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Ramboll Hong Kong Limited

DEVELOPMENT AREAS 4 AND 5 OF THE KWUN TONG TOWN CENTRE DEVELOPMENT (DAS 4 AND 5 - KTTC)

AIR VENTILATION ASSESSMENT

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1. INTRODUCTION

1.1 Project Background

1.1.1 The Kwun Tong Town Centre (KTTC) redevelopment project comprises of 5 Development Areas (DAs) including DA 1 at the Yuet Wah Street Site and DAs 2, 3, 4 and 5 at the Main Site which are bounded by Mut Wah Street, Hong Ning Road, Kwun Tong Road and Hip Wo Street.

1.1.2 DA1 (i.e., Park Metropolitan) and DAs 2 & 3 (i.e., Grand Central) were completed in 2014 and 2021, respectively. DAs 4 & 5, according to the Approved Urban Renewal Authority Kwun Tong Town Centre Development Scheme Plan – Main Site No. S/K14S/URA1/2 (the Approved DSP) and approved planning brief, were solely for non-domestic uses. The last Section 16 Planning Application (Application No. A/K14/819), with "floating planning parameters" to allow different ranges of development mix for non-domestic uses, was approved by the Town Planning Board (TPB) in September 2022 (the Approved Scheme). Tender invitation for DAs 4 &5 was issued in November 2022, but the results were deemed unsatisfactory, and it has since been withdrawn.

1.1.3 In light of the above, URA proposed to repackage the DAs 4&5 with domestic use introduced to allow greater flexibility in development mix and enhance marketability of the project. To take forward of the proposal, amendments to the Approved DSP is required. URA, in collaboration with the Planning Department, proposed to rezone part of Approved DSP covering the DAs 4 & 5 (the Site) from "Comprehensive Development Area (1)" "(CDA(1))" zoning to "Other Specified Uses annotated "Mixed Use" "(OU(MU))" zoning. Flexibility for the development/redevelopment/conversion of residential or other uses, or a combination of various types of compatible uses including residential, commercial, educational, cultural, recreational and entertainment uses, either vertically within a building or horizontally over a spatial area, is allowed to meet changing market needs.

1.1.4 The overall development intensity is proposed to be increased by about 25% as compared with the Approved Scheme, which is akin to plot ratio 12 for non-domestic use in Kowloon. In the Revised Notes of "OU(MU)" zone, the total maximum Gross Floor Area (GFA) is 251,100sq.m, of which not more than 110,100sq.m GFA should be used for domestic purpose and not more than 153,700sq.m GFA should be used for non-domestic purpose. The maximum GFA for each category will only apply if the GFA for the other category would be correspondingly reduced. Under no circumstances shall the maximum GFA for any development exceed 251,100sq.m. On building height restriction (BHR), a maximum building height of 360mPD is proposed at the south-eastern part of the Site earmarked for the landmark tower (the high zone). The southern and western part of the Site is to be capped at a BHR of 100mPD to minimize the building bulk and enhance permeability to the surrounding area (the mid zone). A low zone with BHR of 30mPD is proposed along the northern boundary of the Site to facilitate a 20m separation distance between the towers of the Grand Central and the Site.

1.1.5 It must be noted that the construction of the development at DAs 2 & 3 has been completed and is occupied. The Proposed Amendment involves DAs 4 & 5 only.

1.1.6 Ramboll Hong Kong Limited has been appointed by URA to carry out a quantitative Air Ventilation Assessment (AVA) in support of the proposed increase in the development intensity on the Site. After reviewing the criteria listed in the "Technical Circular for Applying Air Ventilation Assessments to Major Government Projects" published by Housing, Planning and Lands Bureau and Environment, Transport and Works Bureau

(TC No. 1/06), Initial Study with Computational Fluid Dynamics (CFD) model is proposed to evaluate the potential impact due to the proposed development and propose mitigation measures to alleviate the potential impact, if necessary.

1.2 Objectives

1.2.1 This AVA contains a quantitative Computational Fluid Dynamics (CFD) assessment of the potential ventilation impact of the proposed building design on the future pedestrian wind environment.

1.3 Subject Sites and its Environs

1.3.1 The Subject Site is located at the inner part of Kwun Tong area. Kwun Tong Road is running from east to west to the immediate south of the Subject Site. Hip Wo Steet, Mut Wah Street and Hong Ning Road are located to the east, north and west of the Subject Site, respectively.

1.3.2 Compact mid and high-rise buildings are located in the vicinity of the Subject Site with the abovementioned road networks located in between.

1.3.3 Kwun Tong Road, Kwun Tong MTR Station and the elevated Kwun Tong Line are located along the southern boundary of the Subject Site. High-rise commercial buildings such as Millennium City 1, Millennium City 6, AIA Kowloon Tower, AXA Tower, One Pacific Centre and APM Millennium City 5 are situated south of the Subject Site.

1.3.4 All the existing and committed developments in the vicinity would affect the wind flow within Kwun Tong area.

1.3.5 **Figure 1** shows the location and the environs of the Subject Sites.

1.4 Future/ Committed Development

1.4.1 The following future/ committed developments have been considered in this study. **Figure 3** illustrates the location and building blocks of these developments which will be included in the CFD simulation.

1. Proposed public utility installation (Application No. A/K14/811)
2. Proposed office, shop and services and eating place uses (Application No. A/K14/807)
3. 41 King Yip Street (Application No. A/K14/766)
4. Proposed office, shop and services (Application No. A/K14/820)
5. Proposed non-polluting industrial use (Application No. A/K14/773)
6. Proposed "Other Specified Uses" (Application No. A/K14/778)
7. Proposed office, shop and services uses (Application No. A/K14/808)
8. Proposed office building at 98 How Ming Street was referred to GBP from Building Department
9. Proposed office development (Application No. A/K14/777)
10. Proposed non-polluting industrial use (Application No. A/K14/787)
11. Proposed office development (Application No. A/K14/771)
12. 368 Kwun Tong Road was referred to online website https://www.billion.hk/368kwuntongroad/#floor-plans
13. Proposed office development (Application No. A/K14/763)

14. 7 Lai Yip Street (Application No. A/K14/774)
15. Proposed shop and services development (Application No. A/K14/782)
16. Bal. residence was referred to sales brochure
17. United Christian Hospital was referred to website of Hospital Authority http://www32.ha.org.hk/capitalworksprojects/en/Project/10years/United-Christian-Hospital/Introduction.html
18. Public Rental Housing Development at Hiu Ming Street/ Hiu Kwong Street was referred to Planning Brief of the Public Rental Housing Development at Hiu Ming Street/Hiu Kwong Street can be found on Planning Department's website
19. Hiu Wah Theatre was referred to online public news of redevelopment information since no development restrictions imposed by Outline Zoning Plan are available (Link 1: https://www.chinachemgroup.com/en/news/lifeplus-magazine/magazine-issue-list/magazine-issue-03/iss03_07_community; Link 2:https://www.hk01.com/18%E5%8D%80%E6%96%B0%E8%81%9E/446491/%E7%8C%9B%E9%AC%BC%E9%9B%BB%E5%BD%B1%E9%99%A2-%E8%8D%92%E5%BB%A230%E5%B9%B4%E5%82%B3%E8%AA%AA%E7%8C%9B%E9%AC%BC%E6%88%B2%E9%99%A2-%E6%9C%89%E6%9C%9B%E4%BB%A5-%E6%96%B0%E9%9D%A2%E8%B2%8C-%E9%87%8D%E7%8F%BE%E6%88%B2%E8%BF%B7%E7%9C%BC%E5%89%8D)
20. Kwun Tong Composite Project was referred to Civil Service Newsletter website: https://www.csb.gov.hk/hkgcsb/csn/csn112/112e/close_up_1.html and online news: https://english.dotdotnews.com/a/202206/10/AP62a2b709e4b0adad9d41a648.html
21. G/IC site on Yau Shun Street, we took site visit and referred to RMHC Annual Report 2021
22. Commercial Site at the street corner of Shing Yip Street and Cha Kwo Ling Road was referred to MPC Paper No. 19/14 (Proposed Amendments to the Approved Cha Kwo Ling, Yau Tong, Lei Yue Mun Outline Zoning Plan No. S/K15/21)
23. The Mod was referred to GBP from Building Department
24. Tsui Wah Group Centre was assumed based on the development restrictions (i.e. building height, plot ratio, etc.) imposed on the outline zoning plan
25. Site on Ting On Street was referred to MPC Paper No. 7/17 (Proposed Amendments to the Approved Kwun Tong (South) Outline Zoning Plan No. S/K14S/20)

1.4.2 Redevelopment of No. 5 Tsui Ping Road is still in design stage and the layout plan has still not been finalized according to the project owner Hong Kong Christian Service. The information obtained from the project owner is that the building height of the future development will be increased. Thus, the building block of former VTC was applied, but its building height was referred to the adjacent Kwun Tong Composite Project.

1.5 Baseline Scheme

1.5.1 The Baseline Scheme will follow indicative layout under the latest approved planning application (Planning application No. A/K14/819) for the Site, while the adjoining

completed residential development at Grand Central (DAs 2 & 3) will reflect the as-built environment.

1.5.2 For the completed residential development at Grand Central, four residential towers are integrated with the podium and an enclosed PTI. Tower 1 and Tower 2 are located at the eastern side of the podium while Tower 3 and Tower 5 are located at the western side with an open space situated in between. The building height of the residential towers are ranging from 165 mPD (Tower 1) to 178 mPD (Tower 2).

1.5.3 In the latest approved planning application (Planning application No. A/K14/819) for the Site, a high-rise office and hotel tower (at 285mPD) on top of a retail podium (at 64.3mPD) is located at the southeast portion of the site within DA4. A retail bridge connecting DA4 and the podium of DAs 2 and 3 is located to the northwest of the podium of DA4.

1.5.4 DA 5 is located at the southwest portion of the Site and has amid-rise tower with building height 75mPD. There is a bridge connecting two parts of the mid-rise tower with in DA 5. Landscape decks are provided from the MTR station and DAs 4 & 5.

1.5.5 There are six building separations, and the setback is mentioned in the proposed development, i.e.

- **A**: Around 40m building separation (above 23.2mPD) along northeast/ southwest between Tower 1 of DAs 2 & 3 and podium of DA 4.
- **B (Ground Level)**: Around 42m building separation (at ground level) along northeast/ southwest between the podium of DAs 2 & 3 and podium of DA 4.
- **C**: Around 16m building separation along southeast/ northwest between office and hotel tower in DA 4 and composite commercial building (at the roof 72.7mPD) in DA 5.
- **D**: At lease 14m-wide (20m at L1 to 14m at L4) and 23m-high (from L1 to L4) urban window along northeast/ southwest between composite commercial and GIC building within DA 5.
- **E**: Around 29m building separation along east/ west between Tower 5 of DA 2&3 and office tower (at the roof 72.7mPD) of DA 5.
- **F**: Around 14m air path along east/west between DAs 2 & 3 and DAs 4 & 5 site.; and
- **G**: Around 20m setback to the western boundary of the GIC building of DA 5.

1.5.6 **Appendix 1** shown the Master Layout Plan (MLP) of the Baseline Scheme.

1.6 Proposed Scheme

1.6.1 **Appendix 2** and **Figure 5** show the Master Layout Plan (MLP) of the Proposed Scheme.

1.6.2 The Proposed Amendment is similar to the Approved Scheme which comprises a landmark tower at the southeast corner, an iconic egg-shaped building at the junction of Kwun Tong Road and Hong Ning Road, an elongated commercial portion along Kwun Tong Road, and an ancillary basement car park.

1.6.3 Compared to the Baseline Scheme, residential use would be included in the DAs 4 & 5, i.e. Residential, Hotel, Office, Commercial/ Retail and G/IC uses in the proposed development.

1.6.4 The building height of the landmark tower of the Site will be increased to be 360 mPD on top of a retail podium (at 49.4 mPD). Open decks from L3 to L5 connecting DA4 and the podium of DAs 2 and 3 are located to the northwest of the podium of DA4.

1.6.5 Located at the southwest portion of the Site, there will be a mid-rise tower at about 55 mPD building height. Two parts of the mid-rise tower are connecting to each other from L-L8. Landscape decks are provided from the MTR station and DAs 4 & 5.

1.6.6 There are six building separation/ setback incorporated in the design of the Proposed Scheme:

- **A:** Around 35m building separation (above 23mPD) along northeast/ southwest between Tower 1 of DAs 2 & 3 and podium of DA 4.
- **B:** Minimum 15m wide open sided connection from L1 to L5 between DA 4 and the podium of DAs 2 & 3.
- **C:** At least 32m wide and 15m-high urban window along southeast/ northwest from L1 to L3 (~44m at L1 and ~32m at L2 & L3) between the mid-rise tower and the landmark tower.
- **D:** Around 15m-wide and at least 15m-high urban window from L1/ L2 to L4 along northeast/ southwest between composite commercial and GIC building.
- **E:** Around 24m tower separations between Tower 5 of DAs 2 & 3 and G/IC building of DA 5.
- **F:** Around 7m air path along east/west between DAs 2 & 3 and DAs 4 & 5 site.; and
- **G**: Around 20m setback from existing Hong Ning Road to the GIC building of DA 5.
- **H:** Around 4m setback to the southern boundary of the composite commercial building of DA 5.

2. SITE WIND AVAILABILITY

2.1 Site Wind Availability Data

2.1.1 According to the Planning Department's website, a meso-scale Regional Atmospheric Modeling System (RAMS) was used to produce a simulated 10-year wind climate at the horizontal resolution of 0.5 km x 0.5 km covering the whole territory of Hong Kong. The simulated wind data represents the annual, winter and summer wind conditions at various levels, i.e. 200 m, 300 m, and 500 m above terrain.

2.1.2 It is considered an acceptable starting point to use the simulated RAMS data for Site wind availability. The use of RAMS data (grid: X;091, Y:041) is preferred over measurement data at Waglan Island as it can reflect the effect of topography to wind availability.

2.1.3 The relevant annual windrose for the district under concern has been extracted from the Planning Department's website for Subject Sites wind availability data. **Figure 6** shows the relevant windrose diagram (at 500 m) representing the frequency and wind speed distribution of the district concerned for both summer and annual conditions. The simulated windroses show that the annual prevailing is coming from E direction (19.6%) with contributions from ENE (15.7%); while the summer prevailing is coming from SW direction (14.4%) with contributions from SSW (12.8%). In this quantitative AVA, a CFD software has been used. According to the *Technical Guide*, simplification of wind data for the initial study has been adopted. The wind directions with highest probability of occurrence are selected for AVA purposes. 8 most frequently occurred prevailing wind directions were selected for both annual and summer conditions with overall frequency of occurrence equivalent to 77.7% and 80.3% respectively of the time in a year

2.1.4 **Table 2.1** summarizes the simulated wind availability data including probability of occurrence.

Table 2.1 Summary of RAMS Data and Wind Direction

Wind Direction	Probability for Annual Condition (%)	Probability for Summer Condition (%)
N	2.4	0.8
NNE	5.0	1.0
NE	8.0	1.7
ENE	15.7	3.2
E	19.6	9.1
ESE	10.7	9.1
SE	6.8	7.3
SSE	4.5	8.0
S	4.3	9.2
SSW	5.8	12.8
SW	6.1	14.4
WSW	4.1	10.4
W	2.9	6.6
WNW	1.4	2.8
NW	1.2	2.2
NNW	1.3	1.1
Total Selected	**77.7%**	**80.3%**

2.2 Topography and Building Morphology

Topography

2.2.1 The Subject Site is located to the west of Hip Wo Street, which is elevated gradually from 6.1 mPD to 17.6 mPD (from south to north). Sau Mau Ping is located about 800m distance to the northeast of the Subject Site and elevated at about 90 mPD. Tai Sheung Tok, with the top level at about 380 mPD is located further northeast at about 1.8 km from the Subject Site. Crocodile Hill is located around 500m to the northwest with about 80 mPD. Kwun Tong Typhoon Shelter is located about 800m to the southwest of the Subject Site.

Building Morphology

2.2.2 There are high-rise commercial buildings such as Millennium City 1, Millennium City 6, AIA Kowloon Tower, AXA Tower, One Pacific Centre and apm Millennium City 5 are situated south of the Subject Site. These developments would affect the wind flow within Kwun Tong area. Therefore, the wind speed within the Kwun Tong area will be reduced. On the other hand, the wind would enhance the flow along the road alignments.

2.2.3 Kwun Tong Road is located to the immediate south of the Subject Site and aligned along southeast/ northwest direction. It provides an open corridor which favours easterly wind penetration.

2.2.4 **Figure 2** shows the building height of the surrounding developments.

3. QUANTITATIVE ASSESSMENT METHODOLOGY

3.1 Atmospheric Conditions

3.1.1 Simulated wind profile curves are extracted from the Planning Department's website using RAMS site wind availability data and is directly adopted for this quantitative AVA. Figure 5 shows the wind profile curves for grid X:091, Y:041.

3.1.2 Wind profile curves (i.e. approach condition from the detail study) 0, 1, and 2 would be utilized for quantitative AVA according to the selected wind directions in **Table 2.1**.

3.1.3 For elevation from 0 to 10 m where wind profile information is not available, the wind speed is assumed based on fitted Log Law and measured wind speed value at 10 m from the RAMS Site wind availability data for each wind profile curve.

3.1.4 The wind profile of 0 m to 10 m is interpolated and then combined with the wind profile curves on RAMS site wind availability data.

3.2 CFD Code and Major Parameters

3.2.1 A quantitative assessment based on the requirement for Initial Study stipulated in the relevant Technical Guide has been conducted for the purpose of comparing the air ventilation performance between the Proposed and the Baseline Schemes.

3.2.2 The quantitative assessment is conducted by using a commercial CFD code, FLUENT. FLUENT model has been widely applied for various AVA research and studies worldwide. The accuracy level of the FLUENT model is well-accepted by the industry for AVA application.

3.2.3 Realizable K-epsilon turbulence providing better prediction of separation and vortexes has been adopted for air ventilation assessment as recommended in COST action C14.

3.2.4 The assessment area is determined by the height (H) of the highest building within the surrounding area. Therefore, the assessment area shall be at least 1H (with H=360m of the Proposed Scheme).

3.2.5 The surrounding area is determined by 2 times the height of the highest building within the model area which is equivalent to at least 2H of the highest building (i.e. >2H where H=360 m) from the project Site boundary. It is confirmed that all major noise barriers, elevated structures, and planned / committed / existing developments in the model area have been modelled in the simulation. **Figure 1** indicates the assessment area and the surrounding area of the CFD model.

3.2.6 The domain dimension is about 11000m x 11000m and with an elevation of 1500m. More than 54,300,000 grid cells have been defined to simulate the air flow. Given the large domain adopted in this assessment and the physical limitation on the computational resources of the CFD model, the horizontal and vertical grid size employed in the CFD model in the vicinity of the Project Area is taken as a global minimum size of 2m, and the size of the grid cells further away from the Project Area is increased by a growth ratio of 1.3. The global maximum size of cells is 32m while smaller cells size of 0.5m were used. Besides, four layers of prism cells (each layer of 0.5m thickness) are employed above the terrain of Subject Sites. The blockage ratio is less than 3%.

3.2.7 The windward boundary is defined as inflow with the wind profile defined. The leeward boundary is defined as outflow. The sky and lateral boundaries are defined as a symmetric boundary condition.

3.2.8 **Appendix 3** shows the domain size and the CFD model in different views.

3.2.9 The advection terms of the momentum and viscous terms are resolved with the second order numerical schemes. The scaled residuals are converged to an order of magnitude of at least 1 x 10-4 as recommended in COST action C14.

3.3 Important Areas

3.3.1 For the proposed development, important surrounding areas that the public would often access have been identified as follows:

(1) Mut Wah Street
(2) Wan Hon Street
(3) PCCW Training and Development
(4) Ngan Yuet Ln
(5) CCC Kei Chi Secondary School
(6) Ka Lok Street
(7) Shui Ning Street
(8) Hong Ning Road Playground
(9) Shung Yan Street
(10) Shui Wo Street
(11) Hong Ning Road
(12) Ming Chi Street and Ming Chi Street Recreational Area
(13) Tung Ming Street
(14) Ning Po College
(15) Hang On Street
(16) Yee On Street
(17) Luen On Street
(18) Ngau Tau Kok Road
(19) Horse Shoe Lane and Kwun Tong Road Rest Garden
(20) Kwun Tong Road
(21) Fuk Tong Road
(22) Tsui Ping Road
(23) Yuet Wah Street
(24) Tin Heung Street
(25) Tsz Loi Lane
(26) Yuet Wah Street Playground
(27) Hip Wo Street
(28) Fu Yan Street
(29) How Ming Street
(30) Tsun Yip Street Playground and the land to its south
(31) Tsun Yip Street

(32) Hoi Yuen Road
(33) Shing Yip Street
(34) Po Pui Street
(35) Kung Lok Road
(36) Chong Yip Street
(37) Hung To Road
(38) King Yip Ln
(39) Wo Lok Estate
(40) How Ming Lane
(41) Landmark East
(42) Hing Yip Street
(43) Delia School of Canada (Kowloon East)
(44) Kwun Tong Community Centre
(45) Po Pui Court
(46) Fuk Ning Road
(47) Kwun Tong Lutheran College
(48) Kwun Tong Composite Development Project
(49) Tsui Ping (North) Estate
(50) Kwun Tong Road/ Hip Wo Street Rest Garden
(51) Wan Hon Street/ Hip Wo Street Rest Garden
(52) Special test points within Subject Site

3.4 Test Point Location

3.4.1 A total of 321 test points (including 30 numbers of perimeter test points defined along the boundary of the Subject Sites, 281 numbers of overall test points within the assessment area and 10 number of special test points) have been selected. The overall test point generally represents important pedestrian areas which are listed in **Section 3.3** above. All test points are located at 2 m above ground level.

3.4.2 **Figure 8** shows the test points selected for quantitative air ventilation assessment.

4. KEY FINDINGS

4.1 Spatial Average Wind Velocity Ratios

4.1.1 The velocity ratio under a specific wind direction at a test point is calculated by dividing the simulated wind speed at the test point under a certain wind direction by the velocity at gradient height under the same wind direction. All test points are located at 2 m above ground level.

4.1.2 **Table 4.1** shows the Subject Sites spatial average velocity ratio (SVR), local spatial average velocity ratio (LVR), and average wind velocity ratio along surrounding sensitive area during annual condition and summer condition (for the Proposed Scheme (PS) and Baseline Scheme (BS)).

4.1.3 The wind velocity ratios of individual test points are shown in **Figure 10a** and **Figure 11a** for the annual condition of the Baseline Scheme and Proposed Scheme respectively, while **Figure 10b** and **Figure 11b** shows the wind velocity ratios for summer condition of the Baseline Scheme and Proposed Scheme, respectively. **Appendix 6** shows the detailed simulation results of the Proposed Scheme and the Baseline Scheme.

Table 4.1 Summary of Spatial Average Wind Velocity Ratios (VR) – Annual and Summer Condition

Location	Test Point	Annual Condition		Summer Condition	
		BS	PS	BS	PS
SVR	P01-P30	0.16	**0.17**	0.14	**0.15**
LVR	P01-P30, T001-T281	0.12	0.12	0.11	0.11
1. Mut Wah Street	P01-P06	0.20	**0.21**	0.14	0.14
2. Wan Hon Street	T001-T006	0.08	0.08	0.09	0.09
3. PCCW Training and Development	T007-T009	0.05	**0.07**	0.06	**0.08**
4. Ngan Yuet Ln	T003, T010-T012	0.06	0.06	0.06	0.06
5. CCC Kei Chi Secondary School	T013-T015	0.05	0.05	0.04	0.04
6. Ka Lok Street	T016-T018	0.05	**0.08**	0.06	**0.08**
7. Shui Ning Street	T019-T024	0.06	0.06	0.05	0.05
8. Hong Ning Road Playground	T025-T034	**0.10**	0.09	0.07	0.07
9. Shung Yan Street	T035-T038	0.06	**0.07**	0.04	0.04
10. Shui Wo Street	T039-T046	0.06	**0.07**	0.06	0.06
11. Hong Ning Road	P01, P27-P30, T035, T047-T053	0.11	0.11	0.09	0.09
12. Ming Chi Street and Ming Chi Street Recreational Area	T054-T056	0.08	**0.10**	0.06	0.06
13. Tung Ming Street	T057-T062, T281	**0.12**	0.11	0.10	0.10
14. Ning Po College	T063-T064	**0.08**	0.07	0.07	0.07
15. Hang On Street	T065-T068	0.07	0.07	0.08	0.08
16. Yee On Street	T069-T072	0.04	0.04	0.05	0.05

Location	Test Point	Annual Condition		Summer Condition	
		BS	PS	BS	PS
17. Luen On Street	T068, T072-T074	0.08	0.08	0.09	0.09
18. Ngau Tau Kok Road	T073, T075-T081, T281	0.11	0.11	0.10	0.10
19. Horse Shoe Lane and Kwun Tong Road Rest Garden	T076, T081-T084	**0.12**	0.11	0.12	0.12
20. Kwun Tong Road	P17-P27, T085-T113	0.15	**0.16**	0.14	**0.16**
21. Fuk Tong Road	T115, T243-T244	0.19	0.19	**0.18**	0.16
22. Tsui Ping Road	T118-T124, T228, T244	**0.20**	0.19	0.16	0.16
23. Yuet Wah Street	T125-T142	0.08	**0.09**	0.07	**0.08**
24. Tin Heung Street	T130, T143-T144	0.09	**0.11**	0.09	0.09
25. Tsz Loi Lane	T143, T145-T146	0.07	0.07	0.06	0.06
26. Yuet Wah Street Playground	T146-T153	0.14	0.14	0.09	0.09
27. Hip Wo Street	P07-P16, T006, T154-T164	0.17	**0.19**	**0.15**	0.14
28. Fu Yan Street	T039, T165-T166	**0.05**	0.04	**0.04**	0.03
29. How Ming Street	T167-T180, T191	**0.13**	0.12	0.14	0.14
30. Tsun Yip Street Playground and the land to its south	T181-T189	**0.12**	0.11	0.17	0.17
31. Tsun Yip Street	T189-T195	**0.11**	0.10	0.13	0.13
32. Hoi Yuen Road	T167, T196-T201	0.16	**0.17**	0.15	**0.17**
33. Shing Yip Street	T202-T206	**0.17**	0.14	**0.21**	0.18
34. Po Pui Street	T207-T211	0.06	0.06	0.06	**0.07**
35. Kung Lok Road	T062, T212-T215	0.14	**0.15**	0.16	0.16
36. Chong Yip Street	T178, T216-T217	**0.08**	0.06	0.09	0.09
37. Hung To Road	T218-T224	0.08	0.08	**0.14**	0.13
38. King Yip Ln	T113, T225-T227	0.21	**0.23**	0.21	**0.23**
39. Wo Lok Estate	T229-T236	0.05	0.05	0.05	0.05
40. How Ming Lane	T178, T237-T238	0.09	0.09	0.13	0.13
41. Landmark East	T239-T241	0.10	**0.11**	0.17	**0.18**
42. Hing Yip Street	T200, T245-T246	**0.20**	0.19	**0.23**	0.22
43. Delia School of Canada (Kowloon East)	T256-T260	0.06	**0.08**	0.05	0.05
44. Kwun Tong Community Centre	T247-T249	**0.08**	0.07	**0.06**	0.05
45. Po Pui Court	T250-T253	**0.09**	0.08	**0.09**	0.08
46. Fuk Ning Road	T119, T254-T255	**0.23**	0.21	0.18	**0.19**
47. Kwun Tong Lutheran College	T261-T263	0.11	0.11	0.10	**0.11**
48. Kwun Tong Composite Development Project	T114-T117, T242	0.17	**0.18**	0.16	0.16
49. Tsui Ping (North) Estate	T264-T274	0.09	**0.10**	0.07	**0.08**

Location	Test Point	Annual Condition		Summer Condition	
		BS	PS	BS	PS
50. Kwun Tong Road/ Hip Wo Street Rest Garden	T275-T278	0.08	**0.09**	0.07	**0.08**
51. Wan Hon Street/ Hip Wo Street Rest Garden	T279-T280	0.07	**0.08**	0.08	**0.09**
52. Special test points within Subject Site	S01-S10	0.14	**0.16**	0.10	0.10

Note: Highlighted in **red** where VR is higher in the Proposed Scheme

Highlighted in **blue** where VR is higher in the Baseline Scheme

4.2 Discussion on Air Ventilation Performance

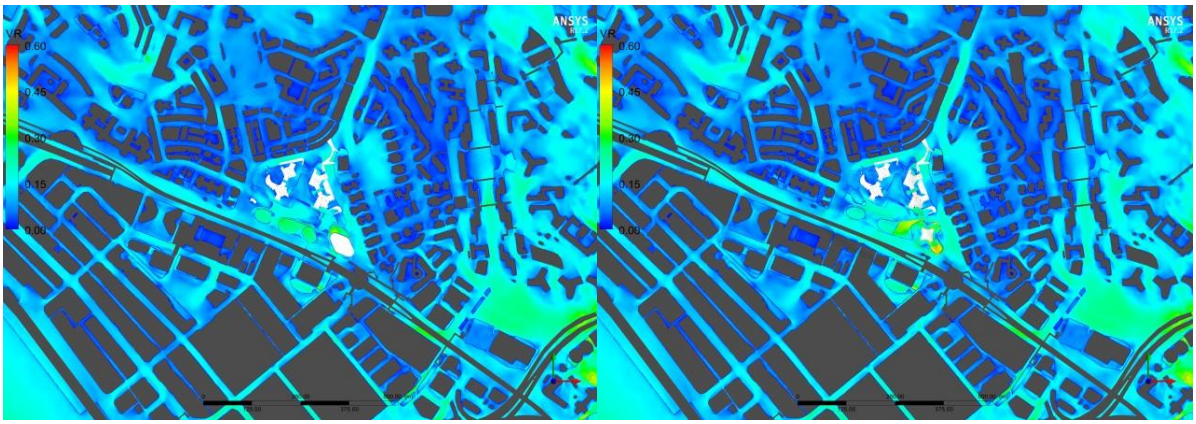
Discussion for VR Table

4.2.1 According to **Table 4.1** above, it is noted that the SVR is better in the Proposed Scheme under both annual and summer condition. For LVR, Proposed Scheme has comparable LVR under both annual and summer wind conditions when compared to the Baseline Scheme.

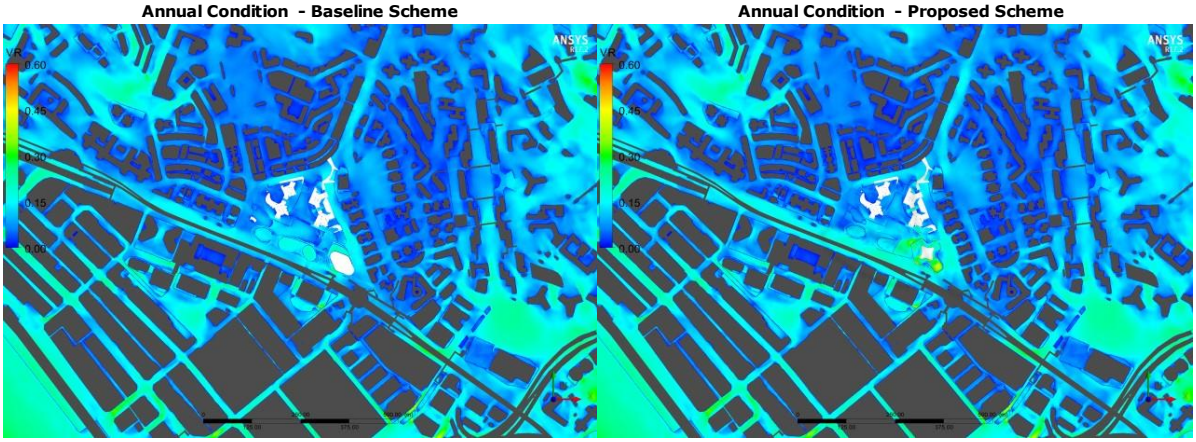
4.2.2 There are some variations between the Baseline Scheme and Proposed Scheme. The VR is higher under the Proposed Scheme at the Mut Wah Street (annual condition), PCCW Training And Development (annual and summer conditions), Ka Lok Street (annual and summer conditions), Shung Yan Street (annual condition), Shui Wo Street (annual condition), Ming Chi Street and Ming Chi Street Recreational Area (annual condition), Kwun Tong Road (annual and summer conditions), Yuet Wah Street (annual and summer conditions), Tin Heung Street (annual condition), Hip Wo Street (annual condition), Hoi Yuen Road (annual and summer conditions), Po Pui Street (summer condition), Kung Lok Road (annual condition), King Yip Ln (annual and summer conditions), Landmark East (annual and summer conditions), Delia School of Canada (Kowloon East) (annual condition), Fuk Ning Road (summer condition), Kwun Tong Lutheran College (summer condition), Kwun Tong Composite Development Project (annual condition), Tsui Ping (North) Estate (annual and summer conditions), Kwun Tong Road/Hip Wo Street Rest Garden (annual and summer conditions), and Wan Ho Street/Hip Wo Street Rest Garden (annual and summer conditions).

4.2.3 On the other hand, the VR is higher under the Baseline Scheme at the Hong Ning Road Playground (annual condition), Tung Ming Street (annual condition), Ning Po College (annual condition) Horse Shoe Lane and Kwun Ting Road Rest Garden (annual condition), Fuk Tong Road (summer condition), Tsui Ping Road (annual condition), Hip Wo Street (summer condition), Fu Yan Street (annual and summer conditions), How Ming Street (annual condition), Tsun Yip Street Playground and the land to its north (annual condition), Tsun Yip Street (annual condition), Hung To Road (summer condition), Shing Yip Street (annual and summer conditions), Chong Yip Street (annual condition), Hing Yip Street, (annual and summer conditions), Kwun Tong Community Centre (annual and summer conditions), Po Pui Court (annual and summer conditions) and Fuk Ning Road (annual condition).

Discussion for Weighted Average contour Plot



Annual Condition - Baseline Scheme **Annual Condition - Proposed Scheme**

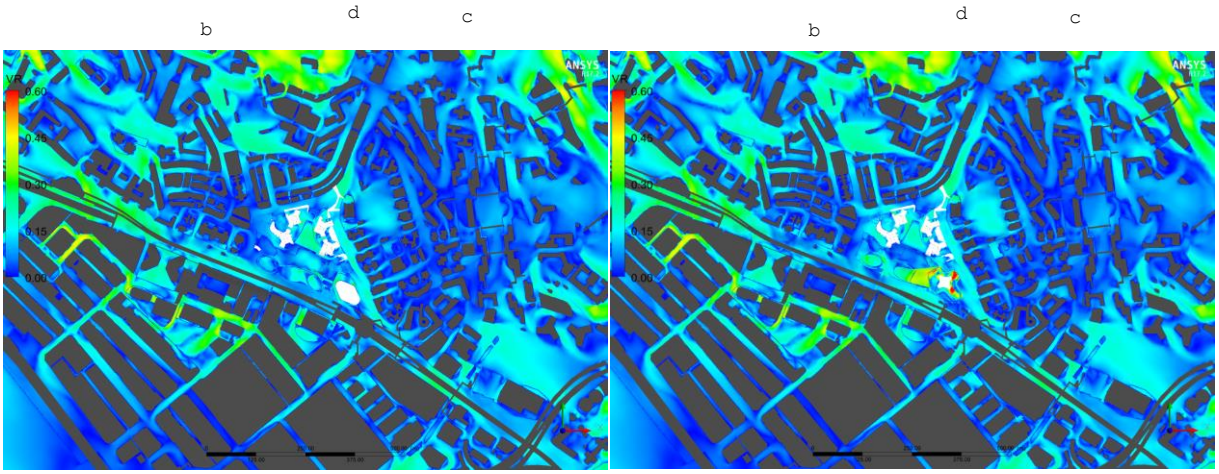


Summer Condition - Baseline Scheme **Summer Condition - Proposed Scheme**

4.2.4 According to the weighted average contour plot, the ventilation performance is very similar between two design options in annual and summer conditions. As observed, slightly improvement is found mainly at Kwun Tong Road and a portion of Hip Wo Street along Subject Site in the Proposed Scheme under annual and summer wind conditions.

4.3 Directional Analysis

Wind performance under wind direction of NNE



Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.1 According to the contour plots under NNE wind,

a. From the contour, NNE wind passes through the landscape roof in DAs 2&3 and reaches Yue Man Square Rest Garden. The higher building height of composite commercial part in the Proposed Scheme may cause stronger downwash wind and counter with the upcoming NNE wind, thus the air ventilation performance of Yue Man Square Rest Garden is reduced.

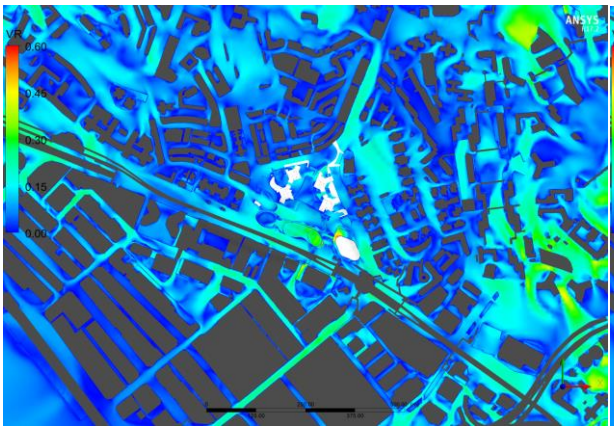
b. However, with an increase of the building massing of the Proposed Scheme, the wind performance at the Kwun Tong Road to the west of the Subject Site is reduced. Therefore, VR at the Kwun Tong Road which is located at downwind from the Subject Site is lower under the Proposed Scheme.

c. With a taller building height in the Proposed Scheme, the wind at upper level is captured and directed to the pedestrian level. This potential downwash wind may affect the wind flow along the Hip Wo Street where is immediate next to the Proposed Scheme. From the contour, the air ventilation performance of the Yuet Wah Street Playground is improved while that of the service lanes between the adjacent medium-rise existing developments may be slightly reduced.

d. Similarly, the increased downwash effect from the residential tower of the Proposed Scheme may increase the wind flow along the Hip Wo Street and benefit the wind performance at the further northern portion of the Hip Wo Street, as well as eastern part of the Mut Wah Street.

Wind performance under wind direction of NE

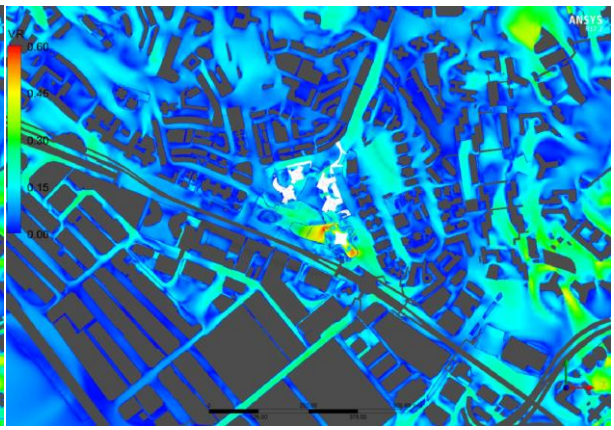
a c d



b

Contour plot for Baseline Scheme

a c d



b

Contour plot for Proposed Scheme

4.3.2 According to the contour plots under NE wind,

a. The increased massing of the Proposed Scheme may capture the high-level wind and direct them to Yue Man Square Rest Garden within the Subject Site and further area at the junction between Mut Wah Street and Hong Ning Road. Therefore, the VR at Yue Man Square Rest Garden is slightly better in the Proposed Scheme.

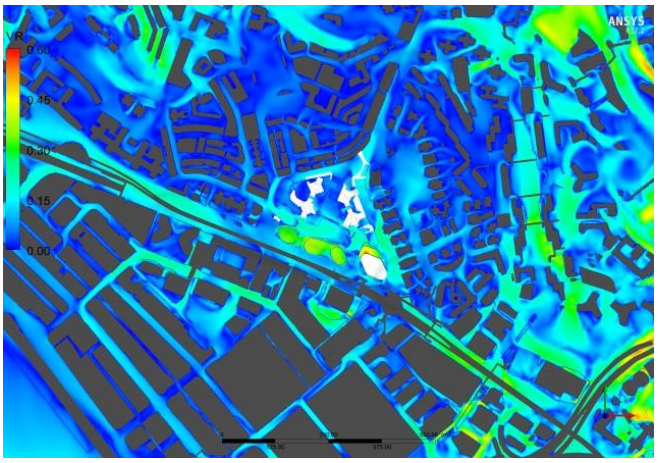
b. However, with an increase of the building massing of the Proposed Scheme, the wind performance at the Kwun Tong Road to the west of the Subject Site is reduced. Therefore, VR at the Kwun Tong Road which is located at downwind from the Subject Site is lower under the Proposed Scheme.

c. With a taller building height in the Proposed Scheme, the wind at upper level is captured and directed to the pedestrian level. This potential downwash wind may affect the wind flow along the Hip Wo Street where is immediate next to the Proposed Scheme. From the contour, the air ventilation performance of the Hip Wo Street immediate north of the Subject Site is better in the Proposed Scheme.

d. This potential downwash wind may benefit the further northern area, such as the area adjacent to the Yuet Wah Street Playground.

Wind performance under wind direction of ENE

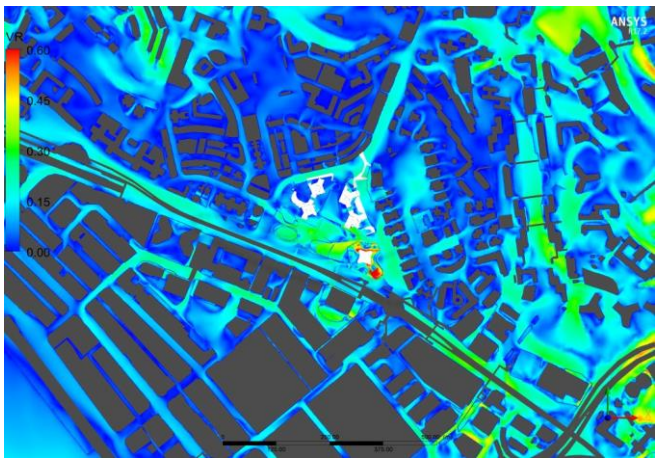
c b



d a

Contour plot for Baseline Scheme

c b



d a

Contour plot for Proposed Scheme

4.3.3 According to the contour plots under ENE wind,

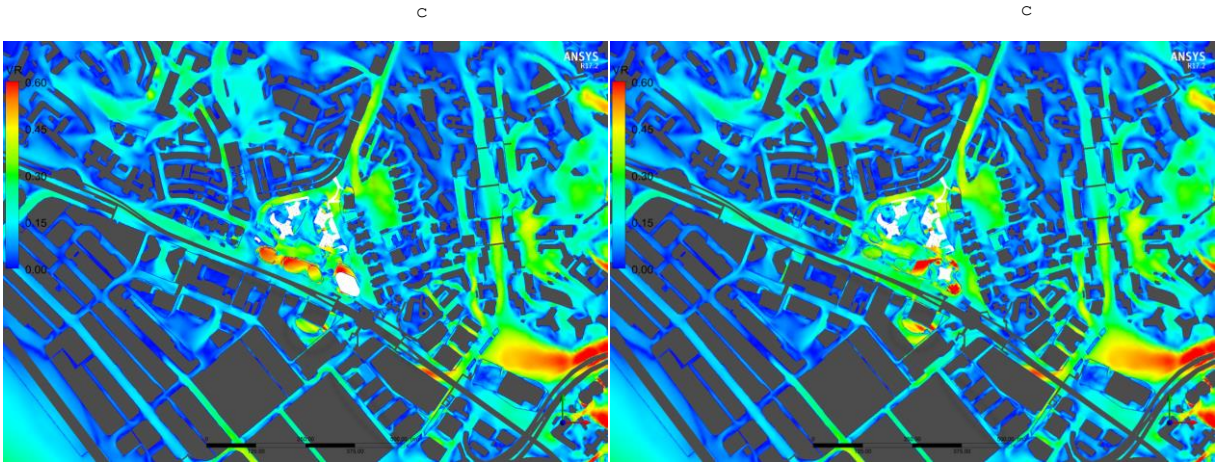
a. From the contour, the wind performance at Hip Wo Street immediate in front of the residential tower of the Proposed Scheme is slightly better than that of the Baseline Scheme. This may be due to the increased building height of this tower which would capture the high-level wind and direct them to the pedestrian level.

b. This increased potential downwash wind would help to improve the air ventilation of the area further north of the Subject Site. Therefore, the ventilation performance at the Yuet Wah Street Playground is better in the Proposed Scheme.

c. Similarly, the increased potential downwash wind may flow along the Mut Wah Street, and the ventilation performance at the northern portion of the Hip Wo Street is improved in the Proposed Scheme.

d. In the Proposed Scheme, the disposition of mid-rise tower is sitting inward in comparing with that in the Baseline Scheme. This increased setback from the Kwun Tong Road in the Proposed Scheme would reduce the blocking of the ENE wind flowing along the Kwun Tong Road. The VR performance at the Kwun Tong Road is better in the Proposed Scheme.

Wind performance under wind direction of E



Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.4 According to the contour plots under E wind,

a. In the Proposed Scheme, the disposition of mid-rise tower is sitting inward in comparing with that in the Baseline Scheme. This increased setback from the Kwun Tong Road in the Proposed Scheme would reduce the blocking of the E wind flowing along the Kwun Tong Road. The VR performance at the Kwun Tong Road is better in the Proposed Scheme. However, this stronger wind flow may create a turbulence at the area surrounding the petrol filling station building (PetroChina Kwun Tong) and a wake area is observed at there. This wake area may reduce the wind flow in the surrounding and the VR at the podium of Millennium City 1 is slight reduced in the Proposed Scheme.

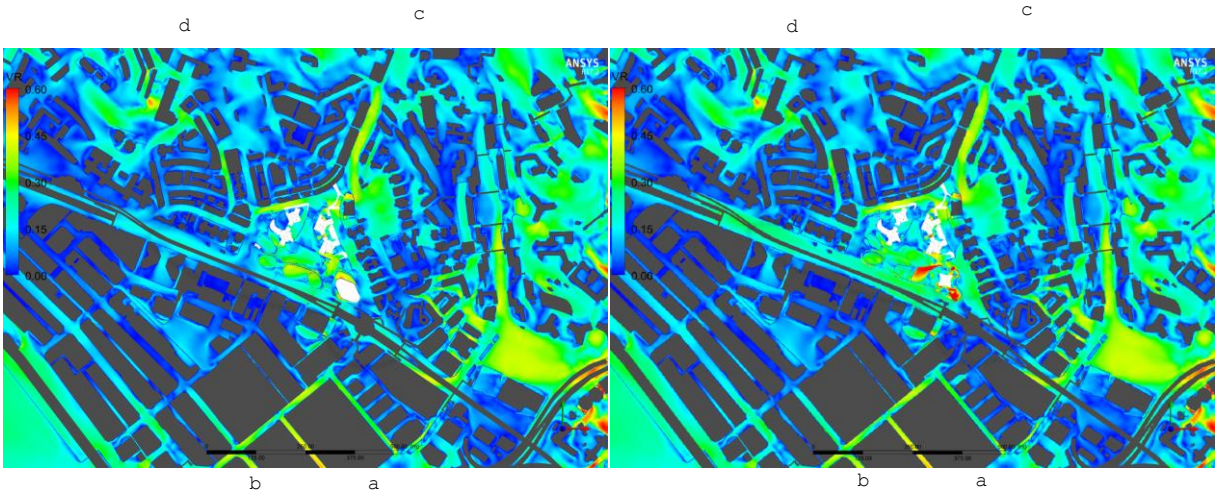
b. The stronger wind flow along Kwun Tong Road near DA 5 in the Proposed Scheme, due to 1) the increased setback of the tower from Kwun Tong Road and 2) the increased downwash from the taller building height of the tower, would help to improve the air ventilation of the surrounding area. The VR near the Millennium City 5 is better under the Proposed Scheme.

c. The increased potential downwash wind from taller building height of the tower in the Proposed Scheme may help to improve the wind performance the area along Hip Wo Street and surrounding areas. From the contour, the ventilation performance of the area near Yuet Wah Street Playground is slightly better in the Proposed Scheme.

d. The increased downwash wind from the taller building in the Proposed Scheme counters with the upcoming E wind flow along Kwun Tong Road, thus larger wake area is observed to the east of Kwun Tong Station under the Proposed Scheme.

e. Similarly, the stronger downwash wind caused by the taller building in the Proposed Scheme has more impact on the upwind area, i.e. Shing Yip Street.

Wind performance under wind direction of ESE



Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.5 According to the contour plots under ESE wind,

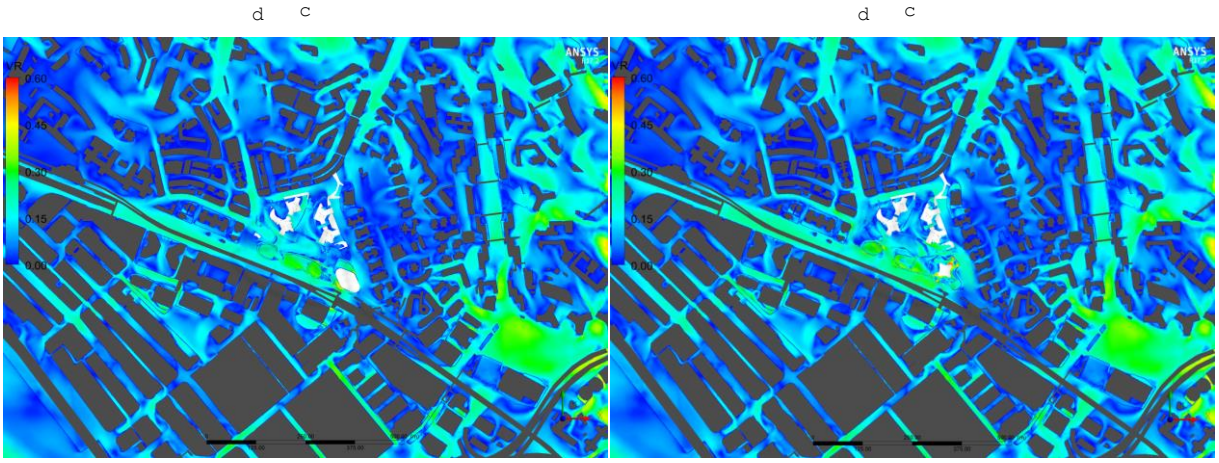
a. The ESE wind flow along the Kwun Tong Road from the ESE direction and reach the western part of the Kwun Tong Road. In the Proposed Scheme, this ESE wind at high level hit the upper portion of the proposed taller tower and direct to the Kwun Tong Road immediate in front of the proposed tower. This downwash wind may counter the upcoming ESE wind at pedestrian level and induce a wake area at the pedestrian area near Kwun Tong Station.

b. The mid-rise tower disposition in the Proposed Scheme is shifted inward, and this additional setback of the building from Kwun Tong Road in comparing with the Baseline Scheme would reduce the blocking of the upcoming ESE wind. Therefore, the air ventilation performance at the Kwun Tong Road to the west of the Subject Site is better in the Proposed Scheme, as shown in the contour.

c. The stronger downwash wind due to the increased building height of the Proposed Scheme may benefit the air ventilation performance of the Hip Wo Street and surrounding areas. From the contour of the Proposed Scheme, the air ventilation performance along the Yuet Wah Street and near the Yuet Wah Street Playground is slightly better than that in the Baseline Scheme.

d. Due to the stronger wind flow at Kwun Tong Road to the west of the Subject Site, the wind would be diverted to Horse Shoe Lane towards north. This diverted wind counters with the upcoming flow along Ngau Tau Kok Road and reduces the wind performance at Ngau Tau Kok Road near Horse Shoe Lane.

Wind performance under wind direction of SE



Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.6 According to the contour plots under SE wind,

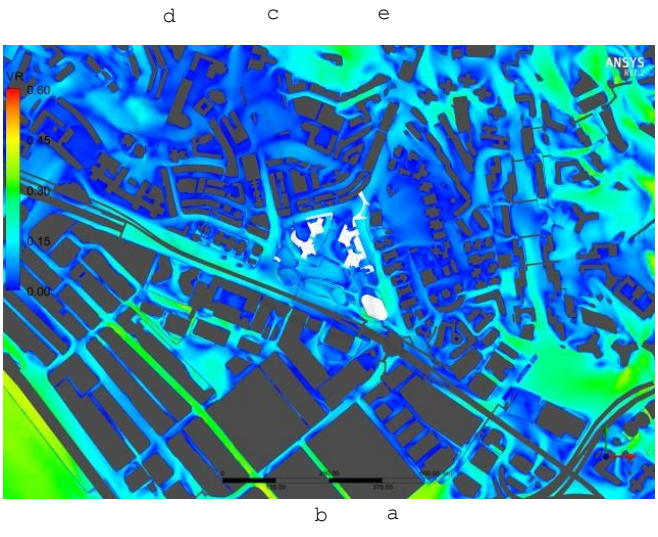
a. With a taller building height of the tower in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Hip Wo Street. From the contour, the VR at Hip Wo Street immediate in front of the mid-rise tower in the Proposed Scheme is better. But this stronger downwash wind may counter the wind flow from the southeast, and the wind performance at the junction between Hip Wo Street and Kwun Tong Road is slight worse in the Proposed Scheme.

b. The disposition of the mid-rise tower in the Proposed Scheme is located inward. This additional setback from the Kwun Tong Road may benefit the wind flowing across the proposed development. From the contour, the wind performance at the Kwun Tong Road is slightly better in the Proposed Scheme.

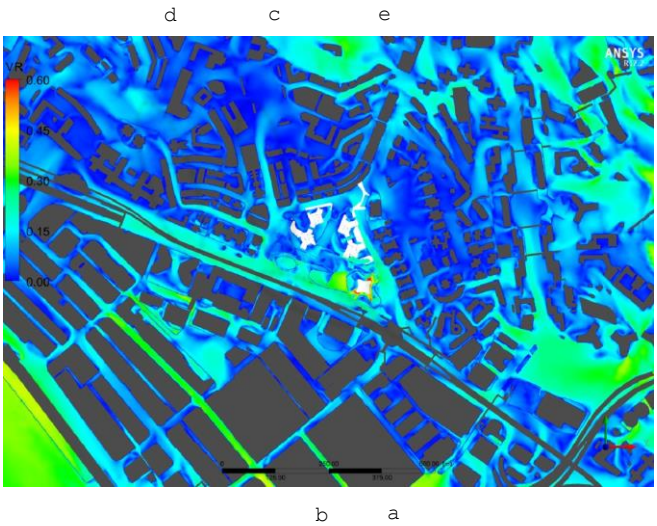
c. From the contour, the air ventilation performance at the landscape deck of DA 2 and 3 behind the proposed development is worse in the Proposed Scheme in comparing with that of the Baseline Scheme. The larger building massing of the Proposed Scheme in particular that in the DA 5 would block the upcoming SE wind. However, from the contour, the air ventilation performance of the further downwind area at Mut Wah Street is not affected. The urban windows and the raised floor in the Proposed Scheme is likely to be effective that the potential blocking impact would be confined to at a localized area only.

d. In the Proposed Scheme, the composite commercial podium in the middle of the scheme is sitting inward in comparing with that in the Baseline Scheme. The reduced building separation between DAs 4&5 and DAs 2&3 allows slightly less wind to pass through it. Therefore, lower wind speed is observed at Civic Square.

Wind performance under wind direction of SSE



Contour plot for Baseline Scheme



Contour plot for Proposed Scheme

4.3.7 According to the contour plots under SSE wind,

a. With a taller building height of the tower in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Hip Wo Street. From the contour, the VR at Hip Wo Street immediate in front of the tower at DA 5 in the Proposed Scheme is better. But this stronger downwash wind may counter the wind flow from the southeast, and the wind performance at the junction between Hip Wo Street and Kwun Tong Road is slight worse in the Proposed Scheme.

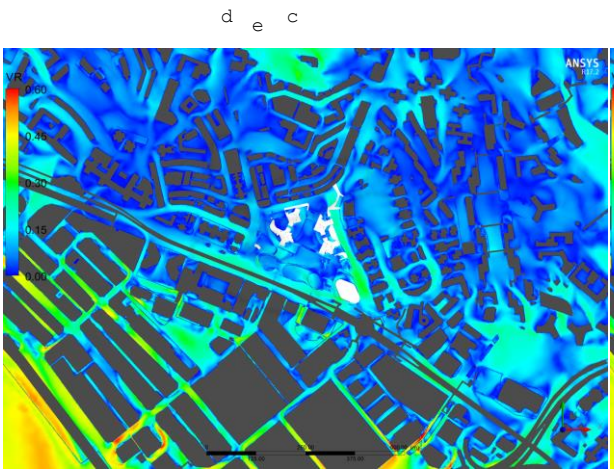
b. The disposition of the mid-rise tower in the Proposed Scheme is located inward. This additional setback from the Kwun Tong Road may benefit the wind flowing across the proposed development. From the contour, the wind performance at the Kwun Tong Road is slightly better in the Proposed Scheme.

c. This increased wind flow may also benefit further downwind area. From the contour, the wind performance at the junction between Mut Wah Street and Hong Ning Road and the northern portion of the Hong Ning Road is slightly better in the Proposed Scheme.

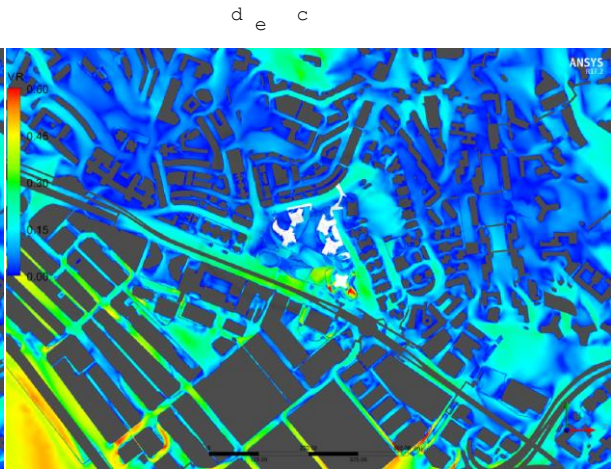
d. Similarly, the wind performance at the eastern part of the Ngau Tau Kok Road and the serviced lane connecting it is slightly better in the Proposed Scheme, as shown in the contour.

e. However, the increased building height in the Proposed Scheme would still block part of the upcoming SSE wind. From the contour, the wind performance at the area along the Shui Ning Street and that near Yuet Wah Street Playground are slightly worser in the Proposed Scheme under this wind direction.

Wind performance under wind direction of S



Contour plot for Baseline Scheme



Contour plot for Proposed Scheme

4.3.8 According to the contour plots under S wind,

a. With a taller building height of the tower and larger building mass in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Kwun Tong Road. From the contour, the VR at Kwun Tong Road immediate in front of the Proposed Scheme is better than that in the Baseline Scheme. This stronger downwash wind also benefits the Kwun Tong Road west of the Subject Site, as shown in the contour.

b. The disposition of the mid-rise tower in the Proposed Scheme is located inward. This additional setback from the Kwun Tong Road and Mut Wah Street may benefit the S wind flowing across the proposed development. From the contour, the wind performance at Yuet Wah Street Playground is slightly better in the Proposed Scheme.

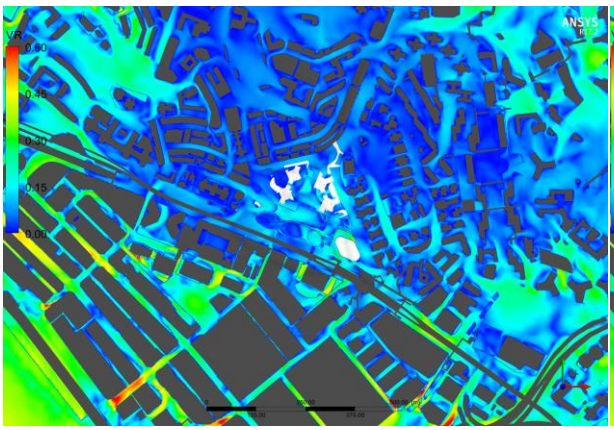
c. Similarly, this increased S wind may also benefit the downwind area. In the contour, the air ventilation performance at junction between Mut Wah Street and Hip Wo Street is better in the Proposed Scheme.

d. The stronger wind flow along Mut Wah Street in the Proposed Scheme may flow along the street and benefit the air ventilation performance of Hong Ning Road. In the contour, the VR at Hong Ning Road north of the Mut Wah Street is slightly better in the Proposed Scheme.

e. The height of the urban window between G/IC block and composite commercial block of DA 5 is decreased from 23m height in the Baseline Scheme to 15m height in the Proposed Scheme which would allow slightly less wind to pass through to reach Civic Square. As such, the wind performance at Civic Square is slightly worse than that in the Proposed Scheme.

Wind performance under wind direction of SSW

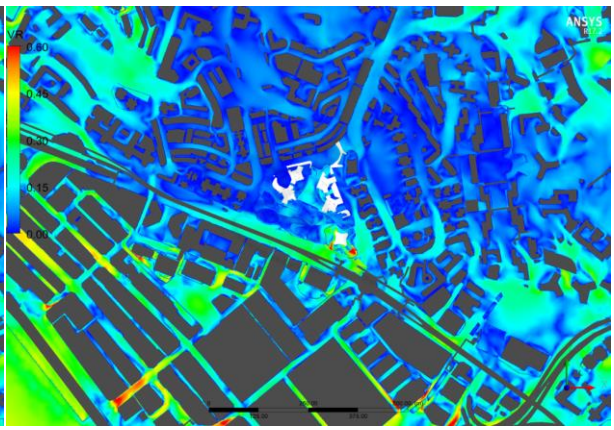
d e f c



a b

Contour plot for Baseline Scheme

d e f c



a b

Contour plot for Proposed Scheme

4.3.9 According to the contour plots under SSW wind,

a. With a taller building height of the tower and larger building mass in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Kwun Tong Road. From the contour, the VR at Kwun Tong Road immediate in front of the Proposed Scheme is better than that in the Baseline Scheme. This stronger downwash wind also benefits the Kwun Tong Road west of the Subject Site, as shown in the contour.

b. The disposition of the mid-rise tower in the Proposed Scheme is located inward. This additional setback from the Kwun Tong Road and Hip Wo Street may benefit the SSW wind flowing across the proposed development. From the contour, the wind performance at Hip Wo Street immediate next to the DA 5 is slightly better in the Proposed Scheme.

c. Similarly, the additional setback in the Proposed Scheme may allow the SSW wind passing the eastern portion of the Proposed Development at high level, and reach further downward area. In the contour, the wind performance at the northern part of the Hip Wo Street north-northeast to the Proposed Development is better under the Proposed Scheme.

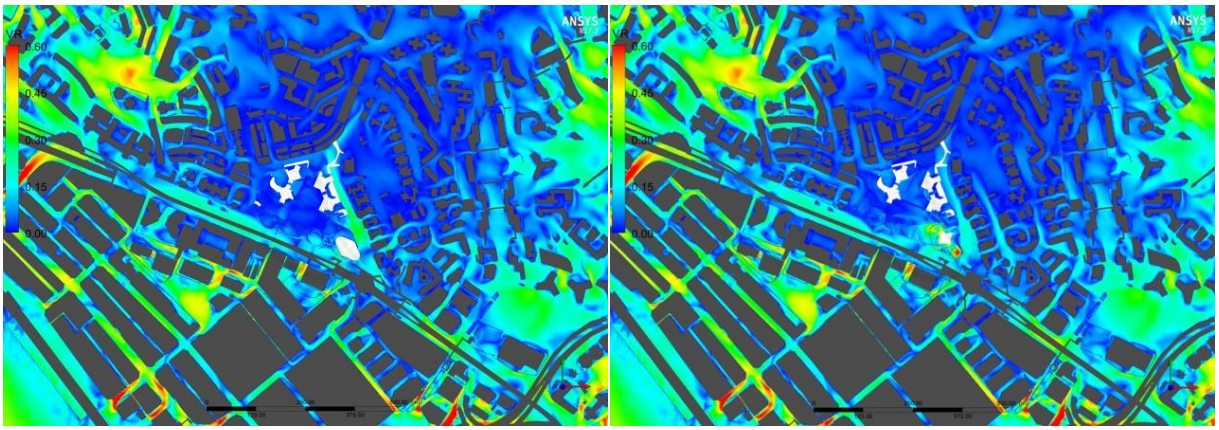
d. However, the increased building mass of the Proposed Scheme would still block part of the upcoming SSW wind. From the contour, the wind performance at the area junction between Ngau Tai Kok Road and Hong Ning Road is slightly worser in the Proposed Scheme under this wind direction.

e. Similarly, the air ventilation performance at the open space in the Subject Site is also slightly worse in the Proposed Scheme, as shown in the contour.

f. The increased building mass of the Proposed Scheme would block part of the upcoming wind to reach the further downwind area, i.e. Mut Wah Street as shown in the contour.

Wind performance under wind direction of SW

c c



a b a b

Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.10 According to the contour plots under SW wind,

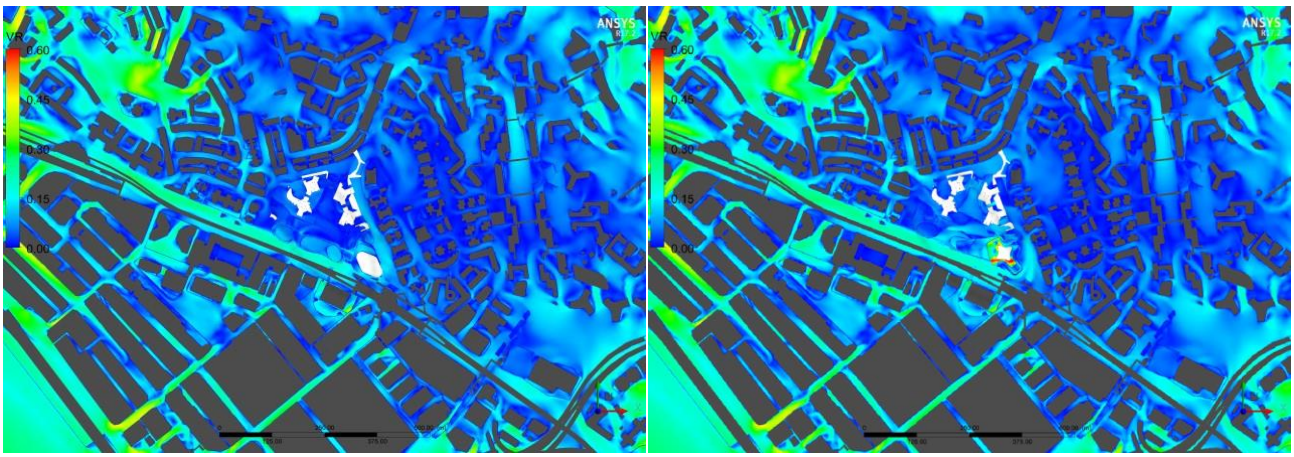
a. With a taller building height of the tower in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Kwun Tong Road. From the contour, the VR at Kwun Tong Road immediate in front of the tower of the Proposed Scheme is better.

b. The disposition of the mid-rise tower in the Proposed Scheme is located inward. This additional setback from the Kwun Tong Road and Mut Wah Street may benefit the SW wind flowing across the proposed development. From the contour, the wind performance at Yuet Wah Street northeast of the Subject Site is slightly better in the Proposed Scheme.

c. However, the increased building mass in the Proposed Scheme would reduce the upcoming SW wind. From the contour, it is observed that the wind performance at the Hip Wo Street behind the Subject Site is slightly reduced under the Proposed Scheme.

Wind performance under wind direction of WSW

b b



a a

Contour plot for Baseline Scheme **Contour plot for Proposed Scheme**

4.3.11 According to the contour plots under WSW wind,

a. With a taller building height of the tower in the Proposed Scheme, there may be much wind at higher level to be captured and directed to the pedestrian level in comparing with the Baseline Scheme. This stronger downwash could benefit the wind performance at Kwun Tong Road. From the contour, the VR at Kwun Tong Road immediate in front of the tower of the Proposed Scheme is slightly better. Also, this stronger downwash could benefit the open space in the Subject Site and surrounding areas. In the contour, the VR at this open space and that at junction between the Mut Wah Street and Hong Ning Road are slightly better in the Proposed Scheme.

b. However, the increased building height in the Proposed Scheme would reduce the upcoming WSW wind. From the contour, it is observed that the wind performance at the Hip Wo Street behind the Subject Site and that south of the Yuet Wah Street Playground are slightly reduced under the Proposed Scheme.

5. CONCLUSION

5.1.1 The proposed development, which is located in Kwun Tong Development area, has been evaluated from an air ventilation perspective.

5.1.2 According to section 4.2 above, it is noted that the SVR is better in the Proposed Scheme under both annual and summer condition. On the other hand, Proposed Scheme has comparable LVR under both annual and summer condition when compared to the Baseline Scheme.

5.1.3 It is found that the average VR of the overall test points are comparable between the Proposed Scheme and Baseline Scheme. Based on the results, the change in building form would not induce a significant impact to the nearby area in air ventilation terms.

5.1.4 There are some variations between the Baseline Scheme and Proposed Scheme. The VR is higher under the Proposed Scheme at the Mut Street (annual condition), PCCW Training And Development (annual and summer conditions), Ka Lok Street (annual and summer conditions), Shung Yan Street (annual condition), Shui Wo Street (annual condition), Ming Chi Street and Ming Chi Street Recreational Area (annual condition), Kwun Tong Road (annual and summer conditions), Yuet Wah Street (annual and summer conditions), Tin Heung Street (annual condition), Hip Wo Street (annual condition), Hoi Yuen Road (annual and summer conditions), Po Pui Street (summer condition), Kung Lok Road (annual condition), King Yip Ln (annual and summer conditions), Landmark East (annual and summer conditions), Delia School of Canada (Kowloon East) (annual condition), Fuk Ning Road (summer condition), Kwun Tong Lutheran College (summer condition), Kwun Tong Composite Development Project (annual condition), Tsui Ping (North) Estate (annual and summer conditions), Kwun Tong Road/Hip Wo Street Rest Garden (annual and summer conditions), and Wan Ho Street/Hip Wo Street Rest Garden (annual and summer conditions).

5.1.5 On the other hand, the VR is higher under the Baseline Scheme at the Hong Ning Road Playground (annual condition), Tung Ming Street (annual condition), Ning Po College (annual condition) Horse Shoe Lane and Kwun Ting Road Rest Garden (annual condition), Fuk Tong Road (summer condition), Tsui Ping Road (annual condition), Hip Wo Street (summer condition), Fu Yan Street (annual and summer conditions), How Ming Street (annual condition), Tsun Yip Street Playground and the land to its north (annual condition), Tsun Yip Street (annual condition), Hung To Road (summer condition), Shing Yip Street (annual and summer conditions), Chong Yip Street (annual condition), Hing Yip Street, (annual and summer conditions), Kwun Tong Community Centre (annual and summer conditions), Po Pui Court (annual and summer conditions) and Fuk Ning Road (annual condition).

5.1.6 It is concluded that the proposed building design would not induce significant adverse impact to the nearby environment.

Figures

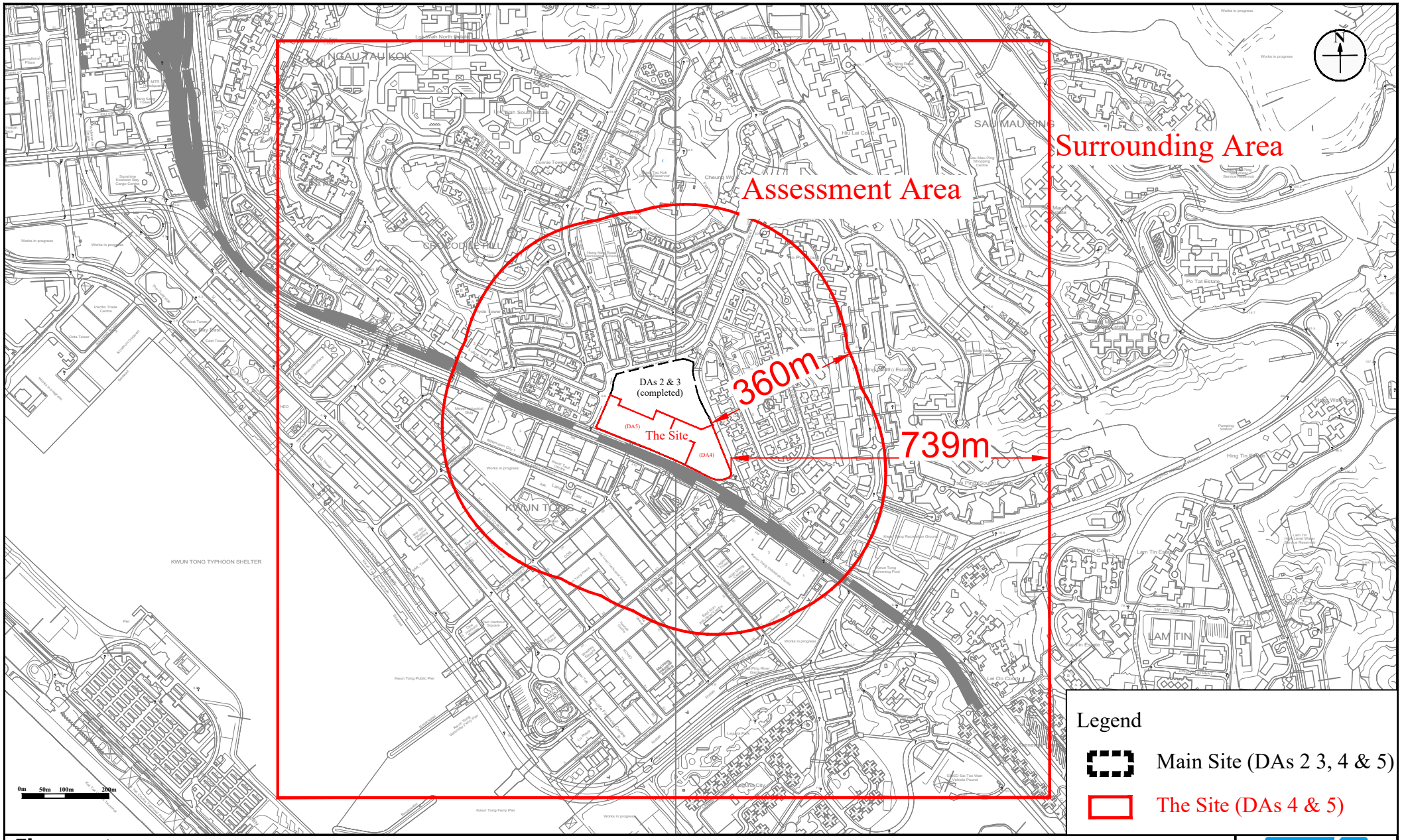


Figure: 1

Title: Location of the Subject Site and its Environs

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 - KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.1
Date:	Jul 2023

Q:\Projects\URAKTC45EI02\04 Deliverables\03 AVA Report\Figure\Figure 1_location.dwg

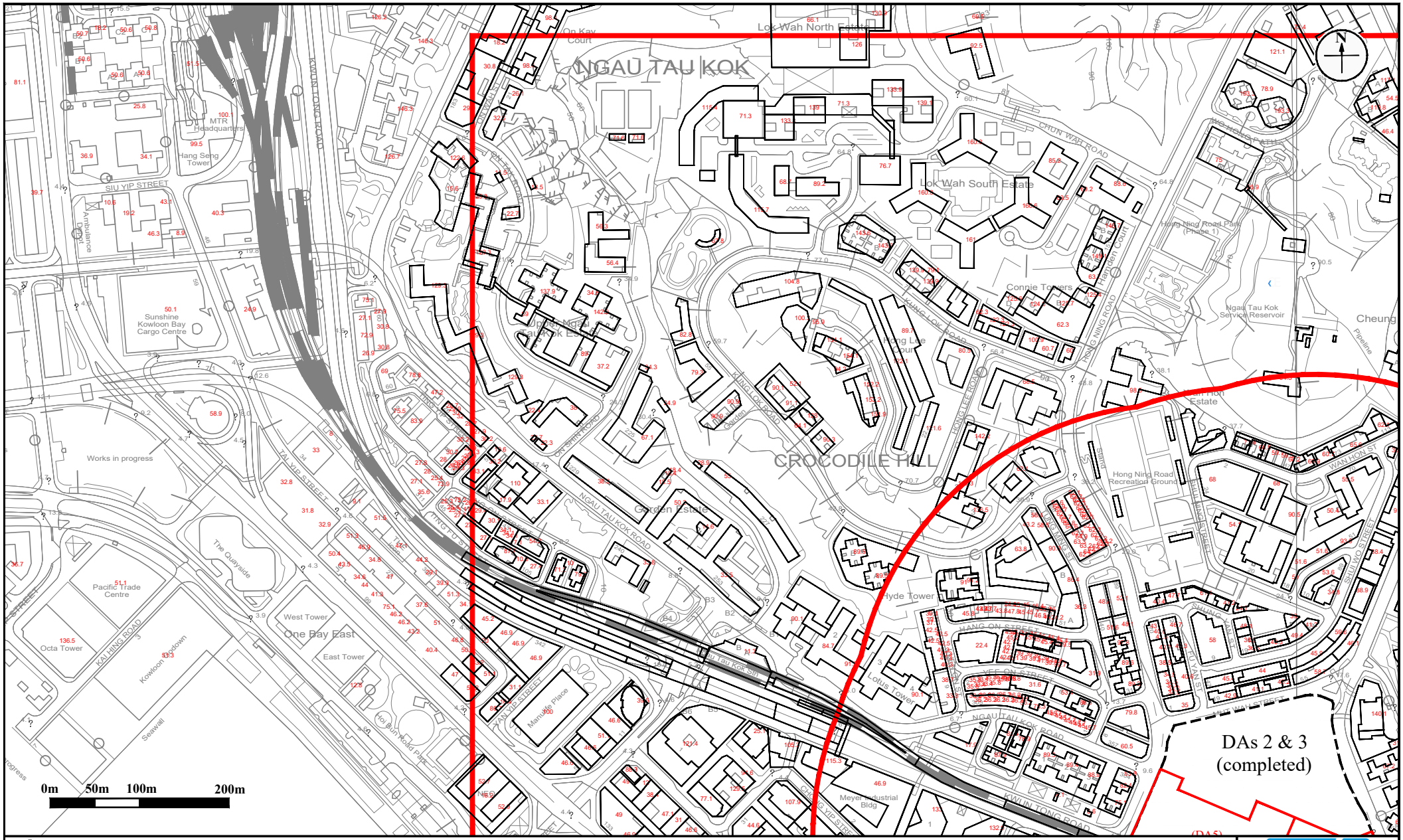


Figure: 2a

Title: Building Height of Existing Development within the Surrounding Area (Northwestern Part)

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 -KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.1
Date:	Jul 2023

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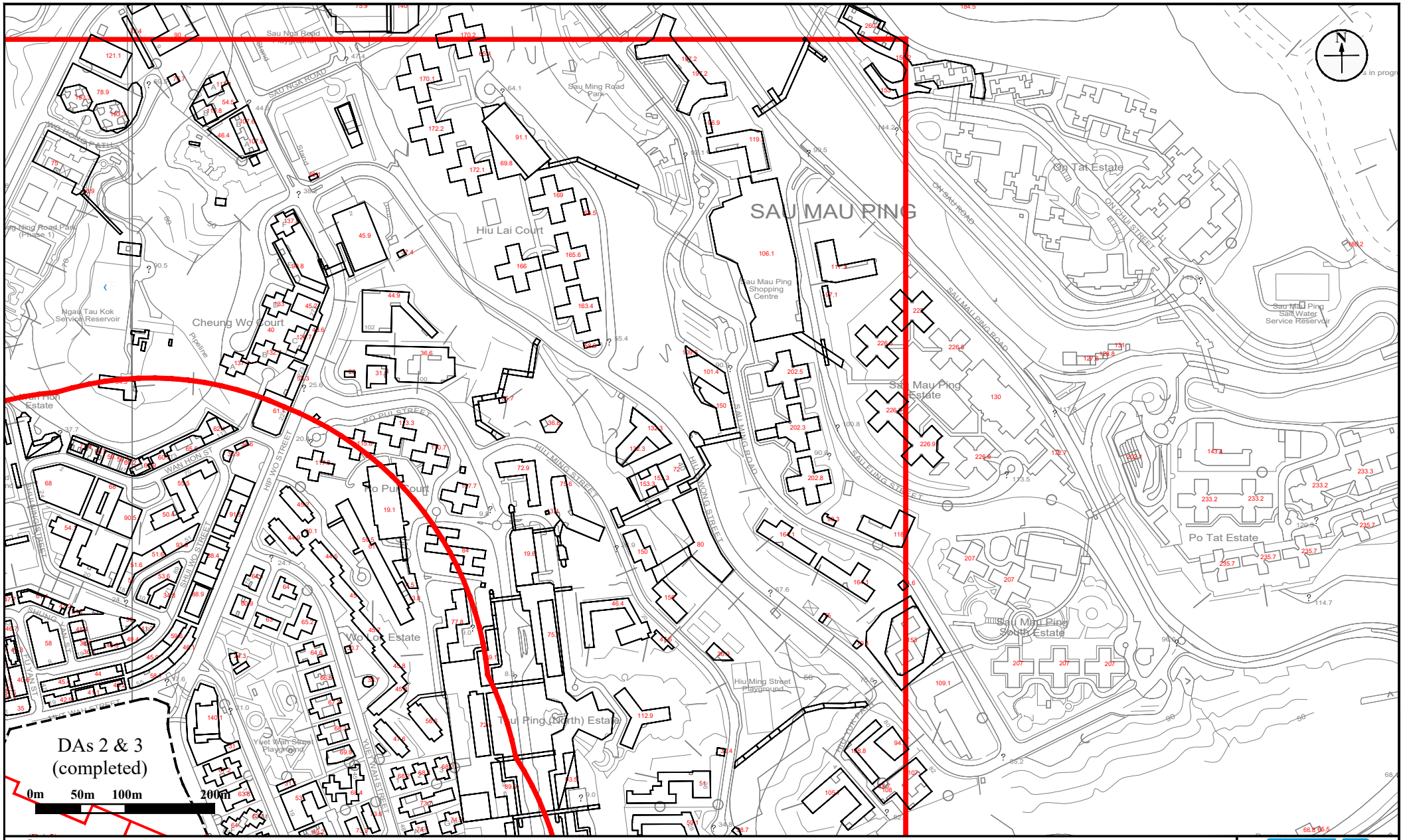

Figure: 2b

Title: Building Height of Existing Development within the Surrounding Area (Northeastern Part)

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 -KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.1
Date:	Jul 2023

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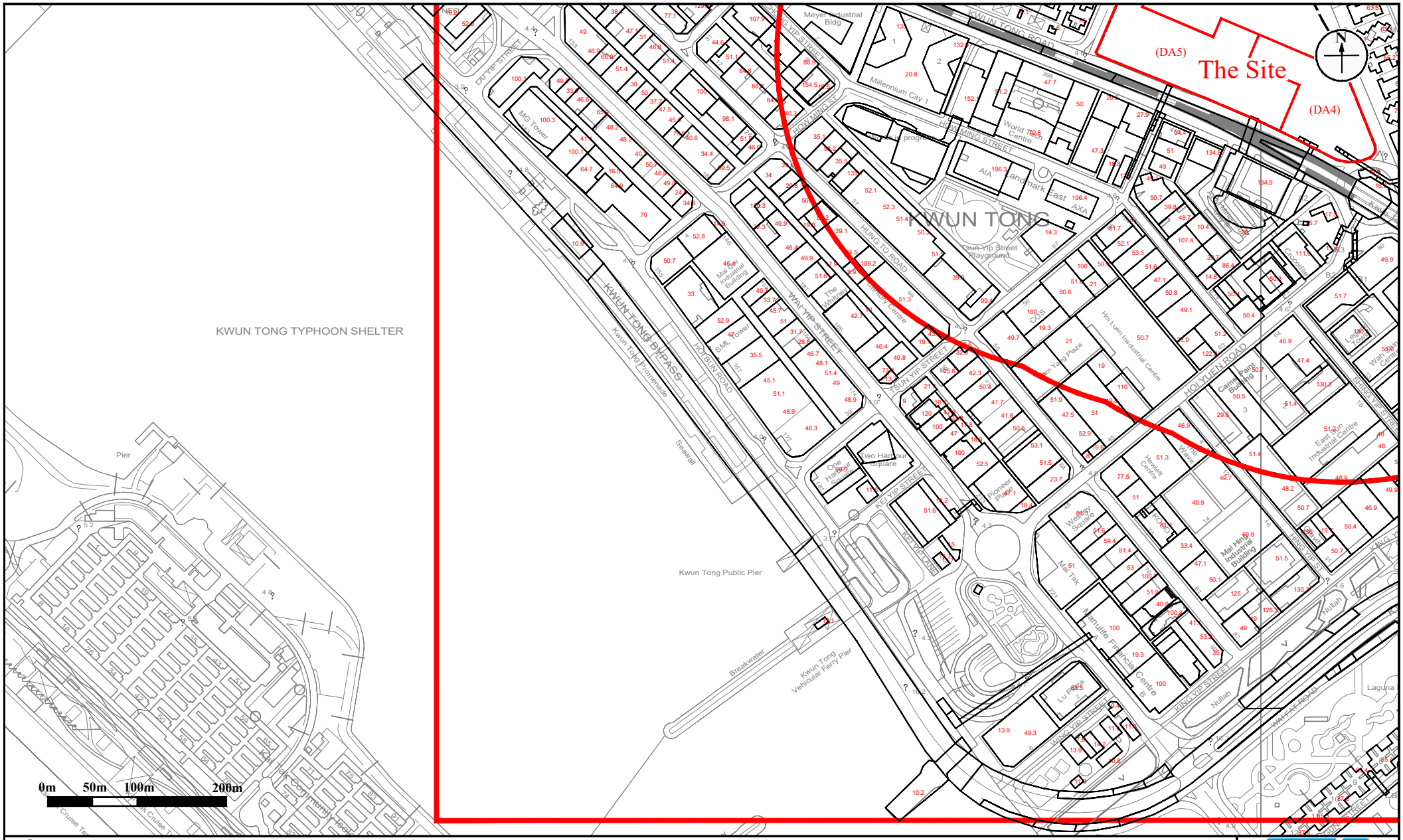

Figure: 2c

Title: Building Height of Existing Development within the Surrounding Area (Southwestern Part)

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 -KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.0
Date:	Jul 2023

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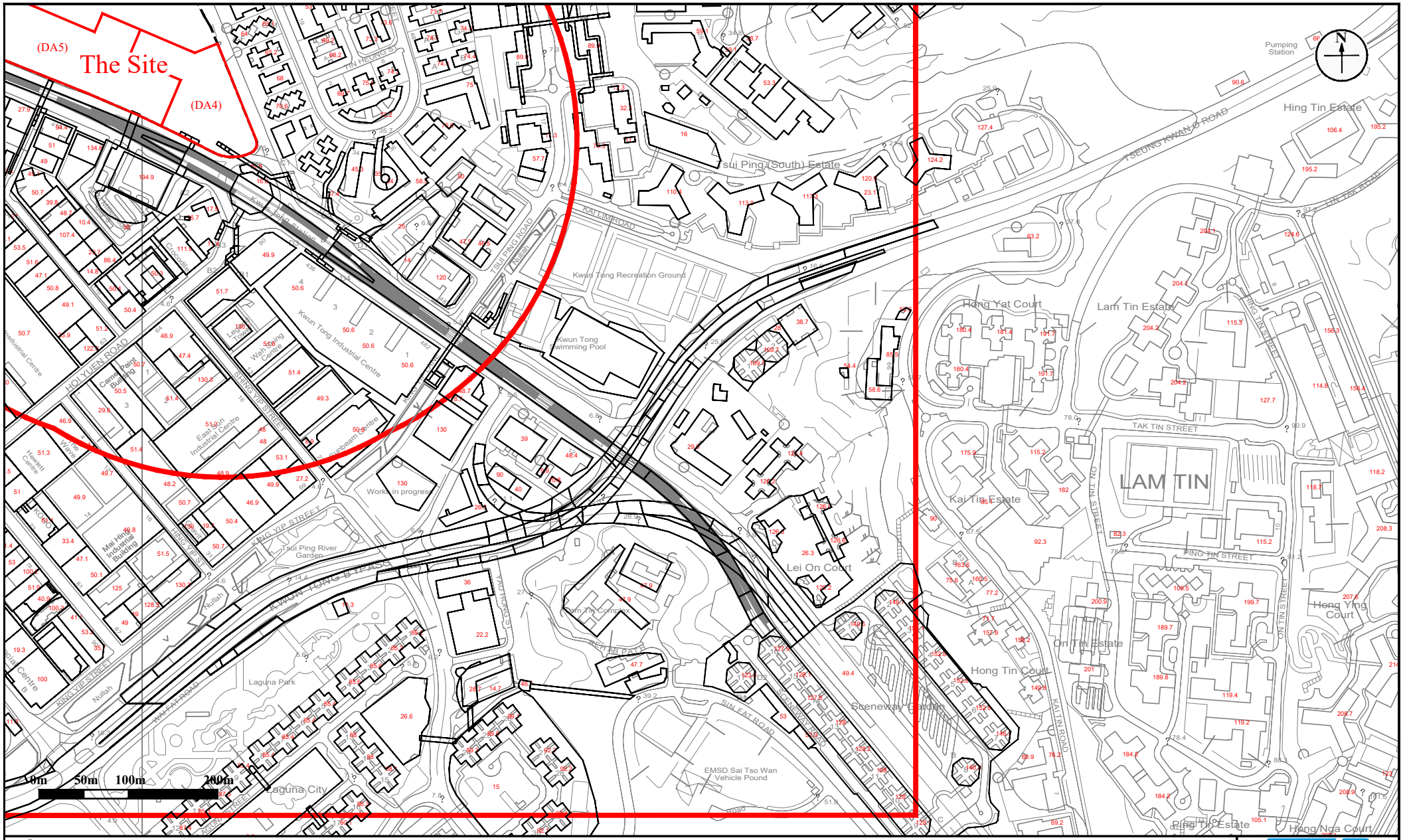

Figure: 2d

Title: Building Height of Existing Development within the Surrounding Area (Southeastern Part)

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 -KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.0
Date:	Jul 2023

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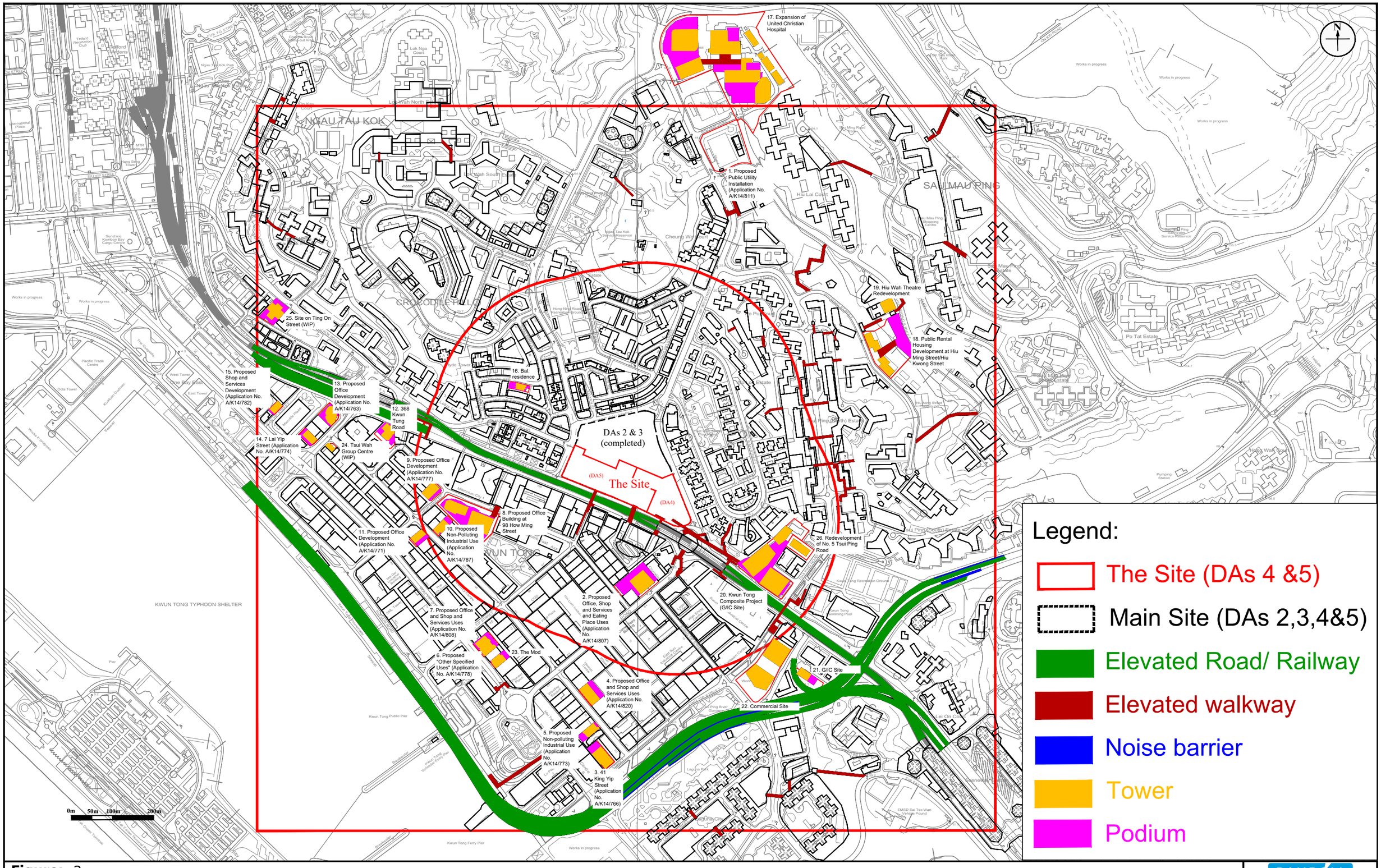

Figure: 3

Title: Building Bocks of the surrounding Future/ Committed Development

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 - KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	EC
Rev.:	1.0
Date:	Jul 2023

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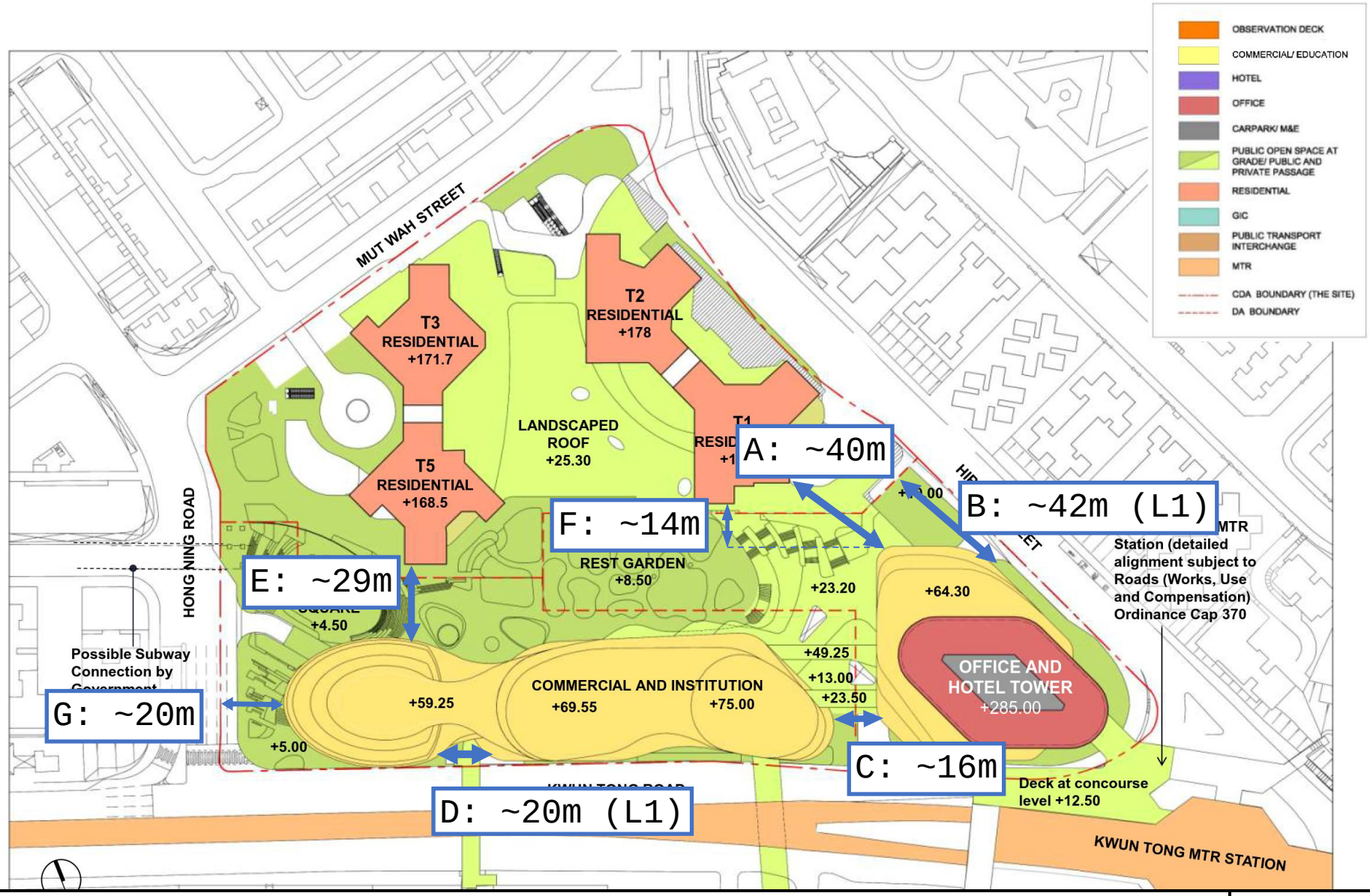
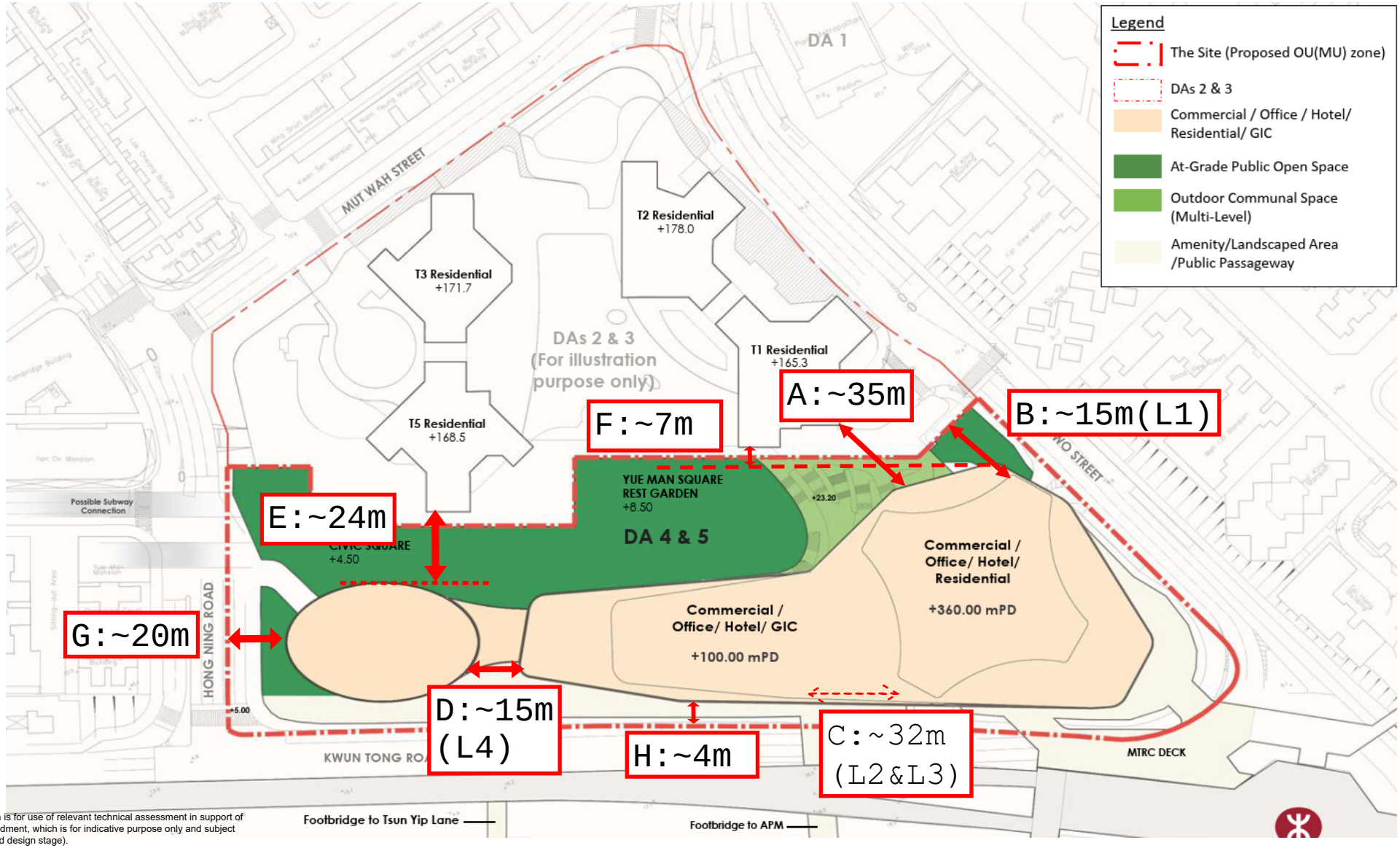
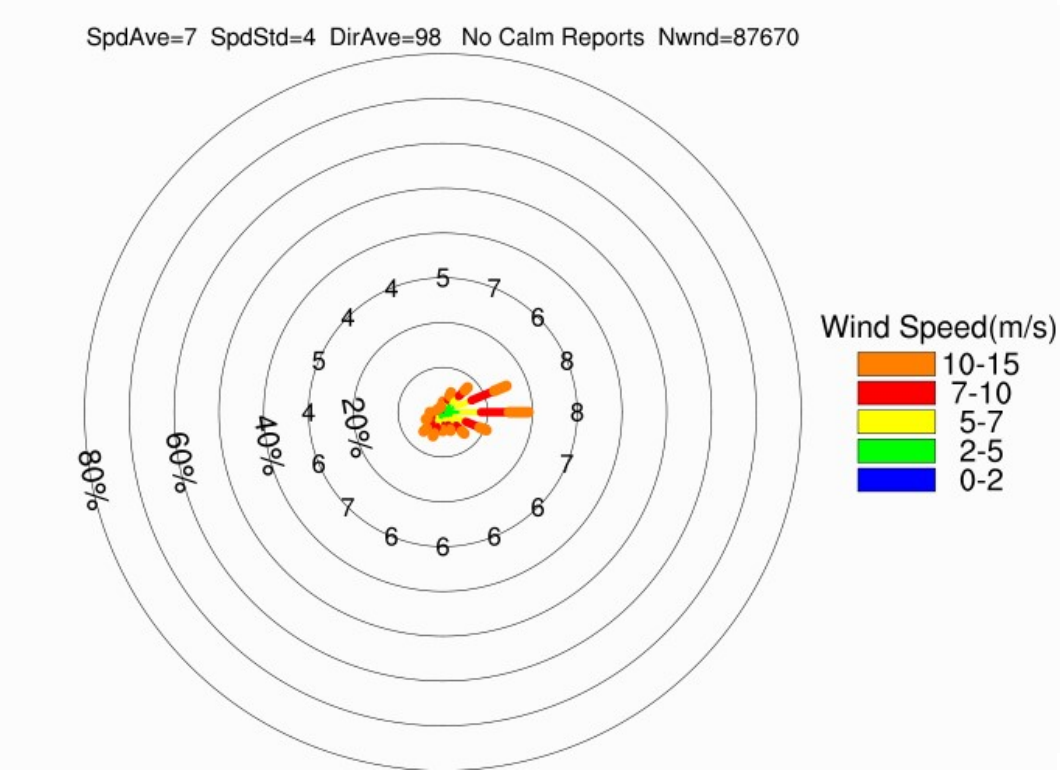


Figure: 4	RAMBOLL ENVIRON
Title: Mitigation Measure of the Baseline Scheme	Drawn by: WT
	Checked by: EC
Project: Development Areas 4and 5 of the Kwun Tong Town Centre Developmen (DAS 4 and 5 - KTTC)	Rev.: 1.0
	Date: Jul 2023

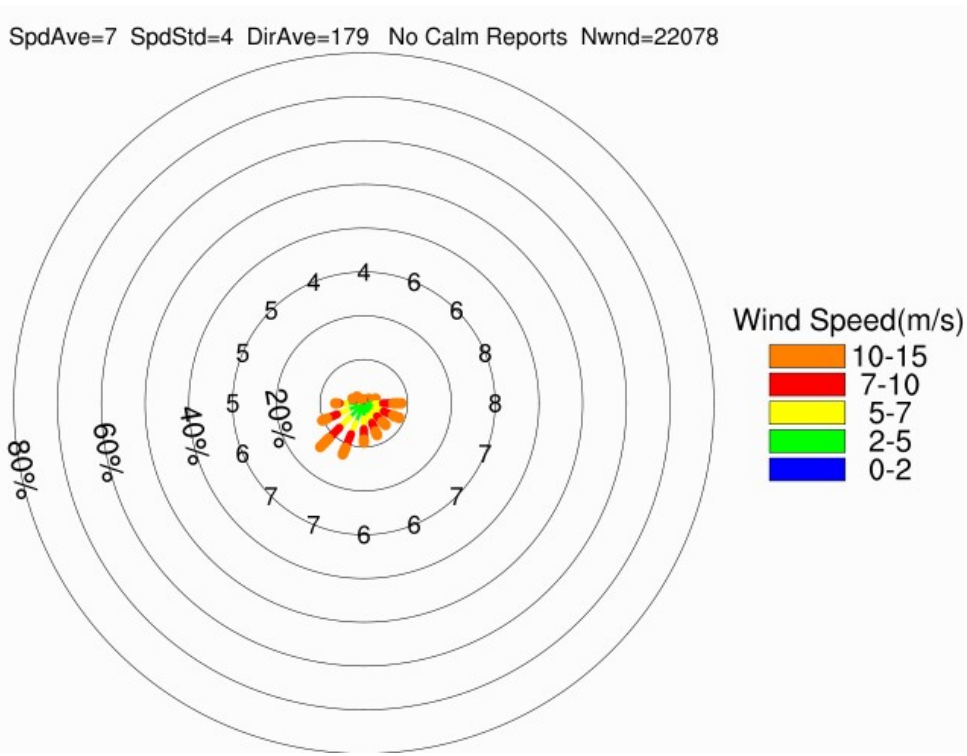


(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

Figure: 5	RAMBOLL ENVIRON
Title: Mitigation Measure of the Proposed Scheme	Drawn by: WT
	Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Developmen (DAS 4 and 5 - KTTC)	Rev.: 1.3
	Date: Oct 2023



Annual Condition



Summer Condition

Figure: 6	RAMBOLL
Title: Windrose Diagram of the RAMS	Drawn by: WT Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)	Rev.: 1.0 Date: Jul 2023

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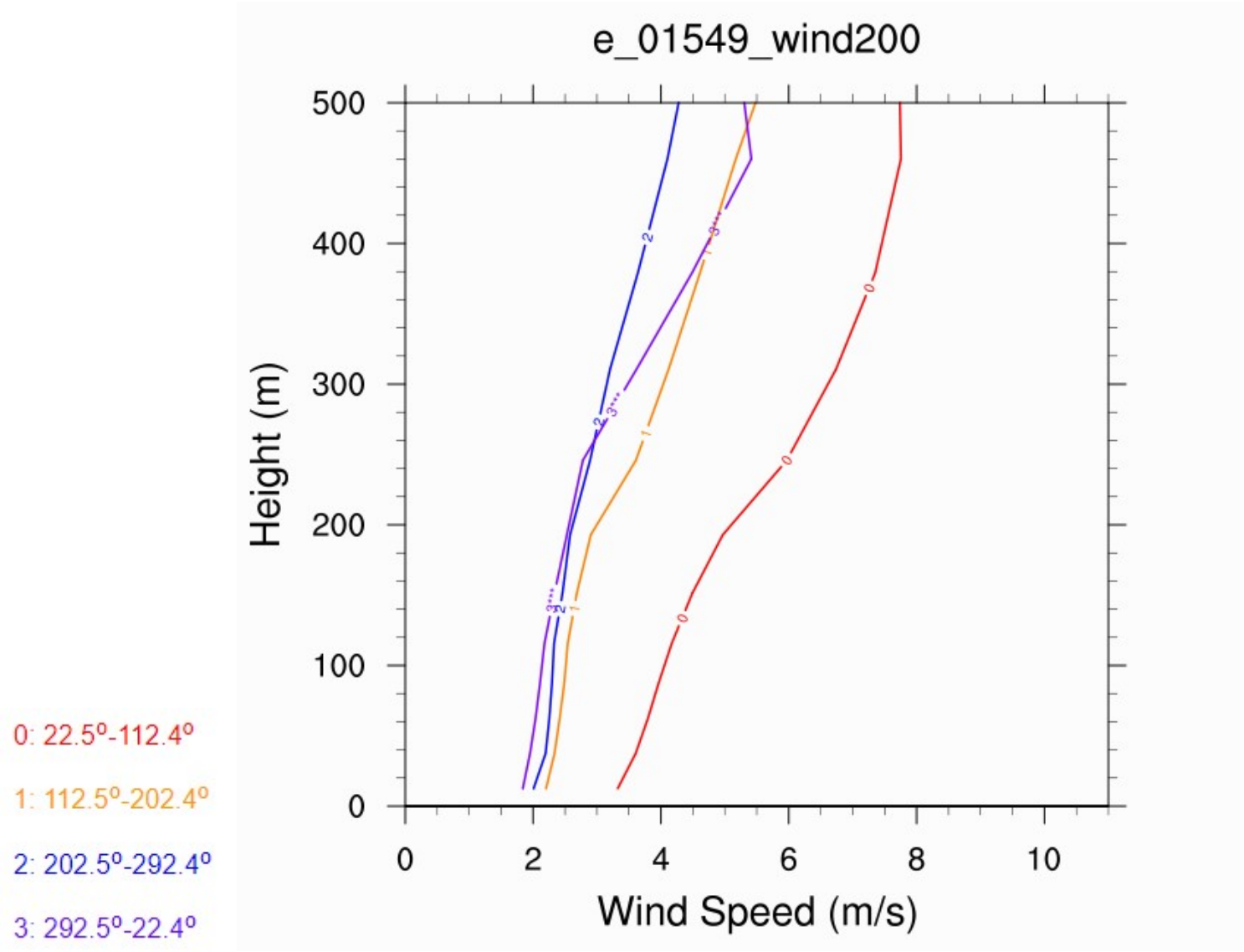

Figure: 7	RAMBOLL
Title: Wind Profile Curve for Grid X:091, Y:041	Drawn by: WT Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)	Rev.: 1.0 Date: Jul 2023

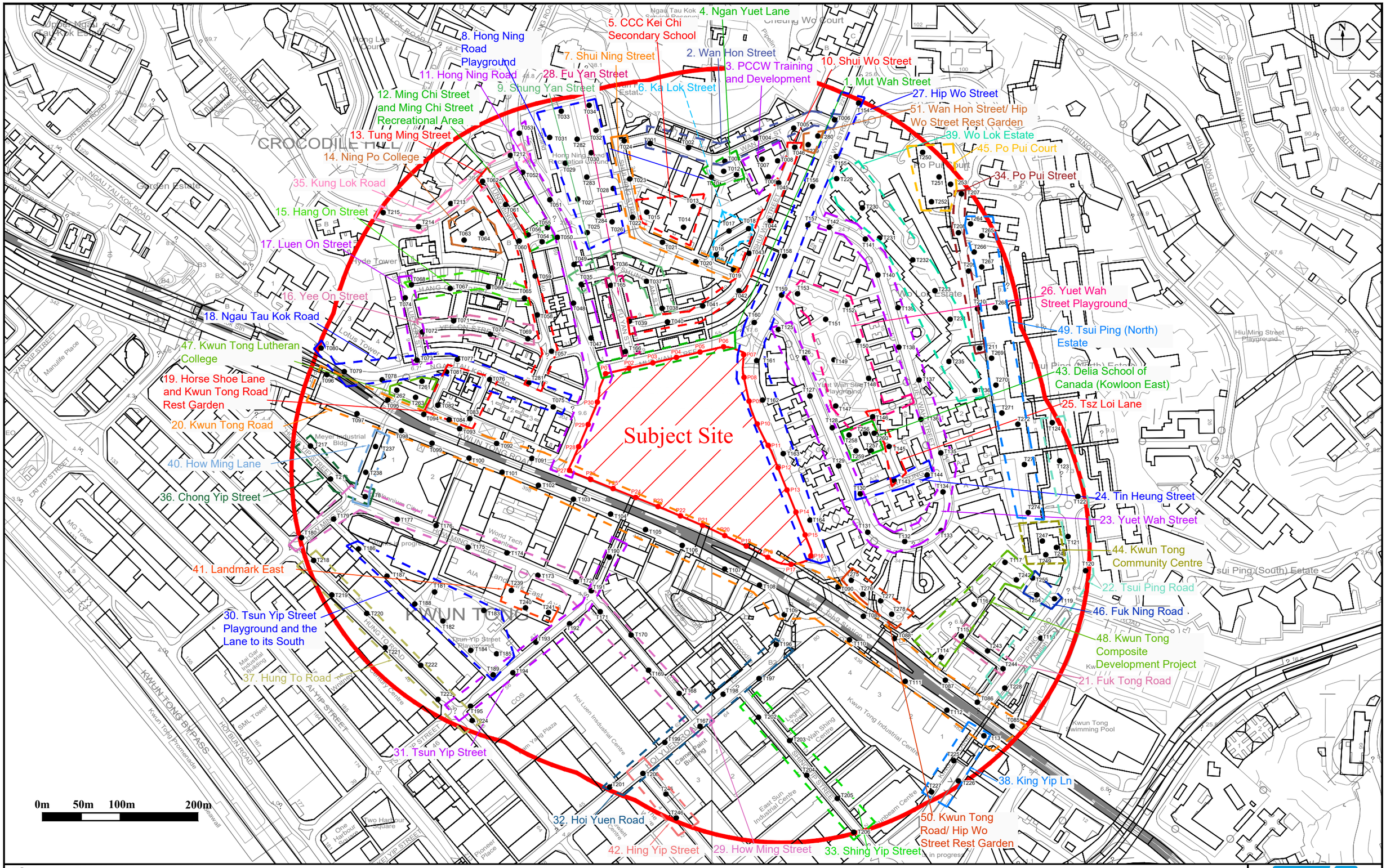

Figure: 8

Title: Test Points Selected for Quantitative Air Ventilation Assessment

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 - KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	TC
Rev.:	1.0
Date:	Jul 2023

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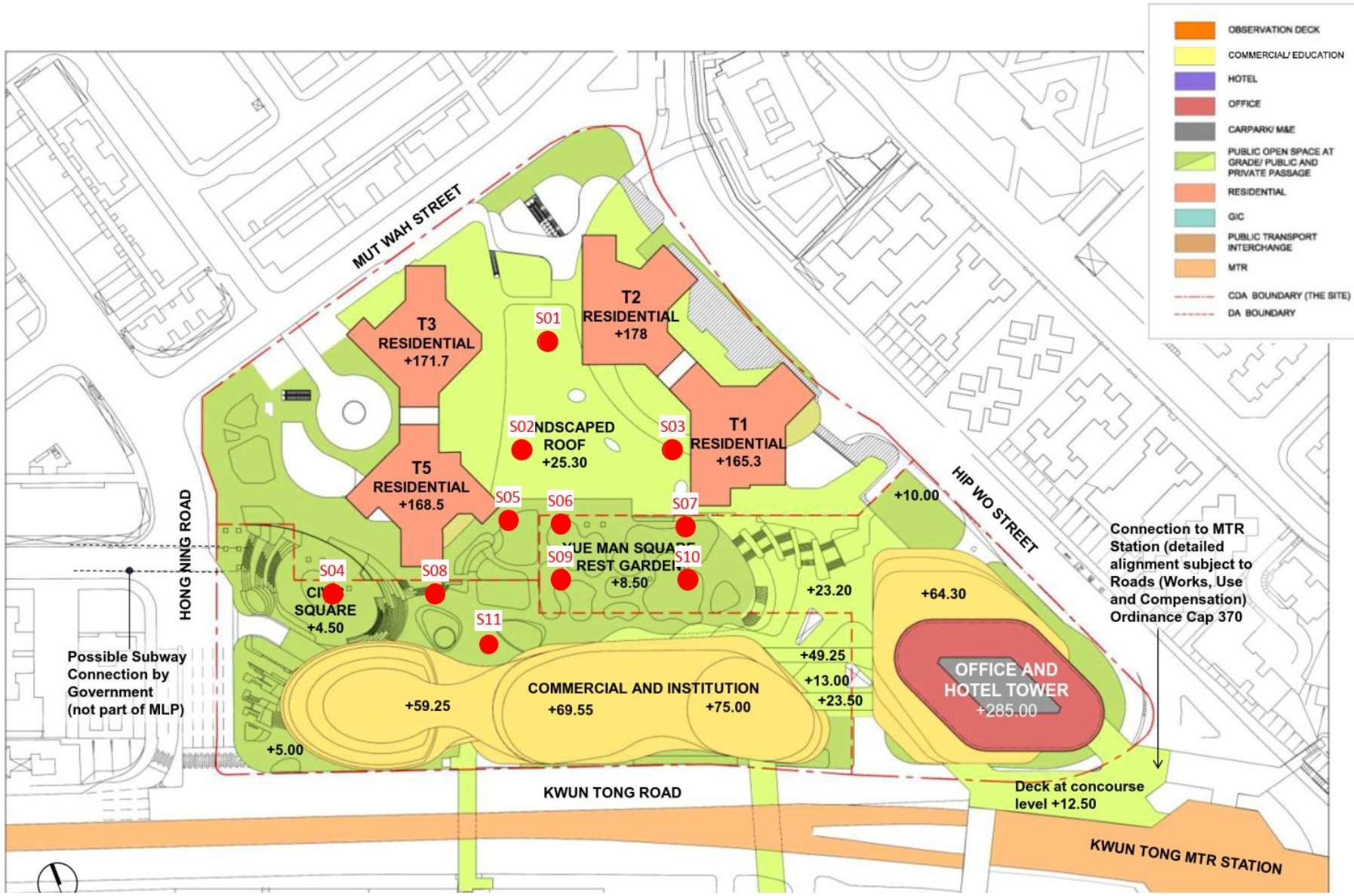

Figure: 9a	RAMBOLL ENVIRON
Title: Special Test Points Selected for Quantitative Air Ventilation Assessment (Baseline Scheme)	Drawn by: WT Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)	Rev.: 1.0 Date: Jul 2023

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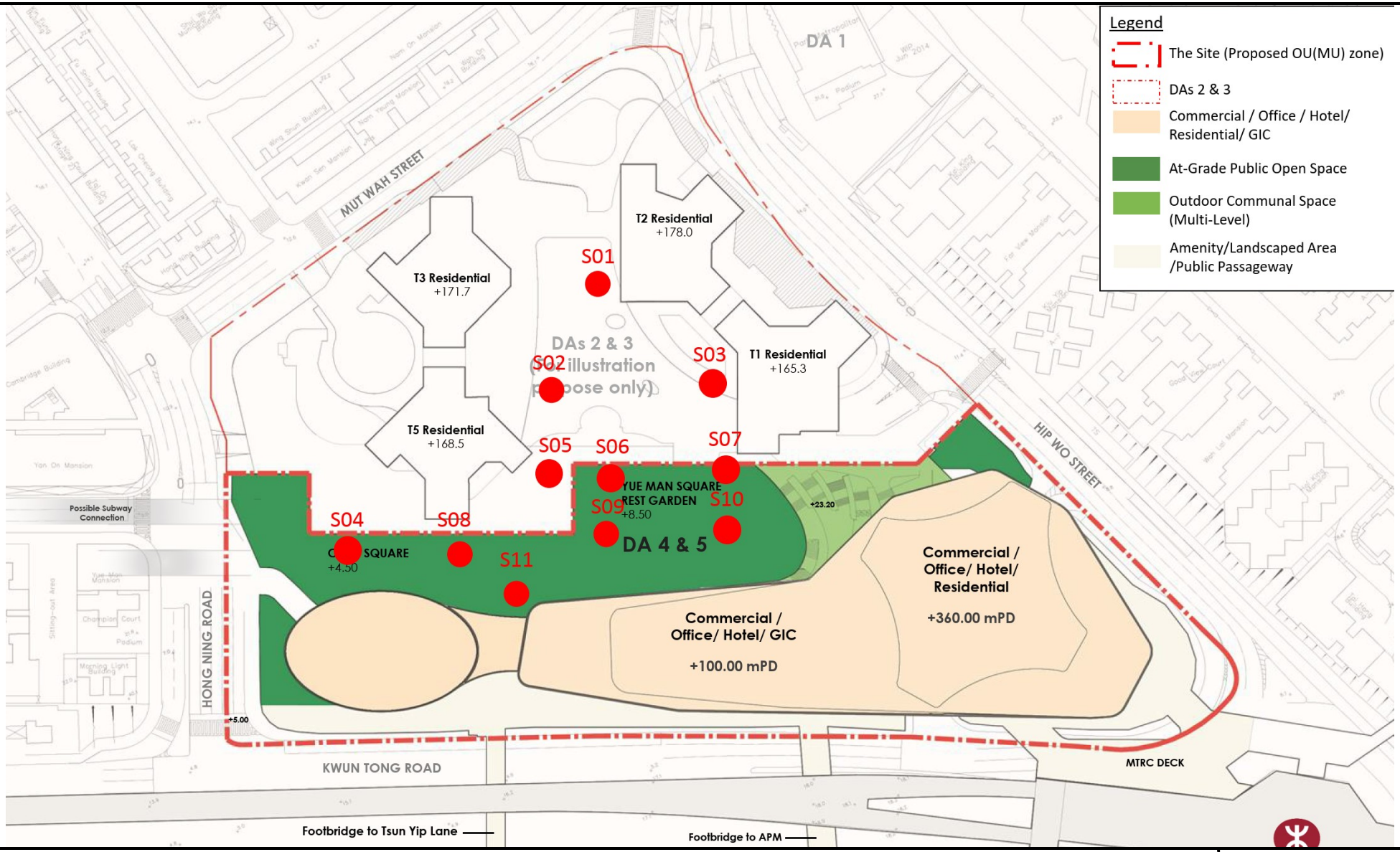

Figure: 9b

Title: Special Test Points Selected for Quantitative Air Ventilation Assessment (Proposed Scheme)

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 - KTTC)

RAMBOLL

Drawn by:	WT
Checked by:	EC
Rev.:	1.3
Date:	Oct 2023

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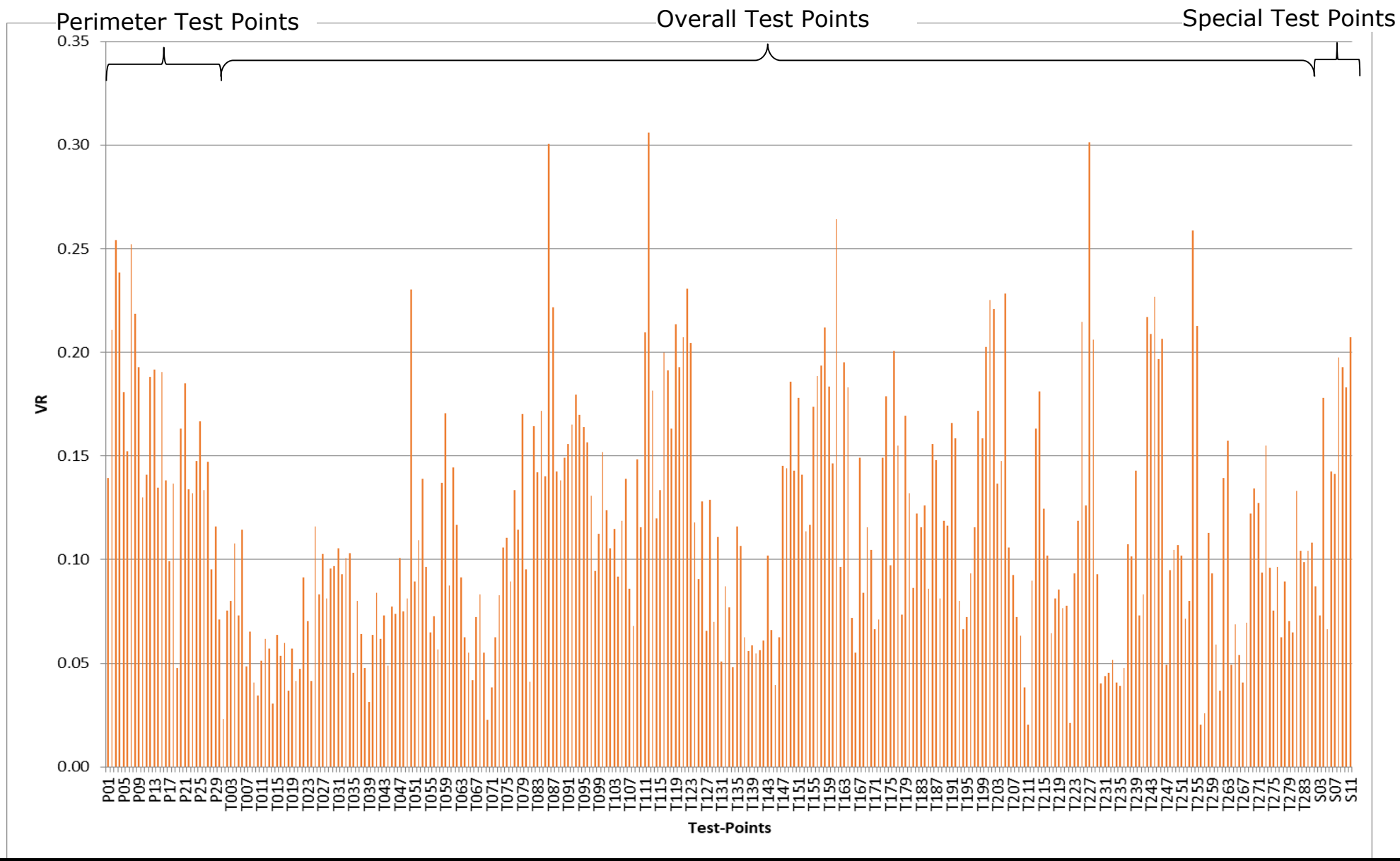

Figure: 10a

Title: Wind Velocity Ratios of Individual Test Points for Baseline Scheme (Annual)

RAMBOLL

Drawn by:	WT
Checked by:	EC
Rev.:	1.0
Date:	Jul 2023

Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)

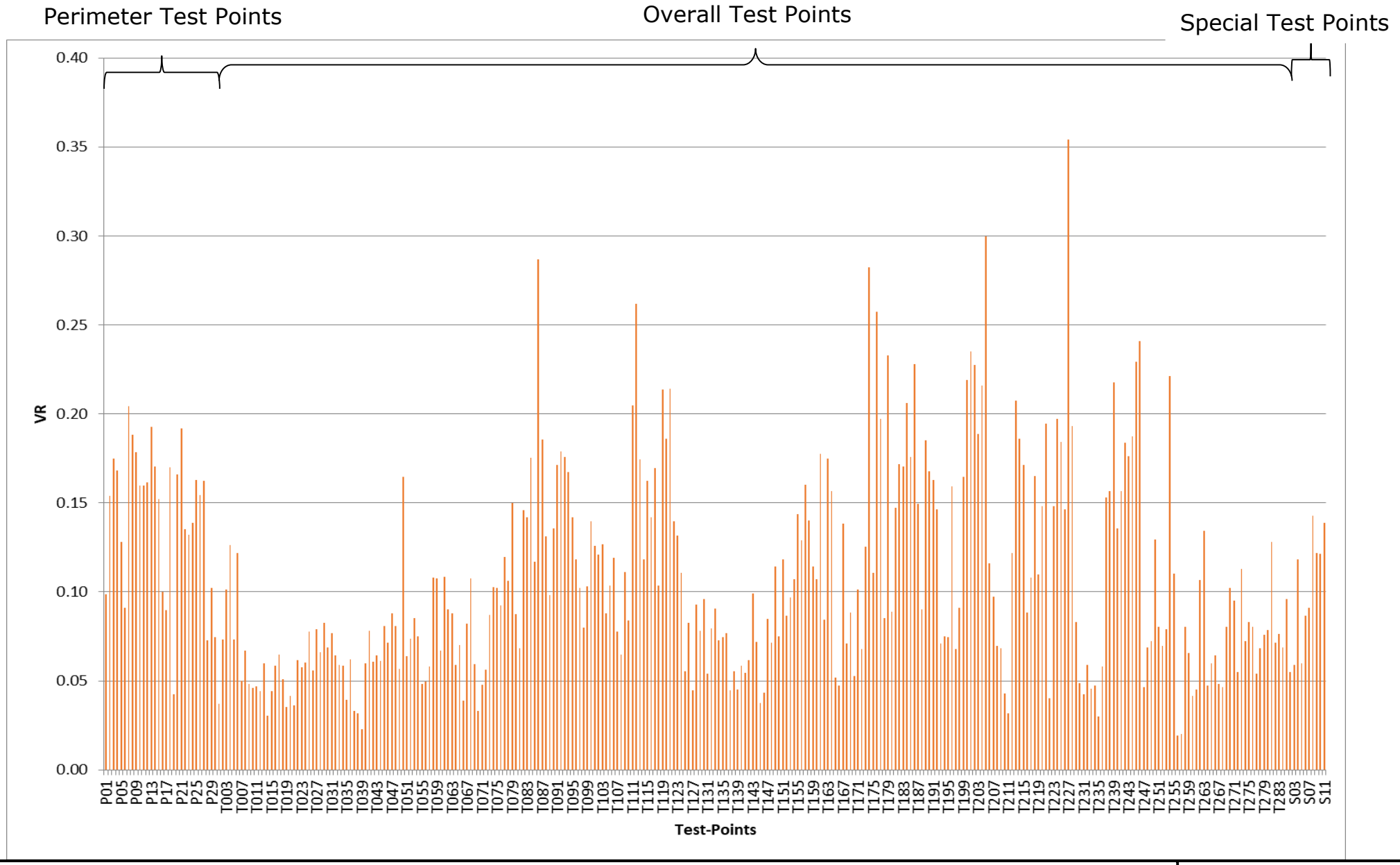

Figure: 10b	RAMBOLL
Title: Wind Velocity Ratios of Individual Test Points for Baseline Scheme (Summer)	Drawn by: WT Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)	Rev.: 1.0 Date: Jul 2023

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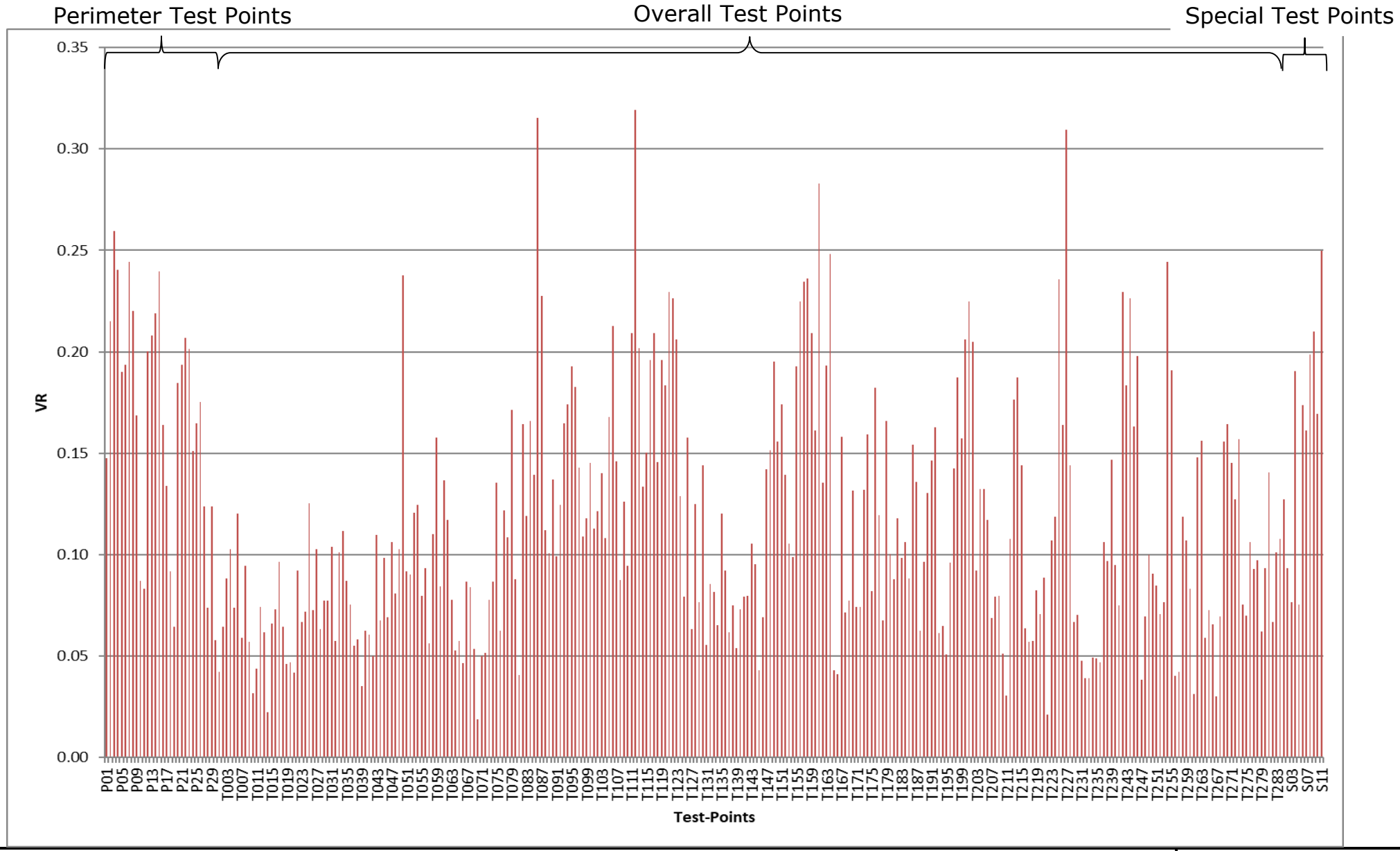


Figure: 11a	RAMBOLL
Title: Wind Velocity Ratios of Individual Test Points for Proposed Scheme (Annual)	Drawn by: WT Checked by: EC
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)	Rev.: 1.0 Date: Jul 2023

Q:\Projects\URAKTC45EI02\04 Deliverables\03 AVA Report\Figure\Figure 11a_PS-Annual.doc

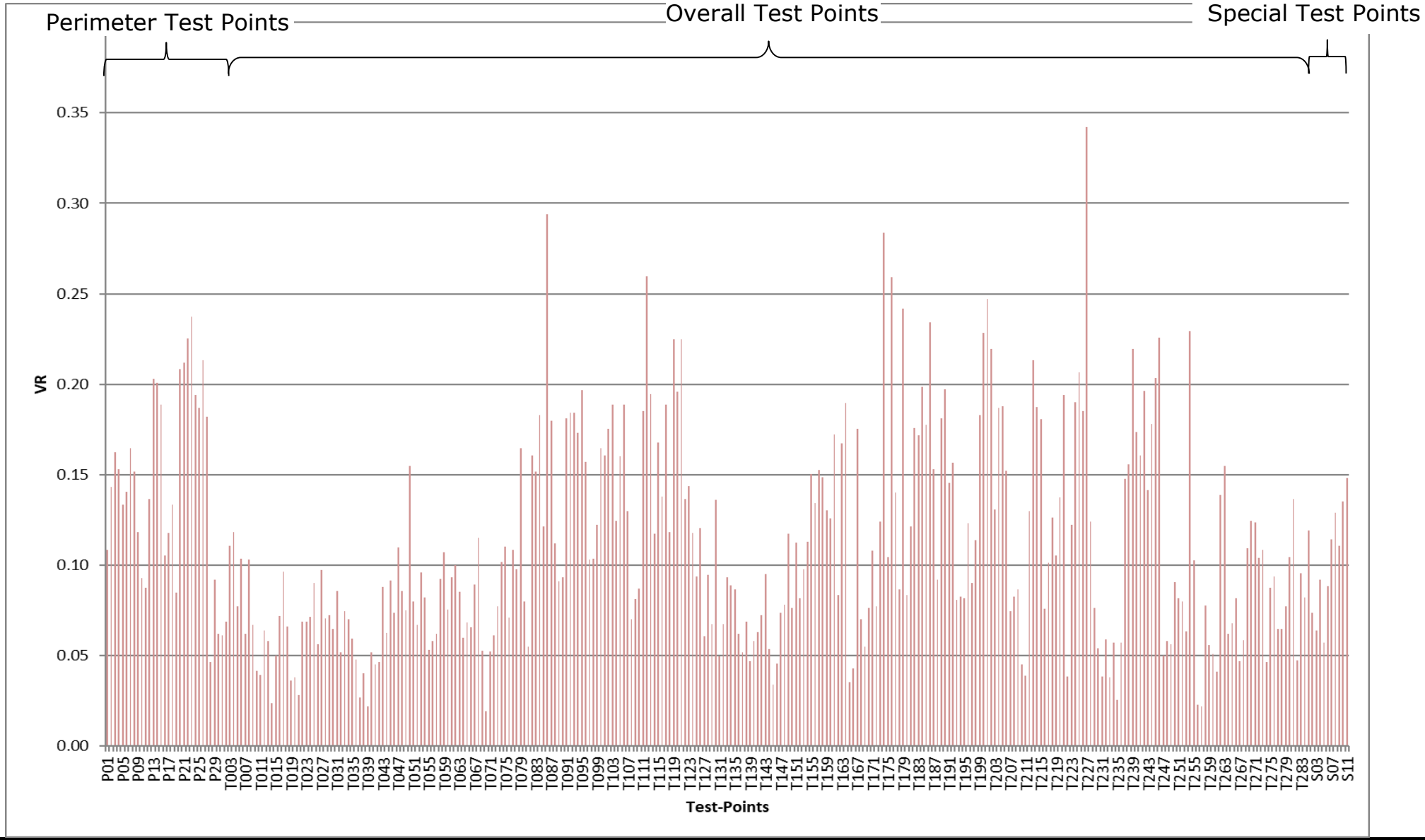


Figure: 11b

Title: Wind Velocity Ratios of Individual Test Points for Proposed Scheme (Summer)

RAMBOLL

Drawn by:	WT
Checked	EC
Rev.:	1.0
Date:	Jul 2023

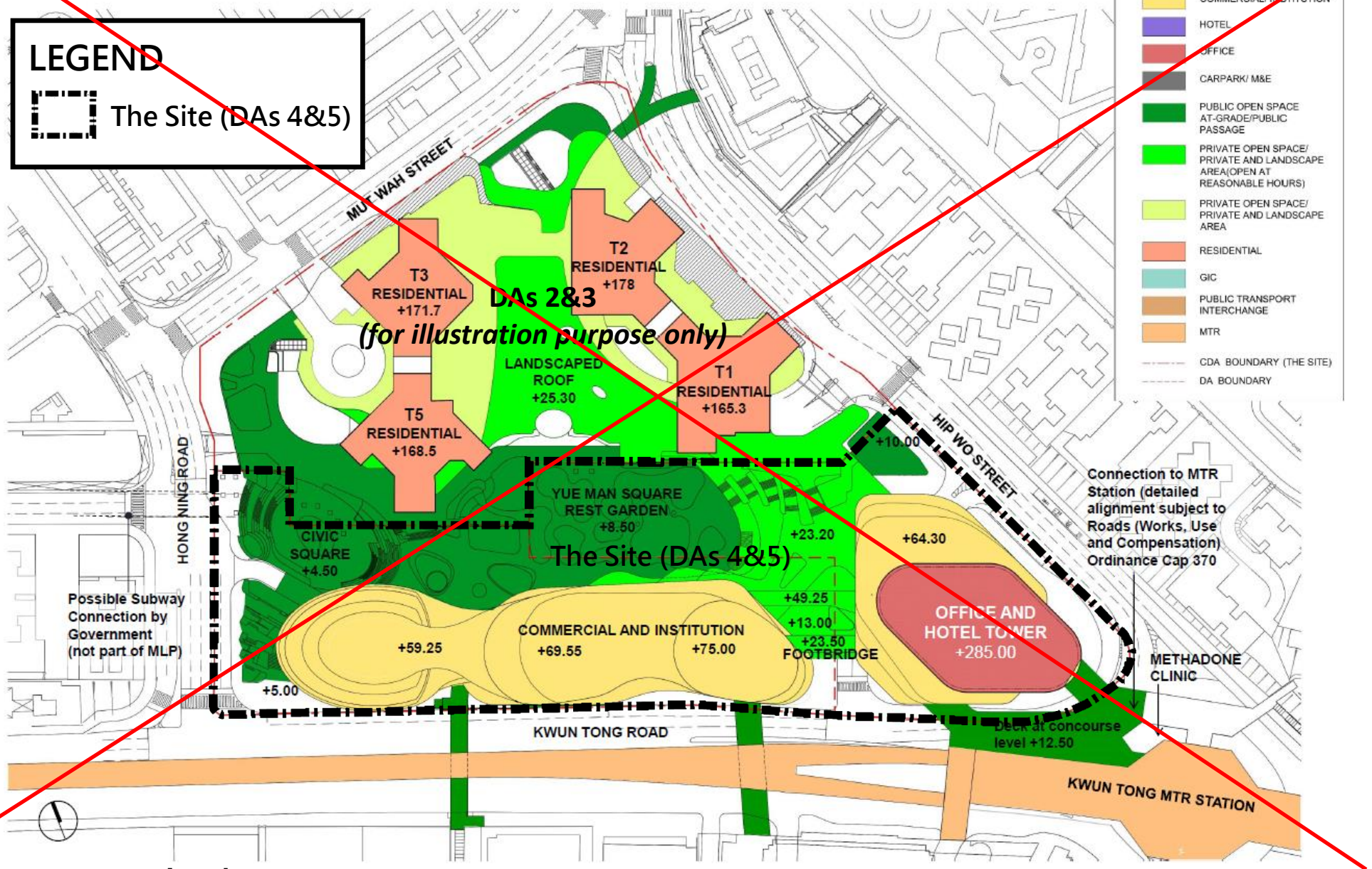
Project: Development Areas 4 and 5 of the Kwun Tong Town Centre Development (DAS 4 and 5 – KTTC)

Q:\Projects\URAKTC45EI02\04 Deliverables\03 AVA Report\Figure\Figure 11b_PS-Summer.doc

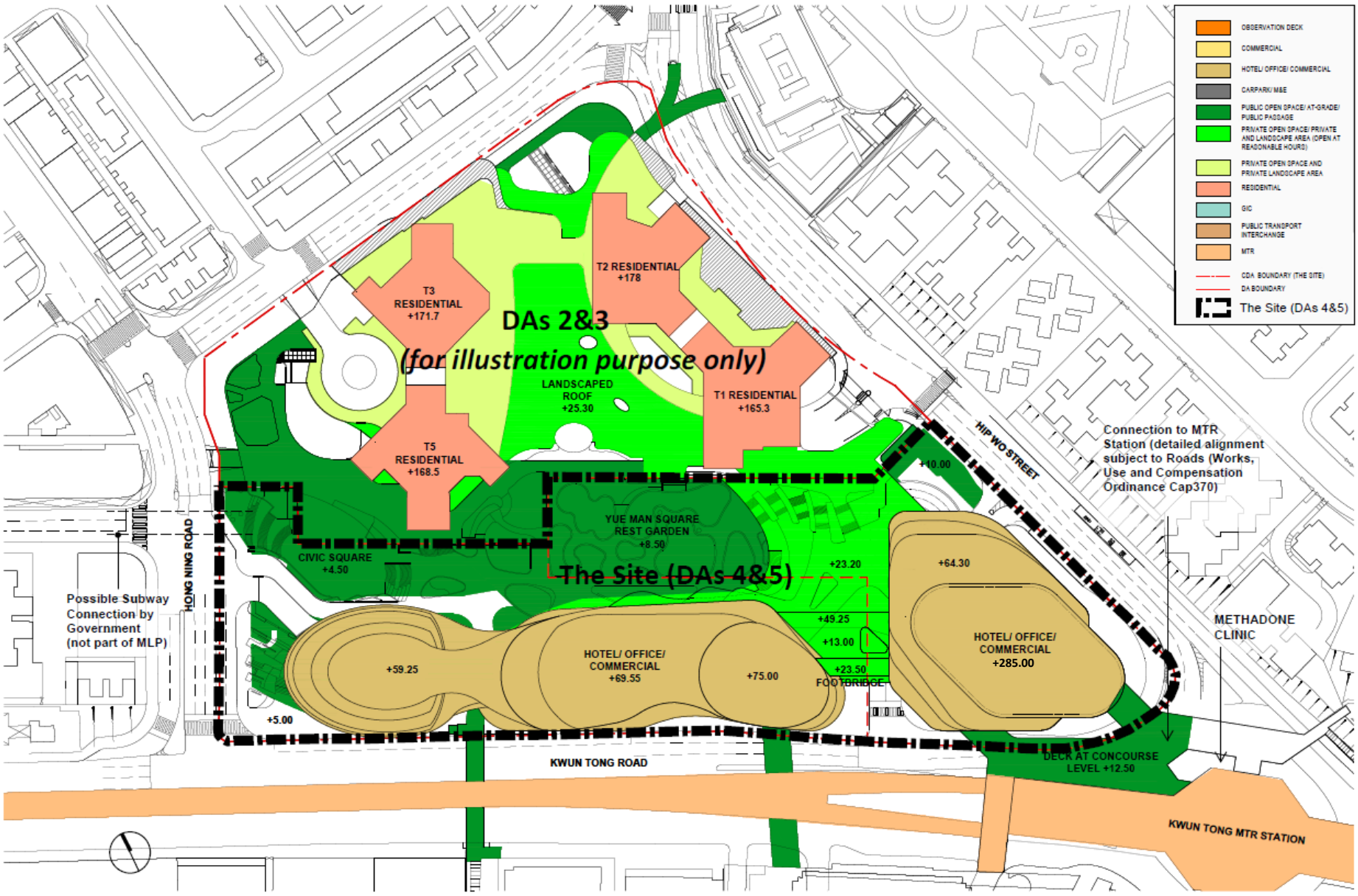
Appendix 1

Master Layout Plan for Baseline Scheme

Approved Scheme (/K14/745)



Proposed Scheme

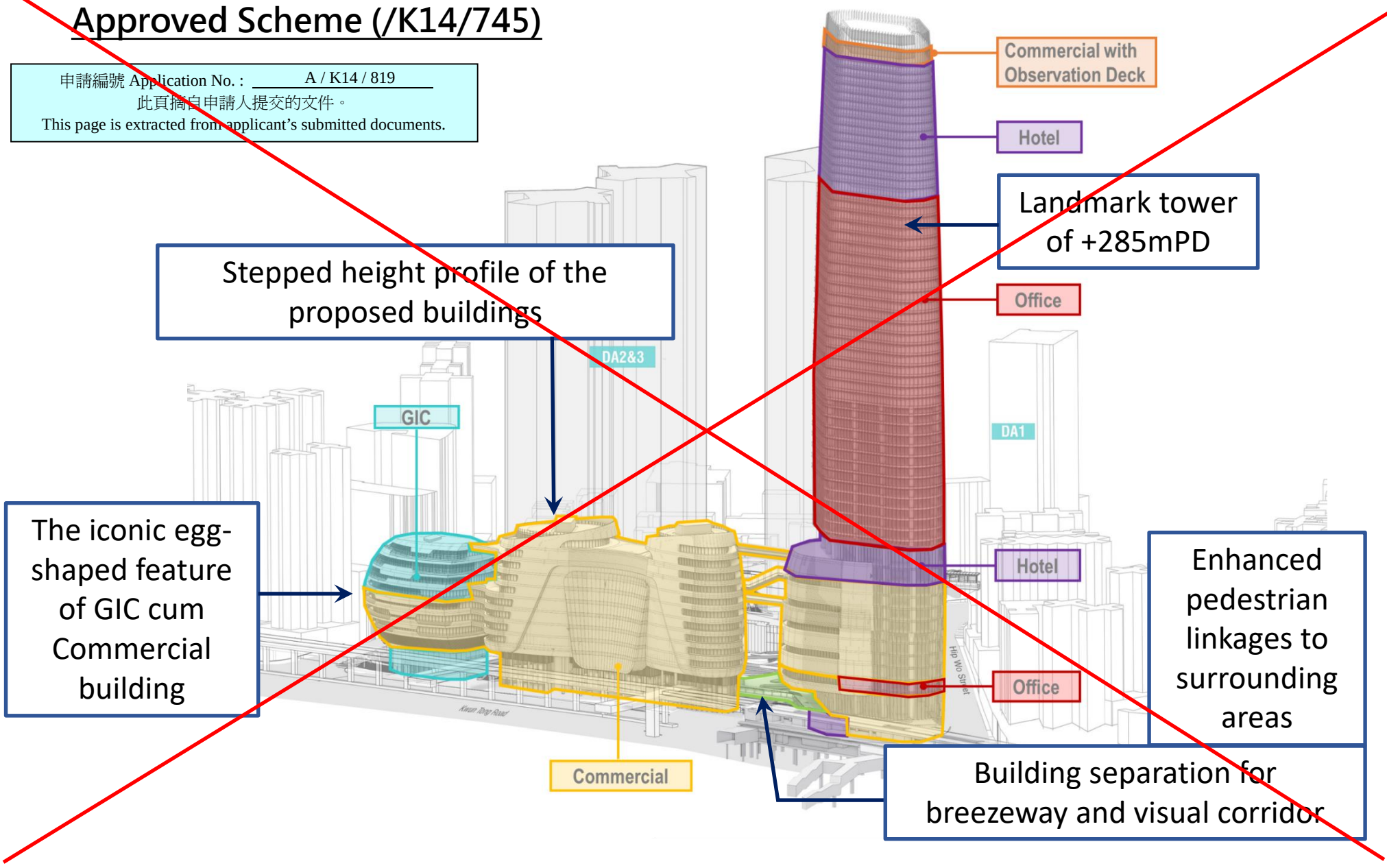


(Remarks: For indicative purpose only. Notional layout subject to detailed design upon S.16 approval.)

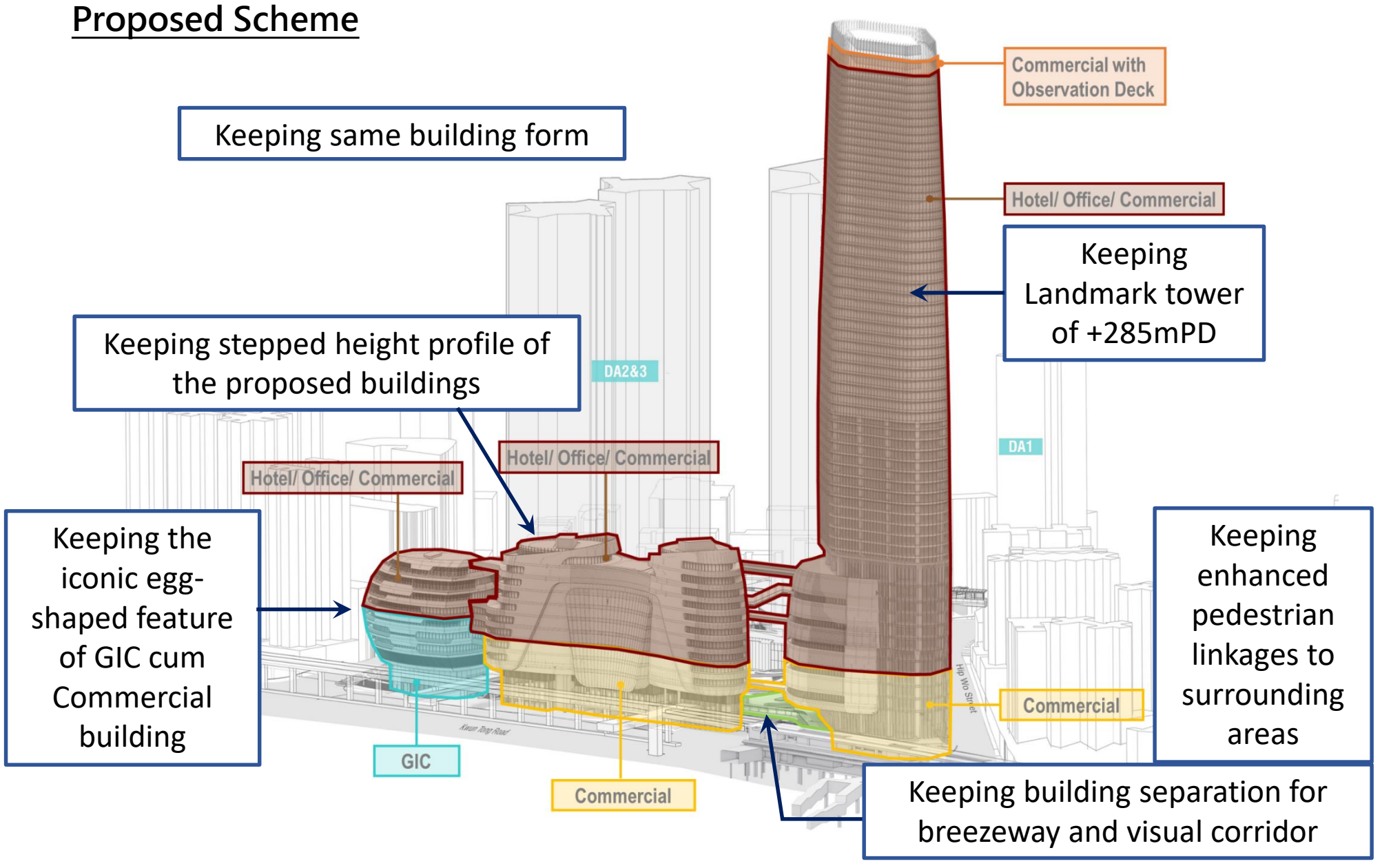
市區重建局 URBAN RENEWAL AUTHORITY	Kwun Tong Town Centre Redevelopment – Main Site Development Areas 4 & 5 **Visual Impact Assessment**	**Figure 2.1**	**Overall Master Layout Plan – Approved Scheme (A/K14/745) & Proposed Scheme**	Not to scale May 2022

Approved Scheme (/K14/745)

申請編號 Application No. : A / K14 / 819
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.



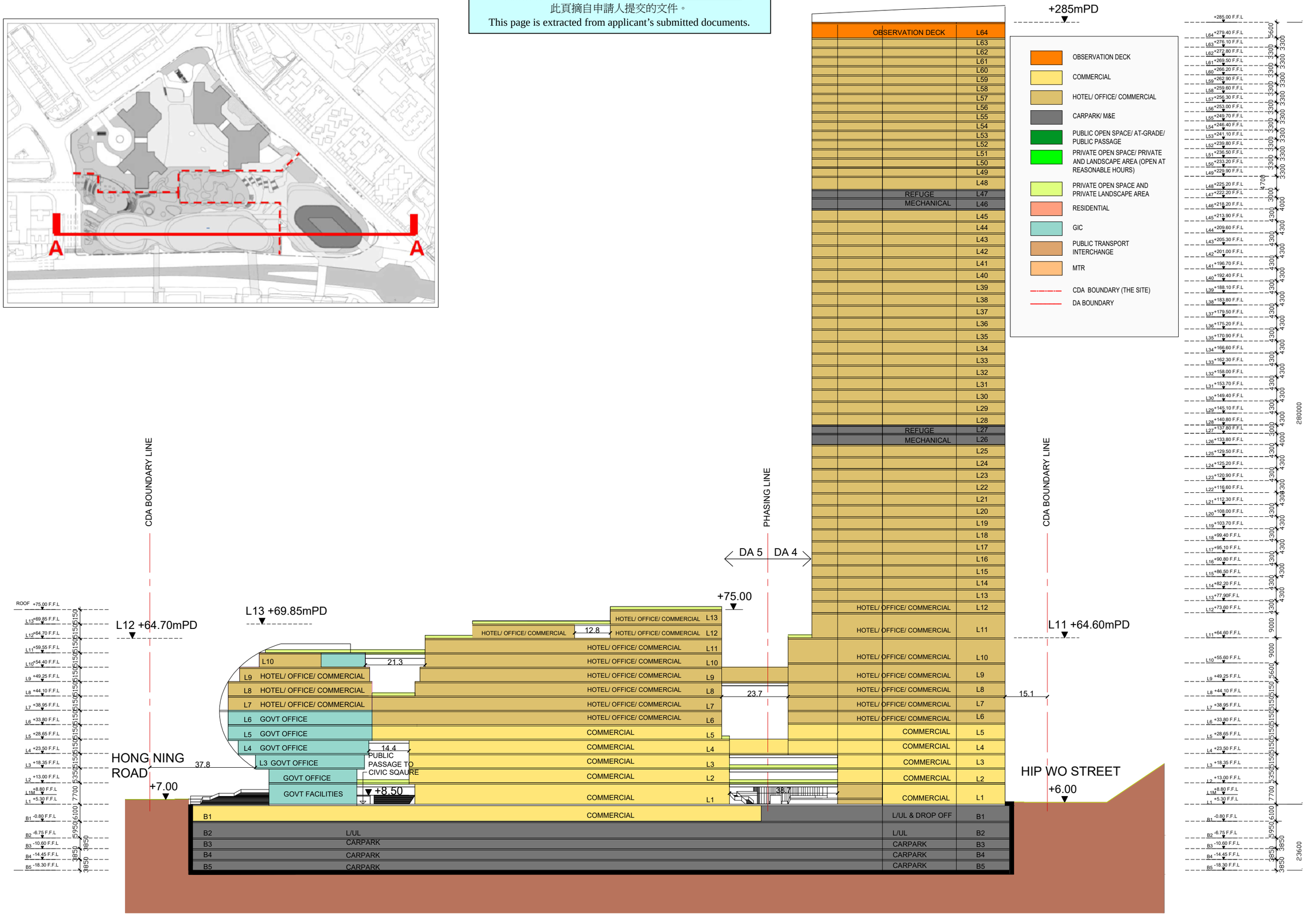
Proposed Scheme



Note: Commercial Uses include "Eating Place", "Educational Institution", "Place of Entertainment" and "Shop and Services".

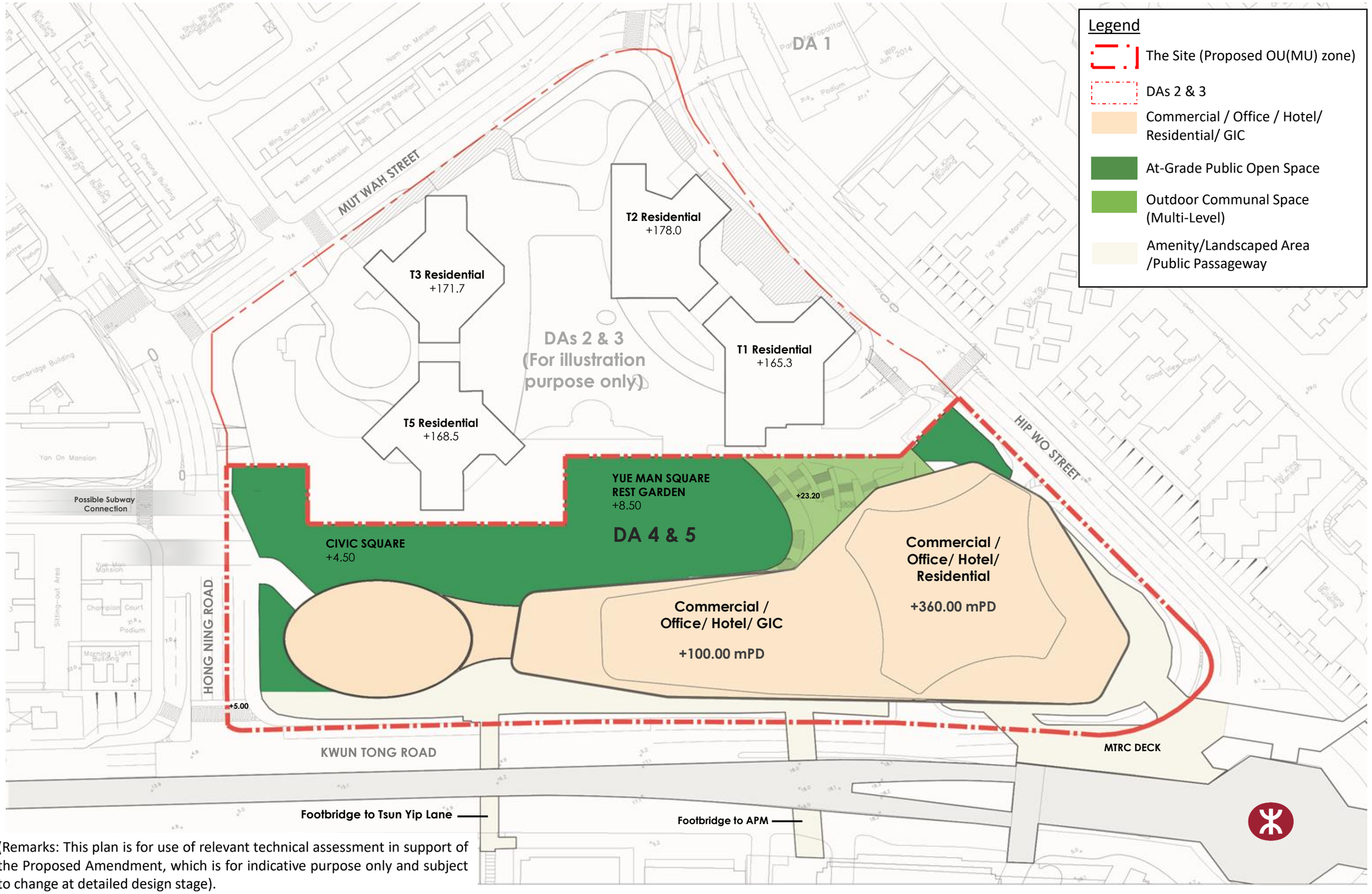
(Remarks: For indicative purpose only. Notional layout subject to detailed design upon S.16 approval.)

市區重建局 URBAN RENEWAL AUTHORITY	Kwun Tong Town Centre Redevelopment – Main Site Development Areas 4 & 5 **Visual Impact Assessment**	**Figure 3.1**	**Notional Section Plan – Approved Scheme (A/K14/745) & Proposed Scheme**	Not to scale May 2022



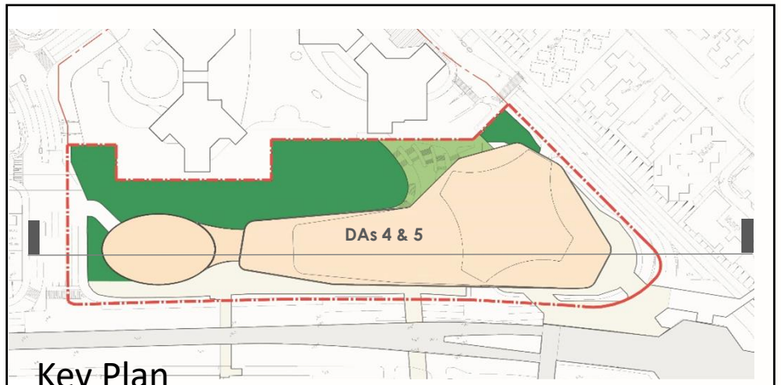
Appendix 2

Master Layout Plan for Proposed Scheme

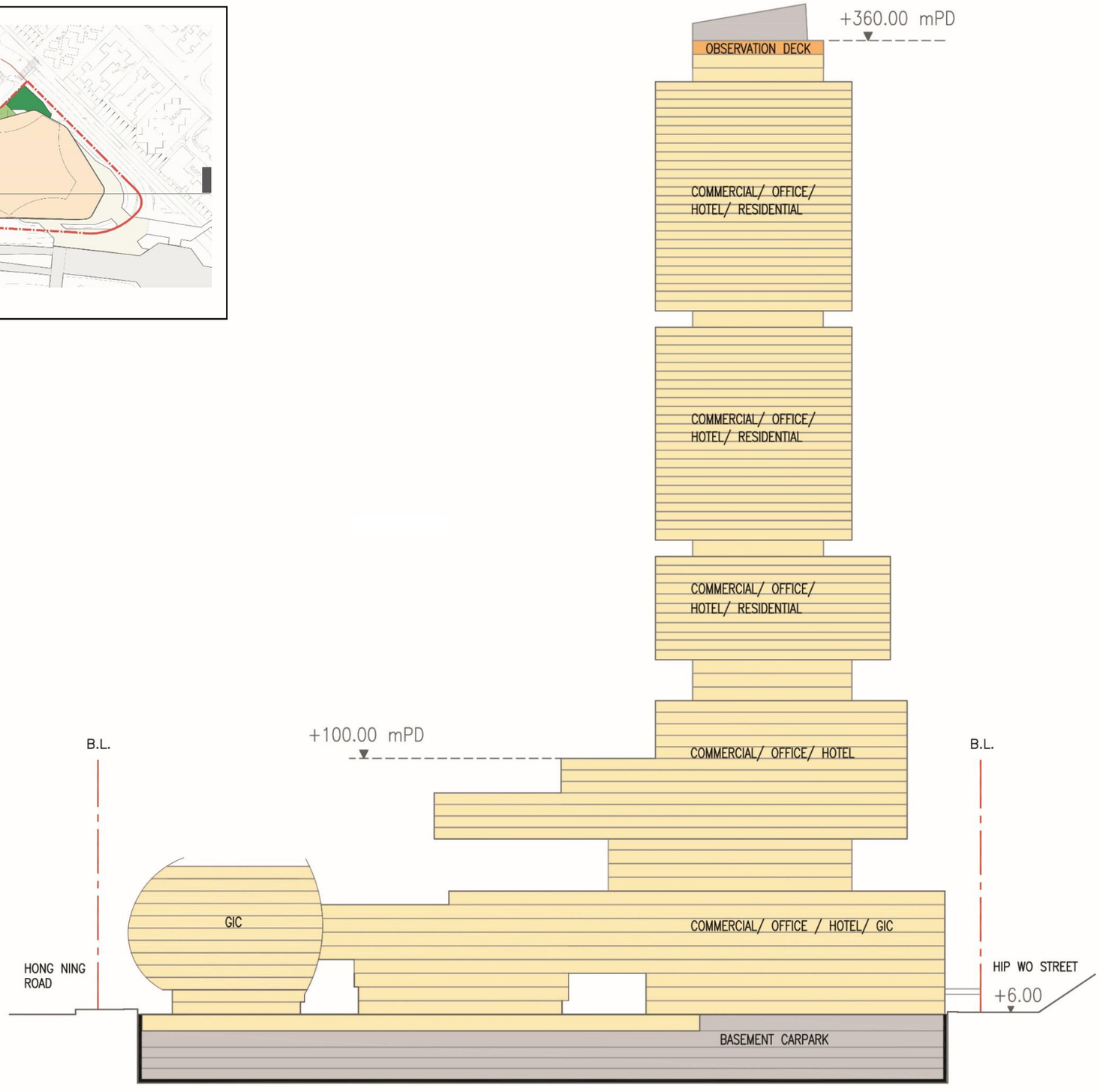


(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

URBAN RENEWAL AUTHORITY 市區重建局	K7 Kwun Tong Town Centre Redevelopment – Development Areas 4 & 5	Figure 1.1	The Proposed Amendment - Indicative Block Plan	Not to scale October 2023



Key Plan

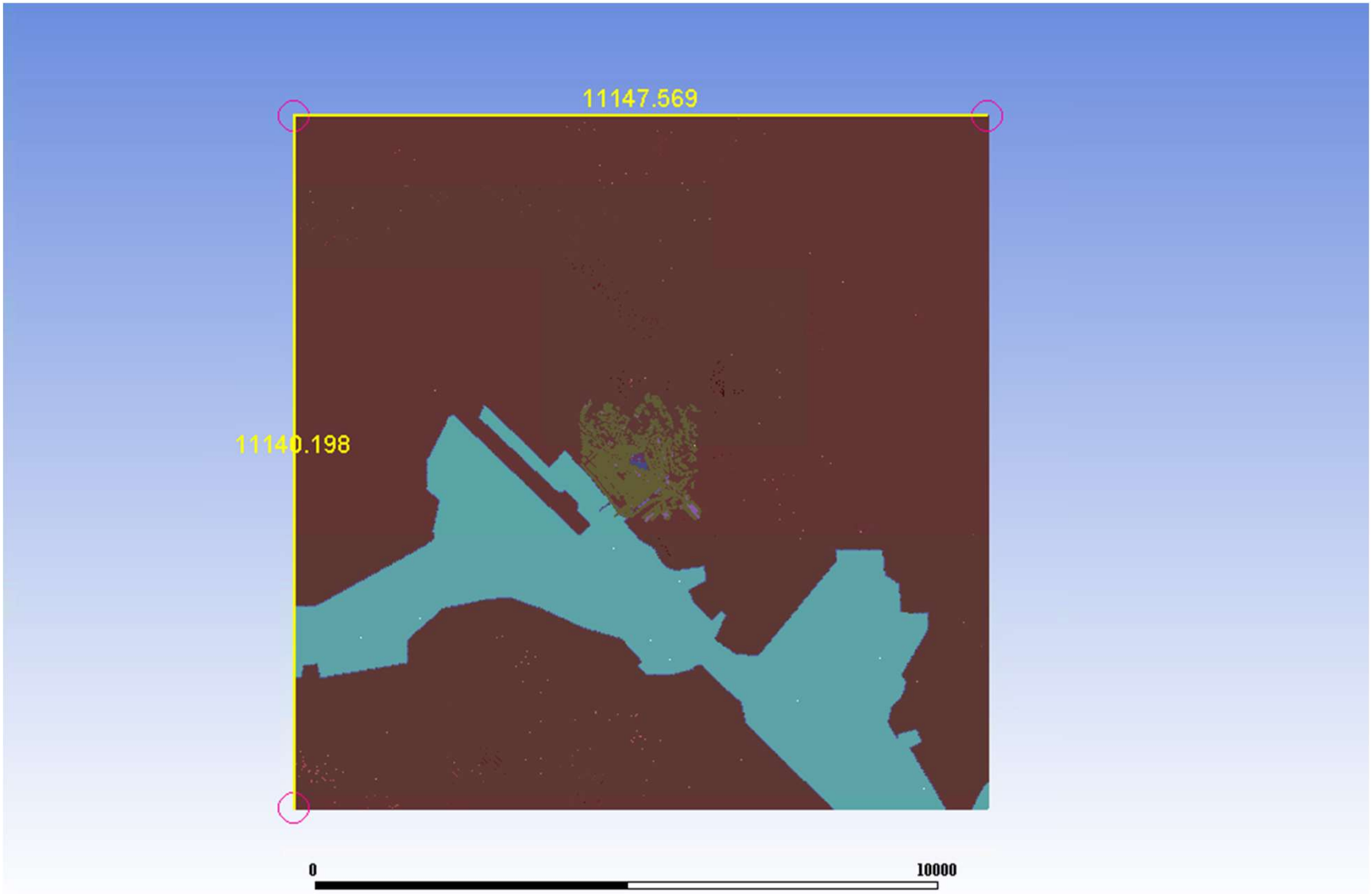


(Remarks: This plan is for use of relevant technical assessment in support of the Proposed Amendment, which is for indicative purpose only and subject to change at detailed design stage).

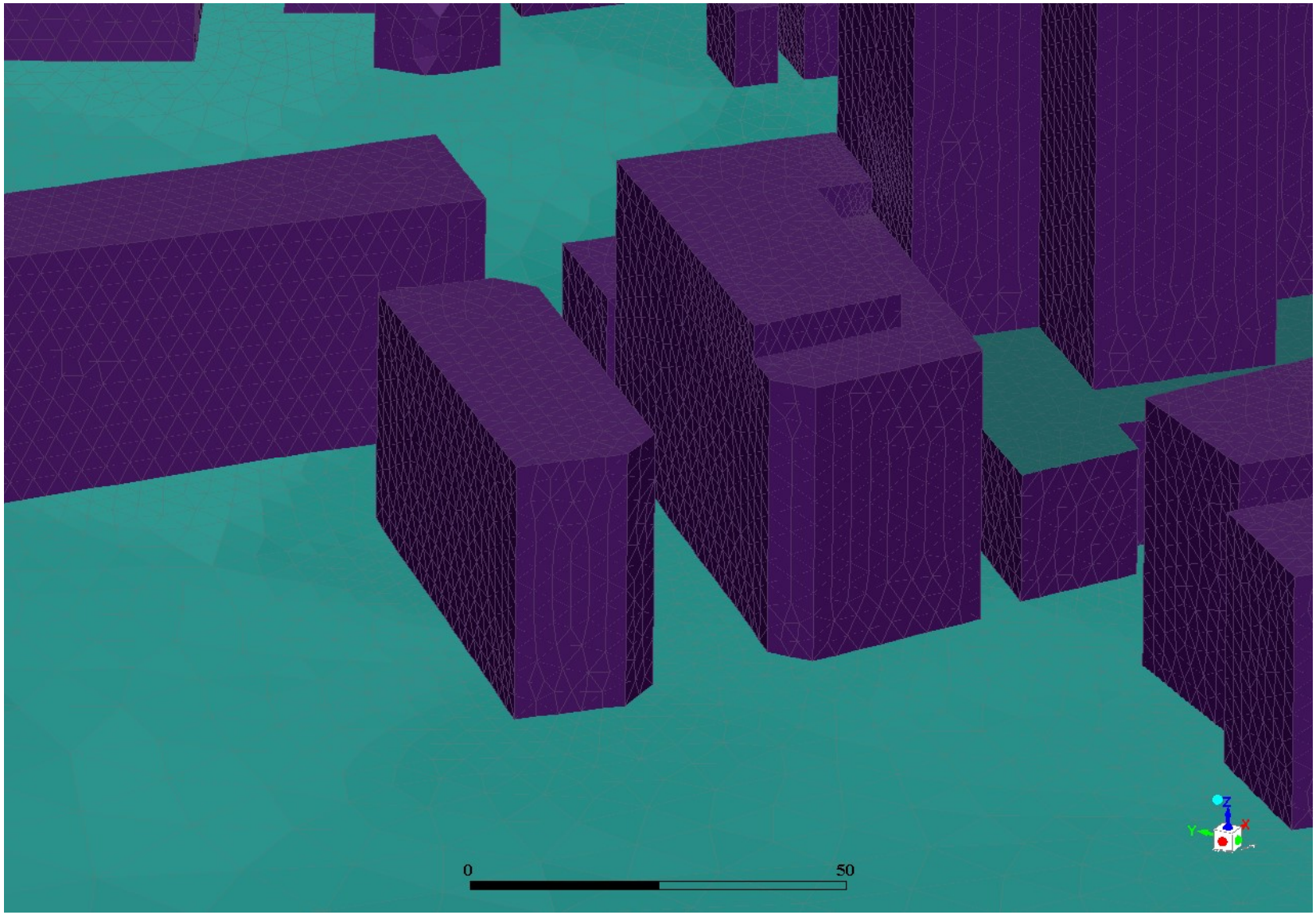
市區重建局 URBAN RENEWAL AUTHORITY	K7 Kwun Tong Town Centre Redevelopment – Development Areas 4 & 5	**Figure 1.2**	**The Proposed Amendment - Indicative Section Plan**	Not to scale October 2023

Appendix 3

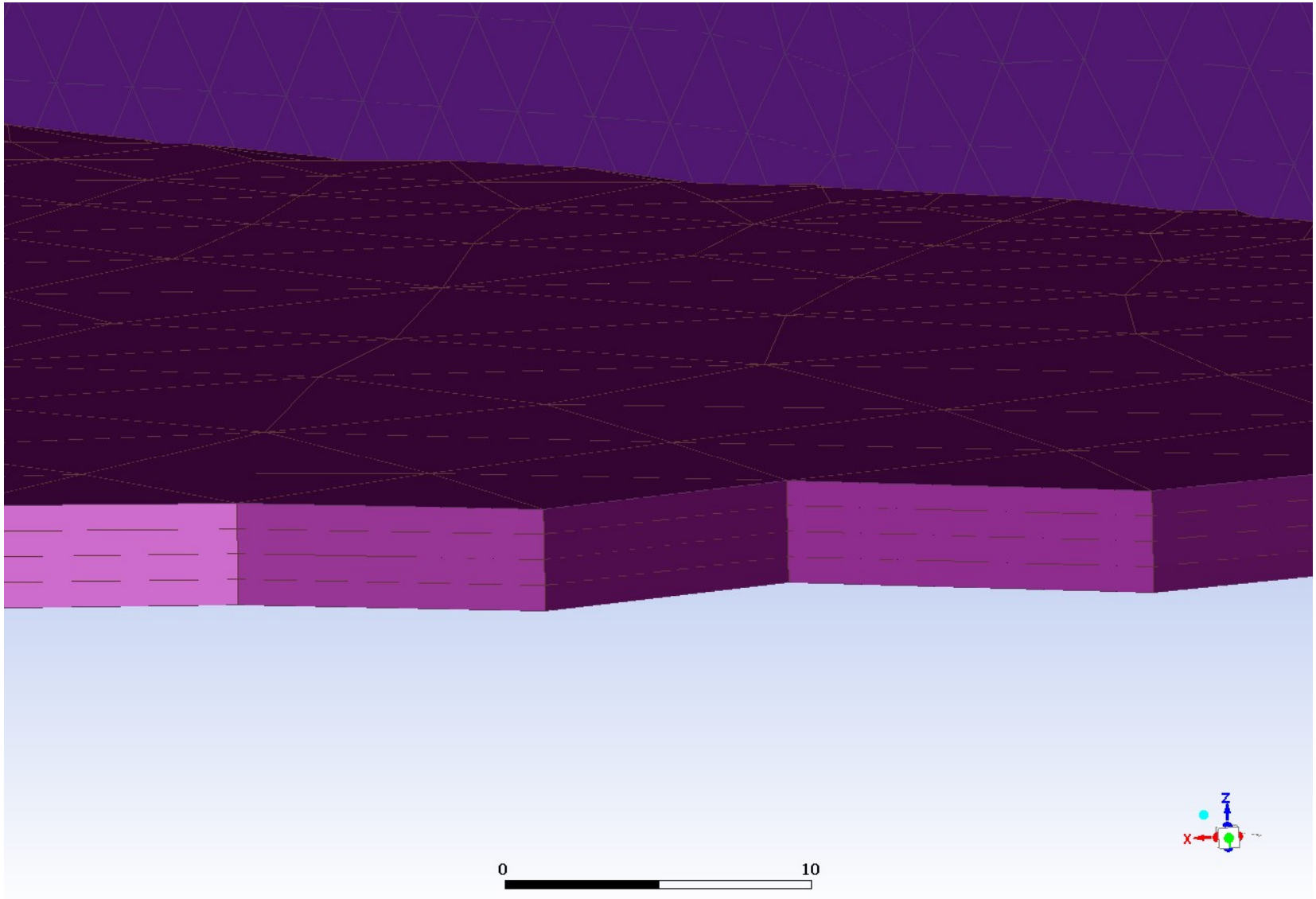
Captured Pictures of the CFD Model



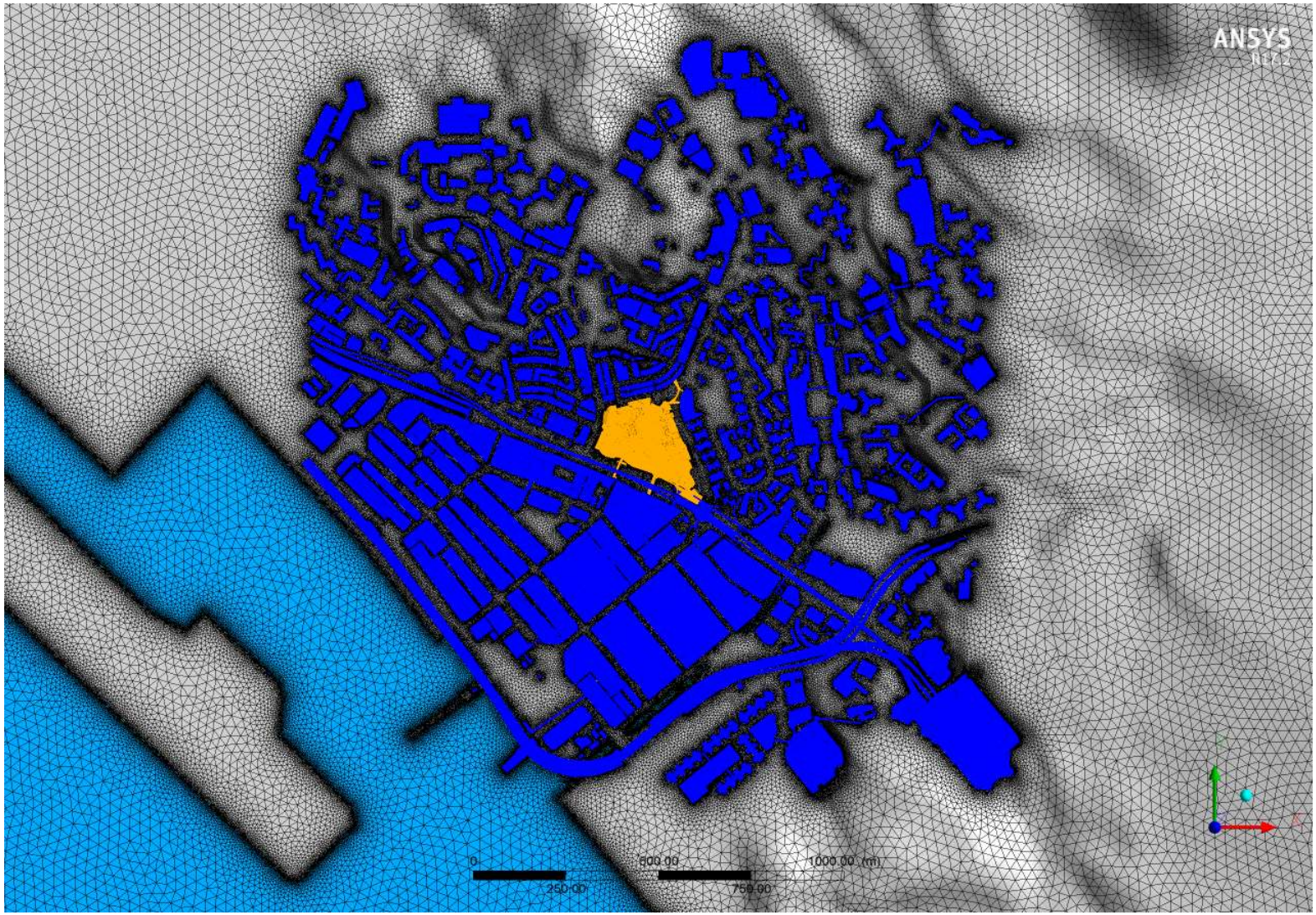
Topography of Whole Domain



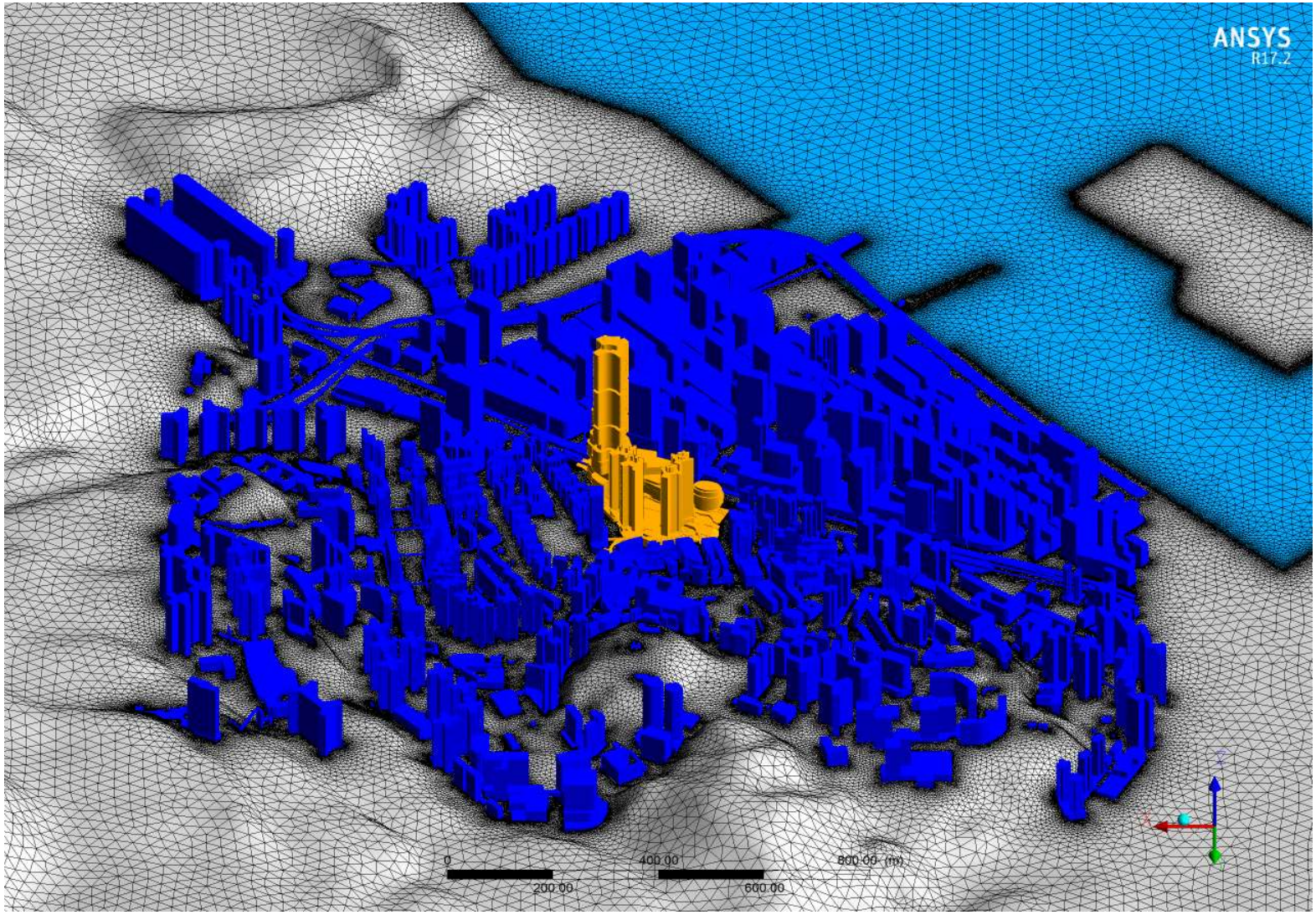
Surface Mesh



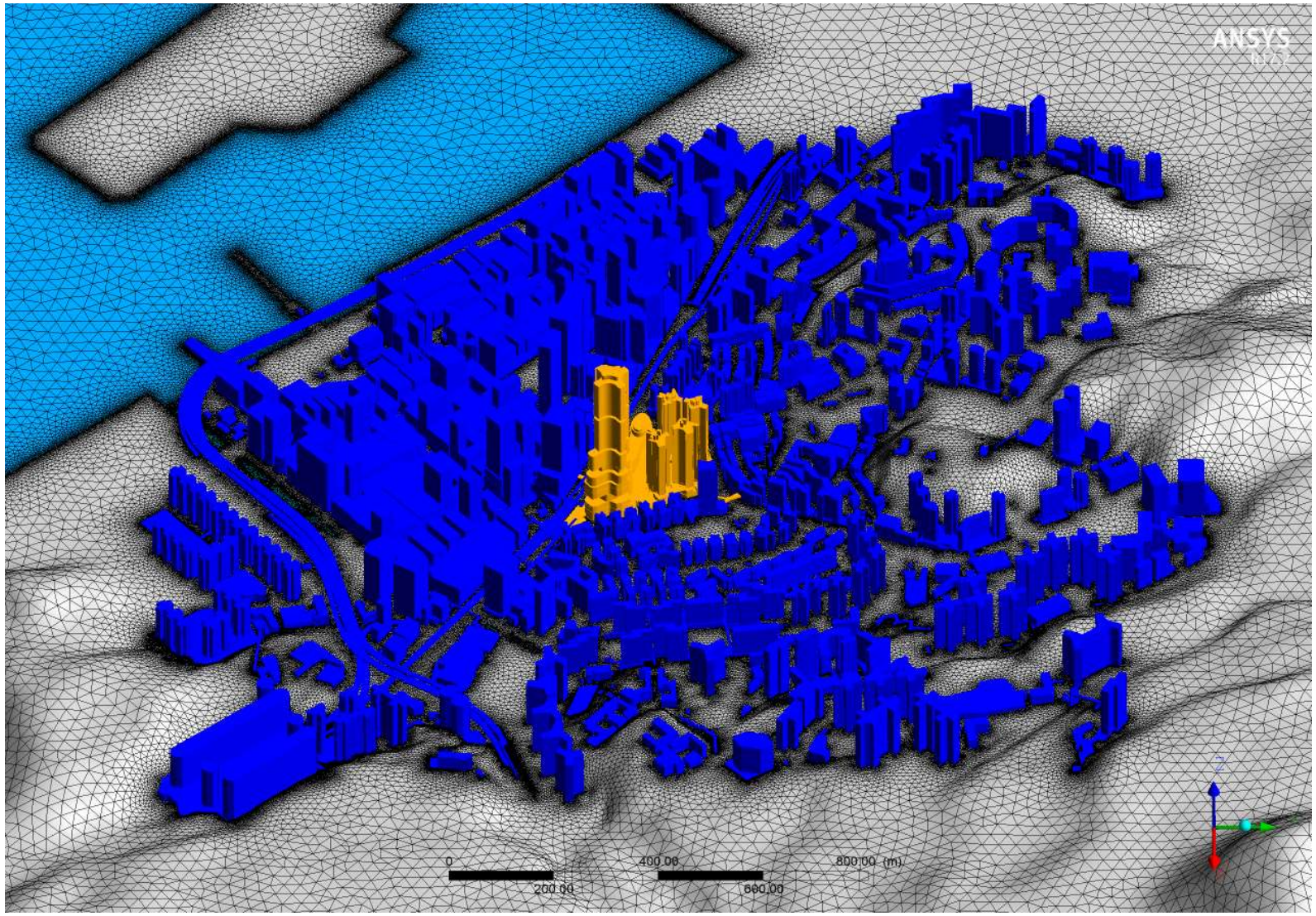
4 layers of prismatic meshes at 0.5m thick



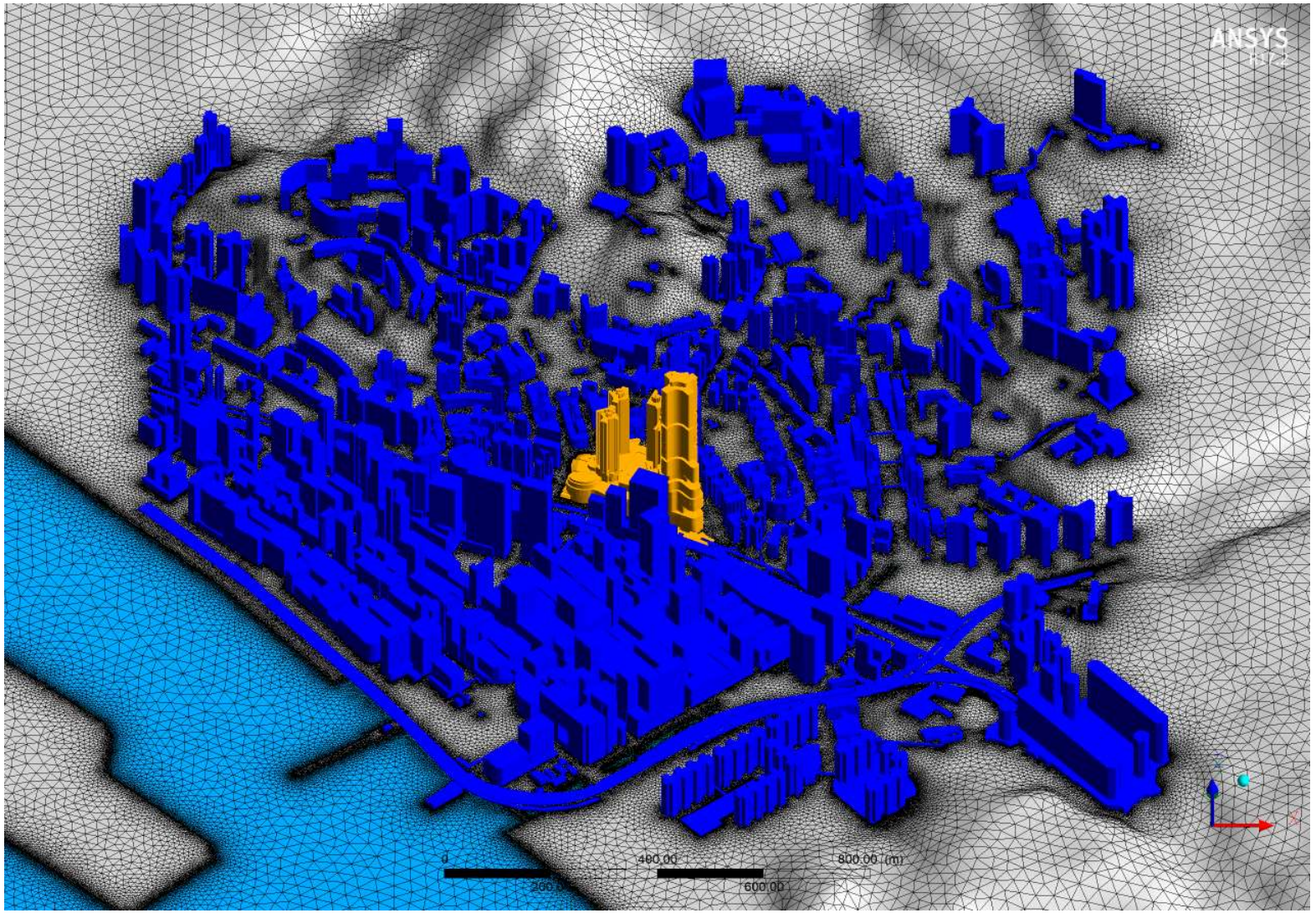
Surrounding Area – Top View



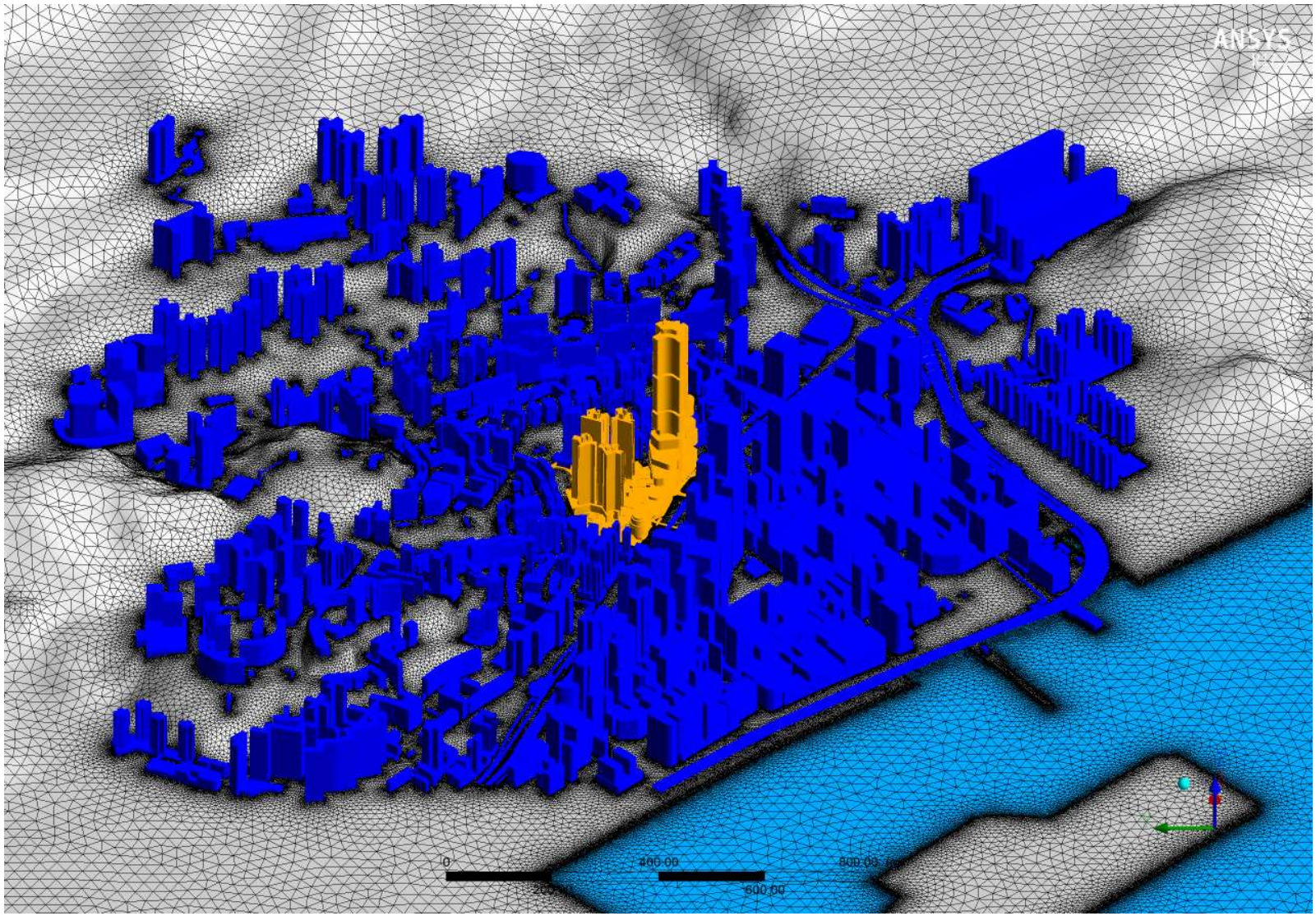
Surrounding Area – N



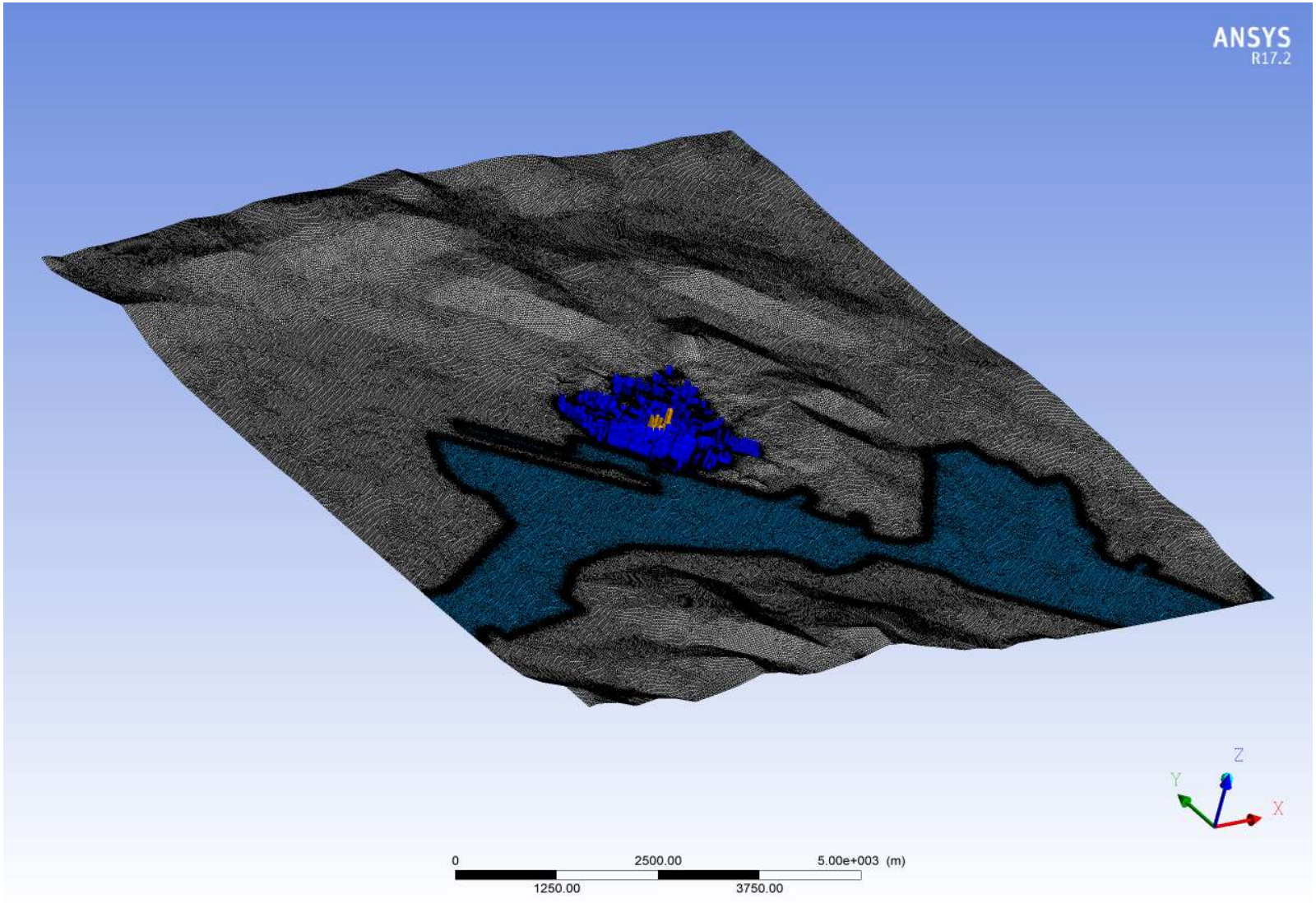
Surrounding Area – E



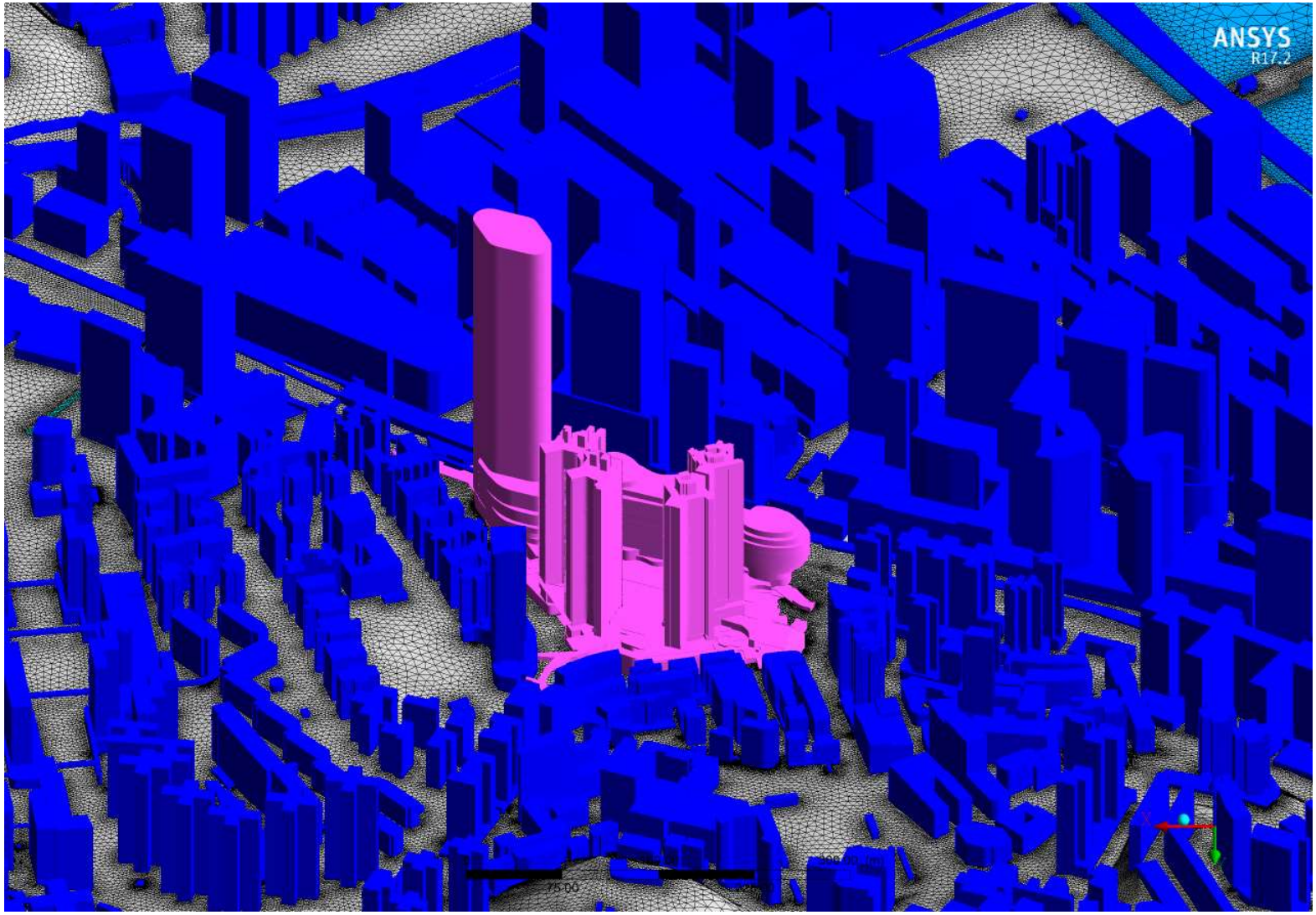
Surrounding Area – S



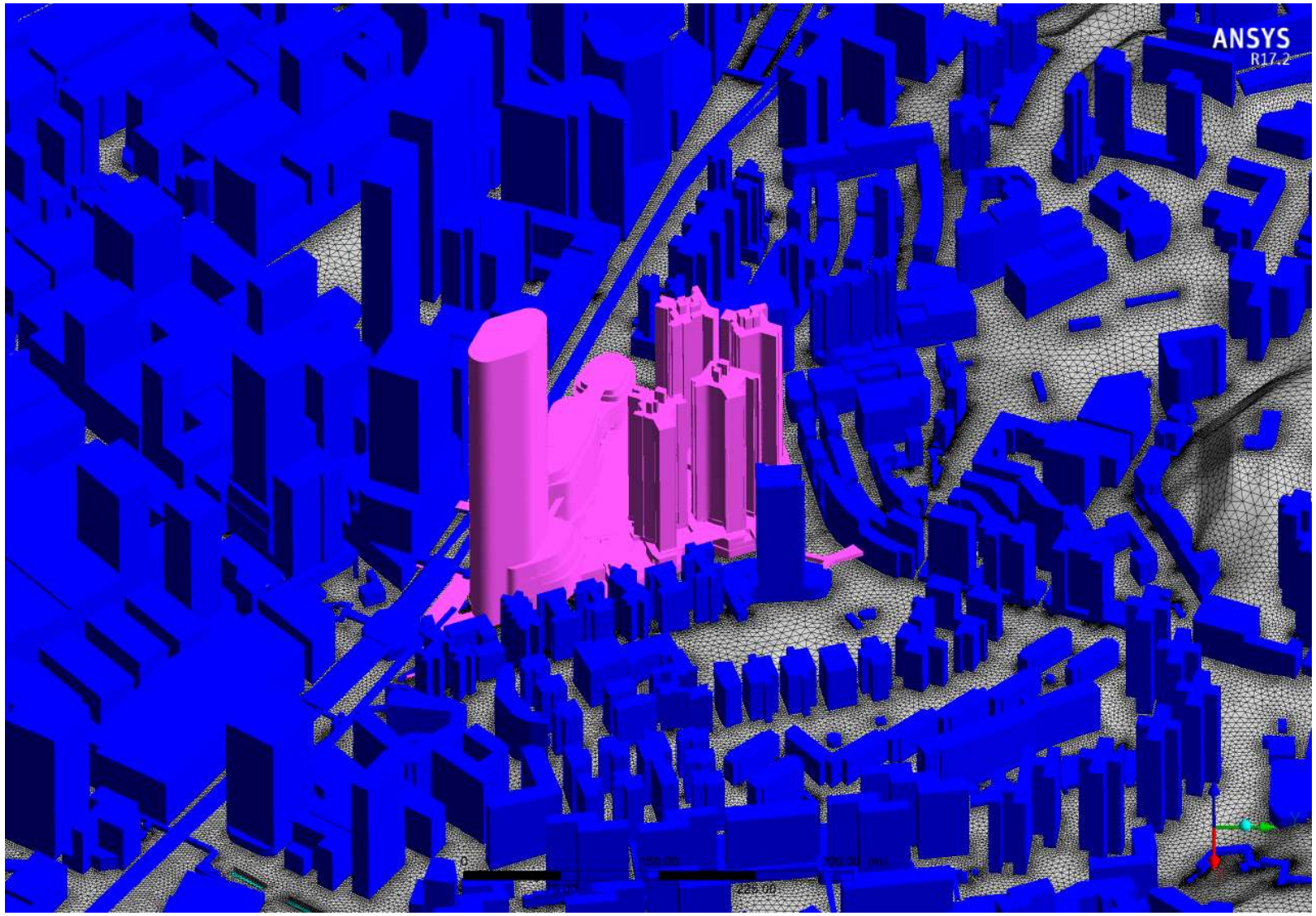
Surrounding Area – W



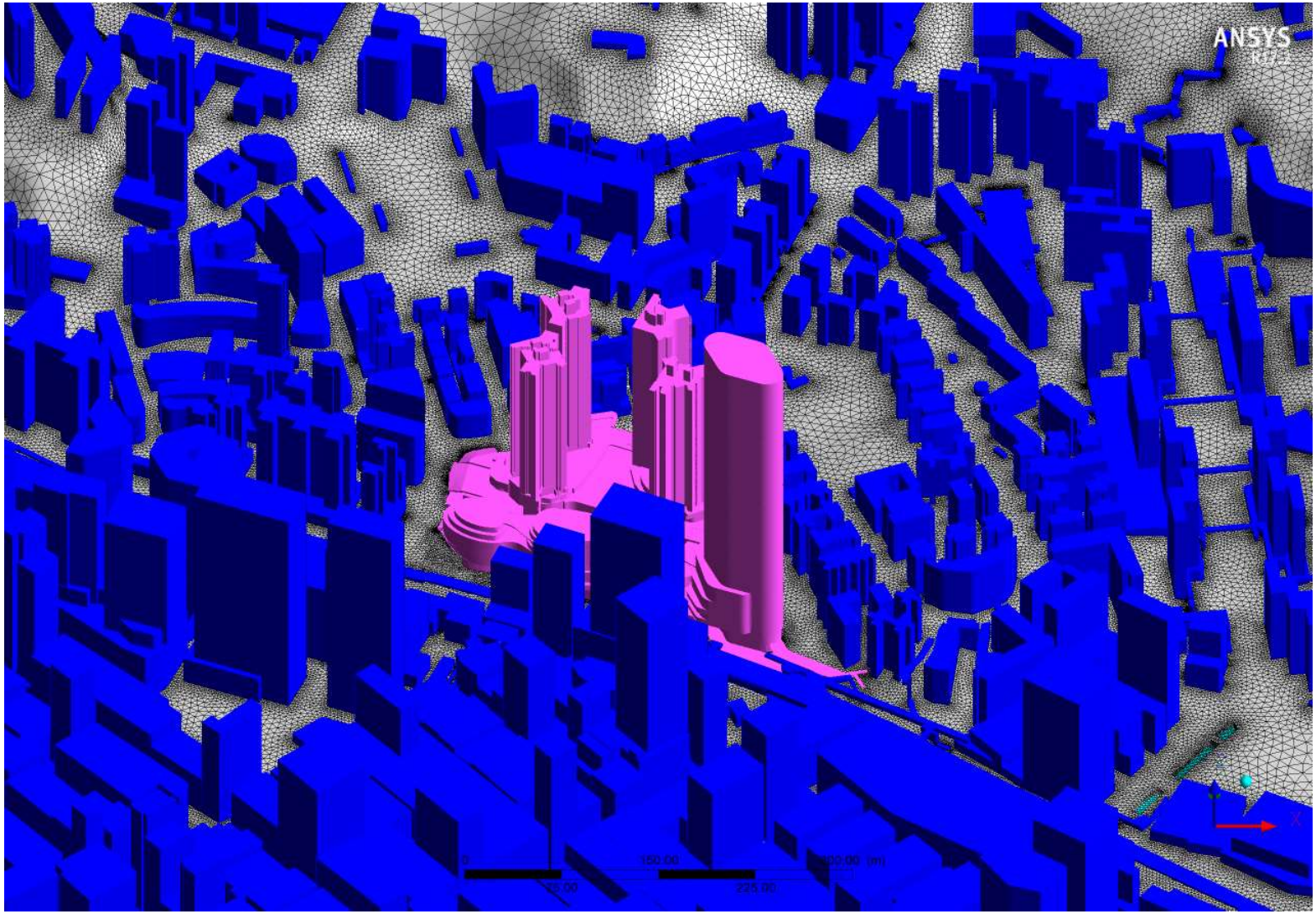
Topography



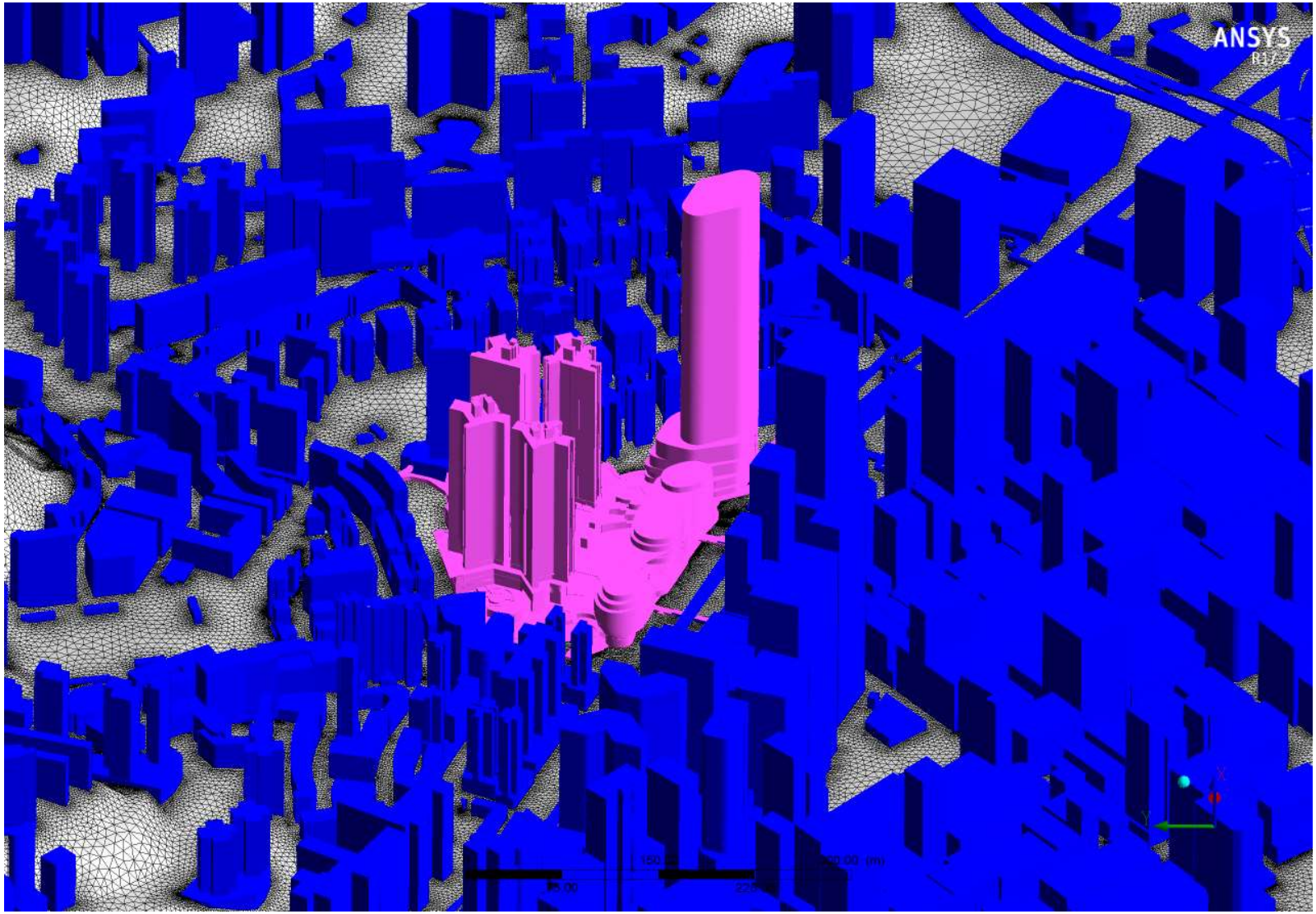
Baseline Scheme – N



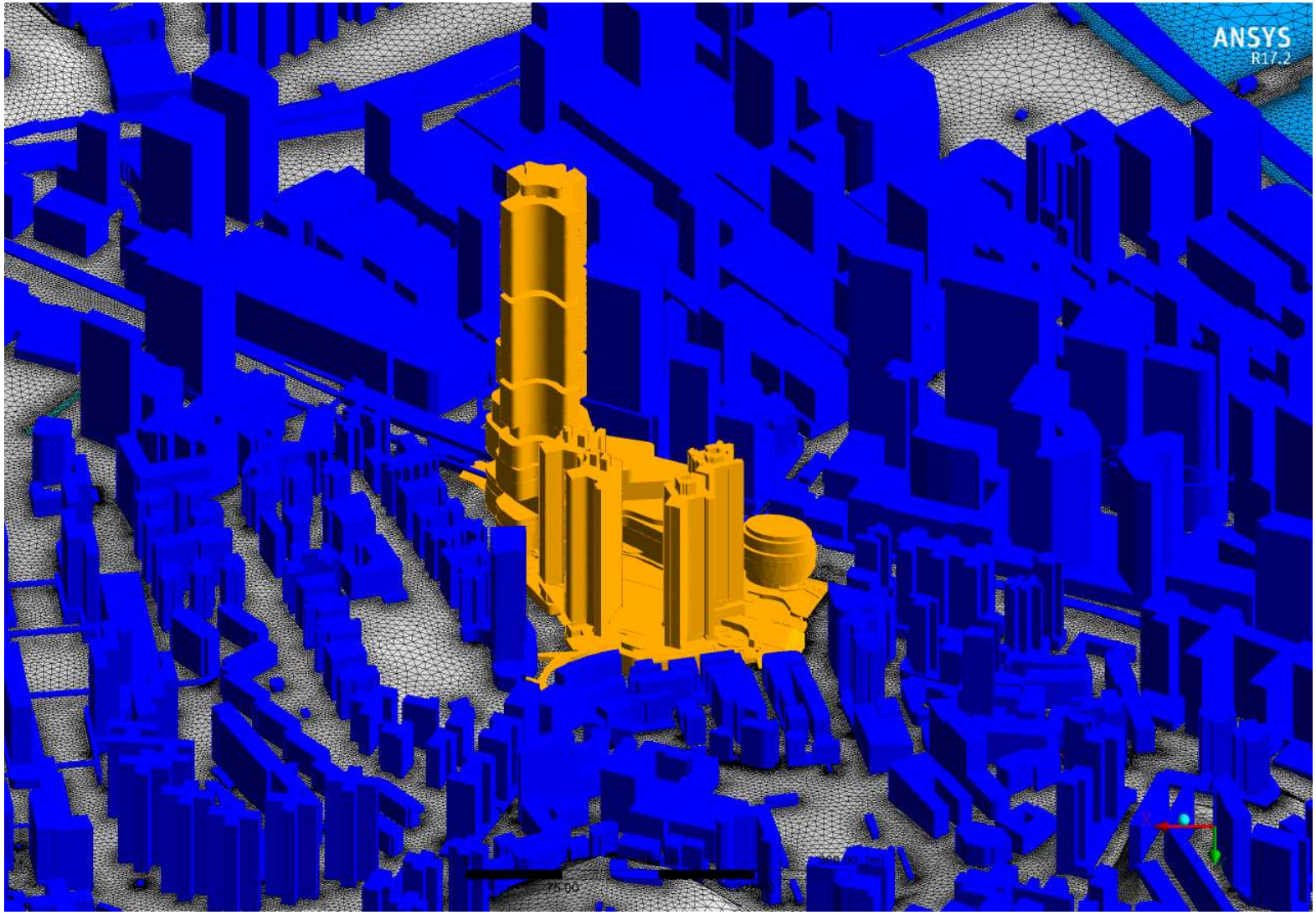
Baseline Scheme – E



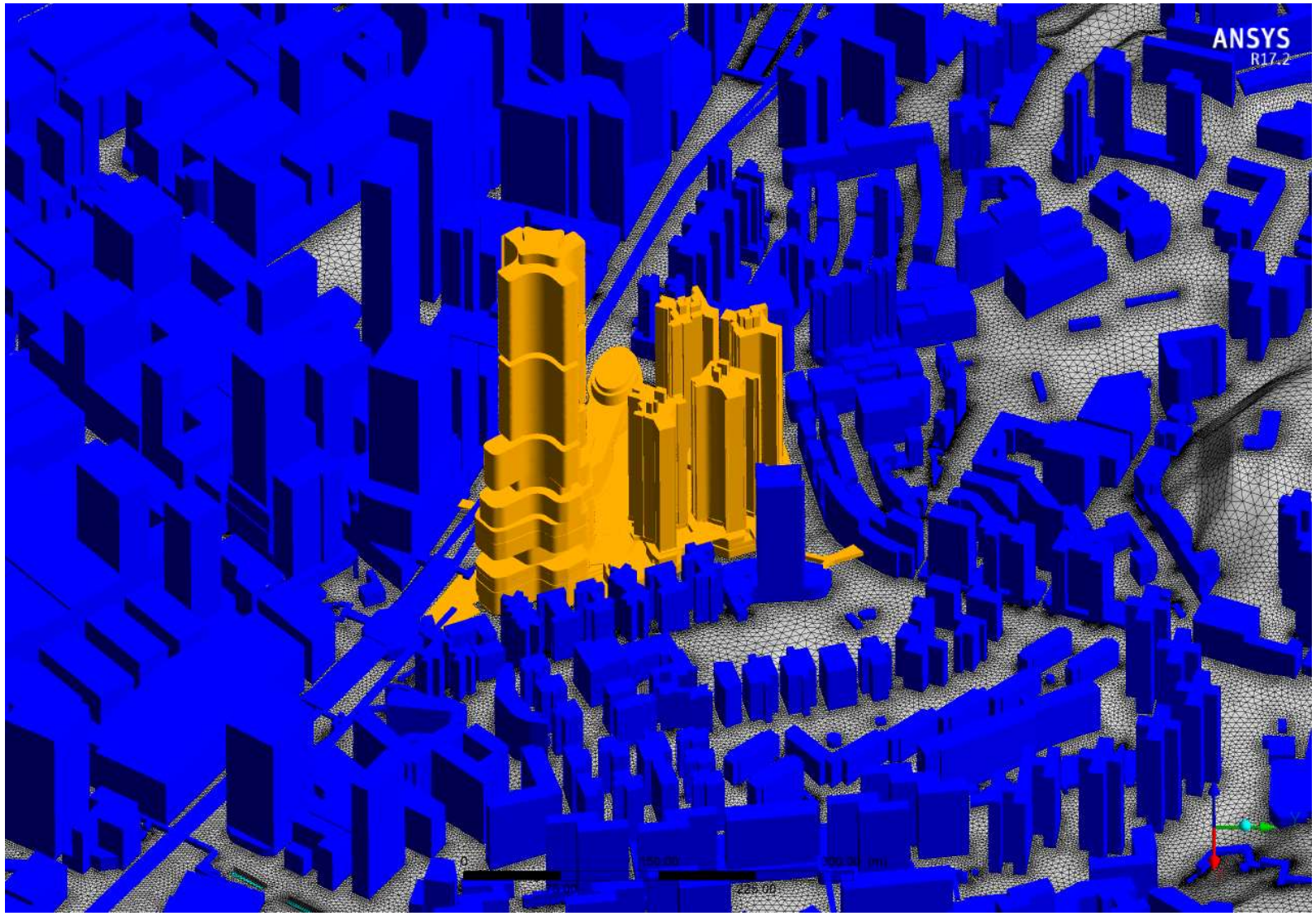
Baseline Scheme – S



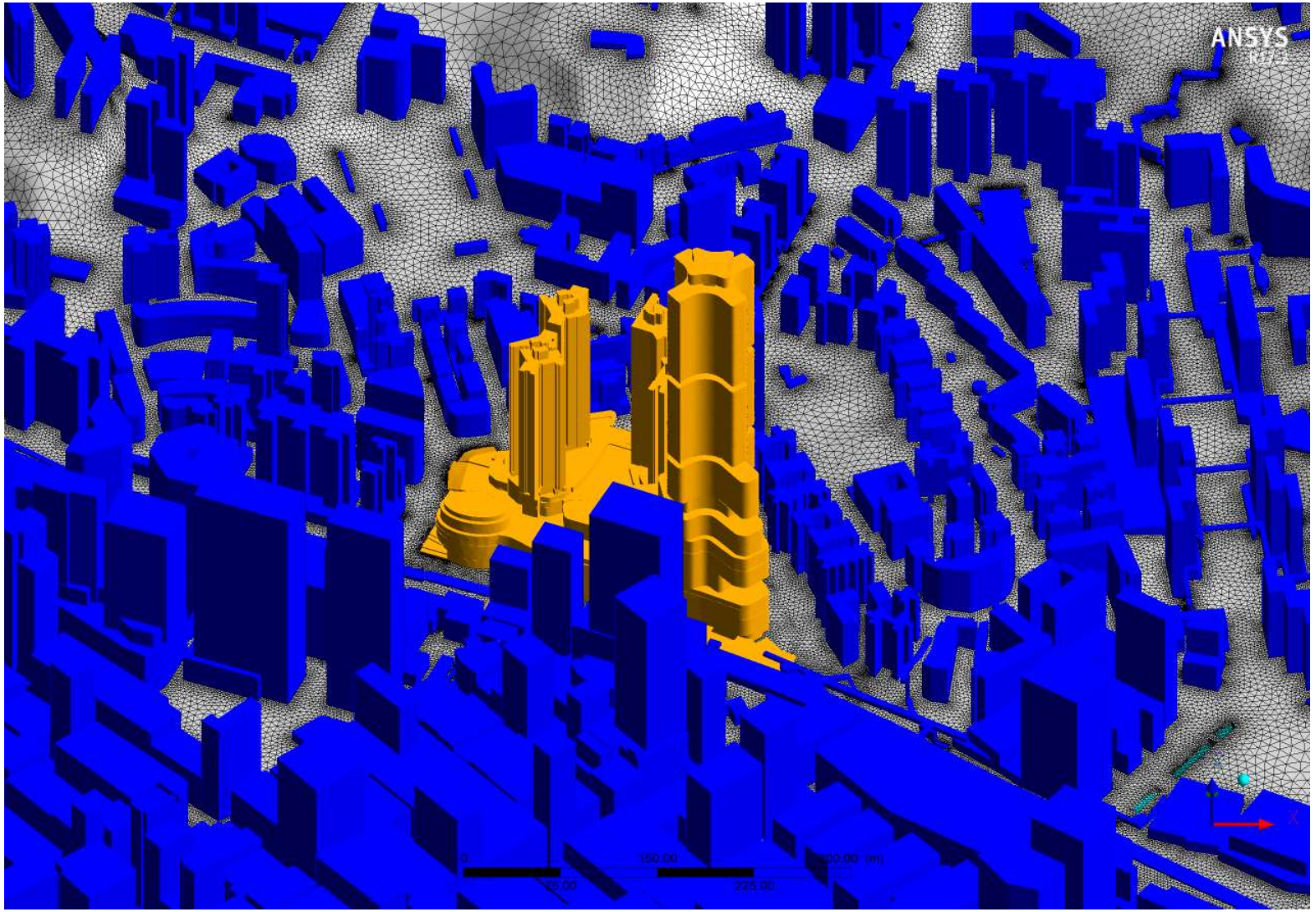
Baseline Scheme – W



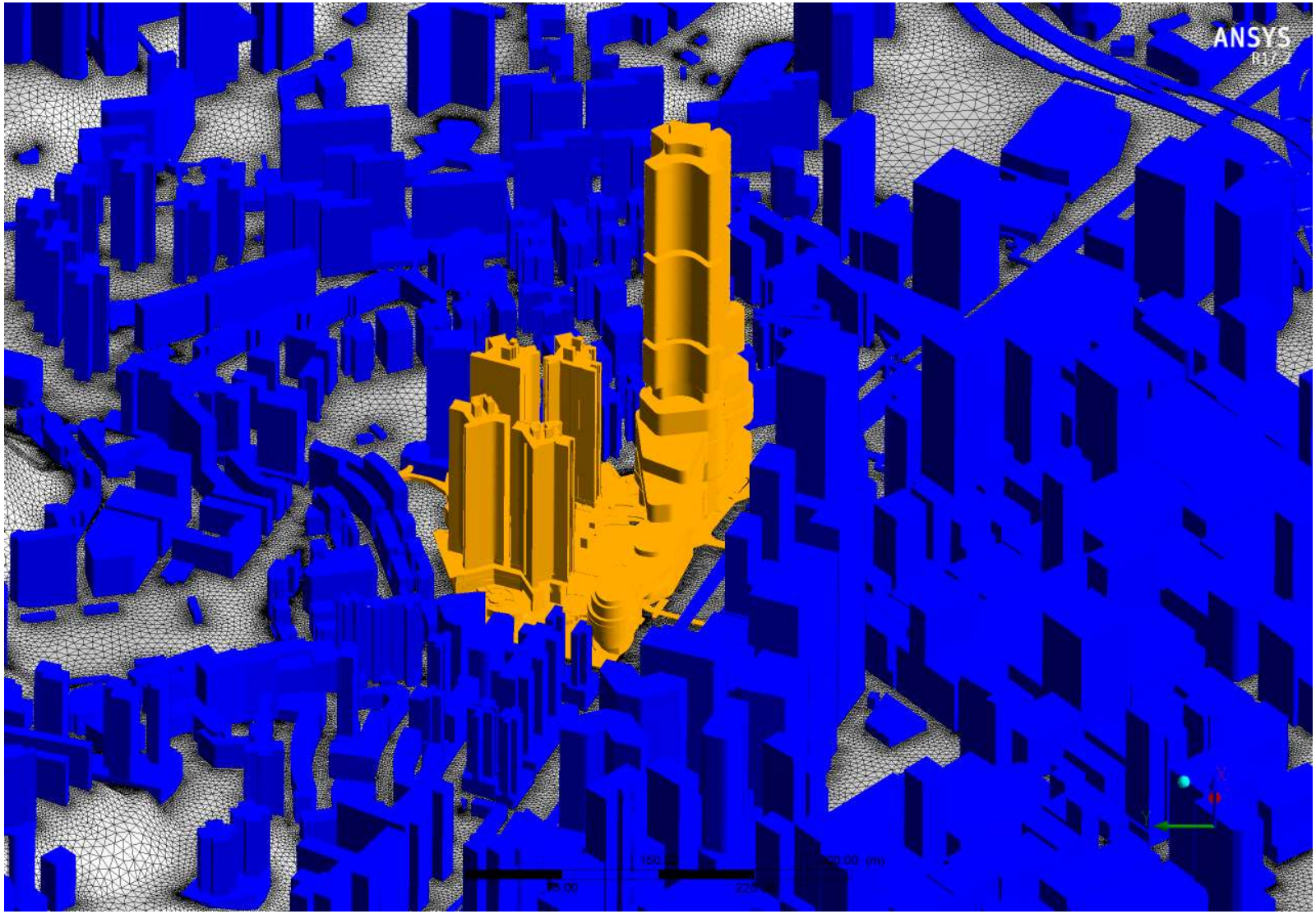
Proposed Scheme – N



Proposed Scheme – E



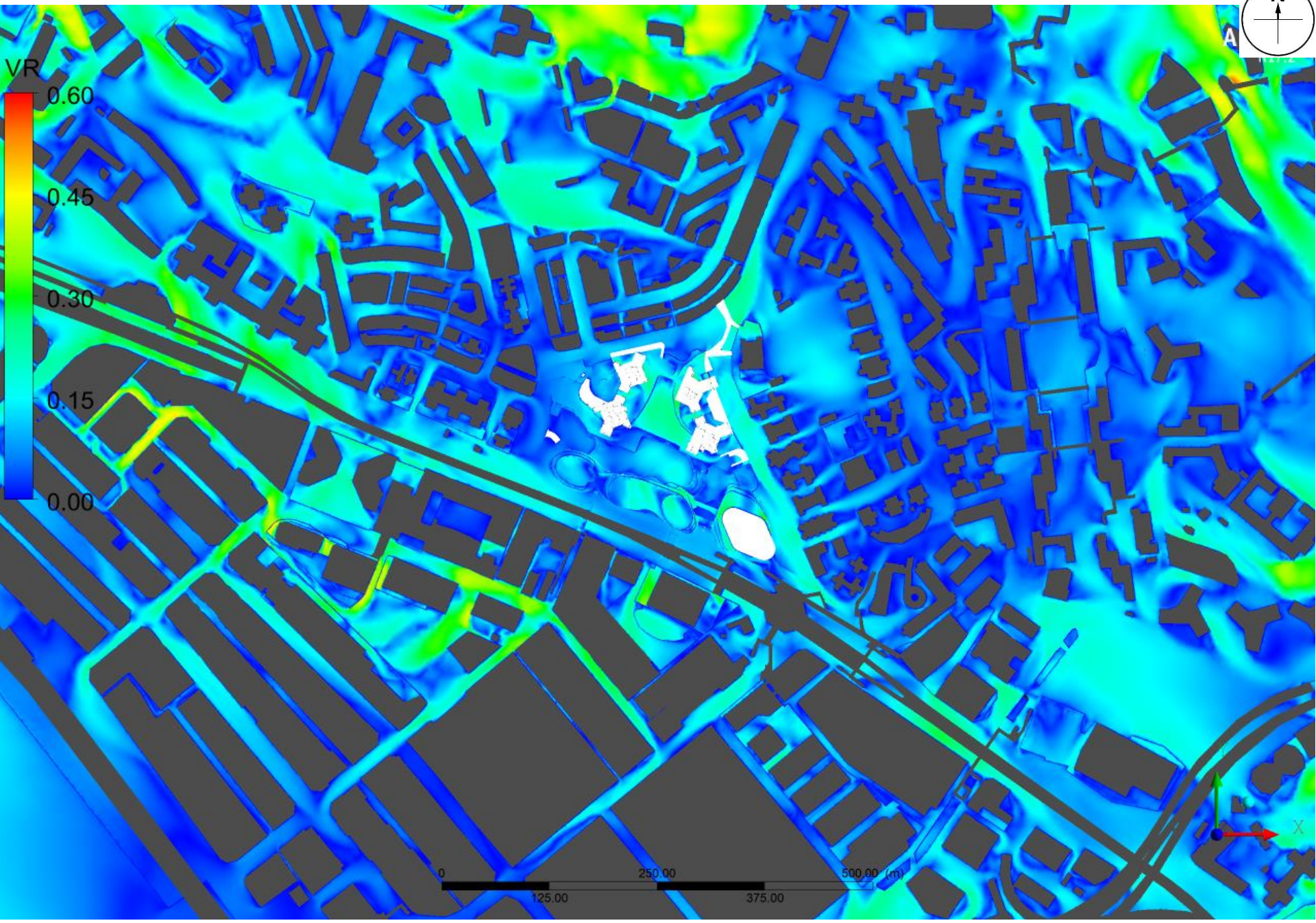
Proposed Scheme – S



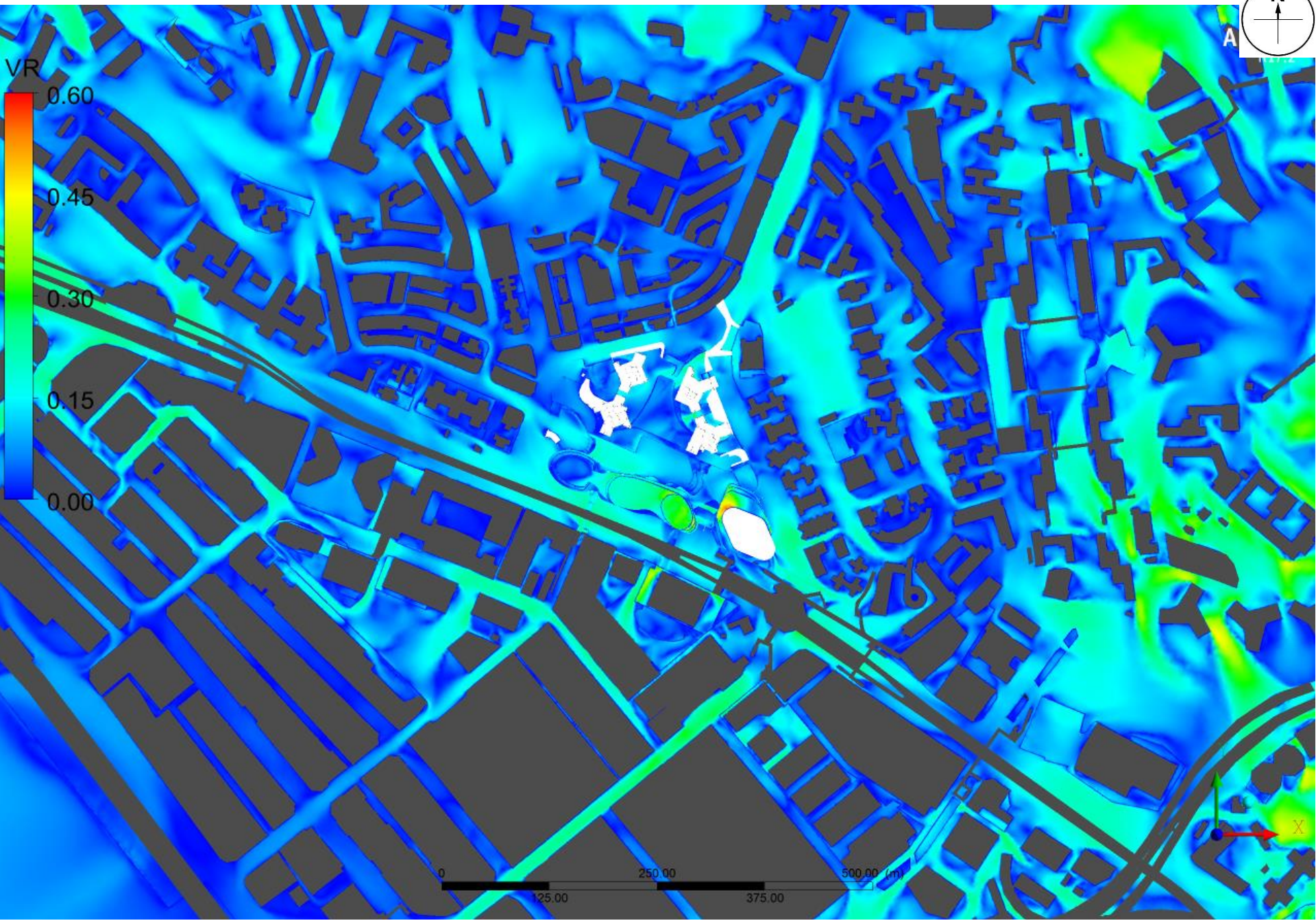
Proposed Scheme – W

Appendix 4

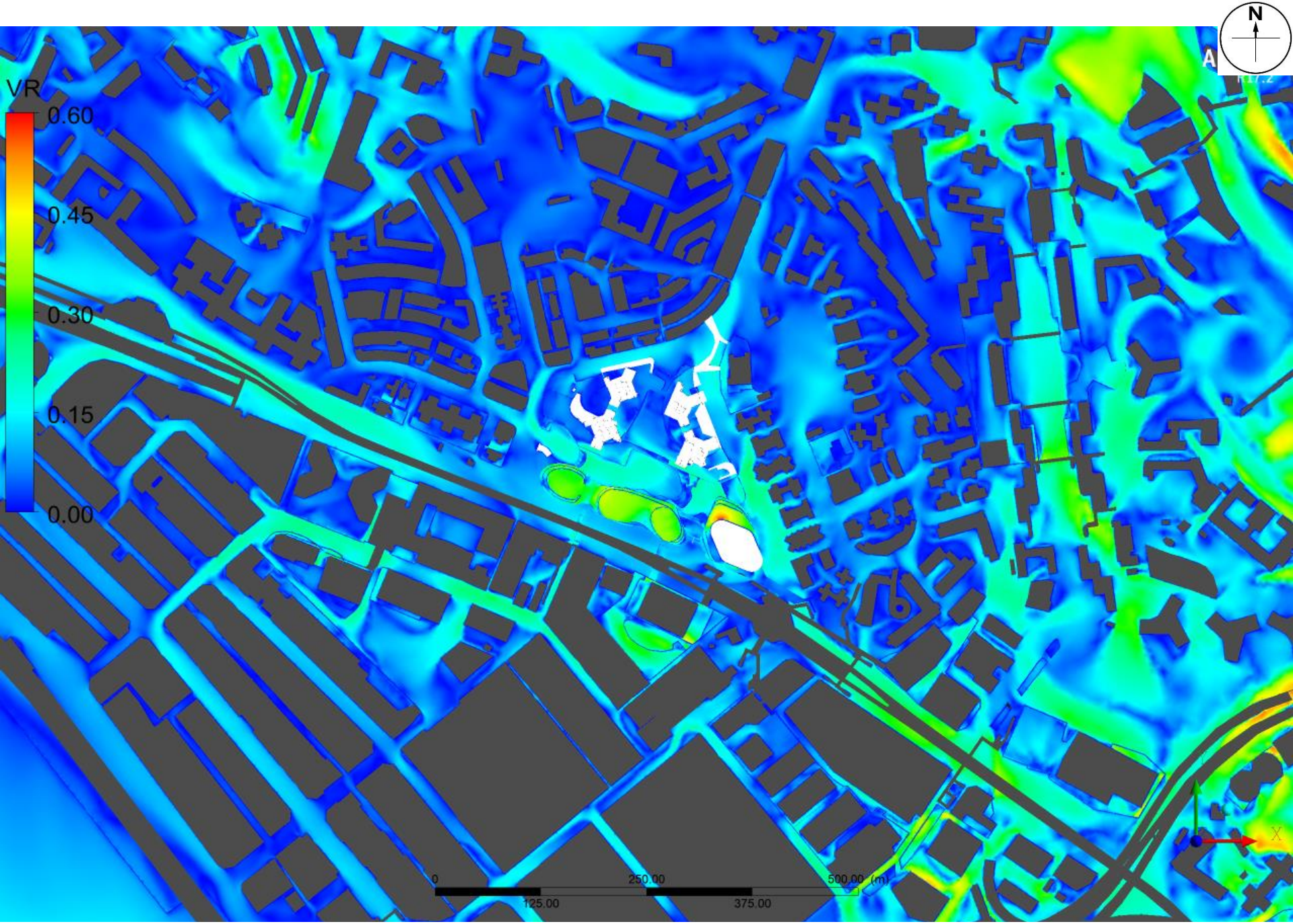
Contour and Vector Result of the CFD Simulation



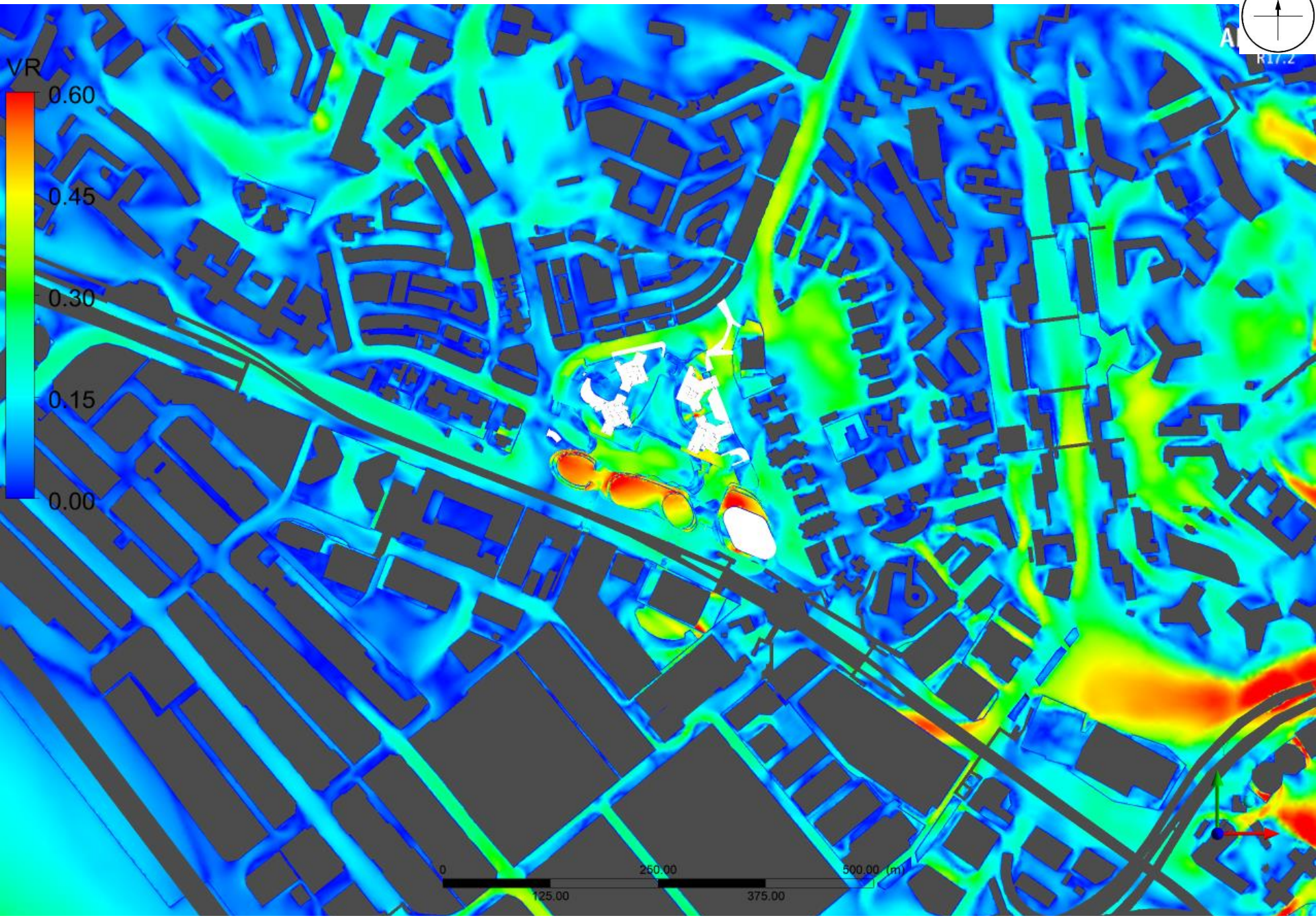
Baseline Scheme - Contour plot at pedestrian level under NNE Wind



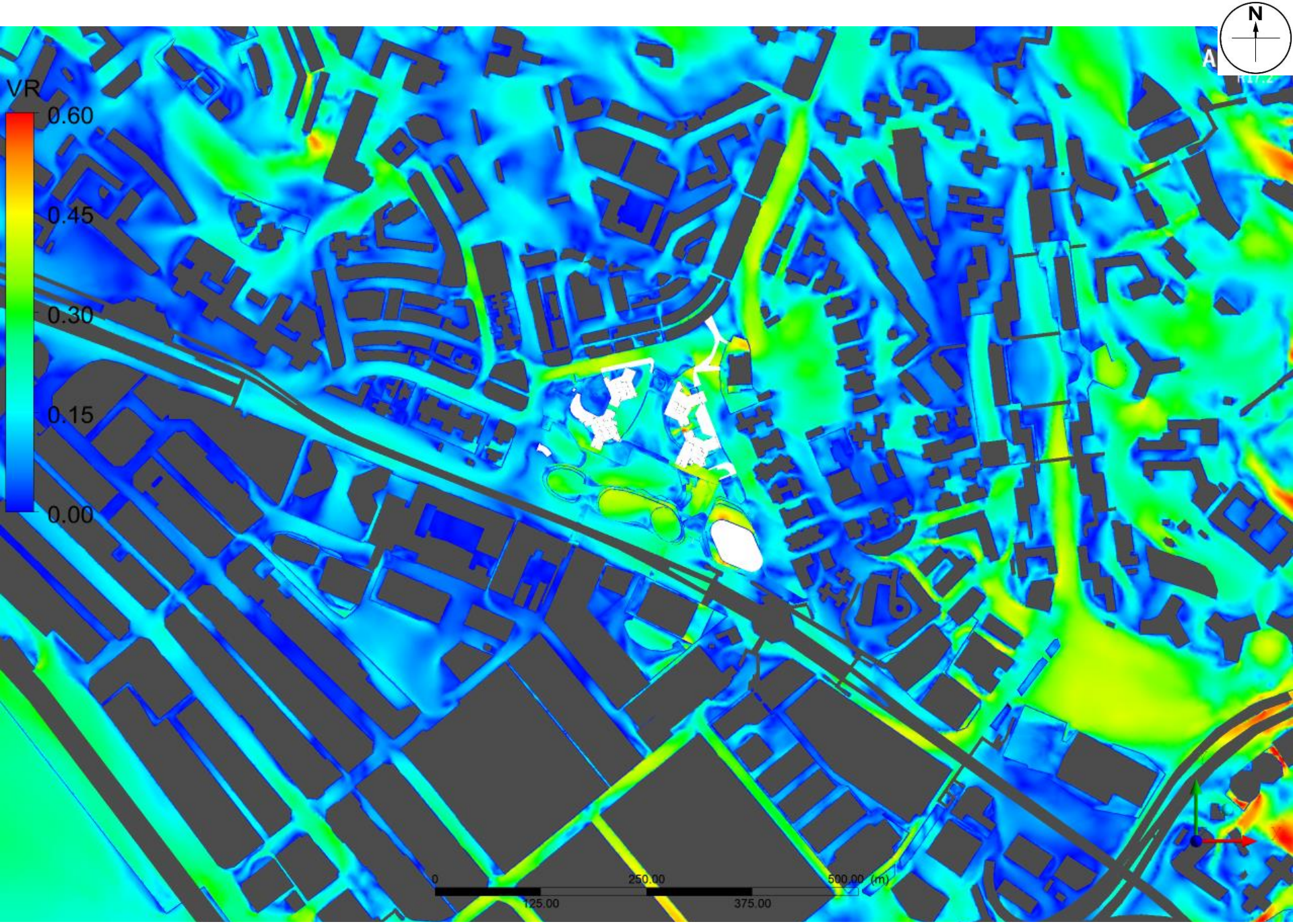
Baseline Scheme - Contour plot at pedestrian level under NE Wind



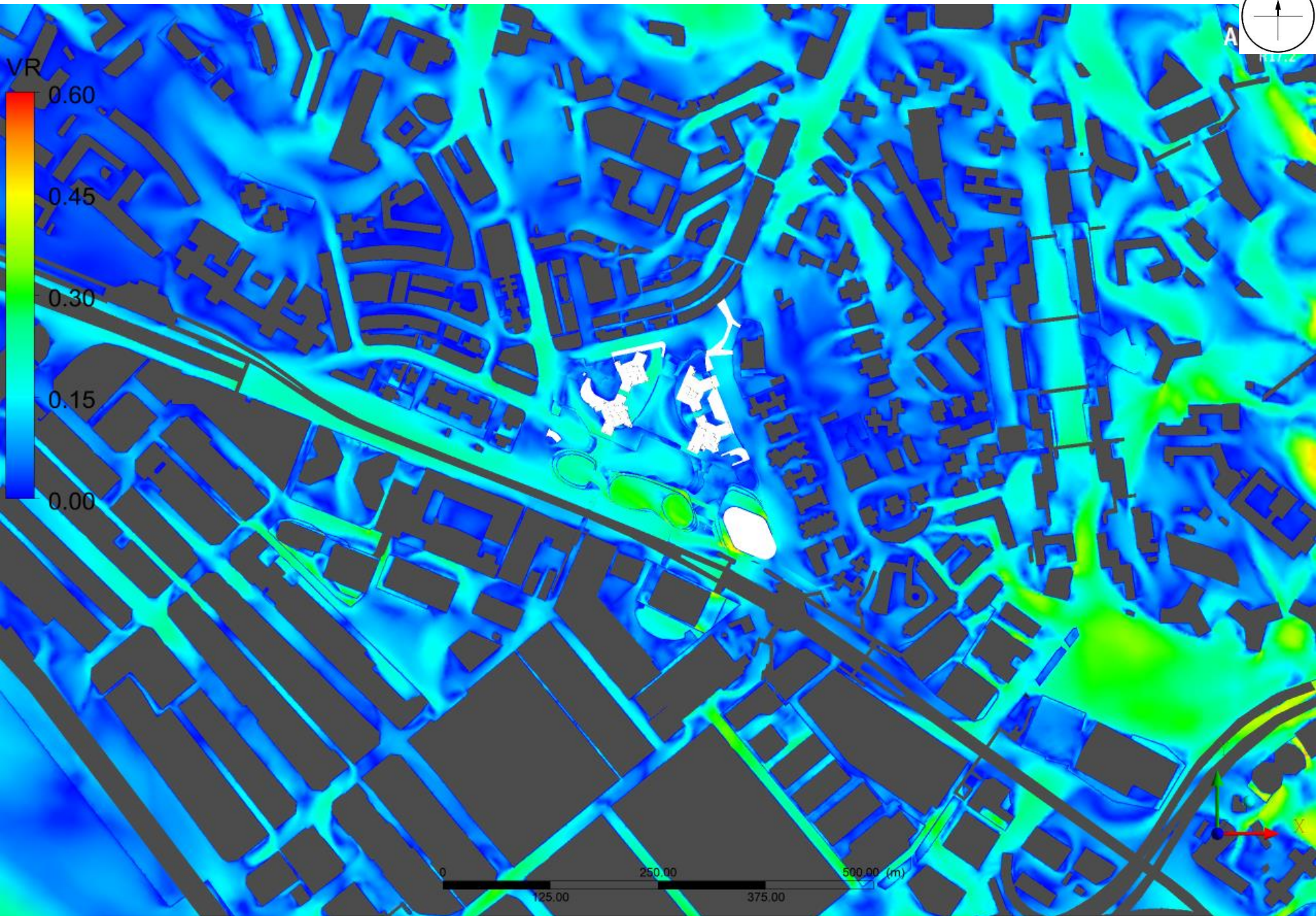
Baseline Scheme - Contour plot at pedestrian level under ENE Wind



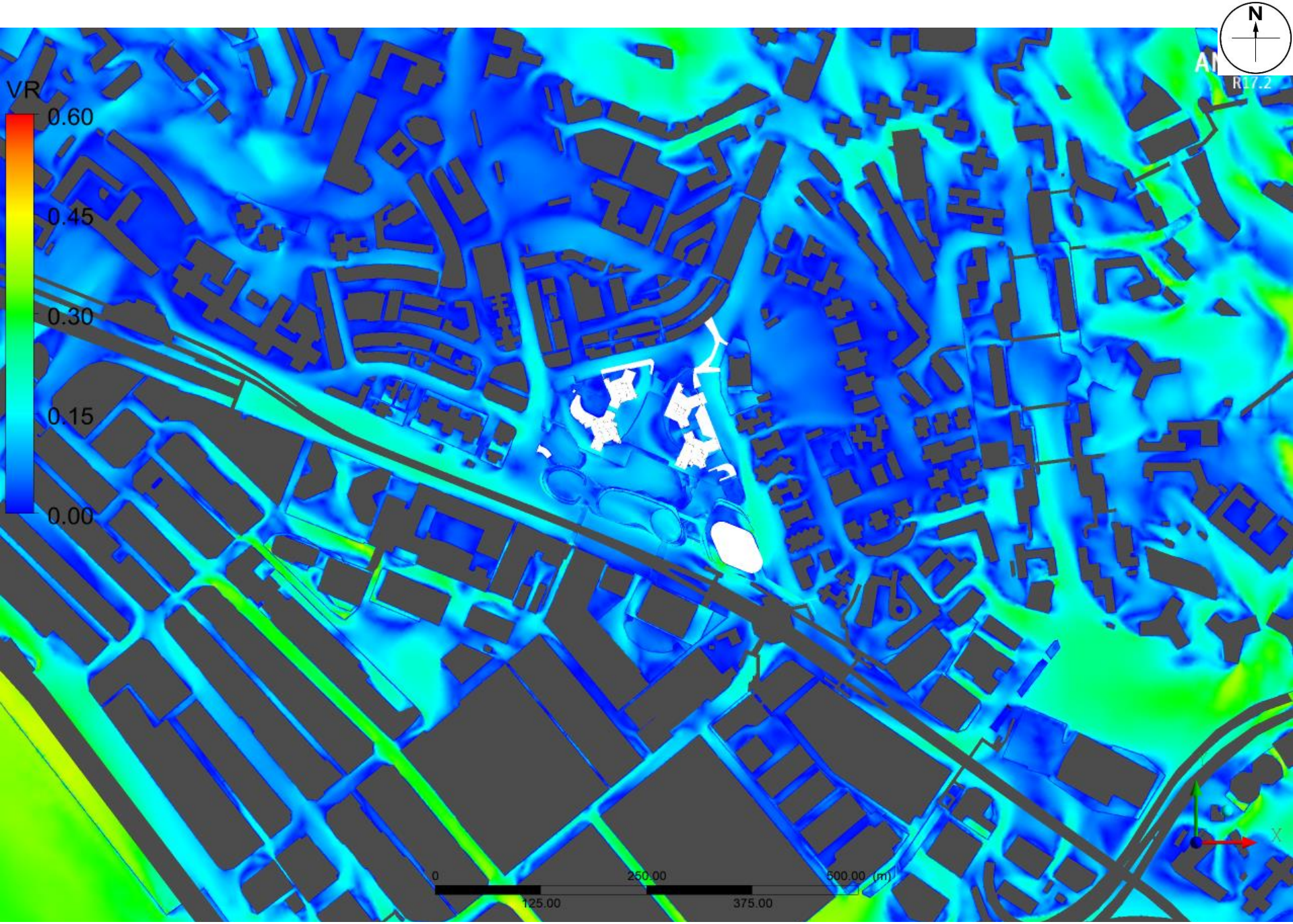
Baseline Scheme - Contour plot at pedestrian level under E Wind



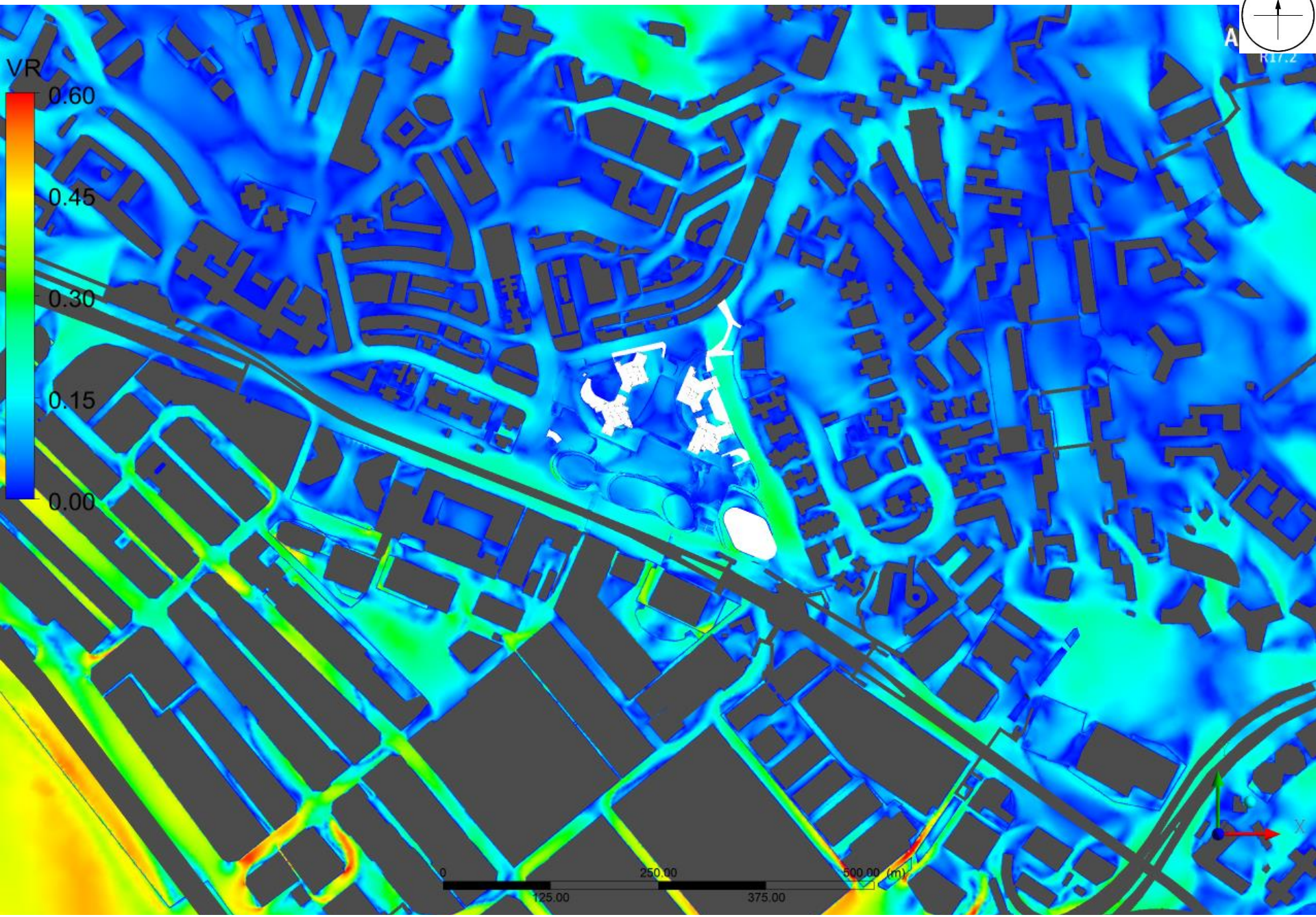
Baseline Scheme - Contour plot at pedestrian level under ESE Wind



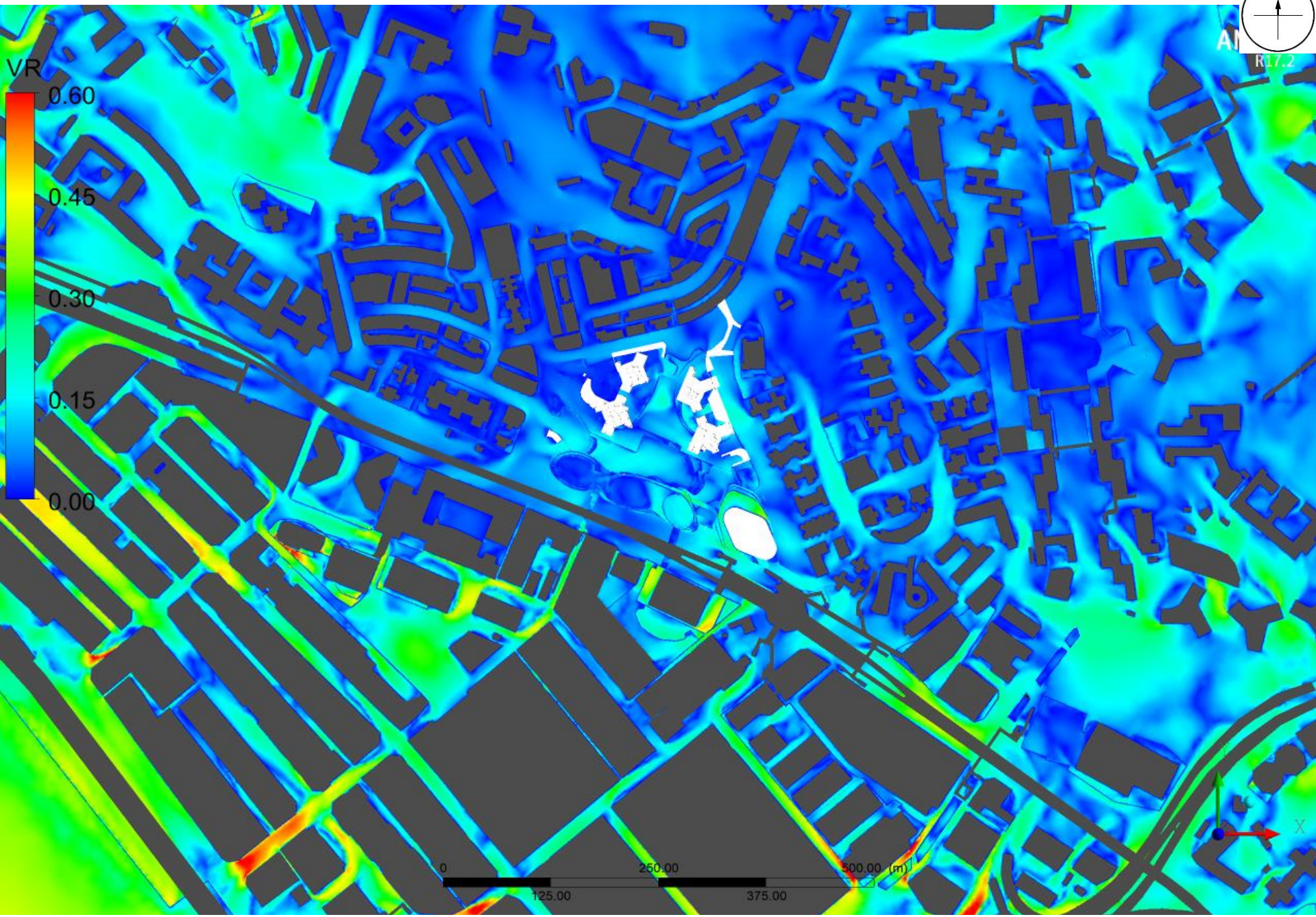
Baseline Scheme - Contour plot at pedestrian level under SE Wind



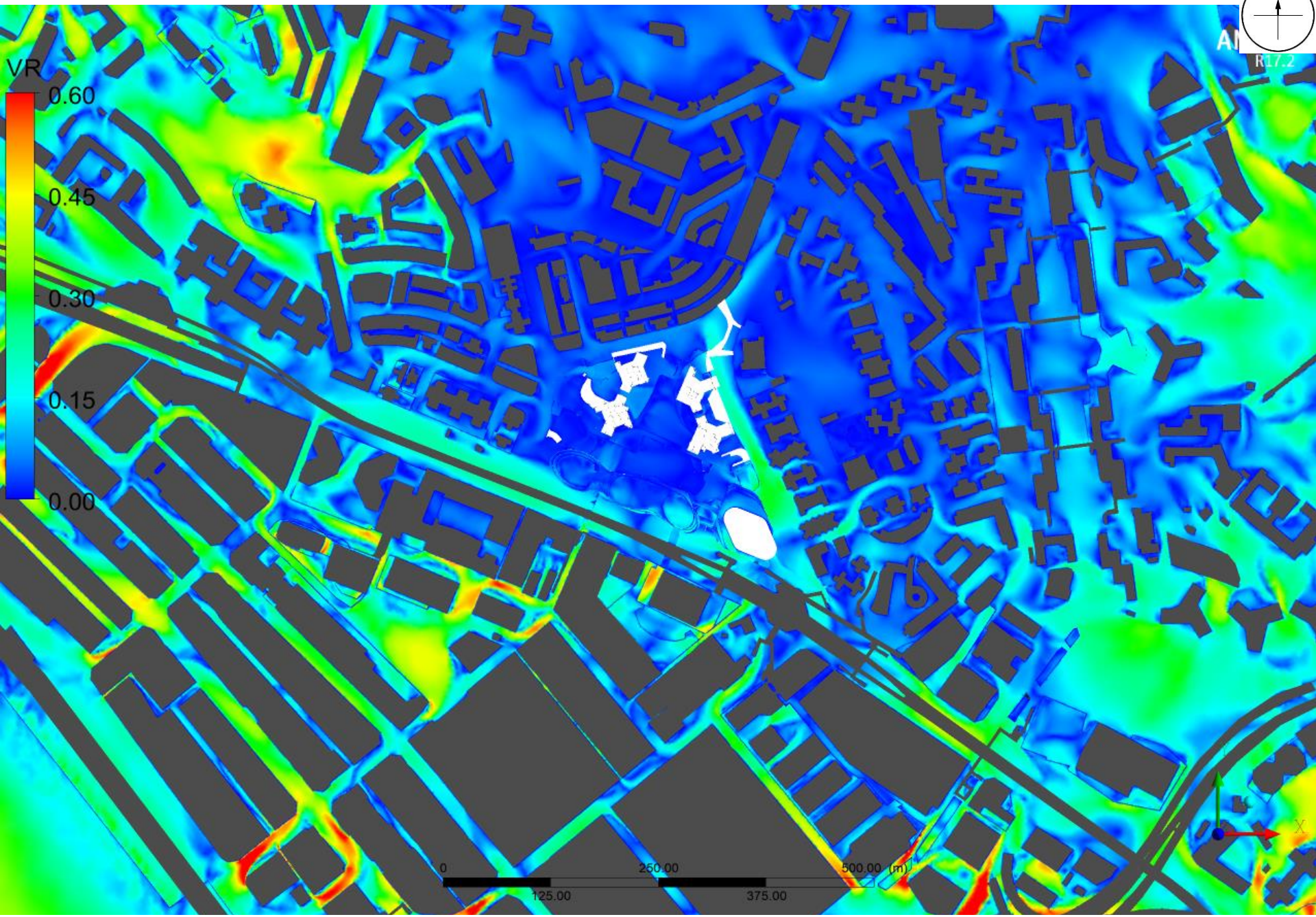
Baseline Scheme - Contour plot at pedestrian level under SSE Wind



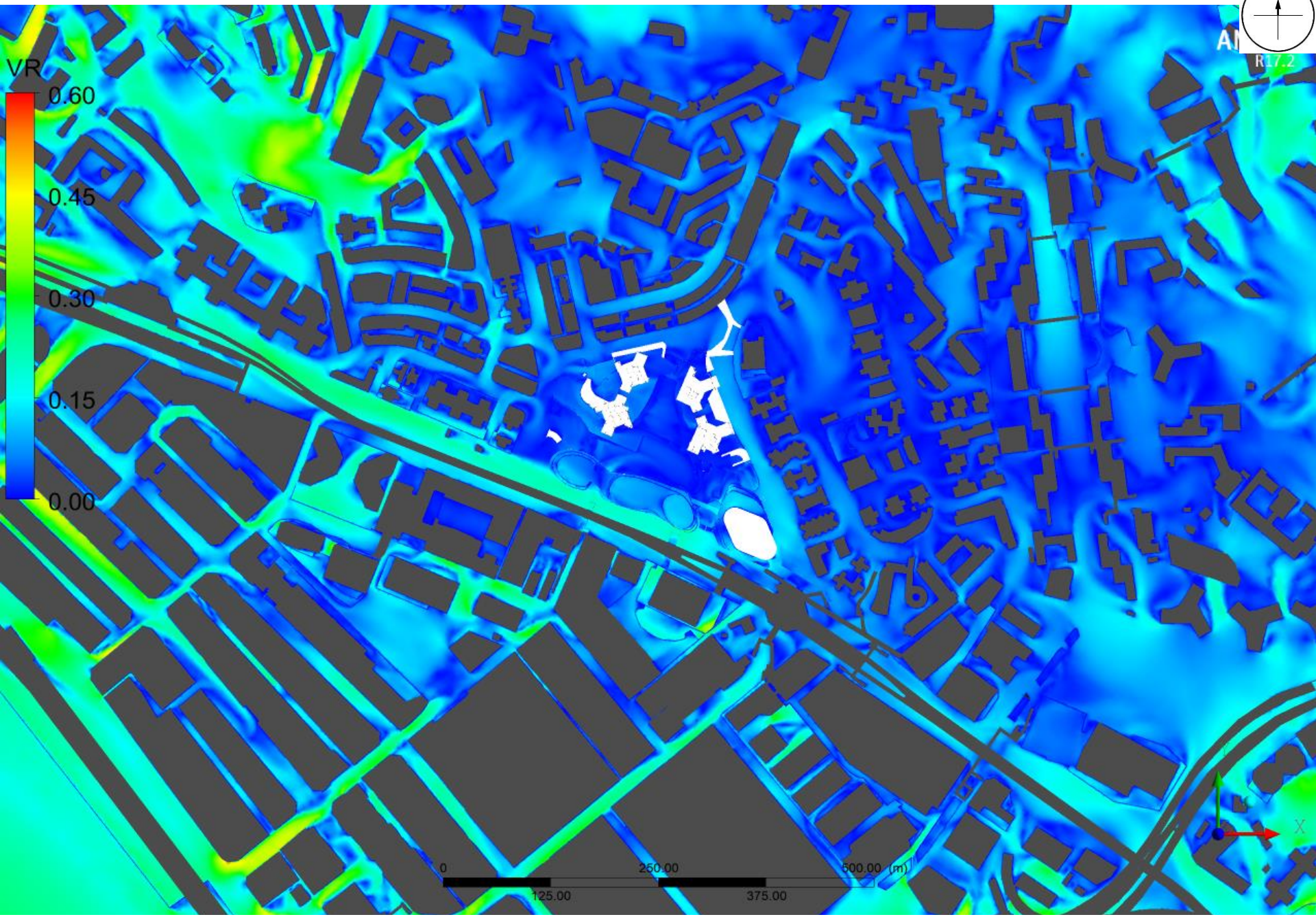
Baseline Scheme - Contour plot at pedestrian level under S Wind



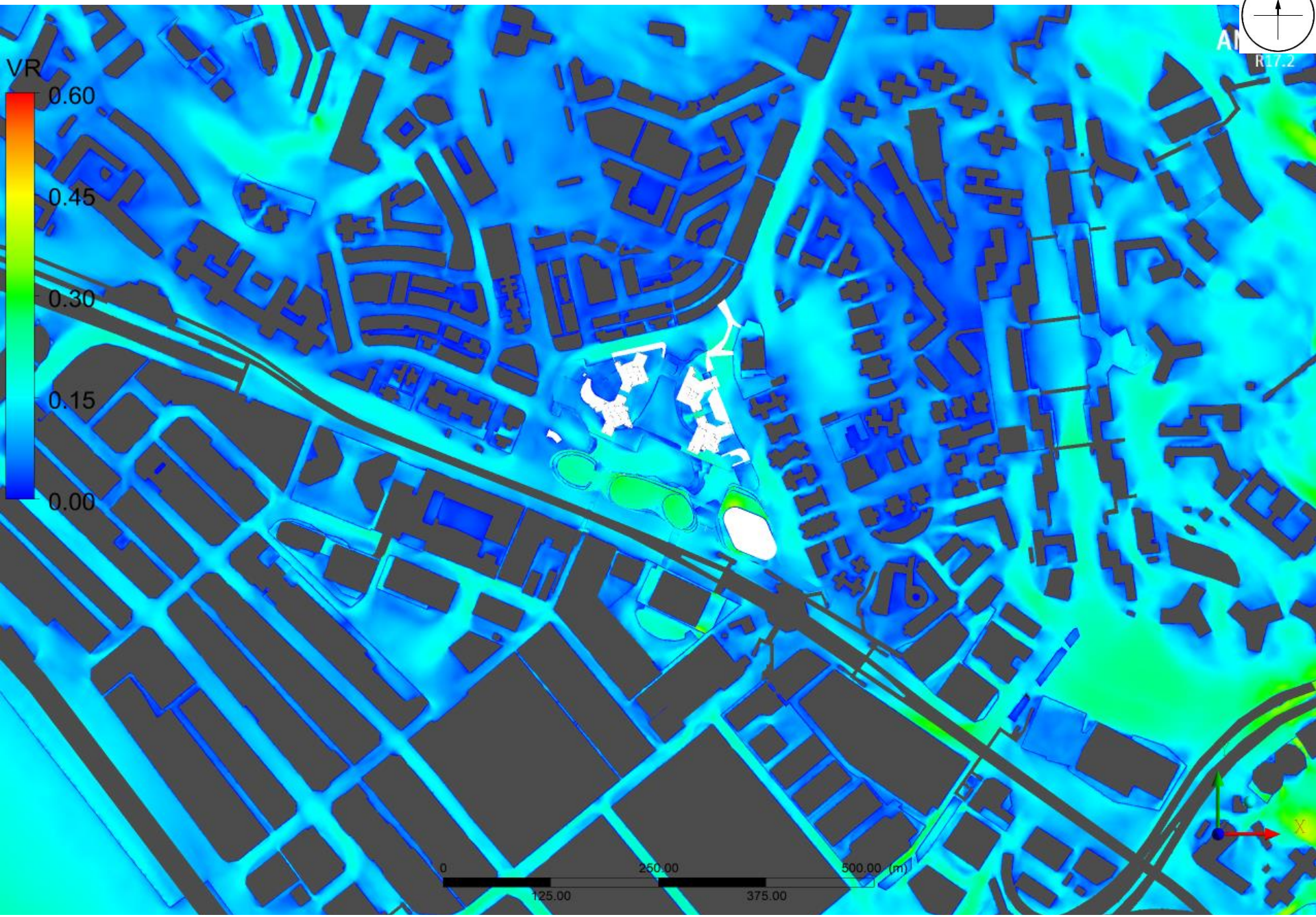
Baseline Scheme - Contour plot at pedestrian level under SSW Wind



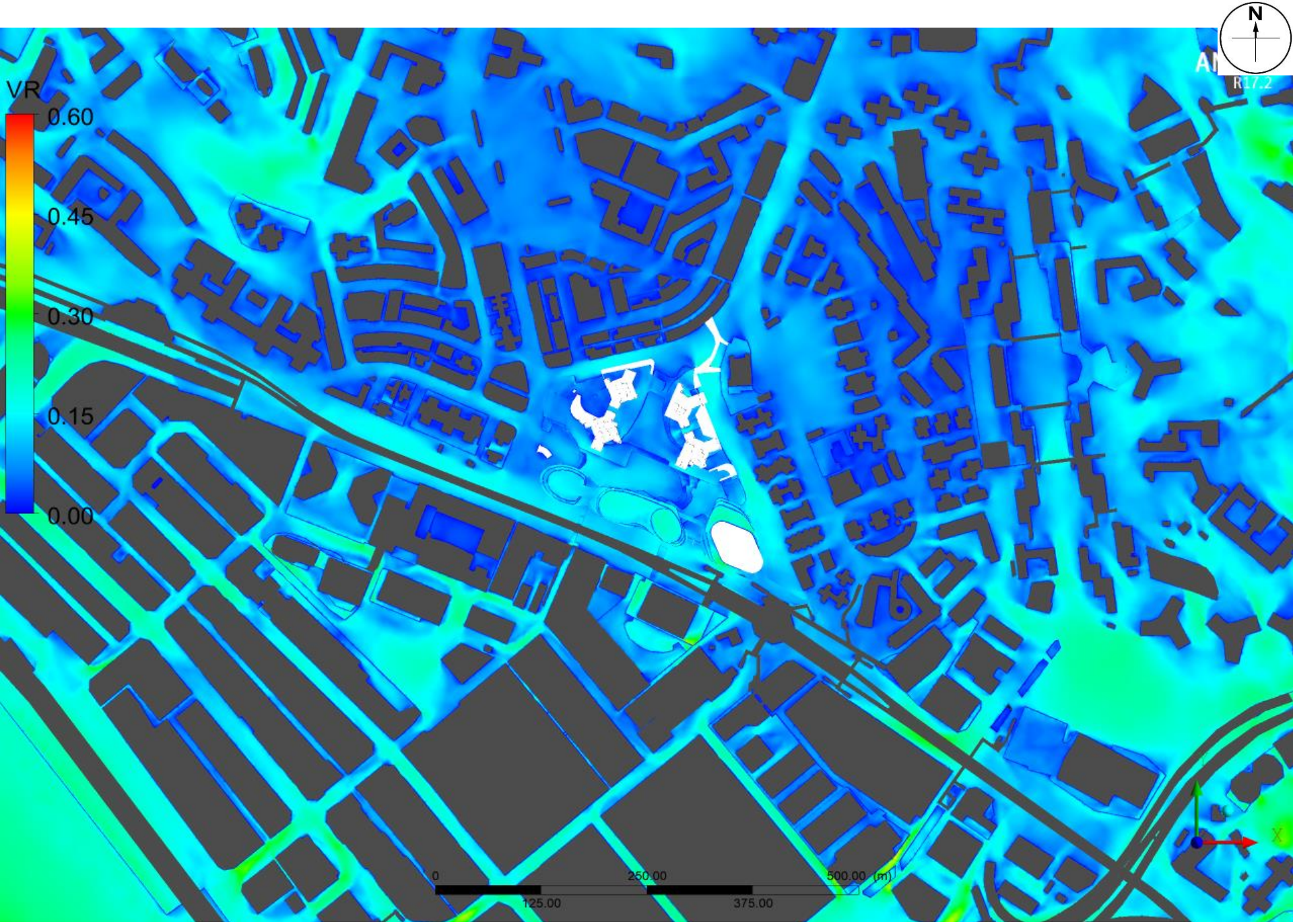
Baseline Scheme - Contour plot at pedestrian level under SW Wind



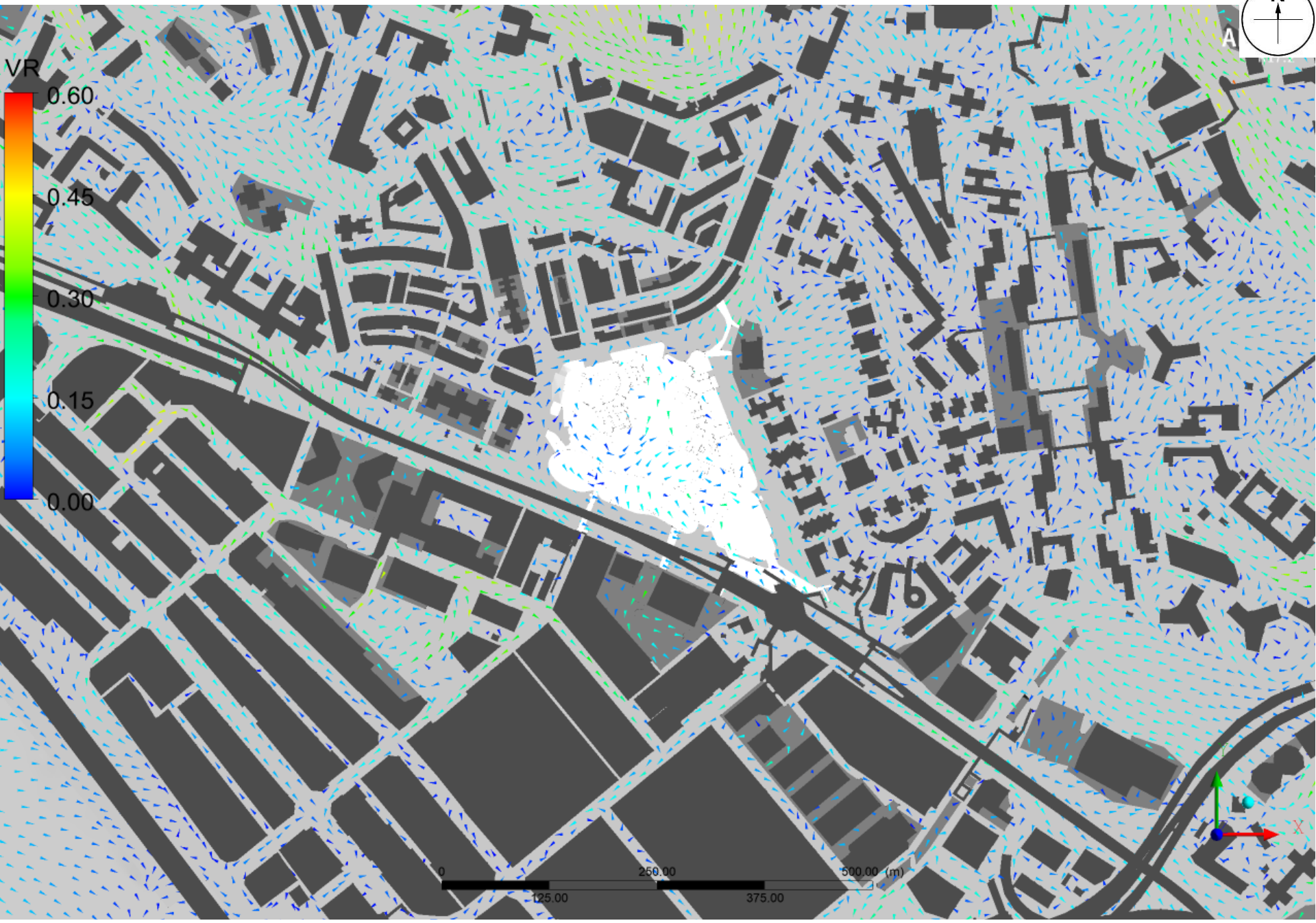
Baseline Scheme - Contour plot at pedestrian level under WSW Wind



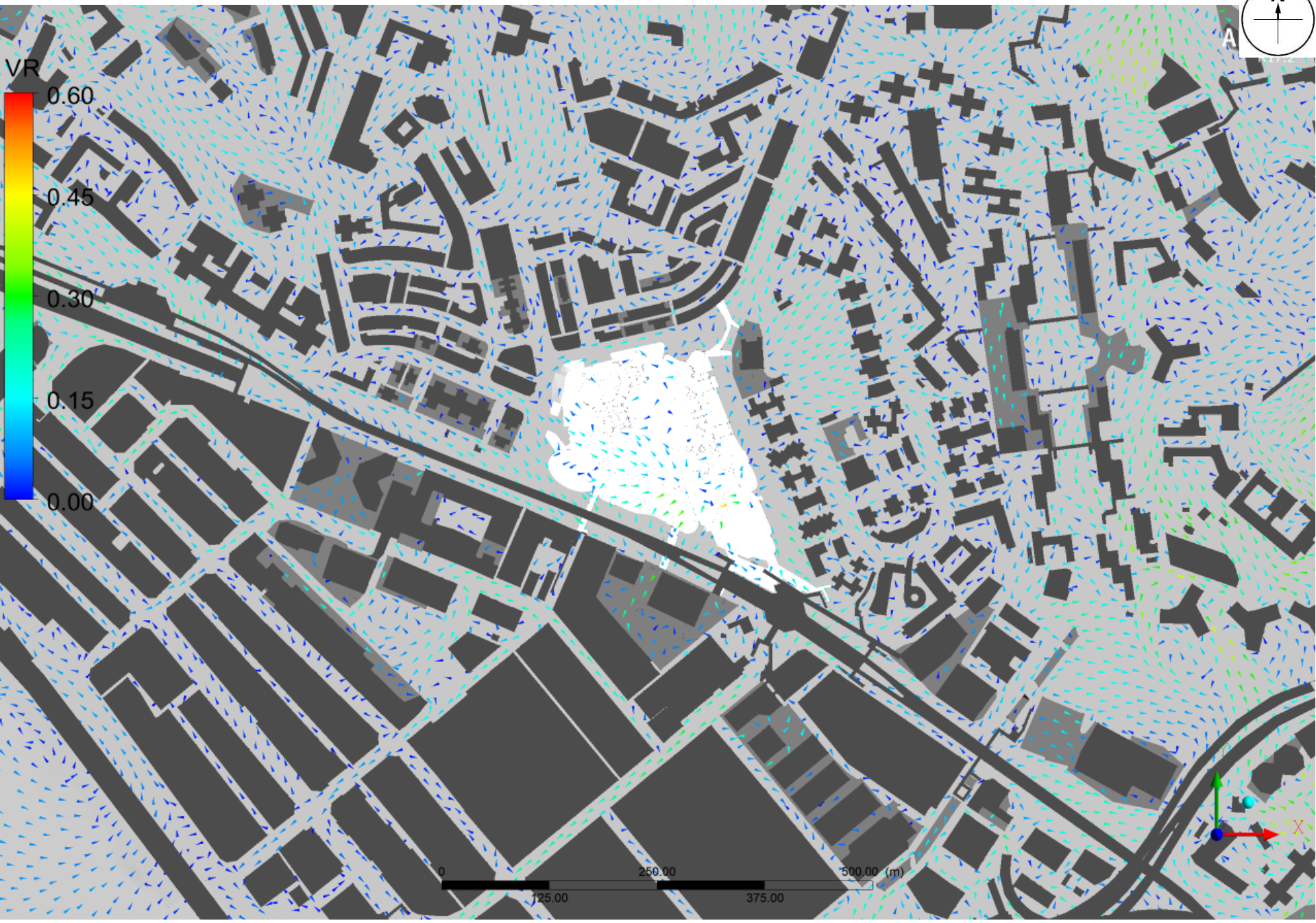
Baseline Scheme - Annual weighted wind speed colour at pedestrian level



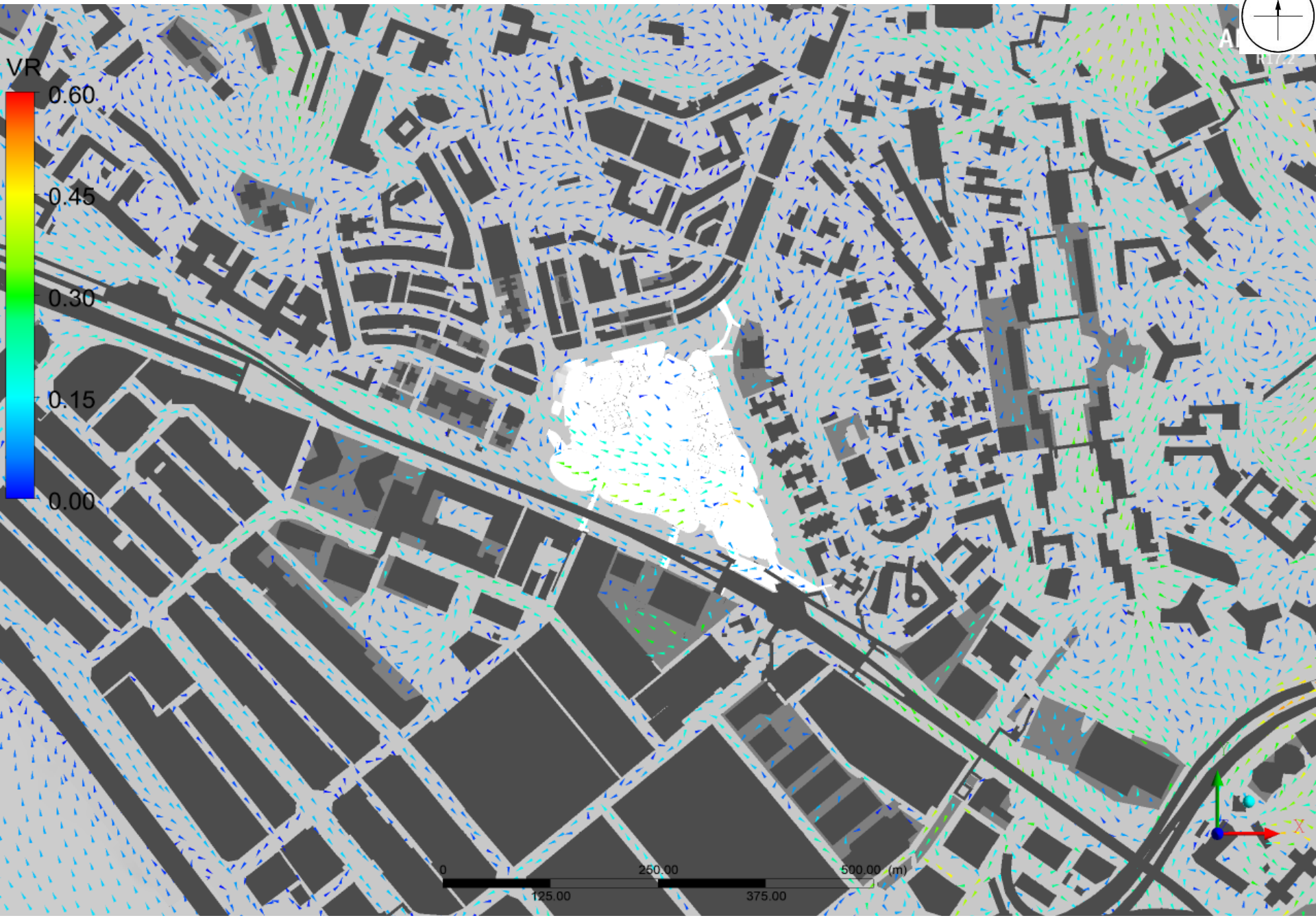
Baseline Scheme - Summer weighted wind speed colour at pedestrian level



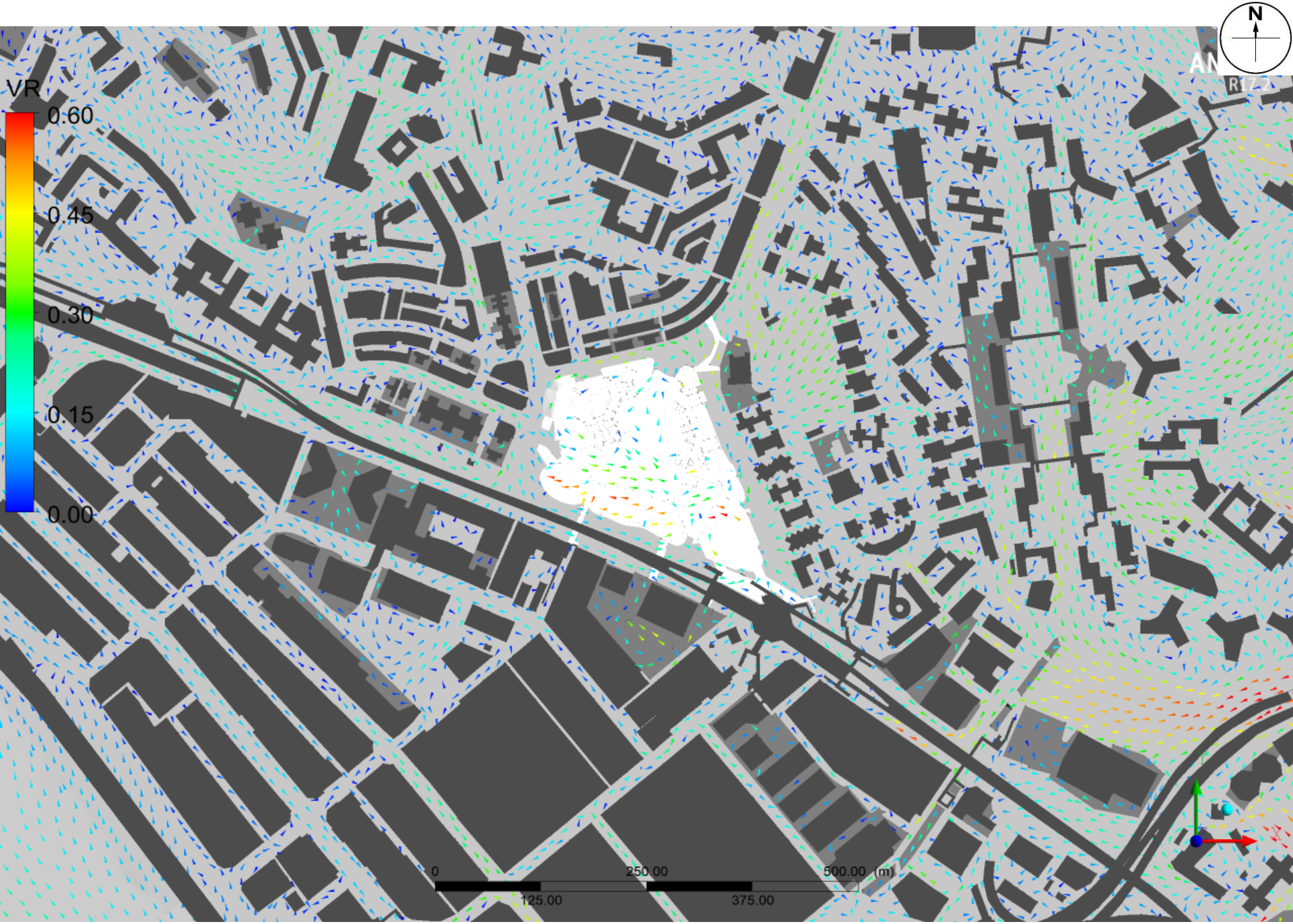
Baseline Scheme - Vector plot at pedestrian level under NNE Wind



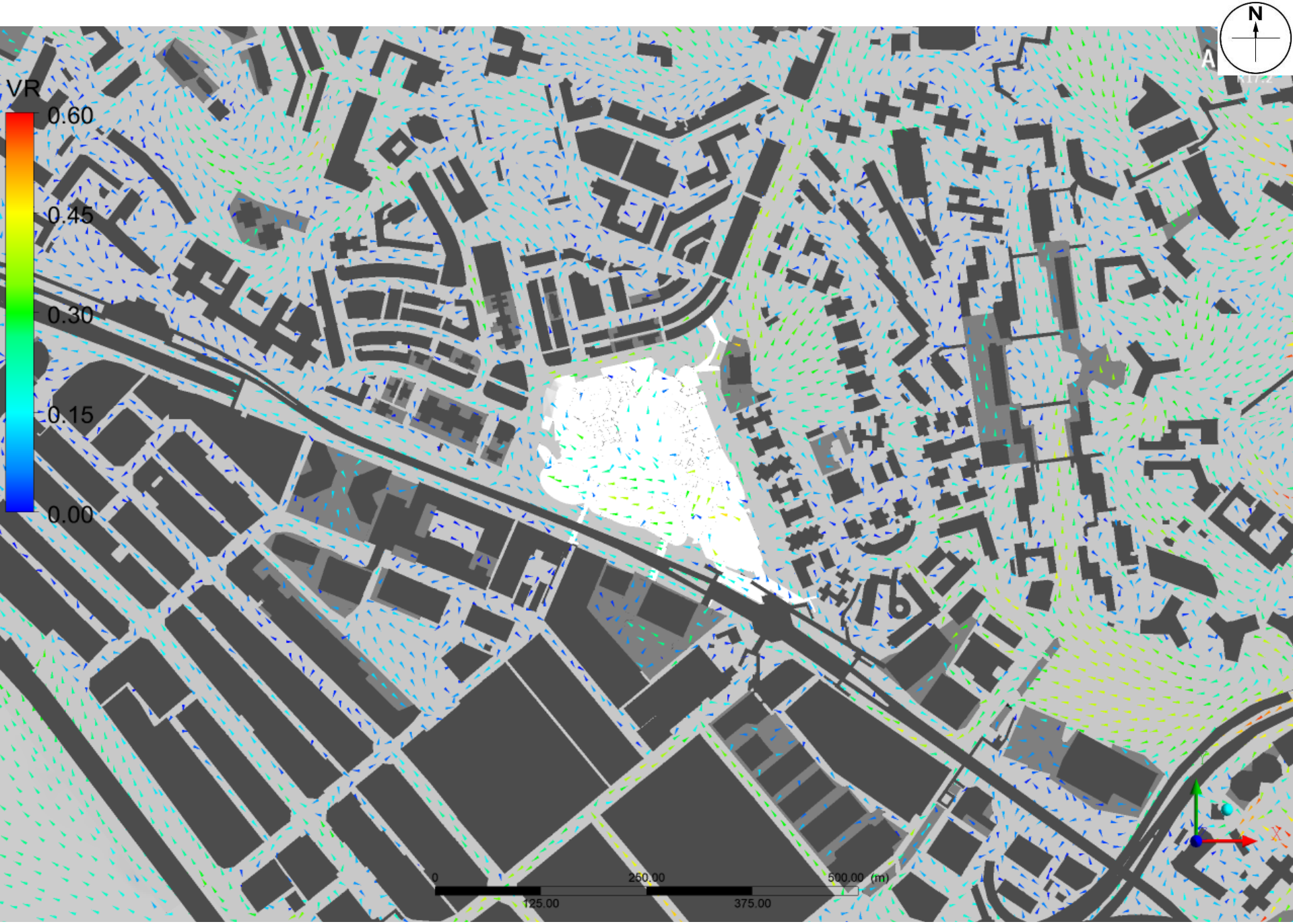
Baseline Scheme - Vector plot at pedestrian level under NE Wind



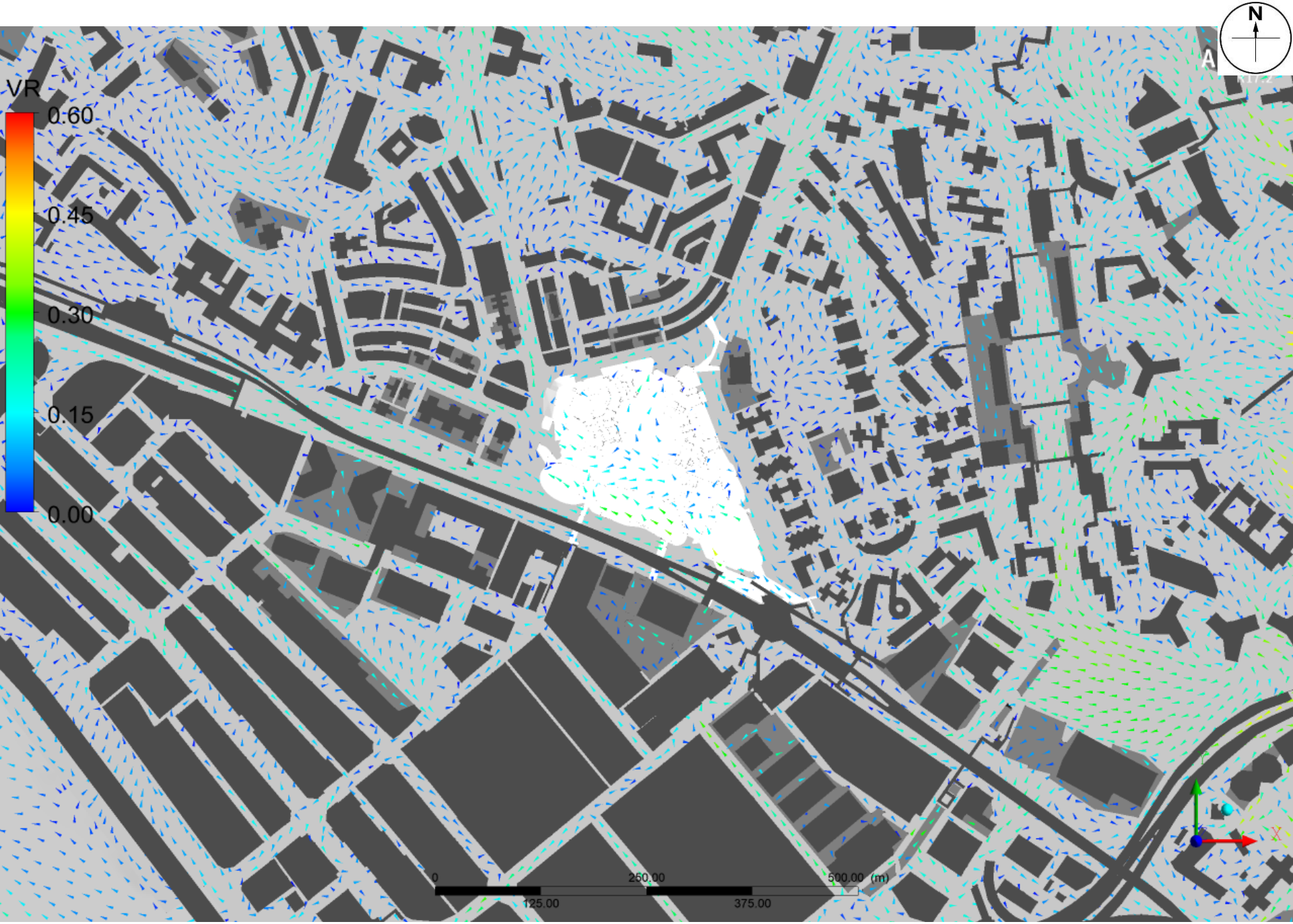
Baseline Scheme - Vector plot at pedestrian level under ENE Wind



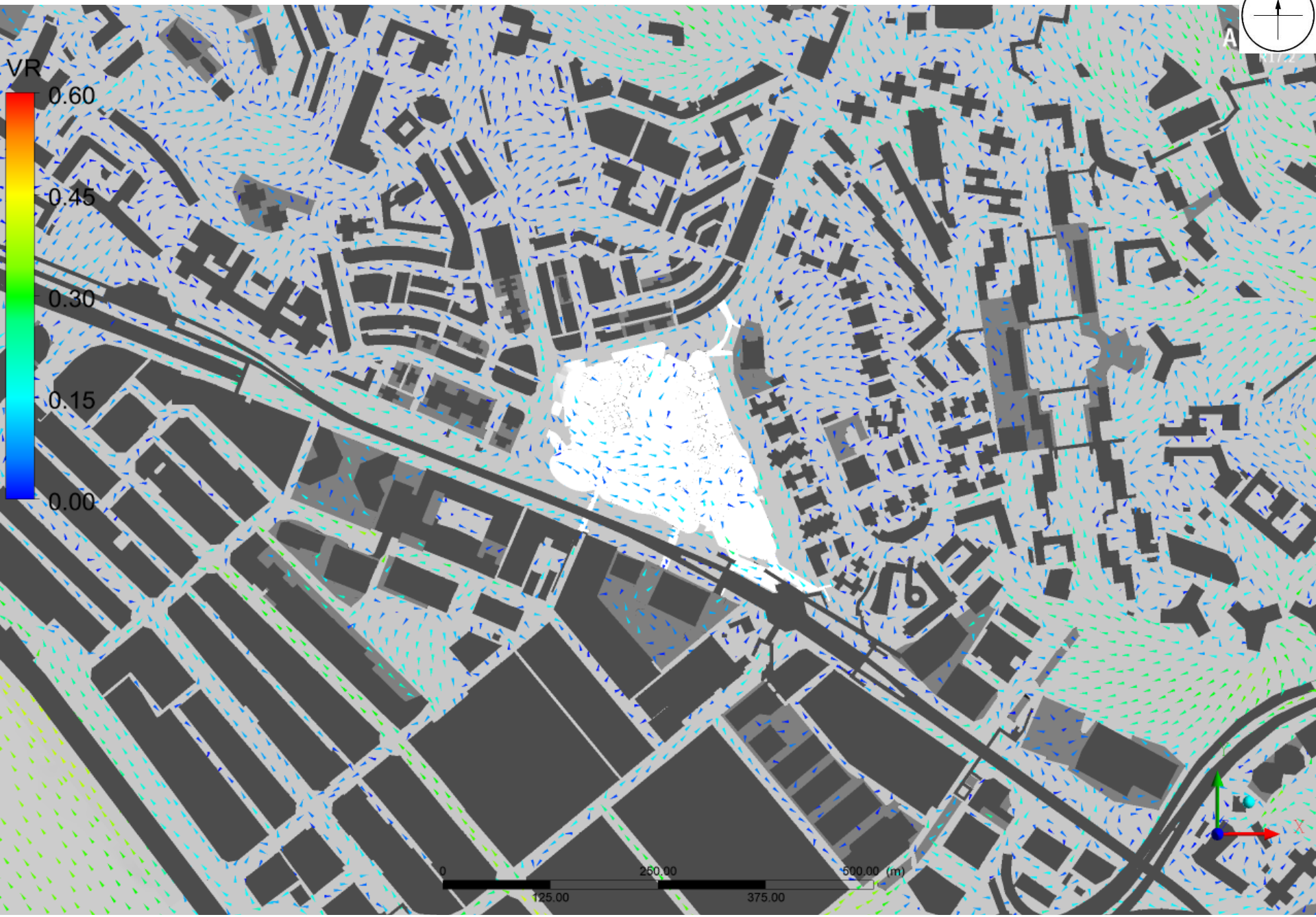
Baseline Scheme - Vector plot at pedestrian level under E Wind



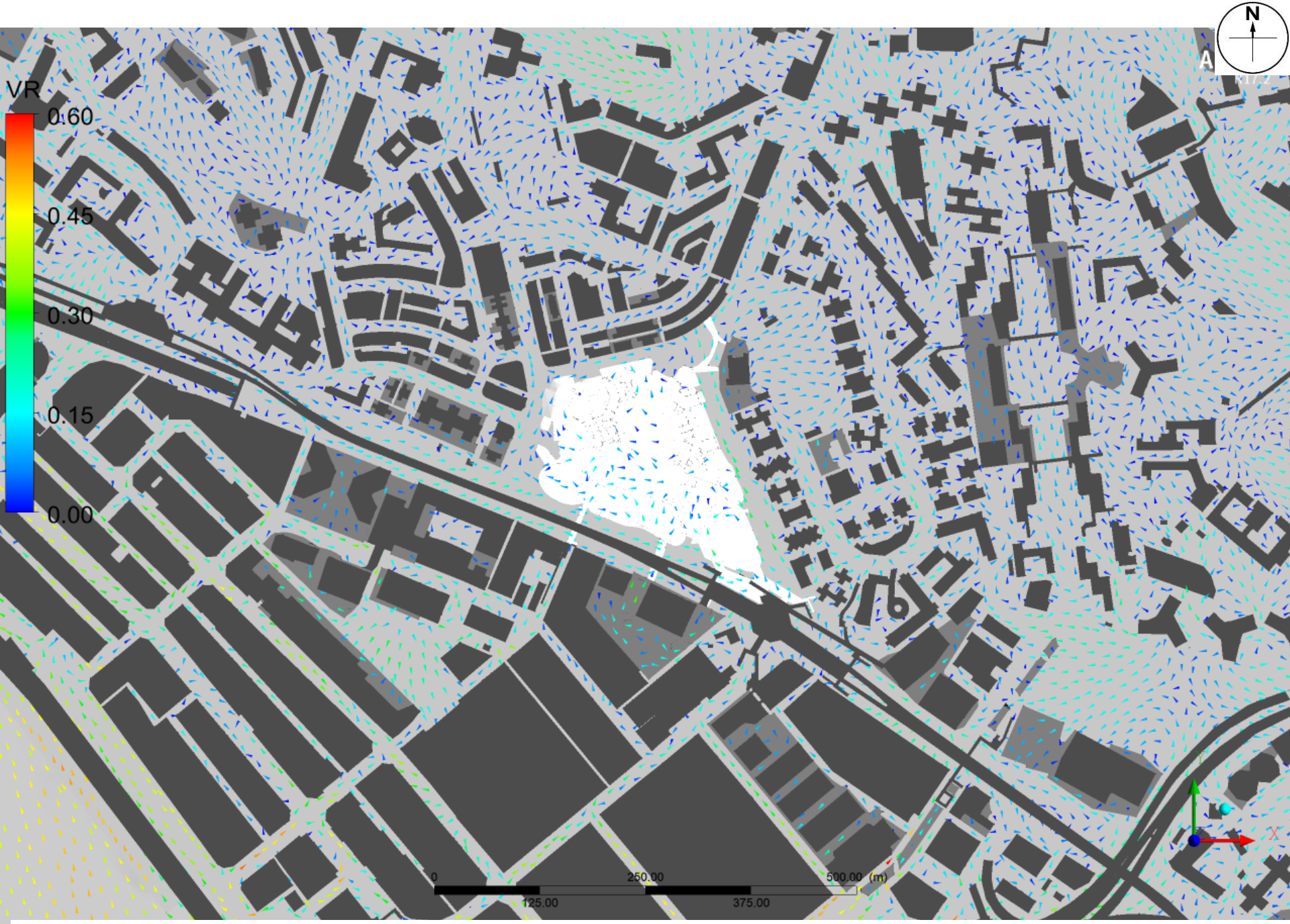
Baseline Scheme - Vector plot at pedestrian level under ESE Wind



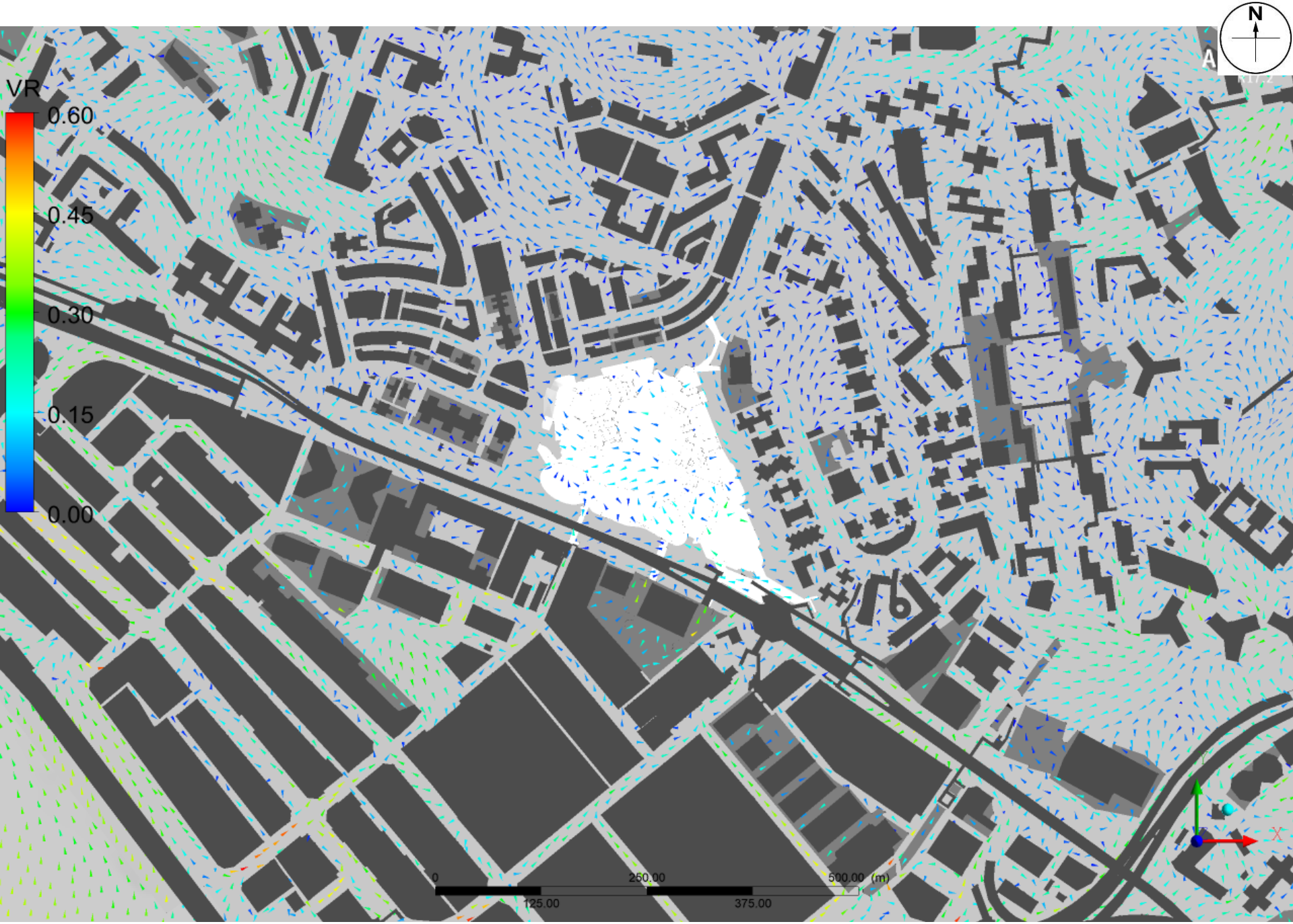
Baseline Scheme - Vector plot at pedestrian level under SE Wind



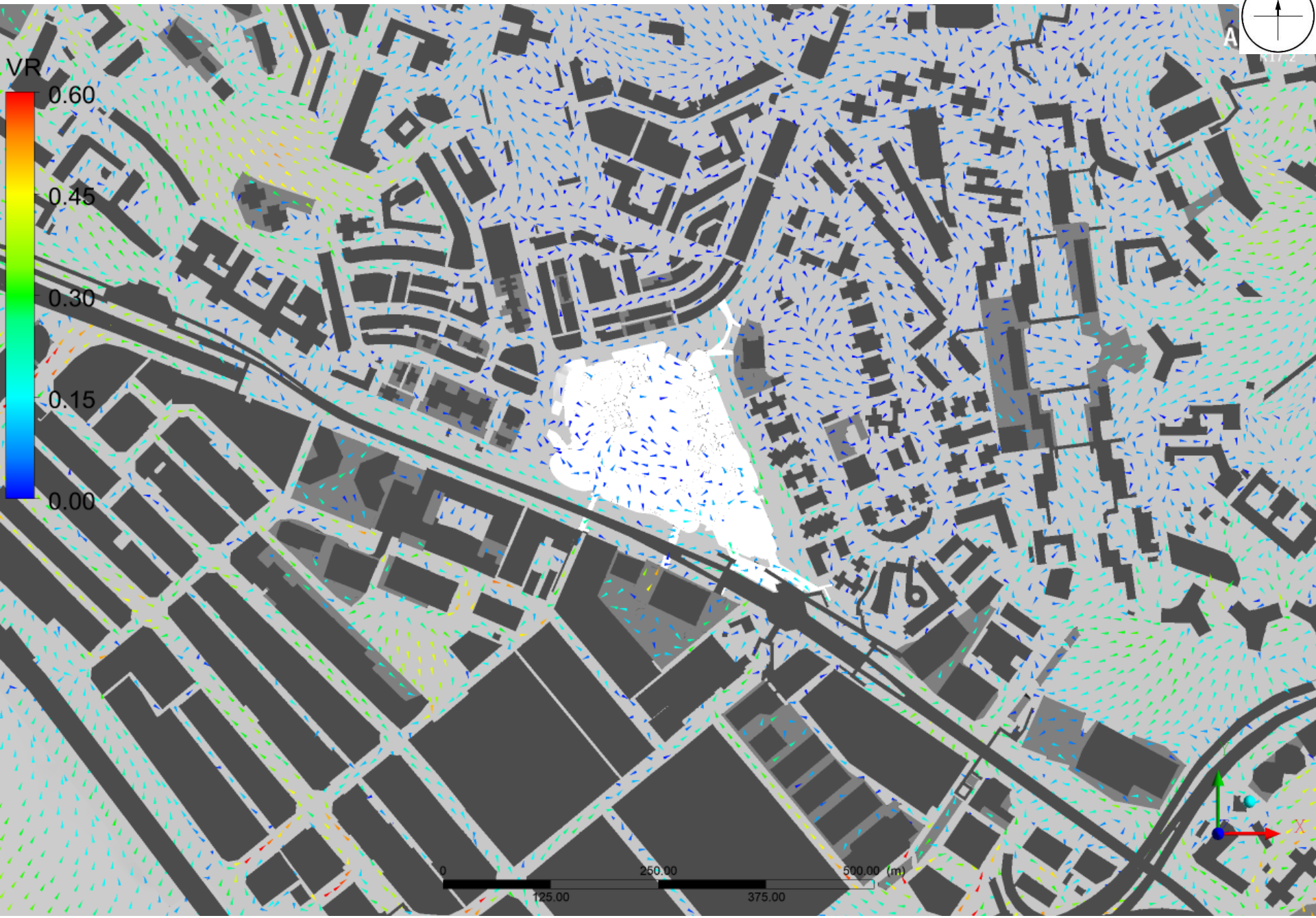
Baseline Scheme - Vector plot at pedestrian level under SSE Wind



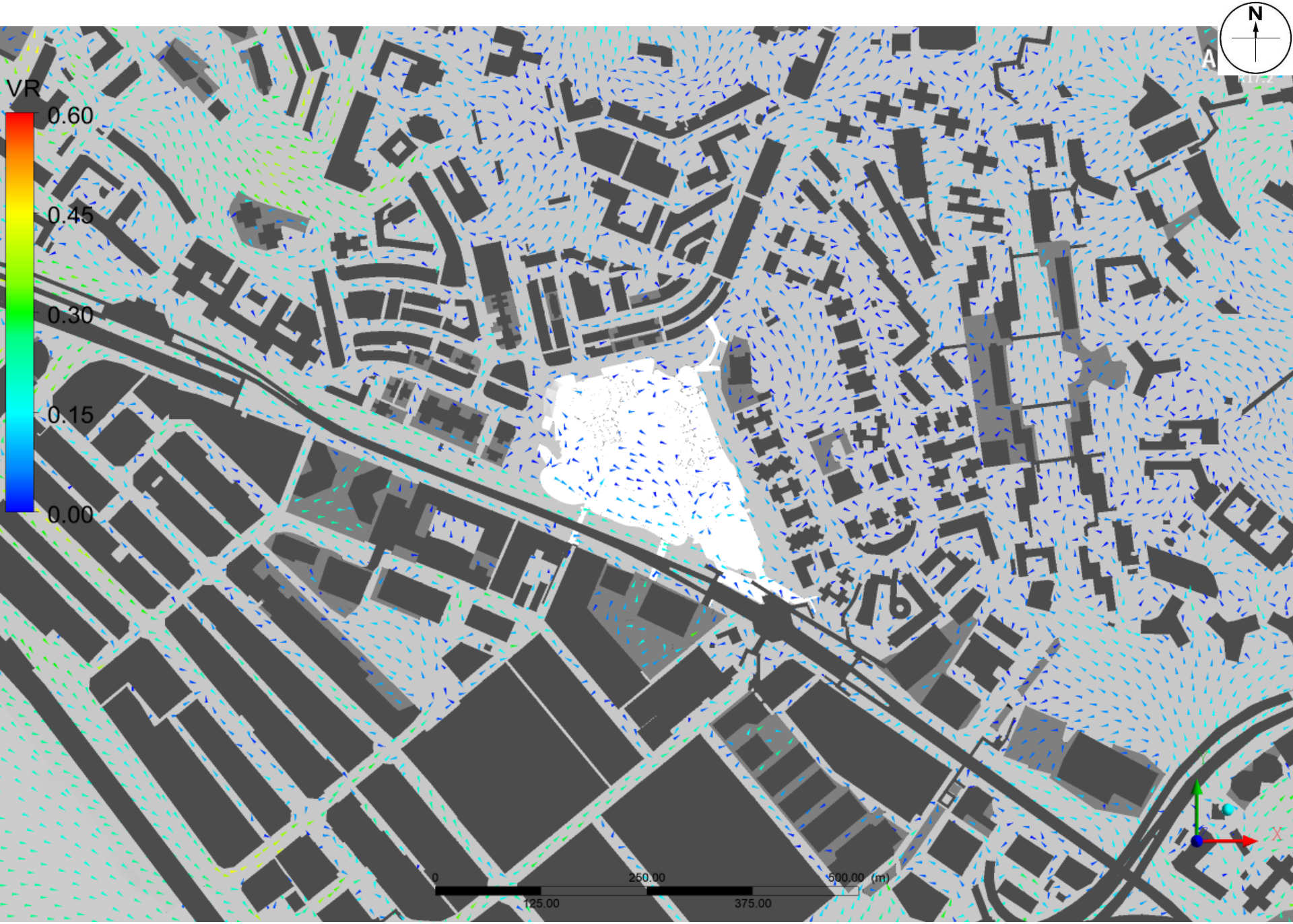
Baseline Scheme - Vector plot at pedestrian level under S Wind



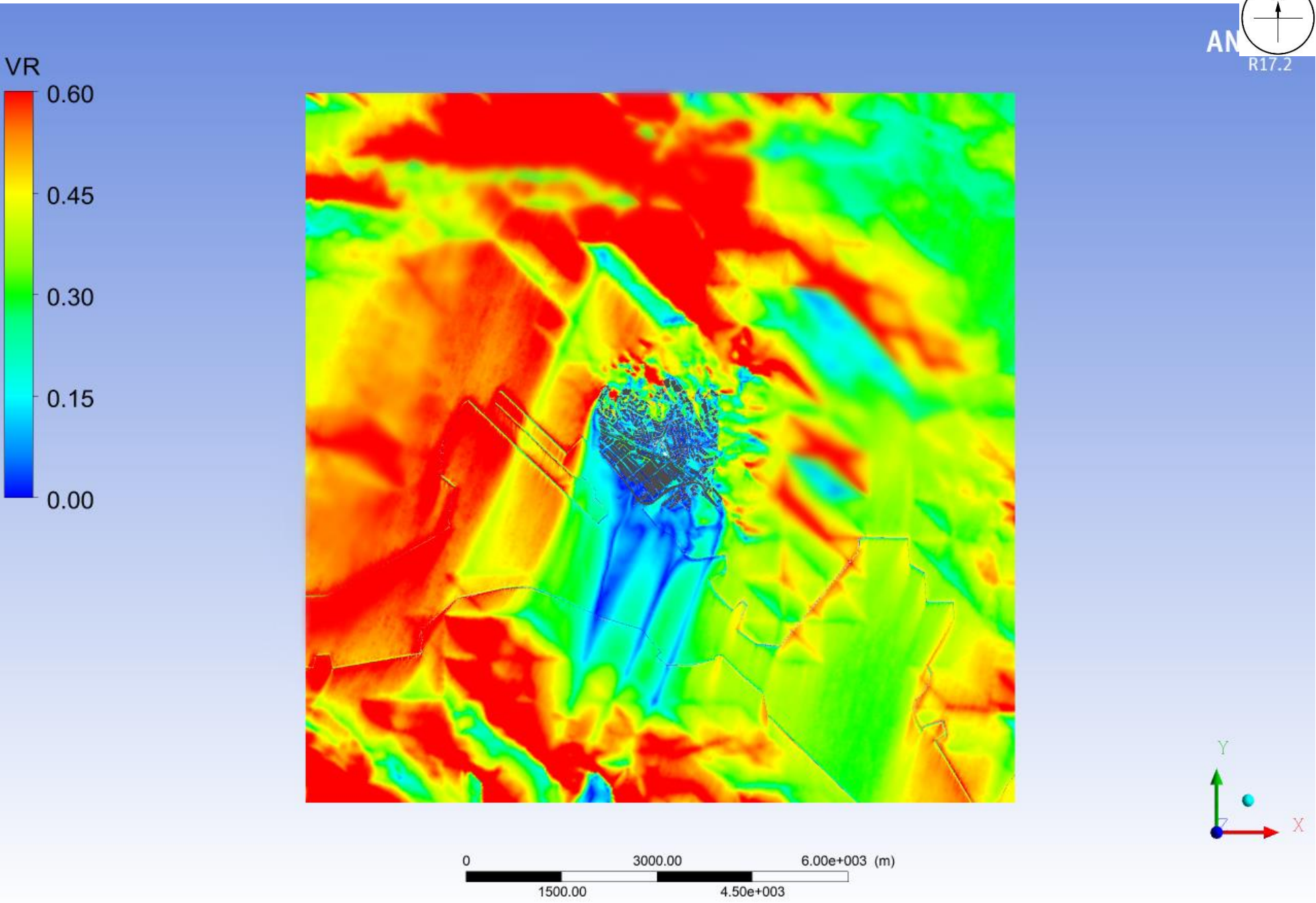
Baseline Scheme - Vector plot at pedestrian level under SSW Wind



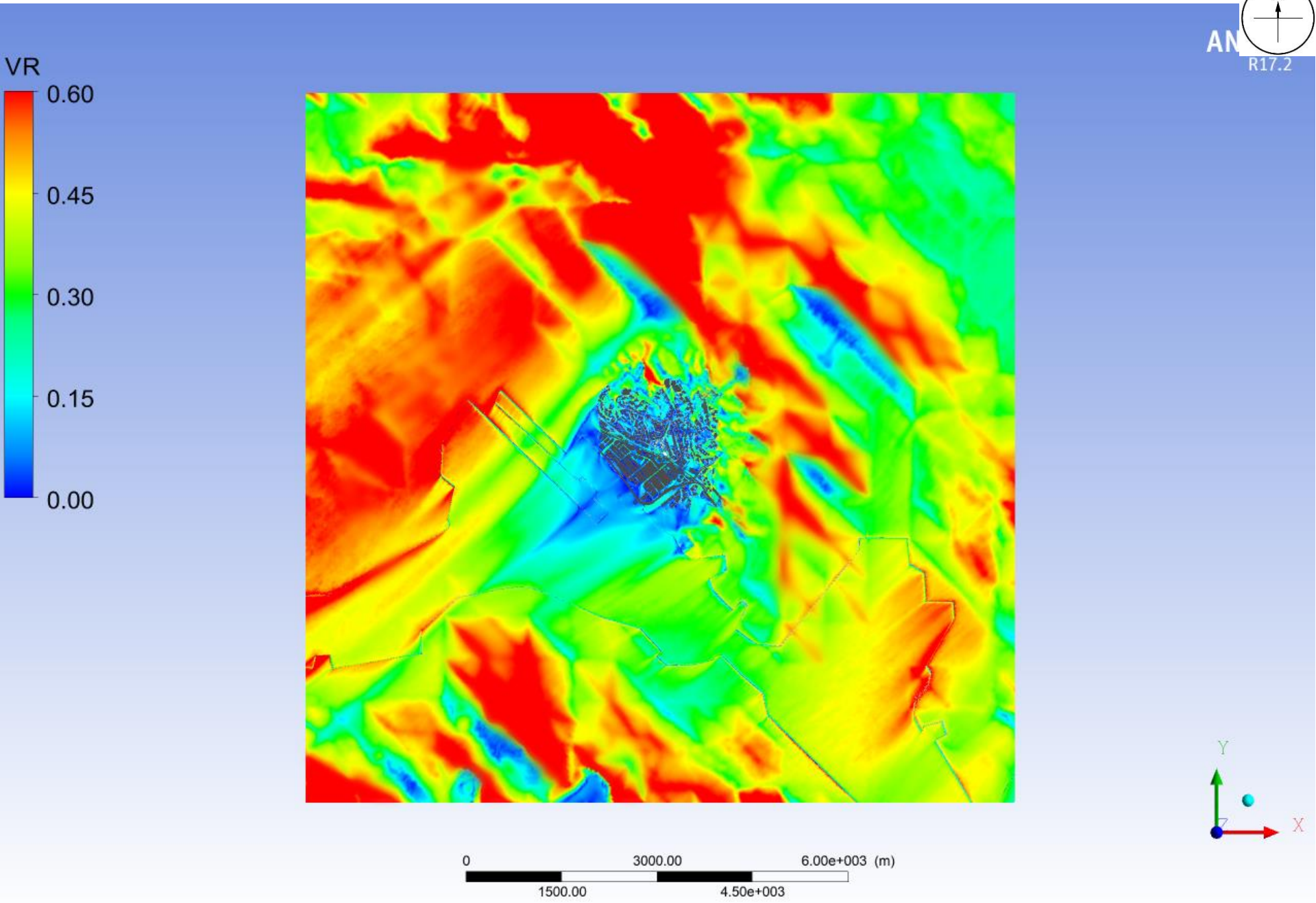
Baseline Scheme - Vector plot at pedestrian level under SW Wind



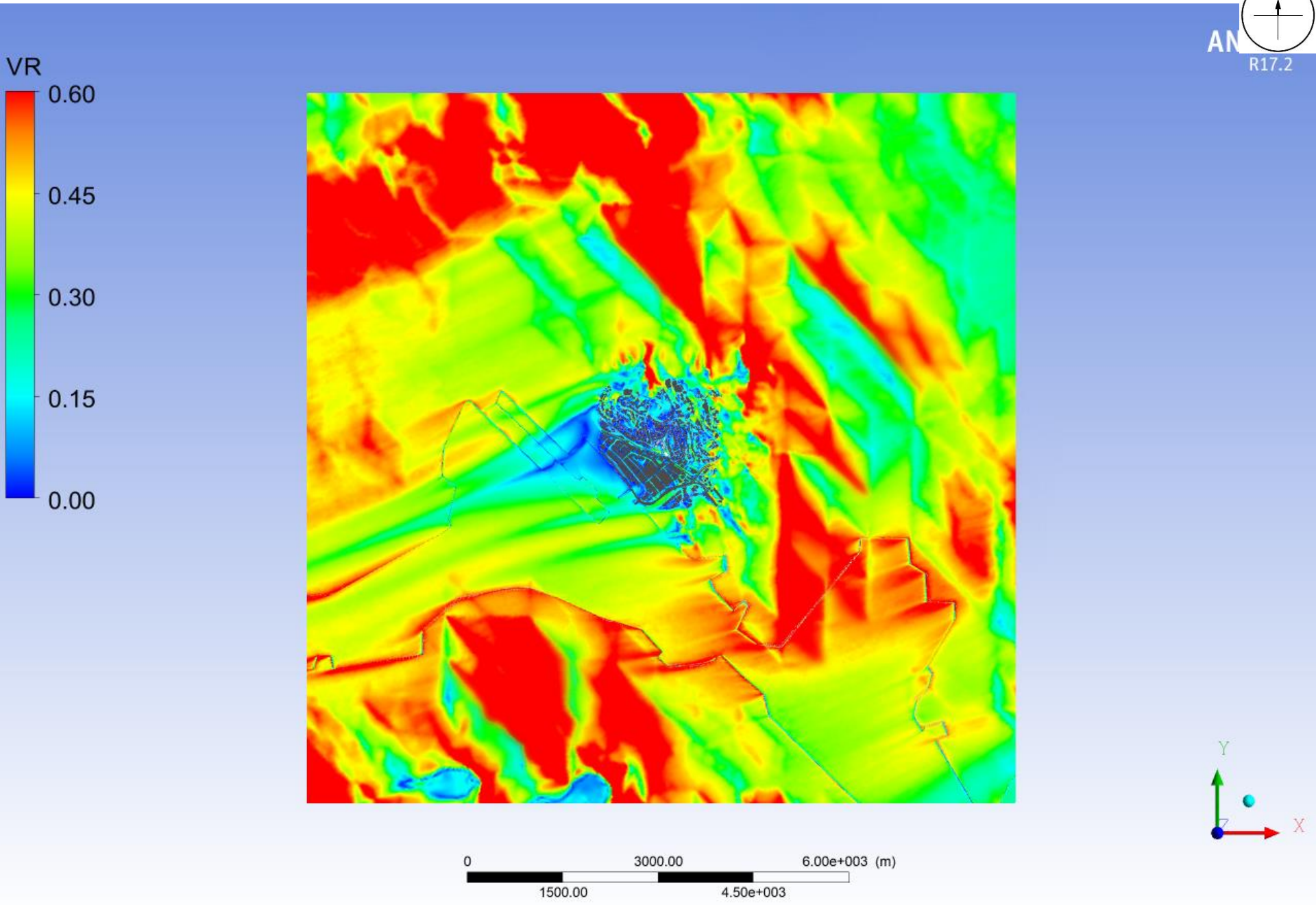
Baseline Scheme - Vector plot at pedestrian level under WSW Wind



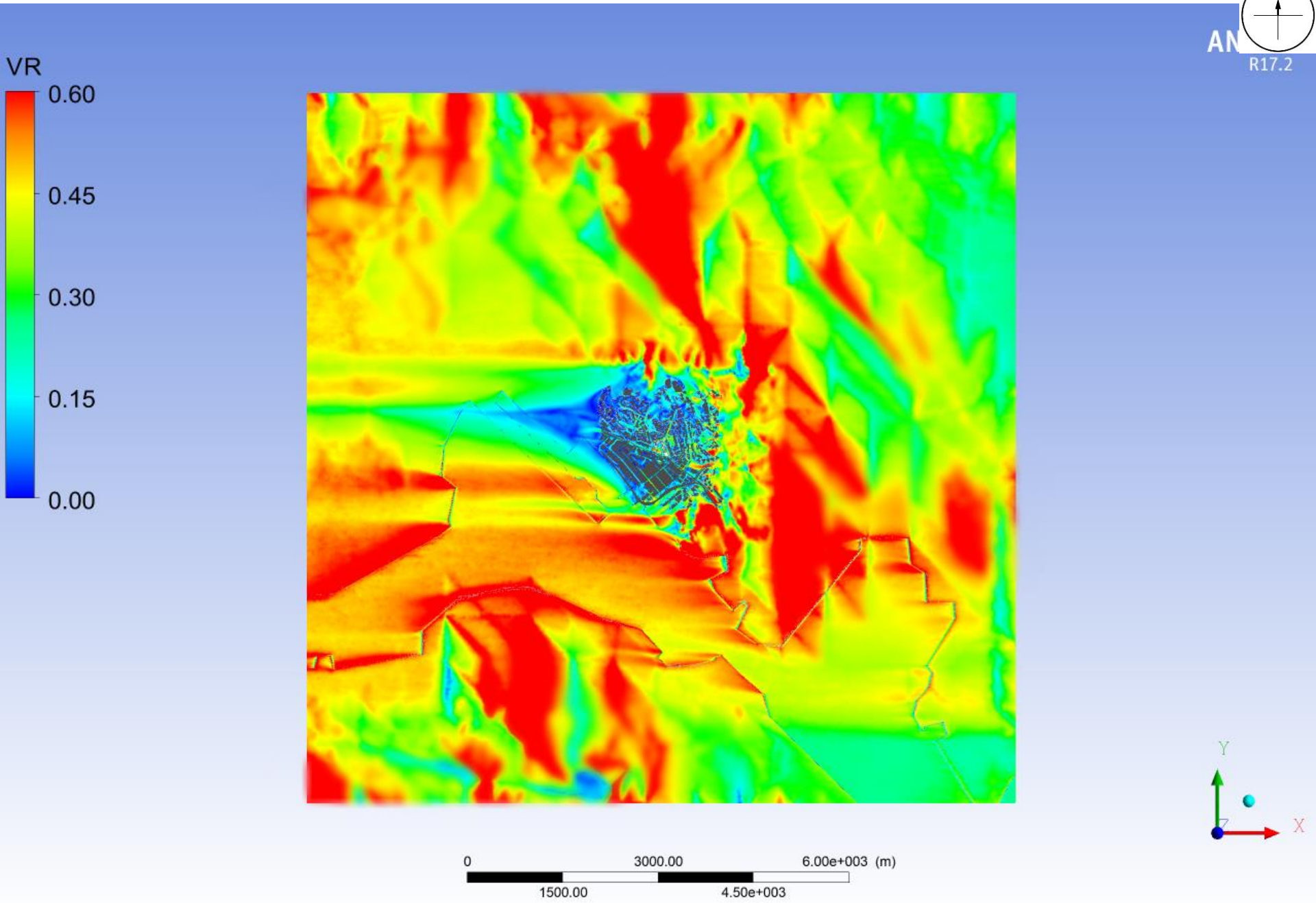
Baseline Scheme – Domain Contour plot at pedestrian level under NNE Wind



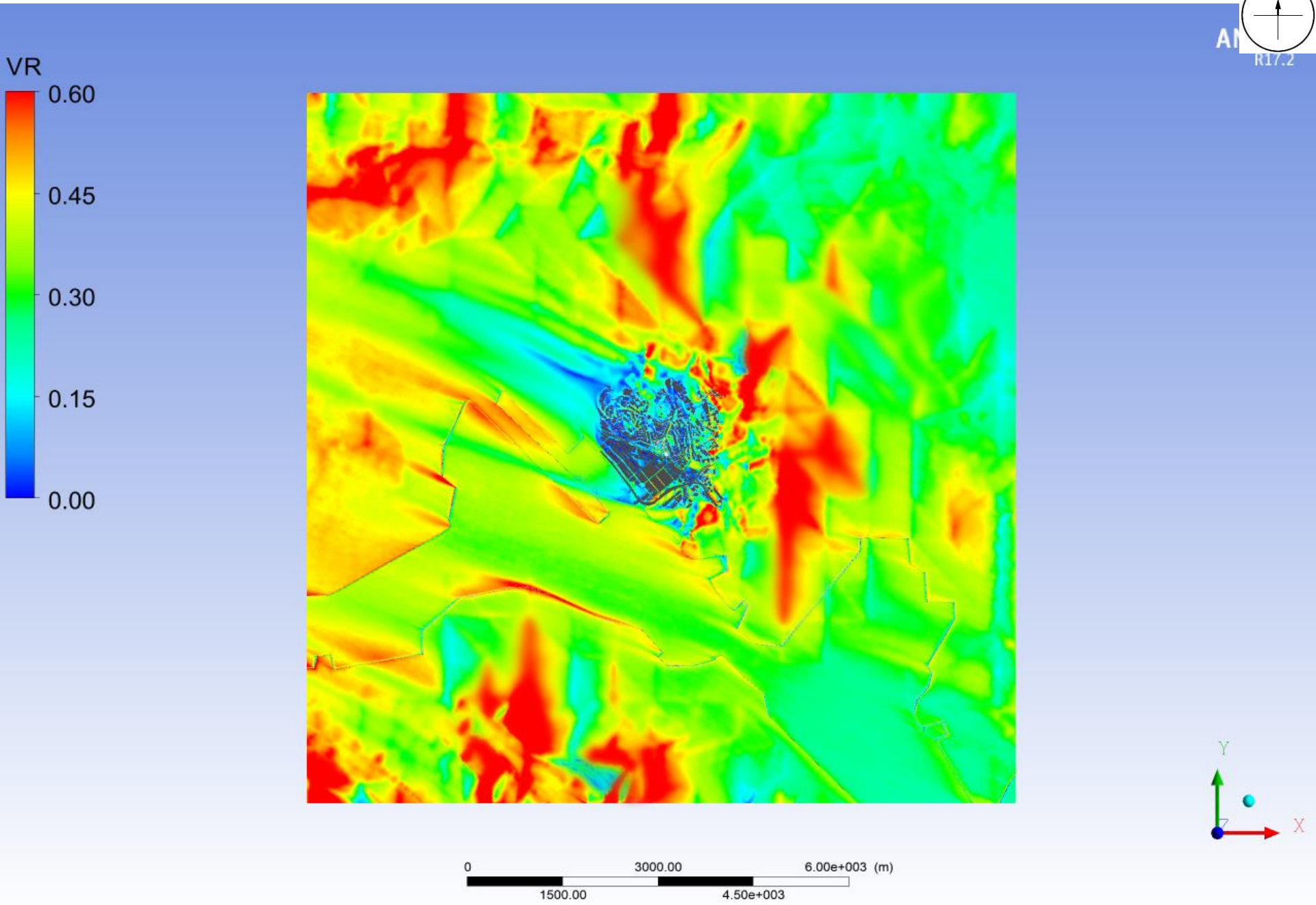
Baseline Scheme - Domain Contour plot at pedestrian level under NE Wind



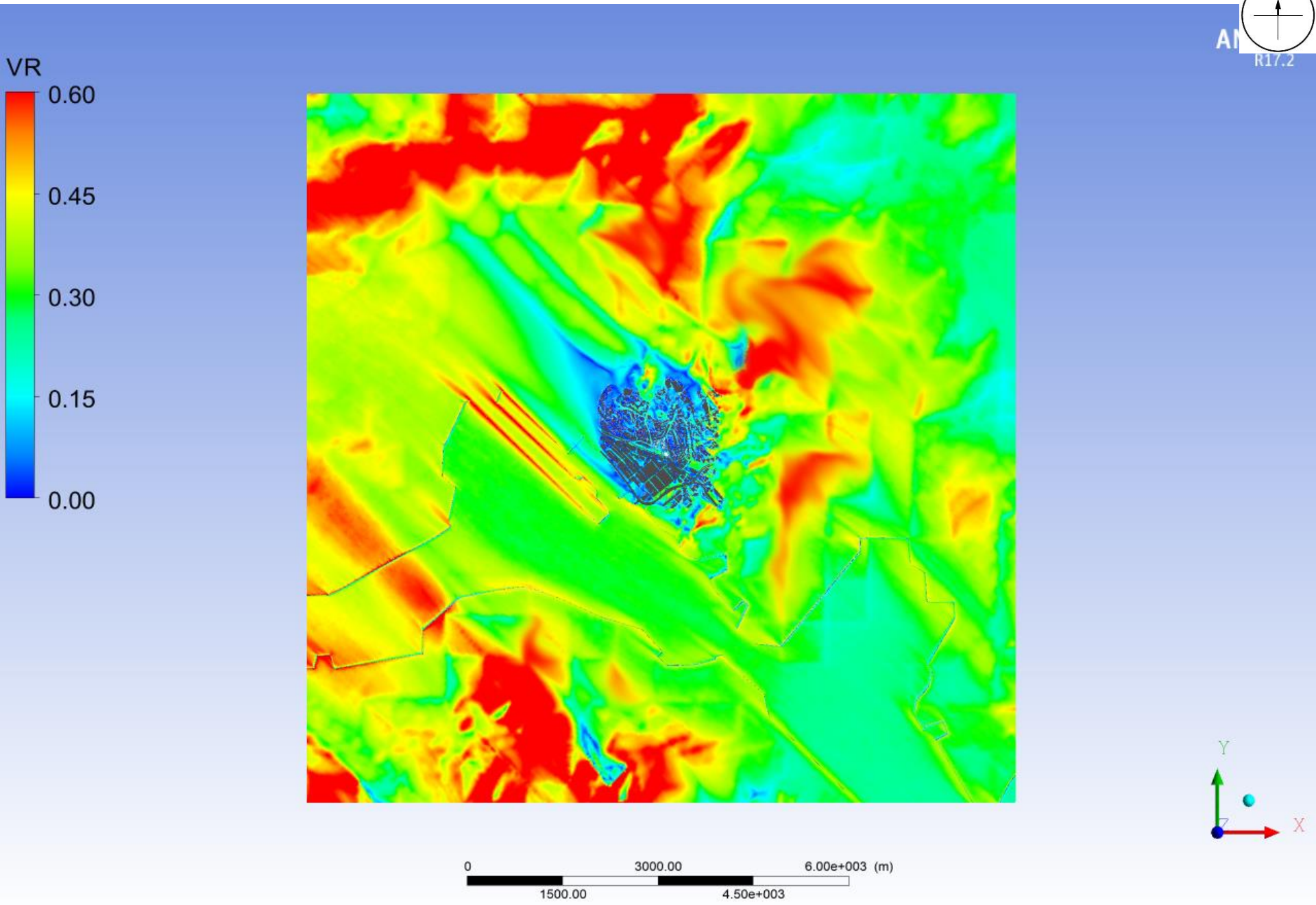
Baseline Scheme - Domain Contour plot at pedestrian level under ENE Wind



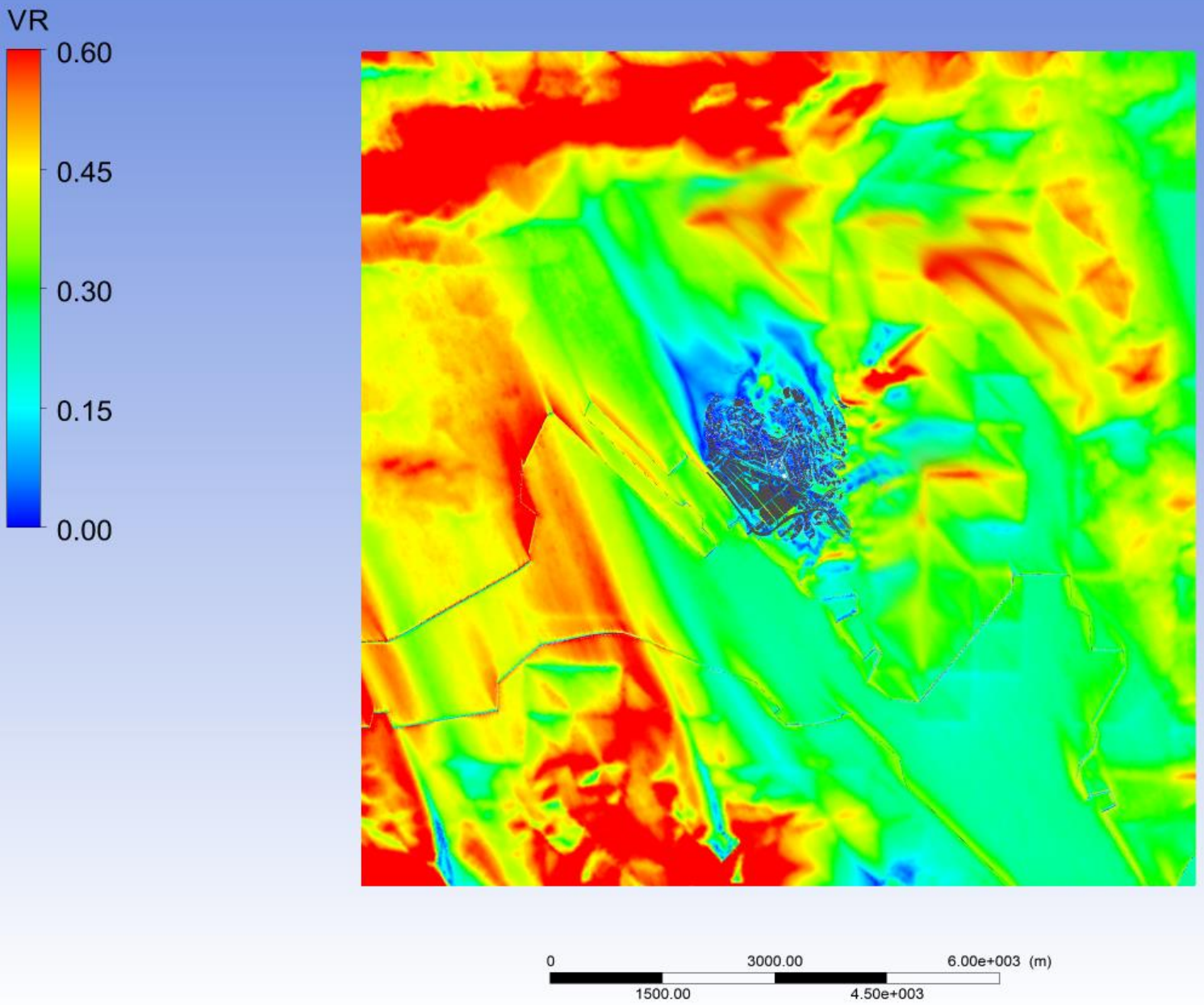
Baseline Scheme - Domain Contour plot at pedestrian level under E Wind



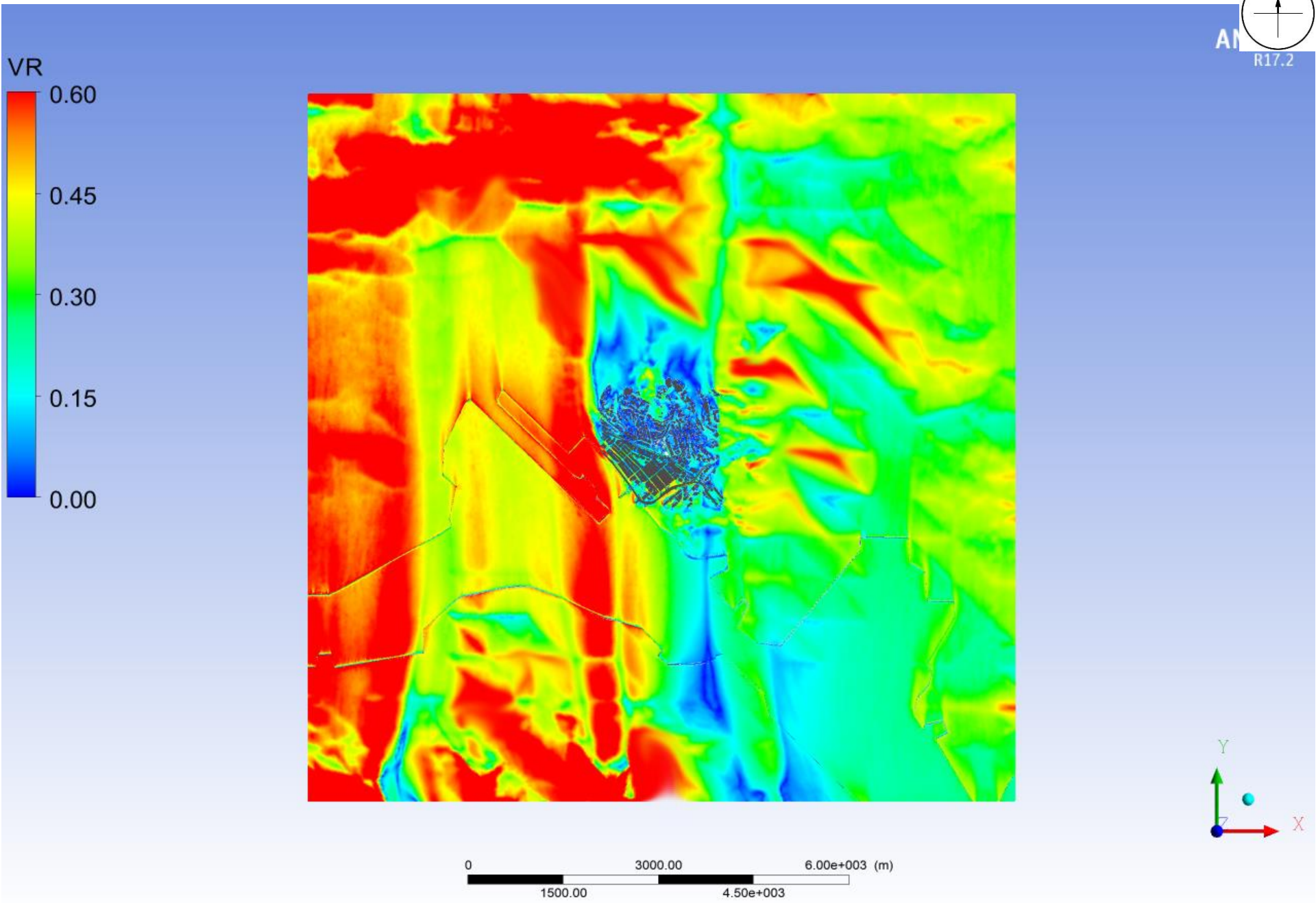
Baseline Scheme - Domain Contour plot at pedestrian level under ESE Wind



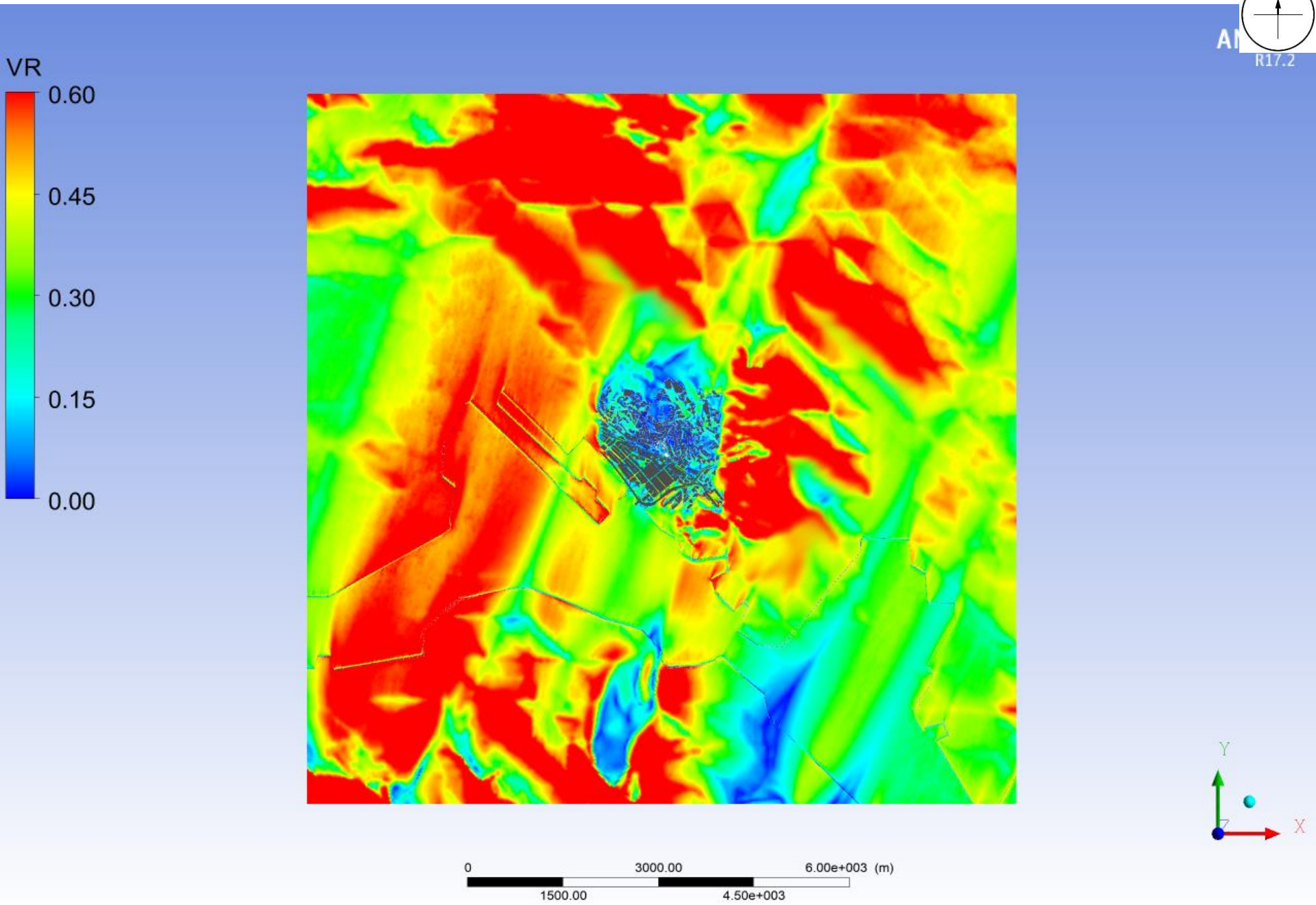
Baseline Scheme - Domain Contour plot at pedestrian level under SE Wind



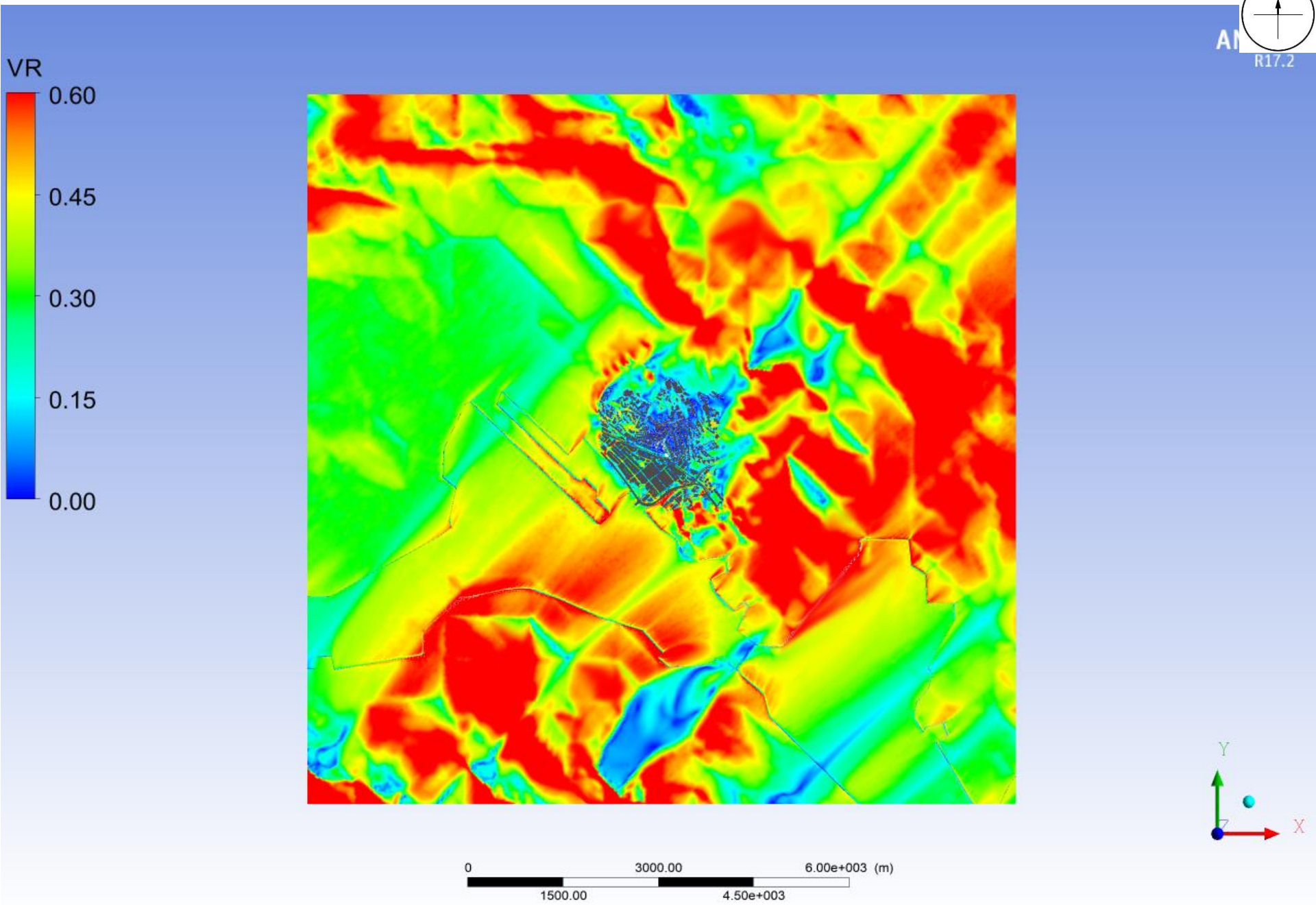
Baseline Scheme - Domain Contour plot at pedestrian level under SSE Wind



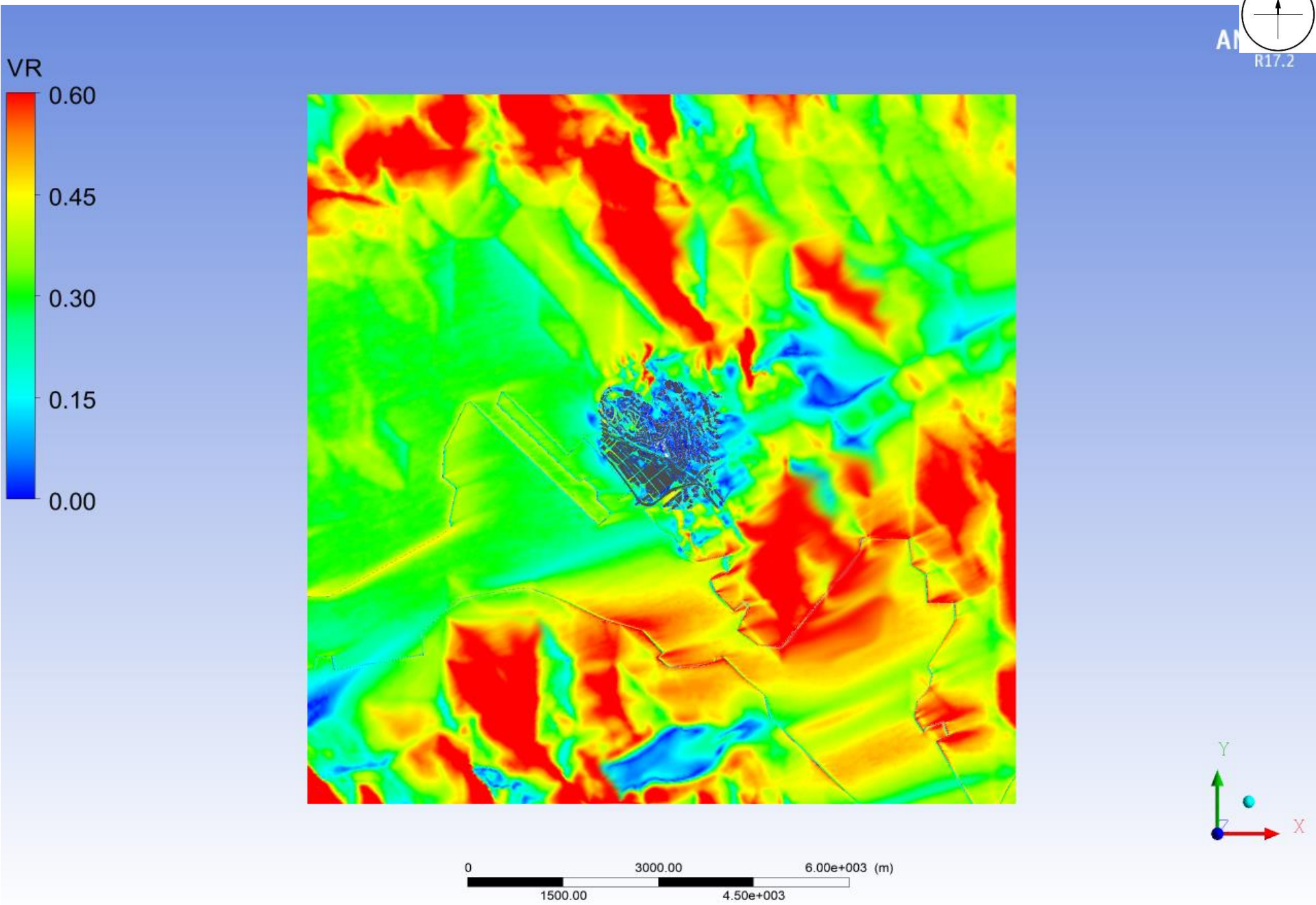
Baseline Scheme - Domain Contour plot at pedestrian level under S Wind



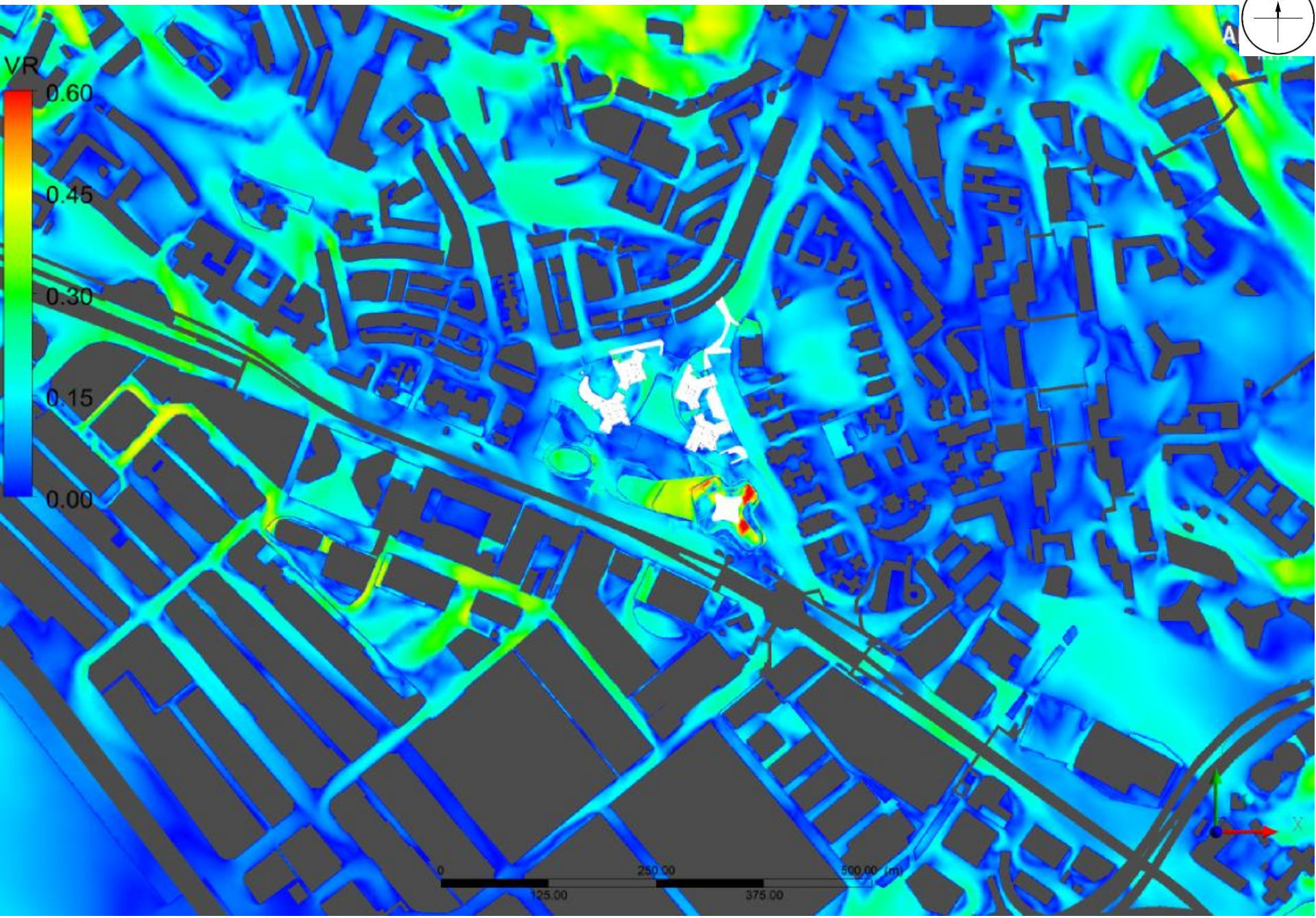
Baseline Scheme - Domain Contour plot at pedestrian level under SSW Wind



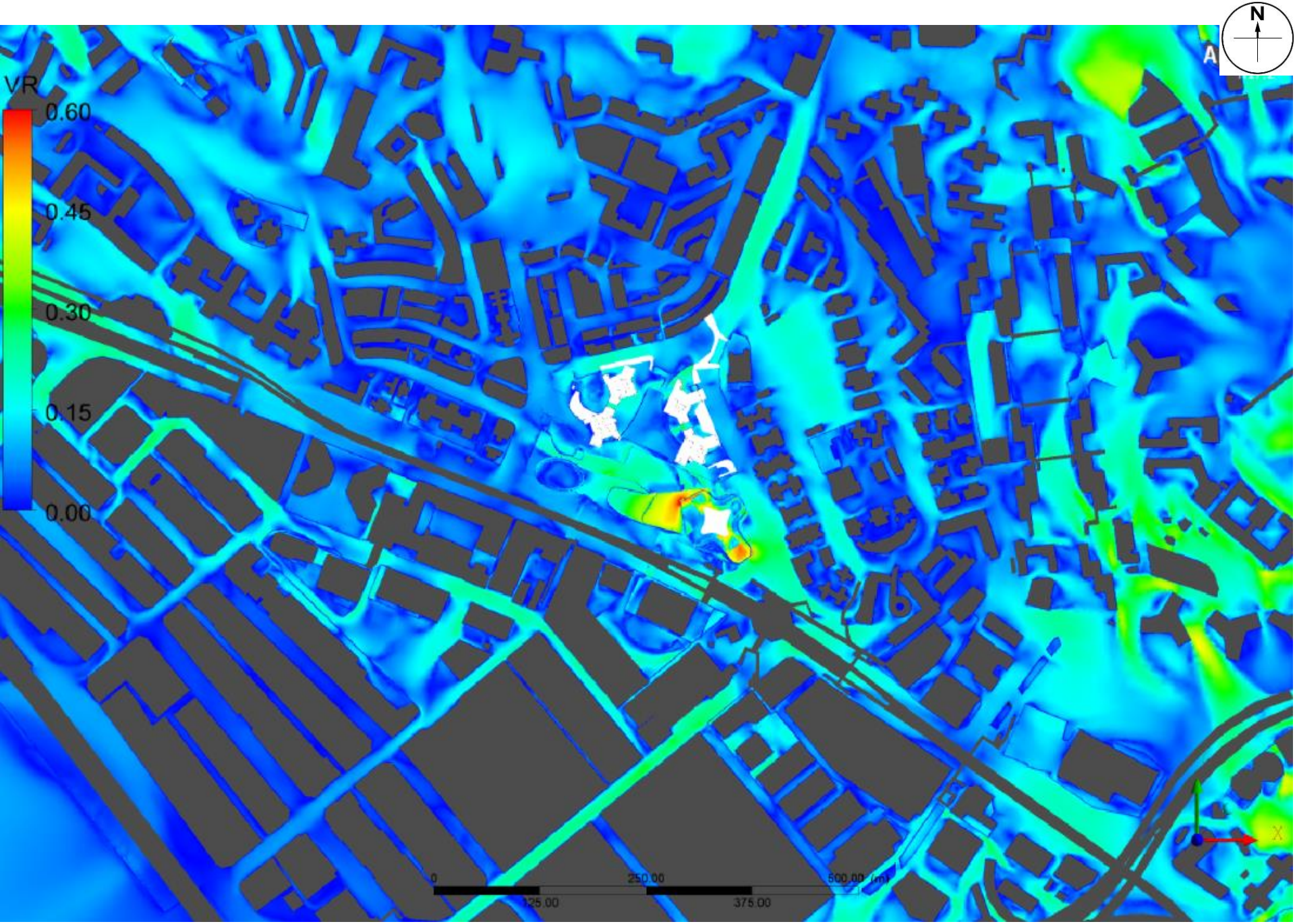
Baseline Scheme - Domain Contour plot at pedestrian level under SW Wind



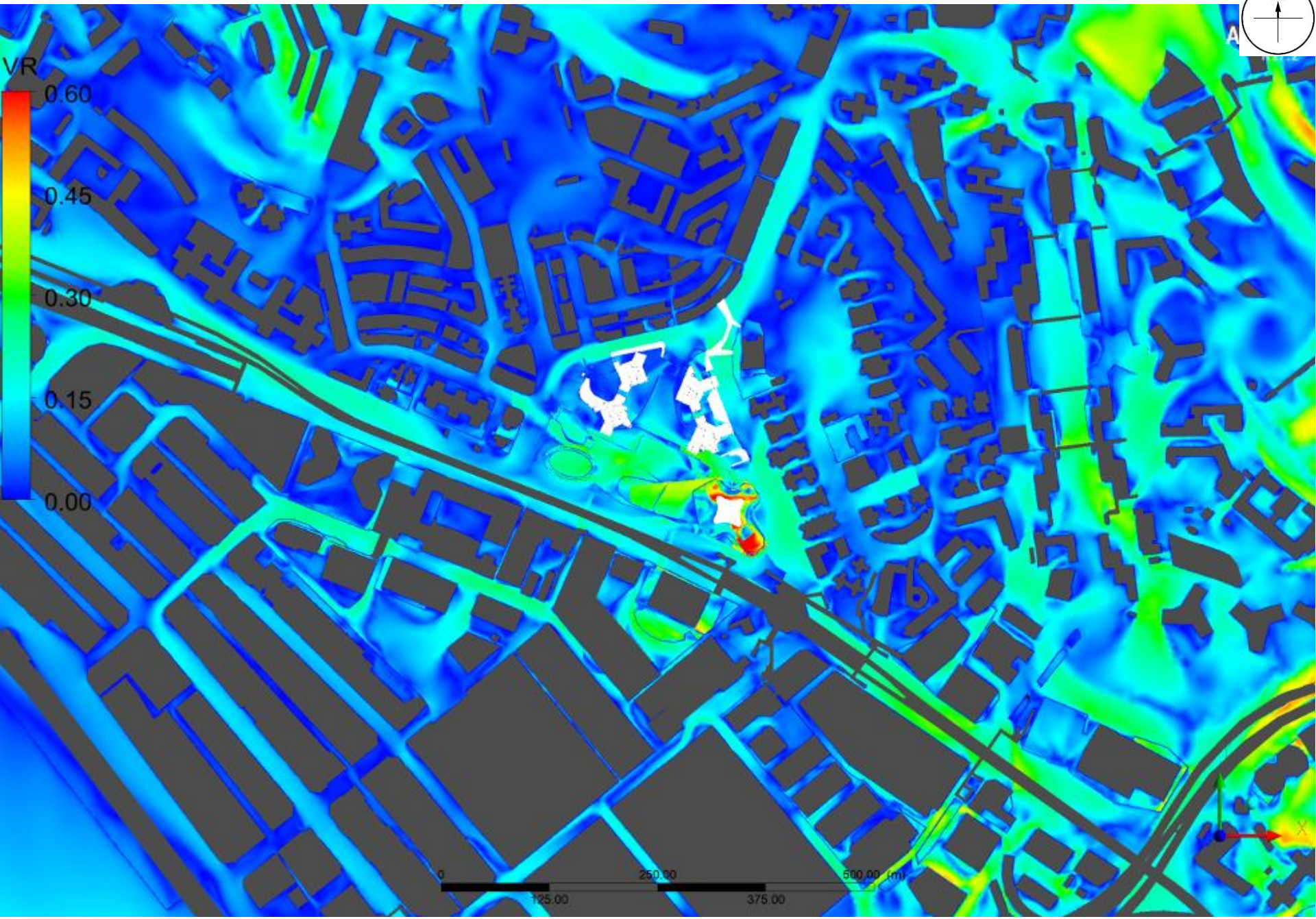
Baseline Scheme - Domain Contour plot at pedestrian level under WSW Wind



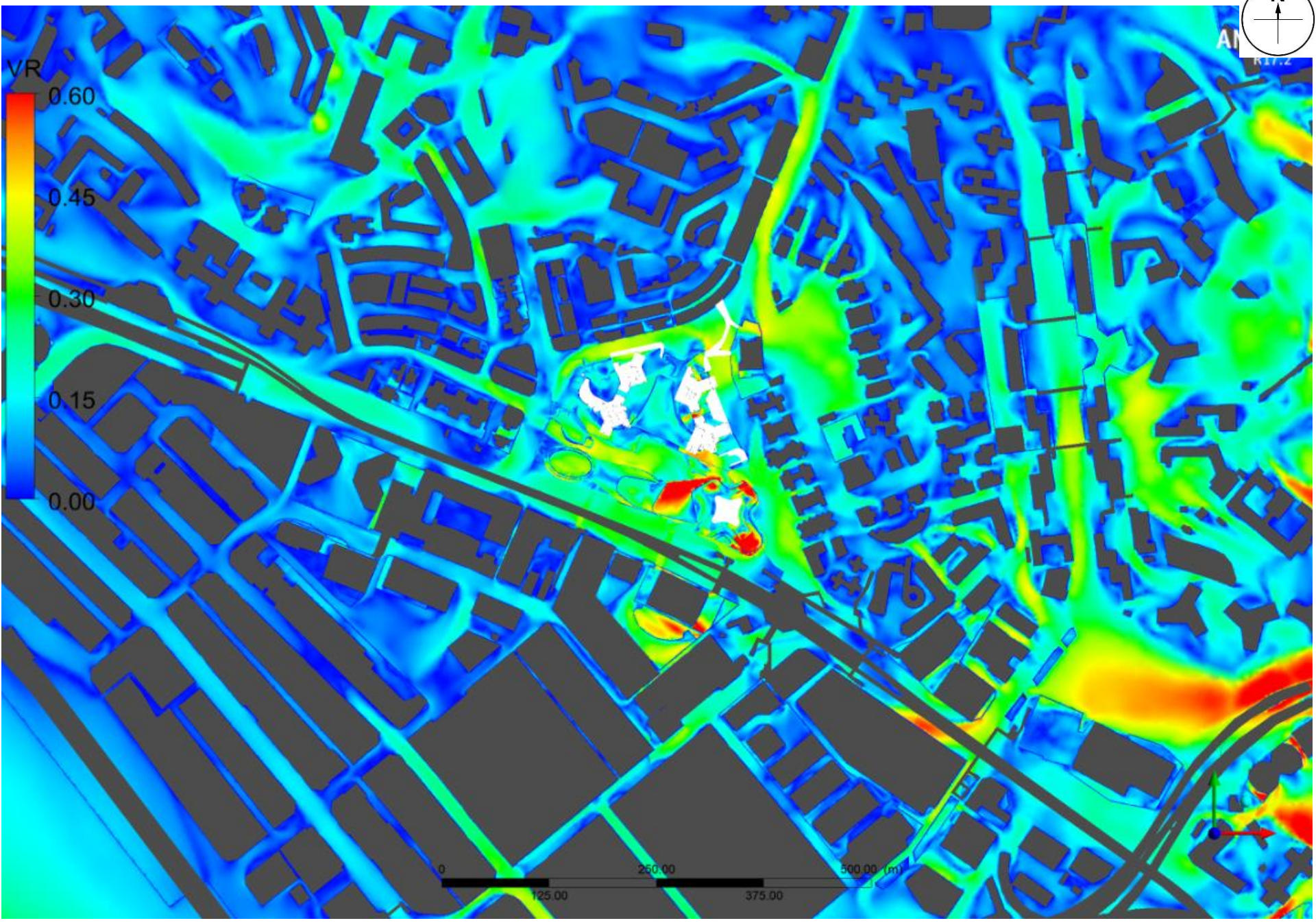
Proposed Scheme - Contour plot at pedestrian level under NNE Wind



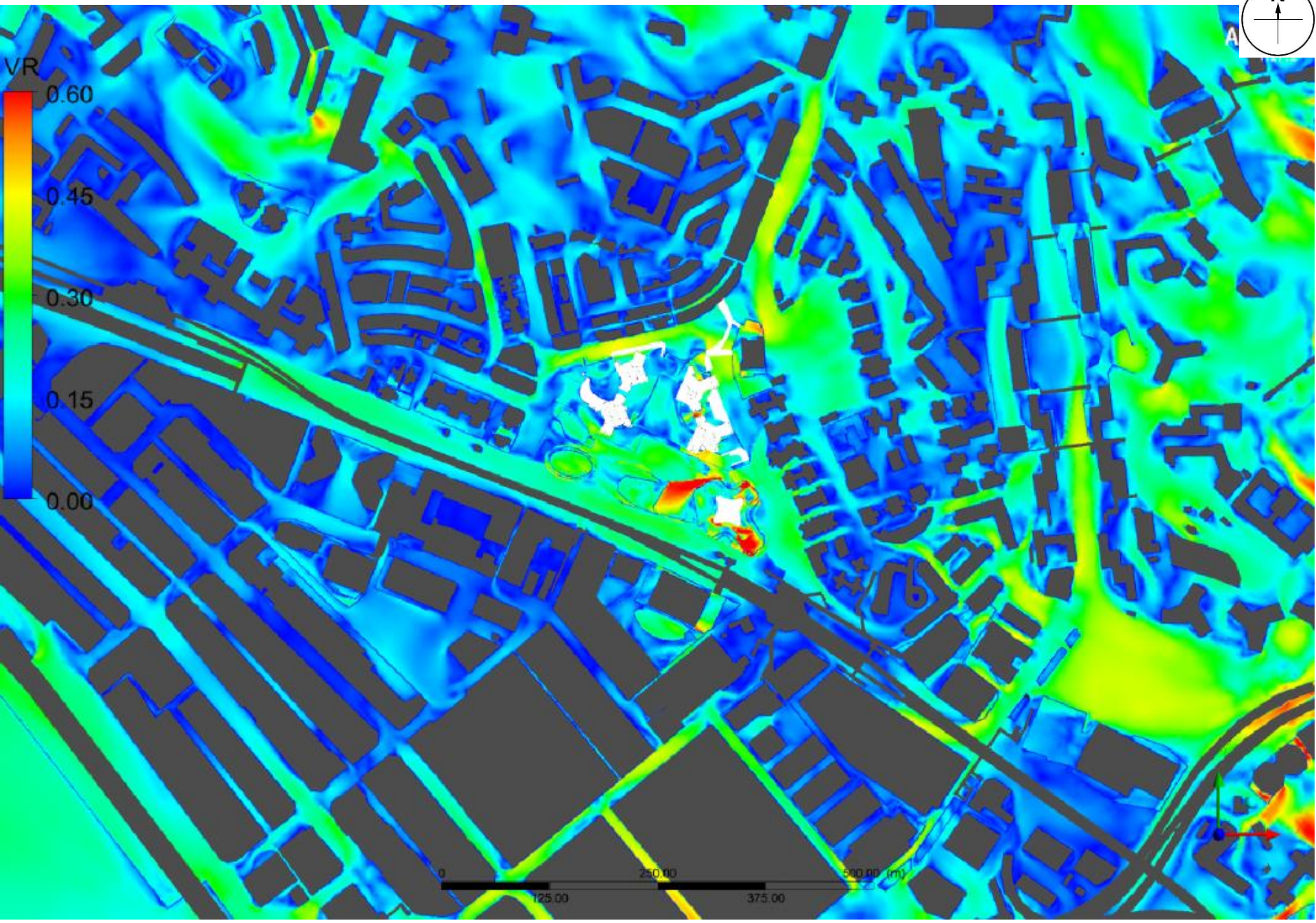
Proposed Scheme - Contour plot at pedestrian level under NE Wind



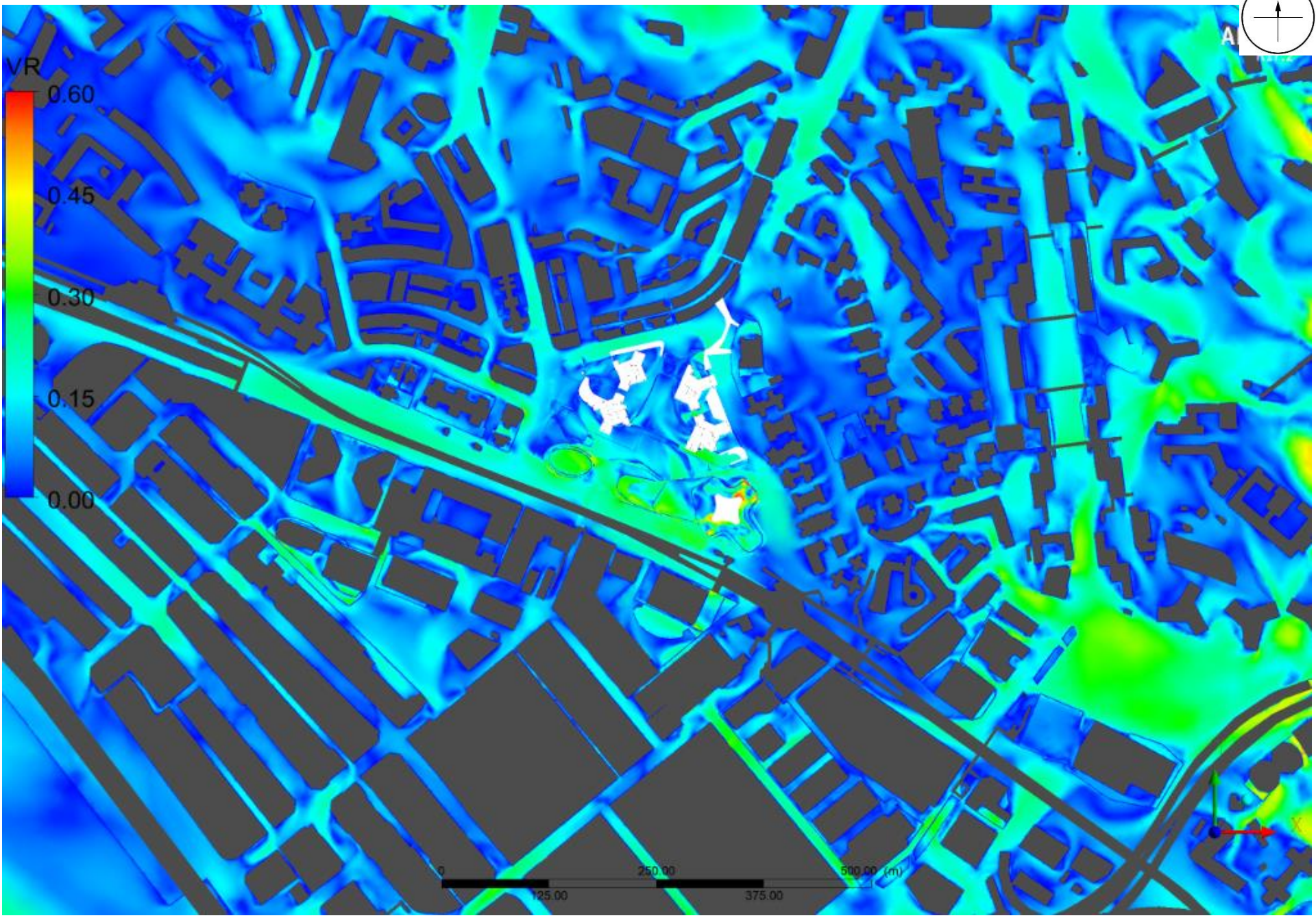
Proposed Scheme - Contour plot at pedestrian level under ENE Wind



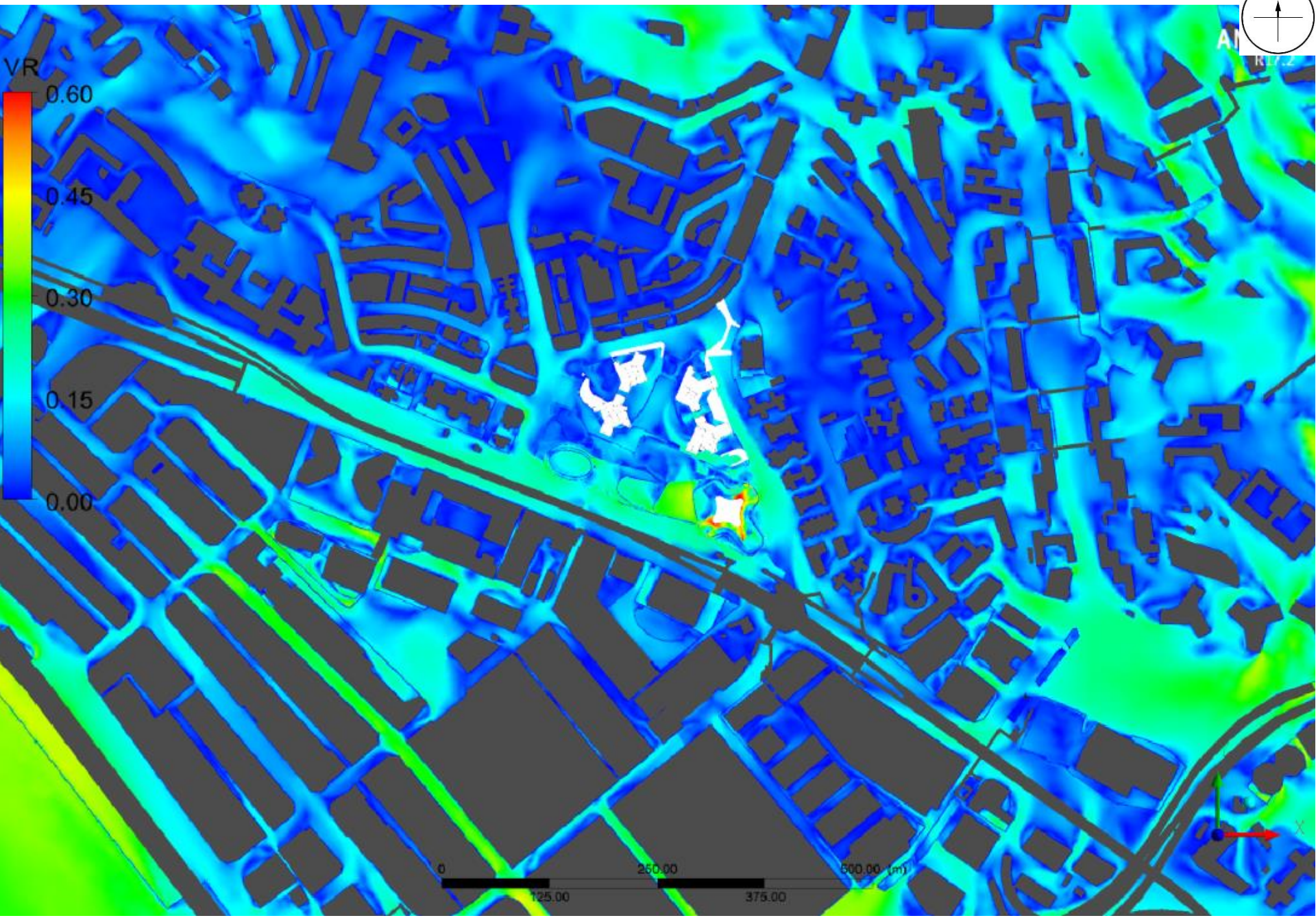
Proposed Scheme - Contour plot at pedestrian level under E Wind



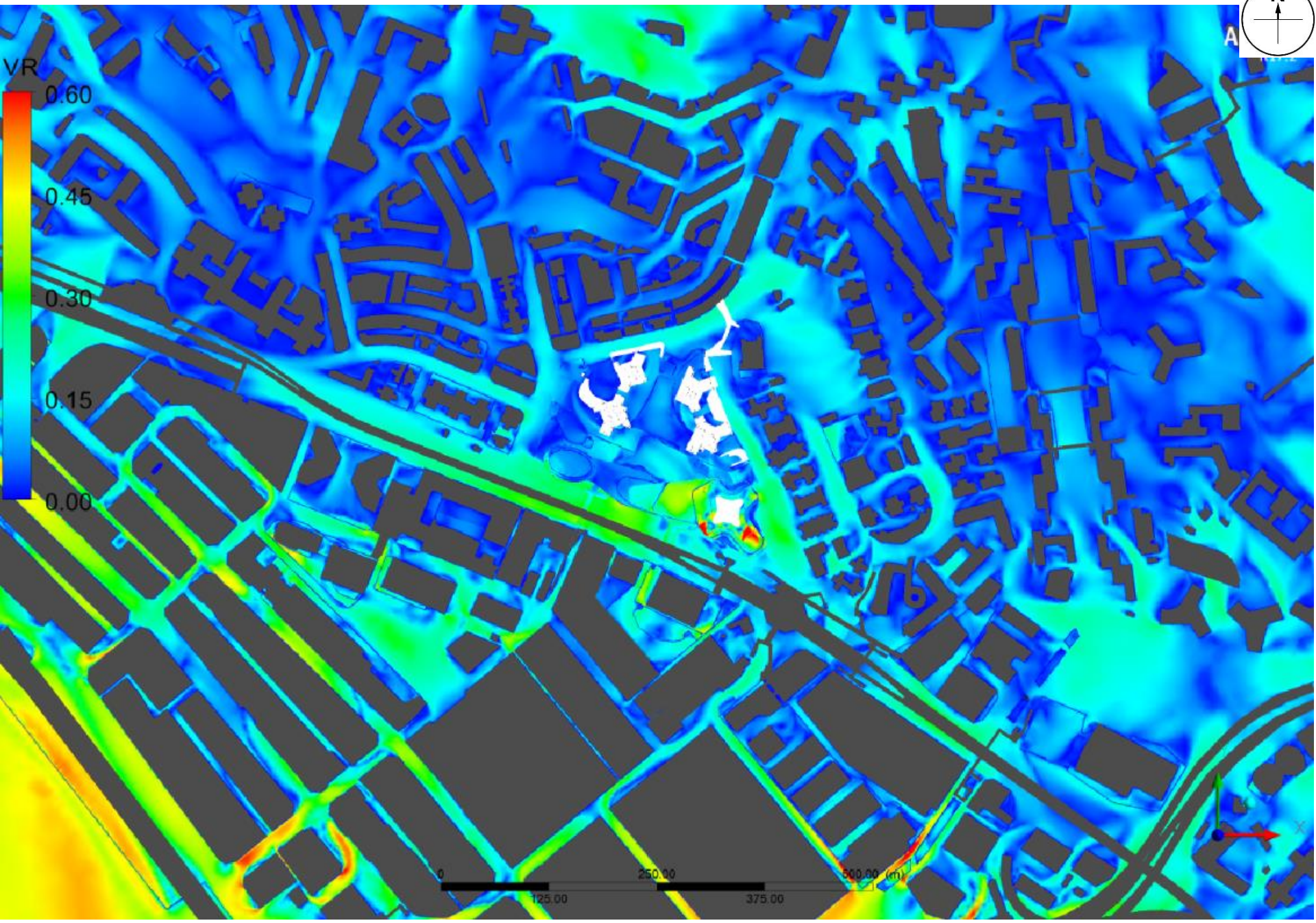
Proposed Scheme - Contour plot at pedestrian level under ESE Wind



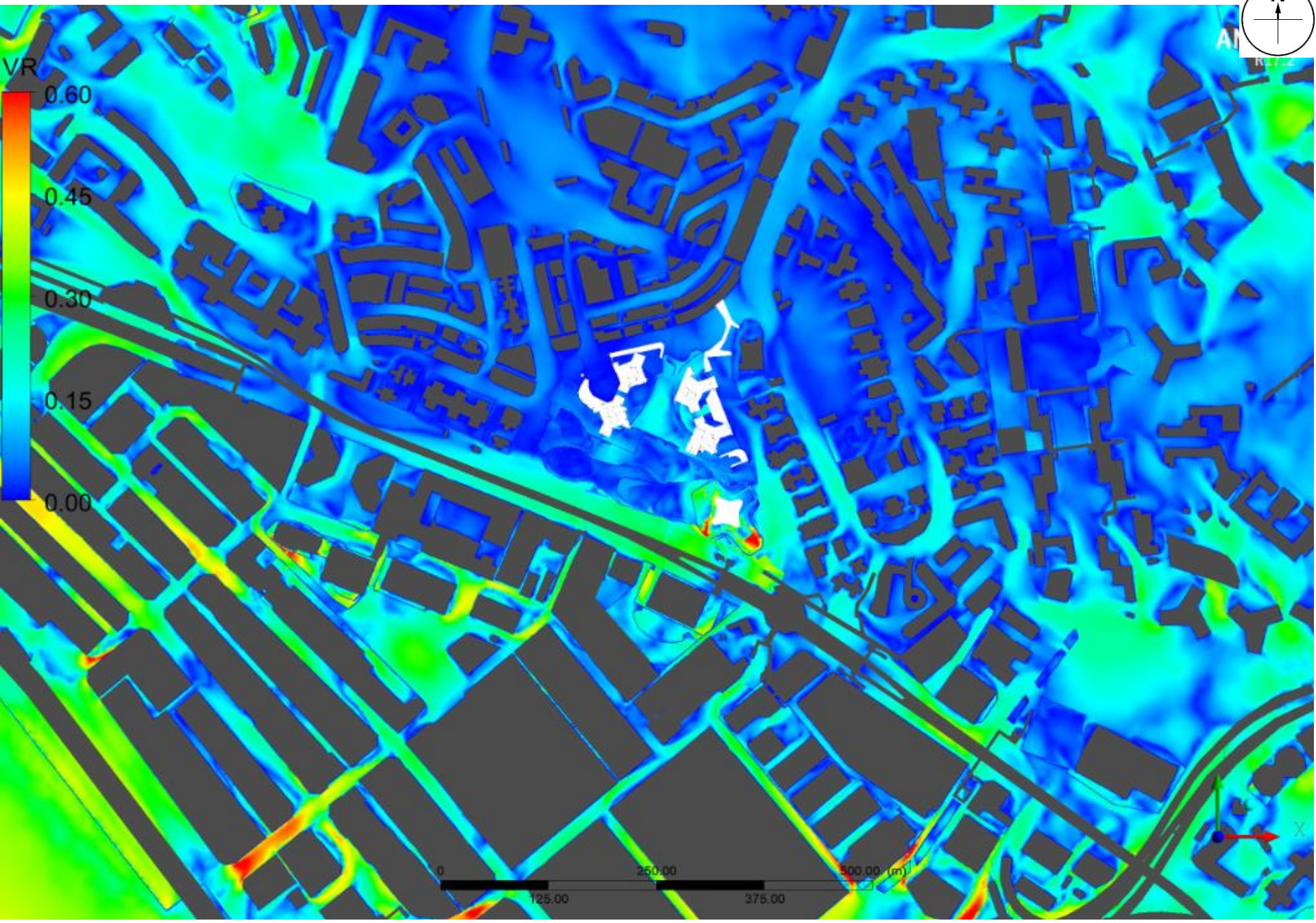
Proposed Scheme - Contour plot at pedestrian level under SE Wind



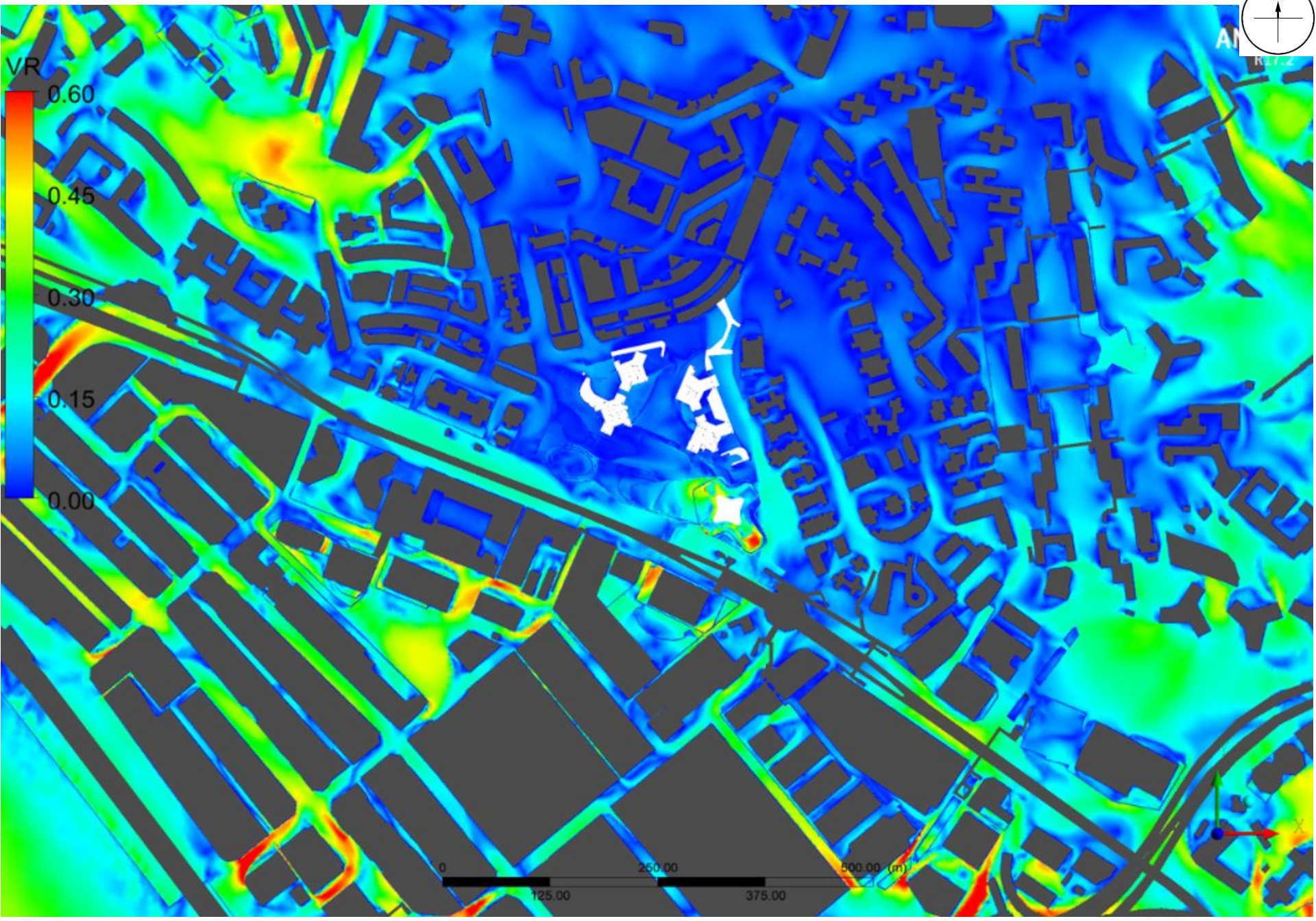
Proposed Scheme - Contour plot at pedestrian level under SSE Wind



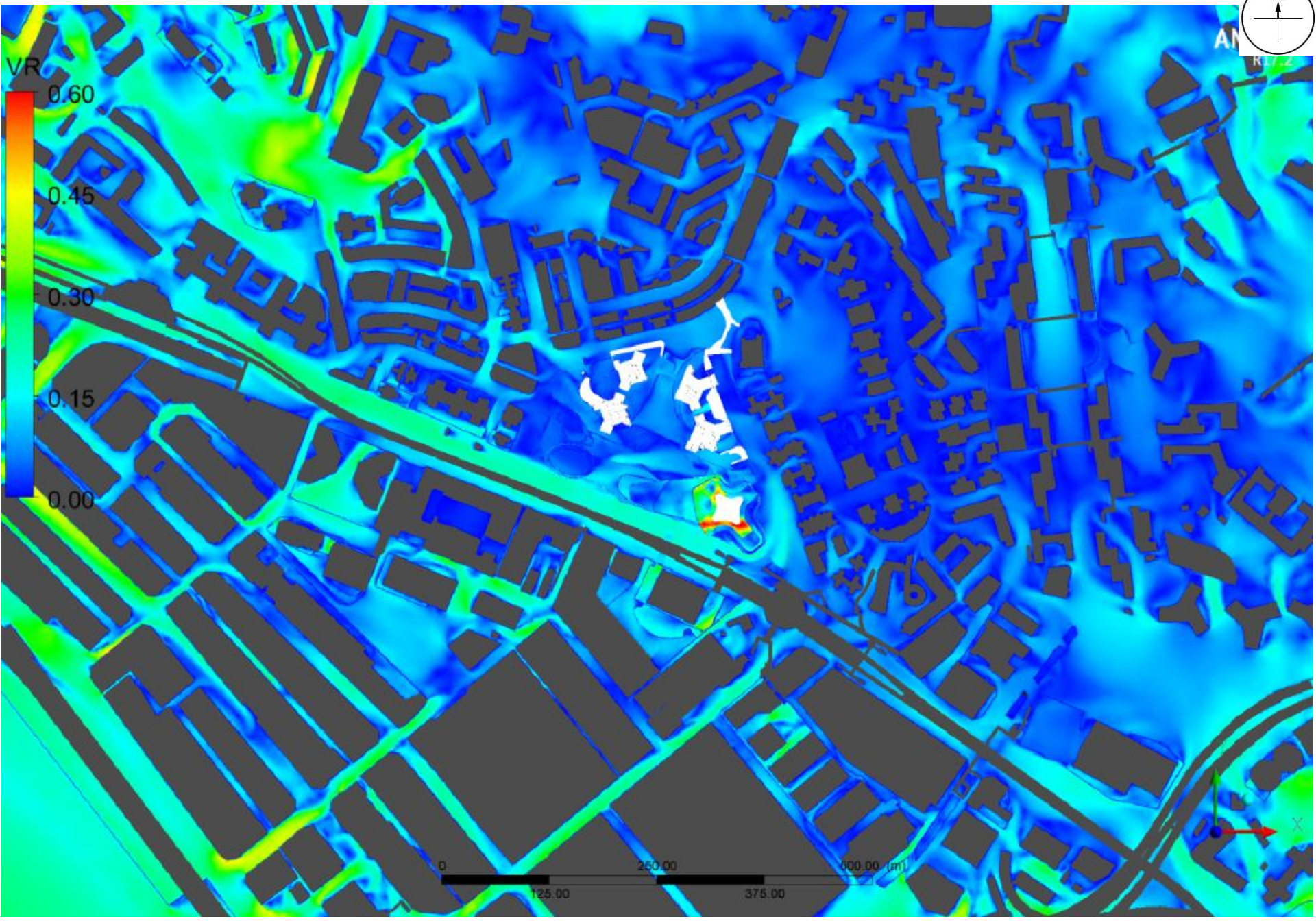
Proposed Scheme - Contour plot at pedestrian level under S Wind



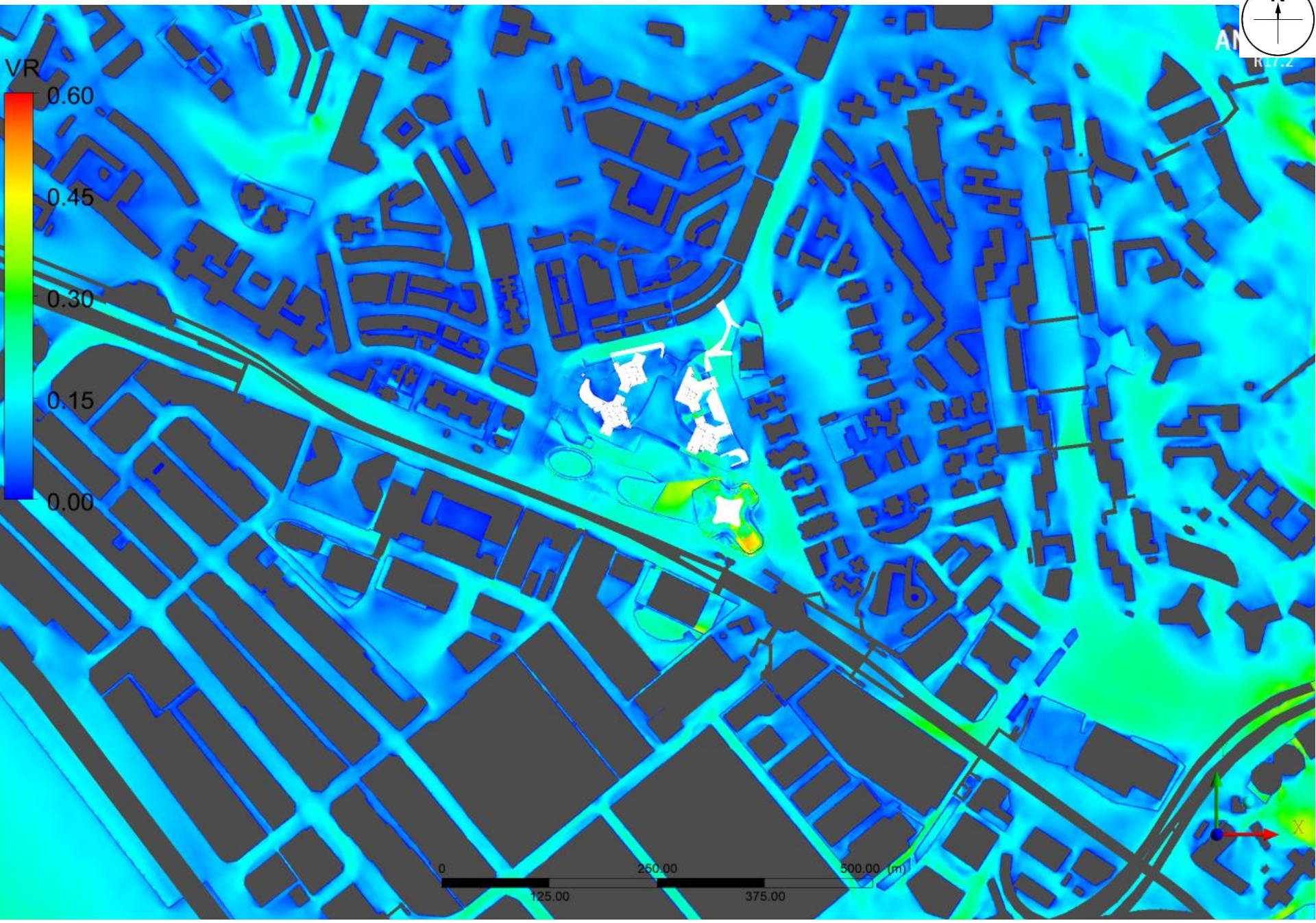
Proposed Scheme - Contour plot at pedestrian level under SSW Wind



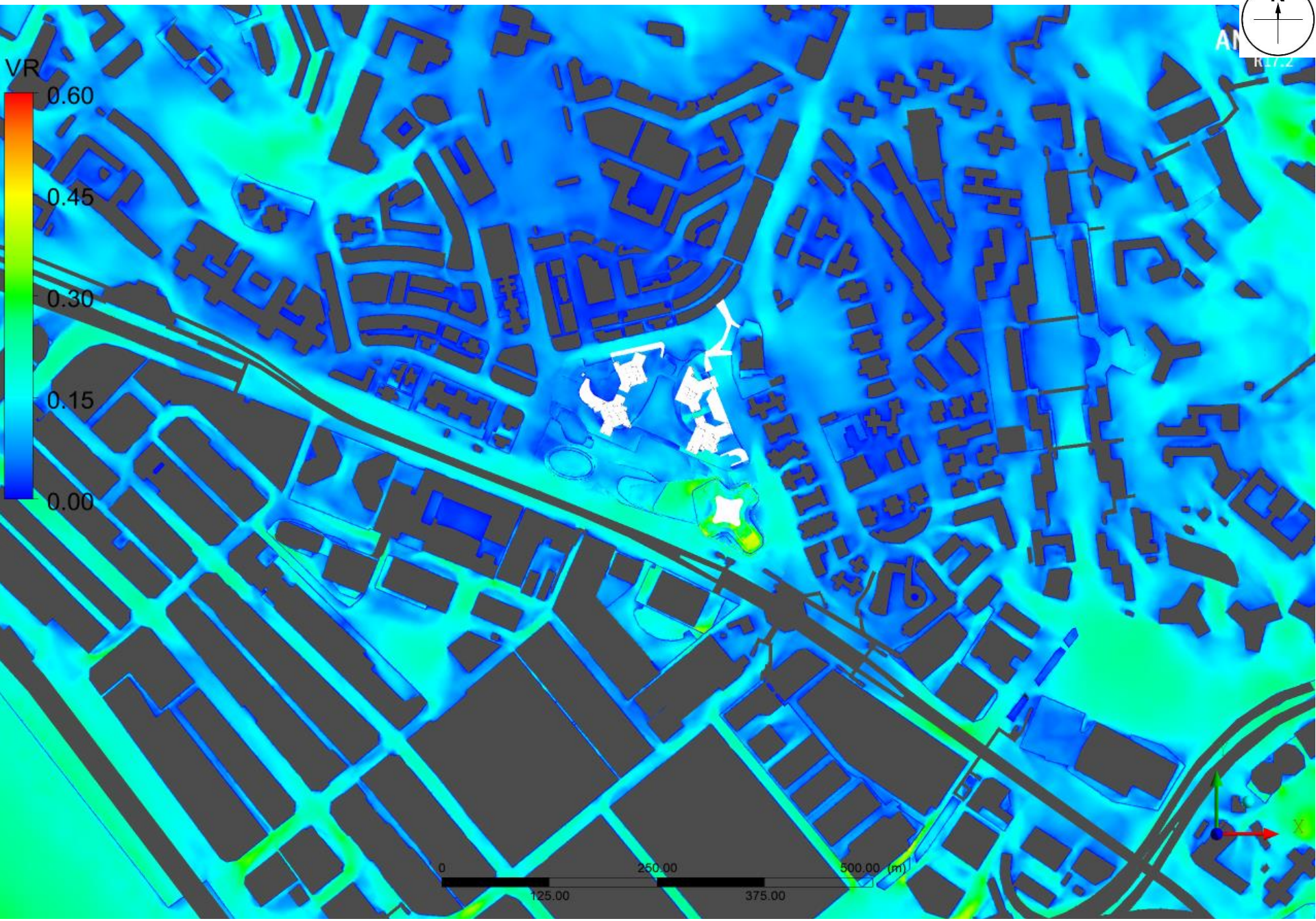
Proposed Scheme - Contour plot at pedestrian level under SW Wind



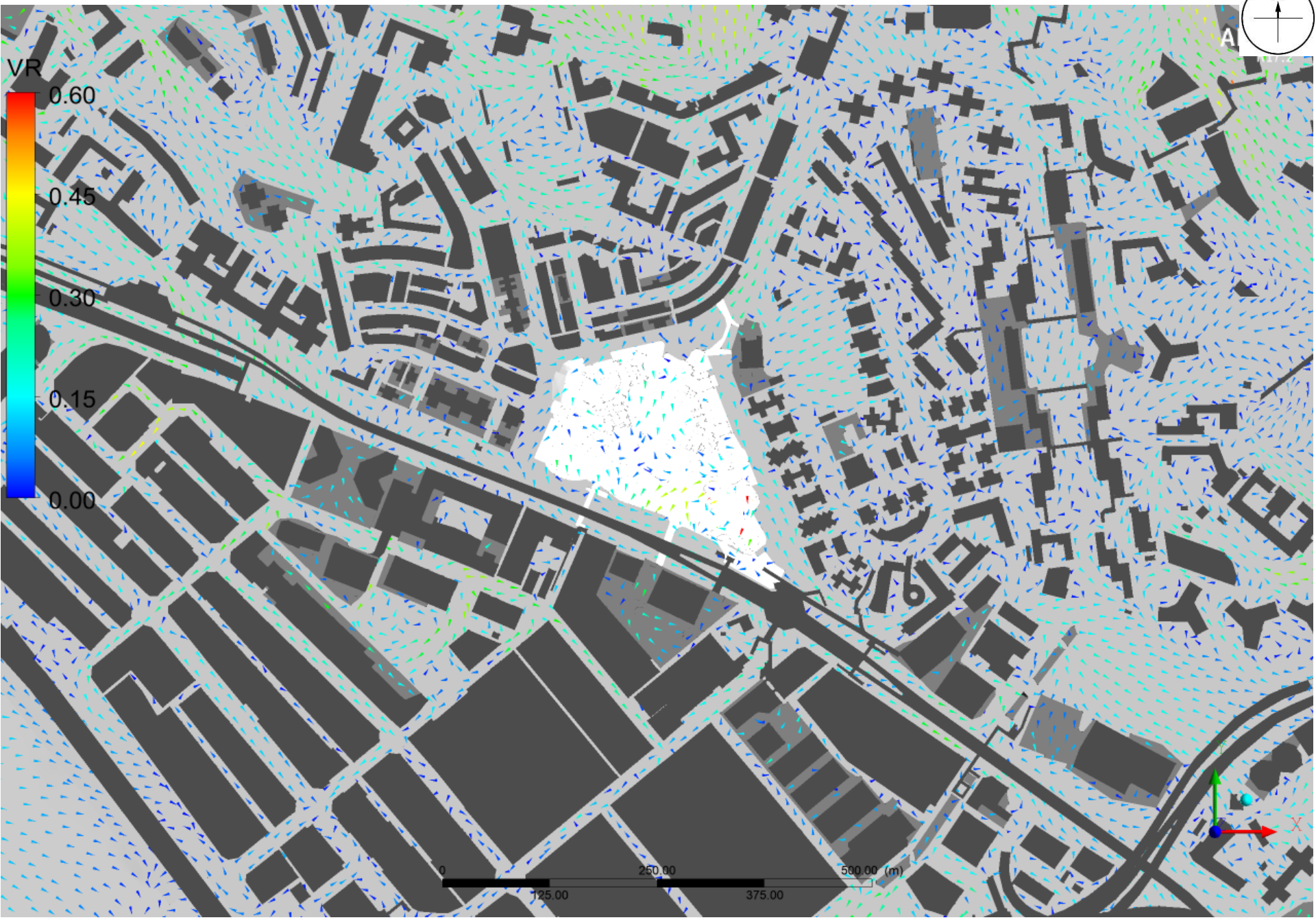
Proposed Scheme - Contour plot at pedestrian level under WSW Wind



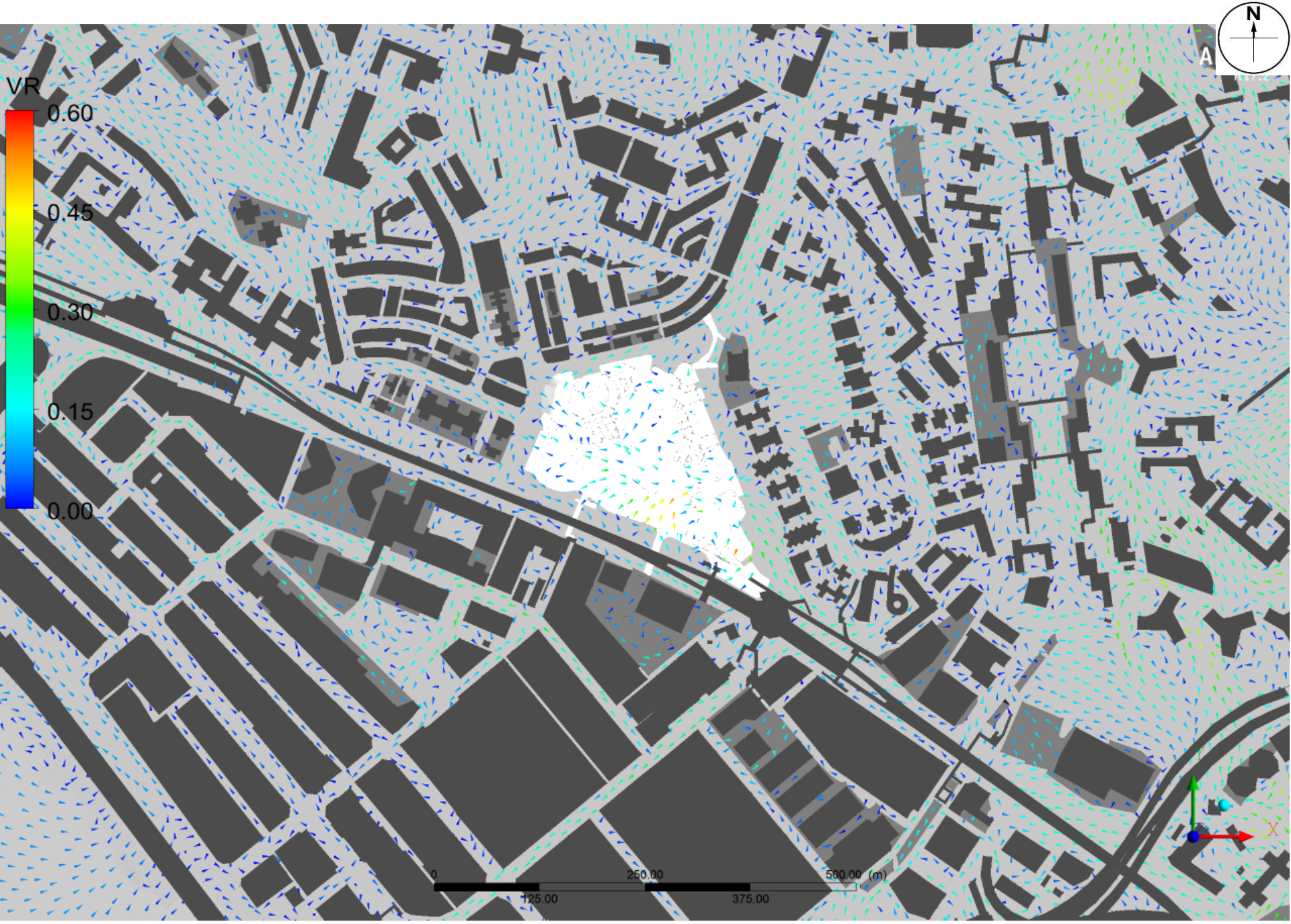
Proposed Scheme - Annual weighted wind speed colour at pedestrian level



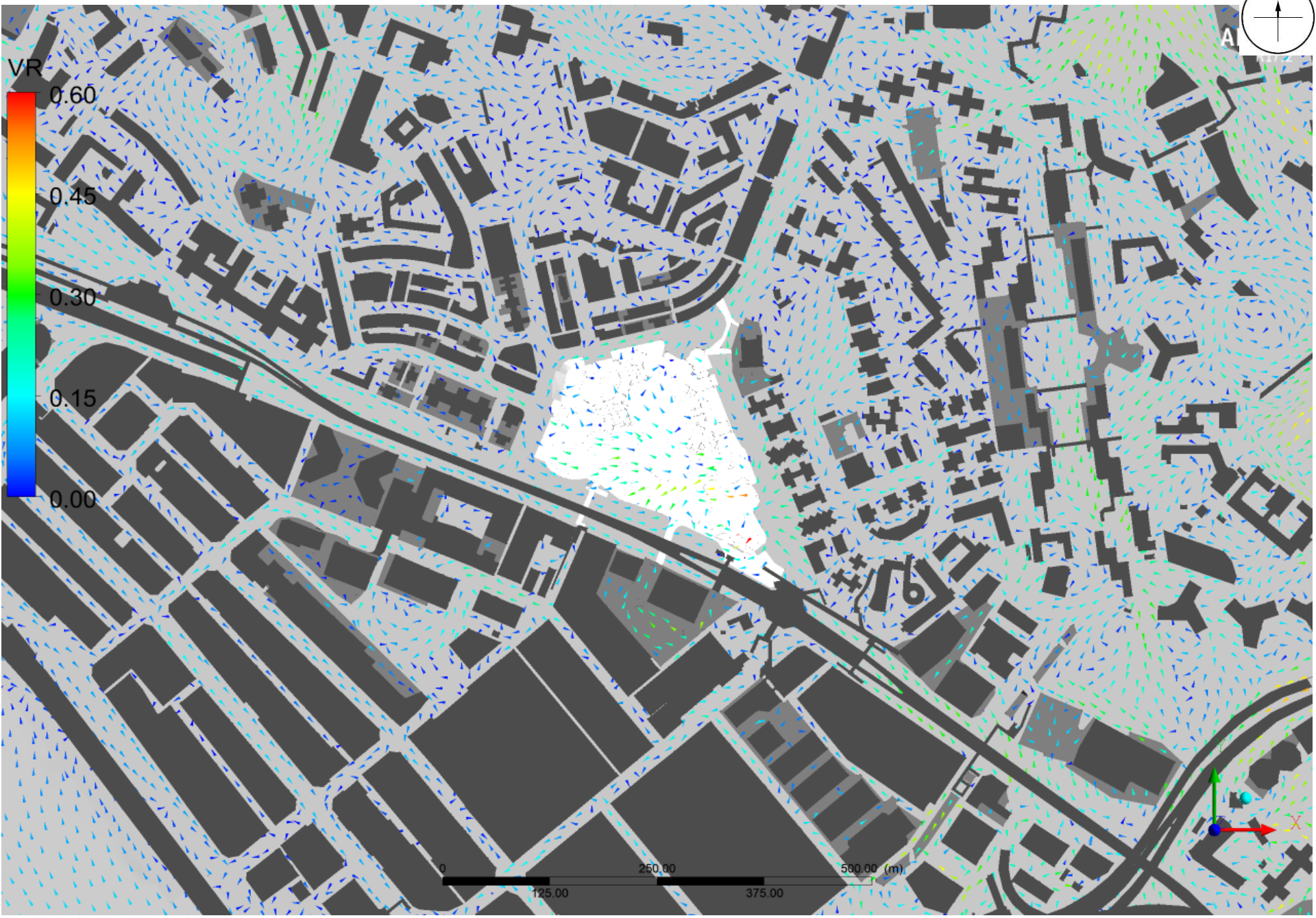
Proposed Scheme - Summer weighted wind speed colour at pedestrian level



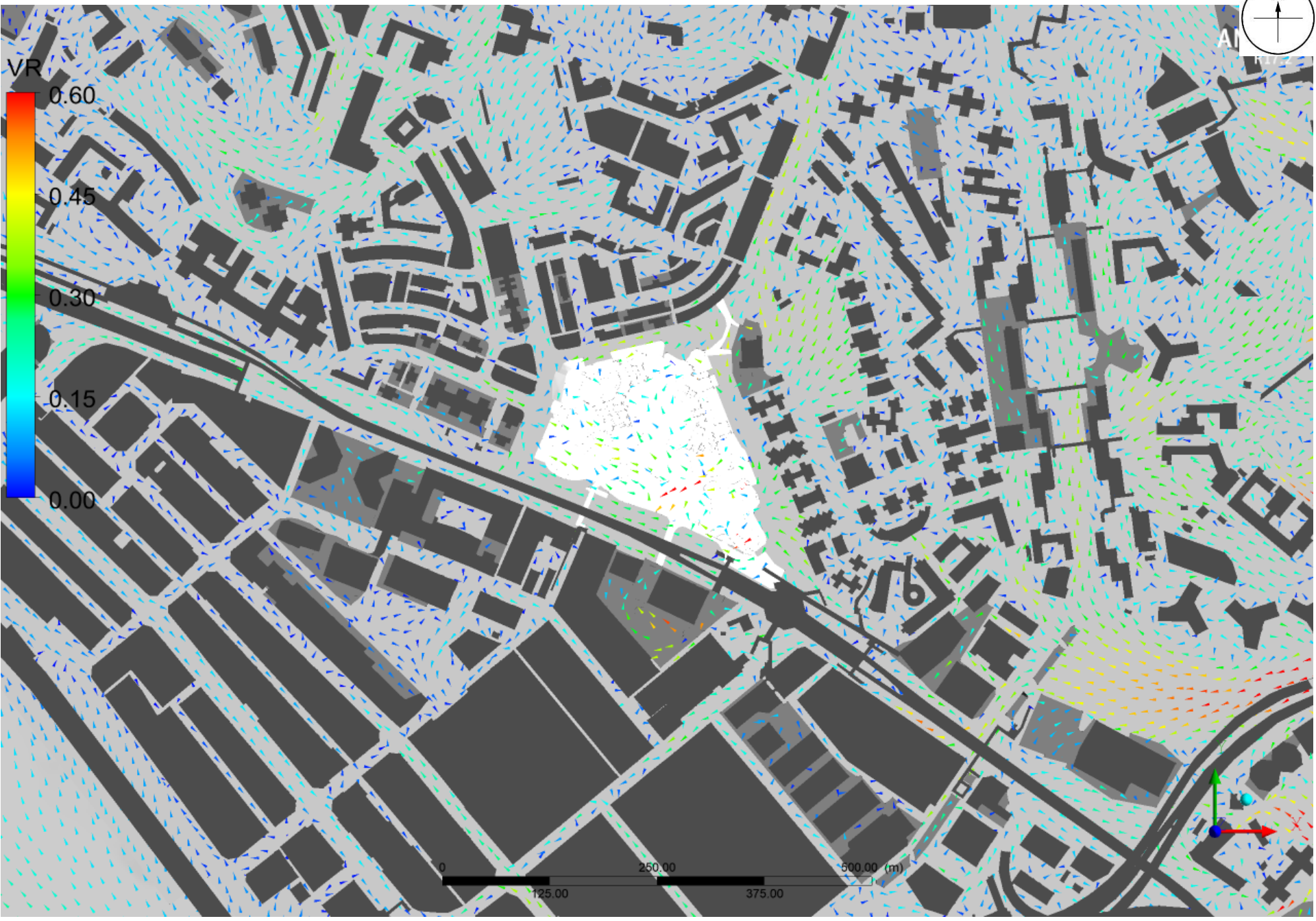
Proposed Scheme - Vector plot at pedestrian level under NNE Wind



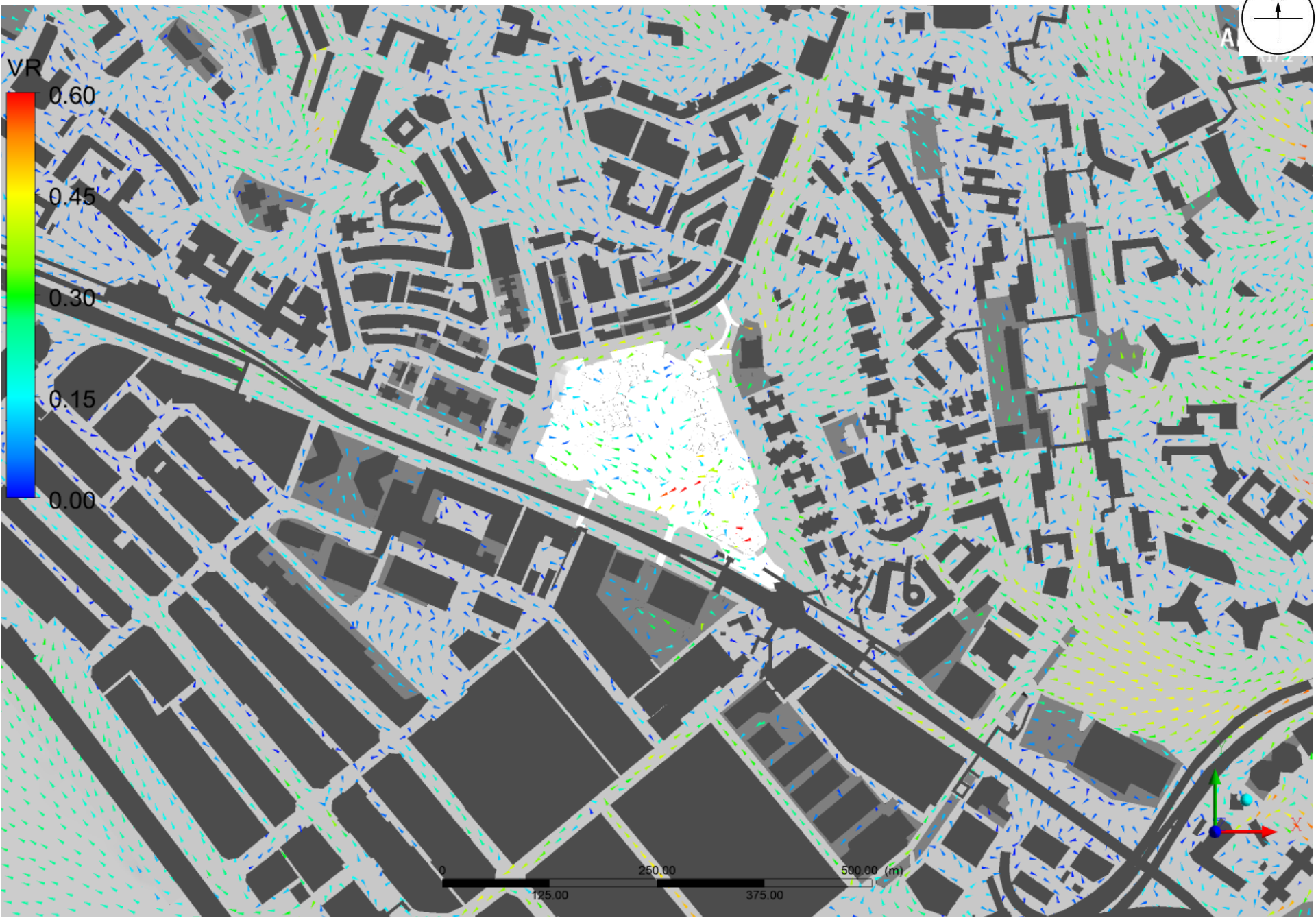
Proposed Scheme - Vector plot at pedestrian level under NE Wind



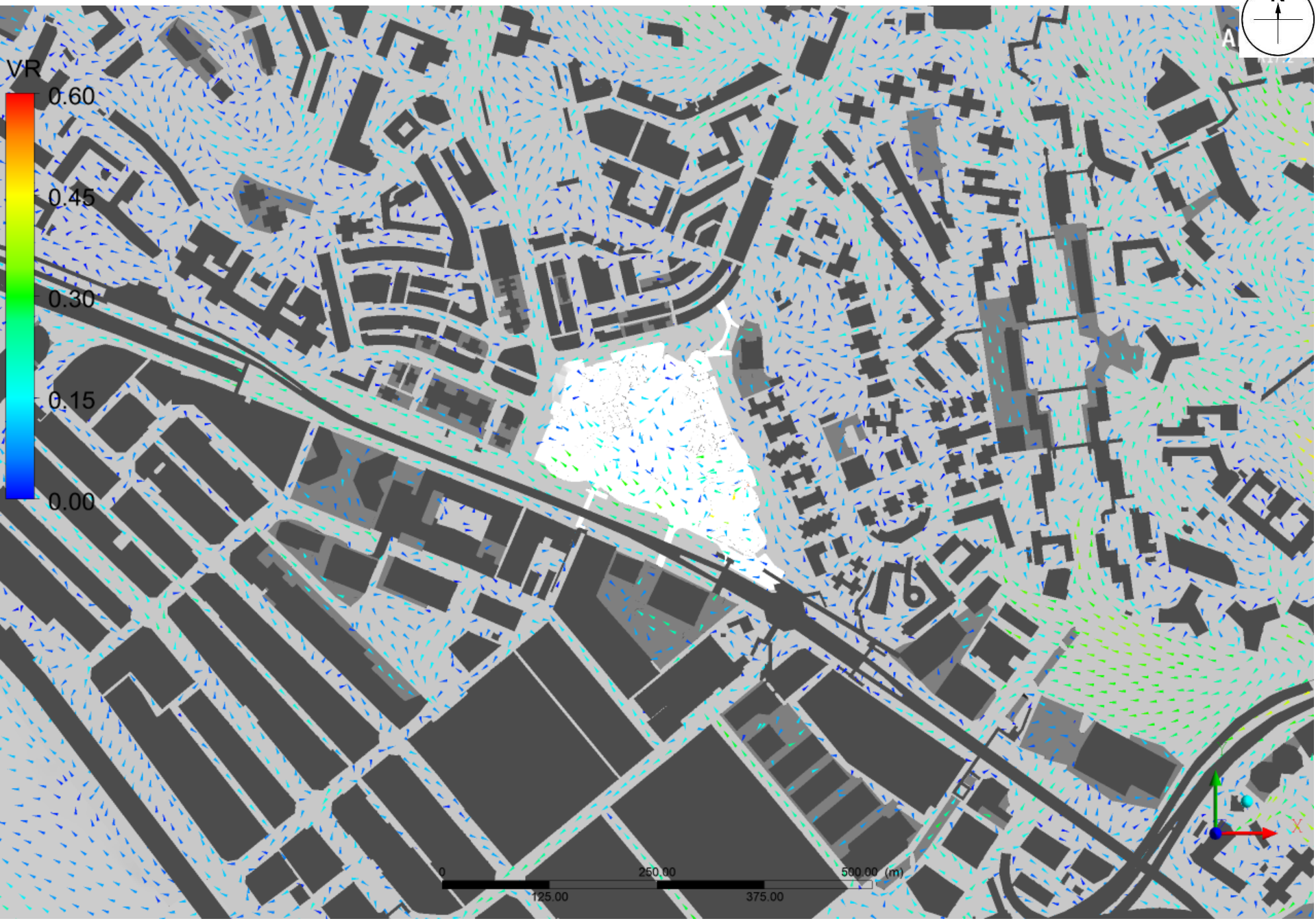
Proposed Scheme - Vector plot at pedestrian level under ENE Wind



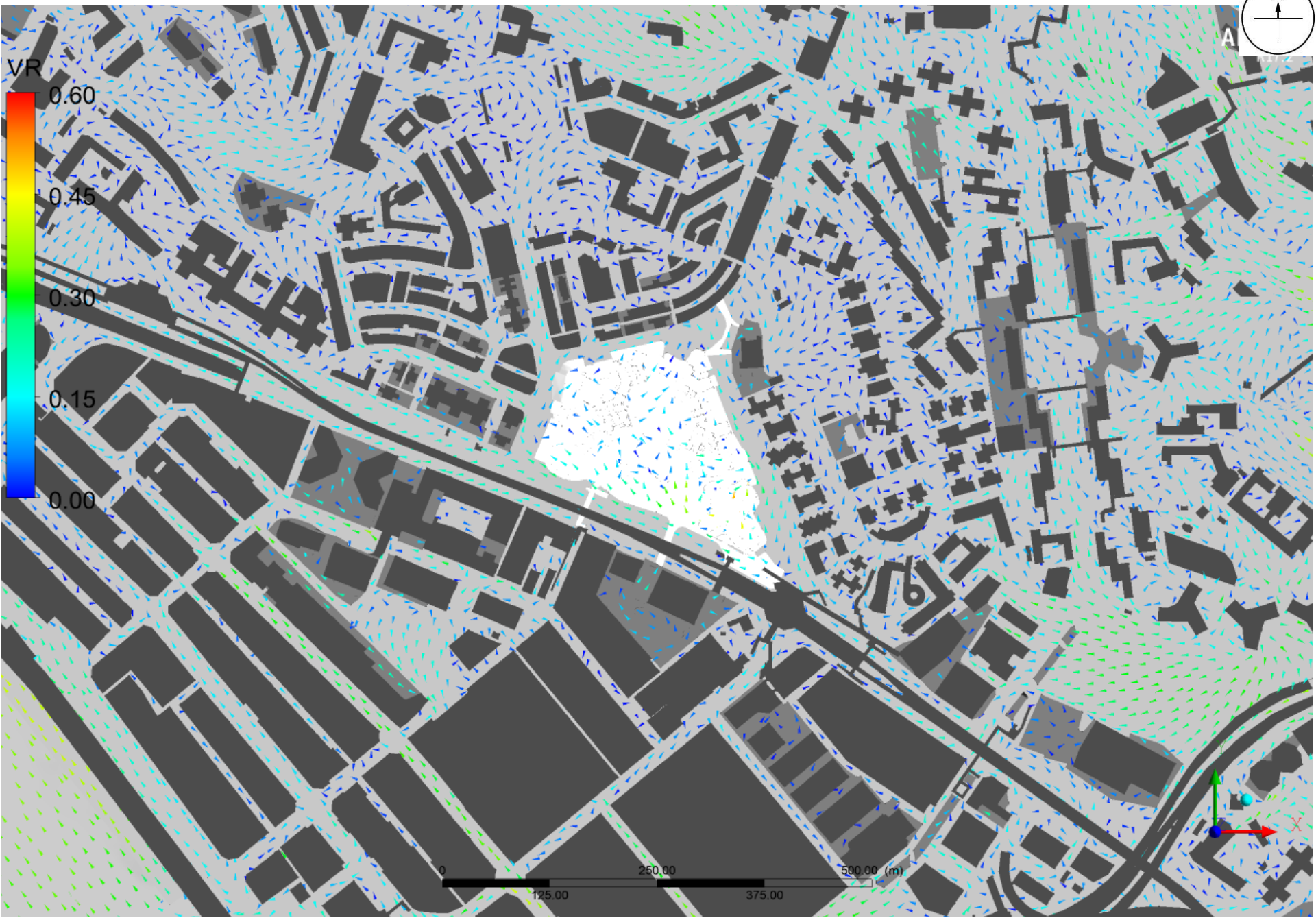
Proposed Scheme - Vector plot at pedestrian level under E Wind



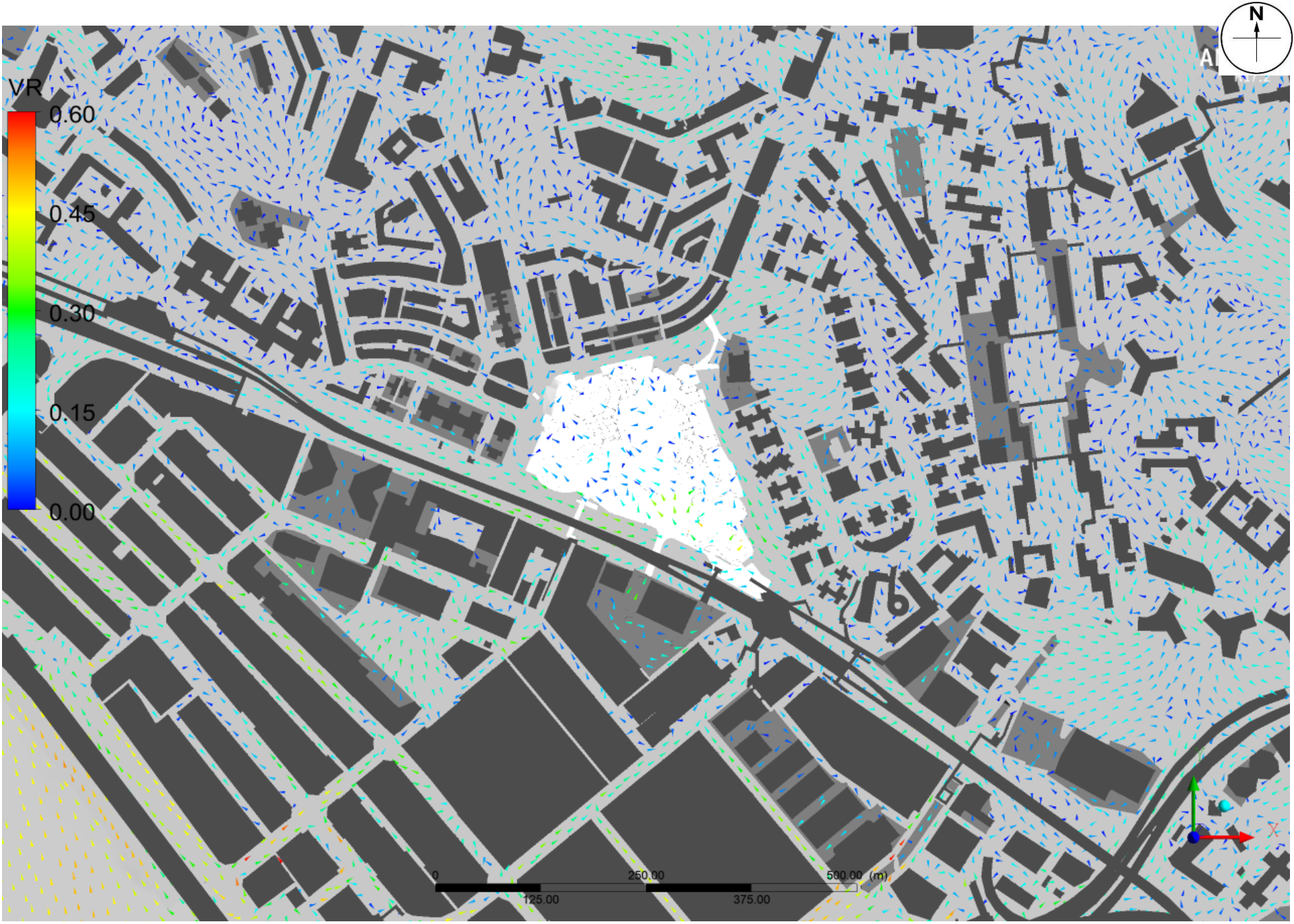
Proposed Scheme - Vector plot at pedestrian level under ESE Wind



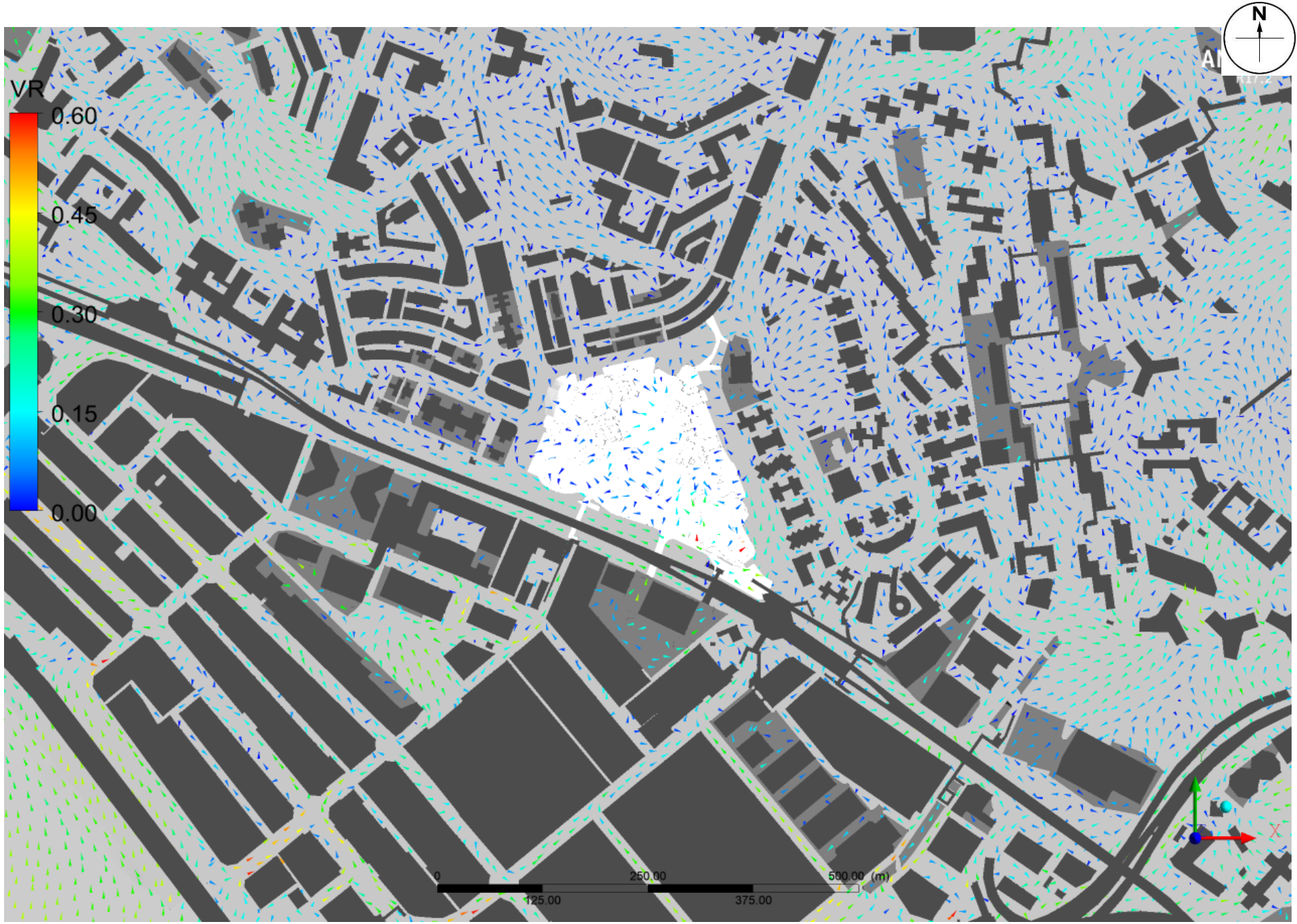
Proposed Scheme - Vector plot at pedestrian level under SE Wind



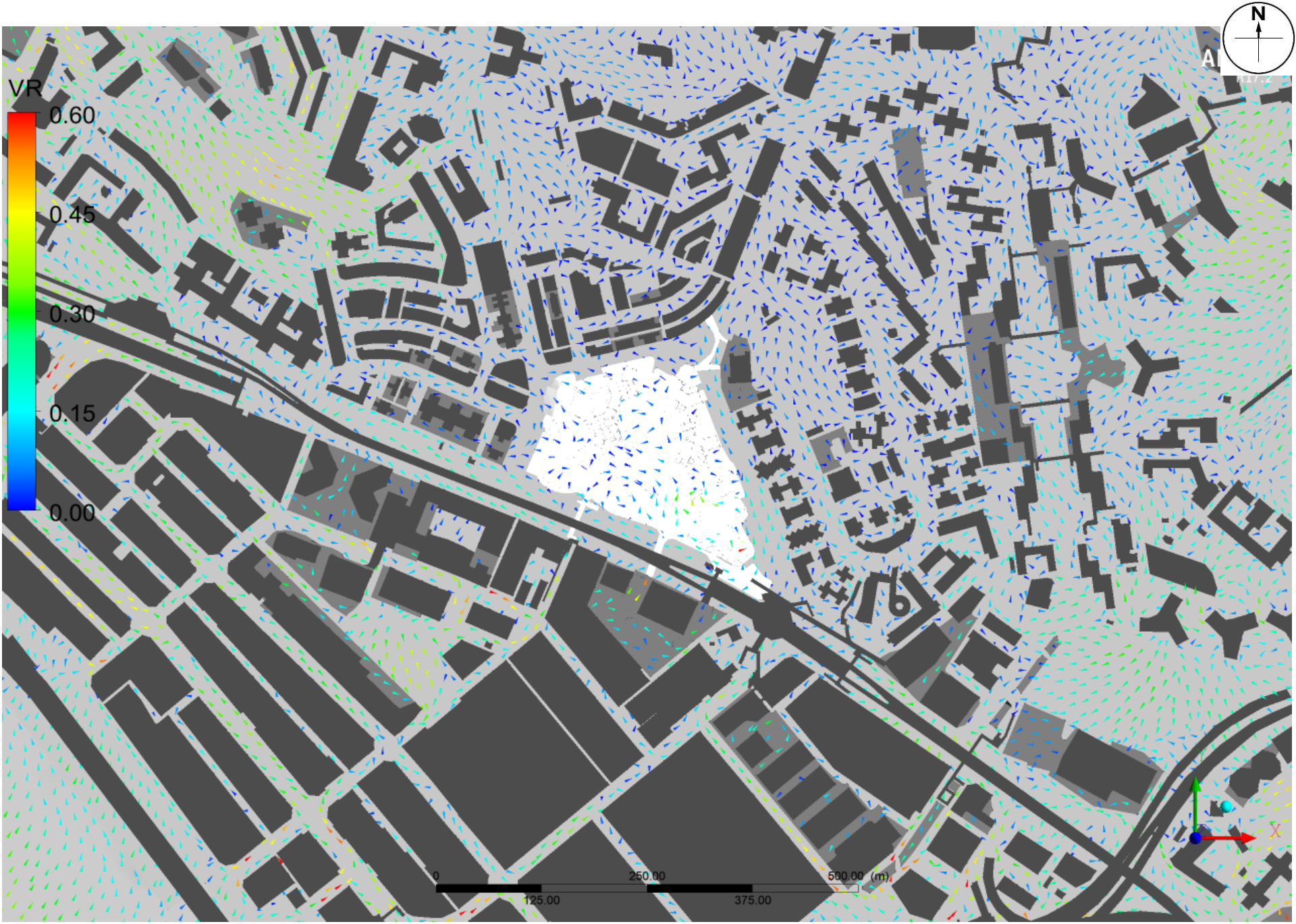
Proposed Scheme - Vector plot at pedestrian level under SSE Wind



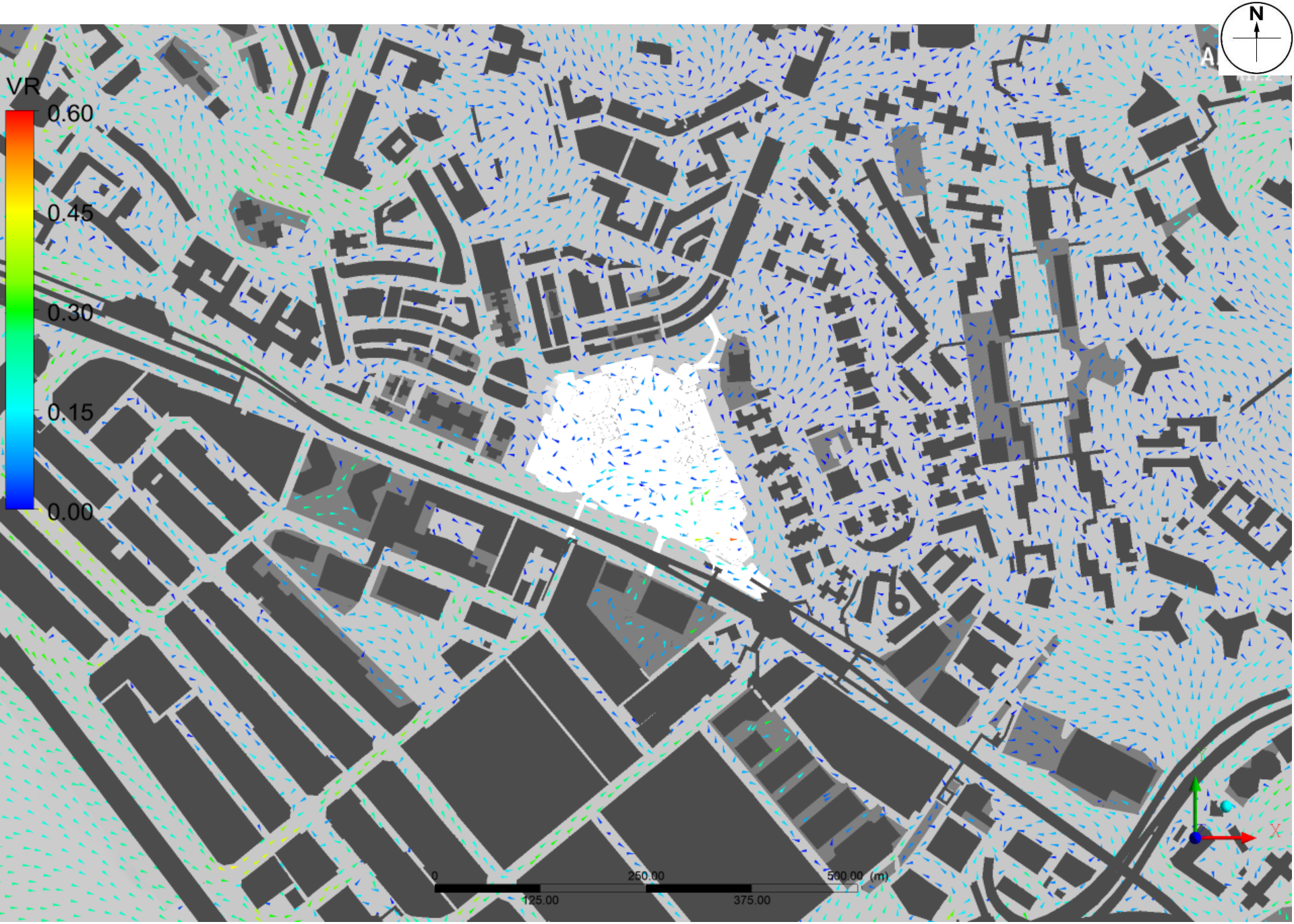
Proposed Scheme - Vector plot at pedestrian level under S Wind



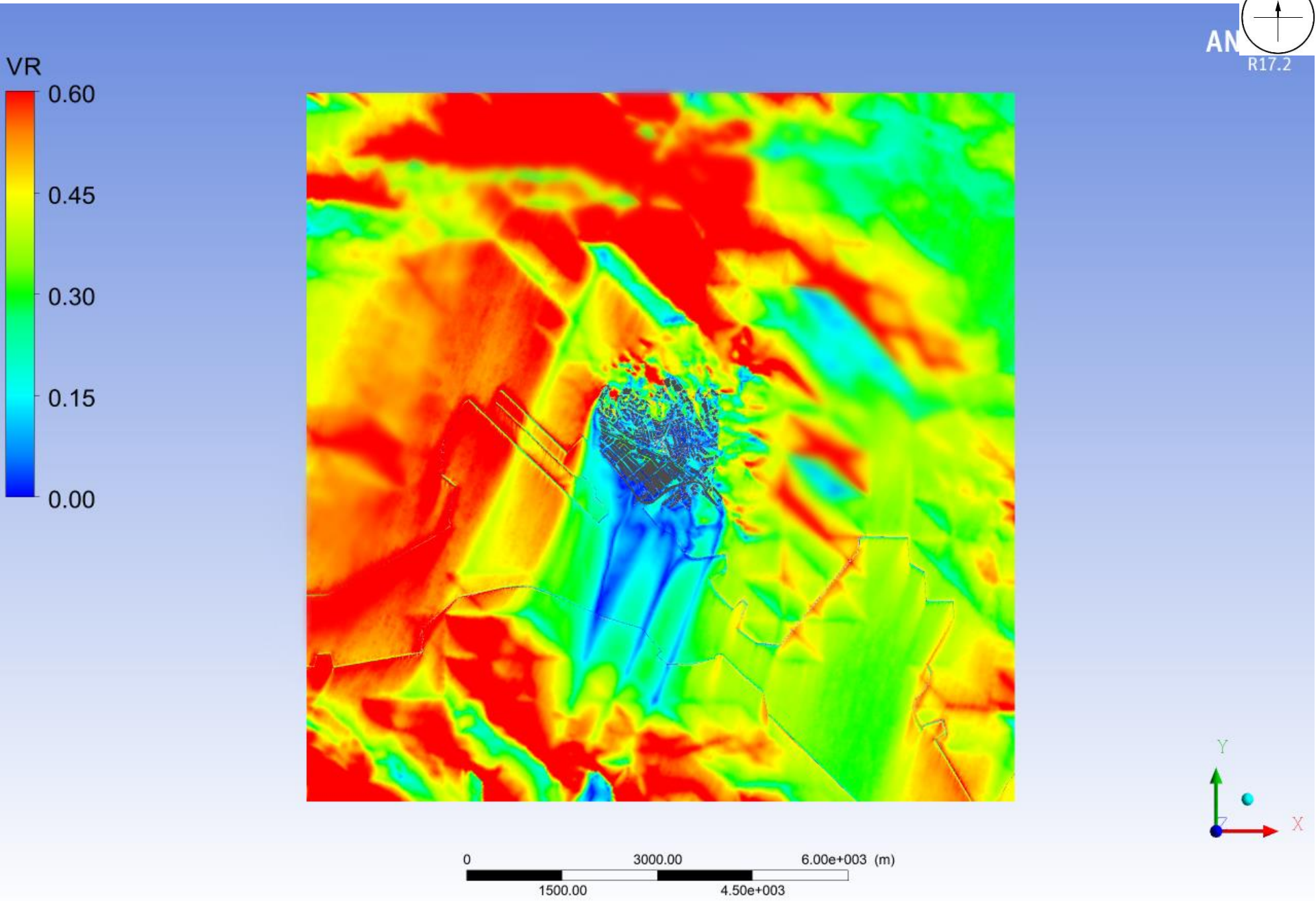
Proposed Scheme - Vector plot at pedestrian level under SSW Wind



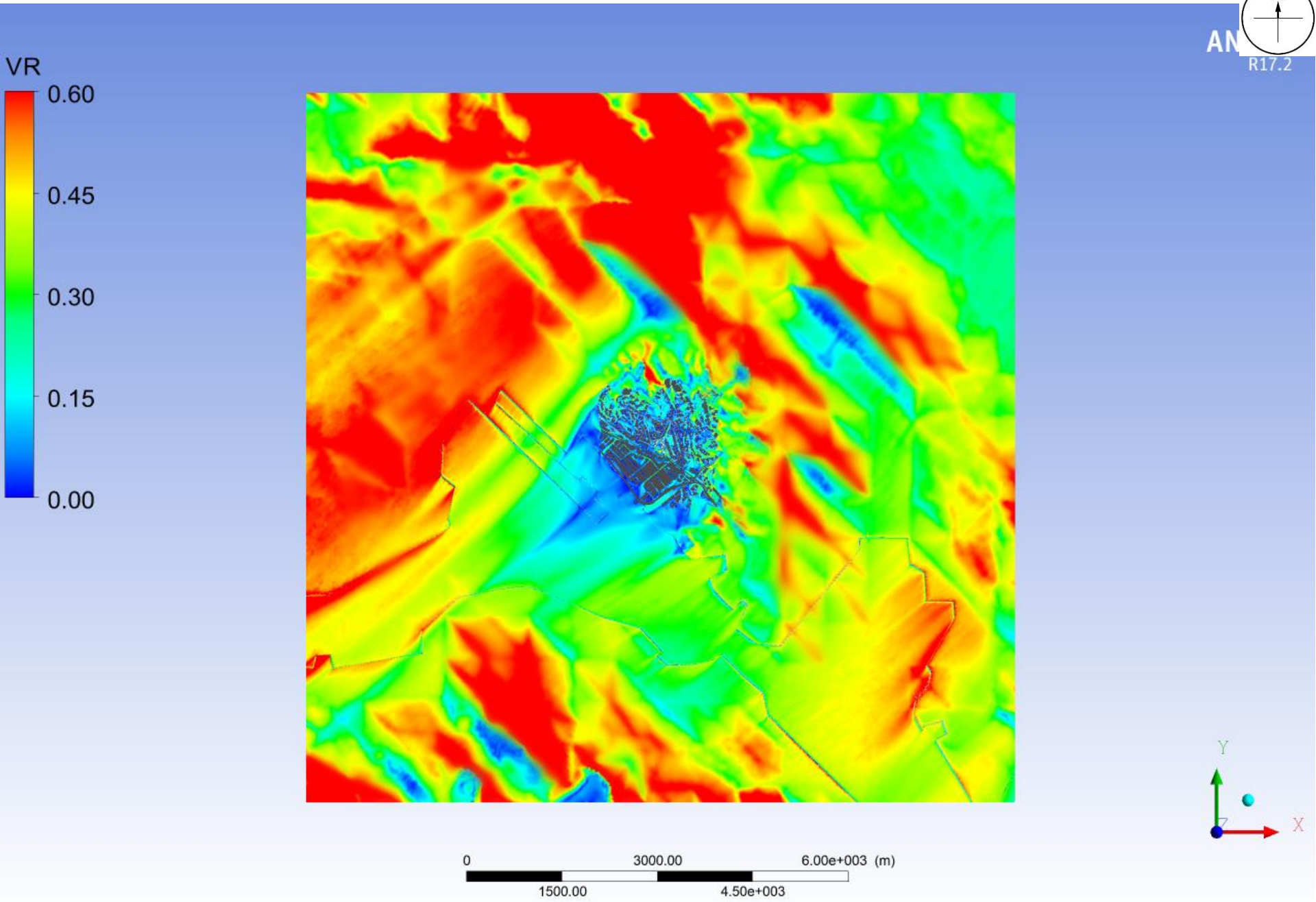
Proposed Scheme - Vector plot at pedestrian level under SW Wind



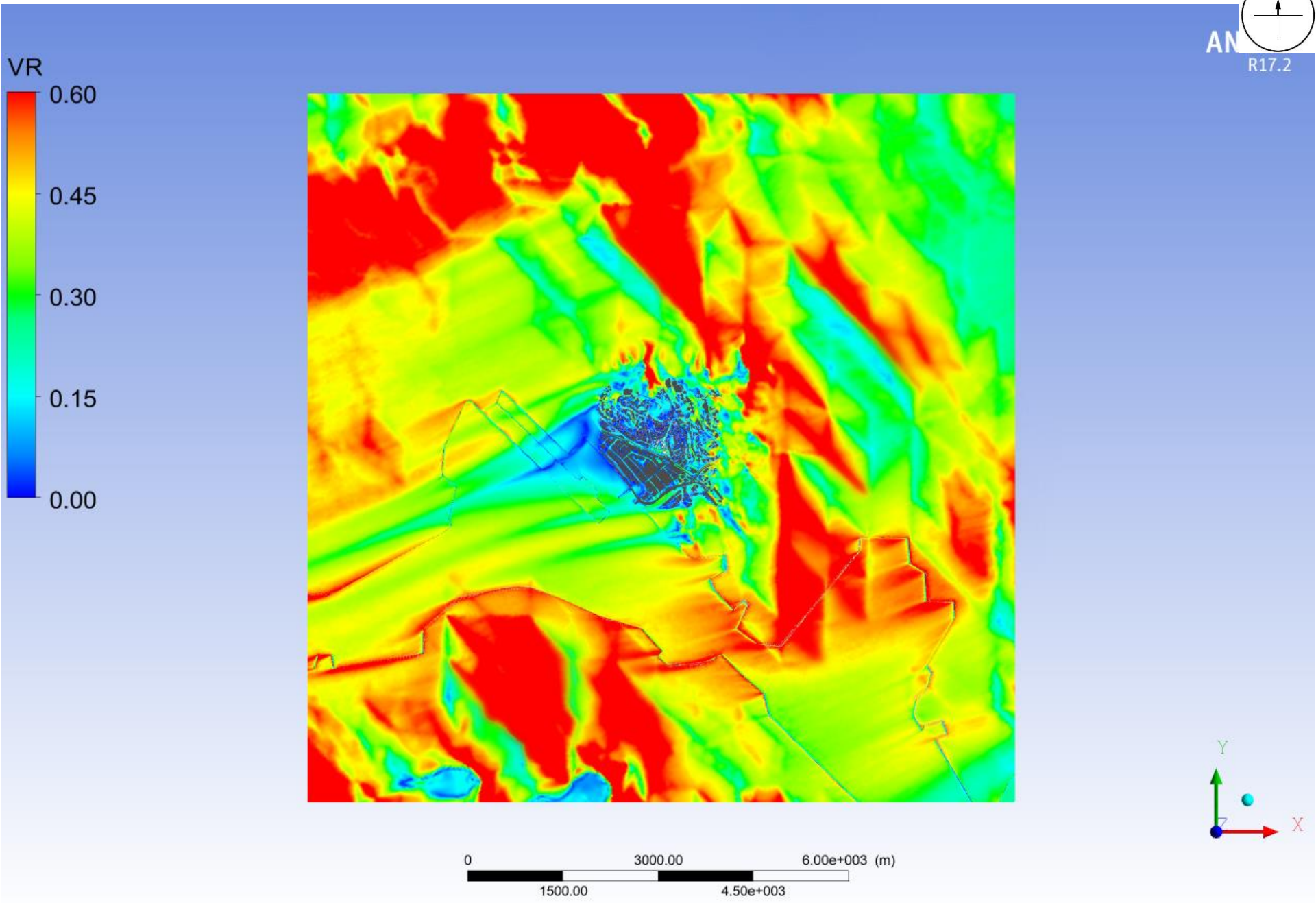
Proposed Scheme - Vector plot at pedestrian level under WSW Wind



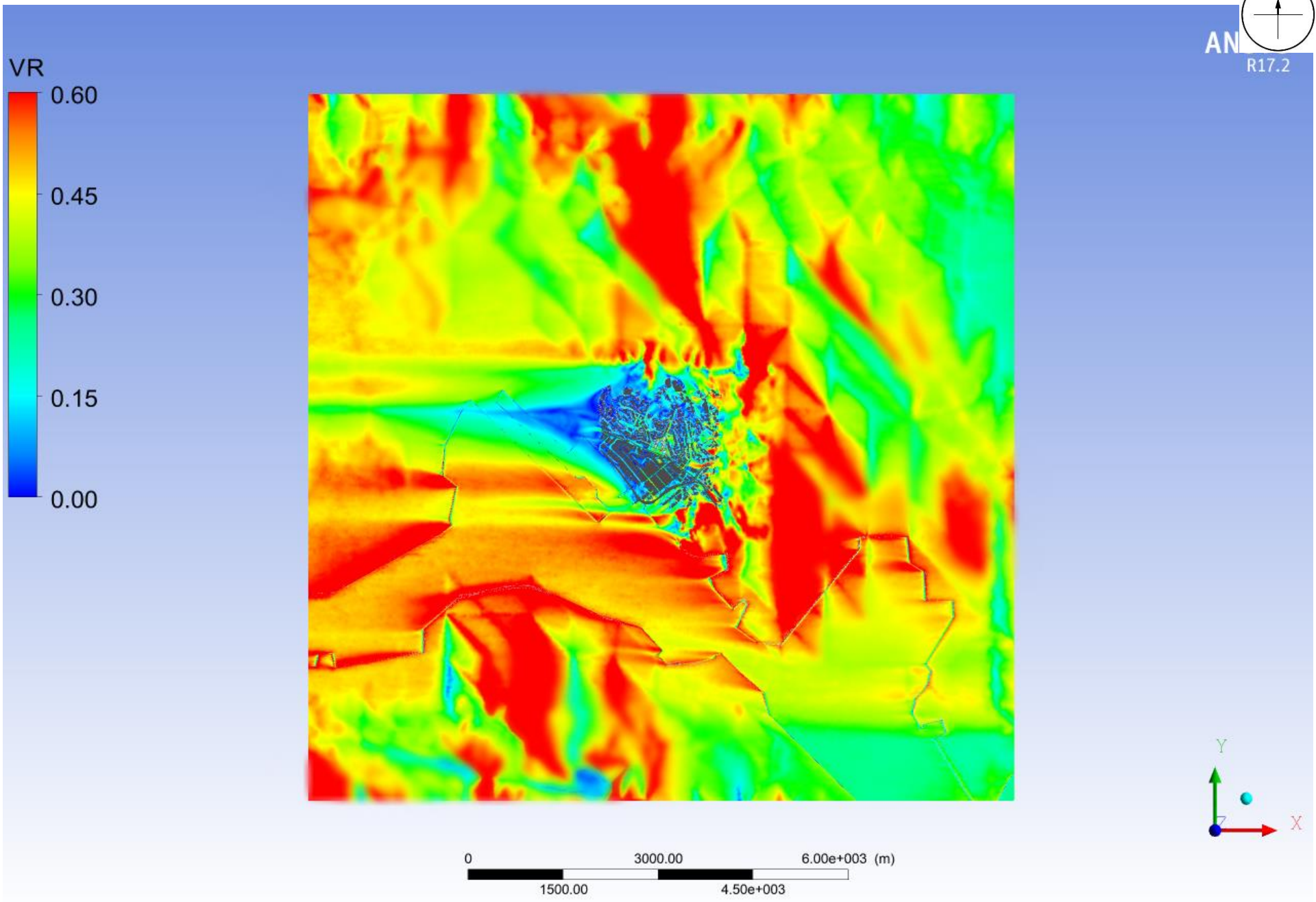
Proposed Scheme – Domain Contour plot at pedestrian level under NNE Wind



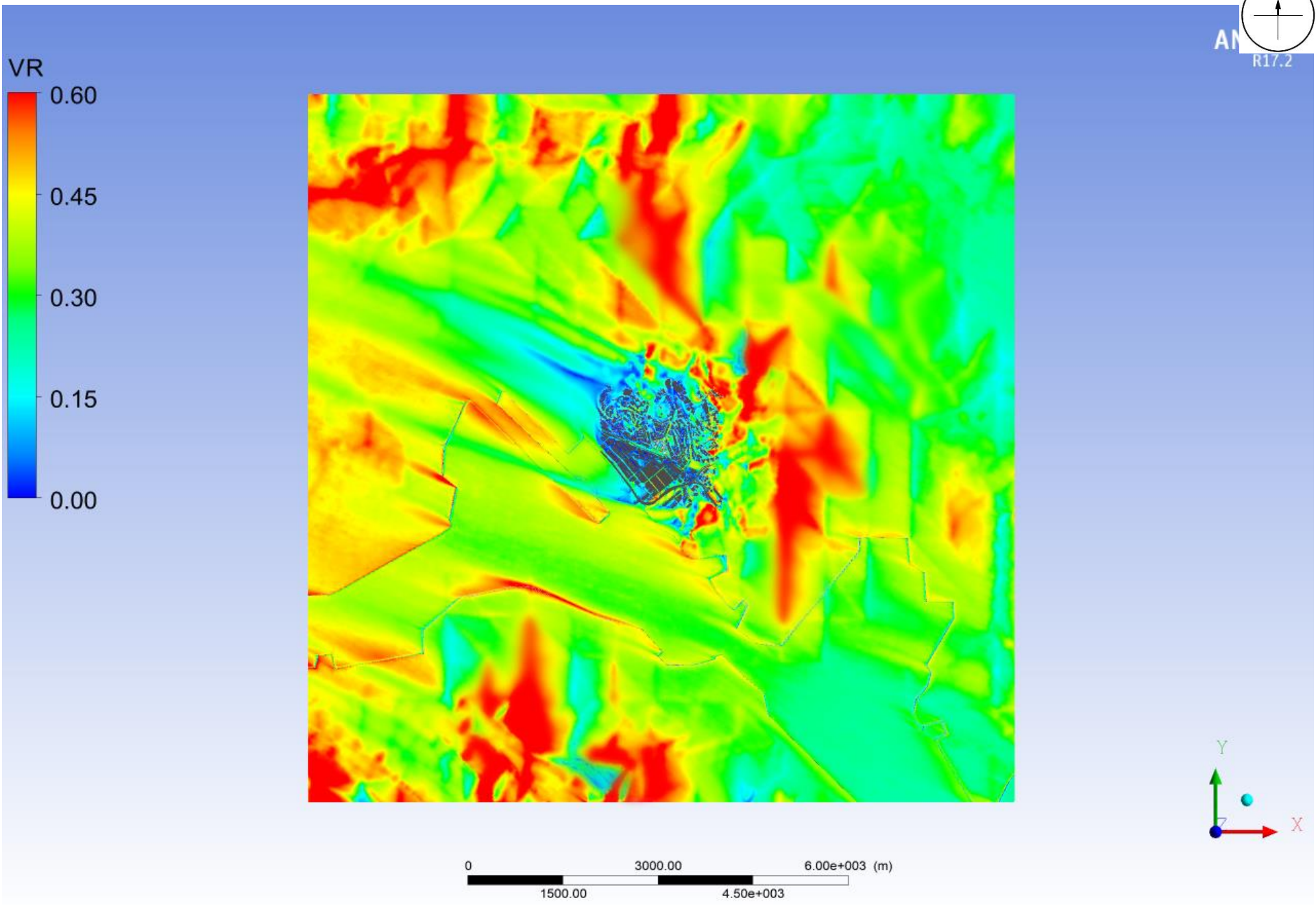
Proposed Scheme - Domain Contour plot at pedestrian level under NE Wind



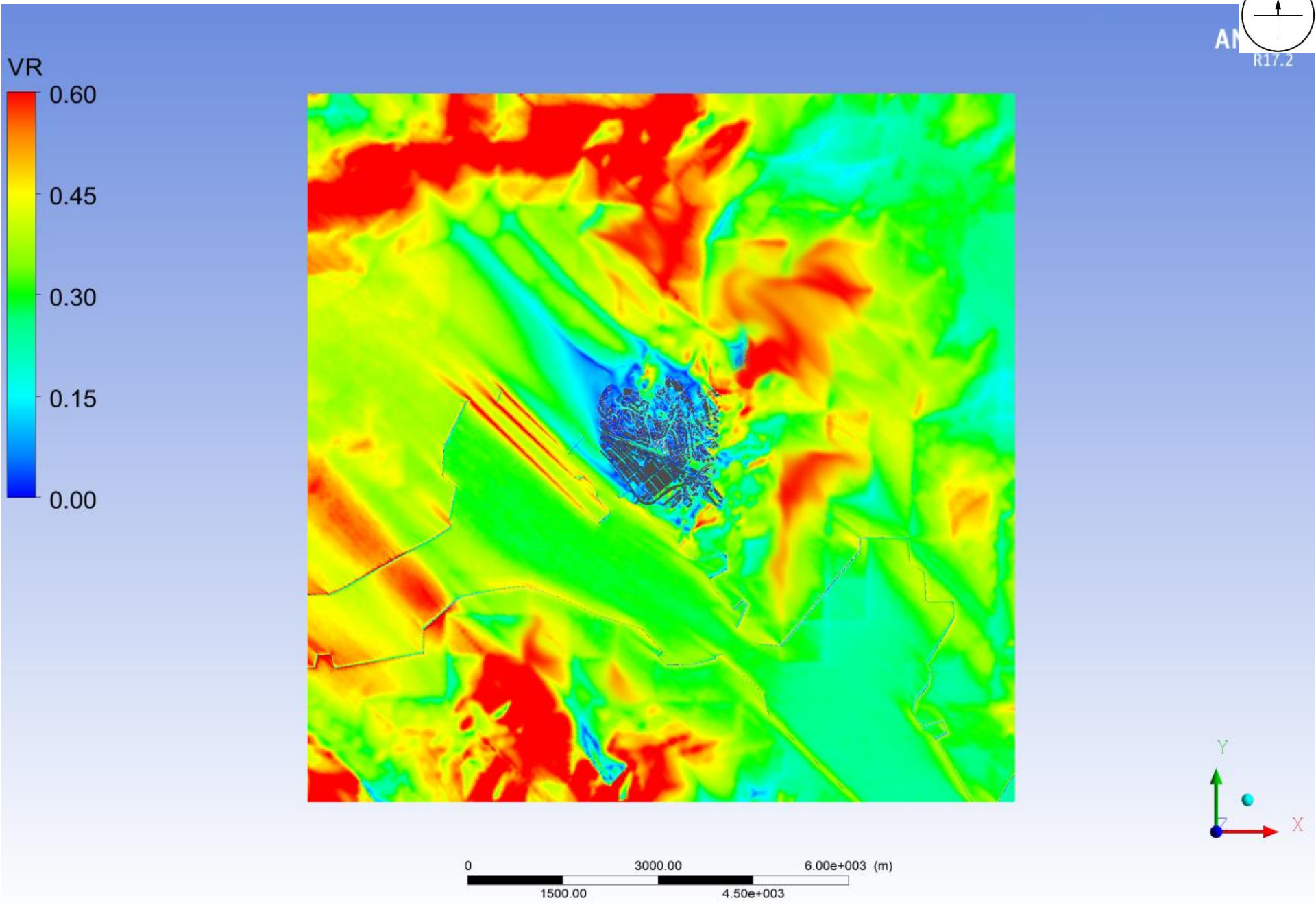
Proposed Scheme - Domain Contour plot at pedestrian level under ENE Wind



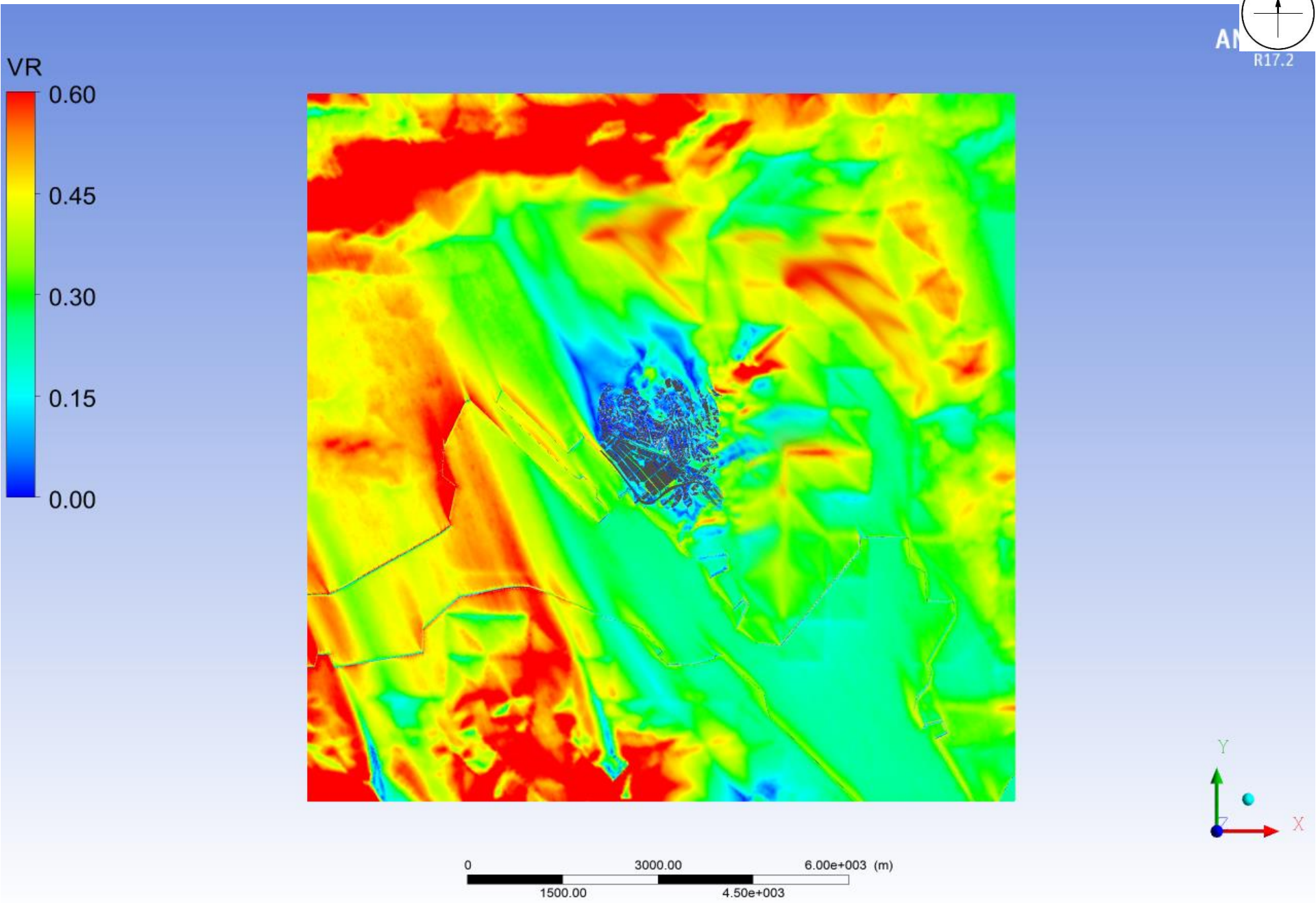
Proposed Scheme - Domain Contour plot at pedestrian level under E Wind



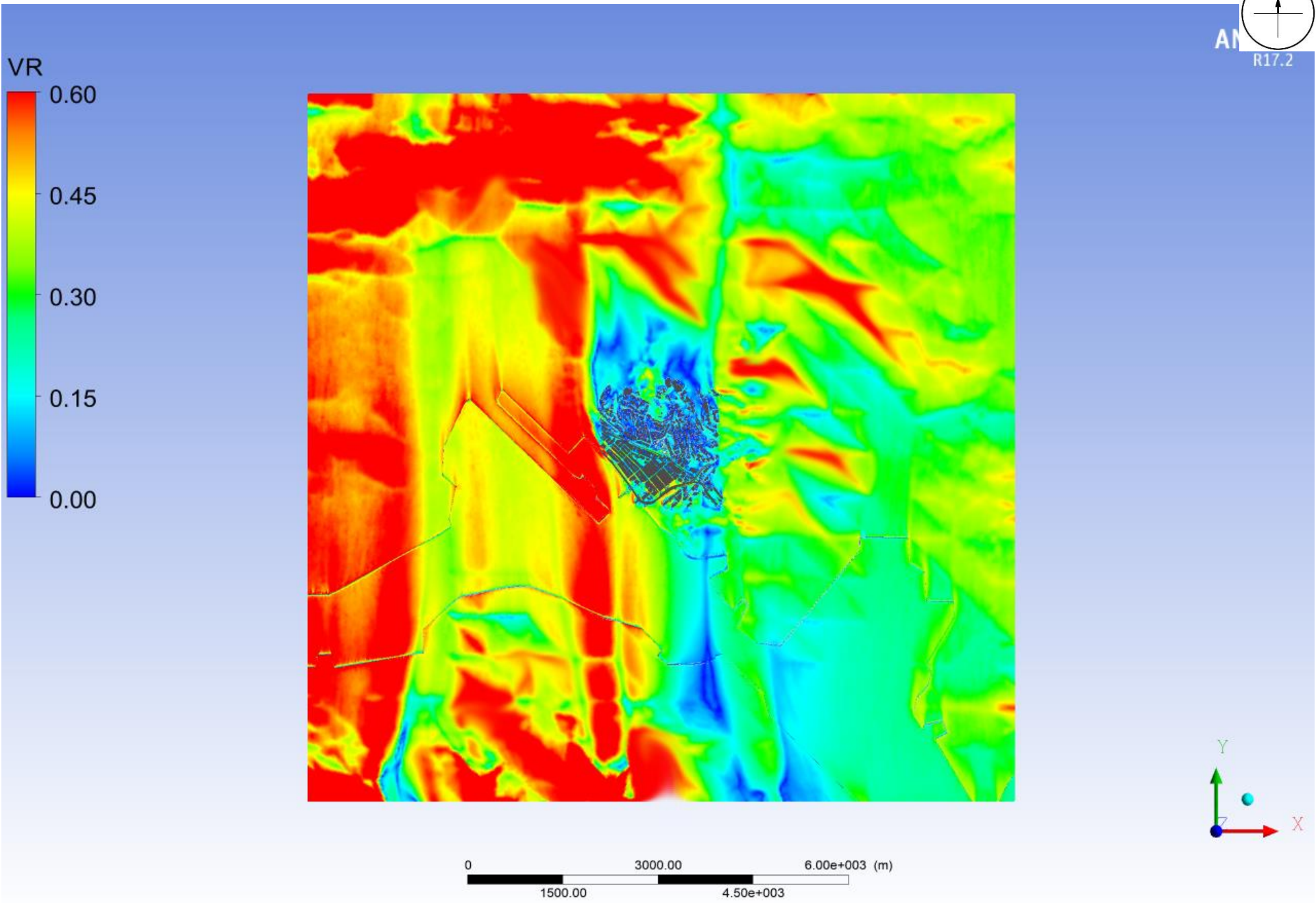
Proposed Scheme - Domain Contour plot at pedestrian level under ESE Wind



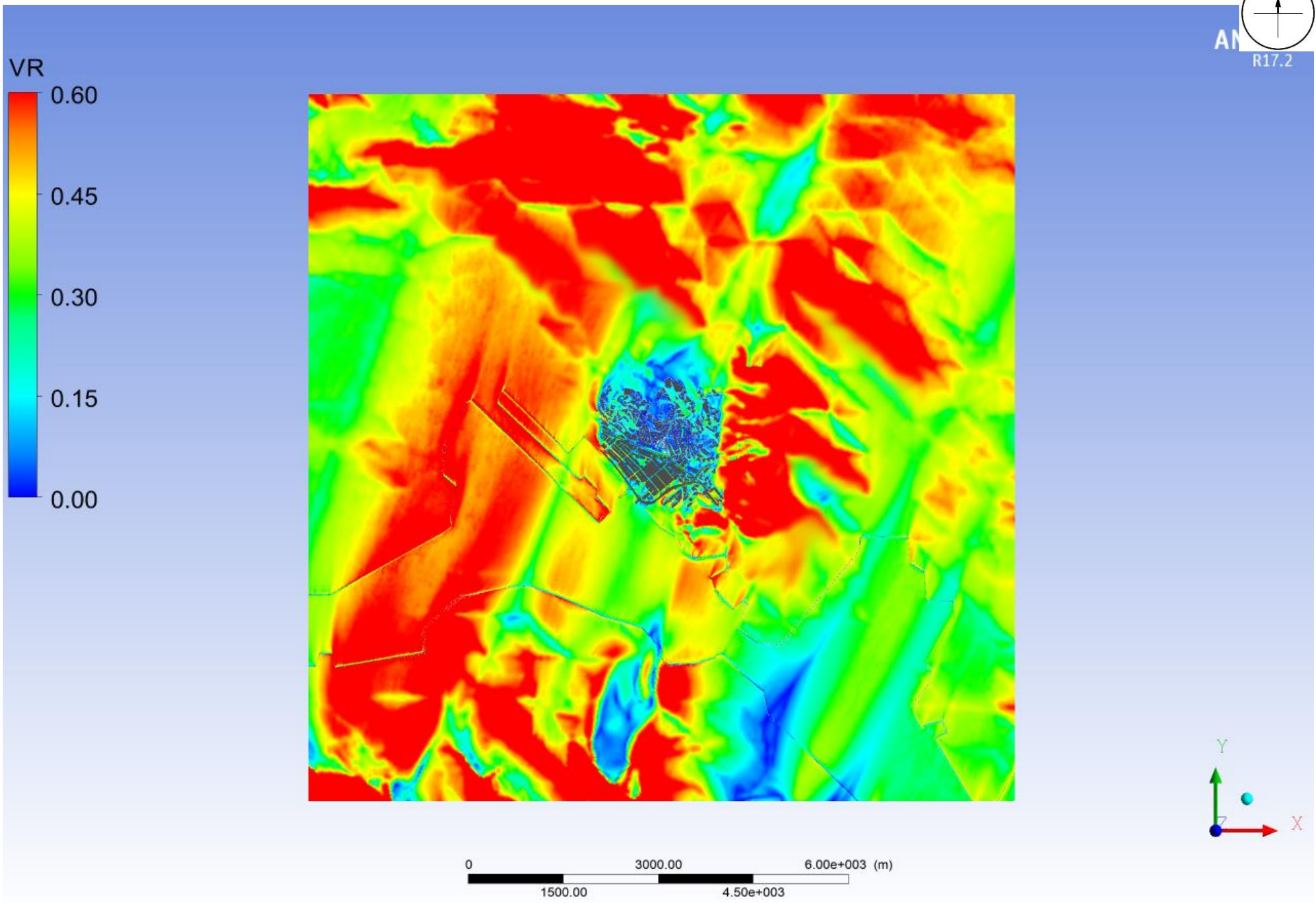
Proposed Scheme - Domain Contour plot at pedestrian level under SE Wind



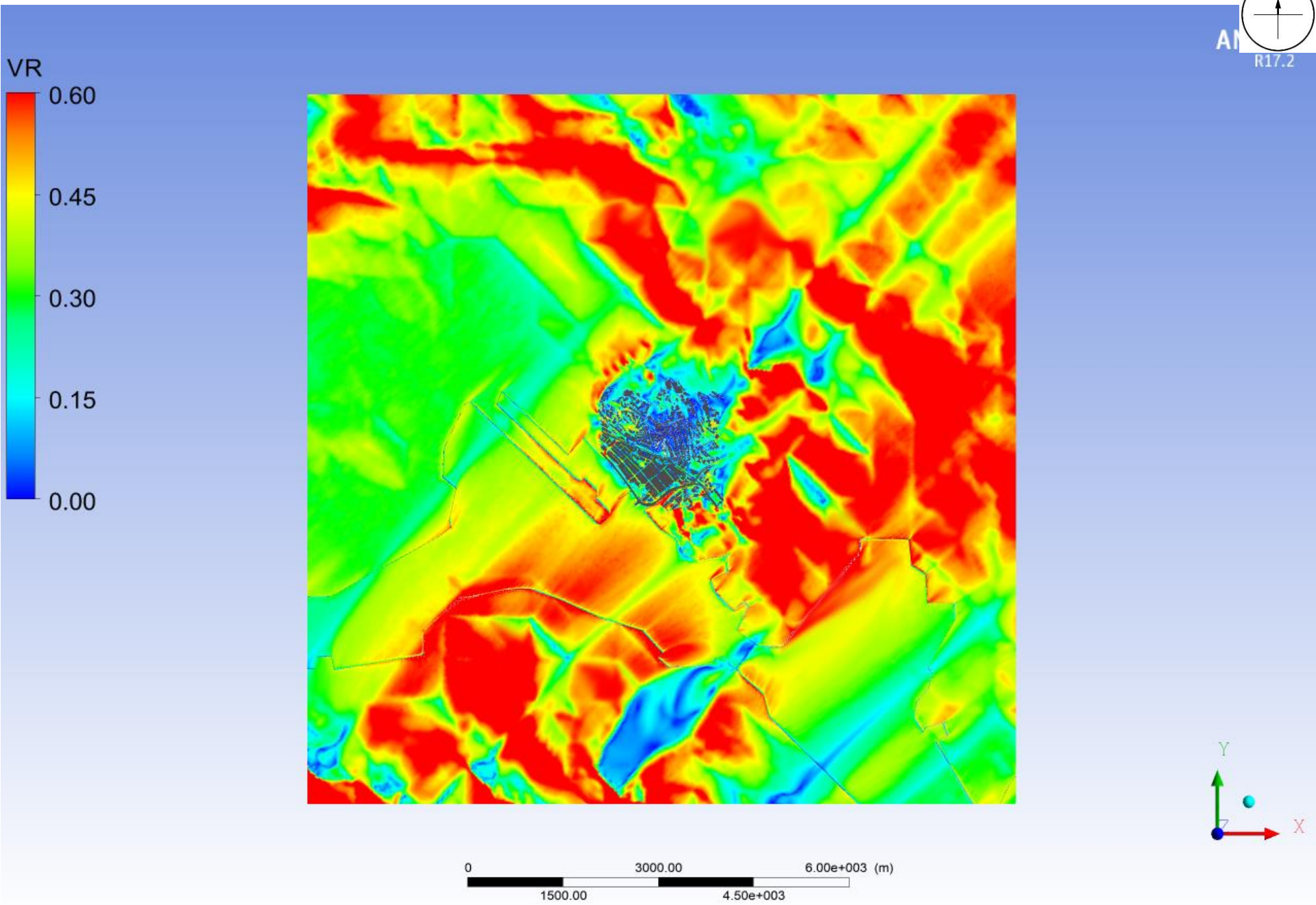
Proposed Scheme - Domain Contour plot at pedestrian level under SSE Wind



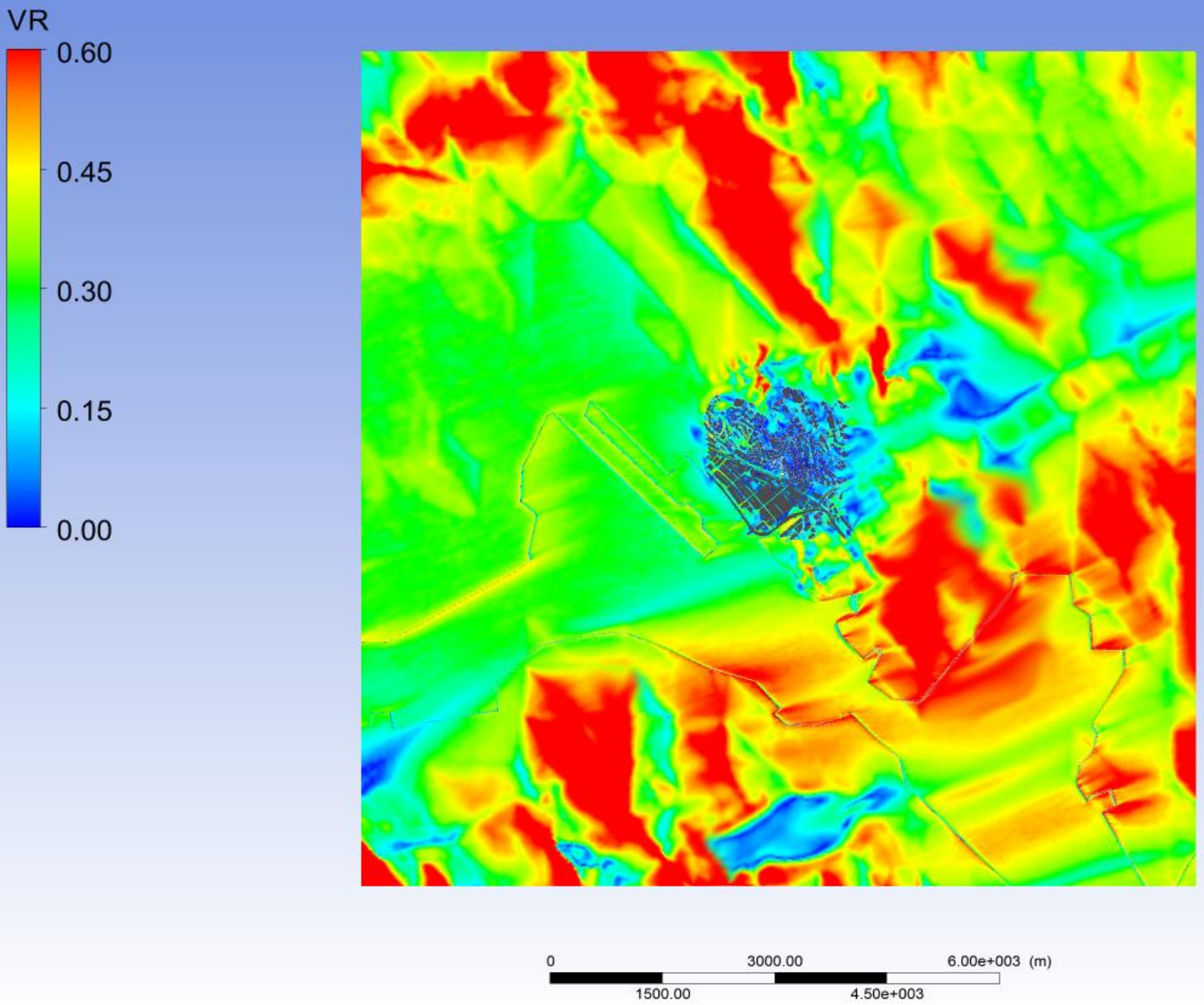
Proposed Scheme - Domain Contour plot at pedestrian level under S Wind



Proposed Scheme - Domain Contour plot at pedestrian level under SSW Wind



Proposed Scheme - Domain Contour plot at pedestrian level under SW Wind



Proposed Scheme - Domain Contour plot at pedestrian level under WSW Wind

Appendix 5

Detailed CFD Simulation Result for Selected Test Points

Detailed Wind Velocity Ratio under different Wind Directions

Test Point	Baseline Scheme												
	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
P01	0.08	0.13	0.04	0.21	0.32	0.12	0.04	0.04	0.04	0.04	0.05	0.14	0.10
P02	0.07	0.16	0.11	0.36	0.37	0.18	0.10	0.11	0.09	0.06	0.06	0.21	0.15
P03	0.12	0.18	0.16	0.41	0.43	0.23	0.14	0.13	0.11	0.05	0.03	0.25	0.18
P04	0.11	0.17	0.17	0.38	0.39	0.21	0.13	0.12	0.11	0.06	0.05	0.24	0.17
P05	0.11	0.12	0.14	0.28	0.27	0.14	0.09	0.07	0.11	0.07	0.06	0.18	0.13
P06	0.13	0.06	0.09	0.30	0.23	0.09	0.05	0.02	0.01	0.04	0.05	0.15	0.09
P07	0.13	0.10	0.17	0.43	0.40	0.16	0.14	0.21	0.10	0.18	0.08	0.25	0.20
P08	0.13	0.10	0.16	0.36	0.29	0.15	0.12	0.21	0.12	0.20	0.08	0.22	0.19
P09	0.16	0.11	0.12	0.29	0.25	0.12	0.09	0.20	0.15	0.21	0.09	0.19	0.18
P10	0.16	0.11	0.09	0.13	0.13	0.08	0.10	0.24	0.20	0.23	0.11	0.13	0.16
P11	0.17	0.08	0.07	0.14	0.27	0.08	0.07	0.24	0.14	0.21	0.10	0.14	0.16
P12	0.18	0.05	0.21	0.25	0.26	0.06	0.05	0.24	0.09	0.23	0.09	0.19	0.16
P13	0.10	0.10	0.23	0.27	0.12	0.14	0.21	0.27	0.08	0.32	0.11	0.19	0.19
P14	0.17	0.16	0.13	0.11	0.07	0.16	0.20	0.29	0.10	0.29	0.12	0.13	0.17
P15	0.19	0.25	0.20	0.25	0.15	0.13	0.14	0.25	0.16	0.05	0.13	0.19	0.15
P16	0.12	0.18	0.16	0.19	0.07	0.10	0.04	0.15	0.06	0.14	0.05	0.14	0.10
P17	0.08	0.15	0.11	0.09	0.07	0.10	0.06	0.13	0.13	0.05	0.09	0.10	0.09
P18	0.12	0.08	0.01	0.15	0.20	0.19	0.10	0.19	0.25	0.20	0.04	0.14	0.17
P19	0.10	0.10	0.02	0.03	0.10	0.02	0.08	0.02	0.01	0.02	0.07	0.05	0.04
P20	0.11	0.13	0.11	0.21	0.19	0.19	0.05	0.19	0.15	0.17	0.17	0.16	0.17
P21	0.10	0.05	0.12	0.27	0.29	0.26	0.11	0.22	0.09	0.16	0.21	0.18	0.19
P22	0.08	0.16	0.09	0.15	0.21	0.20	0.10	0.17	0.05	0.08	0.19	0.13	0.14
P23	0.08	0.18	0.11	0.14	0.17	0.20	0.11	0.16	0.05	0.11	0.19	0.13	0.13
P24	0.09	0.23	0.13	0.15	0.16	0.19	0.10	0.12	0.05	0.16	0.20	0.15	0.14
P25	0.13	0.21	0.15	0.16	0.19	0.20	0.10	0.14	0.14	0.17	0.22	0.17	0.16
P26	0.16	0.18	0.13	0.08	0.13	0.19	0.13	0.17	0.11	0.20	0.22	0.13	0.15
P27	0.18	0.16	0.09	0.19	0.09	0.19	0.13	0.19	0.09	0.21	0.21	0.15	0.16
P28	0.06	0.14	0.06	0.13	0.12	0.07	0.06	0.06	0.11	0.04	0.02	0.10	0.07
P29	0.07	0.12	0.14	0.11	0.10	0.15	0.12	0.12	0.14	0.07	0.03	0.12	0.10
P30	0.05	0.03	0.01	0.14	0.10	0.11	0.13	0.11	0.01	0.05	0.02	0.07	0.07
Average SVR	**0.12**	**0.13**	**0.12**	**0.21**	**0.20**	**0.15**	**0.10**	**0.16**	**0.10**	**0.13**	**0.10**	**0.16**	**0.14**

T001	0.02	0.03	0.02	0.00	0.06	0.03	0.08	0.10	0.03	0.01	0.02	0.02	0.04
T002	0.14	0.06	0.06	0.08	0.16	0.03	0.06	0.15	0.03	0.03	0.08	0.08	0.07
T003	0.21	0.09	0.04	0.04	0.12	0.18	0.20	0.19	0.05	0.05	0.07	0.08	0.10
T004	0.03	0.06	0.07	0.14	0.16	0.19	0.24	0.16	0.10	0.07	0.04	0.11	0.13
T005	0.02	0.03	0.03	0.10	0.14	0.13	0.09	0.06	0.05	0.04	0.02	0.07	0.07
T006	0.04	0.06	0.03	0.18	0.18	0.12	0.08	0.14	0.10	0.12	0.07	0.11	0.12
T007	0.05	0.02	0.03	0.06	0.06	0.10	0.06	0.06	0.04	0.01	0.05	0.05	0.05
T008	0.07	0.06	0.05	0.09	0.03	0.12	0.12	0.05	0.08	0.02	0.06	0.07	0.07
T009	0.05	0.00	0.04	0.07	0.02	0.06	0.08	0.07	0.03	0.03	0.05	0.04	0.05
T010	0.11	0.03	0.01	0.00	0.05	0.11	0.12	0.05	0.05	0.01	0.02	0.03	0.05
T011	0.13	0.07	0.02	0.04	0.05	0.10	0.05	0.09	0.05	0.02	0.01	0.05	0.05
T012	0.15	0.08	0.03	0.08	0.10	0.02	0.02	0.08	0.04	0.01	0.02	0.06	0.04
T013	0.13	0.01	0.03	0.08	0.07	0.06	0.01	0.14	0.05	0.03	0.06	0.06	0.06
T014	0.03	0.02	0.01	0.06	0.00	0.06	0.02	0.03	0.04	0.01	0.03	0.03	0.03
T015	0.12	0.08	0.01	0.14	0.02	0.01	0.03	0.03	0.06	0.02	0.05	0.06	0.04
T016	0.02	0.05	0.02	0.06	0.11	0.10	0.02	0.10	0.04	0.03	0.04	0.05	0.06
T017	0.10	0.01	0.01	0.06	0.12	0.12	0.02	0.09	0.06	0.03	0.03	0.06	0.06
T018	0.05	0.02	0.01	0.04	0.05	0.07	0.01	0.12	0.05	0.04	0.03	0.04	0.05
T019	0.05	0.05	0.02	0.11	0.08	0.05	0.02	0.01	0.01	0.01	0.02	0.06	0.04
T020	0.06	0.07	0.02	0.05	0.03	0.05	0.06	0.01	0.06	0.01	0.07	0.04	0.04
T021	0.16	0.02	0.03	0.09	0.03	0.01	0.08	0.05	0.02	0.01	0.03	0.05	0.04
T022	0.16	0.09	0.05	0.15	0.09	0.05	0.03	0.01	0.02	0.05	0.09	0.09	0.06
T023	0.10	0.09	0.06	0.06	0.14	0.02	0.04	0.06	0.03	0.06	0.05	0.07	0.06
T024	0.05	0.04	0.02	0.05	0.04	0.11	0.11	0.17	0.01	0.01	0.04	0.04	0.06
T025	0.24	0.08	0.06	0.21	0.13	0.03	0.05	0.08	0.07	0.01	0.07	0.12	0.08
T026	0.20	0.06	0.06	0.15	0.06	0.02	0.01	0.07	0.06	0.01	0.07	0.08	0.06
T027	0.20	0.12	0.02	0.17	0.11	0.08	0.05	0.04	0.06	0.06	0.09	0.10	0.08
T028	0.11	0.10	0.04	0.10	0.09	0.09	0.05	0.02	0.07	0.06	0.05	0.08	0.07
T029	0.06	0.14	0.03	0.16	0.08	0.10	0.05	0.07	0.06	0.08	0.07	0.10	0.08
T030	0.03	0.13	0.01	0.18	0.11	0.11	0.03	0.02	0.06	0.05	0.01	0.10	0.07
T031	0.14	0.13	0.03	0.18	0.09	0.11	0.03	0.04	0.06	0.07	0.04	0.11	0.08
T032	0.07	0.10	0.01	0.15	0.16	0.11	0.02	0.01	0.04	0.03	0.03	0.09	0.06
T033	0.23	0.08	0.04	0.14	0.17	0.11	0.02	0.01	0.02	0.02	0.04	0.10	0.06
T034	0.27	0.08	0.02	0.16	0.17	0.07	0.01	0.03	0.01	0.04	0.01	0.10	0.06
T035	0.07	0.04	0.04	0.03	0.10	0.07	0.03	0.07	0.02	0.01	0.03	0.05	0.04
T036	0.09	0.05	0.03	0.14	0.12	0.06	0.03	0.05	0.05	0.02	0.05	0.08	0.06
T037	0.06	0.09	0.07	0.11	0.05	0.03	0.03	0.03	0.01	0.00	0.04	0.06	0.03
T038	0.08	0.03	0.02	0.08	0.09	0.03	0.02	0.03	0.01	0.01	0.02	0.05	0.03
T039	0.06	0.05	0.04	0.02	0.02	0.03	0.02	0.01	0.01	0.02	0.06	0.03	0.02
T040	0.09	0.07	0.07	0.05	0.08	0.08	0.04	0.07	0.07	0.02	0.09	0.06	0.06
T041	0.16	0.05	0.04	0.11	0.12	0.09	0.06	0.04	0.08	0.02	0.12	0.08	0.08
T042	0.14	0.03	0.03	0.08	0.05	0.14	0.03	0.07	0.06	0.01	0.09	0.06	0.06
T043	0.14	0.07	0.02	0.05	0.14	0.19	0.00	0.09	0.02	0.02	0.06	0.07	0.06
T044	0.14	0.06	0.03	0.01	0.11	0.03	0.05	0.13	0.05	0.03	0.08	0.05	0.06
T045	0.06	0.08	0.01	0.05	0.17	0.25	0.07	0.10	0.04	0.02	0.05	0.08	0.08
T046	0.12	0.09	0.06	0.06	0.07	0.15	0.09	0.09	0.08	0.03	0.05	0.07	0.07
T047	0.04	0.05	0.08	0.15	0.13	0.17	0.11	0.06	0.03	0.04	0.08	0.10	0.09
T048	0.06	0.06	0.05	0.07	0.14	0.16	0.10	0.10	0.04	0.01	0.09	0.07	0.08
T049	0.13	0.05	0.07	0.10	0.15	0.07	0.06	0.05	0.05	0.01	0.01	0.08	0.06
T050	0.29	0.19	0.06	0.42	0.41	0.08	0.03	0.11	0.07	0.09	0.16	0.23	0.16
T051	0.17	0.10	0.02	0.13	0.12	0.13	0.05	0.06	0.04	0.01	0.03	0.09	0.06
T052	0.18	0.13	0.02	0.20	0.10	0.14	0.01	0.03	0.00	0.07	0.08	0.11	0.07
T053	0.22	0.14	0.10	0.23	0.08	0.17	0.05	0.07	0.03	0.06	0.05	0.14	0.09
T054	0.17	0.02	0.02	0.17	0.14	0.13	0.02	0.07	0.02	0.04	0.05	0.10	0.08
T055	0.06	0.07	0.03	0.10	0.11	0.05	0.01	0.02	0.01	0.04	0.07	0.06	0.05
T056	0.18	0.05	0.02	0.11	0.13	0.03	0.02	0.03	0.02	0.02	0.05	0.07	0.05
T057	0.03	0.04	0.07	0.03	0.16	0.01	0.03	0.04	0.03	0.06	0.12	0.06	0.06
T058	0.06	0.09	0.08	0.20	0.28	0.11	0.03	0.09	0.08	0.04	0.10	0.14	0.11
T059	0.17	0.12	0.07	0.32	0.33	0.02	0.04	0.08	0.04	0.05	0.06	0.17	0.11
T060	0.17	0.04	0.07	0.10	0.12	0.07	0.01	0.02	0.04	0.09	0.11	0.09	0.07
T061	0.16	0.14	0.05	0.25	0.20	0.07	0.01	0.06	0.05	0.13	0.15	0.15	0.12
T062	0.07	0.08	0.08	0.19	0.17	0.10	0.03	0.09	0.02	0.09	0.10	0.12	0.09
T063	0.13	0.05	0.03	0.16	0.08	0.01	0.02	0.03	0.06	0.16	0.11	0.09	0.09
T064	0.09	0.04	0.04	0.10	0.07	0.01	0.02	0.03	0.03	0.10	0.10	0.06	0.06
T065	0.02	0.01	0.01	0.07	0.13	0.05	0.03	0.05	0.07	0.08	0.09	0.06	0.07
T066	0.05	0.05	0.04	0.03	0.06	0.04	0.01	0.05	0.05	0.05	0.03	0.04	0.04
T067	0.21	0.10	0.02	0.05	0.11	0.03	0.05	0.05	0.03	0.20	0.10	0.08	0.09
T068	0.22	0.12	0.02	0.08	0.05	0.04	0.03	0.03	0.01	0.34	0.20	0.09	0.11
T069	0.03	0.06	0.06	0.04	0.07	0.09	0.05	0.06	0.06	0.05	0.07	0.06	0.06
T070	0.04	0.01	0.01	0.01	0.05	0.00	0.02	0.03	0.06	0.03	0.05	0.02	0.03
T071	0.10	0.01	0.02	0.02	0.09	0.04	0.01	0.03	0.07	0.02	0.10	0.04	0.05
T072	0.13	0.02	0.04	0.10	0.05	0.05	0.01	0.04	0.04	0.08	0.07	0.06	0.06
T073	0.07	0.04	0.05	0.10	0.13	0.11	0.06	0.07	0.10	0.07	0.06	0.08	0.09
T074	0.20	0.04	0.08	0.14	0.05	0.15	0.10	0.10	0.08	0.15	0.06	0.11	0.10
T075	0.10	0.06	0.04	0.21	0.12	0.11	0.06	0.13	0.07	0.07	0.09	0.11	0.10
T076	0.14	0.03	0.03	0.12	0.17	0.08	0.07	0.14	0.03	0.12	0.04	0.09	0.09
T077	0.06	0.09	0.12	0.20	0.14	0.20	0.14	0.13	0.03	0.10	0.08	0.13	0.12
T078	0.22	0.08	0.14	0.11	0.10	0.11	0.12	0.07	0.06	0.09	0.21	0.11	0.11
T079	0.29	0.14	0.22	0.17	0.13	0.14	0.16	0.10	0.10	0.13	0.28	0.17	0.15
T080	0.27	0.13	0.14	0.05	0.04	0.03	0.08	0.02	0.08	0.14	0.20	0.10	0.09
T081	0.11	0.02	0.02	0.02	0.05	0.03	0.05	0.04	0.05	0.14	0.12	0.04	0.07
T082	0.13	0.13	0.20	0.22	0.10	0.17	0.18	0.05	0.10	0.14	0.22	0.16	0.15
T083	0.16	0.11	0.14	0.19	0.07	0.15	0.12	0.07	0.11	0.17	0.24	0.14	0.14
T084	0.03	0.09	0.19	0.24	0.15	0.19	0.19	0.11	0.09	0.20	0.25	0.17	0.18
T085	0.08	0.09	0.33	0.06	0.09	0.09	0.09	0.12	0.12	0.19	0.12	0.14	0.12
T086	0.19	0.06	0.25	0.45	0.37	0.20	0.22	0.25	0.32	0.32	0.13	0.30	0.29
T087	0.23	0.06	0.28	0.30	0.16	0.07	0.04	0.20	0.27	0.26	0.09	0.22	0.19
T088	0.12	0.18	0.21	0.08	0.14	0.03	0.02	0.15	0.24	0.20	0.07	0.14	0.13
T089	0.11	0.17	0.16	0.17	0.14	0.06	0.06	0.09	0.11	0.07	0.09	0.14	0.10
T090	0.17	0.09	0.19	0.13	0.21	0.03	0.10	0.16	0.16	0.19	0.05	0.15	0.14
T091	0.18	0.15	0.08	0.22	0.15	0.21	0.18	0.21	0.04	0.20	0.21	0.16	0.17
T092	0.09	0.11	0.12	0.24	0.15	0.20	0.20	0.16	0.08	0.22	0.19	0.17	0.18
T093	0.12	0.09	0.19	0.24	0.16	0.20	0.18	0.13	0.10	0.21	0.20	0.18	0.18
T094	0.11	0.06	0.20	0.23	0.15	0.20	0.20	0.10	0.08	0.19	0.23	0.17	0.17
T095	0.23	0.07	0.21	0.22	0.13	0.18	0.19	0.09	0.04	0.11	0.24	0.16	0.14
T096	0.30	0.07	0.20	0.22	0.11	0.15	0.15	0.10	0.01	0.07	0.20	0.16	0.12
T097	0.15	0.07	0.14	0.15	0.13	0.20	0.15	0.03	0.07	0.10	0.05	0.13	0.10
T098	0.15	0.05	0.14	0.05	0.11	0.20	0.13	0.10	0.02	0.05	0.05	0.09	0.08
T099	0.08	0.05	0.16	0.09	0.14	0.21	0.13	0.13	0.04	0.09	0.07	0.11	0.10
T100	0.20	0.09	0.16	0.20	0.14	0.18	0.17	0.16	0.07	0.13	0.13	0.15	0.14

T101	0.16	0.10	0.10	0.14	0.13	0.15	0.13	0.16	0.09	0.11	0.12	0.12	0.13
T102	0.13	0.13	0.06	0.12	0.09	0.10	0.11	0.16	0.05	0.19	0.13	0.11	0.12
T103	0.15	0.17	0.11	0.09	0.08	0.12	0.11	0.16	0.07	0.23	0.13	0.11	0.13
T104	0.13	0.09	0.10	0.10	0.06	0.10	0.11	0.18	0.07	0.09	0.03	0.09	0.09
T105	0.09	0.14	0.10	0.15	0.13	0.09	0.05	0.13	0.04	0.12	0.12	0.12	0.10
T106	0.08	0.11	0.10	0.21	0.21	0.08	0.03	0.17	0.11	0.07	0.10	0.14	0.12
T107	0.06	0.10	0.05	0.10	0.11	0.08	0.04	0.00	0.13	0.06	0.08	0.09	0.08
T108	0.17	0.03	0.07	0.06	0.06	0.04	0.04	0.09	0.11	0.08	0.02	0.07	0.06
T109	0.09	0.13	0.13	0.24	0.17	0.07	0.04	0.15	0.06	0.12	0.04	0.15	0.11
T110	0.14	0.18	0.10	0.11	0.14	0.11	0.02	0.07	0.09	0.06	0.09	0.12	0.08
T111	0.16	0.10	0.28	0.14	0.34	0.10	0.13	0.21	0.30	0.25	0.10	0.21	0.20
T112	0.28	0.04	0.29	0.47	0.36	0.18	0.21	0.20	0.28	0.29	0.10	0.31	0.26
T113	0.23	0.04	0.23	0.22	0.15	0.04	0.15	0.22	0.21	0.28	0.04	0.18	0.17
T114	0.12	0.01	0.16	0.14	0.10	0.06	0.07	0.11	0.17	0.15	0.08	0.12	0.12
T115	0.16	0.02	0.16	0.09	0.12	0.08	0.04	0.18	0.27	0.27	0.13	0.13	0.16
T116	0.04	0.08	0.21	0.32	0.29	0.21	0.19	0.10	0.06	0.05	0.04	0.20	0.14
T117	0.05	0.11	0.21	0.15	0.38	0.31	0.21	0.15	0.15	0.05	0.07	0.19	0.17
T118	0.18	0.08	0.19	0.21	0.20	0.18	0.10	0.02	0.05	0.05	0.08	0.16	0.10
T119	0.18	0.22	0.16	0.21	0.26	0.28	0.24	0.23	0.24	0.21	0.07	0.21	0.21
T120	0.14	0.13	0.12	0.21	0.32	0.25	0.19	0.13	0.13	0.21	0.08	0.19	0.19
T121	0.12	0.02	0.06	0.33	0.37	0.32	0.23	0.15	0.15	0.15	0.11	0.21	0.21
T122	0.04	0.23	0.29	0.25	0.33	0.27	0.06	0.09	0.06	0.10	0.04	0.23	0.14
T123	0.06	0.20	0.21	0.32	0.22	0.16	0.15	0.10	0.04	0.12	0.02	0.20	0.13
T124	0.04	0.03	0.13	0.21	0.02	0.18	0.17	0.13	0.05	0.13	0.04	0.12	0.11
T125	0.08	0.09	0.05	0.12	0.17	0.12	0.02	0.03	0.01	0.01	0.02	0.09	0.06
T126	0.10	0.15	0.02	0.25	0.24	0.02	0.07	0.09	0.01	0.03	0.00	0.13	0.08
T127	0.10	0.11	0.04	0.09	0.08	0.01	0.03	0.03	0.03	0.04	0.04	0.07	0.04
T128	0.07	0.11	0.14	0.15	0.18	0.05	0.03	0.11	0.17	0.04	0.01	0.13	0.09
T129	0.01	0.09	0.05	0.09	0.07	0.02	0.01	0.14	0.16	0.04	0.06	0.07	0.08
T130	0.06	0.17	0.08	0.16	0.09	0.08	0.08	0.12	0.17	0.01	0.07	0.11	0.10
T131	0.03	0.08	0.05	0.06	0.03	0.02	0.00	0.15	0.07	0.04	0.05	0.05	0.05
T132	0.02	0.06	0.11	0.13	0.04	0.07	0.06	0.13	0.09	0.08	0.05	0.09	0.08
T133	0.03	0.03	0.01	0.13	0.09	0.11	0.05	0.12	0.12	0.08	0.02	0.08	0.09
T134	0.06	0.02	0.07	0.03	0.02	0.02	0.02	0.21	0.17	0.05	0.03	0.05	0.07
T135	0.04	0.14	0.11	0.16	0.12	0.05	0.04	0.03	0.12	0.05	0.01	0.12	0.07
T136	0.06	0.10	0.05	0.18	0.20	0.07	0.05	0.09	0.04	0.02	0.02	0.11	0.08
T137	0.06	0.09	0.03	0.09	0.07	0.06	0.05	0.03	0.03	0.02	0.03	0.06	0.04
T138	0.09	0.09	0.02	0.01	0.10	0.12	0.02	0.06	0.07	0.05	0.03	0.06	0.06
T139	0.07	0.05	0.04	0.09	0.04	0.09	0.04	0.03	0.03	0.06	0.01	0.06	0.05
T140	0.07	0.00	0.03	0.03	0.10	0.18	0.05	0.04	0.03	0.05	0.02	0.05	0.06
T141	0.04	0.04	0.03	0.05	0.09	0.17	0.07	0.02	0.01	0.04	0.03	0.06	0.05
T142	0.04	0.05	0.05	0.09	0.08	0.07	0.10	0.09	0.02	0.03	0.06	0.06	0.06
T143	0.09	0.04	0.14	0.13	0.03	0.08	0.06	0.15	0.16	0.13	0.02	0.10	0.10
T144	0.01	0.06	0.02	0.15	0.02	0.05	0.03	0.14	0.09	0.06	0.04	0.07	0.07
T145	0.03	0.01	0.05	0.05	0.04	0.03	0.01	0.07	0.07	0.01	0.02	0.04	0.04
T146	0.04	0.12	0.05	0.08	0.09	0.03	0.03	0.06	0.02	0.03	0.02	0.06	0.04
T147	0.08	0.15	0.13	0.24	0.22	0.01	0.07	0.08	0.03	0.04	0.03	0.15	0.08
T148	0.10	0.11	0.10	0.27	0.21	0.03	0.02	0.02	0.03	0.03	0.00	0.14	0.07
T149	0.14	0.19	0.10	0.34	0.30	0.07	0.06	0.10	0.03	0.03	0.06	0.19	0.11
T150	0.08	0.12	0.10	0.29	0.22	0.01	0.03	0.05	0.01	0.01	0.04	0.14	0.08
T151	0.10	0.18	0.06	0.34	0.32	0.05	0.05	0.09	0.04	0.03	0.08	0.18	0.12
T152	0.06	0.14	0.05	0.27	0.26	0.05	0.02	0.06	0.02	0.05	0.02	0.14	0.09
T153	0.01	0.14	0.04	0.19	0.19	0.10	0.07	0.12	0.06	0.02	0.08	0.11	0.10
T154	0.08	0.05	0.10	0.15	0.16	0.19	0.14	0.11	0.07	0.07	0.04	0.12	0.11
T155	0.10	0.13	0.06	0.28	0.33	0.23	0.11	0.11	0.06	0.02	0.14	0.17	0.14
T156	0.11	0.18	0.06	0.35	0.35	0.11	0.06	0.11	0.03	0.03	0.08	0.19	0.13
T157	0.00	0.20	0.01	0.36	0.38	0.22	0.11	0.14	0.10	0.03	0.07	0.19	0.16
T158	0.14	0.19	0.11	0.37	0.35	0.12	0.10	0.08	0.06	0.06	0.06	0.21	0.14
T159	0.18	0.19	0.08	0.29	0.30	0.13	0.10	0.02	0.06	0.07	0.02	0.18	0.11
T160	0.23	0.14	0.15	0.20	0.10	0.10	0.10	0.13	0.09	0.10	0.06	0.15	0.11
T161	0.20	0.20	0.19	0.43	0.46	0.14	0.16	0.15	0.08	0.06	0.07	0.26	0.18
T162	0.17	0.06	0.12	0.13	0.05	0.10	0.14	0.15	0.04	0.05	0.06	0.10	0.08
T163	0.17	0.04	0.27	0.22	0.25	0.11	0.19	0.20	0.10	0.24	0.08	0.20	0.17
T164	0.18	0.23	0.20	0.24	0.15	0.10	0.15	0.28	0.09	0.14	0.13	0.18	0.16
T165	0.14	0.04	0.05	0.08	0.15	0.03	0.01	0.01	0.03	0.04	0.07	0.07	0.05
T166	0.11	0.02	0.08	0.03	0.07	0.05	0.03	0.04	0.04	0.06	0.06	0.06	0.05
T167	0.07	0.25	0.14	0.06	0.38	0.13	0.11	0.09	0.13	0.05	0.21	0.15	0.14
T168	0.11	0.02	0.08	0.05	0.18	0.12	0.02	0.05	0.05	0.06	0.05	0.08	0.07
T169	0.23	0.15	0.05	0.14	0.08	0.15	0.01	0.10	0.09	0.11	0.02	0.12	0.09
T170	0.23	0.18	0.17	0.08	0.00	0.10	0.00	0.06	0.07	0.04	0.06	0.10	0.05
T171	0.07	0.01	0.02	0.08	0.00	0.09	0.06	0.06	0.15	0.21	0.08	0.07	0.10
T172	0.13	0.08	0.10	0.05	0.02	0.02	0.01	0.05	0.10	0.14	0.08	0.07	0.07
T173	0.32	0.22	0.25	0.12	0.01	0.02	0.10	0.19	0.08	0.19	0.23	0.15	0.13
T174	0.23	0.13	0.15	0.10	0.06	0.24	0.27	0.26	0.35	0.51	0.30	0.18	0.28
T175	0.15	0.10	0.09	0.09	0.05	0.09	0.21	0.09	0.02	0.26	0.05	0.10	0.11
T176	0.17	0.15	0.21	0.15	0.13	0.27	0.33	0.33	0.31	0.37	0.11	0.20	0.26
T177	0.10	0.06	0.22	0.09	0.13	0.21	0.23	0.22	0.24	0.26	0.16	0.15	0.20
T178	0.05	0.01	0.14	0.04	0.07	0.10	0.10	0.08	0.08	0.11	0.10	0.07	0.09
T179	0.20	0.14	0.18	0.08	0.10	0.24	0.27	0.22	0.33	0.34	0.20	0.17	0.23
T180	0.32	0.18	0.23	0.08	0.03	0.09	0.12	0.16	0.13	0.04	0.08	0.13	0.09
T181	0.03	0.04	0.07	0.04	0.09	0.06	0.08	0.20	0.23	0.25	0.11	0.09	0.15
T182	0.19	0.10	0.09	0.06	0.12	0.12	0.13	0.26	0.19	0.30	0.11	0.12	0.17
T183	0.08	0.08	0.12	0.06	0.07	0.10	0.15	0.15	0.26	0.32	0.12	0.12	0.17
T184	0.10	0.09	0.07	0.08	0.10	0.12	0.17	0.23	0.28	0.40	0.12	0.13	0.21
T185	0.04	0.01	0.04	0.01	0.10	0.08	0.17	0.20	0.27	0.40	0.01	0.09	0.18
T186	0.24	0.04	0.11	0.07	0.16	0.27	0.31	0.28	0.33	0.32	0.04	0.16	0.23
T187	0.17	0.18	0.18	0.08	0.15	0.20	0.26	0.19	0.08	0.22	0.05	0.15	0.15
T188	0.11	0.05	0.09	0.07	0.07	0.07	0.07	0.10	0.09	0.15	0.06	0.08	0.09
T189	0.13	0.05	0.10	0.06	0.10	0.15	0.17	0.15	0.21	0.36	0.16	0.12	0.19
T190	0.05	0.06	0.20	0.05	0.01	0.04	0.12	0.10	0.29	0.37	0.18	0.12	0.17
T191	0.29	0.17	0.22	0.14	0.04	0.12	0.15	0.19	0.15	0.27	0.16	0.17	0.16
T192	0.34	0.23	0.13	0.14	0.11	0.11	0.07	0.19	0.22	0.12	0.16	0.16	0.15
T193	0.23	0.15	0.05	0.04	0.09	0.03	0.03	0.07	0.06	0.14	0.05	0.08	0.07
T194	0.16	0.12	0.03	0.00	0.09	0.06	0.06	0.07	0.09	0.16	0.01	0.07	0.08
T195	0.11	0.11	0.07	0.07	0.06	0.08	0.01	0.10	0.02	0.06	0.20	0.07	0.07
T196	0.14	0.09	0.03	0.06	0.08	0.08	0.16	0.19	0.22	0.26	0.12	0.09	0.16
T197	0.18	0.26	0.14	0.13	0.05	0.04	0.06	0.06	0.04	0.03	0.15	0.12	0.07
T198	0.14	0.24	0.19	0.26	0.15	0.08	0.11	0.04	0.05	0.02	0.08	0.17	0.09
T199	0.04	0.13	0.09	0.21	0.38	0.07	0.20	0.25	0.09	0.08	0.12	0.16	0.16
T200	0.11	0.23	0.15	0.24	0.30	0.09	0.24	0.21	0.16	0.23	0.27	0.20	0.22

T201	0.17	0.21	0.17	0.25	0.35	0.17	0.22	0.23	0.20	0.25	0.22	0.23	0.23
T202	0.07	0.08	0.15	0.25	0.32	0.31	0.09	0.21	0.25	0.29	0.06	0.22	0.23
T203	0.07	0.07	0.04	0.11	0.25	0.20	0.03	0.27	0.27	0.24	0.08	0.14	0.19
T204	0.03	0.02	0.02	0.13	0.27	0.22	0.04	0.18	0.28	0.38	0.10	0.15	0.22
T205	0.05	0.06	0.19	0.19	0.33	0.24	0.08	0.48	0.49	0.39	0.08	0.23	0.30
T206	0.05	0.03	0.15	0.09	0.07	0.11	0.04	0.13	0.05	0.31	0.05	0.11	0.12
T207	0.10	0.08	0.10	0.09	0.13	0.03	0.10	0.14	0.11	0.08	0.09	0.09	0.10
T208	0.09	0.06	0.08	0.08	0.05	0.07	0.02	0.11	0.10	0.03	0.11	0.07	0.07
T209	0.07	0.04	0.06	0.09	0.04	0.03	0.11	0.03	0.12	0.04	0.08	0.06	0.07
T210	0.01	0.01	0.03	0.09	0.01	0.04	0.10	0.05	0.01	0.04	0.02	0.04	0.04
T211	0.03	0.02	0.02	0.01	0.01	0.02	0.08	0.03	0.03	0.06	0.01	0.02	0.03
T212	0.18	0.08	0.04	0.08	0.04	0.18	0.07	0.10	0.06	0.21	0.21	0.09	0.12
T213	0.14	0.07	0.13	0.14	0.25	0.10	0.05	0.07	0.13	0.42	0.35	0.16	0.21
T214	0.23	0.10	0.11	0.20	0.26	0.10	0.04	0.05	0.15	0.34	0.23	0.18	0.19
T215	0.20	0.10	0.09	0.10	0.04	0.08	0.04	0.05	0.19	0.40	0.29	0.12	0.17
T216	0.16	0.16	0.11	0.06	0.09	0.08	0.11	0.08	0.08	0.15	0.03	0.10	0.09
T217	0.07	0.07	0.04	0.04	0.04	0.07	0.16	0.14	0.17	0.11	0.10	0.06	0.11
T218	0.05	0.01	0.04	0.03	0.08	0.15	0.17	0.25	0.28	0.19	0.12	0.08	0.17
T219	0.16	0.04	0.12	0.07	0.01	0.06	0.28	0.09	0.13	0.16	0.06	0.09	0.11
T220	0.14	0.02	0.09	0.01	0.01	0.09	0.23	0.29	0.22	0.23	0.04	0.08	0.15
T221	0.09	0.01	0.09	0.00	0.01	0.03	0.26	0.37	0.28	0.34	0.13	0.08	0.19
T222	0.03	0.00	0.03	0.00	0.01	0.02	0.06	0.01	0.05	0.08	0.05	0.02	0.04
T223	0.02	0.02	0.07	0.15	0.03	0.01	0.25	0.22	0.14	0.28	0.03	0.09	0.15
T224	0.02	0.02	0.04	0.19	0.12	0.08	0.28	0.34	0.27	0.18	0.08	0.12	0.20
T225	0.04	0.07	0.23	0.37	0.21	0.13	0.07	0.33	0.20	0.14	0.04	0.21	0.18
T226	0.10	0.11	0.22	0.03	0.10	0.05	0.00	0.27	0.25	0.25	0.09	0.13	0.15
T227	0.09	0.15	0.32	0.28	0.36	0.30	0.16	0.50	0.45	0.45	0.22	0.30	0.35
T228	0.21	0.11	0.13	0.30	0.25	0.11	0.13	0.12	0.22	0.24	0.11	0.21	0.19
T229	0.03	0.03	0.01	0.15	0.17	0.20	0.09	0.02	0.06	0.01	0.03	0.09	0.08
T230	0.01	0.02	0.01	0.04	0.06	0.14	0.02	0.00	0.02	0.02	0.11	0.04	0.05
T231	0.01	0.02	0.02	0.08	0.03	0.12	0.02	0.04	0.01	0.02	0.04	0.04	0.04
T232	0.05	0.02	0.02	0.04	0.13	0.04	0.09	0.04	0.04	0.01	0.11	0.05	0.06
T233	0.04	0.03	0.04	0.06	0.09	0.03	0.05	0.02	0.06	0.04	0.03	0.05	0.05
T234	0.03	0.03	0.02	0.04	0.07	0.04	0.04	0.03	0.05	0.04	0.07	0.04	0.05
T235	0.07	0.02	0.03	0.04	0.06	0.07	0.01	0.04	0.02	0.01	0.02	0.04	0.03
T236	0.03	0.03	0.02	0.07	0.03	0.06	0.06	0.03	0.09	0.06	0.05	0.05	0.06
T237	0.11	0.06	0.02	0.17	0.09	0.01	0.08	0.15	0.21	0.25	0.16	0.11	0.15
T238	0.10	0.06	0.02	0.15	0.09	0.04	0.12	0.18	0.19	0.24	0.16	0.10	0.16
T239	0.22	0.11	0.12	0.07	0.04	0.08	0.10	0.16	0.35	0.47	0.24	0.14	0.22
T240	0.11	0.04	0.03	0.04	0.06	0.06	0.03	0.26	0.20	0.22	0.12	0.07	0.14
T241	0.02	0.03	0.04	0.06	0.06	0.04	0.07	0.17	0.27	0.29	0.13	0.08	0.16
T242	0.09	0.13	0.21	0.23	0.39	0.31	0.26	0.11	0.14	0.09	0.07	0.22	0.18
T243	0.11	0.06	0.20	0.33	0.26	0.15	0.20	0.13	0.24	0.07	0.08	0.21	0.18
T244	0.25	0.11	0.15	0.31	0.30	0.22	0.11	0.09	0.20	0.18	0.09	0.23	0.19
T245	0.02	0.02	0.17	0.24	0.37	0.16	0.29	0.39	0.31	0.12	0.02	0.20	0.23
T246	0.03	0.06	0.13	0.24	0.44	0.23	0.26	0.37	0.31	0.08	0.09	0.21	0.24
T247	0.07	0.08	0.05	0.02	0.07	0.06	0.07	0.04	0.05	0.05	0.03	0.05	0.05
T248	0.07	0.10	0.12	0.10	0.11	0.10	0.09	0.04	0.05	0.05	0.04	0.10	0.07
T249	0.05	0.16	0.16	0.08	0.11	0.10	0.07	0.10	0.06	0.05	0.02	0.10	0.07
T250	0.11	0.10	0.01	0.11	0.28	0.15	0.26	0.18	0.07	0.05	0.04	0.11	0.13
T251	0.11	0.05	0.19	0.07	0.17	0.07	0.17	0.15	0.02	0.04	0.03	0.10	0.08
T252	0.09	0.07	0.10	0.02	0.19	0.04	0.16	0.12	0.02	0.02	0.05	0.07	0.07
T253	0.10	0.12	0.13	0.02	0.14	0.06	0.11	0.14	0.08	0.03	0.09	0.08	0.08
T254	0.19	0.18	0.18	0.38	0.35	0.32	0.28	0.22	0.22	0.06	0.08	0.26	0.22
T255	0.11	0.14	0.24	0.37	0.23	0.12	0.07	0.02	0.07	0.03	0.04	0.21	0.11
T256	0.02	0.01	0.01	0.04	0.02	0.01	0.01	0.02	0.03	0.01	0.02	0.02	0.02
T257	0.02	0.01	0.03	0.04	0.03	0.02	0.01	0.01	0.03	0.01	0.02	0.03	0.02
T258	0.12	0.08	0.12	0.19	0.10	0.01	0.02	0.16	0.13	0.01	0.03	0.11	0.08
T259	0.03	0.11	0.06	0.16	0.12	0.04	0.03	0.08	0.07	0.02	0.02	0.09	0.07
T260	0.02	0.02	0.06	0.13	0.01	0.02	0.05	0.01	0.08	0.01	0.03	0.06	0.04
T261	0.06	0.02	0.02	0.04	0.06	0.01	0.04	0.02	0.04	0.07	0.06	0.04	0.04
T262	0.21	0.11	0.19	0.19	0.07	0.13	0.16	0.03	0.02	0.08	0.23	0.14	0.11
T263	0.14	0.12	0.20	0.22	0.07	0.16	0.17	0.01	0.11	0.12	0.24	0.16	0.13
T264	0.02	0.02	0.05	0.08	0.03	0.03	0.01	0.03	0.09	0.03	0.07	0.05	0.05
T265	0.04	0.05	0.05	0.12	0.04	0.07	0.03	0.05	0.09	0.02	0.05	0.07	0.06
T266	0.01	0.04	0.07	0.04	0.06	0.06	0.12	0.04	0.12	0.03	0.04	0.05	0.06
T267	0.02	0.04	0.05	0.03	0.06	0.04	0.06	0.04	0.08	0.02	0.06	0.04	0.05
T268	0.02	0.05	0.03	0.13	0.12	0.07	0.02	0.02	0.01	0.03	0.02	0.07	0.05
T269	0.03	0.18	0.02	0.24	0.17	0.10	0.04	0.06	0.03	0.04	0.01	0.12	0.08
T270	0.00	0.16	0.03	0.26	0.19	0.10	0.04	0.09	0.07	0.08	0.02	0.13	0.10
T271	0.03	0.17	0.06	0.20	0.17	0.07	0.04	0.09	0.08	0.11	0.01	0.13	0.10
T272	0.06	0.07	0.11	0.16	0.07	0.02	0.04	0.03	0.05	0.05	0.01	0.09	0.05
T273	0.05	0.03	0.06	0.29	0.29	0.18	0.14	0.01	0.04	0.04	0.01	0.15	0.11
T274	0.01	0.11	0.11	0.08	0.16	0.12	0.05	0.05	0.06	0.06	0.04	0.10	0.07
T275	0.05	0.20	0.02	0.06	0.09	0.09	0.10	0.09	0.14	0.03	0.07	0.08	0.08
T276	0.12	0.16	0.04	0.14	0.07	0.04	0.07	0.09	0.13	0.04	0.04	0.10	0.08
T277	0.09	0.13	0.03	0.07	0.08	0.02	0.02	0.04	0.06	0.06	0.08	0.06	0.05
T278	0.13	0.17	0.15	0.03	0.06	0.05	0.05	0.10	0.10	0.07	0.06	0.09	0.07
T279	0.04	0.06	0.08	0.06	0.05	0.20	0.09	0.11	0.08	0.03	0.06	0.07	0.08
T280	0.05	0.01	0.06	0.05	0.08	0.15	0.11	0.05	0.08	0.06	0.07	0.07	0.08
T281	0.09	0.09	0.05	0.18	0.21	0.21	0.14	0.16	0.09	0.08	0.02	0.13	0.13
T282	0.09	0.12	0.03	0.18	0.15	0.08	0.01	0.05	0.06	0.04	0.03	0.10	0.07
T283	0.09	0.14	0.04	0.17	0.07	0.09	0.06	0.04	0.07	0.06	0.06	0.10	0.08
T284	0.21	0.09	0.06	0.16	0.13	0.03	0.00	0.07	0.07	0.03	0.06	0.10	0.07
Average LVR	**0.11**	**0.09**	**0.09**	**0.14**	**0.14**	**0.11**	**0.09**	**0.11**	**0.10**	**0.11**	**0.08**	**0.12**	**0.11**
S01	0.21	0.07	0.04	0.13	0.15	0.14	0.08	0.08	0.16	0.03	0.02	0.11	0.10
S02	0.18	0.04	0.12	0.05	0.14	0.11	0.07	0.03	0.06	0.00	0.02	0.09	0.06
S03	0.23	0.02	0.04	0.07	0.11	0.05	0.03	0.06	0.12	0.02	0.01	0.07	0.06
S04	0.06	0.16	0.20	0.23	0.25	0.18	0.10	0.08	0.13	0.01	0.04	0.18	0.12
S05	0.05	0.07	0.08	0.06	0.10	0.05	0.06	0.10	0.07	0.03	0.03	0.07	0.06
S06	0.09	0.11	0.16	0.23	0.13	0.10	0.09	0.06	0.08	0.02	0.03	0.14	0.09
S07	0.09	0.09	0.13	0.24	0.17	0.12	0.09	0.08	0.07	0.01	0.02	0.14	0.09
S08	0.05	0.17	0.19	0.30	0.24	0.18	0.12	0.17	0.14	0.03	0.05	0.20	0.14
S09	0.12	0.14	0.18	0.32	0.21	0.14	0.10	0.06	0.14	0.03	0.03	0.19	0.12
S10	0.16	0.12	0.14	0.30	0.25	0.16	0.11	0.09	0.10	0.02	0.03	0.18	0.12
S11	0.06	0.17	0.19	0.32	0.29	0.14	0.08	0.08	0.14	0.04	0.08	0.21	0.14

Detailed Wind Velocity Ratio under different Wind Directions

Test Point	Proposed Scheme												
	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
P01	0.12	0.04	0.18	0.15	0.36	0.07	0.15	0.06	0.00	0.04	0.11	0.15	0.11
P02	0.10	0.14	0.19	0.33	0.35	0.18	0.05	0.14	0.03	0.07	0.08	0.21	0.14
P03	0.17	0.21	0.22	0.41	0.43	0.22	0.15	0.17	0.01	0.01	0.08	0.26	0.16
P04	0.08	0.18	0.23	0.38	0.39	0.21	0.15	0.18	0.04	0.01	0.03	0.24	0.15
P05	0.06	0.14	0.19	0.29	0.30	0.16	0.11	0.17	0.05	0.03	0.06	0.19	0.13
P06	0.09	0.10	0.14	0.34	0.32	0.16	0.07	0.18	0.04	0.03	0.09	0.19	0.14
P07	0.10	0.10	0.22	0.40	0.37	0.20	0.16	0.04	0.07	0.09	0.08	0.24	0.16
P08	0.09	0.10	0.20	0.37	0.33	0.17	0.16	0.13	0.04	0.08	0.03	0.22	0.15
P09	0.16	0.09	0.16	0.26	0.24	0.13	0.17	0.14	0.02	0.06	0.01	0.17	0.12
P10	0.15	0.09	0.09	0.09	0.09	0.09	0.20	0.19	0.02	0.07	0.06	0.09	0.09
P11	0.15	0.08	0.05	0.11	0.13	0.04	0.19	0.16	0.03	0.05	0.04	0.08	0.09
P12	0.09	0.16	0.21	0.32	0.28	0.12	0.23	0.14	0.03	0.05	0.04	0.20	0.14
P13	0.17	0.19	0.19	0.24	0.21	0.22	0.28	0.28	0.20	0.20	0.03	0.21	0.20
P14	0.13	0.22	0.22	0.28	0.23	0.11	0.17	0.27	0.24	0.17	0.12	0.22	0.20
P15	0.14	0.28	0.24	0.34	0.28	0.09	0.11	0.27	0.16	0.13	0.15	0.24	0.19
P16	0.15	0.21	0.16	0.24	0.19	0.06	0.06	0.19	0.07	0.02	0.05	0.16	0.11
P17	0.05	0.18	0.14	0.15	0.14	0.04	0.05	0.10	0.17	0.13	0.12	0.13	0.12
P18	0.14	0.09	0.04	0.06	0.05	0.15	0.10	0.18	0.19	0.19	0.09	0.09	0.13
P19	0.17	0.13	0.02	0.03	0.05	0.11	0.02	0.14	0.09	0.06	0.17	0.06	0.08
P20	0.18	0.09	0.13	0.22	0.20	0.20	0.14	0.19	0.31	0.20	0.18	0.18	0.21
P21	0.16	0.08	0.13	0.27	0.24	0.25	0.19	0.28	0.27	0.06	0.20	0.19	0.21
P22	0.15	0.05	0.17	0.29	0.24	0.22	0.19	0.30	0.26	0.13	0.19	0.21	0.23
P23	0.14	0.06	0.12	0.30	0.26	0.26	0.23	0.33	0.27	0.12	0.20	0.20	0.24
P24	0.07	0.09	0.05	0.22	0.22	0.21	0.18	0.29	0.22	0.09	0.18	0.15	0.19
P25	0.04	0.09	0.11	0.25	0.23	0.21	0.17	0.26	0.22	0.03	0.21	0.16	0.19
P26	0.14	0.08	0.10	0.23	0.23	0.22	0.22	0.24	0.20	0.17	0.22	0.18	0.21
P27	0.09	0.05	0.06	0.14	0.17	0.16	0.20	0.20	0.17	0.19	0.21	0.12	0.18
P28	0.07	0.04	0.07	0.12	0.09	0.04	0.05	0.03	0.01	0.04	0.02	0.07	0.05
P29	0.05	0.09	0.14	0.19	0.13	0.13	0.11	0.12	0.02	0.07	0.04	0.12	0.09
P30	0.09	0.07	0.03	0.05	0.08	0.13	0.10	0.11	0.02	0.04	0.02	0.06	0.06
Average SVR	**0.12**	**0.12**	**0.14**	**0.24**	**0.23**	**0.15**	**0.15**	**0.18**	**0.12**	**0.09**	**0.10**	**0.17**	**0.15**

T001	0.04	0.03	0.03	0.06	0.05	0.06	0.13	0.16	0.01	0.04	0.02	0.04	0.06
T002	0.08	0.03	0.05	0.10	0.09	0.04	0.08	0.14	0.03	0.04	0.07	0.06	0.07
T003	0.17	0.06	0.01	0.08	0.14	0.24	0.21	0.18	0.04	0.05	0.05	0.09	0.11
T004	0.13	0.04	0.05	0.12	0.15	0.22	0.22	0.19	0.06	0.08	0.01	0.10	0.12
T005	0.08	0.03	0.03	0.08	0.16	0.14	0.12	0.09	0.03	0.03	0.03	0.07	0.08
T006	0.03	0.08	0.06	0.20	0.20	0.11	0.08	0.06	0.03	0.11	0.06	0.12	0.10
T007	0.07	0.03	0.03	0.07	0.10	0.10	0.06	0.08	0.04	0.03	0.06	0.06	0.06
T008	0.14	0.05	0.03	0.12	0.17	0.12	0.14	0.09	0.09	0.06	0.08	0.09	0.10
T009	0.09	0.01	0.04	0.03	0.17	0.02	0.08	0.07	0.06	0.04	0.07	0.06	0.07
T010	0.12	0.02	0.01	0.01	0.04	0.08	0.09	0.06	0.03	0.02	0.02	0.03	0.04
T011	0.11	0.04	0.03	0.03	0.07	0.06	0.03	0.08	0.03	0.03	0.01	0.04	0.04
T012	0.11	0.05	0.04	0.06	0.13	0.18	0.04	0.07	0.05	0.02	0.03	0.07	0.06
T013	0.10	0.03	0.04	0.08	0.09	0.08	0.02	0.09	0.03	0.02	0.07	0.06	0.06
T014	0.06	0.01	0.01	0.03	0.01	0.04	0.02	0.02	0.01	0.01	0.05	0.02	0.02
T015	0.08	0.06	0.02	0.15	0.03	0.05	0.02	0.04	0.03	0.02	0.07	0.07	0.05
T016	0.05	0.03	0.01	0.11	0.17	0.11	0.08	0.10	0.02	0.03	0.02	0.07	0.07
T017	0.07	0.01	0.02	0.15	0.21	0.17	0.10	0.13	0.03	0.03	0.04	0.10	0.10
T018	0.11	0.02	0.02	0.11	0.06	0.14	0.09	0.10	0.02	0.02	0.05	0.06	0.07
T019	0.07	0.02	0.01	0.06	0.10	0.06	0.01	0.04	0.01	0.02	0.01	0.05	0.04
T020	0.03	0.07	0.02	0.08	0.05	0.05	0.02	0.03	0.01	0.01	0.07	0.05	0.04
T021	0.04	0.04	0.03	0.09	0.02	0.02	0.01	0.02	0.01	0.02	0.03	0.04	0.03
T022	0.11	0.08	0.01	0.19	0.10	0.09	0.03	0.03	0.01	0.04	0.09	0.09	0.07
T023	0.05	0.06	0.04	0.03	0.20	0.06	0.08	0.04	0.04	0.04	0.08	0.07	0.07
T024	0.09	0.03	0.05	0.10	0.11	0.14	0.12	0.15	0.01	0.01	0.02	0.07	0.07
T025	0.13	0.10	0.04	0.24	0.18	0.08	0.02	0.04	0.04	0.07	0.09	0.13	0.09
T026	0.12	0.07	0.01	0.15	0.08	0.01	0.03	0.01	0.03	0.05	0.10	0.07	0.06
T027	0.08	0.13	0.03	0.15	0.13	0.15	0.09	0.06	0.02	0.12	0.08	0.10	0.10
T028	0.05	0.05	0.04	0.03	0.13	0.10	0.05	0.03	0.05	0.09	0.09	0.06	0.07
T029	0.06	0.07	0.01	0.12	0.07	0.12	0.01	0.04	0.03	0.13	0.05	0.08	0.07
T030	0.03	0.11	0.01	0.12	0.12	0.13	0.03	0.07	0.02	0.06	0.02	0.08	0.06
T031	0.14	0.08	0.05	0.17	0.05	0.14	0.02	0.08	0.02	0.14	0.06	0.10	0.09
T032	0.07	0.06	0.02	0.09	0.06	0.08	0.07	0.04	0.02	0.05	0.04	0.06	0.05
T033	0.23	0.07	0.04	0.15	0.18	0.08	0.05	0.09	0.03	0.02	0.06	0.10	0.07
T034	0.23	0.10	0.05	0.15	0.18	0.08	0.03	0.02	0.04	0.05	0.04	0.11	0.07
T035	0.08	0.06	0.07	0.15	0.07	0.11	0.07	0.06	0.04	0.02	0.02	0.09	0.06
T036	0.13	0.05	0.02	0.14	0.05	0.10	0.01	0.06	0.04	0.01	0.01	0.08	0.05
T037	0.10	0.10	0.06	0.04	0.09	0.00	0.02	0.02	0.01	0.01	0.03	0.06	0.03
T038	0.07	0.03	0.04	0.09	0.09	0.04	0.03	0.06	0.01	0.01	0.02	0.06	0.04
T039	0.06	0.08	0.05	0.04	0.01	0.01	0.03	0.02	0.01	0.01	0.06	0.04	0.02
T040	0.04	0.04	0.04	0.10	0.10	0.03	0.02	0.03	0.04	0.03	0.06	0.06	0.05
T041	0.14	0.05	0.05	0.08	0.07	0.04	0.01	0.03	0.04	0.01	0.09	0.06	0.05
T042	0.08	0.07	0.03	0.06	0.02	0.13	0.07	0.03	0.03	0.01	0.07	0.05	0.05
T043	0.11	0.08	0.06	0.13	0.21	0.18	0.07	0.10	0.03	0.01	0.05	0.11	0.09
T044	0.17	0.06	0.01	0.08	0.12	0.06	0.06	0.09	0.03	0.03	0.06	0.07	0.06
T045	0.05	0.07	0.03	0.16	0.15	0.24	0.11	0.08	0.02	0.00	0.09	0.10	0.09
T046	0.17	0.08	0.04	0.02	0.12	0.14	0.04	0.12	0.06	0.05	0.06	0.07	0.07
T047	0.07	0.05	0.07	0.18	0.13	0.14	0.14	0.13	0.06	0.05	0.12	0.11	0.11
T048	0.12	0.07	0.04	0.09	0.12	0.10	0.12	0.07	0.08	0.07	0.07	0.08	0.09
T049	0.13	0.10	0.08	0.09	0.18	0.14	0.09	0.04	0.06	0.04	0.02	0.10	0.08
T050	0.19	0.21	0.10	0.45	0.42	0.05	0.02	0.06	0.06	0.06	0.18	0.24	0.15
T051	0.18	0.07	0.02	0.08	0.16	0.16	0.01	0.07	0.02	0.13	0.01	0.09	0.08
T052	0.11	0.06	0.02	0.19	0.08	0.12	0.01	0.06	0.01	0.03	0.07	0.09	0.07
T053	0.12	0.11	0.08	0.19	0.10	0.14	0.04	0.09	0.03	0.12	0.07	0.12	0.10
T054	0.21	0.07	0.04	0.24	0.18	0.03	0.03	0.02	0.03	0.06	0.07	0.12	0.08
T055	0.03	0.09	0.04	0.17	0.04	0.05	0.03	0.01	0.04	0.05	0.04	0.08	0.05
T056	0.16	0.06	0.05	0.15	0.17	0.02	0.02	0.02	0.01	0.03	0.06	0.09	0.06
T057	0.06	0.08	0.05	0.05	0.06	0.07	0.09	0.04	0.03	0.06	0.11	0.06	0.06
T058	0.10	0.08	0.03	0.18	0.20	0.09	0.06	0.06	0.06	0.05	0.07	0.11	0.09
T059	0.19	0.11	0.03	0.33	0.27	0.02	0.07	0.05	0.03	0.05	0.08	0.16	0.11
T060	0.22	0.04	0.03	0.11	0.12	0.08	0.02	0.01	0.05	0.07	0.15	0.08	0.08
T061	0.12	0.11	0.07	0.27	0.16	0.01	0.03	0.01	0.06	0.12	0.08	0.14	0.09
T062	0.03	0.06	0.04	0.24	0.15	0.07	0.02	0.04	0.07	0.12	0.07	0.12	0.10
T063	0.12	0.04	0.02	0.12	0.12	0.01	0.06	0.04	0.06	0.14	0.10	0.08	0.09
T064	0.08	0.03	0.02	0.07	0.08	0.02	0.02	0.02	0.01	0.10	0.12	0.05	0.06
T065	0.03	0.02	0.02	0.10	0.07	0.05	0.02	0.04	0.06	0.06	0.13	0.06	0.07
T066	0.02	0.03	0.04	0.01	0.09	0.01	0.04	0.04	0.06	0.18	0.03	0.05	0.07
T067	0.20	0.10	0.03	0.07	0.13	0.01	0.03	0.02	0.04	0.22	0.11	0.09	0.09
T068	0.24	0.11	0.03	0.03	0.04	0.04	0.04	0.04	0.01	0.40	0.16	0.08	0.12
T069	0.03	0.03	0.09	0.05	0.05	0.09	0.08	0.08	0.00	0.04	0.06	0.05	0.05
T070	0.02	0.00	0.01	0.03	0.02	0.02	0.02	0.00	0.03	0.01	0.02	0.02	0.02
T071	0.05	0.01	0.04	0.07	0.08	0.07	0.07	0.04	0.02	0.02	0.08	0.05	0.05
T072	0.06	0.02	0.06	0.05	0.04	0.04	0.06	0.04	0.06	0.11	0.07	0.05	0.06
T073	0.05	0.02	0.05	0.11	0.11	0.08	0.04	0.10	0.13	0.04	0.02	0.08	0.08
T074	0.14	0.05	0.11	0.07	0.04	0.13	0.13	0.14	0.12	0.08	0.12	0.09	0.10
T075	0.06	0.09	0.12	0.23	0.14	0.11	0.12	0.13	0.06	0.08	0.07	0.14	0.11
T076	0.08	0.06	0.07	0.05	0.07	0.06	0.09	0.15	0.03	0.08	0.04	0.06	0.07
T077	0.10	0.11	0.14	0.17	0.07	0.18	0.18	0.16	0.03	0.08	0.07	0.12	0.11
T078	0.19	0.08	0.09	0.11	0.15	0.11	0.11	0.08	0.06	0.08	0.11	0.11	0.10
T079	0.27	0.14	0.16	0.17	0.25	0.16	0.16	0.13	0.08	0.12	0.29	0.17	0.16
T080	0.24	0.14	0.11	0.05	0.04	0.06	0.06	0.02	0.03	0.14	0.21	0.09	0.08
T081	0.10	0.05	0.01	0.03	0.04	0.03	0.05	0.04	0.00	0.12	0.10	0.04	0.05
T082	0.14	0.11	0.14	0.19	0.23	0.21	0.17	0.13	0.05	0.16	0.20	0.16	0.16
T083	0.09	0.05	0.09	0.13	0.17	0.18	0.14	0.13	0.06	0.19	0.23	0.12	0.15
T084	0.05	0.05	0.17	0.21	0.24	0.22	0.18	0.17	0.05	0.19	0.25	0.17	0.18
T085	0.07	0.09	0.32	0.08	0.07	0.05	0.07	0.14	0.16	0.20	0.12	0.14	0.12
T086	0.18	0.14	0.26	0.46	0.38	0.21	0.22	0.25	0.31	0.36	0.13	0.32	0.29
T087	0.28	0.11	0.26	0.30	0.18	0.08	0.03	0.20	0.23	0.24	0.08	0.23	0.18
T088	0.18	0.15	0.20	0.04	0.03	0.01	0.11	0.14	0.17	0.21	0.08	0.11	0.11
T089	0.11	0.19	0.16	0.05	0.02	0.05	0.09	0.13	0.15	0.14	0.05	0.10	0.09
T090	0.17	0.18	0.17	0.15	0.13	0.05	0.10	0.16	0.12	0.04	0.02	0.14	0.09
T091	0.11	0.04	0.07	0.01	0.20	0.20	0.22	0.23	0.16	0.21	0.23	0.10	0.18
T092	0.12	0.03	0.10	0.07	0.22	0.22	0.20	0.21	0.10	0.22	0.24	0.12	0.18
T093	0.05	0.05	0.17	0.19	0.24	0.23	0.18	0.18	0.05	0.21	0.23	0.16	0.18
T094	0.06	0.08	0.19	0.22	0.26	0.23	0.19	0.17	0.02	0.14	0.24	0.17	0.17
T095	0.19	0.09	0.18	0.22	0.27	0.22	0.18	0.17	0.18	0.12	0.26	0.19	0.20
T096	0.26	0.12	0.17	0.23	0.25	0.18	0.16	0.14	0.05	0.09	0.25	0.18	0.16
T097	0.12	0.12	0.14	0.15	0.19	0.22	0.14	0.02	0.07	0.08	0.02	0.14	0.10
T098	0.16	0.09	0.14	0.03	0.18	0.21	0.13	0.14	0.08	0.07	0.05	0.11	0.10
T099	0.06	0.06	0.17	0.05	0.19	0.22	0.15	0.17	0.12	0.08	0.06	0.12	0.12
T100	0.15	0.03	0.13	0.18	0.16	0.17	0.20	0.20	0.15	0.16	0.12	0.15	0.16

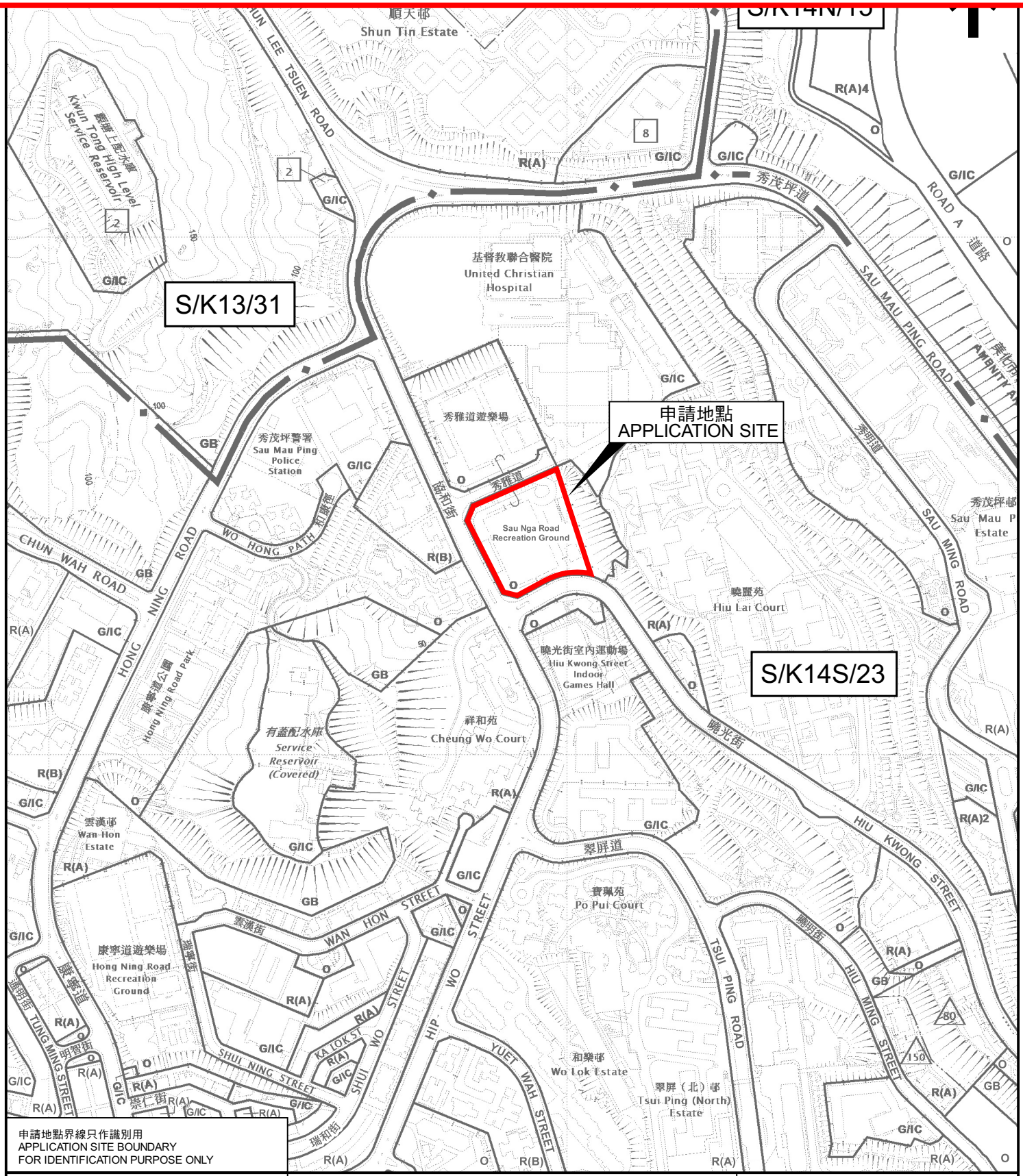
T101	0.09	0.07	0.12	0.08	0.13	0.14	0.21	0.26	0.18	0.17	0.12	0.11	0.16
T102	0.01	0.05	0.08	0.19	0.09	0.11	0.19	0.28	0.20	0.19	0.14	0.12	0.18
T103	0.08	0.06	0.13	0.16	0.13	0.14	0.16	0.31	0.22	0.20	0.15	0.14	0.19
T104	0.11	0.00	0.12	0.15	0.09	0.02	0.10	0.27	0.21	0.10	0.02	0.11	0.12
T105	0.10	0.07	0.17	0.25	0.19	0.10	0.04	0.29	0.24	0.04	0.14	0.17	0.16
T106	0.17	0.13	0.16	0.31	0.24	0.17	0.08	0.20	0.30	0.08	0.14	0.21	0.19
T107	0.07	0.12	0.13	0.19	0.19	0.14	0.05	0.16	0.18	0.06	0.10	0.15	0.13
T108	0.16	0.09	0.12	0.06	0.06	0.04	0.03	0.10	0.10	0.11	0.02	0.09	0.07
T109	0.11	0.14	0.13	0.25	0.03	0.02	0.04	0.16	0.05	0.06	0.05	0.13	0.08
T110	0.19	0.14	0.09	0.05	0.09	0.06	0.05	0.14	0.13	0.09	0.06	0.09	0.09
T111	0.19	0.12	0.27	0.24	0.18	0.10	0.14	0.21	0.22	0.25	0.08	0.21	0.19
T112	0.31	0.14	0.30	0.47	0.36	0.18	0.21	0.22	0.26	0.28	0.09	0.32	0.26
T113	0.26	0.10	0.25	0.23	0.16	0.02	0.15	0.25	0.26	0.30	0.08	0.20	0.19
T114	0.13	0.05	0.12	0.23	0.07	0.04	0.03	0.15	0.16	0.15	0.05	0.13	0.12
T115	0.16	0.03	0.14	0.20	0.09	0.08	0.05	0.19	0.24	0.28	0.10	0.15	0.17
T116	0.03	0.03	0.21	0.33	0.30	0.21	0.20	0.10	0.05	0.01	0.03	0.20	0.14
T117	0.06	0.04	0.23	0.22	0.38	0.32	0.23	0.14	0.14	0.09	0.10	0.21	0.19
T118	0.18	0.07	0.09	0.21	0.23	0.19	0.16	0.14	0.06	0.04	0.02	0.15	0.12
T119	0.17	0.17	0.12	0.18	0.27	0.29	0.27	0.20	0.23	0.25	0.12	0.20	0.22
T120	0.16	0.10	0.08	0.20	0.31	0.26	0.21	0.13	0.15	0.24	0.08	0.18	0.20
T121	0.13	0.02	0.09	0.36	0.40	0.35	0.26	0.14	0.14	0.17	0.09	0.23	0.22
T122	0.03	0.20	0.27	0.29	0.36	0.12	0.07	0.06	0.08	0.11	0.03	0.23	0.14
T123	0.07	0.20	0.26	0.30	0.16	0.14	0.17	0.11	0.11	0.14	0.06	0.21	0.14
T124	0.03	0.18	0.22	0.10	0.01	0.16	0.18	0.12	0.13	0.16	0.08	0.13	0.12
T125	0.06	0.07	0.01	0.10	0.16	0.11	0.08	0.11	0.10	0.03	0.10	0.08	0.09
T126	0.12	0.15	0.03	0.31	0.29	0.07	0.08	0.12	0.04	0.04	0.08	0.16	0.12
T127	0.08	0.10	0.02	0.07	0.10	0.02	0.01	0.09	0.09	0.06	0.03	0.06	0.06
T128	0.02	0.12	0.17	0.16	0.13	0.06	0.06	0.15	0.08	0.10	0.01	0.13	0.09
T129	0.03	0.09	0.10	0.09	0.04	0.02	0.02	0.12	0.17	0.02	0.04	0.08	0.07
T130	0.07	0.18	0.08	0.19	0.17	0.09	0.07	0.19	0.19	0.14	0.02	0.14	0.14
T131	0.01	0.16	0.05	0.04	0.01	0.04	0.03	0.06	0.03	0.12	0.02	0.06	0.05
T132	0.02	0.03	0.12	0.10	0.09	0.06	0.03	0.04	0.10	0.08	0.02	0.09	0.07
T133	0.06	0.05	0.04	0.11	0.07	0.09	0.02	0.15	0.17	0.09	0.02	0.08	0.09
T134	0.03	0.11	0.08	0.02	0.04	0.03	0.02	0.19	0.17	0.12	0.05	0.07	0.09
T135	0.04	0.14	0.12	0.16	0.12	0.07	0.01	0.11	0.15	0.04	0.02	0.12	0.09
T136	0.09	0.04	0.02	0.17	0.20	0.06	0.01	0.05	0.05	0.01	0.00	0.09	0.06
T137	0.08	0.11	0.05	0.04	0.07	0.08	0.07	0.03	0.04	0.07	0.01	0.06	0.05
T138	0.11	0.06	0.03	0.04	0.19	0.11	0.06	0.02	0.05	0.08	0.02	0.07	0.07
T139	0.00	0.05	0.01	0.06	0.15	0.09	0.02	0.04	0.02	0.02	0.01	0.05	0.05
T140	0.04	0.07	0.04	0.05	0.17	0.19	0.04	0.01	0.02	0.02	0.02	0.07	0.06
T141	0.09	0.02	0.01	0.10	0.18	0.20	0.06	0.01	0.02	0.02	0.01	0.08	0.06
T142	0.03	0.06	0.06	0.12	0.11	0.08	0.10	0.06	0.07	0.03	0.05	0.08	0.07
T143	0.01	0.04	0.18	0.11	0.06	0.12	0.07	0.15	0.12	0.10	0.03	0.11	0.10
T144	0.05	0.04	0.17	0.15	0.04	0.03	0.00	0.07	0.08	0.02	0.04	0.10	0.05
T145	0.07	0.01	0.02	0.06	0.09	0.03	0.01	0.02	0.03	0.02	0.02	0.04	0.03
T146	0.09	0.13	0.06	0.08	0.09	0.04	0.04	0.07	0.01	0.04	0.02	0.07	0.05
T147	0.14	0.15	0.16	0.22	0.20	0.02	0.04	0.11	0.02	0.02	0.02	0.14	0.07
T148	0.11	0.13	0.14	0.28	0.19	0.03	0.01	0.11	0.02	0.03	0.01	0.15	0.08
T149	0.18	0.19	0.14	0.33	0.28	0.07	0.01	0.15	0.05	0.04	0.06	0.20	0.12
T150	0.11	0.13	0.13	0.28	0.22	0.01	0.01	0.03	0.05	0.01	0.03	0.16	0.08
T151	0.13	0.19	0.04	0.35	0.29	0.04	0.03	0.11	0.06	0.03	0.04	0.17	0.11
T152	0.06	0.13	0.08	0.27	0.22	0.03	0.01	0.07	0.04	0.02	0.02	0.14	0.08
T153	0.02	0.12	0.03	0.18	0.20	0.11	0.03	0.21	0.03	0.03	0.07	0.11	0.10
T154	0.03	0.04	0.08	0.09	0.16	0.19	0.17	0.09	0.11	0.09	0.06	0.10	0.11
T155	0.13	0.17	0.12	0.26	0.35	0.22	0.14	0.11	0.10	0.02	0.11	0.19	0.15
T156	0.11	0.19	0.16	0.38	0.36	0.11	0.06	0.03	0.10	0.01	0.09	0.22	0.13
T157	0.18	0.22	0.17	0.33	0.40	0.20	0.12	0.09	0.09	0.03	0.07	0.23	0.15
T158	0.17	0.21	0.18	0.38	0.38	0.13	0.07	0.14	0.09	0.03	0.07	0.24	0.15
T159	0.23	0.20	0.16	0.32	0.30	0.13	0.03	0.18	0.09	0.01	0.06	0.21	0.13
T160	0.24	0.14	0.19	0.18	0.23	0.01	0.09	0.22	0.11	0.08	0.09	0.16	0.13
T161	0.18	0.20	0.25	0.44	0.44	0.18	0.14	0.06	0.06	0.11	0.04	0.28	0.17
T162	0.16	0.06	0.15	0.18	0.17	0.09	0.05	0.02	0.03	0.13	0.00	0.14	0.08
T163	0.16	0.07	0.24	0.26	0.24	0.04	0.15	0.24	0.16	0.19	0.04	0.19	0.17
T164	0.15	0.25	0.25	0.35	0.29	0.06	0.14	0.17	0.20	0.17	0.12	0.25	0.19
T165	0.17	0.07	0.05	0.02	0.02	0.01	0.01	0.05	0.04	0.05	0.07	0.04	0.04
T166	0.12	0.01	0.04	0.03	0.05	0.01	0.06	0.04	0.05	0.07	0.01	0.04	0.04
T167	0.07	0.23	0.01	0.17	0.39	0.20	0.09	0.19	0.09	0.09	0.25	0.16	0.18
T168	0.15	0.02	0.02	0.05	0.18	0.12	0.06	0.06	0.03	0.05	0.05	0.07	0.07
T169	0.14	0.10	0.06	0.07	0.07	0.10	0.01	0.07	0.09	0.04	0.01	0.08	0.06
T170	0.25	0.24	0.13	0.13	0.05	0.15	0.02	0.08	0.08	0.07	0.06	0.13	0.08
T171	0.05	0.01	0.09	0.04	0.03	0.11	0.06	0.06	0.15	0.22	0.10	0.07	0.11
T172	0.12	0.10	0.08	0.04	0.02	0.03	0.03	0.02	0.13	0.17	0.09	0.07	0.08
T173	0.29	0.26	0.23	0.04	0.02	0.03	0.15	0.17	0.10	0.19	0.22	0.13	0.12
T174	0.23	0.14	0.14	0.04	0.04	0.22	0.28	0.28	0.37	0.52	0.33	0.16	0.28
T175	0.16	0.11	0.08	0.07	0.02	0.06	0.03	0.19	0.01	0.23	0.16	0.08	0.10
T176	0.23	0.17	0.17	0.07	0.12	0.25	0.33	0.33	0.33	0.43	0.12	0.18	0.26
T177	0.08	0.11	0.15	0.11	0.11	0.14	0.19	0.22	0.21	0.02	0.16	0.12	0.14
T178	0.04	0.08	0.10	0.03	0.04	0.08	0.13	0.09	0.05	0.14	0.11	0.07	0.09
T179	0.22	0.19	0.14	0.05	0.12	0.22	0.28	0.24	0.36	0.35	0.22	0.17	0.24
T180	0.31	0.21	0.17	0.03	0.01	0.04	0.08	0.15	0.13	0.03	0.18	0.10	0.08
T181	0.11	0.06	0.11	0.04	0.06	0.07	0.05	0.17	0.16	0.23	0.11	0.09	0.12
T182	0.18	0.11	0.09	0.04	0.08	0.12	0.16	0.21	0.24	0.33	0.11	0.12	0.18
T183	0.13	0.08	0.06	0.00	0.09	0.12	0.16	0.14	0.30	0.30	0.13	0.10	0.17
T184	0.15	0.10	0.01	0.04	0.09	0.10	0.18	0.21	0.31	0.37	0.12	0.11	0.20
T185	0.05	0.03	0.02	0.07	0.03	0.06	0.16	0.22	0.31	0.36	0.05	0.09	0.18
T186	0.17	0.11	0.14	0.03	0.16	0.24	0.31	0.27	0.35	0.34	0.10	0.15	0.23
T187	0.23	0.22	0.16	0.03	0.14	0.17	0.25	0.17	0.10	0.23	0.13	0.14	0.15
T188	0.09	0.05	0.05	0.04	0.04	0.06	0.05	0.09	0.18	0.11	0.11	0.06	0.09
T189	0.07	0.08	0.01	0.05	0.13	0.13	0.18	0.11	0.24	0.29	0.22	0.10	0.18
T190	0.10	0.06	0.12	0.13	0.03	0.04	0.13	0.18	0.28	0.40	0.20	0.13	0.20
T191	0.23	0.21	0.22	0.08	0.06	0.07	0.13	0.17	0.17	0.25	0.16	0.15	0.15
T192	0.34	0.23	0.15	0.13	0.08	0.11	0.05	0.18	0.26	0.18	0.18	0.16	0.16
T193	0.04	0.06	0.04	0.06	0.08	0.02	0.03	0.10	0.12	0.10	0.08	0.06	0.08
T194	0.06	0.07	0.01	0.05	0.09	0.06	0.02	0.06	0.11	0.15	0.05	0.06	0.08
T195	0.07	0.11	0.05	0.02	0.03	0.03	0.08	0.05	0.04	0.10	0.27	0.05	0.08
T196	0.20	0.07	0.05	0.12	0.03	0.05	0.14	0.22	0.22	0.15	0.01	0.10	0.12
T197	0.20	0.24	0.14	0.22	0.09	0.03	0.09	0.05	0.03	0.04	0.21	0.14	0.09
T198	0.16	0.23	0.21	0.26	0.14	0.10	0.02	0.06	0.12	0.10	0.09	0.19	0.11
T199	0.03	0.03	0.08	0.22	0.37	0.12	0.17	0.26	0.18	0.07	0.13	0.16	0.18
T200	0.12	0.22	0.15	0.22	0.31	0.13	0.23	0.13	0.17	0.30	0.30	0.21	0.23

T201	0.15	0.15	0.16	0.29	0.32	0.18	0.19	0.31	0.17	0.27	0.24	0.22	0.25
T202	0.07	0.09	0.18	0.18	0.31	0.29	0.10	0.22	0.25	0.29	0.08	0.20	0.22
T203	0.02	0.03	0.08	0.03	0.17	0.13	0.03	0.21	0.20	0.16	0.05	0.09	0.13
T204	0.04	0.12	0.08	0.05	0.21	0.20	0.05	0.19	0.21	0.34	0.13	0.13	0.19
T205	0.04	0.06	0.08	0.10	0.20	0.13	0.02	0.33	0.32	0.24	0.06	0.13	0.19
T206	0.08	0.07	0.15	0.06	0.02	0.14	0.06	0.16	0.15	0.41	0.05	0.12	0.15
T207	0.07	0.05	0.09	0.09	0.04	0.04	0.10	0.08	0.12	0.02	0.11	0.07	0.07
T208	0.06	0.04	0.05	0.13	0.06	0.10	0.03	0.06	0.13	0.04	0.11	0.08	0.08
T209	0.01	0.03	0.04	0.15	0.09	0.08	0.10	0.08	0.15	0.02	0.05	0.08	0.09
T210	0.01	0.01	0.01	0.11	0.10	0.04	0.06	0.01	0.02	0.01	0.03	0.05	0.05
T211	0.03	0.01	0.01	0.02	0.04	0.07	0.05	0.03	0.03	0.06	0.01	0.03	0.04
T212	0.10	0.10	0.06	0.10	0.10	0.17	0.01	0.11	0.08	0.23	0.19	0.11	0.13
T213	0.12	0.11	0.12	0.18	0.26	0.12	0.06	0.07	0.11	0.41	0.35	0.18	0.21
T214	0.25	0.18	0.07	0.23	0.26	0.10	0.08	0.02	0.15	0.32	0.24	0.19	0.19
T215	0.20	0.14	0.09	0.17	0.07	0.03	0.09	0.03	0.19	0.39	0.29	0.14	0.18
T216	0.16	0.11	0.04	0.02	0.02	0.10	0.13	0.05	0.11	0.11	0.03	0.06	0.08
T217	0.09	0.04	0.03	0.03	0.01	0.10	0.15	0.16	0.17	0.13	0.03	0.06	0.10
T218	0.03	0.01	0.02	0.02	0.05	0.10	0.14	0.18	0.21	0.15	0.09	0.06	0.13
T219	0.21	0.03	0.12	0.03	0.06	0.09	0.28	0.10	0.11	0.11	0.07	0.08	0.11
T220	0.14	0.01	0.07	0.02	0.05	0.08	0.21	0.28	0.13	0.21	0.08	0.07	0.14
T221	0.18	0.02	0.11	0.02	0.02	0.02	0.26	0.39	0.23	0.32	0.18	0.09	0.19
T222	0.05	0.01	0.02	0.01	0.02	0.02	0.06	0.06	0.01	0.06	0.07	0.02	0.04
T223	0.16	0.02	0.10	0.15	0.09	0.05	0.25	0.13	0.05	0.21	0.04	0.11	0.12
T224	0.06	0.02	0.04	0.19	0.12	0.09	0.27	0.31	0.23	0.20	0.08	0.12	0.19
T225	0.06	0.14	0.25	0.36	0.23	0.09	0.18	0.30	0.19	0.25	0.02	0.24	0.21
T226	0.12	0.11	0.20	0.17	0.04	0.04	0.05	0.25	0.34	0.38	0.02	0.16	0.18
T227	0.08	0.19	0.37	0.29	0.32	0.24	0.14	0.49	0.41	0.49	0.21	0.31	0.34
T228	0.16	0.07	0.11	0.22	0.17	0.06	0.05	0.11	0.14	0.14	0.08	0.14	0.12
T229	0.10	0.04	0.01	0.09	0.05	0.17	0.11	0.09	0.08	0.04	0.03	0.07	0.08
T230	0.01	0.03	0.04	0.09	0.15	0.14	0.00	0.02	0.01	0.00	0.07	0.07	0.05
T231	0.01	0.05	0.01	0.08	0.08	0.11	0.02	0.04	0.00	0.00	0.03	0.05	0.04
T232	0.01	0.02	0.03	0.06	0.06	0.05	0.11	0.08	0.01	0.03	0.10	0.04	0.06
T233	0.06	0.02	0.04	0.06	0.04	0.01	0.07	0.03	0.05	0.03	0.03	0.04	0.04
T234	0.02	0.02	0.02	0.10	0.03	0.02	0.04	0.07	0.10	0.03	0.05	0.05	0.06
T235	0.10	0.06	0.02	0.07	0.04	0.08	0.01	0.01	0.02	0.00	0.00	0.05	0.03
T236	0.01	0.03	0.04	0.06	0.05	0.06	0.07	0.09	0.09	0.03	0.02	0.05	0.06
T237	0.17	0.03	0.05	0.15	0.06	0.05	0.08	0.14	0.19	0.25	0.17	0.11	0.15
T238	0.14	0.02	0.01	0.15	0.06	0.09	0.13	0.16	0.17	0.24	0.17	0.10	0.16
T239	0.24	0.18	0.09	0.10	0.05	0.06	0.11	0.23	0.29	0.45	0.25	0.15	0.22
T240	0.12	0.04	0.03	0.07	0.08	0.06	0.05	0.31	0.29	0.28	0.12	0.09	0.17
T241	0.03	0.02	0.02	0.03	0.06	0.03	0.07	0.18	0.31	0.31	0.12	0.08	0.16
T242	0.09	0.07	0.21	0.31	0.39	0.31	0.28	0.14	0.12	0.08	0.09	0.23	0.20
T243	0.09	0.04	0.18	0.31	0.22	0.09	0.15	0.06	0.08	0.18	0.04	0.18	0.14
T244	0.27	0.11	0.15	0.33	0.32	0.22	0.16	0.09	0.14	0.14	0.08	0.23	0.18
T245	0.04	0.02	0.13	0.20	0.30	0.10	0.23	0.30	0.25	0.16	0.08	0.16	0.20
T246	0.03	0.05	0.12	0.24	0.44	0.21	0.26	0.34	0.27	0.09	0.05	0.20	0.23
T247	0.04	0.02	0.04	0.01	0.05	0.06	0.07	0.05	0.06	0.06	0.03	0.04	0.05
T248	0.07	0.04	0.11	0.04	0.11	0.08	0.08	0.05	0.05	0.04	0.03	0.07	0.06
T249	0.03	0.14	0.16	0.10	0.12	0.05	0.04	0.06	0.05	0.02	0.03	0.10	0.06
T250	0.07	0.14	0.09	0.08	0.15	0.07	0.21	0.13	0.01	0.06	0.06	0.09	0.09
T251	0.06	0.08	0.12	0.06	0.18	0.03	0.21	0.13	0.03	0.03	0.04	0.08	0.08
T252	0.06	0.07	0.13	0.01	0.13	0.02	0.20	0.11	0.10	0.03	0.07	0.07	0.08
T253	0.07	0.11	0.17	0.01	0.06	0.08	0.12	0.07	0.08	0.03	0.09	0.08	0.06
T254	0.16	0.13	0.13	0.37	0.35	0.33	0.30	0.21	0.22	0.08	0.11	0.24	0.23
T255	0.06	0.08	0.20	0.37	0.24	0.08	0.06	0.02	0.04	0.03	0.04	0.19	0.10
T256	0.05	0.02	0.05	0.05	0.05	0.04	0.03	0.02	0.01	0.00	0.01	0.04	0.02
T257	0.07	0.05	0.05	0.04	0.06	0.04	0.02	0.02	0.01	0.00	0.00	0.04	0.02
T258	0.16	0.10	0.14	0.21	0.06	0.05	0.06	0.22	0.02	0.03	0.01	0.12	0.08
T259	0.15	0.10	0.11	0.21	0.02	0.09	0.08	0.07	0.02	0.02	0.00	0.11	0.06
T260	0.03	0.02	0.10	0.18	0.05	0.04	0.02	0.06	0.03	0.02	0.03	0.08	0.05
T261	0.06	0.02	0.01	0.02	0.06	0.02	0.03	0.04	0.07	0.04	0.03	0.03	0.04
T262	0.17	0.10	0.14	0.16	0.22	0.17	0.14	0.12	0.07	0.10	0.18	0.15	0.14
T263	0.09	0.09	0.15	0.18	0.23	0.19	0.16	0.13	0.02	0.16	0.20	0.16	0.15
T264	0.02	0.05	0.04	0.08	0.06	0.03	0.02	0.05	0.12	0.04	0.07	0.06	0.06
T265	0.03	0.04	0.04	0.12	0.11	0.09	0.05	0.05	0.06	0.02	0.07	0.07	0.07
T266	0.03	0.03	0.04	0.10	0.07	0.03	0.13	0.08	0.16	0.03	0.05	0.07	0.08
T267	0.02	0.03	0.02	0.02	0.05	0.05	0.05	0.07	0.06	0.02	0.06	0.03	0.05
T268	0.03	0.06	0.02	0.11	0.12	0.05	0.01	0.05	0.05	0.07	0.02	0.07	0.06
T269	0.05	0.14	0.06	0.27	0.23	0.16	0.04	0.04	0.02	0.14	0.01	0.16	0.11
T270	0.07	0.11	0.08	0.28	0.23	0.15	0.07	0.04	0.06	0.16	0.03	0.16	0.12
T271	0.10	0.12	0.06	0.23	0.20	0.12	0.08	0.08	0.09	0.15	0.04	0.15	0.12
T272	0.06	0.03	0.08	0.21	0.19	0.08	0.02	0.06	0.07	0.17	0.01	0.13	0.10
T273	0.04	0.07	0.10	0.29	0.32	0.03	0.15	0.02	0.06	0.04	0.01	0.16	0.11
T274	0.06	0.08	0.13	0.09	0.02	0.04	0.02	0.05	0.05	0.07	0.02	0.08	0.05
T275	0.16	0.10	0.02	0.05	0.04	0.08	0.11	0.09	0.14	0.11	0.04	0.07	0.09
T276	0.12	0.18	0.03	0.17	0.09	0.02	0.08	0.11	0.15	0.07	0.04	0.11	0.09
T277	0.07	0.18	0.05	0.14	0.09	0.02	0.05	0.01	0.05	0.08	0.06	0.09	0.06
T278	0.15	0.16	0.15	0.05	0.11	0.05	0.08	0.05	0.01	0.10	0.07	0.10	0.06
T279	0.09	0.05	0.03	0.04	0.04	0.21	0.05	0.14	0.08	0.06	0.04	0.06	0.08
T280	0.04	0.01	0.03	0.14	0.17	0.16	0.14	0.08	0.06	0.08	0.05	0.09	0.10
T281	0.08	0.08	0.12	0.20	0.17	0.21	0.21	0.17	0.08	0.07	0.07	0.14	0.14
T282	0.03	0.07	0.03	0.14	0.05	0.02	0.02	0.01	0.04	0.07	0.01	0.07	0.05
T283	0.03	0.13	0.03	0.13	0.16	0.16	0.06	0.06	0.02	0.12	0.08	0.10	0.10
T284	0.14	0.11	0.05	0.16	0.16	0.05	0.04	0.04	0.04	0.10	0.07	0.11	0.08
Average LVR	**0.11**	**0.09**	**0.09**	**0.15**	**0.15**	**0.11**	**0.10**	**0.12**	**0.10**	**0.11**	**0.08**	**0.12**	**0.11**
S01	0.19	0.08	0.07	0.16	0.19	0.12	0.11	0.10	0.15	0.05	0.10	0.13	0.12
S02	0.16	0.08	0.15	0.06	0.03	0.14	0.10	0.03	0.13	0.05	0.06	0.09	0.07
S03	0.16	0.05	0.01	0.12	0.12	0.06	0.08	0.01	0.06	0.03	0.05	0.08	0.06
S04	0.06	0.15	0.21	0.33	0.26	0.08	0.02	0.06	0.02	0.02	0.02	0.19	0.09
S05	0.04	0.14	0.12	0.07	0.06	0.05	0.13	0.11	0.04	0.02	0.03	0.08	0.06
S06	0.06	0.18	0.21	0.26	0.23	0.09	0.07	0.04	0.01	0.03	0.04	0.17	0.09
S07	0.08	0.12	0.14	0.26	0.26	0.06	0.07	0.13	0.05	0.07	0.06	0.16	0.11
S08	0.05	0.17	0.21	0.31	0.26	0.18	0.10	0.14	0.08	0.01	0.05	0.20	0.13
S09	0.06	0.20	0.24	0.33	0.27	0.14	0.06	0.09	0.04	0.02	0.03	0.21	0.11
S10	0.09	0.16	0.10	0.23	0.24	0.25	0.05	0.12	0.08	0.08	0.10	0.17	0.14
S11	0.06	0.28	0.29	0.37	0.26	0.17	0.05	0.06	0.12	0.05	0.16	0.25	0.15

Appendix 6

Supplementary Document for Future/ Committed Developments

1. Proposed Public Utility Installation (Application No. A/K14/811)



申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2022年1月24日擬備，
所根據的資料為：
於2021年12月31日展示的分區計劃大綱圖編號S/K13/31，於2016年1月5日核准的分區計劃大綱圖編號S/K14N/15，以及於2021年3月19日展示的分區計劃大綱圖編號S/K14S/23

EXTRACT PLAN PREPARED ON 24.1.2022 BASED ON OUTLINE ZONING PLANS No. S/K13/31 EXHIBITED ON 31.12.2021, S/K14N/15 APPROVED ON 5.1.2016 AND S/K14S/23 EXHIBITED ON 19.3.2021

位置圖 LOCATON PLAN

擬議公用事業設施裝置
（地下雨水蓄洪池連附屬地面構築物）
下秀雅道遊樂場

PROPOSED PUBLIC UTILITY INSTALLATION
(UNDERGROUND STORMWATER STORAGE TANK WITH ANCILLARY ABOVEGROUND STRUCTURE)
LOWER SAU NGA ROAD PLAYGROUND

SCALE 1 : 5 000 比例尺

米 METRES 100 0 100 200 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
A/K14/811

圖 PLAN
A - 1

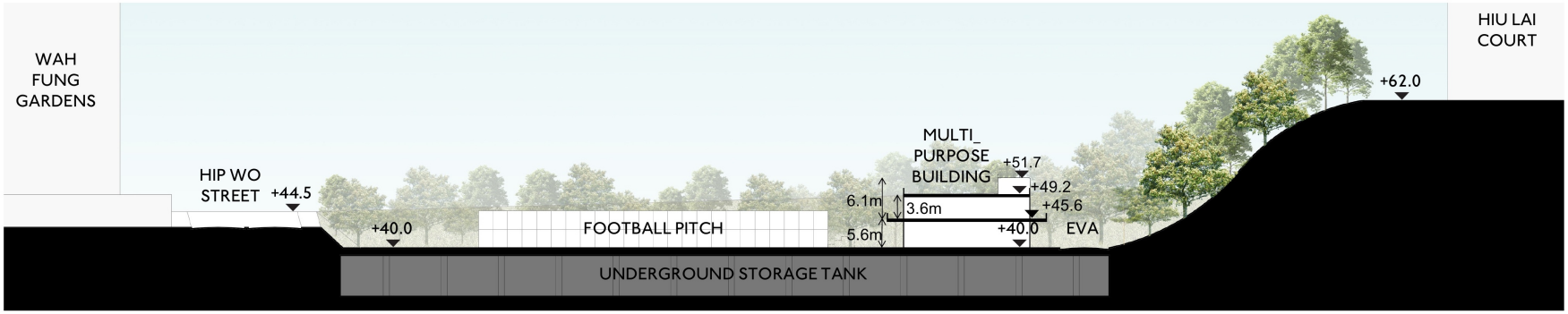
Master layout plan

Indicative Only (subject to detailed design)

(資料來源：由申請人提交)
(Source : Submitted by the applicant)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/811	A - 2

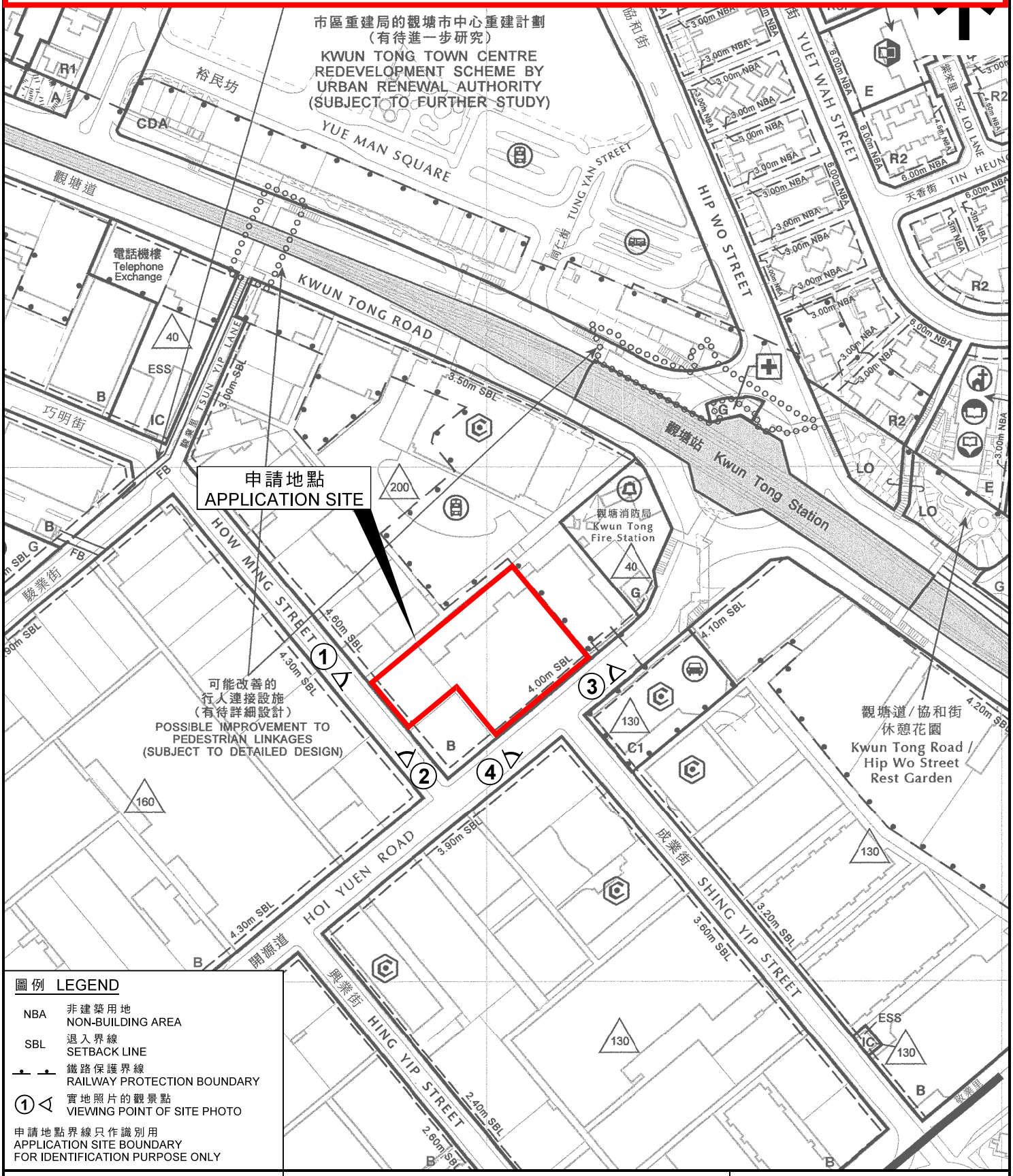
Overview



（資料來源：由申請人於2022年1月17日提交）
(Source : Submitted by the applicant on 17.1.2022)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/811	A - 3

2. Proposed Office, Shop and Services and Eating Place Uses (Application No. A/K14/807)



圖例 LEGEND

NBA	非建築用地 NON-BUILDING AREA
SBL	退入界線 SETBACK LINE
	鐵路保護界線 RAILWAY PROTECTION BOUNDARY
①◁	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

申請地點界線只作識別用
APPLICATION SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2022年1月27日擬備，所根據的資料為於2018年12月24日採納的觀塘(西部)發展大綱圖編號D/K14A/2

EXTRACT PLAN PREPARED ON 27.1.2022 BASED ON KWUN TONG (WESTERN PART) ODP No. D/K14A/2 ADOPTED ON 24.12.2018

位置圖 LOCATION PLAN

擬議略為放寬地積比率限制，
以作准許的辦公室、商店及服務行業和食肆用途
九龍觀塘開源道73-77號及巧明街119-121號
PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED OFFICE, SHOP AND SERVICES AND EATING PLACE USES
73-77 HOI YUEN ROAD AND 119-121 HOW MING STREET,
KWUN TONG, KOWLOON

SCALE 1 : 2 500 比例尺

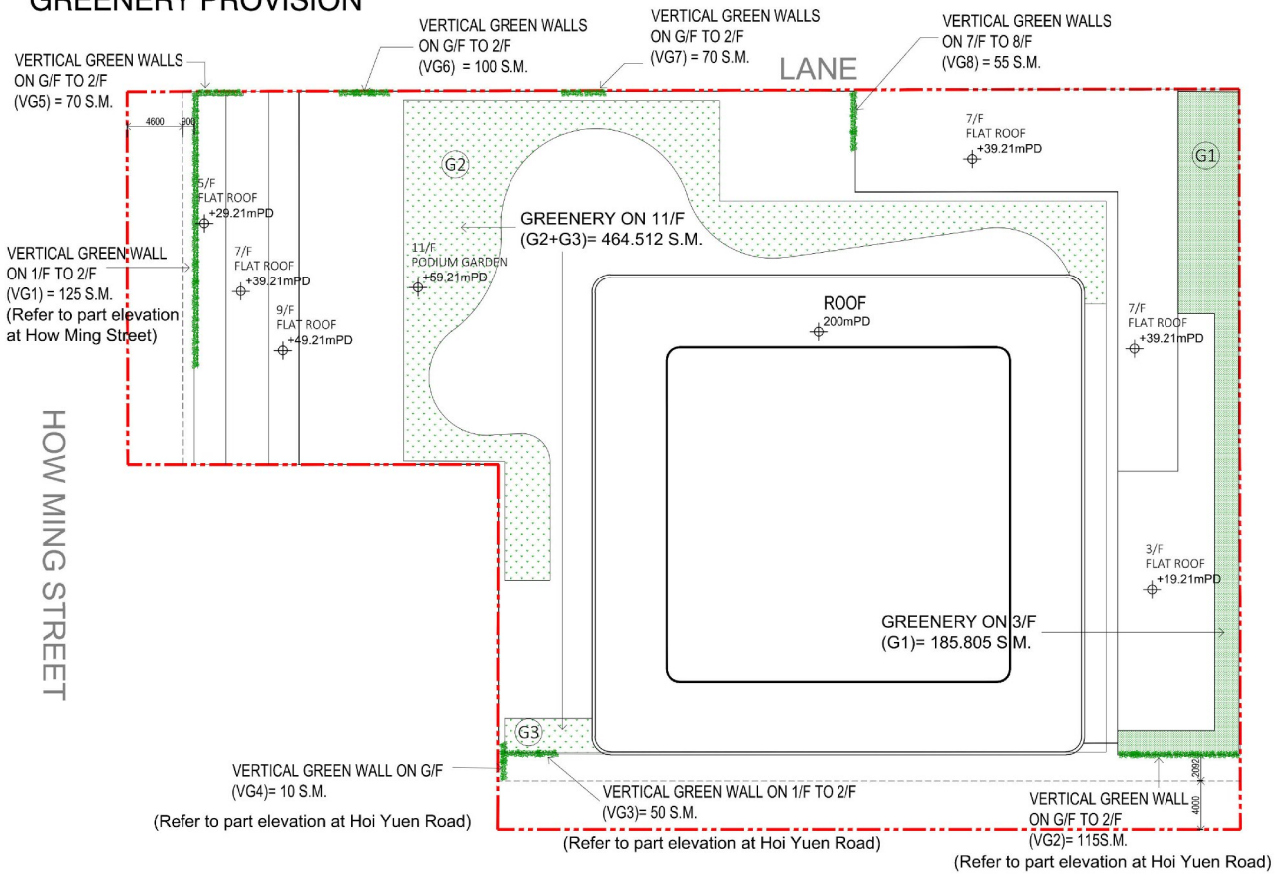
米 METRES 50 0 50 100 米 METRES

規劃署 PLANNING DEPARTMENT

參考編號 REFERENCE No.
A/K14/807

圖 PLAN
A - 2

GREENERY PROVISION



Requirement under PNAP APP-152

Site Area = 4645.12 S.M.
Min. Site coverage of greenery to be provided as per PNAP APP 152
= 4645.12 S.M. x 20%
= 929.024 S.M.

Min. Site coverage of greenery to be provided in primary zone as per PNAP APP 152
= 4645.12 S.M. x 10%
= 464.512 S.M.

Current proposal

1. Greenery on 3/F (G1) = 185.805 S.M.
2. Overall provision of vertical greenery
   VG1+VG2+VG3+VG4+VG5+VG6+VG7+VG8
   125+115+50+10+70+100+70+55 = 595 S.M.

Total provided vertical greenery = 595 S.M.

As per PNAP APP-152, only the vertical greenery at primary zone of not more than 30% of the overall site coverage of greenery is taken for the purpose of calculation under PNAP APP-152

Therefore VG in primary zone for the purpose of calculate of site coverage of greenery = 278.707 S.M.

3. Total site coverage of greenery at primary zone :
   = 185.805 S.M. + 278.707 S.M.
   = 464.512 S.M.
   I.e 10% of site area

4. Greenery at areas other than primary zone
   Greenery on 11/F (G2+G3)= 464.512 S.M.

5. Overall greenery = 929.024 S.M.
   464.512 S.M. + 464.512 S.M. = 929.024 S.M.
   I.e 20% of site area of greenery

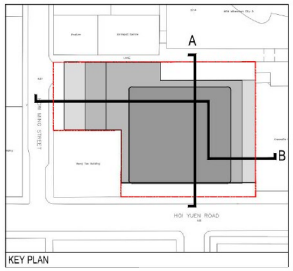
PART ELEVATION AT HOI YUEN ROAD

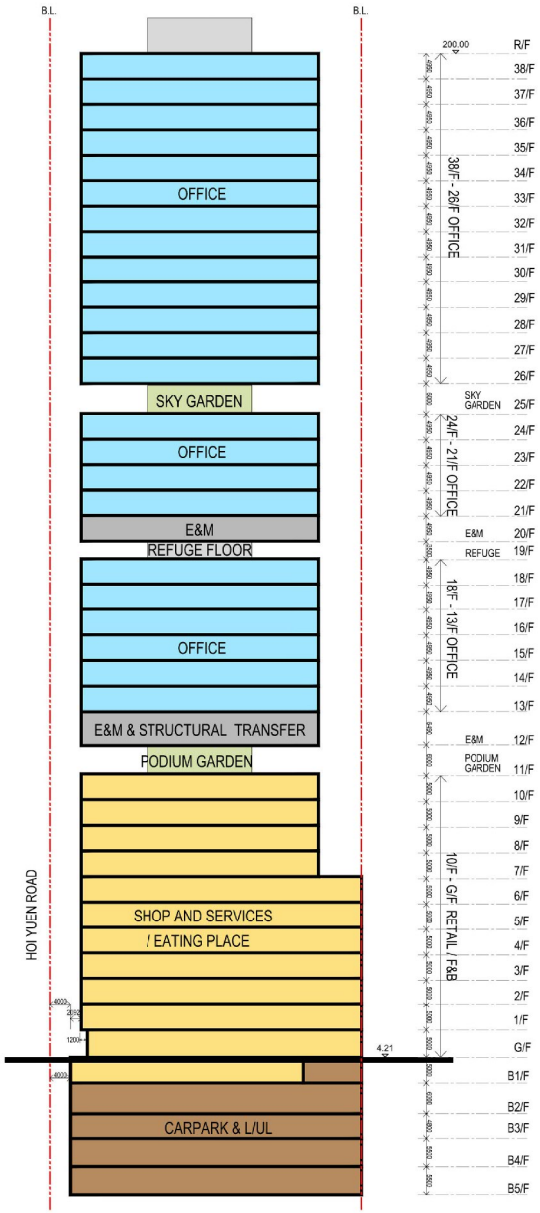
PART ELEVATION AT HOW MING STREET

CONSOLIDATION LAYOUT OF GREENERY

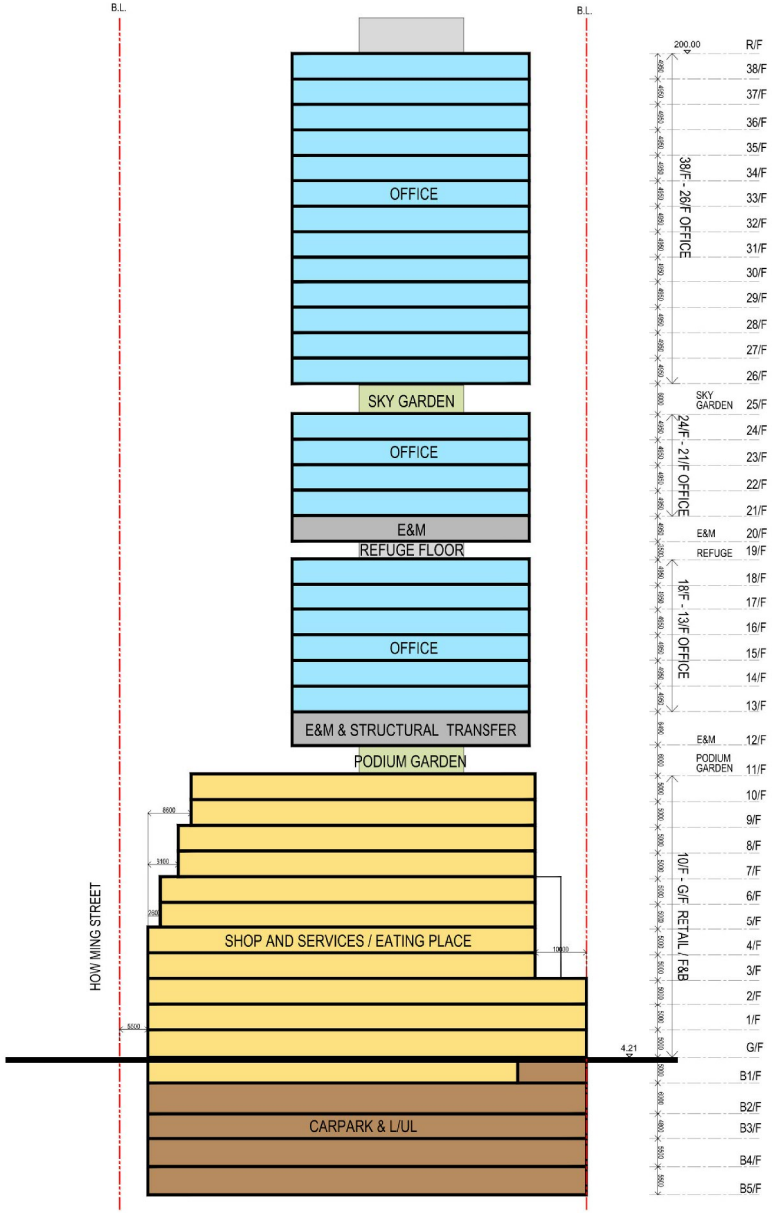
（資料來源：由申請人於2022年4月12日提交）
(Source: Submitted by the applicant on 12.4.2022)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/807	A - 10





SECTION A



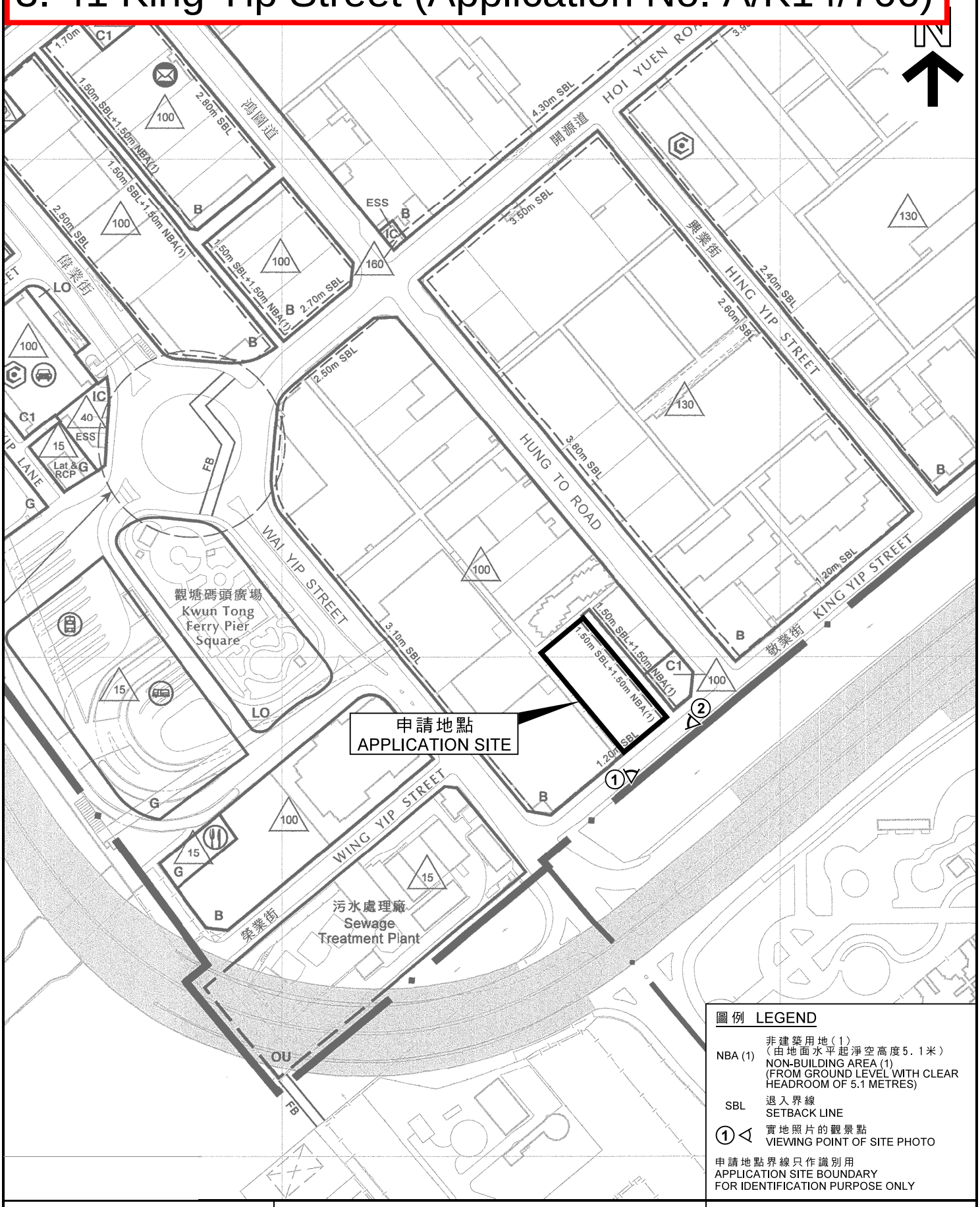
SECTION B

DIAGRAMMATIC SECTIONS

（資料來源：由申請人於2022年4月12日提交）
(Source: Submitted by the applicant on 12.4.2022)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/807	A - 11

3. 41 King Yip Street (Application No. A/K14/766)



圖例 LEGEND

NBA (1)	非建築用地(1) (由地面水平起淨空高度5.1米) NON-BUILDING AREA (1) (FROM GROUND LEVEL WITH CLEAR HEADROOM OF 5.1 METRES)
SBL	退入界線 SETBACK LINE
①◁	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

申請地點界線只作識別用
APPLICATION SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年8月2日擬備，所根據的資料為於2018年12月24日採納的觀塘(西部)發展大綱圖編號D/K14A/2

EXTRACT PLAN PREPARED ON 2.8.2019 BASED ON KWUN TONG (WESTERN PART) ODP No. D/K14A/2 ADOPTED ON 24.12.2018

位置圖 LOCATION PLAN

擬議略為放寬地積比率及建築物高度限制，以作准許的辦公室、商店及服務行業和食肆用途
九龍觀塘敬業街41號

PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTIONS FOR PERMITTED OFFICE, SHOP AND SERVICES & EATING PLACE USES
41 KING YIP STREET, KWUN TONG, KOWLOON

SCALE 1 : 2 500 比例尺

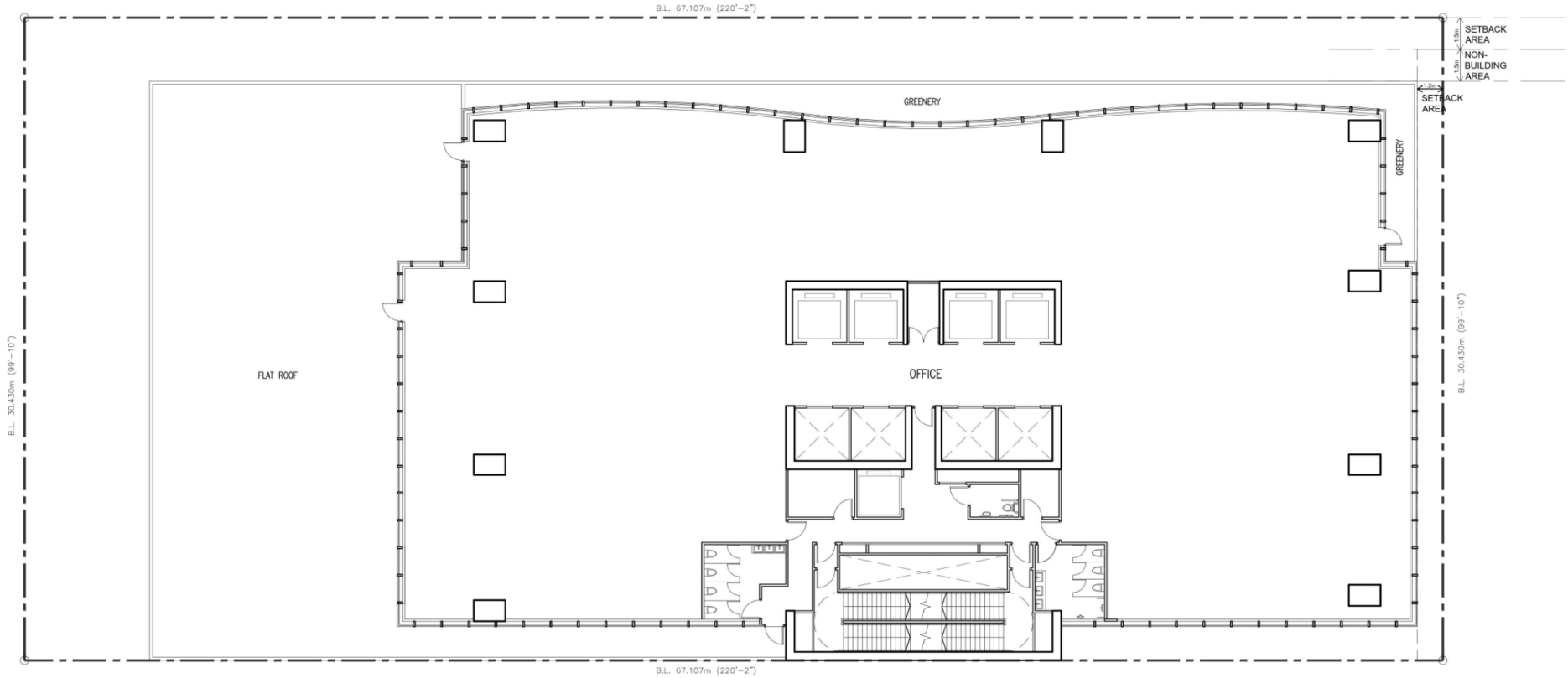
米 METRES 50 0 50 100 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
A/K14/766

圖 PLAN
FA - 2

SECOND FLOOR
OFFICE



Second Floor Plan

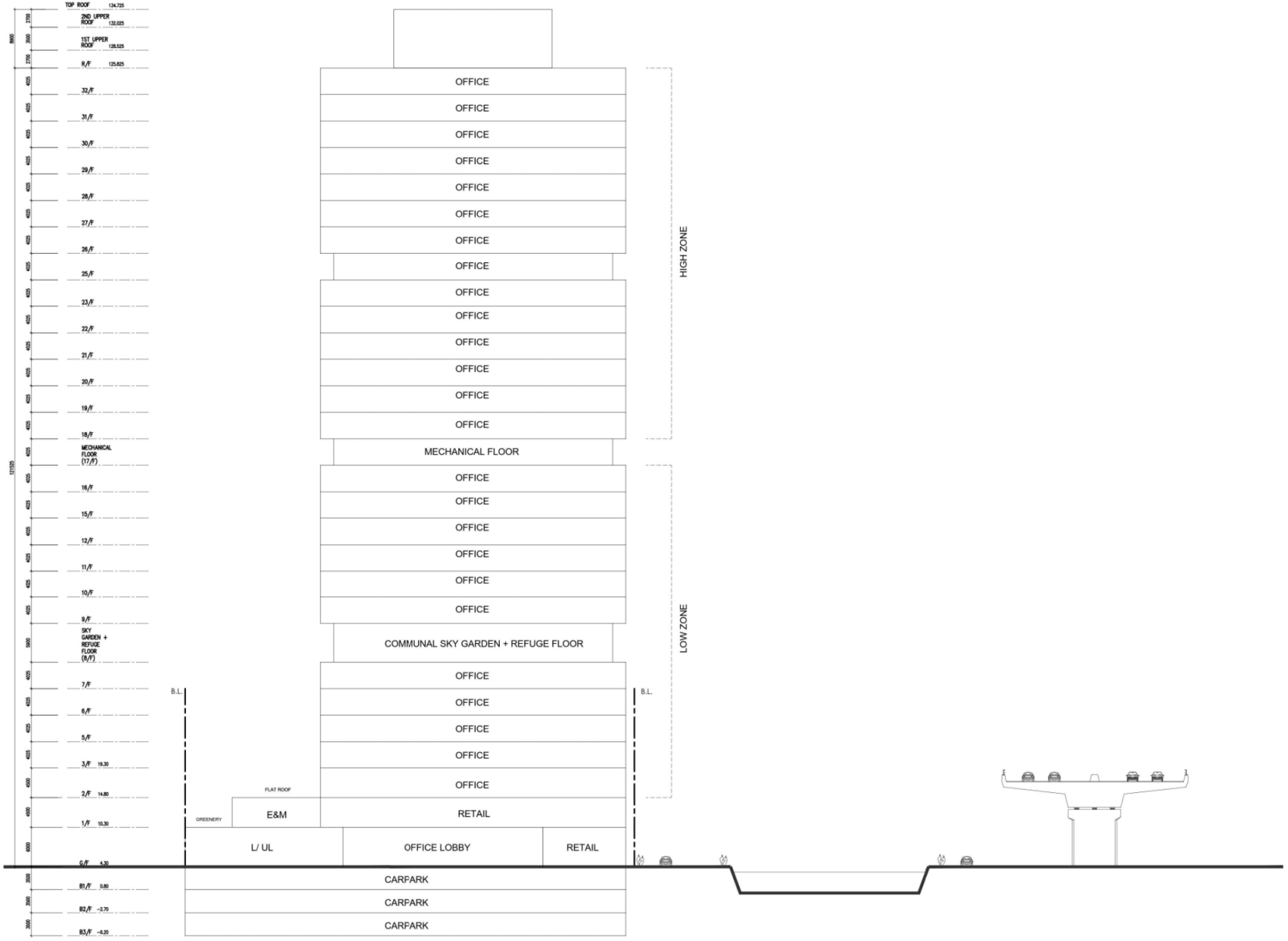
~~Scale 1: 200~~

LU TANG LAI ARCHITECTS LTD.
呂鄧黎建築師有限公司

（資料來源：由申請人提交）
(SOURCE : SUBMITTED BY THE APPLICANT)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/766	FA - 6

SCHEMATIC SECTION

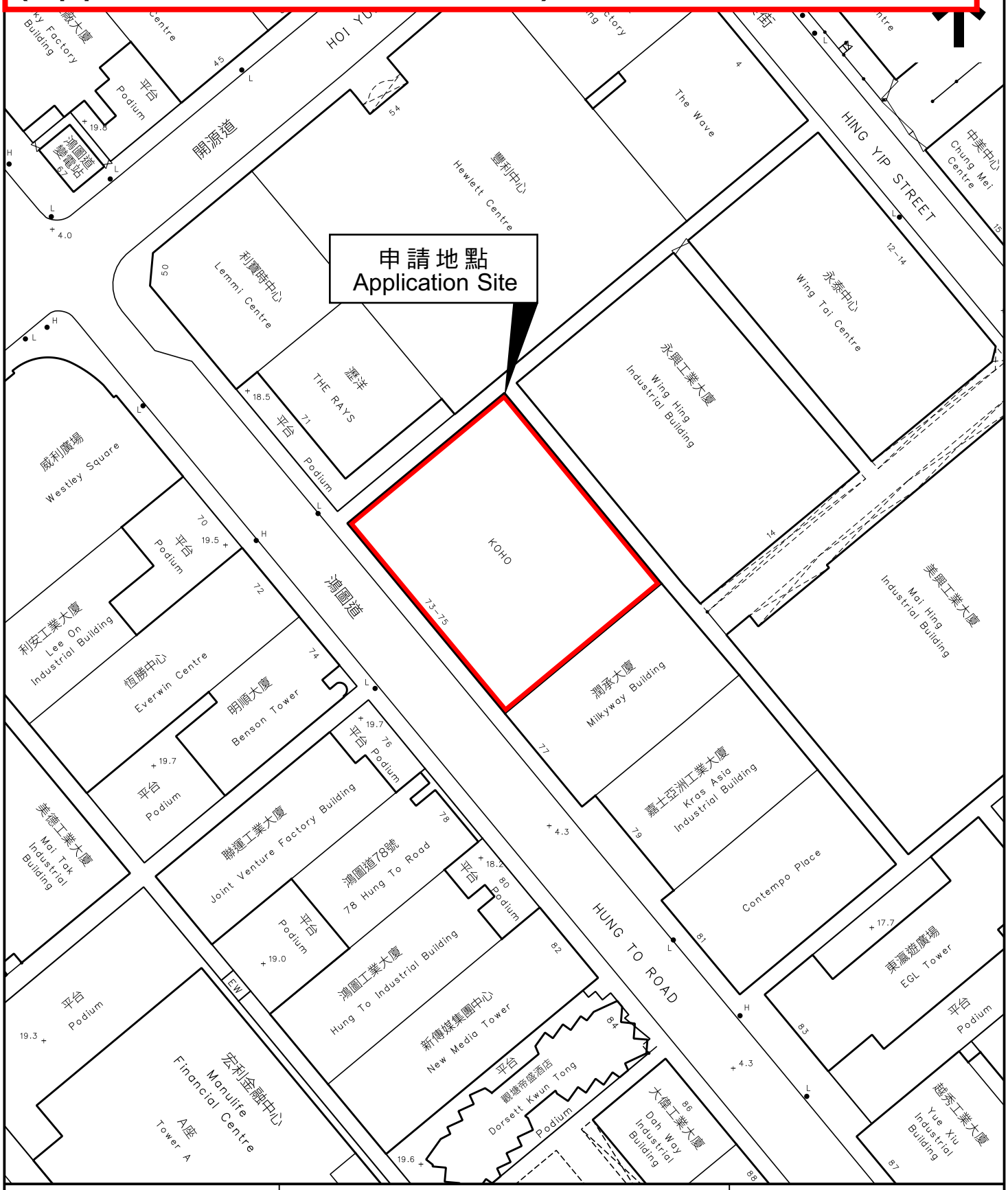


（資料來源：由申請人提交）
(SOURCE : SUBMITTED BY THE APPLICANT)

LU TANG LAI ARCHITECTS LTD.
呂鄧黎建築師有限公司

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/766	FA - 9

4. Proposed Office and Shop and Services Uses (Application No. A/K14/820)



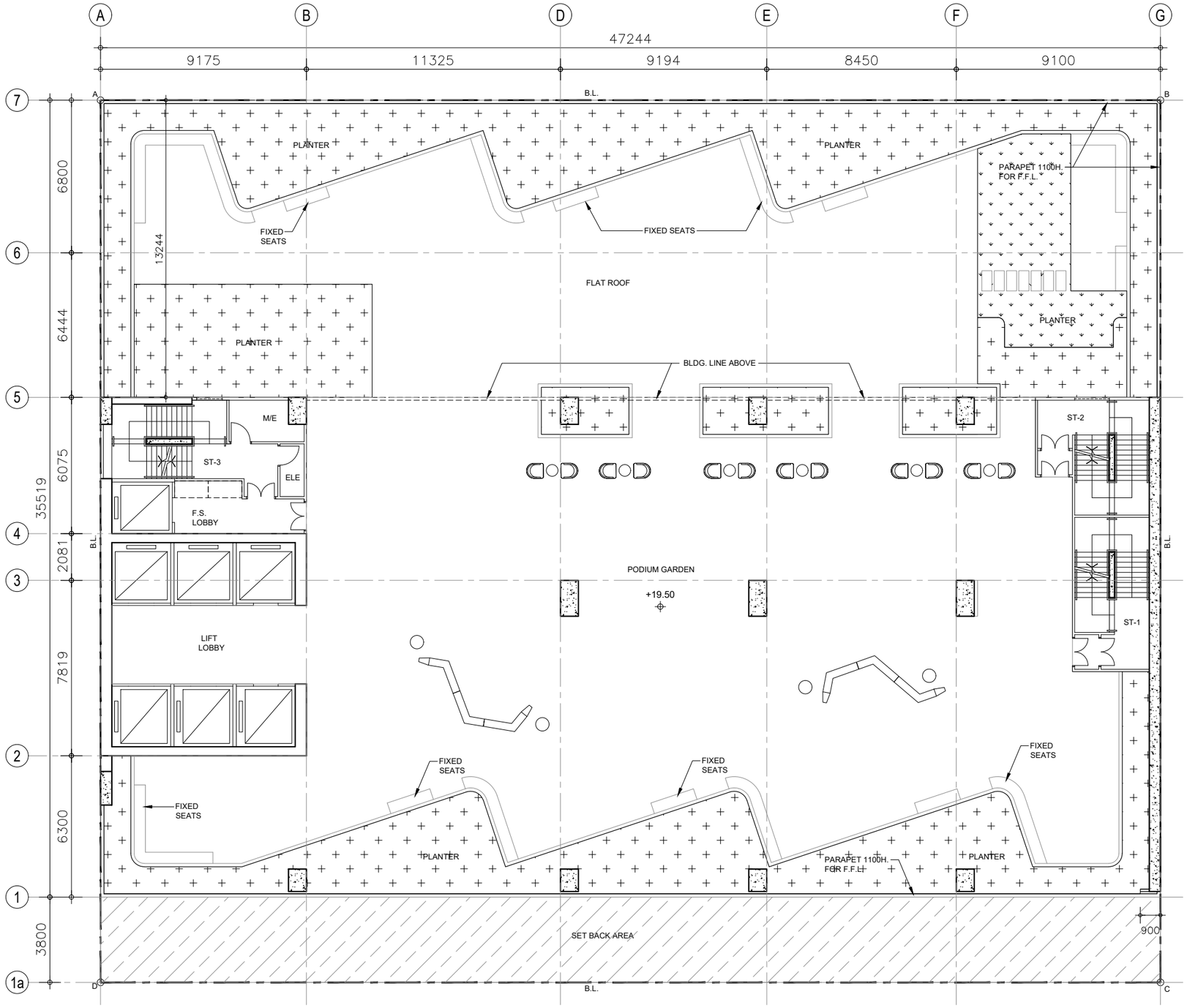
平面圖 SITE PLAN

本摘要圖於2022年12月8日擬備，
所根據的資料為測量圖編號
11-NE-23A

EXTRACT PLAN PREPARED ON 8.12.2022
BASED ON SURVEY SHEET No.
11-NE-23A

申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.
A/K14/820



申請編號 Application No. : A / K14 / 820

此頁摘自申請人提交的文件。

This page is extracted from applicant's submitted documents.

GENERAL NOTES
1. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK.
4. ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.

0 2 4 6 8 10M

2022.11.8

Project:

PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED OFFICE, EATING PLACE AND / OR SHOP & SERVICES USES AT 73-75 HUNG TO ROAD, KWUN TONG, KOWLOON (KWUN TONG INLAND LOT NO. 635) ON APPROVED KWUN TONG (SOUTH) OUTLINE ZONING PLAN NO. S/K14S/24

Drawing Title:

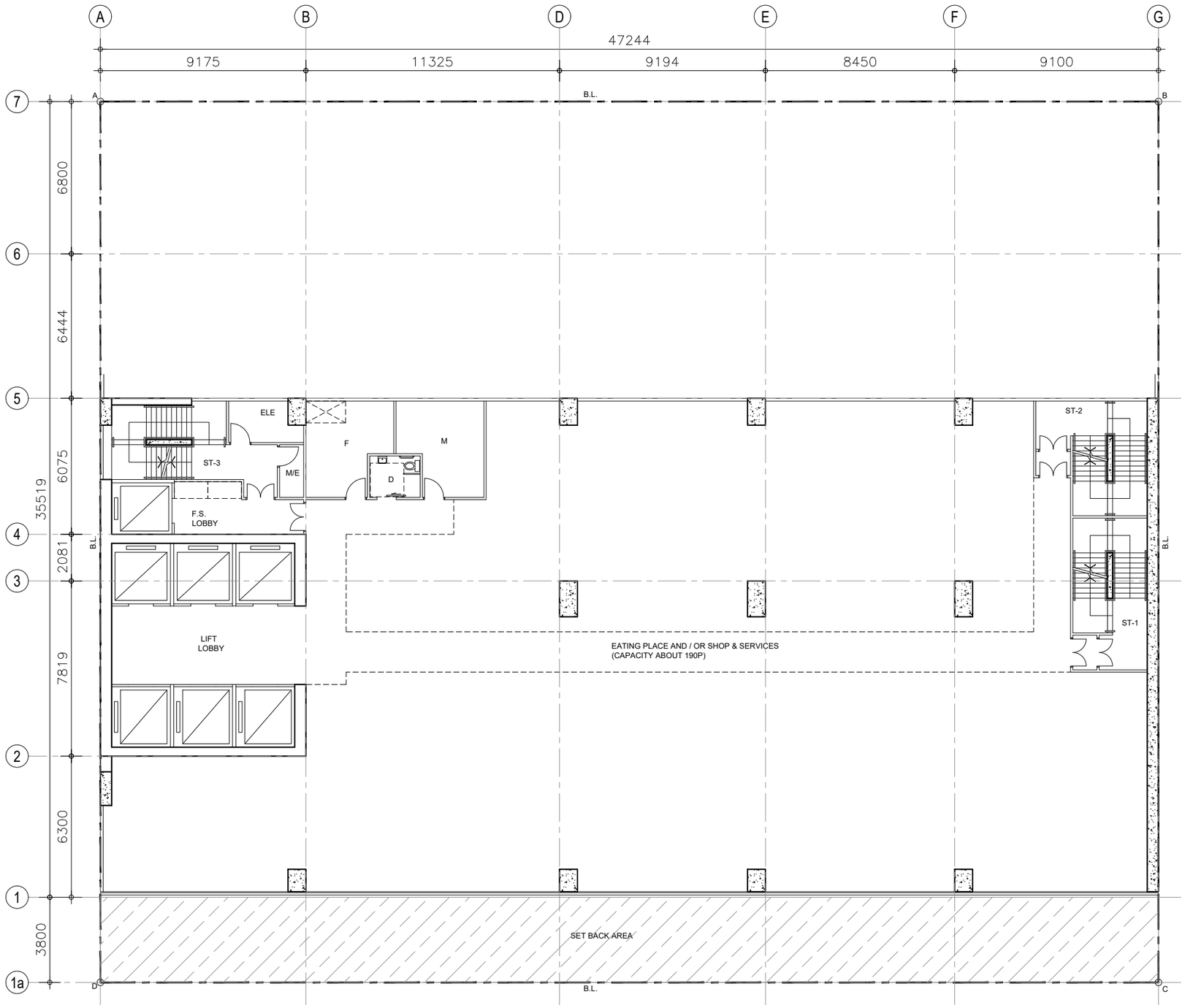
3/F PLAN

Drawing No.:

GP-08

Architect:

樑安建築師有限公司
L&N Architects Ltd.
Rooms 1203-1204, 12/F Belgian Bank Building,
721-725 Nathan Road, Kowloon
Tel: (852) 3422 3082, Fax: (852) 3428 2269



申請編號 Application No. : A / K14 / 820
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

GENERAL NOTES
1. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK.
4. ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.

0 2 4 6 8 10M

2022.11.8

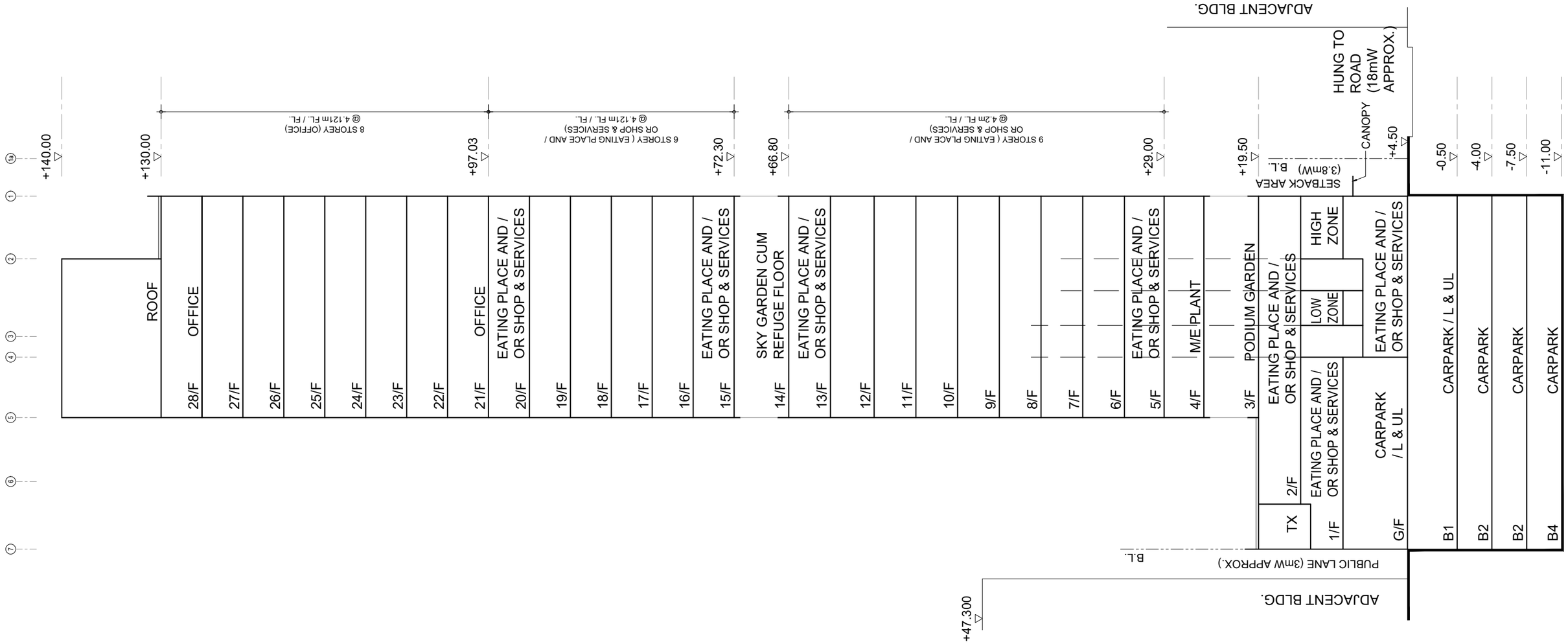
Project:
PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED OFFICE, EATING PLACE AND / OR SHOP & SERVICES USES AT 73-75 HUNG TO ROAD, KWUN TONG, KOWLOON (KWUN TONG INLAND LOT NO. 635) ON APPROVED KWUN TONG (SOUTH) OUTLINE ZONING PLAN NO. S/K14S/24

Drawing Title:
TYPICAL FLOOR PLAN - LOW ZONE (5/F-20/F)

Drawing No.:
GP-09

Architect:

樑安建築師有限公司
L&N Architects Ltd.
Rooms 1203-1204, 12/F Belgian Bank Building,
721-725 Nathan Road, Kowloon
Tel: (852) 3422 3082, Fax: (852) 3428 2269



GENERAL NOTES
1. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK.
4. ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.

2022.11.15

Project:
PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED OFFICE, EATING PLACE AND / OR SHOP & SERVICES USES AT 73-75 HUNG TO ROAD, KWUN TONG, KOWLOON (KWUN TONG INLAND LOT NO. 635) ON APPROVED KWUN TONG (SOUTH) OUTLINE ZONING PLAN NO. S/K14S/24

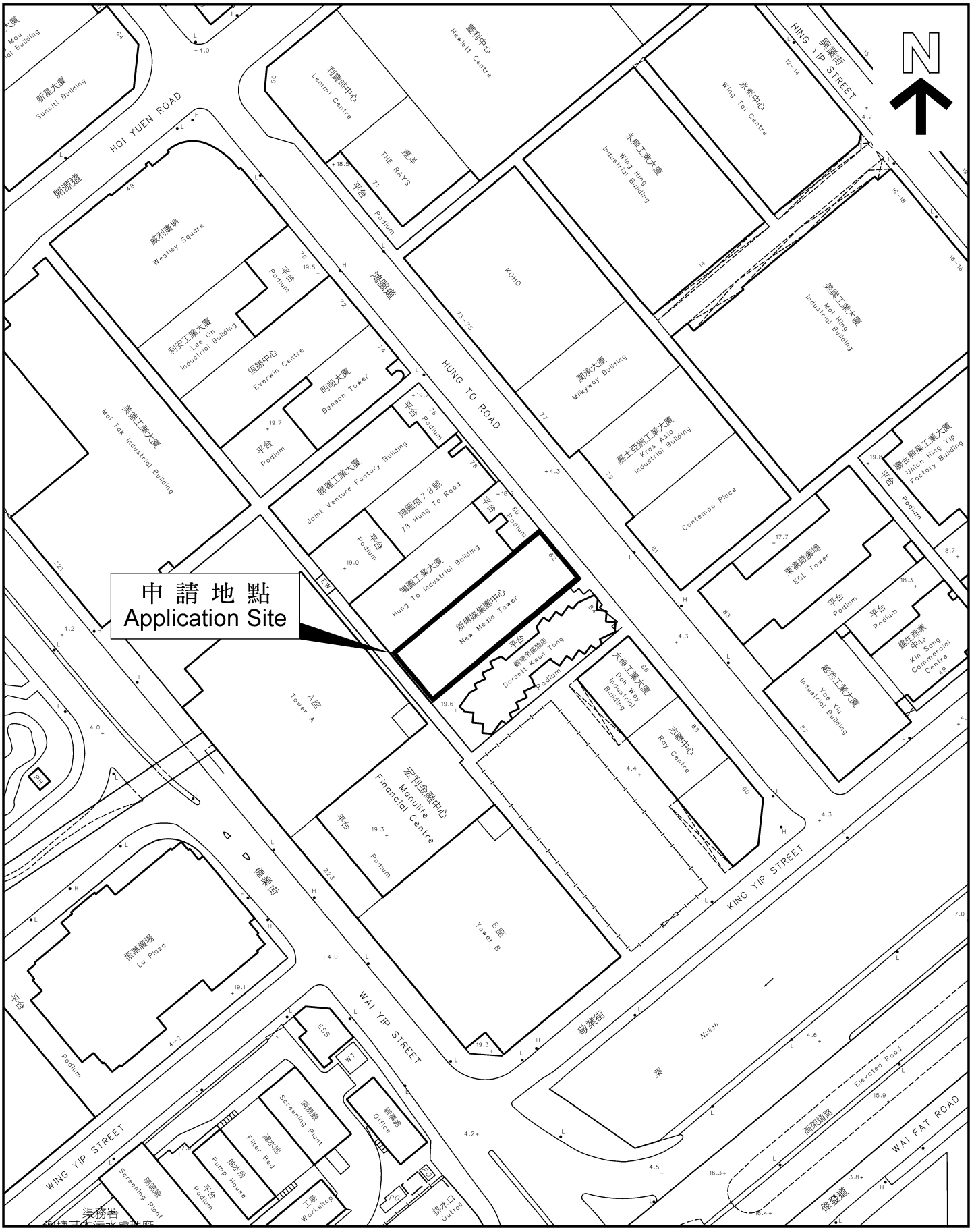
Drawing Title:
SCHEMATIC SECTION

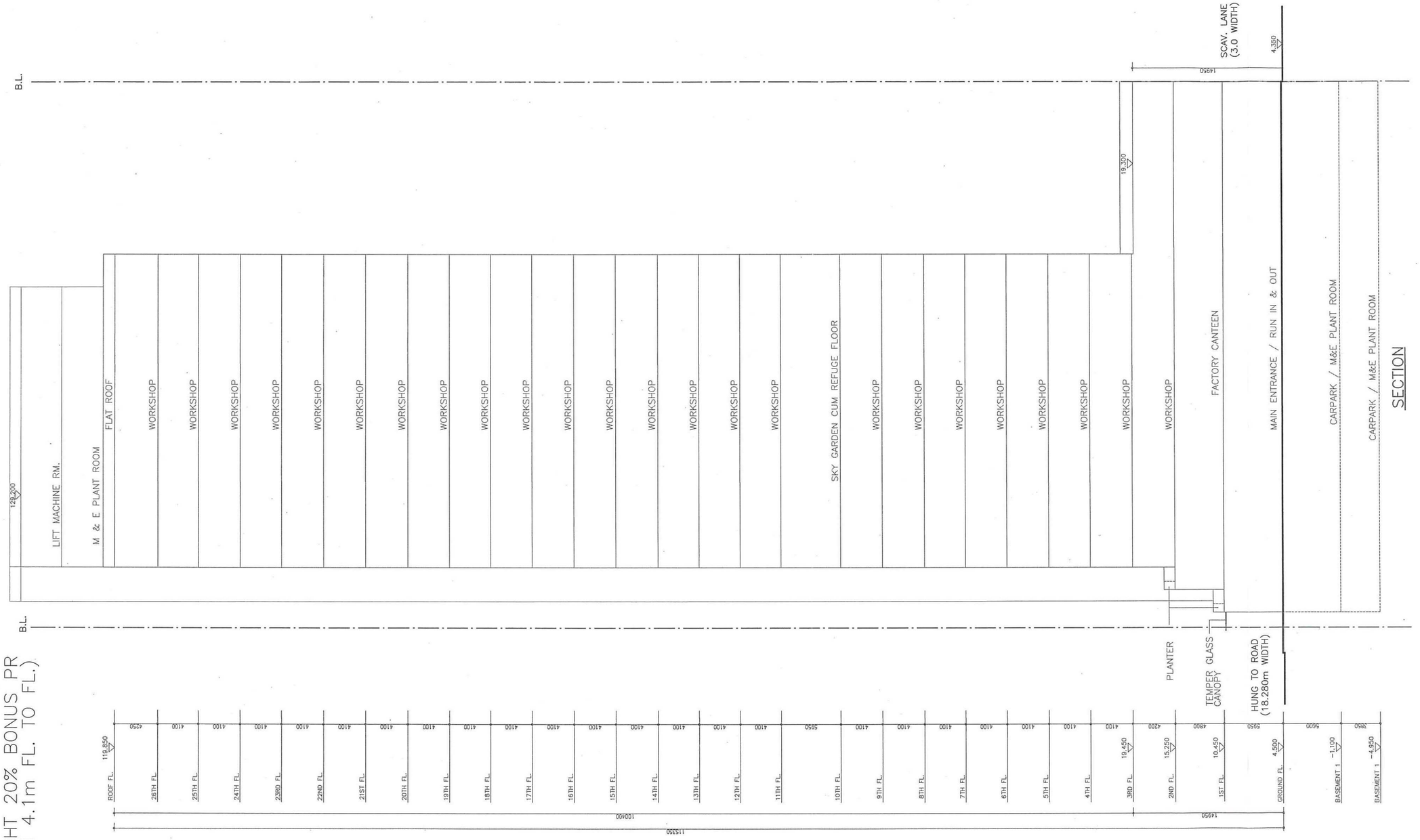
Drawing No.:
GP-13

Architect:
樑安建築師有限公司
L&N Architects Ltd.
Rooms 1203-1204, 12/F Belgian Bank Building,
721-725 Nathan Road, Kowloon
Tel: (852) 3422 3082, Fax: (852) 3428 2269

5. Proposed Non-polluting Industrial Use (Application No. A/K14/773)

A/K14/773





OPTION 1 – 19.85% HEIGHT 20% BONUS PR
(RELAXATION 4.1m FL. TO FL.)

申請編號 Application No. : A / K14 / 773
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

B.D. REF. NO.

F.P.B. NO.

FIGURED DIMENSIONS ARE TO BE TAKEN IN PREFERENCE TO SCALED ONES IN ALL CASES.

BEFORE COMMENCING ANY WORK OR ORDERING ANY MATERIALS THE CONTRACTOR MUST VERIFY ALL MEASUREMENTS OF THE BUILDING. IF ANY DISCREPANCIES ARE FOUND THEY MUST BE BROUGHT TO THE NOTICE OF THE ARCHITECT IMMEDIATELY.

REV.	DATE	DESCRIPTION	CHK.
B	23.10.2019	GENERAL REVISION	
A	03.7.2019	GENERAL REVISION	

PROJECT

PROPOSED INDUSTRIAL BUILDING
AT No.82 HUNG TO ROAD
KWUN TONG, KOWLOON

PLAN

SECTION

SCALE

1: 200

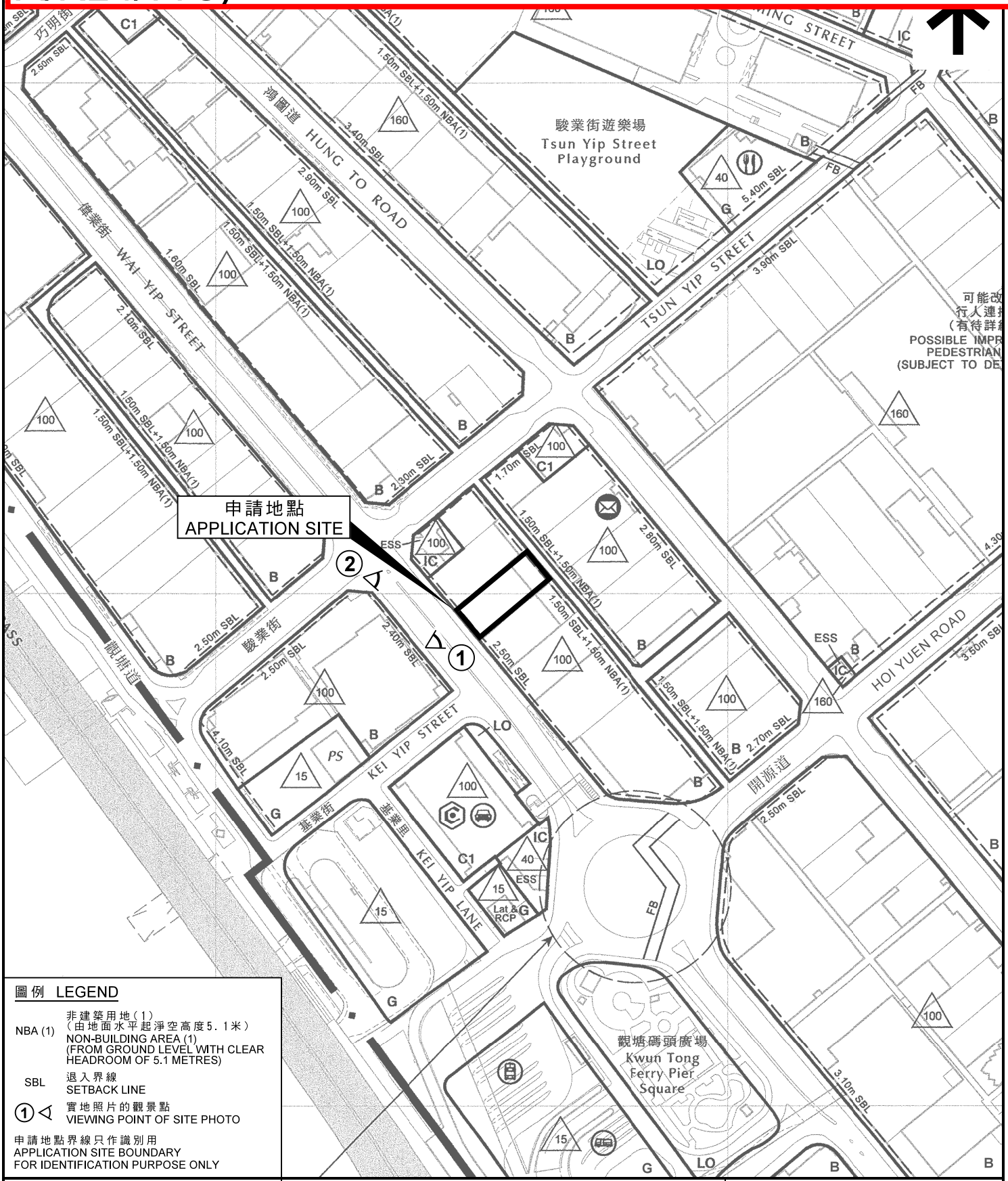
T.K.TSUI & ASSOCIATES LTD.
CHARTERED ENGINEERS & AUTHORIZED PERSONS
PROPERTY DEVELOPMENT CONSULTANT

PAUL G.K. TSUI BSc, MHKIS, MRICS
REGISTERED PROFESSIONAL SURVEYOR
AUTHORIZED PERSON

DRAWN	CHECKED
RICKY	PAT

DRAWING NO.	FIRST APPROVAL:
HTR–SK07	A / B / C / B / E

6. Proposed "Other Specified Uses" (Application No. A/K14/778)



圖例 LEGEND

NBA (1)	非建築用地(1) (由地面水平起淨空高度5.1米) NON-BUILDING AREA (1) (FROM GROUND LEVEL WITH CLEAR HEADROOM OF 5.1 METRES)
SBL	退入界線 SETBACK LINE
①◁	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

申請地點界線只作識別用
APPLICATION SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2020年1月10日擬備，所根據的資料為於2018年12月24日採納的觀塘(西部)發展大綱圖編號D/K14A/2

EXTRACT PLAN PREPARED ON 10.1.2020 BASED ON KWUN TONG (WESTERN PART) ODP No. D/K14A/2 ADOPTED ON 24.12.2018

位置圖 LOCATION PLAN

擬議略為放寬地積比率，以作准許的非污染工業用途(不包括涉及使用／貯存危險品的工業經營)及擬議商店及服務行業(附屬陳列室)
九龍觀塘偉業街203號
PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED NON-POLLUTING INDUSTRIAL USE (EXCLUDING INDUSTRIAL UNDERTAKINGS INVOLVING THE USE/STORAGE OF DANGEROUS GOODS) AND PROPOSED SHOP AND SERVICES (ANCILLARY SHOWROOM)
203 WAI YIP STREET, KWUN TONG, KOWLOON

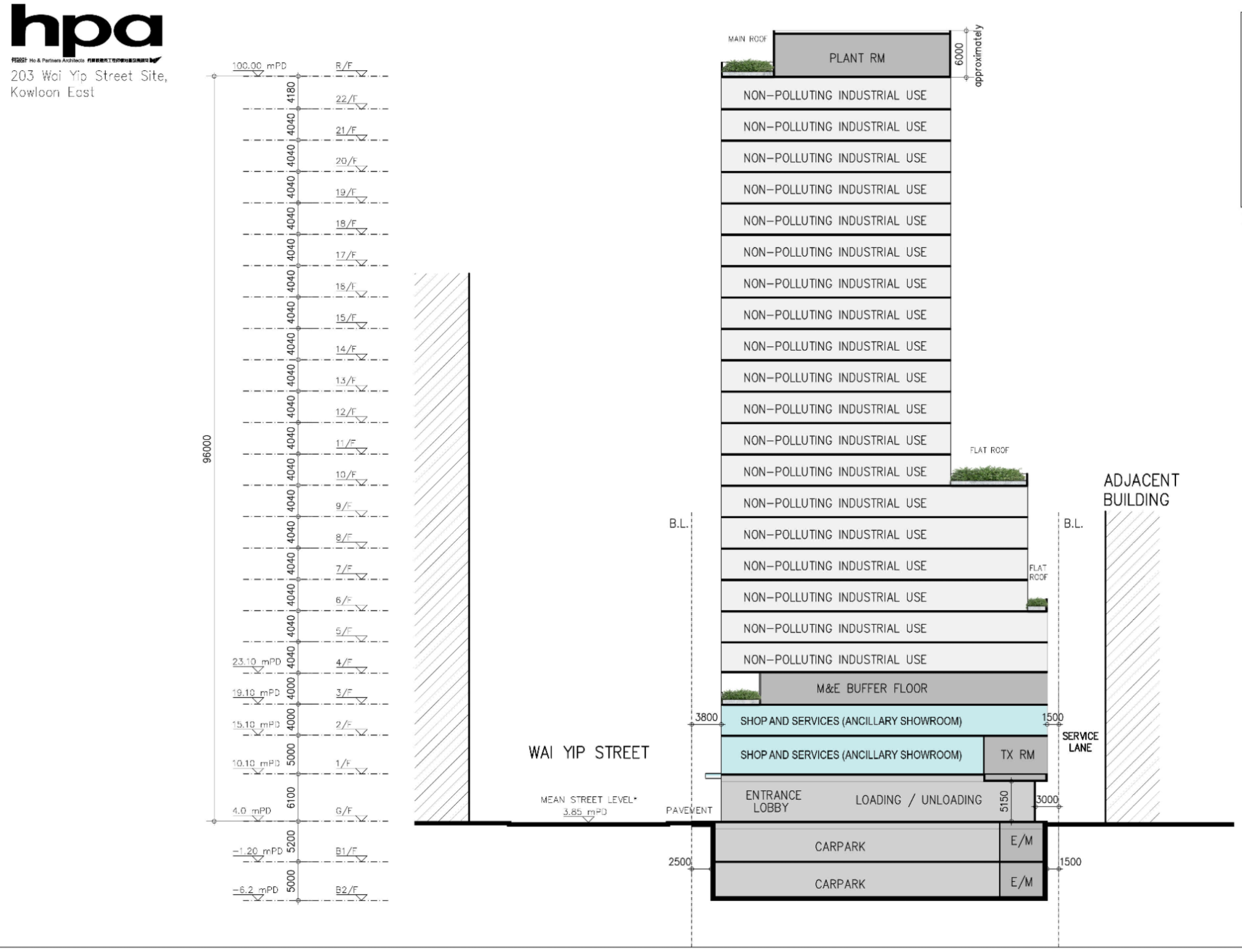
SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
A/K14/778

圖 PLAN
A - 2



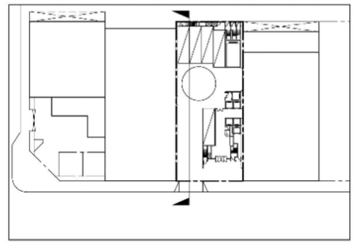


TABLE OF SITE COVERAGE

FLOOR	PERMITTED S.C. (%)	PROPOSED S.C. (%)
G/F	92%	88.26%
1/F	92%	87.75%
2/F	92%	87.75%
3/F	92%	87.75%
4/F	92%	87.75%
5/F	90%	87.75%
6/F	87%	78.74%
7/F	85%	78.74%
8/F	82%	78.74%
9/F	79%	78.74%
10/F	76%	65.00%
11/F	73%	65.00%
12/F	69%	65.00%
13/F	66%	65.00%
14/F	65%	65.00%
15/F	65%	65.00%
16/F	65%	65.00%
17/F	65%	65.00%
18/F	65%	65.00%
19/F	65%	65.00%
20/F	65%	65.00%
21/F	65%	65.00%
22/F	65%	65.00%

*ACCORDING TO THE APPROVED GBP OF THE NO.207 WAI YIP STREET

SCHEMATIC SECTION

WAI YIP STREET SITE, KOWLOON EAST

1:500 (A3)

0 5 10 15 20 20m

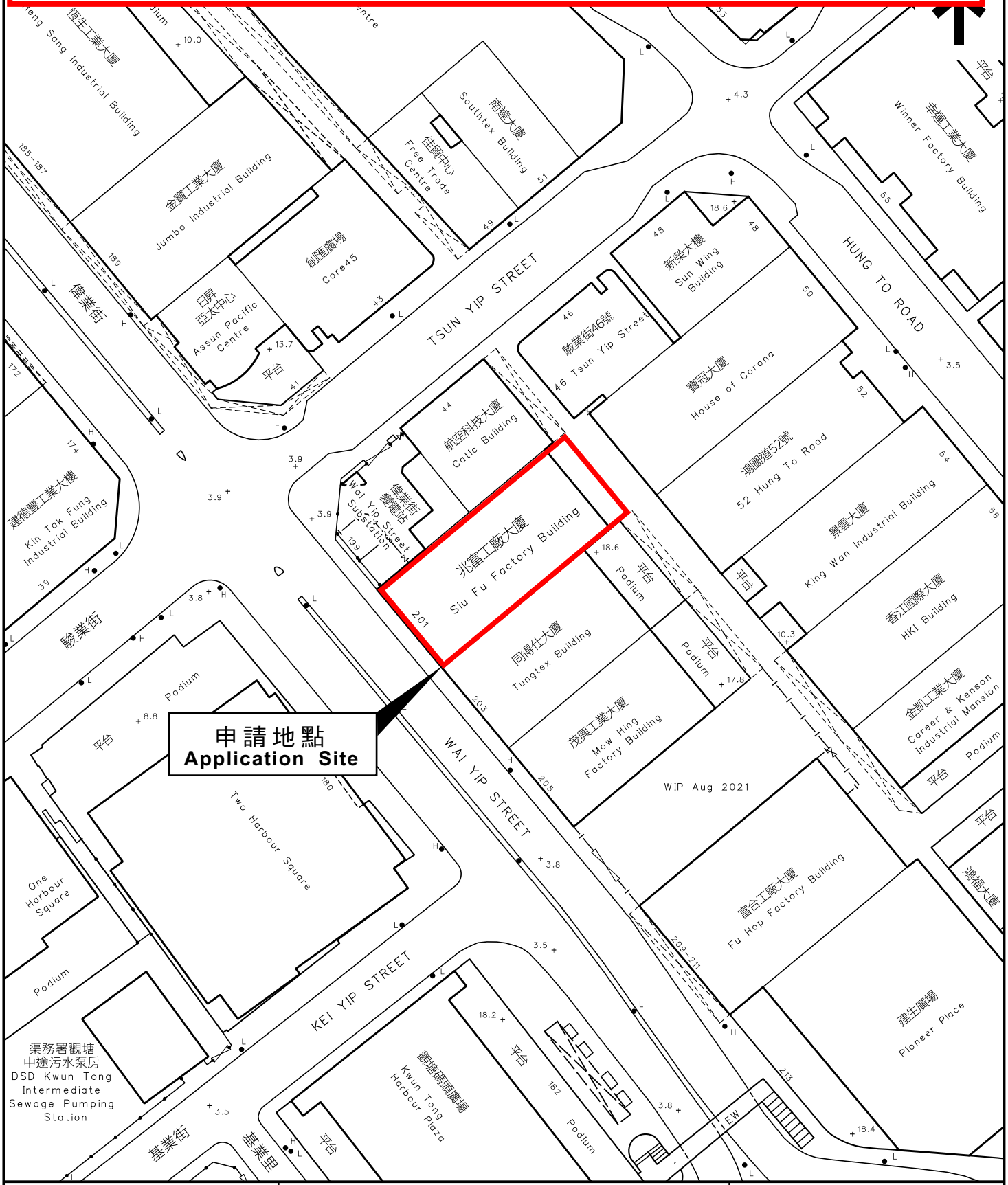
KNT1911

NAME	SIGN	DATE

（資料來源：由申請人提交）
(Source: Submitted by the applicant)

參考編號 REFERENCE No. A/K14/778	繪圖 DRAWING A - 4

7. Proposed Office and Shop and Services Uses (Application No. A/K14/808)



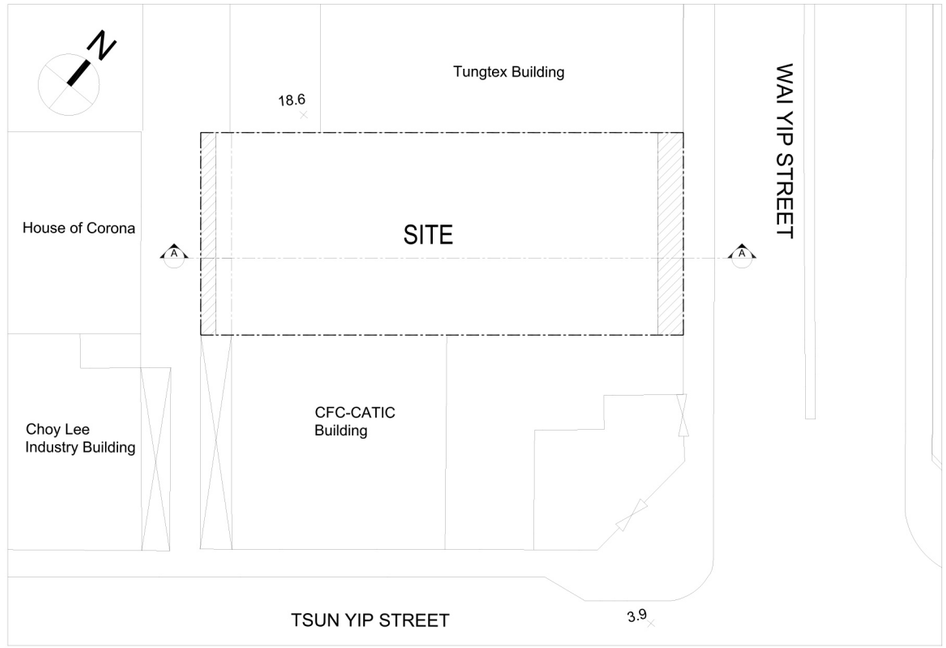
平面圖 SITE PLAN

本摘要圖於2022年1月5日擬備，
所根據的資料為測量圖編號
11-NE-23A

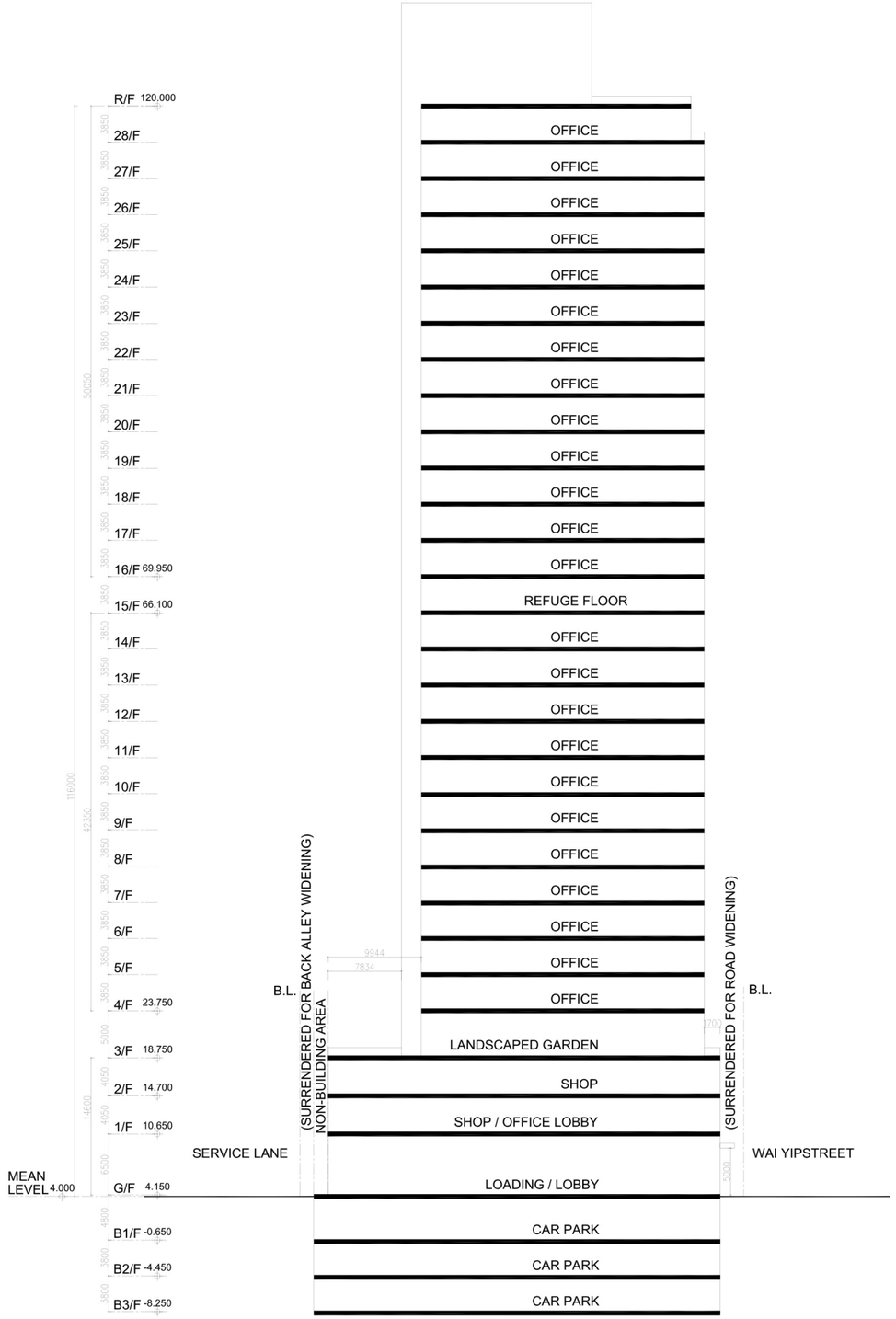
EXTRACT PLAN PREPARED ON 5.1.2022
BASED ON SURVEY SHEET No.
11-NE-23A

申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.
A/K14/808



KEY PLAN



SECTION

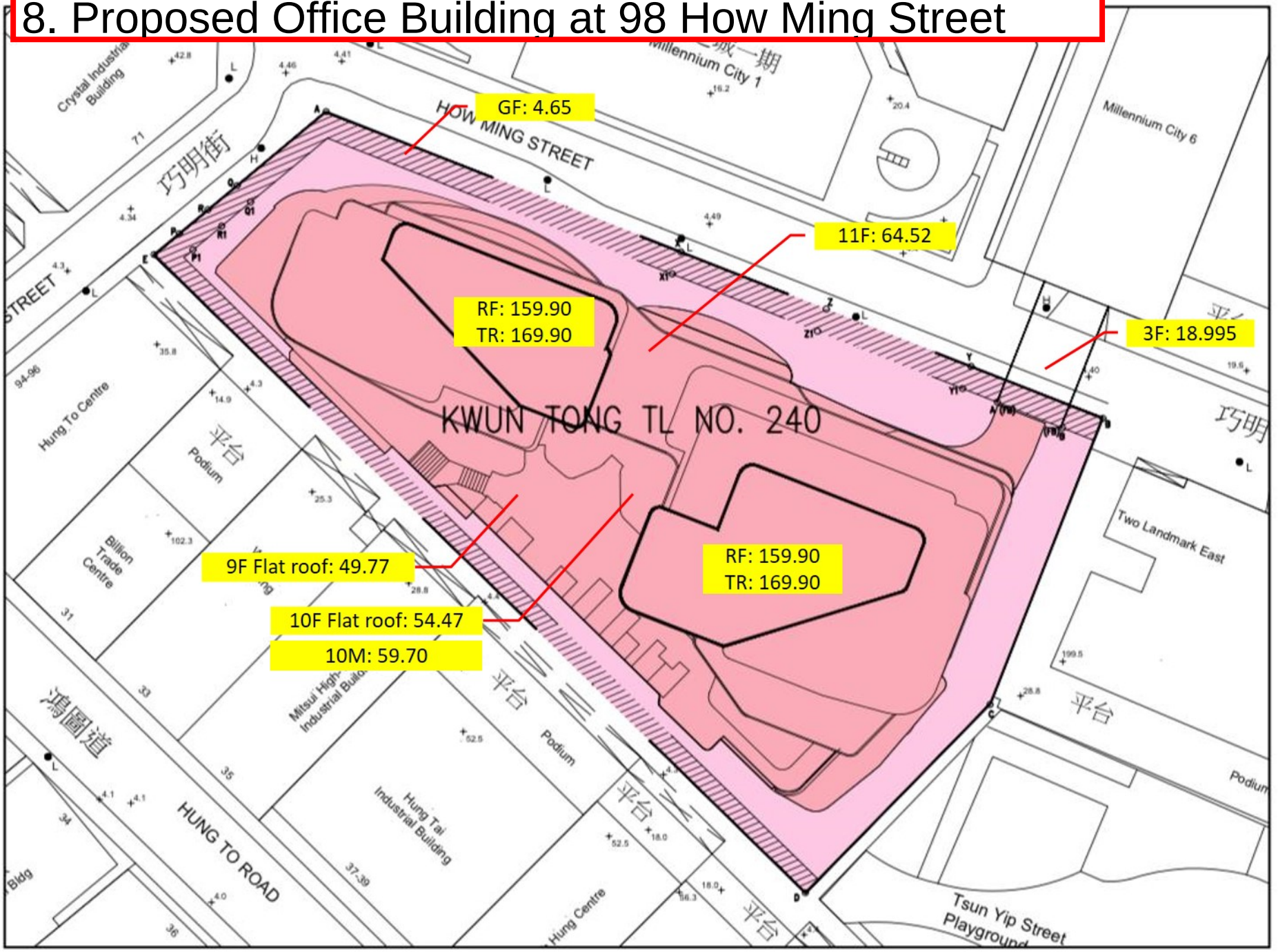
ALKF+
ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD

Title

Indicative Section Plan

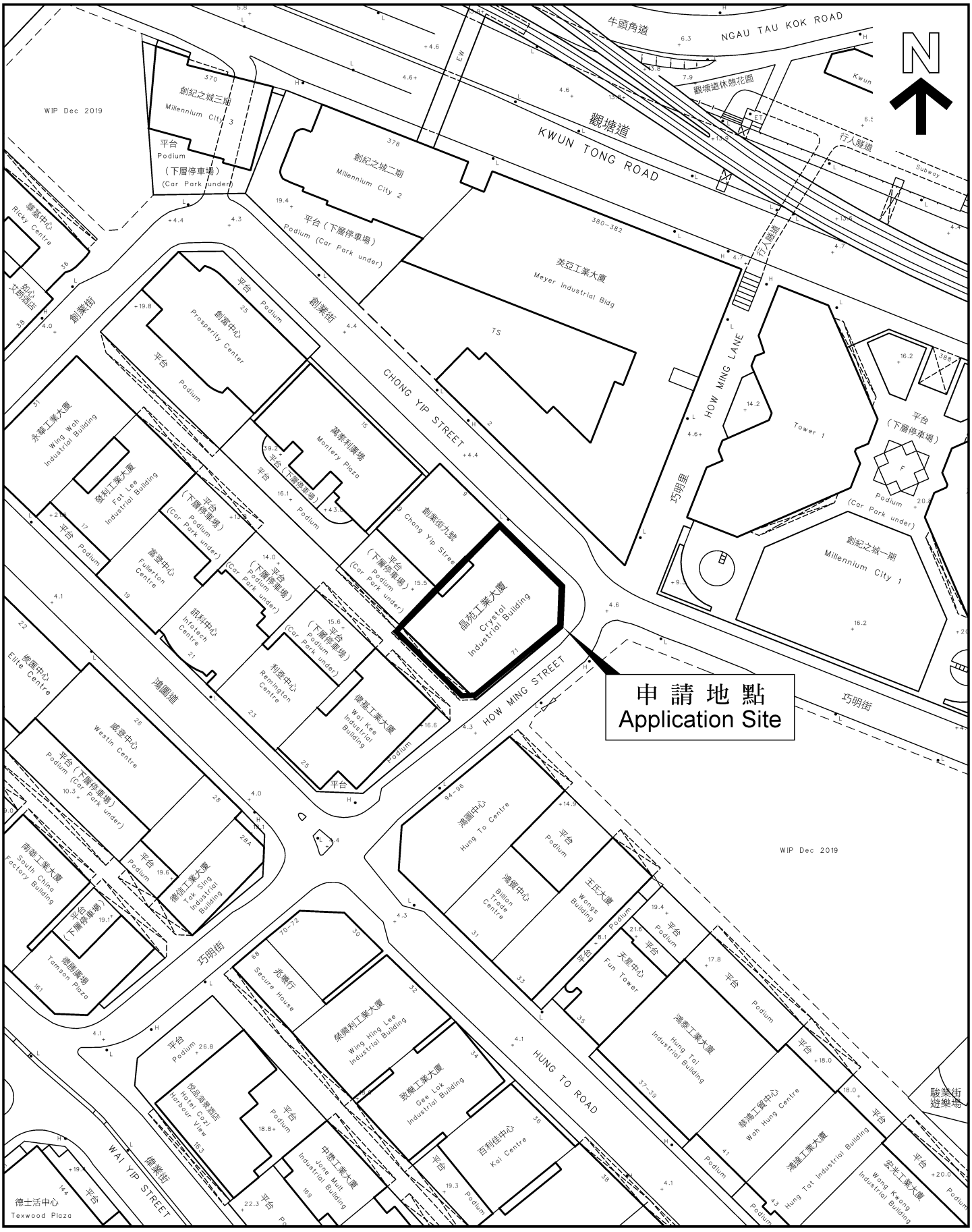
Checked	DH	Drawn	PW
Rev	0	Date	Jan 2022
Scale N/A		Figure 3.11	

8. Proposed Office Building at 98 How Ming Street



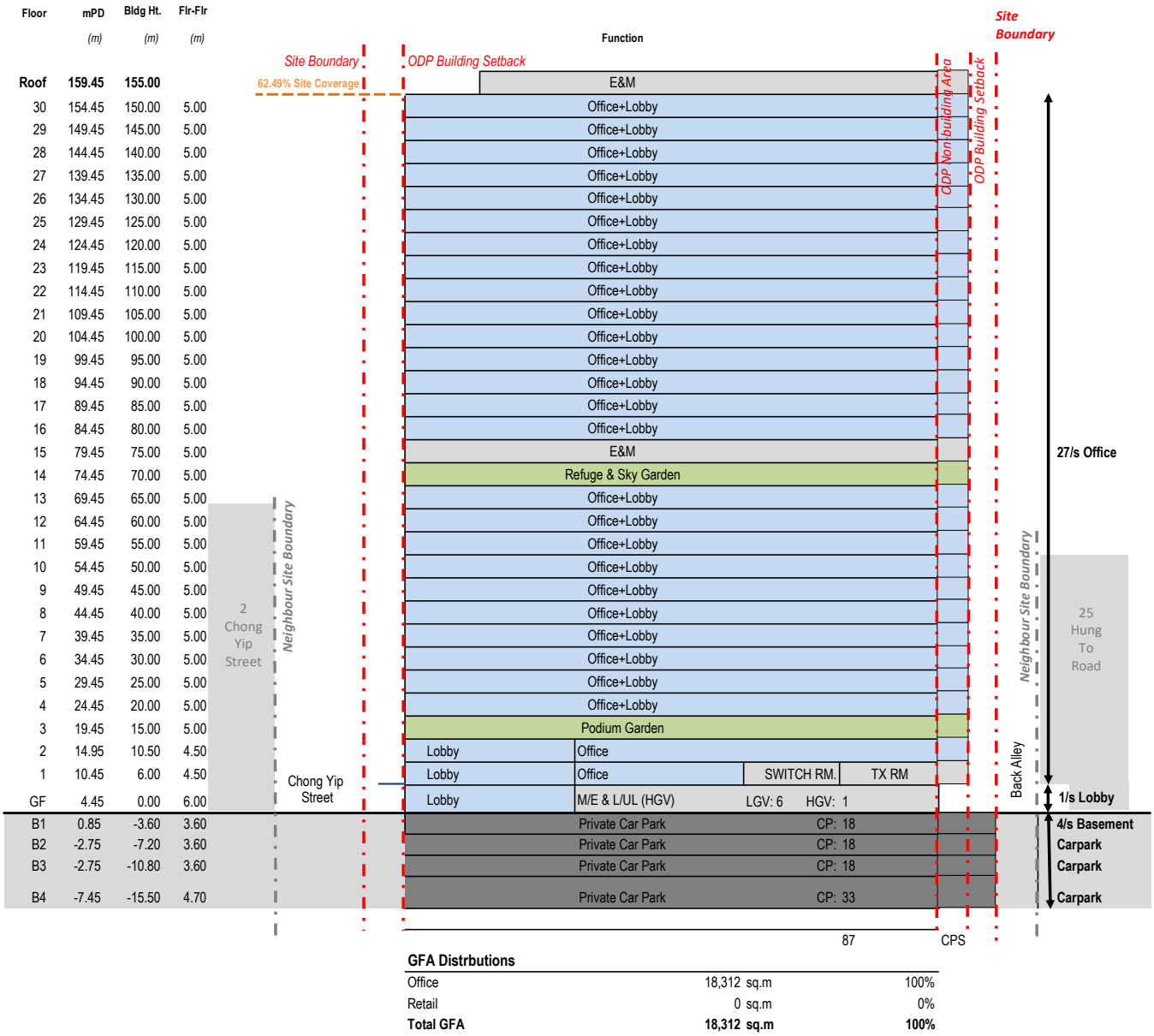
9. Proposed Office Development (Application No. A/K14/777)

A/K14/777



OPT 16C GFA Summary

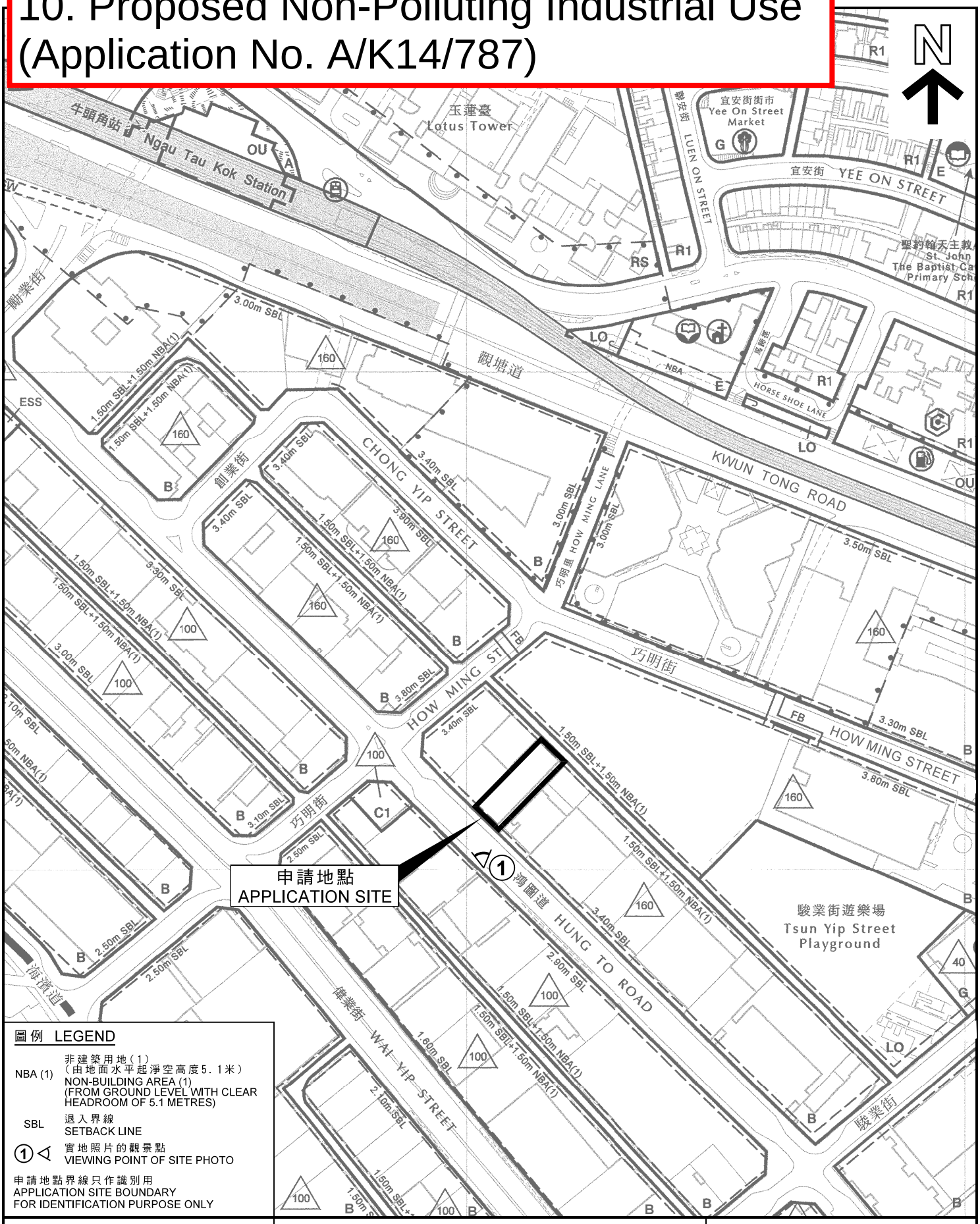
2020.03.09



GFA Distrbutions

Office	18,312 sq.m	100%
Retail	0 sq.m	0%
Total GFA	**18,312 sq.m**	**100%**

10. Proposed Non-Polluting Industrial Use (Application No. A/K14/787)



圖例 LEGEND

NBA (1)	非建築用地(1) (由地面水平起淨空高度5.1米) NON-BUILDING AREA (1) (FROM GROUND LEVEL WITH CLEAR HEADROOM OF 5.1 METRES)
SBL	退入界線 SETBACK LINE
①◁	實地照片的觀景點 VIEWING POINT OF SITE PHOTO

申請地點界線只作識別用
APPLICATION SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2020年9月1日擬備，所根據的資料為於2018年12月24日採納的觀塘(西部)發展大綱圖編號D/K14A/2

EXTRACT PLAN PREPARED ON 1.9.2020 BASED ON KWUN TONG (WESTERN PART) ODP No. D/K14A/2 ADOPTED ON 24.12.2018

位置圖 LOCATION PLAN

擬議略為放寬地積比率限制，以作准許的非污染工業用途
(不包括涉及使用/貯存危險品的工業經營)
九龍觀塘鴻圖道33號
PROPOSED MINOR RELAXATION OF PLOT RATIO RESTRICTION FOR PERMITTED NON-POLLUTING INDUSTRIAL USE (EXCLUDING INDUSTRIAL UNDERTAKINGS INVOLVING THE USE/STORAGE OF DANGEROUS GOODS)
33 HUNG TO ROAD, KWUN TONG, KOWLOON

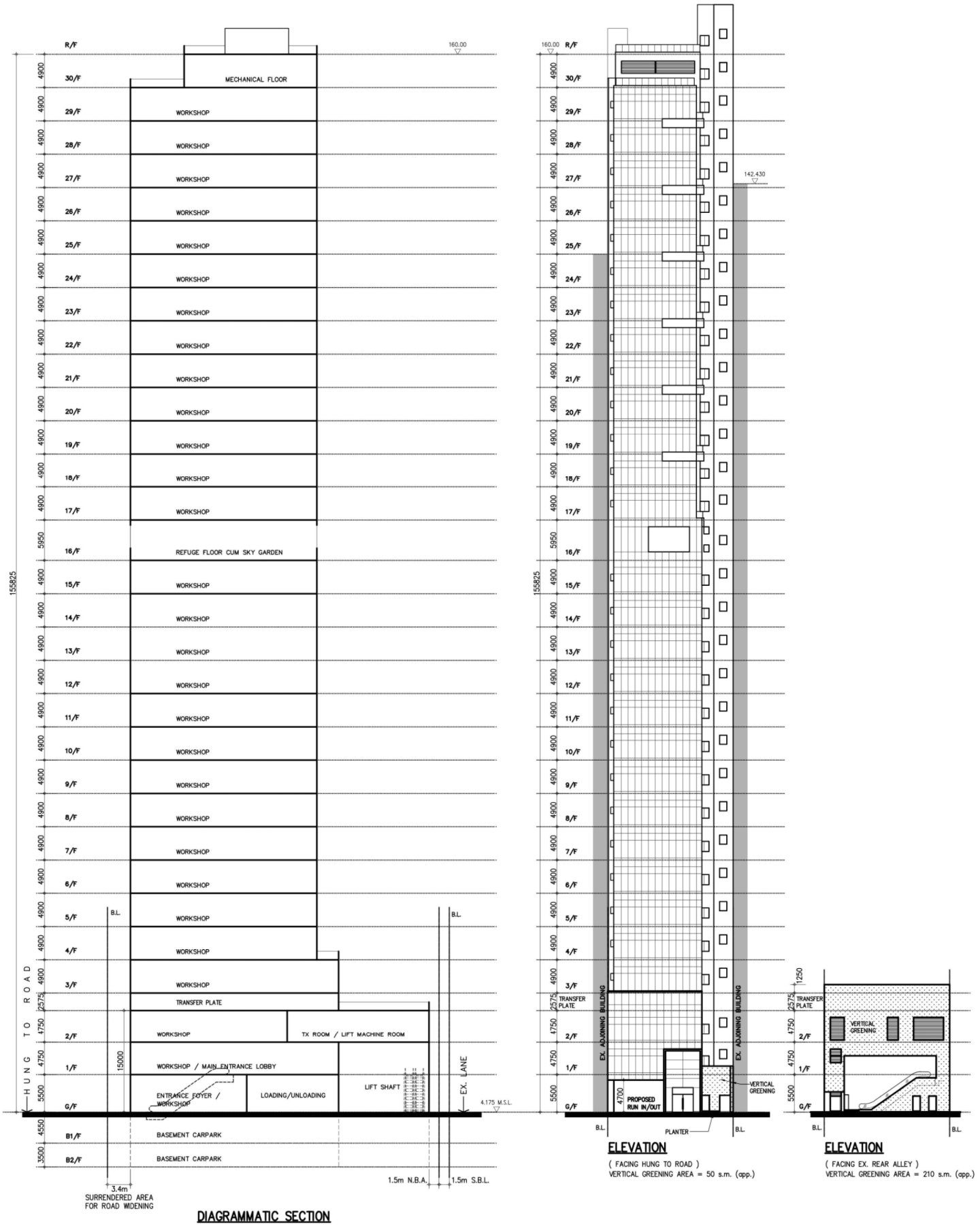
SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
A/K14/787

圖 PLAN
A - 2



DIAGRAMMATIC SECTION

ELEVATION

(FACING HUNG TO ROAD)
VERTICAL GREENING AREA = 50 s.m. (app.)

ELEVATION

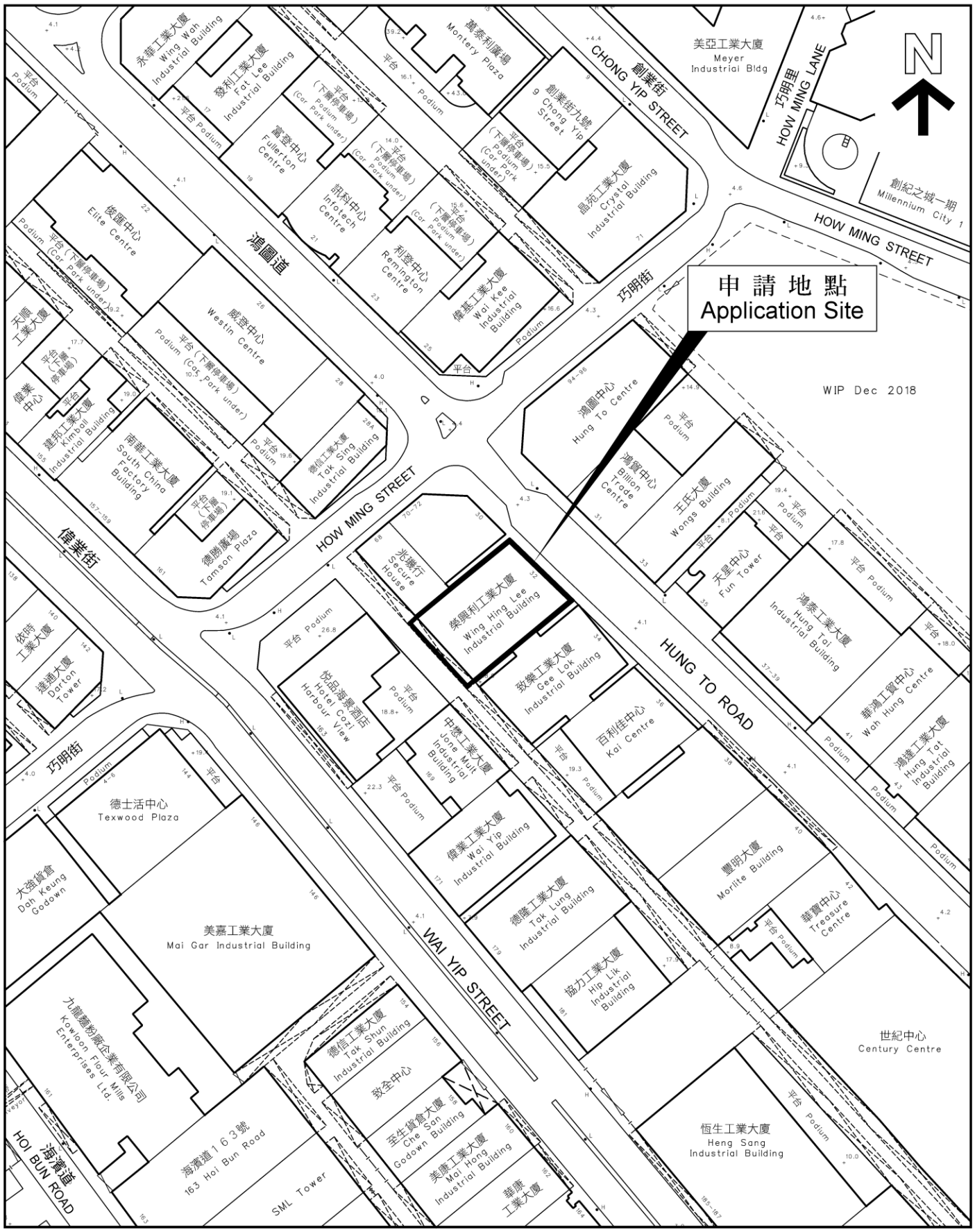
(FACING EX. REAR ALLEY)
VERTICAL GREENING AREA = 210 s.m. (app.)

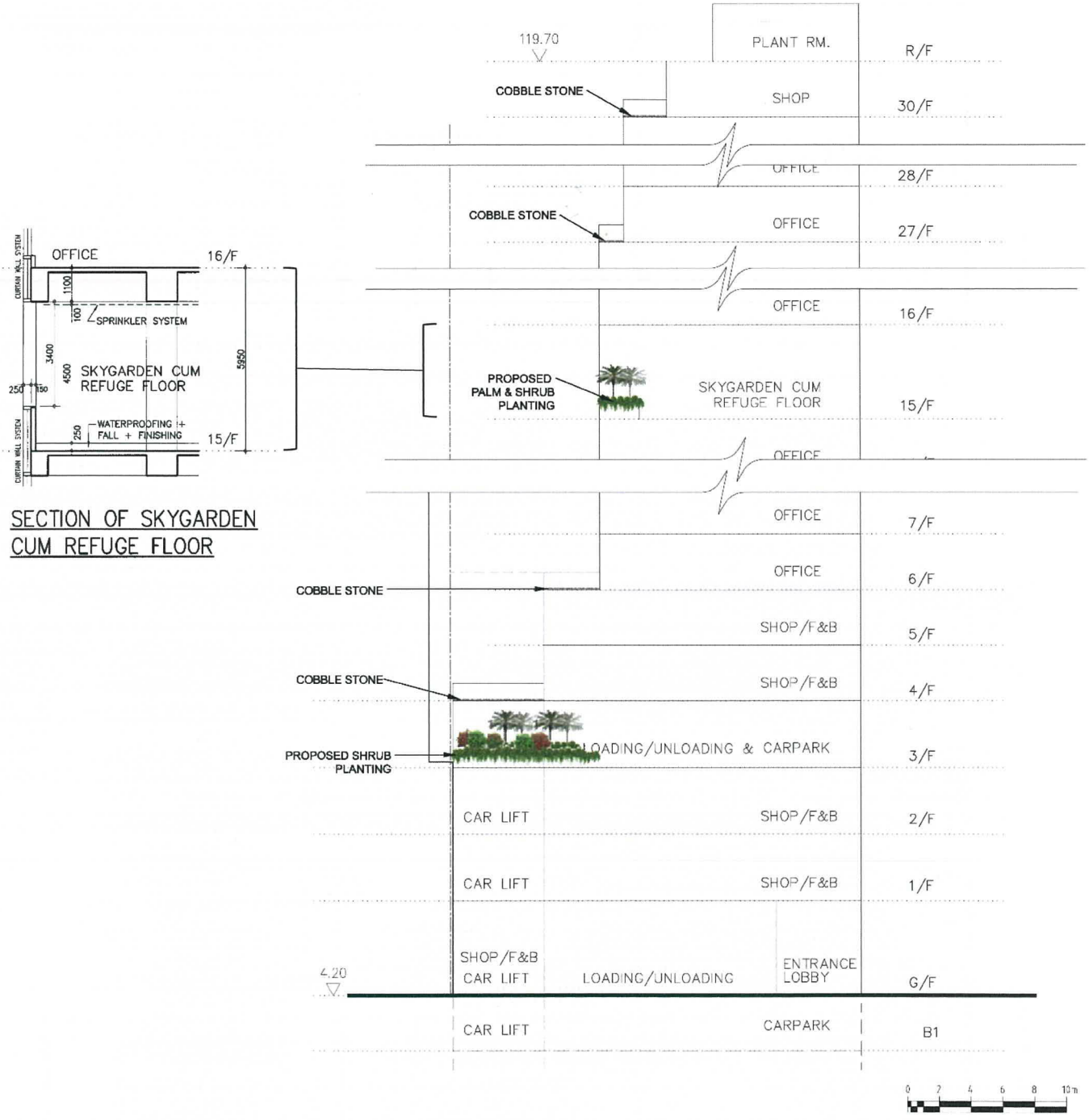
（資料來源：由申請人於2020年11月3日提交）
(Source: Submitted by the applicant on 3.11.2020)

參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/787	A - 6

11. Proposed Office Development (Application No. A/K14/771)

A/K14/771





SECTION OF SKYGARDEN CUM REFUGE FLOOR

申請編號 Application No. : A / K14 / 771
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

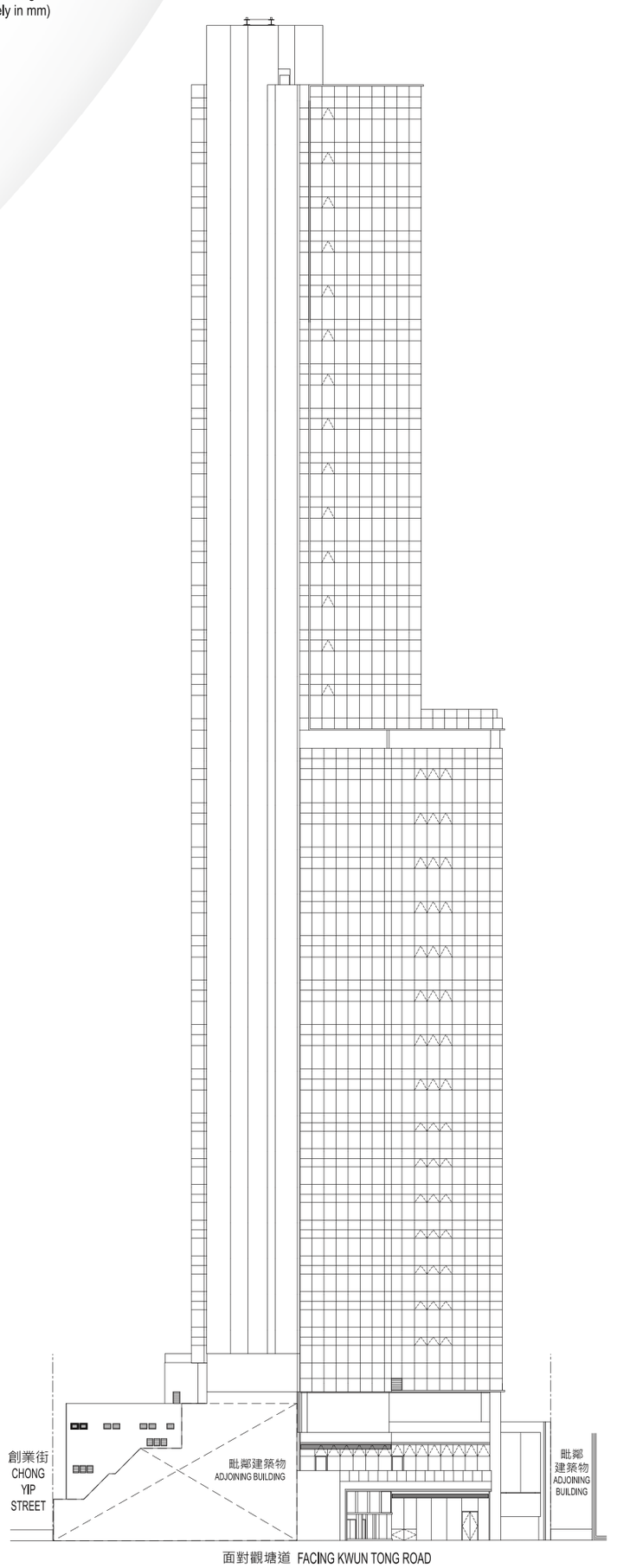
Figure No.	*Scale*	*Figure Title*	**Section Plan Showing Landscape Features of Proposed Development**
4	-		
	Date	*Source*	
	June 2019		

12. 368 Kwun Tung Road

ELEVATION 立面圖

層與層之間的高度(以毫米標示)
Floor to Floor Height
(Approximately in mm)

上層天台	UPPER ROOF	3600
升降機房	LIFT MACHINE ROOM	4100
天台	ROOF	4780
37樓	37/F	4780
36樓	36/F	4780
35樓	35/F	4780
33樓	33/F	4780
32樓	32/F	4780
31樓	31/F	4780
30樓	30/F	4780
29樓	29/F	4780
28樓	28/F	4780
27樓	27/F	4780
26樓	26/F	4780
25樓	25/F	4780
23樓	23/F	4780
22樓	22/F	4780
21樓 (庇護層)	21/F (REFUGE FLOOR)	4300
20樓	20/F	4780
19樓	19/F	4780
18樓	18/F	4780
17樓	17/F	4780
16樓	16/F	4780
15樓	15/F	4780
12樓	12/F	4780
11樓	11/F	4780
10樓	10/F	3850
9樓	9/F	3850
8樓	8/F	3850
7樓	7/F	3850
6樓	6/F	3850
5樓	5/F	3850
3樓	3/F	3850
結構轉換	TRANSFER GIRDER	2800
2樓	2/F	4700
1樓	1/F	4950
地下	G/F	6400



面對觀塘道 FACING KWUN TONG ROAD

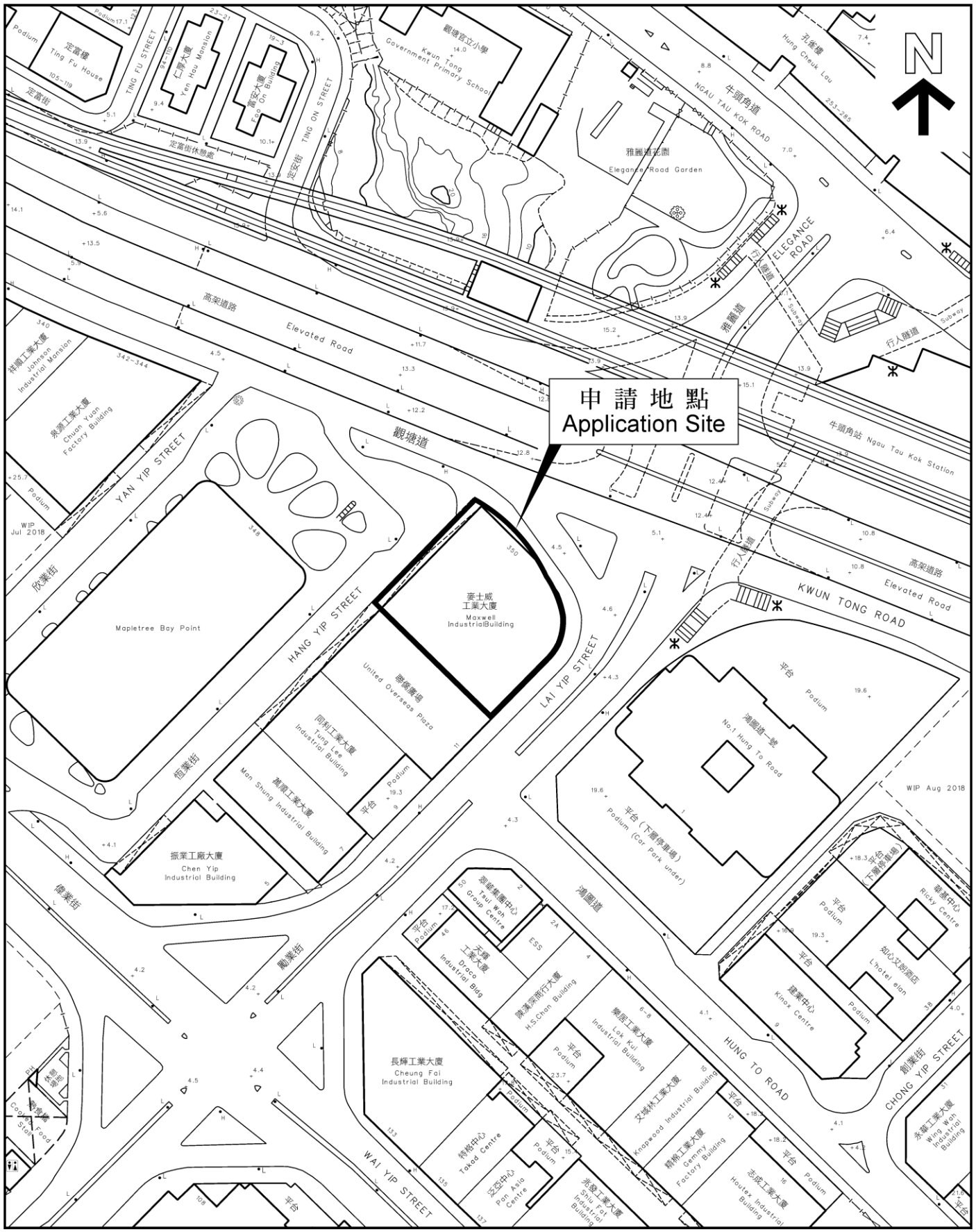
備註 Notes

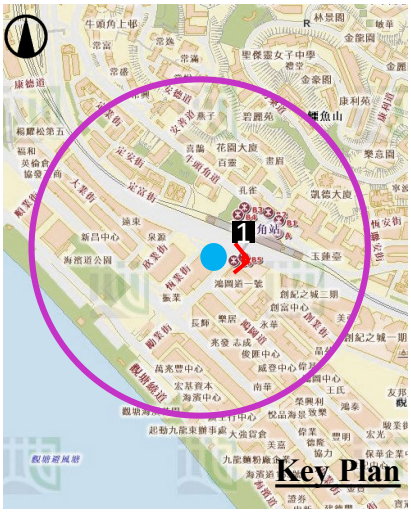
不設4樓、13樓、14樓、24樓及34樓 Omitted 4/F, 13/F, 14/F, 24/F and 34/F

賣方保留權利不時改動發展項目的建築圖則及其他圖則，發展項目的設計以政府相關部門最後批准的圖則為準。The vendor reserves the right to make alterations to the building plans and other plans relating to the Development from time to time, and the design of the Development shall be subject to the final plans approved by the relevant Government authorities. 因較高樓層的結構牆的厚度遞減，較高樓層的單位的內部面積，一般比較低樓層的單位的內部面積稍大。The internal areas of units on upper floors will generally be slightly larger than lower floors due to the reducing thickness of structural walls on upper levels. 樓面平面圖之尺規所列數字為以毫米標示之建築結構尺寸。The dimensions in the floor plans are all structural dimensions in millimetre. 層與層之間的高度指該樓層之石屎地台面與上一層石屎地台面之高度距離。Floor-to-floor height refers to the height between the top surface of the structural slab of a floor and the top surface of its immediate upper floor.

13. Proposed Office Development (Application No. A/K14/763)

A/K14/763





Existing Condition

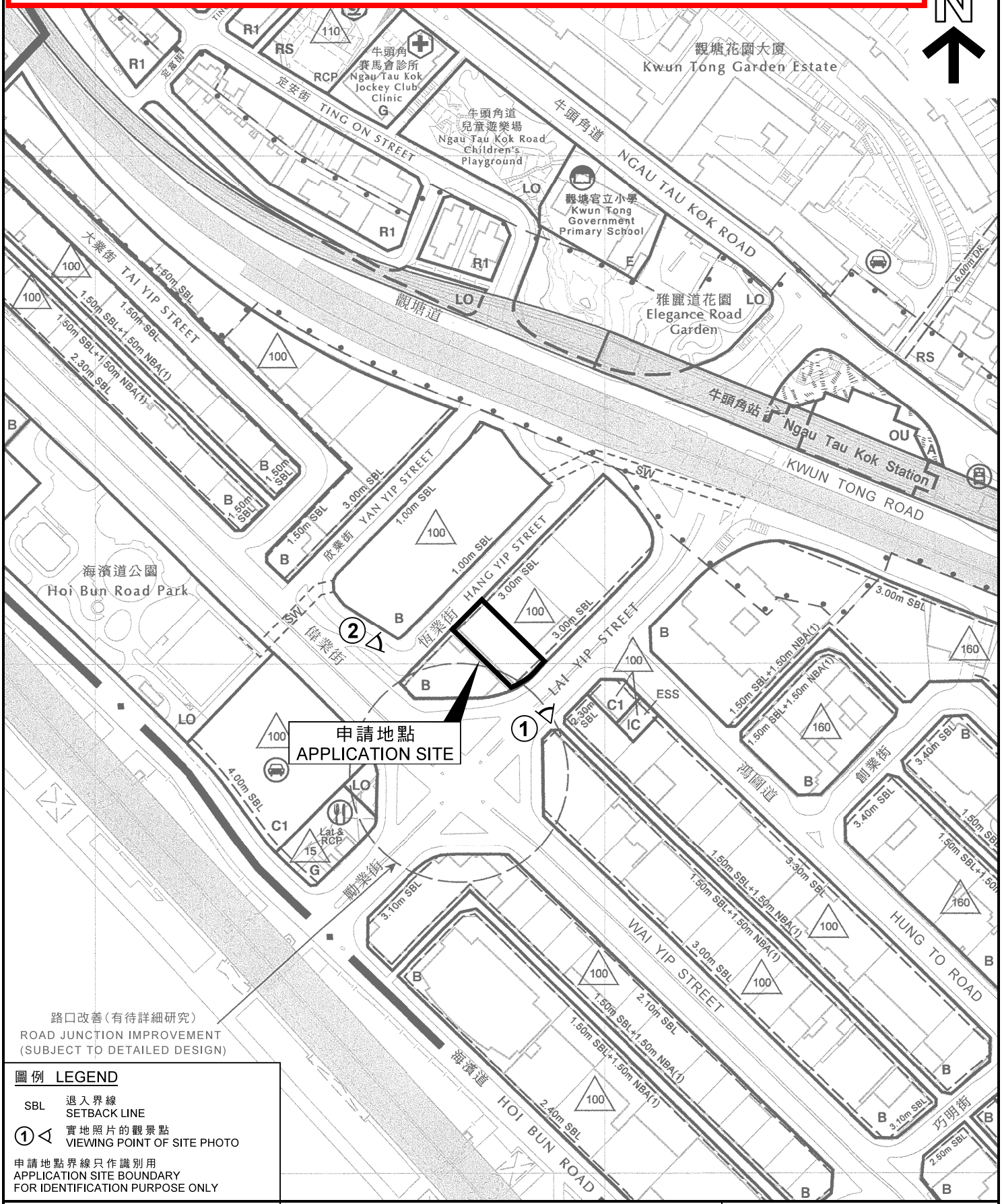
With Approved Scheme (A/K14/757)

申請編號 Application No. : A / K14 / 763
此頁摘自申請人提交的文件。
This page is extracted from applicant's submitted documents.

With Proposed Scheme

Figure No.	*Scale*	*Figure Title* **Viewing Point 1: Ngau Tau Kok MTR Exit B6 on Lai Yip Street**
ARUP	*Date* Jan 2019	*Source*

14. 7 Lai Yip Street (Application No. A/K14/



圖例 LEGEND

SBL 退入界線 SETBACK LINE

① 實地照片的觀景點 VIEWING POINT OF SITE PHOTO

申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

本摘要圖於2019年11月27日擬備，所根據的資料為於2018年12月24日採納的觀塘(西部)發展大綱圖編號D/K14A/2

EXTRACT PLAN PREPARED ON 27.11.2019
BASED ON KWUN TONG (WESTERN PART)
ODP No. D/K14A/2 ADOPTED ON 24.12.2018

位置圖 LOCATION PLAN

擬議略為放寬地積比率及建築物高度限制
九龍觀塘勵業街7號
PROPOSED MINOR RELAXATION OF PLOT RATIO
AND BUILDING HEIGHT RESTRICTIONS
7 LAI YIP STREET, KWUN TONG, KOWLOON

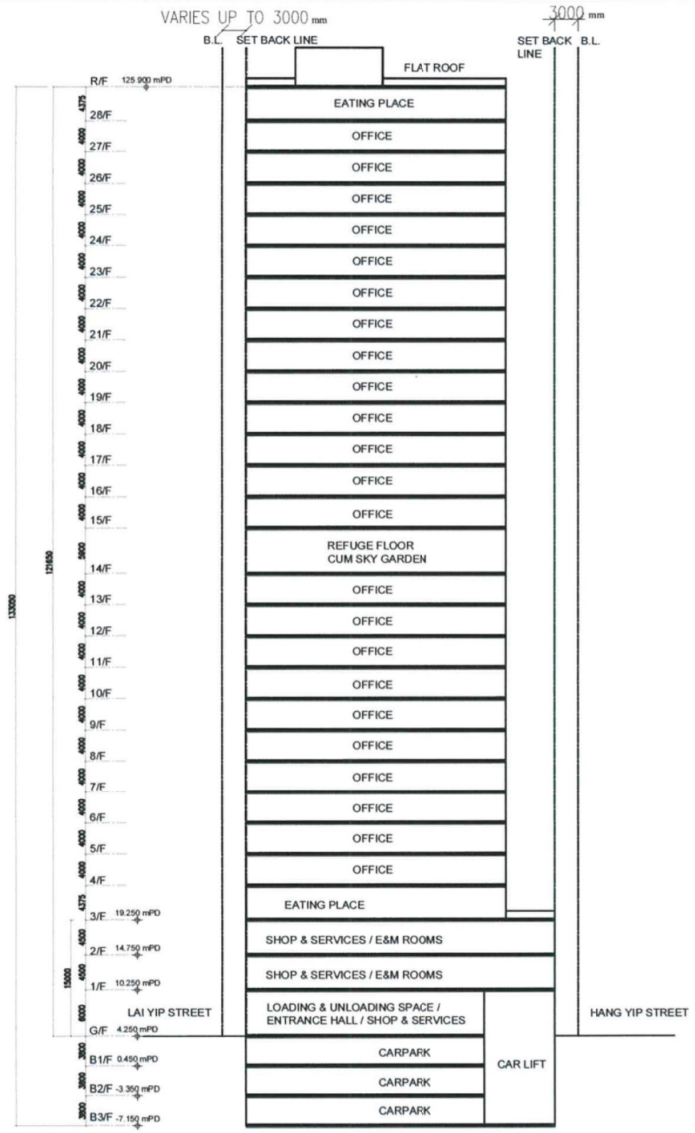
SCALE 1 : 2 500 比例尺

米 METRES 50 0 50 100 米 METRES

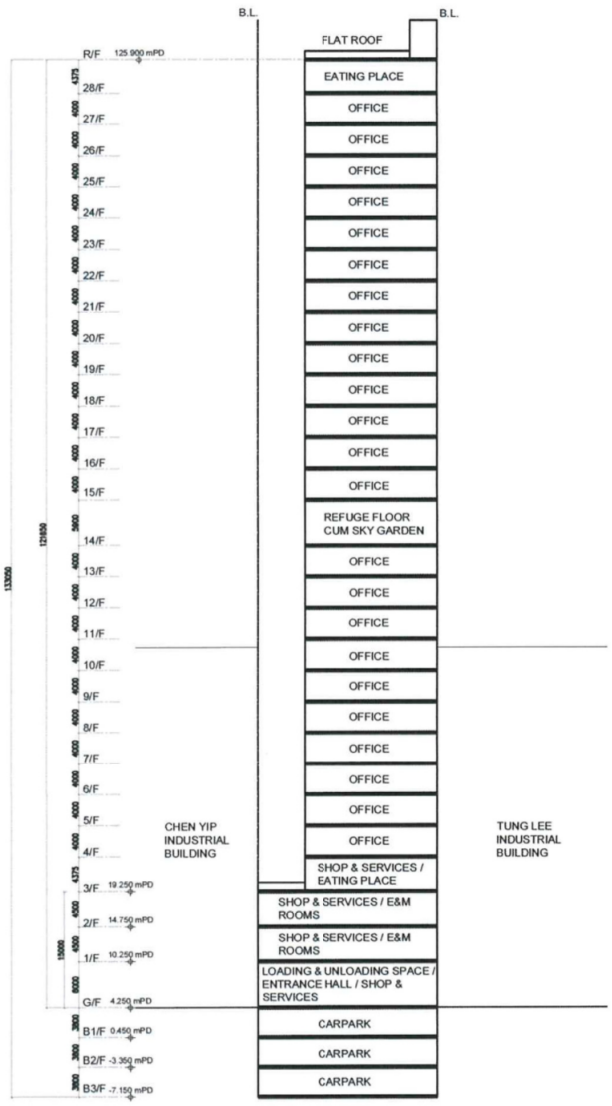
規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
A/K14/774

圖 PLAN
A - 2



Diagrammatic Section A-A



Diagrammatic Section B-B

Figure 6a

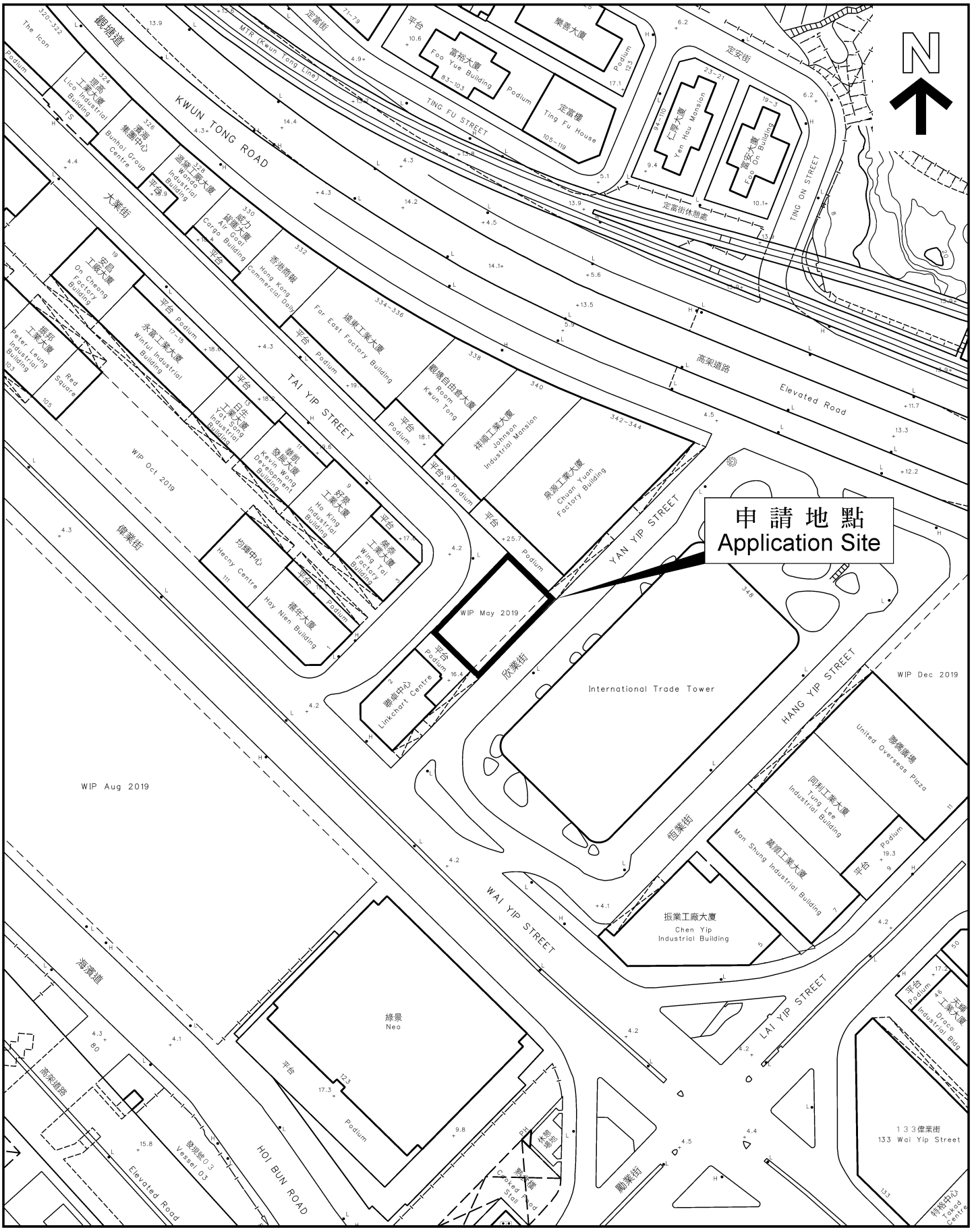
Drawing Title	Scale	Project	Job No.	
Diagrammatic Sections of the Proposed Scheme	~~1:600~~	PROPOSED COMMERCIAL BUILDING NO.7 LAI YIP STREET, KWUN TONG (AT K.T.I.L. 534)	A-1841	ALKF+ ANDREW LEE KING FUN & ASSOCIATES ARCHITECTS LTD
	Date 2/9/2019			

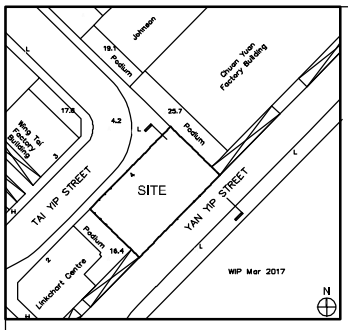
（資料來源：由申請人提交）
(Source: Submitted by the applicant)

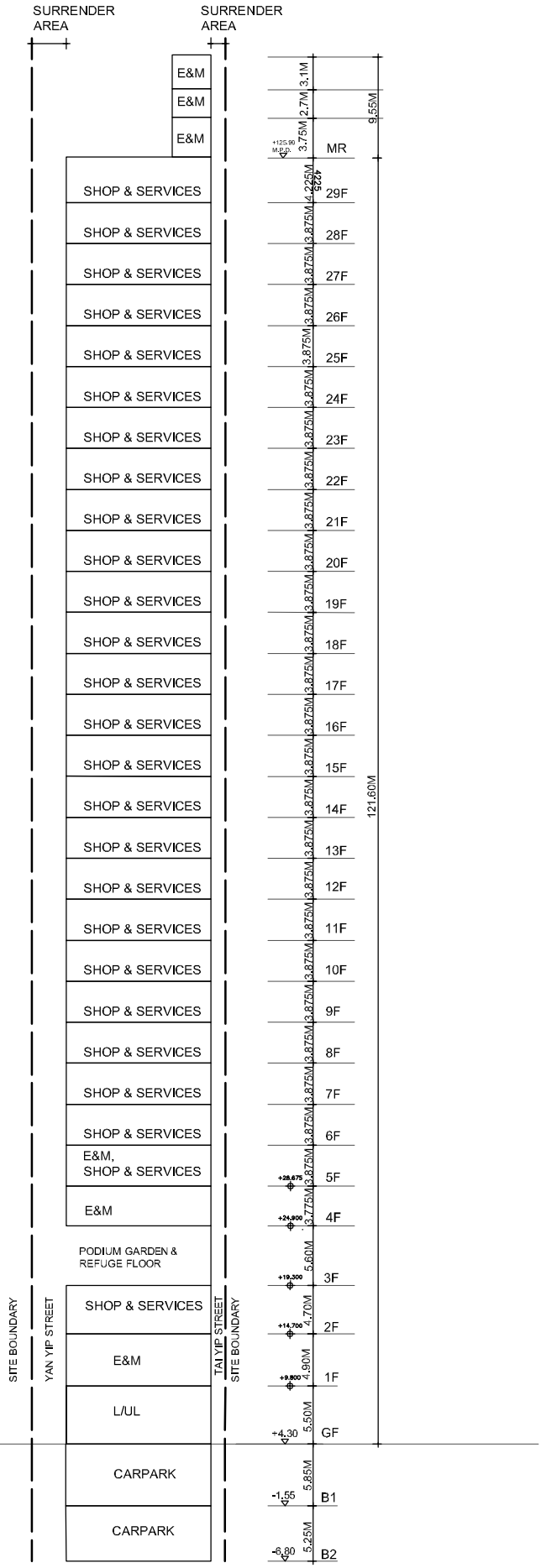
參考編號 REFERENCE No.	繪圖 DRAWING
A/K14/774	A - 7

15. Proposed Shop and Services Development (Application No. A/K14/782)

A/K14/782







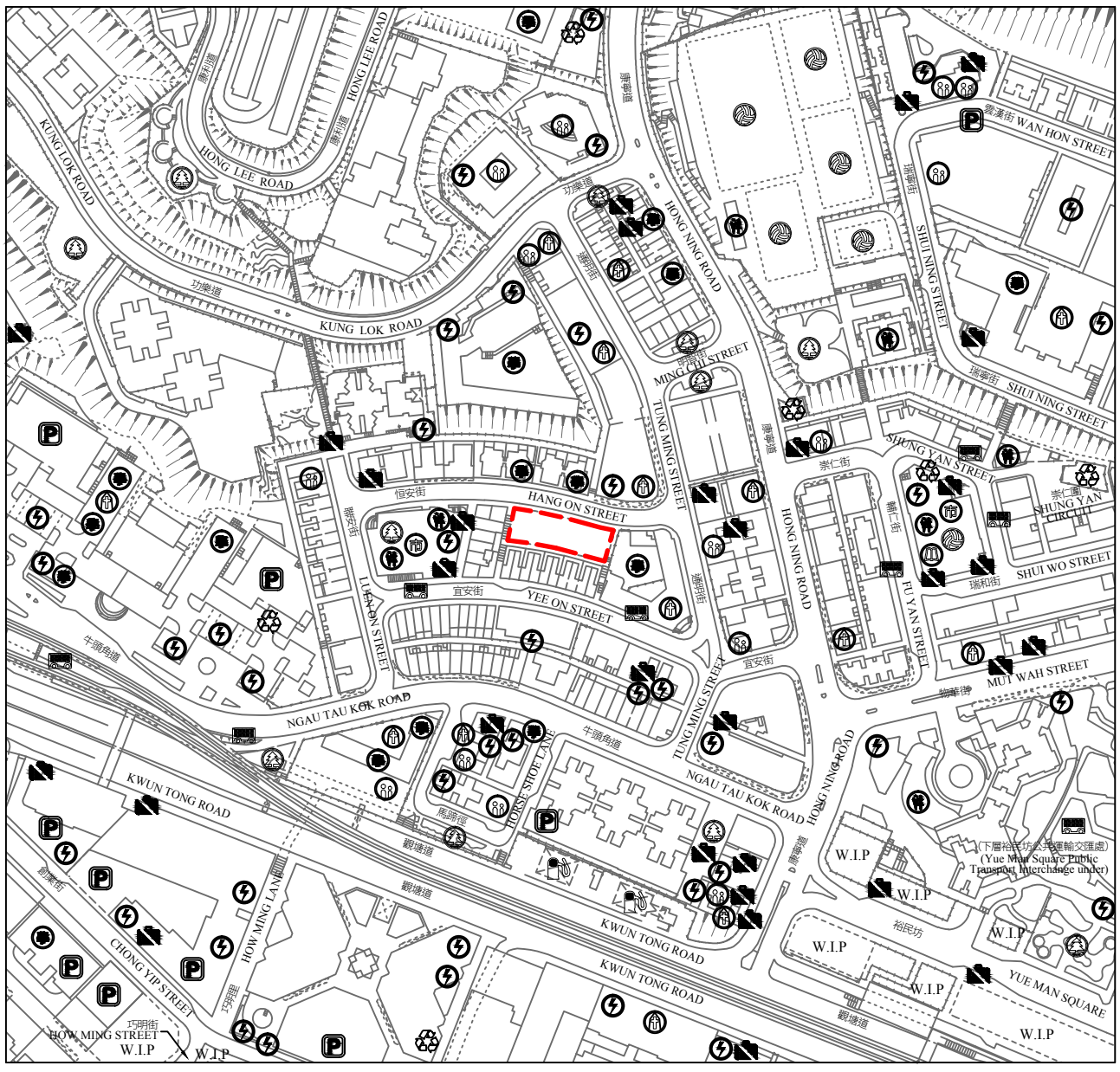
DIAGRAMMATIC SECTION
PROPOSED REDEVELOPMENT SCHEME
SECTION : 2.10a

PROPOSED MINOR RELAXATION OF PLOT RATIO AND BUILDING HEIGHT RESTRICTIONS FOR PERMITTED SHOP AND SERVICES DEVELOPMENT AT NO. 4 TAI YIP STREET, KWUN TONG, KOWLOON (K.T.I.L. 682)

王歐陽(香港)有限公司
WONG & OUYANG (HK) LTD
ARCHITECTS
MARCH 2020
SCALE : 1:600 @ A4

16. Bal. residence

LOCATION PLAN OF THE DEVELOPMENT
發展項目的所在位置圖



Location of the Development
發展項目的位置

Notation
圖例

- 圖書館 a library
- 油站 a petrol filling station
- 發電廠(包括電力分站) a power plant (including electricity sub-stations)
- 垃圾收集站 a refuse collection point
- 市場(包括濕貨市場及批發市場) a market (including a wet market and a wholesale market)
- 公眾停車場(包括貨車停泊處) a public carpark (including a lorry park)
- 公廁 a public convenience
- 公共交通總站(包括鐵路車站) a public transport terminal (including a rail station)
- 公用事業設施裝置 a public utility installation
- 宗教場所(包括教堂、廟宇及祠堂) a religious institution (including a church, a temple and a Tsz Tong)
- 學校(包括幼稚園) a school (including a kindergarten)
- 社會福利設施(包括老人中心及弱智人士護理院) social welfare facilities (including an elderly centre and a home for the mentally disabled)
- 體育設施(包括運動場及游泳池) sports facilities (including a sports ground and a swimming pool)
- 公園 a public park
- W.I.P 工程進行中 work in progress

The Location Plan is made with reference to Digital Topographic Map Series Code iB1000 Sheet Number 11-NE-18A (dated 5 January 2023) and Sheet Number 11-NE-18C (dated 22 December 2022) from the Survey and Mapping Office of the Lands Department with adjustments where necessary.

Notes:

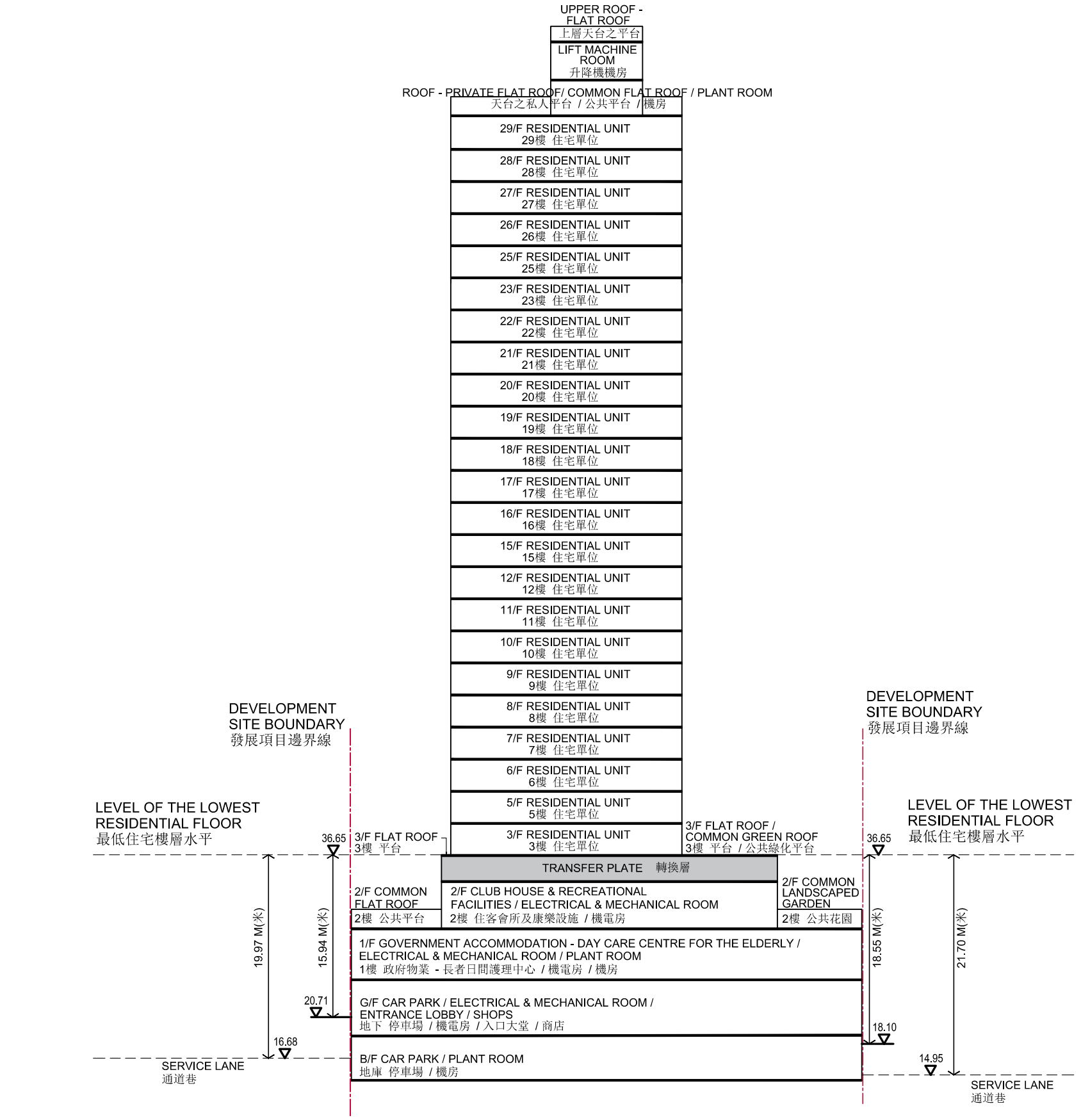
1. Due to technical reasons (such as the shape of the Development), the Location Plan has shown more than the area required under the Residential Properties (First-hand Sales) Ordinance (Cap.621).
2. The vendor also advises prospective purchaser to conduct on-site visit for a better understanding of the development site, its surrounding environment and the public facilities nearby.
3. The map is provided by the Hong Kong GeoData Store and the intellectual property rights are owned by the Government of HKSAR.

所在位置圖參考地政總署測繪處數碼地形圖(組別編號iB1000)，圖幅編號11-NE-18A(日期為2023年1月5日)及圖幅編號11-NE-18C(日期為2022年12月22日)編製，有需要處經修正處理。

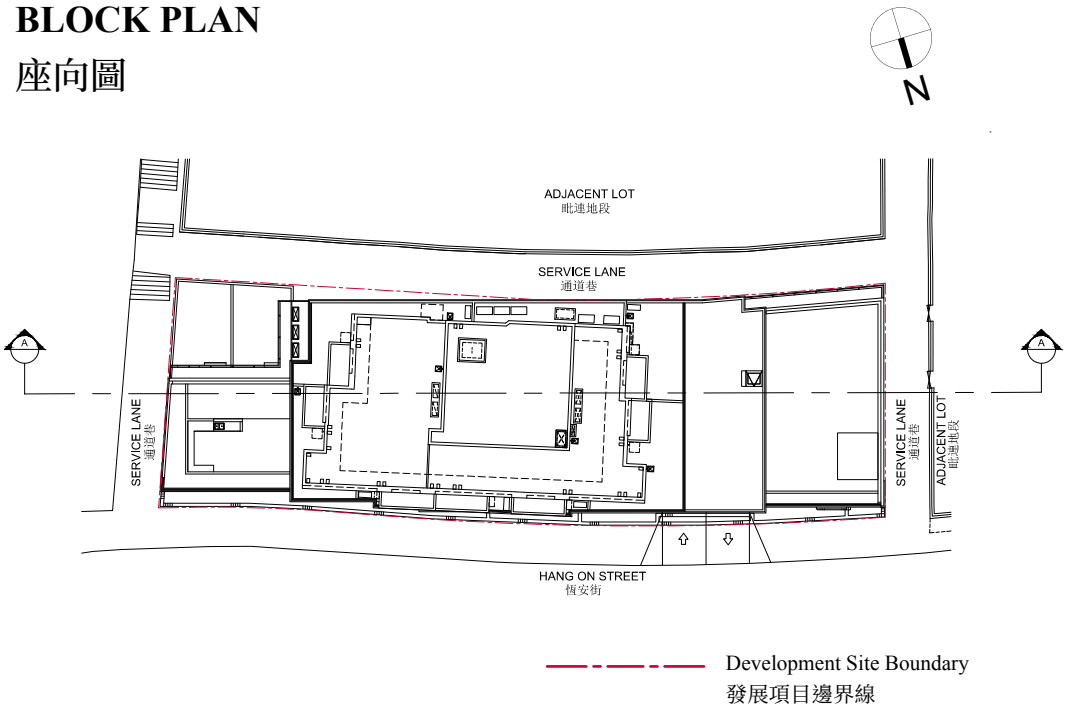
備註：

1. 因技術原因(例如發展項目之形狀)，此所在位置圖所顯示之範圍多於《一手住宅物業銷售條例》(第621章)的規定。
2. 賣方亦建議準買方到有關發展地盤作實地考察，以對該發展地盤，其周邊地區環境及附近的公共設施有較佳了解。
3. 地圖由香港地理數據站提供，香港特別行政區政府為知識產權擁有人。

CROSS - SECTION PLAN A-A
橫截面圖 A-A



BLOCK PLAN
座向圖

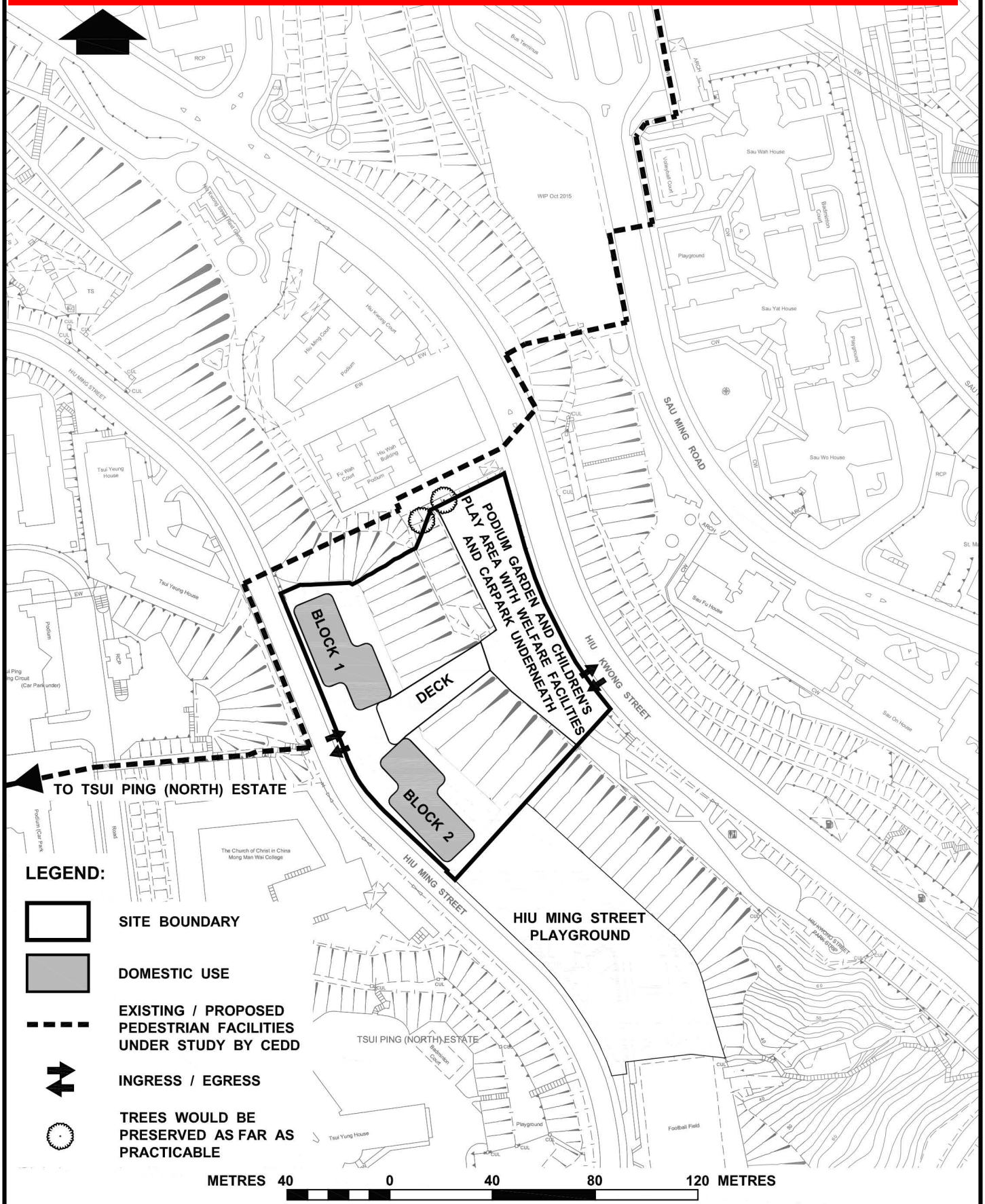


1. The level of lowest residential floor of the building is 36.65 metres above Hong Kong Principal Datum (HKPD).
2. The part of service lane adjacent to the west side of the building is 14.95 to 18.10 metres above Hong Kong Principal Datum (HKPD).
3. The part of service lane adjacent to the east side of the building is 16.68 to 20.71 metres above Hong Kong Principal Datum (HKPD).
4. ▽ Height (in metres) above Hong Kong Principal Datum (HKPD).

1. 發展項目之最低住宅層為香港主水平基準以上36.65米。
2. 毗連建築物的西面的一段通道巷為香港主水平基準以上14.95米至18.10米。
3. 毗連建築物的東面的一段通道巷為香港主水平基準以上16.68米至20.71米。
4. ▽ 香港主水平基準以上高度(米)。

17. Expansion of United Christian Hospital

18. Public Rental Housing Development at Hiu Ming Street/ Hiu Kwong Street



PRH DEVELOPMENT AT HIU MING STREET - DEVELOPMENT CONCEPT PLAN AND PROPOSED RELOCATION OF BALL COURTS

HOUSING DEPARTMENT
PLANNING SECTION

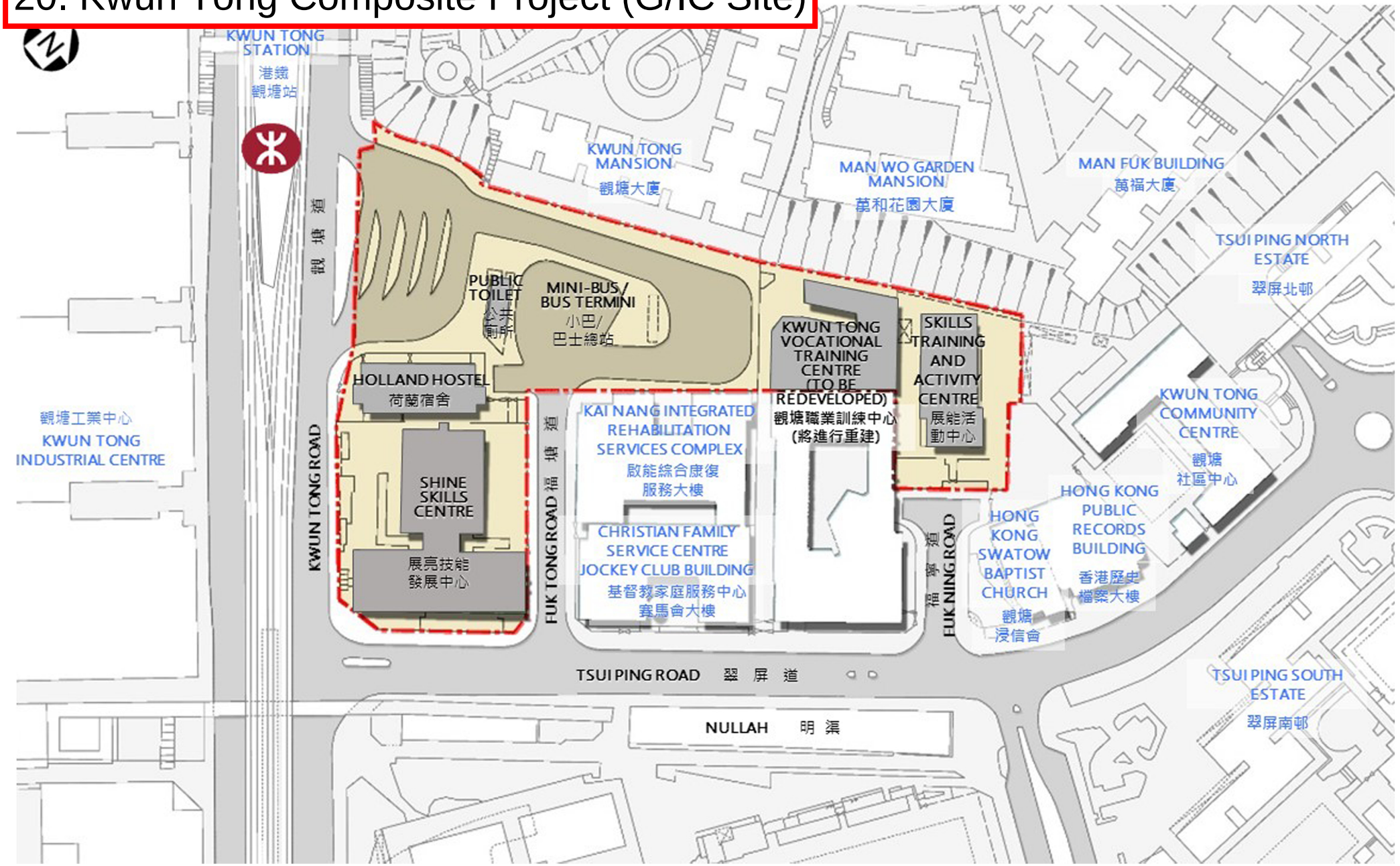
PLAN 2

DATE :
12. 12. 2016

BASE EXTRACTED FROM SHT Nos. 11-NE-18B & 18D

16_1136KLN_Plan2

20. Kwun Tong Composite Project (G/IC Site)

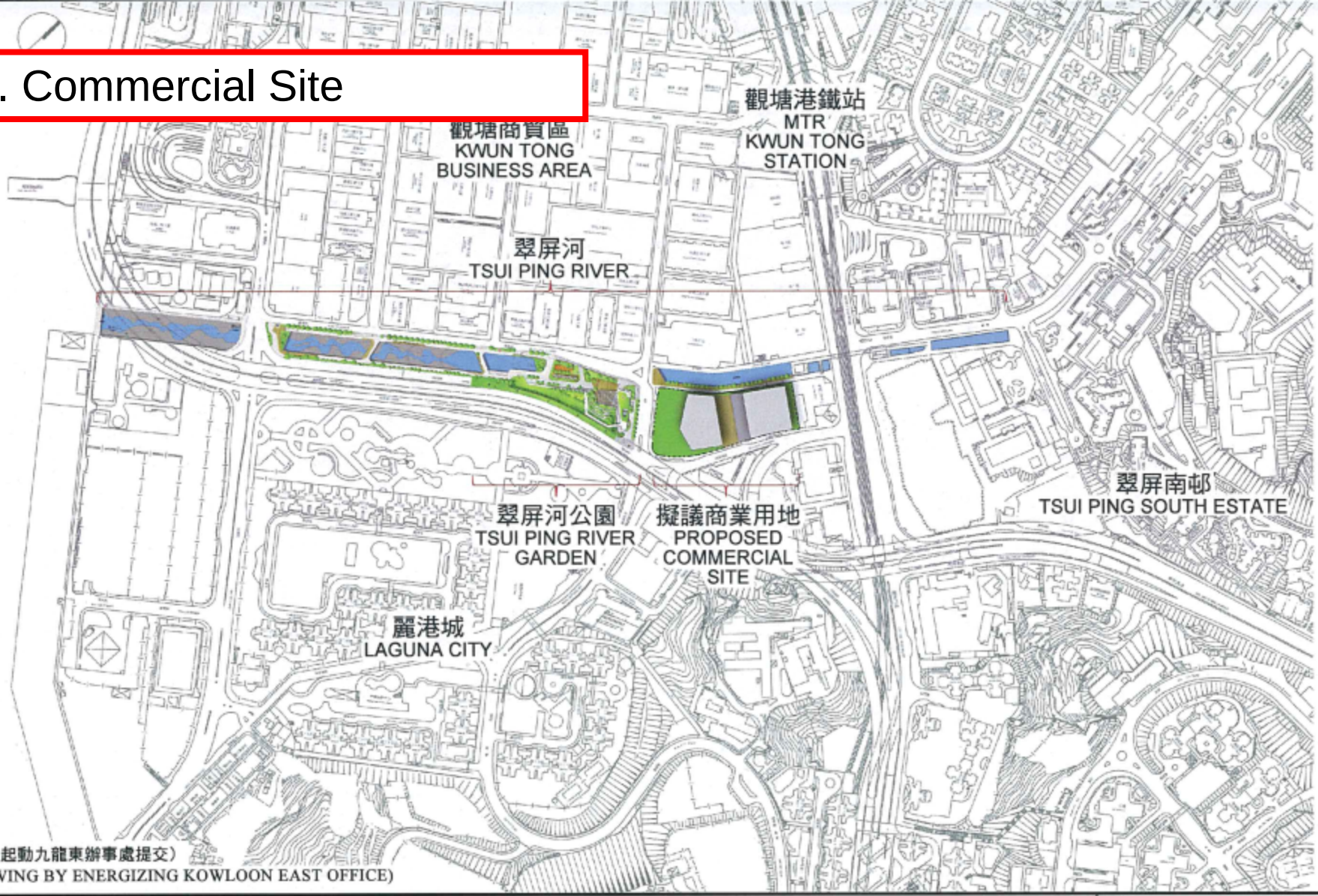


用地範圍 EXISTING SITE	193GK 觀塘綜合發展項目 KWUN TONG COMPOSITE DEVELOPMENT PROJECT	ARCHITECTURAL SERVICES DEPARTMENT 建築署

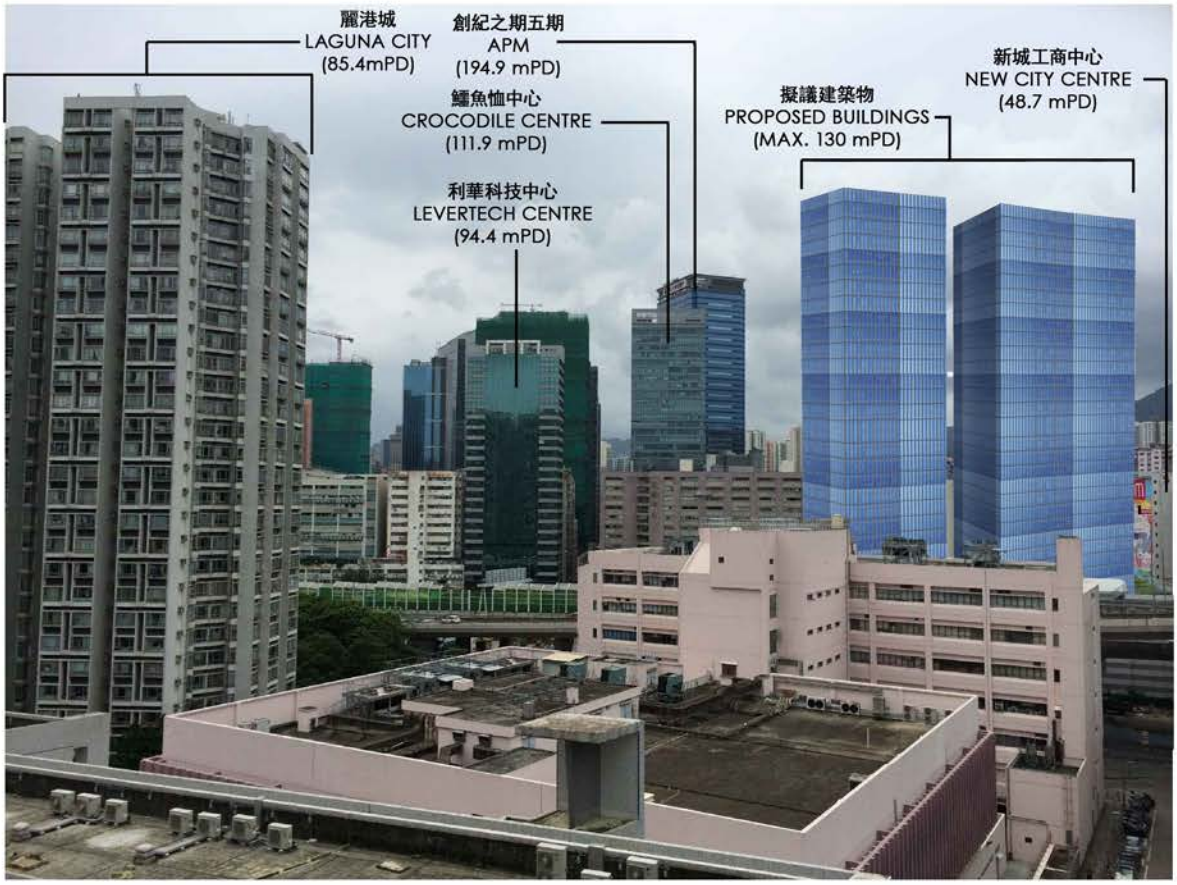

SSC
DHC
CSC
FUK NING ROAD
福寧道
Kwun Tong Vocational Training Centre
FUK TONG ROAD
福塘道
KWUN TONG ROAD


21. G/IC Site
海釣平台 釣具專門店
釣具行
成業工業大廈
Shing Yip
Industrial Building
Bubble Tree
新城工商中心
New City Centre
鯉魚門道
偉發道
觀塘警署
Kwun Tong
Police Station
日昇中心
Sunbeam Centre
金偉停車場
Goldway Parking
觀塘裁判法院
Kwun Tong Law Courts
運輸署觀塘牌照事務處
Kwun Tong District
Headquarters and...
警察局
中華電力有限公司
茶果嶺道變電站
CLP Power Hong Kong
Limited Cha Kwo Ling...
翠屏河
新觀塘駕駛學院
Lei Yue Mun Rd
翠屏河花園
Tsui Ping River Garden
觀塘三山國王古廟
Kwun Tong Sam Shan
Kwok Wong Temple
觀塘繞道
容氏書紀念中心
東九龍健康中心
Yung Fung Shee
Memorial Centre East
香港紅十字會雅麗
珊郡主學校香港賽馬...
Hong Kong Red Cross
Princess Alexandra...
Google

22. Commercial Site



(資料來源:繪圖由起動九龍東辦事處提交)
(SOURCE : DRAWING BY ENERGIZING KOWLOON EAST OFFICE)

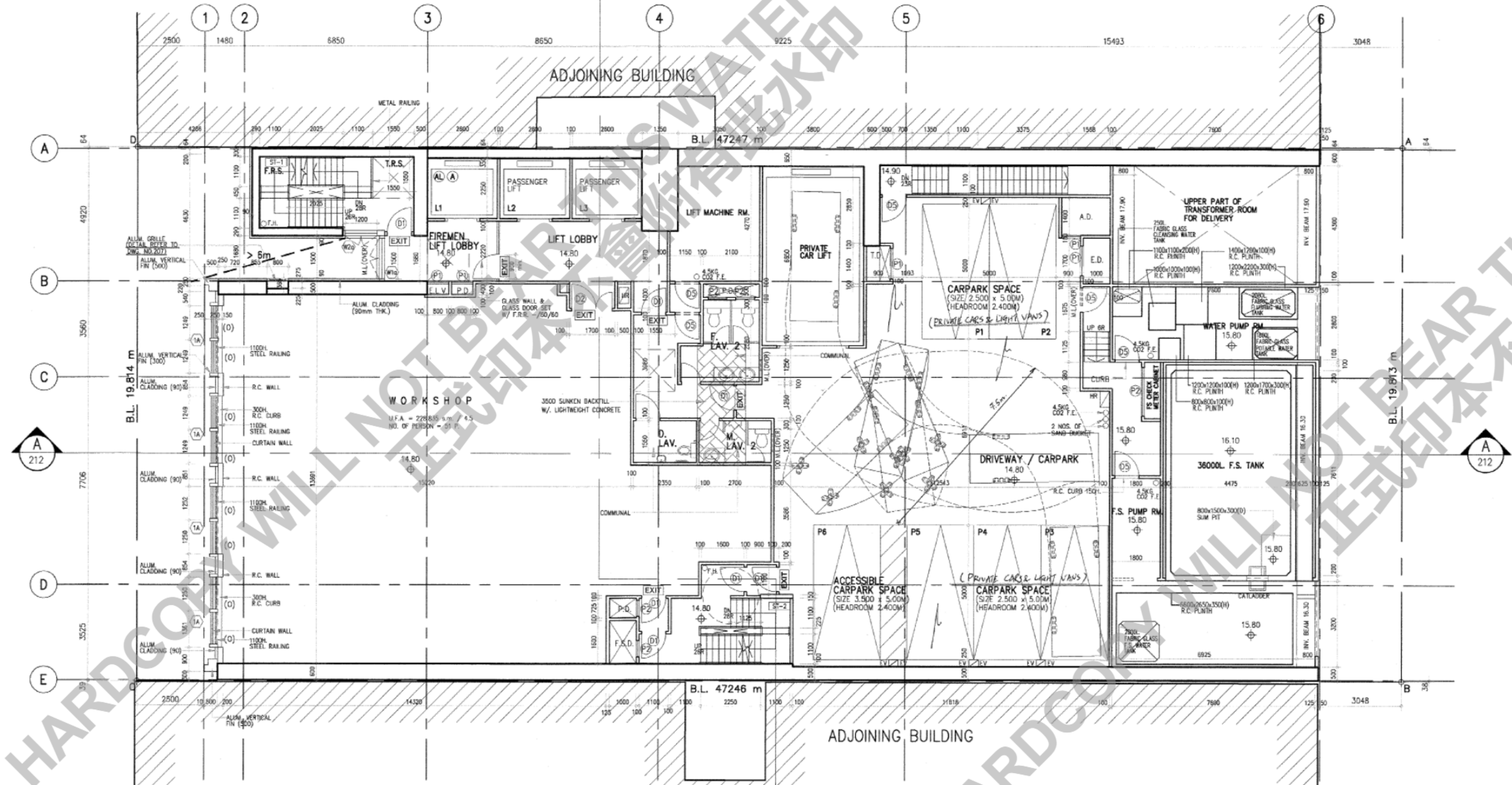


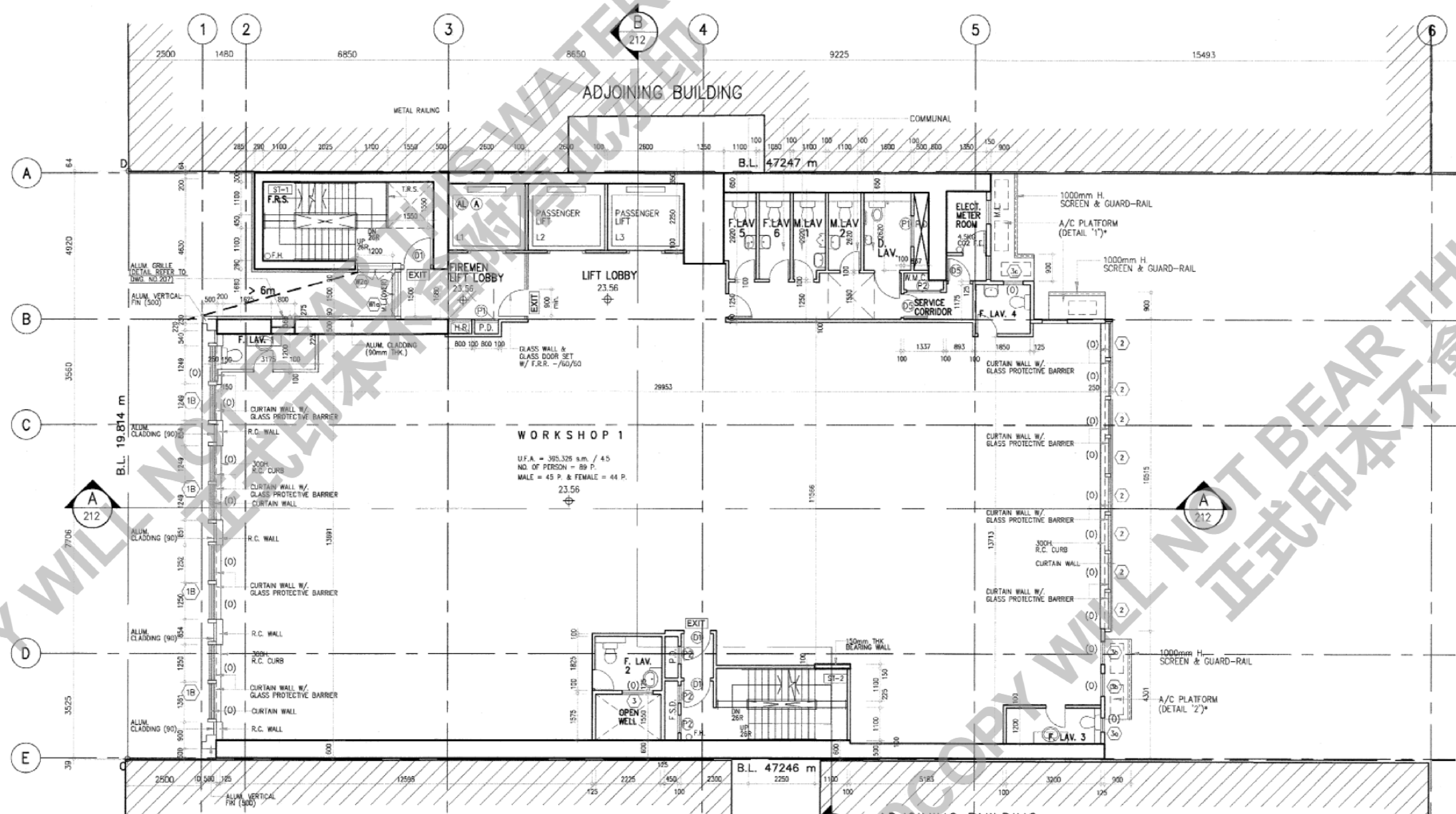
PHOTOMONTAGE 合成照片 - DEVELOPMENT SCENARIO

從麗港城第三期行人天橋向西北眺望觀塘商貿區
VIEW OF KWUN TONG BUSINESS AREA FROM FOOTBRIDGE
LAGUNA PARK PHASE III LOOKING NORTHWEST

Reference 參考資料: OZP - S_K15_20	合成照片 PHOTOMONTAGE VISUAL APPRAISAL FOR GOVERNMENT SITE IN KING YIP STREET NULLAH - VIEW POINT 3	Energizing Kowloon East Office 起動九龍東辦事處	Plan 圖 5
Date 日期: 28/10/2014		Development Bureau 發展局	

23. The MOD




ADJOINING BUILDING
METAL RAILING
COMMUNAL
B.L. 47247 m
F.R.S.
ST-1
T.R.S.
PASSENGER LIFT
L1
L2
L3
FIREMEN LIFT LOBBY
23.56
LIFT LOBBY
23.56
EXIT
F.LAV 5
F.LAV 6
M.LAV 1
M.LAV 2
D. LAV.
ELECT. METER ROOM
SERVICE CORRIDOR
F. LAV. 4
1000mm H. SCREEN & GUARD-RAIL
A/C PLATFORM (DETAIL '1')*
ALUM. GRILLE (DETAIL REFER TO DWG. NO.207)
ALUM. VERTICAL FIN (500)
> 6m
F. LAV. 1
ALUM. CLADDING (90mm THK.)
GLASS WALL & GLASS DOOR SET W/ F.R.R. -/60/60
H.R.
P.D.
B.L. 19.814 m
CURTAIN WALL W/ GLASS PROTECTIVE BARRIER
R.C. WALL
300H. R.C. CURB
CURTAIN WALL
ALUM. CLADDING (90)
WORKSHOP 1
U.F.A. = 395.326 s.m. / 4.5
NO. OF PERSON = 89 P.
MALE = 45 P. & FEMALE = 44 P.
23.56
F. LAV. 2
OPEN WELL
F.S.D.
ST-2
150mm THK BEARING WALL
F. LAV. 3
A/C PLATFORM (DETAIL '2')*
B.L. 47246 m
ALUM. VERTICAL FIN (500)
ADJOINING BUILDING

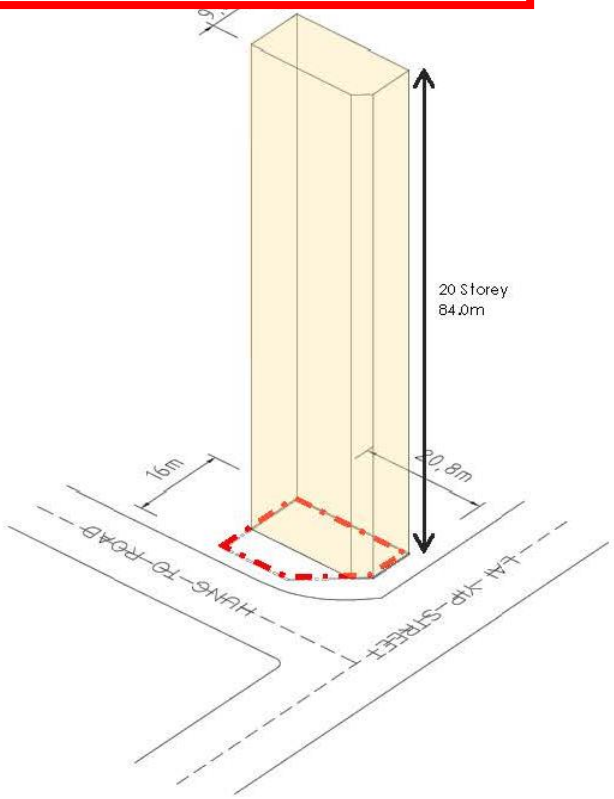
"DOMESTIC USE OF WORKSHOP UNITS ARE STRICTLY PROHIBITED AND SUBJECT TO ENFORCEMENT ACTION BY THE BUILDINGS DEPARTMENT UNDER THE BUILDINGS ORDINANCE."

"ALL TOILETS DESIGNATED FOR COMMERCIAL USE ARE TO BE PROVIDED FOR THE UNRESTRICTED USE BY ALL OCCUPANTS OF THE WORKSHOPS / FACTORIES SHOWN IN THE SUBMISSION AREA."

*A/C PLATFORM DETAIL REFER TO DWG. NO.211

5TH FLOOR PLAN

24. Tsui Wah Group Centre (WIP)



27. Tsui Wah Group Centre (WIP) – 2 Hung To Road	
Site Area (Sq.m)	335.78
Site Classification	B
Max. Building Height	100 mPD
Nearby Street Width	> 12m

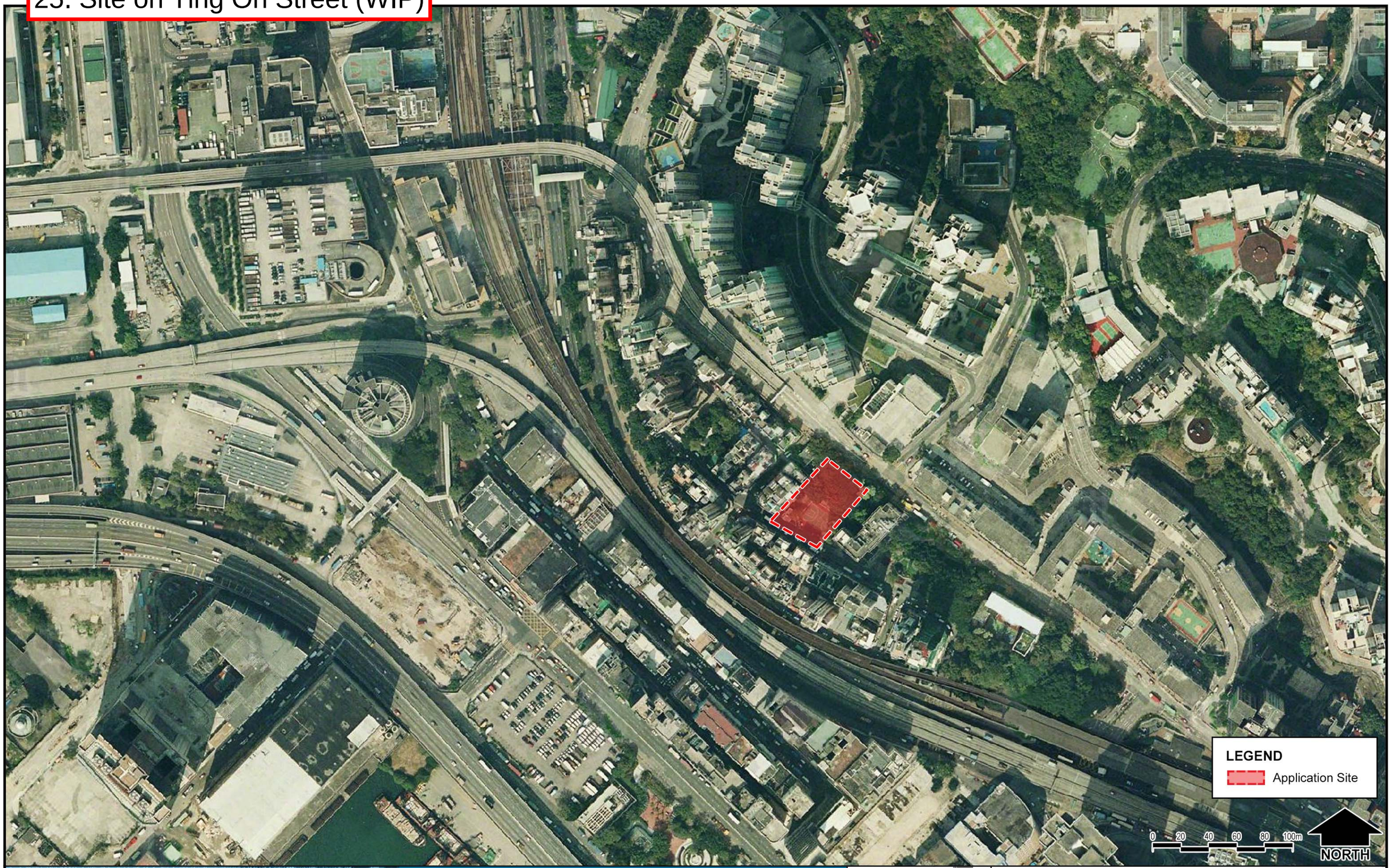
Use (OZP)	Commercial (1)
P.R. (Domestic)	0
P.R. (Non-Domestic)	12.0
Domestic G.F.A	0.0
Non-Domestic G.F.A	4029.36

S.C. – D (%)	0.0
Site Coverage Area (D)	0.0
S.C. – ND (%)	60.0
Site Coverage Area (ND)	200 (< 201.5)

Storey (D)	0
Storey (ND)	20

Building – D (@ 3.15m)	0
Building – ND (@ 4.2m)	84
Building Street Level	4.3
Total mPD	**88.3**

25. Site on Ting On Street (WIP)

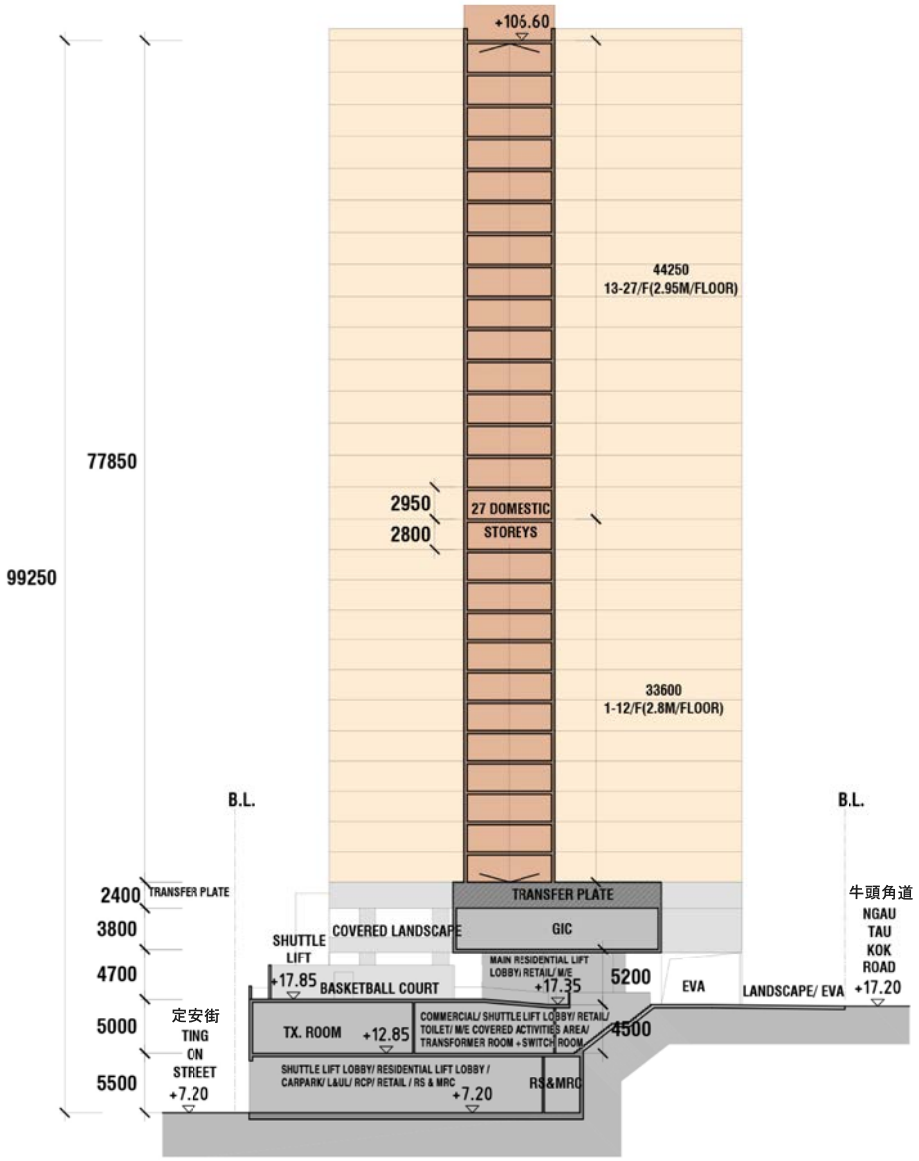


Consultancy Services for Preparation of Amendment of Plan under the Town Planning Ordinance for Proposed Public Rental Housing Development at Ting On Street in Ngau Tau Kok, Kowloon

Title

Aerial Photo of the Application Site

Scale	Date	Figure No.
1:2,500 @ A3	September 2017	1.1



（資料來源：由香港房屋協會提交）
(SOURCE : SUBMITTED BY HONG KONG HOUSING SOCIETY)

本摘要圖於2017年9月27日擬備
EXTRACT PLAN PREPARED ON 27.9.2017

標準樓層平面圖及示意剖面圖
TYPICAL FLOOR PLAN AND SCHEMATIC SECTION PLAN

觀塘（南部）分區計劃大綱核准圖編號S/K14S/20的擬議修訂
PROPOSED AMENDMENT TO THE APPROVED KWUN TONG (SOUTH) OUTLINE ZONING PLAN No. S/K14S/20

規劃署
PLANNING DEPARTMENT

參考編號
REFERENCE No.
M/K14S/17/80

圖 PLAN
5