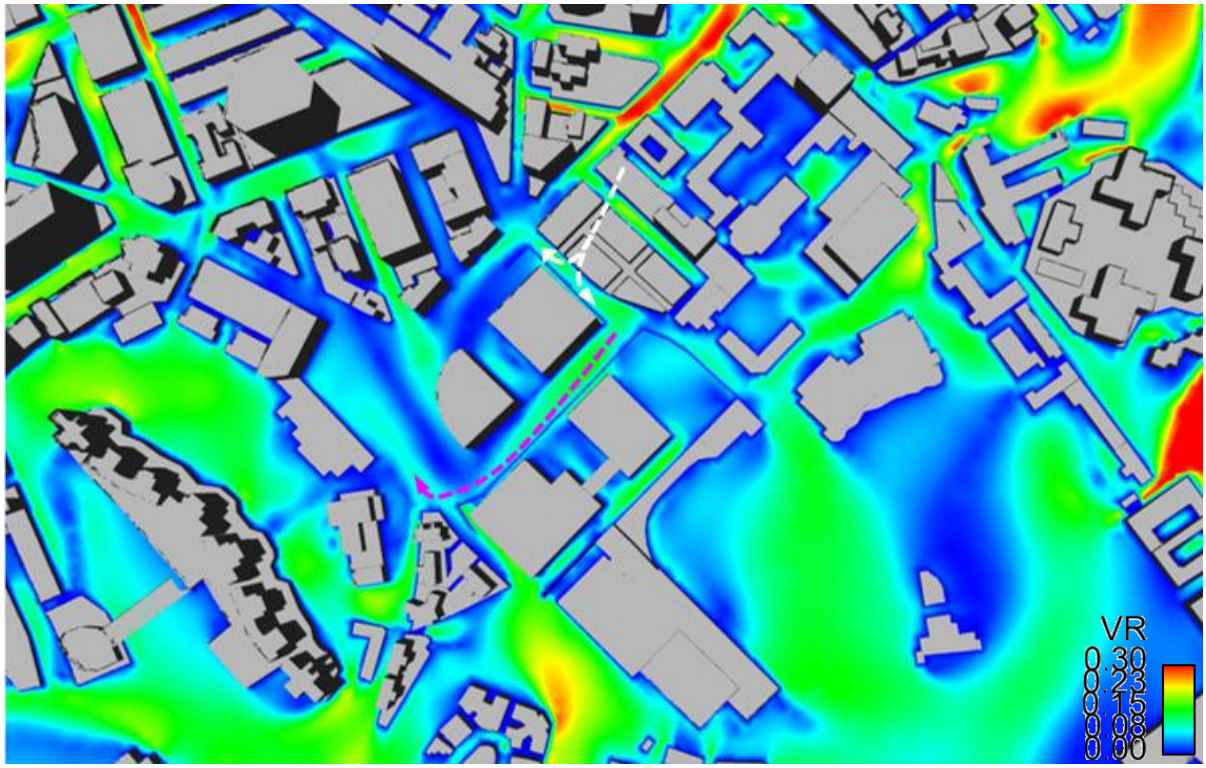


Figure 75 VR Contour Plot at Pedestrian Level under NNE Wind for Proposed Scheme

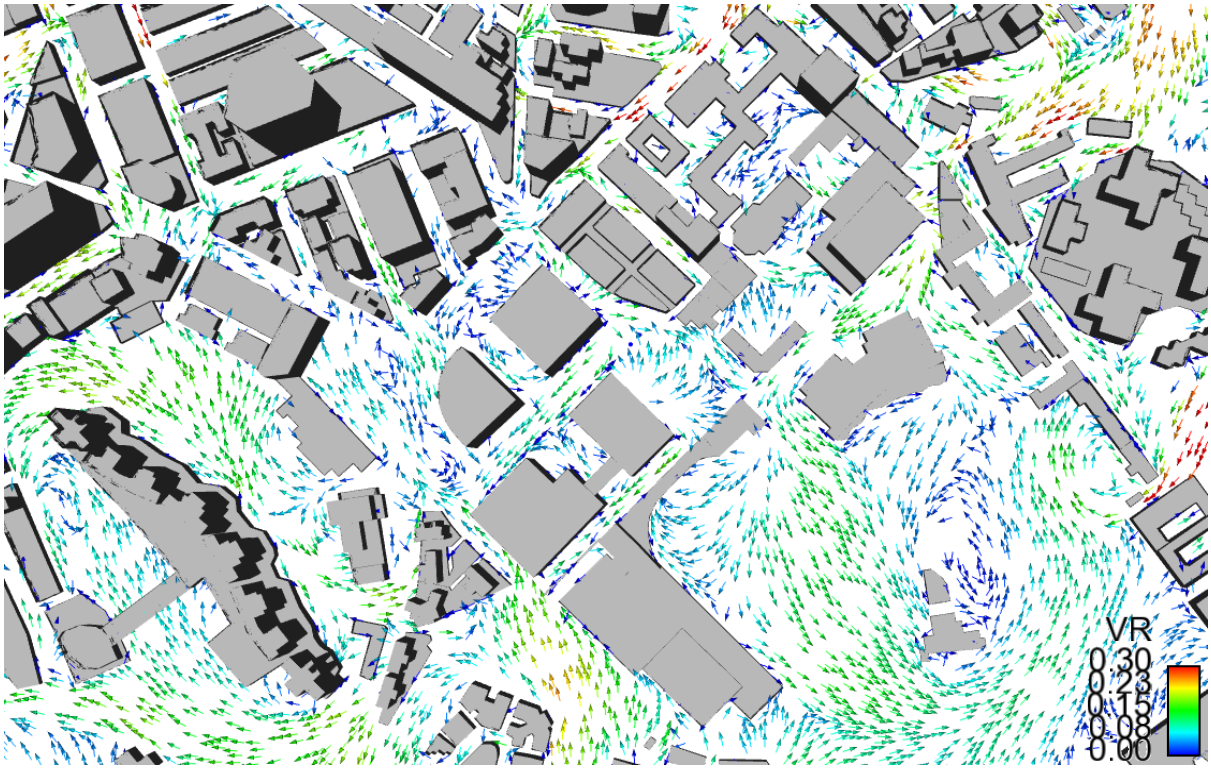


Figure 76 VR Vector Plot at Pedestrian Level under NNE Wind for Proposed Scheme

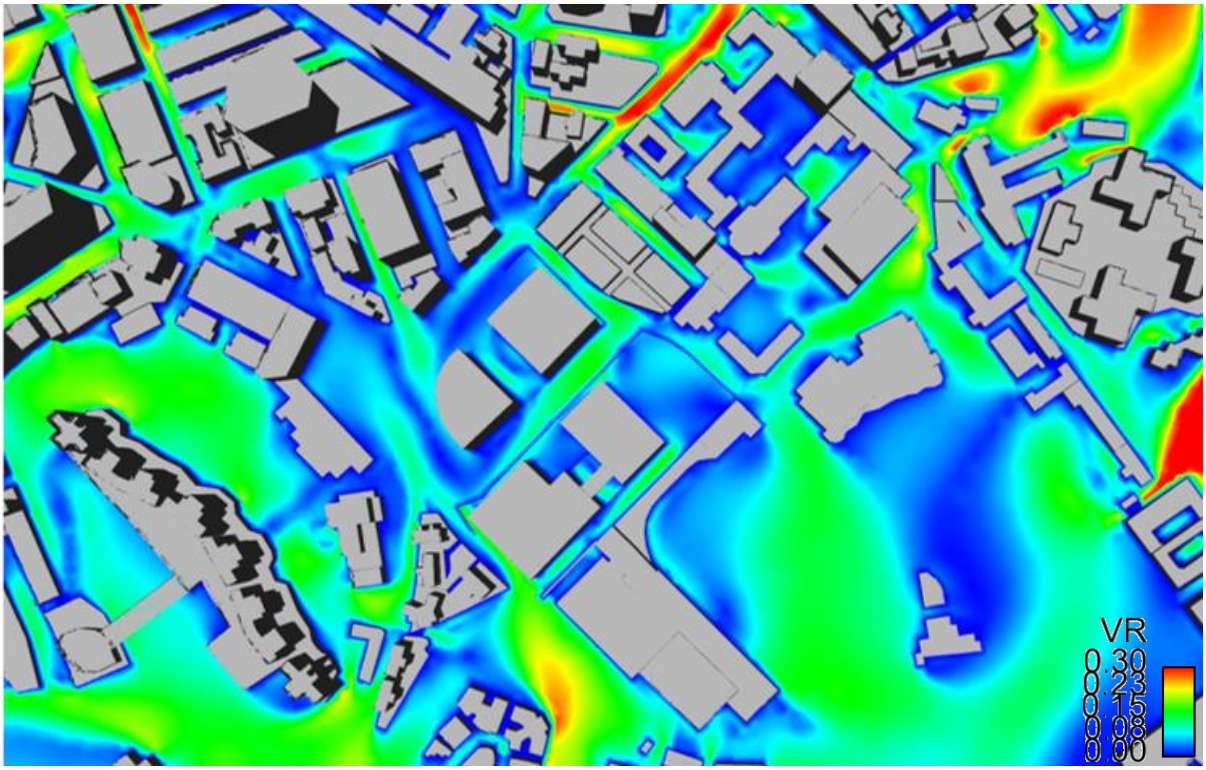


Figure 77 VR Contour Plot at Pedestrian Level under NNE Wind for Optional Scheme

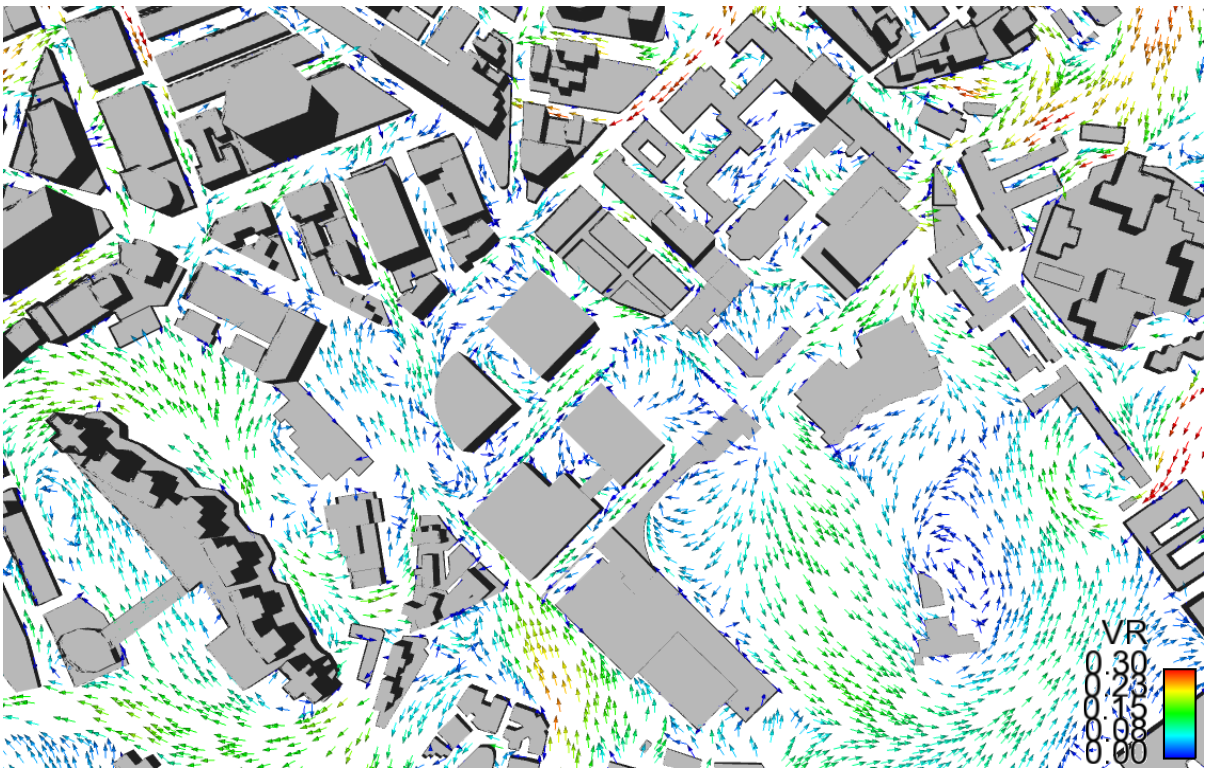


Figure 78 VR Vector Plot at Pedestrian Level under NNE Wind for Optional Scheme

6.1.2 NE Wind

Incoming NE wind is obstructed and diverted by the commercial area of Causeway Bay to the north as well as the mixed non-industrial zone and "G/IC" area to the northeast of the Project Area. However, the Project Area's wind availability will come from Caroline Hill Road to the south of the Project Area and Caroline Hill Road to the east of the Project Area via Cotton Path and South China Athletic Association. This is due to the hilly terrain to the east (i.e. Siu Ma Shan and the Tai Tam Country Park) and southeast (i.e. Jardine's Lookout) of the Project Area diverting NE wind back towards the Project Area (Black Arrows in Figure 79).

In the Baseline Scheme, wake regions are observed on Caroline Hill Road to the immediate northeast and near the central portion of the Project Area due to the blockage effect induced by the commercial area and mixed non-industrial zone. Due to the low-rise nature of the Baseline Scheme, NE wind is able to skim over the Project Area and reach the Playground of Po Leung Kuk, Sunning Road and western section of Leighton Road thus higher VR are observed along these regions when compared to the Proposed and Optional Schemes (Purple Arrows in Figure 79).

In the Proposed Scheme, incoming NE wind would skim over the existing low-rise developments north-east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) would cause high-level wind to be downwashed to pedestrian level therefore higher VR is observed along Caroline Hill Road to the immediate northeast and along a section of Leighton Road to the immediate northwest when compared with the Baseline Scheme (White Arrows in Figure 81). In addition, the access road at the central portion of the Project Area will create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream area of Link Road (Magenta Arrows in Figure 81). The 25m building gap between Commercial Tower 1 and Commercial Tower 2 and the 25m building gap between The District Court Block 1 and The District Court Block 2 also created an improved wind performance in the open areas / open spaces of the Project Area when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused a slightly lower wind performance in the open areas between The District Court Block 1 and The District Court Block 2 when compared with the Proposed Scheme.

The NW/SE orientated building gaps enhance wind penetration under both the Proposed and Optional Scheme. They help to ventilate the playground of Po Leung Kuk even when it is under the leeward side of Commercial Tower 2. However, large wake is still found around Playground of Po Leung Kuk under the Proposed and Optional Scheme when compared with the Baseline Scheme. In addition, narrower building gap under the Optional Scheme would result in larger wake when compared with the Proposed Scheme. Besides, wake is also found along Haven Street and around western part of South China Athletic Association under the Proposed Scheme and Optional Scheme, which is otherwise absent in the Baseline Scheme, due to presence of high-rise towers obstructing the mid to high level wind flow coming from South China Athletic Association.

Figure 79, Figure 81 and Figure 83 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 80, Figure 82 and Figure 84 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

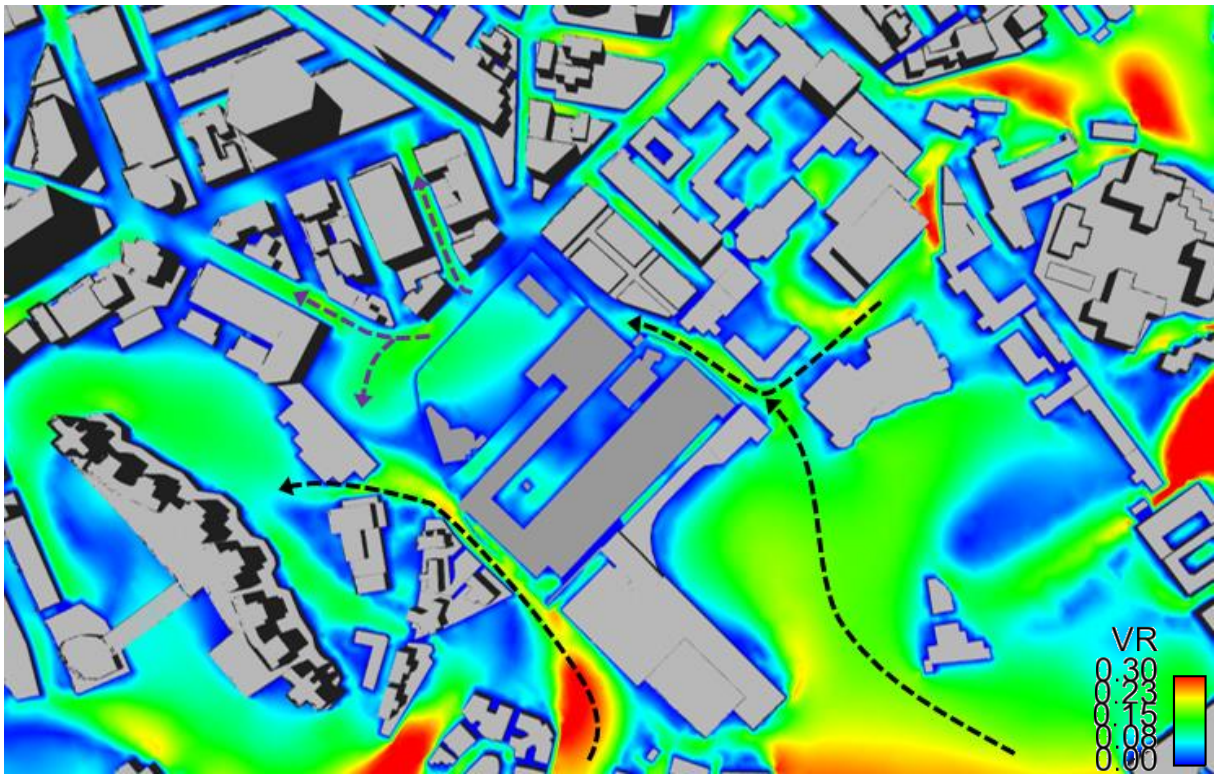


Figure 79 VR Contour Plot at Pedestrian Level under NE Wind for Baseline Scheme

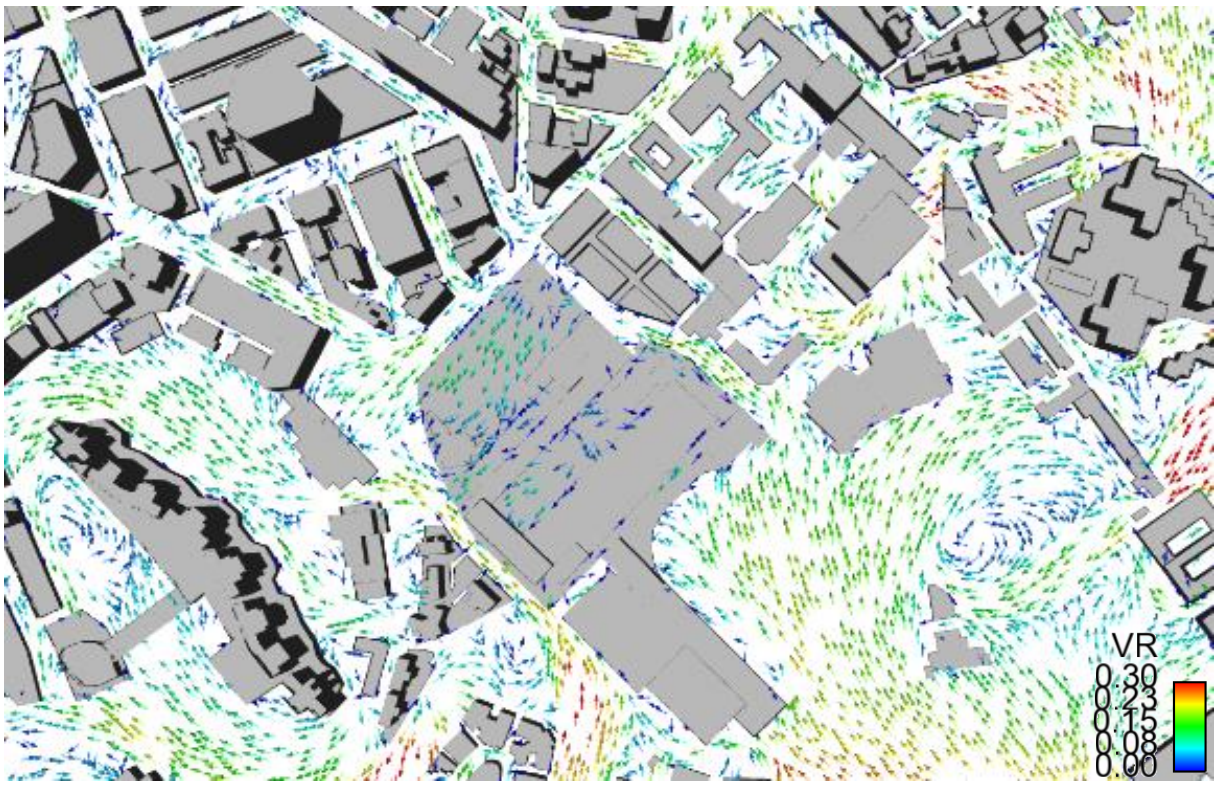


Figure 80 VR Vector Plot at Pedestrian Level under NE Wind for Baseline Scheme

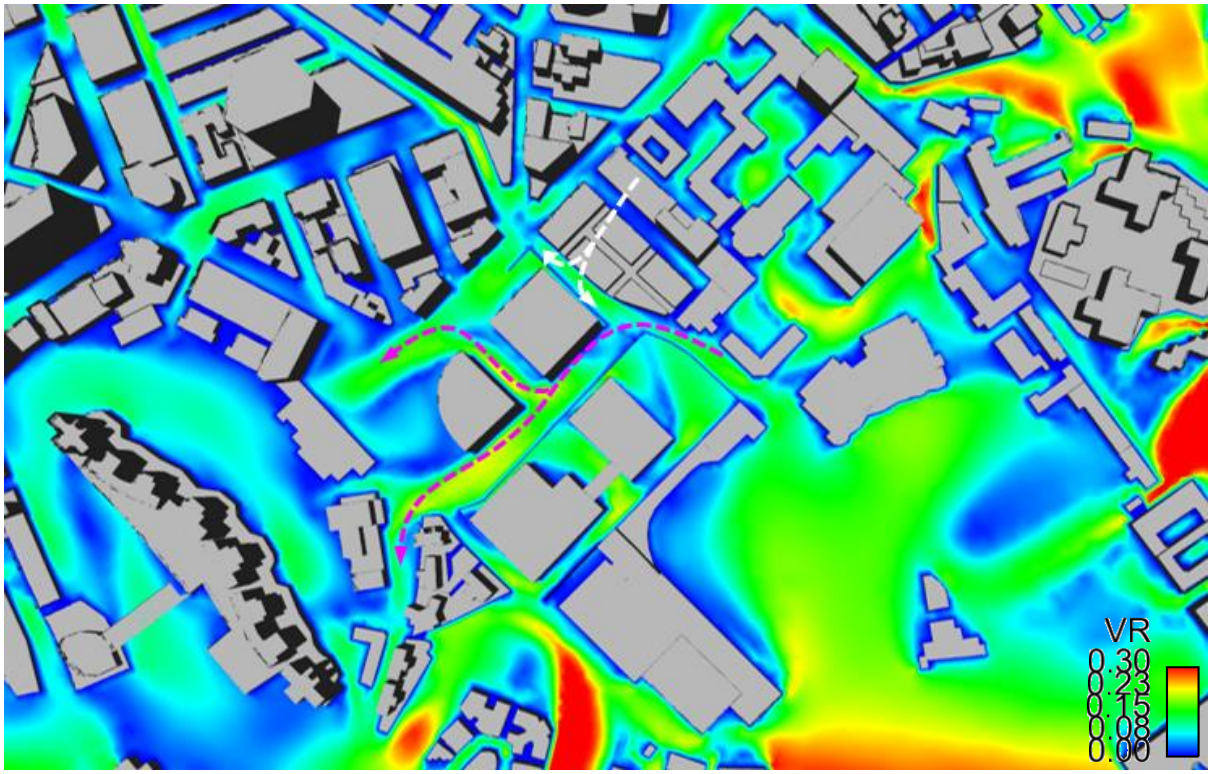


Figure 81 VR Contour Plot at Pedestrian Level under NE Wind for Proposed Scheme

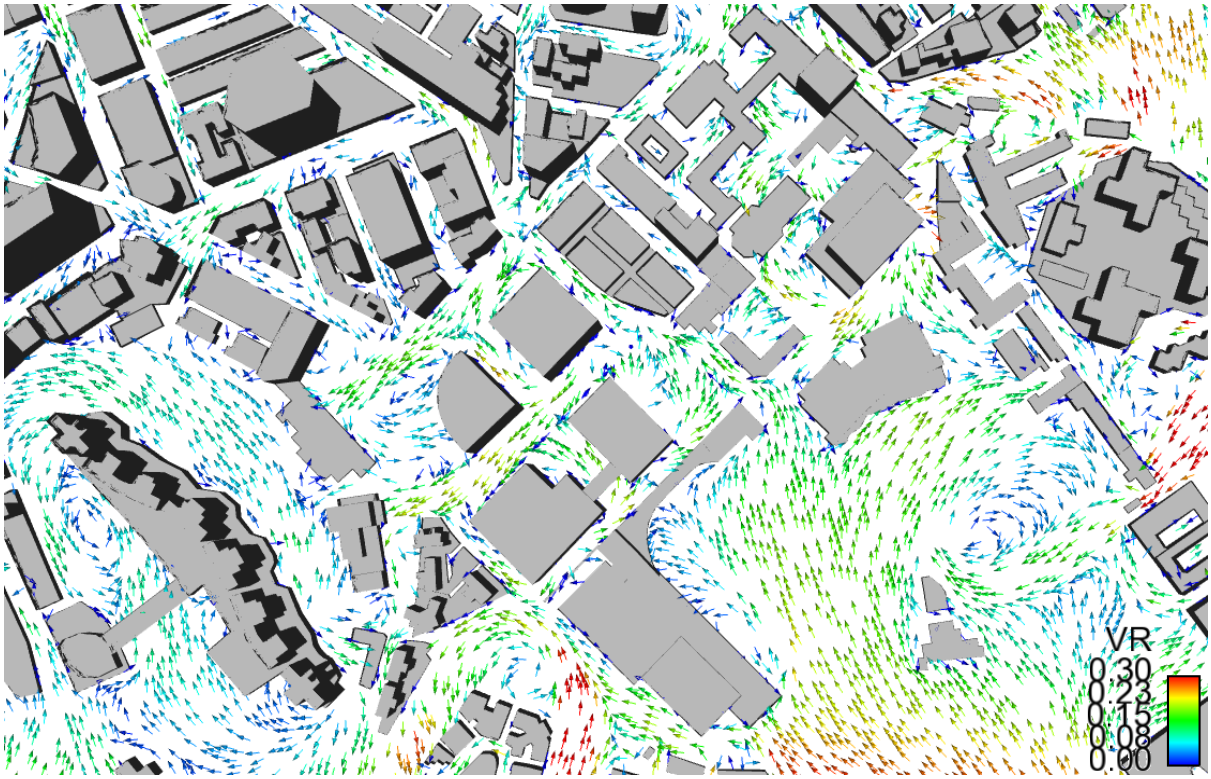


Figure 82 VR Vector Plot at Pedestrian Level under NE Wind for Proposed Scheme

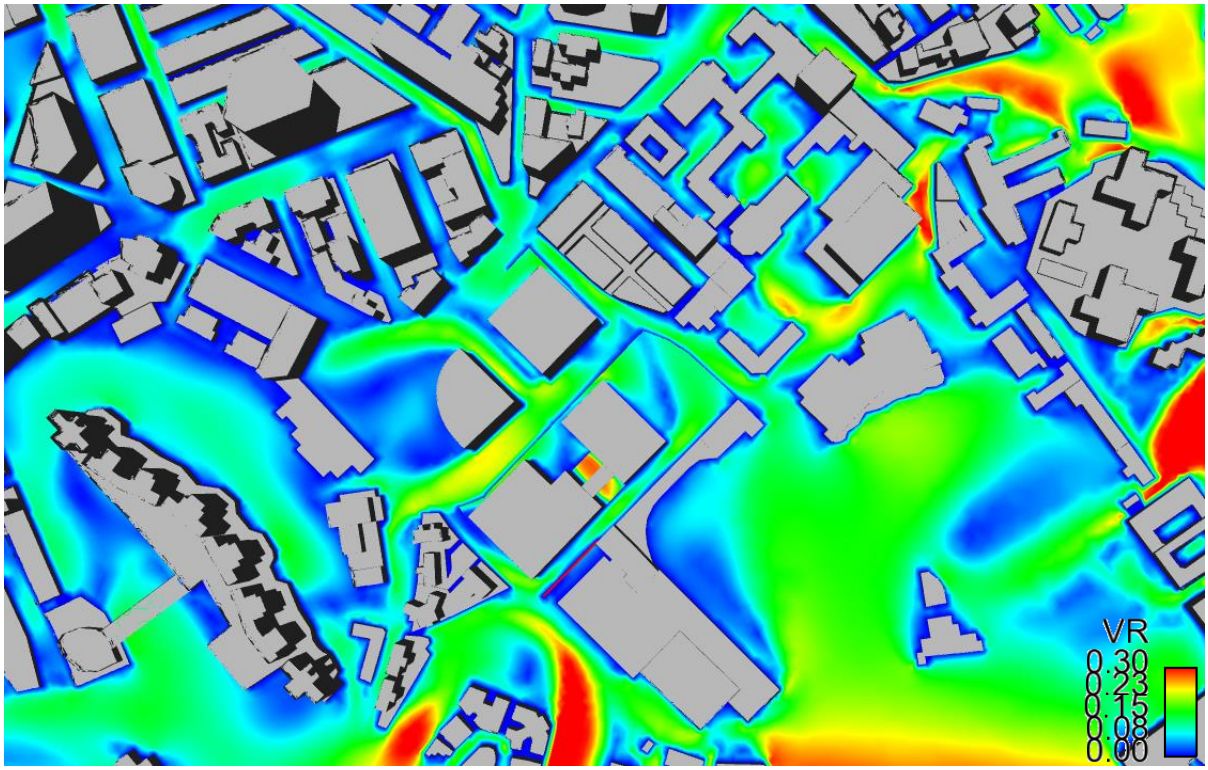


Figure 83 VR Contour Plot at Pedestrian Level under NE Wind for Optional Scheme

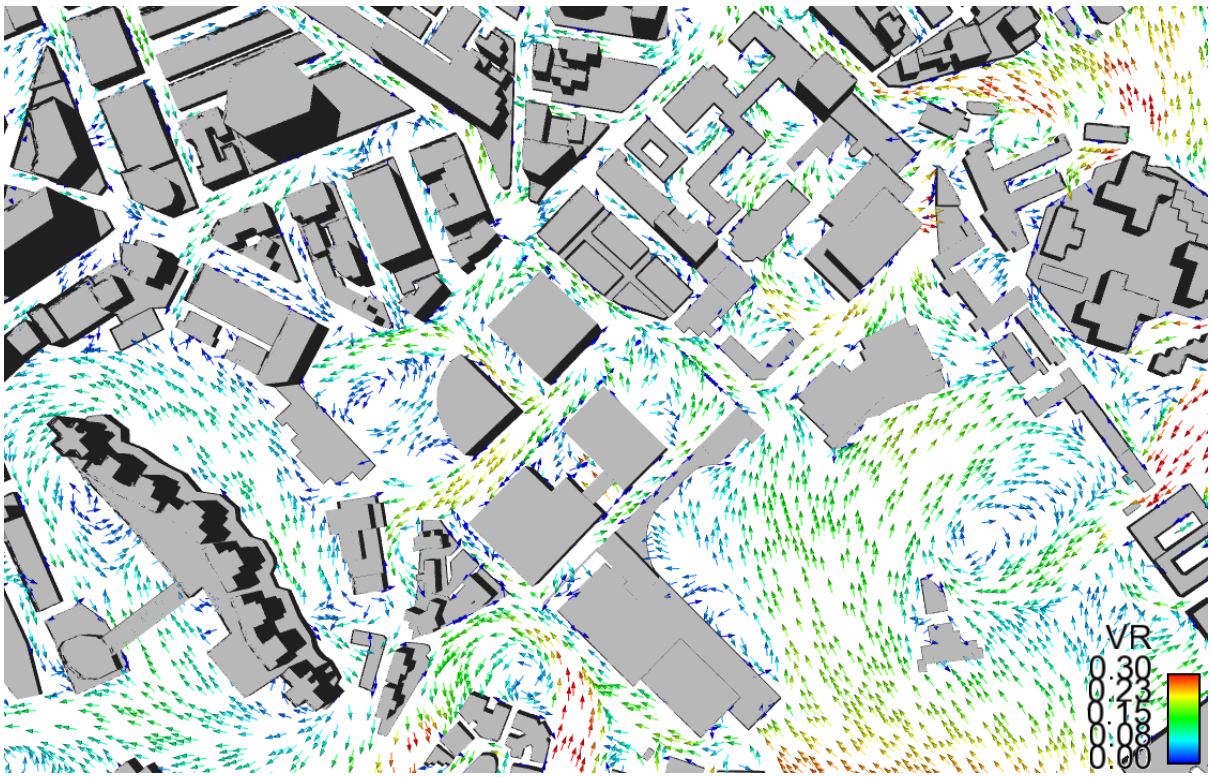


Figure 84 VR Vector Plot at Pedestrian Level under NE Wind for Optional Scheme

6.1.3 ENE Wind

Incoming ENE wind is obstructed and diverted by the commercial area of Causeway Bay to the north as well as the mixed non-industrial zone and “G/IC” area to the northeast of the Project Area hence wind availability of the Project Area mainly relies on the wind flow coming from Caroline Hill Road to the south of the Project Area and Caroline Hill Road to the east of the Project Area via Cotton Path and South China Athletic Association. In addition, a portion of the Project Area’s wind availability will come from Leighton Road thus more wind flow is observed to reach the Project Area when compared with NNE and NE wind (Black Arrows in Figure 85).

In the Baseline Scheme, more ENE wind is able to skim over the Project Area and reach Leighton Hill, Sunning Road and Hoi Ping Road due to the low-rise nature of the Baseline Scheme thus higher VR is observed along these regions when compared to the Proposed and Optional Schemes (Purple Arrows in Figure 85).

In the Proposed Scheme, incoming ENE wind would skim over the existing low-rise developments north-east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) would cause high-level wind to be downwashed to pedestrian level therefore higher VR is observed along Caroline Hill Road to the immediate northeast and along a section of Leighton Road to the immediate northwest when compared with the Baseline Scheme (Magenta Arrows in Figure 87). In addition, the access road at the central portion of the Project Area will create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream area, thus higher VR is evident along Link Road and Playground of Po Leung Kuk when compared with the Baseline Scheme (White Arrows in Figure 87). In addition, the 25m building gap between Commercial Tower 1 and Commercial Tower 2 and the 25m building gap between The District Court Block 1 and The District Court Block 2 created an improved wind performance in the open areas / open spaces of the Project Area and more wind flow is able to reach the western section of Leighton Road when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition except the Playground of Po Leung Kuk where slightly more wind flow is observed in the Optional Scheme, possibly due to the reduced building gap between The District Court Block 1 and The District Court Block 2 causing funneling effect. Within the Project Area, the wind performance is comparable with the Proposed Scheme.

Under both the Proposed and Optional Schemes, the playground of Po Leung Kuk is ventilated by the wind coming from the NE/SW orientated access road. A portion of ENE wind flowing through the access road will also be diverted towards the northwest, via the NW/SE orientated building gap between the Commercial Towers, to ventilate Leighton Road. However, lower air ventilation performance is found along Haven Street and around Leighton Hill under the Proposed Scheme and Optional Scheme when compared with the Baseline Scheme due to presence of the proposed high-rise towers obstructing mid to high level ENE wind flow coming from South China Athletic Association and Caroline Hill Road to the east to reach the surrounding areas.

Figure 85, Figure 87 and Figure 89 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 86, Figure 88 and Figure 90 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

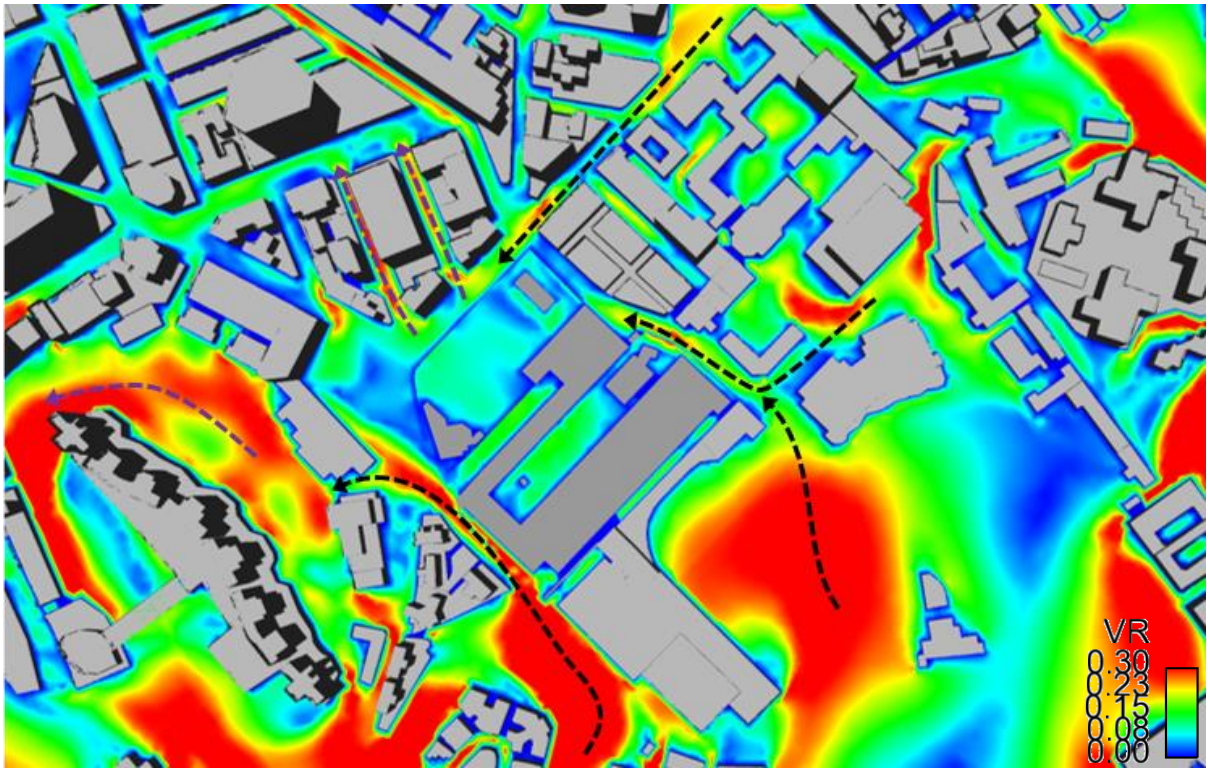


Figure 85 VR Contour Plot at Pedestrian Level under ENE Wind for Baseline Scheme

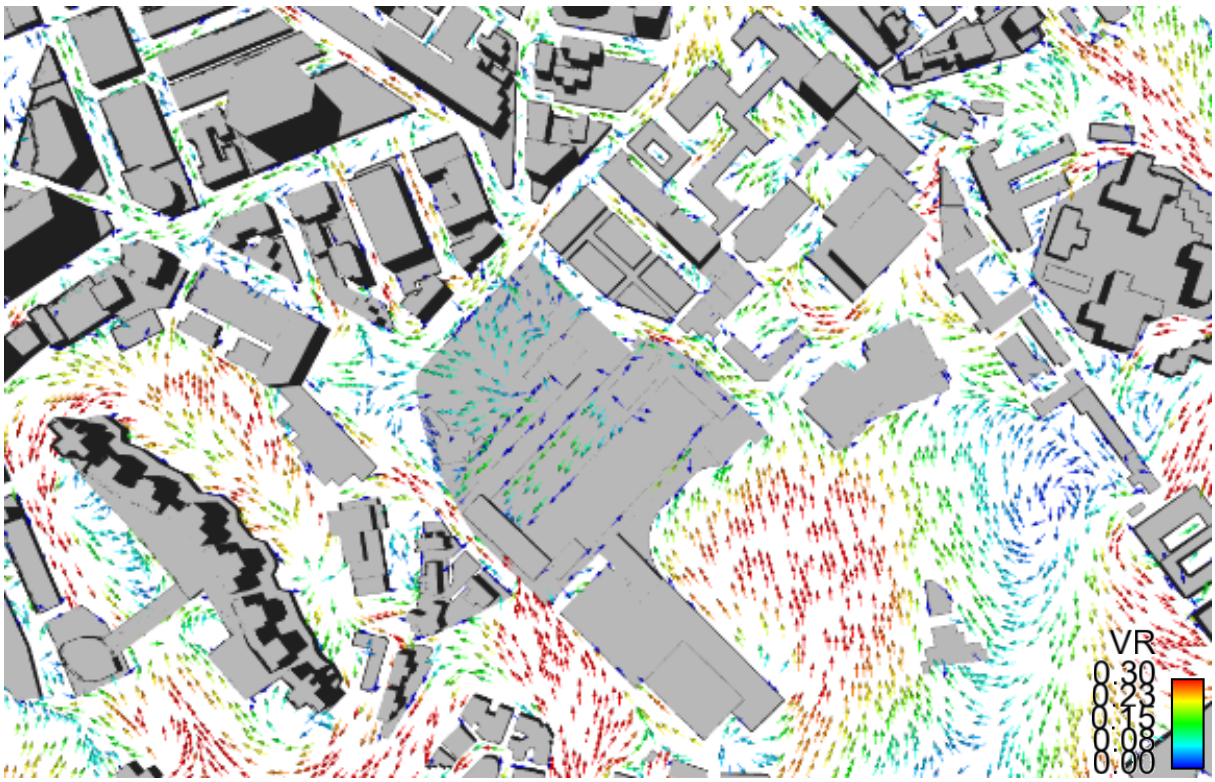


Figure 86 VR Vector Plot at Pedestrian Level under ENE Wind for Baseline Scheme

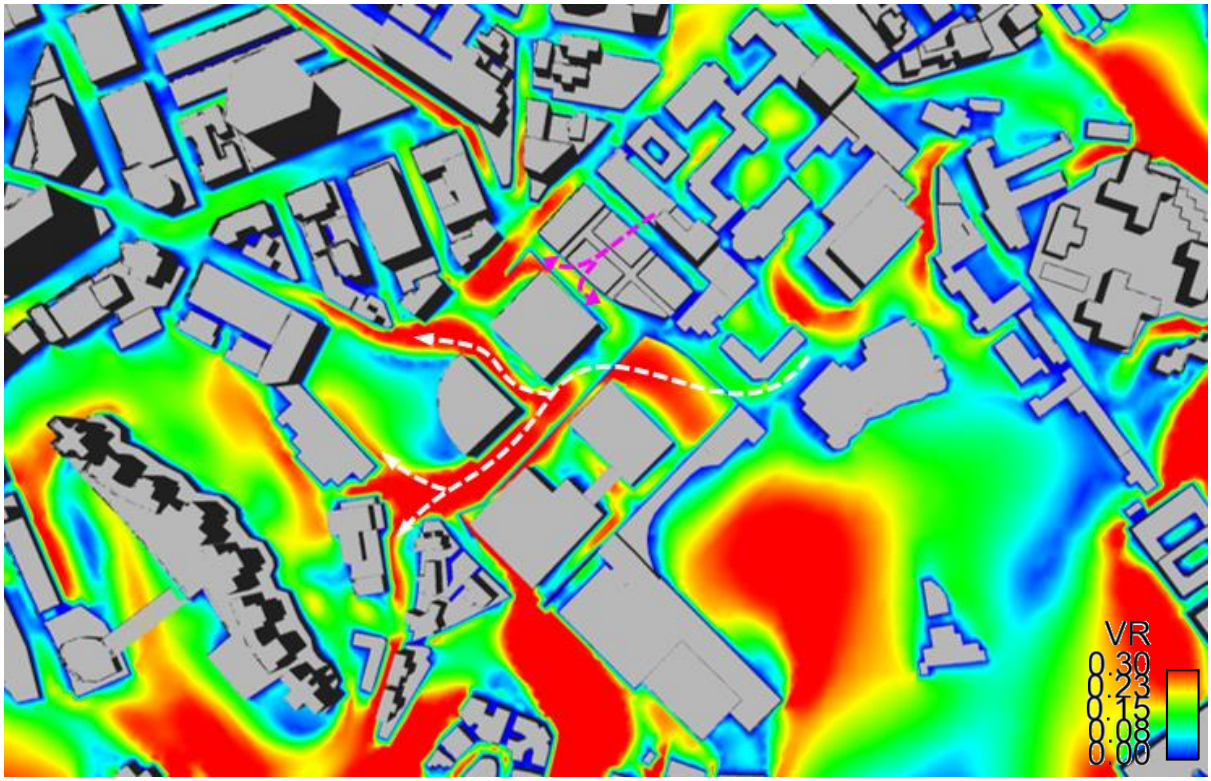


Figure 87 VR Contour Plot at Pedestrian Level under ENE Wind for Proposed Scheme

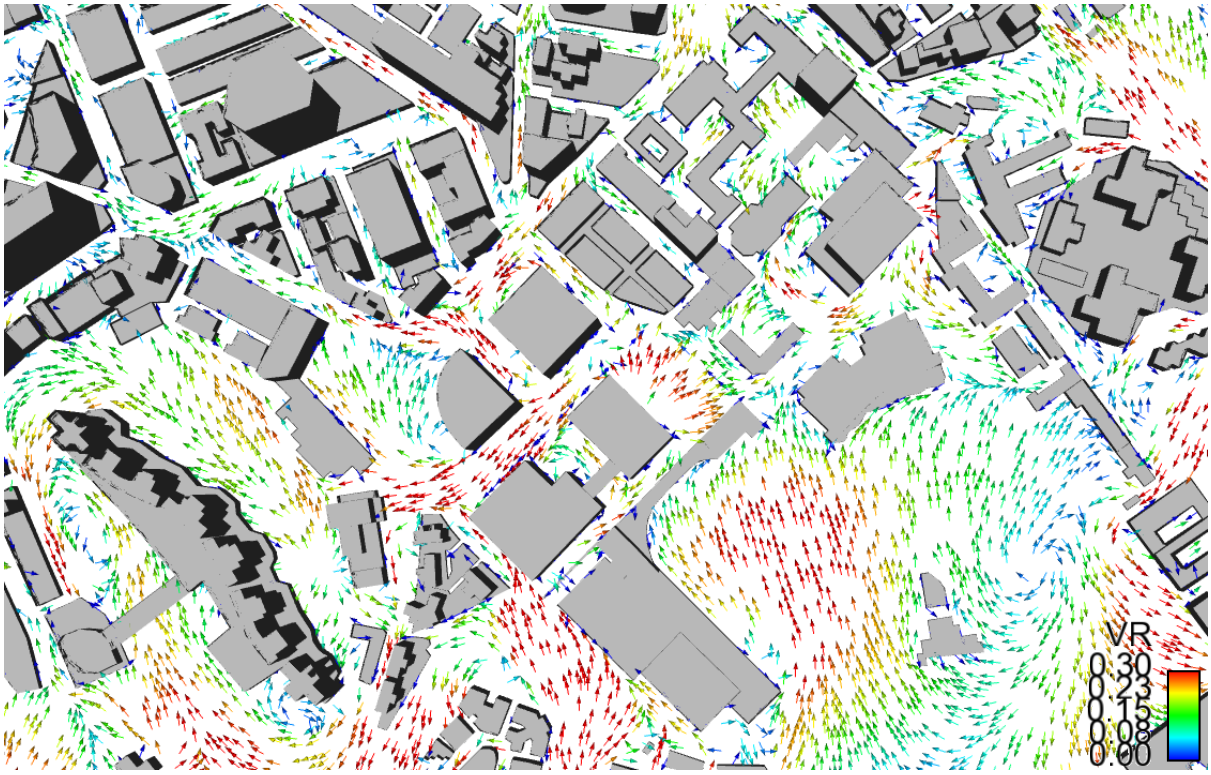


Figure 88 VR Vector Plot at Pedestrian Level under ENE Wind for Proposed Scheme

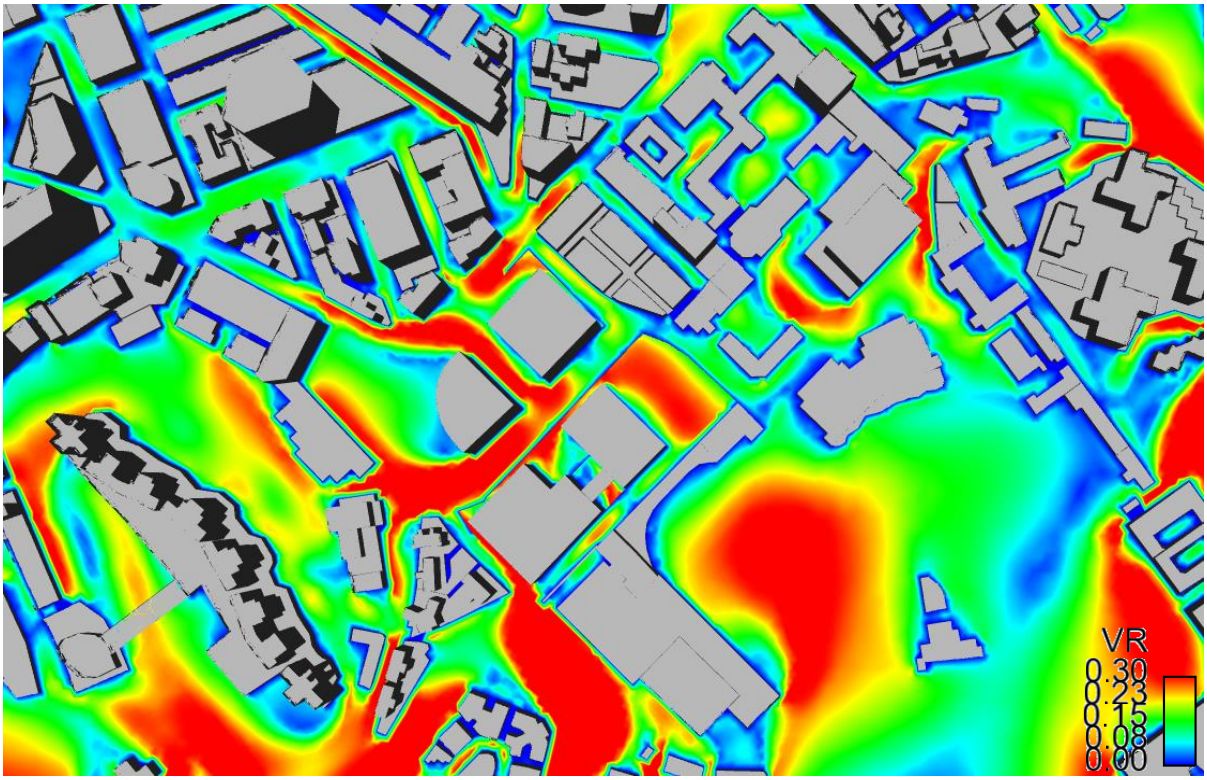


Figure 89 VR Contour Plot at Pedestrian Level under ENE Wind for Optional Scheme

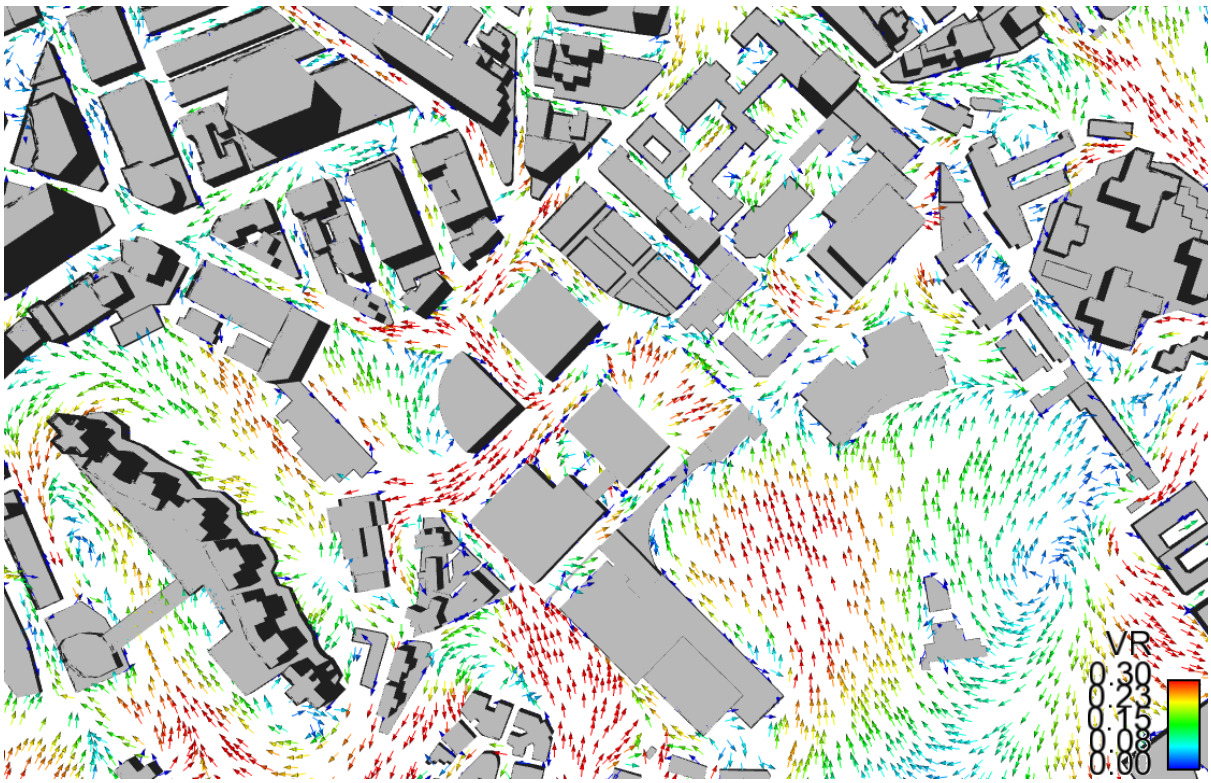


Figure 90 VR Vector Plot at Pedestrian Level under ENE Wind for Optional Scheme

6.1.4 E Wind

Incoming E wind is obstructed and diverted by Siu Ma Shan and the Tai Tam Country Park hence wind availability of the Project Area mainly relies on the wind flow coming from Leighton Road and Cotton Path (Black Arrows in Figure 91).

In the Baseline Scheme, the tall building structure of HKU Space Po Leung Kuk Community College of approximately 90mPD will cause downwash effect hence higher VR is observed at the Playground of Po Leung Kuk. In addition, more E wind is able to skim over the Project Area to reach Leighton Hill, Hoi Ping Road, Sun Wui Road and Leighton Road due to the low-rise nature of the Baseline Scheme thus higher VR is observed along these regions when compared to the Proposed and Optional Schemes (Purple Arrows in Figure 91).

In the Proposed Scheme, incoming E wind would skim over the existing low-rise developments east of the Project Area. Due to its high-rise nature, Commercial Tower 1 (building height of 130mPD) would cause high-level wind to be downwashed to pedestrian level, therefore higher VR is observed along a portion of Caroline Hill Road and Leighton Road when compared with the Baseline Scheme (Magenta Arrows in Figure 93). Additionally, the high-rise nature of The District Court Block 1 (i.e. building height of 130mPD) and The District Court Block 2 (i.e. building height of 130mPD) would also cause E wind to be downwashed thus resulting in higher VR at South China Athletic Association, Disciplined Services Sports and Recreation Club as well as Elevated Road to Beverly Hill (Grey Arrows in Figure 93). Furthermore, the access road at the central portion of the Project Area will create a wind entrance and allow more wind to penetrate through the Project Area and subsequently reach the downstream area, thus higher VR is evident along Link Road and area around Full View Court when compared with the Baseline Scheme. The 25m building gap between Commercial Tower 1 and Commercial Tower 2 and the 25m building gap between The District Court Block 1 and The District Court Block 2 created an improved wind performance in the open areas / open spaces of the Project Area and more wind flow is able to reach the western section of Leighton Road when compared with the Baseline Scheme (White Arrows in Figure 93). However, the high-rise nature of The District Court Block 1 also created more turbulence to the existing wind environment, which altered the wind pattern around St. Paul's Convent thus slightly lower VRs are observed in St. Paul's Convent, St. Paul's Hospital and St. Paul's Convent School when compared with the Baseline Scheme.

In both the Optional Scheme and Proposed Scheme, deterioration of wind performance is observed at Playground of Po Leung Kuk when compared with Baseline Scheme due to the wind shadow created by Commercial Tower 1. When comparing the Proposed Scheme and

Optional Scheme, the exclusion of podium structure and wider building gap between The District Court Blocks in the Proposed Scheme (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) results in greater site permeability. As a result, this allowed more E wind to penetrate through the Project Area to reach the downstream regions (White Arrows in Figure 93) thus higher VRs are observed along Link Road, area west of Po Leung Kuk, area around Leighton Hill, Leighton Road, Pennington Street as well as area around St. Paul's Convent School in the Proposed Scheme when compared with the Optional Scheme.

In contrast, the 5m shift of The District Court Block 1 towards the southwest also allowed more mid-level wind to be downwashed by Commercial Tower 1 in the Optional Scheme hence more wind flow is directed towards Sun Wui Road when compared with the Proposed Scheme. However, this also disrupts and obstructs the air flowing along Hysan Avenue from the west thus lower VR is observed for Hysan Avenue when compared with the Proposed Scheme (Dark Blue Arrows in Figure 95).

Figure 91, Figure 93 and Figure 95 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 92, Figure 94 and Figure 96 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

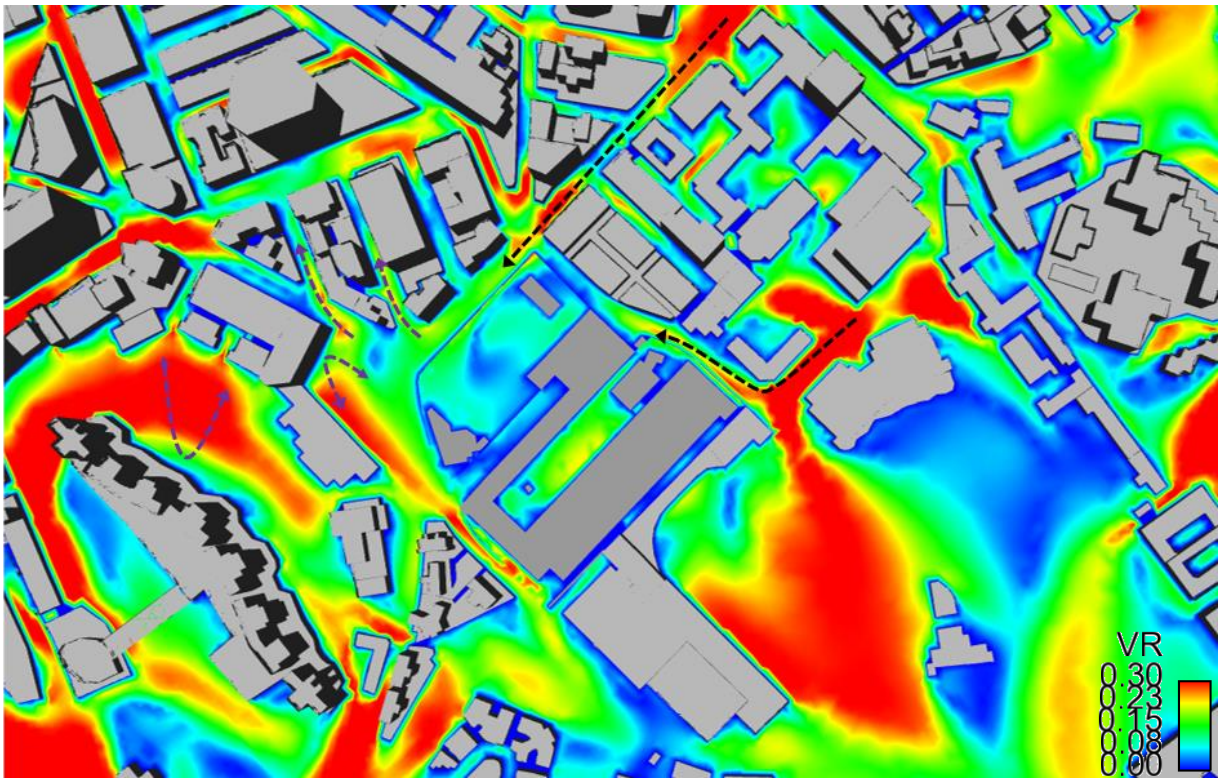


Figure 91 VR Contour Plot at Pedestrian Level under E Wind for Baseline Scheme

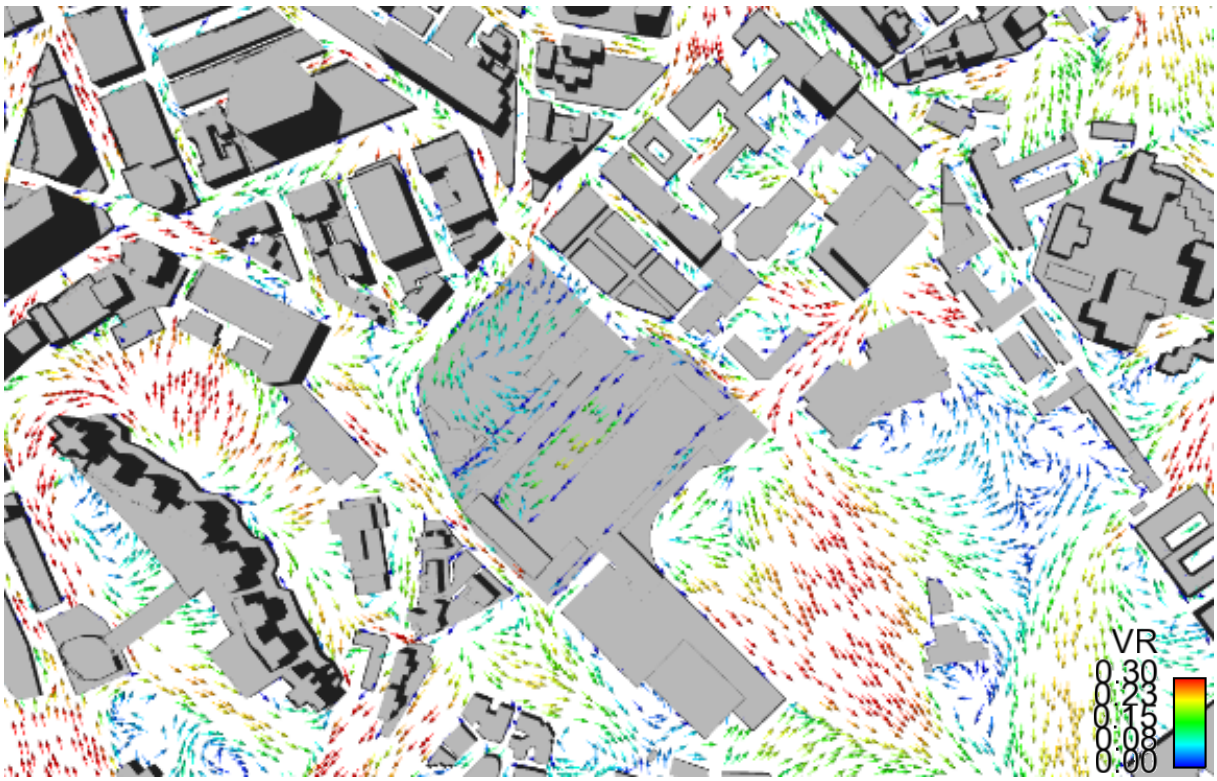


Figure 92 VR Vector Plot at Pedestrian Level under E Wind for Baseline Scheme

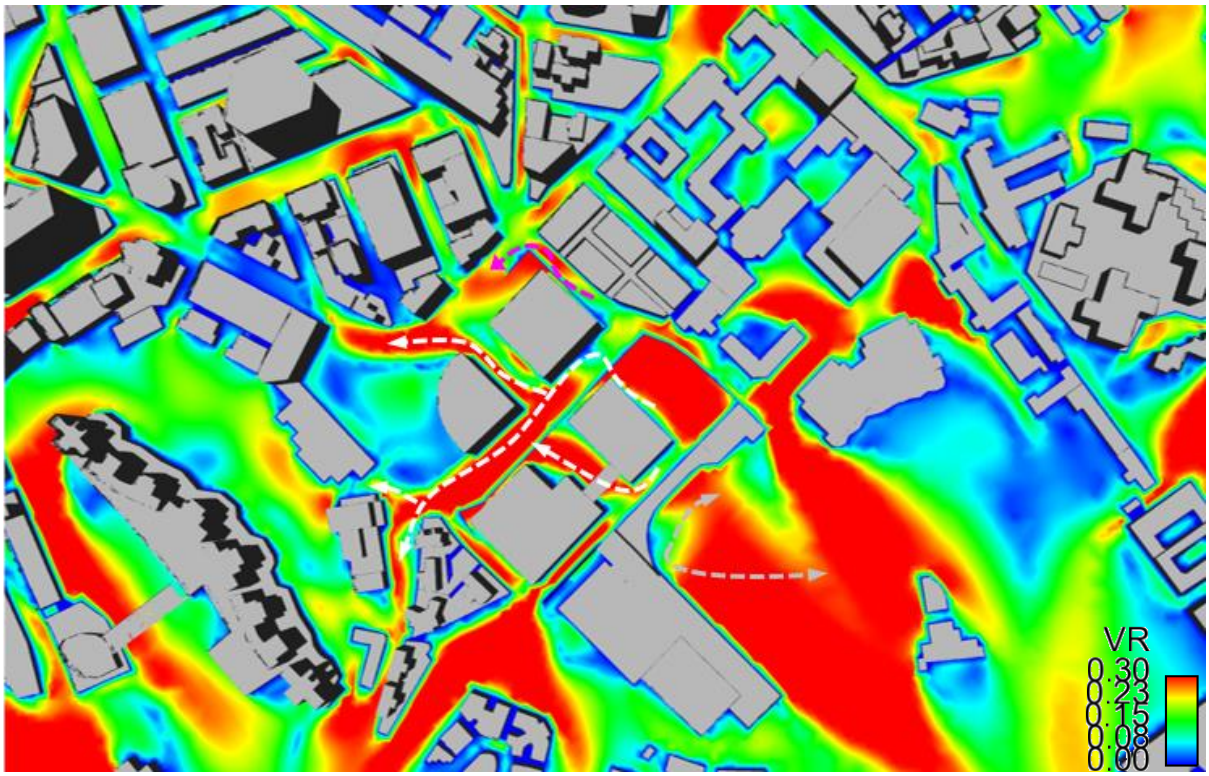


Figure 93 VR Contour Plot at Pedestrian Level under E Wind for Proposed Scheme

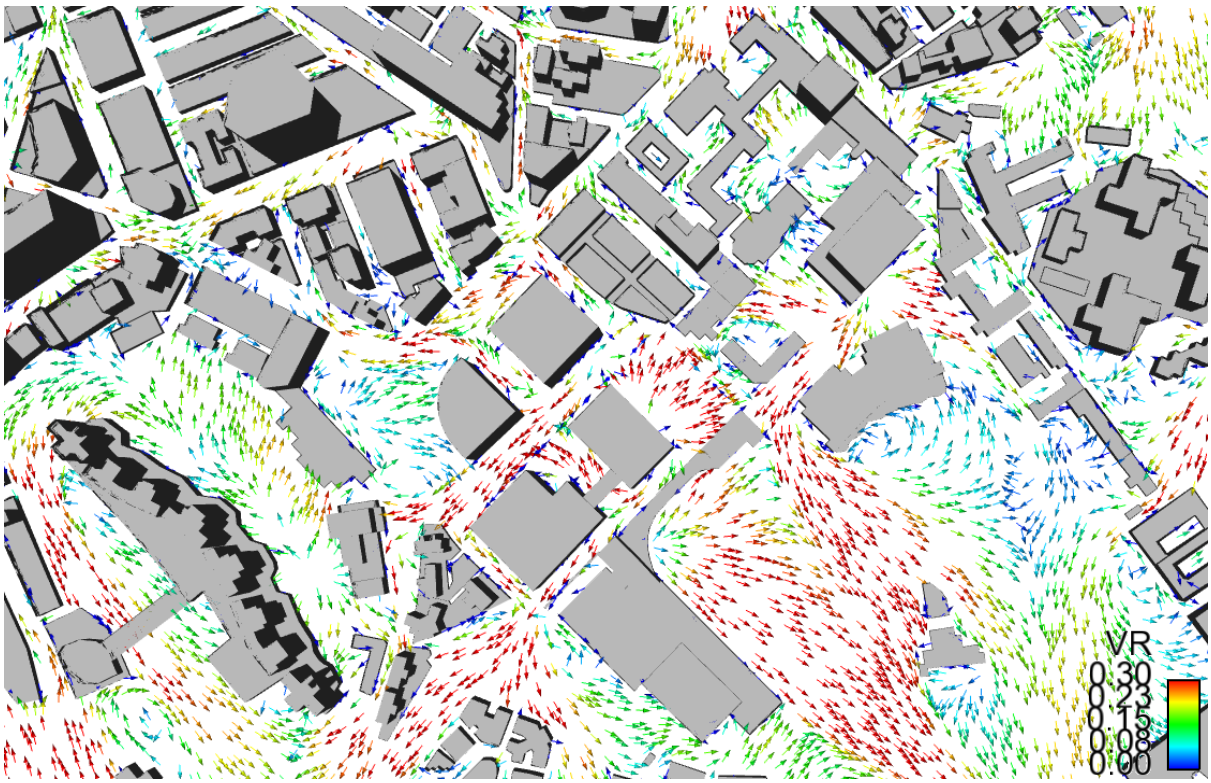


Figure 94 VR Vector Plot at Pedestrian Level under E Wind for Proposed Scheme

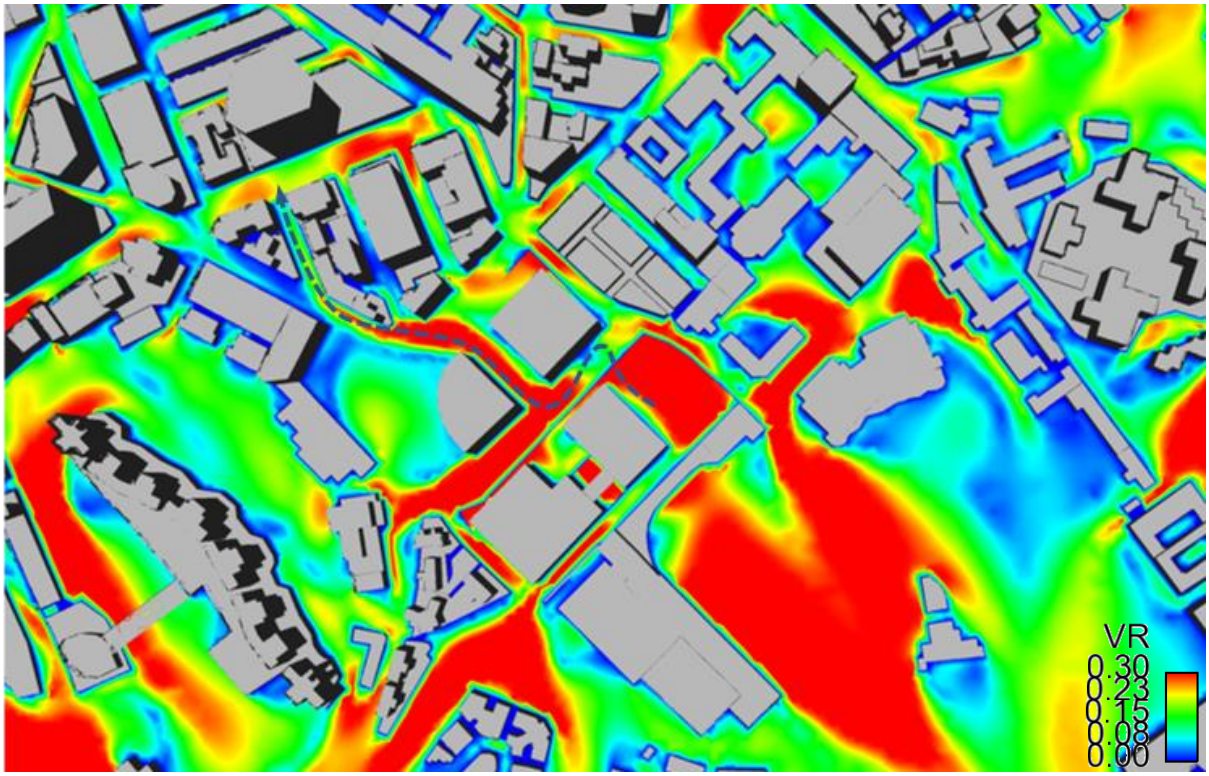


Figure 95 VR Contour Plot at Pedestrian Level under E Wind for Optional Scheme

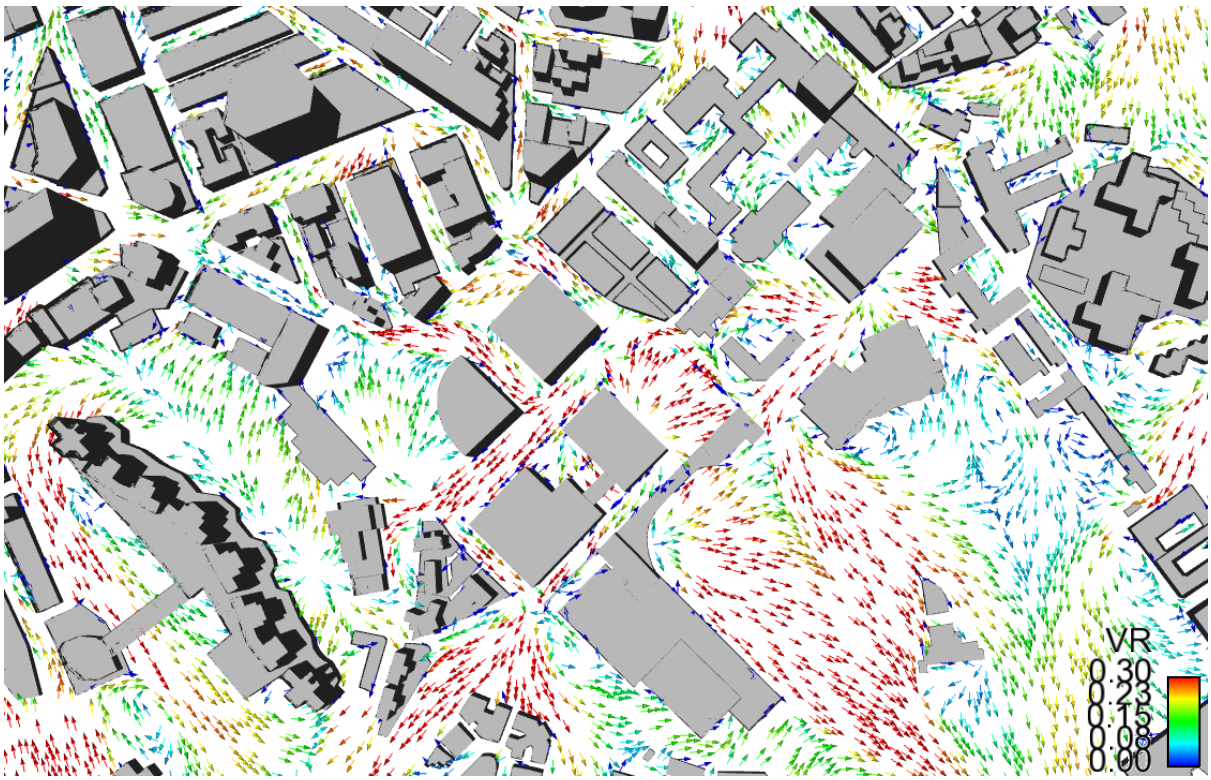


Figure 96 VR Vector Plot at Pedestrian Level under E Wind for Optional Scheme

6.1.5 ESE Wind

Incoming ESE wind is obstructed and diverted by Jardine's Lookout and Siu Ma Shan hence wind availability of the Project Area mainly relies on the wind flow coming from Caroline Hill Road to the east and south of the Project Area (Black Arrows in Figure 97).

In the Baseline Scheme, more ESE wind is able to skim over the Project Area hence more wind flow is able to reach the downstream regions of Yun Ping Road, Pennington Street, Haven Street, Hoi Ping Road, Sunning Road and northeastern section of Leighton Road when compared to the Proposed and Optional Schemes due to the low-rise nature of the Baseline Scheme (Purple Arrows in Figure 97). As a result, the incoming ESE wind would penetrate further into the aforementioned downstream regions and thus a lower VR is observed within the Project Area and Playground of Po Leung Kuk.

In the Proposed Scheme, incoming ESE wind would skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature of The District Court Block 1 (i.e. building height of 130mPD) would cause ESE wind to be downwashed thus resulting in higher VR at the area around South China Athletic Association (White Arrows in Figure 99). Likewise, the high-rise nature of The District Court Block 2 (i.e. building height of 130mPD) would create downwash effect and higher VRs are observed along Link Road, area to the south of Caroline Garden, Elevated Road to Beverly Hill and western section of Caroline Hill Road (Magenta Arrows in Figure 99). As a result of the downwash effect, more wind flow is able to be directed northwards thus higher VRs are observed along Hysan Avenue and Lee Garden Road when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition except for Sunning Road and Hoi Ping Road with lower VRs in the Optional Scheme. Less wind flow is able to pass through the NW/SE orientated building gap between Commercial Towers 1 & 2 and The District Court Blocks 1 & 2 in the Optional Scheme when compared to the Proposed Scheme due to the increased blockage effect induced by the additional podium of 22mPD and reduced building gap between The District Court Blocks 1 & 2.

Figure 97, Figure 99 and Figure 101 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 98, Figure 100 and Figure 102 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

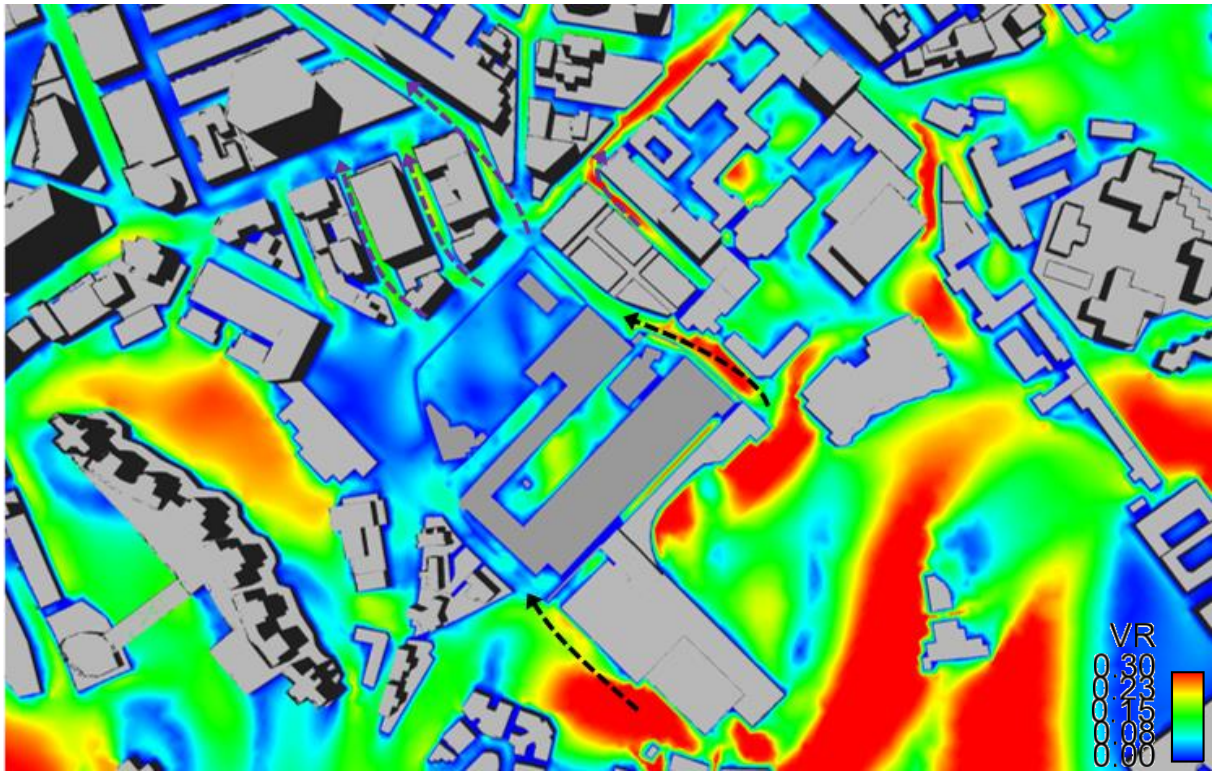


Figure 97 VR Contour Plot at Pedestrian Level under ESE Wind for Baseline Scheme

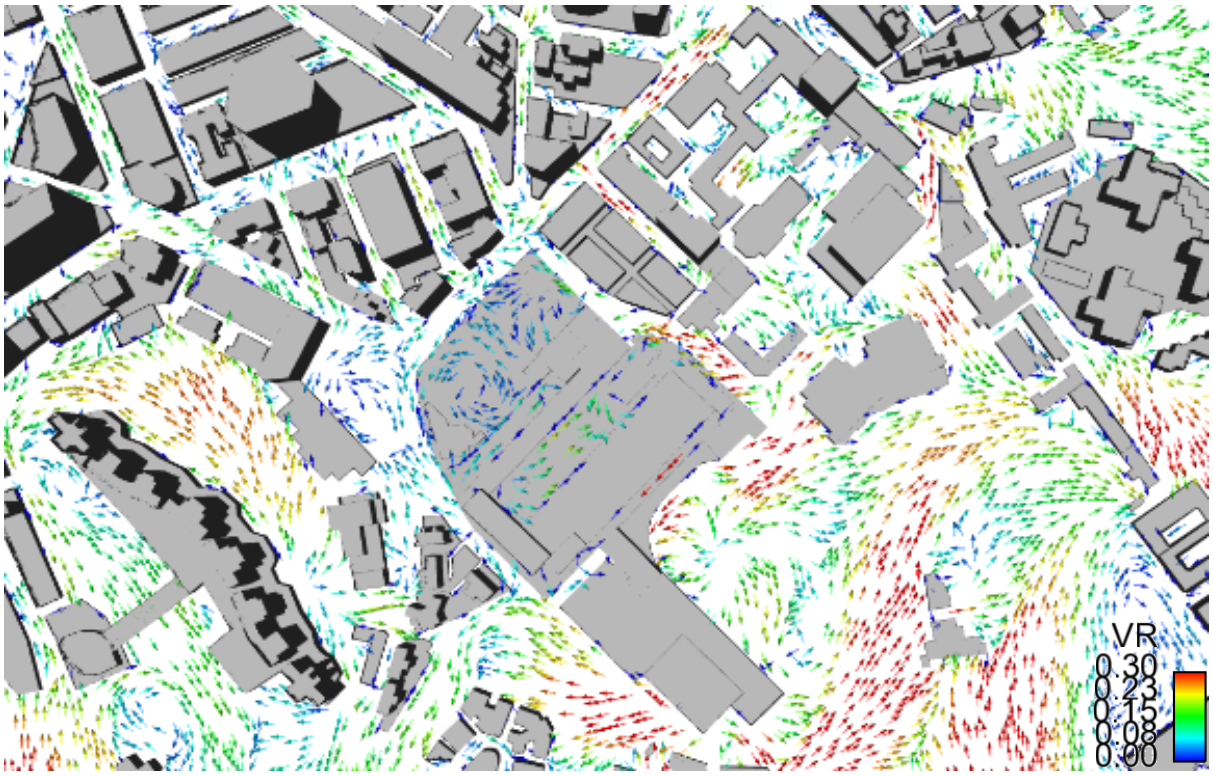


Figure 98 VR Vector Plot at Pedestrian Level under ESE Wind for Baseline Scheme

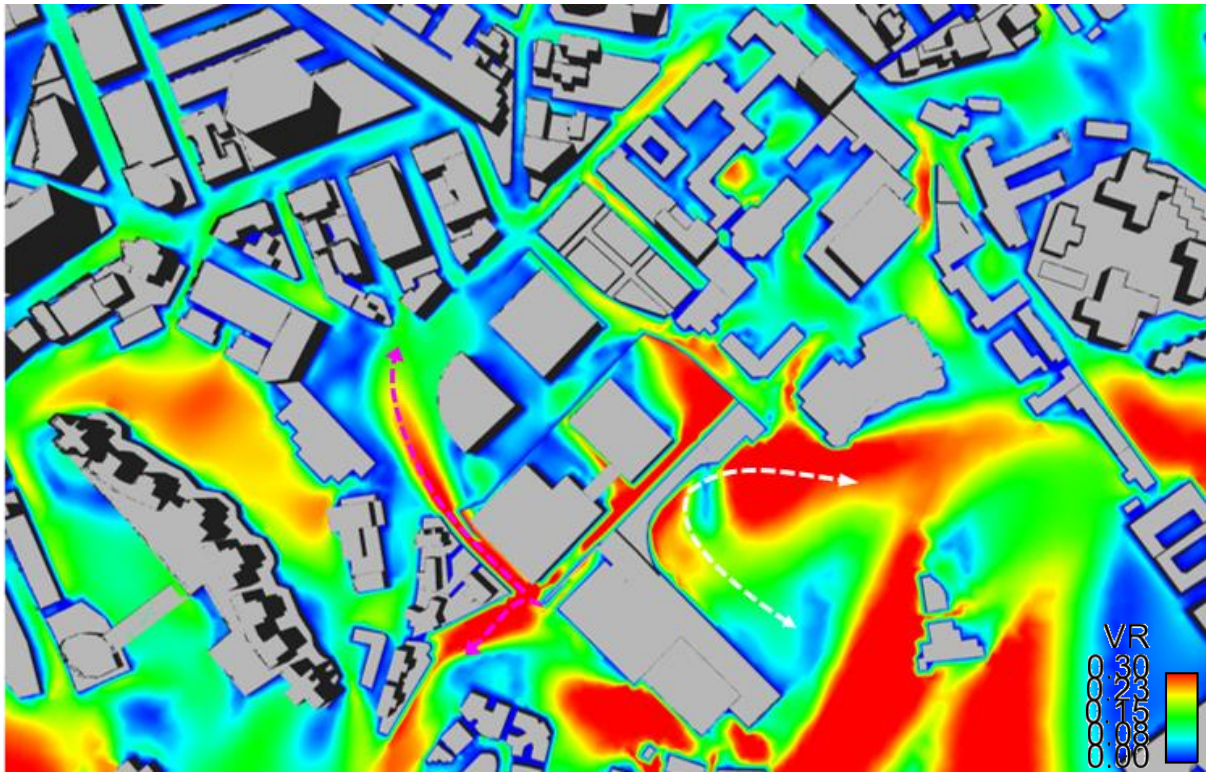


Figure 99 VR Contour Plot at Pedestrian Level under ESE Wind for Proposed Scheme

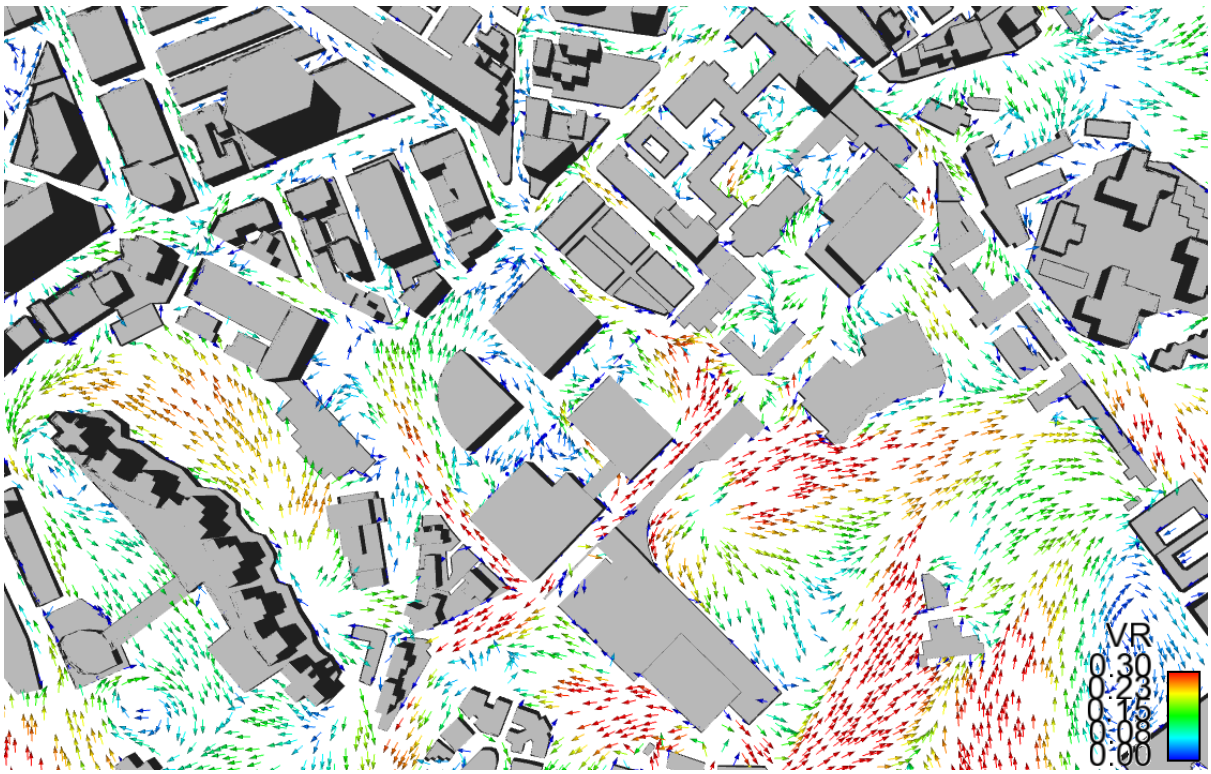


Figure 100 VR Vector Plot at Pedestrian Level under ESE Wind for Proposed Scheme

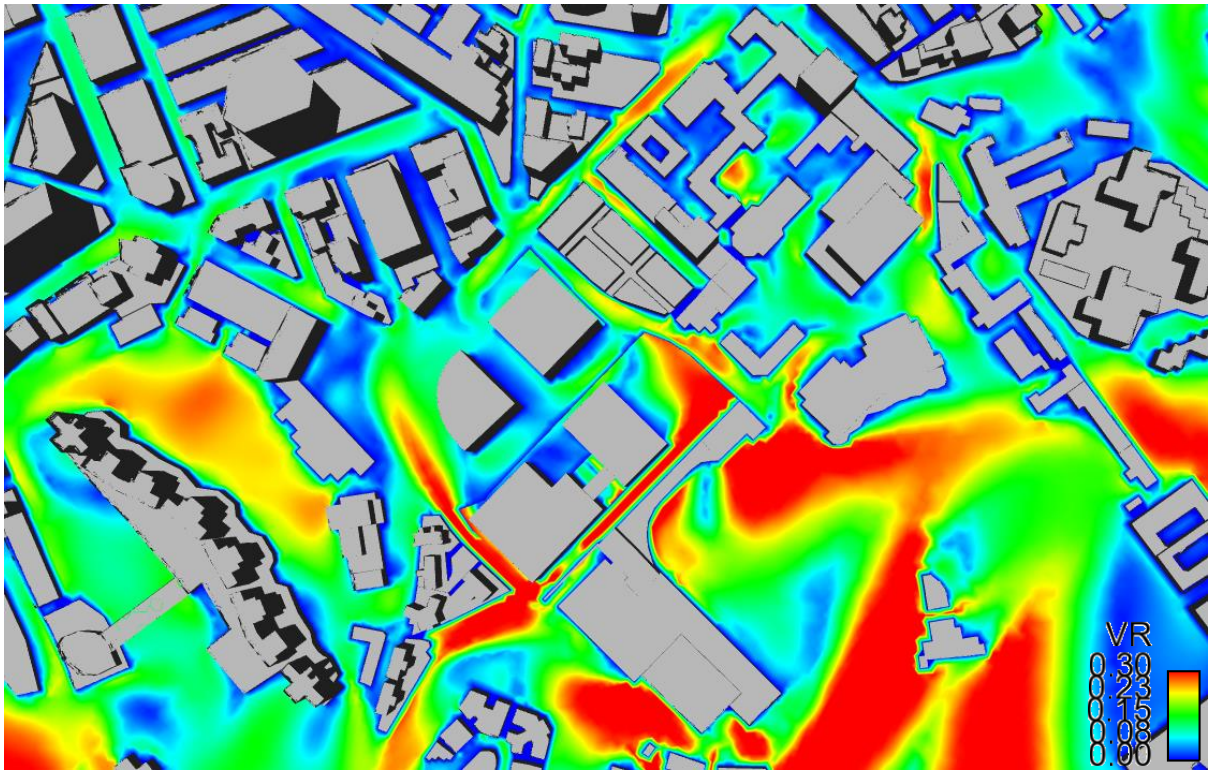


Figure 101 VR Contour Plot at Pedestrian Level under ESE Wind for Optional Scheme

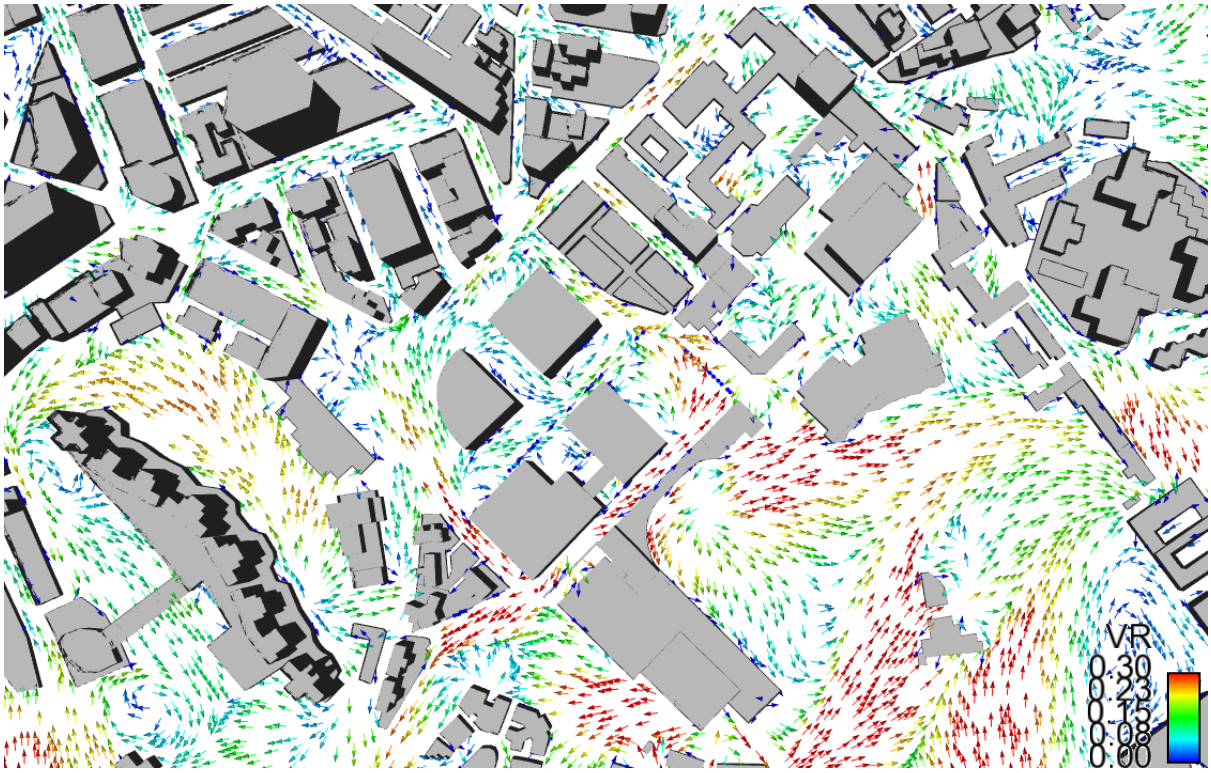


Figure 102 VR Vector Plot at Pedestrian Level under ESE Wind for Optional Scheme

6.1.6 SE Wind

Incoming SE wind is obstructed and diverted by Jardine's Lookout hence wind availability of the Project Area mainly relies on the wind flow coming from Caroline Hill Road and South China Athletic Association to the east and south of the Project Area respectively (Black Arrows in Figure 103).

In the Baseline Scheme, more SE wind is able to skim over the Project Area and reach the downstream regions including western section of Leighton Road, Hoi Ping Road and Sunning Road when compared to the Proposed and Optional Schemes due to the low-rise nature of the Baseline Scheme (Purple Arrows in Figure 103). In addition, the low-rise nature of the Baseline Scheme also allowed SE wind to reach the commercial area to the northwest and the "G/IC" area of Po Leung Kuk to the west, which would induce downwash effect. As a result, higher VR is observed to the immediate northwest of the Project Area and the Playground of Po Leung Kuk under the Baseline Scheme when compared with the Proposed and Optional Schemes (Dark Green Arrows in Figure 103).

In the Proposed Scheme, incoming SE wind would skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature (i.e. building height of 130mPD) of The District Court Block 1 would cause wind to be downwashed to pedestrian level, therefore higher VR is observed along Caroline Hill Road to the immediate northeast and at the northwestern section of South China Athletic Association when compared with the Baseline Scheme (Magenta Arrows in Figure 105). Likewise, incoming ESE wind will also skim over the commercial buildings to the northwest of the Project Area, where the high-rise nature of The District Court Block 2 (i.e. building height of 130mPD) would create downwash effect hence higher VRs are observed along the western section of Caroline Hill Road and south of Caroline Garden (Aqua Arrows in Figure 105). In addition, the building gap between The District Court Blocks 1 & 2 channeled more mid-level SE wind towards Leighton Centre and Lee Garden One via SE wind skimming over the mid-rise developments at the northern portion of Leighton Hill, which then subsequently created downwash effect to benefit wind flow at the western part of Leighton Road and along Hysan Avenue (White Arrows in Figure 105).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap in the Optional Scheme (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused more

obstruction to the mid-level SE wind thus lower VRs are observed in the open areas between The District Court Block 1 and The District Court Block 2, the area around Playground of Po Leung Kuk, immediate downstream area along Leighton Road and Sunning Road when compared with the Proposed Scheme. However, this also created a higher pressure zone at the area around Playground of Po Leung Kuk and immediate downstream area along Leighton Road in the Proposed Scheme, which suppressed wind flow along western part of Leighton Road and Hoi Ping Road thus higher VRs are observed for these areas in the Optional Scheme when compared with the Proposed Scheme (Dark Blue Arrows in Figure 107).

Figure 103, Figure 105 and Figure 107 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 104, Figure 106 and Figure 108 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

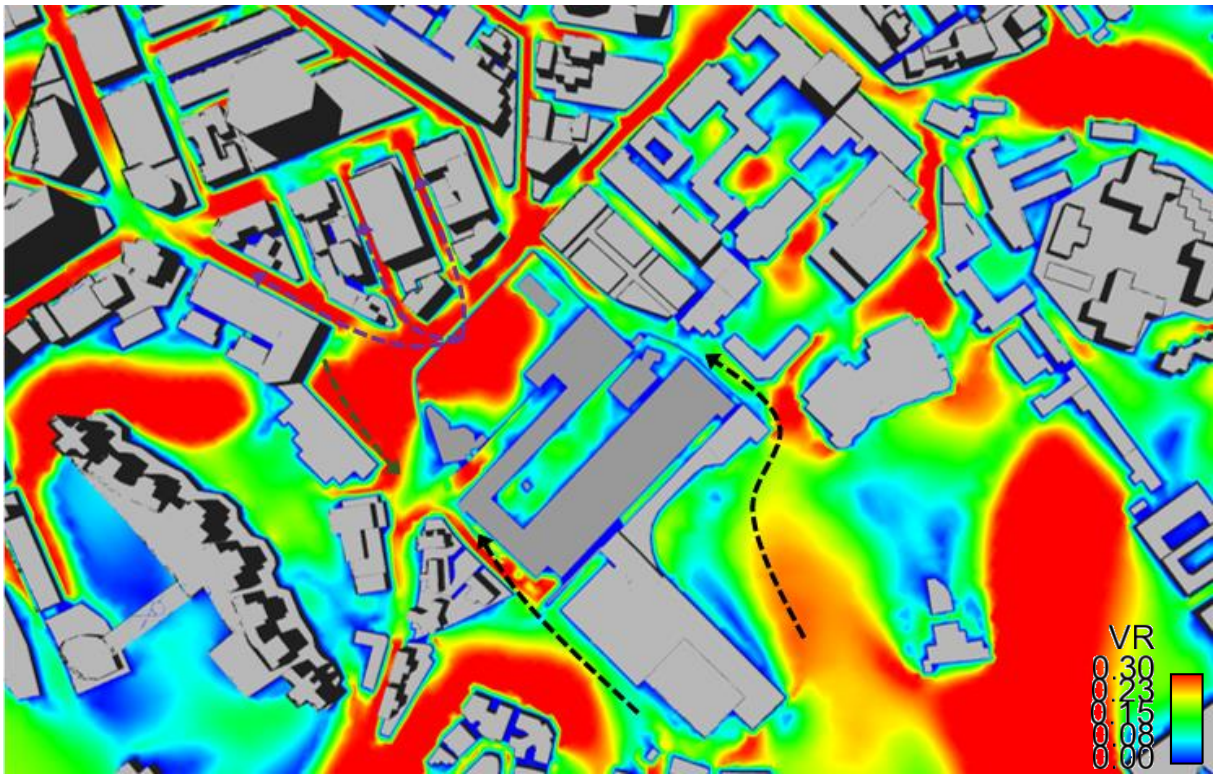


Figure 103 VR Contour Plot at Pedestrian Level under SE Wind for Baseline Scheme

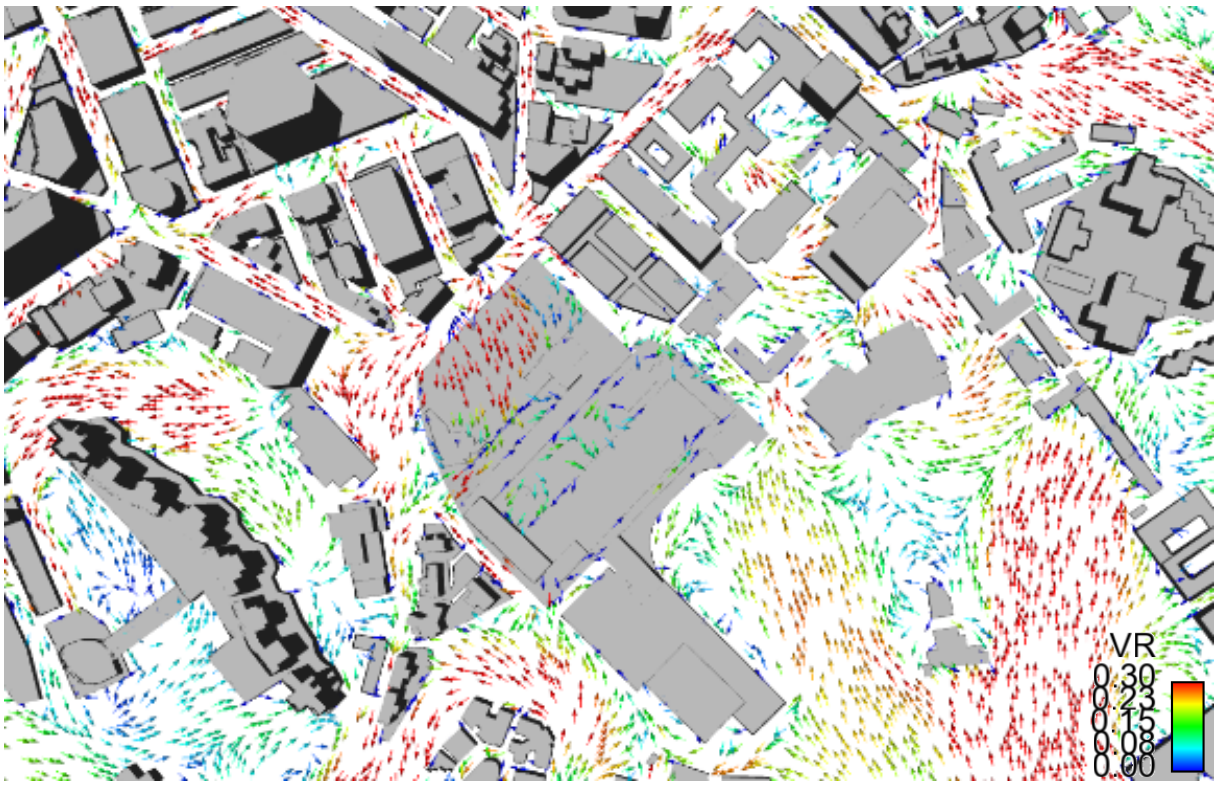


Figure 104 VR Vector Plot at Pedestrian Level under SE Wind for Baseline Scheme

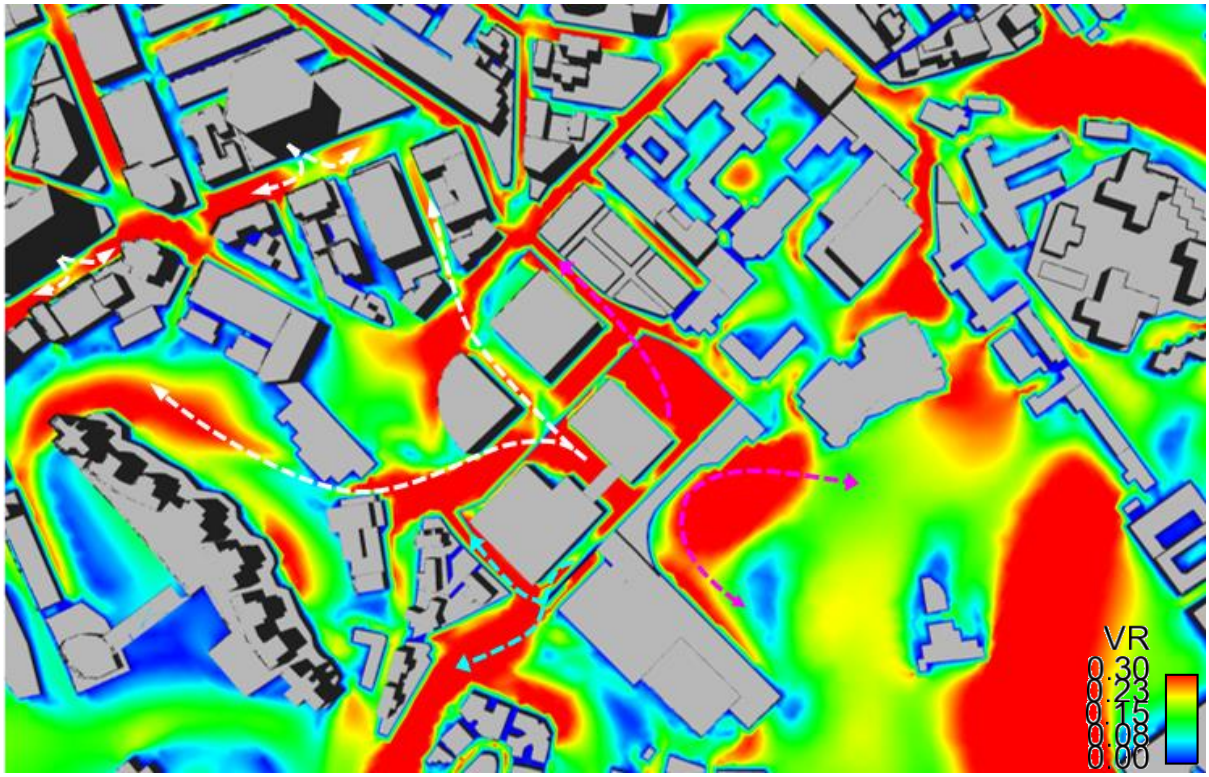


Figure 105 VR Contour Plot at Pedestrian Level under SE Wind for Proposed Scheme

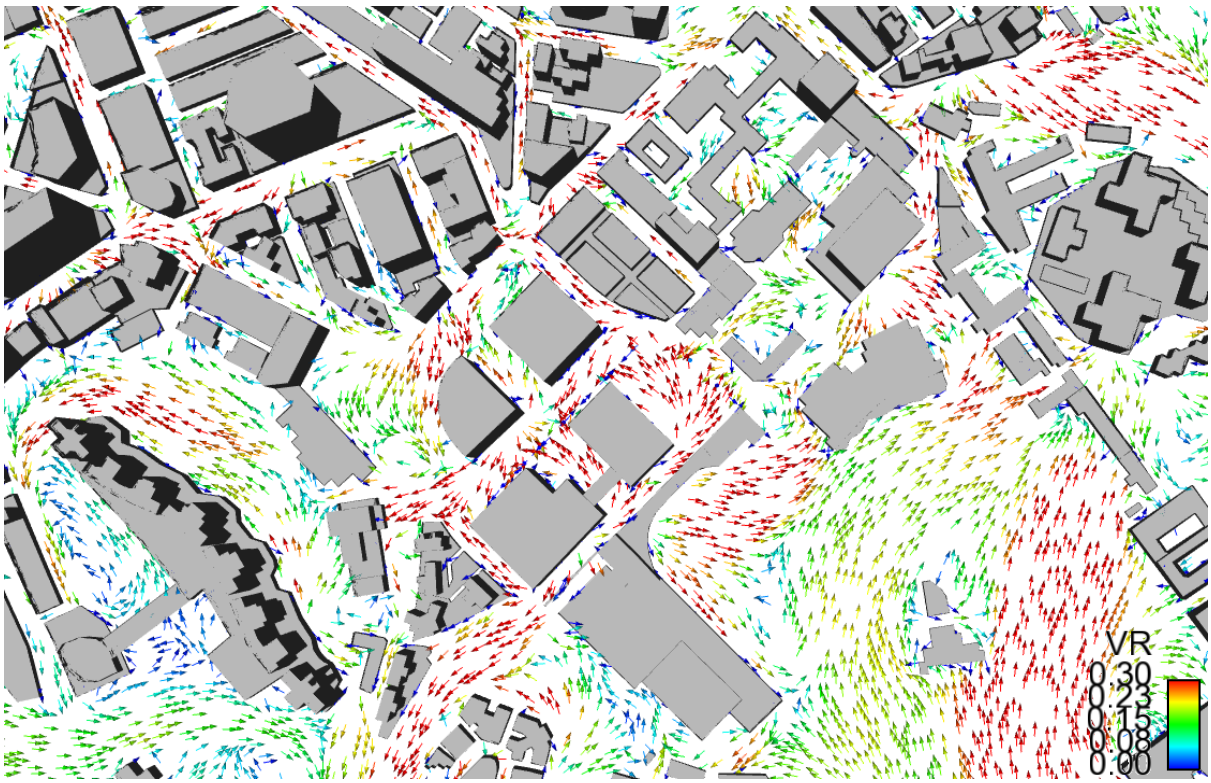


Figure 106 VR Vector Plot at Pedestrian Level under SE Wind for Proposed Scheme

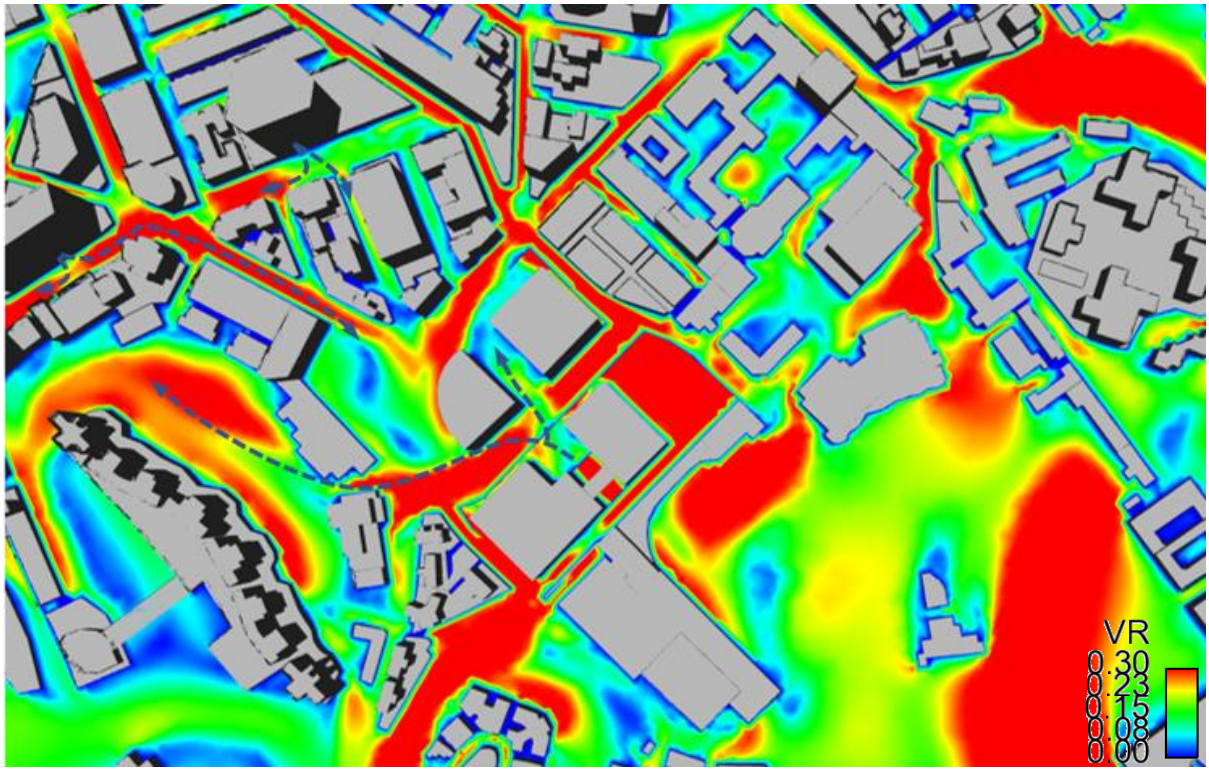


Figure 107 VR Contour Plot at Pedestrian Level under SE Wind for Optional Scheme

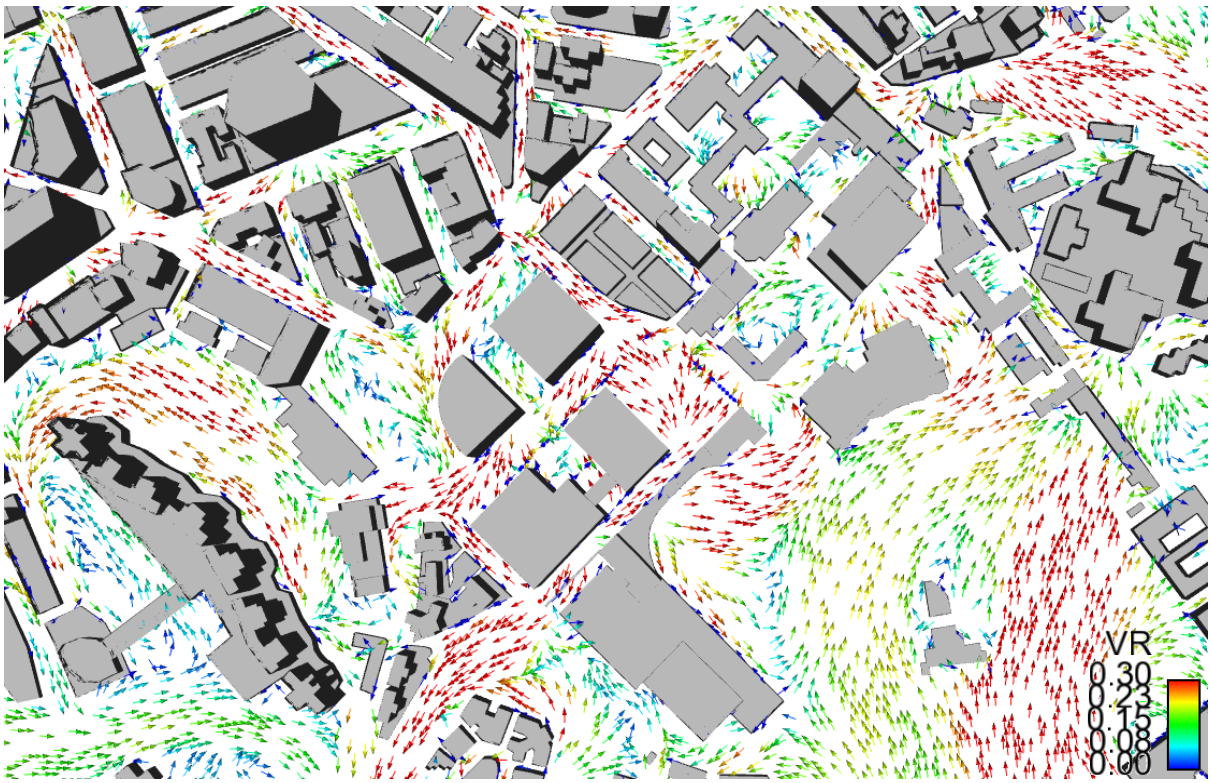


Figure 108 VR Vector Plot at Pedestrian Level under SE Wind for Optional Scheme

6.1.7 SSE Wind

Incoming SSE wind is obstructed and diverted by Jardine's Lookout. Project Area is located at the wake region created by Jardine's Lookout hence the Project Area is influenced by the backflow of the wake zone. Hence the wind availability of the Project Area is slightly dominated by the wind coming from the mixed non-industrial land and "G/IC" area to the northeast. Nonetheless, the wind availability of the Project Area for SSE wind is relatively low when compared to other wind directions (Black Arrows in Figure 109).

In the Baseline Scheme, incoming SSE would skim over the Project Area due to the low-rise nature of the Baseline Scheme hence more mid-level SSE wind is able to reach the downstream region of the Leighton Hill as well as south of Caroline Garden when compared to the Proposed and Optional Schemes (Purple Arrows in Figure 109). However, low wind availability is observed at the immediate downstream regions (i.e. commercial area of Causeway Bay to the northwest of the Project Area) due to blockage effect induced by the upstream buildings.

In the Proposed Scheme, incoming SE wind would skim over the existing low-rise structures of South China Athletic Association south-east of the Project Area. The high-rise nature (i.e. building height of 130mPD) of Commercial Tower 1 would cause a portion of SSE wind to be downwashed towards the north of the Project Area therefore higher VR is observed along Caroline Hill Road to the immediate northeast, Leighton Road to the immediate northwest and Yun Ping Road when compared with the Baseline Scheme (White Arrow in Figure 111). Another portion of SSE wind will be downwashed towards the southwest of the Project Area via the access road at the central portion of the Project Area (Magenta Arrows in Figure 111). Commercial Tower 1 will divert high level SSE wind towards the access road to allow SSE wind to penetrate through the Project Area and subsequently reach the downstream areas, thus higher VR is evident along Link Road and the western section of Caroline Hill Road when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused a small wake region immediately downstream of the podium (i.e. at the open areas between The District Court Block 1 and The District Court Block 2).

Figure 109, Figure 111 and Figure 113 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 110, Figure 112 and Figure 114 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

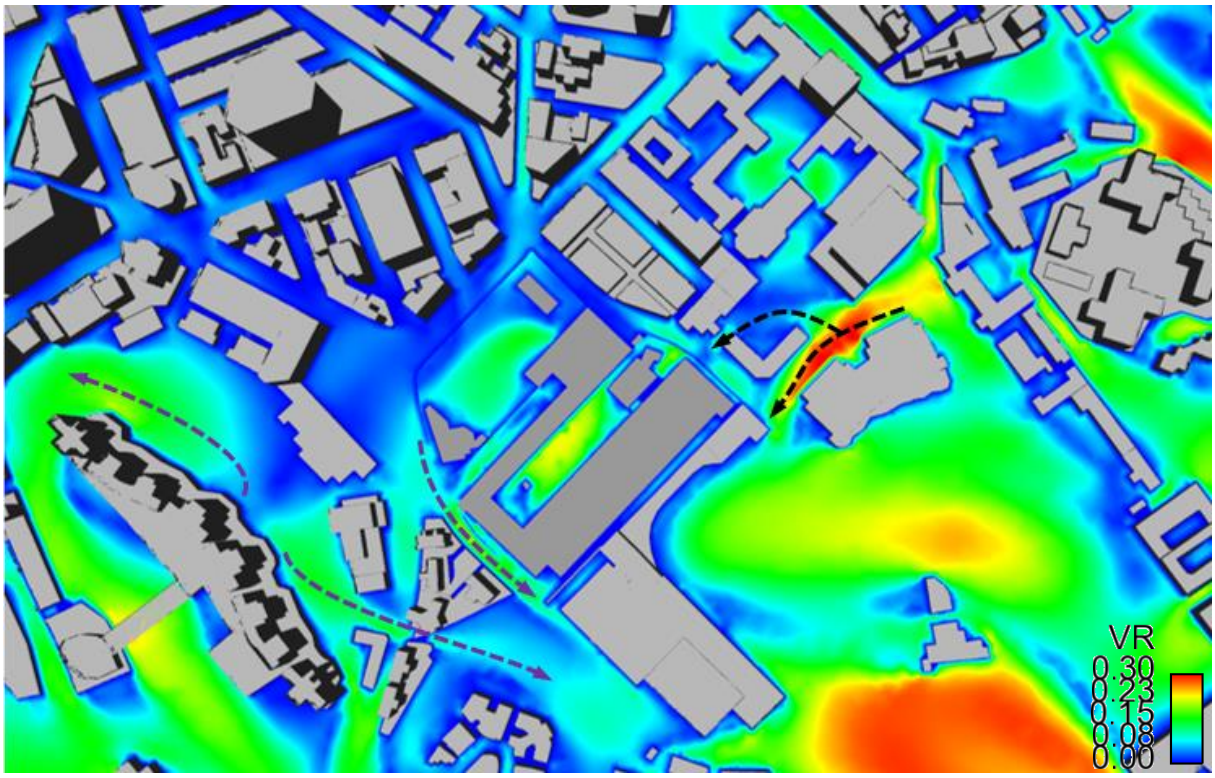


Figure 109 VR Contour Plot at Pedestrian Level under SSE Wind for Baseline Scheme

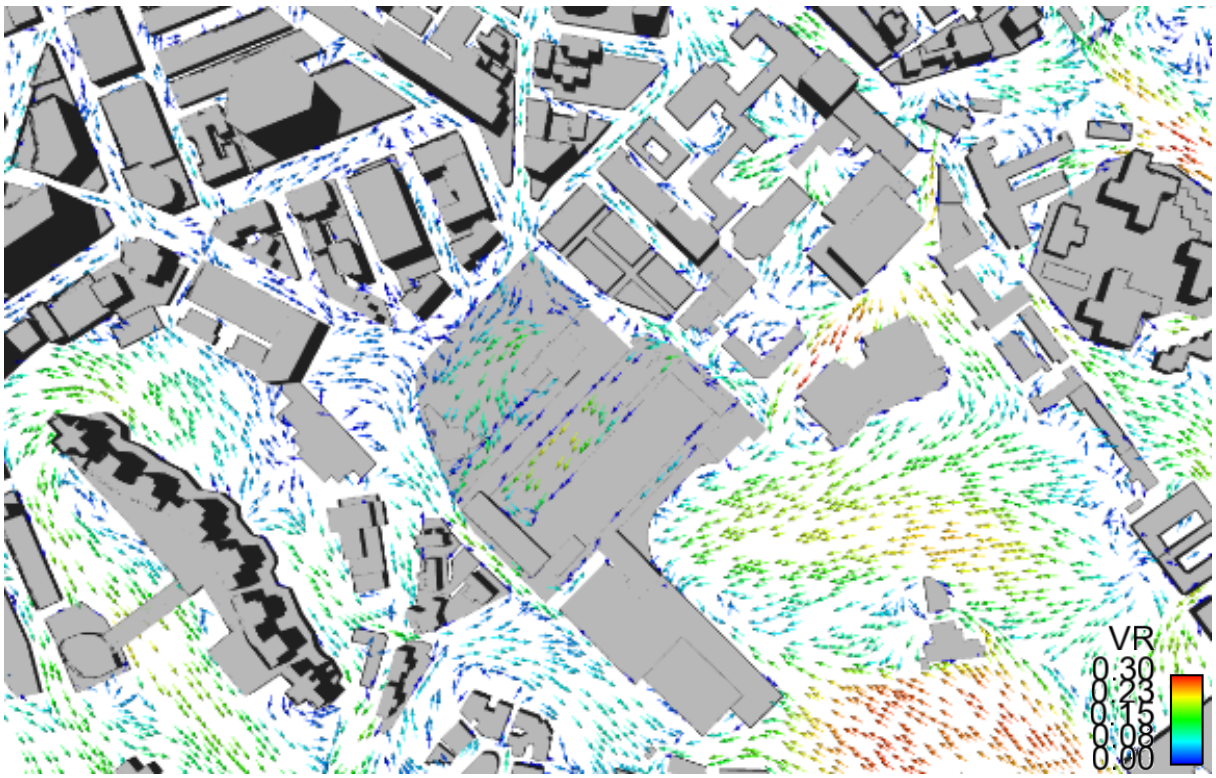


Figure 110 VR Vector Plot at Pedestrian Level under SSE Wind for Baseline Scheme

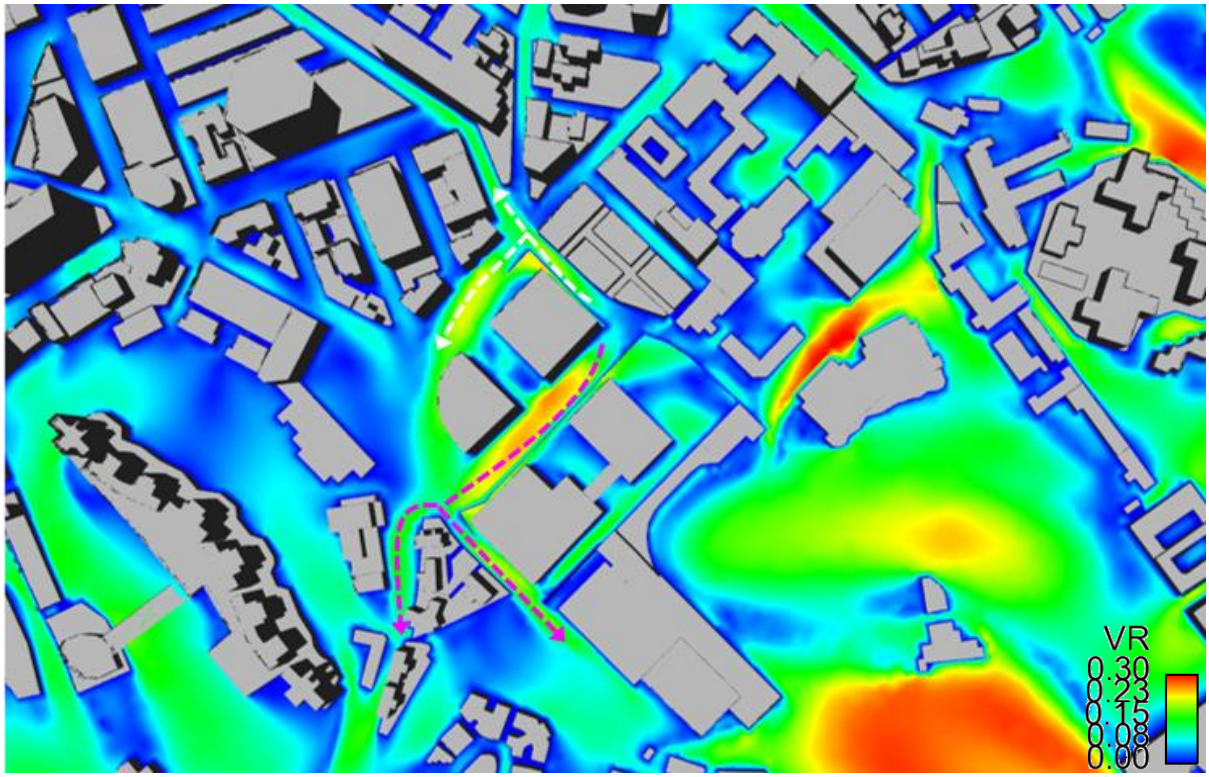


Figure 111 VR Contour Plot at Pedestrian Level under SSE Wind for Proposed Scheme

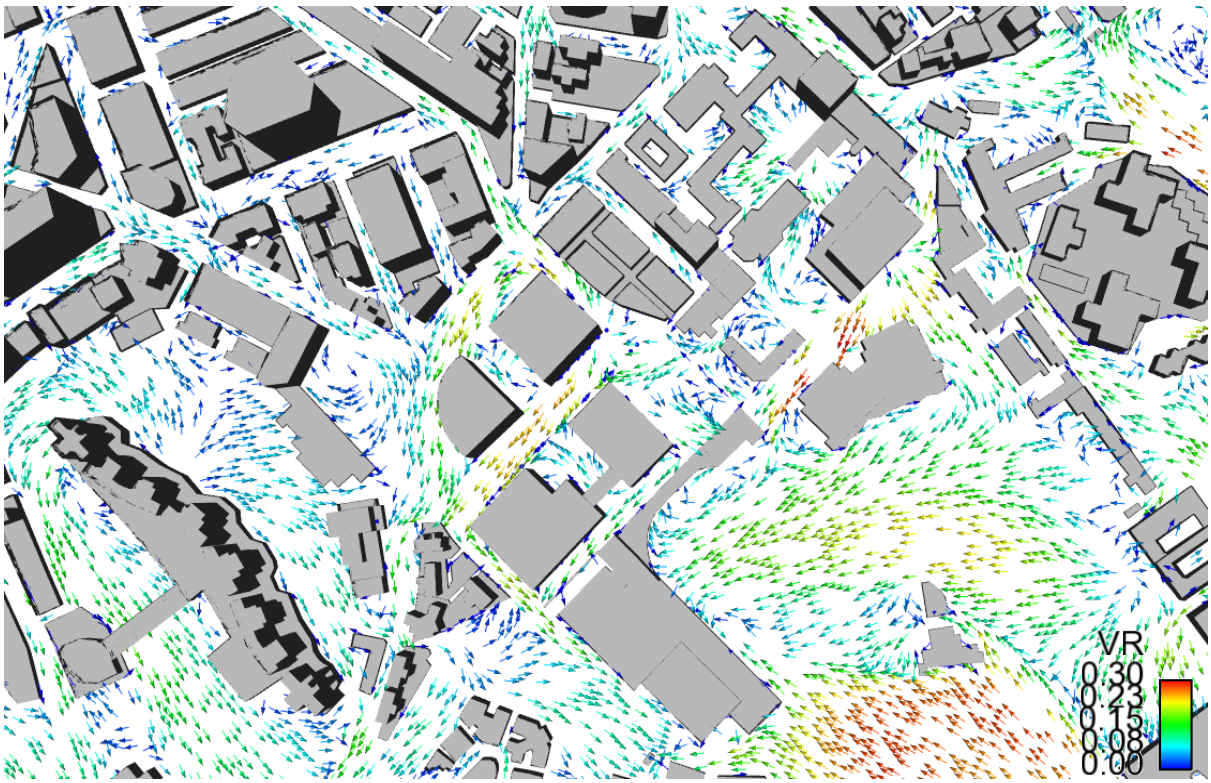


Figure 112 VR Vector Plot at Pedestrian Level under SSE Wind for Proposed Scheme

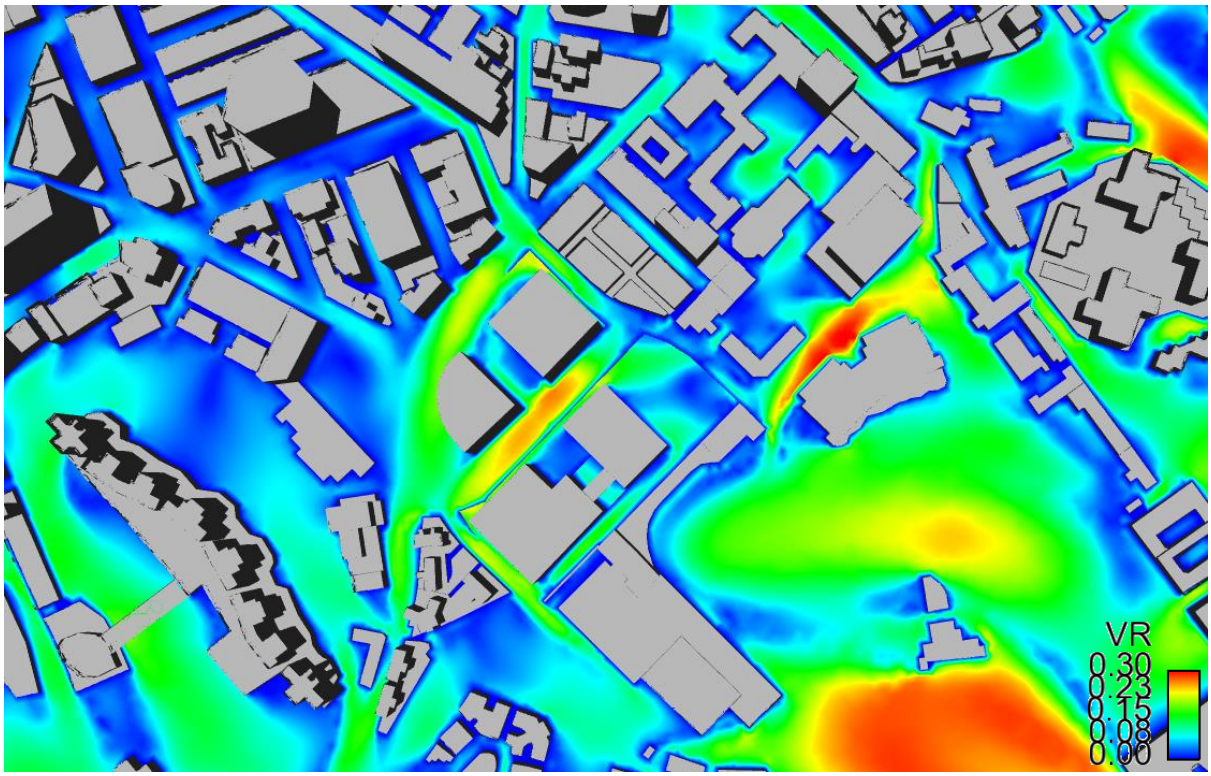


Figure 113 VR Contour Plot at Pedestrian Level under SSE Wind for Optional Scheme

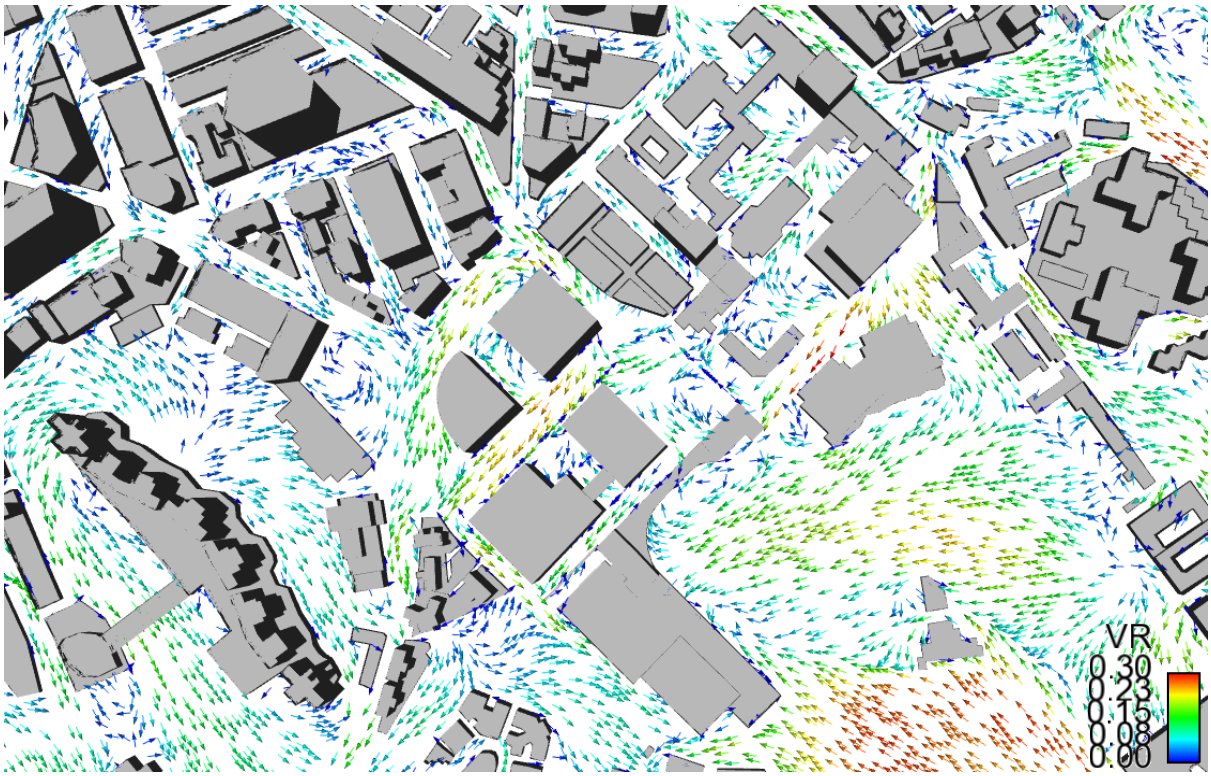


Figure 114 VR Vector Plot at Pedestrian Level under SSE Wind for Optional Scheme

6.1.8 S Wind

Incoming S wind will be obstructed and diverted by Mount Nicholson and the high-rise residential developments, namely Beverly Hill, to the south. Hence the wind availability of the Project Area will come from Leighton Hill as well as the commercial area of Causeway Bay and China Athletic Association to the northwest and southeast of the Project Area respectively (Black Arrows in Figure 115).

In the Baseline Scheme, slightly more wind flow is able to skim over the Project Area to reach the area south of Caroline Garden and the elevated road to Beverly Hill when compared with the Proposed and Optional Schemes due to the low-rise nature of the Baseline Scheme (Purple Arrows in Figure 115).

In the Proposed Scheme, the high-rise nature and curved building shape of Commercial Tower 2 created some downwash effect and diverted some of the wind towards Link Road as well as the south western portion of the Project Area (White Arrows in Figure 117) thus higher VR is observed in these regions when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused slightly lower wind performance in the open areas between The District Court blocks when compared with the Proposed Scheme. However, slightly higher VR is observed along the access road in the Optional Scheme when compared with the Proposed Scheme as a greater portion of S wind is able to be downwashed by Commercial Tower 1 due to the 5m shift of The District Court Block 1 towards the southwest in the Optional Scheme decreasing blockage of the incoming S wind (Dark Blue Arrows in Figure 119).

Figure 115, Figure 117 and Figure 119 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 116, Figure 118 and Figure 120 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

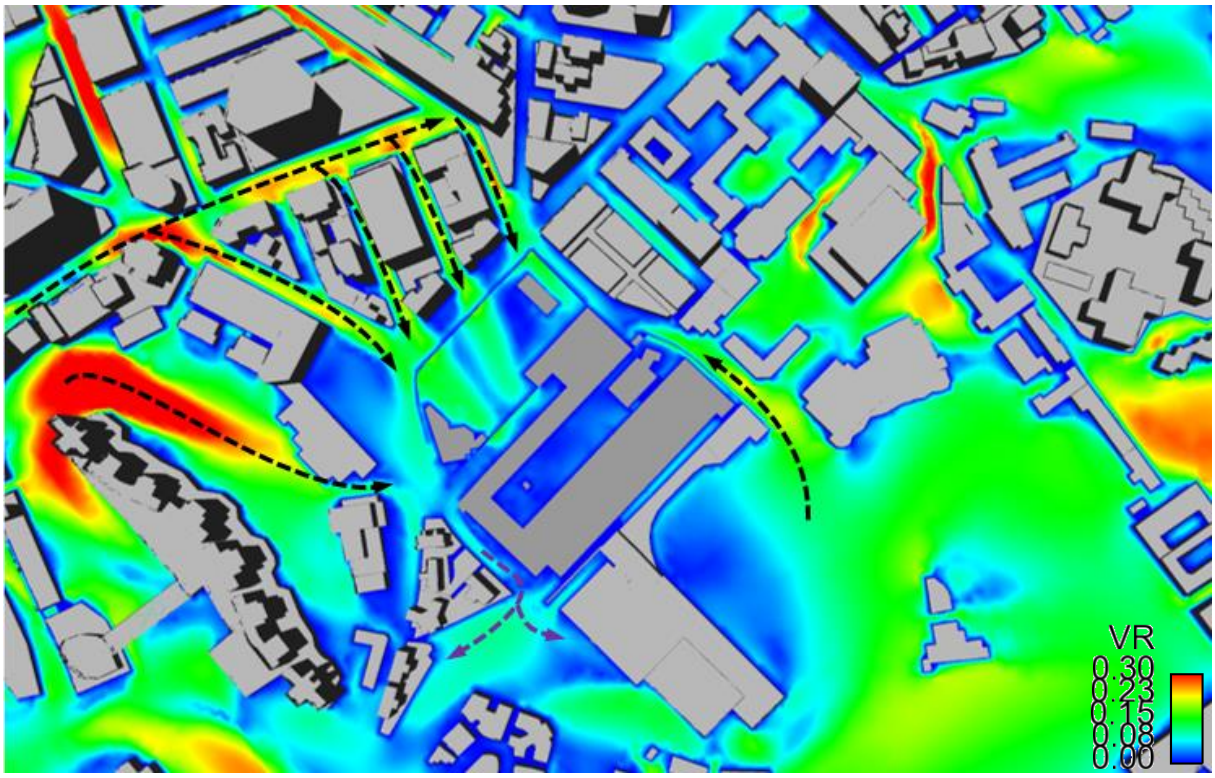


Figure 115 VR Contour Plot at Pedestrian Level under S Wind for Baseline Scheme

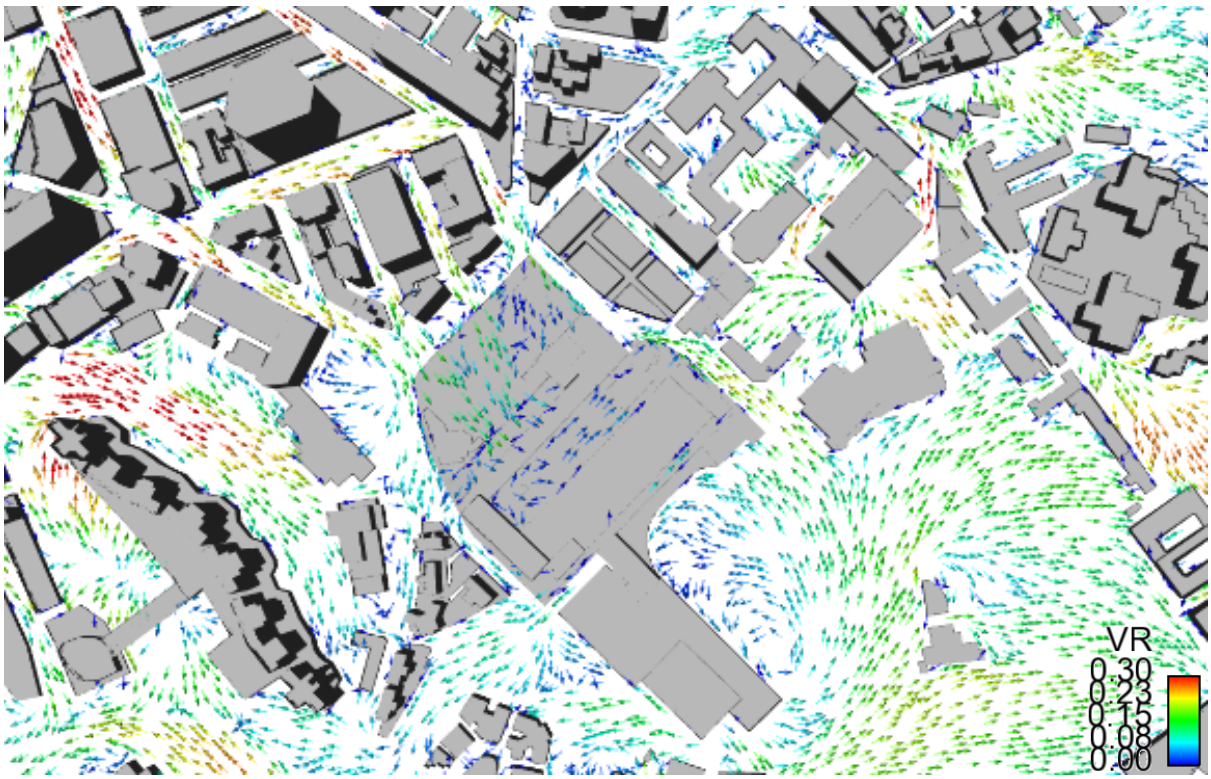


Figure 116 VR Vector Plot at Pedestrian Level under S Wind for Baseline Scheme

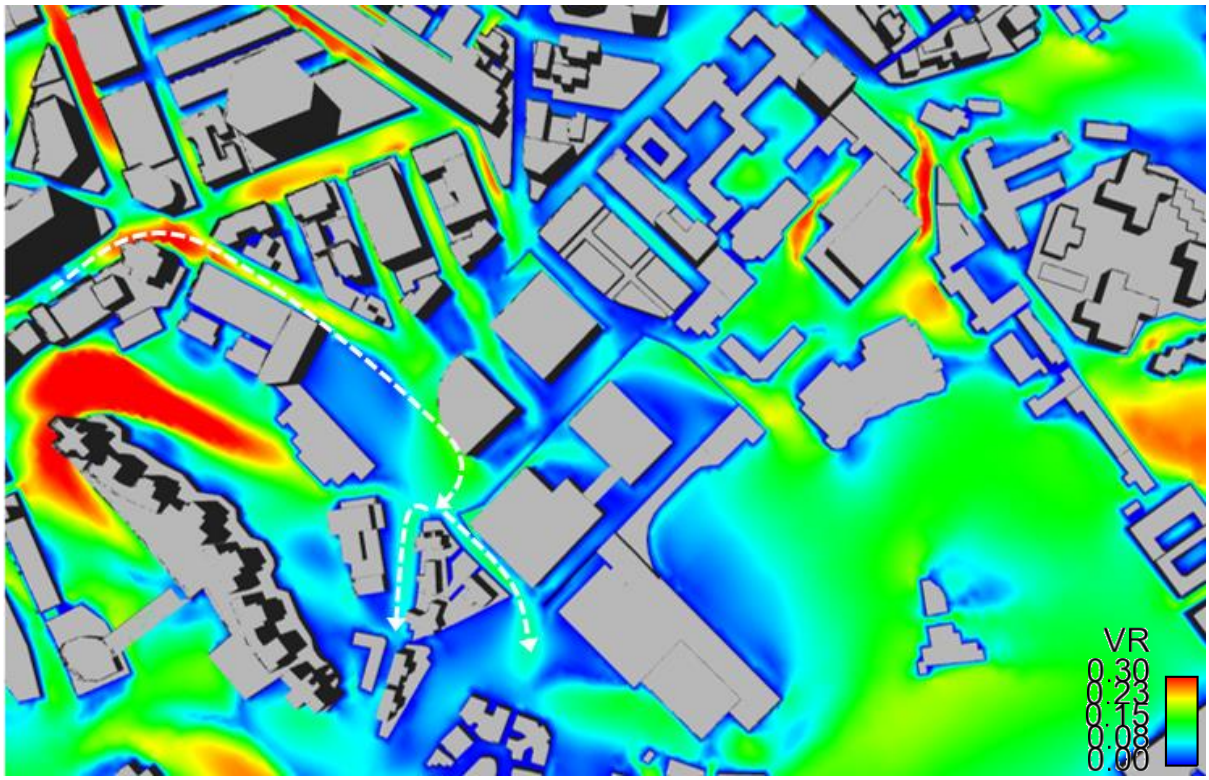


Figure 117 VR Contour Plot at Pedestrian Level under S Wind for Proposed Scheme

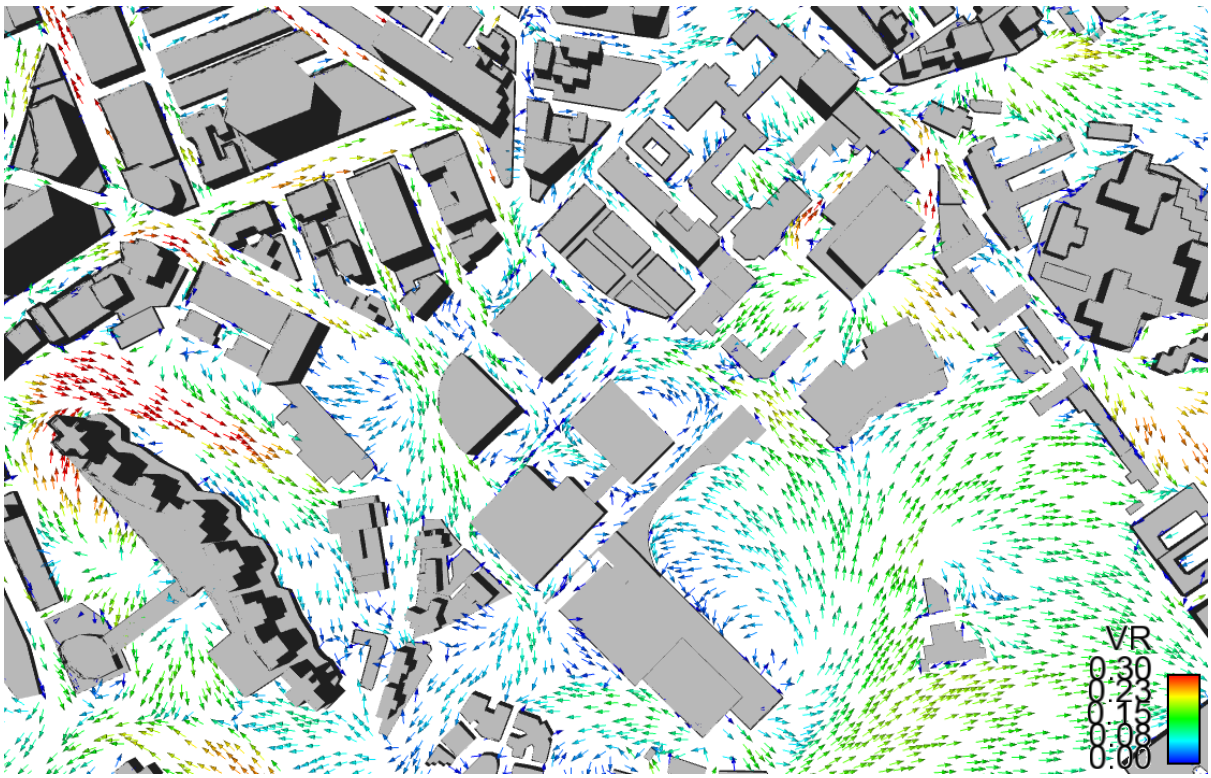


Figure 118 VR Vector Plot at Pedestrian Level under S Wind for Proposed Scheme

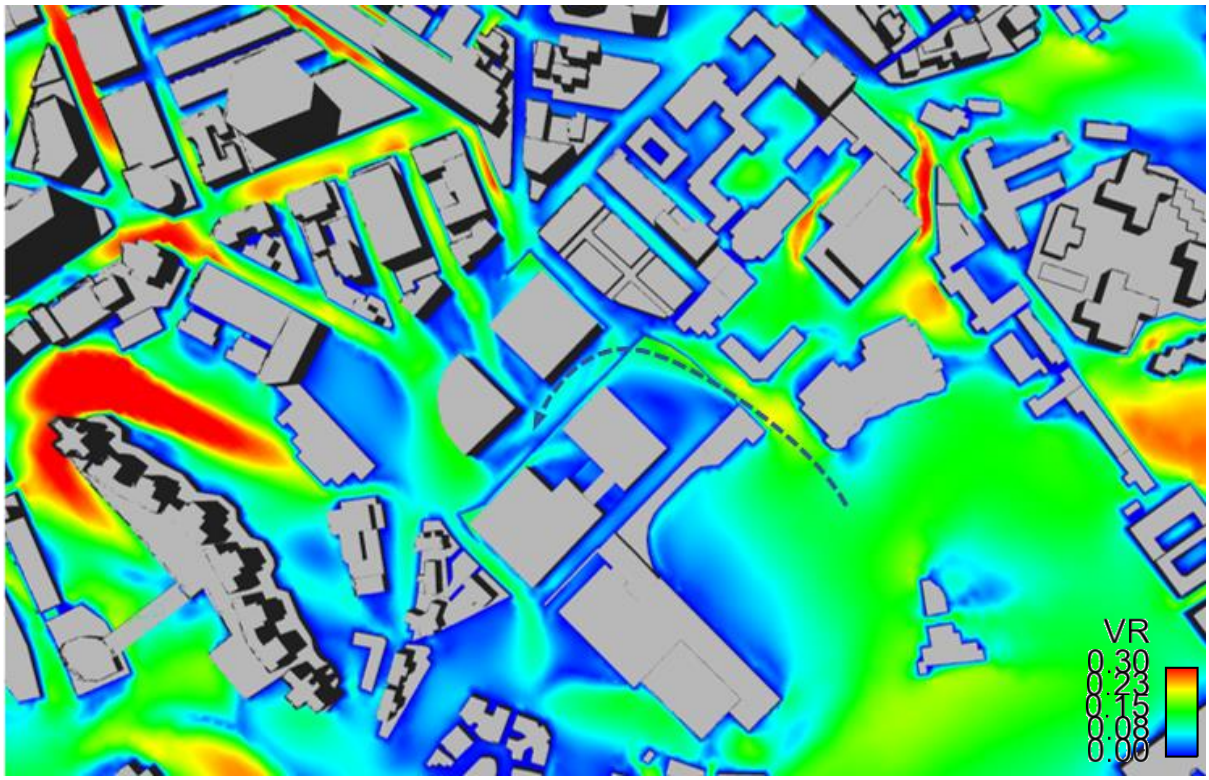


Figure 119 VR Contour Plot at Pedestrian Level under S Wind for Optional Scheme

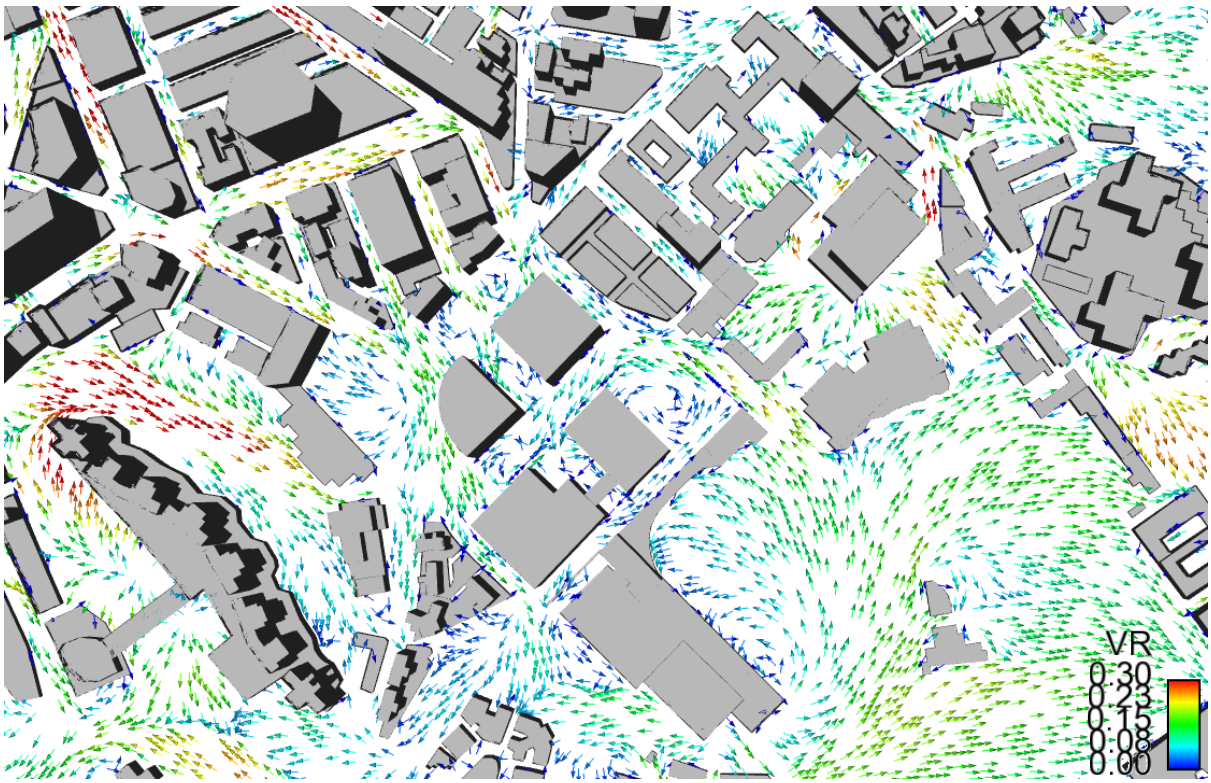


Figure 120 VR Vector Plot at Pedestrian Level under S Wind for Optional Scheme

6.1.9 SSW Wind

Incoming SSW wind will be obstructed and diverted by Mount Nicholson and the high-rise residential developments, namely The Leighton Hill, to the southwest. Hence the wind availability of the Project Area will come from Leighton Hill as well as the commercial area of Causeway Bay and South China Athletic Association to the northwest and southeast of the Project Area respectively (Black Arrows in Figure 121).

As the Project Area is under the downwind region of The Leighton Hill, similar flow pattern is observed in the three schemes except along the eastern boundary of the Baseline Scheme. Building bulk is relatively more concentrated at the eastern portion of the Baseline Scheme which causes less SSW wind to penetrate into the area around St. Paul's Convent when compared with the Proposed and Optional Schemes.

In the Proposed Scheme, the 25m building gap between Commercial Tower 1 and Commercial Tower 2 allows more wind coming from the commercial area of Causeway Bay to penetrate through the Project Area and reach the eastern site boundary. This resulted in more wind flow to reach the open space at the eastern portion of the Project Area, Cotton Path and Caroline Hill Road to the east of the Project Area (White Arrows in Figure 123).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 as well as the reduced building gap (i.e. 25m in the Proposed Scheme as opposed to 20m in the Optional Scheme) caused slightly lower wind performance in the open areas around The District Court blocks and the open space at the eastern boundary when compared with the Proposed Scheme. Hence, less wind is able to reach the area around St. Paul's Convent when compared with the Proposed Scheme.

However, slightly higher VR is observed along the access road in the Optional Scheme and South China Athletic Association when compared with the Proposed Scheme due to a portion of wind being diverted back by the podium. As less wind is able to penetrate the Project Area in the Optimal Scheme, more SSW wind flow coming from the southeast is able to reach the Project Area and subsequent downstream regions including the area south of Caroline Garden when compared with the Proposed Scheme (Dark Blue Arrows in Figure 125).

Figure 121, Figure 123 and Figure 125 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 122, Figure 124 and Figure 126

show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

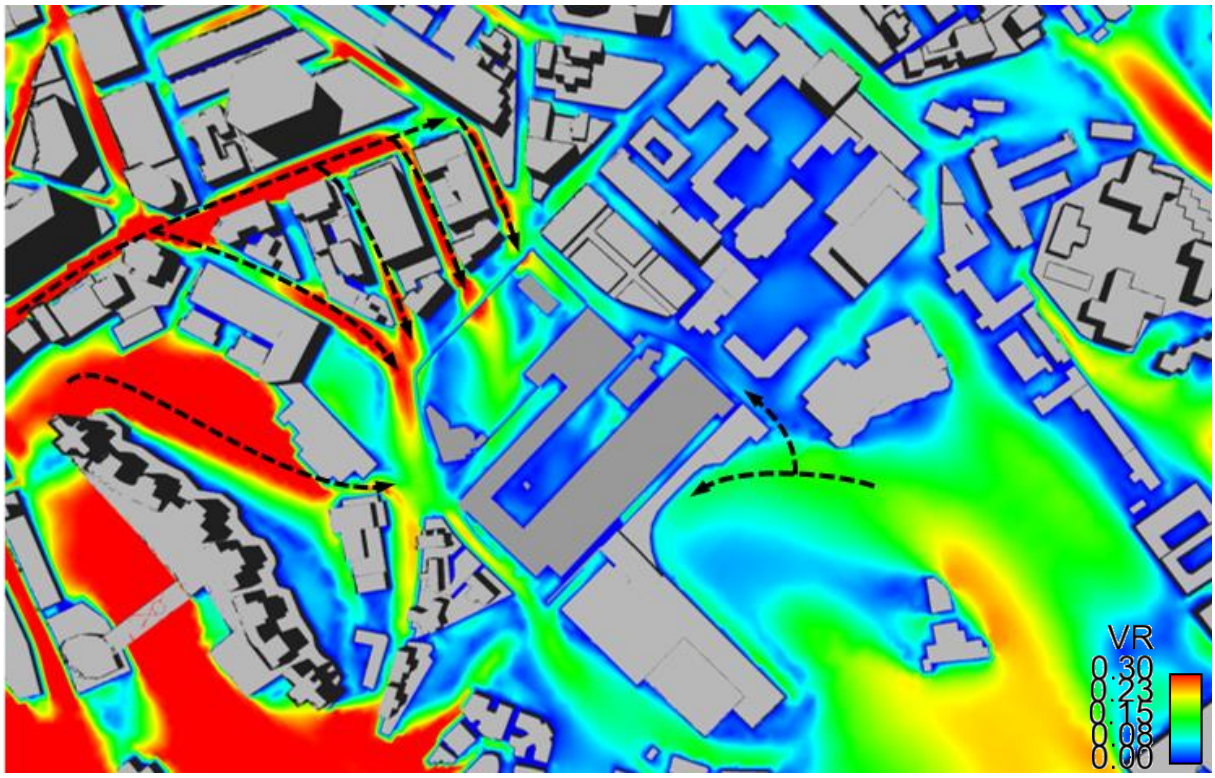


Figure 121 VR Contour Plot at Pedestrian Level under SSW Wind for Baseline Scheme

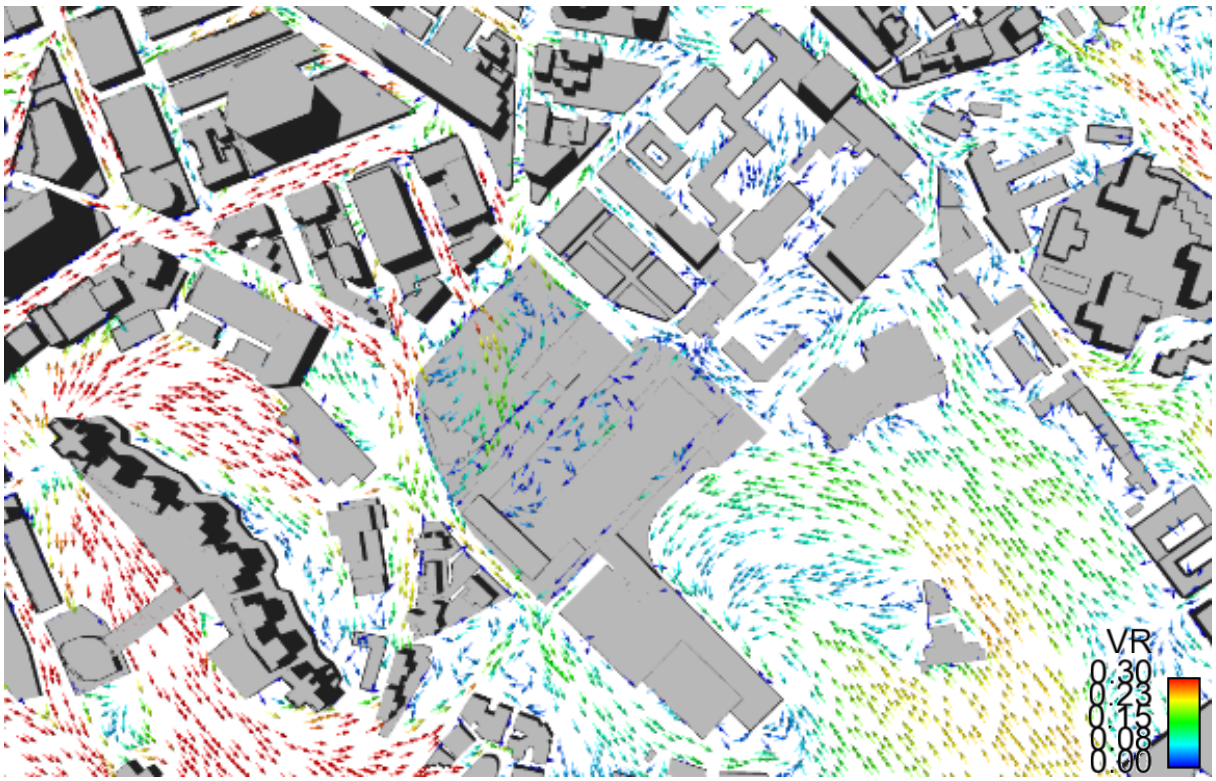


Figure 122 VR Vector Plot at Pedestrian Level under SSW Wind for Baseline Scheme

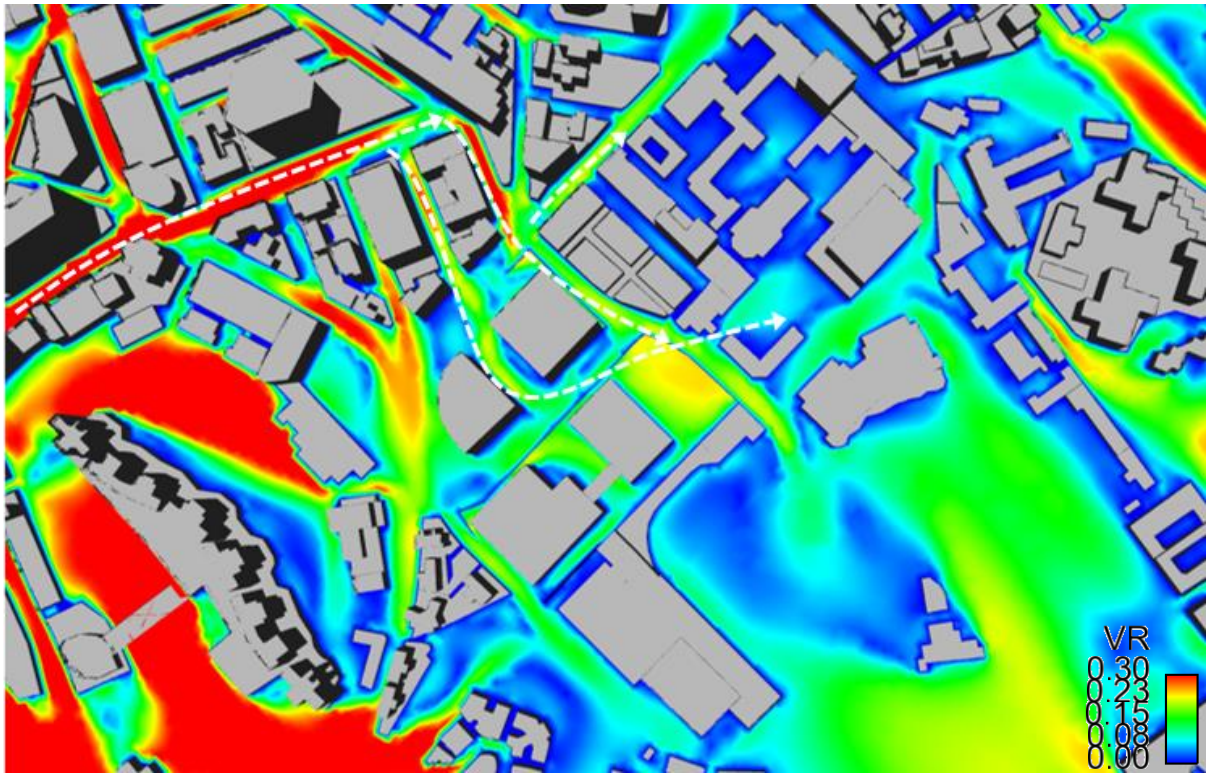


Figure 123 VR Contour Plot at Pedestrian Level under SSW Wind for Proposed Scheme

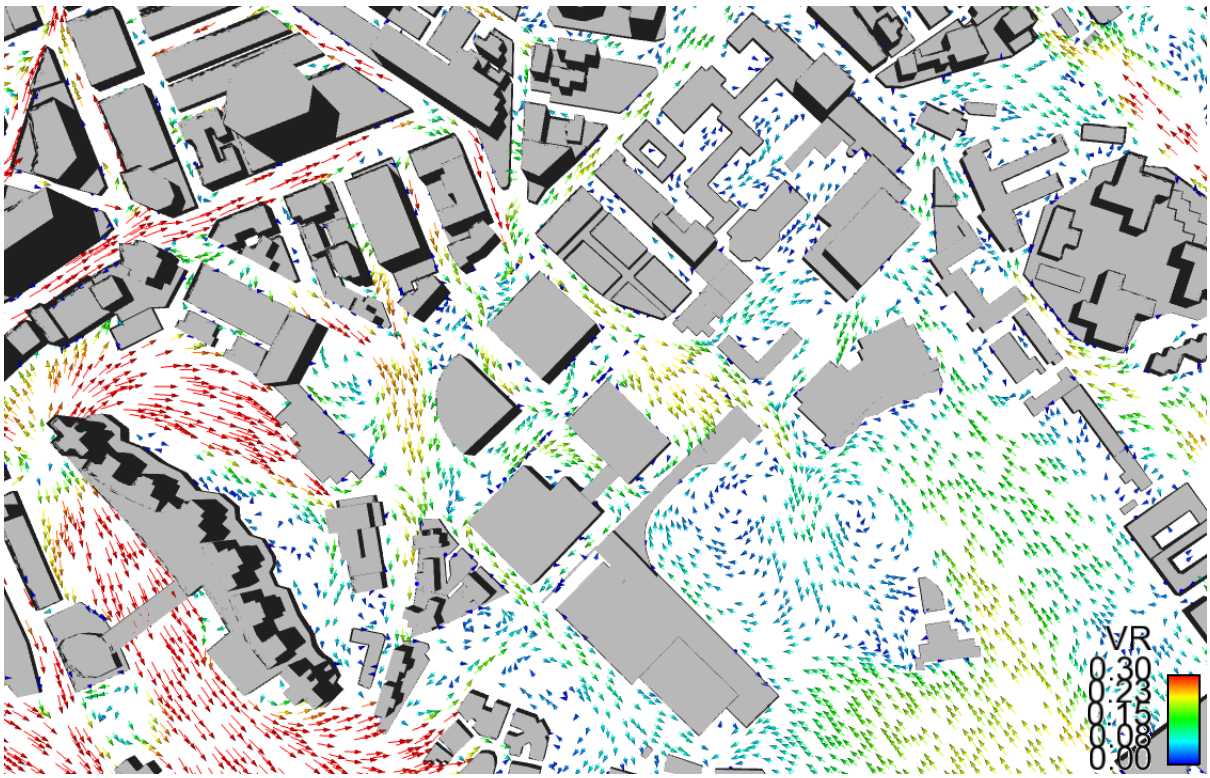


Figure 124 VR Vector Plot at Pedestrian Level under SSW Wind for Proposed Scheme

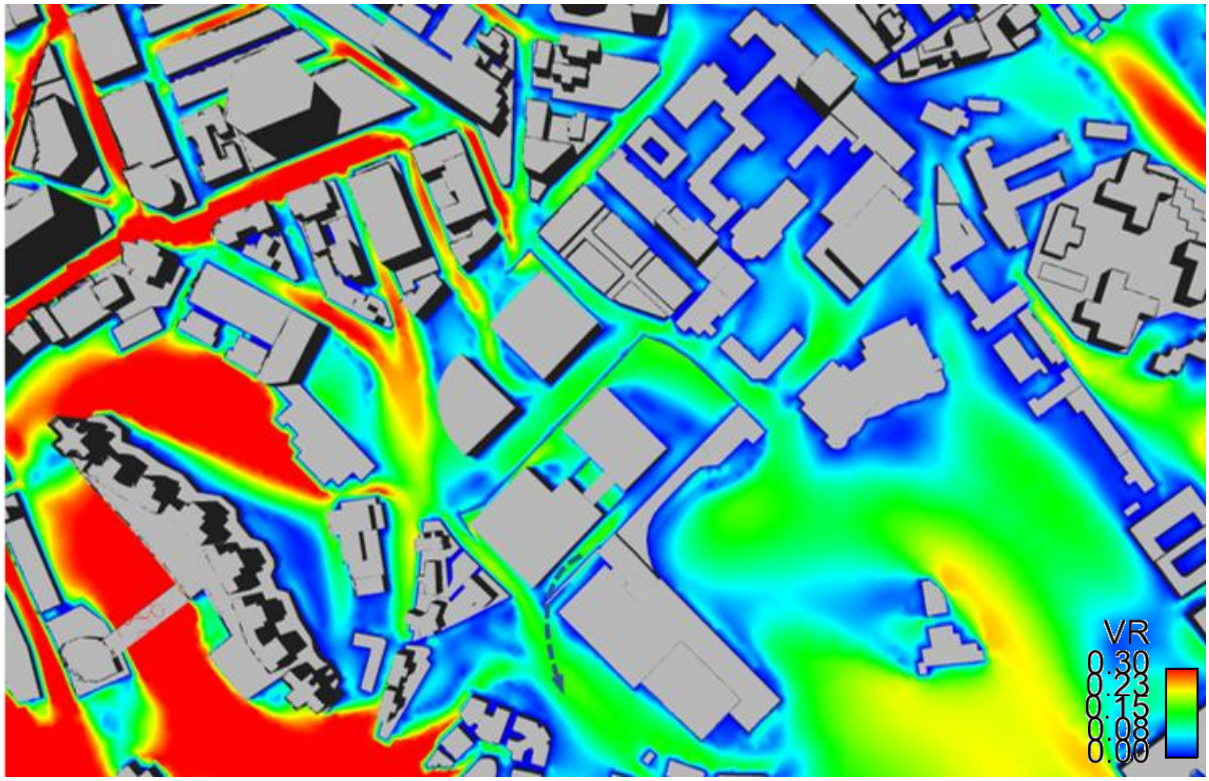


Figure 125 VR Contour Plot at Pedestrian Level under SSW Wind for Optional Scheme

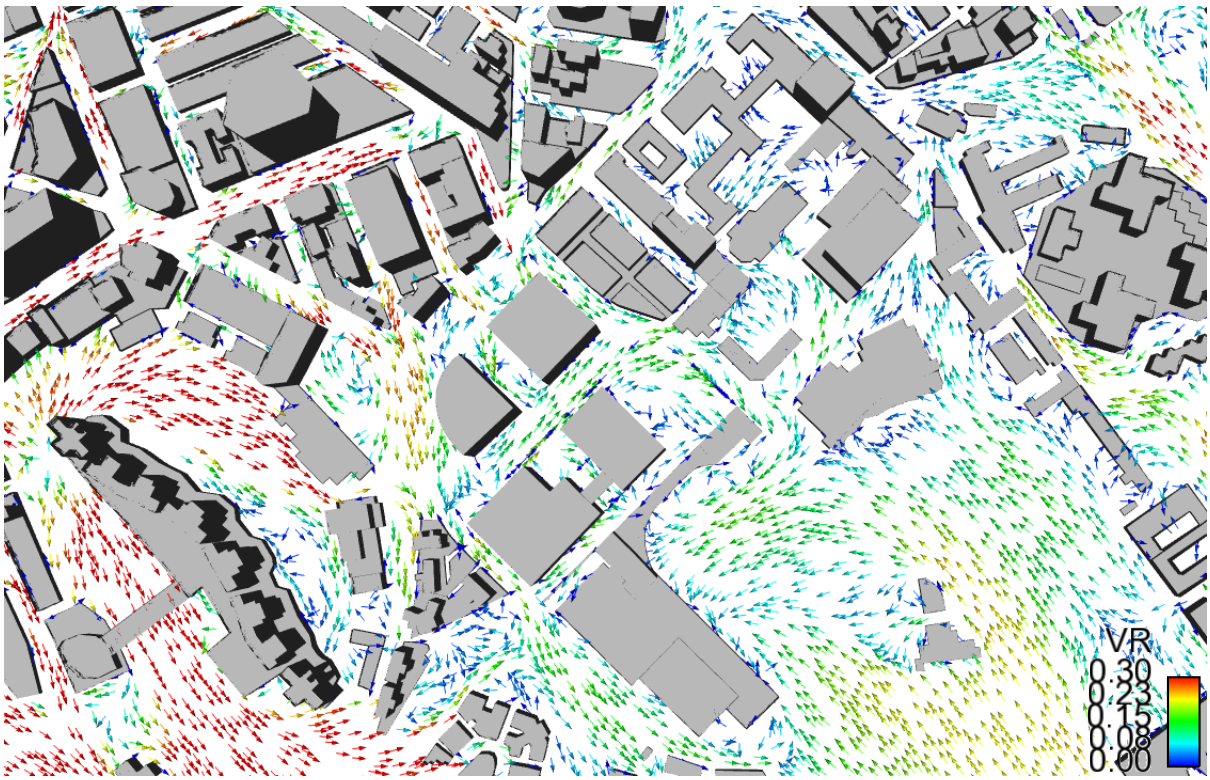


Figure 126 VR Vector Plot at Pedestrian Level under SSW Wind for Optional Scheme

6.1.10 SW Wind

Incoming SW wind is obstructed and diverted by Leighton Hill. Hence the wind availability of the Project Area will come from The Leighton Hill and Link Road to the southwest and South China Athletic Association to the southeast of the Project Area (Black Arrows in Figure 127).

In the Baseline Scheme, wind flow enters the Project Area from the narrow carriageway of Link Road and is then dispersed at mid-level over the Project Area. Such sudden flow expansion would induce highly-turbulent flow and result in turbulent energy loss, which reduces the momentum of the wind flow (Purple Arrows in Figure 127).

In contrast, the high-rise nature and curved building shape of Commercial Tower 2 in the Proposed and Optional Schemes would channel incoming wind from Link Road towards Hoi Ping Road and Leighton Road (White Arrows in Figure 129). Coupled with the downwash wind caused by The District Court Block 2 (Aqua Arrows in Figure 129), higher VR is observed for Hoi Ping Road, Leighton Road and Caroline Hill Road to the south of the Project Area in the Proposed and Optional Schemes when compared with the Baseline Scheme. As a result, more SW wind is able to reach Hysan Avenue via Hoi Ping Road, but this counteracts the existing air path flowing along Hysan Avenue (Magenta Arrows in Figure 129) hence higher VR is observed for Hysan Avenue in the Baseline Scheme when compared with both the Proposed and Optional Schemes. Subsequently, this also causes a greater portion of upstream SW wind to enter Leighton Hill rather than Hoi Ping Road thus higher VRs are observed at the sloped area northeast of The Leighton Hill in the Proposed and Optional Schemes when compared with the Baseline Scheme.

In comparison with the Proposed Scheme, the 5m shift of The District Court Block 1 towards the southwest in the Optional Scheme allowed more wind to reach the open space at the eastern portion of the Project Area hence higher VR is observed for this region in the Optional Scheme when compared with the Proposed Scheme (Dark Blue Arrow in Figure 131).

Figure 127, Figure 129 and Figure 131 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 128, Figure 130 and Figure 132 show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

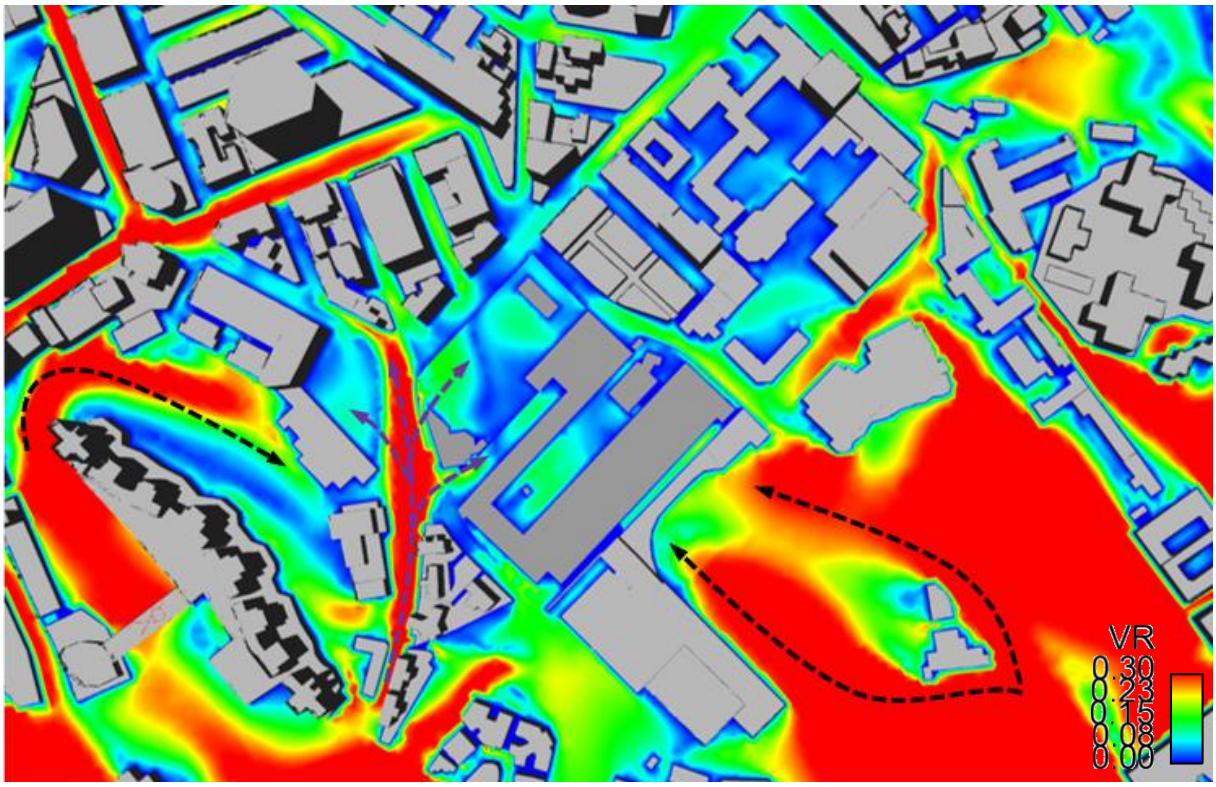


Figure 127 VR Contour Plot at Pedestrian Level under SW Wind for Baseline Scheme

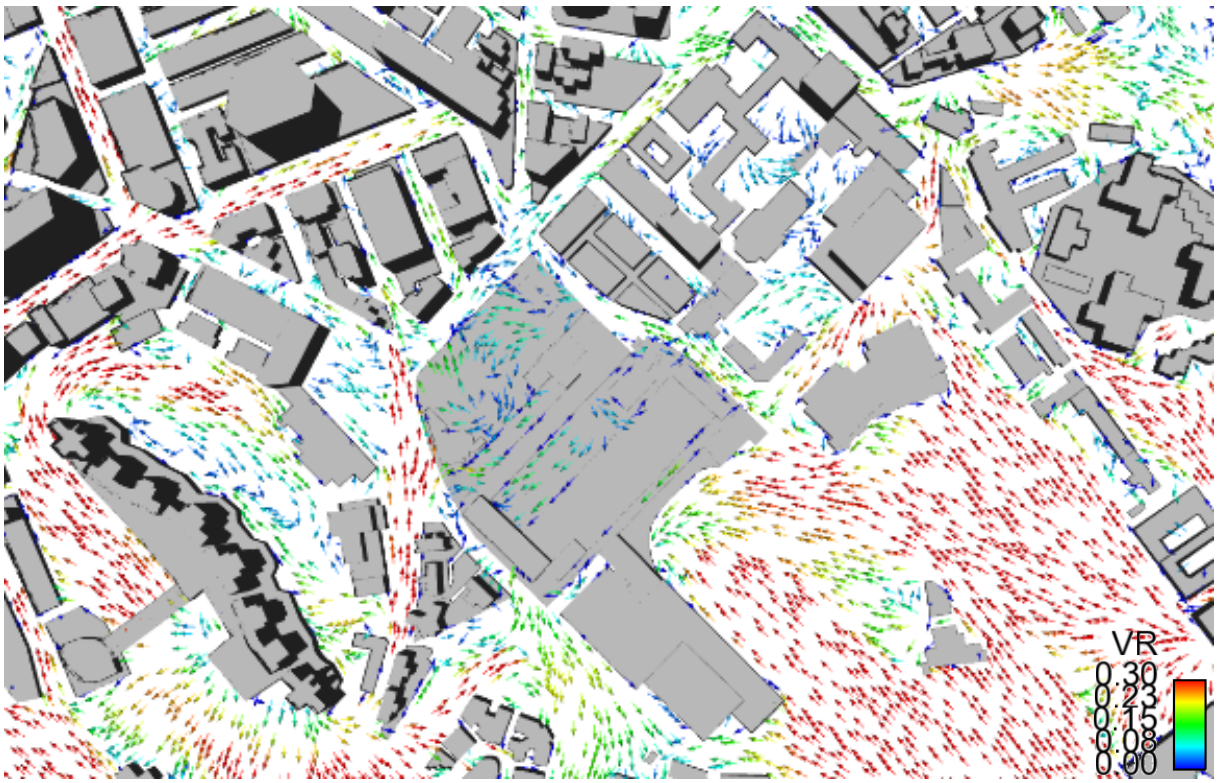


Figure 128 VR Vector Plot at Pedestrian Level under SW Wind for Baseline Scheme

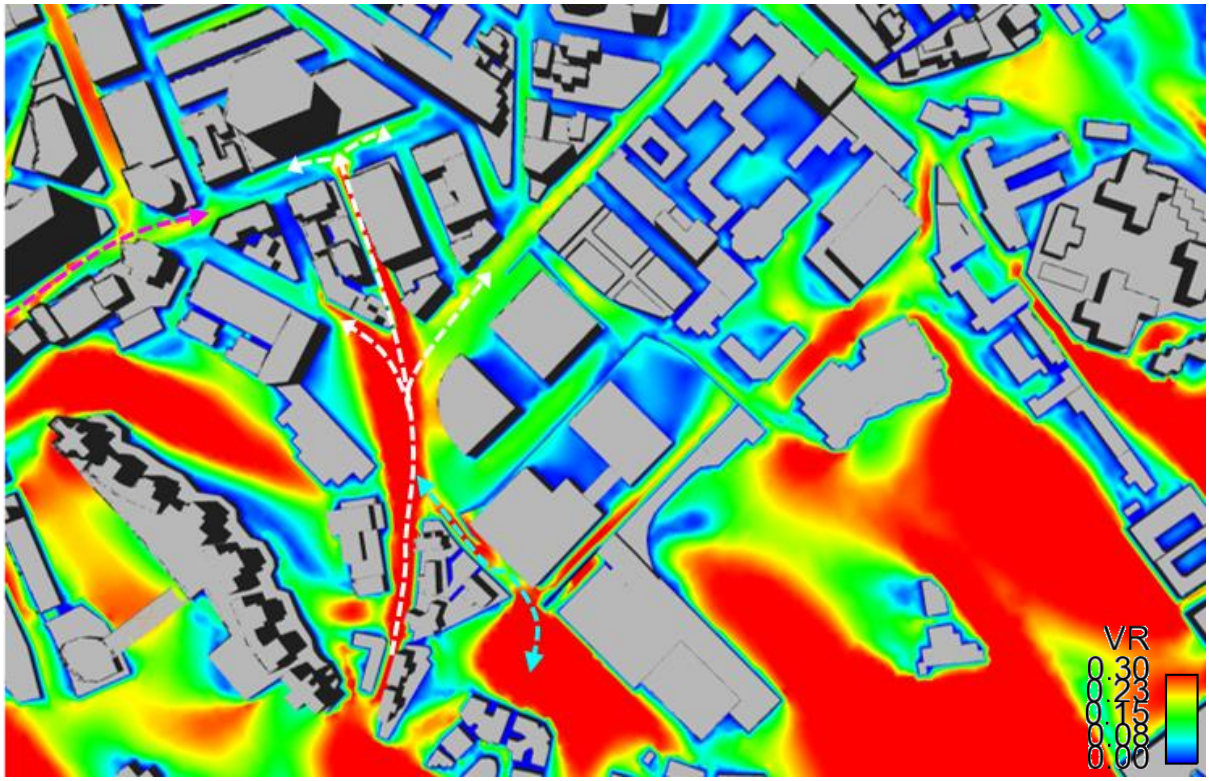


Figure 129 VR Contour Plot at Pedestrian Level under SW Wind for Proposed Scheme

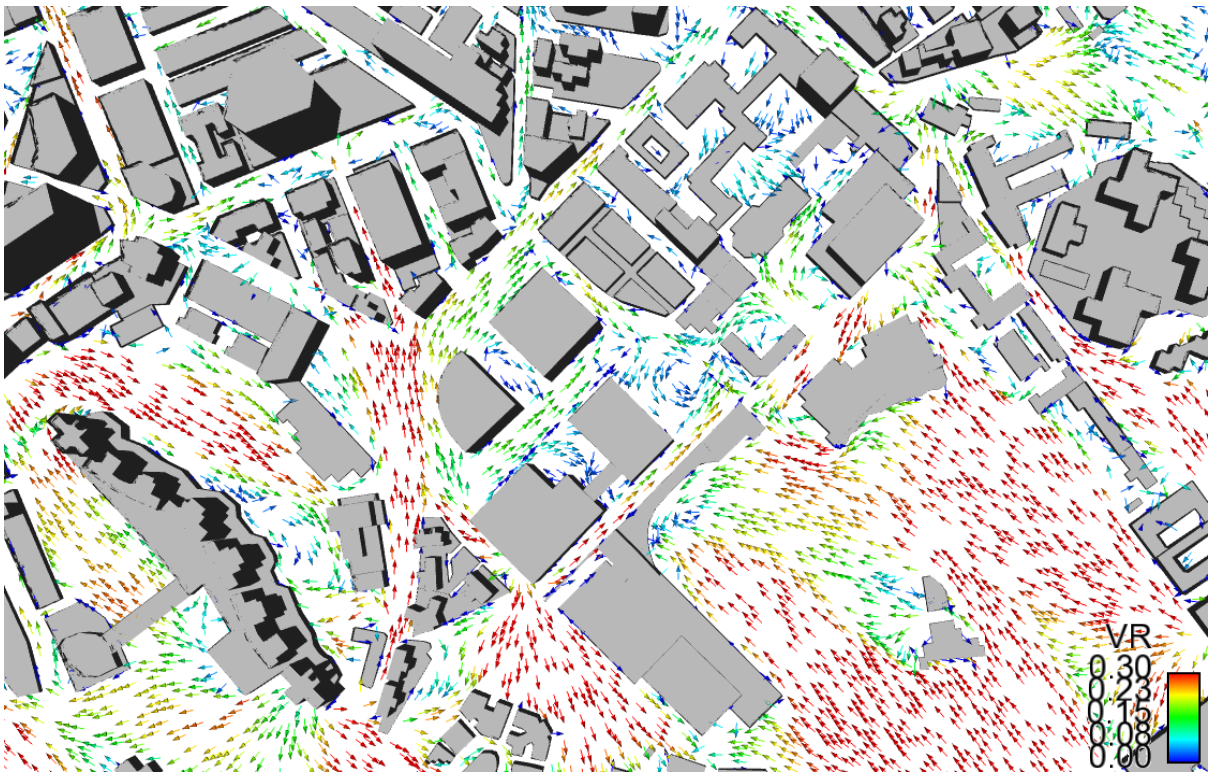


Figure 130 VR Vector Plot at Pedestrian Level under SW Wind for Proposed Scheme

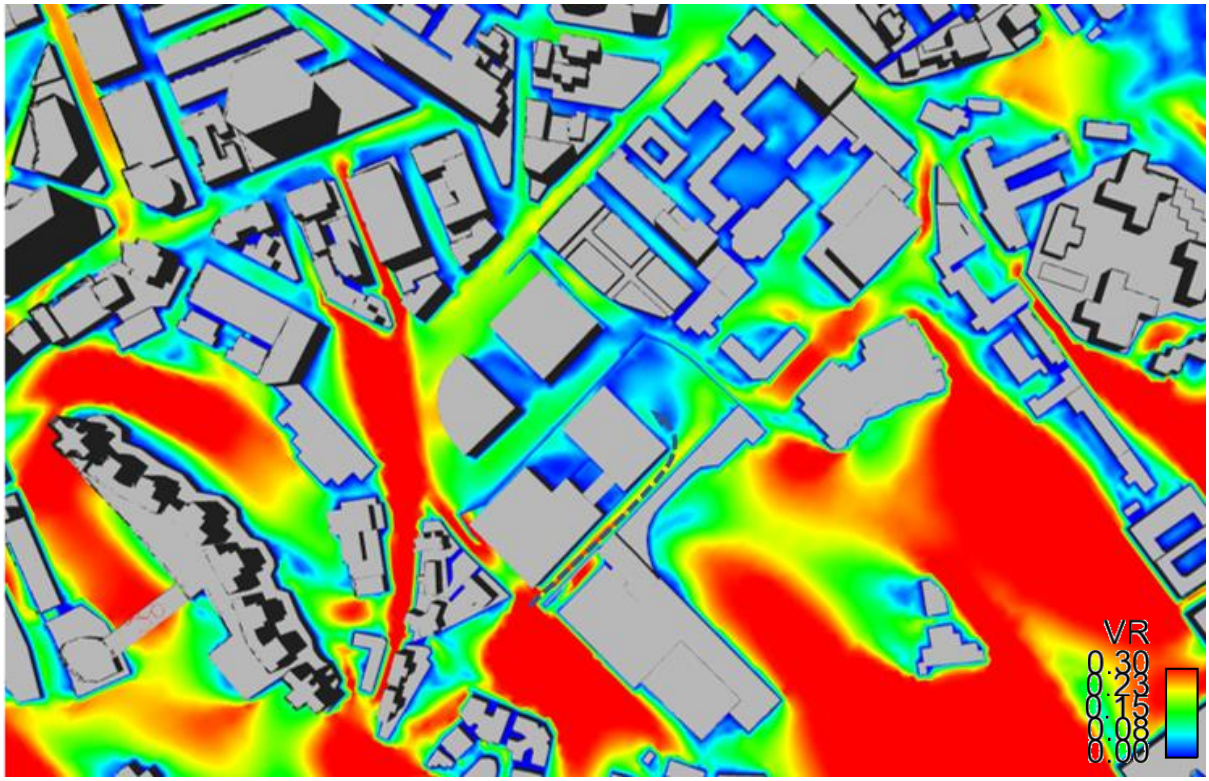


Figure 131 VR Contour Plot at Pedestrian Level under SW Wind for Optional Scheme

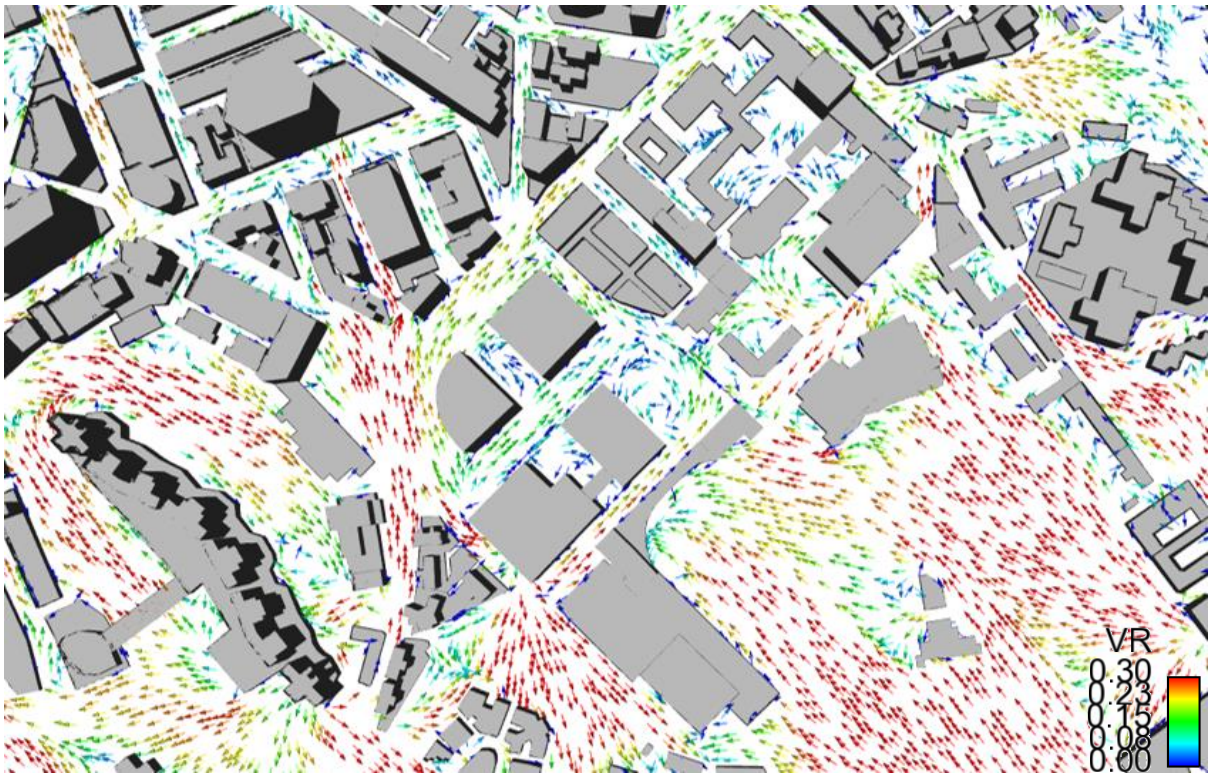


Figure 132 VR Vector Plot at Pedestrian Level under SW Wind for Optional Scheme

6.1.11 WSW Wind

Similar to SW wind, incoming SW wind is obstructed and diverted by Leighton Hill. Hence the wind availability of the Project Area will come from The Leighton Hill and Link Road to the southwest and South China Athletic Association to the southeast of the Project Area (Black Arrows in Figure 133).

In the Baseline Scheme, the Project Area is located at the wake region created by Leighton Hill hence wind availability of the Project Area for WSW wind is relatively low. An airstream is observed flowing along Link Road towards the Project Area but is blocked by the PCCW Recreation Club at the western portion of the Baseline Scheme (Purple Arrows in Figure 133). This forms a wake region at the football field and tennis courts at the northern portion of the Baseline Scheme, which is otherwise absent in the Proposed and Optional Schemes due to the presence of the access road and the curved building design of Commercial Tower 2. In addition, the Baseline Scheme has a slightly lower VR around the sloped area northeast of The Leighton Hill when compared with the Proposed and Optional Schemes. WSW wind entering the Project Area from Link Road is dispersed at mid-level over the Project Area in the Baseline Scheme (Purple Arrows in Figure 133) whereas the presence of the Commercial Tower 2 in the Proposed and Optional Schemes would divert a small portion of WSW wind towards the northwest, skimming over the low-rise building of Po Leung Kuk to reach The Leighton Hill (White Arrows in Figure 135).

In the Proposed Scheme, the high-rise nature and curved building shape of Commercial Tower 2 channeled the wind towards the open space at the northern portion of the Project Area, Playground of Po Leung Kuk as well as Leighton Road hence higher VRs are observed for these regions when compared with the Baseline Scheme (White Arrows in Figure 135). In addition, downwash effect is also observed at The District Court Block 2 thus higher VR is observed at Caroline Hill Road to the south of the Project Area and Elevated Road to Beverly Hill (Magenta Arrows in Figure 135).

In comparison with the Proposed Scheme, the wind flow pattern of the surrounding area in the Optional Scheme is generally similar to the Proposed Scheme due to similar building layout and disposition. However, the additional podium of 22mPD between The District Court Block 1 and The District Court Block 2 caused slightly lower wind performance in the open areas between The District Court Block 1 and The District Court Block 2, however, the effect is not significant as the wind availability is relatively low under this wind prevailing wind direction.

Figure 133, Figure 135 and Figure 137 show the VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively. Figure 134, Figure 136 and Figure 138

show the VR vector plots for the Baseline Scheme, Proposed Scheme and Optional Scheme respectively.

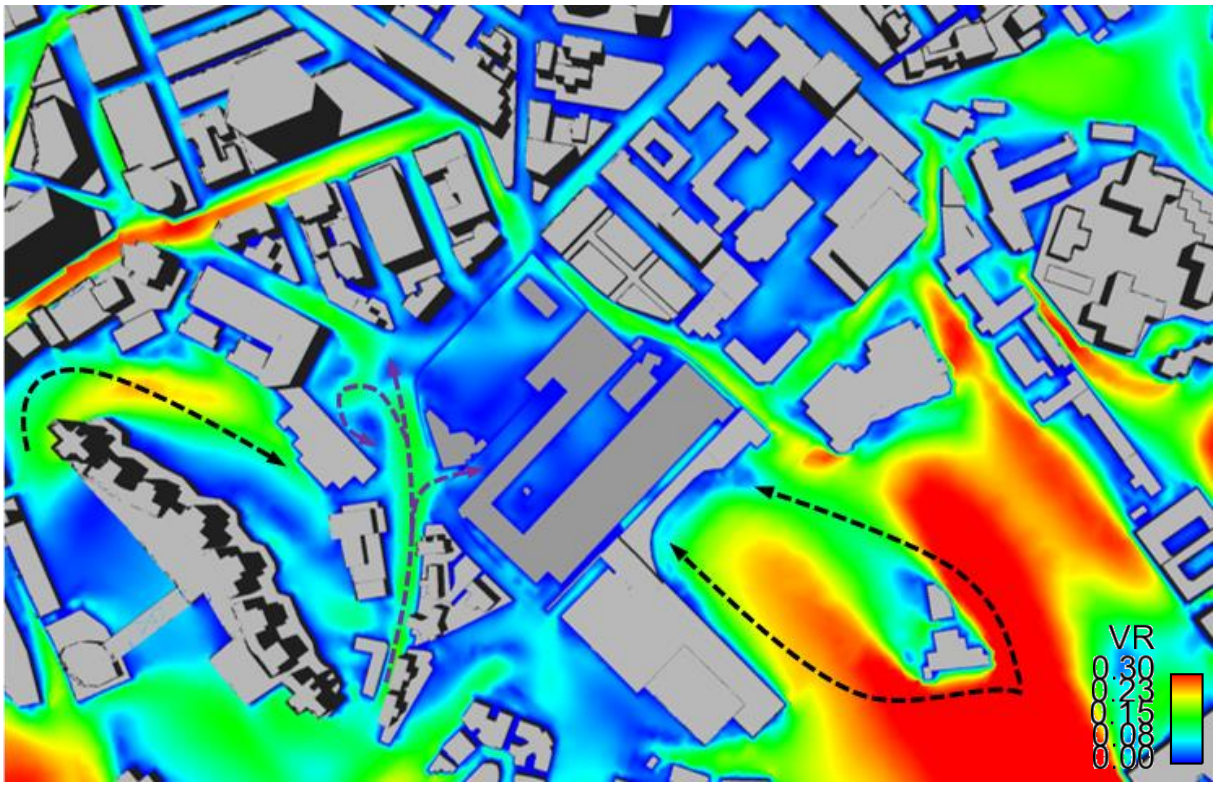


Figure 133 VR Contour Plot at Pedestrian Level under WSW Wind for Baseline Scheme

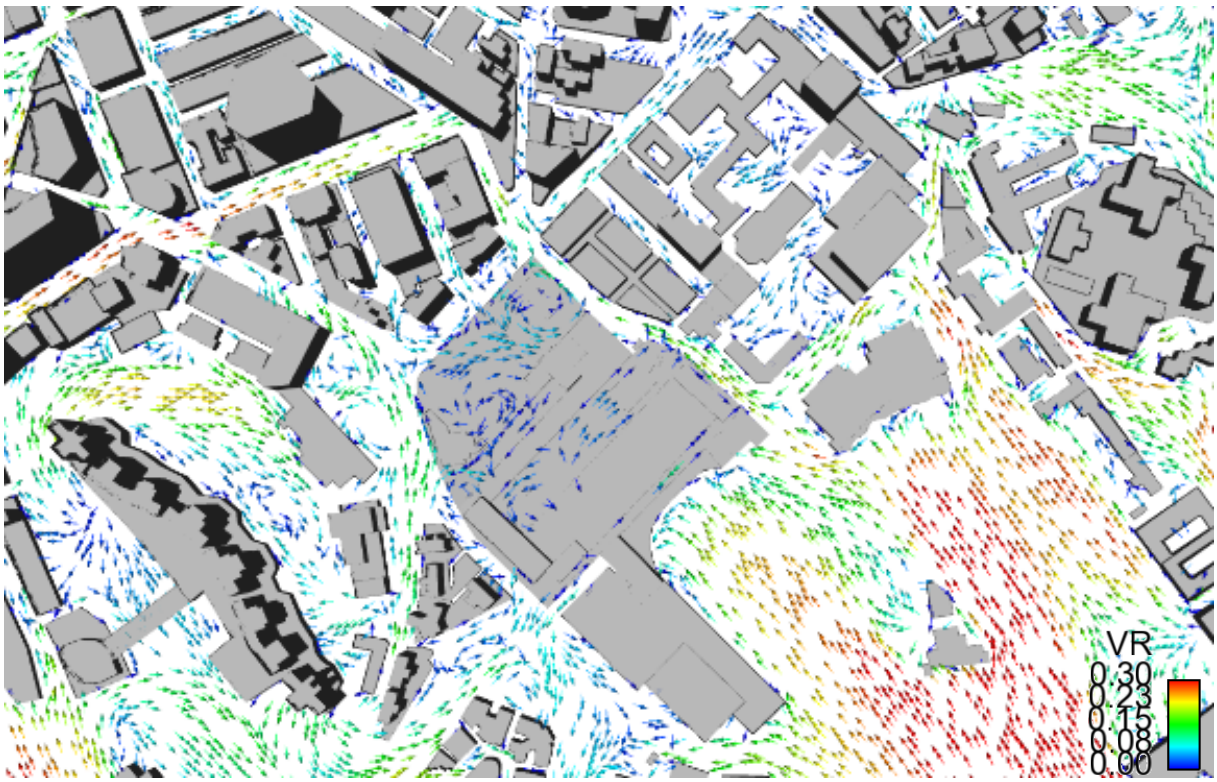


Figure 134 VR Vector Plot at Pedestrian Level under WSW Wind for Baseline Scheme

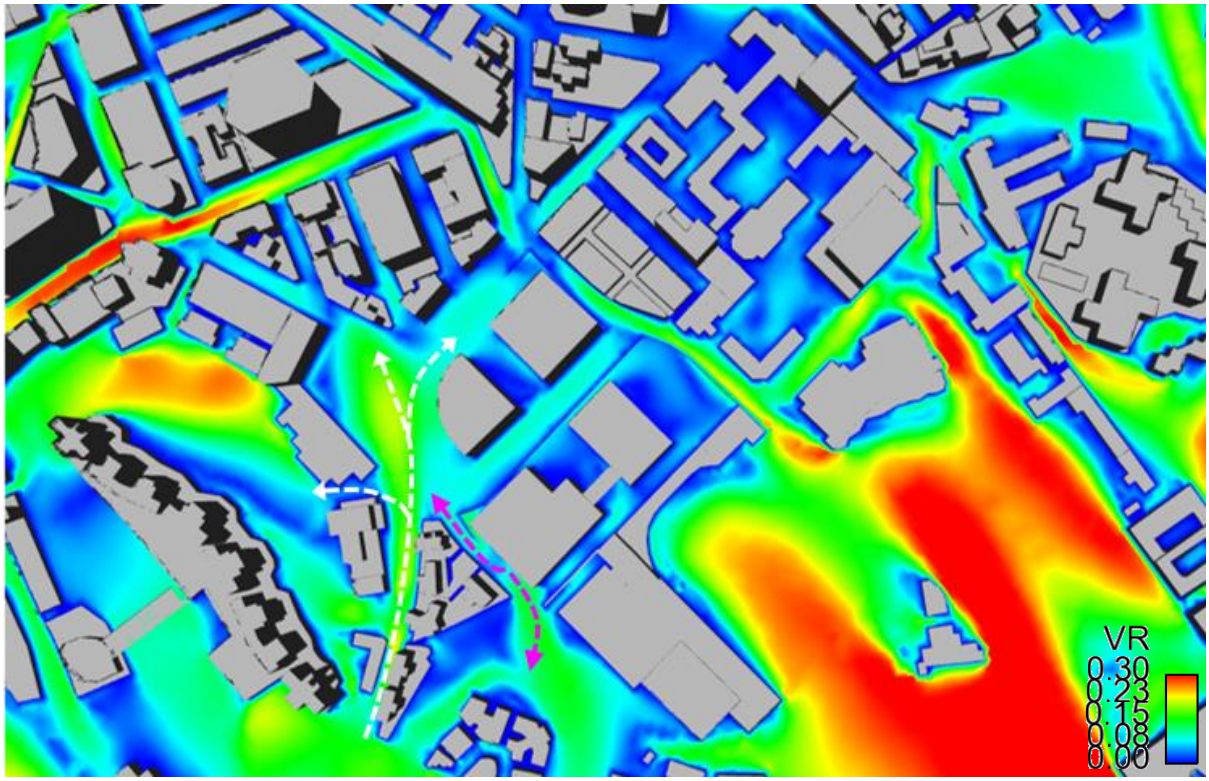


Figure 135 VR Contour Plot at Pedestrian Level under WSW Wind for Proposed Scheme

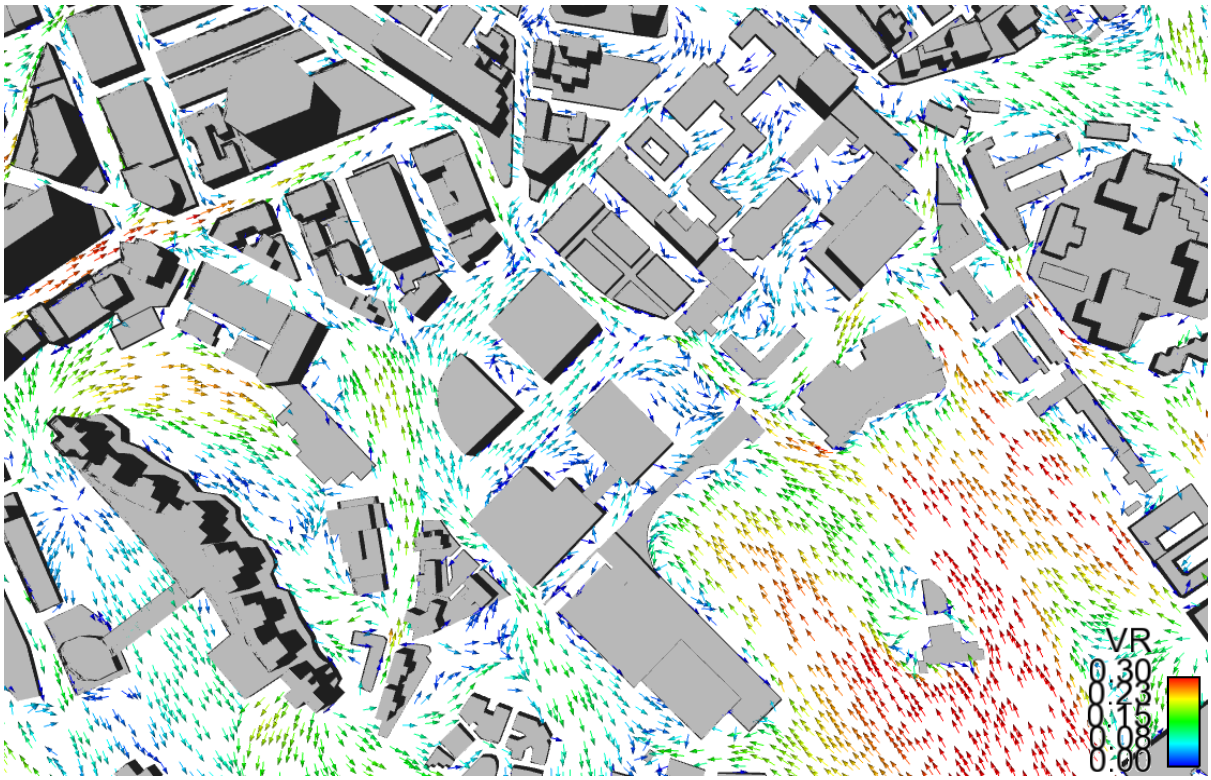


Figure 136 VR Vector Plot at Pedestrian Level under WSW Wind for Proposed Scheme

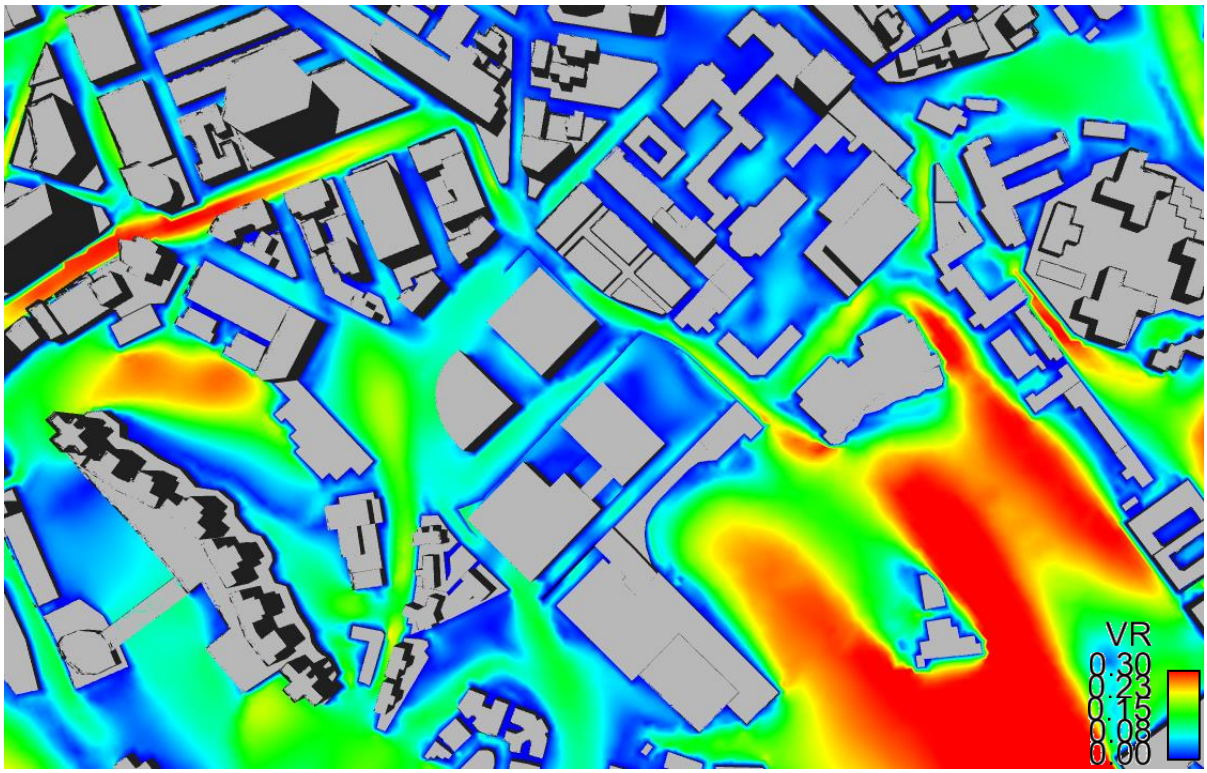


Figure 137 VR Contour Plot at Pedestrian Level under WSW Wind for Optional Scheme

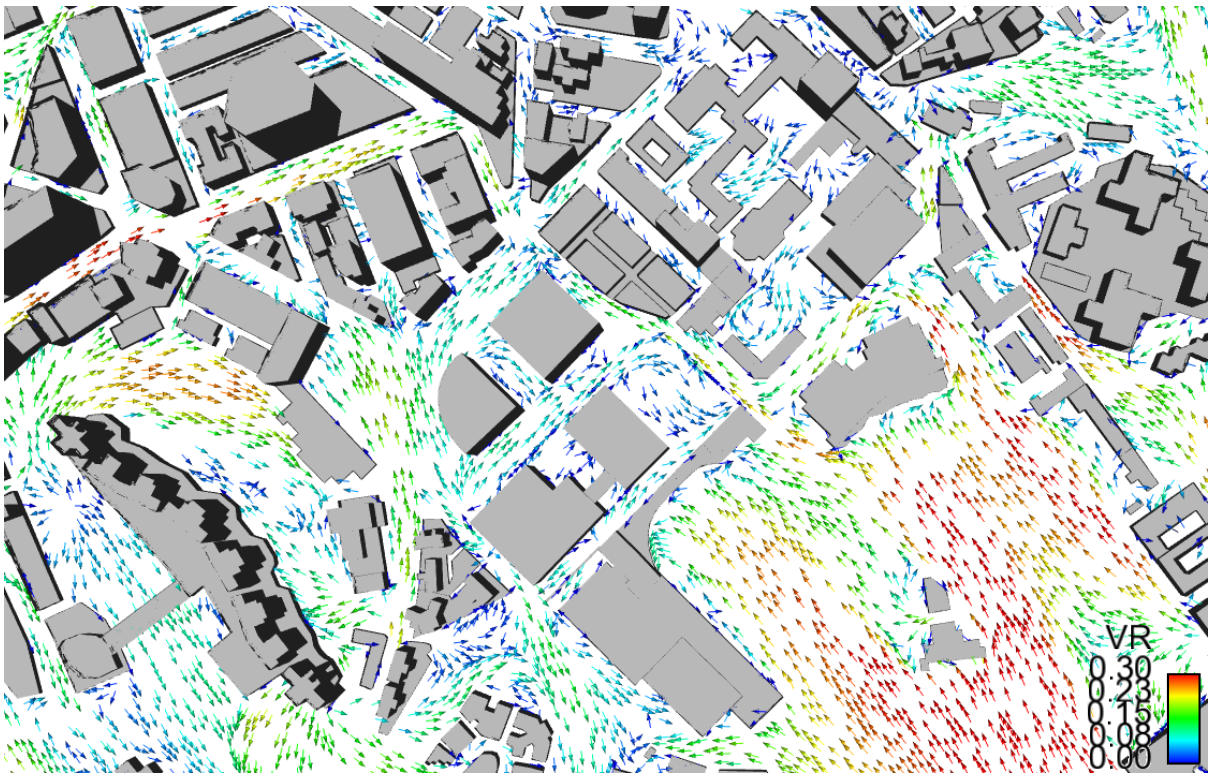


Figure 138 VR Vector Plot at Pedestrian Level under WSW Wind for Optional Scheme

6.2 SUMMARY OF VELOCITY RATIO (VR) RESULTS UNDER ANNUAL WIND CONDITION

According to the average VR results under annual wind condition in Table 10, the SVR of the Proposed and Optional Schemes are the same (i.e. 0.17) whereas the SVR of the Baseline Scheme is significantly smaller (i.e. 0.12). For LVR, all three schemes achieved the same result (i.e. 0.16).

For both the Proposed and Optional Schemes, the high-rise nature (i.e. building height of 130mPD) of the two Commercial Towers and two The District Court Blocks would cause downwash effect, where mid to high-level annual wind will be directed towards pedestrian level thus increasing VR at the site boundary of the Project Area as well as nearby focus areas including St. Paul's Convent School, Elevated Road to Beverly Hill, Confucius Hall Secondary School, Caroline Hill Road, Sir Ellis Kadoorie (S) Primary School, Disciplined Services Sports and Recreation Club and Indian Recreation Club. Hence, the VR is slightly higher in the Proposed and Optional Schemes for these focus areas when compared with the Baseline Scheme.

Additionally, both the Proposed and Optional Schemes incorporated an access road along the NE-SW axis and two building gaps (i.e. between the Commercial Towers as well as between The District Court Blocks) along the NW-SE axis at the central portion of the Project Area. This allowed more annual wind flow to penetrate through the Project Area and improved the wind performance within the Project Area as well as the site boundary and downstream focus areas including Yee Wo Street, Leighton Road, Lee Garden Road, Sun Wui Road and Link Road when compared with the Baseline Scheme.

However, the low-rise nature of the Baseline Scheme will cause less obstruction to the incoming annual wind hence more mid-level annual wind would be able to skim over the low-rise building structures within the Project Area. Therefore, higher VRs are observed in the Baseline Scheme for focus areas that are located further downstream including Irving Street, Keswick Street, Yun Ping Road, Lan Fong Road, Sunning Road, Leighton Lane, Leighton Hill Road, Broadwood Road, Rest Garden on Broadwood Road, Eastern Hospital Road Sitting-out Area, Tung Wah Eastern Hospital and Eastern Hospital Road Sitting Out Area when compared with the Proposed and Optional Schemes.

Additionally, the high-rise nature of the Proposed and Optional Schemes also created more turbulence to the existing wind environment hence slightly lower VRs are observed at St. Paul's Hospital, Haven Street and Cotton Path Road in the Baseline Scheme when compared with the Proposed and Optional Schemes.

For all other focus areas within the Assessment Area (i.e. Pennington Street, Jardine's Bazaar, Fung Un Street, Jardine's Crescent, St. Paul's Convent, Hysan Avenue, Hoi Ping Road, Playground of Po Leung Kuk, Happy View Terrace, Road south of Beverly Hill, Stadium Path, Eastern Hospital Road, Hong Kong Stadium, Ka Ning Path Rest Garden, Ka Ning Road, South China Athletic Association and So Kon Po Recreation Ground), the VRs are comparable across the three schemes.

Comparing the Proposed and Optional Schemes, the SVR and LVR are the same in both schemes and the annual wind flow pattern of the surrounding area is generally similar due to similar building layout and disposition. However, the additional 22mPD podium and reduced building gap between The District Court Block 1 and The District Court Block 2 in the Optional Scheme (i.e. 20m as opposed to 25m in the Proposed Scheme) resulted in a slight decrease in VR along the building gap, open space and pedestrian-accessible areas at The District Court site due to increased obstruction to the annual wind flow. In contrast, slightly higher VR is observed for the open space and building gap at the commercial site in the Optional Scheme when compared with the Proposed Scheme due to the 5m shift of The District Court Block 1 towards the southwest. This allowed more mid-level annual wind to be downwashed by Commercial Tower 1 in the Optional Scheme and ventilate the open space and building gap at the commercial site.

The annual weighted average VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Schemes are shown in Figure 139, Figure 140 and Figure 141 respectively.

Table 10 Summary of SVR, LVR and SAVR Results under Annual Wind Condition for Baseline Scheme, Proposed Scheme and Optional Scheme

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
SVR	P1 – P30	0.12	0.17	0.17
LVR	P1 – P30, O1 – O154	0.16	0.16	0.16
1. Yee Wo Street	O1 – O4	0.18	0.19	0.19
2. Pennington Street	O5, O9, O17, O29	0.12	0.12	0.12
3. Jardine's Bazaar	O6 – O9	0.14	0.13	0.14
4. Fung Un Street	O7 , O13, O15	0.08	0.07	0.08
5. Jardine's **Crescent**	O8, O14 – O16	0.09	0.08	0.09
6. Irving Street	O9 – O11	0.17	0.14	0.15
7. Leighton Road	O12, O19, O28, O44, O46-O49 P14 – P20	0.13	0.16	0.16
8. Keswick Street	O17 – O19	0.12	0.11	0.11
9. St. Paul's Convent School	O20 – O22	0.10	0.12	0.12
10. St. Paul's Hospital	O23 – O24	0.12	0.11	0.11
11. St. Paul's Convent	O25	0.09	0.09	0.08
12. Haven Street	O26 – O28	0.12	0.10	0.10
13. Yun Ping Road	O30 – O33	0.20	0.19	0.19
14. Hysan Avenue	O31, O36 – O39	0.18	0.18	0.19
15. Lan Fong Road	O33 – O34	0.18	0.17	0.17
16. Lee Garden Road	O35 – O36	0.13	0.15	0.14

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
17. Sun Wui Road	O37, O45 – O46	0.11	0.13	0.14
18. Hoi Ping Road	O38, O42 – O44	0.16	0.15	0.16
19. Sunning Road	O39 – O41	0.17	0.14	0.14
20. Leighton Lane	O48, O50	0.12	0.10	0.11
21. Playground of Po Leung Kuk	O51 – O53	0.12	0.11	0.12
22. Leighton Hill Road	O54 – O60	0.16	0.13	0.13
23. Link Road	O61 – O64	0.19	0.21	0.20
24. Broadwood Road	O65 – O66	0.29	0.26	0.27
25. Elevated Road to Beverly Hill	O67 – O72	0.19	0.23	0.22
26. Happy View Terrace	O73 – O77	0.14	0.14	0.14
27. Rest Garden on Broadwood Road	O78 – O79	0.17	0.15	0.14
28. Road south of Beverly Hill	O80 – O82	0.20	0.19	0.20
29. Confucius Hall Secondary School	O83 – O85	0.21	0.22	0.23
30. Stadium Path	O86 – O90	0.20	0.20	0.21
31. Eastern Hospital Road Sitting-out Area	O91 – O92	0.21	0.19	0.19
32. Eastern Hospital Road	O93, O102 – O103, O109 – O111, O116 – O121	0.17	0.17	0.17

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
33. Hong Kong Stadium	O94 – O101	0.21	0.20	0.21
34. Tung Wah Eastern Hospital	O104 – O106	0.09	0.07	0.07
35. Eastern Hospital Road Sitting-out Area	O107 – O108	0.16	0.14	0.15
36. Ka Ning Path Rest Garden	O112 – O113	0.26	0.26	0.26
37. Sir Ellis Kadoorie (S) Primary School	O114 – O115	0.06	0.07	0.07
38. Ka Ning Road	O122 – O125	0.15	0.15	0.15
39. Cotton Path Road	O126 – O128	0.19	0.18	0.18
40. Caroline Hill Road	O128 – O136, P4 – P14, P20 – P30	0.14	0.18	0.18
41. South China Athletic Association	O137 – O142	0.20	0.20	0.21
42. Disciplined Services Sports and Recreation Club	O143 – O146	0.13	0.14	0.14
43. So Kon Po Recreation Ground	O147 – O150	0.16	0.16	0.16
44. Indian Recreation Club	O151 – O154	0.19	0.20	0.20
45. Ball Courts within Project Area (Baseline Scheme)	S1-S6	0.07	N/A	N/A

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
46. Pedestrian-Accessible Areas within Project Area (Baseline Scheme)	S7-S12	0.09	N/A	N/A
47. Open space at Commercial Site (Proposed & Optional Scheme)	S1-S4	N/A	0.14	0.16
48. Building gap at Commercial Site (Proposed & Optional Scheme)	S2, S4, S7	N/A	0.17	0.21
49. Access Road within Project Area (Proposed & Optional Scheme)	S5-S9	N/A	0.21	0.21
50. Building gap at The District Court Site (Proposed & Optional Scheme)	S10, S16, S18	N/A	0.17	0.14
51. Open space adjacent to The District Court Site (Proposed & Optional Scheme)	S11 – S14	N/A	0.21	0.20
52. Pedestrian-Accessible Areas within The District Court Site (Proposed & Optional Scheme)	S15 – S17	N/A	0.21	0.20

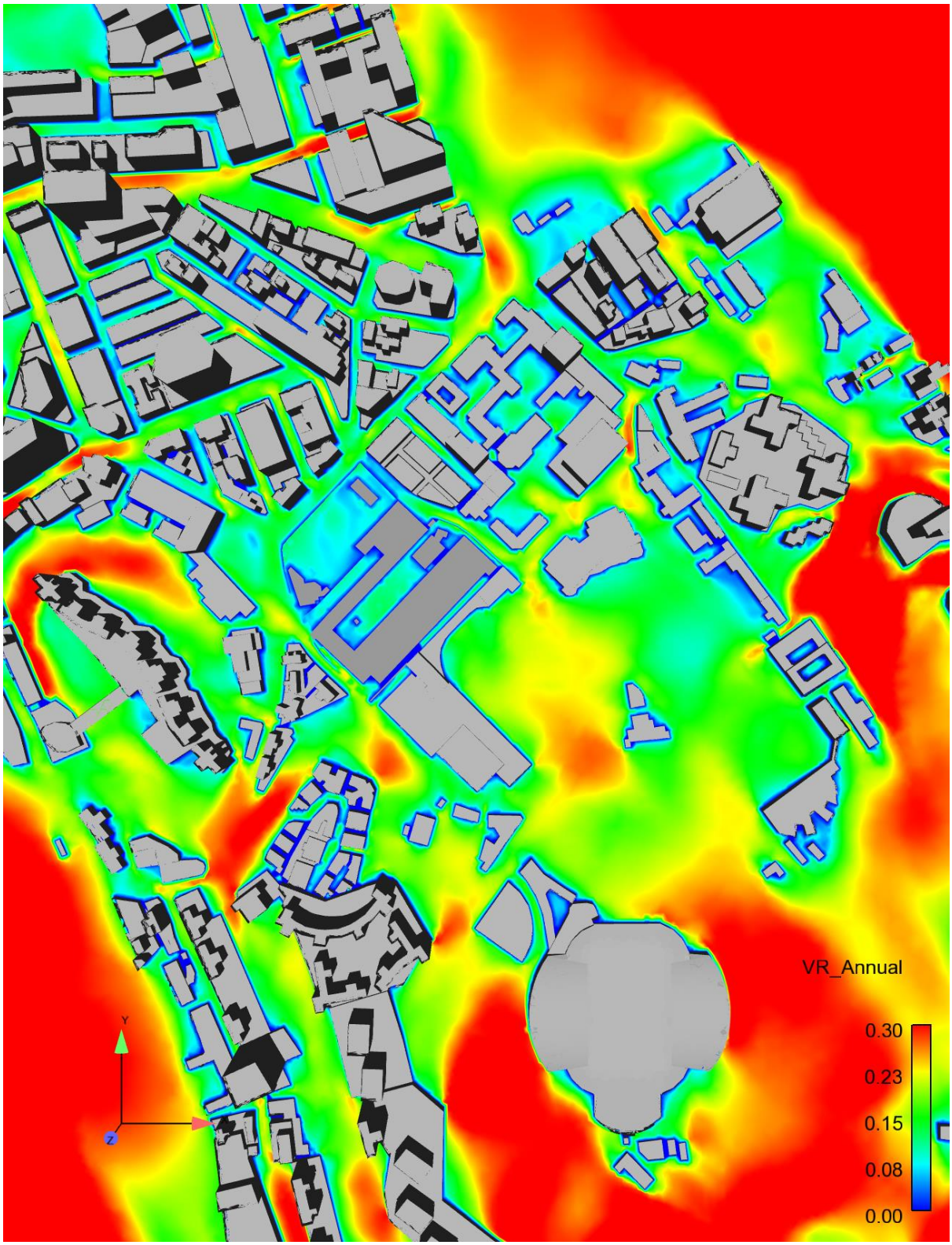


Figure 139 Annual Weighted Average VR Contour Plot at Pedestrian Level for Baseline Scheme

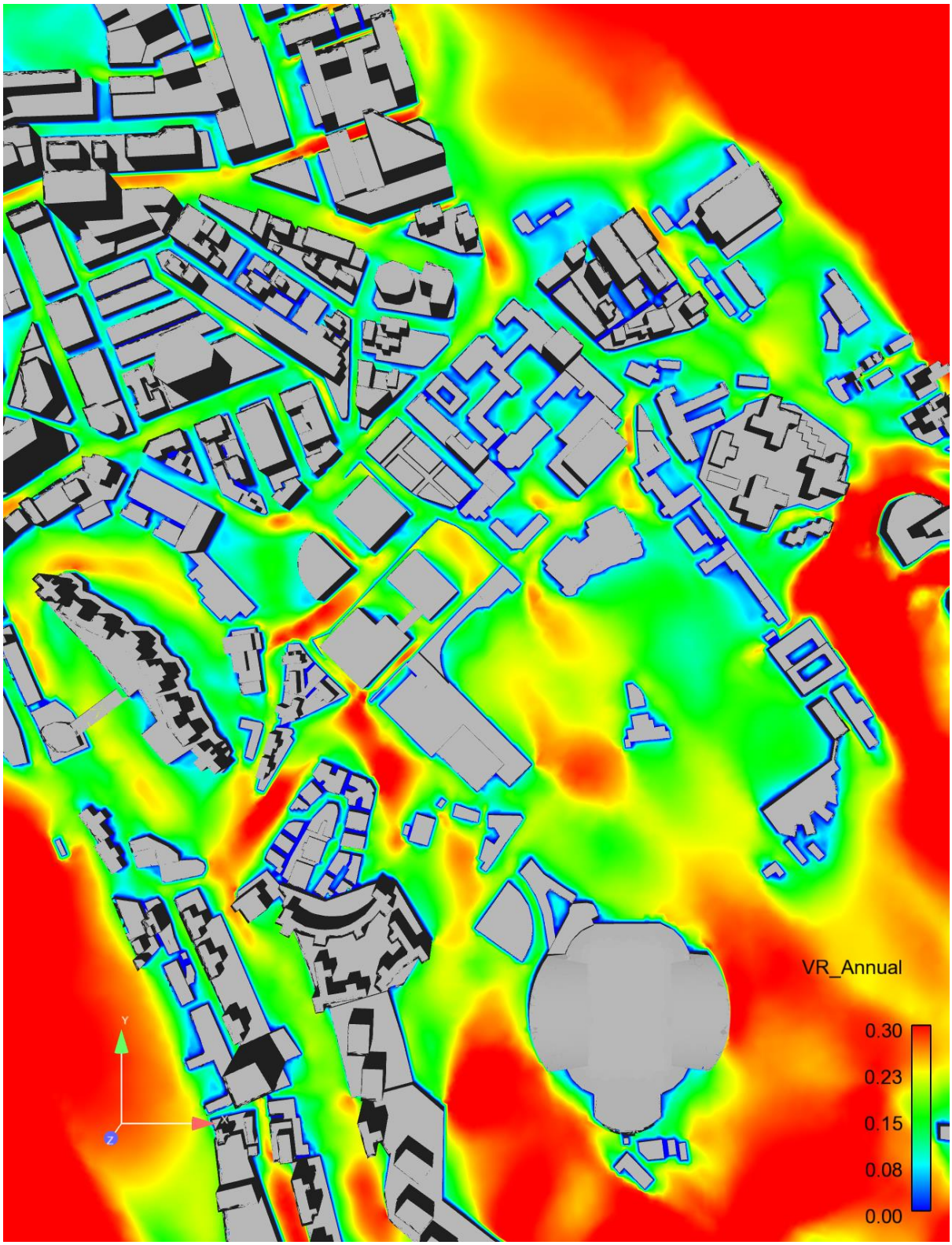


Figure 140 Annual Weighted Average VR Contour Plot at Pedestrian Level for Proposed Scheme

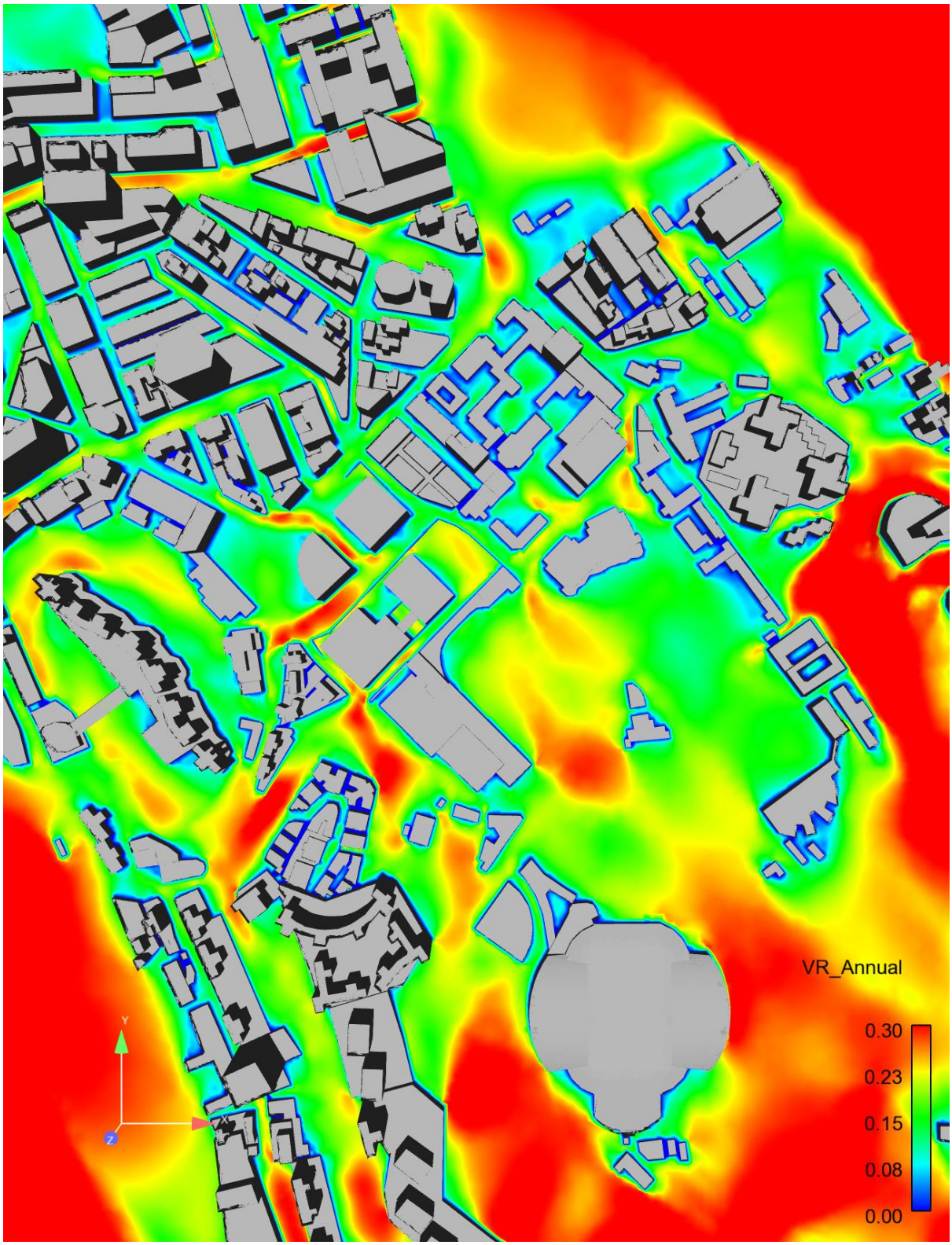


Figure 141 Annual Weighted Average VR Contour Plot at Pedestrian Level for Optional Scheme

6.3 SUMMARY OF VELOCITY RATIO (VR) RESULTS UNDER SUMMER WIND CONDITION

According to the average VR results under summer wind condition in Table 11, the SVR of the Proposed and Optional Schemes are the same (i.e. 0.17) whereas the SVR of the Baseline Scheme is significantly smaller (i.e. 0.11). For LVR, all three schemes achieved the same average VR result (i.e. 0.16).

For both the Proposed and Optional Schemes, the high-rise nature (i.e. building height of 130mPD) of The District Court Block 2 would cause downwash effect, where mid to high-level summer wind will be directed towards pedestrian level thus increasing VR at the site boundary of the Project Area as well as nearby focus areas including Elevated Road to Beverly Hill, Rest Garden on Broadwood Road and Caroline Hill Road when compared with the Baseline Scheme.

Additionally, both the Proposed and Optional Schemes incorporated an access road along the NE-SW axis and two building gaps (i.e. between the Commercial Towers as well as between The District Court Blocks) along the NW-SE axis at the central portion of the Project Area. This allowed more summer wind flow to penetrate through the Project Area and improve the wind performance within the Project Area as well as the site boundary and downstream focus areas including Yee Wo Street, Leighton Road, Leighton Lane and Playground of Po Leung Kuk when compared with the Baseline Scheme.

However, the low-rise nature of the Baseline Scheme will cause less obstruction to the incoming summer wind hence more mid-level summer wind would be able to skim over the low-rise building structures within the Project Area. Therefore, higher VRs are observed in the Baseline Scheme for focus areas that are located further downstream including Pennington Street, Jardine's Crescent, Irving Street, Lee Garden Road, Sunning Road, Leighton Hill Road, Broadwood Road, Hong Kong Stadium, Tung Wah Eastern Hospital, Sir Ellis Kadoorie (S) Primary School and So Kon Po Recreation Ground when compared with the Proposed and Optional Schemes. In addition, higher VR is also observed for Hysan Avenue in the Baseline Scheme when compared with the Proposed and Optional Schemes due to less disruption to the existing air path flowing along Hysan Avenue. The details of this observation are discussed in detail in Section 5.1.10.

For all other focus areas within the Assessment Area (i.e. Jardine's Bazaar, Fung Un Street, Keswick Street, St. Paul's Convent School, St. Paul's Hospital, St. Paul's Convent, Haven Street, Yun Ping Road, Lan Fong Road, Hoi Ping Road, Link Road, Happy View Terrace,

Road south of Beverly Hill, Confucius Hall Secondary School, Stadium Path, Eastern Hospital Road Sitting-out Area, Eastern Hospital Road, Eastern Hospital Road Sitting-out Area, Ka Ning Path Rest Garden, Ka Ning Road, Cotton Path Road, South China Athletic Association as well as Disciplined Services Sports and Recreation Club, the VRs are comparable across the three schemes.

Comparing the Proposed and Optional Schemes, the SVR and LVR are the same in both schemes and the summer wind flow pattern of the surrounding area is generally similar due to similar building layout and disposition. However, the additional 22mPD podium and reduced building gap between The District Court Block 1 and The District Court Block 2 in the Optional Scheme (i.e. 20m compared with 25m in the Proposed Scheme) resulted in a slight decrease in VR along the building gap, open space and pedestrian-accessible areas at The District Court site due to increased obstruction to the summer wind flow. In contrast, slightly higher VR is observed for the building gap at the commercial site in the Optional Scheme as well as along Sun Wui Road and around Indian Recreation Club when compared with the Proposed Scheme due to the 5m shift of The District Court Block 1 towards the southwest. This allowed more mid-level summer wind to be downwashed by Commercial Tower 1 in the Optional Scheme and ventilate the building gap at the commercial site.

The summer weighted average VR contour plots for the Baseline Scheme, Proposed Scheme and Optional Schemes are shown in Figure 142, Figure 143 and Figure 144 respectively.

Table 11 Summary of SVR, LVR and SAVR Results under Summer Wind Condition for Baseline Scheme, Proposed Scheme and Optional Scheme

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
SVR	P1 – P30	0.11	0.17	0.17
LVR	P1 – P30, O1 – O154	0.16	0.16	0.16
1. Yee Wo Street	O1 – O4	0.13	0.14	0.15
2. Pennington Street	O5, O9, O17, O29	0.12	0.10	0.10
3. Jardine's Bazaar	O6 – O9	0.15	0.14	0.15
4. Fung Un Street	O7 , O13, O15	0.11	0.10	0.11
5. Jardine's **Crescent**	O8, O14 – O16	0.12	0.11	0.11
6. Irving Street	O9 – O11	0.13	0.12	0.11
7. Leighton Road	O12, O19, O28, O44, O46-O49 P14 – P20	0.14	0.16	0.16
8. Keswick Street	O17 – O19	0.10	0.11	0.10
9. St. Paul's Convent School	O20 – O22	0.08	0.08	0.09
10. St. Paul's Hospital	O23 – O24	0.08	0.09	0.08
11. St. Paul's Convent	O25	0.07	0.07	0.06
12. Haven Street	O26 – O28	0.10	0.11	0.10
13. Yun Ping Road	O30 – O33	0.20	0.20	0.20
14. Hysan Avenue	O31, O36 – O39	0.24	0.20	0.23
15. Lan Fong Road	O33 – O34	0.16	0.16	0.16
16. Lee Garden Road	O35 – O36	0.19	0.18	0.18

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
17. Sun Wui Road	O37, O45 – O46	0.17	0.14	0.17
18. Hoi Ping Road	O38, O42 – O44	0.18	0.18	0.18
19. Sunning Road	O39 – O41	0.19	0.15	0.14
20. Leighton Lane	O48, O50	0.11	0.12	0.13
21. Playground of Po Leung Kuk	O51 – O53	0.11	0.12	0.12
22. Leighton Hill Road	O54 – O60	0.13	0.12	0.12
23. Link Road	O61 – O64	0.21	0.21	0.20
24. Broadwood Road	O65 – O66	0.26	0.23	0.24
25. Elevated Road to Beverly Hill	O67 – O72	0.14	0.16	0.16
26. Happy View Terrace	O73 – O77	0.13	0.13	0.12
27. Rest Garden on Broadwood Road	O78 – O79	0.11	0.12	0.12
28. Road south of Beverly Hill	O80 – O82	0.23	0.21	0.23
29. Confucius Hall Secondary School	O83 – O85	0.14	0.13	0.14
30. Stadium Path	O86 – O90	0.14	0.13	0.14
31. Eastern Hospital Road Sitting-out Area	O91 – O92	0.22	0.21	0.22
32. Eastern Hospital Road	O93, O102 – O103, O109 – O111, O116 – O121	0.21	0.20	0.21

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
33. Hong Kong Stadium	O94 – O101	0.20	0.18	0.19
34. Tung Wah Eastern Hospital	O104 – O106	0.10	0.09	0.09
35. Eastern Hospital Road Sitting-out Area	O107 – O108	0.15	0.14	0.15
36. Ka Ning Path Rest Garden	O112 – O113	0.22	0.22	0.21
37. Sir Ellis Kadoorie (S) Primary School	O114 – O115	0.10	0.09	0.09
38. Ka Ning Road	O122 – O125	0.18	0.18	0.18
39. Cotton Path Road	O126 – O128	0.18	0.18	0.19
40. Caroline Hill Road	O128 – O136, P4 – P14, P20 – P30	0.13	0.18	0.18
41. South China Athletic Association	O137 – O142	0.18	0.18	0.19
42. Disciplined Services Sports and Recreation Club	O143 – O146	0.19	0.19	0.19
43. So Kon Po Recreation Ground	O147 – O150	0.22	0.20	0.21
44. Indian Recreation Club	O151 – O154	0.28	0.26	0.28
45. Ball Courts within Project Area (Baseline Scheme)	S1-S6	0.09	N/A	N/A

	Test Points	Baseline Scheme	Proposed Scheme	Optional Scheme
46. Pedestrian-Accessible Areas within Project Area (Baseline Scheme)	S7-S12	0.08	N/A	N/A
47. Open space at Commercial Site (Proposed & Optional Scheme)	S1-S4	N/A	0.11	0.11
48. Building gap at Commercial Site (Proposed & Optional Scheme)	S2, S4, S7	N/A	0.12	0.13
49. Access Road within Project Area (Proposed & Optional Scheme)	S5-S9	N/A	0.16	0.16
50. Building gap at The District Court Site (Proposed & Optional Scheme)	S10, S16, S18	N/A	0.16	0.13
51. Open space adjacent to The District Court Site (Proposed & Optional Scheme)	S11 – S14	N/A	0.18	0.16
52. Pedestrian-Accessible Areas within The District Court Site (Proposed & Optional Scheme)	S15 – S17	N/A	0.18	0.16

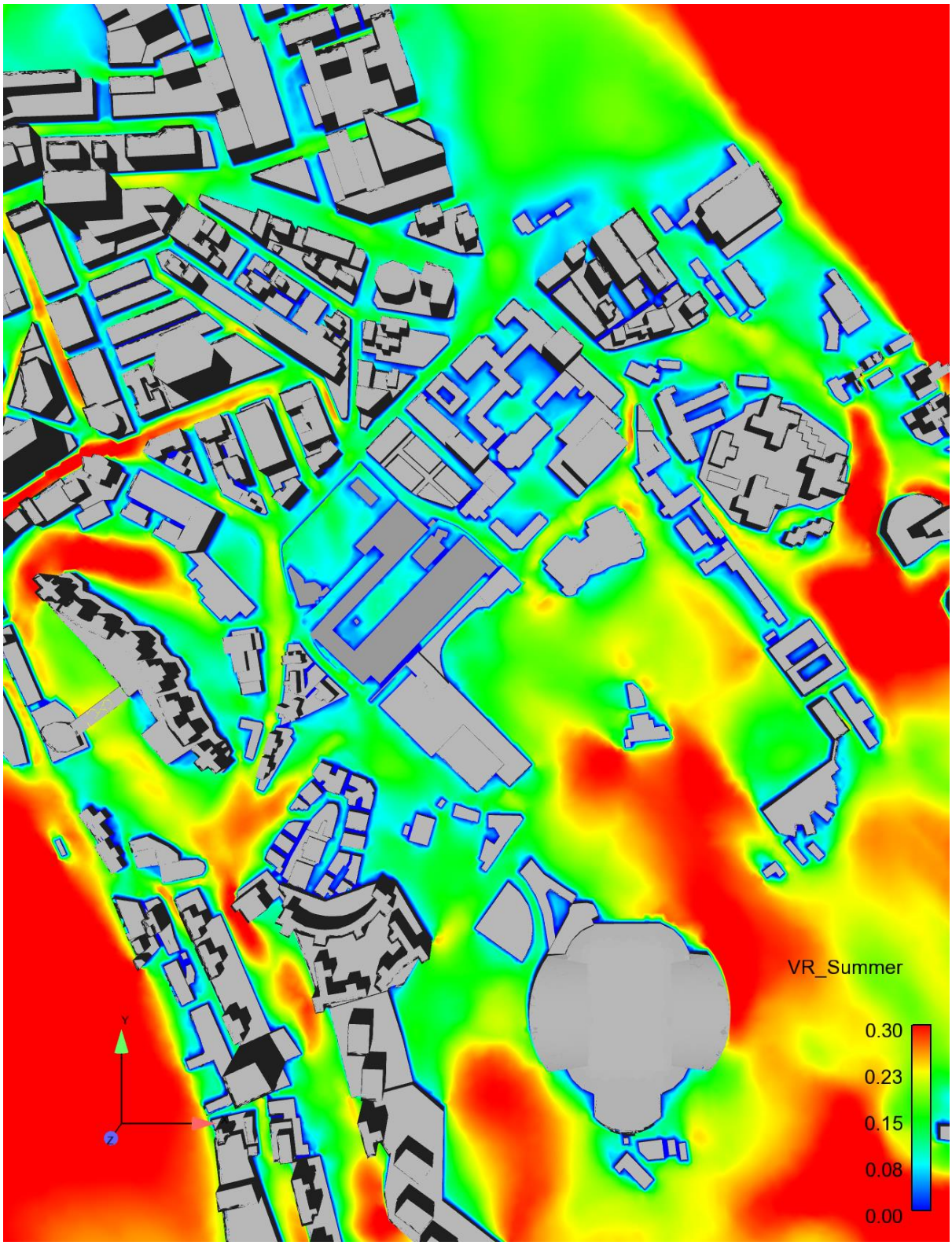


Figure 142 Summer Weighted Average VR Contour Plot at Pedestrian Level for Baseline Scheme

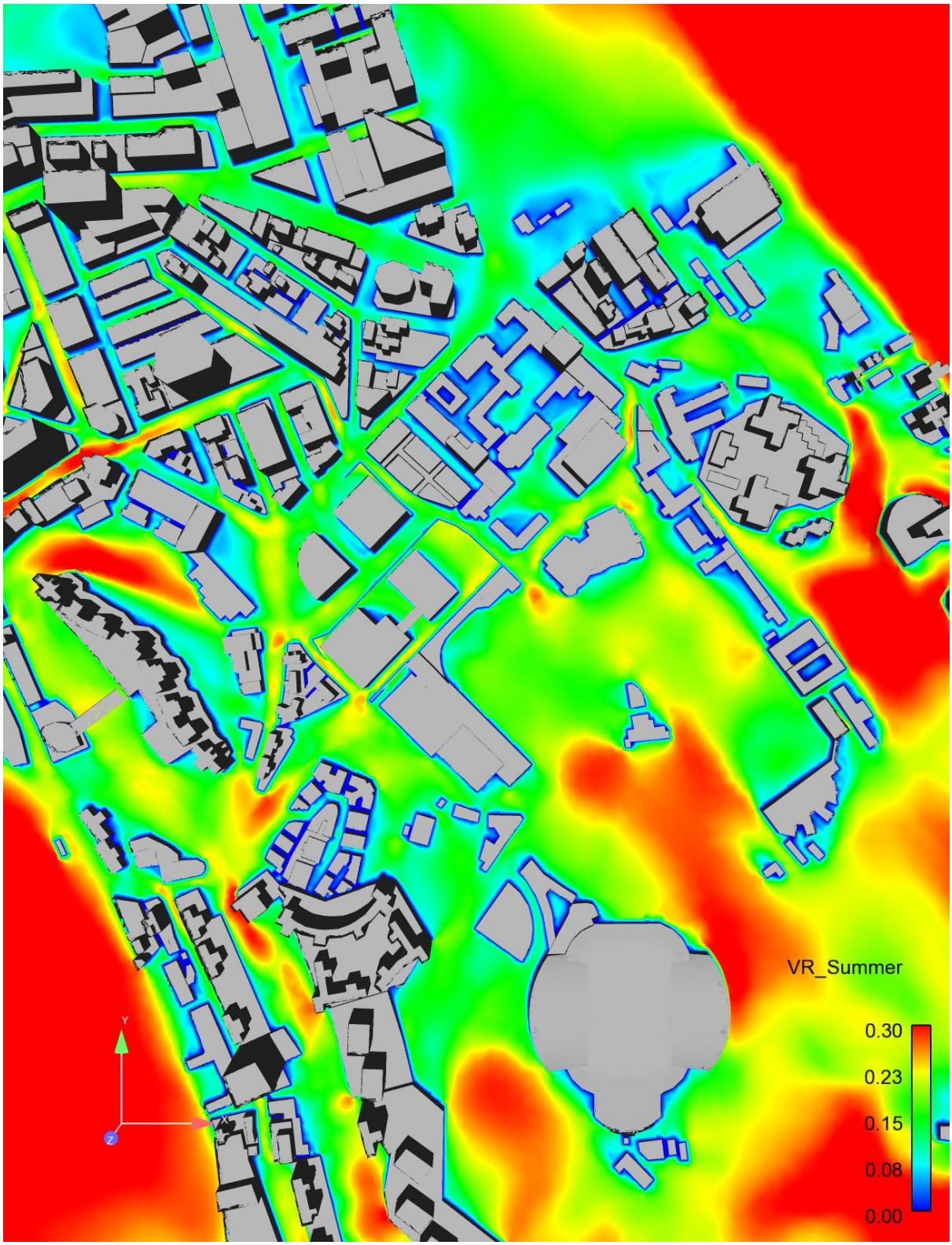


Figure 143 Summer Weighted Average VR Contour Plot at Pedestrian Level for Proposed Scheme

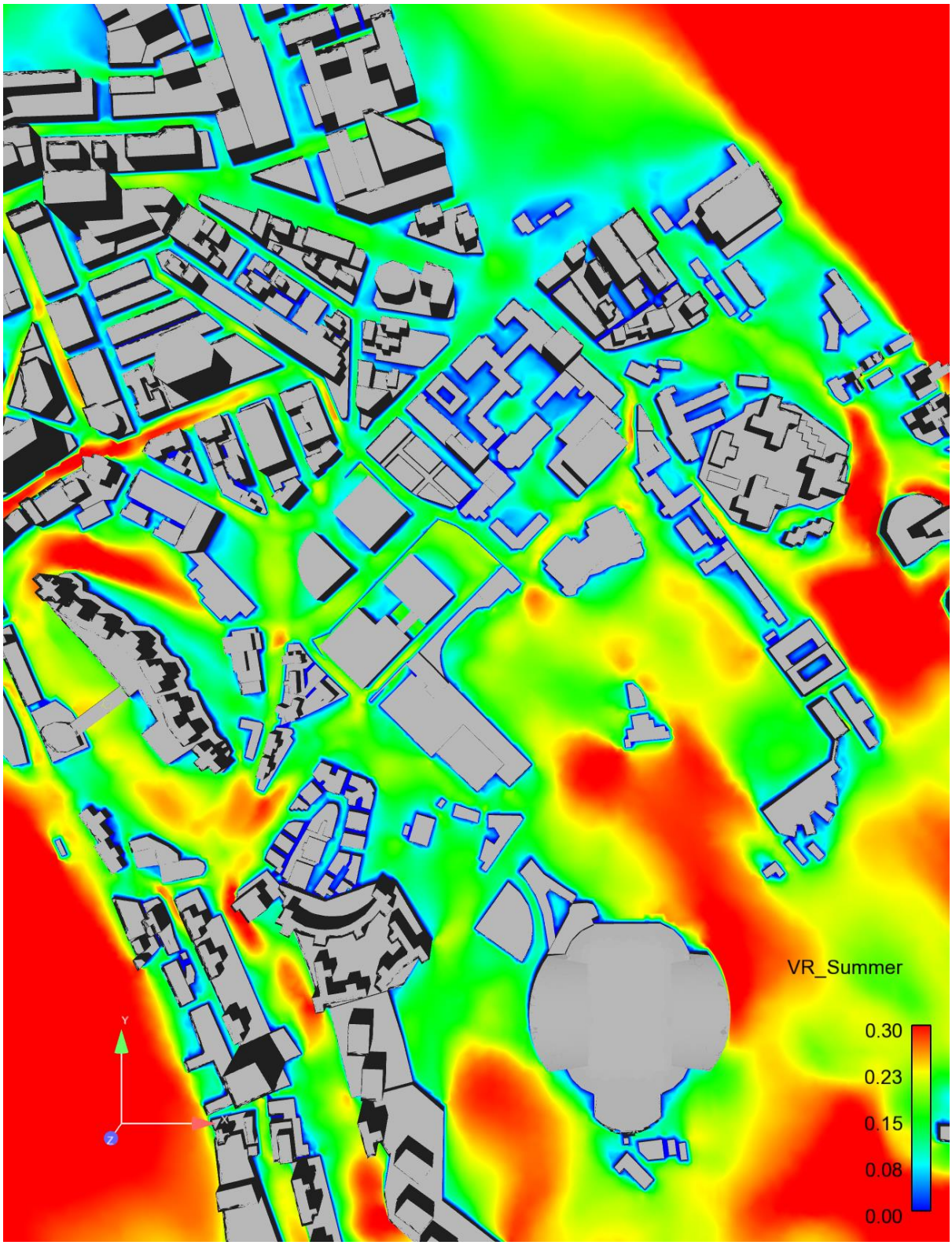


Figure 144 Summer Weighted Average VR Contour Plot at Pedestrian Level for Optional Scheme

7 GOOD DESIGN FEATURES FOR WIND ENHANCEMENT

7.1 ACCESS ROAD ALONG THE NE-SW AXIS

A new access road along the NE-SW axis is proposed to link the eastern and western section of Caroline Hill Road near the center of the Project Area, which will create a wind entrance and allow more wind flow to penetrate through the Project Area.

The quantitative analysis in the previous section demonstrated the access road is essential in improving the wind performance at the site boundary and immediate downstream areas of the Project Area for both annual and summer wind conditions.

7.2 BUILDING GAP ALONG THE NW-SE AXIS

In the Proposed Scheme, a 25m building gap is proposed between Commercial Tower 1 & Commercial Tower 2 and a 25m building gap between The District Court Block 1 and The District Court Block 2. In contrast, a 25m building gap is proposed between Commercial Tower 1 & Commercial Tower 2 and a 20m building gap between The District Court Block 1 and The District Court Block 2 is proposed in the Optional Scheme. All proposed building gaps are along the NW-SE axis and are greater than 15m as recommended by the Sustainable Building Design Guidelines (SBD Guidelines) of PNAP APP-152.

The quantitative analysis in the previous section demonstrated that the building gaps are essential in enhancing site permeability and wind penetration through the Project Area to improve the wind performance at the site boundary and immediate downstream areas for both annual and summer wind conditions.

7.3 OPEN SPACES

In both the Proposed and Optional Schemes, two open spaces will be provided at the northwestern and eastern portions of the Project Area.

The open spaces are essential in promoting air ventilation as they reduce ground coverage thus increasing air volume at pedestrian level and facilitating wind penetration around the building structures within the Project Area to enhance air flow to the downstream regions.

8 EXPERT EVALUATION OF THE 2018 SCHEME

In comparison with the Proposed and Optional Schemes, the 2018 Scheme will incorporate various changes to the open space, site area, building layout and building height as summarized below:

Change in Area of Open Space

- The open space at the northwestern portion is enlarged whilst the open space at the eastern portion is reduced.

Change in Site Area of the Commercial and The District Court Sites

- The site area of the commercial site and The District Court site is enlarged.
- The north-western portion of The District Court site is elongated to the north whilst the proposed site level is slightly lowered.

Change in Building Profile - Commercial Towers

- The eastern corner of Commercial Tower 1 is filleted.
- The southern corner of Commercial Tower 2 is filleted.
- The building footprint of Commercial Tower 2 is reduced.

Increase in Building Height - Commercial Towers & The District Court Blocks

- A slight increase in building height at Commercial Tower 1 & 2 and The District Court Block 1 & 2.

8.1 CHANGE IN AREA OF OPEN SPACE

The area of the open space at the northwestern portion is enlarged (highlighted Orange in Figure 145) whilst the open space at the eastern portion is reduced (highlighted Purple in Figure 145) when compared with the Optional Scheme.

These changes are not expected to have a significant impact on air ventilation performance when compared to the Optional Scheme as both the adjoining land and the open space have similar characteristics (i.e. absence of any above ground structures) and the changes have no effect on the building footprint.

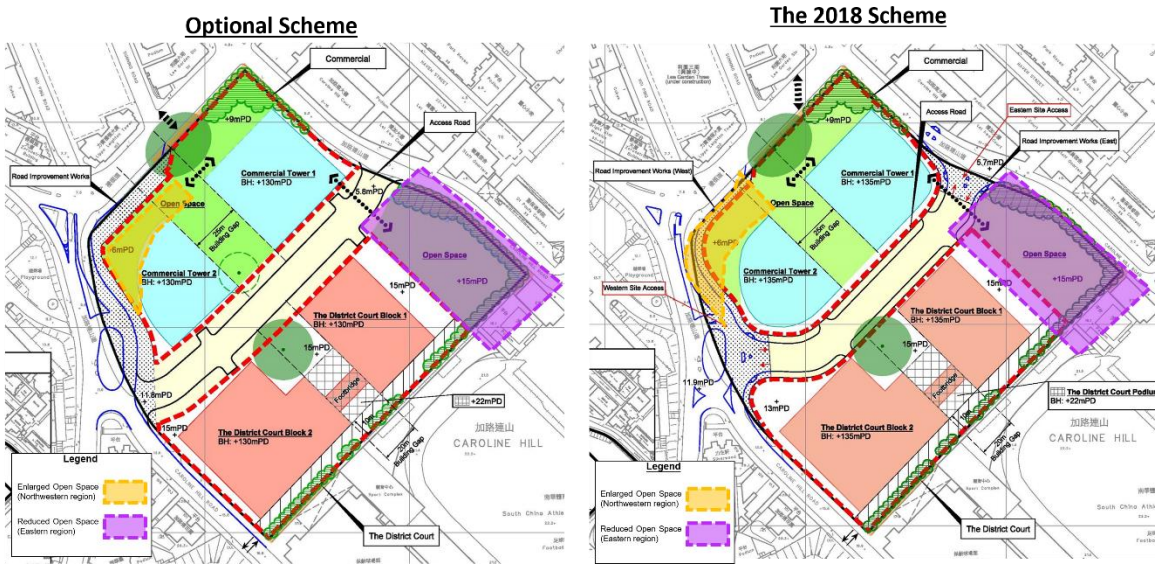


Figure 145 Comparison between the Optional Scheme and the 2018 Scheme – Open space

8.2 CHANGE IN SITE AREA OF THE COMMERCIAL AND DISTRICT COURT SITES

As compared with the Optional Scheme, the site area of the commercial and The District Court sites has been slightly enlarged in the 2018 scheme. In particular, the north-western portion of The District Court site has been elongated towards the north thus also shifting the access road towards the north (highlighted Blue in Figure 146). For north-easterlies entering the access road, it is anticipated that more wind flow is channeled towards the downstream regions northwest of the Project Area thus air ventilation performance is anticipated to be improved slightly around Po Leung Kuk and Leighton Road when compared with the Optional Scheme.

In addition, the ground level of The District Court site has been reduced from 15mPD (in the Optional Scheme) to 13mPD (in the 2018 Scheme). This is anticipated to allow slightly more mid-level wind flow to skim over the ground level to reach the downstream regions southwest of the Project Area when compared with the Optional Scheme. However, given that the overall deck bulk at pedestrian level is similar in the Optional Scheme and the 2018 Scheme, it is anticipated that there will be no adverse impact on air ventilation when compared with the Optional Scheme.

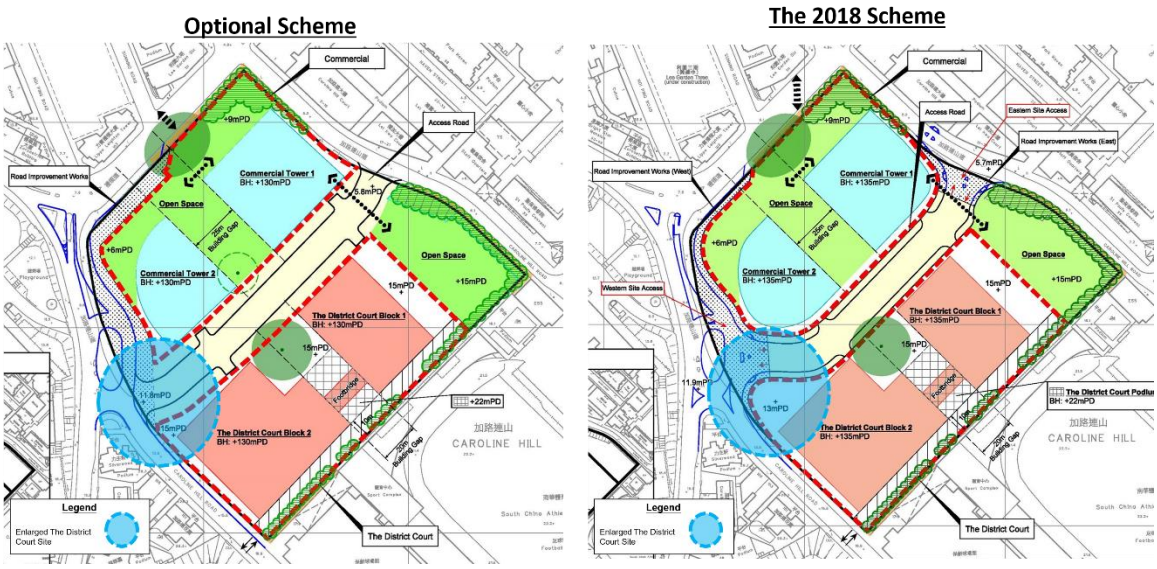


Figure 146 Comparison between the Optional Scheme and the 2018 Scheme – Site Area

8.3 CHANGE IN BUILDING PROFILE - COMMERCIAL TOWERS

The eastern corner of Commercial Tower 1 has been replaced by a filleted edge in the 2018 Scheme instead of a straight edge in the Optional Scheme (highlighted Green in Figure 147). The rounded edge is anticipated to be beneficial to air ventilation as it will enlarge the wind entrance (i.e. eastern site access of the access road) thus more incoming wind would be able to enter and penetrate through the access road and benefit the air ventilation performance of the downstream regions when compared with the Optional Scheme.

Similarly, the southern corner of Commercial Tower 2 has also been replaced by a filleted edge in the 2018 Scheme instead of a straight edge in the Optional Scheme (highlighted Red in Figure 147). The building footprint is also slightly reduced in the 2018 Scheme. This is also anticipated to widen the wind entrance (i.e. western site access of the access road) and allow more wind to reach the downstream regions when compared with the Optional Scheme.

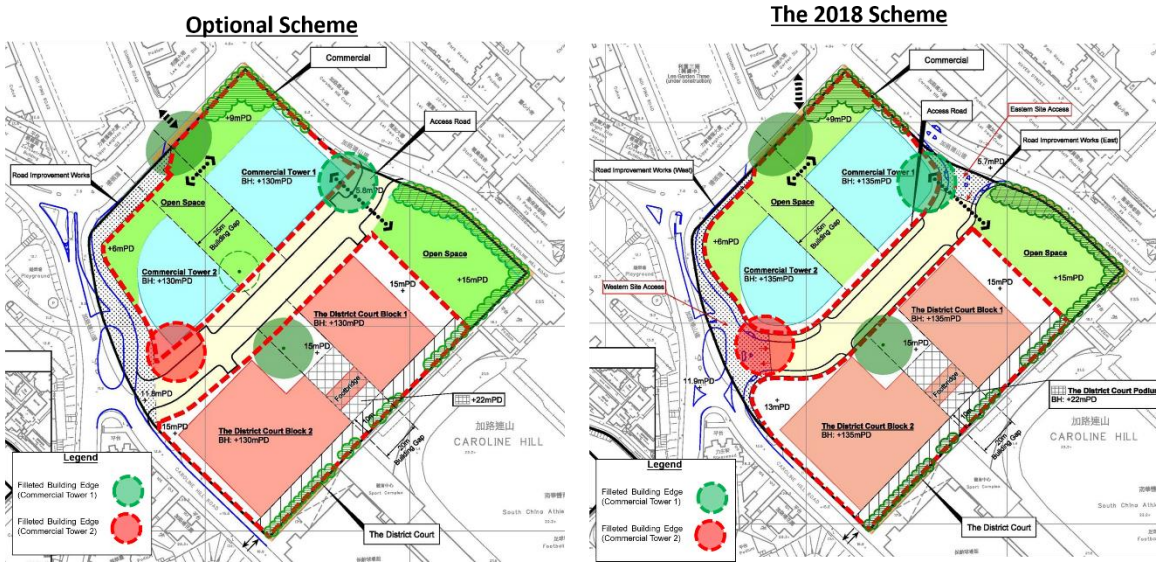


Figure 147 Comparison between the Optional Scheme and the 2018 Scheme – Building Layout

8.4 INCREASE IN BUILDING HEIGHT - COMMERCIAL TOWERS & THE DISTRICT COURT BLOCKS

There is also a slight increase of 5m (i.e. 130mPD to 135mPD) in building height for both commercial towers and The District Court blocks in the 2018 Scheme. As the increase is minimal, no significant air ventilation impact to the local pedestrian environment is anticipated when compared with the Optional Scheme.

Figure 148 shows the master layout plan of the 2018 Scheme.



Figure 148 Master Layout Plan of the 2018 Scheme (Source: Planning Department)

9 FURTHER QUANTITATIVE STUDY

Quantitative AVA assessment by CFD or wind tunnel shall be carried out by future developers and the project proponent of The District Court to reflect the latest surrounding building environment and ascertain the alignment of the building gap and other enhancement features. The new scheme should demonstrate that the site and local wind environment shall not be worse off than the 2018 Scheme. The scope, focuses, level of details and boundaries of the assessment area should comply with requirements stipulated in the Technical Circular No. 1/06.

10 CONCLUSION

An Air Ventilation Assessment (AVA) – Initial Study was conducted to assess the ventilation performance of the area within the proposed development and the surrounding environment in Causeway Bay.

The major findings of this study could be summarized as follows:

AVA Study

A series of CFD simulations using realizable k- ε turbulence model were performed based on the Air Ventilation Assessment (AVA) methodology for the Initial Study as stipulated in the Technical Circular No. 1/06. Eleven wind directions covering about 78.5% occurrence of annual wind and about 80.6% of summer wind were studied. The ventilation performance for the proposed development at the Project Area and all focus areas within the assessment area were assessed.

According to the Technical Circular No. 1/06, the Velocity Ratio of each test point was assessed in terms of SVR, LVR and VR within Project Area. A total of 30 perimeter test points, 154 overall test points, 12 special test points for the Baseline Scheme and 18 special test points were selected to assess the ventilation performance within the Project Area.

- The annual weighted Site Spatial Average Velocity Ratio (SVR) for the Baseline Scheme is 0.12 whereas the Proposed Scheme and Optional Scheme were 0.17. The summer weighted Site Spatial Average Velocity Ratio (SVR) for the Baseline Scheme is 0.11 whereas the Proposed Scheme and Optional Scheme were 0.17. This shows the good design features mentioned in Section 6 have slightly improved the ventilation performance of the site boundary in the Proposed and Optional Schemes when compared with the Baseline Scheme.
- The annual and summer weighted Local Spatial Average Velocity Ratio (LVR) for the Baseline Scheme, Proposed Scheme and Optional Scheme are all 0.16. This shows that the ventilation performance of the local area of all three schemes are comparable and that the Proposed Scheme and Optional Scheme would not be worse-off than the Baseline Scheme from an air ventilation perspective.
- Comparing the Proposed and Optional Schemes, the ventilation performance is generally similar as evident by comparable SVR and LVR for both annual and summer wind conditions. However, slight impact on the ventilation performance is observed around The District Court site due to the additional podium and reduced building gap

for both annual and summer wind conditions in the Optional Scheme. However, slight improvement on the ventilation performance is observed around the commercial site due to the 5m shift of The District Court Block 1 towards the southwest.

- The 2018 Scheme will have insignificant impact to the ventilation performance as compared with the Optional Scheme given the various changes are slight.

The following good design features are recognized in all the development schemes:

- The new access road linking up the eastern and western section of Caroline Hill Road will create a wind entrance and allow more wind flow through the Project Area;
- All proposed building gaps are along the NW-SE axis which are essential in enhancing site permeability and wind penetration;
- The two open spaces at the northwestern and eastern portions are essential in promoting air ventilation as it reduces ground coverage thus increasing air volume at pedestrian level and facilitating wind penetration.

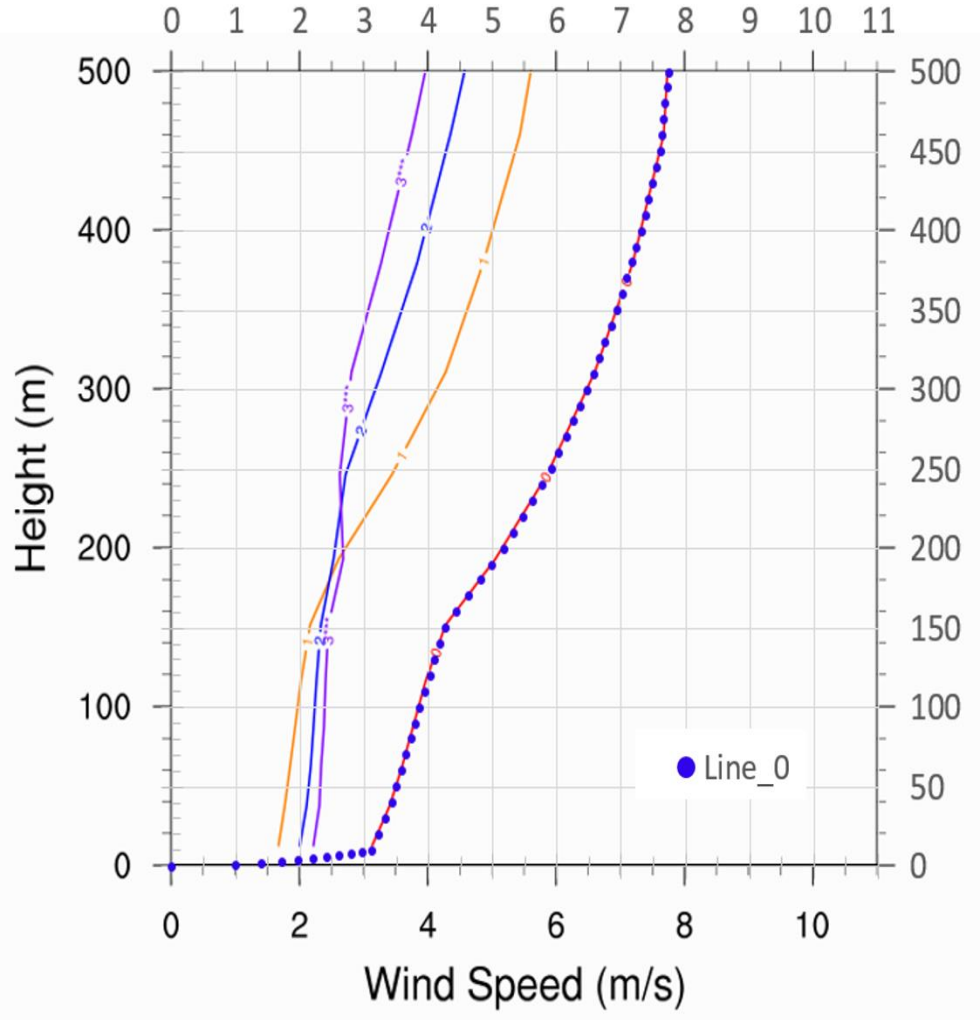
All improvements and mitigation measures should consider the following design principles at the detailed design stage:

- Adopt building permeability equivalent to 20% to 33.3% with reference to PNAP APP-152;
- Minimize podium bulk with ground coverage of no more than 65% where feasible;
- Adopt building setback with reference to PNAP APP-152;
- Incorporate greening measures with a target of not less than 30% for sites larger than 1 ha, and not less than 20% for sites below 1 ha, preferably through tree planting at grade;
- Avoid long continuous façades; and
- Make reference to the recommendations of good design measures in the Hong Kong Planning Standards and Guidelines.

Further quantitative AVA by CFD or wind tunnel should be carried out by the future developers and the project proponent of The District Court to reflect the latest surrounding building environment and ascertain the alignment of the building gap and other enhancement features.

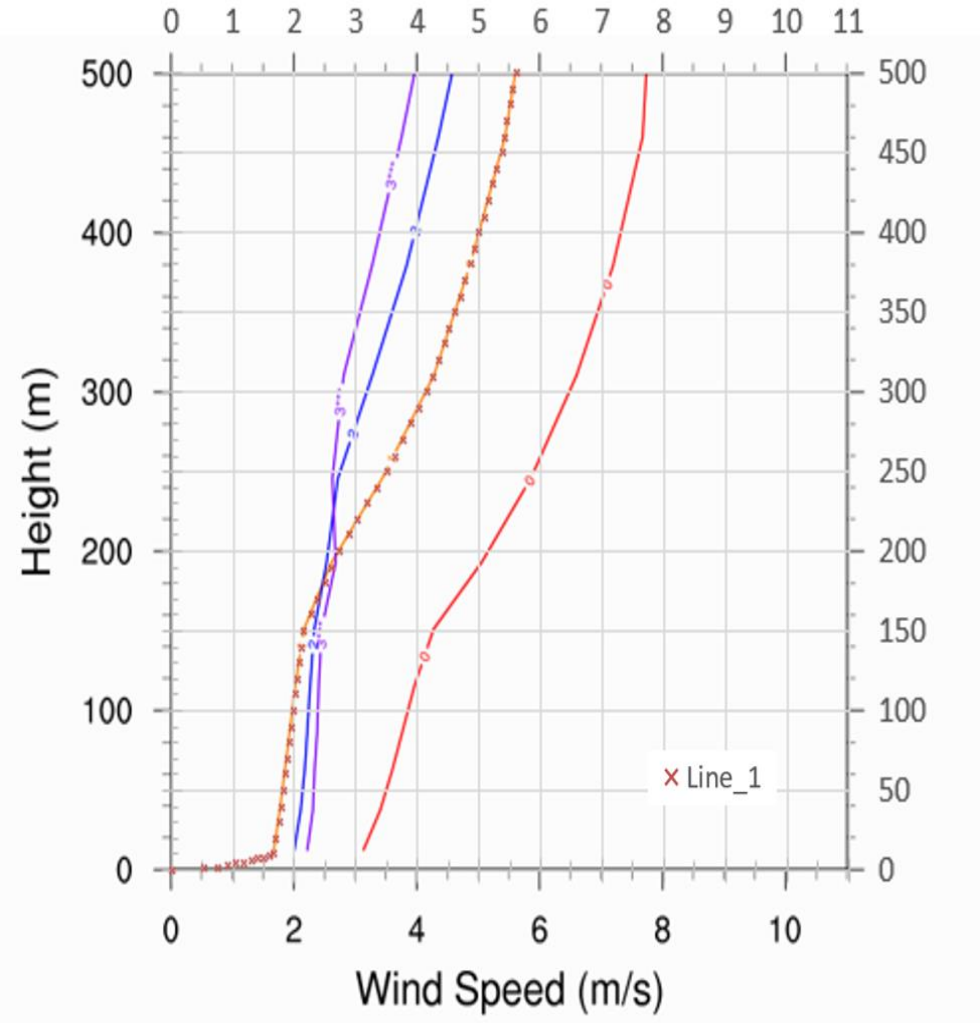
APPENDIX A

OVERALL WIND PROFILE CURVE ADOPTED FOR THE CFD SIMULATIONS



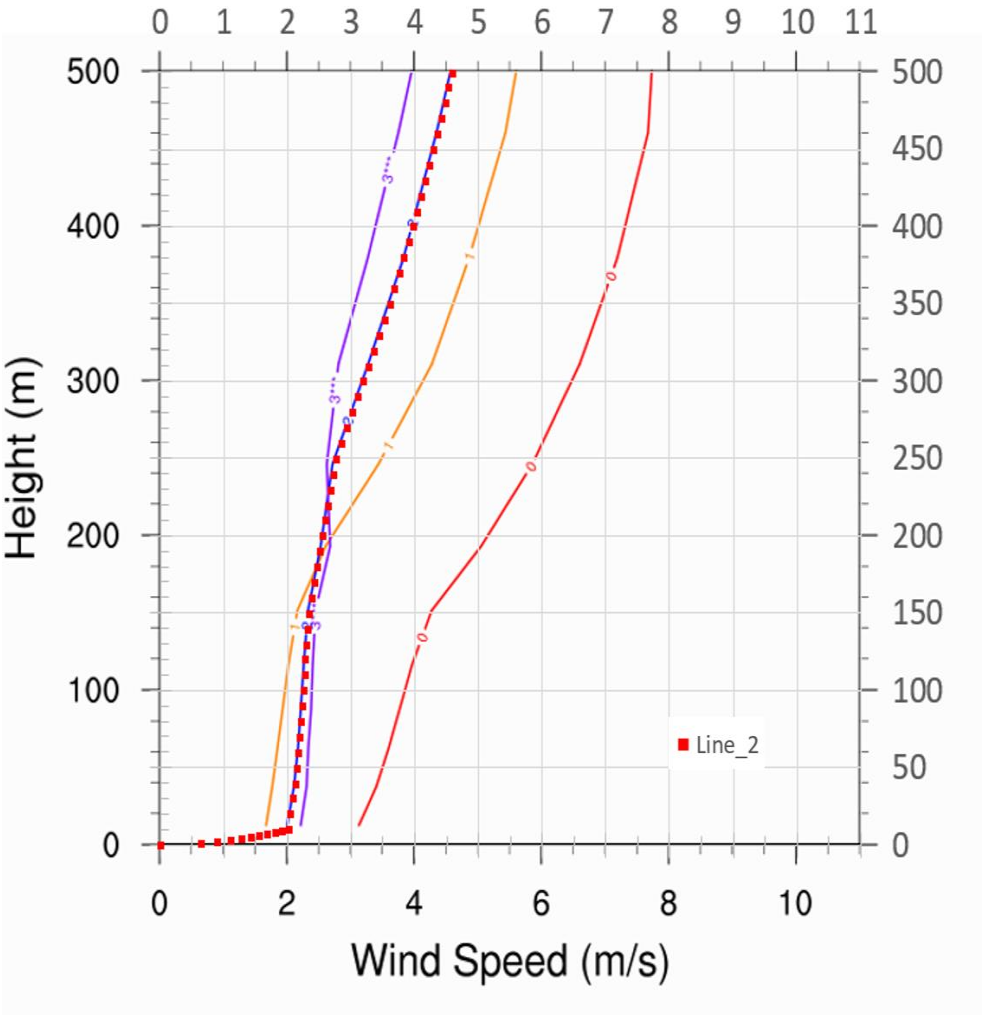
Wind Profile Curve for Wind Directions of 22.5º - 112.4º at Grid (X083, Y033)

(line – original data from RAMS, dots – input data adopted for CFD simulation)



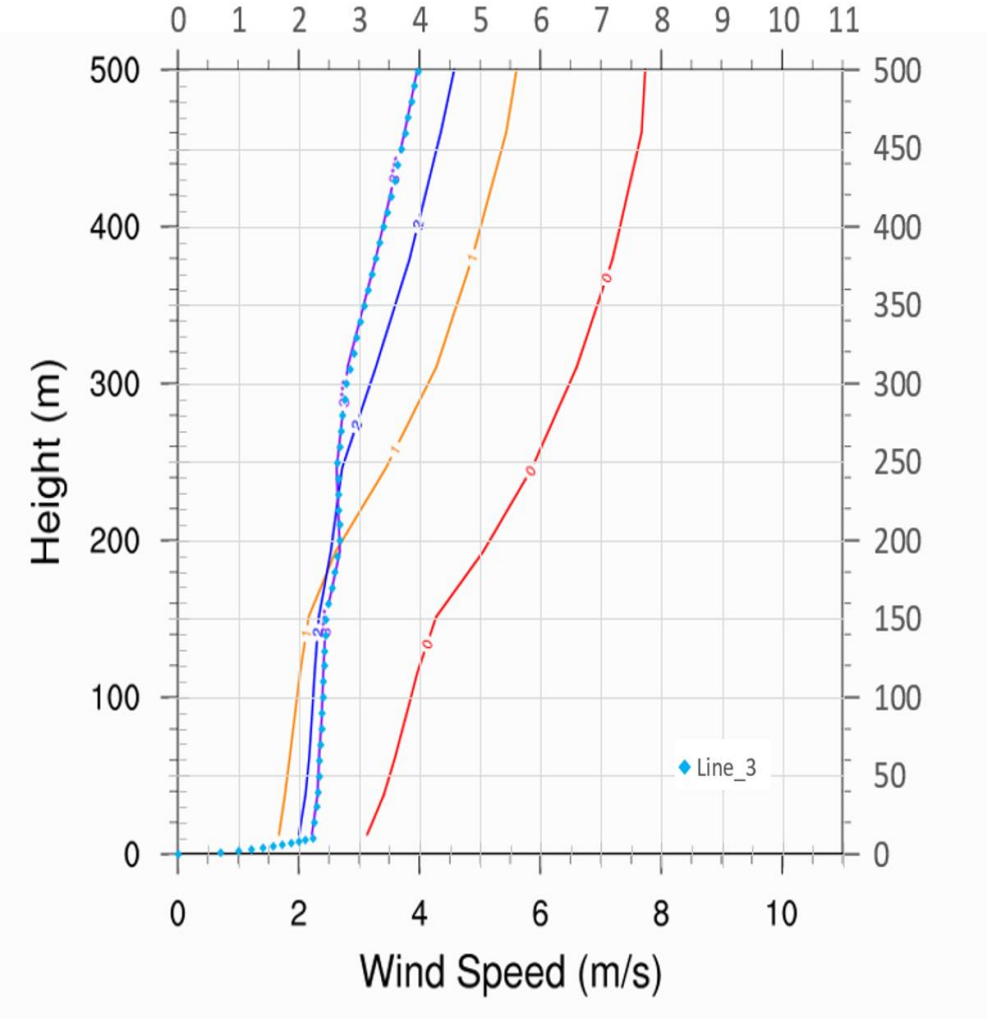
Wind Profile Curve for Wind Directions of 112.5º - 202.4º at Grid (X083, Y033)

(line – original data from RAMS, dots – input data adopted for CFD simulation)



Wind Profile Curve for Wind Directions of 202.5º - 292.4º at Grid (X083, Y033)

(line – original data from RAMS, dots – input data adopted for CFD simulation)

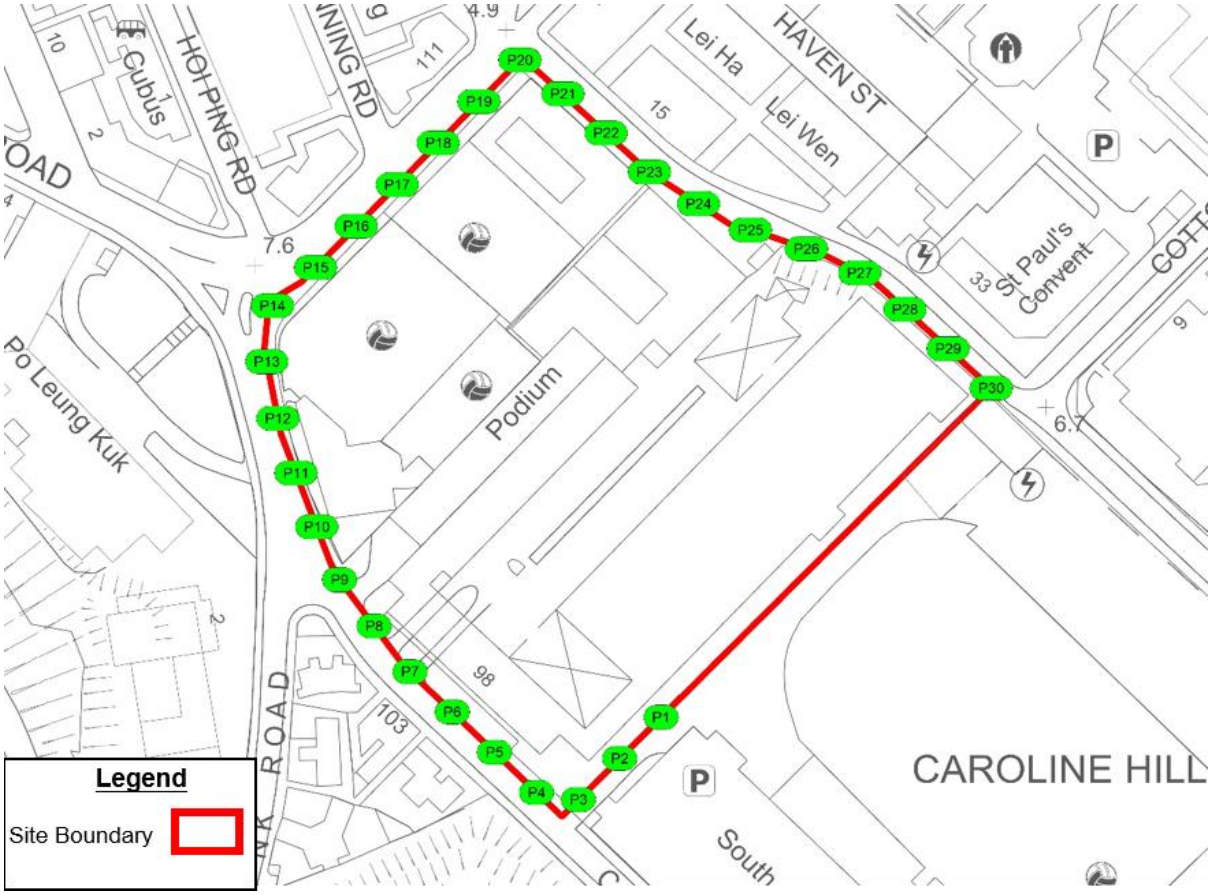


Wind Profile Curve for Wind Directions of 292.5º - 22.4º at Grid (X083, Y033)

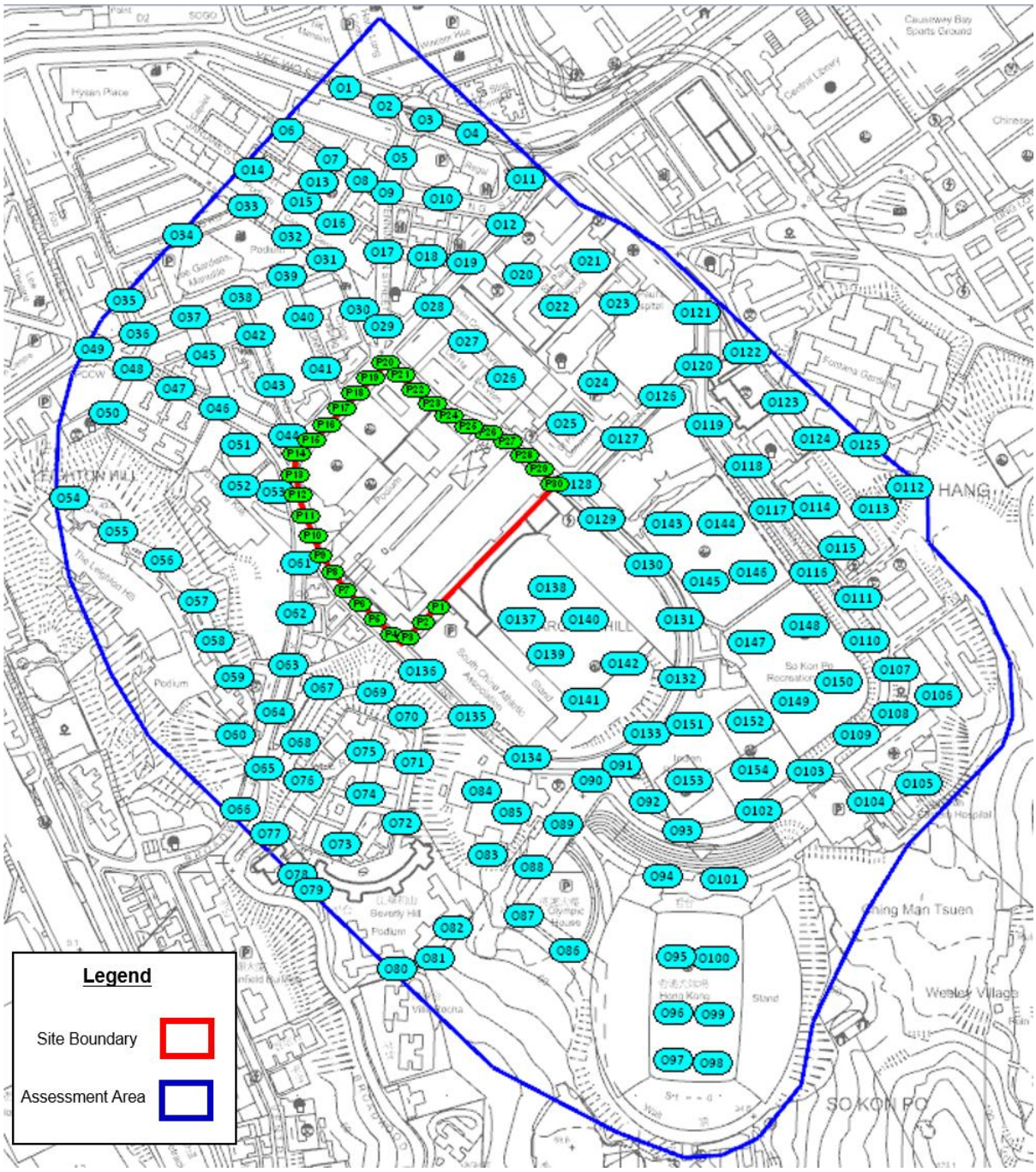
(line – original data from RAMS, dots – input data adopted for CFD simulation)

APPENDIX B

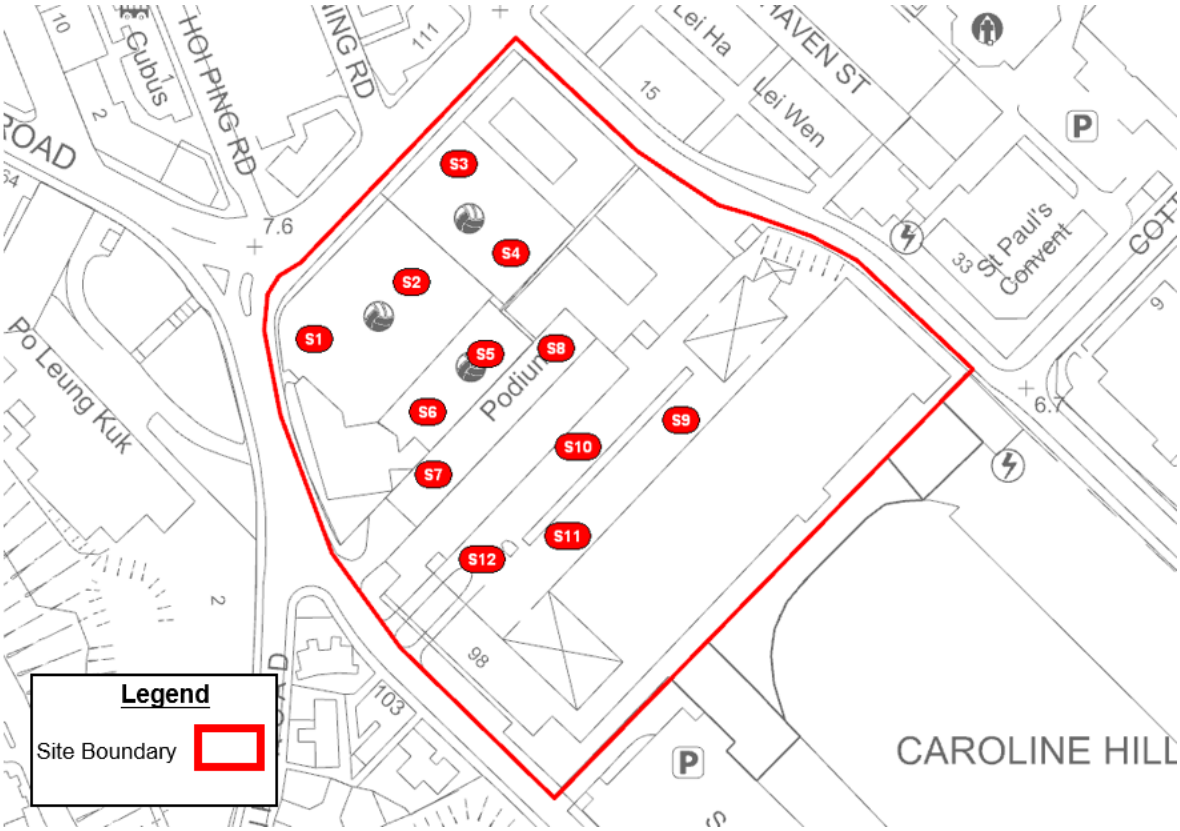
LOCATION OF THE PERIMETER, OVERALL AND SPECIAL TEST POINTS



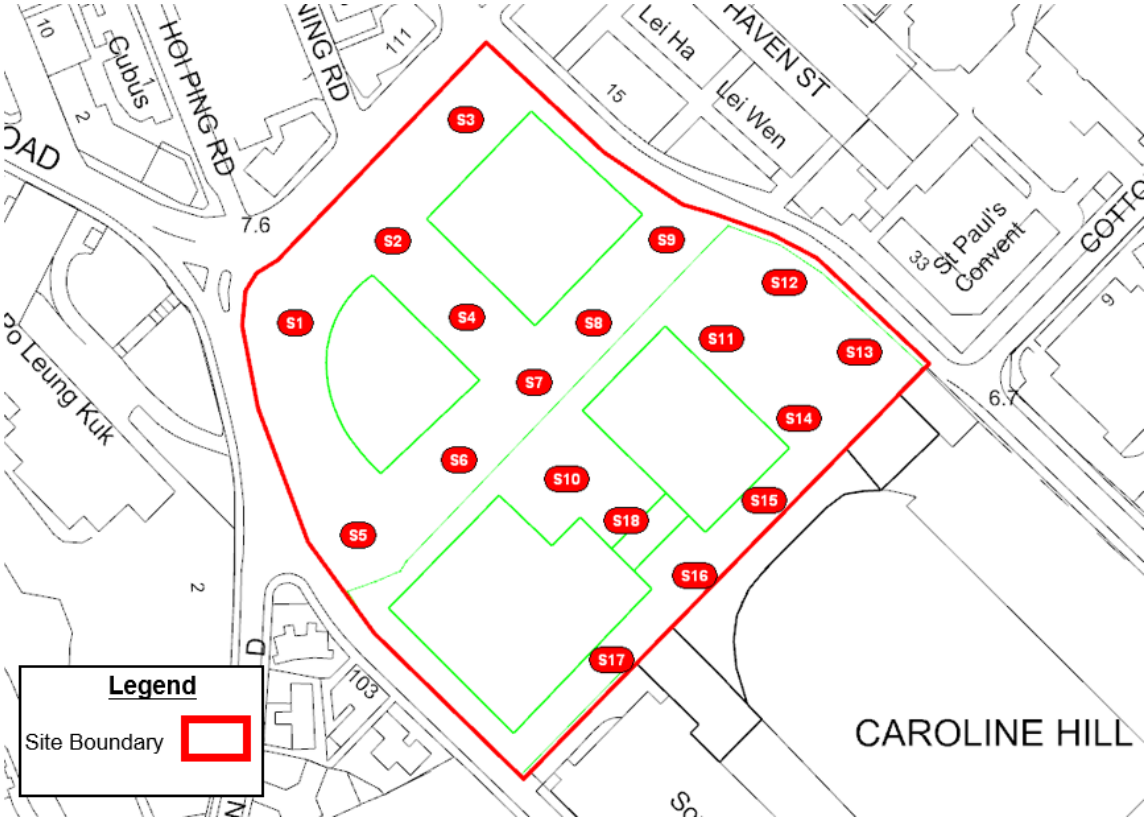
Location of the Perimeter Test Points



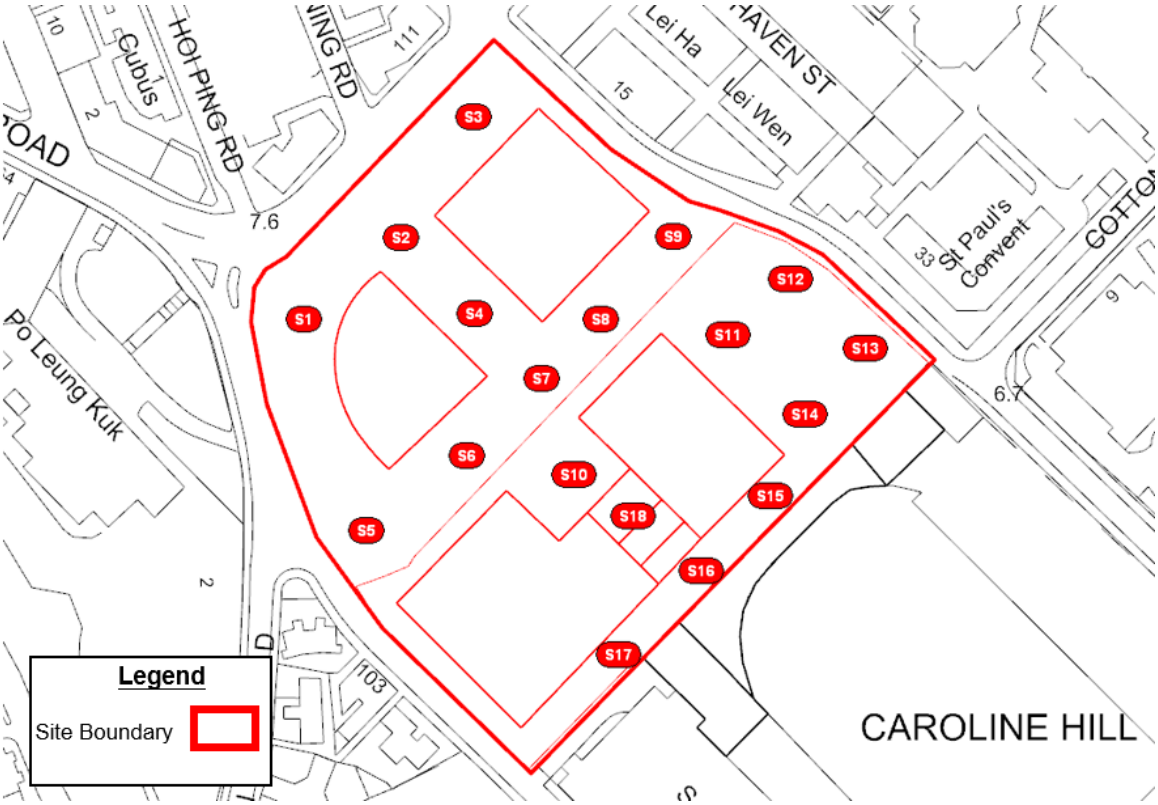
Location of the Overall Test Points



Location of the Special Test Points within the Project Area – Baseline Scheme



Location of the Special Test Points within the Project Area – Proposed Scheme



Location of the Special Test Points within the Project Area – Optional Scheme

APPENDIX C
DETAILED VELOCITY RATIO OF EACH TEST POINT

Velocity Ratio of Individual Test Points for Baseline Scheme

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O1	0.04	0.11	0.28	0.28	0.23	0.33	0.07	0.03	0.04	0.05	0.16	0.18	0.13
O2	0.01	0.16	0.26	0.35	0.20	0.37	0.09	0.09	0.07	0.07	0.18	0.20	0.15
O3	0.15	0.15	0.21	0.29	0.15	0.27	0.06	0.11	0.14	0.04	0.16	0.18	0.14
O4	0.20	0.16	0.18	0.26	0.17	0.23	0.02	0.12	0.06	0.07	0.15	0.17	0.12
O5	0.19	0.12	0.14	0.15	0.18	0.22	0.06	0.02	0.06	0.15	0.01	0.13	0.10
O6	0.09	0.02	0.11	0.18	0.08	0.30	0.09	0.12	0.27	0.07	0.04	0.12	0.15
O7	0.05	0.07	0.12	0.20	0.10	0.35	0.08	0.09	0.27	0.04	0.07	0.13	0.15
O8	0.11	0.09	0.13	0.24	0.12	0.40	0.07	0.18	0.24	0.13	0.06	0.16	0.18
O9	0.13	0.09	0.16	0.22	0.16	0.25	0.06	0.09	0.19	0.15	0.05	0.16	0.15
O10	0.21	0.21	0.11	0.25	0.16	0.24	0.04	0.02	0.09	0.17	0.03	0.17	0.12
O11	0.03	0.14	0.23	0.32	0.08	0.25	0.09	0.08	0.08	0.15	0.02	0.18	0.13
O12	0.27	0.18	0.23	0.27	0.32	0.36	0.07	0.06	0.05	0.17	0.05	0.21	0.15
O13	0.03	0.06	0.05	0.05	0.05	0.15	0.04	0.06	0.03	0.04	0.03	0.05	0.05
O14	0.04	0.10	0.03	0.04	0.04	0.05	0.03	0.33	0.10	0.16	0.05	0.08	0.11
O15	0.03	0.04	0.02	0.03	0.05	0.08	0.02	0.39	0.04	0.17	0.11	0.07	0.12
O16	0.02	0.02	0.03	0.03	0.02	0.05	0.03	0.19	0.06	0.08	0.04	0.04	0.07
O17	0.17	0.13	0.10	0.07	0.14	0.50	0.09	0.01	0.04	0.18	0.04	0.10	0.12
O18	0.26	0.17	0.19	0.09	0.02	0.08	0.02	0.02	0.07	0.04	0.01	0.11	0.05
O19	0.29	0.15	0.15	0.12	0.30	0.40	0.08	0.06	0.06	0.21	0.07	0.16	0.15
O20	0.08	0.06	0.11	0.12	0.04	0.17	0.01	0.03	0.06	0.02	0.03	0.08	0.06
O21	0.03	0.04	0.21	0.12	0.14	0.07	0.05	0.06	0.04	0.03	0.01	0.10	0.06
O22	0.02	0.10	0.16	0.13	0.23	0.32	0.12	0.17	0.02	0.05	0.06	0.12	0.11
O23	0.15	0.16	0.15	0.17	0.05	0.07	0.13	0.03	0.02	0.04	0.02	0.12	0.06
O24	0.09	0.08	0.18	0.17	0.06	0.25	0.06	0.16	0.03	0.07	0.04	0.12	0.10
O25	0.07	0.06	0.15	0.05	0.12	0.14	0.03	0.14	0.03	0.08	0.04	0.09	0.07
O26	0.15	0.10	0.09	0.09	0.16	0.15	0.08	0.10	0.01	0.06	0.05	0.09	0.08
O27	0.22	0.14	0.19	0.14	0.27	0.20	0.07	0.11	0.08	0.04	0.05	0.15	0.11
O28	0.15	0.15	0.05	0.13	0.27	0.30	0.06	0.05	0.11	0.12	0.09	0.12	0.13
O29	0.02	0.02	0.04	0.21	0.05	0.28	0.07	0.07	0.19	0.06	0.05	0.10	0.12
O30	0.02	0.06	0.11	0.32	0.18	0.27	0.05	0.26	0.48	0.14	0.19	0.20	0.25
O31	0.04	0.13	0.27	0.28	0.17	0.48	0.04	0.18	0.16	0.15	0.09	0.20	0.18
O32	0.03	0.10	0.27	0.13	0.14	0.45	0.07	0.20	0.22	0.07	0.04	0.16	0.16
O33	0.07	0.09	0.30	0.28	0.15	0.58	0.05	0.27	0.36	0.10	0.02	0.22	0.22
O34	0.10	0.07	0.20	0.28	0.09	0.30	0.02	0.02	0.03	0.07	0.02	0.14	0.09
O35	0.12	0.07	0.12	0.14	0.03	0.27	0.07	0.21	0.04	0.05	0.05	0.10	0.09
O36	0.06	0.04	0.15	0.09	0.03	0.32	0.05	0.13	0.61	0.39	0.27	0.16	0.28
O37	0.13	0.03	0.06	0.11	0.12	0.14	0.04	0.25	0.53	0.33	0.25	0.16	0.26
O38	0.04	0.04	0.17	0.22	0.10	0.26	0.02	0.23	0.46	0.30	0.22	0.19	0.26
O39	0.09	0.10	0.14	0.26	0.11	0.35	0.01	0.25	0.19	0.28	0.19	0.18	0.21
O40	0.05	0.16	0.26	0.06	0.20	0.56	0.05	0.21	0.35	0.16	0.10	0.17	0.21
O41	0.04	0.15	0.18	0.09	0.10	0.25	0.04	0.19	0.30	0.15	0.08	0.14	0.16
O42	0.14	0.07	0.27	0.05	0.15	0.37	0.03	0.17	0.14	0.03	0.03	0.13	0.11
O43	0.13	0.09	0.29	0.21	0.15	0.39	0.02	0.20	0.27	0.15	0.07	0.20	0.19
O44	0.10	0.15	0.13	0.13	0.03	0.34	0.03	0.12	0.32	0.13	0.07	0.13	0.16
O45	0.03	0.01	0.05	0.12	0.13	0.21	0.01	0.06	0.10	0.02	0.07	0.07	0.08
O46	0.02	0.17	0.06	0.11	0.03	0.49	0.01	0.21	0.33	0.03	0.16	0.11	0.17
O47	0.02	0.13	0.03	0.06	0.13	0.42	0.03	0.22	0.16	0.07	0.05	0.09	0.13
O48	0.03	0.08	0.07	0.20	0.15	0.31	0.02	0.26	0.06	0.05	0.05	0.12	0.12
O49	0.14	0.06	0.14	0.41	0.17	0.15	0.03	0.28	0.56	0.36	0.27	0.26	0.32
O50	0.06	0.02	0.17	0.17	0.17	0.10	0.03	0.11	0.07	0.06	0.09	0.12	0.10
O51	0.06	0.06	0.14	0.19	0.06	0.19	0.04	0.02	0.08	0.06	0.07	0.11	0.08
O52	0.12	0.08	0.08	0.31	0.02	0.44	0.02	0.03	0.16	0.09	0.08	0.14	0.14
O53	0.14	0.10	0.06	0.18	0.04	0.40	0.04	0.06	0.09	0.17	0.10	0.11	0.13
O54	0.22	0.17	0.31	0.35	0.23	0.38	0.18	0.22	0.28	0.02	0.06	0.25	0.20
O55	0.17	0.12	0.24	0.11	0.21	0.14	0.11	0.08	0.08	0.06	0.03	0.15	0.10
O56	0.15	0.10	0.28	0.05	0.22	0.19	0.05	0.12	0.07	0.14	0.04	0.14	0.11
O57	0.07	0.14	0.24	0.20	0.14	0.17	0.13	0.11	0.05	0.15	0.08	0.16	0.12
O58	0.08	0.07	0.19	0.21	0.06	0.12	0.10	0.07	0.06	0.14	0.05	0.13	0.10
O59	0.04	0.07	0.14	0.21	0.09	0.06	0.08	0.03	0.02	0.18	0.05	0.12	0.09
O60	0.20	0.13	0.22	0.22	0.05	0.10	0.03	0.09	0.33	0.21	0.13	0.19	0.17
O61	0.09	0.11	0.16	0.22	0.07	0.22	0.08	0.07	0.18	0.45	0.14	0.17	0.20
O62	0.03	0.03	0.05	0.20	0.03	0.14	0.10	0.08	0.24	0.47	0.15	0.14	0.21
O63	0.12	0.11	0.26	0.30	0.16	0.21	0.13	0.02	0.18	0.49	0.16	0.23	0.23
O64	0.13	0.08	0.30	0.31	0.13	0.35	0.14	0.07	0.19	0.35	0.13	0.22	0.22
O65	0.14	0.27	0.42	0.28	0.16	0.41	0.13	0.07	0.31	0.45	0.15	0.29	0.26
O66	0.16	0.27	0.48	0.30	0.15	0.46	0.13	0.04	0.36	0.29	0.20	0.29	0.25
O67	0.05	0.09	0.11	0.23	0.15	0.23	0.05	0.08	0.06	0.13	0.03	0.13	0.11
O68	0.05	0.29	0.49	0.29	0.17	0.50	0.07	0.06	0.31	0.34	0.13	0.29	0.24
O69	0.12	0.04	0.31	0.23	0.12	0.33	0.07	0.08	0.04	0.23	0.07	0.18	0.14
O70	0.20	0.19	0.55	0.21	0.27	0.45	0.07	0.09	0.06	0.21	0.07	0.26	0.16
O71	0.04	0.26	0.39	0.08	0.12	0.15	0.02	0.02	0.04	0.16	0.07	0.16	0.08

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O72	0.15	0.10	0.30	0.14	0.04	0.31	0.07	0.01	0.10	0.09	0.07	0.14	0.10
O73	0.03	0.13	0.16	0.02	0.03	0.16	0.05	0.02	0.04	0.03	0.09	0.07	0.05
O74	0.09	0.09	0.19	0.08	0.08	0.24	0.11	0.02	0.08	0.15	0.14	0.11	0.11
O75	0.09	0.11	0.29	0.11	0.06	0.22	0.03	0.02	0.18	0.23	0.12	0.15	0.13
O76	0.08	0.19	0.30	0.06	0.10	0.28	0.04	0.07	0.31	0.25	0.16	0.17	0.17
O77	0.13	0.22	0.37	0.06	0.08	0.43	0.04	0.06	0.18	0.38	0.04	0.19	0.17
O78	0.07	0.14	0.22	0.04	0.06	0.05	0.02	0.09	0.07	0.24	0.07	0.12	0.10
O79	0.18	0.35	0.45	0.17	0.02	0.12	0.10	0.20	0.14	0.06	0.09	0.22	0.12
O80	0.04	0.25	0.22	0.20	0.55	0.35	0.04	0.22	0.05	0.70	0.29	0.27	0.31
O81	0.17	0.05	0.21	0.15	0.10	0.27	0.07	0.36	0.01	0.66	0.26	0.19	0.26
O82	0.07	0.04	0.19	0.10	0.21	0.13	0.02	0.13	0.03	0.24	0.01	0.13	0.11
O83	0.24	0.22	0.34	0.11	0.41	0.18	0.11	0.20	0.13	0.04	0.11	0.21	0.15
O84	0.10	0.20	0.39	0.02	0.43	0.28	0.09	0.17	0.10	0.09	0.05	0.19	0.13
O85	0.18	0.24	0.34	0.07	0.56	0.20	0.08	0.20	0.07	0.03	0.07	0.21	0.13
O86	0.29	0.12	0.28	0.18	0.39	0.16	0.01	0.09	0.04	0.11	0.14	0.20	0.13
O87	0.32	0.08	0.31	0.16	0.28	0.17	0.06	0.13	0.07	0.08	0.07	0.19	0.12
O88	0.22	0.25	0.34	0.06	0.58	0.20	0.06	0.14	0.05	0.12	0.06	0.22	0.14
O89	0.26	0.13	0.20	0.03	0.56	0.06	0.05	0.21	0.11	0.05	0.04	0.17	0.13
O90	0.21	0.26	0.27	0.16	0.39	0.19	0.15	0.17	0.01	0.22	0.17	0.21	0.17
O91	0.15	0.25	0.21	0.17	0.40	0.23	0.24	0.17	0.11	0.34	0.22	0.22	0.23
O92	0.09	0.30	0.10	0.20	0.23	0.18	0.23	0.16	0.13	0.37	0.22	0.19	0.22
O93	0.12	0.33	0.09	0.21	0.20	0.16	0.22	0.12	0.13	0.39	0.22	0.19	0.21
O94	0.12	0.34	0.14	0.19	0.12	0.11	0.03	0.11	0.09	0.30	0.19	0.18	0.15
O95	0.07	0.15	0.16	0.08	0.23	0.23	0.02	0.08	0.09	0.28	0.15	0.14	0.15
O96	0.12	0.29	0.31	0.14	0.31	0.33	0.05	0.12	0.14	0.41	0.19	0.23	0.21
O97	0.11	0.28	0.31	0.07	0.14	0.30	0.06	0.10	0.15	0.33	0.16	0.19	0.17
O98	0.06	0.34	0.37	0.18	0.42	0.39	0.05	0.08	0.14	0.23	0.18	0.25	0.19
O99	0.08	0.22	0.34	0.20	0.49	0.36	0.06	0.10	0.18	0.37	0.28	0.26	0.25
O100	0.10	0.12	0.25	0.16	0.48	0.25	0.06	0.13	0.18	0.46	0.26	0.23	0.25
O101	0.12	0.39	0.16	0.21	0.38	0.10	0.13	0.07	0.15	0.49	0.26	0.24	0.24
O102	0.07	0.29	0.13	0.14	0.34	0.38	0.27	0.11	0.23	0.48	0.37	0.21	0.29
O103	0.04	0.22	0.23	0.24	0.19	0.34	0.27	0.12	0.23	0.48	0.35	0.23	0.28
O104	0.04	0.24	0.24	0.03	0.05	0.20	0.20	0.08	0.17	0.25	0.24	0.14	0.16
O105	0.01	0.08	0.05	0.01	0.01	0.07	0.03	0.04	0.05	0.10	0.04	0.04	0.05
O106	0.06	0.11	0.07	0.07	0.04	0.08	0.04	0.07	0.06	0.17	0.12	0.08	0.09
O107	0.04	0.08	0.33	0.08	0.04	0.12	0.20	0.12	0.06	0.35	0.08	0.15	0.15
O108	0.04	0.15	0.28	0.11	0.03	0.14	0.11	0.10	0.08	0.40	0.13	0.16	0.15
O109	0.02	0.10	0.21	0.12	0.02	0.10	0.10	0.13	0.05	0.29	0.07	0.13	0.12
O110	0.05	0.09	0.35	0.08	0.01	0.21	0.06	0.12	0.09	0.47	0.19	0.16	0.18
O111	0.04	0.08	0.11	0.09	0.06	0.20	0.05	0.10	0.12	0.58	0.26	0.13	0.21
O112	0.35	0.44	0.47	0.37	0.25	0.14	0.11	0.25	0.16	0.37	0.21	0.36	0.25
O113	0.07	0.10	0.06	0.15	0.33	0.06	0.11	0.27	0.12	0.29	0.14	0.16	0.19
O114	0.05	0.05	0.02	0.01	0.14	0.20	0.05	0.14	0.03	0.13	0.08	0.06	0.09
O115	0.07	0.04	0.04	0.04	0.19	0.27	0.02	0.14	0.03	0.14	0.08	0.07	0.10
O116	0.09	0.07	0.05	0.08	0.15	0.36	0.09	0.15	0.17	0.55	0.28	0.13	0.24
O117	0.09	0.10	0.04	0.02	0.22	0.20	0.12	0.15	0.15	0.52	0.28	0.13	0.23
O118	0.04	0.09	0.15	0.08	0.16	0.25	0.12	0.11	0.07	0.33	0.24	0.13	0.17
O119	0.07	0.08	0.18	0.22	0.28	0.27	0.16	0.21	0.14	0.37	0.26	0.20	0.24
O120	0.19	0.19	0.31	0.16	0.16	0.24	0.15	0.16	0.06	0.22	0.11	0.19	0.15
O121	0.17	0.24	0.34	0.16	0.38	0.44	0.17	0.33	0.09	0.29	0.17	0.25	0.24
O122	0.04	0.12	0.20	0.19	0.06	0.08	0.06	0.03	0.03	0.24	0.04	0.14	0.10
O123	0.12	0.06	0.02	0.15	0.13	0.17	0.21	0.14	0.22	0.51	0.30	0.14	0.25
O124	0.11	0.11	0.09	0.03	0.15	0.26	0.20	0.08	0.20	0.49	0.29	0.13	0.23
O125	0.11	0.19	0.20	0.22	0.12	0.10	0.05	0.20	0.15	0.20	0.14	0.18	0.16
O126	0.16	0.18	0.21	0.18	0.13	0.25	0.20	0.14	0.08	0.28	0.18	0.18	0.18
O127	0.15	0.13	0.14	0.35	0.21	0.14	0.29	0.08	0.09	0.29	0.16	0.20	0.20
O128	0.10	0.15	0.14	0.37	0.13	0.28	0.14	0.19	0.03	0.14	0.09	0.19	0.16
O129	0.09	0.11	0.20	0.22	0.33	0.25	0.07	0.18	0.10	0.30	0.22	0.20	0.21
O130	0.07	0.17	0.29	0.25	0.16	0.05	0.20	0.12	0.16	0.29	0.16	0.21	0.19
O131	0.07	0.15	0.24	0.23	0.37	0.06	0.15	0.18	0.06	0.14	0.04	0.20	0.15
O132	0.11	0.14	0.25	0.25	0.42	0.07	0.10	0.17	0.05	0.10	0.05	0.21	0.14
O133	0.13	0.21	0.21	0.27	0.41	0.24	0.27	0.17	0.18	0.44	0.26	0.26	0.28
O134	0.06	0.10	0.18	0.13	0.14	0.16	0.14	0.04	0.14	0.14	0.16	0.13	0.13
O135	0.10	0.06	0.22	0.01	0.44	0.10	0.10	0.13	0.11	0.16	0.04	0.14	0.13
O136	0.05	0.19	0.32	0.05	0.23	0.14	0.06	0.05	0.03	0.17	0.05	0.15	0.10
O137	0.20	0.12	0.28	0.23	0.16	0.06	0.11	0.01	0.06	0.29	0.18	0.19	0.15
O138	0.18	0.18	0.29	0.14	0.15	0.20	0.19	0.05	0.07	0.23	0.22	0.17	0.15
O139	0.18	0.09	0.25	0.29	0.17	0.05	0.05	0.05	0.07	0.33	0.19	0.20	0.16
O140	0.18	0.20	0.33	0.28	0.15	0.27	0.17	0.07	0.06	0.30	0.26	0.23	0.19
O141	0.11	0.07	0.05	0.31	0.14	0.18	0.17	0.03	0.10	0.34	0.21	0.16	0.19
O142	0.13	0.18	0.35	0.30	0.16	0.26	0.09	0.10	0.16	0.37	0.28	0.25	0.22
O143	0.06	0.17	0.19	0.04	0.22	0.14	0.14	0.10	0.10	0.21	0.20	0.13	0.14
O144	0.04	0.14	0.10	0.06	0.26	0.18	0.15	0.15	0.12	0.40	0.23	0.14	0.20
O145	0.05	0.10	0.17	0.13	0.19	0.04	0.24	0.15	0.21	0.33	0.33	0.16	0.21

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O146	0.08	0.02	0.06	0.04	0.10	0.29	0.20	0.13	0.16	0.41	0.28	0.10	0.21
O147	0.06	0.14	0.12	0.09	0.17	0.33	0.15	0.08	0.25	0.35	0.37	0.14	0.23
O148	0.05	0.13	0.10	0.18	0.23	0.37	0.16	0.11	0.14	0.40	0.22	0.17	0.23
O149	0.03	0.13	0.14	0.24	0.27	0.37	0.11	0.18	0.23	0.37	0.33	0.20	0.26
O150	0.02	0.07	0.25	0.17	0.06	0.26	0.12	0.14	0.05	0.28	0.09	0.15	0.15
O151	0.12	0.19	0.17	0.27	0.29	0.26	0.28	0.20	0.22	0.46	0.32	0.24	0.29
O152	0.12	0.16	0.07	0.04	0.33	0.39	0.28	0.19	0.23	0.48	0.36	0.16	0.29
O153	0.14	0.26	0.05	0.14	0.12	0.18	0.28	0.17	0.18	0.44	0.28	0.17	0.24
O154	0.08	0.23	0.07	0.10	0.34	0.40	0.26	0.15	0.24	0.49	0.37	0.18	0.29
P1	0.02	0.13	0.15	0.21	0.17	0.18	0.03	0.05	0.15	0.01	0.06	0.14	0.10
P2	0.02	0.09	0.15	0.12	0.11	0.14	0.05	0.07	0.10	0.05	0.07	0.10	0.09
P3	0.04	0.18	0.23	0.11	0.10	0.19	0.03	0.10	0.11	0.05	0.08	0.13	0.09
P4	0.03	0.14	0.39	0.24	0.08	0.28	0.13	0.07	0.10	0.16	0.05	0.19	0.14
P5	0.01	0.15	0.30	0.19	0.05	0.23	0.10	0.04	0.12	0.12	0.04	0.15	0.11
P6	0.01	0.06	0.10	0.08	0.02	0.08	0.04	0.02	0.05	0.03	0.01	0.06	0.04
P7	0.00	0.04	0.05	0.05	0.00	0.05	0.03	0.01	0.04	0.01	0.01	0.03	0.03
P8	0.01	0.08	0.12	0.10	0.03	0.08	0.06	0.02	0.07	0.01	0.01	0.07	0.04
P9	0.07	0.15	0.27	0.19	0.10	0.20	0.07	0.04	0.10	0.05	0.03	0.15	0.09
P10	0.08	0.04	0.06	0.14	0.08	0.03	0.08	0.09	0.12	0.26	0.09	0.10	0.13
P11	0.10	0.02	0.03	0.12	0.01	0.07	0.07	0.09	0.13	0.32	0.11	0.09	0.14
P12	0.13	0.03	0.03	0.13	0.07	0.28	0.08	0.11	0.23	0.41	0.14	0.12	0.20
P13	0.11	0.08	0.06	0.10	0.07	0.29	0.03	0.12	0.25	0.39	0.10	0.13	0.19
P14	0.04	0.14	0.09	0.13	0.07	0.46	0.02	0.11	0.25	0.05	0.04	0.11	0.13
P15	0.04	0.14	0.13	0.15	0.09	0.43	0.02	0.12	0.06	0.06	0.07	0.11	0.11
P16	0.03	0.11	0.10	0.15	0.06	0.31	0.01	0.06	0.12	0.04	0.06	0.10	0.09
P17	0.04	0.07	0.15	0.16	0.06	0.28	0.03	0.11	0.22	0.08	0.02	0.12	0.12
P18	0.10	0.06	0.20	0.19	0.08	0.33	0.04	0.04	0.14	0.01	0.02	0.13	0.10
P19	0.12	0.01	0.14	0.18	0.06	0.27	0.07	0.10	0.07	0.04	0.08	0.11	0.10
P20	0.08	0.03	0.14	0.20	0.06	0.52	0.05	0.09	0.10	0.08	0.07	0.12	0.13
P21	0.02	0.02	0.08	0.15	0.13	0.04	0.05	0.11	0.15	0.03	0.07	0.10	0.10
P22	0.02	0.02	0.07	0.06	0.10	0.08	0.02	0.07	0.10	0.02	0.09	0.06	0.07
P23	0.05	0.07	0.15	0.04	0.13	0.11	0.01	0.09	0.12	0.08	0.13	0.09	0.09
P24	0.07	0.07	0.19	0.11	0.12	0.15	0.01	0.05	0.10	0.10	0.13	0.11	0.09
P25	0.08	0.13	0.23	0.20	0.20	0.15	0.03	0.06	0.05	0.12	0.15	0.16	0.11
P26	0.07	0.19	0.29	0.27	0.25	0.08	0.11	0.15	0.04	0.17	0.17	0.21	0.15
P27	0.08	0.15	0.21	0.19	0.21	0.06	0.07	0.12	0.01	0.14	0.14	0.16	0.11
P28	0.11	0.16	0.21	0.27	0.22	0.08	0.05	0.16	0.01	0.22	0.20	0.19	0.15
P29	0.06	0.10	0.11	0.18	0.15	0.09	0.07	0.11	0.04	0.14	0.13	0.12	0.11
P30	0.06	0.08	0.05	0.20	0.16	0.06	0.09	0.15	0.06	0.23	0.21	0.13	0.15
S1	0.14	0.11	0.11	0.10	0.06	0.35	0.07	0.14	0.03	0.12	0.01	0.10	0.10
S2	0.13	0.11	0.09	0.04	0.05	0.37	0.12	0.08	0.14	0.03	0.04	0.07	0.10
S3	0.09	0.09	0.03	0.08	0.03	0.33	0.04	0.02	0.11	0.10	0.06	0.07	0.09
S4	0.09	0.09	0.08	0.09	0.02	0.26	0.12	0.03	0.10	0.06	0.05	0.07	0.08
S5	0.07	0.03	0.05	0.05	0.02	0.22	0.08	0.09	0.13	0.03	0.02	0.06	0.08
S6	0.06	0.03	0.09	0.08	0.04	0.14	0.09	0.11	0.12	0.03	0.01	0.07	0.08
S7	0.07	0.09	0.15	0.01	0.07	0.20	0.10	0.03	0.12	0.06	0.02	0.08	0.07
S8	0.02	0.04	0.09	0.05	0.04	0.02	0.07	0.03	0.09	0.08	0.00	0.06	0.06
S9	0.10	0.01	0.08	0.18	0.12	0.08	0.12	0.04	0.11	0.04	0.03	0.10	0.09
S10	0.09	0.01	0.15	0.14	0.20	0.13	0.21	0.01	0.03	0.10	0.01	0.11	0.09
S11	0.06	0.08	0.11	0.20	0.20	0.10	0.18	0.02	0.04	0.12	0.02	0.12	0.10
S12	0.05	0.07	0.08	0.12	0.07	0.17	0.08	0.03	0.01	0.02	0.02	0.07	0.05

Velocity Ratio of Individual Test Points for Proposed Scheme

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O1	0.08	0.09	0.30	0.32	0.27	0.36	0.06	0.03	0.06	0.10	0.19	0.20	0.15
O2	0.04	0.10	0.28	0.37	0.26	0.35	0.07	0.07	0.05	0.10	0.20	0.21	0.16
O3	0.14	0.11	0.21	0.29	0.27	0.30	0.08	0.08	0.07	0.04	0.18	0.18	0.14
O4	0.20	0.07	0.17	0.25	0.29	0.14	0.09	0.10	0.04	0.03	0.17	0.16	0.12
O5	0.19	0.08	0.15	0.14	0.06	0.09	0.11	0.01	0.04	0.05	0.03	0.10	0.06
O6	0.11	0.02	0.06	0.20	0.04	0.26	0.10	0.11	0.25	0.07	0.05	0.11	0.14
O7	0.05	0.06	0.05	0.22	0.06	0.30	0.09	0.09	0.25	0.04	0.07	0.11	0.14
O8	0.11	0.06	0.10	0.26	0.09	0.34	0.07	0.18	0.26	0.06	0.05	0.15	0.16
O9	0.13	0.08	0.13	0.19	0.08	0.25	0.10	0.09	0.18	0.10	0.04	0.13	0.13
O10	0.22	0.07	0.11	0.26	0.09	0.33	0.01	0.03	0.10	0.02	0.04	0.13	0.10
O11	0.03	0.07	0.23	0.31	0.09	0.15	0.07	0.07	0.12	0.09	0.06	0.17	0.12
O12	0.28	0.12	0.22	0.22	0.23	0.26	0.08	0.07	0.16	0.15	0.03	0.19	0.15
O13	0.04	0.03	0.05	0.06	0.05	0.09	0.03	0.06	0.04	0.02	0.01	0.05	0.04
O14	0.03	0.06	0.03	0.03	0.05	0.07	0.04	0.33	0.12	0.13	0.08	0.07	0.12
O15	0.02	0.04	0.02	0.02	0.06	0.05	0.03	0.37	0.03	0.16	0.10	0.07	0.11
O16	0.03	0.01	0.03	0.03	0.03	0.13	0.04	0.18	0.02	0.08	0.05	0.04	0.07
O17	0.17	0.06	0.15	0.20	0.06	0.33	0.09	0.02	0.04	0.14	0.04	0.12	0.11
O18	0.27	0.08	0.11	0.10	0.04	0.12	0.05	0.03	0.06	0.03	0.02	0.09	0.05
O19	0.29	0.08	0.07	0.08	0.22	0.42	0.09	0.07	0.20	0.20	0.08	0.13	0.16
O20	0.07	0.05	0.13	0.07	0.03	0.09	0.02	0.03	0.02	0.06	0.04	0.07	0.04
O21	0.02	0.10	0.23	0.22	0.10	0.08	0.05	0.10	0.04	0.03	0.01	0.14	0.08
O22	0.01	0.16	0.20	0.13	0.22	0.28	0.12	0.17	0.06	0.09	0.07	0.14	0.13
O23	0.14	0.12	0.15	0.11	0.04	0.07	0.12	0.03	0.05	0.01	0.03	0.09	0.05
O24	0.10	0.07	0.12	0.18	0.15	0.16	0.05	0.17	0.07	0.14	0.06	0.13	0.12
O25	0.06	0.10	0.16	0.01	0.10	0.10	0.03	0.14	0.07	0.07	0.02	0.09	0.07
O26	0.11	0.03	0.07	0.07	0.14	0.27	0.09	0.09	0.04	0.03	0.03	0.07	0.08
O27	0.18	0.01	0.08	0.12	0.20	0.23	0.07	0.09	0.02	0.02	0.02	0.09	0.08
O28	0.15	0.05	0.12	0.17	0.19	0.43	0.06	0.06	0.21	0.20	0.09	0.14	0.17
O29	0.02	0.09	0.13	0.11	0.04	0.09	0.05	0.10	0.21	0.09	0.06	0.10	0.11
O30	0.02	0.16	0.17	0.21	0.13	0.26	0.14	0.26	0.50	0.15	0.18	0.20	0.25
O31	0.01	0.21	0.39	0.25	0.09	0.50	0.15	0.18	0.20	0.06	0.10	0.21	0.17
O32	0.02	0.12	0.32	0.08	0.06	0.48	0.11	0.19	0.21	0.04	0.08	0.14	0.14
O33	0.07	0.10	0.33	0.27	0.05	0.52	0.08	0.27	0.41	0.07	0.13	0.22	0.23
O34	0.11	0.03	0.14	0.23	0.02	0.12	0.05	0.05	0.13	0.04	0.05	0.12	0.09
O35	0.13	0.08	0.08	0.08	0.10	0.08	0.07	0.20	0.07	0.09	0.06	0.09	0.10
O36	0.08	0.13	0.16	0.23	0.12	0.36	0.05	0.14	0.57	0.19	0.28	0.20	0.26
O37	0.14	0.09	0.15	0.24	0.09	0.36	0.03	0.26	0.44	0.08	0.20	0.18	0.22
O38	0.06	0.05	0.05	0.26	0.04	0.24	0.04	0.24	0.22	0.28	0.09	0.15	0.19
O39	0.04	0.03	0.13	0.28	0.08	0.13	0.02	0.22	0.15	0.05	0.09	0.14	0.13
O40	0.04	0.04	0.21	0.24	0.09	0.26	0.05	0.21	0.27	0.13	0.03	0.17	0.17
O41	0.04	0.02	0.10	0.16	0.09	0.19	0.05	0.18	0.21	0.10	0.05	0.11	0.14
O42	0.15	0.07	0.03	0.03	0.04	0.06	0.06	0.16	0.14	0.33	0.06	0.09	0.14
O43	0.14	0.04	0.10	0.02	0.07	0.04	0.06	0.17	0.25	0.37	0.08	0.12	0.17
O44	0.07	0.12	0.32	0.39	0.15	0.25	0.04	0.11	0.27	0.35	0.04	0.26	0.22
O45	0.06	0.09	0.11	0.03	0.17	0.10	0.04	0.08	0.09	0.01	0.06	0.08	0.07
O46	0.03	0.05	0.18	0.04	0.19	0.10	0.04	0.21	0.29	0.09	0.07	0.12	0.14
O47	0.02	0.05	0.15	0.02	0.12	0.24	0.08	0.22	0.15	0.11	0.08	0.10	0.13
O48	0.09	0.09	0.06	0.09	0.12	0.30	0.05	0.25	0.17	0.08	0.06	0.10	0.14
O49	0.14	0.05	0.15	0.21	0.12	0.46	0.07	0.26	0.53	0.17	0.27	0.19	0.27
O50	0.05	0.07	0.10	0.09	0.15	0.14	0.07	0.12	0.09	0.11	0.11	0.10	0.11
O51	0.06	0.02	0.12	0.13	0.04	0.14	0.02	0.04	0.07	0.14	0.09	0.09	0.09
O52	0.07	0.09	0.24	0.05	0.07	0.15	0.04	0.04	0.13	0.09	0.05	0.11	0.08
O53	0.07	0.03	0.16	0.11	0.20	0.13	0.04	0.05	0.18	0.42	0.21	0.14	0.19
O54	0.17	0.10	0.21	0.18	0.22	0.28	0.07	0.05	0.09	0.27	0.03	0.17	0.15
O55	0.10	0.06	0.18	0.07	0.22	0.21	0.02	0.07	0.03	0.12	0.01	0.11	0.09
O56	0.15	0.06	0.18	0.16	0.21	0.20	0.06	0.06	0.02	0.01	0.06	0.12	0.08
O57	0.13	0.13	0.19	0.14	0.19	0.33	0.09	0.08	0.03	0.11	0.10	0.14	0.11
O58	0.10	0.08	0.18	0.18	0.04	0.20	0.08	0.05	0.04	0.13	0.08	0.12	0.10
O59	0.06	0.10	0.09	0.13	0.08	0.20	0.06	0.02	0.05	0.18	0.10	0.10	0.10
O60	0.20	0.05	0.13	0.30	0.05	0.17	0.04	0.09	0.33	0.27	0.14	0.18	0.20
O61	0.08	0.19	0.47	0.35	0.07	0.51	0.10	0.08	0.19	0.37	0.14	0.27	0.23
O62	0.14	0.07	0.14	0.16	0.09	0.15	0.11	0.09	0.21	0.46	0.19	0.16	0.21
O63	0.08	0.12	0.22	0.25	0.12	0.21	0.10	0.06	0.13	0.47	0.21	0.20	0.21
O64	0.14	0.15	0.34	0.30	0.02	0.16	0.13	0.08	0.16	0.33	0.14	0.22	0.18
O65	0.19	0.18	0.36	0.29	0.20	0.24	0.10	0.08	0.32	0.37	0.17	0.27	0.24
O66	0.19	0.12	0.39	0.28	0.12	0.17	0.09	0.05	0.37	0.25	0.17	0.25	0.21
O67	0.06	0.18	0.11	0.34	0.25	0.34	0.07	0.04	0.05	0.14	0.04	0.18	0.15
O68	0.10	0.29	0.49	0.43	0.25	0.59	0.11	0.03	0.32	0.24	0.11	0.33	0.26
O69	0.13	0.07	0.21	0.37	0.06	0.27	0.04	0.08	0.06	0.40	0.08	0.20	0.18
O70	0.25	0.14	0.61	0.32	0.22	0.33	0.10	0.09	0.04	0.39	0.13	0.31	0.20
O71	0.21	0.34	0.44	0.17	0.16	0.11	0.02	0.02	0.01	0.20	0.08	0.22	0.10

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O72	0.13	0.06	0.31	0.09	0.07	0.31	0.10	0.02	0.10	0.05	0.08	0.12	0.09
O73	0.04	0.22	0.18	0.03	0.06	0.16	0.03	0.02	0.03	0.06	0.08	0.09	0.05
O74	0.07	0.15	0.18	0.08	0.18	0.30	0.11	0.01	0.09	0.16	0.10	0.12	0.12
O75	0.10	0.16	0.28	0.17	0.10	0.25	0.05	0.02	0.17	0.17	0.09	0.17	0.13
O76	0.08	0.11	0.28	0.05	0.11	0.20	0.03	0.07	0.31	0.23	0.12	0.15	0.16
O77	0.07	0.11	0.31	0.08	0.15	0.27	0.04	0.06	0.19	0.30	0.22	0.16	0.17
O78	0.06	0.12	0.14	0.07	0.09	0.09	0.02	0.09	0.08	0.25	0.09	0.11	0.11
O79	0.17	0.30	0.22	0.20	0.06	0.22	0.11	0.19	0.15	0.06	0.13	0.18	0.14
O80	0.03	0.29	0.24	0.24	0.54	0.36	0.04	0.22	0.02	0.64	0.34	0.28	0.30
O81	0.17	0.07	0.20	0.15	0.15	0.28	0.08	0.36	0.05	0.61	0.28	0.20	0.26
O82	0.05	0.03	0.18	0.03	0.20	0.14	0.01	0.13	0.03	0.11	0.01	0.09	0.08
O83	0.22	0.28	0.33	0.07	0.44	0.15	0.12	0.20	0.09	0.03	0.08	0.21	0.13
O84	0.08	0.22	0.43	0.06	0.46	0.22	0.07	0.17	0.05	0.06	0.06	0.21	0.12
O85	0.15	0.30	0.39	0.17	0.56	0.12	0.07	0.21	0.07	0.04	0.06	0.25	0.14
O86	0.27	0.17	0.28	0.15	0.41	0.18	0.08	0.09	0.07	0.09	0.09	0.20	0.13
O87	0.29	0.13	0.31	0.21	0.26	0.21	0.14	0.13	0.03	0.05	0.03	0.20	0.12
O88	0.21	0.22	0.36	0.08	0.53	0.14	0.06	0.14	0.03	0.08	0.05	0.21	0.12
O89	0.15	0.12	0.25	0.17	0.54	0.06	0.03	0.21	0.01	0.04	0.04	0.20	0.12
O90	0.12	0.27	0.24	0.17	0.38	0.17	0.16	0.17	0.07	0.20	0.17	0.21	0.17
O91	0.10	0.26	0.17	0.13	0.41	0.19	0.24	0.17	0.12	0.31	0.22	0.20	0.22
O92	0.10	0.32	0.05	0.16	0.24	0.17	0.23	0.16	0.13	0.33	0.22	0.17	0.21
O93	0.06	0.35	0.03	0.17	0.18	0.16	0.22	0.11	0.14	0.35	0.22	0.17	0.20
O94	0.03	0.35	0.12	0.15	0.09	0.10	0.04	0.11	0.08	0.27	0.20	0.15	0.14
O95	0.06	0.14	0.15	0.10	0.22	0.23	0.02	0.08	0.10	0.24	0.13	0.14	0.14
O96	0.10	0.30	0.32	0.10	0.30	0.33	0.05	0.12	0.14	0.35	0.17	0.22	0.19
O97	0.11	0.29	0.33	0.16	0.11	0.29	0.07	0.10	0.14	0.28	0.12	0.21	0.16
O98	0.06	0.36	0.38	0.13	0.43	0.38	0.05	0.08	0.14	0.21	0.13	0.24	0.18
O99	0.05	0.22	0.33	0.13	0.51	0.38	0.06	0.10	0.14	0.31	0.23	0.23	0.22
O100	0.08	0.12	0.23	0.18	0.50	0.23	0.06	0.13	0.08	0.38	0.26	0.22	0.22
O101	0.08	0.41	0.13	0.16	0.36	0.08	0.14	0.07	0.13	0.42	0.27	0.22	0.22
O102	0.08	0.31	0.13	0.22	0.33	0.36	0.27	0.10	0.21	0.41	0.35	0.22	0.28
O103	0.02	0.24	0.23	0.24	0.17	0.35	0.27	0.11	0.21	0.42	0.34	0.22	0.27
O104	0.01	0.26	0.19	0.03	0.06	0.19	0.20	0.08	0.17	0.22	0.23	0.13	0.15
O105	0.01	0.07	0.06	0.00	0.02	0.08	0.03	0.04	0.06	0.08	0.04	0.04	0.05
O106	0.05	0.07	0.07	0.04	0.02	0.09	0.05	0.07	0.06	0.11	0.13	0.06	0.07
O107	0.03	0.09	0.33	0.06	0.05	0.14	0.20	0.12	0.08	0.28	0.13	0.14	0.14
O108	0.04	0.16	0.28	0.08	0.03	0.14	0.11	0.10	0.07	0.30	0.15	0.14	0.13
O109	0.02	0.11	0.20	0.15	0.02	0.10	0.10	0.12	0.06	0.24	0.08	0.13	0.12
O110	0.05	0.10	0.34	0.08	0.02	0.22	0.06	0.12	0.08	0.41	0.22	0.16	0.16
O111	0.05	0.06	0.12	0.08	0.06	0.21	0.05	0.11	0.09	0.49	0.29	0.12	0.19
O112	0.35	0.48	0.45	0.36	0.24	0.13	0.10	0.25	0.16	0.36	0.19	0.35	0.24
O113	0.09	0.11	0.06	0.17	0.32	0.12	0.10	0.26	0.13	0.29	0.14	0.16	0.20
O114	0.08	0.05	0.05	0.01	0.20	0.13	0.05	0.14	0.04	0.07	0.07	0.07	0.08
O115	0.06	0.05	0.04	0.04	0.17	0.28	0.02	0.15	0.03	0.11	0.08	0.07	0.10
O116	0.16	0.08	0.02	0.07	0.17	0.38	0.09	0.15	0.15	0.47	0.29	0.13	0.23
O117	0.07	0.09	0.10	0.02	0.24	0.22	0.13	0.15	0.15	0.44	0.30	0.13	0.21
O118	0.10	0.09	0.12	0.08	0.11	0.26	0.11	0.11	0.08	0.21	0.24	0.11	0.14
O119	0.13	0.09	0.17	0.27	0.21	0.19	0.16	0.22	0.14	0.27	0.31	0.20	0.22
O120	0.20	0.19	0.30	0.15	0.14	0.27	0.15	0.16	0.08	0.18	0.12	0.18	0.15
O121	0.18	0.25	0.33	0.13	0.30	0.48	0.16	0.33	0.13	0.26	0.19	0.23	0.23
O122	0.11	0.09	0.18	0.21	0.08	0.09	0.06	0.03	0.03	0.22	0.07	0.14	0.10
O123	0.13	0.04	0.04	0.16	0.13	0.20	0.20	0.13	0.24	0.48	0.30	0.15	0.25
O124	0.13	0.09	0.07	0.03	0.14	0.25	0.19	0.07	0.22	0.45	0.30	0.12	0.22
O125	0.11	0.19	0.20	0.21	0.07	0.14	0.04	0.20	0.15	0.23	0.07	0.18	0.15
O126	0.14	0.18	0.18	0.16	0.08	0.23	0.20	0.14	0.10	0.23	0.16	0.16	0.16
O127	0.13	0.17	0.16	0.31	0.15	0.14	0.30	0.10	0.13	0.31	0.19	0.20	0.21
O128	0.08	0.13	0.07	0.37	0.13	0.10	0.15	0.20	0.14	0.17	0.10	0.18	0.18
O129	0.14	0.10	0.13	0.29	0.36	0.30	0.07	0.18	0.05	0.31	0.25	0.20	0.21
O130	0.10	0.16	0.26	0.36	0.22	0.18	0.19	0.12	0.03	0.26	0.19	0.23	0.19
O131	0.07	0.14	0.20	0.33	0.33	0.20	0.15	0.17	0.03	0.11	0.06	0.21	0.16
O132	0.10	0.15	0.21	0.29	0.44	0.19	0.10	0.17	0.04	0.09	0.05	0.21	0.15
O133	0.13	0.22	0.20	0.38	0.43	0.21	0.27	0.17	0.16	0.38	0.27	0.28	0.28
O134	0.09	0.12	0.18	0.17	0.15	0.11	0.15	0.04	0.03	0.08	0.15	0.13	0.10
O135	0.10	0.17	0.19	0.15	0.42	0.07	0.12	0.13	0.09	0.36	0.07	0.20	0.19
O136	0.15	0.08	0.37	0.14	0.18	0.17	0.16	0.02	0.12	0.41	0.03	0.20	0.17
O137	0.05	0.05	0.26	0.30	0.23	0.25	0.11	0.03	0.07	0.27	0.17	0.19	0.18
O138	0.08	0.14	0.30	0.30	0.23	0.34	0.17	0.07	0.03	0.19	0.23	0.21	0.17
O139	0.04	0.05	0.22	0.40	0.10	0.19	0.04	0.04	0.08	0.30	0.17	0.20	0.17
O140	0.13	0.19	0.35	0.29	0.16	0.08	0.16	0.09	0.06	0.26	0.27	0.23	0.17
O141	0.14	0.07	0.05	0.44	0.06	0.11	0.16	0.02	0.09	0.30	0.22	0.18	0.18
O142	0.14	0.19	0.31	0.32	0.08	0.23	0.07	0.10	0.04	0.31	0.29	0.22	0.18
O143	0.06	0.18	0.17	0.06	0.32	0.19	0.13	0.10	0.11	0.18	0.22	0.14	0.15
O144	0.04	0.16	0.14	0.08	0.27	0.23	0.15	0.15	0.13	0.35	0.23	0.15	0.20

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O145	0.02	0.12	0.16	0.22	0.19	0.14	0.23	0.14	0.15	0.29	0.34	0.17	0.21
O146	0.04	0.02	0.12	0.06	0.12	0.19	0.20	0.13	0.14	0.35	0.26	0.11	0.19
O147	0.01	0.13	0.11	0.21	0.19	0.18	0.15	0.07	0.21	0.34	0.36	0.16	0.22
O148	0.10	0.10	0.07	0.16	0.22	0.39	0.16	0.11	0.12	0.35	0.21	0.15	0.21
O149	0.12	0.12	0.15	0.22	0.25	0.39	0.11	0.17	0.21	0.35	0.32	0.20	0.25
O150	0.08	0.07	0.24	0.18	0.05	0.27	0.12	0.14	0.05	0.22	0.09	0.15	0.14
O151	0.12	0.20	0.17	0.33	0.31	0.19	0.28	0.20	0.19	0.39	0.31	0.25	0.28
O152	0.11	0.17	0.10	0.08	0.32	0.37	0.28	0.18	0.20	0.42	0.35	0.17	0.27
O153	0.09	0.27	0.06	0.26	0.10	0.17	0.28	0.16	0.19	0.38	0.27	0.19	0.24
O154	0.11	0.25	0.09	0.14	0.33	0.38	0.26	0.14	0.21	0.42	0.35	0.19	0.27
P1	0.05	0.02	0.12	0.07	0.13	0.33	0.01	0.02	0.02	0.28	0.04	0.09	0.11
P2	0.03	0.02	0.15	0.04	0.27	0.47	0.02	0.04	0.03	0.35	0.09	0.11	0.15
P3	0.07	0.02	0.16	0.05	0.27	0.57	0.02	0.05	0.06	0.15	0.05	0.10	0.13
P4	0.16	0.18	0.42	0.40	0.47	0.50	0.16	0.04	0.09	0.30	0.12	0.31	0.24
P5	0.17	0.15	0.48	0.24	0.31	0.38	0.20	0.07	0.15	0.18	0.10	0.26	0.19
P6	0.12	0.07	0.33	0.26	0.32	0.36	0.20	0.08	0.16	0.27	0.06	0.23	0.21
P7	0.09	0.01	0.25	0.23	0.32	0.37	0.17	0.09	0.18	0.36	0.12	0.20	0.23
P8	0.09	0.06	0.16	0.21	0.30	0.15	0.11	0.08	0.07	0.29	0.10	0.17	0.17
P9	0.05	0.21	0.48	0.46	0.29	0.49	0.12	0.11	0.06	0.16	0.08	0.30	0.20
P10	0.01	0.02	0.20	0.05	0.27	0.16	0.13	0.12	0.12	0.16	0.08	0.12	0.13
P11	0.02	0.07	0.07	0.06	0.24	0.22	0.12	0.11	0.20	0.24	0.11	0.11	0.17
P12	0.02	0.07	0.11	0.10	0.22	0.18	0.09	0.09	0.25	0.34	0.15	0.14	0.19
P13	0.05	0.03	0.10	0.15	0.19	0.21	0.05	0.10	0.25	0.39	0.15	0.15	0.21
P14	0.09	0.15	0.04	0.09	0.15	0.26	0.05	0.17	0.26	0.33	0.10	0.13	0.20
P15	0.09	0.17	0.28	0.35	0.13	0.36	0.10	0.13	0.05	0.18	0.07	0.21	0.16
P16	0.04	0.11	0.38	0.23	0.12	0.39	0.20	0.03	0.06	0.17	0.09	0.19	0.15
P17	0.02	0.13	0.15	0.23	0.07	0.33	0.22	0.18	0.20	0.18	0.09	0.16	0.19
P18	0.02	0.16	0.34	0.28	0.03	0.18	0.20	0.04	0.08	0.17	0.09	0.19	0.13
P19	0.01	0.15	0.29	0.20	0.02	0.09	0.13	0.07	0.13	0.16	0.02	0.16	0.11
P20	0.06	0.07	0.19	0.20	0.10	0.43	0.13	0.08	0.11	0.14	0.06	0.14	0.14
P21	0.13	0.11	0.21	0.33	0.15	0.61	0.21	0.08	0.18	0.11	0.04	0.19	0.19
P22	0.11	0.10	0.18	0.22	0.17	0.62	0.19	0.08	0.19	0.21	0.05	0.17	0.20
P23	0.10	0.10	0.12	0.13	0.18	0.59	0.14	0.07	0.21	0.20	0.08	0.14	0.19
P24	0.13	0.12	0.21	0.10	0.18	0.48	0.07	0.04	0.21	0.15	0.09	0.14	0.15
P25	0.10	0.10	0.11	0.22	0.20	0.52	0.03	0.01	0.17	0.11	0.09	0.14	0.15
P26	0.06	0.13	0.05	0.26	0.23	0.37	0.04	0.06	0.19	0.07	0.16	0.15	0.16
P27	0.08	0.15	0.11	0.29	0.27	0.23	0.06	0.10	0.18	0.15	0.20	0.18	0.18
P28	0.11	0.15	0.16	0.25	0.23	0.17	0.04	0.13	0.16	0.19	0.22	0.18	0.17
P29	0.10	0.14	0.15	0.18	0.18	0.20	0.11	0.18	0.18	0.22	0.23	0.17	0.19
P30	0.05	0.05	0.06	0.24	0.15	0.18	0.11	0.12	0.20	0.19	0.23	0.14	0.18
S1	0.09	0.04	0.07	0.10	0.13	0.34	0.16	0.11	0.08	0.23	0.11	0.10	0.15
S2	0.03	0.06	0.35	0.12	0.07	0.08	0.06	0.11	0.19	0.11	0.07	0.15	0.11
S3	0.03	0.09	0.16	0.26	0.03	0.12	0.05	0.06	0.07	0.14	0.07	0.13	0.11
S4	0.07	0.16	0.31	0.19	0.04	0.23	0.02	0.08	0.14	0.02	0.01	0.16	0.09
S5	0.03	0.21	0.45	0.53	0.04	0.44	0.18	0.13	0.05	0.12	0.08	0.28	0.18
S6	0.09	0.19	0.38	0.46	0.05	0.40	0.25	0.02	0.16	0.16	0.08	0.25	0.19
S7	0.11	0.16	0.30	0.32	0.10	0.14	0.24	0.03	0.11	0.16	0.08	0.20	0.15
S8	0.14	0.15	0.22	0.26	0.09	0.44	0.23	0.06	0.08	0.15	0.09	0.17	0.16
S9	0.11	0.07	0.16	0.18	0.06	0.46	0.08	0.07	0.08	0.05	0.07	0.12	0.11
S10	0.06	0.13	0.10	0.41	0.03	0.56	0.07	0.07	0.15	0.04	0.03	0.17	0.15
S11	0.06	0.09	0.26	0.31	0.10	0.47	0.01	0.02	0.20	0.05	0.01	0.18	0.14
S12	0.08	0.12	0.27	0.42	0.27	0.66	0.10	0.13	0.23	0.03	0.04	0.24	0.21
S13	0.03	0.12	0.22	0.36	0.35	0.67	0.03	0.05	0.23	0.12	0.02	0.22	0.21
S14	0.07	0.09	0.24	0.31	0.18	0.52	0.12	0.02	0.17	0.05	0.02	0.18	0.15
S15	0.15	0.08	0.17	0.17	0.36	0.32	0.08	0.03	0.05	0.21	0.04	0.16	0.15
S16	0.15	0.20	0.12	0.18	0.48	0.60	0.12	0.02	0.07	0.28	0.07	0.19	0.20
S17	0.06	0.12	0.24	0.46	0.38	0.15	0.15	0.04	0.15	0.34	0.04	0.27	0.22
S18	0.04	0.14	0.16	0.38	0.04	0.55	0.08	0.02	0.12	0.03	0.03	0.17	0.14

Velocity Ratio of Individual Test Points for Optional Scheme

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O1	0.08	0.10	0.30	0.32	0.25	0.35	0.06	0.03	0.08	0.10	0.18	0.20	0.15
O2	0.04	0.12	0.28	0.37	0.25	0.34	0.07	0.07	0.09	0.10	0.19	0.21	0.17
O3	0.14	0.12	0.21	0.29	0.25	0.28	0.07	0.08	0.11	0.05	0.17	0.19	0.14
O4	0.20	0.09	0.17	0.25	0.26	0.15	0.08	0.10	0.08	0.05	0.16	0.17	0.13
O5	0.19	0.10	0.15	0.14	0.07	0.09	0.11	0.00	0.04	0.09	0.00	0.11	0.07
O6	0.11	0.02	0.10	0.20	0.03	0.28	0.10	0.11	0.29	0.04	0.05	0.12	0.14
O7	0.05	0.04	0.09	0.22	0.05	0.32	0.09	0.09	0.30	0.11	0.07	0.13	0.16
O8	0.11	0.07	0.14	0.26	0.08	0.35	0.06	0.18	0.27	0.10	0.05	0.16	0.17
O9	0.13	0.05	0.17	0.19	0.08	0.23	0.10	0.09	0.20	0.08	0.04	0.14	0.13
O10	0.22	0.13	0.12	0.25	0.09	0.30	0.01	0.03	0.09	0.10	0.04	0.15	0.11
O11	0.03	0.07	0.23	0.30	0.04	0.07	0.09	0.06	0.04	0.13	0.03	0.16	0.10
O12	0.28	0.13	0.22	0.22	0.26	0.27	0.06	0.07	0.09	0.13	0.02	0.19	0.13
O13	0.04	0.03	0.07	0.06	0.05	0.11	0.03	0.06	0.02	0.04	0.01	0.05	0.05
O14	0.02	0.06	0.04	0.03	0.05	0.03	0.04	0.32	0.09	0.07	0.10	0.07	0.10
O15	0.02	0.03	0.04	0.02	0.06	0.05	0.02	0.37	0.10	0.15	0.11	0.07	0.12
O16	0.03	0.01	0.03	0.04	0.03	0.12	0.03	0.18	0.05	0.04	0.05	0.04	0.07
O17	0.17	0.09	0.09	0.18	0.05	0.39	0.11	0.01	0.05	0.13	0.05	0.11	0.11
O18	0.27	0.12	0.12	0.09	0.04	0.12	0.01	0.03	0.06	0.03	0.01	0.09	0.05
O19	0.29	0.08	0.08	0.07	0.25	0.45	0.10	0.07	0.16	0.12	0.09	0.12	0.15
O20	0.08	0.05	0.14	0.07	0.02	0.07	0.02	0.04	0.05	0.04	0.05	0.07	0.05
O21	0.02	0.10	0.23	0.23	0.10	0.07	0.05	0.10	0.02	0.03	0.01	0.14	0.07
O22	0.01	0.15	0.19	0.14	0.24	0.27	0.12	0.18	0.06	0.14	0.08	0.15	0.14
O23	0.13	0.13	0.15	0.11	0.04	0.07	0.12	0.03	0.03	0.02	0.03	0.09	0.05
O24	0.11	0.08	0.12	0.18	0.15	0.10	0.05	0.17	0.08	0.13	0.06	0.13	0.12
O25	0.06	0.09	0.14	0.03	0.09	0.03	0.03	0.13	0.06	0.07	0.02	0.08	0.06
O26	0.10	0.05	0.04	0.07	0.15	0.09	0.09	0.09	0.02	0.02	0.04	0.06	0.06
O27	0.18	0.04	0.06	0.11	0.20	0.15	0.07	0.09	0.05	0.10	0.02	0.10	0.09
O28	0.15	0.07	0.11	0.16	0.19	0.45	0.06	0.07	0.19	0.13	0.11	0.14	0.16
O29	0.01	0.12	0.16	0.11	0.05	0.10	0.02	0.09	0.16	0.04	0.06	0.10	0.08
O30	0.03	0.16	0.20	0.21	0.15	0.44	0.14	0.29	0.49	0.11	0.20	0.20	0.26
O31	0.01	0.20	0.39	0.22	0.12	0.62	0.15	0.18	0.13	0.17	0.12	0.21	0.19
O32	0.02	0.14	0.32	0.07	0.06	0.53	0.11	0.18	0.21	0.03	0.08	0.14	0.14
O33	0.07	0.13	0.31	0.23	0.03	0.55	0.08	0.27	0.32	0.05	0.09	0.20	0.20
O34	0.11	0.04	0.15	0.25	0.01	0.11	0.04	0.05	0.23	0.10	0.06	0.14	0.12
O35	0.13	0.07	0.07	0.06	0.10	0.08	0.07	0.20	0.06	0.05	0.05	0.08	0.08
O36	0.09	0.12	0.15	0.18	0.13	0.24	0.05	0.13	0.61	0.32	0.29	0.20	0.28
O37	0.14	0.11	0.15	0.23	0.04	0.30	0.05	0.26	0.55	0.28	0.26	0.21	0.28
O38	0.05	0.05	0.10	0.26	0.04	0.17	0.01	0.23	0.51	0.17	0.24	0.17	0.23
O39	0.05	0.04	0.13	0.29	0.10	0.08	0.01	0.23	0.20	0.10	0.20	0.16	0.16
O40	0.04	0.06	0.21	0.22	0.01	0.13	0.04	0.21	0.28	0.11	0.01	0.16	0.15
O41	0.04	0.02	0.10	0.13	0.04	0.08	0.03	0.18	0.23	0.07	0.05	0.10	0.12
O42	0.15	0.09	0.05	0.03	0.03	0.23	0.05	0.15	0.15	0.24	0.06	0.09	0.13
O43	0.14	0.07	0.14	0.03	0.08	0.17	0.06	0.16	0.26	0.30	0.08	0.12	0.17
O44	0.08	0.17	0.30	0.31	0.13	0.16	0.03	0.11	0.27	0.31	0.07	0.23	0.20
O45	0.06	0.03	0.07	0.17	0.16	0.15	0.03	0.06	0.09	0.02	0.05	0.09	0.08
O46	0.03	0.03	0.22	0.06	0.19	0.33	0.05	0.20	0.29	0.08	0.07	0.13	0.16
O47	0.03	0.03	0.18	0.07	0.13	0.38	0.08	0.21	0.17	0.12	0.08	0.11	0.15
O48	0.09	0.07	0.09	0.11	0.13	0.39	0.05	0.26	0.11	0.16	0.05	0.12	0.15
O49	0.13	0.03	0.13	0.23	0.13	0.50	0.07	0.28	0.56	0.15	0.28	0.19	0.28
O50	0.07	0.06	0.13	0.10	0.15	0.13	0.06	0.11	0.08	0.14	0.12	0.11	0.11
O51	0.06	0.12	0.14	0.03	0.04	0.10	0.01	0.05	0.07	0.19	0.09	0.08	0.08
O52	0.05	0.02	0.28	0.07	0.07	0.15	0.04	0.05	0.14	0.14	0.11	0.12	0.10
O53	0.08	0.04	0.18	0.19	0.19	0.10	0.06	0.05	0.17	0.38	0.20	0.17	0.19
O54	0.17	0.10	0.19	0.10	0.21	0.27	0.08	0.16	0.17	0.02	0.02	0.14	0.12
O55	0.10	0.07	0.19	0.11	0.22	0.25	0.02	0.08	0.06	0.06	0.01	0.12	0.09
O56	0.15	0.09	0.21	0.13	0.21	0.28	0.06	0.07	0.03	0.09	0.06	0.13	0.10
O57	0.12	0.15	0.20	0.11	0.19	0.35	0.09	0.07	0.03	0.19	0.10	0.14	0.13
O58	0.10	0.06	0.18	0.18	0.03	0.19	0.08	0.05	0.06	0.17	0.08	0.12	0.11
O59	0.05	0.10	0.08	0.13	0.08	0.20	0.06	0.02	0.03	0.21	0.10	0.10	0.10
O60	0.19	0.07	0.10	0.21	0.06	0.07	0.04	0.09	0.33	0.30	0.14	0.16	0.19
O61	0.10	0.19	0.44	0.39	0.11	0.47	0.13	0.08	0.19	0.34	0.13	0.28	0.23
O62	0.12	0.07	0.14	0.08	0.10	0.16	0.13	0.09	0.20	0.41	0.19	0.14	0.19
O63	0.10	0.11	0.19	0.21	0.08	0.22	0.11	0.06	0.11	0.43	0.21	0.17	0.19
O64	0.13	0.12	0.33	0.28	0.03	0.13	0.13	0.07	0.16	0.31	0.15	0.21	0.18
O65	0.19	0.20	0.36	0.28	0.20	0.22	0.11	0.08	0.32	0.46	0.17	0.28	0.26
O66	0.19	0.15	0.39	0.30	0.13	0.16	0.09	0.06	0.37	0.24	0.17	0.26	0.21
O67	0.02	0.15	0.11	0.32	0.23	0.36	0.07	0.04	0.06	0.11	0.03	0.16	0.14
O68	0.10	0.30	0.48	0.45	0.24	0.62	0.11	0.03	0.27	0.23	0.12	0.33	0.25
O69	0.10	0.08	0.19	0.38	0.07	0.31	0.04	0.07	0.12	0.26	0.10	0.19	0.17
O70	0.25	0.11	0.62	0.31	0.21	0.32	0.09	0.09	0.08	0.29	0.12	0.29	0.19
O71	0.21	0.33	0.45	0.18	0.16	0.11	0.02	0.02	0.04	0.20	0.06	0.23	0.10

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O72	0.13	0.06	0.31	0.09	0.07	0.31	0.10	0.01	0.10	0.10	0.08	0.13	0.10
O73	0.04	0.19	0.18	0.03	0.06	0.16	0.04	0.03	0.05	0.02	0.08	0.09	0.05
O74	0.07	0.14	0.18	0.08	0.18	0.30	0.11	0.02	0.10	0.11	0.09	0.12	0.11
O75	0.10	0.16	0.28	0.17	0.10	0.25	0.05	0.02	0.17	0.10	0.09	0.16	0.12
O76	0.08	0.15	0.28	0.05	0.11	0.20	0.03	0.07	0.31	0.17	0.12	0.15	0.15
O77	0.07	0.10	0.31	0.08	0.14	0.23	0.04	0.06	0.20	0.37	0.22	0.17	0.18
O78	0.06	0.12	0.13	0.07	0.09	0.08	0.02	0.09	0.08	0.19	0.09	0.10	0.10
O79	0.17	0.28	0.22	0.19	0.07	0.19	0.11	0.20	0.15	0.07	0.13	0.18	0.14
O80	0.04	0.29	0.24	0.24	0.54	0.36	0.04	0.22	0.02	0.72	0.34	0.29	0.31
O81	0.18	0.08	0.19	0.15	0.15	0.28	0.07	0.36	0.03	0.68	0.28	0.20	0.27
O82	0.05	0.02	0.18	0.04	0.20	0.14	0.01	0.14	0.05	0.25	0.01	0.11	0.11
O83	0.22	0.27	0.33	0.09	0.43	0.15	0.12	0.20	0.15	0.05	0.08	0.22	0.15
O84	0.08	0.20	0.44	0.08	0.45	0.22	0.07	0.17	0.08	0.04	0.05	0.21	0.13
O85	0.15	0.30	0.39	0.18	0.55	0.12	0.07	0.21	0.07	0.07	0.06	0.26	0.15
O86	0.26	0.18	0.28	0.13	0.41	0.19	0.08	0.09	0.05	0.14	0.10	0.20	0.13
O87	0.28	0.15	0.31	0.19	0.26	0.22	0.14	0.13	0.07	0.09	0.03	0.20	0.13
O88	0.21	0.21	0.36	0.09	0.53	0.14	0.06	0.14	0.05	0.16	0.05	0.22	0.14
O89	0.15	0.12	0.25	0.16	0.53	0.06	0.03	0.21	0.02	0.10	0.04	0.20	0.13
O90	0.12	0.26	0.24	0.19	0.38	0.17	0.16	0.17	0.03	0.19	0.17	0.21	0.17
O91	0.10	0.25	0.17	0.14	0.41	0.19	0.24	0.17	0.13	0.34	0.22	0.20	0.23
O92	0.11	0.31	0.05	0.16	0.24	0.17	0.23	0.16	0.14	0.36	0.22	0.18	0.22
O93	0.07	0.35	0.03	0.18	0.18	0.16	0.22	0.11	0.14	0.39	0.22	0.17	0.21
O94	0.04	0.35	0.13	0.14	0.09	0.10	0.04	0.10	0.11	0.29	0.20	0.16	0.15
O95	0.07	0.13	0.15	0.10	0.22	0.23	0.02	0.08	0.09	0.27	0.13	0.14	0.15
O96	0.11	0.29	0.32	0.14	0.29	0.33	0.05	0.12	0.12	0.40	0.17	0.23	0.21
O97	0.11	0.28	0.33	0.18	0.11	0.29	0.07	0.10	0.02	0.33	0.12	0.20	0.15
O98	0.05	0.36	0.38	0.13	0.43	0.38	0.05	0.08	0.13	0.25	0.13	0.24	0.19
O99	0.06	0.23	0.33	0.04	0.51	0.38	0.06	0.10	0.18	0.37	0.23	0.22	0.23
O100	0.09	0.11	0.23	0.19	0.51	0.23	0.06	0.13	0.18	0.46	0.26	0.23	0.26
O101	0.07	0.41	0.13	0.17	0.36	0.07	0.14	0.07	0.15	0.48	0.27	0.22	0.23
O102	0.09	0.30	0.14	0.22	0.33	0.36	0.27	0.10	0.22	0.46	0.35	0.23	0.29
O103	0.03	0.23	0.23	0.24	0.17	0.35	0.27	0.11	0.22	0.44	0.34	0.22	0.27
O104	0.01	0.26	0.18	0.03	0.06	0.19	0.20	0.08	0.17	0.23	0.23	0.12	0.15
O105	0.01	0.07	0.06	0.00	0.02	0.08	0.03	0.04	0.06	0.09	0.04	0.04	0.05
O106	0.05	0.07	0.07	0.04	0.02	0.09	0.05	0.07	0.06	0.13	0.13	0.06	0.08
O107	0.03	0.08	0.33	0.06	0.05	0.14	0.20	0.12	0.08	0.34	0.13	0.15	0.15
O108	0.03	0.16	0.27	0.09	0.04	0.14	0.11	0.10	0.08	0.38	0.15	0.15	0.15
O109	0.02	0.10	0.20	0.15	0.02	0.10	0.10	0.12	0.06	0.26	0.08	0.13	0.12
O110	0.06	0.10	0.34	0.09	0.02	0.22	0.06	0.12	0.07	0.47	0.22	0.17	0.18
O111	0.06	0.06	0.13	0.08	0.06	0.21	0.05	0.11	0.09	0.57	0.29	0.13	0.20
O112	0.36	0.47	0.45	0.36	0.24	0.13	0.10	0.25	0.16	0.34	0.19	0.35	0.23
O113	0.09	0.11	0.06	0.17	0.31	0.12	0.10	0.26	0.12	0.29	0.13	0.16	0.20
O114	0.08	0.05	0.05	0.01	0.20	0.13	0.05	0.14	0.02	0.09	0.07	0.07	0.08
O115	0.07	0.05	0.04	0.05	0.17	0.28	0.02	0.14	0.02	0.13	0.08	0.07	0.10
O116	0.15	0.08	0.03	0.06	0.16	0.38	0.09	0.15	0.14	0.54	0.29	0.13	0.24
O117	0.06	0.11	0.10	0.09	0.24	0.21	0.13	0.15	0.12	0.51	0.30	0.15	0.23
O118	0.10	0.10	0.12	0.06	0.11	0.26	0.11	0.11	0.06	0.29	0.24	0.11	0.15
O119	0.13	0.10	0.17	0.26	0.21	0.20	0.16	0.22	0.08	0.34	0.31	0.19	0.22
O120	0.20	0.20	0.30	0.14	0.14	0.26	0.15	0.16	0.10	0.21	0.12	0.19	0.16
O121	0.18	0.26	0.33	0.13	0.30	0.47	0.16	0.33	0.05	0.31	0.19	0.23	0.22
O122	0.11	0.09	0.18	0.21	0.07	0.09	0.06	0.02	0.03	0.24	0.07	0.14	0.11
O123	0.13	0.03	0.04	0.16	0.13	0.20	0.20	0.13	0.22	0.51	0.30	0.15	0.25
O124	0.12	0.09	0.07	0.02	0.14	0.25	0.19	0.08	0.20	0.48	0.30	0.12	0.22
O125	0.11	0.19	0.20	0.21	0.08	0.14	0.04	0.20	0.15	0.19	0.06	0.18	0.15
O126	0.14	0.19	0.18	0.16	0.07	0.23	0.20	0.14	0.07	0.27	0.16	0.16	0.16
O127	0.12	0.19	0.16	0.31	0.17	0.08	0.29	0.10	0.15	0.33	0.19	0.21	0.21
O128	0.08	0.11	0.04	0.38	0.14	0.12	0.15	0.21	0.12	0.18	0.10	0.18	0.18
O129	0.14	0.10	0.12	0.26	0.38	0.35	0.07	0.18	0.09	0.38	0.28	0.21	0.24
O130	0.10	0.15	0.25	0.35	0.21	0.19	0.19	0.12	0.14	0.29	0.19	0.23	0.21
O131	0.08	0.13	0.19	0.32	0.34	0.21	0.15	0.18	0.08	0.14	0.06	0.21	0.17
O132	0.10	0.13	0.20	0.29	0.44	0.21	0.10	0.18	0.06	0.10	0.05	0.21	0.16
O133	0.14	0.20	0.20	0.38	0.43	0.21	0.27	0.18	0.19	0.43	0.27	0.28	0.30
O134	0.09	0.12	0.18	0.17	0.15	0.11	0.15	0.04	0.13	0.14	0.15	0.14	0.13
O135	0.09	0.15	0.19	0.16	0.41	0.07	0.12	0.13	0.13	0.33	0.06	0.20	0.19
O136	0.14	0.08	0.37	0.14	0.18	0.17	0.15	0.02	0.08	0.23	0.01	0.18	0.12
O137	0.05	0.03	0.25	0.31	0.22	0.23	0.11	0.04	0.08	0.28	0.17	0.19	0.18
O138	0.07	0.10	0.30	0.31	0.23	0.29	0.17	0.08	0.15	0.21	0.23	0.21	0.20
O139	0.03	0.03	0.21	0.40	0.10	0.18	0.04	0.04	0.04	0.32	0.17	0.19	0.17
O140	0.12	0.16	0.34	0.31	0.16	0.11	0.16	0.09	0.10	0.27	0.27	0.23	0.18
O141	0.14	0.05	0.05	0.43	0.06	0.06	0.16	0.02	0.07	0.34	0.22	0.18	0.18
O142	0.14	0.17	0.31	0.32	0.08	0.22	0.07	0.11	0.10	0.34	0.29	0.23	0.20
O143	0.05	0.19	0.17	0.06	0.31	0.19	0.14	0.10	0.04	0.21	0.22	0.14	0.14
O144	0.04	0.17	0.13	0.10	0.26	0.23	0.15	0.15	0.09	0.40	0.23	0.16	0.20

Test Point	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
O145	0.02	0.12	0.15	0.21	0.19	0.14	0.23	0.15	0.18	0.33	0.34	0.18	0.23
O146	0.04	0.03	0.13	0.03	0.12	0.20	0.20	0.13	0.13	0.41	0.26	0.11	0.19
O147	0.01	0.12	0.10	0.19	0.19	0.18	0.15	0.07	0.23	0.34	0.37	0.16	0.22
O148	0.09	0.13	0.07	0.15	0.21	0.39	0.16	0.11	0.12	0.41	0.21	0.15	0.22
O149	0.12	0.12	0.15	0.21	0.24	0.39	0.12	0.17	0.22	0.35	0.32	0.19	0.25
O150	0.08	0.06	0.24	0.19	0.05	0.27	0.11	0.14	0.06	0.29	0.09	0.15	0.15
O151	0.13	0.19	0.17	0.33	0.31	0.19	0.28	0.20	0.22	0.45	0.31	0.26	0.29
O152	0.09	0.16	0.10	0.07	0.32	0.37	0.28	0.18	0.22	0.46	0.35	0.17	0.28
O153	0.09	0.26	0.06	0.23	0.10	0.17	0.28	0.16	0.19	0.43	0.27	0.18	0.24
O154	0.11	0.24	0.10	0.14	0.33	0.38	0.26	0.14	0.22	0.47	0.35	0.20	0.29
P1	0.06	0.02	0.11	0.06	0.07	0.35	0.01	0.02	0.06	0.28	0.05	0.08	0.11
P2	0.03	0.03	0.15	0.02	0.27	0.54	0.03	0.04	0.10	0.31	0.10	0.11	0.16
P3	0.08	0.02	0.18	0.04	0.26	0.66	0.02	0.05	0.09	0.07	0.06	0.10	0.12
P4	0.17	0.19	0.45	0.32	0.48	0.58	0.18	0.04	0.08	0.18	0.12	0.29	0.21
P5	0.16	0.15	0.46	0.28	0.30	0.41	0.19	0.08	0.14	0.19	0.11	0.26	0.20
P6	0.13	0.05	0.34	0.34	0.31	0.38	0.21	0.09	0.16	0.16	0.05	0.24	0.20
P7	0.11	0.01	0.27	0.31	0.31	0.39	0.19	0.10	0.17	0.10	0.11	0.20	0.19
P8	0.10	0.06	0.17	0.22	0.32	0.17	0.11	0.09	0.07	0.08	0.10	0.16	0.13
P9	0.07	0.22	0.47	0.53	0.30	0.45	0.11	0.11	0.08	0.10	0.09	0.31	0.20
P10	0.04	0.01	0.29	0.08	0.27	0.16	0.15	0.12	0.15	0.17	0.09	0.15	0.15
P11	0.05	0.04	0.09	0.12	0.23	0.12	0.16	0.11	0.23	0.30	0.11	0.14	0.19
P12	0.03	0.07	0.13	0.15	0.19	0.16	0.14	0.09	0.26	0.38	0.14	0.16	0.21
P13	0.05	0.04	0.12	0.12	0.15	0.21	0.09	0.11	0.26	0.38	0.15	0.14	0.21
P14	0.10	0.04	0.04	0.07	0.12	0.26	0.08	0.16	0.27	0.35	0.12	0.12	0.20
P15	0.08	0.14	0.29	0.32	0.09	0.32	0.14	0.12	0.05	0.27	0.09	0.21	0.17
P16	0.03	0.14	0.40	0.42	0.07	0.36	0.21	0.04	0.06	0.21	0.10	0.24	0.17
P17	0.02	0.07	0.14	0.19	0.14	0.37	0.22	0.18	0.24	0.17	0.10	0.15	0.20
P18	0.02	0.13	0.35	0.27	0.11	0.29	0.21	0.02	0.06	0.10	0.10	0.18	0.13
P19	0.02	0.11	0.31	0.20	0.11	0.13	0.15	0.07	0.12	0.04	0.09	0.16	0.11
P20	0.06	0.08	0.19	0.17	0.09	0.40	0.13	0.09	0.09	0.06	0.05	0.12	0.12
P21	0.14	0.11	0.21	0.35	0.15	0.70	0.21	0.09	0.14	0.02	0.03	0.19	0.18
P22	0.12	0.11	0.18	0.23	0.18	0.70	0.19	0.09	0.14	0.05	0.08	0.16	0.17
P23	0.10	0.11	0.11	0.13	0.19	0.67	0.14	0.08	0.14	0.05	0.11	0.12	0.15
P24	0.14	0.15	0.20	0.12	0.21	0.54	0.07	0.05	0.11	0.02	0.13	0.14	0.13
P25	0.12	0.09	0.14	0.25	0.18	0.52	0.03	0.04	0.12	0.11	0.11	0.15	0.15
P26	0.05	0.15	0.06	0.28	0.23	0.35	0.05	0.12	0.04	0.05	0.16	0.15	0.14
P27	0.08	0.15	0.12	0.32	0.28	0.21	0.06	0.16	0.10	0.09	0.20	0.19	0.16
P28	0.11	0.16	0.16	0.31	0.23	0.15	0.02	0.17	0.07	0.13	0.23	0.19	0.16
P29	0.11	0.15	0.16	0.11	0.19	0.24	0.11	0.17	0.09	0.21	0.24	0.14	0.16
P30	0.06	0.07	0.05	0.28	0.13	0.20	0.11	0.11	0.12	0.21	0.24	0.14	0.17
S1	0.07	0.04	0.07	0.07	0.12	0.27	0.18	0.11	0.07	0.19	0.11	0.09	0.13
S2	0.06	0.11	0.36	0.34	0.08	0.05	0.03	0.12	0.14	0.02	0.07	0.21	0.11
S3	0.03	0.11	0.15	0.24	0.08	0.08	0.06	0.07	0.06	0.02	0.08	0.13	0.08
S4	0.06	0.13	0.40	0.44	0.05	0.20	0.05	0.03	0.11	0.06	0.05	0.23	0.12
S5	0.02	0.22	0.42	0.57	0.07	0.39	0.19	0.13	0.04	0.10	0.09	0.28	0.18
S6	0.07	0.21	0.35	0.50	0.10	0.38	0.25	0.02	0.14	0.15	0.09	0.26	0.19
S7	0.11	0.16	0.28	0.36	0.07	0.23	0.25	0.08	0.13	0.08	0.08	0.21	0.15
S8	0.14	0.13	0.20	0.26	0.16	0.47	0.23	0.07	0.15	0.03	0.10	0.17	0.16
S9	0.11	0.08	0.18	0.21	0.09	0.45	0.08	0.11	0.10	0.10	0.02	0.14	0.13
S10	0.03	0.03	0.13	0.18	0.02	0.07	0.03	0.03	0.11	0.07	0.01	0.10	0.07
S11	0.05	0.11	0.27	0.33	0.11	0.51	0.07	0.02	0.04	0.06	0.01	0.17	0.12
S12	0.07	0.11	0.25	0.43	0.26	0.64	0.11	0.12	0.15	0.05	0.04	0.23	0.20
S13	0.03	0.12	0.23	0.38	0.35	0.70	0.04	0.03	0.13	0.11	0.03	0.22	0.19
S14	0.05	0.09	0.28	0.35	0.24	0.63	0.11	0.02	0.03	0.04	0.02	0.19	0.14
S15	0.15	0.11	0.17	0.12	0.42	0.49	0.06	0.05	0.04	0.06	0.07	0.15	0.13
S16	0.12	0.15	0.08	0.19	0.47	0.48	0.11	0.04	0.06	0.02	0.09	0.15	0.14
S17	0.05	0.10	0.23	0.42	0.37	0.14	0.17	0.04	0.17	0.24	0.04	0.25	0.20
S18	0.05	0.27	0.04	0.44	0.11	0.70	0.09	0.03	0.12	0.01	0.03	0.18	0.16

Attachment VIII of
MPC Paper No.1/19

PRELIMINARY LANDSCAPE ASSESSMENT ON REZONING OF THE CAROLINE HILL ROAD SITE, CAUSEWAY BAY, FOR COMMERCIAL USE AND DISTRICT COURT UNDER APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN NO. S/H7/19

PLANNING DEPARTMENT
MARCH 2019

Background

1. The Site is located at the junction of Leighton Road and CHR in Causeway Bay covering an area of about 2.66ha. It comprises the ex-Electrical and Mechanical Services Department (EMSD) Headquarters and Vehicle Depot, the ex-Civil Aid Service (CAS) Headquarters, the ex-Post Office Recreation Club and the PCCW Recreation Club. The Site is proposed to be developed for commercial use and the provision of District Court (DC).

2. According to a survey carried out by the Architectural Services Department (ArchSD) in December 2016 (i.e. the ArchSD's 2016 survey), a total of 125 trees were found within and at the periphery of the Site. Amongst the 125 trees, 6 of them were dead and the remaining 119 living trees are commonly found native or amenity trees in Hong Kong.

Old and Valuable Trees (OVTs), Important Tree and Stonewall Tree

3. Two OVTs, i.e. *Ficus elastica* and *Ficus virens*, are located within/ at the periphery of the Site. The OVT No. HKP-WCH/1 (T24, *Ficus elastica*) is located on slope feature 11SW-B/FR190 along Leighton Road and the OVT No. EMSD WCH/1 (T94, *Ficus virens*) is located at the existing roundabout of the ex-EMSD site. An Important Tree (T82, *Ficus microcarpa*) is located in an area between the ex-CAS site and the PCCW Recreation Club. One stonewall tree (T1, *Ficus microcarpa*) is located on a retaining wall of the South China Athletic Association (SCAA) and away from the existing building of EMSD.

4. The two OVTs, Important Tree and stonewall tree are mature in size, good in health and tree form with medium to high amenity value.

Other Trees

5. A total of 34 species, including 17 native species, were identified on the Site. The existing trees within and at the periphery of the Site are dominated by native species, namely *Ficus microcarpa*, *Macaranga tanarius* and *Ficus virens* (approximately 55%) as well as some common trees and fruit trees. According to the ArchSD's 2016 survey, majority of the trees have a fair to poor form and dominated by fair condition and low amenity value. None of the identified tree species are rare or ecologically protected species under the Forests and

Countryside Ordinance (Cap 96) or the Protection of Endangered Species and Plants Ordinance (Cap 586).

Tree Felling

6. The Site is proposed for commercial use and the provision of judicial facilities at the northern and southern portion of the Site respectively with not more than a gross floor area (GFA) of 170,000m^2. To enable the development, existing superstructures have to be demolished though the existing site levels at +10mPD and +15mPD are assumed to be largely maintained for development of the commercial buildings and the DC. Some existing trees will unavoidably be affected by the demolition works or cleared for providing the development sites.

7. According to ArchSD, besides the 6 dead trees, about 27 trees are proposed to be felled due to the demolition works. These trees are of low amenity value and are either wall trees growing on those existing buildings to be demolished or located in close proximity to the buildings identified to be demolished.

8. In addition, another 32 trees which may be in conflict with the proposed development and junction improvement works are recommended to be felled/ transplanted if possible. However, given that the proposed development and the internal roads are subject to detailed design by the future developer/relevant department(s) and the number of trees to be felled/ transplanted at this stage is only an initial estimate for reference.

Tree Preservation and Compensatory Planting Proposal

9. The two OVTs will be preserved in-situ in according with Environment, Transport and Works Bureau Technical Circular (Works) No. 29/2004 'Registration of Old and Valuable Trees, and Guidelines for their Preservation'. The layout design of the proposed development and proposed open space should avoid disturbance to the tree protection zone of the OVTs. According to Environment, Transport and Works Bureau Technical Circular (Works) No. 29/2004, suitable tree protection zone encompassing the tree body, tree and tree crown should be allowed. The responsible tree maintenance department shall conduct regular inspections including tree risk assessment and monitor the condition of the OVTs.

10. The Important Tree (T82) is likely to be affected by the new access road linking up Caroline Hill Road East and West. Nonetheless, the future developer of the commercial site would be encouraged to consider if there would be landscape provisions such as tree preservation or transplanting of this tree at the detailed design stage.

11. The stonewall tree falls within the private lot of SCAA should follow the guideline of Lands Department's Land Administration Office Practice Note on Tree Preservation and Tree Removal Application for Building Development in Private Projects.

Landscape Impact

12. Existing trees in good condition and those trees growing on stonewalls should be preserved as far as possible and incorporated into the design of the proposed open space. In the detailed design stage, relevant department will minimise the development impact on existing trees and provide appropriate landscape measures as well as feasible tree preservation and compensatory planting proposals in accordance with relevant Technical Circulars, guidelines and practice notes on tree preservation and management issued by the Tree Management Office of the Greening, Landscape and Tree Management Section of Development Bureau and Lands Department's Land Administration Office Practice Note on Tree Preservation and Tree Removal Application for Building Development in Private Projects.

13. For the commercial development, relevant clauses such as tree preservation including the requirement of compensatory tree planting arising from tree loss of the development, and the requirement of a landscape plan should be incorporated in the lease to safeguard a quality and sustainable build environment. Necessary greening measures to mitigate the impact on existing trees should be required.

14. Since the existing CHR site is primarily hard-paved and occupied by buildings, given the efforts in tree protection and the provision of 6,000m^2 open space, it is expected that the landscape quality may generally improve compared with the current conditions.

PLANNING DEPARTMENT
MARCH 2019

Attachment IX of
MPC Paper No. 1/19

Provision of Major Community Facilities in Wan Chai District
在灣仔區提供的主要社區設施

Type of Facilities 設施種類	Hong Kong Planning Standards and Guidelines (HKPSG) 《香港規劃標準與準則》	HKPSG Requirement (based on planned population) 《香港規劃標準與準則》要求(按規劃人口計算)	Provision 供應		Surplus/ Shortfall (against planned provision) 剩餘/短缺(與已規劃供應比較)
			Existing Provision 現有供應	Planned Provision (including Existing Provision) 已規劃供應(包括現有供應)	
Secondary School 中學	1 whole-day classroom for 40 persons aged 12-17 每40名12-17歲青少年設一個全日制學校課室	216 classrooms 個課室	450 classrooms 個課室	450 classrooms 個課室	+234 classrooms 個課室
Primary School 小學	1 whole-day classroom for 25.5 persons aged 6-11 每25.5名6-11歲兒童設一個全日制學校課室	255 classrooms 個課室	443 classrooms 個課室	455 classrooms 個課室	+200 classrooms 個課室
Kindergarten and Nursery 幼兒班與幼稚園	34 classrooms for 1,000 children aged 3 to 6 每1,000名3-6歲以下幼童設34個課室	68 classrooms 個課室	214 classrooms 個課室	226 classrooms 個課室	+158 classrooms 個課室
District Police Station 警區警署	1 per 200,000 to 500,000 persons 每 200,000 至 500,000 人設一間	0	1	1	+1
Divisional Police Station 分區警署	1 per 100,000 to 200,000 persons 每 100,000 至 200,000 人設一間	1	2	2	+1
Clinic/ Health Centre 普通科診療所/健康中心	1 per 100,000 persons 每100,000人設一間	2	3	3	+1
Specialist Clinic/ Polyclinic 專科診療所/分科診療所	1 whenever a regional or district hospital is built 每興建一所醫院，便應同時設置一所專科診療所/分科診療所	N/A 不適用	3	3	N/A 不適用
Hospital Beds 醫院床位	5.5 beds per 1,000 persons 每1,000人設5.5個床位	1,259 beds 個床位	1,944 beds 個床位	2,173 beds 個床位	+914 beds 個床位
Magistracy 裁判法院	1 per 660,000 persons 每660,000人設一間	0	1	1	+1

District Elderly Community Centres 長者地區中心	One in each new development area with a population of around 170 000 or above 每個人口約為170 000人或以上的新發展區設一間	N/A 不適用	2	2	N/A 不適用
Neighbourhood Elderly Centres 長者鄰舍中心	One in a cluster of new and redeveloped housing areas with a population of 15 000 to 20 000 persons, including both public and private housing 每個人口為 15 000 人至 20 000 人的新建和重新發展的住宅區(包括公營及私營房屋)設一間	N/A 不適用	3	3	N/A 不適用
Day Care Centres/ Day Care Units^ (Centre-base) 長者日間護理中心／長者日間護理單位^ (以中心為本)	17.2 subsidised places per 1 000 elderly persons aged 65 or above~ ^ 每 1 000 名年滿65歲或以上的長者設17.2 個資助服務名額~ ^	406	110	110	-296
Residential Care Homes for the Elderly 安老院舍	21.3 subsidised beds per 1 000 elderly persons aged 65 or above˜ 每 1 000 名 65 歲或以上 的長者設21.3 個資助床位˜	1,258	572 $^{\Delta}$	572	-686
Integrated Children and Youth Services Centre 綜合青少年服務中心	1 for 12,000 persons aged 6-24 每 12,000 名6-24歲兒童/青年設一間	2	2	2	0
Integrated Family Services Centre 綜合家庭服務中心	1 for 100,000 to 150,000 persons 每100,000至150,000人設一間	1	1	1	0
District Open Space 地區休憩用地	10 ha per 100,000 persons# 每100,000人10公頃#	18.58 ha 公頃	35.89 ha 公頃	40.26 ha 公頃	+21.68 ha 公頃
Local Open Space 鄰舍休憩用地	10 ha per 100,000 persons# 每100,000人10公頃#	18.58 ha 公頃	15.13 ha 公頃	15.98 ha 公頃	-2.60 ha 公頃

Sports Centre 體育中心	1 per 50,000 to 65,000 persons 每50,000至65,000 人設一個	2	3	3	+1
Sports Ground/ Sports Complex 運動場/ 運動場館	1 per 200,000 to 250,000 persons 每200,000 至250,000 人設一個	0	4	4	+4
Swimming Pool Complex – Standard 游泳池場館－標準池	1 complex per 287,000 persons 每287,000人設一個場館	0	2	2	+2
Post Office 郵政局	Accessible within 1.2 km in urban area 在市區設於1.2公里的範圍內	N/A 不適用	7	7	N/A 不適用

Note 註：

The planned population of the Wan Chai District is about 185,000. If including transient population, the overall figure is about 230,000.
灣仔區的規劃人口約為 185,000 人。若連同暫住人口，總數將約為230,000人。

The requirements excludes planned population of transients and the provision is based on the information as at March 2018.
有關要求不包括流動居民，供應所根據的資料為截至2018年3月。

Δ Provided by Social Welfare Department. The figure refers to the number of subsidised (Residential Care Homes for the Elderly) RCHE places. The total number of RCHE within the district, including both subvented and self-financing RCHE, is 770.
由社會福利署提供。有關數字為資助安老宿位。區內津助和自負盈虧安老院舍共提供770個安老宿位。

~ This is a long-term goal and the actual provision would be subject to the consideration of the Social Welfare Department in the planning and development process as appropriate.
此乃長遠目標，在規劃和發展過程中，社會福利署會就實際提供的服務作出適當考慮。

^ The facilities belong to the centre-based facilities of Community Care Services (CCS). The planning standard of the CCS Facilities (including both centre-based and home-based) is population-based. There is no rigid distribution between centre-based CCS and home-based CCS stated in the Elderly Services Programme Plan. Nonetheless, in general, 60% of CCS demand will be provided by home-based CCS and the remaining 40% will be provided by centre-based CCS.
這些設施屬於以中心為本的社區護理服務。社區照顧服務設施(包括中心為本及家居為本)的規劃標準是以人口為基礎。《安老服務計劃方案》對中心為本及家居為本的社區照顧服務的分配沒有硬性的規定。不過，一般來說，家居為本的服務及中心為本的服務分別滿足六成和四成社區照顧服務方面的需求。

Attachment X of
MPC Paper No. 1/19

(Translation)

Minutes of the 16th Meeting of the 5th Wan Chai District Council
Hong Kong Special Administrative Region

Date: 8 May 2018 (Tuesday)
Time: 2:30 p.m.
Venue: District Council Conference Room, Wan Chai District Office,
21/F Southorn Centre, 130 Hennessy Road, Wan Chai, Hong Kong

Present

Chairperson

Mr NG Kam-chun, Stephen, BBS, MH, JP

Vice-chairperson

Dr CHOW Kit-bing, Jennifer, BBS, MH

Members

Ms NG Yuen-ting, Yolanda, MH
Mr LEE Man-lung, Joey
Ms LEE Kwun-yee, Kenny, MH
Ms LEE Pik-yee, Peggy
Mr LAM Wai-man, Wind, Anson
Mr WONG Wang-tai, Ivan, MH
Miss YEUNG Suet-ying, Clarisse
Mr CHENG Ki-kin
Dr TANG King-yung, Anna, BBS, MH
The Hon Paul TSE Wai-chun, JP
Ms CHUNG Ka-man, Jacqueline

Representatives of Core Government Departments

Mr CHAN Tin-chu, Rick, JP	District Officer (Wan Chai), Home Affairs Department
Miss LAU Hei-yue, Hayley	Assistant District Officer (Wan Chai), Home Affairs Department
Ms CHAN Siu-ping, Daphne	Senior Liaison Officer (Community Affairs), Home Affairs Department
Mr TSE Kwok-wai	District Commander (Wan Chai District), Hong Kong Police Force
Mr CHAN Kit-fung	Police Community Relations Officer (Wan Chai

	District), Hong Kong Police Force
Ms CHAN Sin-nga	Assistant Division Commander (Operations) (North Point), Hong Kong Police Force
Miss YIP Hau-yu, Hannah	District Social Welfare Officer (Eastern & Wan Chai), Social Welfare Department
Ms YUNG Chi-wai, Esther	Chief Engineer/South 4, Civil Engineering and Development Department
Ms WONG Wai-ching, Daisy	District Lands Officer/HKE (District Lands Office, Hong Kong East), Lands Department
Mr LUK Chi-kwong	Chief Leisure Manager (Hong Kong East), Leisure and Cultural Services Department
Ms LEE Pui-ling, Becky	District Leisure Manager (Wan Chai), Leisure and Cultural Services Department
Mr LAU Chi-keung	District Environmental Hygiene Superintendent (Wan Chai), Food and Environmental Hygiene Department
Mr CHAN Chi-pong, Steven	Senior Transport Officer/Wan Chai, Transport Department

Representatives of Other Government Departments and Organisations

Dr CHEUNG Tin-cheung, JP	Director of Buildings	for agenda item 1
Mr KWAN Sun-kau, Victor	Senior Building Surveyor, Buildings Department	
Ms WONG Fung-sang, Mandy	Administrative Assistant/Director of Buildings, Buildings Department	
Mr KAU Kin-hong, Louis	District Planning Officer/Hong Kong, Planning Department	for agenda item 3
Mr LUK Kwok-on, Anthony	Senior Town Planner/Hong Kong 3, Planning Department	
Ms FONG Hau-yin, Fiona	Engineer/Wan Chai 1, Transport Department	
Mr CHAN Chak-wing	Acting District Engineer/Peak, Highways Department	
Mr CHAN Wai-hong	Senior District Engineer/General(2), Highways Department	
Mr WAN Chi-kin	District Engineer/General(2)B, Highways Department	
Mr WU Kin-kwok, Eddy	Senior Engineer/Wan Chai, Transport Department	for agenda items 3 and 4
Mr LAU Ka-hei	Associate, AECOM Asia Company Limited	

Mr MA Hon-wing, Wilson	Chief Engineer/South 3, Civil Engineering and Development Department	for agenda item 4
Mr WONG Chi-leung	Senior Engineer/7 (South), Civil Engineering and Development Department	
Mr LEE Hon	Engineer/11 (South), Civil Engineering and Development Department	
Mr CHAN Tai-chi	Senior Engineer 1/Central Wanchai Bypass, Highways Department	
Ms LI Oi-yin, Yanny	Senior Engineer/Shatin to Central Link (6), Highways Department	
Mr Francis LEONG	Executive Director, AECOM Asia Company Limited	
Mr Jacob TSUI	Senior Resident Engineer, AECOM Asia Company Limited	
Mr William CHAN	Liaison Engineer I, MTR Corporation Limited	
Ms LEUNG Chung-yan, Juan	Member, Women's Commission	for agenda item 5
Mr CHAU Kwan-yat, Edwin	Assistant Secretary for Labour & Welfare (Welfare)	

Secretary

Ms WU Lai-shan, Alexandra	Senior Executive Officer (District Council)/ Wan Chai, Home Affairs Department

Action

Opening Remarks

1. The Chairperson welcomed Dr CHEUNG Tin-cheung, Director of Buildings (DB); Mr Victor KWAN, Senior Building Surveyor; and Ms Mandy WONG, Administrative Assistant to the DB of the Buildings Department (BD), to the 16th meeting of the Wan Chai District Council (WCDC) for exchanging views with its Members. The Chairperson also extended his welcome to Ms Esther YUNG, Chief Engineer/South 4 of the Civil Engineering and Development Department (CEDD), who joined the meeting for the first time, and Mr Steven CHAN, Senior Transport Officer/Wan Chai of the Transport Department (TD) vice Mr LAU Kin-kwok.

2. The Chairperson asked Members to note the papers and agenda with suggested discussion time on the conference table. He reminded them that each Member would be allotted three minutes to speak in respect of each agenda item.

confirmed by means of a motion moved by a Member and seconded by another Member.

26. Members present did not propose any amendments, and the minutes of the 15th meeting of WCDC were confirmed by means of a motion moved by Ms Kenny LEE and seconded by Mr Anson LAM.

Discussion Items

Item 3: Rezoning of the Caroline Hill Road Site
(WCDC Paper No. 35/2018)

27. The Chairperson welcomed the following representatives to the meeting:

Planning Department:	Mr KAU Kin-hong, Louis, District Planning Officer/HK
	Mr LUK Kwok-on, Anthony, Senior Town Planner/HK3
Transport Department:	Mr WU Kin-kwok, Eddy, Senior Engineer/Wan Chai
	Ms FONG Hau-yin, Fiona, Engineer/ Wan Chai 1
Highways Department:	Mr CHAN Chak-wing, Acting District Engineer/Peak
	Mr CHAN Wai-hong, Senior District Engineer/General(2)
	Mr WAN Chi-kin, District Engineer/General(2)B
AECOM Asia Co. Ltd.:	Mr LAU Ka-hei, Associate

28. The Chairperson invited the representatives of the Planning Department (PlanD) to brief Members on the paper.

29. Mr Louis KAU briefed Members on the following key points:

(i) Noting the grave concern expressed by the Council over the impact of the entire development project on the traffic of Causeway Bay, PlanD had made tremendous efforts during the planning process;

(ii) The proposed gross floor area (GFA) was 170 000 square metres, the total area of the entire site was about 2.6 hectares and the overall plot ratio was about seven. For a site on Hong Kong Island, a plot ratio of seven was relatively low;

(iii) Of the GFA of 170 000 square metres, 70 000 square metres would be used to build a Judicial Complex for District Court (JCDC). Since the operating hours of courts were different from the peak hours of ordinary offices, with the former opening at 9:30 a.m. and adjourning at 4:30 p.m., it was believed that lesser traffic impact would be caused;

(iv) Improvement works were proposed for roads in the vicinity in order to alleviate the traffic at Caroline Hill Road;

(v) According to the Hong Kong Planning Standards and Guidelines, the overall open space in Wan Chai District was considered sufficient, yet the local open space was insufficient. In view of this, PlanD required the provision of open space of at least 6 000 square metres within the future commercial site for public enjoyment;

(vi) The Transport Department (TD) required the provision of 100 public parking spaces for private cars and 25 public parking spaces for commercial vehicles within the site to ease the serious illegal parking problem in Causeway Bay; and

(vii) It was proposed that some space would be reserved in the proposed development project for the reprovisioning of the existing green minibus stops at Lan Fong Road. TD would consult users, stakeholders and the district council when the development project was about to complete. After the consultation, a decision would be made on the number of minibus routes to be reprovisioned at the Caroline Hill Road site.

30. Mr Anthony LUK briefed Members on the paper with a PowerPoint

presentation, including the background and details of the proposed developments, the open space and transport facilities to be provided, tree conservation and landscape design, conservation of stone walls, the traffic impact assessment (TIA), the air ventilation assessment, community facilities and the proposed amendments to the Wong Nai Chung Outline Zoning Plan (OZP) No. S/H7/19.

31. The Chairperson said that it was a well-known fact that the Caroline Hill Road site was the only large prime site left in the district. While he understood that the development of the Caroline Hill Road site should be in line with the future development direction, such as meeting the needs for judicial facilities and commercial sites, it was a matter of public concern that if the Administration had taken into account local needs during the planning process. For example, many Members had raised concern over the lack of a civic centre in Wan Chai District. More often than not organisers had to hire venues in Sai Wan Ho Civil Centre or Sheung Wan Civic Centre for holding activities.

32. The Chairperson continued that Miss Clarisse YEUNG had informed the Secretary on 4 May 2018 of her wish to make an oral statement on this agenda item at this meeting. Under Section 29 of the Standing Orders of WCDC, "a member who wishes to make an oral statement shall notify the Secretary before the meeting, and the oral statement shall not last more than five minutes".

33. Miss Clarisse YEUNG made the following oral statement:

> "I hereby make an oral statement. Regarding the planning of the site on Caroline Hill Road where the ex-Electrical and Mechanical Services Department is located, the Development Bureau (DEVB) and PlanD have been dodging the issue and concealing the fact from WCDC and LegCo. At the meetings of WCDC and the Public Works Subcommittee of LegCo held over the past few months, the government representatives repeatedly dodged the questions on the future land use raised by Members by saying that the demolition of the buildings on Caroline Hill Road was nothing to do with the future land use. Yet the murder will out. After Members of WCDC and LegCo have repeatedly asked about and pursued the issue, the Government admits honestly today that the

demolition of the buildings is related to the future land use. In other words, the Government is preparing to put the land on sale for commercial development and to build a judicial complex. I am deeply disappointed. I know no matter WCDC endorses today's paper or not, the Administration will submit the demolition proposal to the Finance Committee (FC) of LegCo. In my opinion, the Administration should re-launch the consultation on the Caroline Hill Road site, which should be conducted with no preconditions or stance, before demolishing the existing buildings and applying for making amendments to the OZP. The Government should not push ahead with the issue without considering the views of the Council and the local residents."

34. The Chairperson invited Members to raise comments or enquiries.

35. Ms Peggy LEE raised the following comments and enquiries:

(i) She had asked PlanD at a meeting of the Development, Planning and Transport Committee (DPTC) whether there were any preconditions behind the funding application to LegCo for the demolition of the buildings at the Caroline Hill Road site. In response, Mr Anthony LUK said that the Government did not impose any preconditions. Yet, in less than two months' time, PlanD consulted the Council on a planning proposal with preconditions. She was astonished to note such a proposal.

(ii) In view of the heavily congested traffic in the vicinity of Causeway Bay, the Council had expressed at its last meeting that no more additional sites in the district should be used for commercial purpose. Though the Administration claimed that road improvement works would be carried out, she queried who should be held accountable if traffic congestion was resulted.

(iii) PlanD had mentioned very long ago that the site in question was planned to be used for building government and recreation facilities. In fact, the local residents had a strong demand for open space, performance venues and a civic

centre. The Caroline Hill Road site was an ideal site for meeting local needs.

(iv) While she acknowledged that the Government had to ensure an adequate supply of commercial sites to maintain Hong Kong's status as a financial centre, she queried why Wan Chai was targeted and why another commercial area could not be developed in other districts.

(v) Upon receipt of the planning proposal by the Town Planning Board (TPB), a two-month consultation would commence. However, it was a known fact that it was unlikely for a planning proposal to be turned down. She queried how the Administration would address the opposition from the local residents, and asked if the views of the Council would be taken into account.

(vi) She asked the Administration to clearly explain why the document submitted to this meeting was completely different from what the Government had said one and a half months ago. At that time, the Government said there were no preconditions. This was an act to deceive the Council. Not only did the Administration turn a deaf ear to the public opinion, but it also paid no heed to the views of the Council.

36. Ms Yolanda NG raised the following comments and enquiries:

(i) PlanD had firmly told the Council not long ago that the demolition of the old buildings was for safety sake and there were no preconditions. But shortly afterward, a planning proposal with preconditions was submitted to the Council.

(ii) If there were reasonable justifications, she would not be opposed to the construction of a judicial complex at a site for sports and recreation use. But the Administration should seek consent from the court first. She enquired when the Administration started communicating with the court and when it firmly told the Council that there were no preconditions. She was sure that there were contradictions

in terms of time of the above actions. She requested the Administration to give an honest account of the matter.

(iii) Causeway Bay had been overloaded with commercial activities and traffic. She asked the Administration to clearly explain why the Caroline Hill Road site should be rezoned for commercial use.

(iv) While the Administration claimed that the additional parking spaces would alleviate the illegal parking problem in Causeway Bay, she queried if such measure could produce results. She doubted if the additional pick-up/drop-off facilities for green minibuses could accommodate the minibus bus routes at Lan Fong Road. In fact, the minibus stops at Jardine's Bazaar, King Lung Street, Lockhart Road and Jaffe Road were all overloaded with traffic. She queried if the relocation of the minibus stops to Caroline Hill Road would resolve the existing traffic problem or cause an even bigger traffic problem. Moreover, she asked the Administration if it had considered the willingness of the public to use the proposed minibus interchange at Caroline Hill Road and if it had taken into account the provision of pleasant walking experience. She was of the view that the Administration had deceived the Council about the proposed planning.

37. Miss Clarisse YEUNG raised the following comments and enquiries:

(i) At the meeting of WCDC on 6 March 2018, PlanD had said that an assessment of the buildings in Causeway Bay which were likely to be redeveloped had been made. PlanD had also promised that it would provide the Council with the information about the floor area and uses of those buildings. However, she had only received a location plan so far. Without the floor area and related information, it was almost impossible to discuss the over-commercialisation of Causeway Bay.

(ii) She asked if the Administration could assess the buildings in Wong Nai Chung OZP which were aged over 30 years and below seven storeys high since these buildings were likely to be redeveloped. She also asked if the Administration could provide the Council with a list of the buildings, a location plan and the site area.

(iii) PlanD had requested the Judiciary to consider the sites at Tung Chung, Tin Shui Wai and Sai Ying Pun. She asked PlanD to explain why the Judiciary considered those three sites unsuitable.

(iv) The height restriction for Silverwood which was close to the Caroline Hill Road site was 100 metres, while South China Athletic Association (SCAA) was seven storeys high. She enquired why the height restriction for the Caroline Hill Road site was set at 135 metres. Moreover, she hoped that the landscape plan could show the visual effect from more angles.

(v) She enquired about the number of parking spaces to be provided by JCDC and the two commercial buildings, and asked if the Administration had assessed whether the 125 public parking spaces could meet the local needs.

(vi) She asked the Administration to provide details of the pick-up/drop-off facilities for green minibuses, including the number of minibuses allowed to be parked at the pick-up/drop-off point and whether a minibus terminus could be provided. Besides, she asked whether PlanD had confirmed with TD to ensure minibus operators were willing to use the proposed minibus stop.

(vii) Paragraph 5(g) of the paper stated that "to reserve an underground connection point at the proposed commercial development for connecting a possible underground pedestrian connection that may be constructed in the future". She asked the Administration to provide a map showing the route of the connecting point to the underground pedestrian

connection to be built.

(viii) As regards the technical assessments as mentioned in paragraph 6 of the paper, she requested the Administration to provide the full technical assessment reports for the Council's perusal. Besides, according to the technical assessments undertaken, the proposed developments would not induce unacceptable impact to the local area. She asked the Administration to explain what unacceptable impact meant.

(ix) She enquired if the TIA had covered the main roads such as Gloucester Road, Hennessy Road, Yee Wo Street, Causeway Road and Canal Road. She also enquired about the crossing arrangements between Link Road and Caroline Hill Road. Besides, she asked if the Administration had assessed the impact of road closures on the developments when an event was being held in the Hong Kong Stadium.

38. Dr Jennifer CHOW raised the following comments and enquiries:

(i) She concurred with the views just raised by Members, and commented that the entire proposal lacked vision. The planning proposal focused only on the development of a very limited and small area. However, any development could either stimulate or hinder the development of the entire community, and in particular would have impact on the development of the local economy. She called for the Administration to take into account the overall development of Wan Chai District in the planning process.

(ii) The planning proposal did not include local views. She enquired if there were any alternative options. She opined that the Administration should consider how to fulfil the local needs. The Caroline Hill Road site was the only site left in the busy area which was suitable for the construction of a civic centre. The provision of such facility could add value to the district.

(iii) She was worried about the traffic impact of the proposed developments. The proposed developments would induce extra pressure on the traffic of Wan Chai District, thus aggravating the traffic congestion problem.

(iv) Cohesiveness was an important function of a community. Yet, the proposed developments could neither enhance the cohesiveness of the community nor add value to Wan Chai District in terms of the provision of transport and community facilities. She called for the Administration to enhance its visionary planning efforts and listen more to the views of the Council.

39. Ms Jacqueline CHUNG raised the following comments and enquiries:

(i) At the meeting of DPTC on 10 April 2018, Mr Louis KAU clearly stated that the Government did not set any preconditions. However, in less than a month, PlanD submitted such a paper, and even held a pre-meeting to clearly state that what information had been provided to the Council. This was no different from setting a trap for the Council. It was despicable of the Administration to fool the Council in such a way.

(ii) As mentioned in the paper, if the Council agreed with the proposal, the Administration would relay the views of the Council to the Metro Planning Committee (MPC) for consideration. Subject to the consent of MPC, the Administration would proceed to amend the draft OZP. The Administration was trying to achieve its aim by seeking consent from the Council when the Council was not informed of all the facts. This showed that the Government had grown increasingly cunning.

(iii) The presentation given by the Administration today did not reveal the whole truth. The Administration only repeatedly emphasised that an additional 100 and 25 parking spaces for private cars and commercial vehicles respectively would be

provided, but it was tight-lipped about the fact that a total of 600 parking spaces would be provided by the commercial buildings and the judicial complex.

(iv) After painstaking effort by different parties, the seven traffic relief measures could eventually be implemented in the vicinity of Causeway Bay. When the traffic condition in the vicinity of Leighton Road and Percival Street began to show signs of improvement, another project was proposed. Upon completion, the developments would bring in at least 600 vehicles. The commercial development in the retail sector and restaurants would certainly result in extra vehicular and pedestrian flows. The Administration claimed that the courts would only operate between 9:30 a.m. and 4:30 p.m. This was a specious argument used to cover up the truth.

(v) The proposed development of Po Leung Kuk in Causeway Bay had obtained the approval from the Council and would commence in 2019. Given its old age, SCAA was likely to be redeveloped. The building height restriction for buildings at Haven Street would be increased from 110mPD to 135 mPD, which would stimulate private developments in the area. Moreover, whenever an event was held in the Hong Kong Stadium, the traffic in the vicinity of Causeway Bay would be brought to a standstill, and Leighton Road would be the only road left which could relieve the traffic at those major trunk roads such as Gloucester Road, Lockhart Road and Hennessy Road. Even Road P2 at Wan Chai North to be commissioned could only relieve the traffic in the coming five years. The planning proposed by PlanD today would bring in at least 600 vehicles, which would certainly add an extra burden to the local traffic.

(vi) The reason behind the proposed relocation of the judicial building to Caroline Hill Road was that the Government intended to sell the sites where the three government buildings in Wan Chai were located at high prices. She accused the Government of repeatedly deceiving the

Council, and expressed her opposition to the rezoning proposal.

40. Ms Kenny LEE raised the following comments and enquiries:

(i) It was stated in the paper that the "TIA assumes that the maximum floor area for retail purpose is 10 000 square metres. The Government will consider imposing a ceiling on the floor area of the shopping malls for retail purpose". This showed that the Government would only consider imposing a floor area ceiling. Without any promises, all these assumptions were subject to change.

(ii) She enquired if the Administration had considered the traffic condition after the commissioning of the Central-Wan Chai Bypass (CWB) and the future growth in the vehicle population in estimating the reserve capacity (RC) in 2031. She queried why the Administration could make a long-term projection covering the future 13 years from 2018 to 2031 within such a short time. She was of the view that a projection covering the coming five or ten years should be provided.

(iii) Members of the public were seen having their driving training on Leighton Road and Cotton Tree Path during different periods of time every day. Besides, Irving Street and the area outside Regal Hong Kong Hotel were packed with vehicles before and after school hours. She enquired if the Administration had considered these conditions in making the projection.

(iv) Regarding the level of service of pedestrian crossings, it was stated that the green time for road sections B1, B3 and B5 would be extended in order to raise the level of service to Grade D. If the green time for pedestrians was to be extended, the waiting time for vehicles would increase. She enquired how the traffic light time would be adjusted to relieve the traffic congestion at Causeway Road.

(v) SCAA would soon be redeveloped. Moreover, serious traffic congestion would arise whenever an event was held in the Hong Kong Stadium. The proposed planning would bring in a few hundred additional vehicles. She could not imagine how the future road design could absorb such massive vehicular flow.

(vi) As regards the proposed road juncture improvement works, the lane outside Po Leung Kuk would be modified to a "left-turn and right-turn" shared lane. At present, there was one lane for eastbound Leighton Road and another lane for westbound Leighton Road. This junction could accommodate a few more vehicles, but not an additional lane could be created. Therefore, no significant improvement was expected.

41. Mr Ivan WONG raised the following comments and enquiries:

(i) Members were most concerned about the studies undertaken by the Administration, based on which the Caroline Hill Road site was considered the most suitable site for the construction of JCDC. He enquired if the Administration had considered using this site for other development purposes to meet the local needs.

(ii) PlanD had not consulted the Council on the preliminary planning, and the relevant decision was made before collecting public views. In fact, the concrete planning had already been worked out long before consulting the Council. This showed that the Administration disrespected the Council. Such practice had been in place for years and no improvement had ever been made.

(iii) PlanD should not work out the concrete design before considering other relevant factors. In view of the serious traffic congestion in Causeway Bay, the local residents had high hopes that the Caroline Hill Road site could be used to alleviate the traffic congestion and open space could be provided within the site.

(iv) A large number of people would go in and out of the courts before and after the operating hours. Thus he did not agree with the argument that the courts would only operate from nine to four.

42. Mr Anson LAM raised the following comments and enquiries:

(i) Instead of having no preconditions as claimed by the Administration, a prior decision had been made. He was surprised that the Administration dared to claim that the proposed developments would not generate unacceptable traffic impact. Such lies were downright insults to Members' intelligence.

(ii) The vicinity of Caroline Hill Road had already been highly congested. He asked what actions would be taken by the Administration if the traffic congestion there did deteriorate after the implementation of the proposed planning. Since TD was not a law enforcement department, he queried if the Police had to be asked to deploy its manpower to monitor the traffic round the clock.

43. Mr CHENG Ki-kin raised the following comments and enquiries:

(i) Wan Chai was an old district and many long-standing problems could not be resolved since the district had been fully developed. He opined that the long-standing problems in the district, such as the relocation of the methadone clinic at Southorn, should be resolved through the redevelopment of the Caroline Hill Road site and the relocation of the three government buildings.

(ii) If the court had to be relocated, it should be relocated to an easily accessible area in the urban district for the convenience of the public.

(iii) The illegal parking problem was resulted from insufficient parking spaces. Since the prices of Grade A offices had

continued to rise to a record level, he asked without the redevelopment of an old area, how job opportunities could be created and how opportunities for upward social mobility could be provided for the next generation.

44. The Chairperson asked the representatives of PlanD to respond to Members' first-round enquiries.

45. Mr Louis KAU responded as follows:

(i) He said that PlanD had all along respected the Council. He stressed that the Government had proposed in the 2017 Policy Address to rezone the Caroline Hill Road site for the construction of JCDC and commercial development. PlanD had never had any intention to conceal the development direction of the Caroline Hill Road site. He also clarified that he had not attended the meeting of DPTC held on 10 April 2018.

(ii) The Judiciary considered that the locations of the sites at Tung Chung and Tin Shui Wai could not meet the needs of the courts, while the area of the site at Sai Ying Pun could not meet the required area of 70 000 square metres estimated based on the existing needs. Having considered all the relevant factors, the Judiciary agreed in principle to construct JCDC at the Caroline Hill Road site. The Administration Wing sent a written reply to the Council on 10 April 2018, explaining the considerations for the site selection.

(iii) As regards the number of parking spaces to be provided, there would be 135 parking spaces for private cars, 5 parking spaces for motorcycles and 14 loading/unloading facilities for use by the vehicles of the Correctional Services Department in JCDC. As required by the Hong Kong Planning Standards and Guidelines, there would be 300 parking spaces for private cars, 30 parking spaces for motorcycles, 46 loading/unloading facilities for goods vehicles and 7 pick-up/drop-off facilities for taxis and

private cars within the commercial site.

(iv) According to the Hong Kong 2030+ Planning Vision and Strategy, commercial sites were still in short supply up to 2031. Having considered the fact that the Caroline Hill Road site was located in a core business district in Causeway Bay and the compatibility of the site with the nearby developments, PlanD considered the Caroline Hill Road site suitable to be used for commercial purpose. The Administration would closely monitor the impact of the developments on the nearby traffic.

(v) In response to the public aspiration for the use of the Caroline Hill Road site to meet local needs as relayed to PlanD by the Council, the provision of the relevant facilities was planned. As regards the provision of a civic centre, PlanD could relay this suggestion to the relevant policy bureau and departments for consideration. However, attention should be drawn to the fact that it was necessary to consider the traffic impact even if the site was to be used for building a civic centre.

(vi) The proposed amendments to the Wong Nai Chung OZP mainly concerned the rezoning of the Caroline Hill Road site, while the Causeway Bay OZP introduced to the Council at its last meeting was to revise the building height restrictions for a number of zones in the OZP. To show the visual impact after the relaxation of the building height restrictions, PlanD assumed that buildings aged above 30 years and with less than seven storeys would be redeveloped, and based on this assumption, an analysis showing the simulated visual impact was made. Since the amendments to the Wong Nai Chung OZP did not concern the building height restrictions for the entire OZP, no such similar analysis would be made. Thus, PlanD could not provide the information as requested by Miss YEUNG.

(vii) As required by the Sustainable Building Design Guidelines, if any commercial sites on Hong Kong Island were to be

developed, the building height restriction should generally be set at 135 mPD in order to enable the sites to be developed to the permissible development intensity on one hand, and to meet the requirements of the Sustainable Building Design Guidelines on the other. Moreover, although the plot ratio for the Caroline Hill Road site was lower than that for general commercial sites, the provision of a new carriageway and open space of not less than 6 000 square metres was required. Therefore, adequate flexibility should be allowed in the building height in order to enable the building design could meet the necessary requirements.

(viii) The developer would design and provide open space of no less than 6 000 square metres in accordance with Public Open Space in Private Developments Design and Management Guidelines issued by DEVB.

(ix) As regards reserving an underground connection point to connect a possible underground pedestrian connection that might be constructed in the future, as far as he knew, there were two possible routes for the underground connection, namely, along Sunning Road or along Pennington Street. Therefore, flexibility would be stipulated in the land lease of the Caroline Hill Road to require the developer to reserve underground connection points in those locations for connecting to the possible underground pedestrian connection that might be constructed in the future.

(x) PlanD would advise TPB to set the retail floor area at 10 000 square metres, and would advise LandsD to incorporate such restriction into the future conditions of sale to prevent the retail land use from bringing in too many vehicles, which might generate the impact similar to that of Times Square on the nearby road network. Since the retail floor area of Times Square accounted for about 40% of the total floor area, a greater traffic impact was produced. In the planning proposal under discussion, only 10% floor area would be used for retail purpose. Therefore it was believed that the traffic impact could be minimised.

46. Mr LAU Ka-hei responded as follows:

(i) The TIA of the Caroline Hill Road site covered the traffic condition in the next five years following the completion of the buildings. It was therefore a long-term projection covering up to 2031.

(ii) The TIA had taken into account the traffic impact after the commissioning of CWB. Since CWB was mainly to divert the traffic of Gloucester Road, it was believed that no significant traffic impact would be caused to the local traffic (e.g. Leighton Road).

(iii) While Leighton Road, Cotton Tree Path, Eastern Hospital Road were packed with school buses and private cars before and after school hours, such traffic congestion would not coincide with the rush-hour congestion in the morning since the former occurred earlier than the latter. Besides, since court hearings would start at 9:30 a.m., the staff and legal practitioners would arrive at around 9 a.m.

(iv) Regarding the proposed road junction improvement works in the western section of Caroline Hill Road, during peak hours, vehicles would queue up on the fast lane of northbound Caroline Hill Road, waiting for turning right to eastbound Leighton Road. The traffic queue would extend to the junction of Link Road. Since northbound Link Road had only one lane, the above-mentioned traffic queue also blocked the right-turn traffic for westbound Leighton Road. In view of this, it was proposed to modify the slow lane of northbound Caroline Hill Road to a "left-turn and right-turn" shared lane in order to increase the right-turn traffic capacity and avoid traffic congestion on the fast lane.

(v) The TIA showed that the RC of major signalised crossings was positive. A positive RC figure indicated that the road junction was operating with spare capacity. Besides, the design flow/capacity ratio was below 0.85, indicating that

the performance of the junctions was satisfactory.

47. Mr Louis KAU supplemented as follows:

(i) PlanD had obtained the information from the Police about road closures due to special events in the Hong Kong Stadium in 2017. In 2017, 36 major events were held in the Hong Kong Stadium, resulting in 36 road closures. More than half of those events were held on Sundays or public holidays, indicating that at least half of the events had no significant impact on the developments on Caroline Hill Road. Most of the remaining events were held on Friday, only two of which were held during rush hours in the morning.

(ii) The Police would inform the shop tenants and residential buildings close to Caroline Hill Road of the time of road closures before any major events in the Hong Kong Stadium to enable them to make preparation. The Police would do the same following the completion of the judicial complex and the commercial buildings. Therefore, the events in the Hong Kong Stadium would not cause any unacceptable impact on the developments on Caroline Hill Road in the foreseeable future.

48. The Chairperson thanked the representatives of PlanD for their detailed responses. He then asked Members if they had other comments.

49. Miss Clarisse YEUNG raised the following comments and enquiries:

(i) She was shocked to note the comments by PlanD that Members had raised too many questions. It was the duty of Members to obtain a clear understanding of the issue under discussion by raising enquiries. Noting the numerous flaws contained in the paper submitted by PlanD, Members raised enquiries about various issues. However, she was very sorry to learn that PlanD was unable to answer their enquiries.

(ii) RC and traffic congestion were two separate concepts. Since she was worried that the traffic in the vicinity of Caroline Hill Road would be brought to a standstill after the rezoning, she enquired of PlanD about what unacceptable impact meant. However, the representative of PlanD only cited the design flow/capacity ratio without answering her question at all.

(iii) In its reply in April 2018 to an enquiry raised by DPTC, the Department of Justice (DoJ) said that the relocation of courts was not under its purview and they would only provide legal advice. She asked if DoJ had any knowledge at that time of the plan to relocate the courts to Caroline Hill Road.

(iv) It was proposed that 70 000 square metres of the site would be used to construct a judicial complex. She had no intention to hinder employment, yet a judicial complex would lead to the provision of the relevant services in a centralised manner, which ran against the planning direction of decentralisation.

(v) The population of the New Territories (NT), Kowloon and Hong Kong Island stood at 3.6 million, 2.1 million and 1.29 million respectively. Besides, the numbers of single-parent families in NT, Kowloon and Hong Kong Island were 45 000, 26 000 and 9 000 respectively. If the judicial complex was to be located on Hong Kong Island, more people would have to access the complex through cross-district travelling.

(vi) It was a usual practice of the Government to deceive the Council by using some tricks. The passage of projects and papers did not mean that the public interest had been served. The Government neither conducted a public consultation in a sincere manner nor answered Members' enquiries. It only submitted a consultation paper with preconditions.

(vii) Co-opted Member Dr CHEUNG Chalton of DPTC had once said that Causeway Bay needed a home for the elderly run

by the Government. The representative of PlanD said at the last meeting that the Social Welfare Department was consulted, which did not make any request for the provision of a home for the elderly within the Caroline Hill Road site. She found such reply unbelievable.

(viii) Professor TANG Wing-shing of the Department of Geography of the Hong Kong Baptist University had been promoting the idea of urban logic, i.e. the application of logic in urban planning. She queried if the Government chose to blindly pursue the goal for the supply of Grade A offices at the expense of local needs.

(ix) The greatest evil was that the Government had deceived the Council and put forward a demolition proposal with preconditions, which would soon be submitted to FC.

50. Ms Yolanda NG raised the following comments and enquiries:

(i) Since PlanD had not yet answered her question, she had to raise the question once again. She enquired when the Judiciary was asked to consider the sites at Tung Chung, Tin Shui Wai, Sai Ying Pun and Caroline Hill Road, and when the Judiciary gave a reply. She opined that they could confirm from the answers of these fundamental questions if PlanD had deceived the Council.

(ii) She did want to render her support for the development of the Caroline Hill Road, provided that the Administration respected the Council and listened to Members' views.

(iii) She did not think that the Caroline Hill Road site was suitable for commercial use. A site at Jardine's Bazaar had been changed from residential to commercial use; Lee Garden Three had opened; and some major residential buildings at King Lung Street and Jaffe Street had been converted to shopping centres and commercial buildings. In fact, Causeway Bay was over-commercialised, with the whole district being overloaded with commercial

developments. The original small, liveable district had become a commercial and tourist region, and the local residents were subjected to the pressure brought about by the commercial developments every day.

(iv) She agreed that all the people of Hong Kong were entitled to the service provided by the Judiciary. Yet she queried if the Caroline Hill Road site was the only site suitable for the construction of JCDC. She recalled that Hong Kong Tramways had deceived the Council by saying that they were required to move out and the circular planting area in Causeway was the only suitable site for relocation of the tram power substation. However, the true story was uncovered by the Council after Members kept asking questions. If PlanD did not speak the truth today, it was impossible to obtain the support from the Council.

51. Mr Joey LEE concurred with other Members' views. He queried if PlanD had committed a procedural error by pursuing the issue in such a way. He found the arguments raised before and today by PlanD unacceptable. PlanD should conduct a review and devote its effort to longer term planning, so as to enable the public to have a better living. He was very disappointed and dissatisfied with the handling of the matter by PlanD.

52. The Chairperson invited representatives of PlanD to respond to Members' enquiries.

53. Mr Louis KAU responded that the Judiciary replied to the Government in mid-2017 that they agreed to reprovision JCDC at the Caroline Hill Road site and to build the judicial court complex for High Court at the site at 5 New Harbourfront in Central. Having reviewed its needs, the Judiciary proposed to the Government the construction of the judicial complexes at the above-mentioned sites to meet its long-term needs for judicial facilities.

(Post-meeting note: PlanD corrected the previous answer, saying that the Judiciary replied to the Government in mid-2016 that they agreed to reprovision JCDC at the Caroline Hill Road site.)

54. Ms Yolanda NG said that she had to ask the same question three times. PlanD only told the meeting when the Judiciary replied, but did not answer when the Judiciary was informed of the proposed sites for consideration. PlanD had told the meeting about a month ago that there were no preconditions, but now answered that the Judiciary had replied to the Government in mid-2017. She requested PlanD to give a thorough account of the whole matter.

55. Mr Louis KAU responded that the Judiciary had requested the Government in 2012 to provide a site for meeting its need for judicial facilities. In response to the Judiciary's request, PlanD later informed the Judiciary of the proposed sites for consideration.

56. Miss Clarisse YEUNG raised the following comments and enquiries:

(i) She asked PlanD if the Judiciary had been asked whether they would accept the Caroline Hill Road site before PlanD visited the Council for the first time to discuss the demolition of the buildings at Caroline Hill Road.

(ii) She enquired why the proposed open space of 6 000 square metres would be developed by a private developer. She asked if PlanD considered the Leisure and Cultural Services Department not capable of developing the open space.

(iii) Since Members raised many enquiries and opposing views regarding the project, she suggested voting on the project by a show of hands in order to raise objection to the submission of the paper to TPB.

57. The Chairperson concluded that while community development was no cause for complaint, it was worthy of support only if the development could cater for the local needs. Members had grave concern over the development of the Caroline Hill Road site since they feared that the Administration would repeat the same mistake, leading to irreversible traffic impact as that caused by Times Square. The justifications given by the Administration were not convincing enough, and the majority of

Members were against the proposed developments. The Chairperson then invited views from Members on whether it was necessary to put the proposal on a vote.

58. Dr Anna TANG agreed with the Chairperson that community development was no cause for complaint. Yet the lack of communication between PlanD and Members had led to lots of worries raised by Members. Wan Chai was a busy district with a large population. At present, a large number of territory-wide facilities were located in Wan Chai. Therefore, it was imperative for the Government to ensure the land in the district was put to good use. She hoped that the Administration could enhance communication with Members, and expressed that she would abstain from voting at the moment if the proposal was put to a vote.

59. Mr Ivan WONG said that Members had clearly expressed their concerns. They were not against the construction of a judicial complex. Yet, the matter should be pursued in accordance with better procedures. He was of the view that the Administration should consolidate Members' views and relayed the consolidated views to TPB to enable Members' voices to be heard loud and clear.

60. Ms Yolanda NG raised the following comments and enquiries:

(i) She stressed that she was not against any planning development, but against the paper. She could not agree with PlanD's handling of the matter including bypassing the Council and submitting a paper with preconditions.

(ii) She did not agree with the suggestion about submitting the consolidated views of the Council to TPB for consideration. If the paper was submitted to TPB, TPB would proceed to consider the suitability of the proposed site. She was of the view that the Council should vote on the matter in order to show whether the paper was supported by the majority.

(iii) The representative of PlanD claimed that even if the site was used to build recreation facilities, traffic impact would be caused. However, PlanD did not provide TIA in respect of

the provision of recreation facilities, making it impossible for the Council to assess which option would result in greater impact. PlanD only proposed in the paper to construct a judicial complex and commercial buildings. There were no other alternative options at all. This was very unfair.

61. Mr Anson LAM commented that it was necessary to conduct a vote in order to firmly express the Council's opposition to the submission of the paper to TPB.

62. Ms Jacqueline CHUNG said that the Council was not against the construction of a judicial complex, but could not agree with the content of the paper. She opined that it was necessary to conduct a vote in order to tell TPB loud and clear about the Council's stance. The Council should ensure no repeat of the same problems as those caused by Times Square; otherwise, the Council would owe the public an answer.

63. Mr Joey LEE stressed that he was not against community development, but against the paper. The Government should communicate with the Council before developing the district. The proposal should only be submitted to TPB after obtaining the support from the majority of Members.

64. Ms Kenny LEE said that being the Chairperson of DPTC, she was most concerned with the traffic impact of the proposal. Such information was not provided at the pre-meeting held two weeks ago. Instead, the information was hastily submitted to the Council today. In fact, all the traffic figures obtained before the commissioning of CWB were estimated figures. In addition, the consultant was unable to answer the enquiries about the growth in the number of vehicles and road management. For the above reasons, she expressed her opposition to the paper.

65. Miss Clarisse YEUNG agreed that the paper should not be endorsed. She opined that if the paper was submitted to TPB, TPB could keep bringing up issues with the residents by making use of the planning procedures, even if much controversy had been aroused in the community. The case of Hopewell Centre II could serve as a good

example of such practice. Therefore, the Council should state loud and clear its stance.

66. Dr Anna TANG said that Members had clarified that they were not opposed to the content of the paper, but the submission of the paper to TPB. The future handling of the matter should be left to TPB as Members had clearly expressed their stance.

67. The Chairperson concluded that Members were not against district development. Yet the consultation work which was conducted in a hasty manner could not promptly remove all the worries raised by Members. Therefore, Members expressed their opposition to the paper.

68. Dr Anna TANG supplemented that the departments concerned did not maintain sufficient communication with Members, and the consultation work was not up to standard.

69. Ms Yolanda NG raised the following comments and enquiries:

(i) Most of the Members who had spoken on the agenda item were not only opposed to the content of the planning paper about the construction of a judicial complex and the commercial developments, but also did not support the submission of the paper to TPB. If Members only expressed their views without passing any resolution, PlanD would proceed to submit the paper to TPB, and TPB would process the paper upon receipt of it. Therefore, she opined that the Council should vote on whether it agreed with the submission of the paper to TPB.

(ii) PlanD had not answered the core questions at all. It contradicted itself by saying that it did not receive the reply from the Judiciary until mid-2017, that it only started considering the land use in 2012 and that there were no preconditions. All these claims were made to deceive the Council.

(iii) The representative of PlanD claimed that even if the site was used to build recreation facilities, traffic impact would be

caused. However, PlanD did not provide TIA in respect of the provision of recreation facilities. In other words, no alternative options were available. In the past decade, the Government had not engaged the public in the planning process of the site concerned. The Council found it hard to support such a paper which was submitted to the Council in haste.

70. Ms Peggy LEE said that if the proposal was submitted to TPB, PlanD would convince it by presenting some estimated figures, and there would be no turning back once TPB was convinced. Therefore, she opposed the submission of the proposal to TPB and called for PlanD to thoroughly consult the Council.

71. Dr Anna TANG commented that the consultation work conducted by PlanD was not good enough, and queried why the paper had to be submitted to TPB within such a short notice. She stressed that she was absolutely not against the submission of the paper to TPB.

(Dr Anna TANG left the meeting at 5:55 p.m.)

72. Mr Ivan WONG said that even all Members raised objection, PlanD might still submit the paper to TPB. He asked if PlanD was willing to make a pledge at the meeting that the relevant paper would not be submitted to TPB before removing all the worries.

73. Ms Jacqueline CHUNG reckoned that since the paper was to "brief the Wan Chai District Council on the proposed developments at the Caroline Hill Road Site and the related proposed amendments to the approved Wong Nai Chung Outline Zoning Plan No. S/H7/19, and solicit views of members of WCDC", the Council should vote on whether the proposed amendments should be endorsed, with a view to enabling the Administration to note the stance of the Council. This could prevent TPB from making its own interpretation of Members' views.

74. The Chairperson asked Members to vote on the proposed amendments by a show of hands. The voting result was as follows:

Yes: 1 vote (Mr CHENG Ki-kin)

No: 9 votes (Dr Jennifer CHOW Ms Yolanda NG Mr Joey LEE Ms Kenny LEE Ms Peggy LEE Mr Anson LAM Mr Ivan WONG Miss Clarisse YEUNG Ms Jacqueline CHUNG)

Abstain: 1 vote (Mr Stephen NG)

75. The Chairperson said the Council voted against the proposed amendments by a clear majority. He asked PlanD to launch a more in-depth consultation with the Council.

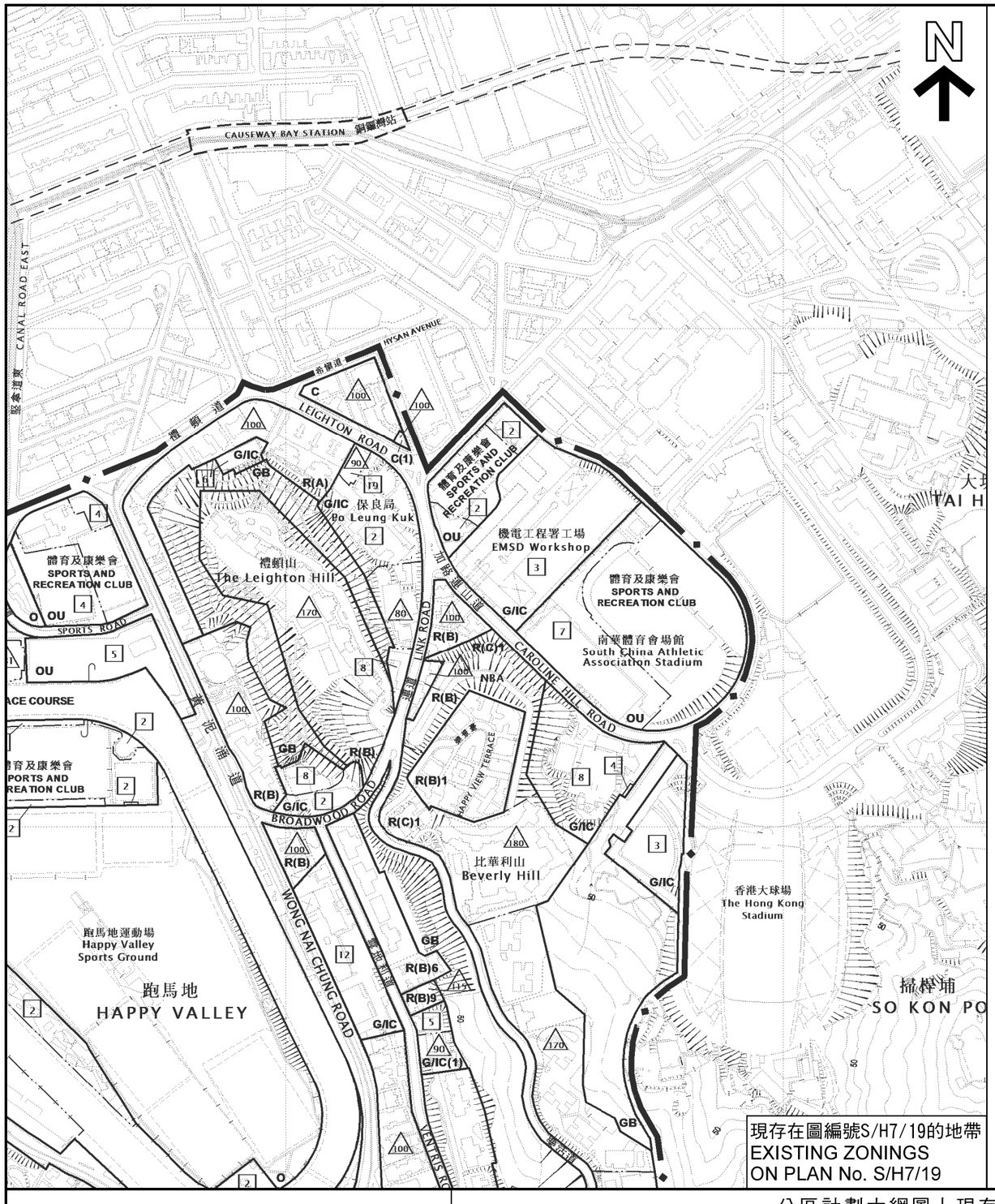
Item 4: Wan Chai Development Phase II – Commissioning of Road P2 at Wan Chai North (WCDC Paper No. 36/2018)

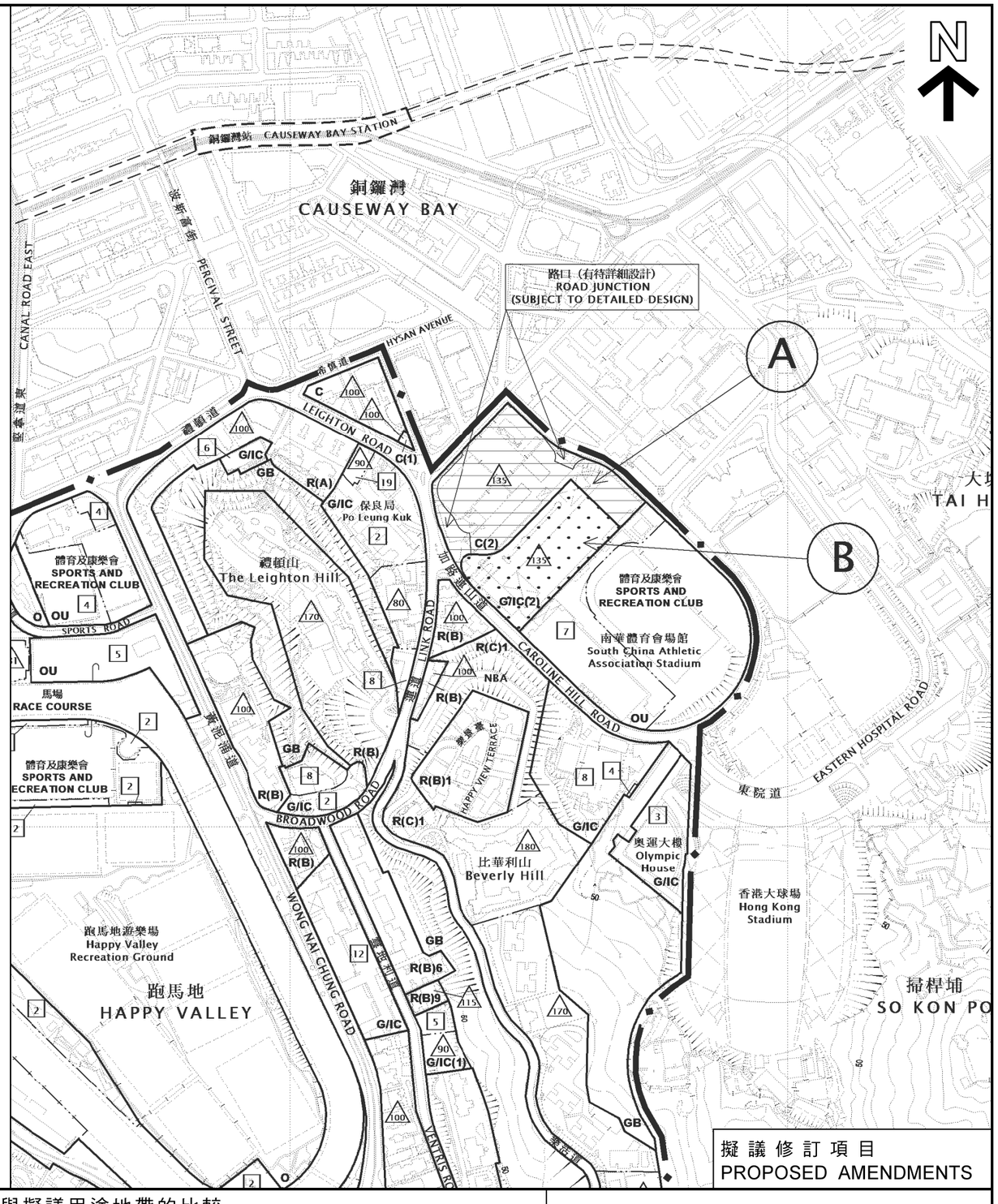
76. The Vice-chairperson welcomed the following representatives to the meeting:

Civil Engineering and Development Department:	Mr Wilson MA, Chief Engineer/South 3 Mr WONG Chi-leung, Senior Engineer/7 (South) Mr LEE Hon, Engineer/11 (South)
Highways Department:	Mr CHAN Tai-chi, Senior Engineer 1/Central Wanchai Bypass Ms Yanny LI, Senior Engineer/Shatin to Central Link (6)
AECOM Asia Company Limited:	Mr Francis LEONG, Executive Director Mr LAU Ka-hei, Associate Mr Jacob TSUI, Senior Resident Engineer
MTR Corporation Limited:	Mr William CHAN, Liaison Engineer I

77. The Vice-person asked the representatives of CEDD to brief Members on the paper.

78. Mr Wilson MA said that one of the major items of Wan Chai Development Phase II was to construct a section of Road P2 in Wan Chai North to connect Lung Wo Road in Central with the existing roads in Wan Chai North. The section of Road P2 underneath the Hong Kong





本摘要圖於2019年2月19日擬備，
所根據的資料為於2016年8月16日
核准的分區計劃大綱圖編號S/H7/19

EXTRACT PLAN PREPARED ON 19.2.2019
BASED ON OUTLINE ZONING PLAN No.
S/H7/19 APPROVED ON 16.8.2016

分區計劃大綱圖上現有與擬議用途地帶的比較
COMPARISON OF EXISTING AND PROPOSED ZONINGS ON THE OUTLINE ZONING PLAN

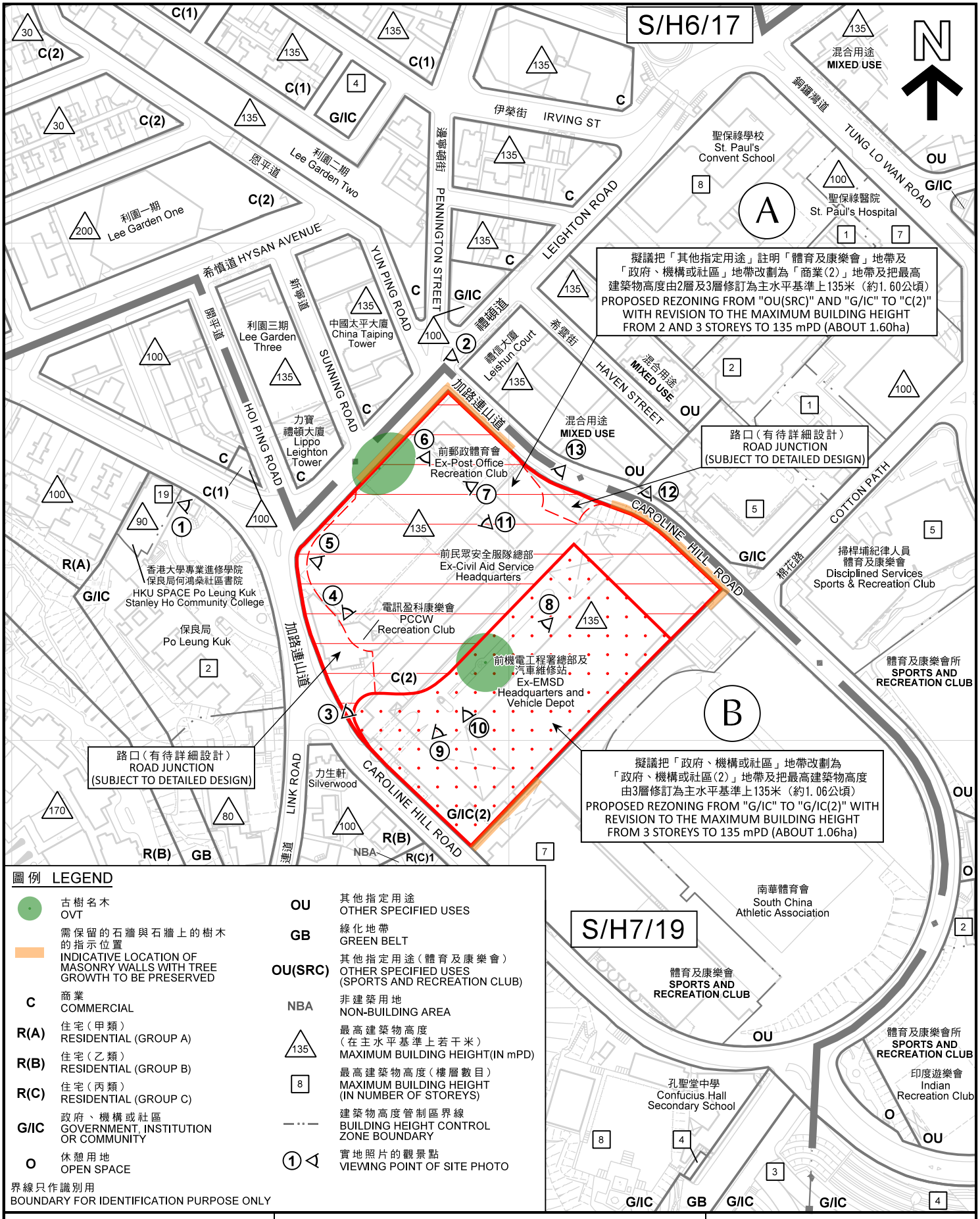
黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG
OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B
SCALE 1 : 5 000 比例尺

米 METRES 100 0 100 200 300 400 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
1



圖例 LEGEND

- 古樹名木 OVT
- 需保留的石牆與石牆上的樹木的指示位置 INDICATIVE LOCATION OF MASONRY WALLS WITH TREE GROWTH TO BE PRESERVED
- C 商業 COMMERCIAL
- R(A) 住宅（甲類） RESIDENTIAL (GROUP A)
- R(B) 住宅（乙類） RESIDENTIAL (GROUP B)
- R(C) 住宅（丙類） RESIDENTIAL (GROUP C)
- 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
- OU(SRC) 其他指定用途（體育及康樂會） OTHER SPECIFIED USES (SPORTS AND RECREATION CLUB)
- NBA 非建築用地 NON-BUILDING AREA
- 135 最高建築物高度（在主水平基準上若干米） MAXIMUM BUILDING HEIGHT(IN mPD)
- 8 最高建築物高度（樓層數目） MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)
- 建築物高度管制區界線 BUILDING HEIGHT CONTROL ZONE BOUNDARY
- ① 實地照片的觀景點 VIEWING POINT OF SITE PHOTO

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年2月28日擬備，所根據的資料為測量圖編號 11-SW-10D及15B

EXTRACT PLAN PREPARED ON 28.2.2019 BASED ON SURVEY SHEETS No. 11-SW-10D & 15B

平面圖 SITE PLAN

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目

PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

修訂項目A及B

AMENDMENT ITEMS A AND B

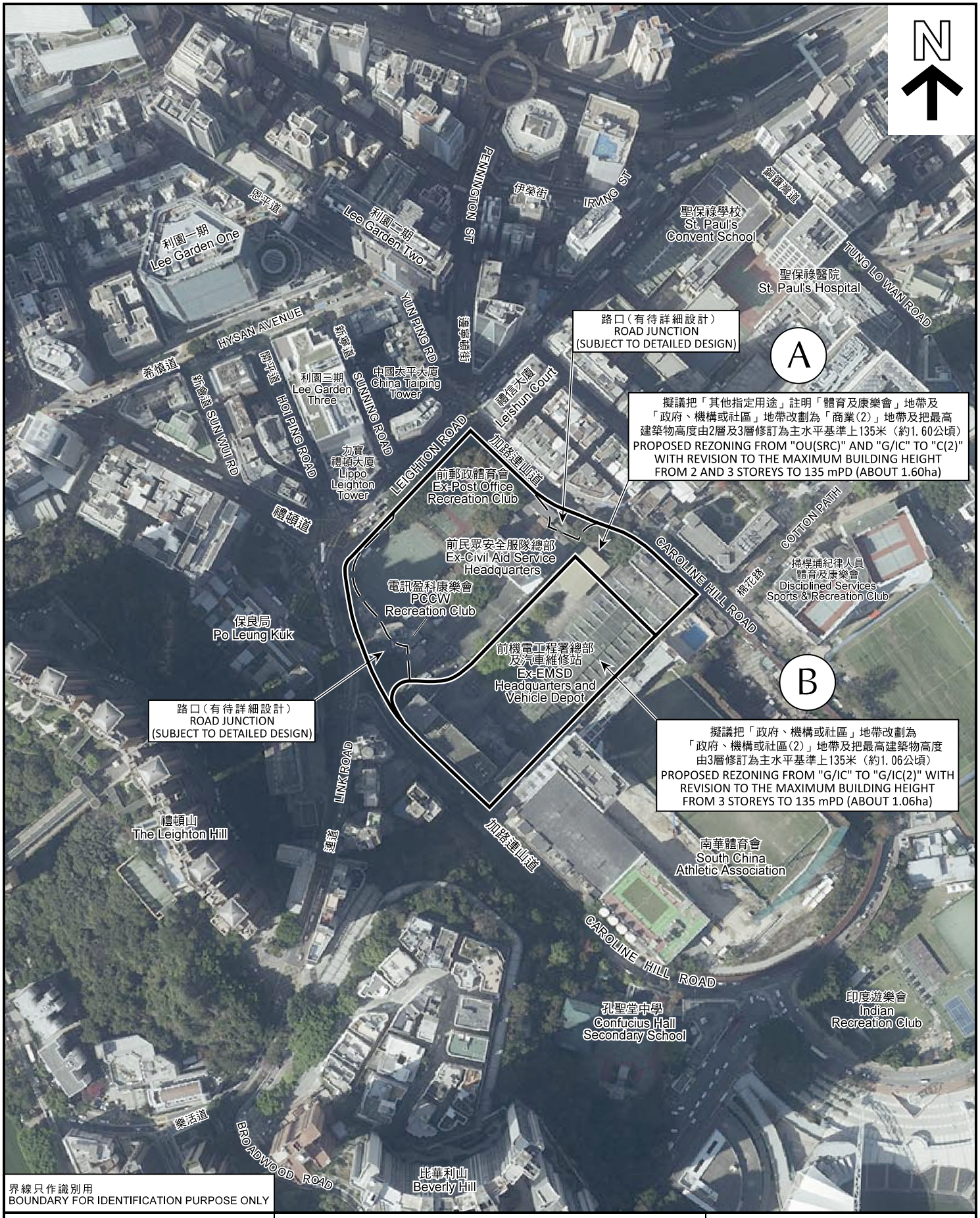
SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

規劃署 PLANNING DEPARTMENT

參考編號 REFERENCE No. M/H7/19/2

圖 PLAN 2



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BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2019年1月25日擬備，
所根據的資料為地政總署於
2018年3月10日拍得的
航攝照片編號E034328C

PLAN PREPARED ON 25.1.2019
BASED ON AERIAL PHOTO No.
E034328C TAKEN ON 10.3.2018
BY LANDS DEPARTMENT

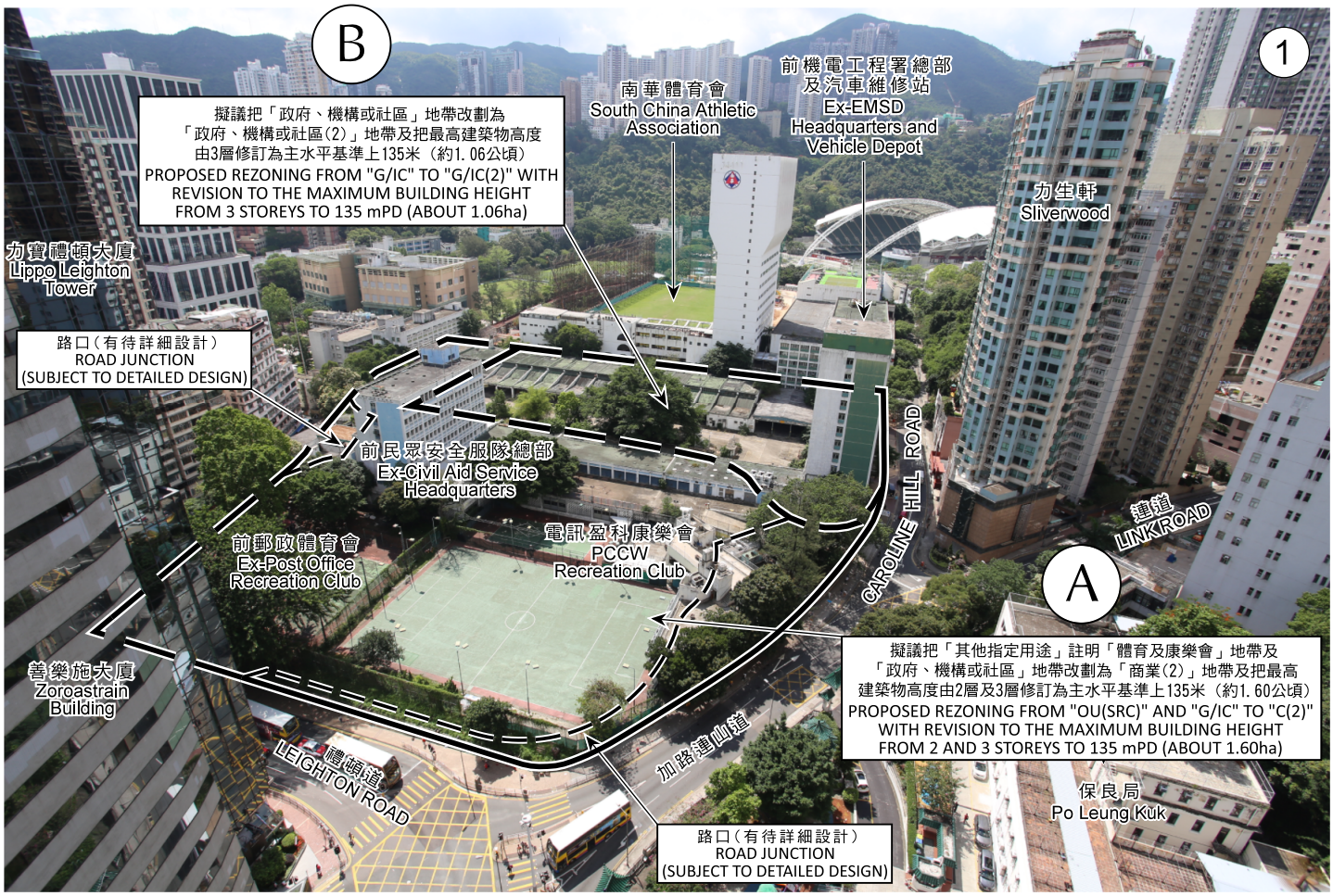
航攝照片 AERIAL PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
3



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本摘要圖於2019年1月25日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 25.1.2019
BASED ON SITE PHOTO
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4A





修訂項目A及B
AMENDMENT ITEMS A AND B

本摘要圖於2019年1月25日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 25.1.2019
BASED ON SITE PHOTOS
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4B





修訂項目A
AMENDMENT ITEM A

本摘要圖於2019年2月28日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 28.2.2019
BASED ON SITE PHOTOS
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A
AMENDMENT ITEM A

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4C





修訂項目A
AMENDMENT ITEM A

本摘要圖於2019年2月28日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 28.2.2019
BASED ON SITE PHOTOS
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A
AMENDMENT ITEM A

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4D





修訂項目B
AMENDMENT ITEM B

本摘要圖於2019年2月28日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 28.2.2019
BASED ON SITE PHOTOS
TAKEN ON 16.5.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目B
AMENDMENT ITEM B

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4E





修訂項目A及B
AMENDMENT ITEMS A AND B

本摘要圖於2019年2月28日擬備，
所根據的資料為攝於
2018年1月9日的實地照片

PLAN PREPARED ON 28.2.2019
BASED ON SITE PHOTOS
TAKEN ON 9.1.2018

實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B

規劃署
PLANNING
DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4F





修訂項目A
AMENDMENT ITEM A

本摘要圖於2019年1月25日擬備，
所根據的資料為攝於
2018年5月16日的實地照片

PLAN PREPARED ON 25.1.2019
BASED ON SITE PHOTOS
TAKEN ON 16.5.2018

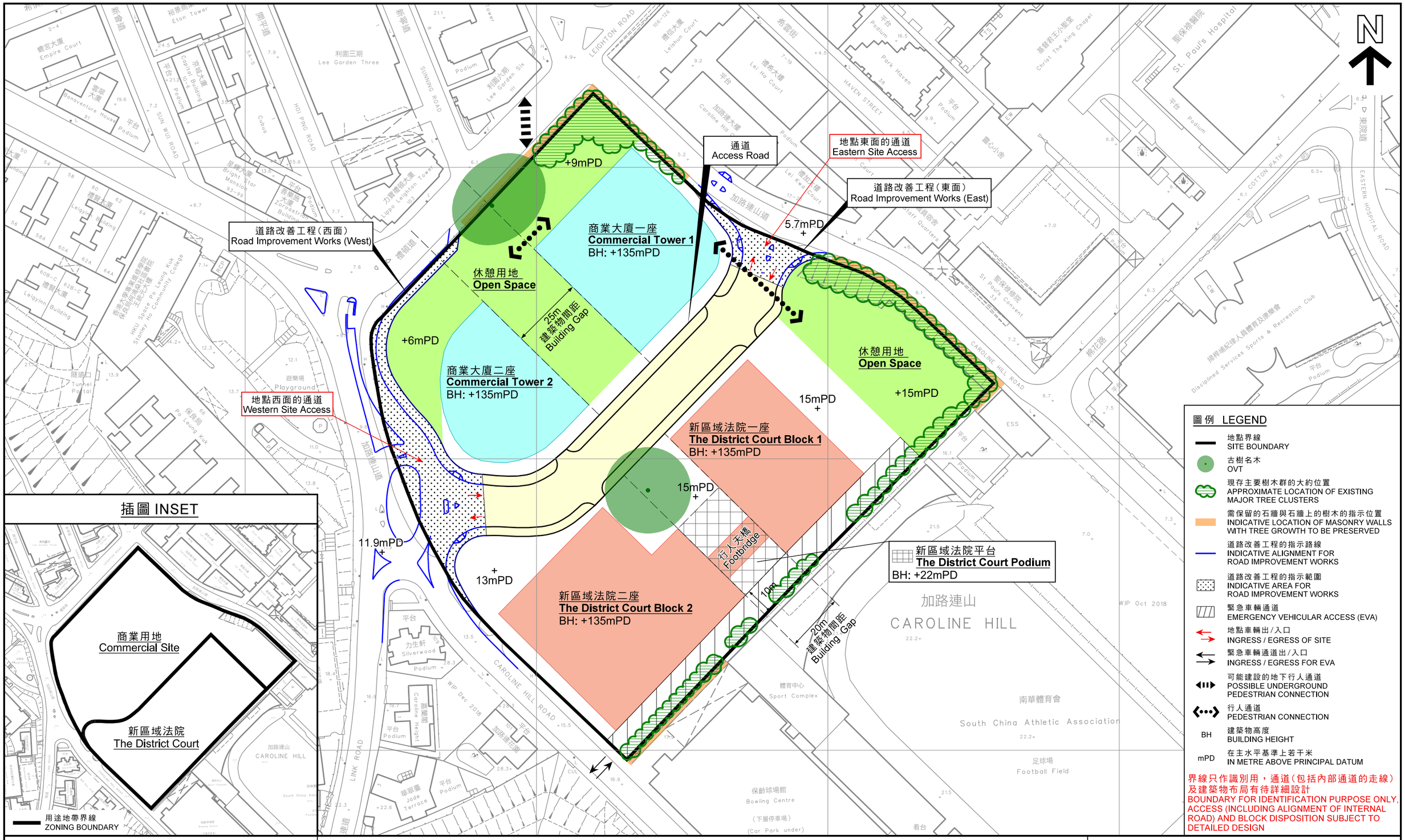
實地照片 SITE PHOTO

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED
WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A
AMENDMENT ITEM A

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
4G



本摘要圖於2019年2月28日擬備，
所根據的資料為測量圖編號
11-SW-15B

EXTRACT PLAN PREPARED ON 28.2.2019
BASED ON SURVEY SHEET No.
11-SW-15B

加路連山道用地的概念藍圖
CONCEPTUAL LAYOUT FOR CAROLINE HILL ROAD SITE

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19
修訂項目A及B
AMENDMENT ITEMS A AND B

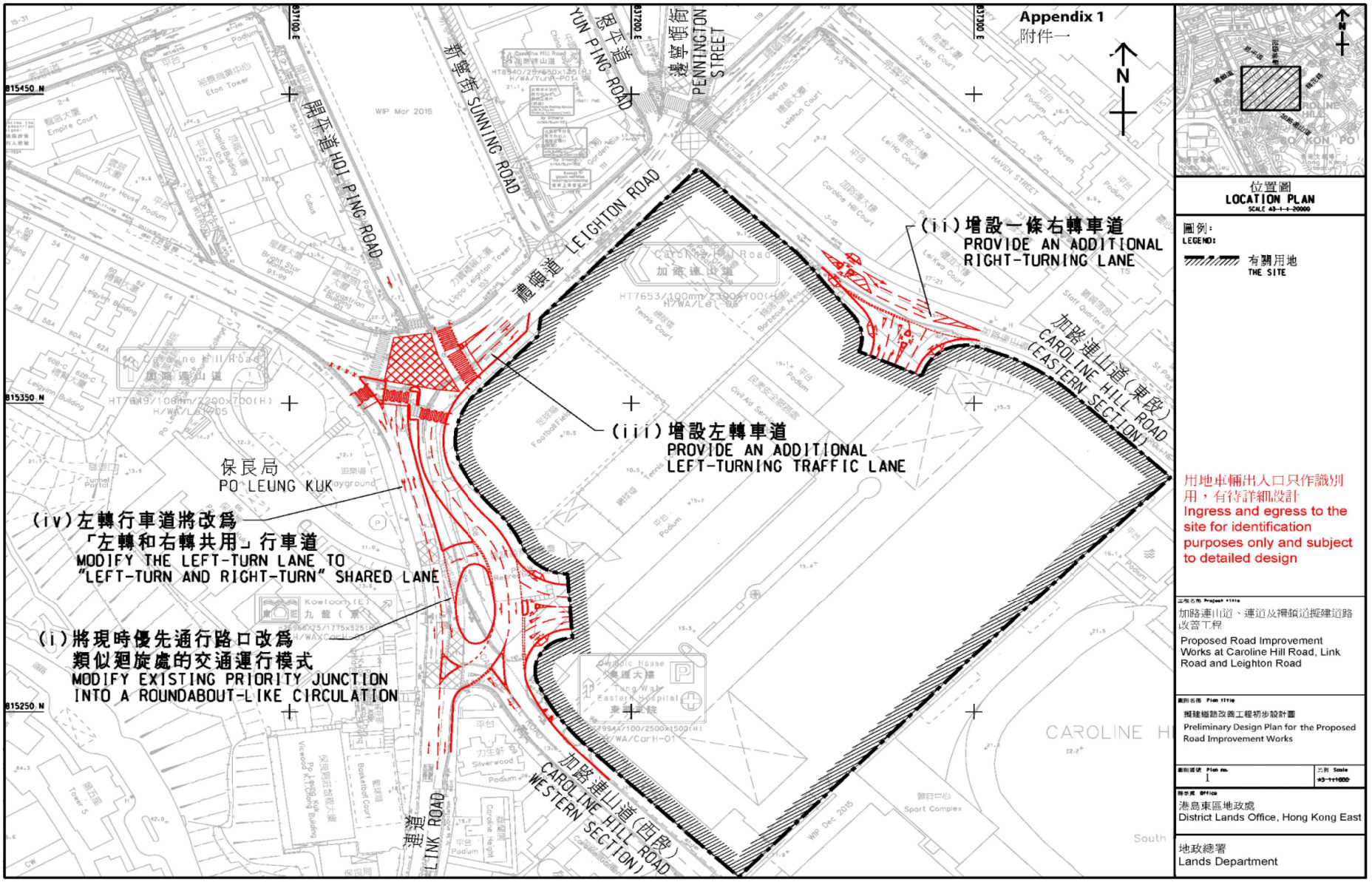
SCALE 1 : 1 200 比例尺

米 METRES 20 0 20 40 60 80 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
5



本圖於2019年1月29日擬備，
所根據的資料由路政署及地政總署提供

PLAN PREPARED ON 29.1.2019
BASED ON PLAN PROVIDED BY
HIGHWAYS DEPARTMENT AND
LANDS DEPARTMENT

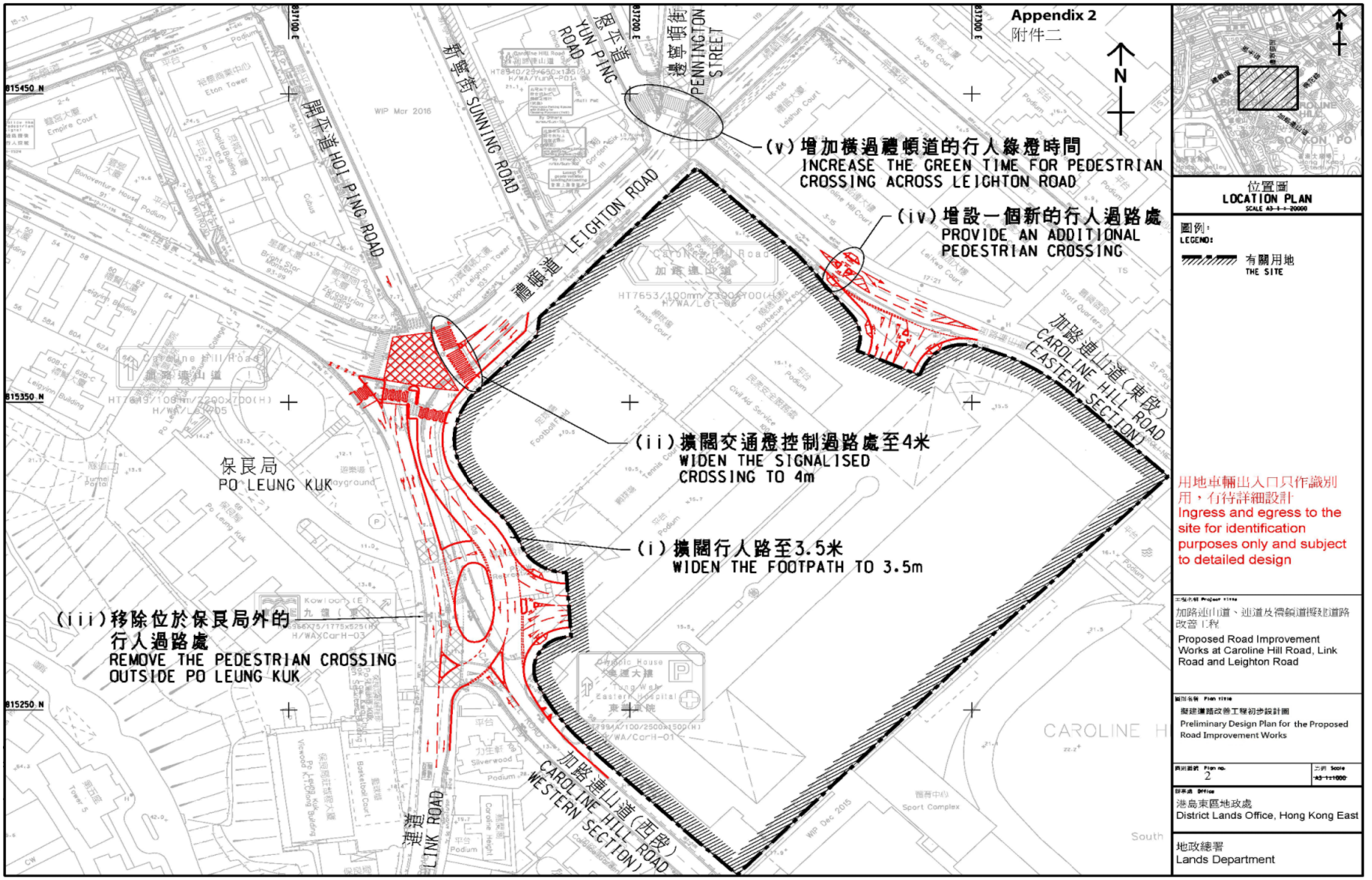
建議的路口改善工程
PROPOSED JUNCTION IMPROVEMENT WORKS

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
6



本圖於2019年1月29日擬備，
所根據的資料由路政署及地政總署提供

PLAN PREPARED ON 29.1.2019
BASED ON PLAN PROVIDED BY
HIGHWAYS DEPARTMENT AND
LANDS DEPARTMENT

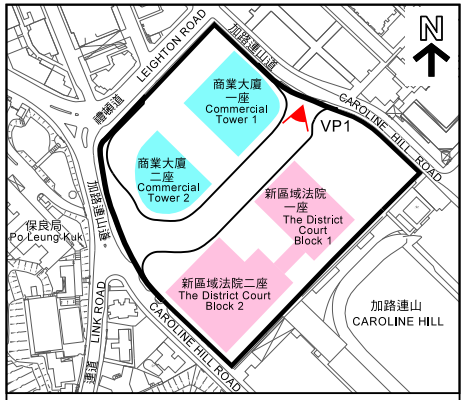
建議的行人過路設施改善工程
PROPOSED IMPROVEMENT WORKS FOR PEDESTRIAN CROSSING FACILITIES

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
7



觀景點位置
LOCATION OF VIEWING POINT



本圖於2019年1月25日擬備，所根據的資料為參考圖編號 M/UD/18/15/01E

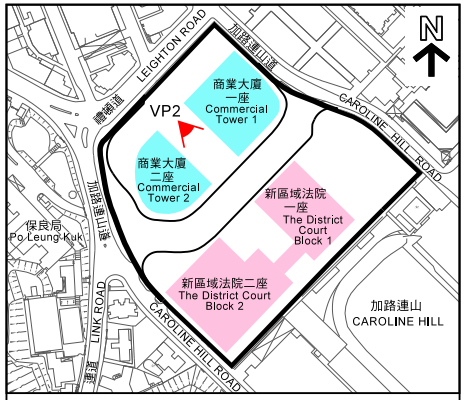
PLAN PREPARED ON 25.1.2019 BASED ON REFERENCE PLAN No. M/UD/18/15/01E

加路連山道(東)的觀景概念圖
CONCEPTUAL ILLUSTRATION VIEWING FROM CAROLINE HILL ROAD (EAST)

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
8



觀景點位置
LOCATION OF VIEWING POINT



本圖於2019年1月25日擬備，所根據的資料為參考圖編號 M/UD/18/15/02E

PLAN PREPARED ON 25.1.2019 BASED ON REFERENCE PLAN No. M/UD/18/15/02E

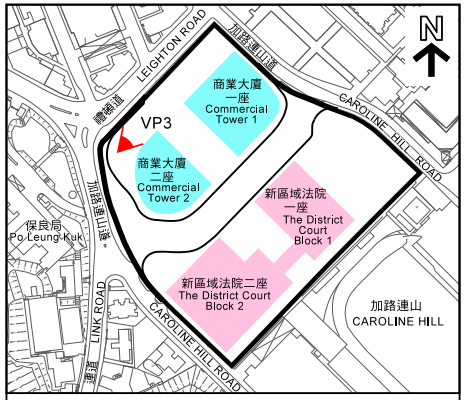
商業大廈一座及二座之間的觀景概念圖

CONCEPTUAL ILLUSTRATION VIEWING BETWEEN COMMERCIAL TOWER 1 AND TOWER 2

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
9





本圖於2019年1月25日擬備，所根據的資料為參考圖編號 M/UD/18/15/03D

PLAN PREPARED ON 25.1.2019 BASED ON REFERENCE PLAN No. M/UD/18/15/03D

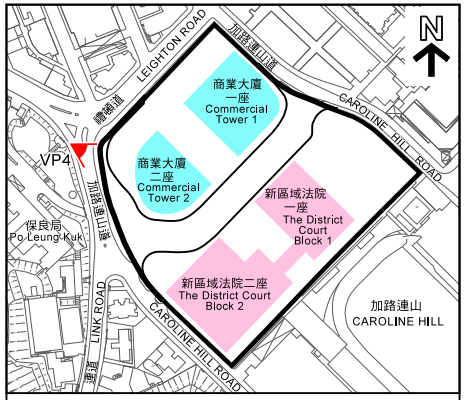
商業大廈一座及二座北面的觀景概念圖

CONCEPTUAL ILLUSTRATION VIEWING FROM THE NORTH OF COMMERCIAL TOWER 1 AND TOWER 2

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
10



觀景點位置
LOCATION OF VIEWING POINT



本圖於2019年1月25日擬備，所根據的資料為參考圖編號 M/UD/18/15/04D

PLAN PREPARED ON 25.1.2019 BASED ON REFERENCE PLAN No. M/UD/18/15/04D

禮頓道及加路連山道(西)的路口交匯處的觀景概念圖

CONCEPTUAL ILLUSTRATION VIEWING FROM THE JUNCTION OF LEIGHTON ROAD AND CAROLINE HILL ROAD (WEST)

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2

圖 PLAN
11

TOWN PLANNING BOARD

Minutes of 623rd Meeting of the Metro Planning Committee held at 9:00 a.m. on 8.3.2019

Present

Director of Planning Mr Raymond K.W. Lee	Chairman
Mr Lincoln L.H. Huang	Vice-chairman
Mr Sunny L.K. Ho	
Mr Stephen H.B. Yau	
Dr Frankie W.C. Yeung	
Dr Lawrence W.C. Poon	
Mr Wilson Y.W. Fung	
Mr Alex T.H. Lai	
Professor T.S. Liu	
Mr Franklin Yu	
Mr Daniel K.S. Lau	
Ms Lilian S.K. Law	
Professor John C.Y. Ng	

Professor Jonathan W.C. Wong
Assistant Commissioner for Transport (Urban),
Transport Department
Mr Michael H.S. Law

Chief Engineer (Works), Home Affairs Department
Mr Martin W.C. Kwan

Principal Environmental Protection Officer (Metro Assessment),
Environmental Protection Department
Dr Sunny C.W. Cheung

Assistant Director (R1), Lands Department
Mr Simon S.W. Wang

Deputy Director of Planning/District — Secretary
Ms Jacinta K.C. Woo

Absent with Apologies

Mr Thomas O.S. Ho

Ms Sandy H.Y. Wong

Mr Stanley T.S. Choi

In Attendance

Assistant Director of Planning/Board
Miss Fiona S.Y. Lung

Chief Town Planner/Town Planning Board
Ms April K.Y. Kun

Town Planner/Town Planning Board
Ms Charlotte P.S. Ng

[The Vice-chairman thanked Ms Katy C.W. Fung, STP/TWK, for her attendance to answer Members' enquiries. She left the meeting at this point.]

[The Chairman returned to the meeting and resumed the chairmanship at this point.]

[Dr Lawrence W.C. Poon returned and Mr Franklin Yu arrived to join the meeting at this point.]

Hong Kong District

Agenda Item 5

[Open Meeting]
Proposed Amendments to the Approved Wong Nai Chung Outline Zoning Plan No. S/H7/19

(MPC Paper No.1/19)

16. The Secretary reported that the rezoning site was located in Wong Nai Chung. The following Members had declared interests on the item :

Mr Alex T.H. Lai	-	his parents co-owning a flat at The Leighton Hill in Causeway Bay;
Ms Lilian S.K. Law	-	co-owning with spouse a flat on Ventris Road in Happy Valley; and ;
Mr. Martin W.C. Kwan	-	close relative owning a flat in Causeway Bay.

17. The Committee noted that Mr. Martin W.C. Kwan had not yet returned to the meeting. As the properties co-owned by Mr Alex T.H. Lai's parents and Ms Lilian S.K. Law and her spouse had no direct view of the rezoning site, the Committee agreed that they could stay in the meeting.

Presentation and Question Sessions

18. The following government representatives and consultants were invited to the meeting at this point:

Mr Louis K.H. Kau	-	District Planning Officer/Hong Kong (DPO/HK), PlanD;
Mr Anthony K.O. Luk	-	Senior Town Planner/Hong Kong (STP/HK), PlanD;
Ms Fiona H.Y. Fong	-	Senior Engineer/Wan Chai, Transport Department (SE/Wan Chai, TD) (Atg.);
Mr Wai Hong Chan	-	Senior District Engineer/General(2), Highways Department (Sr Dist Engr/G(2), HyD);
Mr Chi Kin Wan	-	Dist Engr/G(2)B, HyD;
Mr Charles So	-	Executive Director/Traffic and Transport Planning, AECOM; and
Mr Charis Wong	-	Senior Engineer/Traffic and Transport Planning, AECOM.

19. The Chairman extended a welcome and invited Mr Anthony K.O. Luk, STP/HK, to brief Members on the Paper. With the aid of a PowerPoint presentation, Mr Anthony K.O. Luk presented the proposed amendments as detailed in the Paper and covered the following main points :

Background

(a) to make good use of government land in the core business district and to meet the long-term needs of District Court-level judicial facilities, a site at the junction of Caroline Hill Road (CHR) and Leighton Road (the CHR Site) was proposed for commercial development and a District Court comprising the District Courts, Family Courts and Lands Tribunal;

The Proposed Amendments to the OZP

(b) Amendment Item A- it was proposed to rezone a site (about 1.60ha) bounded by Leighton Road to the north, CHR on the east and west and the ex-EMSD Headquarters to the south from "Other Specified Uses" annotated "Sports and Recreation Club" ("OU(SRC)") and "Government, Institution or Community" ("G/IC") with a maximum building height (BH) of 2 and 3 storeys respectively to "Commercial (2)" ("C(2)") with a maximum BH of 135mPD and maximum gross floor area (GFA) of 100,000m^2;

(c) Amendment Item B- it was proposed to rezone a site (about 1.06ha) located to the north of the South China Athletic Association and abutting CHR (West) from "G/IC" with a maximum BH of 3 storeys to "G/IC(2)" with a maximum BH of 135mPD and maximum GFA of 70,000m^2;

Proposed Amendments to the Notes and Explanatory Statement (ES) of the OZP

(d) corresponding revisions to the Notes were made in respect of "C" and "G/IC" zones to incorporate the respective development restriction, and to follow the revised set of Master Schedule of Notes to Statutory Plans;

Technical Assessments

(e) various technical assessments had been conducted which demonstrated that the proposed developments would not induce unacceptable impact to the local area in terms of traffic, environmental, visual, air ventilation and landscape aspects;

(f) according to the Traffic Review, the proposed developments would not generate unacceptable traffic impact after implementation of the proposed road junction improvement works. Part of the CHR Site would be used for the proposed road junction improvement works and provision of a new access connecting CHR(East) and (West);

(g) relevant government departments had no adverse comments on the proposed amendments;

Provision of Government, Institution or Community (G/IC) facilities and Open Space

(h) based on a planned population of about 185,000 persons, there was no shortfall on major GIC facilities in the area. A public open space of not less than 6,000m^2 had been proposed within the "C(2)" site; and

Consultation with Wan Chai District Council (WCDC)

(i) WCDC had been consulted on 8.5.2018 and 8.1.2019. Majority of the WCDC members objected to the proposed amendments primarily on the traffic ground. Some members considered that commercial development should not be provided in the CHR Site and some members considered that more Government, Institution or Community (GIC) facilities, e.g. civic centre and Residential Care Home for the Elderly (RCHE), should be provided. In response to WCDC's suggestion and after consultation with relevant government departments, one District Health Centre (DHC) and one Child Care Centre (CCC) were proposed to be provided within the "C(2)" site .

[Dr Frankie Yeung arrived to join the meeting at this point.]

Commercial and District Court Use

20. Members in general agreed to the proposed uses of the CHR Site for commercial development and District Court noting that the Site was located at the fringe of the core commercial and business areas of Causeway Bay. A Member said that given some existing court facilities had been ageing over years, the District Court proposal comprising the District Courts, Family Courts and Lands Tribunal at the CHR Site should be supported.

Scale of Development

21. Regarding a Member's observation on the proposed plot ratio (PR) of 6.6 for the "G/IC(2)" site which was comparatively low in the district, Mr Louis K.H. Kau explained that based on the Judiciary's advice, a total GFA of 70,000m^2 and a site area of about

10,000m^2 would be required for the District Court, the resulting PR the proposed development was 6.6. Given the nature and operational requirement of the District Court, no other public facilities were proposed for co-location. Mr Kau further explained that the development intensity of the CHR Site as a whole was proposed with due regard to the carrying capacity of the local road network. Based on the findings of the Traffic Review, the maximum GFA of the whole CHR Site was capped at 170,000m^2. With 70,000m^2 GFA set aside for the District Court, a maximum GFA of 100,000m^2 would then be available for commercial development, which was equivalent to a PR of 11.17. In response to a Member's enquiry, Mr Kau clarified that the 100,000m^2 GFA also included the GFA of GIC and public transport facilities, while underground public car park could be exempted from GFA calculation under the relevant joint practice note of concerned government departments.

Traffic Impact

22. A Member raised concern on the possible traffic impact arising from the proposed CCC and asked if adequate lay-by spaces would be provided to avoid tailing back of traffic to Leighton Road or adjoining areas. Mr Louis K.H. Kau, DPO/HK, said that the Transport Department had required provision of a minimum of seven pick up/drop-off spaces in the commercial development. In response to a Member's question regarding the types of public transport facilities to be included in the project, Mr Kau said that public transport facilities, including 125 public car parking spaces and a potential minibus terminus, would be provided within the commercial development. Besides, improvement works for road junction, pedestrian footpath and crossing facilities were proposed to mitigate traffic impact induced by the proposed development as well as improving the existing traffic conditions.

23. Some Members asked if weaving movement had been taken into account in undertaking the Traffic Review. Mr Charles So, Executive Director/Traffic and Transport Planning of AECOM explained that congestions related to weaving movements had been observed at CHR westbound. In order to reduce lane-changing manoeuvres, provision of a dedicated left-turning traffic lane at the westbound of Leighton Road and Hoi Ping Road junction and modification of the existing priority junction at west of CHR Site into a roundabout-like circulation had been proposed. A Member queried if the proposed traffic improvement measures would be effective in alleviating traffic congestion on CHR westbound. Mr So further explained that in improving the existing traffic conditions on

CHR westbound, modification of the left-turn lane to "left-turn and right-turn" shared lane at the northbound of Leighton Road and Hoi Ping Road junction would reduce the need to change-lane for right-turn. In addition, by setting back into the CHR Site, an extra lane would be provided on CHR westbound. The traffic impact would be minimized after implementation of the proposed road junction improvement works.

Pedestrian Circulation

24. A Member pointed out that most of the proposed pedestrian improvement measures were concentrated on Leighton Road and questioned if the proposed commercial development would pose impacts on the pedestrian circulation on Hoi Ping Road which had a very high pedestrian flow currently. He asked if there would be other mitigation measures to facilitate pedestrian circulation. In response, Mr Louis K.H. Kau said that the feasibility of an underground pedestrian network extended from MTR Station to various sites in Causeway Bay, including CHR Site, was explored under a study conducted by the Civil Engineering and Development Department (CEDD). In this regard, the future developer of the commercial site would be required to reserve an underground opening for the possible pedestrian connection to MTR Station and this requirement would be incorporated into the land sale conditions. In response to a Member's further enquiry about the estimated time of completing the study for the subject pedestrian connection, Mr Kau said that a feasibility study had commenced this year and was targeted to be completed by 2020.

Provision of GIC Facilities

25. In response to a Member's enquiry on the services provided by a DHC, Mr Louis K.H. Kau said that as announced in the Chief Executive's Policy Address 2017, DHC would be set up in each district with a view to enhancing public awareness of disease prevention and their capability in self-management of health, to promote awareness of the importance of primary healthcare services, to improve service accessibility, to provide support for the chronically ill as well as relieve the pressure on specialist and hospital services. Key services of DHC included primary, secondary and tertiary prevention services which focused on provision of counselling services, health promotion and educational programmes as well as health assessment and screening and chronic diseases screening and management service. In this connection, reference could be drawn from the pilot DHC in Kwai Tsing.

26. A Member asked if future developer would have to meet any design and locational requirements in the provision of GIC facilities at the commercial site. Mr Louis K.H. Kau responded that the developer would have to fulfil the specifications in providing the DHC and CCC to the satisfaction of the concerned government departments and this requirement would be incorporated in the land sale conditions.

27. A Member further queried if leisure facilities for the elderly could be incorporated in association with the DHC to provide a more comprehensive service for the elderly. Mr Louis K.H. Kau said that DHC was under the policy purview of the Food and Health Bureau and the provision of facilities within the DHC was still under study. Detailed scope of services would be submitted to WCDC for consultation and Member's suggestion would be conveyed to concerned department accordingly. The same Member said that the provision of DHC and CCC within the commercial development in the CHR Site was supported but there should be more information on how to set priority in providing the various types of GIC facilities.

28. In response to a Member's enquiry on whether the existing sports facilities at the CHR site would be reprovided, Mr Kau said that the existing facilities at the ex-Post Office Recreation Club and the PCCW Recreation Club were not public facilities and their reprovisioning would not be required.

29. A Member observed that WCDC had expressed the need for a civic centre and would like to know if the CHR Site could accommodate a civic centre instead. Mr Louis K.H. Kau said that WCDC's proposal for Moreton Terrace Activities Centre would provide an additional performance and activity venue to serve local community. It had recently secured funding from the Legislative Council. Besides, according to the Leisure and Cultural Services Department (LCSD), civic centre was planned on a district-wide basis and the current provision of civic centres on the Hong Kong Island was considered sufficient.

Visual impacts and Air Ventilation

30. With reference to the photomontages from the view of Sharp Street East and Victoria Park (Plans F and H in Attachment VI of the Paper), a Member pointed out that the existing visual gaps would be blocked by the developments at the CHR Site. This Member

asked if it was possible to adjust the disposition of the buildings to minimize its impact on visual permeability, and the justifications for positioning the District Court building at the southern portion. In response, Mr Louis K.H. Kau said that the conceptual layout shown in Plan 5 of the paper had been drawn up to illustrate the feasibility of accommodating the planned uses and served as the basis for carrying out various technical assessments. The exact building disposition and the detailed layout would be subject to future design at the implementation stage. The proposed building gaps of 25m and 20m shown in the conceptual scheme, and the new access road together with the open space fronting Leighton Road were to retain visual permeability through the CHR Site, break up the building mass of the proposed developments and improve air ventilation. According to the visual impact assessment and the photomontages prepared for the conceptual scheme, the proposed development would not have any significant adverse visual effects in overall terms. Given the site constraints, impairment to visual permeability at some particular viewpoints was inevitable.

Landscape

31. Some Members appreciated the conservation of the two Old and Valuable Trees (OVTs) but found the OVT within the "G/IC(2)" site detached and isolated. They pointed out that the proposed arrangement would downgrade the value of the OVT and leaving it as a pure exhibit. Some Members asked if it was possible to make adjustment to the layout to integrate the proposed open space with this OVT. In response, Mr Louis K.H. Kau said that the building footprint, need for a new access road and security requirements of the District Court had imposed constraints on the use of space around the OVT.

32. Apart from the two OVTs being conserved in-situ, a Member considered the fruit trees within/along the north-western periphery of the CHR Site were worth preserving for education and sentimental values. Mr Louis K.H. Kau said that due to the proposed traffic improvement works on CHR, a number of existing trees would be unavoidably affected. In this connection, the project proponent and the developer were required to follow the corresponding Design Guidelines of the Development Bureau and the Practice Notes of the Lands Administration Office respectively to minimise the impact of the proposed developments on the existing trees as far as possible and provide appropriate landscape measures as well as feasible tree protection and compensatory planting proposals. The

future developer would be required to submit a Landscape Proposal and the requirement of which would be incorporated into the future land sale conditions.

33. A Member asked if flexibility would be allowed for future developer to adopt innovative ways to revitalize the stone retaining walls. By referring to Plan 5 in the Paper, Mr Louis K.H. Kau said that while some sections of the stone retaining wall would be affected by proposed traffic improvement works, three sections of the stone retaining walls would be preserved. The future developer would be required to meet the technical requirements as advised by the Antiquities and Monuments Office (AMO) during the course of conservation. Regarding a Member's enquiry on the historical value of the stone retaining walls, Mr Kau said the stone retaining walls were estimated to be constructed during the 1930s while their historical value was still subject to assessment by AMO in accordance with its priorities of work. The decision to conserve the selected sections of the stone retaining walls was a result from public consultation on the CHR site over the years, including WCDC in 2018 and 2019. Although the OVT located on Leighton Road did not grow on the stone retaining walls, it was in close proximity and as such, the associated section of stone retaining walls would be preserved to maintain its integrity. AMO had been engaged and consulted in the course of preparing the conceptual layout for the CHR Site.

Conceptual Layout

34. In response to a Member's question, Mr Louis K.H. Kau said that the open space, as indicated under the conceptual layout plan, would be designed, implemented and managed by the future developer of the commercial site. In this connection, the future developer was required to follow the design and management requirements under the guidelines on "Public Open Space in Private Developments Design and Management Guidelines" promulgated by the Development Bureau. Generally speaking, the public open space had to be opened to the general public at reasonable hours with easy access. If the future developer wished to carry out commercial activities on the public open space, they had to apply for a waiver and/or permission, as appropriate, from the Lands Department and/or the Buildings Department. A Member questioned whether the location of the public open space at the southeast corner of the CHR site was appropriate having regard to the location of the OVTs and the local open spaces in the vicinity. Another Member also suggested relocating the open space from southeast to southwest corner to enhance public accessibility. Mr Louis

K.H. Kau explained that the disposition of the District Court at the westbound of CHR was to meet the District Court's design requirement where a minimum site area of 10,000m^2 and two ingress/egress points were necessary for the operational needs of the Judiciary. The design requirement of the Judiciary might not be fulfilled if part of the District Court site had to be set aside for public open space. Moreover, land uses along eastbound of CHR were mainly residential and designating the open space at southeast corner of the site could benefit the local residents. Notwithstanding the above, Mr Kau pointed out that the building disposition and layout would be subject to detailed design at the implementation stage.

35. Some Members further suggested that consideration could be given to swap the proposed locations of the commercial development and the District Court. Mr Louis K.H. Kau explained that disposition of the District Court at the southeast portion was to meet the requirements of the Judiciary for two ingress/egress points were necessary for its operational needs. The current location of the District Court could allow for ingress/egress on the interval road directly connecting to the lower ground level, loading/unloading and parking area. In response to a Member's question, Mr Kau said the Correctional Services Department had been consulted and its requirement had been incorporated into the conceptual layout. The Chairman explained that Members were invited to agree on the proposed rezoning of the "C(2)" and "G/IC(2)" sites on the OZP. The conceptual development scheme was drawn up to illustrate the possible layout and served as the basis for carrying out various technical assessments only. The detailed layout on the individual sites would be subject to future design and users' requirements at the implementation stage.

36. Some members had reservation on the proposed boundary of the "C(2)" and "G/IC(2)" zones demarcated on the OZP, in particular, with regard to the location of the public open spaces within the commercial development. A member reiterated that consideration should be given to enhance the connection to the open space network within the district to facilitate pedestrian circulation and accessibility.

Conclusion

37. To sum up, the Chairman concluded that Members agreed to the proposed uses and development intensity of the CHR Site for commercial development and the District Court. However, Members required more information on justifications for the conceptual

layout and disposition of the building blocks, open space network and pedestrian connectivity within and outside the site before making a decision on the proposed rezoning of the "C(2)" and "G/IC(2)" sites on the OZP. Members also requested for additional information on the choice and government's priority of GIC facilities to be provided in the proposed "C(2)" site.

38. After further deliberation, the Committee decided to defer the consideration of the proposed amendments to the approved Wong Nai Chung OZP pending submission of further information set out in paragraph 37 above.

39. The Chairman thanked the government representatives and consultants for their attendance to answer Members' enquiries. They left the meeting at this point.

[Mr Martin W.C. Kwan returned to the meeting at this point.]

F-Appendix III of
MPC Paper No. 5/19

第五屆灣仔區議會屬下
發展、規劃及交通委員會
第 21 次會議
( )

書面動議
(根據第五屆灣仔區議會常規第 16/19 條)

議程第 8 項：

本人動議/修訂動議內容：

要求規划署及城市規划委員会都市規划小组委員会
捆署「擬修訂《黃埔流通分区计划大綱核准图编号
S/H/19》的程，并必须先就規划的咨询灣仔区议会
以及向灣仔区议会提交所有影响评估报告并作公众
咨询后，方可返交予城規会再作讨论。

議員簽署：黃宏泰

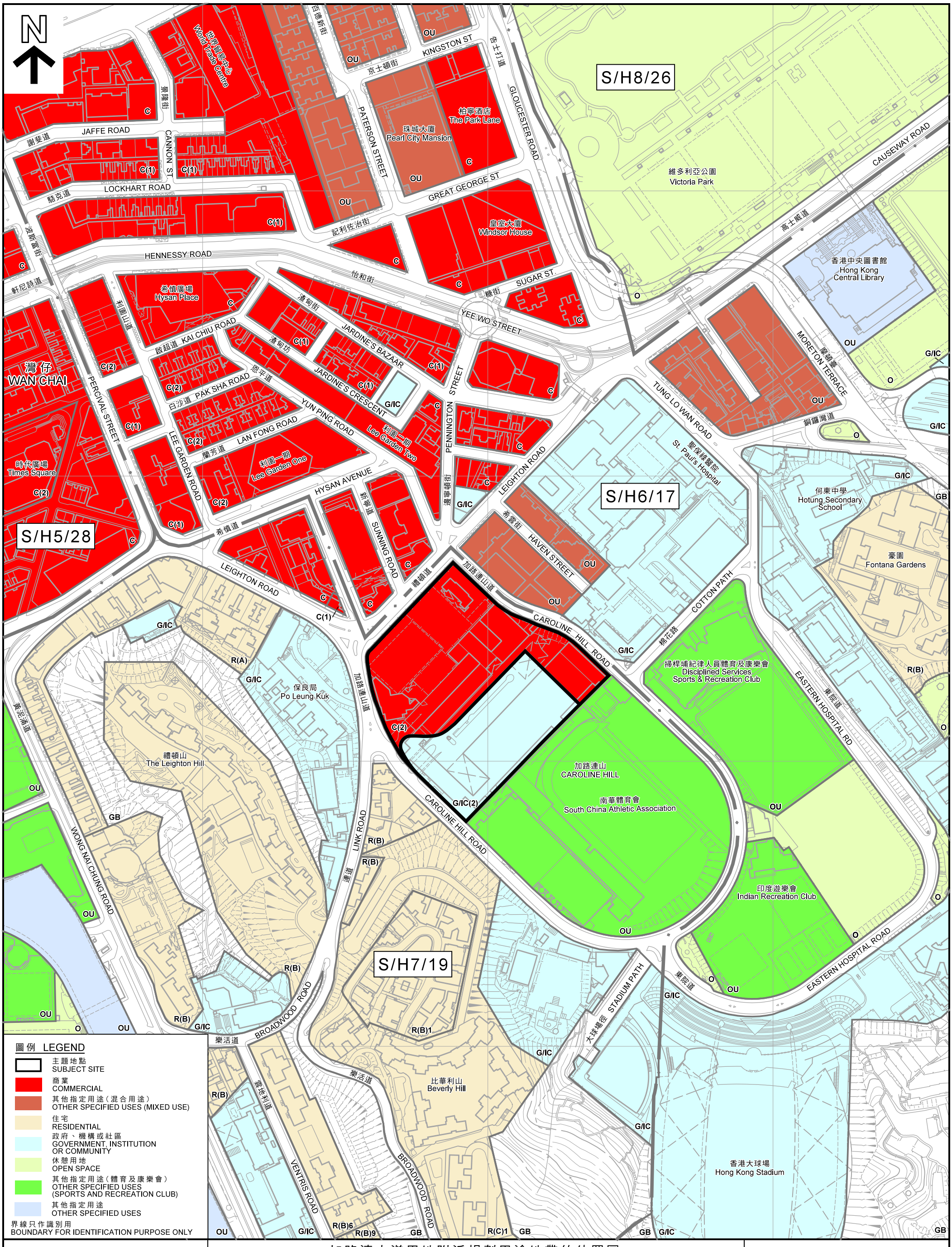
2019 年 4 月 9 日

本人和議。

議員簽署：

2019 年 4 月 9 日

D/DCPAPER(15)/書面動議表格(dptc)/D



圖例 LEGEND

- 主題地點 SUBJECT SITE
- 商業 COMMERCIAL
- 其他指定用途（混合用途） OTHER SPECIFIED USES (MIXED USE)
- 住宅 RESIDENTIAL
- 政府、機構或社區 GOVERNMENT, INSTITUTION OR COMMUNITY
- 休憩用地 OPEN SPACE
- 其他指定用途（體育及康樂會） OTHER SPECIFIED USES (SPORTS AND RECREATION CLUB)
- 其他指定用途 OTHER SPECIFIED USES

界線只作識別用
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年4月29日擬備，
所根據的資料為測量圖編號
11-SE-6C、11A及11C和
11-SW-10D、15B及15D

EXTRACT PLAN PREPARED ON 29.4.2019
BASED ON SURVEY SHEETS No.
11-SE-6C, 11A & 11C AND
11-SW-10D, 15B & 15D

加路連山道用地附近規劃用途地帶的位置圖
LOCATION PLAN SHOWING THE ZONING IN THE VICINITY OF THE CAROLONE HILL ROAD SITE

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

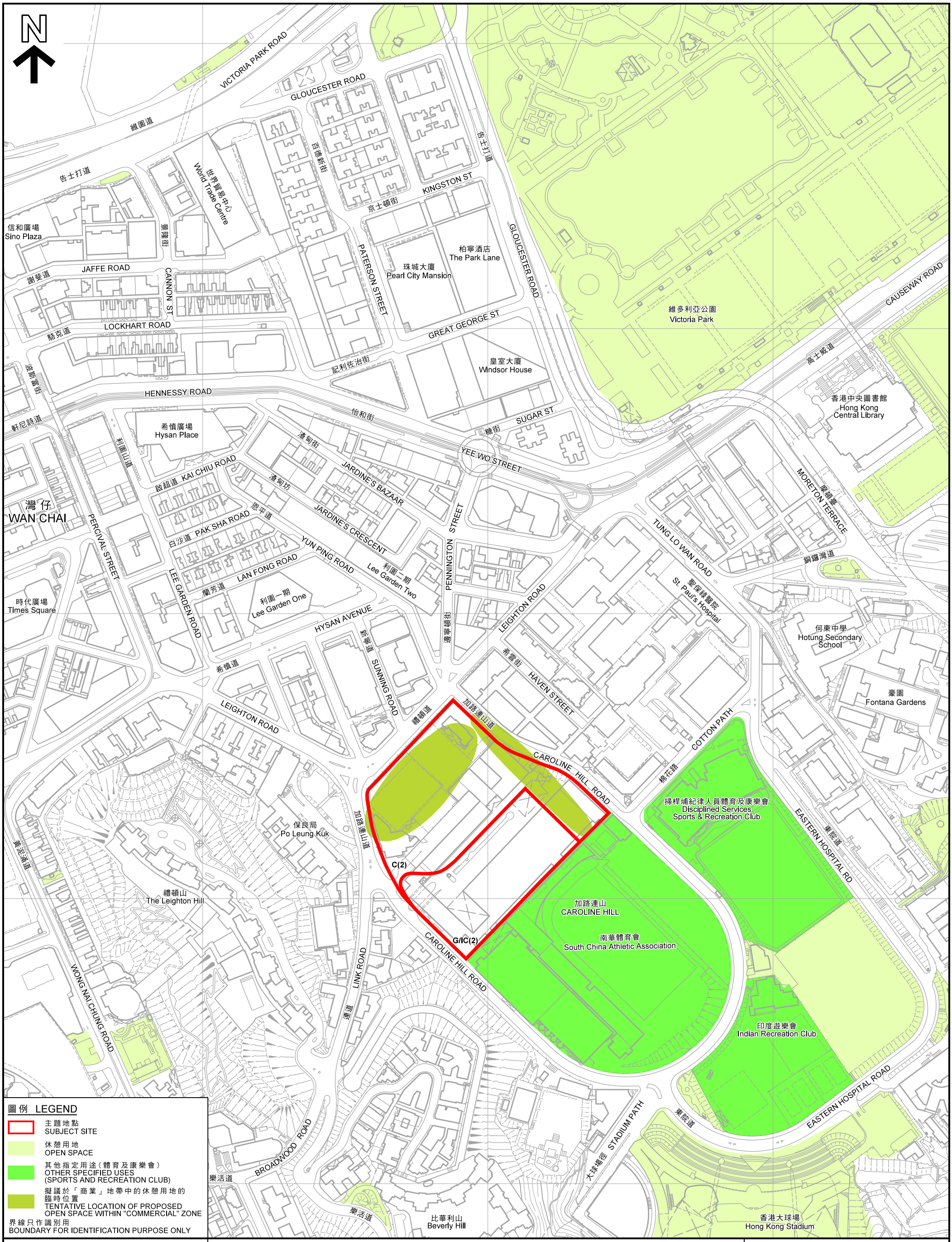
SCALE 1 : 3 000 比例尺

米 METRES 50 0 50 100 150 200 250 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2A

圖 PLAN
FC - 1



圖例 LEGEND

- 主題地點 SUBJECT SITE
- 休憩用地 OPEN SPACE
- 其他指定用途（體育及康樂會） OTHER SPECIFIED USES (SPORTS AND RECREATION CLUB)
- 擬議於「商業」地帶中的休憩用地的臨時位置 TENTATIVE LOCATION OF PROPOSED OPEN SPACE WITHIN "COMMERCIAL" ZONE

界線只作識別用 BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

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11-SE-6C, 11A & 11C AND
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加路連山道用地附近休憩用地的位置圖
LOCATION PLAN SHOWING THE OPEN SPACE IN THE VICINITY OF THE CAROLONE HILL ROAD SITE

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

SCALE 1 : 3 000 比例尺

米 METRES 50 0 50 100 150 200 250 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2A

圖 PLAN
FC - 2

N

道路改善工程（西面）
Road Improvement Works (West)

道路改善工程（東面）
Road Improvement Works (East)

通道
Access Road

地點東面的通道
Eastern Site Access

地點西面的通道
Western Site Access

+9mPD

商業大廈一座
Commercial Tower 1
BH: +135mPD

休憩用地
Open Space

25m 建築物間距
Building Gap

+6mPD

商業大廈二座
Commercial Tower 2
BH: +135mPD

5.7mPD +

休憩用地
Open Space

+15mPD

15mPD +

新區域法院一座
The District Court Block 1
BH: +135mPD

15mPD +

行人天橋
Footbridge

11.9mPD +

+ 13mPD

新區域法院二座
The District Court Block 2
BH: +135mPD

10m

20m 建築物間距
Building Gap

新區域法院平台
The District Court Podium
BH: +22mPD

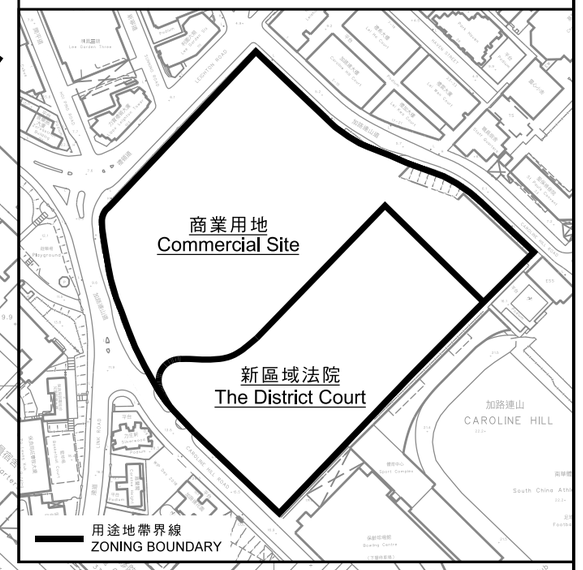
行人天橋
Footbridge
BH: +126mPD

加路連山
CAROLINE HILL

未經修訂的概念設計
WITHOUT REVISED CONCEPTUAL LAYOUT

修訂的概念設計
REVISED CONCEPTUAL LAYOUT

插圖 INSET



圖例 LEGEND

- 地點界線 SITE BOUNDARY
- 古樹名木 OVT
- 現存主要樹木群的大約位置 APPROXIMATE LOCATION OF EXISTING MAJOR TREE CLUSTERS
- 需保留的石牆與石牆上的樹木的指示位置 INDICATIVE LOCATION OF MASONRY WALLS WITH TREE GROWTH TO BE PRESERVED
- 道路改善工程的指示路線 INDICATIVE ALIGNMENT FOR ROAD IMPROVEMENT WORKS
- 道路改善工程的指示範圍 INDICATIVE AREA FOR ROAD IMPROVEMENT WORKS
- 緊急車輛通道 EMERGENCY VEHICULAR ACCESS (EVA)
- 地點車輛出/入口 INGRESS / EGRESS OF SITE
- 緊急車輛通道出/入口 INGRESS / EGRESS FOR EVA
- 可能建設的地下行人通道 POSSIBLE UNDERGROUND PEDESTRIAN CONNECTION
- 行人通道 PEDESTRIAN CONNECTION
- BH 建築物高度 BUILDING HEIGHT
- mPD 在主水平基準上若干米 IN METRE ABOVE PRINCIPAL DATUM

界線只作識別用，通道（包括內部通道的走線）及建築物布局有待詳細設計
BOUNDARY FOR IDENTIFICATION PURPOSE ONLY. ACCESS (INCLUDING ALIGNMENT OF INTERNAL ROAD) AND BLOCK DISPOSITION SUBJECT TO DETAILED DESIGN

本摘要圖於2019年4月26日擬備，
所根據的資料為測量圖編號
11-SW-15B

EXTRACT PLAN PREPARED ON 26.4.2019
BASED ON SURVEY SHEET No.
11-SW-15B

加路連山道用地修訂前及後的概念設計比較
COMPARISON OF PREVIOUS AND REVISED CONCEPTUAL LAYOUT FOR THE CAROLINE HILL ROAD SITE

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG OUTLINE ZONING PLAN No. S/H7/19

SCALE 1 : 1 500 比例尺

米 METRES 20 0 20 40 60 80 100 120 米 METRES

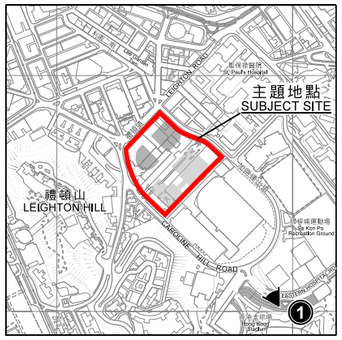
規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2A

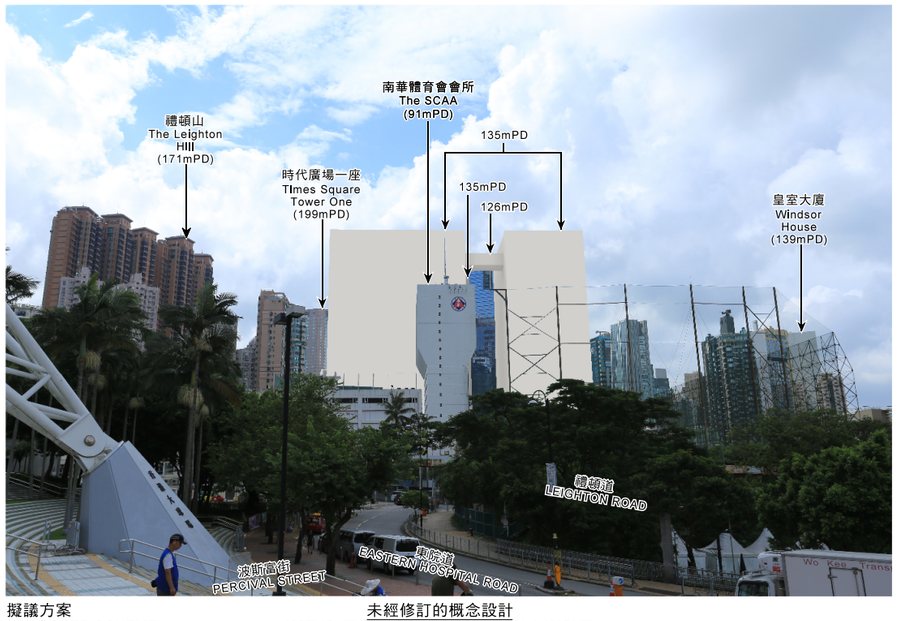
圖 PLAN
FC - 3



現有景觀
EXISTING VIEW

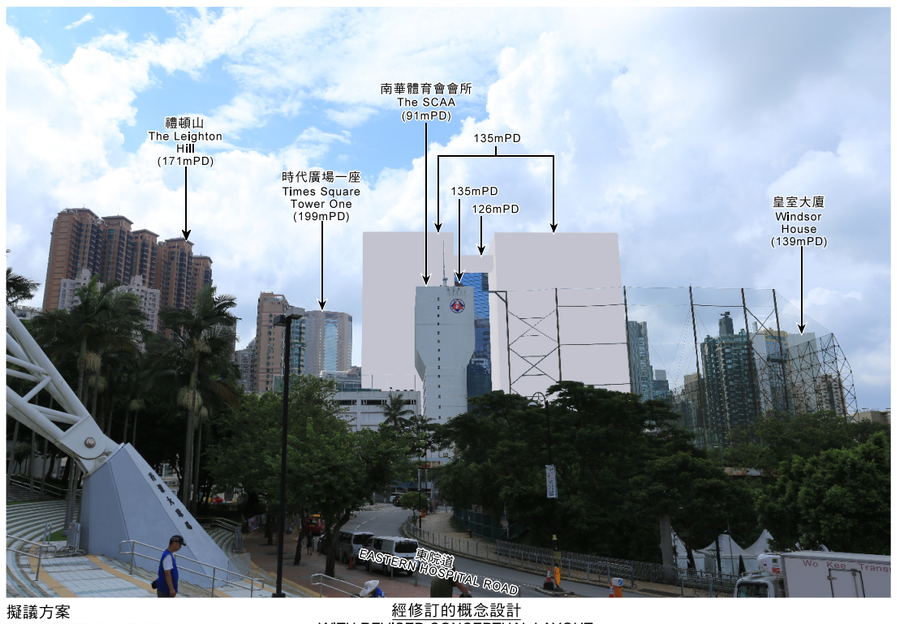


觀景點位置
LOCATION OF VIEWING POINT



擬議方案
PROPOSED SCHEME

未經修訂的概念設計
WITHOUT REVISED CONCEPTUAL LAYOUT



擬議方案
PROPOSED SCHEME

經修訂的概念設計
WITH REVISED CONCEPTUAL LAYOUT

從香港大球場遠眺
VIEW FROM THE HONG KONG STADIUM

本圖於2019年4月26日擬備，所根據的資料為
攝於2017年9月5日的實地照片

PLAN PREPARED ON 26.4.2019 BASED ON
SITE PHOTO TAKEN ON 5.9.2017

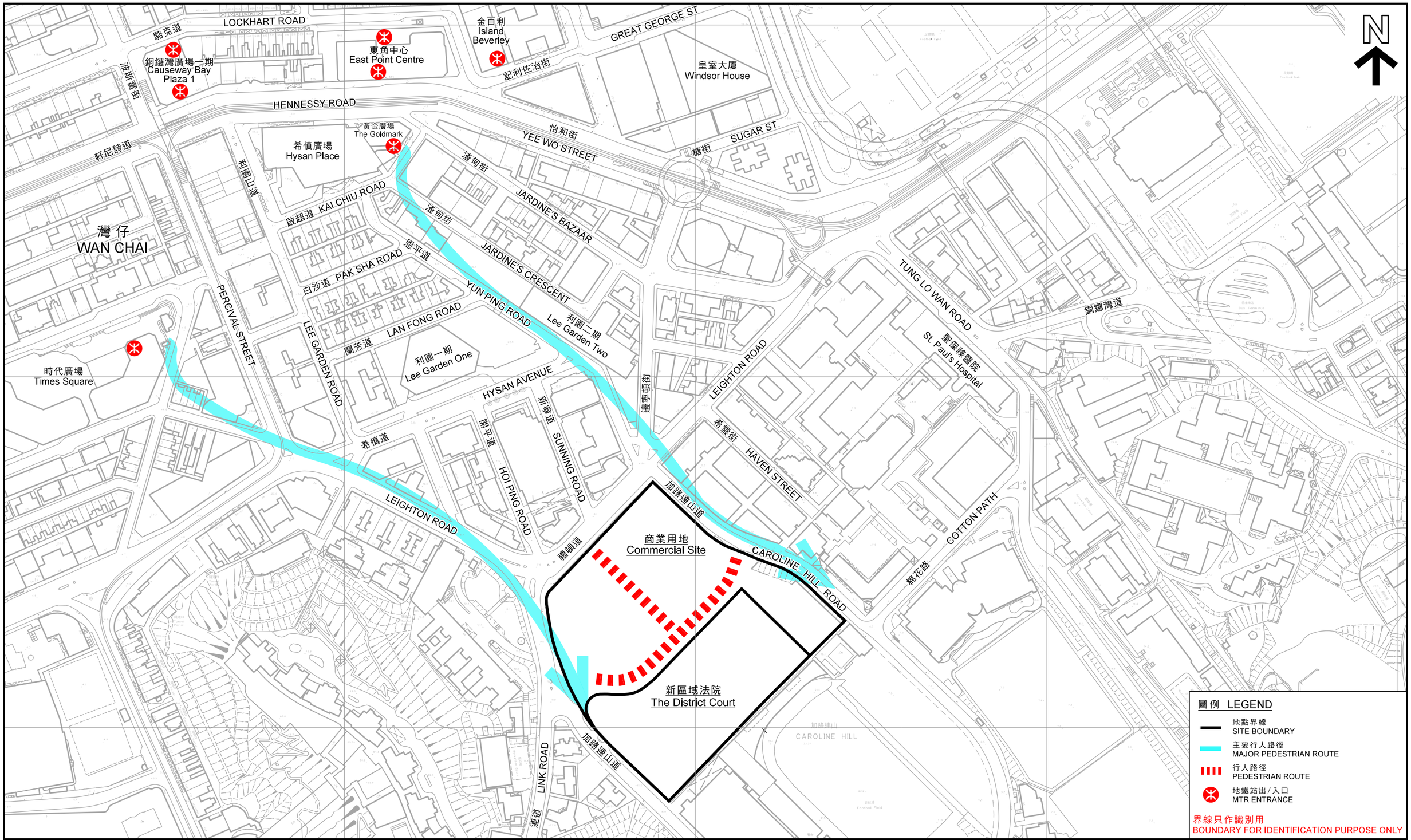
合成照片 **PHOTOMONTAGE**

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
PROPOSED AMENDMENTS TO THE APPROVED WONG NAI CHUNG
OUTLINE ZONING PLAN No. S/H7/19

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/H7/19/2A

圖 PLAN
FC - 4



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加路連山道用地的行人路徑概念設計
CONCEPTUAL LAYOUT OF PEDESTRIAN ROUTE FOR THE CAROLINE HILL ROAD SITE

黃泥涌分區計劃大綱核准圖編號S/H7/19的擬議修訂項目
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OUTLINE ZONING PLAN No. S/H7/19

SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 150 200 米 METRES

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M/H7/19/2A

圖 PLAN
FC - 5