

## **Appendix 9**

# **Air Ventilation Assessment – Expert Evaluation**

Prepared for

**Lo Hing Investment Company Limited**

Prepared by

**Ramboll Hong Kong Limited**

**PROPOSED MINOR RELAXATION OF PLOT RATIO (PR) AND  
SITE COVERAGE (SC) FOR PROPOSED SOCIAL WELFARE  
FACILITY (RESIDENTIAL CARE HOME FOR THE ELDERLY)  
(RCHE(S)), TRAINING CENTRE WITH RESIDENTIAL  
INSTITUTION AND PERMITTED RESIDENTIAL  
DEVELOPMENT (FLAT) IN LOT 94 IN D.D. 388 AND  
ADJOINING GOVERNMENT LAND, CASTLE PEAK ROAD –  
TSING LUNG TAU, TSUEN WAN TAU, TSUEN WAN**

**AIR VENTILATION ASSESSMENT (EXPERT EVALUATION)**

Date **July 2024**

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Signed

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Signed

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- Appendix 2      The Indication Plan of the Proposed Scheme
- Appendix 3      Proposed Air Ventilation Design Measures of the Proposed Scheme

## 1. INTRODUCTION

### 1.1 Background

- 1.1.1 The Application Site is zoned “Residential (Group B)” (“R(B)”) under the Approved Tsuen Wan West Outline Zoning Plan (No. S/TWW/21) with building height restriction of 60 mPD. It is also the subject of a previous planning application (No. A/TWW/122) for proposed minor relaxation of PR from 2.1 to 2.52 for a permitted residential development, which was approved with conditions by the Town Planning Board (TPB) on 12 Aug 2022.
- 1.1.2 The Government has launched the enhanced Incentive Scheme to Encourage Provision of Residential Care Homes for the Elderly (RCHEs) in New Private Developments – Time-limited Enhancements (LandsD’s Practice Note Issue No. 5/2023). Echoing the incentive scheme, the applicant has now proposed a composite development which contains both private residential use and RCHE.
- 1.1.3 Ramboll Hong Kong Limited (Ramboll) was responsible for the previous planning application (No. A/TWW/122) and prepared the air ventilation assessment – expert evaluation report (AVA-EER) as one of the technical supporting documents. Ramboll has been appointed to update the AVA-EER with respect to the current proposal (including private residential use and RCHE) and demonstrate the acceptability of the proposal.
- 1.1.4 Architectural drawings and technical information of the development are provided by the applicant and its project architect.

### 1.2 Objective

- 1.2.1 This AVA-EE report has been prepared to evaluate if the proposed development would have any impact on the overall air ventilation performance of the assessment area by comparing the Proposed Development of current proposal with the approved scheme in previous planning application (No. A/TWW/122).

### 1.3 Application Site and its Environs

- 1.3.1 **Figure 1** shows the location of the Application Site and its environs. The Application Site was formerly occupied by an Acid Factory which was already demolished. Currently, the Application Site is for open storage purpose without building structure.
- 1.3.2 The Application Site is bounded by Castle Peak Road -Tsing Lung Tau on southern side. It is surrounded by Vale Villa – Hong Kong Garden to the north, Hong Kong Garden to the west and Hong Kong Garden Commercial Complex (shopping mall) to the east. Seashore is on the opposite side of Castle Peak Road at over 40m apart.
- 1.3.3 The surrounding is dominated by existing residential development and associated facilities (e.g. shopping mall of the residential development). A vacant site is located to the further north for G/IC uses. There is no industrial use and no I/R interface problem is not anticipated.
- 1.3.4 A section of Castle Peak Road is provided with semi-enclosure of about 175m length in front of Blocks 22 to 24 of Hong Kong Garden which is on west side of the Application Site.

### 1.4 Baseline Scheme

- 1.4.1 The Baseline Scheme refers to the scheme of the previous planning application (No. A/TWW/122). It consists of 2 residential towers of both 15 residential storeys

connected together. Under the Proposed Scheme, there are building setbacks of about 15m/18m from south/north boundaries. There is also a wide opening on west side at G/F proposed. These building setbacks and opening will act as local air paths for wind penetration to the downwind region.

- 1.4.2 In addition, the maximum building height is +60mPD. It is confirmed that the Baseline Scheme met the requirement as per the sustainable Building Design Guideline (APP 152). An indicative MLP of the Proposed Scheme is shown in **Appendix 1**.

## **1.5 Proposed Scheme**

- 1.5.1 The Proposed Scheme consists of a social welfare facility including RCHE (G/F to 7/F; 8 floors) and a residential tower (8/F to 15/F; 8 floors) with maximum building height of +60mPD.
- 1.5.2 It is noted that according to the Best Practices Guidelines issued by Social Welfare Development, RCHE including any part of it, shall not be situated at a height more than 24m above the street level, measuring vertically from the street level to the floor of the premises in which the RCHE is or is to be situated, unless otherwise approved by the Director of Social Welfare. Therefore, the RCHE portion already makes full use of the zone from G/F to 24m above ground. Moreover, the diagnostic room facility of the RCHE is subject to a traffic noise standard of L10(1hr) 55dB(A) and much more stringent than the standard of 70dB(A) applicable to other uses such as domestic dwellings and dormitories. The Application Site is also bounded by roads on north and south sides so that the noise level at facades exposed to roads would well exceed the standard of 55 dB(A). Therefore, it is necessary to create an internal courtyard such that the openable window of diagnostic room facility will be facing courtyard only to avoid direct line of sight with roads and minimise the traffic noise impact. In addition, the internal courtyard will create pleasant outdoor environment for leisure of elderly. Therefore, the footprint of the RCHE needs to be further enlarged which would limit the building setback that can be allowed for at lower portion.
- 1.5.3 Regarding the residential portion, this is of a L-shape with major façade facing north and east.
- 1.5.4 Similar to the Baseline Scheme, it is confirmed that the Proposed Scheme would meet the requirement as per the sustainable Building Design Guideline (APP 152). An indicative MLP of the Proposed Scheme is shown in **Appendix 2**.

## 2. SITE WIND AVAILABILITY DATA

### 2.1 Site Wind Availability Data From RAMS

- 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 condition at various levels, i.e. 200 m, 300 m, and 500 m above terrain.
- 2.1.2 The RAMS data of the grid (X: 053, Y: 052) has been extracted from the Site Wind Availability Data of Planning Department’s website.
- 2.1.3 Based on the wind roses with different heights (200, 300 or 500m) available, the 200m site wind availability data represents wind data that takes into account the topographical effect around the Application Site. Therefore, a lower level of wind roses at 200 m height is selected to study the prevailing wind condition as it represents the incoming wind to the Application Site and considers the influence on the prevailing winds by the surrounding topography.
- 2.1.4 According to the wind roses at 200 m altitude, annual prevailing wind directions for the Application Site are E, ESE and SE whereas summer prevailing wind directions are SE, SSE and S. **Figure 2a** shows the relevant wind roses diagrams representing the frequency and wind speed distribution at 200m height in annual and summer conditions. The wind frequency data is provided in **Table 2.1** below.

**Table 2.1 Summary of RAMS Data and Wind Direction at 200m**

Wind Direction	Probability for Annual Condition (%)	Probability for Summer Condition (%)
N	6.2%	1.6%
NNE	8.7%	1.3%
NE	5.5%	1.2%
ENE	4.9%	2.1%
E	<b>19.9%</b>	9.4%
ESE	<b>18.1%</b>	11.5%
SE	<b>9.6%</b>	<b>14.7%</b>
SSE	8.3%	<b>17.2%</b>
S	5.7%	<b>13.0%</b>
SSW	3.3%	9.4%
SW	1.8%	4.5%
WSW	1.5%	3.8%
W	1.9%	4.1%
WNW	1.5%	2.9%
NW	1.5%	2.1%
NNW	1.6%	1.3%

Note: Bolded characters highlighted in grey represent the selected prevailing wind directions for evaluation.

### 2.2 Simulated Site Wind Availability Data from Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ35/2009) Final Report for Tsuen Wan West Area

- 2.2.1 According to the Term Consultancy for AVA Services - Cat. A1 - Term Consultancy for Expert Evaluation and Advisory Services on AVA (PLNQ 35/2009) - Final Report for Tsuen Wan West Area completed in November 2011 (referred as Tsuen Wan West-EE), it is stated that the annual wind of the study area is mainly from the East and North-East. The direction of summer wind is ranging from the East, South and South-East.



2.2.2 3 locations (A to C) are defined according to the dataset of Tsuen Wan West-EE for site wind availability. The Application Site is nearest to Location A of the Tsuen Wan West Areas so that site wind data at Location A is referred hereafter.

2.2.3 The annual prevailing winds for the Location A at 60m are mainly from **NNE, ENE** and **E**, while the summer prevailing winds are mainly from **SSE, ENE** and **S** at the lower atmospheric boundary layers.

### 2.3 Wind Data from HKO Station

2.3.1 According to the wind data of Tsing Yi Station, the annual and summer prevailing winds are mainly from E, SE and SSE whereas summer (Jun- August) prevailing wind are from SE, SSE and S. **Figure 2b** shows the wind roses for Tsing Yi Station (1998 - 2020).

2.3.2 Based on three sets of wind data, it is considered that the annual prevailing winds come from NNE, NE, ENE, E, ESE and SE directions. While in summer condition, the prevailing winds mainly come from E, ENE, ESE, SE, SSE and S directions. E, ENE, ESE and SE wind directions are considered prevailing under both conditions.

### 2.4 Topography

2.4.1 The Proposed Development is located at the Tsuen Wan West - Tsing Lung Tau. According to the Tsuen Wan West-EE, the natural topography of the area descends from the high level at north of Tsing Lung Tau. Wind from the north to northeast will be affected by the hills. Turbulence and re-circulation of wind when it moves downhill towards the Application Site is expected. In general, NE wind will be slightly slowed and weakened by shielding effects of the hills. On the other hand, Application Site is located to the north of the waterfront. Therefore, SE, SSE and S winds towards the Application Site is currently unobstructed and wind availability for these directions is considered to be satisfactory.

### 2.5 Building Morphology

2.5.1 All noise barriers, elevated structures, planned and committed development, if any, are considered in this report. After checking by site visit for existing developments and the published information in Statutory Planning Portal under the Town Planning Board regarding planned / committed developments in the model area, the Application Site is surrounded by mid-rise developments, e.g. Hong Kong Garden, Royal Sea Crest and Lung Tang Court. The building blocks are rather isolated with open spaces and low-rise podium structure in-between. As such, severe air ventilation problems are not anticipated.

2.5.2 The building height information of these identified developments was extracted from Geo-Reference Database (BG1000) provided by Survey and Mapping Office/ Lands Department, and as shown in **Table 2.2** below. As building masses are concentrated to the **north, east** and west of the Application Site, it is likely that annual prevailing wind availability will be lowered due to the existing building morphology.

**Table 2.2 Building Height of Surrounding Development**

Name of Development	Maximum Building Height mPD	Location from Application Site
Hong Kong Garden	~23 to 123.8	North, Northeast, Northwest
Hong Kong Garden Commercial Complex	~21.7	Immediate East
Lung Tang Court	~44.7	East
Royal Sea Crest	~93.4	East
Yuen Tun Village	~8.8 to 33	East

2.5.3 In addition, semi-enclosure (with solid wall and canopy) is erected along Castle Peak Road as noise mitigation measures with about 5m height covering east bound road. It is not possible to allow wind penetration at pedestrian level. Instead, sea breeze will flow over the structure to inland area.

## 2.6 Summary of Existing Site Wind Availability

- 2.6.1 According to the wind availability data from Tsuen Wan West-EE, RAMS data and wind data for Tsing Yi Station, it is stated that the annual wind of the study area is mainly from NNE, NE, ENE, E, ESE and SE wind directions. The Summer wind is mainly coming from E, ENE, ESE, SE, SSE and S wind directions. The major air corridors near the Application Site are Castle Peak Road – Tsing Tung Tau and Lung Tang Road.
- 2.6.2 Under the NNE, NE and ENE wind, wind will be slightly slowed and weakened by shielding effects of the hills. There are some existing residential buildings located to the east and north-eastern of the Application Site, likely to generate a “wind shadow zone” at the downstream side. When the prevailing winds comes from the NNE to E directions, winds would be partially blocked by these existing building clusters. As a result, the decrease in air ventilation performance of Application Site and its downstream areas is to be anticipated.
- 2.6.3 During summer condition, prevailing winds from the SE, SSE and S are the dominant wind directions. The south to southeast quadrant winds towards the Application Site is currently unobstructed (except at pedestrian level blocked by semi-enclosure) and wind availability for these directions are considered to be optimal.
- 2.6.4 **Figure 3** and **Figure 4** show the annual and summer prevailing wind directions under the Baseline Scheme, which was documented in the AVA-EER.

### 3. EXPERT EVALUATION OF AIR VENTILATION PERFORMANCE OF THE PROPOSED DEVELOPMENT

#### 3.1 Important Areas

3.1.1 Important surrounding areas that the public would often access have been identified as the following:

- Open space within Hong Kong Garden;
- Roads surrounding the Application Site (Castle Peak Road – Tsing Lung Tau, Lung Tang Road); and
- Nearby residential developments.

#### 3.2 Evaluation of Merit/Demerit of Design Features of the Proposed Scheme

3.2.1 The Proposed Scheme is designed to provide RCHE to meet the needs of the community in long term. However, as constrained by various factors discussed under **para 1.5.2**, it is inevitable that the footprint for the lower portion of the development occupied by the RCHE cannot be further minimised. Nevertheless, the Proposed Scheme also incorporates various good design feature beneficial to air ventilation such as separation of building from site boundary and optimal residential portion disposition and shape advantageous to prevailing wind penetration. The details of the mitigation measures in the site layout for enhancing the air ventilation of the Development and the surrounding areas are summarised below and illustrated in **Appendix 1**.

- Under this proposal, the lowest 3 levels of the RCHE of the development (with around 10m headroom) provides setback from all boundaries: at least 3m from north boundary; ~4.5m from east/west boundaries; more than 9m from south boundary to facilitate wind flow around the Application Site at pedestrian level.
- The residential portion of the development is of “L” shape and oriented in such as away that the southwest portion of the Application Site would be free from any structure. It will facilitate easterly and southeasterly wind penetration through the site (by passing the southwest part) at higher level.
- Similar to the Baseline Scheme, there is also a wide opening on west side at G/F proposed. Building setback in addition to the opening will act as a local air paths for wind penetration to the downwind region.

3.2.2 Further discussion of the scheme based on the good design features above is included below.

##### Air corridors/ Air paths

3.2.3 **Figure 3** and **Figure 4** illustrate the prevailing wind from annual and summer wind directions for the Baseline Scheme. The prevailing wind from annual and summer wind directions are illustrated in **Figure 5** and **Figure 6** for the Proposed Scheme.

3.2.4 Major wind corridors nearby the Application Site are Castle Peak Road – Tsing Lung Tau and Lung Tang Road along E-W axis. These wind corridors are comparable for the Baseline Scheme and the Proposed Scheme. Development within the Application Site will not interfere the identified wind corridor.

3.2.5 The Proposed Scheme allows fewer setback when compared with the Baseline Scheme. But, given the identified wind corridor is already wide and the setback at pedestrian level is no less than the adjacent Hong Kong Garden Commercial Complex, wind flow

along air corridors would unlikely be significantly impacted under the Proposed Scheme when compared with the Baseline Scheme.

- 3.2.6 Under the Proposed Scheme, various building setbacks and permeable opening at G/F are incorporated in the design of the proposed development at the Site where practicable, which would allow some of the annual and summer prevailing wind penetration (east to northeast wind along Lung Tang Road; southeast wind penetration through the permeable opening at G/F). According to the layout of the Proposed Scheme, the building setback along boundary facing Lung Tang Road is at least 3m. Therefore, the building mass will not be closer to Lung Tang Road when compared to the Hong Kong Garden Commercial Complex to the immediate east. In other words, the air corridor along northern boundary will not be reduced due to the Proposed Scheme. As the Application Site is fronting to the sea at 40m apart and there is absence of building on this direction, wind flowing around the proposed development from its southern side should not be any problem with respect to east to northeast wind. Similarly, the proposed development provides setback but at pedestrian level of more than 9m and will not be closer to Castle Peak Road – Tsing Lung Tau when compared to the Hong Kong Garden Commercial Complex to the immediate east. The air corridor along southern boundary will not be reduced due to the Proposed Scheme. In all circumstances, building setback is provided at all directions aiming to further facilitate wind flow of any direction around the proposed development.
- 3.2.7 Moreover, opening at G/F also facilitate some portion of ESE, SE, SSE and S wind flow through the opening and towards surroundings area.

*Building Disposition and Setback from Site Boundary*

- 3.2.8 Comparing to the Baseline Scheme, the increase in overall building footprint of the lower portion of the development to cater for the RCHE would impose more wind blockage impacts. However, building setbacks at first 3 levels (with headroom of about 10m aboveground) and opening at G/F are incorporated in the design of the Proposed Scheme as practicably possible, which would allow wind penetration across the Site and ameliorate the impact in certain extent.
- 3.2.9 Under the Proposed Scheme, various building setbacks are incorporated in the design of the proposed development at the Application Site, which would allow annual and summer wind penetration. There are about 9m building setback along the southern side, and 3m along the northern side at first 3 levels to facilitate NNE to E wind flow towards surrounding areas, especially Lung Tang Road, Castle Peak Road – Tsing Lung Tau, Block 22 to 24 and Hong Kong Garden Carport D. Furthermore, building setbacks along the western side of the Site (about 4.5m) and opening at G/F can minimise blockage and facilitate ESE to S wind for further penetration through building gap between existing buildings downwind of it (i.e. between Block A and Hong Kong Garden Carpark D).
- 3.2.10 Both the Baseline and Proposed Scheme may block S wind flow to the building gap between Block 15F and Block 14 behind. Yet, as the commercial complex to the immediate east of the Application Site is low-rise in nature (about 12m aboveground), it does allow wind to flow over it and reach pedestrian level later relatively easier.
- 3.2.11 Although the Proposed Scheme has allowed slightly less setback from the western site boundary when compared with that of the Baseline Scheme, this setback distance of the Proposed Scheme together with open area to the immediate west would serve to allow wind penetration through building gaps between existing buildings downwind of it. Moreover, the permeable opening at G/F helps to further ameliorate potential blockage.

- 3.2.12 For the higher portion of the development, the Proposed Scheme has vacated the southwest part of the site for wind penetration whereas the Baseline Scheme provided setback from north/south boundary for wind penetration. The Proposed Scheme will facilitate more east to southeasterly wind penetration. The Baseline Scheme would all more easterly to northeasterly wind penetration. East to southeasterly wind is generally prevailing under both annual and summer condition while east to northeasterly wind is more prevailing under annual condition.

#### Building Height

- 3.2.13 The building height of the Baseline Scheme and Proposed Scheme is the same (+60mPD). It is not expected to cause any additional significant impact to the wind environment when compared to the Baseline Scheme.

### **3.3 Directional Analysis of the development**

- 3.3.1 As discussed in Section 2.1 to 2.3, winds from NNE, NE, ENE, E, ESE and SE direction are prevailing annually whereas winds from E, ENE, ESE, SE, SSE and S are dominant in summer.

#### NNE and NE Winds

- 3.3.2 Under NNE and NE wind direction, the existing high-rise Blocks 7 to 9, 13 & 14 of the Hong Kong Garden to the northeast will block and reduce the wind availability to the Site. NNE and NE wind will mainly flow along Lung Yue Road, open space near Royal Sea Crest and Lung Tang Road and then access road next to Hong Kong Garden Carpark A. In addition, a noise semi-enclosure is built along Castle Peak Road – Tsing Lung Tau downwind of the Application Site. Wind availability along the same road (location under the semi-enclosure) has been significantly blocked by the noise semi-enclosure. With the already limited NNE and NE wind flow to the Site and existing noise semi-enclosure, the additional impact due to the Proposed Scheme for blocking the NNE and NE wind from reaching its downstream areas such as Castle Peak Road – Tsing Lung Tau would be insignificant for both schemes. For further west of Castle Peak Road – Tsing Lung Tau, the Proposed Scheme can allow wind penetration along southern side of Blocks 22 to 24 of the Hong Kong Garden to benefit the area.

#### ENE Wind

- 3.3.3 Under ENE wind condition, the building shape and orientation of the Baseline Scheme would result in least blockage as there is more setback from north and south boundaries. Small podium footprint along E-W direction and building setback of 18m from northern boundary have been incorporated into the building design under the Baseline Scheme to minimise the potential air ventilation impacts. On the other hand, the Proposed Scheme can only allow 3m building setback from northern boundary. Yet, it is noted that Hong Kong Garden Commercial Complex is to the immediate east of the Application Site. Even with building setback from northern boundary provided in both schemes, the pedestrian level will still be blocked by the Complex so that the benefit of setback cannot be fully realised.

#### E Wind

- 3.3.4 Under E wind the building shape and orientation of both the Baseline Scheme and Proposed Scheme would result in less blockage. The building block within the Application Site may obstruct wind from reaching downstream areas such as Block 22 of Hong Kong Garden right behind the block of the Proposed Development. However, the 15m building setback from southern boundary of the Baseline Scheme can allow wind penetration. For the proposed scheme, both the lower portion of the development

near to the southern side can allow east wind penetration at pedestrian level. The higher portion of the development can vacate southwest portion of the Application Site so that E wind at higher elevation can more easily pass through the Application Site. All in all, there is ample space on southern side of the Application Site for wind penetration already. Therefore, the unfavourable impact in terms of wind environment on the surrounding areas is expected to be minor. Air ventilation performance of both schemes under E wind are considered comparable.

#### ESE Wind

- 3.3.5 Under ESE wind conditions, the proposed building of the Baseline Scheme would obstruct the prevailing wind from reaching the downstream areas such as Vale Villa, Hong Kong Garden Carpark D and Lung Tang Road but the impact is already reduced by providing 15m setback from southern boundary. On the other hand, similar to E wind condition, the Proposed Scheme can allow ESE wind at higher elevation to easily pass through southwest portion of the Application Site.
- 3.3.6 Under both schemes, additional permeable opening on the western side at G/F is incorporated into the design which would benefit pedestrian level and reduce the potential air ventilation impacts. Some portion of ESE at lower elevation wind can flow through the permeable opening at G/F and further penetrate to the surrounding areas (between Block A and Hong Kong Garden Carpark D) (N.B. there is no noise semi-enclosure along Castle Peak Road – Tsing Lung Tau upwind of the Application Site under ESE wind so that wind at lower elevation is not blocked on upwind side).

#### SE Wind

- 3.3.7 Under SE wind direction, the wide building frontage of both schemes would more likely reduce wind availability at the part of Lung Tang Road to the immediate north of the site. The 15m setback from southern boundary of the Baseline Scheme cannot effectively allow SE wind penetration. The 6m setback from western boundary is more able to allow wind penetration. On the other hand, similar to E and ESE wind conditions, the Proposed Scheme can allow SE wind at higher elevation to easily pass through southwest portion of the Application Site.
- 3.3.8 In addition, the permeable opening at G/F (oriented in a way to benefit SE wind most) of both schemes would allow some more wind penetration at lower elevation and would further reduce the impact.
- 3.3.9 In addition, the commercial complex is of about 12m high only and analogous to ordinary village house. It is believed that wind flowing over the complex on east side of the Application Site can reach pedestrian level to the further north/northwest so as to ameliorate the potential air ventilation impacts.

#### SSE and S Winds

- 3.3.10 Under SSE and S wind directions, similar to SE wind condition, the wide building frontage of both schemes would more likely reduce wind availability at the part of Lung Tang Road to the immediate north of the site. The permeable opening at G/F of both schemes, building setback from southern boundary of Baseline Scheme and higher portion of the Proposed Scheme with southwest portion vacated cannot function well under SSE and S wind to allow wind penetration.
- 3.3.11 Only the building setback from western boundary (6m for Baseline Scheme and 4.5m for Proposed Scheme) can provide opportunity to improve wind flow.
- 3.3.12 In addition, the commercial complex is of about 12m high only and analogous to ordinary village house. It is believed that wind flowing over the complex on east side

of the Application Site can reach pedestrian level to the further north/northwest so as to ameliorate the potential air ventilation impacts.

### **3.4 Summary of Relative Air Ventilation Performance**

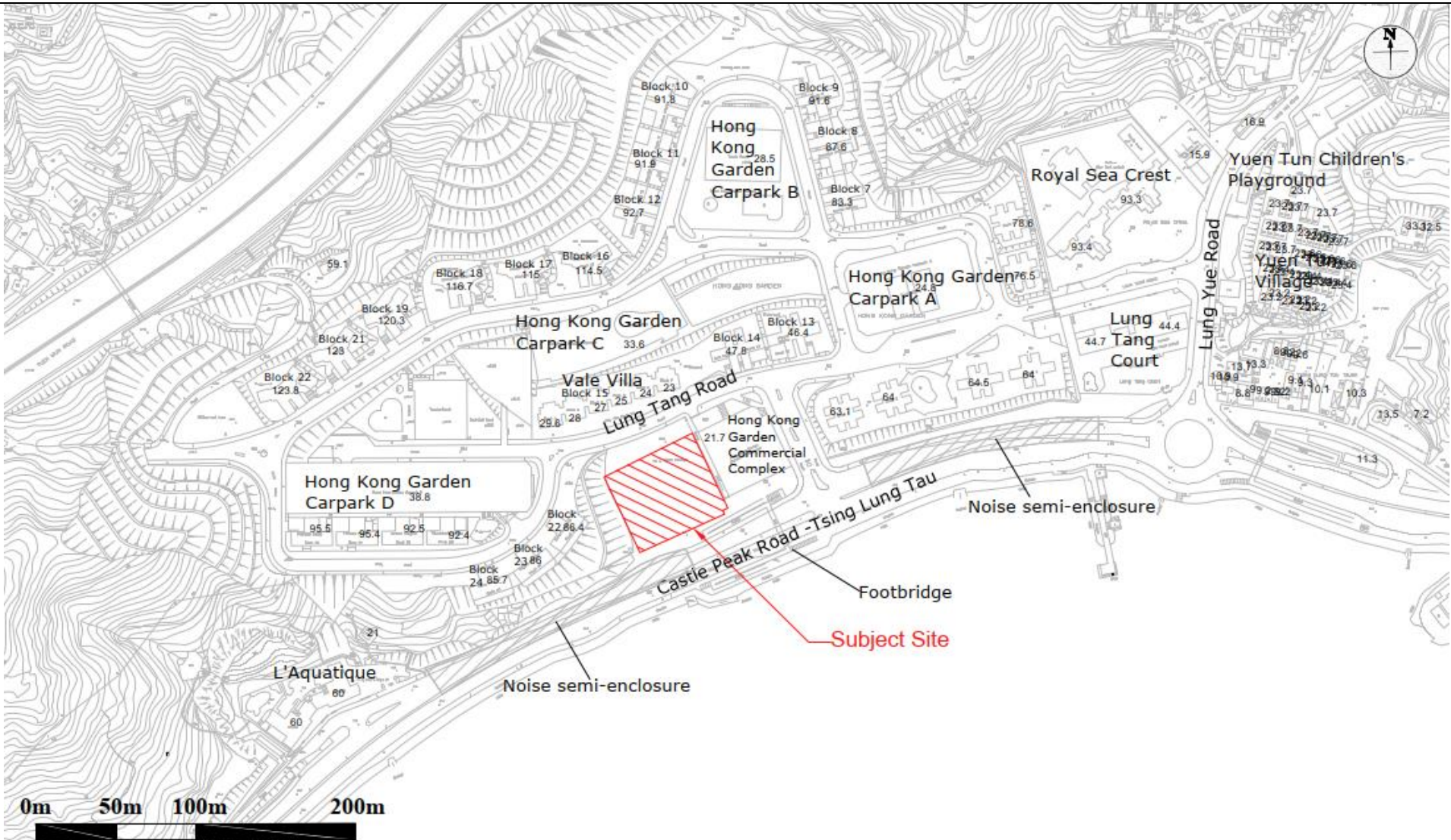
- 3.4.1 The air ventilation performance of the Baseline Scheme and the Proposed Scheme has been appraised. Constrained by the relevant requirement to cater for RCHE, the Proposed Scheme can provide limited setback but practical means to exhaust the provision has already been explored.
- 3.4.2 Moreover, the Proposed Scheme has the building setback at lower portion on southern side to facilitate east wind penetration at pedestrian level and higher portion design to vacate southwest portion to allow wind penetration which can function better under southeasterly wind.
- 3.4.3 Good feature of the Baseline Scheme, in terms of permeable opening at G/F along NW-SE axis is retained to enhance the air ventilation performance or minimise the potential air ventilation impacts. Therefore, the Proposed Scheme would unlikely impose significant impacts on the surrounding areas from air ventilation perspective.

## 4. CONCLUSION

- 4.1.1 A qualitative assessment on the air ventilation performance of the Proposed Development has been carried out.
- 4.1.2 According to the findings of this Tsuen Wan West-EE, the annual wind of the study area is mainly from east to northeast. The summer wind is mainly coming from the east, southeast and south directions. With RAMS data considered in addition, it is identified that the annual prevailing wind comes from NNE, NE, ENE, E, ESE and SE directions, while the summer prevailing wind comes from E, ENE, ESE, SE, SSE and S directions.
- 4.1.3 After considering the potential air ventilation impacts of the Application Site, the layout of the Proposed Development has incorporated good design measures to enhance its air ventilation performance. Taking into consideration of the existing topography, the location of the existing built areas and provision of mitigation measures, it is considered that the Proposed Development should not have significant adverse impact on the surrounding environment.
- 4.1.4 The Proposed Scheme has incorporated mitigation measures such as building setbacks (at least 3m from northern boundary, about 4.5m from east/west boundaries, more than 9m from southern boundary at lower portion), higher portion design to vacate southwest part of the development for wind penetration (especially southeasterly wind) and permeable opening on western side at G/F. Therefore, with the proposed design measures in place, the Proposed Scheme would unlikely impose significant impact on the surrounding sites from air ventilation perspective.



## Figures



**Figure: 1**

**Title:** Location of Application Site and Its Environs

**RAMBOLL**

Drawn by: CC

Checked by: CC

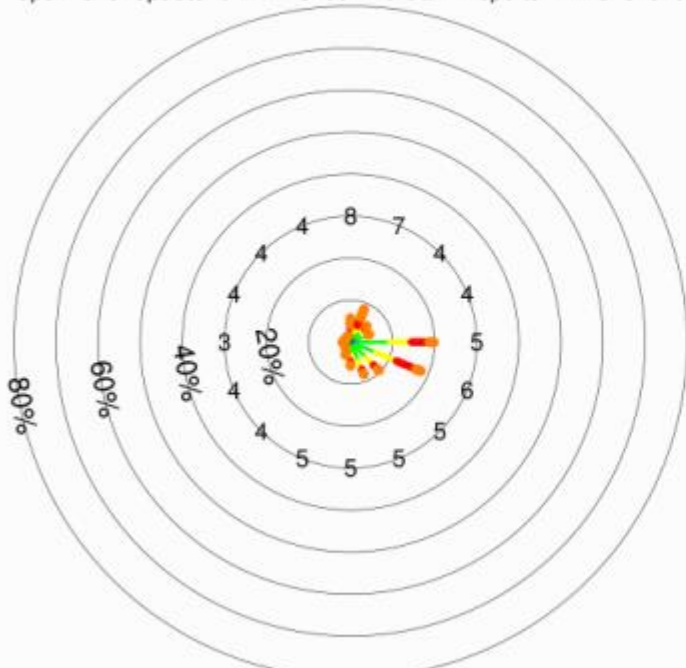
**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

Rev.: 2.0

Date: Jul 2024

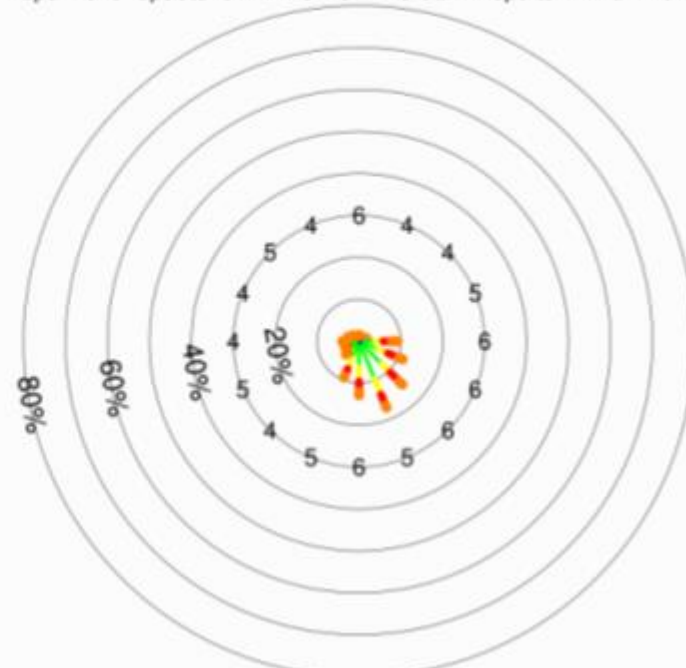
SpdAve=5 SpdStd=3 DirAve=93 No Calm Reports Nwnd=87670

SpdAve=5 SpdStd=3 DirAve=152 No Calm Reports Nwnd=22078



Wind Speed(m/s)  
 10-15  
 7-10  
 5-7  
 2-5  
 0-2

Annual Wind



Wind Speed(m/s)  
 10-15  
 7-10  
 5-7  
 2-5  
 0-2

Summer Wind

**Figure: 2a**



**Title:** Windrose Diagram representing  $V_{\infty}$  of the Area under Concern at 200m above ground (X:053, Y:052)

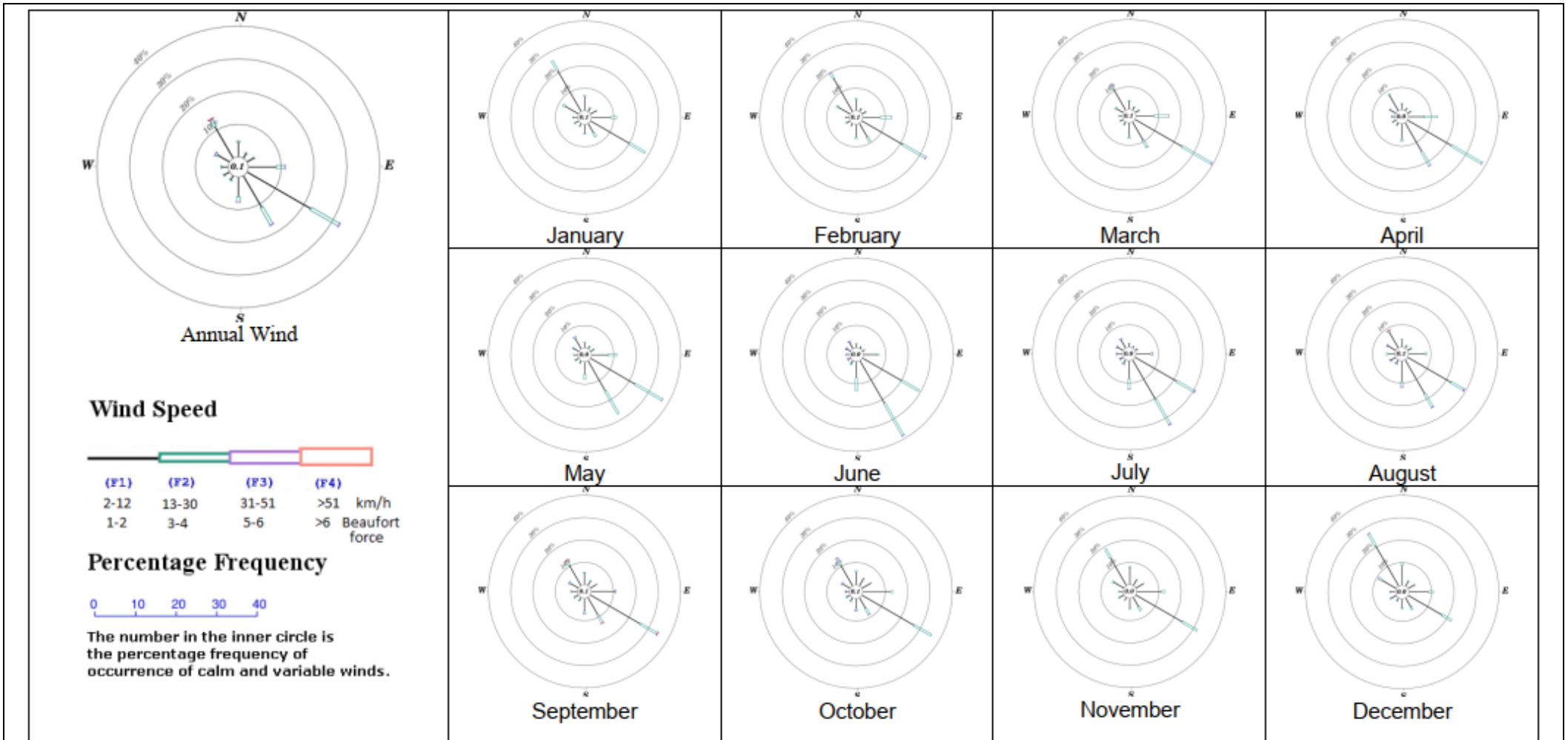
Drawn by: CC

Checked by: CC

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

Rev.: 2.0

Date: Jul 2024



**Figure: 2b**

**Title:** Windroses Diagram for Tsing Yi , 1998 - 2020

**RAMBOLL**

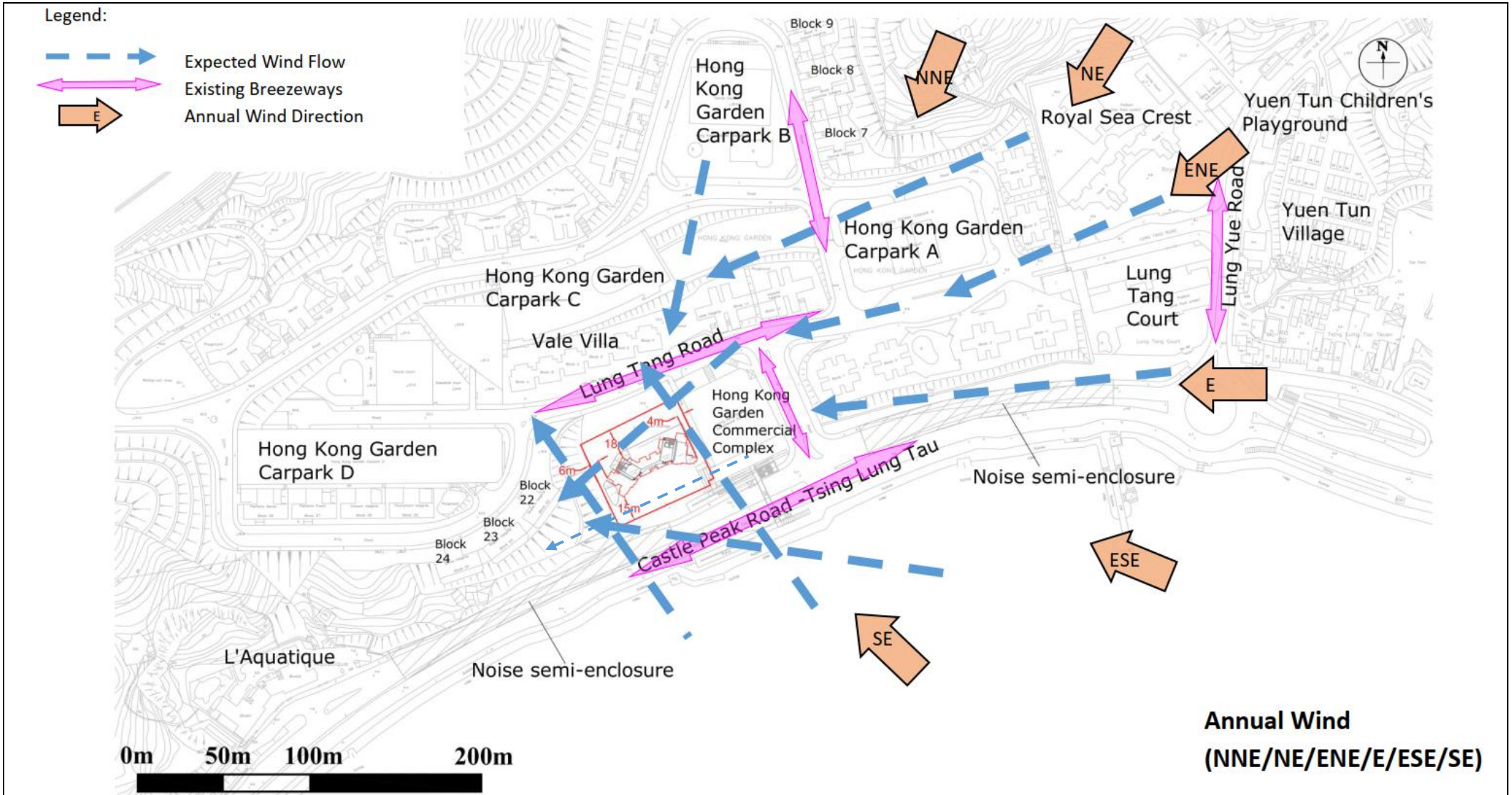
Drawn by: CC

Checked by: CC

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

Rev.: 2.0

Date: Jul 2024



**Figure: 3**  
**Title:** Illustration of Wind Flow from Annual Wind Directions for Baseline Scheme

**RAMBOLL**

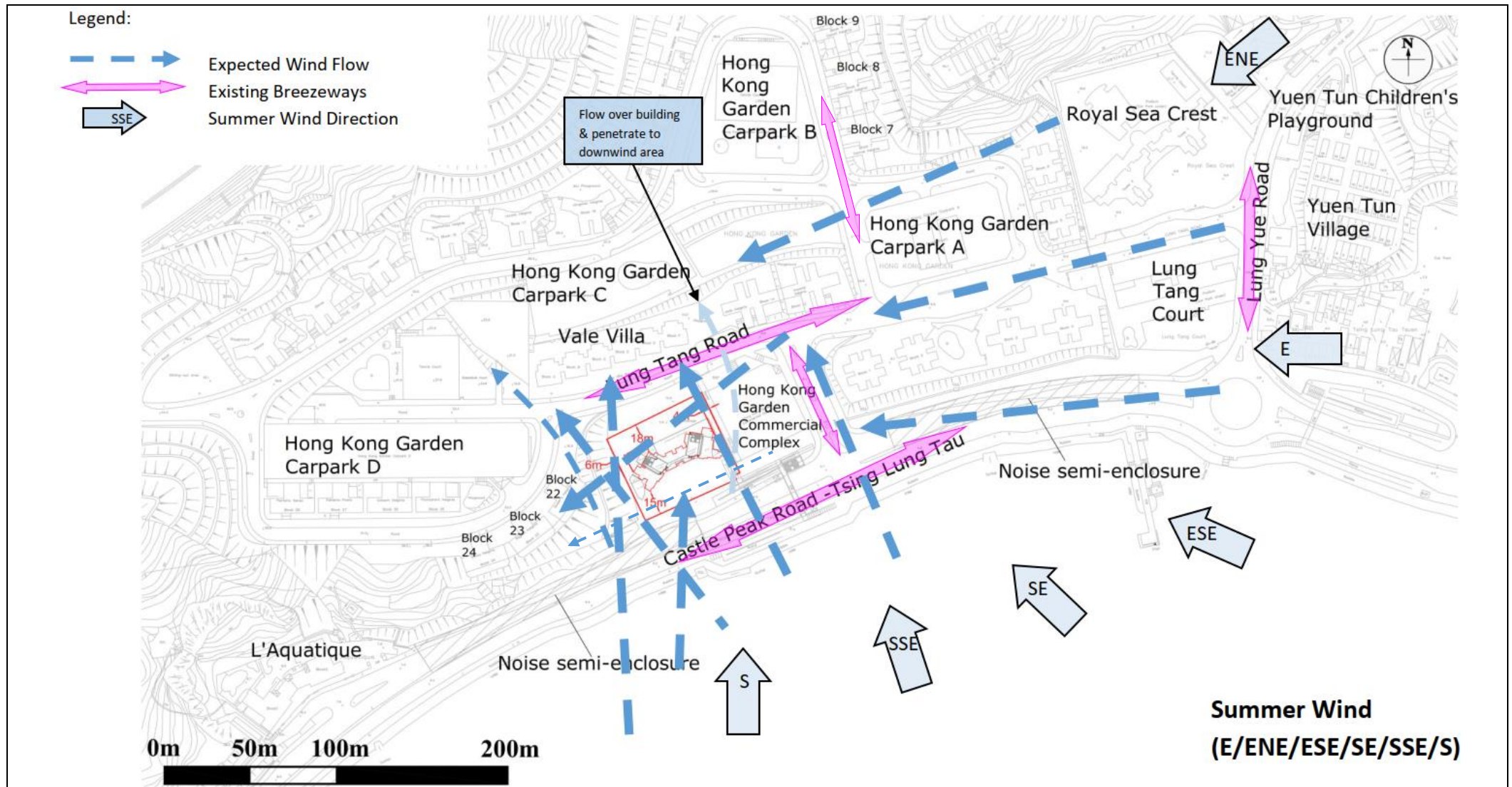
Drawn by: CC

Checked by: CC

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

Rev.: 2.0

Date: Jul 2024



**Figure: 4**

**Title:** Illustration of Wind Flow from Summer Wind Directions for Baseline Scheme

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

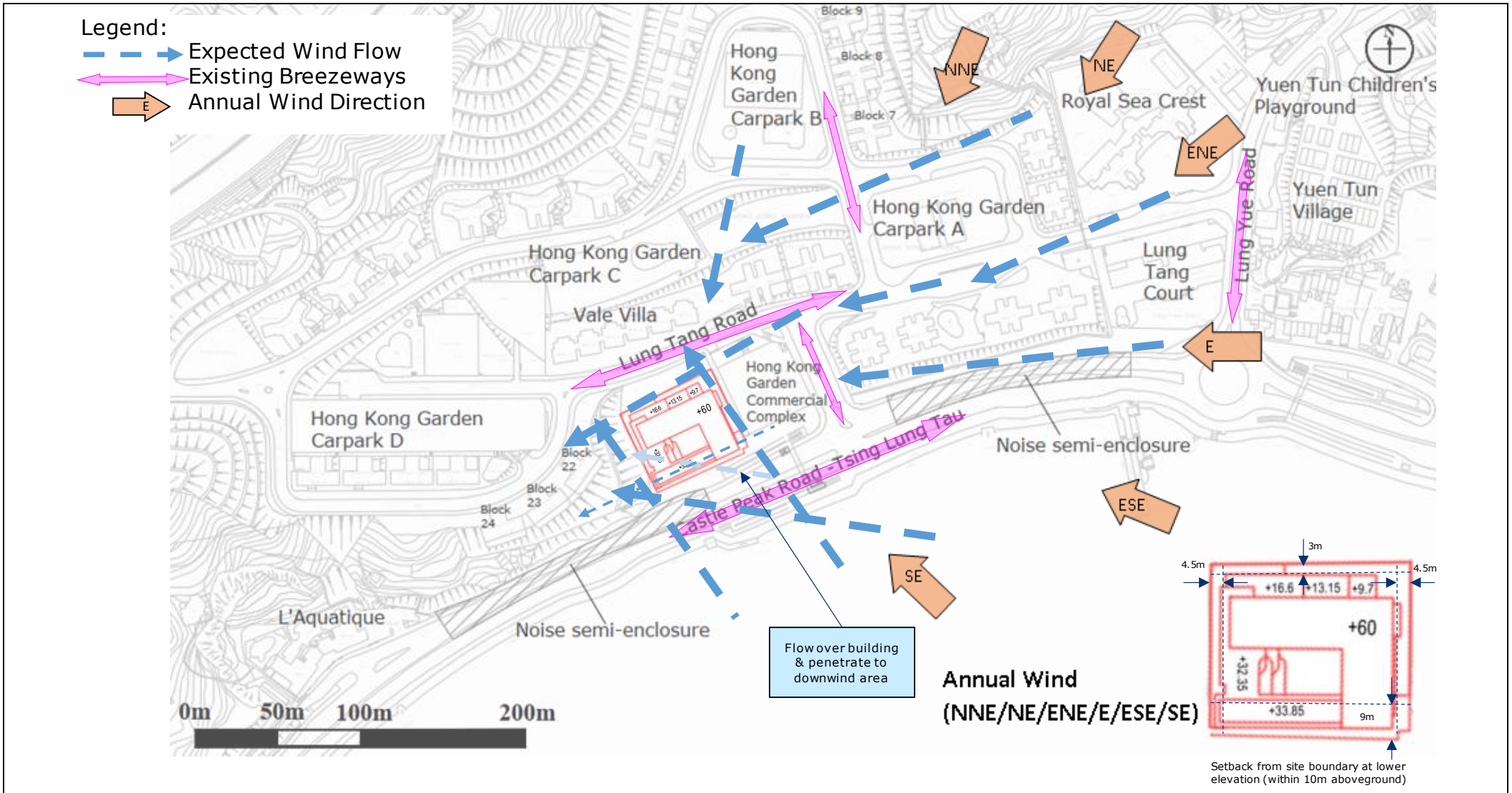
**RAMBOLL**

Drawn by: CC

Checked by: CC

Rev.: 2.0

Date: Jul 2024



**Figure: 5**

**Title:** Illustration of Wind Flow from Annual Wind Directions for Proposed Scheme

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

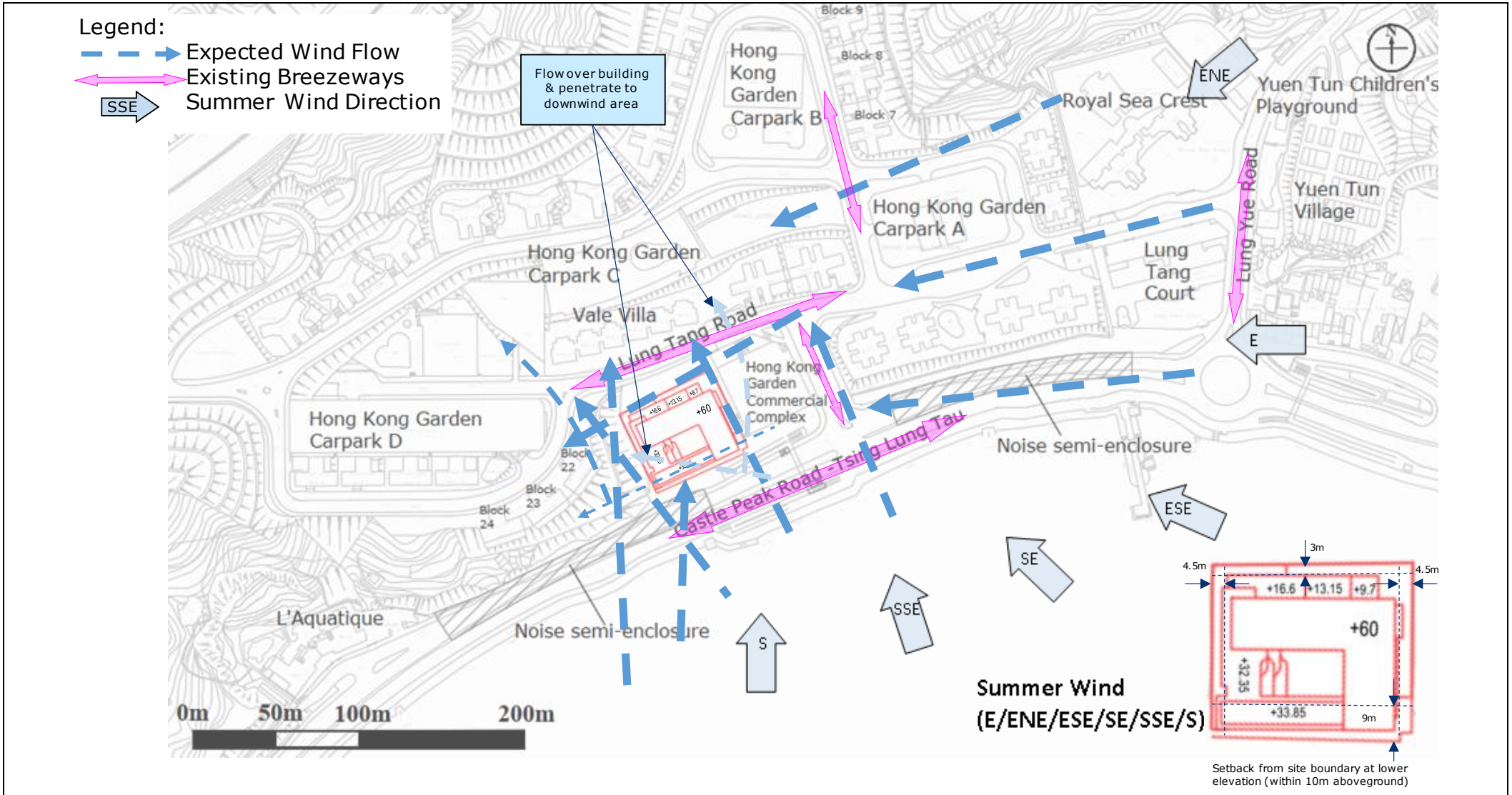
**RAMBOLL**

Drawn by: CC

Checked by: CC

Rev.: 2.0

Date: Jul 2024



**Figure: 6**

**Title:** Illustration of Wind Flow from Summer Wind Directions for Proposed Scheme

**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan

**RAMBOLL**

Drawn by: CC

Checked by: CC

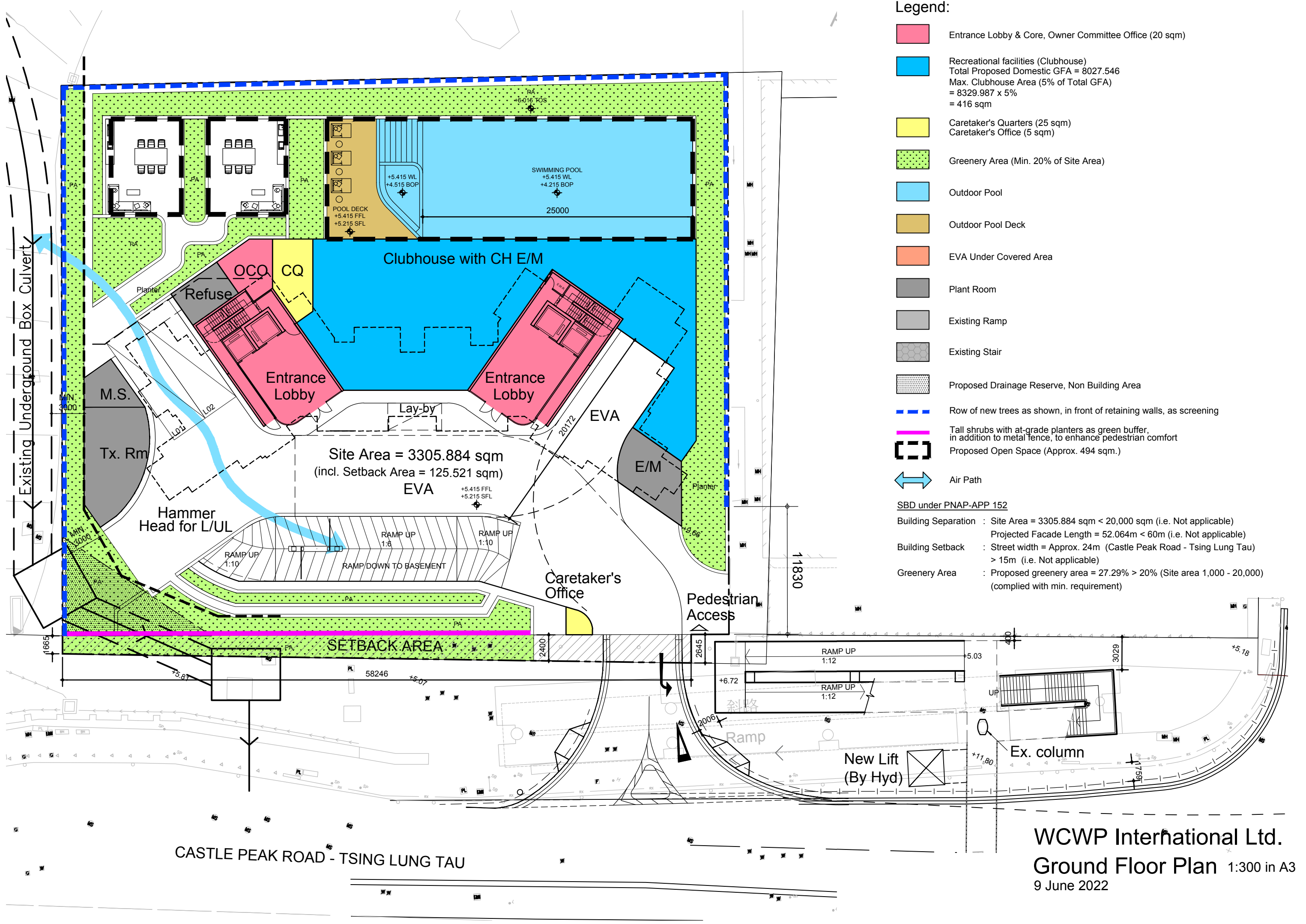
Rev.: 2.0

Date: Jul 2024



## **Appendix 1**

### **The Indication Plan of the Baseline Scheme**



**Legend:**

- Entrance Lobby & Core, Owner Committee Office (20 sqm)
- Recreational facilities (Clubhouse)  
Total Proposed Domestic GFA = 8027.546  
Max. Clubhouse Area (5% of Total GFA)  
= 8329.987 x 5%  
= 416 sqm
- Caretaker's Quarters (25 sqm)  
Caretaker's Office (5 sqm)
- Greenery Area (Min. 20% of Site Area)
- Outdoor Pool
- Outdoor Pool Deck
- EVA Under Covered Area
- Plant Room
- Existing Ramp
- Existing Stair
- Proposed Drainage Reserve, Non Building Area
- Row of new trees as shown, in front of retaining walls, as screening
- Tall shrubs with at-grade planters as green buffer, in addition to metal fence, to enhance pedestrian comfort
- Proposed Open Space (Approx. 494 sqm.)
- Air Path

SBD under PNAP-APP 152

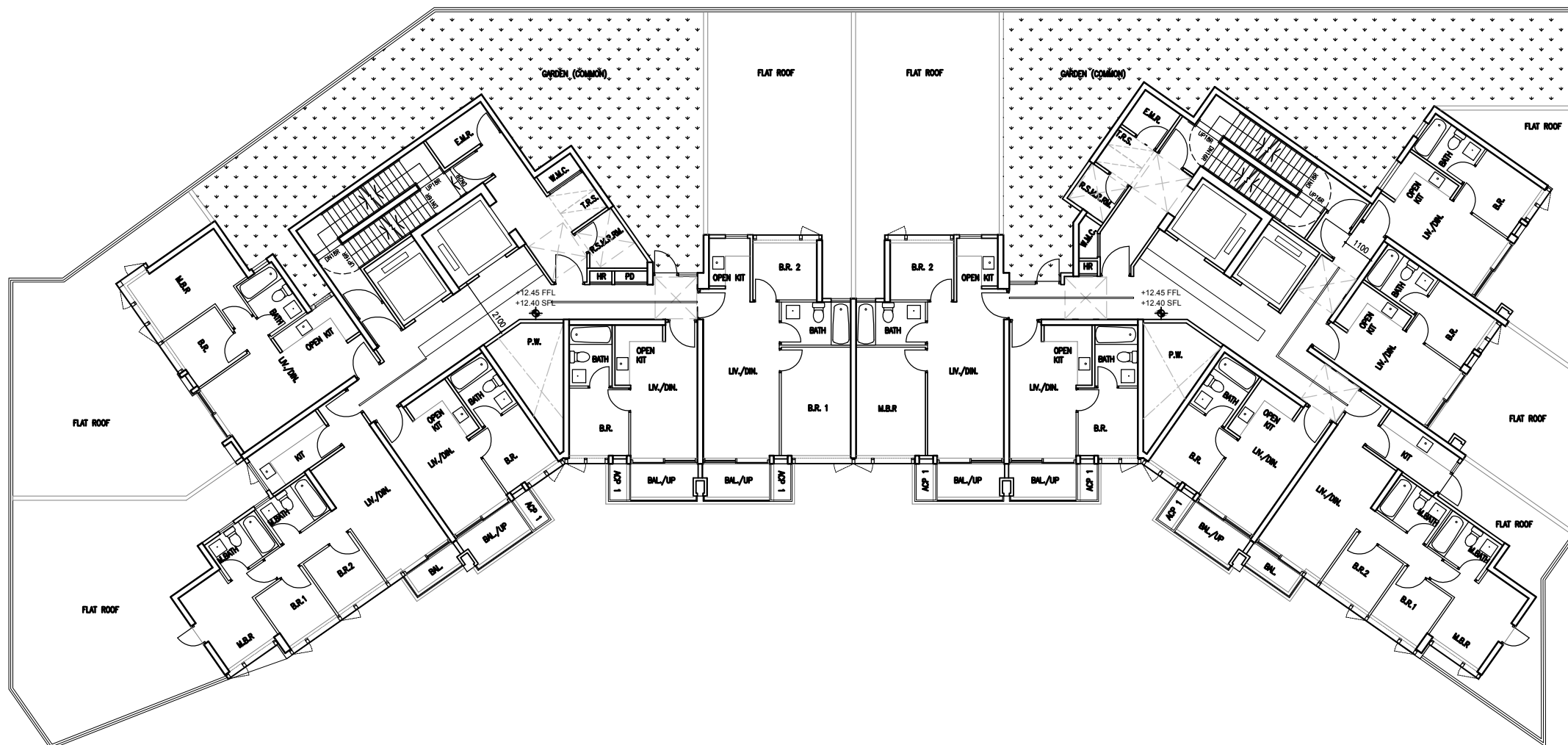
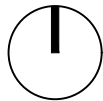
Building Separation : Site Area = 3305.884 sqm < 20,000 sqm (i.e. Not applicable)  
Projected Facade Length = 52.064m < 60m (i.e. Not applicable)

Building Setback : Street width = Approx. 24m (Castle Peak Road - Tsing Lung Tau) > 15m (i.e. Not applicable)

Greenery Area : Proposed greenery area = 27.29% > 20% (Site area 1,000 - 20,000) (complied with min. requirement)

CASTLE PEAK ROAD - TSING LUNG TAU

**WCWP International Ltd.**  
**Ground Floor Plan** 1:300 in A3  
9 June 2022



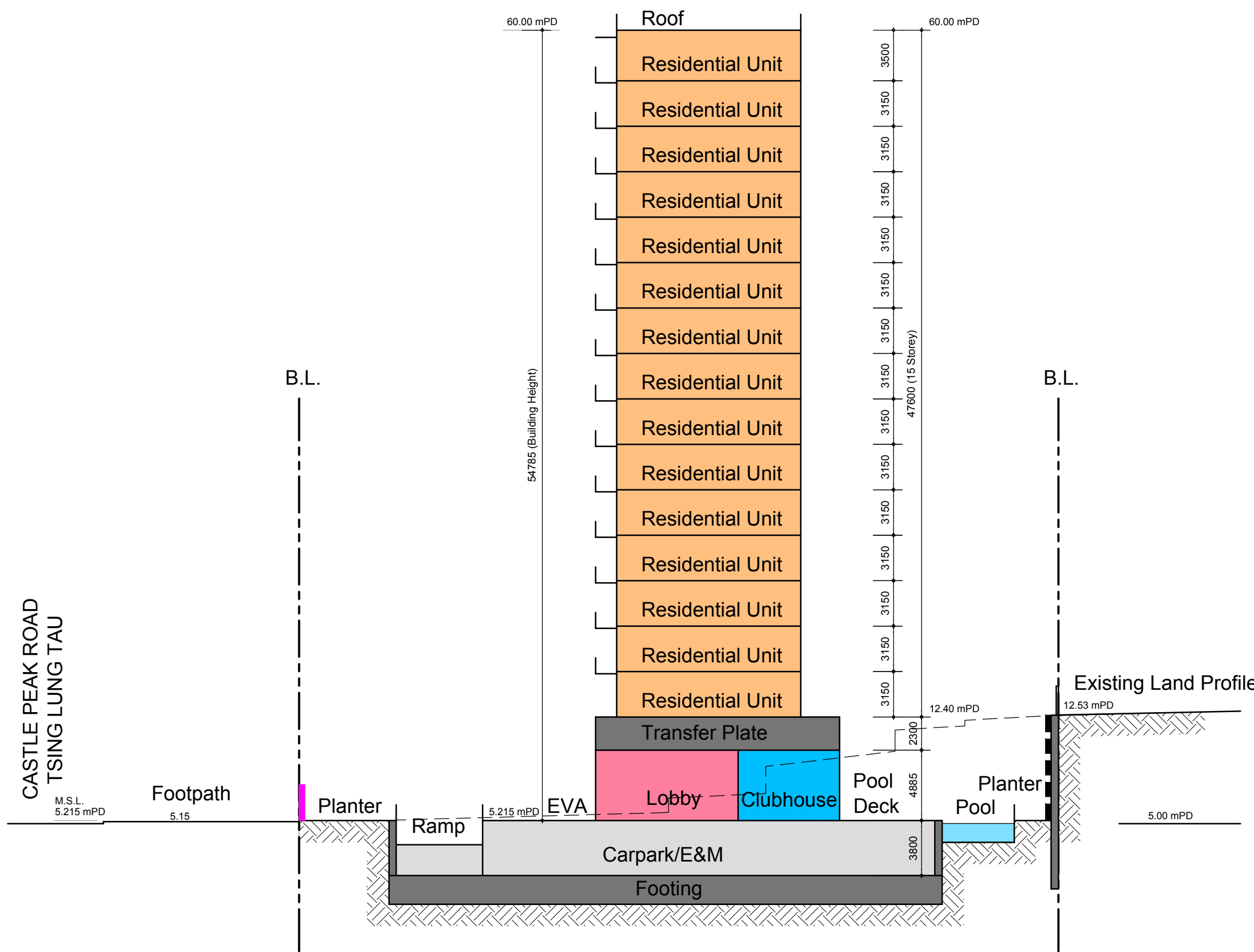
SETBACK AREA (APPROX. 125.521 sqm)

First Floor Plan 1:200

WCWP International Ltd.

First Floor Plan 1:200 in A3

9 June 2022

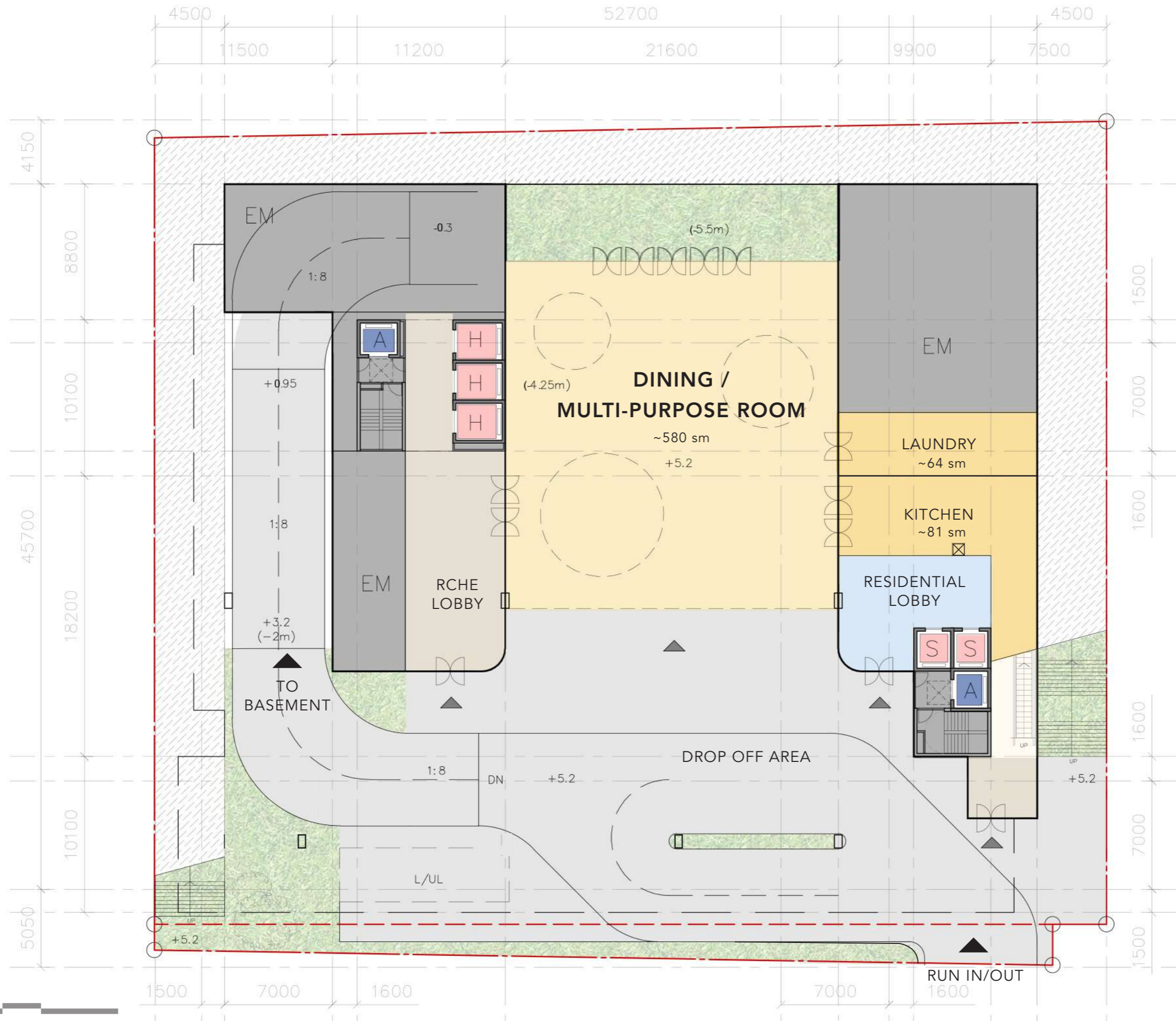


- Legend:**
- Entrance Lobby
  - Residential Unit
  - Clubhouse
  - Outdoor Pool
  - Carpark
  - Row of new trees as shown, in front of retaining walls, as screening
  - Tall shrubs with at-grade planters as green buffer, in addition to metal fence, to enhance pedestrian comfort

WCWP International Ltd.  
 Section 1:300 in A3  
 18 March 2022

## **Appendix 2**

### **The Indication Plan of the Proposed Scheme**

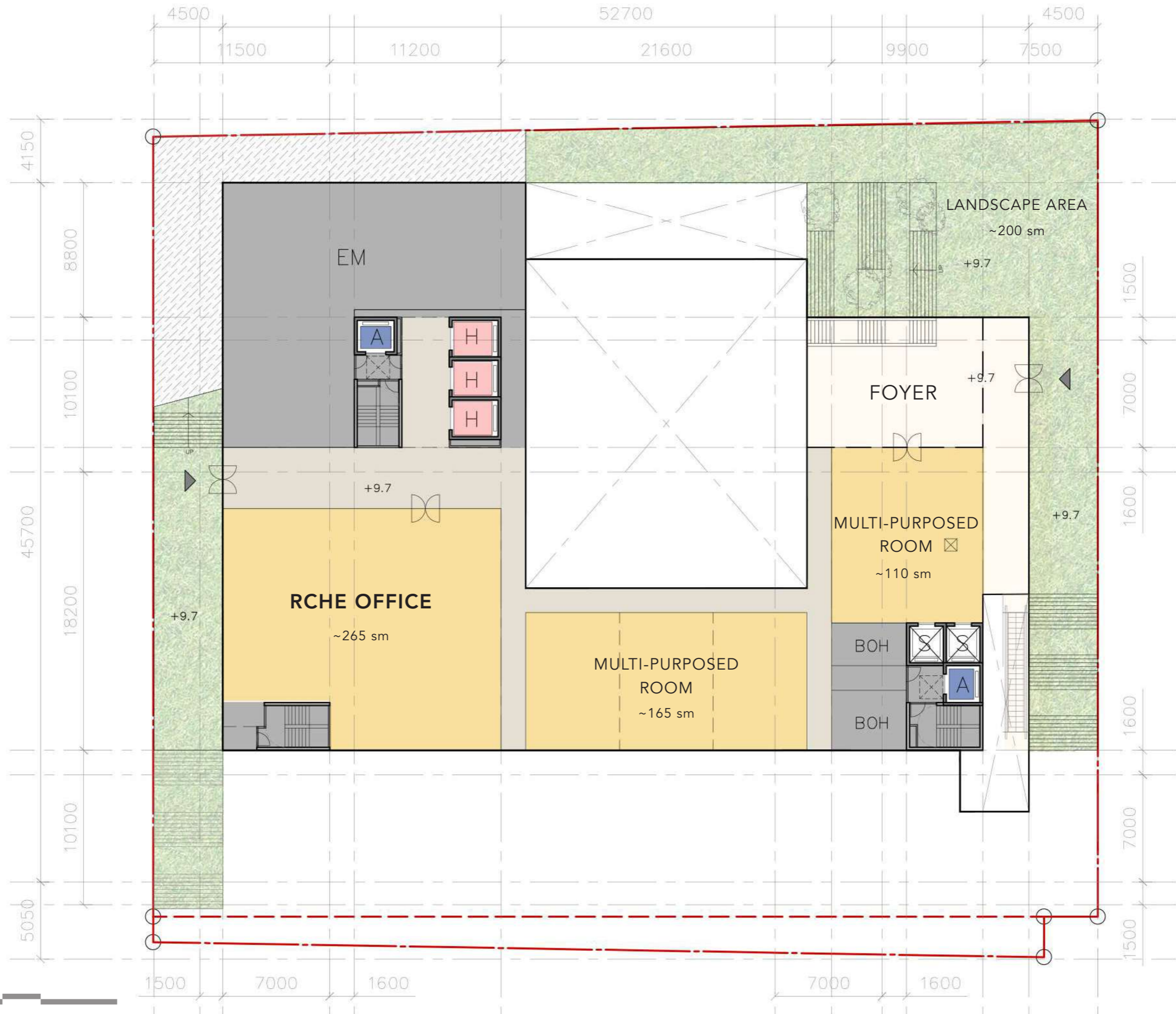


GF

1:250 @ A3

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

— MATTER



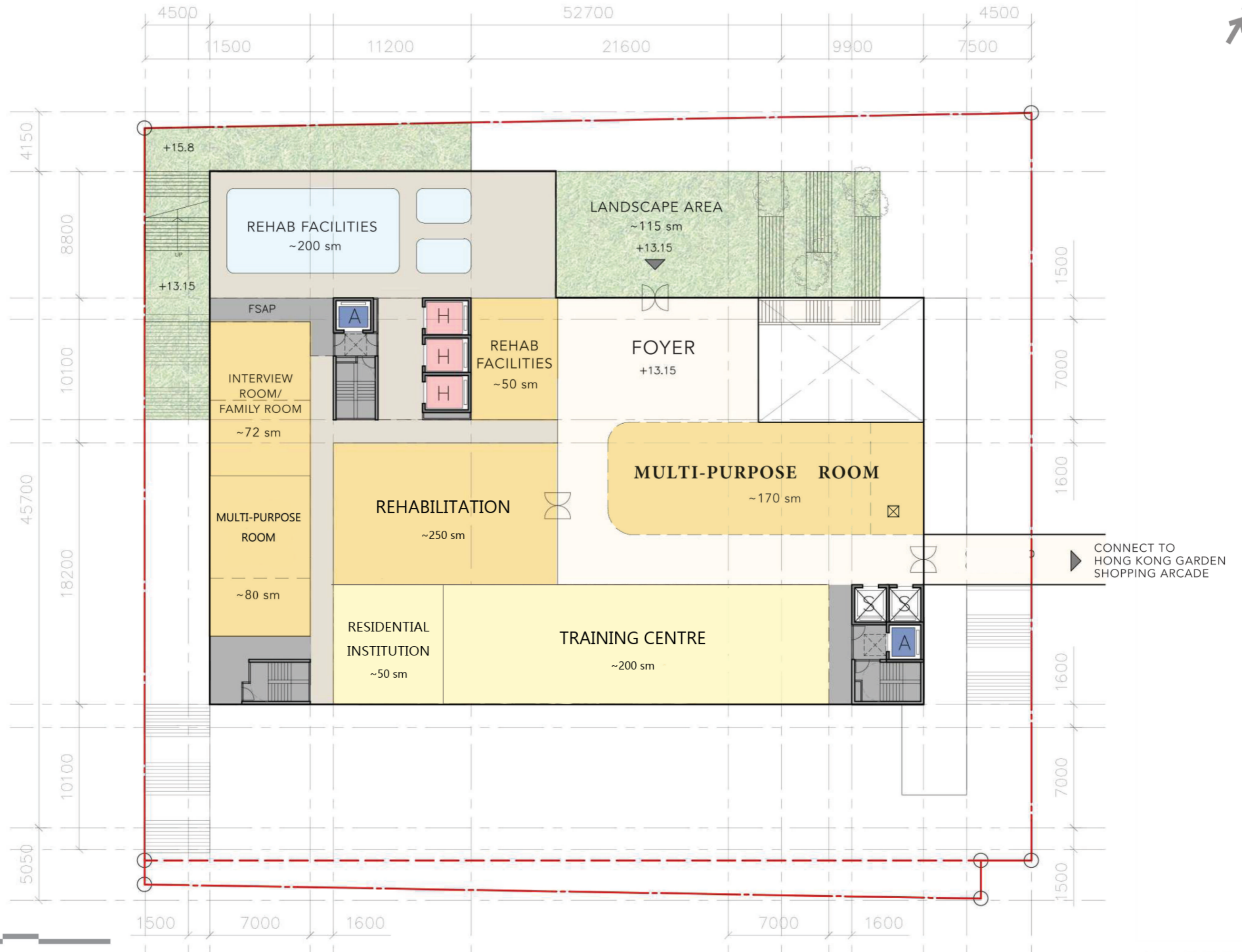
1F

1:250 @ A3



\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

— MATTER



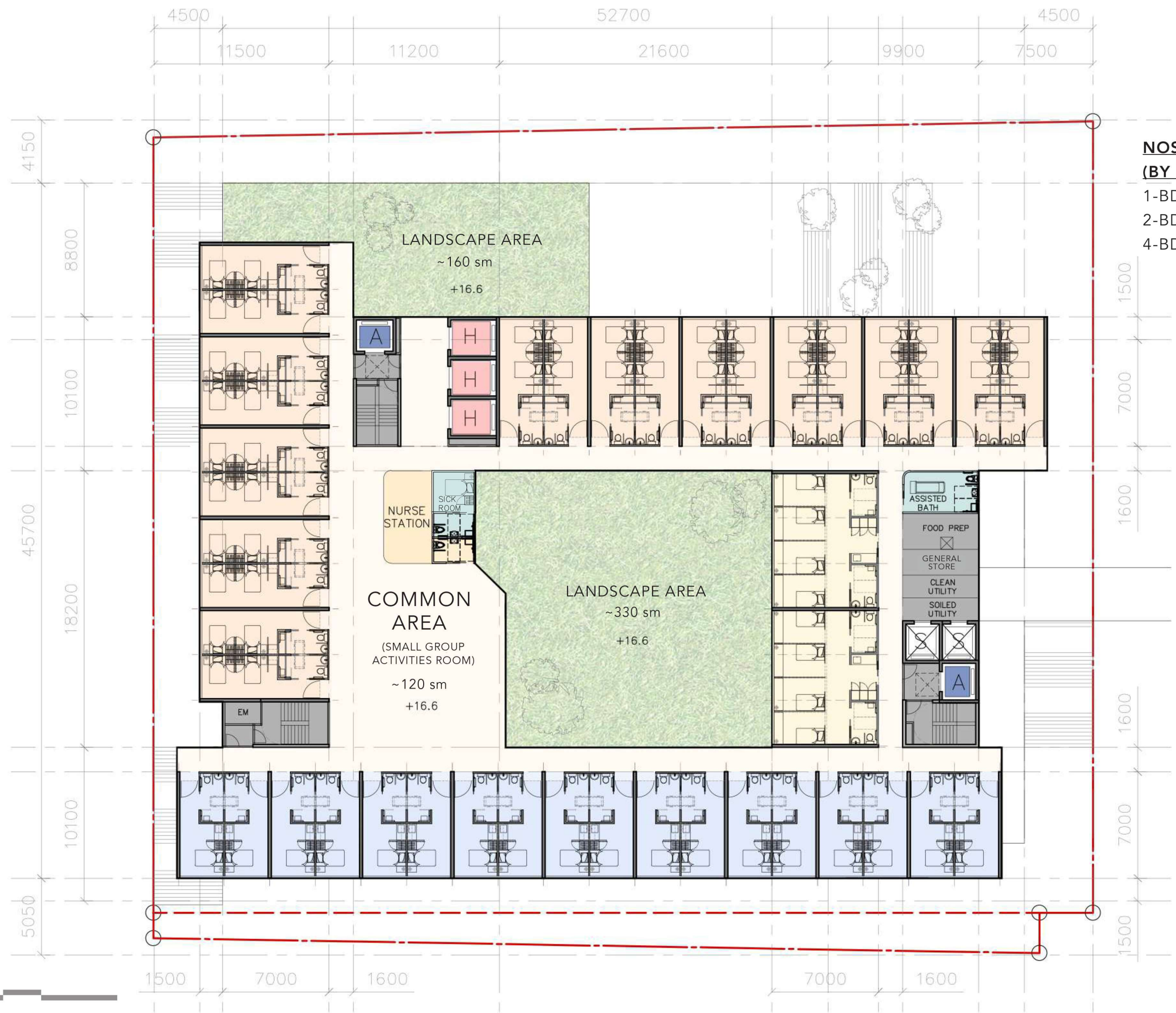
2F

1:250 @ A3

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

MATTER





**NOS. OF BEDS  
(BY FLOOR)**

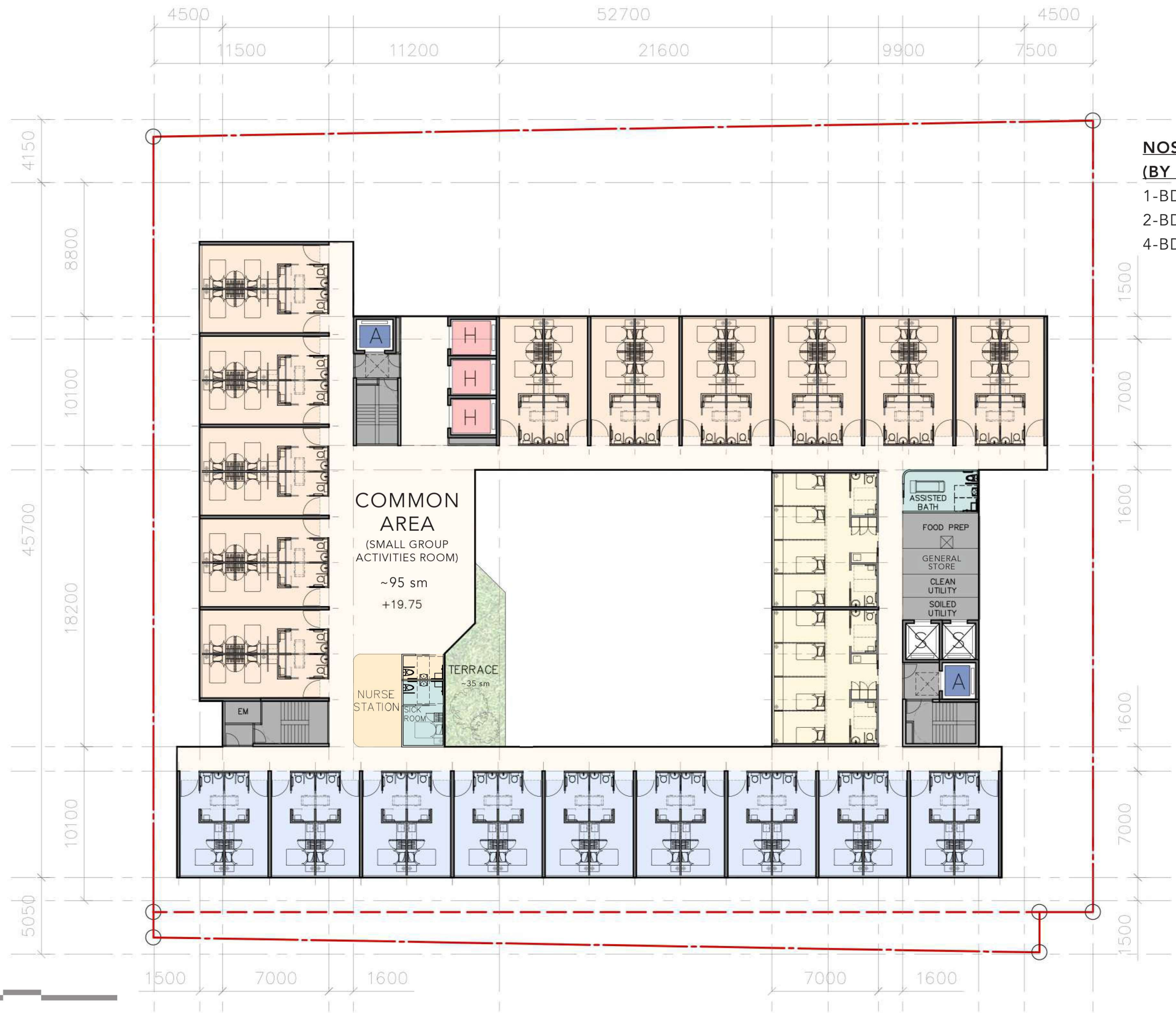
1-BD	: 18 BEDS
2-BD	: 44 BEDS
4-BD	: 8 BEDS

3F

1:250 @ A3



\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



**NOS. OF BEDS  
(BY FLOOR)**

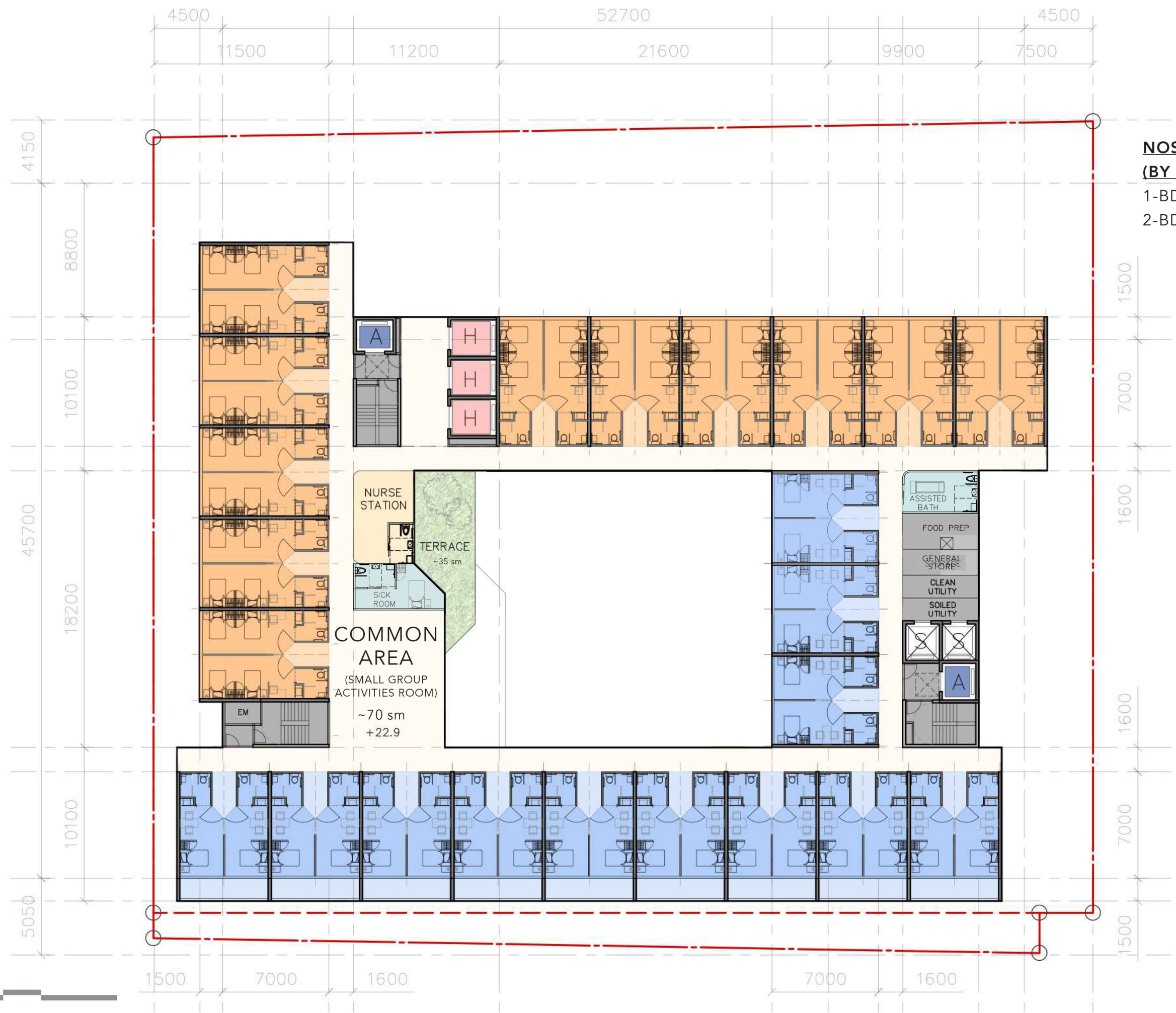
1-BD	: 18 BEDS
2-BD	: 44 BEDS
4-BD	: 8 BEDS

4F

1:250 @ A3



\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



**NOS. OF BEDS  
(BY FLOOR)**

1-BD	: 24 BEDS
2-BD	: 44 BEDS

5F

1:250 @ A3



\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



**NOS. OF BEDS  
(BY FLOOR)**  
1-BD : 42 BEDS

6F

1:250 @ A3



\*AREAS SUBJECTED TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



**NOS. OF BEDS  
(BY FLOOR)**

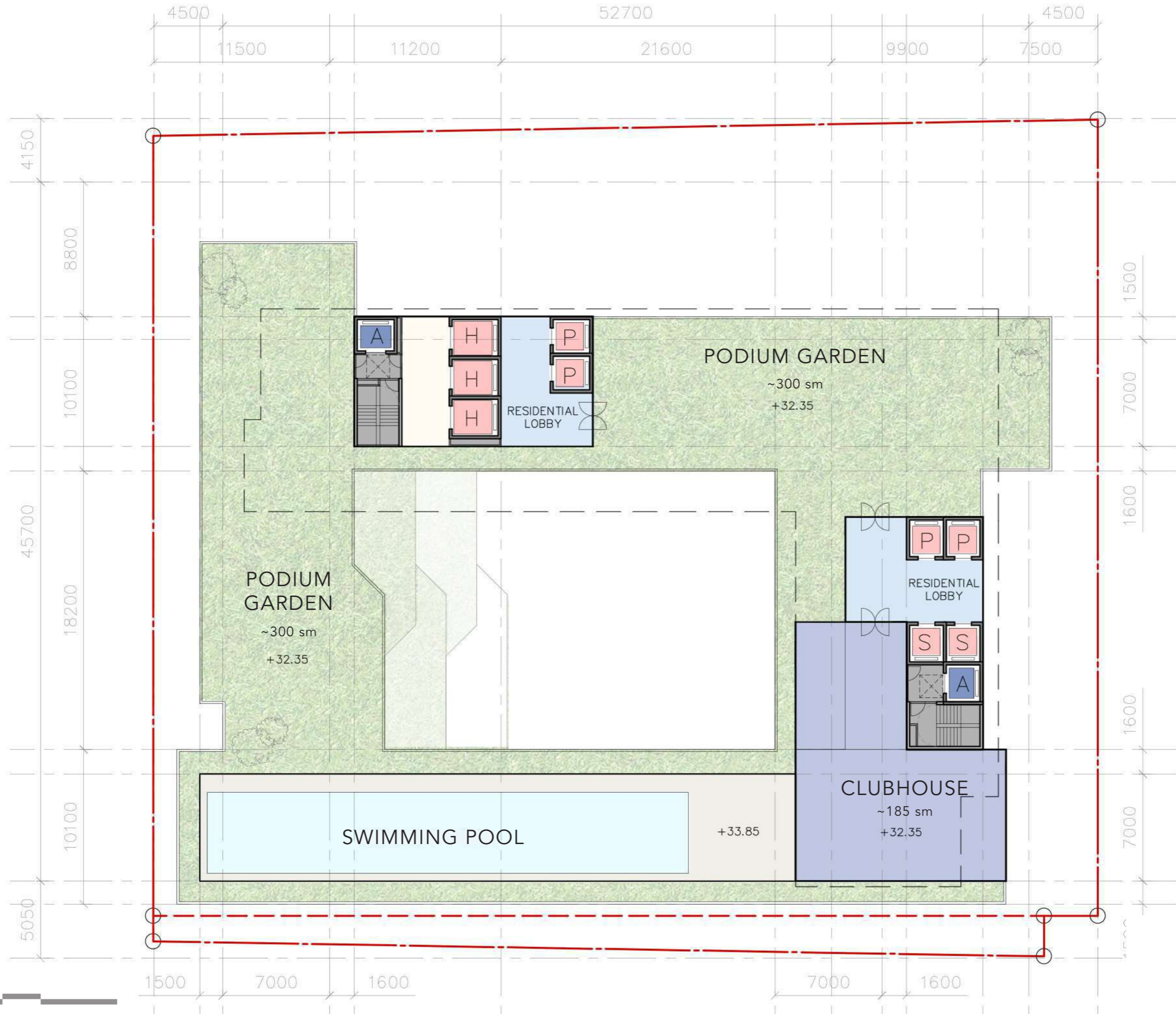
SUITE	: 6 BEDS
1-BD	: 28 BEDS

**COMMON AREA**  
(SMALL GROUP ACTIVITIES ROOM)  
~ 105 sm  
+29.20

7F

1:250 @ A3

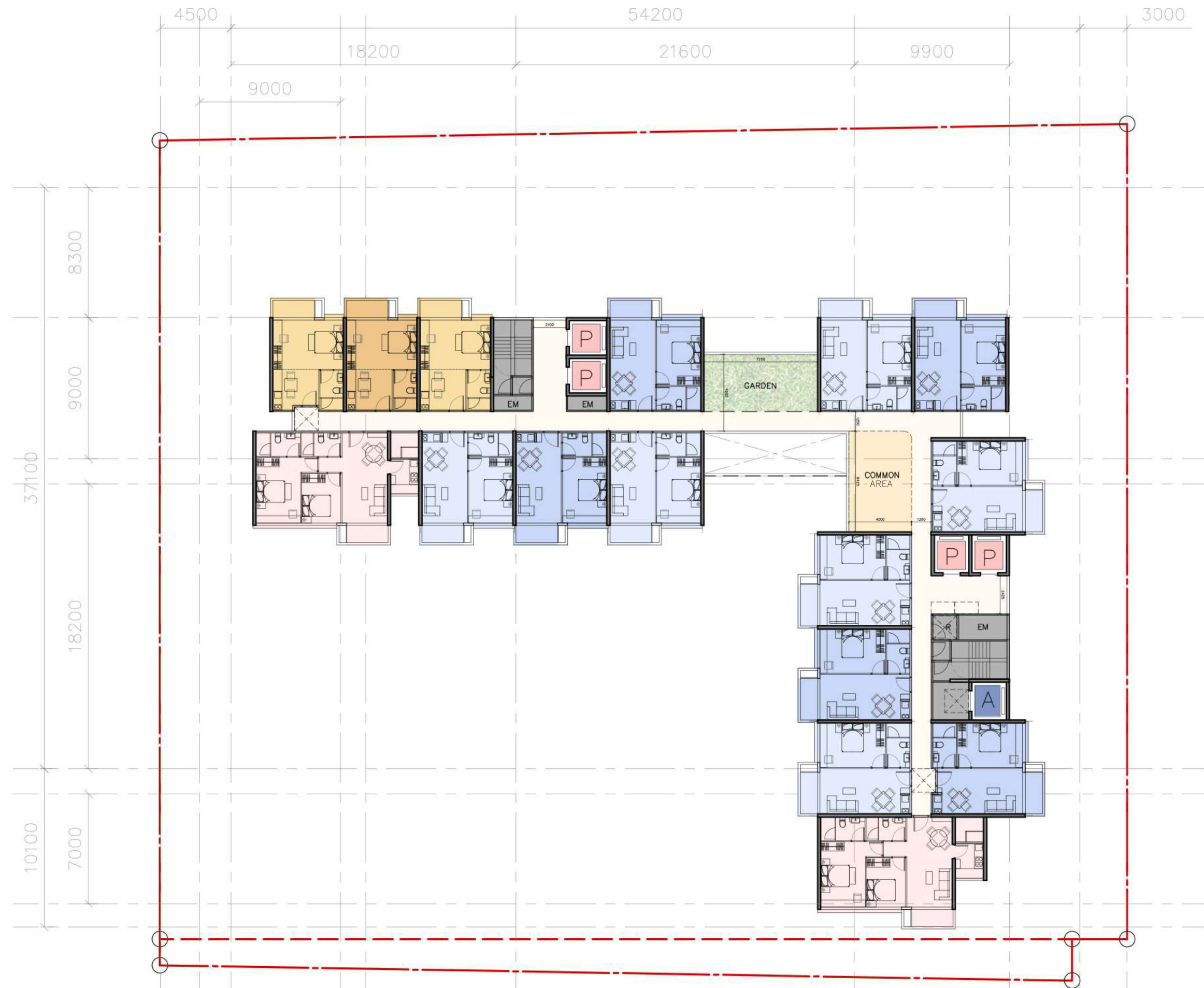
\*AREAS SUBJECTED TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



8F

1:250 @ A3

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



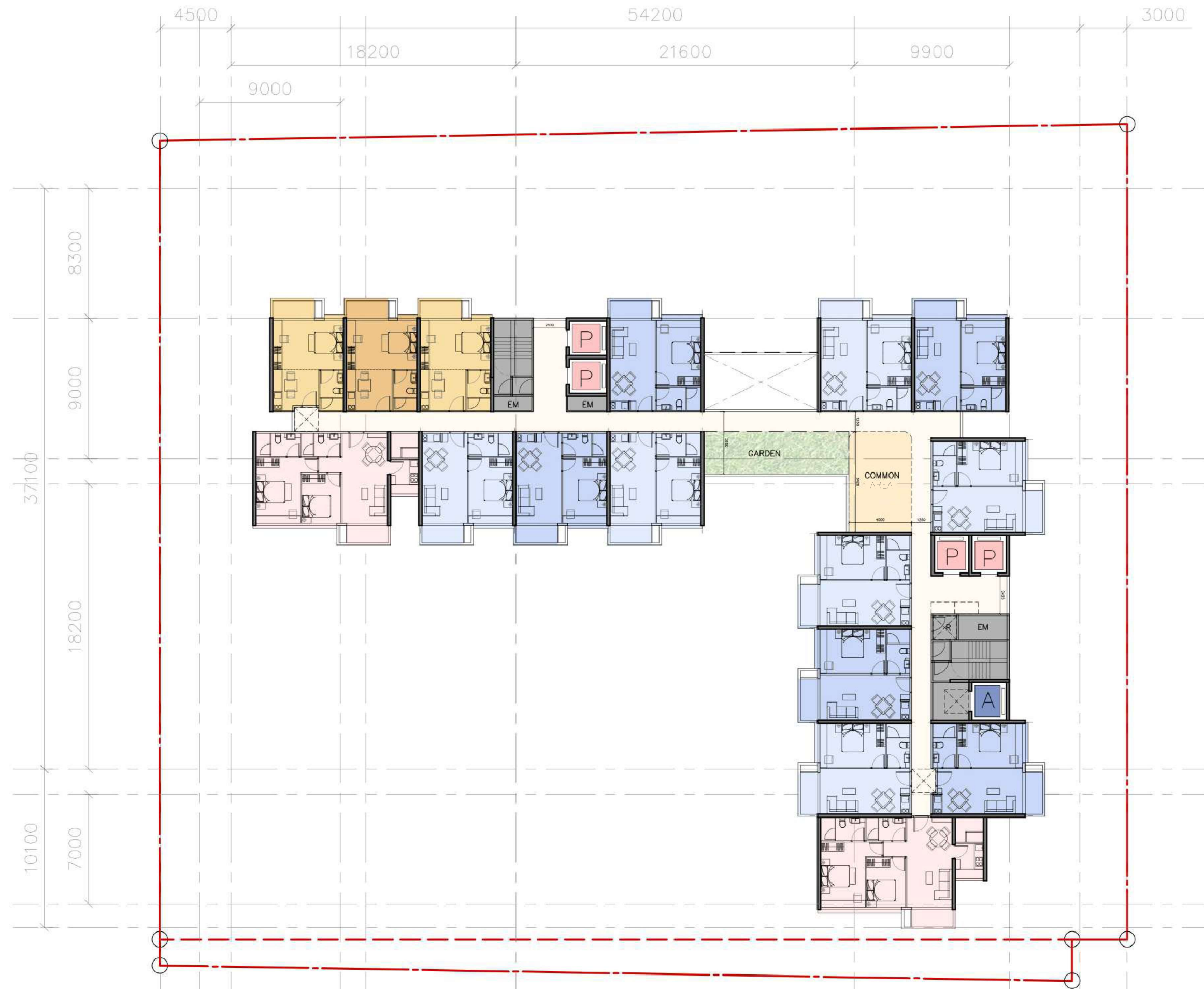
TYP

1:250 @ A3



TYPICAL FLOORS - 9,11,13,15/F

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



TYP

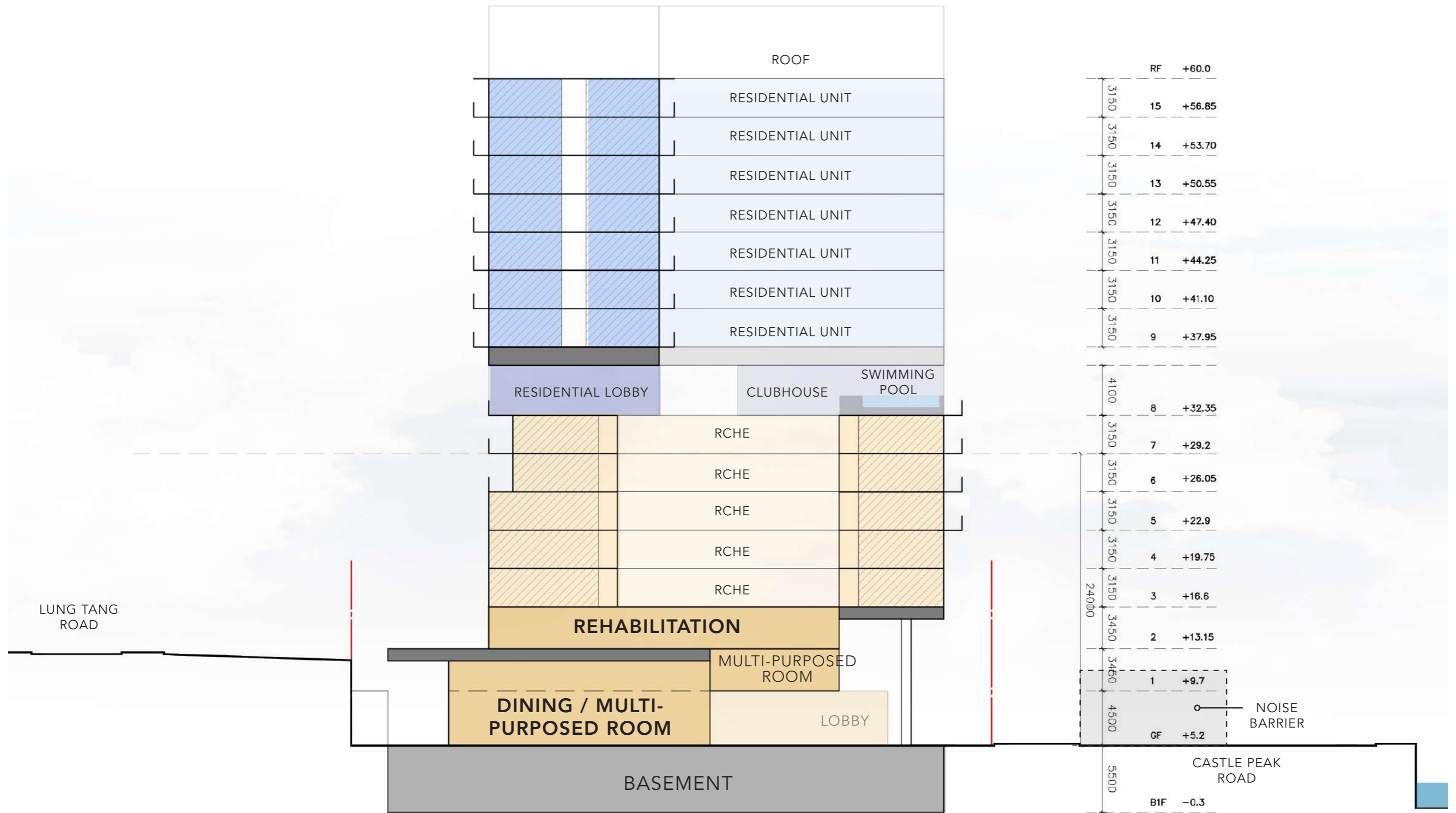
1:250 @ A3

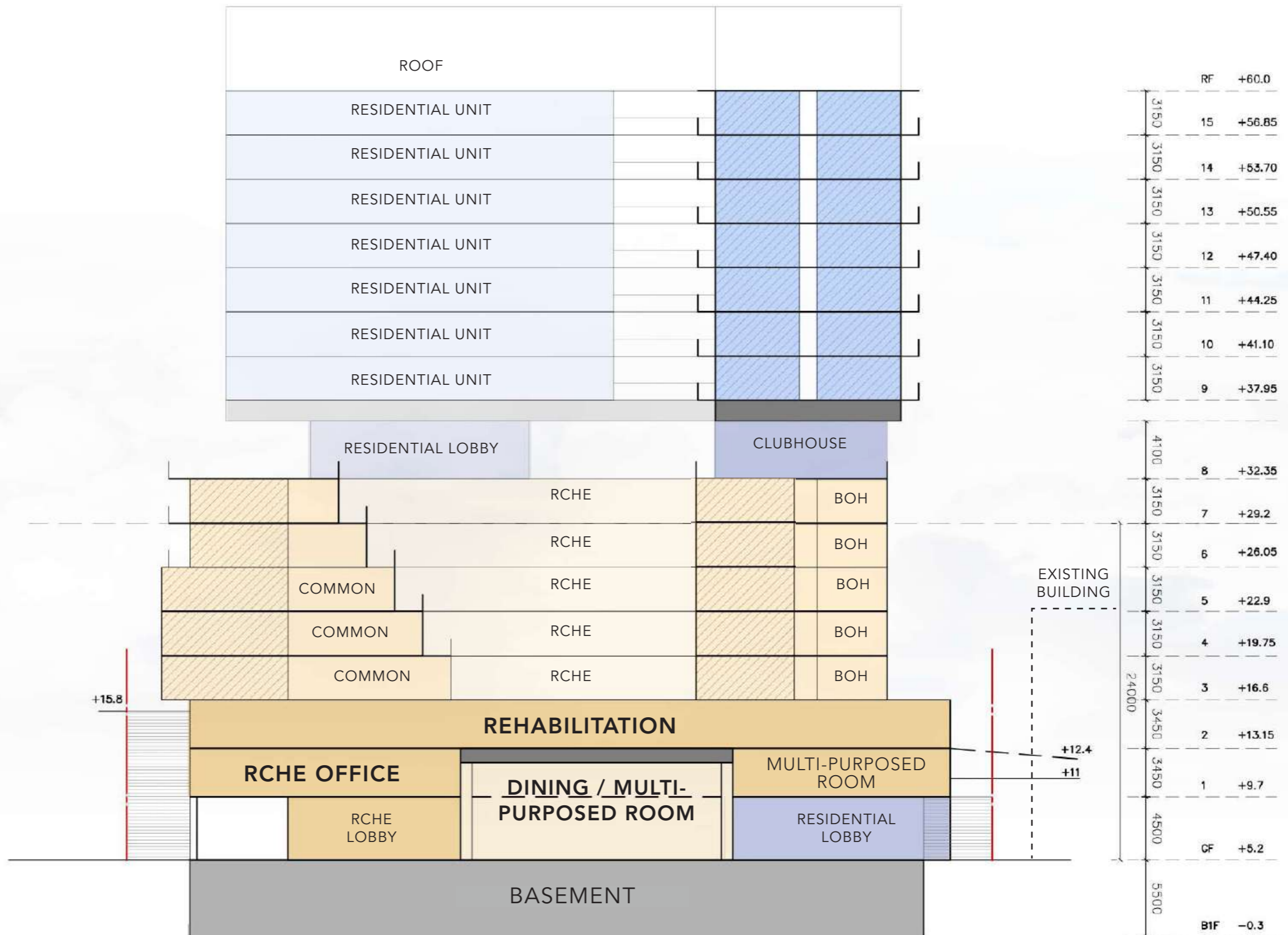


TYPICAL FLOORS - 10,12,14/F

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

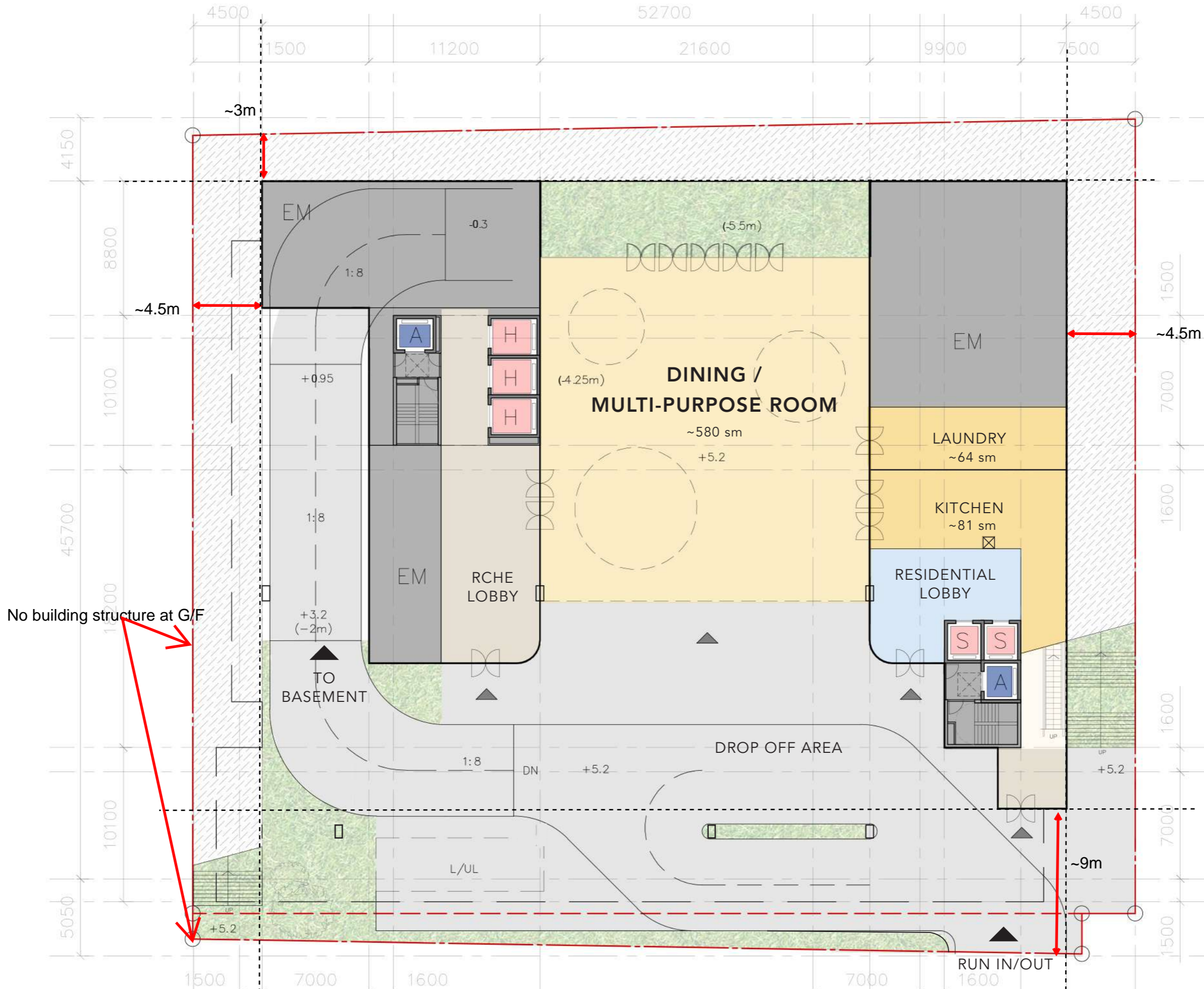






### **Appendix 3**

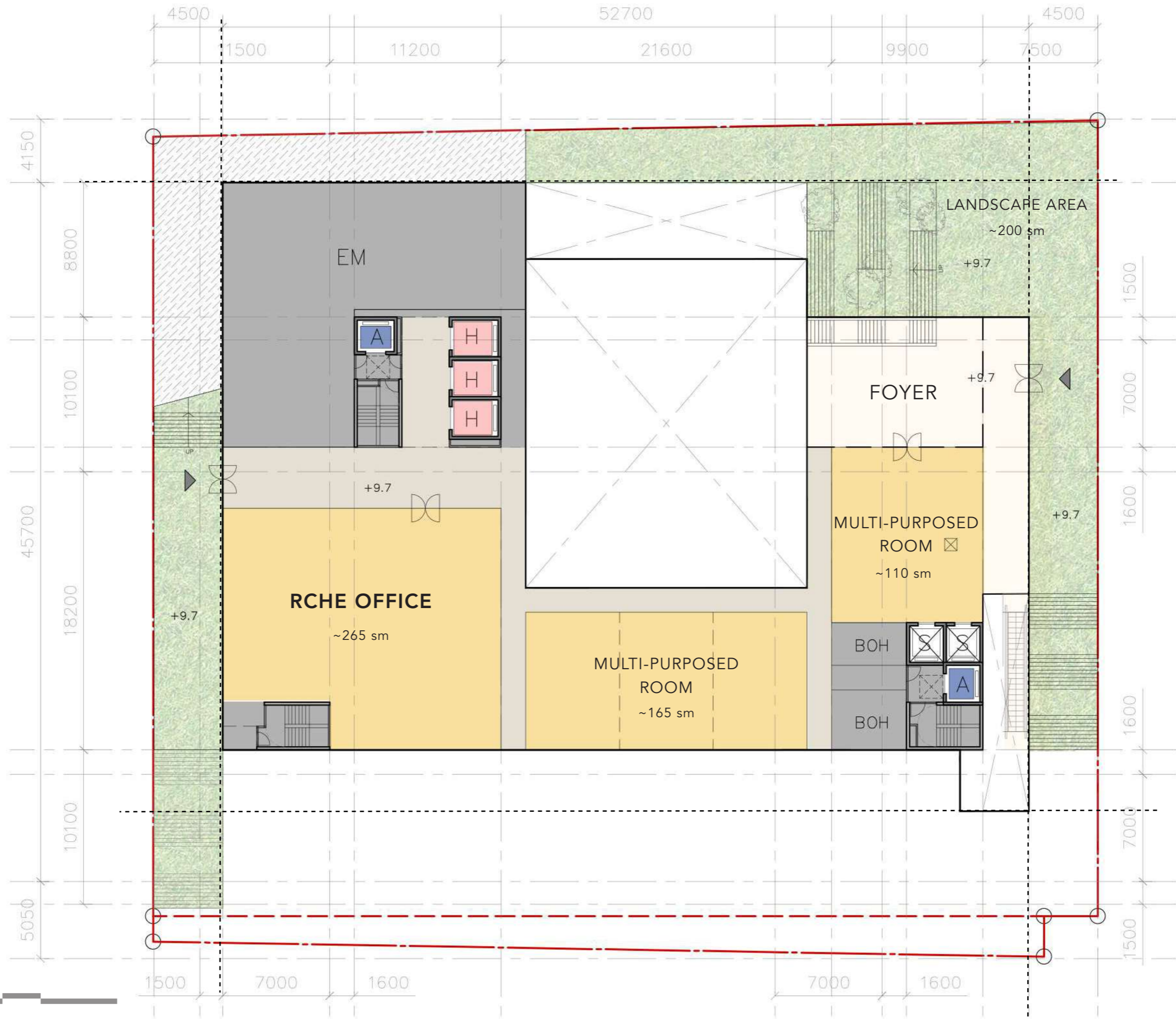
#### **Proposed Air Ventilation Design Measures of the Proposed Scheme**



GF

1:250 @ A3

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

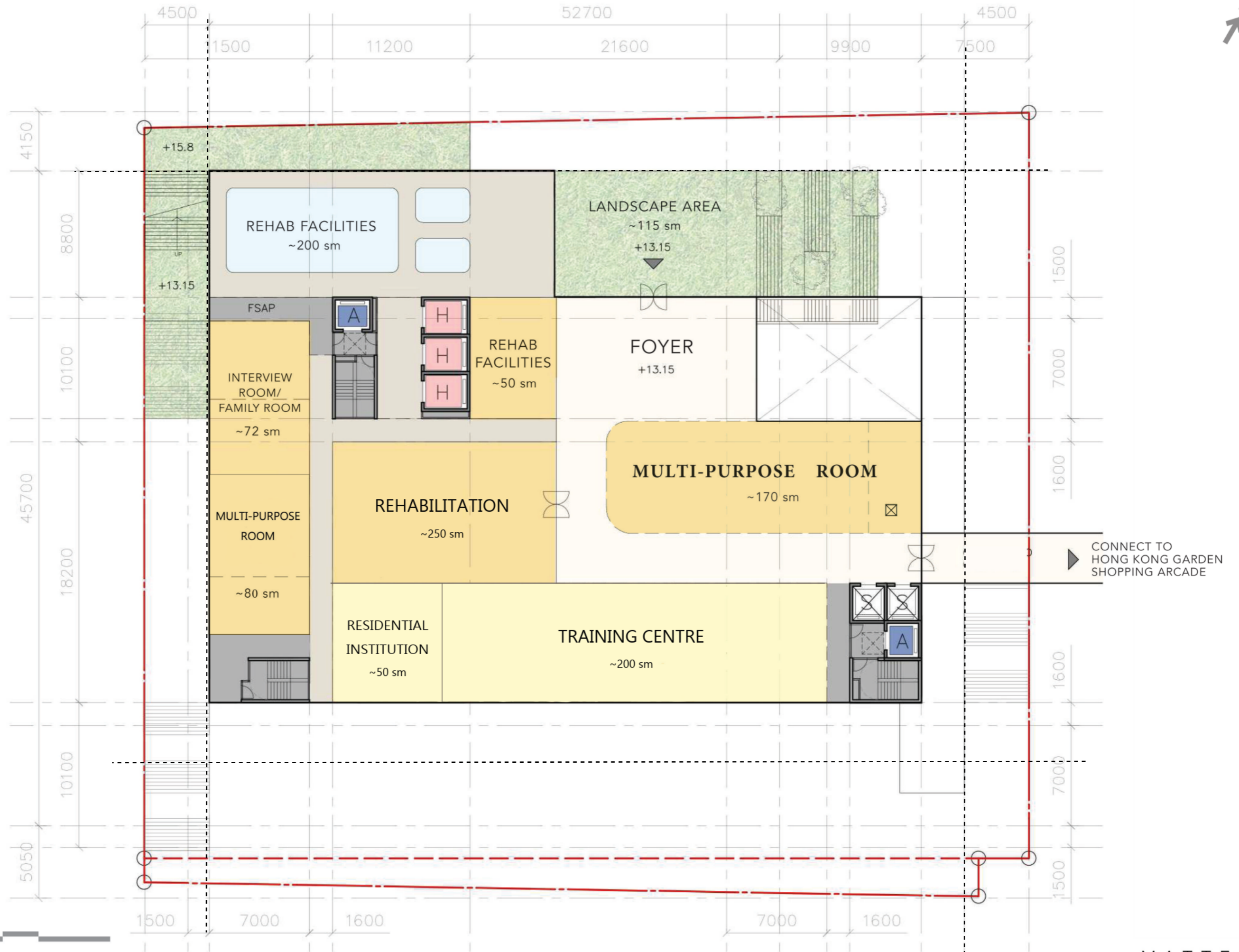


1F

1:250 @ A3

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

— MATTER



\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION



AREA VACATED TO ALLOW E TO SE WIND PENETRATION

TYP

1:250 @ A3



TYPICAL FLOORS - 9,11,13,15/F

\*AREAS SUBJECT TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION

