Appendix 4

AIR VENTILATION ASSESSMENT – EXPERT EVALUATION

AtkinsRéalis

Application for Amendment of Plan Under Section 12A of the Town Planning Ordinance (Cap. 131)
Gain Million Development Limited

15 October 2026

Air Ventilation Assessment Expert Evaluation (AVA EE) Report

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1. Introduction

1.1 Background

1.1.1 This Air Ventilation Assessment Expert Evaluation (AVA-EE) is prepared by AtkinsRealis Asia Limited on behalf of the Applicant, Gain Million Development Limited, in support of a Section 12A Planning Application for rezoning Lot Nos. 837 RP (Part), 839 S.A RP (Part), 841 (Part), 1035 RP, 1037 RP and 2527 S.F RP (Part) in D.D. 130 and Adjoining Government Land at Lam Tei, Tuen Mun (Rezoning Site) from "Comprehensive Development Area" ("CDA"), "Green Belt" ("GB") and "Residential (Group B)3" ("R(B)3") zones to "Residential (Group B)4" ("R(B)4") zone, to facilitate a Proposed Residential Development with supporting commercial uses and social welfare facilities (Proposed Development).

1.2 Purpose of this Report

1.2.1 This report shall be conducted to:

(1) Review the existing wind environment of the Rezoning Site and its surroundings; and

(2) Assess qualitatively the potential air ventilation impacts on the surroundings using the methodology of AVA, based on the "Housing Planning and Lands Bureau – Technical Circular No. 1/06, Environment, Transport and Works Bureau – Technical Circular No. 1/06" issued on 19th July 2006 (the Technical Circular) and "Technical Guide for Air Ventilation Assessment for Development in Hong Kong – Annex A" (the Technical Guide) of the Technical Circular.

1.3 Study Tasks

1.3.1 The major task of this study is to carry out an AVA-EE based on the characteristics of the site wind availability data and qualitative assessment of the wind performance of the Rezoning Site. The AVA-EE will also cover the following tasks:

(a) Based on the site wind availability data under both annual and summer conditions and examination of all adjacent existing, planned and committed developments and the surrounding topographic characteristics, assess qualitatively the likely prevailing wind patterns and directions at the pedestrian level and identify major breezeways/ wind corridors/ air path of the Rezoning Site and its surrounding areas;

(b) Identify any major features (natural or man-made) which may have positive or negative effects on air ventilation of the Development, and which should be preserved, created or mitigated; and

(c) Identify any major wind sensitive or problematic areas which warrant special attention.

1.4 Abbreviations

1.4.1 The following abbreviations are used in this Report:

DEVB	Development Bureau
DRA	Drainage Reserve Area
NBA	Non-Building Area
OZP	Outline Zoning Plan
PER	Preliminary Environmental Review
PlanD	Planning Department

2. Site Characteristics

2.1 Rezoning Site and Development Sites

2.1.1 The Rezoning Site is currently zoned “Comprehensive Development Area” (“CDA”), with minor portions falling within the “Residential (Group B) 3” (“R(B)3”) and “Green Belt” (“GB”) zones, under the Approved Lam Tei and Yick Yuen Outline Zoning Plan No. S/TM-LTYY/14 (“Approved OZP”).

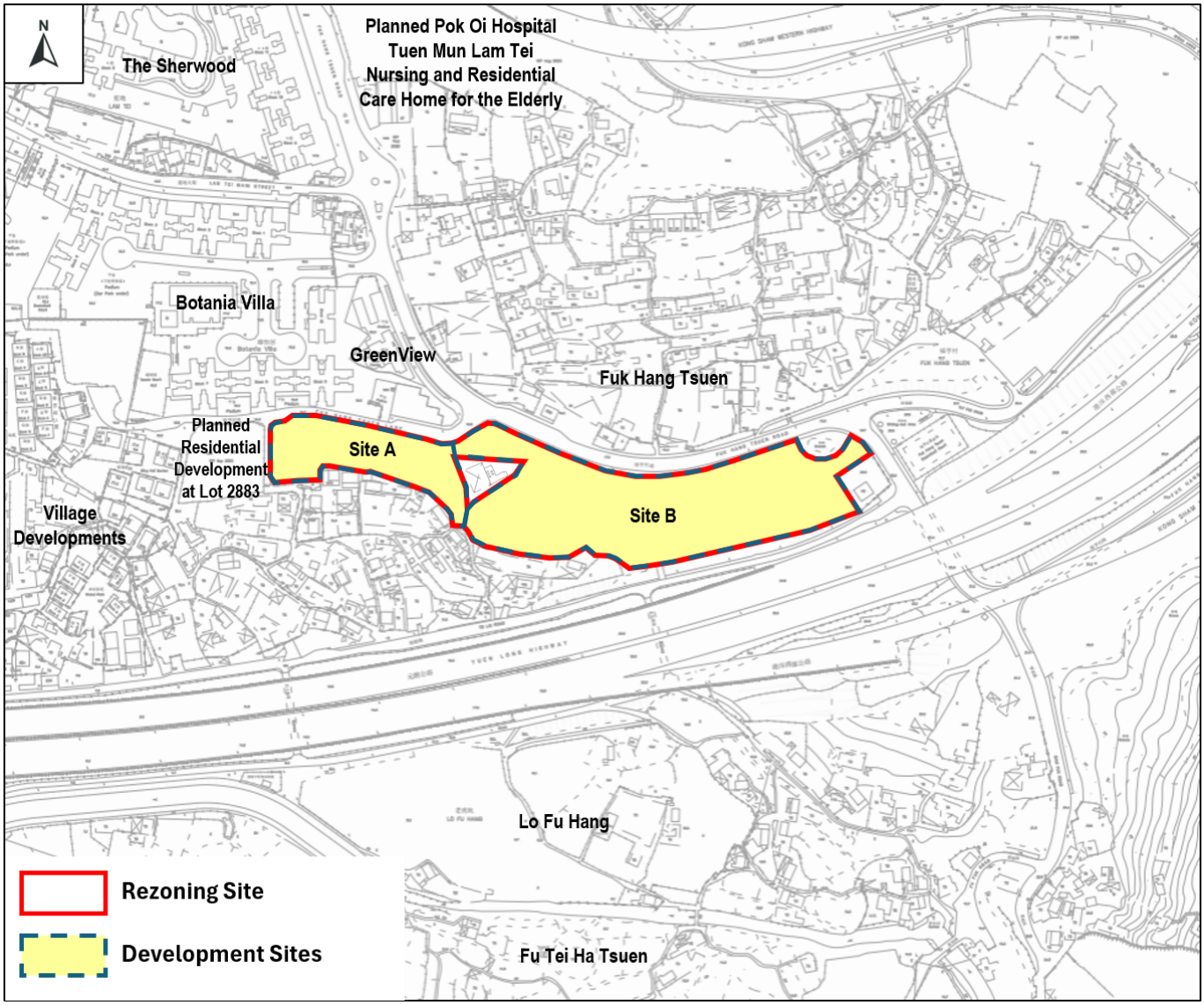
2.1.2 The Rezoning Site has a total site area of approximately 14,036m^2 and comprises two Development Sites:

- Site A, located on the western side, with a site area of 3,325.19m^2 and
- Site B, located on the eastern side, with a site area of 10,711.29m^2.

2.1.3 **Figure 2.1** illustrates the location and boundaries of the Rezoning Site and the two Development Sites. The sites are currently consists of open storage and vegetation.

2.1.4 The two Development Sites are separated by an intervening lot i.e. Lot No. 1036 in D.D. 130 and a pedestrian access and are subject to different development configurations under both the Approved Scheme and Proposed Scheme. For assessment purposes, air ventilation characteristics of Site A and Site B are therefore discussed separately where appropriate.

Figure 2.1 - Location of the Rezoning Site



2.2 Land Use

2.2.1 The Approved OZP covering the Rezoning Site and its surrounding area is shown in **Figure 2.2**.

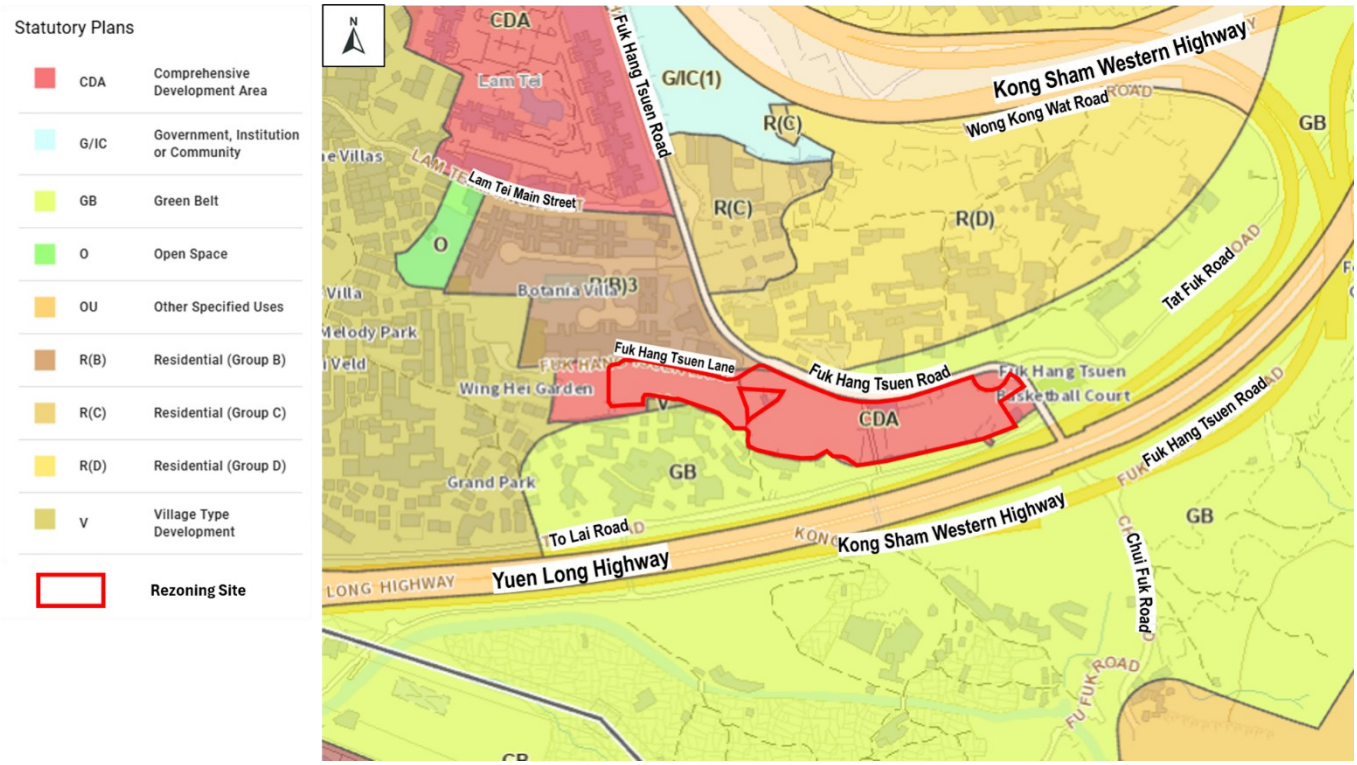
2.2.2 The Rezoning Site is bounded by Fuk Hang Tsuen Road and Fuk Hang Tsuen Lane to the north. Across these roads are areas zoned "Residential (Group B)" ("R(B)"), "Residential (Group C)" ("R(C)") and "Residential (Group D)" ("R(D)"). Further to the north are a "Comprehensive Development Area" ("CDA") zone and a "Government, Institution or Community" ("G/IC") zone.

2.2.3 To the east and south of the Rezoning Site, including the area beyond Yuen Long Highway, the surrounding land is predominantly zoned "Green Belt" ("GB"). Whilst portions of these areas are occupied by scattered low-rise buildings, village houses and temporary structures, the overall development pattern remains generally low-rise and relatively open in character.

2.2.4 Immediately west of the Rezoning Site is Lot No. 2883 in D.D. 130, which is also located within the same "CDA" zoning. Further west is an extensive area zoned "Village Type Development" ("V").

2.2.5 In general, the Rezoning Site is situated within a predominantly low-rise and low-density environment. Apart from several existing medium to high-rise residential developments and planned G/IC developments in the surrounding area, the overall urban context remains relatively open in comparison with the more densely developed urban districts of Hong Kong.

Figure 2.2 - OZP within and near the Rezoning Site



2.3 Existing Topography

2.3.1 **Figure 2.3** presented the topographic map near the Rezoning Site.

2.3.2 Lo Pok Shan, with a peak elevation of approximately 133mPD, is the dominant topographical feature in the vicinity of the Rezoning Site. Lam Tei Quarry and Lui Kung Kong, located to the south and southeast of the Rezoning Site, form secondary hilly terrain with peak elevations of approximately 75mPD and 80mPD respectively.

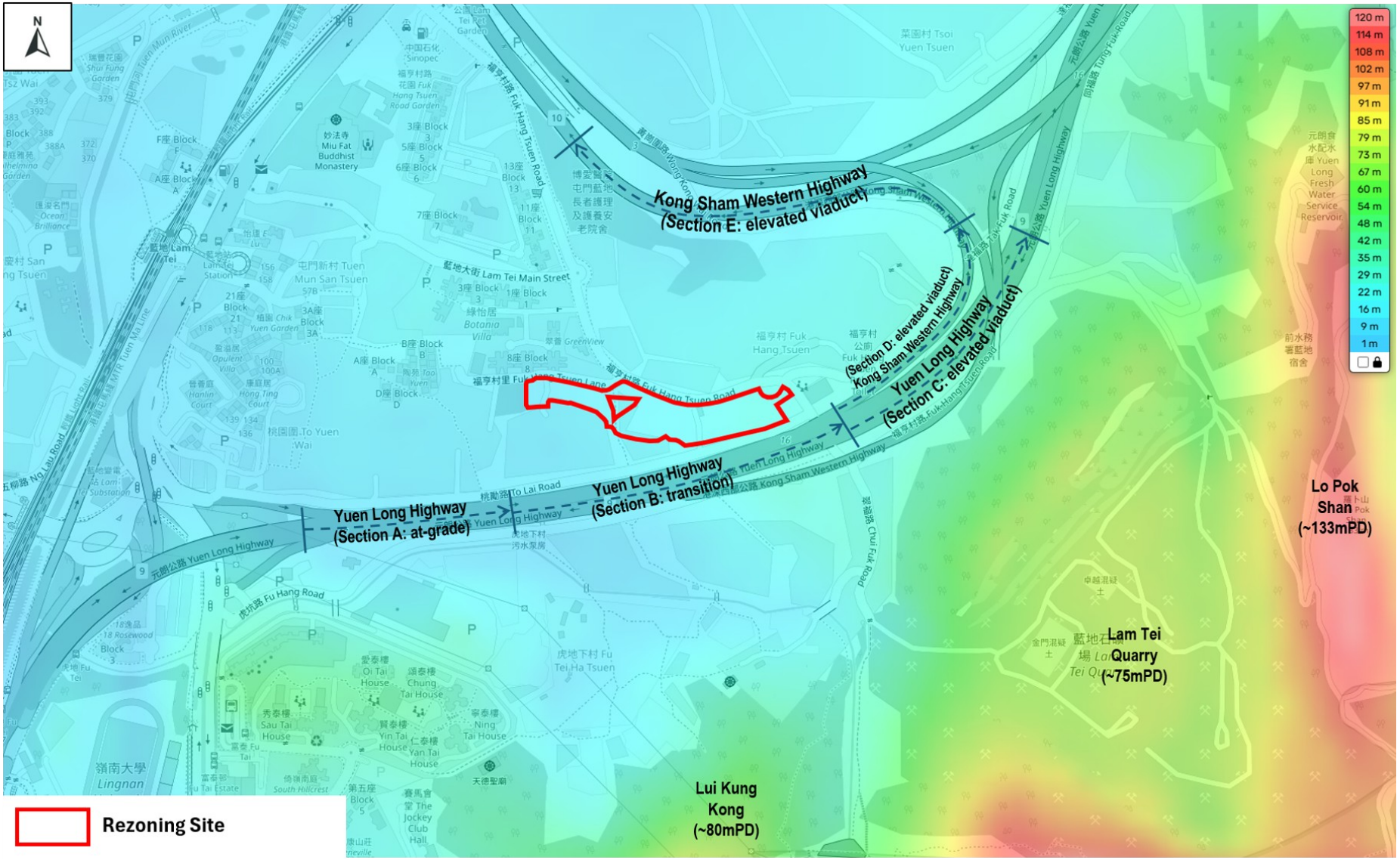
2.3.3 The Rezoning Site is situated on relatively flat terrain at approximately 20mPD. The surrounding area between Yuen Long Highway and Kong Sham Western Highway is also generally flat with ground levels mostly below 30mPD. While parts of Yuen Long Highway remain at-grade or on embankment, the eastern section of Yuen Long Highway and Kong Sham Western Highway are carried on elevated viaduct structures above the surrounding ground level.

2.3.4 Sub-sections of these elevated highways are annotated in **Figure 2.3.** A dotted arrow is used to indicate the gradient increasing direction of each section. The elevation height range of each section is summarized as below.

- Section A of Yuen Long Highway: approximately 8-10mPD, at-grade section
- Section B of Yuen Long Highway: approximately 10-25mPD, transitioning from at-grade to elevated viaduct
- Section C of Yuen Long Highway: approximately 25-28mPD, elevated viaduct section
- Section D of Kong Sham Western Highway: approximately 25-30mPD, elevated viaduct section
- Section E of Kong Sham Western Highway: approximately 30-35mPD, elevated viaduct section

2.3.5 For the purpose of this AVA-EE, the highway sections are differentiated according to their elevation characteristics. In general, the at-grade and transitional sections form part of the local topographic profile, whereas the elevated viaduct sections do not constitute a continuous solid obstruction at ground level and are therefore expected to be relatively more permeable to airflow.

Figure 2.3 - Topographical Map near the Rezoning Site



2.4 Existing Urban Morphology

2.4.1 **Figure 2.4** shows an overview of the Rezoning Site and its surroundings.

2.4.2 Owing to the predominantly rural and village-type character of the surrounding area, development density is generally low and the majority of existing buildings comprise village houses, low-rise buildings and temporary structures. Apart from a cluster of existing medium to high-rise residential developments in the northwestern part of the study area, the overall urban morphology remains predominantly low-rise and relatively permeable.

2.4.3 The Rezoning Site currently consists of open storage and vegetation. It is bounded by Fuk Hang Tsuen Road and Fuk Hang Tsuen Lane on the north and adjoining To Lai Road on the southeastern boundary. The Rezoning Site includes two Development Sites, Site A situated on the westward and Site B on the eastward.

2.4.4 In between the Development Sites A and B is a piece of triangular land hosting the Lam Tei Agricultural Fa Pau Committee, which is a single storey building with height at 20mPD.

2.4.5 Immediately adjacent to the eastern boundary of Site B, there is an existing grave and the Fuk Hang Tsuen Village Office with building height of 28.5mPD.

2.4.6 To the east of the Rezoning Site, Fuk Hang Tsuen Basketball Court is the nearest public open space. The ground level of the court is about 21mPD, which is of similar level as the Rezoning Site.

2.4.7 Immediate adjacent to the western boundary of Site A is a planned residential development at Lot 2883 in D.D. 130. Fifteen blocks of 3-storey low-rise residential houses with height of about 26mPD are currently under construction. The houses lay on two sides with an Emergency Vehicle Access (EVA) driveway situated in between.

2.4.8 To further west of the Rezoning Site is a broad “Village” development zone, which consists of a cluster of 3-storey village houses with an average building height between 20mPD to 25mPD.

2.4.9 To the north of Site A, the Botania Villa and GreenView of similar building height about 55mPD to 57mPD are the major high-rise residential developments in the proximity of the Rezoning Site. The Botania Villa consists of nine blocks of residential tower with 11 storeys of residential floors, whilst the GreenView is a single tower also with 11 storeys of residential floors.

2.4.10 The highest building in the surrounding development is The Sherwood of about 61mPD with twelve blocks of residential tower with 16 to 17 storeys of residential floors. The Sherwood locates on the northwest of the Rezoning Site.

2.4.11 To the north of Site B across Fuk Hang Tsuen Road is an area comprising village houses, low-rise buildings and temporary structures generally known as Fuk Hang Tsuen. Most permanent buildings are between one and three storeys in height, with building heights generally below 26mPD, while the temporary structures are predominantly single-storey in nature.

2.4.12 To the further north over the low-rise clusters and opposite to The Sherwood across the Fuk Hang Tsuen Road is the Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly zoned “G/IC”, with a maximum building height of 50mPD.

2.4.13 To the south of the Rezoning Site across Yuen Long Highway at Lo Fu Hang and Fu Tei Ha Tsuen is an area of dispersed low-rise buildings and temporary structures of relatively low density.

2.4.14 Details of the development height of the surroundings is summarised in the following table.

Table 2.1 - Summary of Surrounding Building Height

Building/Development	Building Height (mPD)
Residential Sites	
Planned Residential Development at Lot 2883	26.4
Botania Villa	55.1
GreenView	56.8
The Sherwood	61.1
Government, Institution or Community Sites	
Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly	Maximum 50
Other	
Lam Tei Agricultural Fa Pau Committee	20.0
Fuk Hang Tsuen Village Office	28.5
Open Space	
Fuk Hang Tsuen Basketball Court	21.2

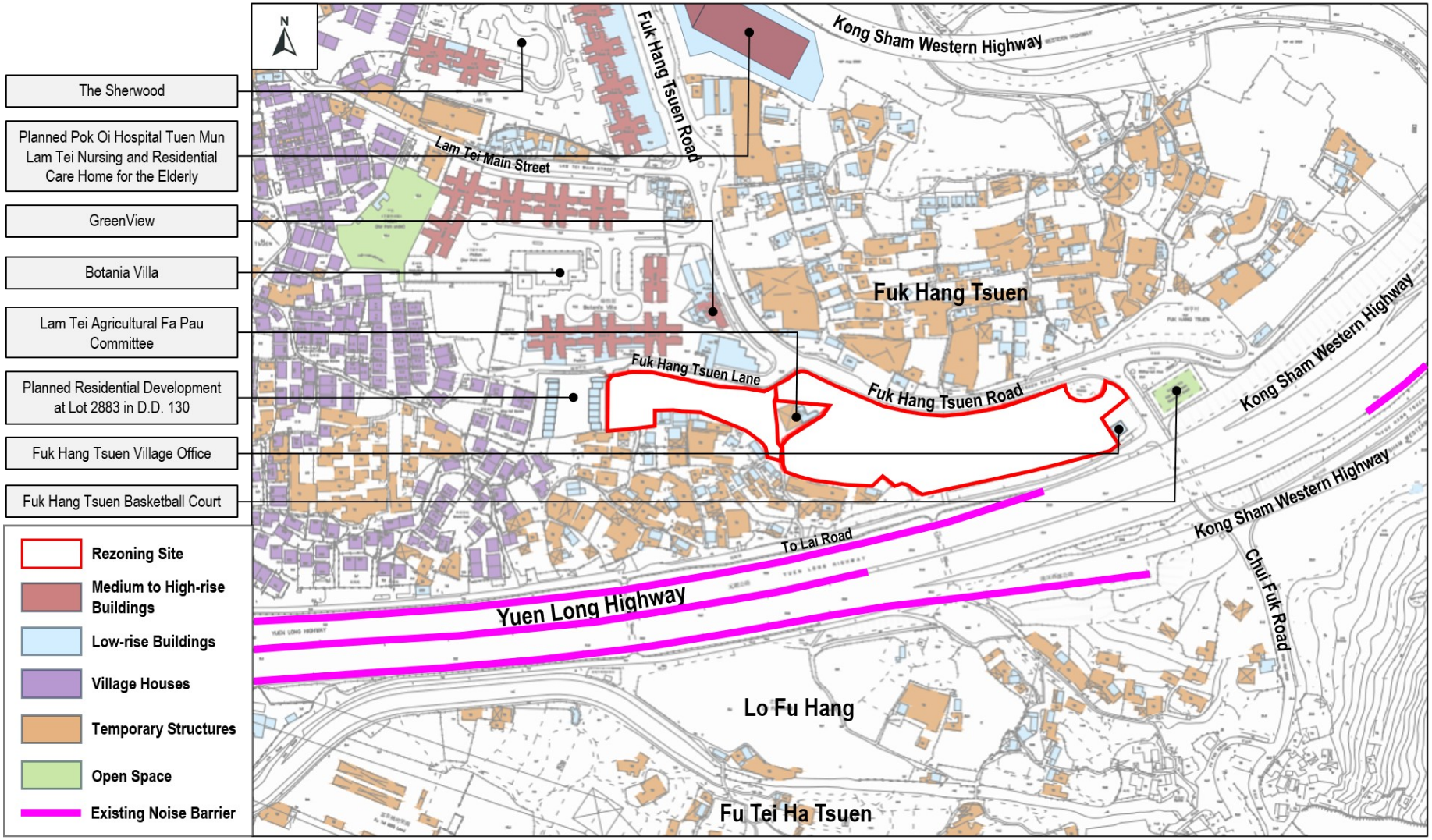
2.4.15 Notably, as introduced in **Section 2.3**, the elevated Yuen Long Highway and Kong Sham Western Highway in the nearby region have a surface height of about 28mPD to 35mPD at maximum. This elevation is broadly comparable to the prevailing height profile of the surrounding village houses, low-rise buildings and temporary structures. The western portion of Yuen Long Highway is generally at-grade, whilst the eastern portion of Yuen Long Highway and Kong Sham Western Highway are primarily elevated viaduct sections.

2.4.16 The on-grade section formed part of the topography of the region, so the prevailing wind is expected to skim over the road surface. However, as denoted in **Figure 2.4**, existing noise barriers of approximately 5-7m height are installed along portions of Yuen Long Highway south of the Rezoning Site. These noise barriers may introduce a degree of local wind screening effect on pedestrian-level southerly airflow approaching the Rezoning Site.

2.4.17 For the elevated highways, in principle the elevated viaduct structures are not expected to form a continuous solid obstruction to the prevailing winds. Currently, the void spaces underneath the road structure are mostly covered by existing greenery and trees and with no other notional artificial blockage.

2.4.18 Overall, the surrounding area is characterized by a predominantly low-rise and relatively permeable development pattern, with several existing high-rise residential developments concentrated in the northwestern part of the study area. These existing high-rise developments and the highway infrastructure form the principal man-made features influencing local airflow characteristics within the study area.

Figure 2.4 - Existing / Planned Major Development near the Rezoning Sites



3. Site Wind Availability

3.1 General

3.1.1 The characteristics of the site wind availability should be identified in order to investigate the wind performance of the Rezoning Site. Site wind availability data could be used for assessing the wind characteristics in terms of the magnitude and frequency of approaching wind from each wind direction.

3.1.2 Both observed meteorological records from the nearby Hong Kong Observatory (HKO) Station – Tuen Mun Government Offices Wind Station and the simulated Regional Atmospheric Modelling System (RAMS) wind availability data from PlanD were reviewed to identify the prevailing wind characteristics of the Rezoning Site.

3.2 Hong Kong Observatory

3.2.1 The prevailing wind direction for each month measured at the closest weather station (i.e. Tuen Mun Government Offices Weather Station) to the Rezoning Site is obtained from the Hong Kong Observatory and is tabulated below. **Figure 3.1** shows the location of the Tuen Mun Government Offices Wind Station and **Table 3.1** summarises the monthly recorded wind direction.

Figure 3.1 - Location of Tuen Mun Government Offices Wind Station (Source: Hong Kong Observatory)

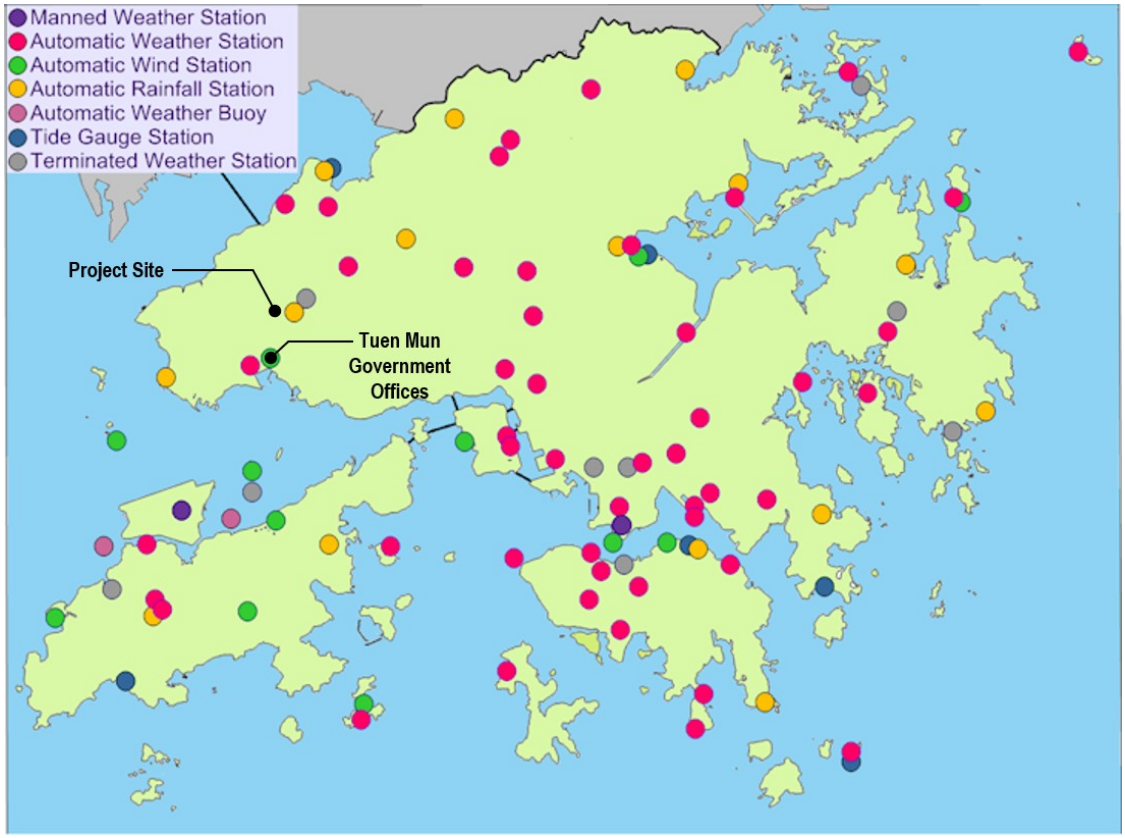


Table 3.1 - Monthly Wind Direction Recorded at Tuen Mun Government Offices Wind Station 2025

Month		Prevailing Wind Direction (°)
January		020
February		020
March		020
April		160
May		150
June	**(Summer)**	150
July		150
August		150
September		150
October		030
November		030
December		030
Annual		**150**

3.2.2 With reference to the wind rose diagrams (**Figure 3.2**) of Tuen Mun Government Offices wind station, the annual prevailing winds are from both the NE and SE quadrant while the summer prevailing winds are mainly from the SE quadrant.

Figure 3.2a - Annual Wind Rose from Tuen Mun Government Offices Wind Station (1988 – 2025)

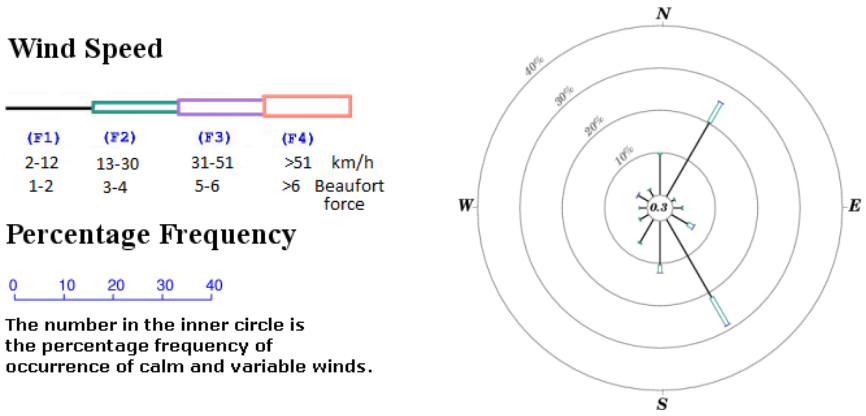
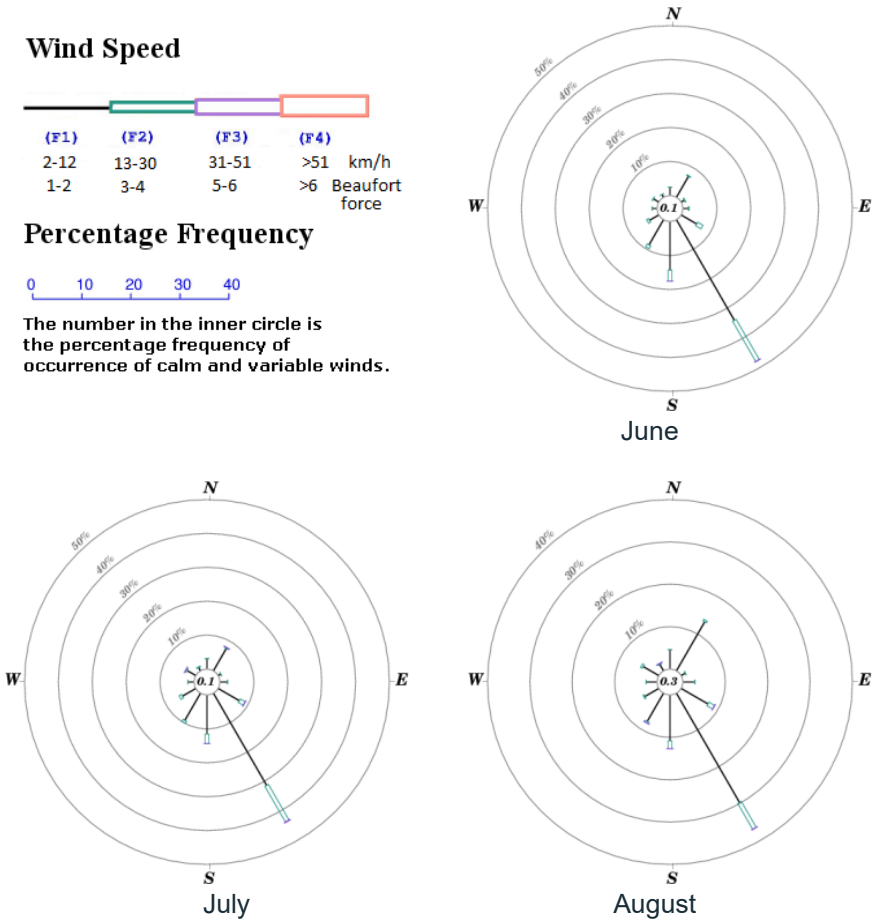


Figure 3.2b - Summer Wind Rose from Tuen Mun Government Offices Wind Station Jun – Aug (1988 – 2025)



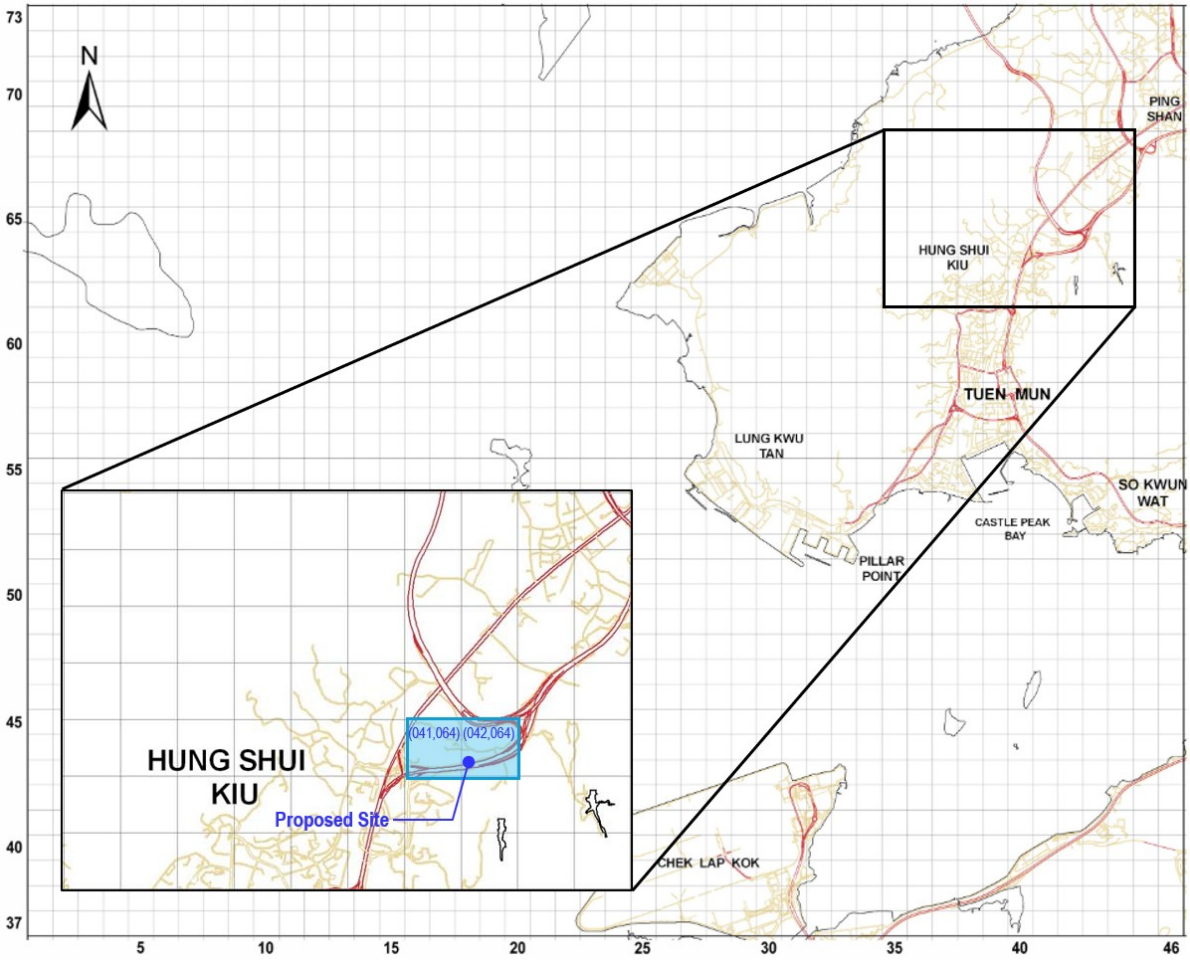
3.2.3 Nevertheless, the Tuen Mun Government Offices wind station is located approximately 3km from the Rezoning Site and measures local wind conditions influenced by its immediate surroundings. For AVA purposes, site-specific wind availability data generated by the RAMS model and published by the PlanD are therefore also reviewed, as these data provide a more representative assessment of the approaching winds at the Rezoning Site.

3.3 RAMS Wind Data

3.3.1 City University of Hong Kong (CityU) utilized the meso-scale numerical model Regional Atmospheric Modeling System (RAMS) to developed site wind availability data for Hong Kong which is publicly available through the PlanD database (http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html) Based on the archived dataset, wind statistics and wind roses for each 0.5km×0.5km grid box at different height levels could be extracted.

3.3.2 Simulated data at grid (X041, Y064 and X042, Y064) corresponds to the location of the Rezoning Site and both annual and summer wind conditions at 200m above ground are referenced in this study. The location of grid (X041, Y064 and X042, Y064) is shown in **Figure 3.3**.

Figure 3.3 - Location of the Selected RAMS Wind Data for the Rezoning Site – Grid (X041, Y064 and X042, Y064)



3.3.3 **Figure 3.4** below presented the wind rose and prevailing wind directions (for both annual and summer) at the height of 200mPD extracted from the RAMS database for grid (X041, Y064 and X042, Y064) respectively.

Figure 3.4 - Wind Rose at 200mPD for the Rezoning Site – Grid (X041, Y064 and X042, Y064) by RAMS Wind Data



3.3.4 The extracted wind roses show that north easterlies dominate under the annual wind condition while southerlies dominate under the summer wind condition.

3.3.5 According to the RAMS wind data, NNE, NE, E and ESE are the most dominant prevailing winds with a cumulative wind frequency of over 43% for annual condition in both X041, Y064 and X042, Y064 grid. For summer conditions, S, SSW and SSE are the most dominant prevailing winds with a cumulative wind frequency of over 45% in both X041, Y064 and X042, Y064 grid.

Table 3.2 - Prevailing Wind Frequency of Project Area by RAMS Wind Data - Grid (X041, Y064 and X042, Y064)

Prevailing Wind	Annual (Grid (X041, Y064))				Summer (Grid (X041, Y064))		
Wind Direction	NNE	NE	E	ESE	S	SSW	SSE
Wind Frequency	14.6%	10.2%	9.4%	9.4%	18.2%	15.7%	14.0%
Prevailing Wind	**Annual (Grid (X042, Y064))**				**Summer (Grid (X042, Y064))**		
Wind Direction	NNE	NE	E	ESE	SSW	S	SSE
Wind Frequency	12.9%	11.0%	10.9%	10.1%	17.0%	15.4%	13.0%

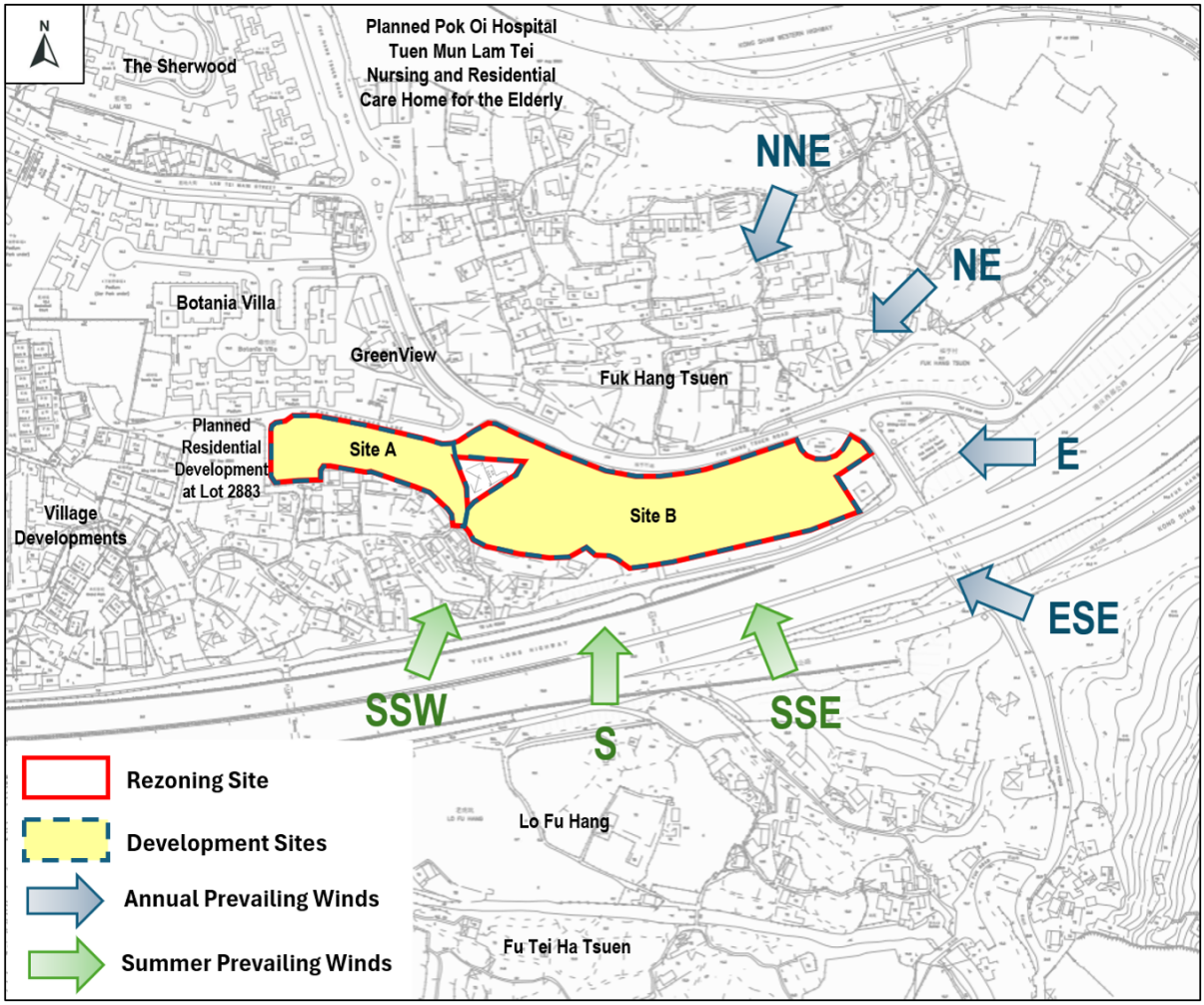
3.4 Summary

3.4.1 By comparing the wind data, the annual prevailing winds of the Rezoning Site at Lam Tei are mainly from the north-eastern and south-eastern quadrant whilst summer prevailing winds to the Rezoning Site are dominated by the south-western and south-eastern quadrant. However, Tuen Mun Government Offices wind station is located at low height levels and approximately 3km far from the Rezoning Site. The wind data measured at this wind station will be affected by surrounding developments or topography and hence cannot be adopted directly to the Rezoning Site for AVA purposes.

3.4.2 For the purpose of this AVA-EE, the RAMS site wind availability data published by the PlanD are adopted as the primary wind source, as these data have been specifically developed for AVA applications and provide a more representative assessment of the approaching wind characteristics at the Rezoning Site. The HKO records are reviewed as supplementary reference information and are generally consistent with the prevailing annual and summer wind patterns identified from the RAMS dataset.

3.4.3 **Figure 3.5** shows the prevailing wind directions of the Rezoning Site identified for this AVA-EE study. Based on the RAMS wind frequency analysis, NNE, NE, E and ESE are identified as the dominant annual wind directions, while SSW, S and SSE are identified as the dominant summer wind directions and are therefore adopted for the qualitative assessment.

Figure 3.5- Prevailing Wind Directions of the Rezoning Site



4. Studied Scenarios

4.1 Approved Scheme (OZP-compliant Scheme)

4.1.1 The Approved Scheme refers to the previously approved OZP-compliant development scheme under Planning Application No. A/TM-LTYY/249-3. **Figure 4.1** shows the master layout plan and **Figure 4.2** presents the sectional drawings of the Approved Scheme (OZP-compliant Scheme).

4.1.2 Under the Approved Scheme (OZP-compliant Scheme), the Rezoning Site comprised of two 6-storey residential towers and 20 2-storey semi-detached residential houses with an additional 2-storey clubhouse block. The key parameters for the Approved Scheme (OZP-compliant Scheme) are given in **Table 4.1**.

Table 4.1 - Summary of Approved OZP-compliant Development Scheme

Items	Development Site	
General		
Statutory Zoning	Comprehensive Development Area	
Housing Type	Private Residential Development	
Rezoning Site Area	15,044m^2	
Development Site Area	14,144.2m^2	
Plot Ratio	0.54	
Domestic GFA	7,507.81m^2	
Non-Domestic GFA	130.06m^2	
Housing Blocks		
Number of Blocks	2 towers	20 semi-detached houses
Number of Storeys	6	2
Estimated Population	395	
Building Height	35.27mPD	24.75mPD
Clubhouse Building		
Number of Storeys	/	2
Size	/	397.306m^2
Public Open Space		
Size	/	2,321m^2

4.1.3 The Approved Scheme (OZP-compliant Scheme) incorporates several air ventilation enhancement features to maintain development permeability and facilitate airflow penetration through the Rezoning Site. The key air ventilation enhancement features are summarised below and illustrated in **Figure 4.1**:

- **At least 25m-wide separation between the two residential towers in Site A**, providing a substantial opening within the western portion of the Rezoning Site and reducing the continuity of the building mass.

- **3m-wide Non-Building Area (NBA) along the northern site frontage**, maintaining a setback from the site boundary and preserving local permeability along Fuk Hang Tsuen Road.

- **7.3m-wide Drainage Reserve Area (DRA) and associated building separation**, providing a permanent non-building corridor through the development and maintaining a physical break between adjacent building clusters. This arrangement reduces the continuity of the overall building mass and contributes to development permeability.

- **A public open spaces of over 2,000m^2 on the eastern side of Site B**, providing localised open areas and visual openness within the Rezoning Site.

4.1.4 Collectively, the above air ventilation enhancement features reduce the continuity of the building mass and maintain opportunities for airflow movement through the Rezoning Site. These features form the basis of the comparative air ventilation assessment between the Approved Scheme (OZP-compliant Scheme) and the Proposed Scheme presented in the following sections.

Figure 4.1 - Master Layout Plan of the Approved Scheme (OZP-compliant Scheme)

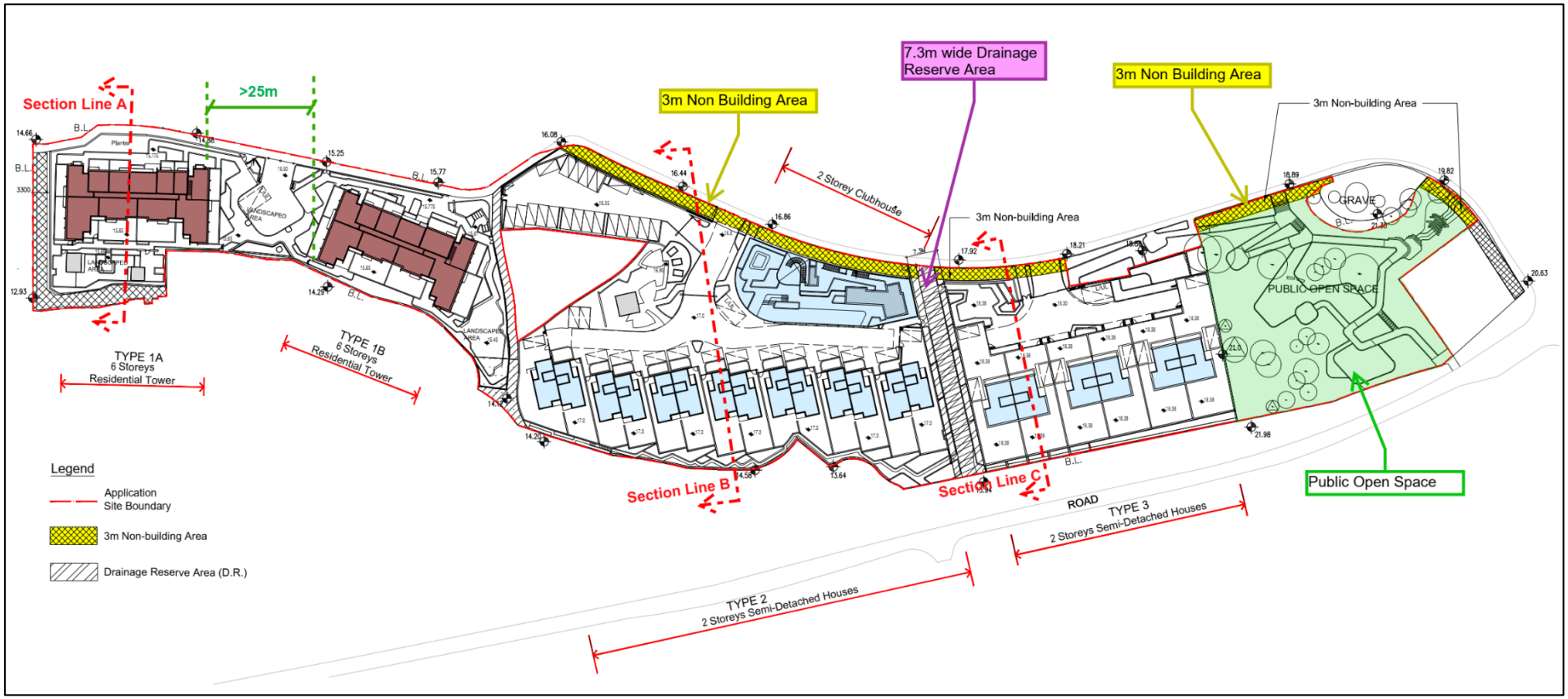
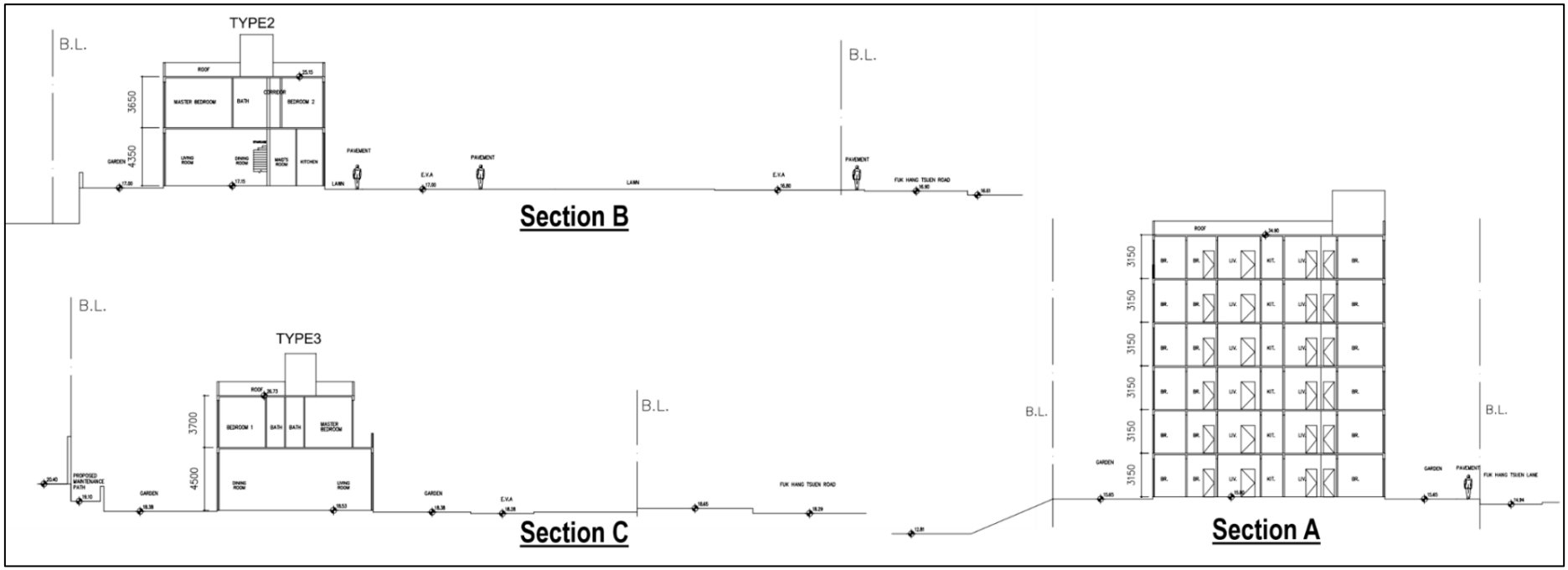


Figure 4.2 - Sectional Drawings of the Approved Scheme (OZP-compliant Scheme)



4.2 Proposed Scheme

4.2.1 The Proposed Scheme refers to the Indicative Development Scheme under the current Application**. Figure 4.3** shows the master layout plan and **Figure 4.4** shows the corresponding sectional drawings.

4.2.2 Compared with the Approved Scheme (OZP-compliant Scheme), the Proposed Scheme adopts a revised development configuration with increased development intensity and building height while incorporating a series of design measures intended to maintain site permeability and facilitate wind penetration through the Rezoning Site. The key parameters for the Proposed Scheme are given in **Table 4.2**.

4.2.3 The number of residential towers in Site A is reduced from two to single tower, while the building height is increased from 6 storeys (about 36mPD) to 12 storeys (no more than 58mPD). A new podium structure (about 23mPD) is introduced with 2 storeys of carpark on G/F to 1/F and a clubhouse facility on 2/F.

4.2.4 Site B introduces more drastic changes from 20 2-storey semi-detached houses (about 25mPD) to four 10 to 12-storey medium-rise residential towers (no more than 60mPD). Two new podium structures (25mPD) are introduced each for Towers 1 & 2 and Towers 3 & 4. Similar to Site A, the podium structure consists of 2 storeys of carpark on G/F to 1/F and a clubhouse facility on 2/F.

4.2.5 In addition to residential towers, the Proposed Scheme at Site B introduced a 3-storey Non-Domestic Block (Retail and covered public open space on G/F and Social Welfare Facilities on 1/F to 2/F) on the northwestern side of the Site.

Table 4.2 - Summary of Proposed Development Scheme

Items	Site A	Site B
General		
Proposed Statutory Zoning	Residential (Group B)4	
Housing Type	Private Residential Development	
Rezoning Site Area	14,036.48m^2	
Development Site Area	14,036.48m^2	
	3,325.19m^2	10,711.29m^2
Proposed Plot Ratio	2.10	2.21
Proposed GFA	6,982.90m^2	23,703.71m^2
Proposed Domestic GFA	6,982.90m^2	22,493.71m^2
Proposed Non-Domestic GFA	/	1,210m^2
Housing Blocks		
Number of Blocks	1 tower	4 towers
Number of Storeys	12	10-12
Estimated Population	1,420	
	328	1,092
Building Height	Approximately 57.87mPD	Approximately 54.60mPD to 59.55mPD
Non-Domestic Building		
Number of Storeys	/	3
Size	/	1,210m^2 (370m^2 for Retail and 840m^2 for Social Welfare Facilities)

4.2.6 The Proposed Scheme incorporates a number of air ventilation enhancement features to maintain development permeability and facilitate airflow penetration through the Rezoning Site. The key air ventilation enhancement features are summarised below and illustrated in **Figure 4.3:**

- **Proposed podium and tower setbacks at Site A**, comprising a podium setback of at least 5m and a tower setback of at least 40m from the western site boundary, maintaining an open edge adjoining the developments to the west.
- **Proposed podium and tower setbacks at Site B**, comprising a podium setback of at least 25m and a tower setback of at least 35m from the eastern site boundary, maintaining openness along the eastern edge of the Rezoning Site.
- **15m-wide tower separation between Site A and Site B**, maintaining a physical break between the two development sites and reducing the continuity of the overall building mass.
- **7.3m-wide Drainage Reserve Area (DRA) and associated 11m-wide building separation**, providing a permanent non-building corridor and maintaining physical separation through the central portion of the Rezoning Site.
- **3m-wide Non-Building Area (NBA) along Fuk Hang Tsuen Road**, maintaining a setback from the northern site boundary and preserving local permeability along the road frontage.
- **Air paths of at least 15m in width between the tower blocks at Site B**, maintaining building separations within Site B and reducing the continuity of the proposed building mass.

4.2.7 Collectively, the above air ventilation enhancement features reduce the continuity of the building mass, maintain open edges and building separations, and provide opportunities for airflow penetration and redistribution through the Rezoning Site.

4.2.8 In addition, a building setback of at least 20m from the edge of Yuen Long Highway is maintained along the southern boundary of the Rezoning Site, contributing to openness along the southern site frontage.

Figure 4.3 - Master Layout Plan of the Proposed Scheme

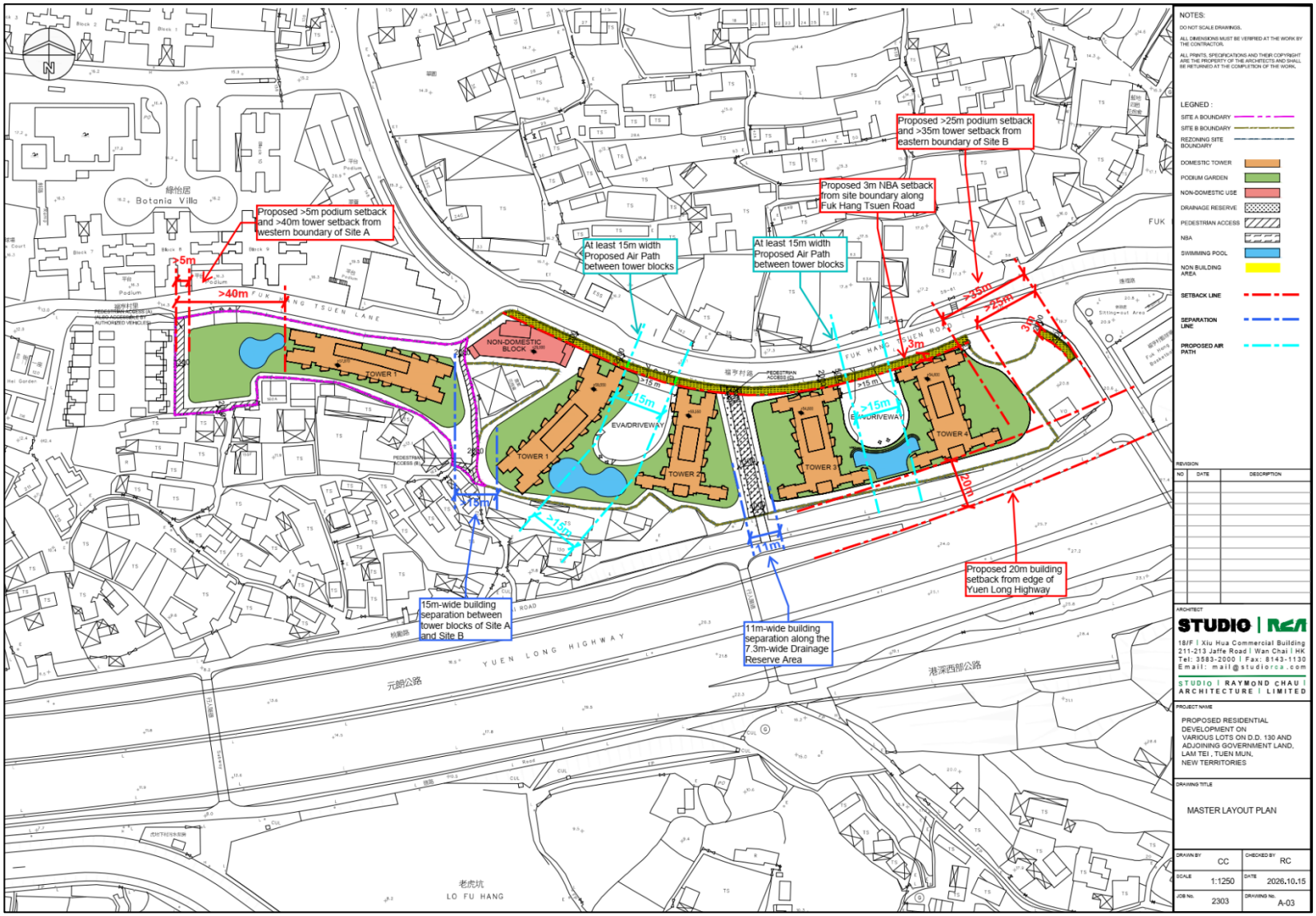
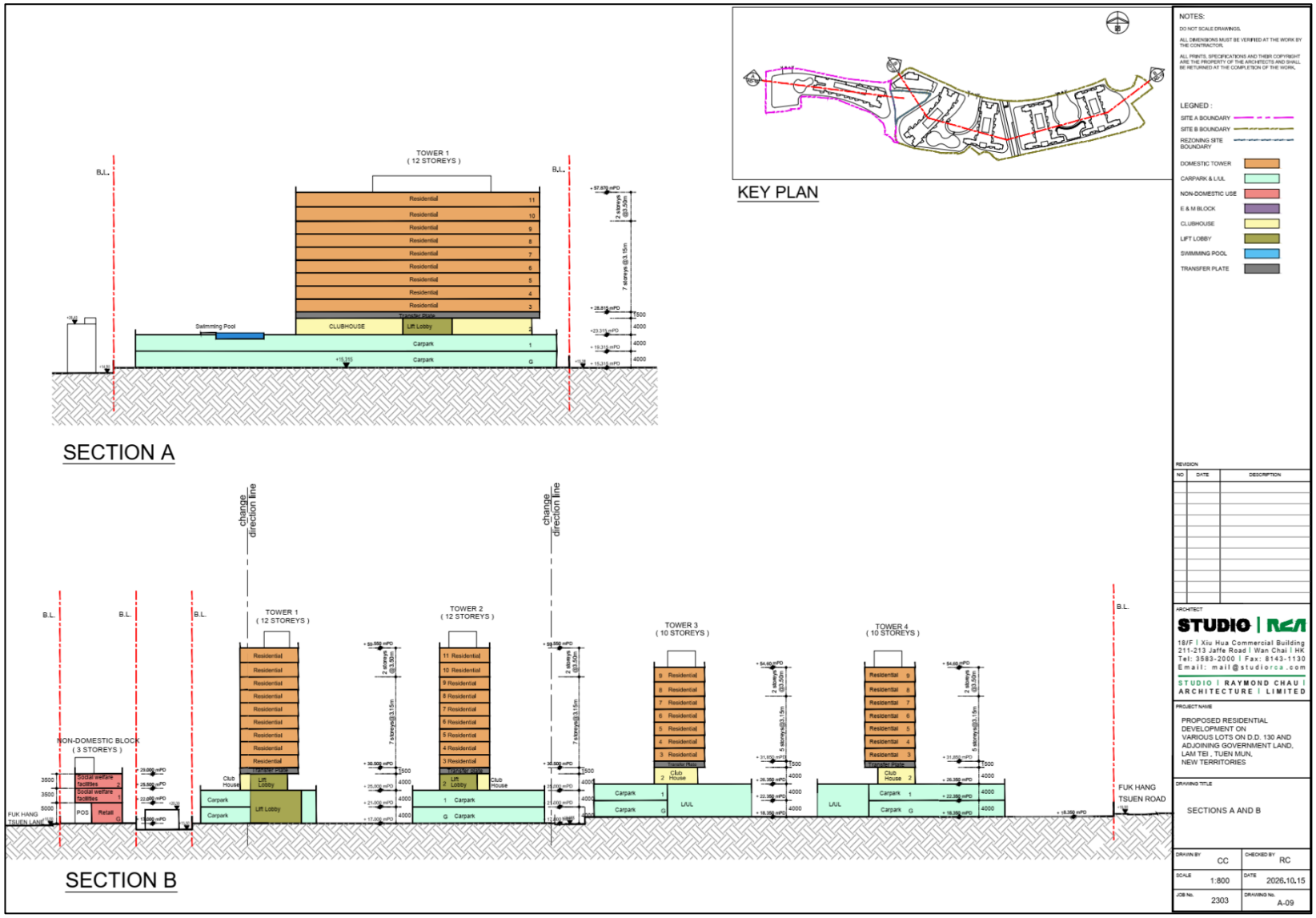
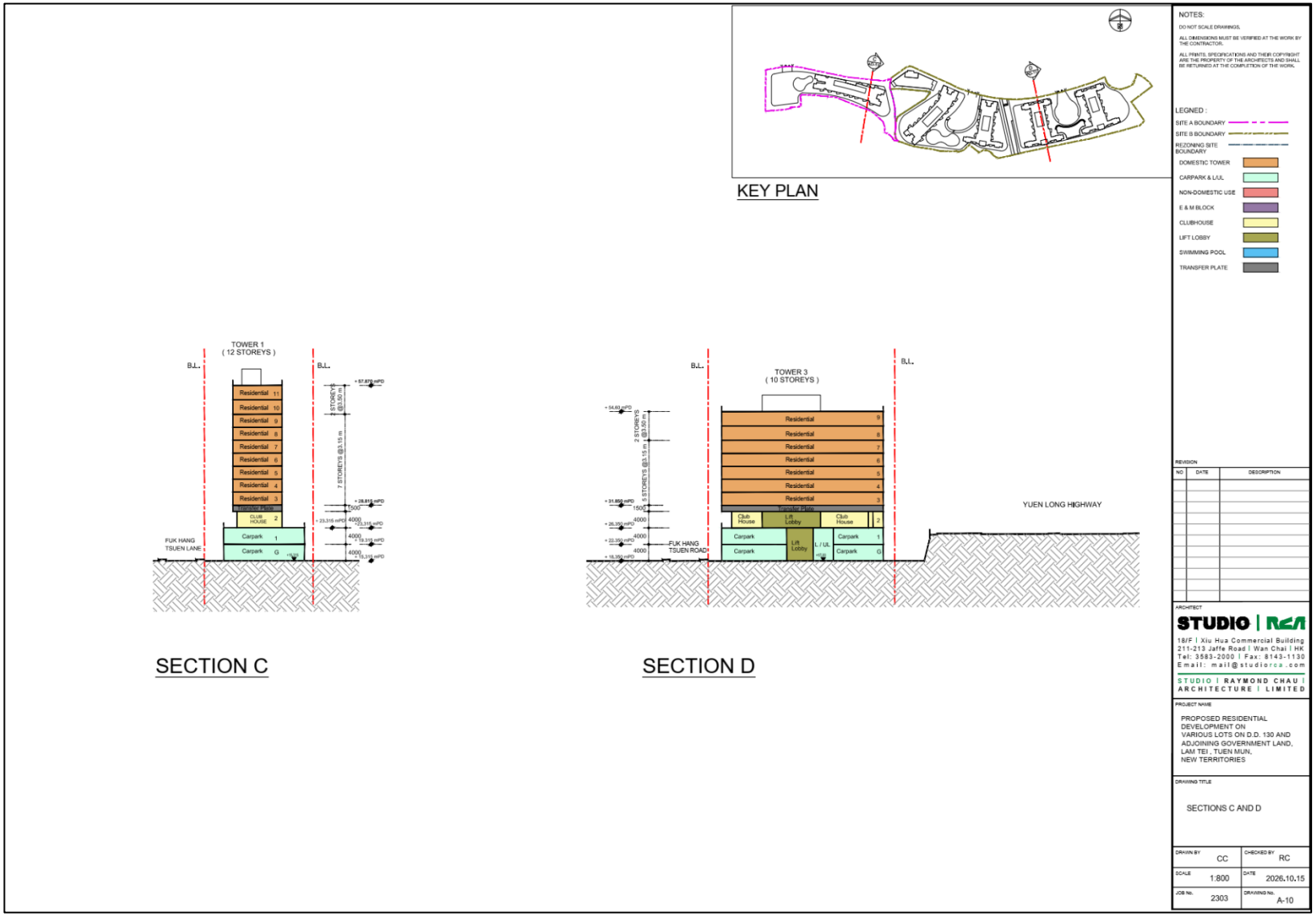


Figure 4.4 - Sectional Drawings of the Proposed Scheme




KEY PLAN
NOTES:
DO NOT SCALE DRAWINGS.
ALL DIMENSIONS MUST BE VERIFIED AT THE WORK BY THE CONTRACTOR.
ALL PRINTS, SPECIFICATIONS AND THEIR COPYRIGHT ARE THE PROPERTY OF THE ARCHITECTS AND SHALL BE RETURNED AT THE COMPLETION OF THE WORK.
LEGNED :
SITE A BOUNDARY
SITE B BOUNDARY
REZONING SITE BOUNDARY
DOMESTIC TOWER
CARPARK & L/UL
NON-DOMESTIC USE
E & M BLOCK
CLUBHOUSE
LIFT LOBBY
SWIMMING POOL
TRANSFER PLATE
TOWER 1
(12 STOREYS)
B.L.
B.L.
Residential 11
Residential 10
Residential 9
Residential 8
Residential 7
Residential 6
Residential 5
Residential 4
Residential 3
Transfer Plate
CLUB HOUSE 2
Carpark 1
Carpark G
FUK HANG TSUEN LANE
5 STOREYS @3.50 m
7 STOREYS @3.15 m
SECTION C
TOWER 3
(10 STOREYS)
B.L.
B.L.
Residential 9
Residential 8
Residential 7
Residential 6
Residential 5
Residential 4
Residential 3
Transfer Plate
Club House
Lift Lobby
Club House
2
Carpark
Lift Lobby
L / UL
Carpark 1
Carpark
G
FUK HANG TSUEN ROAD
2 STOREYS @3.50 m
5 STOREYS @3.15 m
YUEN LONG HIGHWAY
SECTION D
REVISION
NO
DATE
DESCRIPTION
ARCHITECT
STUDIO | RCA
18/F | Xiu Hua Commercial Building
211-213 Jaffe Road | Wan Chai | HK
Tel: 3583-2000 | Fax: 8143-1130
Email: mail@studiorca.com
STUDIO | RAYMOND CHAU | ARCHITECTURE | LIMITED
PROJECT NAME
PROPOSED RESIDENTIAL DEVELOPMENT ON VARIOUS LOTS ON D.D. 130 AND ADJOINING GOVERNMENT LAND, LAM TEI , TUEN MUN, NEW TERRITORIES
DRAWING TITLE
SECTIONS C AND D
DRAWN BY
CC
CHECKED BY
RC
SCALE
1:800
DATE
2026.10.15
JOB No.
2303
DRAWING No.
A-10

4.3 Good Design Features in the Proposed Scheme

4.3.1 Chapter 11 of "Hong Kong Planning Standards and Guideline" on Air Ventilation and PNAP APP-152 Sustainable Building Design Guidelines were referenced in order to determine the good design features in the Proposed Scheme from an air ventilation standpoint.

4.3.2 As shown in **Table 4.3**, the key air ventilation enhancement features of the Approved Scheme (OZP-compliant Scheme) are retained under the Proposed Scheme, including the 3m-wide NBA along Fuk Hang Tsuen Road and the 7.3m-wide DRA. While certain ventilation features of the Approved Scheme are modified under the Proposed Scheme, including the permeability arrangement within Site A and the eastern edge treatment of Site B, these features are replaced by alternative setback and separation arrangements that continue to maintain building separations, open edges and development permeability within the Rezoning Site.

4.3.3 In addition, the Proposed Scheme incorporates a number of new air ventilation enhancement features not provided under the Approved Scheme (OZP-compliant Scheme), including the 15m-wide separation between Site A and Site B and air paths of at least 15m in width between tower blocks within Site B. Together with the retained NBA and DRA, these features break up the overall building mass, maintain building separations and open edges, and provide opportunities for airflow movement through the Rezoning Site. The effectiveness of these features under the prevailing annual and summer wind directions is assessed in **Section 6**.

Table 4.3 – Comparison of Key Air Ventilation Enhancement Features under the Studied Schemes

Air Ventilation Enhancement Feature	Approved Scheme (OZP-compliant Scheme)	Proposed Scheme
Building permeability arrangement within Site A	Two residential towers separated by a minimum 25m-wide gap	Single residential tower with at least 40m tower setback and at least 5m podium setback from the western site boundary
NBA along Fuk Hang Tsuen Road	3m NBA provided	3m NBA retained
DRA and associated building separation	7.3m DRA provided	7.3m DRA retained with 11m building separation
Eastern edge treatment of Site B	Public Open Space provided along the eastern portion of Site B	Podium setback of at least 25m and tower setback of at least 35m provided along the eastern boundary of Site B
Building separation between development parcels	Low-rise development in Site B	15m separation between Site A and Site B introduced
Air paths within Site B	Low-rise development in Site B	At least 15m-wide air paths between tower blocks introduced

5. Wind Environment

5.1 General

5.1.1 As described in **Section 4.1**, the Approved Scheme (OZP-compliant Scheme) comprises two 6-storey residential towers on Site A and a low-rise residential development on Site B. The Approved Scheme (OZP-compliant Scheme) incorporates a number of air ventilation enhancement features, including the building permeability arrangement within Site A, the 3m-wide Non-Building Area (NBA) along Fuk Hang Tsuen Road, the 7.3m-wide Drainage Reserve Area (DRA) and associated building separation, and the public open space at the eastern portion of Site B. These features contribute to a relatively permeable site layout and therefore the Approved Scheme (OZP-compliant Scheme) serves as the benchmark for comparison with the Proposed Scheme in this AVA-EE.

5.1.2 Under the annual prevailing wind conditions, northeasterlies and easterlies generally approach the Rezoning Site through areas characterised by predominantly low-rise developments, village houses, temporary structures and open spaces. The cluster of existing high-rise residential developments comprising GreenView, Botania Villa and The Sherwood forms the principal man-made feature influencing local airflow characteristics in the northwestern part of the study area. In general, the prevailing annual winds are expected to approach the Rezoning Site through a relatively permeable upstream environment before reaching the Rezoning Site and the surrounding downwind areas.

5.1.3 Under the summer prevailing wind conditions, southerlies approach the Rezoning Site through the relatively low-rise Lo Fu Hang and Fu Tei Ha Tsuen area and across Yuen Long Highway. Existing noise barriers along portions of Yuen Long Highway may introduce a degree of local wind screening effect at pedestrian level. Nevertheless, the generally low-rise and dispersed development pattern within the upwind area is expected to maintain opportunities for airflow to reach the Rezoning Site and the further downwind areas.

5.1.4 Based on the prevailing wind characteristics and the surrounding urban morphology, several downwind areas are identified for further consideration in the qualitative assessment. These areas are discussed in **Section 5.2** and subsequently assessed under the annual and summer prevailing wind conditions in **Section 6**.

5.2 Sensitive Downwind Areas for Assessment

5.2.1 With reference to the prevailing wind directions identified in **Section 3**, the surrounding urban morphology described in **Section 2**, and the differences between the Approved Scheme (OZP-compliant Scheme) and the Proposed Scheme described in **Section 4**, several sensitive downwind areas are identified for further consideration in the qualitative assessment. These areas represent locations where changes in airflow characteristics may potentially arise as a result of the Proposed Scheme and are therefore examined in greater detail in **Section 6**. **Figure 5.1** shows the identified sensitive downwind areas.

5.2.2 Under the annual NNE and NE wind conditions, no specific sensitive downwind areas are identified as the prevailing winds primarily traverse through low-rise and relatively permeable surroundings, and no major planning-sensitive receivers are situated immediately downwind of the Proposed Scheme.

5.2.3 The identified sensitive downwind areas for assessment are summarised as follows:

Sensitive Downwind Areas under Annual E Wind

- Planned Residential Development at Lot 2883 in D.D. 130; and
- Village Developments within the “V” Zone.

Sensitive Downwind Areas under Annual ESE Wind

- Botania Villa;
- GreenView;
- Planned Residential Development at Lot 2883 in D.D. 130; and
- Village Developments within the “V” Zone.

Sensitive Downwind Areas under Summer South-westerly (S and SSW) Winds

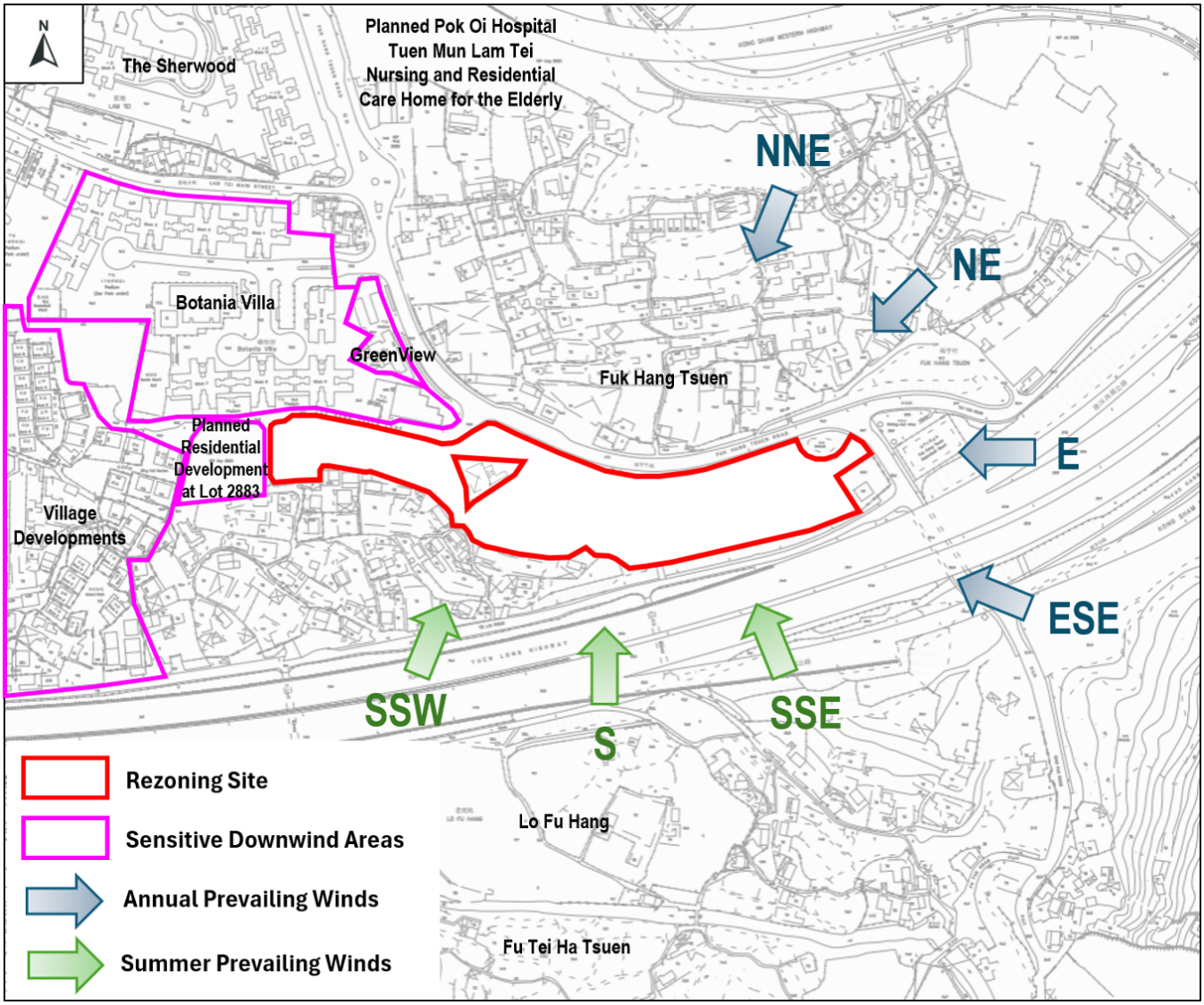
- Fuk Hang Tsuen; and
- Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly.

Sensitive Downwind Areas under Summer SSE Winds

- Botania Villa;
- GreenView;
- Fuk Hang Tsuen; and
- Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly.

5.2.4 The identified sensitive downwind areas do not imply that adverse air ventilation impacts will occur. Rather, they represent locations where the potential influence of the Proposed Scheme should be considered in comparison with the Approved Scheme (OZP-compliant Scheme) under the identified prevailing wind conditions. These receivers are considered in the qualitative assessment under the relevant prevailing wind directions in **Section 6**.

Figure 5.1 - Sensitive Downwind Areas for Assessment



6. Qualitative Assessment of the Rezoning Site

6.1 General

6.1.1 This section presents the qualitative air ventilation assessment of the Approved Scheme (OZP-compliant Scheme) and the Proposed Scheme under the annual and summer prevailing wind directions identified in **Section 3**. The assessment considers the surrounding urban morphology, existing topographical and infrastructural features, as well as the building disposition and air ventilation enhancement features incorporated under the respective schemes.

6.1.2 The assessment is undertaken on a comparative basis, with the Approved Scheme (OZP-compliant Scheme) serving as the benchmark for evaluating the potential air ventilation implications of the Proposed Scheme. Particular consideration is given to the retained, modified and newly introduced air ventilation enhancement features identified in Section 4.3, and whether the Proposed Scheme would materially alter the general wind penetration characteristics through the Rezoning Site or result in significant adverse air ventilation impacts on the sensitive downwind areas identified in **Section 5.2**.

6.1.3 The major anticipated wind paths under the Approved Scheme (OZP-compliant Scheme) and the Proposed Scheme are illustrated in **Figures 6.1 to 6.14** for the relevant annual and summer prevailing wind directions. These figures are intended to support the qualitative interpretation of the likely airflow characteristics and should be read together with the assessment presented in the following sections.

6.2 Annual NNE and NE Wind

6.2.1 Under the annual NNE and NE wind conditions, prevailing winds approach the Rezoning Site generally from the northeast after passing through the low-rise development pattern of Fuk Hang Tsuen and the surrounding open and semi-open areas. As described in **Section 2**, the surrounding area is predominantly low-rise and relatively permeable, although the existing high-rise residential developments comprising GreenView and Botania Villa to the north/northwest of Site A may locally influence the incoming wind environment.

6.2.2 The eastern part of the Rezoning Site, particularly Site B, is therefore expected to be more directly exposed to the approaching NNE and NE winds. By contrast, the western part of Site A is located closer to the existing high-rise residential developments to the north/northwest and may experience a relatively more sheltered wind condition at pedestrian level when compared with the more open eastern portion of the Rezoning Site.

Approved Scheme (OZP-compliant Scheme)

6.2.3 Under the Approved Scheme (OZP-compliant Scheme), Site B comprises low-rise residential houses with building heights broadly comparable to the surrounding low-rise development profile. The low-rise disposition and relatively open layout of Site B are expected to maintain general wind permeability, allowing portions of the NNE and NE winds to pass across Site B towards the downwind low-rise areas to the southwest and south of the Rezoning Site.

6.2.4 For Site A, the two 6-storey residential towers are positioned with a separation of at least 25m. This separation provides a local opening through the Site A building mass and allows opportunities for wind movement through the site under the NNE and NE wind conditions. However, given the presence of GreenView and Botania Villa in the upwind/northwestern sector, the pedestrian-level wind availability around the western part of Site A is expected to be partly influenced by the existing surrounding building context.

6.2.5 **Figure 6.1 and 6.3** illustrate the anticipated NNE and NE annual prevailing wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.2.6 Under the Proposed Scheme, new podium structures and residential towers are introduced on both Site A and Site B. The podium structures are generally maintained at a height comparable to the prevailing low-rise building profile in the surrounding area, while the taller residential tower elements introduce a greater degree of building mass above podium level when compared with the Approved Scheme (OZP-compliant Scheme), while retaining a number of the air ventilation enhancement features described in **Section 4.3**.

6.2.7 Within Site B, the proposed building separations and air paths contribute to reducing the continuity of the building mass and maintaining development permeability. The air path between Towers 1 and 2 is broadly aligned with the NNE / NE wind approach and is expected to facilitate local wind movement through the western portion of Site B. The air path between Towers 3 and 4 and the DRA and associated building separation are more obliquely aligned to the NNE / NE directions; nevertheless, these openings help avoid a continuous building frontage across Site B and maintain a degree of permeability within the Proposed Scheme.

6.2.8 For Site A, the Proposed Scheme replaces the two residential towers under the Approved Scheme (OZP-compliant Scheme) with a single residential tower above a podium structure. Although the proposed tower is taller and would interact with the incoming NNE and NE winds, the reduction in tower number and the substantial setback of the tower from the western side of Site A help reduce the concentration of taller building mass along the western site boundary. In addition, the 15m-wide separation between Site A and Site B provides an additional opening between the two development parcels, thereby maintaining opportunities for pedestrian-level air movement in the vicinity of Site A under the NNE and NE wind conditions.

6.2.9 Given that the western portion of Site A is already influenced by the existing high-rise residential developments to the north, the change in local wind environment under NNE and NE wind conditions is expected to be moderated by the existing upwind urban morphology. In addition, no major planning-sensitive receiver has been identified immediately downwind of the Proposed Scheme under the NNE and NE wind conditions. Therefore, while localized changes in airflow around the proposed building masses may occur, significant adverse air ventilation impacts on the surrounding area are not anticipated when compared with the Approved Scheme (OZP-compliant Scheme).

6.2.10 Taking into account the aforementioned building separations, air paths and setbacks incorporated within the Proposed Scheme, no significant adverse air ventilation impact is anticipated when compared with the Approved Scheme (OZP-compliant Scheme) under the annual NNE and NE wind conditions.

6.2.11 **Figure 6.2 and 6.4** illustrate the anticipated NNE and NE annual prevailing wind paths under the Proposed Scheme.

Figure 6.1 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under NNE Wind

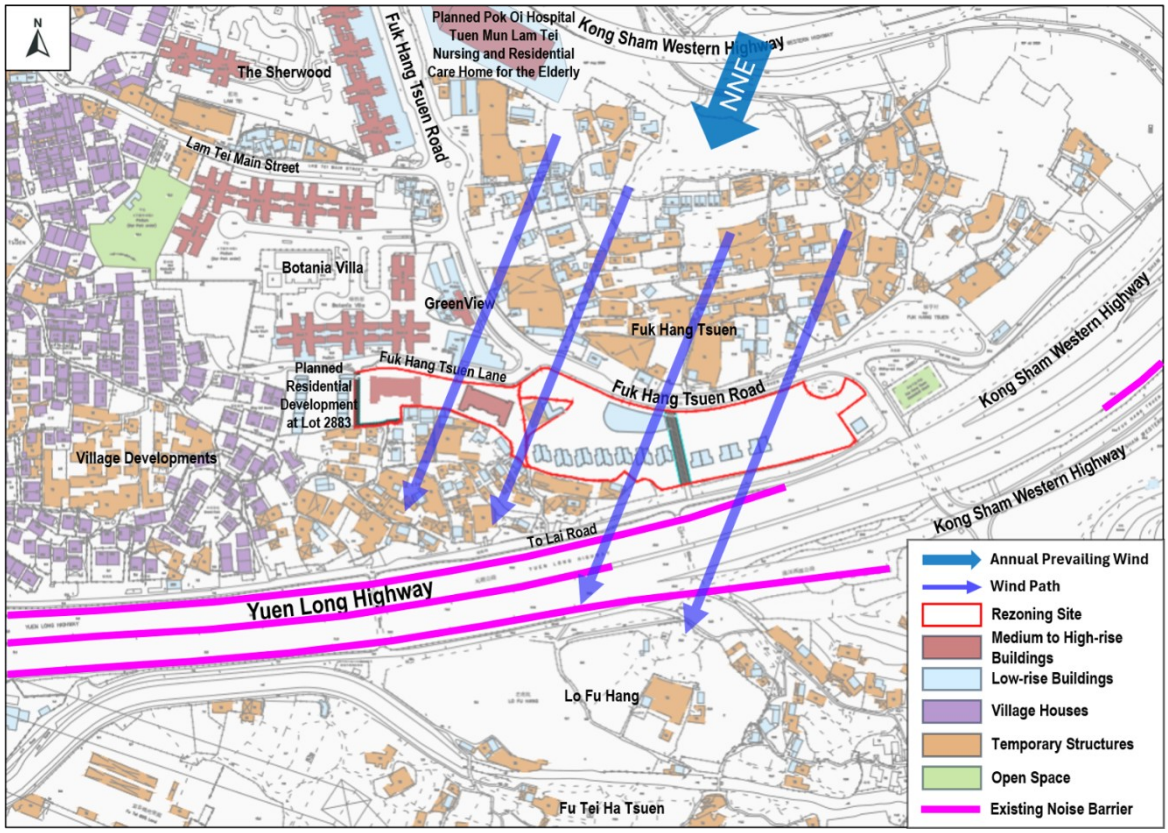


Figure 6.2 - Major Air Paths of Proposed Scheme under NNE Wind

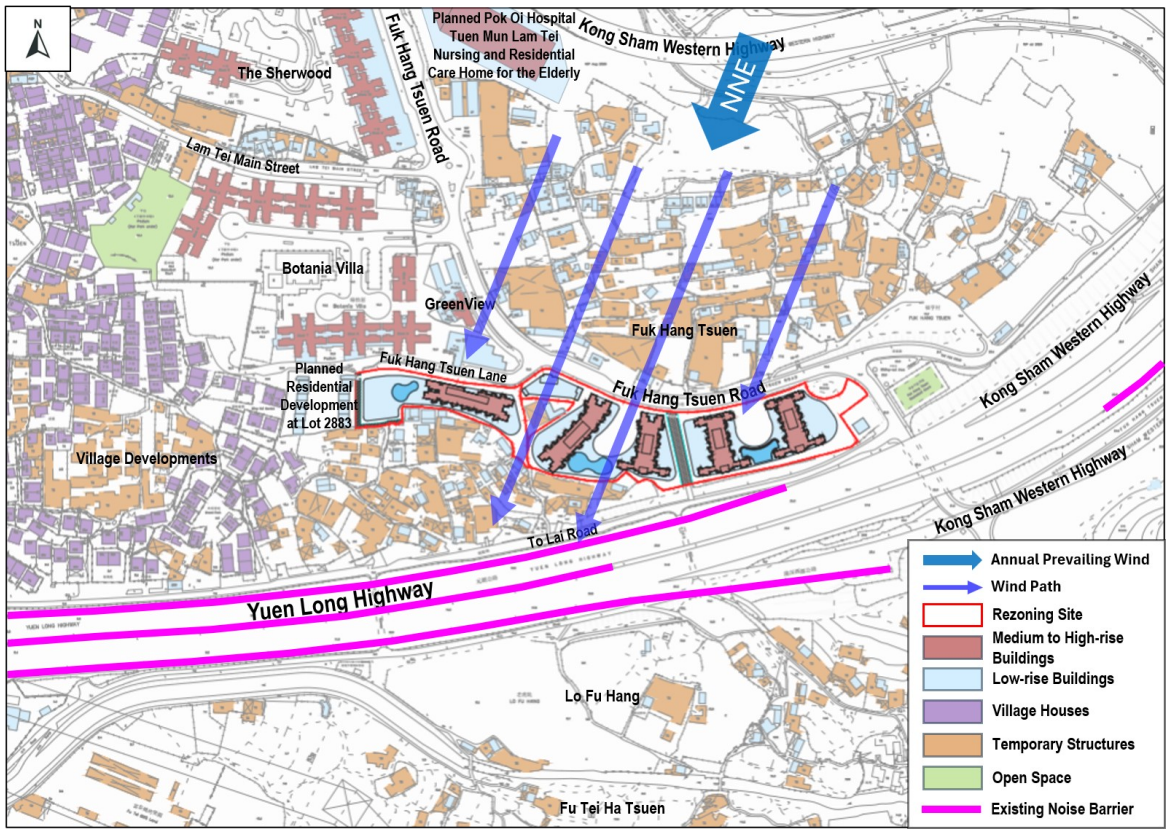


Figure 6.3 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under NE Wind

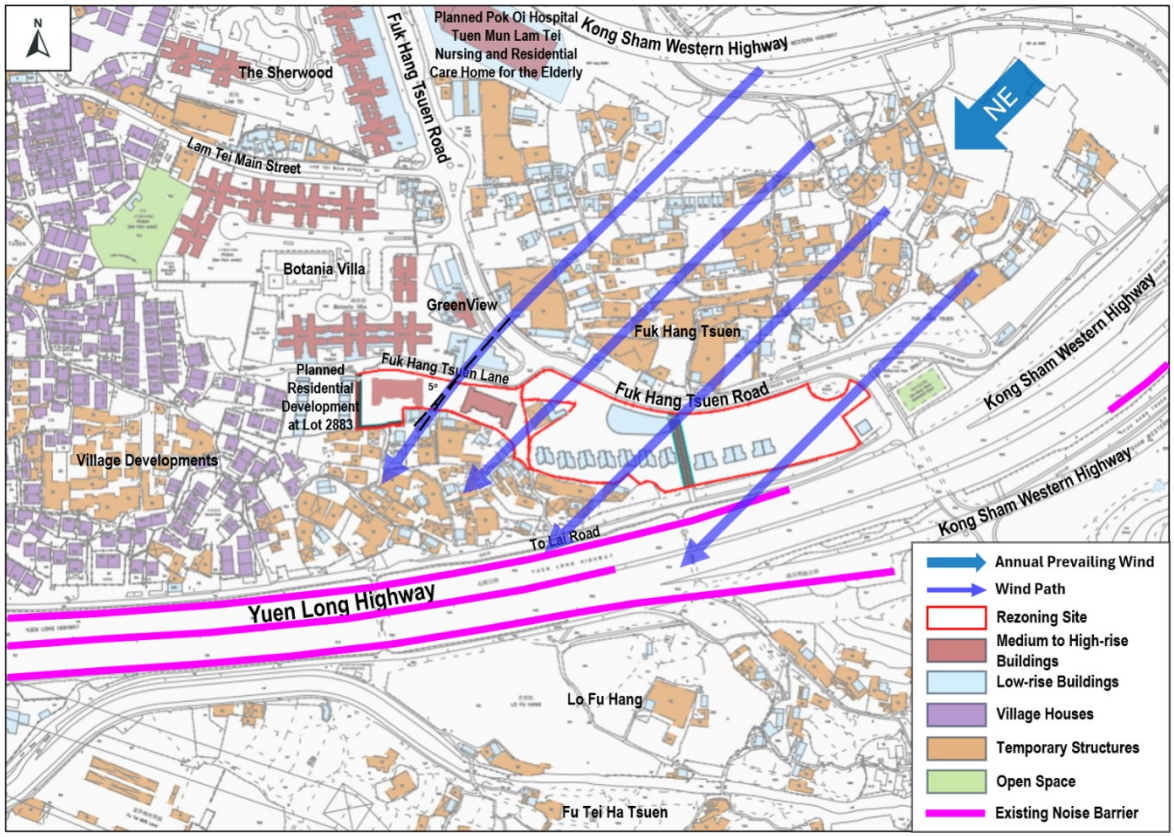
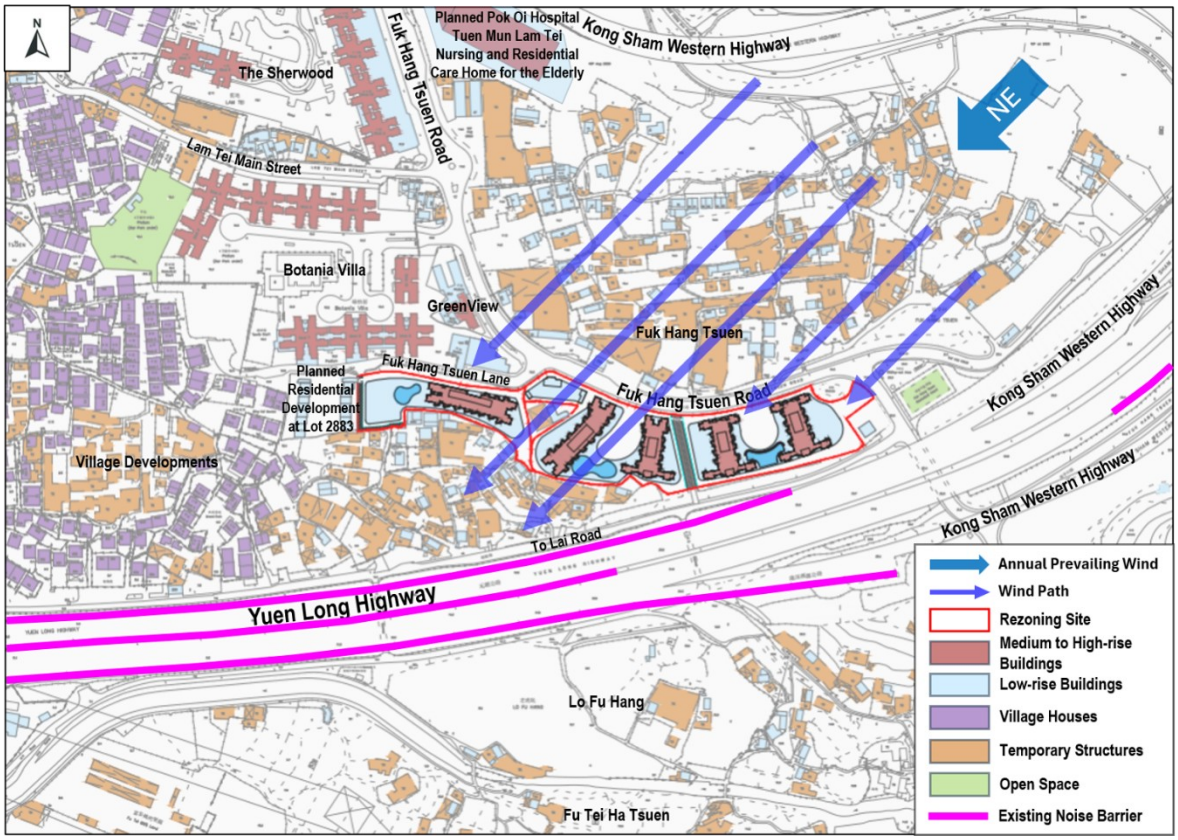


Figure 6.4 - Major Air Paths of Proposed Scheme under NE Wind



6.3 Annual E Wind

6.3.1 Under the annual easterly wind condition, prevailing winds approach the Rezoning Site generally from the east after passing across the Green Belt area, the elevated highway infrastructure and the relatively open low-rise surroundings to the east of Site B. As described in **Sections 2.3 and 2.4**, the elevated sections of Yuen Long Highway and Kong Sham Western Highway are not expected to form continuous solid obstructions at ground level, while the surrounding low-rise development pattern generally maintains a relatively permeable upwind setting.

Approved Scheme (OZP-compliant Scheme)

6.3.2 Under the Approved Scheme (OZP-compliant Scheme), the public open space on the eastern side of Site B provides an open interface for receiving the prevailing easterly wind. The residential houses and clubhouse block within Site B are of low-rise form and are broadly comparable in height to the surrounding low-rise developments. As such, Site B is expected to maintain a relatively permeable layout under the easterly wind condition, allowing portions of the prevailing wind to pass across Site B towards the Lam Tei Agricultural Fa Pau Committee, Site A and the further downwind areas to the west.

6.3.3 For Site A, the two 6-storey residential towers under the Approved Scheme (OZP-compliant Scheme) are expected to interact with the incoming easterly wind and locally divide the airflow around the building blocks. The separation between the towers within Site A provides a local opening through the building mass and opportunities for wind movement towards Fuk Hang Tsuen Lane, the Planned Residential Development at Lot 2883 and the village developments further west.

6.3.4 **Figure 6.5** illustrates the anticipated annual easterly wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.3.5 Under the Proposed Scheme, Site B introduces a higher building height profile and greater building mass when compared with the low-rise houses under the Approved Scheme (OZP-compliant Scheme). The proposed residential towers and podium structures would therefore interact more substantially with the incoming easterly wind and alter the distribution of airflow through and around Site B. In particular, the replacement of the public open space at the eastern portion of Site B by residential development would reduce the openness of the windward interface when compared with the Approved Scheme (OZP-compliant Scheme).

6.3.6 The Proposed Scheme incorporates podium and tower setbacks of at least 25m and 35m respectively from the eastern boundary of Site B. These setbacks maintain spatial separation between the windward site boundary and the proposed building frontage, allowing the approaching easterly wind to enter the eastern portion of the site before interacting with the podium and tower blocks. Along the northern and southern sides of Site B, the 3m-wide NBA along Fuk Hang Tsuen Road and the building setback of at least 20m from the edge of Yuen Long Highway also preserve peripheral openings through which part of the easterly airflow may pass around the proposed building mass.

6.3.7 Within Site B, the DRA and associated building separation, together with the air paths between Towers 1 and 2 and between Towers 3 and 4, provide breaks within the proposed building mass. These internal openings are not all directly aligned with the easterly wind direction and are therefore not expected to function as continuous east-to-west wind paths. Nevertheless, they reduce the continuity of the building frontage and allow airflow deflected around the proposed tower and podium blocks to redistribute locally within the development. Their effectiveness under the easterly wind condition would therefore be secondary to the windward setbacks and the peripheral openings along the northern and southern sides of Site B.

6.3.8 For Site A, the Proposed Scheme comprises a single residential tower above a podium structure. While the podium introduces additional building mass when compared with the Approved Scheme (OZP-compliant Scheme), the replacement of the two residential towers by a single residential tower and the tower setback of at least 40m from the western site boundary help maintain openness within the western portion of the Rezoning Site. The 15m-wide separation between Site A and Site B is not directly aligned with the easterly wind direction, but provides physical separation between the two development parcels and allows airflow passing through or around Site B to redistribute locally before interacting with Site A.

6.3.9 The immediate downwind areas to the west of Site B, including Site A, would experience a change in pedestrian-level airflow when compared with the Approved Scheme (OZP-compliant Scheme). The increased building height and massing at Site B would increase local shielding and may result in localised areas of reduced wind availability immediately behind the proposed podium and tower blocks. Nevertheless, the fragmented tower arrangement, internal building separations and peripheral openings would help avoid the formation of a continuous blockage across the full width of Site B and maintain alternative paths for airflow to pass through or around the development.

6.3.10 The Planned Residential Development at Lot 2883 and the village developments within the “V” zone are located further downwind of the Rezoning Site under the annual easterly wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the taller buildings and increased development intensity under the Proposed Scheme would inevitably reduce wind availability reaching these downwind areas to some extent. Nevertheless, the building separations, air paths and setback arrangements incorporated within the Proposed Scheme continue to provide openings within the development mass and opportunities for local airflow movement towards the downwind areas. While some localised reduction in wind availability may occur, the Proposed Scheme is not expected to result in a continuous or extensive wind blockage across the identified downwind areas. No significant adverse air ventilation impact on these receivers is therefore anticipated.

6.3.11 To safeguard the intended ventilation performance of the Proposed Scheme, the identified setbacks, air paths and building separations should be maintained during the detailed design stage and kept free from additional enclosed structures or substantial obstructions. Ancillary facilities and landscape planting within these areas should be arranged to avoid forming continuous barriers to pedestrian-level airflow, particularly along the eastern frontage and the northern and southern peripheral openings of Site B.

6.3.12 Taking into account the increased building height and development intensity introduced under the Proposed Scheme, some reduction in wind availability immediately downwind of the Rezoning Site is anticipated when compared with the Approved Scheme (OZP-compliant Scheme). Nevertheless, the perimeter setbacks, building separations and air paths incorporated within the Proposed Scheme are expected to maintain generally acceptable wind penetration through and around the Rezoning Site. As such, no significant adverse air ventilation impact is anticipated under the annual easterly wind condition.

6.3.13 **Figure 6.6** illustrates the anticipated annual easterly wind paths under the Proposed Scheme.

Figure 6.5 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under E Wind

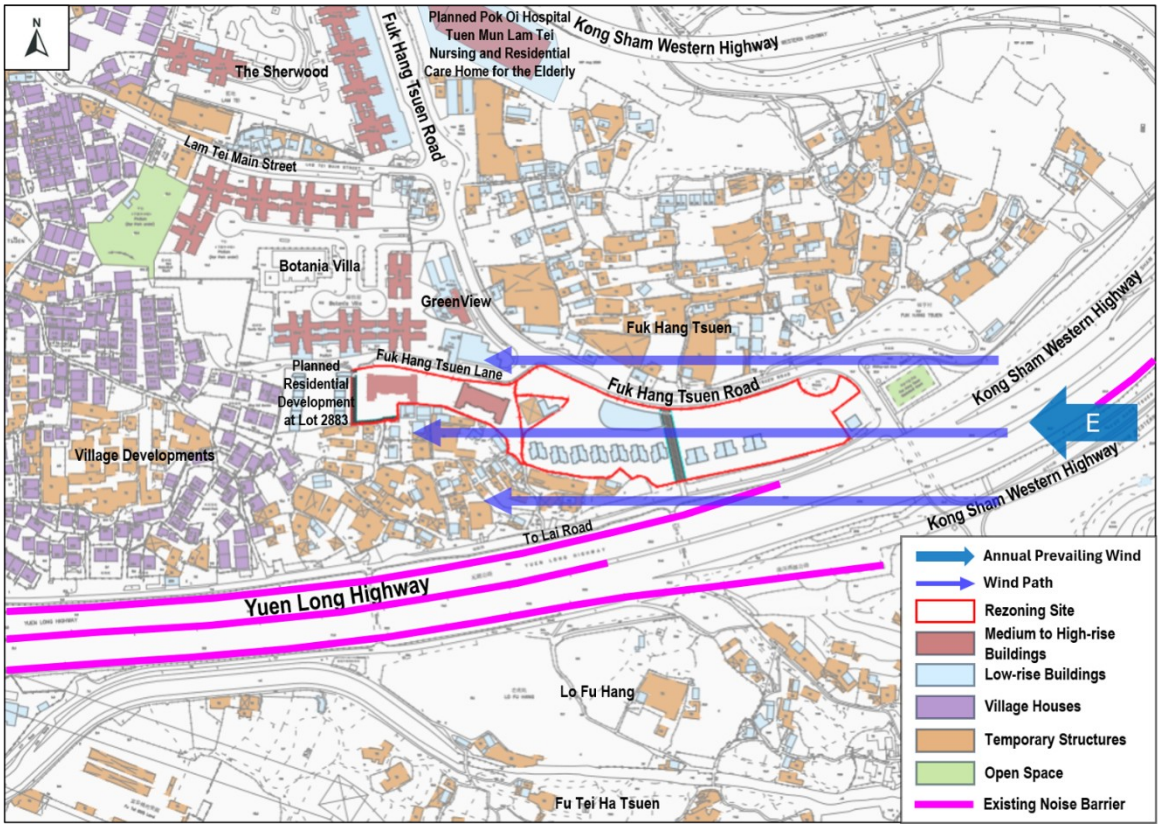
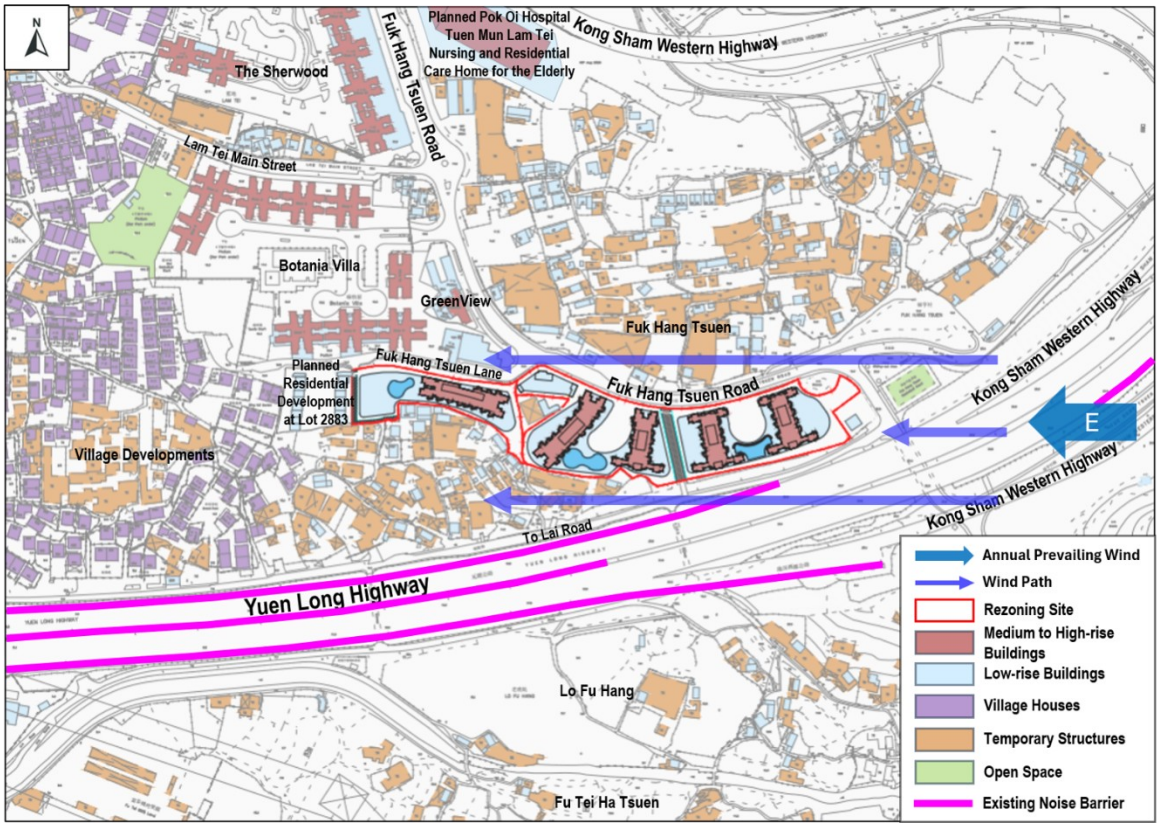


Figure 6.6 - Major Air Paths of Proposed Scheme under E Wind



6.4 Annual ESE Wind

6.4.1 Under the annual ESE wind condition, prevailing winds approach the Rezoning Site generally from the east-southeast after passing across the Green Belt area, the elevated highway infrastructure and the relatively open low-rise surroundings to the east and southeast of Site B. As described in **Sections 2.3 and 2.4**, the elevated sections of Yuen Long Highway and Kong Sham Western Highway are not expected to form continuous solid obstructions at ground level, while the surrounding low-rise development pattern generally maintains a relatively permeable upwind setting.

Approved Scheme (OZP-compliant Scheme)

6.4.2 Under the Approved Scheme (OZP-compliant Scheme), Site B comprises 2-storey residential houses and a 2-storey clubhouse block. Given the low-rise building form and the public open space provided on the eastern side of Site B, the Approved Scheme (OZP-compliant Scheme) is expected to maintain a relatively permeable layout under the ESE wind condition, allowing portions of the prevailing wind to pass across Site B towards the Lam Tei Agricultural Fa Pau Committee, Site A and the downwind areas to the northwest and west.

6.4.3 For Site A, the two 6-storey residential towers under the Approved Scheme (OZP-compliant Scheme) would locally interact with the incoming ESE wind and divide the airflow around the building blocks. The separation between the towers within Site A provides a local opening through the building mass and opportunities for airflow movement towards Fuk Hang Tsuen Lane, Botania Villa, and the Planned Residential Development at Lot 2883 and the village developments further west.

6.4.4 **Figure 6.7** illustrates the anticipated annual ESE wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.4.5 Under the Proposed Scheme, Site B introduces a higher building height profile and greater building mass when compared with the low-rise houses under the Approved Scheme (OZP-compliant Scheme). The proposed residential towers and podium structures would therefore interact more substantially with the incoming ESE wind and alter the distribution of airflow through and around Site B. In particular, the replacement of the public open space at the eastern portion of Site B by residential development would reduce the openness of the windward interface when compared with the Approved Scheme (OZP-compliant Scheme).

6.4.6 The Proposed Scheme incorporates podium and tower setbacks of at least 25m and 35m respectively from the eastern boundary of Site B. These setbacks maintain spatial separation between the windward site boundary and the proposed building frontage, allowing the approaching ESE wind to enter the eastern portion of the site before interacting with the podium and tower blocks. The building setback of at least 20m from the edge of Yuen Long Highway also maintains an open interface along the southern boundary of Site B. While this southern setback is not directly aligned with the ESE wind direction, it provides peripheral space for part of the approaching airflow to pass around the southern side of the proposed building mass.

6.4.7 Within Site B, the DRA and associated building separation, together with the air paths between Towers 1 and 2 and between Towers 3 and 4, provide breaks within the proposed building mass. These internal openings are not directly aligned with the prevailing ESE wind direction and are therefore not expected to function as direct or continuous wind paths under this wind condition. Nevertheless, they reduce the continuity of the proposed building frontage and provide spaces for airflow deflected around the tower and podium blocks to redistribute locally within Site B. Their effectiveness under the ESE wind condition would therefore be secondary to the windward setbacks and the peripheral openings along the eastern and southern boundaries of Site B.

6.4.8 For Site A, the incoming ESE wind would be partly influenced by the proposed development mass within Site B before reaching the Site A podium and tower. While the podium introduces additional building mass when compared with the Approved Scheme (OZP-compliant Scheme), the replacement of the two residential towers by a single residential tower and the tower setback of at least 40m from the western site boundary help maintain openness within the western portion of the Rezoning Site. The 15m-wide separation between Site A and Site B is not directly aligned with the prevailing ESE wind direction and is therefore not expected to serve as a direct wind path. Nevertheless, the separation provides a physical break between the two development parcels and allows airflow passing through or around Site B to redistribute locally before interacting with Site A.

6.4.9 The areas immediately downwind of Site B, including Site A, would experience a change in pedestrian-level airflow when compared with the Approved Scheme (OZP-compliant Scheme). The increased building height and massing at Site B would increase local shielding and reduce wind availability immediately behind some of the proposed podium and tower blocks. Nevertheless, the windward setbacks, fragmented tower arrangement, internal building separations and southern peripheral opening would help avoid the formation of a continuous blockage across Site B and maintain alternative routes for airflow to pass through or around the development.

6.4.10 GreenView and Botania Villa are located generally northwest of the Rezoning Site and are downwind under the annual ESE wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the increased building mass under the Proposed Scheme is expected to reduce the wind availability reaching these areas to some extent. Nevertheless, part of the ESE airflow is expected to pass around the northern side of Site B, while the fragmented tower arrangement and internal building separations would allow local airflow redistribution before reaching the northwestern downwind areas. While localised changes in pedestrian-level wind availability may occur, the Proposed Scheme is not expected to form a continuous wind blockage towards GreenView and Botania Villa.

6.4.11 The Planned Residential Development at Lot 2883 and the village developments within the “V” zone are located generally west of the Rezoning Site and are further downwind of Site A under the annual ESE wind condition. The Proposed Scheme is expected to reduce the wind availability reaching these areas to some extent when compared with the lower-rise and more open Approved Scheme (OZP-compliant Scheme). Nevertheless, airflow passing along the northern and southern perimeters of Site B and redistributing around and between the proposed building blocks would continue to reach portions of these downwind areas. The Proposed Scheme is therefore not expected to result in a continuous or extensive wind blockage across the identified downwind areas.

6.4.12 To safeguard the intended ventilation performance of the Proposed Scheme, the identified setbacks, air paths and building separations should be maintained during the detailed design stage and kept free from additional enclosed structures or substantial obstructions. Ancillary facilities and landscape planting within these areas should be arranged to avoid forming continuous barriers to pedestrian-level airflow, particularly along the eastern windward frontage and the southern peripheral opening of Site B.

6.4.13 Taking into account the increased building height and development intensity introduced under the Proposed Scheme, some reduction in wind availability immediately downwind of the Rezoning Site and at the identified sensitive downwind areas is anticipated when compared with the Approved Scheme (OZP-compliant Scheme). Nevertheless, the windward setbacks, southern peripheral opening and fragmented tower arrangement are expected to maintain generally acceptable wind penetration through and around the Rezoning Site, while the internal building separations would support local airflow redistribution within the development. As such, although localised changes in the pedestrian wind environment are anticipated, no significant adverse air ventilation impact is expected under the annual ESE wind condition.

6.4.14 **Figure 6.8** illustrates the anticipated annual ESE wind paths under the Proposed Scheme.

Figure 6.7 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under ESE Wind

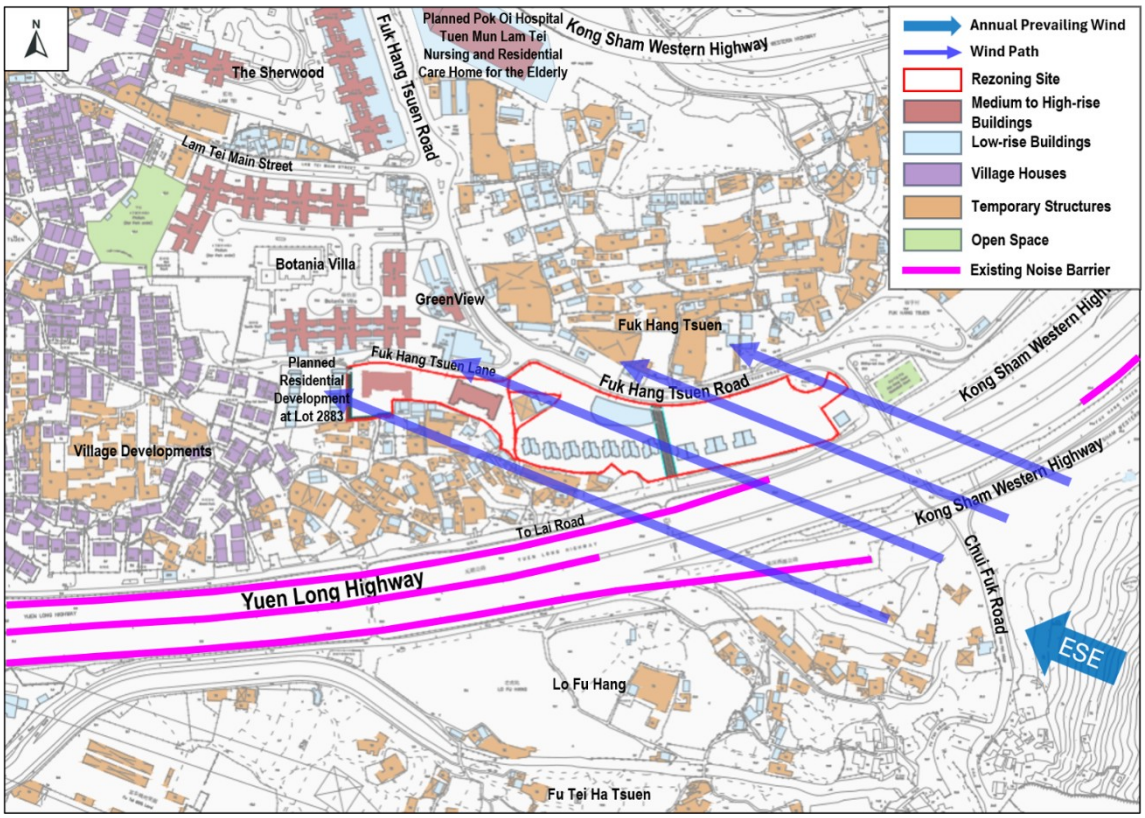
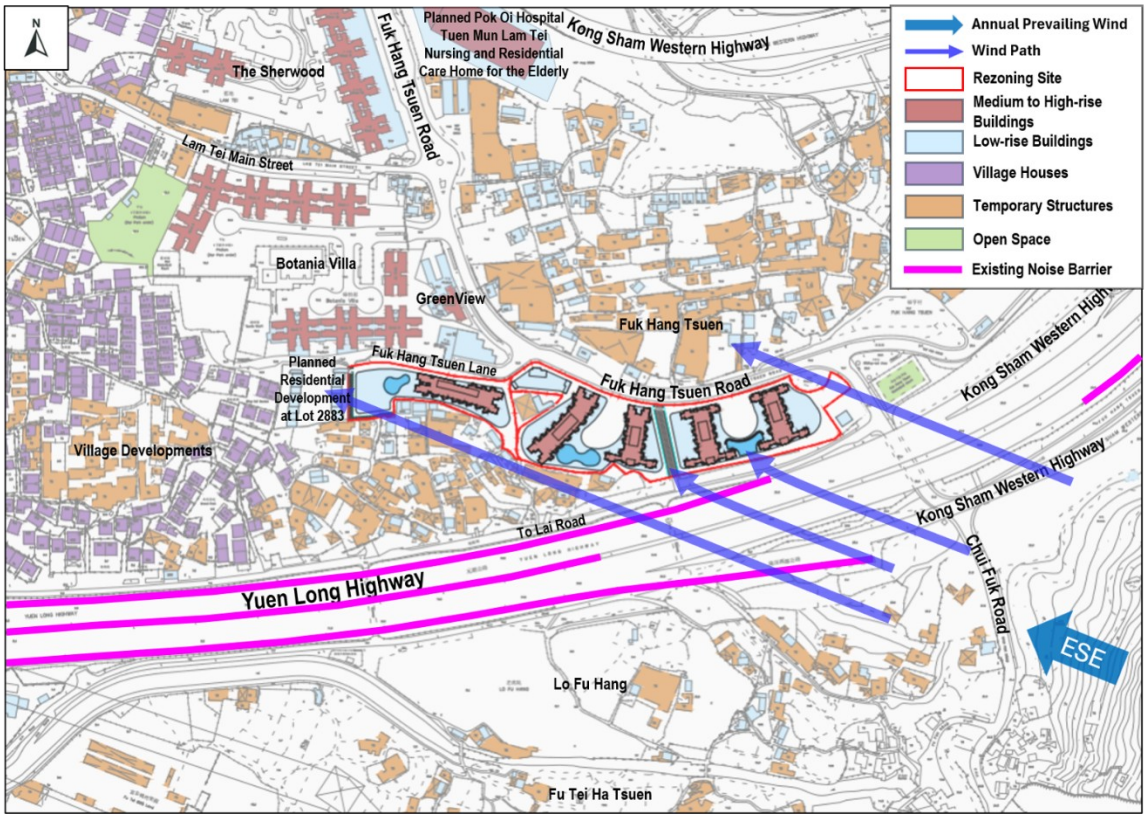


Figure 6.8 - Major Air Paths of Proposed Scheme under ESE Wind



6.5 Summer S Wind

6.5.1 Under the summer S wind condition, prevailing winds approach the Rezoning Site after passing across the relatively low-rise developments and open areas of Lo Fu Hang and Fu Tei Ha Tsuen, followed by Yuen Long Highway. Existing noise barriers along portions of Yuen Long Highway may introduce a degree of local wind screening effect at pedestrian level. Nevertheless, the generally low-rise and dispersed development pattern within the upwind area is expected to maintain opportunities for southerly airflow to reach the Rezoning Site.

Approved Scheme (OZP-compliant Scheme)

6.5.2 Under the Approved Scheme (OZP-compliant Scheme), Site B comprises low-rise residential houses and a clubhouse block, with building heights broadly comparable to the surrounding low-rise development profile. The low-rise building form and relatively open layout of Site B are expected to maintain general wind permeability, allowing portions of the prevailing southerly winds to pass across Site B towards the downwind areas to the north of the Rezoning Site.

6.5.3 For Site A, the two 6-storey residential towers under the Approved Scheme (OZP-compliant Scheme) are positioned with a separation of at least 25m. This separation provides a local opening through the Site A building mass and allows opportunities for northward airflow movement through the western portion of the Rezoning Site. The relatively low-rise development mass on Site B and the separated tower arrangement on Site A therefore form the main permeability characteristics of the Approved Scheme (OZP-compliant Scheme) under the summer southerly wind conditions.

6.5.4 **Figure 6.9** illustrates the anticipated summer S wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.5.5 Under the Proposed Scheme, the single residential tower at Site A and the four residential towers at Site B introduce a higher building height profile and greater building mass when compared with the Approved Scheme (OZP-compliant Scheme). While the proposed podium and tower blocks may result in localised shielding immediately downwind of individual building blocks, the fragmented building disposition and building separations provided across the Rezoning Site maintain a number of openings for northward airflow movement towards the downwind areas.

6.5.6 For Site A, the Proposed Scheme replaces the two residential towers under the Approved Scheme (OZP-compliant Scheme) with a single residential tower above a podium structure. While the podium introduces additional building mass at the lower level, the reduction in tower number and the tower setback of at least 40m from the western site boundary maintain openness within the western portion of the Rezoning Site. These features allow part of the southerly airflow to continue through and around the western portion of the Rezoning Site towards the downwind areas to the north.

6.5.7 GreenView and Botania Villa are located to the northwest of the Rezoning Site and would receive airflow passing through and around Site A under the summer S wind condition. Although the Proposed Scheme introduces increased building height and building mass when compared with the Approved Scheme (OZP-compliant Scheme), the single-tower arrangement at Site A, the tower setback from the western site boundary and the 15m-wide separation between Site A and Site B maintain openings within the western portion of the Rezoning Site. Therefore, while localised changes in airflow distribution may occur, no significant adverse air ventilation impact on GreenView and Botania Villa is anticipated.

6.5.8 Within Site B, the DRA and associated building separation, together with the air paths between Towers 1 and 2 and between Towers 3 and 4, provide openings within the proposed building mass. Under the summer S wind condition, the DRA and associated building separation and the air path between Towers 3 and 4 are generally favourable to northward airflow movement through the central and eastern portions of Site B. The air path between Towers 1 and 2 contributes to the overall permeability of the development, although its role in facilitating direct northward airflow is expected to be comparatively limited. Collectively, these features help maintain permeability through Site B and provide opportunities for airflow movement towards the downwind areas to the north.

6.5.9 Fuk Hang Tsuen is located immediately north of Site B and represents the principal sensitive downwind area under the summer S wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the increased building height and massing under the Proposed Scheme would alter the local airflow pattern approaching Fuk Hang Tsuen. Nevertheless, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, the air path between Towers 3 and 4, and the relatively open eastern side of Site B provide opportunities for northward airflow penetration through the Rezoning Site. As a result, the wind environment at Fuk Hang Tsuen is expected to remain generally permeable and no significant adverse air ventilation impact is anticipated.

6.5.10 Notwithstanding the increased building height and development intensity under the Proposed Scheme, the fragmented tower arrangement, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, and the air path between Towers 3 and 4 would help avoid the formation of a continuous blockage across the full width of the Rezoning Site. Airflow is therefore expected to continue through and around the proposed development towards the downwind areas to the north. Consequently, while localised changes in airflow distribution may occur, significant adverse air ventilation impacts on the immediate downwind environment are not anticipated.

6.5.11 The Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly is located further north of the Rezoning Site, beyond Fuk Hang Tsuen and the intervening low-rise development areas. Any change in airflow arising from the Proposed Scheme is expected to be progressively redistributed before reaching this further downwind receiver. Having regard to the intervening separation distance, the generally low-rise development pattern and the alternative airflow paths through and around the Rezoning Site, no significant adverse air ventilation impact on the planned elderly care home is anticipated under the summer S wind condition.

6.5.12 To safeguard the intended ventilation performance of the Proposed Scheme, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, and the air paths within Site B should be maintained during the detailed design stage and kept free from additional enclosed structures or substantial obstructions.

6.5.13 Taking into account the increased building height and development intensity introduced under the Proposed Scheme, localised changes in airflow distribution may occur when compared with the Approved Scheme (OZP-compliant Scheme). Nevertheless, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, the air path between Towers 3 and 4, and the fragmented tower arrangement are expected to maintain generally effective northward airflow through and around the Rezoning Site. As such, no significant adverse air ventilation impact is anticipated under the summer S wind condition.

6.5.14 **Figure 6.10** illustrates the anticipated summer S prevailing wind paths under the Proposed Scheme.

Figure 6.9 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under S Wind

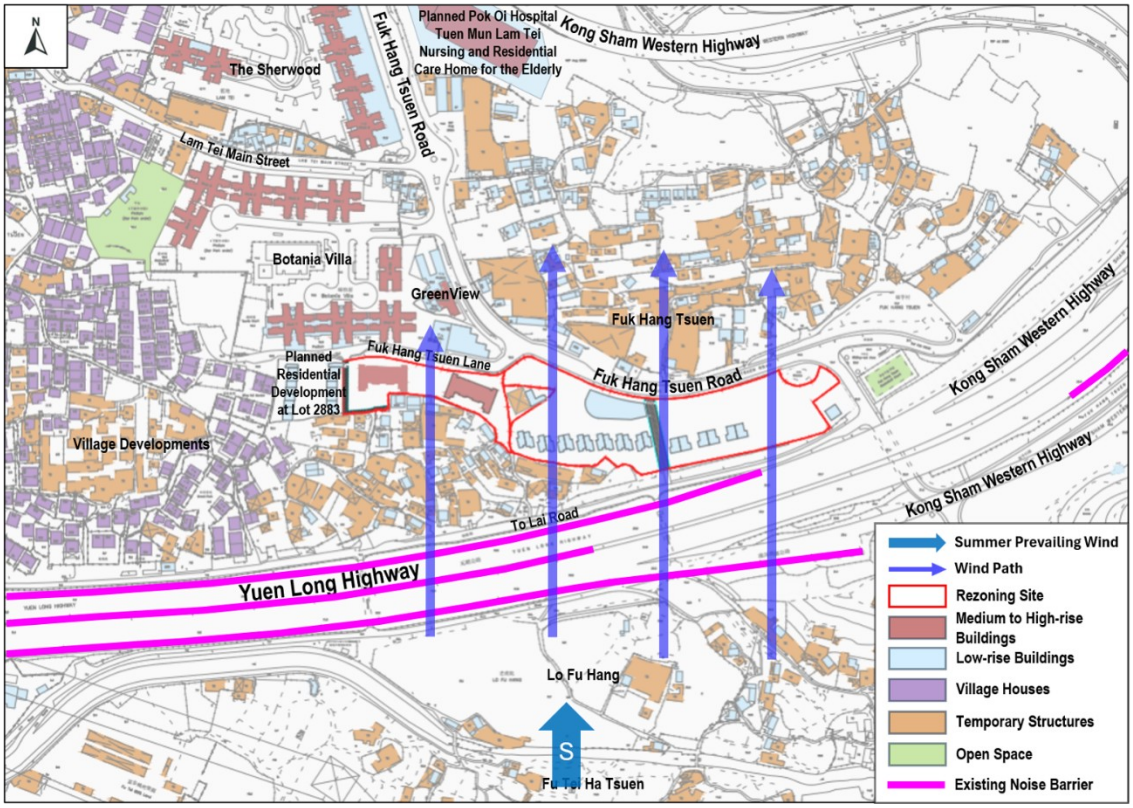
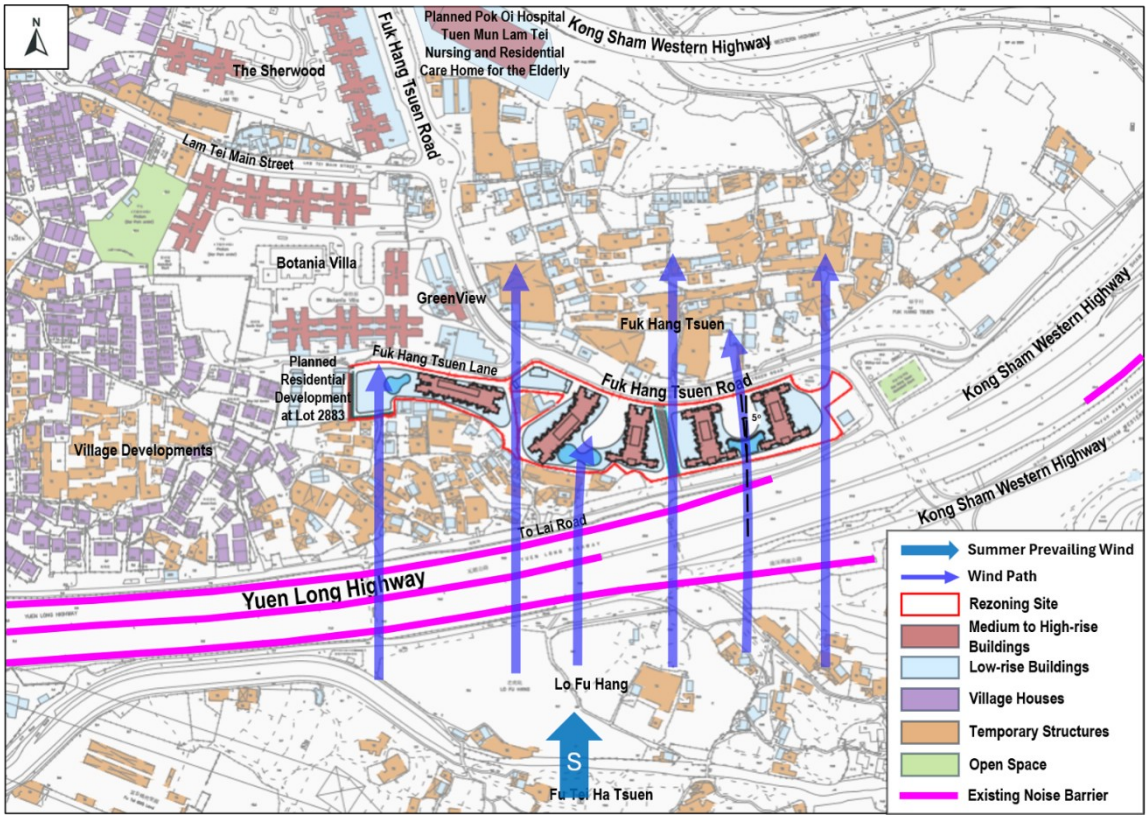


Figure 6.10 - Major Air Paths of Proposed Scheme under S Wind



6.6 Summer SSW Wind

6.6.1 Under the summer SSW wind condition, prevailing winds approach the Rezoning Site after passing across the relatively low-rise developments and open areas of Lo Fu Hang and Fu Tei Ha Tsuen, followed by Yuen Long Highway. Existing noise barriers along portions of Yuen Long Highway may introduce a degree of local wind screening effect at pedestrian level. Nevertheless, the generally low-rise and dispersed development pattern within the upwind area is expected to maintain opportunities for southerly airflow to reach the Rezoning Site.

Approved Scheme (OZP-compliant Scheme)

6.6.2 Under the Approved Scheme (OZP-compliant Scheme), Site B comprises low-rise residential houses and a clubhouse block with building heights broadly comparable to the surrounding low-rise development profile. The low-rise building form and relatively open layout of Site B are expected to maintain general wind permeability, allowing portions of the prevailing SSW winds to pass across Site B towards the north and northwest downwind areas of the Rezoning Site.

6.6.3 For Site A, the two 6-storey residential towers under the Approved Scheme (OZP-compliant Scheme) are positioned with a separation of at least 25m. This separation provides a local opening through the Site A building mass and allows opportunities for airflow movement through the western portion of the Rezoning Site towards Botania Villa and GreenView. The relatively low-rise development at Site B and the separated tower arrangement at Site A therefore form the principal permeability characteristics of the Approved Scheme (OZP-compliant Scheme) under the summer SSW wind condition.

6.6.4 **Figure 6.11** illustrates the anticipated summer SSW wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.6.5 Under the Proposed Scheme, the single residential tower at Site A and the four residential towers at Site B introduce a higher building height profile and greater building mass when compared with the Approved Scheme (OZP-compliant Scheme). While the proposed podium and tower blocks may result in localised shielding immediately downwind of individual building blocks, the fragmented building disposition and building separations provided across the Rezoning Site maintain a number of openings for airflow movement towards the downwind areas.

6.6.6 For Site A, the Proposed Scheme replaces the two residential towers under the Approved Scheme (OZP-compliant Scheme) with a single residential tower above a podium structure. While the podium introduces additional building mass at lower level, the reduction in tower number and the tower setback of at least 40m from the western site boundary maintain openness within the western portion of the Rezoning Site. These features allow part of the SSW airflow to continue through and around Site A towards the downwind areas.

6.6.7 GreenView and Botania Villa are located to the northwest of the Rezoning Site and would receive airflow passing through and around the western portion of the development under the summer SSW wind condition. Although the Proposed Scheme introduces increased building height and building mass when compared with the Approved Scheme (OZP-compliant Scheme), the single-tower arrangement at Site A, the tower setback from the western site boundary and the 15m-wide separation between Site A and Site B maintain openings within the western portion of the Rezoning Site. Therefore, while localised changes in airflow distribution may occur, no significant adverse air ventilation impact on GreenView and Botania Villa is anticipated.

6.6.8 Within Site B, the air path between Towers 1 and 2 provides an opening within the western portion of the development and is generally compatible with the summer SSW wind direction. The DRA and associated building separation and the air path between Towers 3 and 4 provide additional breaks within the proposed building mass. Although these openings are not directly aligned with the prevailing SSW wind direction, they reduce the continuity of the building frontage and allow airflow deflected around individual tower and podium blocks to redistribute locally within Site B. Collectively, these features help maintain development permeability and provide opportunities for airflow movement through and around Site B under the summer SSW wind condition.

6.6.9 Fuk Hang Tsuen is located immediately north of Site B and represents the principal sensitive downwind area under the summer SSW wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the increased building height and massing under the Proposed Scheme would alter the local airflow pattern in the vicinity of Fuk Hang Tsuen. Nevertheless, the 15m-wide separation between Site A and Site B and the air path between Towers 1 and 2 continue to provide opportunities for airflow movement through the western portion of the Rezoning Site. As a result, the wind environment at Fuk Hang Tsuen is expected to remain generally permeable and no significant adverse air ventilation impact is anticipated.

6.6.10 While the Proposed Scheme introduces increased building height and development intensity when compared with the Approved Scheme (OZP-compliant Scheme), the fragmented tower arrangement, the 15m-wide separation between Site A and Site B, and the air path between Towers 1 and 2 continue to maintain opportunities for airflow movement through the western portion of the Rezoning Site. Together with the DRA and associated building separation and the air path between Towers 3 and 4, airflow is expected to continue through and around the proposed development towards the downwind areas to the north and northwest. Consequently, significant adverse air ventilation impacts on the immediate downwind environment are not anticipated.

6.6.11 The Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly is located further north of the Rezoning Site, beyond Fuk Hang Tsuen and the intervening low-rise development areas. Any change in airflow arising from the Proposed Scheme is expected to be progressively redistributed before reaching this further downwind receiver. Having regard to the intervening separation distance, the generally low-rise development pattern and the alternative airflow paths through and around the Rezoning Site, no significant adverse air ventilation impact on the planned elderly care home is anticipated under the summer SSW wind condition.

6.6.12 To safeguard the intended ventilation performance of the Proposed Scheme, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, and the air paths within Site B should be maintained during the detailed design stage and kept free from additional enclosed structures or substantial obstructions.

6.6.13 Taking into account the increased building height and development intensity introduced under the Proposed Scheme, localised changes in airflow distribution may occur when compared with the Approved Scheme (OZP-compliant Scheme). Nevertheless, the 15m-wide separation between Site A and Site B, the DRA and associated building separation, the air paths within Site B and the fragmented tower arrangement are expected to maintain generally effective airflow movement through and around the Rezoning Site under the summer SSW wind condition. As such, no significant adverse air ventilation impact is anticipated.

6.6.14 **Figure 6.12** illustrates the anticipated summer SSW prevailing wind paths under the Proposed Scheme.

Figure 6.11 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under SSW Wind

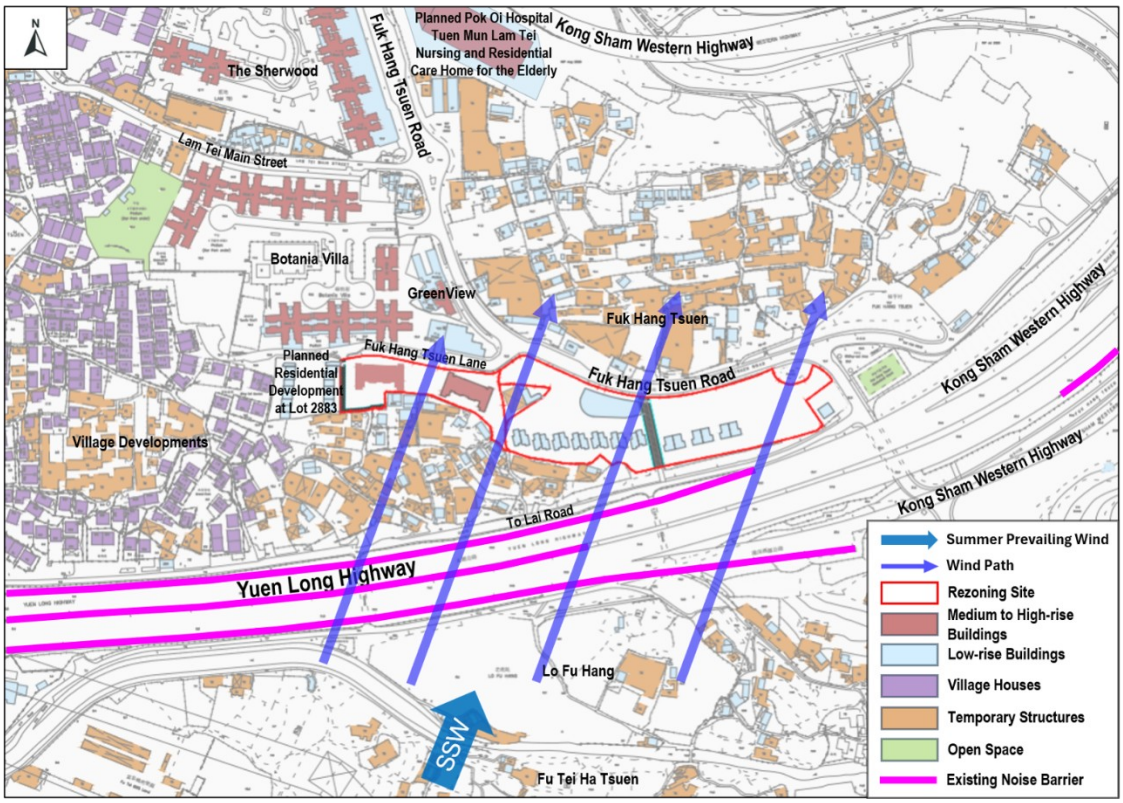
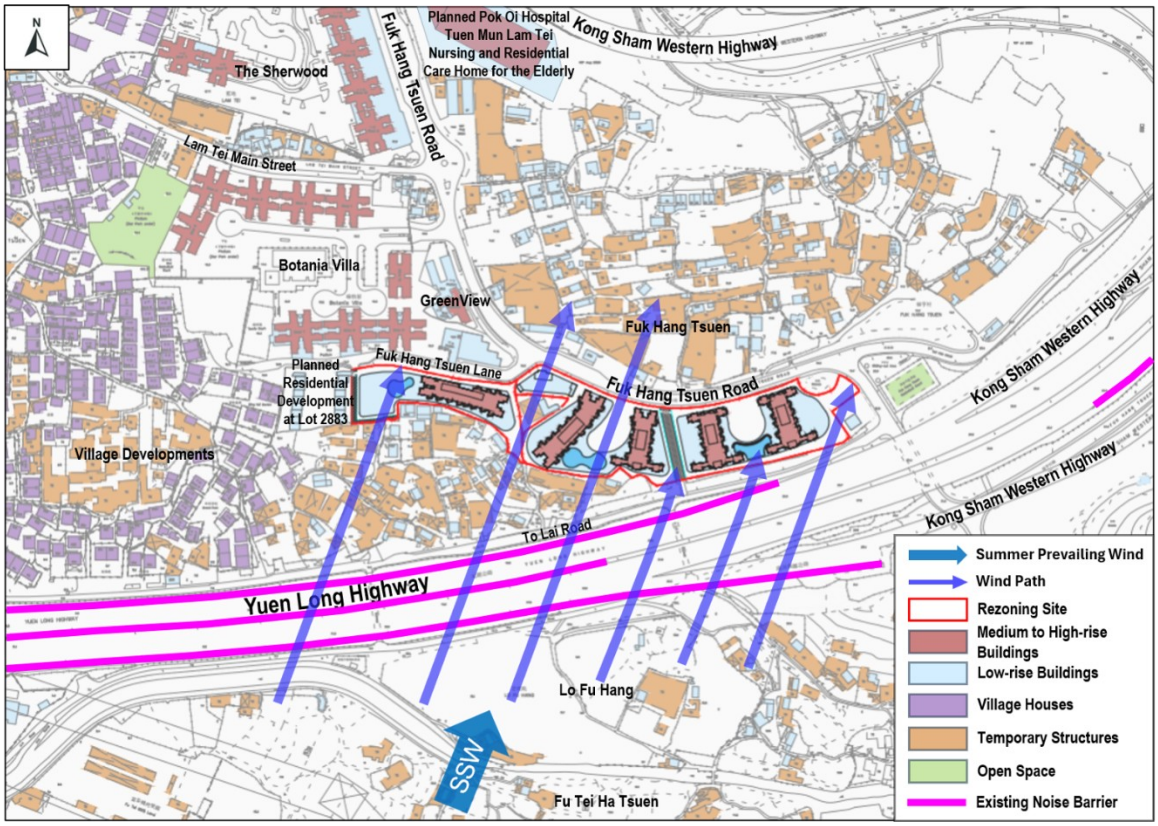


Figure 6.12 - Major Air Paths of Proposed Scheme under SSW Wind



6.7 Summer SSE Wind

6.7.1 Under the summer SSE wind condition, prevailing winds approach the Rezoning Site after passing across the relatively low-rise developments and open areas of Lo Fu Hang and Fu Tei Ha Tsuen, followed by Yuen Long Highway. Existing noise barriers along portions of Yuen Long Highway may introduce a degree of local wind screening effect at pedestrian level. Nevertheless, the generally low-rise and dispersed development pattern within the upwind area is expected to maintain opportunities for southerly airflow to reach the Rezoning Site.

Approved Scheme (OZP-compliant Scheme)

6.7.2 Under the Approved Scheme (OZP-compliant Scheme), Site B comprises low-rise residential houses and a clubhouse block with building heights broadly comparable to the surrounding low-rise development profile. The low-rise building form and relatively open layout of Site B are expected to maintain general wind permeability, allowing portions of the prevailing SSE wind to pass across Site B towards the downwind areas to the north of the Rezoning Site.

6.7.3 For Site A, the two 6-storey residential towers under the Approved Scheme (OZP-compliant Scheme) are positioned with a separation of at least 25m. This separation provides a local opening through the Site A building mass and allows opportunities for airflow to move towards Botania Villa, GreenView and the downwind areas further north. The relatively low-rise development mass on Site B and the separated tower arrangement on Site A therefore form the main permeability characteristics of the Approved Scheme (OZP-compliant Scheme) under the summer southerly wind conditions.

6.7.4 **Figure 6.13** illustrates the anticipated summer SSE wind paths under the Approved Scheme (OZP-compliant Scheme).

Proposed Scheme

6.7.5 Under the Proposed Scheme, the residential tower at Site A and the four residential towers at Site B introduce a higher building height profile and greater building mass when compared with the Approved Scheme (OZP-compliant Scheme). While the proposed podium and tower blocks may result in localised shielding immediately downwind of individual building blocks, the fragmented building disposition and building separations provided across the Rezoning Site maintain a number of openings for airflow movement towards the downwind areas.

6.7.6 For Site A, the Proposed Scheme replaces the two residential towers under the Approved Scheme (OZP-compliant Scheme) with a single residential tower above a podium structure. While the podium introduces additional building mass at lower level, the reduction in tower number and the tower setback of at least 40m from the western site boundary maintain openness within the western portion of the Rezoning Site. These features help maintain airflow movement around Site A before the airflow reaches the downwind developments to the northwest.

6.7.7 Botania Villa and GreenView are located to the northwest of the Rezoning Site and would receive airflow passing through and around the western portion of the development under the summer SSE wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the increased building height and building mass under the Proposed Scheme would alter the local airflow distribution reaching these developments to some extent. Nevertheless, the replacement of the two residential towers at Site A by a single residential tower and the tower setback of at least 40m from the western site boundary help maintain openness within the western portion of the Rezoning Site and reduce the concentration of taller building mass along the western edge of the development. As a result, while localised changes in airflow distribution may occur, no significant adverse air ventilation impact on Botania Villa and GreenView is anticipated.

6.7.8 The podium and tower setbacks of at least 25m and 35m respectively from the eastern boundary of Site B maintain a substantial open buffer along the eastern side of the development. Under the summer SSE wind condition, this open buffer is generally favourable to the prevailing wind direction and allows part of the approaching airflow to reach the northern downwind areas.

6.7.9 Within Site B, the DRA and associated building separation and the air path between Towers 3 and 4 provide openings through the central and eastern portions of the development. Although these openings are not perfectly aligned with the prevailing SSE wind direction, they are capable of accommodating part of the incoming airflow and providing opportunities for airflow redistribution towards the downwind areas. By contrast, the 15m-wide separation between Site A and Site B and the air path between Towers 1 and 2 are less favourably aligned with the SSE wind direction. Their contribution to direct airflow penetration is therefore expected to be comparatively limited, although they continue to reduce the continuity of the proposed building frontage and support local airflow movement around the proposed building mass.

6.7.10 Fuk Hang Tsuen is located immediately north of Site B and represents a principal sensitive downwind area under the summer SSE wind condition. Compared with the Approved Scheme (OZP-compliant Scheme), the increased building height and massing under the Proposed Scheme would alter the local airflow pattern approaching Fuk Hang Tsuen. Nevertheless, the eastern setback of Site B, the DRA and associated building separation and the air path between Towers 3 and 4 continue to provide opportunities for airflow movement through the eastern and central portions of the Rezoning Site. The wind environment at Fuk Hang Tsuen is therefore expected to remain generally permeable and no significant adverse air ventilation impact is anticipated.

6.7.11 Notwithstanding the increased building height and development intensity under the Proposed Scheme, the fragmented tower arrangement, the eastern setback of Site B, the DRA and associated building separation and the air path between Towers 3 and 4 would help avoid the formation of a continuous blockage across the Rezoning Site. Airflow is therefore expected to continue through and around the proposed development towards the downwind areas to the north and northwest. Consequently, while localised changes in airflow distribution may occur, significant adverse air ventilation impacts on the immediate downwind environment are not anticipated.

6.7.12 The Planned Pok Oi Hospital Tuen Mun Lam Tei Nursing and Residential Care Home for the Elderly is located further north of the Rezoning Site, beyond Fuk Hang Tsuen and the intervening low-rise development areas. Any change in airflow arising from the Proposed Scheme is expected to be progressively redistributed before reaching this further downwind receiver. Having regard to the intervening separation distance, the generally low-rise development pattern and the alternative airflow paths through and around the Rezoning Site, no significant adverse air ventilation impact on the planned elderly care home is anticipated under the summer SSE wind condition.

6.7.13 To safeguard the intended ventilation performance of the Proposed Scheme, the eastern setback of Site B, the DRA and associated building separation and the air paths within Site B should be maintained during the detailed design stage and kept free from additional enclosed structures or substantial obstructions.

6.7.14 Taking into account the increased building height and development intensity introduced under the Proposed Scheme, localised changes in airflow distribution may occur when compared with the Approved Scheme (OZP-compliant Scheme). Nevertheless, the eastern setback of Site B, the DRA and associated building separation, the air paths within Site B and the fragmented tower arrangement are expected to maintain generally effective airflow movement through and around the Rezoning Site under the summer SSE wind condition. As such, no significant adverse air ventilation impact is anticipated.

6.7.15 **Figure 6.14** illustrates the anticipated summer SSE wind paths under the Proposed Scheme.

Figure 6.13 - Major Air Paths of Approved Scheme (OZP-compliant Scheme) under SSE Wind

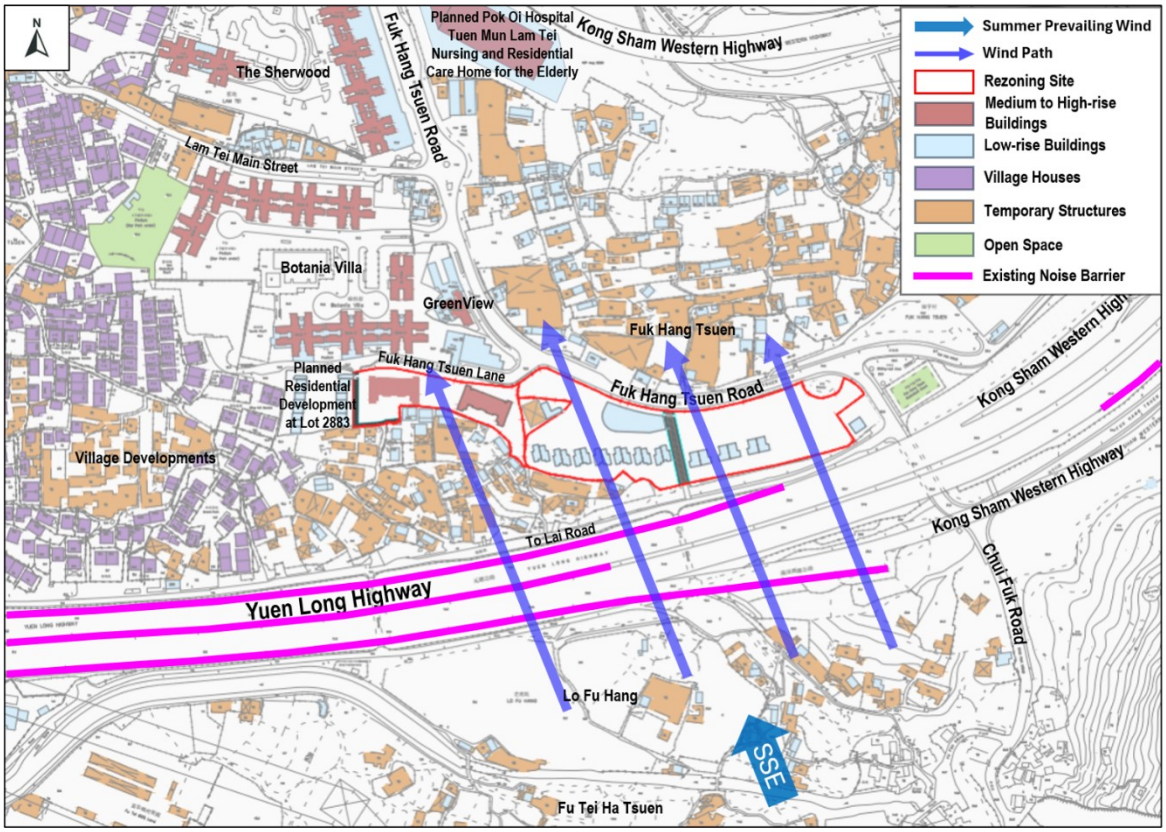
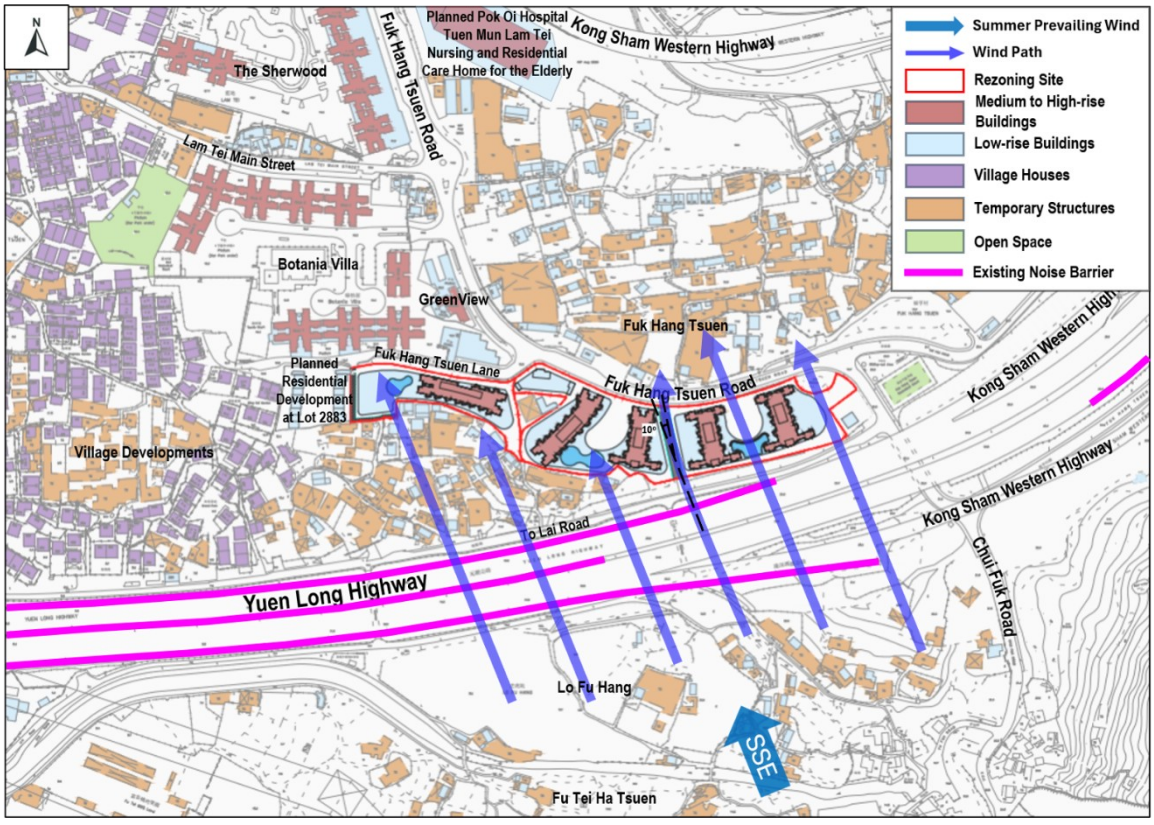


Figure 6.14 - Major Air Paths of Proposed Scheme under SSE Wind



7. Conclusion

7.1 Conclusion of AVA-EE

7.1.1 This AVA-EE has qualitatively evaluated the potential air ventilation implications of the Proposed Scheme in comparison with the Approved Scheme (OZP-compliant Scheme). The assessment has taken into account the prevailing annual and summer wind directions identified from the RAMS wind availability data, together with the surrounding urban morphology, topographical features, highway infrastructure and proposed development configuration.

7.1.2 The assessment indicates that, although the Proposed Scheme introduces a higher development intensity and building height when compared with the Approved Scheme (OZP-compliant Scheme), opportunities for airflow through and around the Rezoning Site are generally maintained by the incorporation of building setbacks, building separations, proposed air paths, and the retained DRA and. The identified sensitive downwind areas, including the surrounding residential developments, village developments and planned G/IC developments, have also been considered under the prevailing annual and summer wind conditions.

7.1.3 Based on the findings of the qualitative assessment, the Proposed Scheme is not anticipated to significantly affect the surrounding wind environment when compared with the Approved Scheme (OZP-compliant Scheme). While localized reductions in wind availability and changes in airflow characteristics may arise under certain prevailing wind directions, the proposed permeability features help avoid the formation of a continuous building frontage across the Rezoning Site and maintain reasonable opportunities for airflow penetration and redistribution within the development.

7.1.4 The Proposed Scheme incorporates a number of air ventilation enhancement measures which have contributed positively to its overall air ventilation performance. During the subsequent detailed design stage, it is recommended that the key permeability features, including the proposed building setbacks, building separations, proposed air paths and the retained DRA and associated building separation, be maintained as far as practicable in order to preserve opportunities for airflow through and around the development.

7.1.5 Taking into account the findings of this qualitative assessment, no significant adverse air ventilation impact is anticipated to be created by the Proposed Scheme when compared with the Approved Scheme (OZP-compliant Scheme). The Proposed Scheme is therefore considered acceptable from an air ventilation perspective.

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