

**Appendix 6**  
**Environmental Assessment**

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**

**ENVIRONMENTAL ASSESSMENT**

Date **July 2024**

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Signed

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Signed

Project Reference **CCGCPRAFEI00**

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## 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 was responsible for the previous planning application (No. A/TWW/122) and prepared the environmental assessment report (EAR) as one of the technical supporting documents. The same has been appointed to update the EAR with respect to the current proposal (including private residential use and RCHE) to address environmental noise impact, air quality impact on the Proposed Development during its operational phase, potential land contamination problem 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. The relevant traffic forecast is provided by the project traffic consultant (CKM).

### 1.2 Application Site and its Environs

- 1.2.1 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. The existing condition is the same as in the previous planning application.
- 1.2.2 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. There is no change on the surrounding context when compared to the observation in the previous planning application.
- 1.2.3 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. **Figure 1.1** shows the location of the Application Site.
- 1.2.4 There is no industrial use and no I/R interface problem is not anticipated.
- 1.2.5 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.

### 1.3 Proposed Development

- 1.3.1 The Proposed Development consists of a RCHE (G/F to 7/F; 8 floors) and a residential tower (8/F to 15/F) with maximum building height of 60mPD. There is also 1 basement floor to cater for car parking area for RCHE, residential and visitor uses.
- 1.3.2 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.
- 1.3.3 Regarding the RCHE, there will be 284 beds provided in dormitories located at 3/F to 7/F based on the current proposal. Other ancillary facilities are mainly located at G/F to 2/F.
- 1.3.4 Regarding the residential portion, clubhouse including an outdoor swimming pool is located at 8/F. A total of 112 flat units are located at 9/F to 15/F (7 floors).
- 1.3.5 The tentative completion year is 2032.
- 1.3.6 The Master Layout Plan (MLP), typical floor plan and section of the Proposed Development are shown in **Appendix 1.1**. It is assumed that ancillary facilities of the RCHE (e.g. training centre, rehabilitation area, multi-purposed room, office, etc.) and clubhouse of the residential portion would be provided with central air conditioning system without reliance on openable window for natural ventilation.

### 1.4 Environmental Appraisal of the Proposed Development

#### Environmental Air Quality

- 1.4.1 As discussed in the EAR and based on updated survey on 3/7/2024, there is no industrial use identified in the vicinity and no I/R interface problem anticipated. Within 200m from the boundary of the Application Site, it is characterised by residential and associated use, as well as a retail use adjacent to the Application Site. There is no chimney stack emission identified within 200m from the Application Site.
- 1.4.2 On the other hand, the Application Site is bounded by Castle Peak Road – Tsing Lung Tau to the south and Lung Tang Road (with restricted access and considered as internal access road of Hong Kong Garden) to the north. Other carriageways are further apart.
- 1.4.3 Discussion is included in this report to demonstrate that the horizontal buffer separation requirement stipulated under Table 3.1 in Chapter 9 of the HKPSG can be fulfilled.

#### Environmental Noise

- 1.4.4 There is no railway system in the vicinity of the Application Site. Railway noise is not a concern.
- 1.4.5 While there is no industrial premises and activities in the vicinity, there is a shopping mall (i.e. Hong Kong Garden Commercial Complex) to the immediate east of the Application Site. An onsite survey was conducted for the EAR to identify any potential noise source, quantify impact through direct noise measurement and assess the impact to demonstrate compliance, or to devise appropriate mitigation measures in case the fixed noise impact is found to be unacceptable under base scenario without noise mitigation measure in place. Based on updated survey on 3/7/2024, there is no change on the type and number of noisy facilities identified in the vicinity.



- 1.4.6 The Application Site is surrounded by carriageways including Castle Peak Road – Tsing Lung Tau, Lung Tang Road and Lung Yu Road further apart. Castle Peak Road – Tsing Lung Tau is considered the major carriageway that would generate considerable noise impact. Despite that a section of Castle Peak Road – Tsing Lung Tau is already provided with semi-enclosure (with south side opened) so that the residual noise contribution should be insignificant, the remaining section of Castle Peak Road – Tsing Lung Tau (mainly on east side of the Application Site) would still impose noise impact on future noise sensitive uses of the development. An assessment of road traffic noise is therefore conducted to assess whether the traffic noise level at the Proposed Development could fulfil the criteria of HKPSG.

#### Land Contamination

- 1.4.7 As given, the Application Site was formerly used as an Acid Factory. The site was already vacant, unpaved and partially covered by vegetation at the time of preparation of the EAR. After the EAR and till now, the Application Site is still abandoned and not used. The status is confirmed to be the same based on updated survey on 3/7/2024. There is no onsite observation of any trace of land contamination, the historic use of the Application Site was preliminarily checked for the purpose to evaluate any possible risk of land contamination in the EAR. The recommendation in the EAR is considered still applicable.

## 2. AIR QUALITY IMPACT ASSESSMENT

### 2.1 Buffer Separation Requirement under HKPSG

- 2.1.1 According to Table 3.1 in Chapter 9 of Hong Kong Planning Standards and Guidelines (HKPSG), minimum buffer separation is recommended for air sensitive uses from different types of pollution sources including road and industrial areas.
- 2.1.2 For industrial areas, buffer separation depends on relative difference in height of chimney exit and the site, and up to 200m is recommended.
- 2.1.3 For road and highways, buffer separations (measured from road kerb side to air sensitive use) of 20m, 10m and 5m are recommended respectively for trunk road and primary distributor, district distributor and local distributor.

### 2.2 Surrounding Environment

- 2.2.1 The Application Site is located in urbanised residential area in Sham Tseng/Tsing Lung Tau. 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. There is no industrial site in the vicinity.
- 2.2.2 The nearest major road is Castle Peak Road – Tsing Lung Tau (classified as rural road in Annual Traffic Census 2022) bounding the Application Site on southern side. Another major road is Tuen Mun Road (classified as expressway in Annual Traffic Census 2022) which is 260m to the north of the Site. Details are shown on **Figure 2.1**.

### 2.3 Appraisal of Chimney Stack Emission Impact on the Proposed Development

- 2.3.1 According to both site survey conducted on 7/6/2021 for the EAR and updated survey on 3/7/2024, there is no chimney stack identified within 200m from the Application Site as shown on **Figure 2.1**, which is characterised by residential uses. As such, the horizontal buffer distance is deemed to have complied with the recommended buffer distance of industrial chimney under HKPSG. Hence, no adverse air quality impact due to chimney stack emission is anticipated.
- 2.3.2 It is fully understood that it should be the responsibility of the applicant and consultants to ensure the validity of the chimney data in site surveys.

### 2.4 Appraisal of Vehicular Emission Impact on the Proposed Development

- 2.4.1 As shown on **Figure 2.2**, Castle Peak Road – Tsing Lung Tau is located to the immediately south of the Application Site whereas Tuen Mun Road is located about 260m away from the Site. On the other hand, an access road inside Hong Kong Garden is to the immediate north of the Application Site. There is entrance gate setup to restrict using this access road to/from Hong Kong Garden and is not a public road in nature.
- 2.4.2 With reference to the Annual Traffic Census 2022, Castle Peak Road - Tsing Lung Tau is classified as rural road and Tuen Mun Road is classified as expressway. There is no specific buffer requirement on the rural road under HKPSG. However, as conservative approach, 10m buffer distance (i.e. recommended buffer distance of district distributor) was adopted in the EAR and also adopted in the assessment. On the other hand, the expressway is similar to the truck road and the primary distributor, 20m buffer distance would be adopted.

- 2.4.3 The minimum distances between the boundary of the Application Site to the nearest kerb of the Castle Peak Road – Tsing Road Tau and Tuen Mun Road are about 12m and 260m, respectively, as shown on **Figure 2.2**. Hence, the corresponding recommended buffer distance under HKPSG could be satisfied. Thus, no adverse air quality impact on the Proposed Development from the vehicular emission is anticipated.

## 2.5 Air Quality Impact during Construction of the Project

### Legislation

- 2.5.1 Assessment criteria for aerial emission is based in the Hong Kong Air Quality Objectives (AQOs). In addition, according to Annex 4 of EIAO-TM, the standard of hourly average Total Suspended Particulate (TSP) concentration is  $500\mu\text{g}\cdot\text{m}^{-3}$  measured at 298K (25°C) and 101.325kPa (1 atmosphere).

### Identification of Potential Air Quality Impacts

- 2.5.2 Site formation, excavation, foundation and superstructure construction works would be required for the construction of the project.
- 2.5.3 Fugitive dust will be the potential major source of air quality impact during the construction phase. Under the Air Pollutant Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted non-road mobile machineries (including mobile generator, air compressor, crawler crane, bulldozer, and etc.) with a proper label are allowed to be used in the construction site. For SO<sub>2</sub> emission, under Air Pollution Control (Fuel Restriction) Regulation, only liquid fuel with a sulphur content of less than 0.005% by weight are allowed to be used in the construction site. Therefore, impact due to emission of other criteria pollutants – NO<sub>2</sub>, SO<sub>2</sub>, and CO, etc. is not considered significant.

### Identification of Air Sensitive Receivers

- 2.5.4 The Application Site is surrounded by residential and commercial developments on three sides. The nearest air sensitive receivers (ASRs) (and separation from nearest boundary of the Application Site) are: Hong Kong Garden Commercial Complex to the immediate east (about 3m), Hong Kong Garden Block 22 (Queen's Height) to the west (>20m), Block 15 (Yale Villa) to the north (about 30m), Block 14 (Jade Heights) to the northeast (about 45m) and Block 1 to the east (about 80m) (see **Figure 2.3**).

### Mitigation Measures for Fugitive Dust Emission

- 2.5.5 Adequate and practical mitigation measures will be adopted during construction of the project to suppress dust emission. With the implementation of sufficient dust suppression measures as stipulated under the APCO, Air Pollution Control (Construction Dust) Regulation (Cap 311R) and good site practices, fugitive dust emission arising from construction can be effectively suppressed through contractual clauses and close enforcement of the resident engineers. The Contractor(s) shall be required to follow the requirements of the Air Pollution Control (Construction Dust) Regulation which requires notification before carrying out demolition works or construction works and to adopt dust reduction measures while carrying out demolition activities or construction activities.
- 2.5.6 The recommended dust mitigation measures for protection of nearby ASRs are described below:
- Use of regular watering, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather;

- Use of frequent watering for particularly dusty construction areas close to ASRs;
- Open temporary stockpiles should be avoided or covered. Prevent placing dusty material storage plies near ASRs;
- Dusty material stockpiled onsite, if any, should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3-sides;
- Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;
- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;
- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;
- Imposition of speed controls for vehicles on unpaved site roads. 8 km/hr is the recommended limit;
- Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs;
- Provide hoarding of not less than 3.6m high from ground level along site boundary which is close to the ASRs to further protect the ASRs.

2.5.7 "Recommended Pollution Control Clauses for Construction Contracts" is available on the EPD website which set out the recommended air pollution control measures to be implemented by the contractor(s) during the construction stage of the Project.

2.5.8 In addition, availability of electricity supply during construction of the project will be explored and such requirement will be specified in future contract. If available, contractor should maximise use of electricity and with least reliance of diesel fuelled equipment (e.g. for electricity powered stationary equipment such as pump instead of using generator). With the adoption of good practices, it is expected that emission of construction fugitive dust can be kept to an acceptable level.

## 2.6 Conclusion

2.6.1 As confirmed in site survey, there is no chimney identified within 200m from the Application Site. In addition, the air sensitive uses in the development scheme can meet the buffer separation requirement with respect to nearest carriageways. Therefore, it is anticipated that the Proposed Development at the Application Site would not be subject to significant air quality impact.

2.6.2 Best management practice will be adopted during construction of the project. Necessary mitigation measures as stated above and in "Recommended Pollution Control Clauses for Construction Contracts" where applicable will be applied so that emission during construction stage should be kept to an acceptable level.

### 3. CONSTRUCTION NOISE IMPACT ASSESSMENT

#### 3.1 Scope of Work

- 3.1.1 The section of this study is to review the potential construction noise impact due to the Proposed Development on the surrounding noise sensitive uses, and to recommend mitigation measures where are practicable to attenuate the impact.

#### 3.2 Legislation

##### General Construction Activities during Restricted Hours

- 3.2.1 Noise impacts arising from general construction activities (excluding percussive piling) conducted during the restricted hours (19:00-07:00 hours on any day and anytime on Sunday or general holiday) and percussive piling during anytime are governed by the Noise Control Ordinance (NCO).
- 3.2.2 For carrying out of any general construction activities involving the use of any Powered Mechanical Equipment (PME) within the restricted hours, a Construction Noise Permit (CNP) issued by the Authority must be obtained under the NCO. The noise criteria and the assessment procedures for issuing a CNP are specified in following Technical Memoranda published under the NCO –
- Technical Memorandum on Noise from Percussive Piling (PP-TM).
  - Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM).
  - Technical Memorandum on Noise from Construction Work in Designated Area (DA-TM)
- 3.2.3 As the Site is fall within Designated Area (DA) in accordance with EPD's Plan No. EPD/AN/K&NT-03 for Tuen Mun, Sham Tseng and Ma Wan, the DA-TM is applicable. Therefore, the use of Specified Powered Mechanical Equipment (SPME) and carry out of Prescribed Construction Work (PCW) within the Site during the restricted hours shall require a valid CNP.

##### General Construction Activities during Non-Restricted Hours

- 3.2.4 There is no statutory control for noise arising from construction activities (other than percussive piling) during non-restricted hours (7am to 7pm from Monday to Saturday, not including general holidays). Noise limits are set out in ProPECC Practice Note PN2/93 Noise from Construction Activities – Non-statutory Controls.

##### Noise Emission Label for Air Compressor and Handheld Percussive Breaker

- 3.2.5 The Noise Control (Hand Held Percussive Breakers) and (Air Compressors) Regulations under NCO also limit the emission from hand held breakers having a mass of above 10 kg and air compressor capable of supplying compressed air at 500 kPa or above for carrying out construction work. The above equipment must be fitted with noise emission labels (NELs) when in operation.

#### 3.3 Identification of Potential Noise Impact

- 3.3.1 The potential source of noise impact for construction of the Project would be the use of PME for various activities, such as site clearance, excavation works, site formation works and construction of buildings.

### 3.4 Identification of Noise Sensitive Receivers

3.4.1 The Application Site is surrounded by residential and commercial developments on three sides. The nearest noise sensitive receivers (NSRs) (and separation from nearest boundary of the Application Site) are: Hong Kong Garden Block 22 (Queen's Height) to the west (>20m), Block 15 (Yale Villa) to the north (about 30m), Block 14 (Jade Heights) to the northeast (about 45m) and Block 1 to the east (about 80m) (see **Figure 2.3**).

### 3.5 Mitigation Measures for Construction Noise

3.5.1 Construction works shall be carried out during non-restricted hours as far as practicable. The mitigation measures recommended in ProPECC PN1/24 should be implemented where applicable. In addition, the following measures and on-site practice are recommended and will be incorporated into contract for implementation by future contractors so as to minimise the potential construction noise impacts during daytime:

- Use Quality Powered Mechanical Equipment (QPME) type equipment
- Use noise barrier or enclosure for noisy plants
- Switch off idling equipment
- Close all engine doors of equipment
- Fit muffler or silencer for noisy machines
- Carry out routine maintenance of plant and equipment
- Use quiet construction method where possible (e.g. non-percussive equipment for demolition and concrete breaking works)
- Mobile plant, if any, should be sited as far from noise sensitive receivers (NSRs) as possible
- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs;

3.5.2 Furthermore, the same practice note and EPD's Recommended Pollution Control Clauses (RPCC) for Construction Contract should be incorporated in the relevant works contract as well. The RPCC are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers.

3.5.3 All in all, the Contractor shall observe and comply with the Noise Control Ordinance and its subsidiary regulations. The followings will be required in contractual document for future contractors.

3.5.4 Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project.

3.5.5 The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.

3.5.6 Notwithstanding the requirements and limitations set out in above, the Engineer may upon application in writing by the Contractor, allow the use of equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, is considered to be of absolute necessity and

adequate noise insulation has been provided to the schools to be affected, or of emergency nature, and not in contravention with the Noise Control Ordinance in any respect.

- 3.5.7 The Contractor shall, when necessary, apply for a construction noise permit in accordance with the Noise Control (General) Regulations prior to the commencement of the relevant part(s) of the works, display the permit as required and provide a copy to the Engineer.
- 3.5.8 Measures that are to be taken to protect adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise (simple plywood hoarding will not be sufficient). The barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228(1984). The location and details of the barriers shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.
- 3.5.9 With the implementation of the abovementioned mitigation measures, no insurmountable construction noise impact is anticipated. The Project Proponent and relevant Contractor are reminded to look into the extent and practicability of proposed noise mitigation measures required and propose the package of noise mitigation measures for meeting the 75dB(A) standard for the surrounding NSRs (e.g. residential units of Hong Kong Garden) during the construction stage for agreement with the applicant before commencement of construction work.

### 3.6 Conclusions

- 3.6.1 The potential source of noise impact for construction of the Project would be the use of PME for various activities, such as site clearance, excavation works, site formation works and construction of buildings. With the implementation of the mitigation measures as mentioned in **Section 3.5**, no insurmountable construction noise impact is anticipated.

## 4. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

### 4.1 Scope of Work

- 4.1.1 The section of this study is to review the potential road noise impacts (i.e. road traffic noise impact) on the noise sensitive uses of the Proposed Development, and to recommend mitigation measures where are practicable to attenuate the impact.

### 4.2 Assessment Criteria

- 4.2.1 Noise standards are recommended in Chapter 9, "Environment", of the Hong Kong Planning Standards and Guidelines (HKPSG) for planning against possible noise impact from road traffic, railway and aircrafts. According to the guidelines, the maximum road traffic noise level, measured in terms of  $L_{10}(1\text{-hr})$ , at façades of residential development and dormitories of RCHE is 70 dB(A) whereas that for façade of diagnostic room (sick room) of RCHE is 55 dB(A). As mentioned before, other than residential units, dormitories and diagnostic rooms of RCHE, all other uses (e.g. clubhouse, ancillary facilities of RCHE) would not rely on openable window for ventilation purpose.

### 4.3 Assessment Methodology

- 4.3.1 The assessment concerns the prediction of the maximum hourly  $L_{10}$  traffic noise level at noise sensitive receivers (NSRs) of the Proposed Development due to the projected traffic flow on the adjacent major road networks within 15 years from the operation year of the Proposed Development. The traffic data provided by the project traffic consultant for year 2047 is considered as the worst case scenario within 15 years upon completion of the Proposed Development in 2032. Traffic forecast is attached in **Appendix 4.1**. The endorsement of the traffic forecast data from Transport Department and the confirming letter for the traffic forecast from the Traffic Consultant will be provided once available.
- 4.3.2 The U.K. Department of Transport's procedure "Calculation of Road Traffic Noise" has been applied to predict the hourly  $L_{10}$  noise level generated from road traffic at selected representative noise sensitive receivers (NSRs) of the Proposed Development. The predicted noise levels were then compared with the HKPSG noise criterion for assessing the impact.

### 4.4 Noise Sensitive Receivers

- 4.4.1 Noise Sensitive Receivers (NSRs) representing habitable room of the Proposed Development relying on openable window for ventilation have been selected for this assessment. They include living room and bedroom of residential portion, dormitories and diagnostic room of the RCHE. The locations of the representative NSRs are shown in **Figure 4.1**. The assessment points were taken at 1.2 m above the floors of the selected storeys and 1m away from the façades of openable windows.

### 4.5 Existing At-Source Mitigation Measures

#### Semi Enclosure at Castle Peak Road – Tsing Lung Tau

- 4.5.1 Semi enclosures were found at the Castle Peak Road in the vicinity of the Proposed Development. However, no relevant information could be found at the Highway Department of Ho Man Tin Government Offices. Thus, on-site measurements for the heights of the semi enclosures were conducted as shown in **Appendix 4.2**. The semi enclosures have been incorporated into the noise model.



#### Cantilever Barriers at Tuen Mun Road

- 4.5.2 Cantilever barriers were found at Tuen Mun Road. Given that the building height of the Proposed Development is lower than the elevation levels of Tuen Mun Road, it is considered that the natural topography could provide sufficient screening effect to the Proposed Development. As such, the cantilever barriers along Tuen Mun Road would not be incorporated into the noise model for simplification and conservatism.

#### **4.6 Base Case Design and Predicted Unmitigated Noise Level**

- 4.6.1 The Proposed Development takes advantage of the sea view to the south so that the major façades would be exposed to south side and therefore would be affected by road traffic along Castle Peak Road on the same side. It is understood that the diagnostic room of the RCHE has most stringent road traffic noise standard. In order to cater so, the RCHE is designed so that there is an internal courtyard at the middle of the block. The internal courtyard also serves to provide outdoor leisure area for elderly. All sick rooms and some dormitories are located with openable window facing the internal courtyard to minimise exposure to road traffic noise.
- 4.6.2 The potential road traffic noise impact under the base case (without any other direct noise mitigation measures) has been assessed. According to the base case result, scenario for AM peak flow is considered to be the worst case scenario. Noise mitigation measures are recommended based on the AM scenario to attenuate the road traffic noise impact.
- 4.6.3 The maximum predicted road traffic noise level is 75 dB(A) for locations representing residential portion and dormitories of the RCHE and is 53 dB(A) for locations representing diagnostic rooms of the RCHE. (see **Appendix 4.3**).
- 4.6.4 Regarding the residential portion, there are 12 out of 112 flat units with exceedance, equivalent to compliance level of 89%.

#### **4.7 Proposed Noise Mitigation Measures**

- 4.7.1 Based on the assessment result under base case scenario, acoustic window and enhanced acoustic balcony are considered and incorporated. The locations of the proposed mitigation measures are shown in **Figure 4.2** and the schedule of the mitigation measure is shown in **Appendix 4.5**.
- 1) Acoustic Window/Enhanced Acoustic Balcony (Baffle Type)
- 4.7.2 Acoustic window/Enhanced acoustic balcony (baffle type) has been proposed as an innovative mitigation measures for the residential development. According to EPD's practice note, ProPECC PN5/23 "Application of Innovative Noise Mitigation Designs in Planning Private Residential Developments against Road Traffic Noise Impact", reference design of acoustic window/enhanced acoustic balcony for achieving noise reduction (relative noise reduction, RNR) is available (see **Appendix 4.4**). The reference design also complies with the Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-130 "Lighting and Ventilation Requirements – Performance-based Approach" regarding the configuration of the proposed acoustic window.
- 4.7.3 The reference design of acoustic window/enhanced acoustic balcony in ProPECC PN5/23 can cater for range of room size (8m<sup>2</sup> and 18m<sup>2</sup> for acoustic window; 14m<sup>2</sup> and 18m<sup>2</sup> for enhanced acoustic balcony). The configuration which can fit the living room/bedroom/dormitories/diagnostic room will be adopted.

#### **4.8 Assessment Result with At-Receiver Noise Mitigation Measures (Mitigated Scenario)**

- 4.8.1 The quoted reference design of acoustic window/enhanced acoustic balcony would have noise reduction of at least 6dB(A). Further, addition of SAM of NRC  $\geq 0.7$  at top and outer opening side of the mullion can offer an additional 1.5 dB(A). Given that the maximum exceedance for the Base Case is around 5dB(A) only, it is practicable to mitigate the road traffic noise impact to the acceptable level by using acoustic window/enhanced acoustic balcony. In this assessment, it is assumed that acoustic window/enhanced acoustic balcony can reduce noise by 4.5dB(A).
- 4.8.2 The predicted road traffic noise impact at the representative NSRs with the noise mitigation measures discussed above were assessed. The mitigated result in **Appendix 4.3** indicates full compliance of road traffic noise standard with the proposed noise mitigation measures in place.

#### **4.9 Conclusions**

- 4.9.1 A road traffic noise impact assessment has been carried out to evaluate the potential traffic noise impact to the Proposed Development. The design of the proposed development has due consideration on traffic noise impact. Internal courtyard is created for the RCHE to accommodate particularly noise sensitive uses (sick room).
- 4.9.2 Furthermore, noise mitigation measures, in terms of acoustic window/enhanced acoustic balcony, have been proposed and incorporated to mitigate the adverse road traffic noise impact.
- 4.9.1 With the implementation of the above mentioned noise mitigation measures as described in **Appendix 4.5** and illustrated in **Figure 4.2**, the predicted noise level would comply with the noise standards of  $L_{10}$  (1-hour) 70 dB(A) (for residential portion and dormitories of the RCHE) and 55 dB(A) (for sick room of the RCHE). A copy of undertaking letter by the Applicant is included in **Appendix 4.6** for implementation of the proposed noise mitigation measures.
- 4.9.2 Therefore, the Proposed Development would not be subject to any adverse road traffic noise impact with proper noise mitigations in place.

## 5. FIXED NOISE IMPACT ASSESSMENT

### 5.1 Scope of Work

5.1.1 The aim of this study is to review potential noise impacts arising from the nearby fixed noise sources, including industrial buildings and activities, within 300m of the Proposed Development. Practicable noise mitigation measures would be recommended, where necessary.

### 5.2 Assessment Criteria

5.2.1 The Application Site is located in urbanised residential area in Sham Tseng/Tsing Lung Tau. There is no industrial site in the vicinity. Among road carriageways within 300m from the Application Site, only Tuen Mun Road New Territories Circular Road is of AADT more than 30,000 veh/day and considered as Influencing Factor (IF) according to the *Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites* (herein referred as TM). However, as it is sited over 250m away, it is conservatively assumed that the Application Site is not directly or indirectly affected by it. Therefore, Area Sensitivity Rating "B" is assumed applicable for urban area not affected by IF.

5.2.2 **Table 5.1** below shows the details of the fixed noise impact assessment criteria for this study.

**Table 5.1 Fixed Noise Impact Assessment Criteria**

Standard	ASRs <sup>[1]</sup>	Criteria	Acceptable Noise Level (ANL) <sup>[2]</sup>	Noise Criteria in Current Assessment Leq (30mins), dB(A)
NCO	B	Leq (30 mins) (07:00 – 23:00)	65 dB(A)	65 dB(A)
		Leq (30 mins) (23:00 – 07:00)	55 dB(A)	55 dB(A)

Notes:

[1] Acceptable Noise Level for Area Sensitivity Ratings "B" & "C" stipulated in the *Technical Memorandum for the Assessment from Places other than Domestic Premises, Public Places or Construction Sites*. Under the "Urban Area" type of the area containing NSR, an ASR of "B" is assigned to the NSR "Not Affected" by IF, while an ASR of "C" is assigned to the NSR "Directly Affected" or "Indirectly Affected" by IF.

[2] The assigned ASRs are for assessment purpose only and not to affect the Authority's discretion on the enforcement based on the temporary conditions.

### 5.3 Fixed Noise Sources

5.3.1 Noise survey was conducted on 7/6/2021 for the EAR to identify the fixed noise sources within 300m from the Application Site.

5.3.2 The noise environment of the Application Site is observed to be dominated by road traffic noise. The surrounding is dominated by residential uses and no industrial operation can be observed. The only potential fixed noise source was identified at the rooftop of Hong Kong Garden Commercial Complex (HKGCC) to the immediate east of the Application Site as shown in **Figure 5.1**.

5.3.3 Based on updated survey on 3/7/2024, the observation in the EAR is still valid. The number of noise sources and their nature remains unchanged. The operator of HKGCC

also confirmed that there is no change of the identified noise sources and the period of operation remains the same as before.

- 5.3.4 **Table 5.2** summarised the key information of the identified fixed noise sources. The locations of the fixed noise sources are shown on **Figure 5.1** and **Figure 5.2**. Details of the site survey including the on-site noise measurements are shown in **Appendix 5.1**.

**Table 5.2 Summary of the Identified Fixed Noise Sources**

Fixed Source ID	Description	Location	Operation Hours	SWL, dB(A)
CT1	Cooling Towers for Commercial Complex (Either one in standby mode)	Roof of HKGCC	7 AM to 11 PM	96.9
CT2				96.9
CT3	Cooling Towers for Individual Tenants			96.9
CT4				96.9
VO1	Ventilation Openings			82.2
VO2				88.1
VO3				85.2
VO4				87.5

## 5.4 Noise Sensitive Receivers

- 5.4.1 All identified noise sources are concentrated on east side of the Application Site. Therefore, representative Noise Sensitive Receivers (NSRs) on east side nearest to the identified noise sources have been selected for the assessment. **Figure 5.2** shows the location of the representative NSRs.

## 5.5 Assessment Methodology

- 5.5.1 Standard acoustic principles were adopted for prediction of cumulative industrial noise impact. Horizontal distance separation instead of absolute distance is adopted for simplicity and conservatism. A correction of  $-20\log(\text{Dist}) - 8$  is applied to correct the SWL to sound pressure level (SPL) at the specific distance. A façade correction of +3 dB(A) is included.
- 5.5.2 For representative NSR substantially shielded by building structure, barrier correction of -10dB(A) would apply.
- 5.5.3 Given that no tonality, intermittency or impulsiveness were perceived during the noise measurement, no corrections of the above characteristics are considered necessary.

## 5.6 Evaluation of Noise Impact under Unmitigated Scenario

- 5.6.1 Based on the information provided from the operational staff of the HKGCC, the operation periods of the identified fixed sources are from 7 a.m. to 11 p.m.
- 5.6.2 Given that there is no night-time operation of the identified fixed sources, the fixed noise impact assessment would only be conducted for the day and evening time period (i.e. 7 a.m. to 11 p.m.)

- 5.6.3 A summary of predicted fixed noise levels during daytime & evening (0700-2300) period at selected NSRs is tabulated as below in **Table 5.3**. Detailed calculations are shown in **Appendix 5.2**.

**Table 5.3 Predicted Fixed Noise Level (Unmitigated Scenario)**

Representative NSRs	Predicted Noise Level Leq(30min) (0700-2300)	Noise Criteria, dB(A)	Exceedance, dB(A)
FN3-1	<b>69</b>	65	4
FN3-2	56	65	0
FN4-1	<b>69</b>	65	4
FN4-2	56	65	0
FN5-1	<b>69</b>	65	4
FN5-2	56	65	0
FN6-1	<b>69</b>	65	4
FN6-2	56	65	0
FN7-1	<b>69</b>	65	4
FN7-2	56	65	0
FN9-1	<b>66</b>	65	1
FN9-2	<b>68</b>	65	3
FN9-3	<b>68</b>	65	3
FN9-4	<b>67</b>	65	2
FN9-5	<b>66</b>	65	1
FN9-6	54	65	0

- 5.6.4 As shown on **Table 5.3**, noise exceedances of 1 – 4 dB(A) were found out at NSRs FN3-1, FN4-1, FN5-1, FN6-1, FN7-1, FN9-1 TO FN9-5.

## 5.7 Mitigation Measure

- 5.7.1 At-source mitigation measure is always the most preferable option.
- 5.7.2 Based on the liaison with T.L. 60 Management Limited<sup>1</sup>, the operator of the Hong Kong Garden Commercial Complex (HKGCC), T.L. 60 Management Limited agrees to conduct all necessary retrofitting work (e.g. partial / full enclosure, hood, silencer, acoustic louver) for the existing noisy equipment (e.g. VO1 to VO4, CT1 to CT4) at the rooftop of HKGCC to control the noise generation such that the future development at existing open ground (i.e. Application Site) to the immediate west of the HKGCC will not be subject to unacceptable noise impact as required by law due to the operation of the HKGCC. The exact retrofitting work will be determined in detailed design stage and will be implemented before OP stage of the Proposed Development. An undertaking letter from the operator of HKGCC T.L. 60 Management Limited is attached in **Appendix 5.3**.

## 5.8 Evaluation of Noise Impact under Mitigated Scenario

- 5.8.1 For the purpose to demonstrate the feasibility to mitigate impact to the acceptable level, it is assumed in this study that at-source noise mitigation measures (e.g. substantial shielding) would provide 10dB(A) noise reduction on the cooling towers of HKGCC (i.e. CT1 to CT4) (e.g. by using silencer, cantilevered barrier, etc.) and 5dB(A)

<sup>1</sup> The Applicant and operator of HKGCC are both under Chinachem Group

noise reduction on the ventilation openings of HKGCC (i.e. VO1 to VO4) (e.g. by using acoustic louver, hood to divert the opening away) such that the noise levels of the representative NSRs could comply with the relevant standards based on the Proposed Development Scheme as shown on

5.8.2 **Table 5.4.** Detailed calculations are shown in **Appendix 5.2.**

**Table 5.4 Predicted Fixed Noise Level (Mitigated Scenario)**

Representative NSRs	Predicted Noise Level Leq(30min) (0700-2300)	Noise Criteria, dB(A)	Exceedance, dB(A)
FN3-1	62	65	0
FN3-2	47	65	0
FN4-1	62	65	0
FN4-2	47	65	0
FN5-1	61	65	0
FN5-2	47	65	0
FN6-1	61	65	0
FN6-2	47	65	0
FN7-1	61	65	0
FN7-2	47	65	0
FN9-1	58	65	0
FN9-2	59	65	0
FN9-3	59	65	0
FN9-4	58	65	0
FN9-5	57	65	0
FN9-6	45	65	0

5.8.3 With reference to examples and Table 2 of "Good Practices on Ventilation System Noise Control" published by EPD, the noise reduction performance of combination of partial enclosure and silencers would be 10 -20 dB(A) for cooling tower. The noise reduction of silencers would be 5-10 dB(A) for ventilation opening. It is likely that the noise reduction assumed for the mitigated scenario is practicably achievable.

5.8.4 Considering that the operator has committed to conduct required retrofitting works and it is apparent that there is practical mitigation measure to meet the targeted noise reduction, no insurmountable noise impact from the fixed sources is anticipated.

5.8.5 Given that the mitigation measures would be implemented before OP stage of the Proposed Development as agreed in the undertaking letter, no adverse impact from the fixed source would be anticipated.

## 5.9 Conclusion

5.9.1 The potential noise impact from fixed noise sources has been assessed based on the current proposal. The only potential fixed noise source was identified at the rooftop of Hong Kong Garden Commercial Complex (HKGCC) to the immediate east of the Application Site.

5.9.2 As the operator of HKGCC, T.L. 60 Management Limited, would conduct all necessary retrofitting work to the existing noisy equipment (e.g. VO1 to VO4, CT1 to CT4) at the rooftop of HKGCC to control the noise generation, the future residential development at existing open ground (i.e. Application Site) to the immediate west of the HKGCC will

not be subject to unacceptable noise impact as required by law due to the operation of the HKGCC. Given that the mitigation measures would be implemented by the operator of HKGCC before OP stage of the Proposed Development as agreed in the undertaking letter, no adverse impact from the fixed source would be anticipated.

## 6. LAND CONTAMINATION REVIEW

### 6.1 Legislations, Standards & Guidelines

6.1.1 The land contamination review has been conducted in accordance with the following legislation, standard and guidelines:

- EPD Guidance Note for Contaminated Land Assessment and Remediation.
- EPD Practice Guide for Investigation and Remediation of Contaminated Land.
- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land

### 6.2 Background and Site Description

6.2.1 With respect to this Land Contamination Review (LCR), a desktop review (including reviewing of historical land uses, information collected from relevant government departments) and a site visit were conducted for the EAR.

6.2.2 According to the information from the Applicant, the original use of the Application Site is an acid factory. Given that the acid factory was established long ago, the as-built drawing is not available, and no records could be found from the Building Records Access and Viewing On-line (BRAVO) of Building Departments (BD). The Application Site was found to be vacant and occupied with trees and plants when the EAR was prepared in 2021. Afterwards, there is no change of the status as confirmed by the applicant and verified in updated site survey.

### 6.3 Review of Historical Land Use

6.3.1 Aerial photographic records for the Site between 1963 and 2023 were reviewed to evaluate the likelihood of potential contamination associated with past uses of the Site. The historical land uses identified from the review are summarised in **Table 6.1** and selected aerial photographs are provided in **Appendix 6.1**

**Table 6.1 Land Use Summary on the Application Site**

Year	Land Use	Photo No.
1963	Unknow Building Structure	1963-6364
1964	Unknow Building Structure	1964-3671
1989	Unknow Building Structure	A18323
1990	Vacant Land	A20960
1999	Vacant Land	CN22631
2000	Open Storage Area for Unknown Material	CN28040
2010	Open Storage Area for Unknown Material	CS29341
2017	Open Storage Area for Unknown Material	E027307C
2018	Vacant Land	E050497C
2021	Vacant Land	E129539C
2023 & now	Vacant Land	E194362C

6.3.2 These records revealed that the Site is occupied by unknown building structures before 1963 and the structures was demolished in about 1990. The Site was then vacant until 1999. Open storage area for unknown material were observed from 2000 to 2017. Afterwards, the Site is vacant again until now.

6.3.3 With reference to the BRAVO, there is no building records about the Application Site. Given that there is no detailed information of the unknown building structures and the open storage area up to the report submission date.



**6.4 Acquisition of Local Authority Records**

6.4.1 The Environmental Protection Department (EPD) and the Fire Services Department (FSD) were approached to obtain the information of chemical waste and dangerous goods (DGs). As replied by EPD, there was no chemical waste spillage accident record onsite. As replied by FSD, neither records of dangerous good license, fire incidents nor incidents of spillage / leakage of dangerous goods were found onsite. There is no update from Lands Department and Planning Department has confirmed that the Site is vacant currently. Details of the correspondences are shown in **Appendix 6.2**.

**6.5 Site Observation**

6.5.1 Site visit was conducted on 7/6/2021 for the LCR and updated survey is conducted on 3/7/2024. At present, the Site is a vacant land and occupied with trees and plants as shown in below photograph.



Photo took from the roof of Hong Kong Commercial Complex (7/6/2021)



Photo took from the roof of Hong Kong Commercial Complex (3/7/2024)

6.5.2 According to the information from the site visit, there is no stressed vegetation on site. No chemicals or noticeable odours were found. No trace of land contamination can be observed in survey.

## **6.6 Conclusion**

6.6.1 The Application Site was formerly occupied as acid factory and used for open storage as well without details.

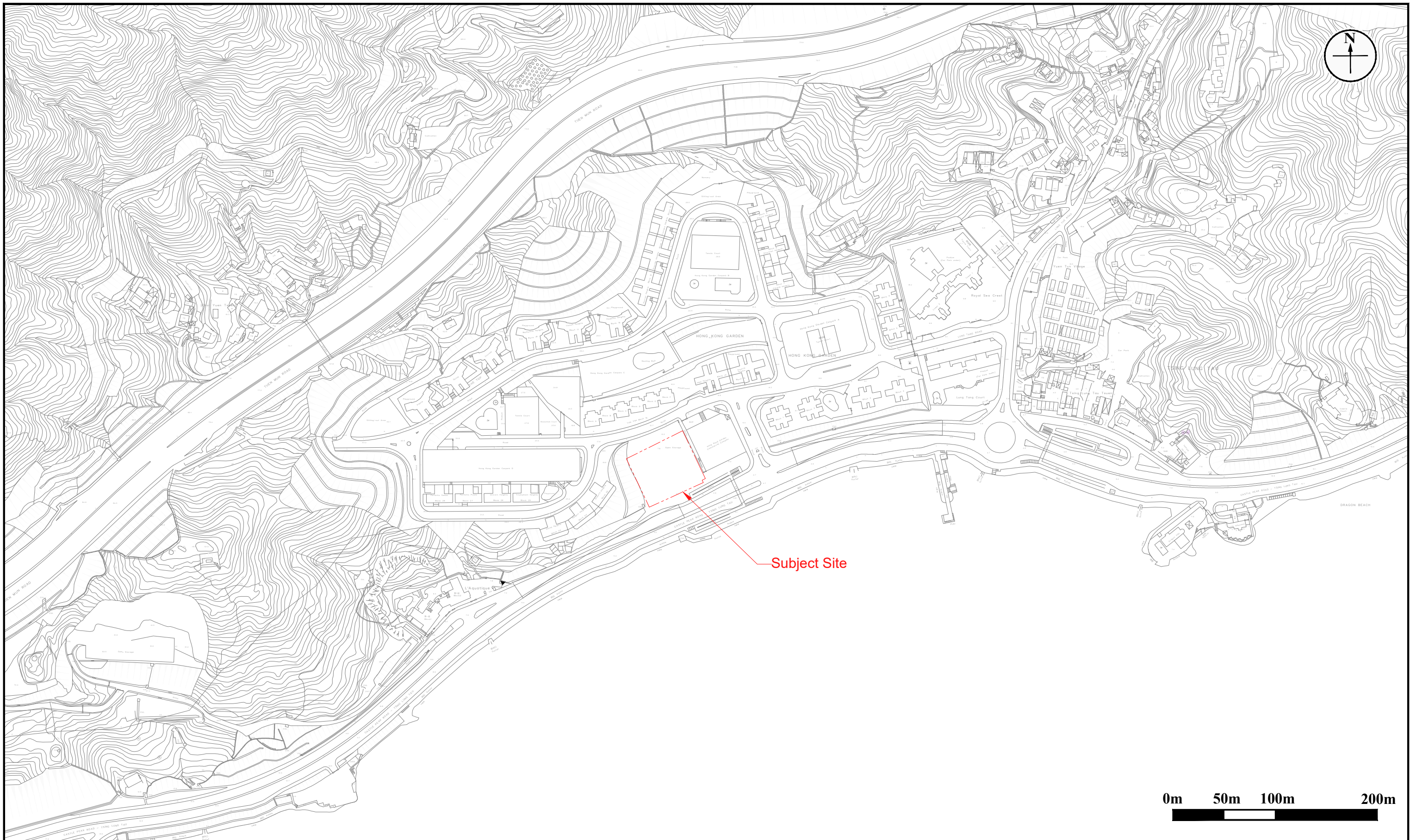
6.6.2 On the other hand, there is no information suggesting the use of unknown building structure identified in aerial photo. As advised by relevant government departments, there was no chemical waste spillage accident record onsite. Neither records of dangerous good license, fire incidents nor incidents of spillage / leakage of dangerous goods were found onsite

6.6.3 Since there is lack of details regarding the former acid factory and open storage, further Land Contamination Review/ Assessment is recommended to be submitted to EPD in later stage as in the EAR. No construction works or development of the Application Site shall be commenced before the approval of the Land Contamination Review / Assessment from EPD.

## 7. OVERALL CONCLUSION

- 7.1.1 This environmental assessment has been updated with respect to the current proposal of proposed composite development to evaluate the potential environmental noise, air quality impact and risk of land contamination.
- 7.1.2 Potential air quality impact including stack and vehicular emission impact on the Proposed Development during its operation, and construction phase impact on surrounding have been discussed. Buffer separation requirement stipulated under the HKPSG has been complied with so that no adverse air quality impact on the Proposed Development is anticipated. Best management practice will be adopted to suppress air quality impact on the surrounding during its construction.
- 7.1.3 Individual environmental noise impact assessments have been included to assess the potential impact. Best management practice will be adopted to suppress noise impact on the surrounding during its construction. Road traffic noise mitigation measures, in terms of acoustic window/enhanced acoustic balcony (baffle type), will be provided to mitigate road traffic noise impact to the acceptable level for all noise sensitive uses that rely on openable window for natural ventilation. On the other hand, at-source noise mitigation measures will be implemented for the fixed noise sources identified at Hong Kong Garden Commercial Complex as confirmed by its operator so as to meet the required standard. No unacceptable noise impact is anticipated after recommended mitigation measures in place.
- 7.1.4 Regarding potential land contamination, it is known that the Application Site was occupied as acid factory before and used for open storage as well without details. There is also no information suggesting the use of unknown building structure identified in aerial photo. Further Land Contamination Review/ Assessment is recommended to be submitted to EPD in later stage. No construction works or development of the Application Site shall be commenced before the approval of the Land Contamination Review / Assessment from EPD.
- 7.1.5 In addition, the Applicant will refer to the relevant legislation, regulations and circulars/guidelines on waste management for proper handling of waste.
- 7.1.6 Based on the finding of this environmental assessment, it is concluded that the Proposed Development would not be subject to unacceptable air quality and environmental noise impact with recommended mitigation measures in place. Potential land contamination problem will be duly addressed in later stage.

## Figures



**Figure:** 1.1

**Title:** Subject Site and its Environ

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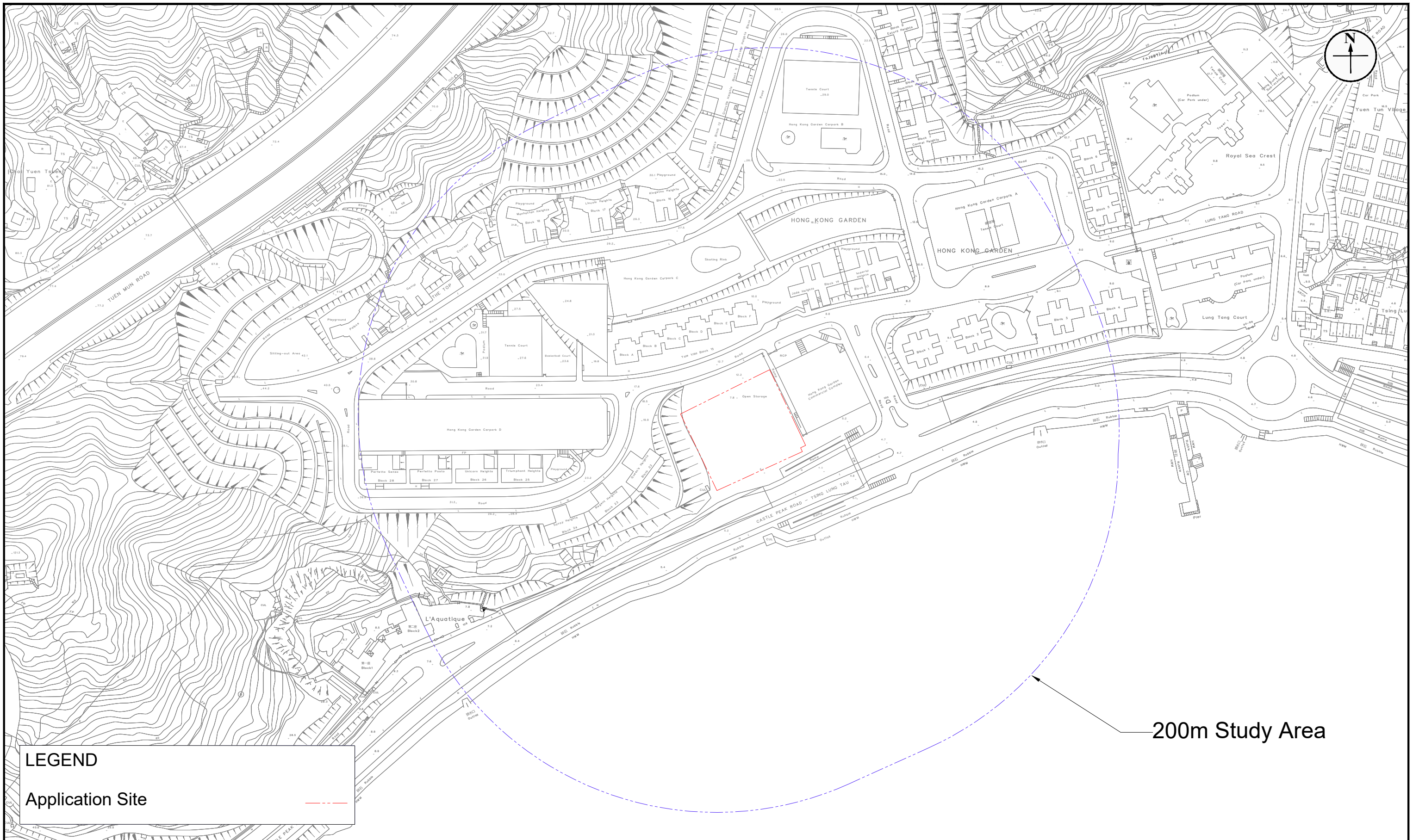
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**Project:** Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)), Training Centre with Residential Institution and Permitted Residential Development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

Rev.: 1.0

Date: Apr 2022



**LEGEND**  
 Application Site ———

200m Study Area

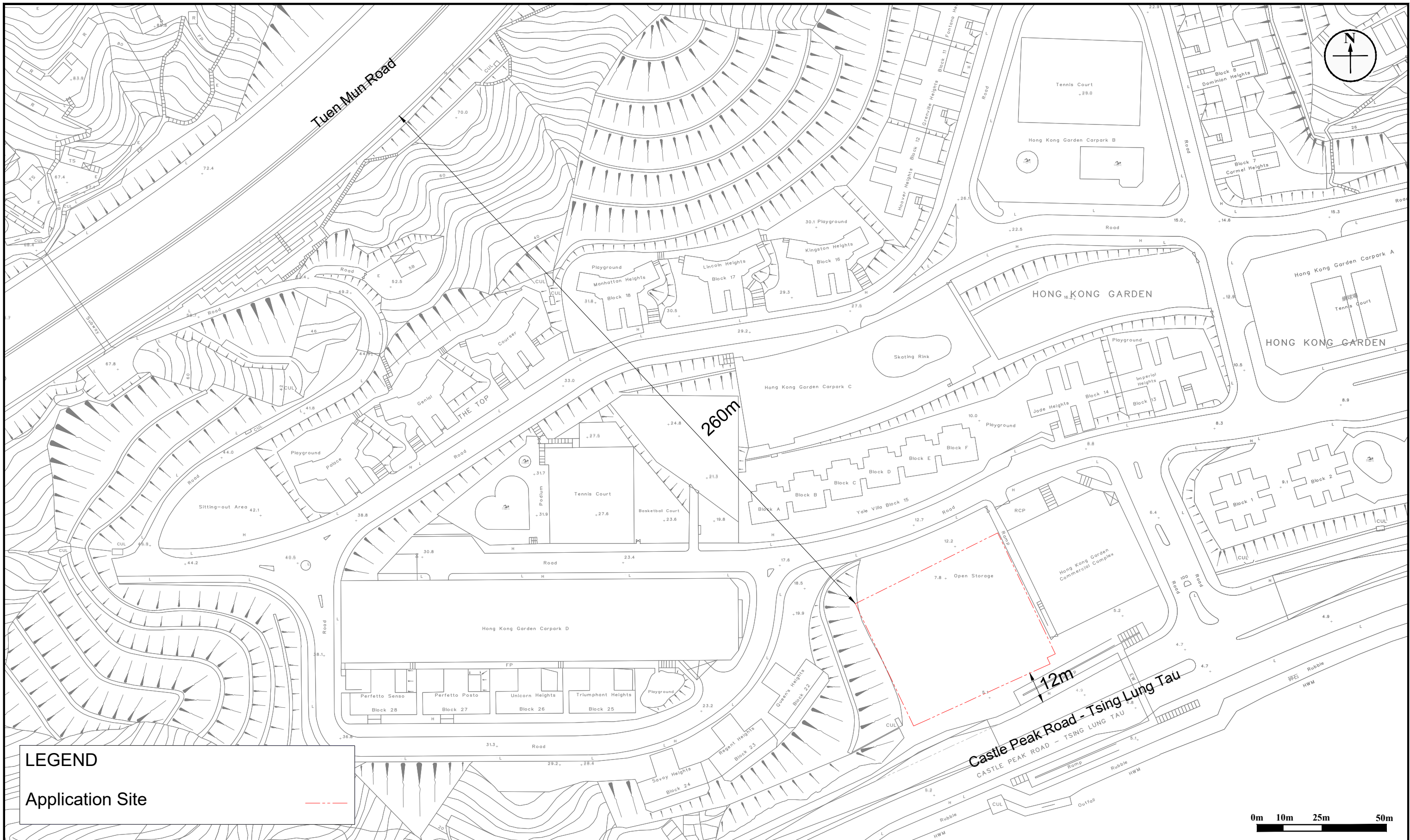
**Figure:** 2.1

**Title:** 200m Study Area from the Site



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 Rev.: 1.0  
 Date: Jun 2021

**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



**Figure:** 2.2

**Title:** Distances between Major Roads and the Site

**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

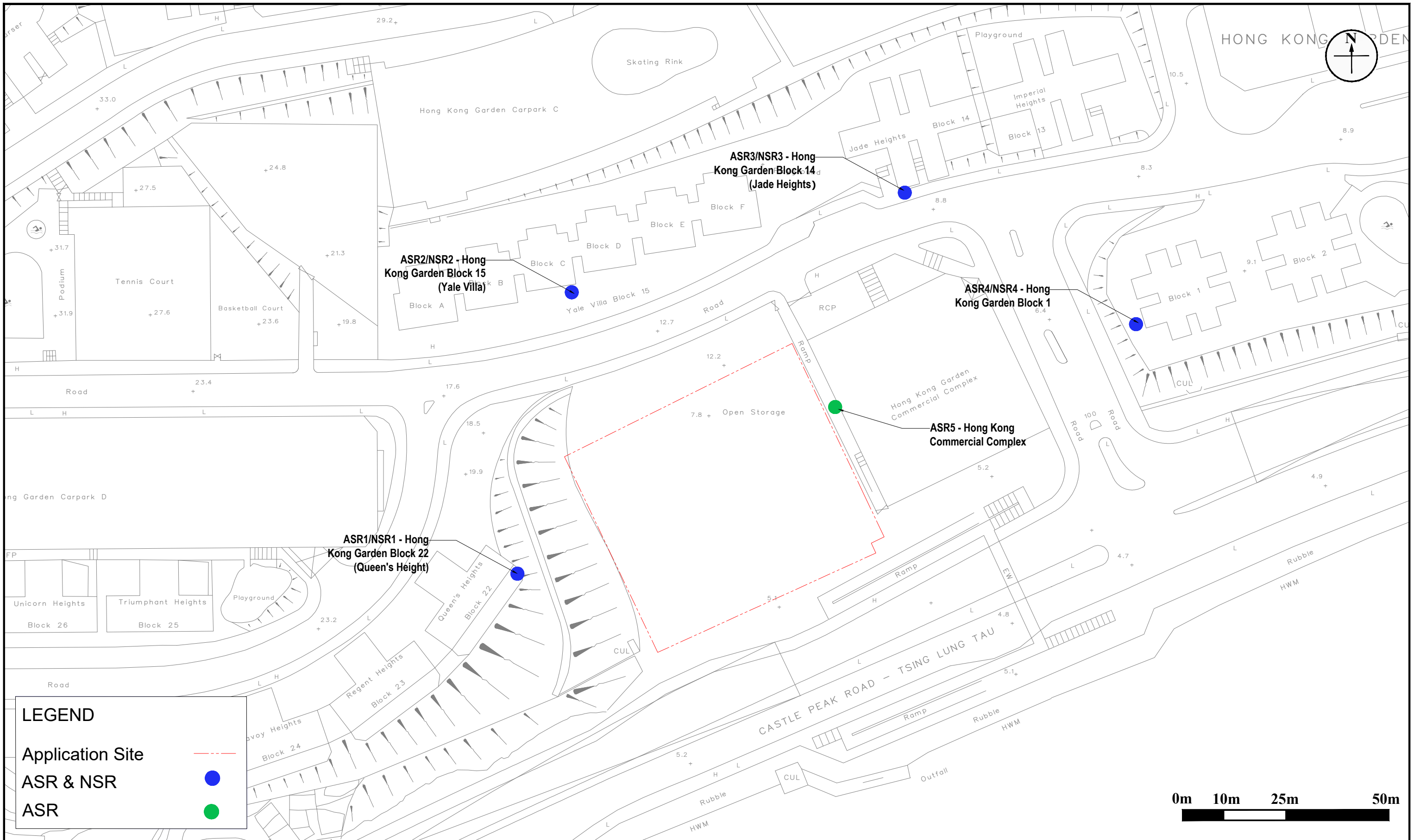
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**Figure:** 2.3

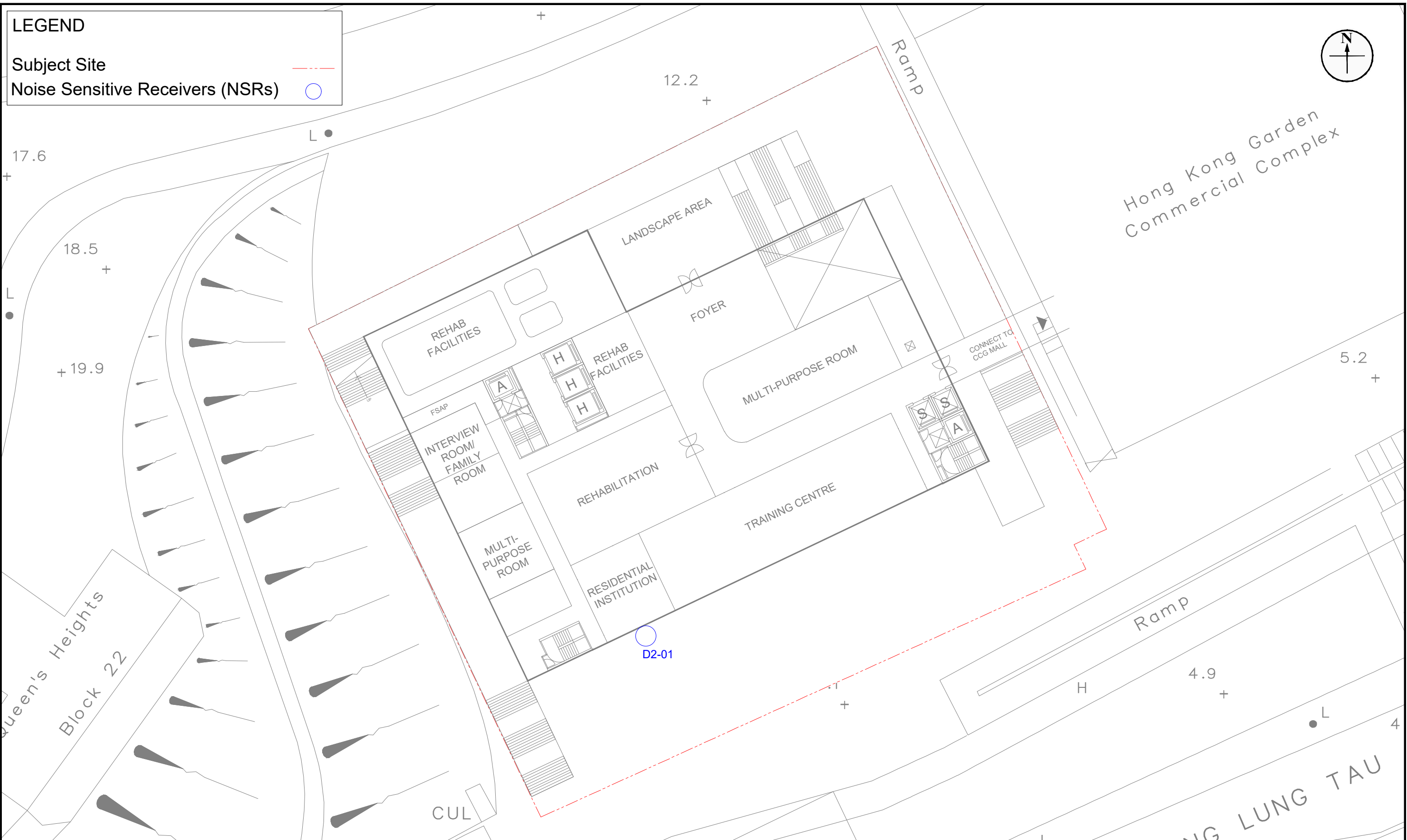
**Title:** Locations of Representative Air Sensitive Receivers (ASRs) and Noise Sensitive Receivers (NSRs)



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 Rev.: 1.0  
 Date: Jun 2021

**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





<b>Figure:</b> 4.1a	<b>Title:</b> Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (RCHE-2/F)	<b>Project:</b> 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	<b>RAMBOLL</b>
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			Checked by: CC
			Rev.: 2.0
			Date: Jul 2024





**Figure:** 4.1c

**Title:** Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (RCHE-4/F)

**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

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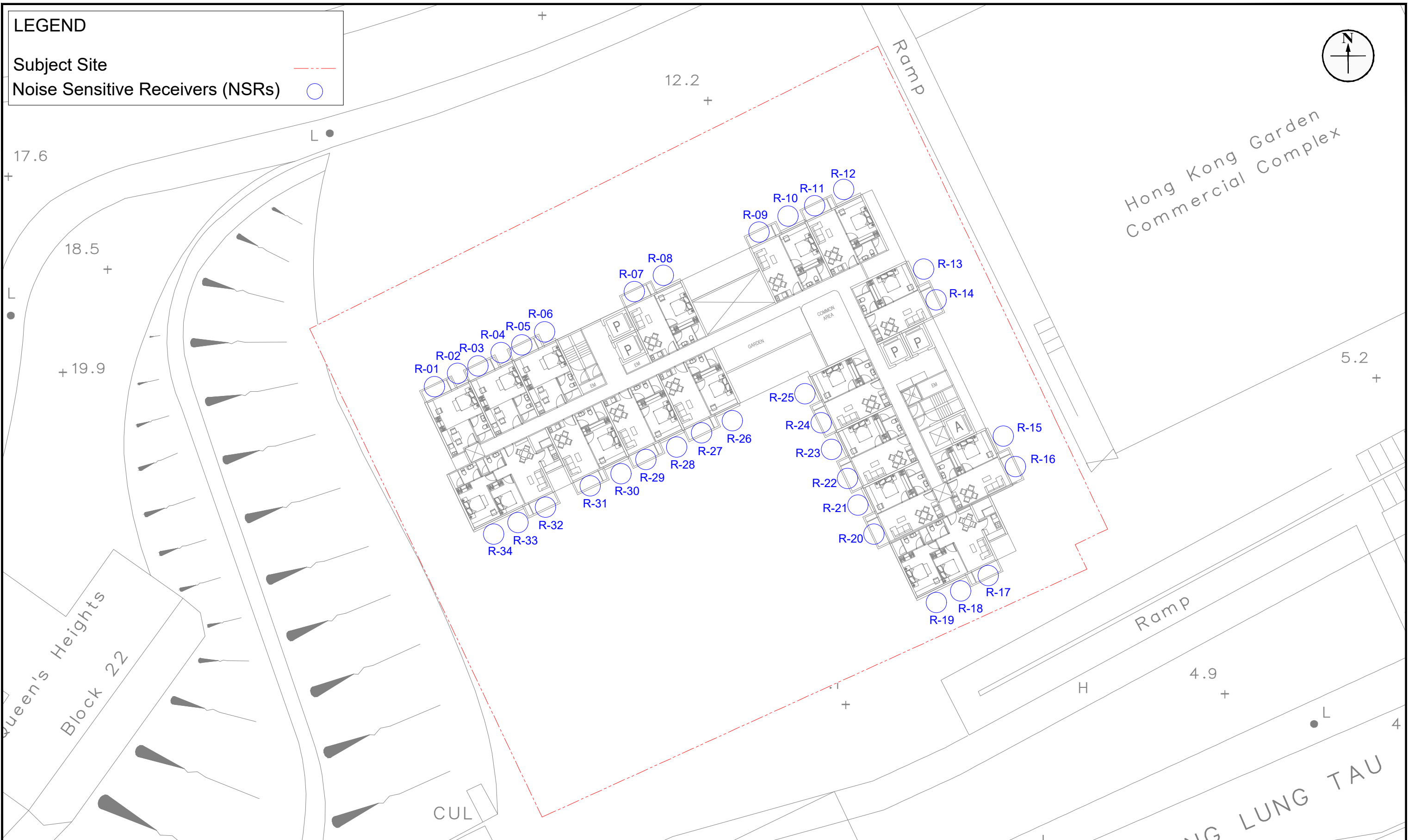
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 Date: Jun 2024







<b>Figure:</b> 4.1f	<b>Title:</b> Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (RCHE-7/F)	<b>Project:</b> 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	<b>RAMBOLL</b>
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			Date: Jun 2024



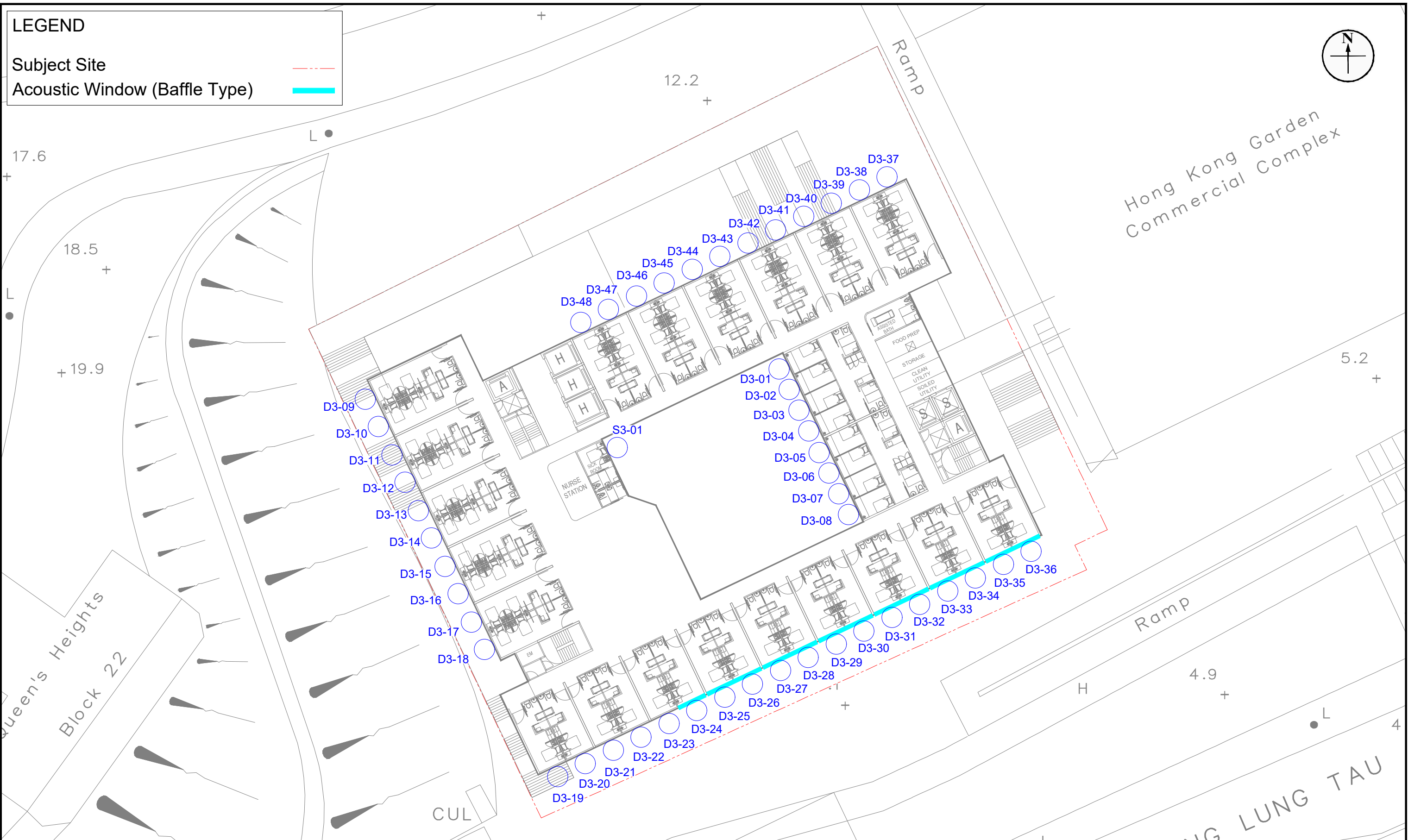
**Figure:** 4.1g

**Title:** Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (Residential Tower)

**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**

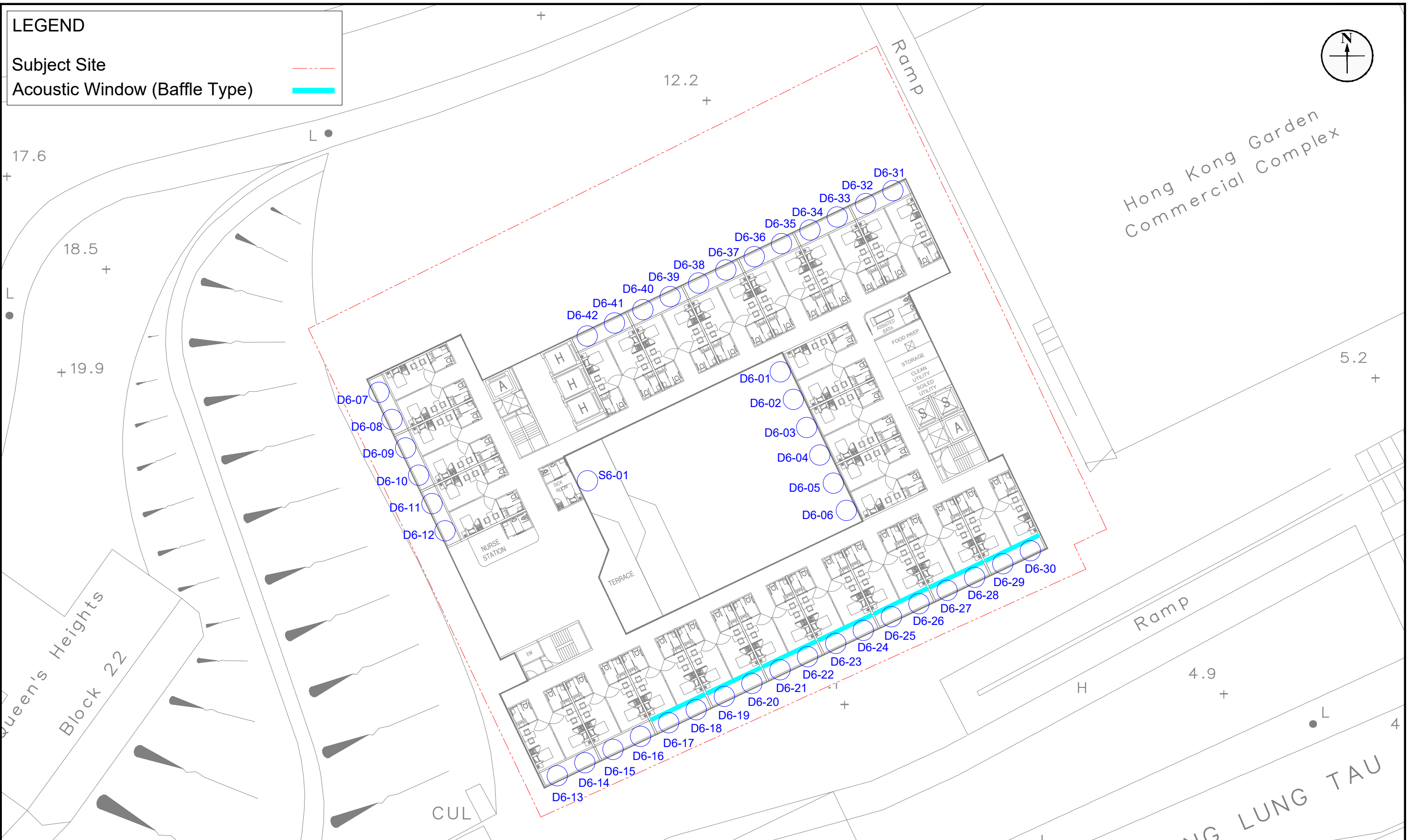
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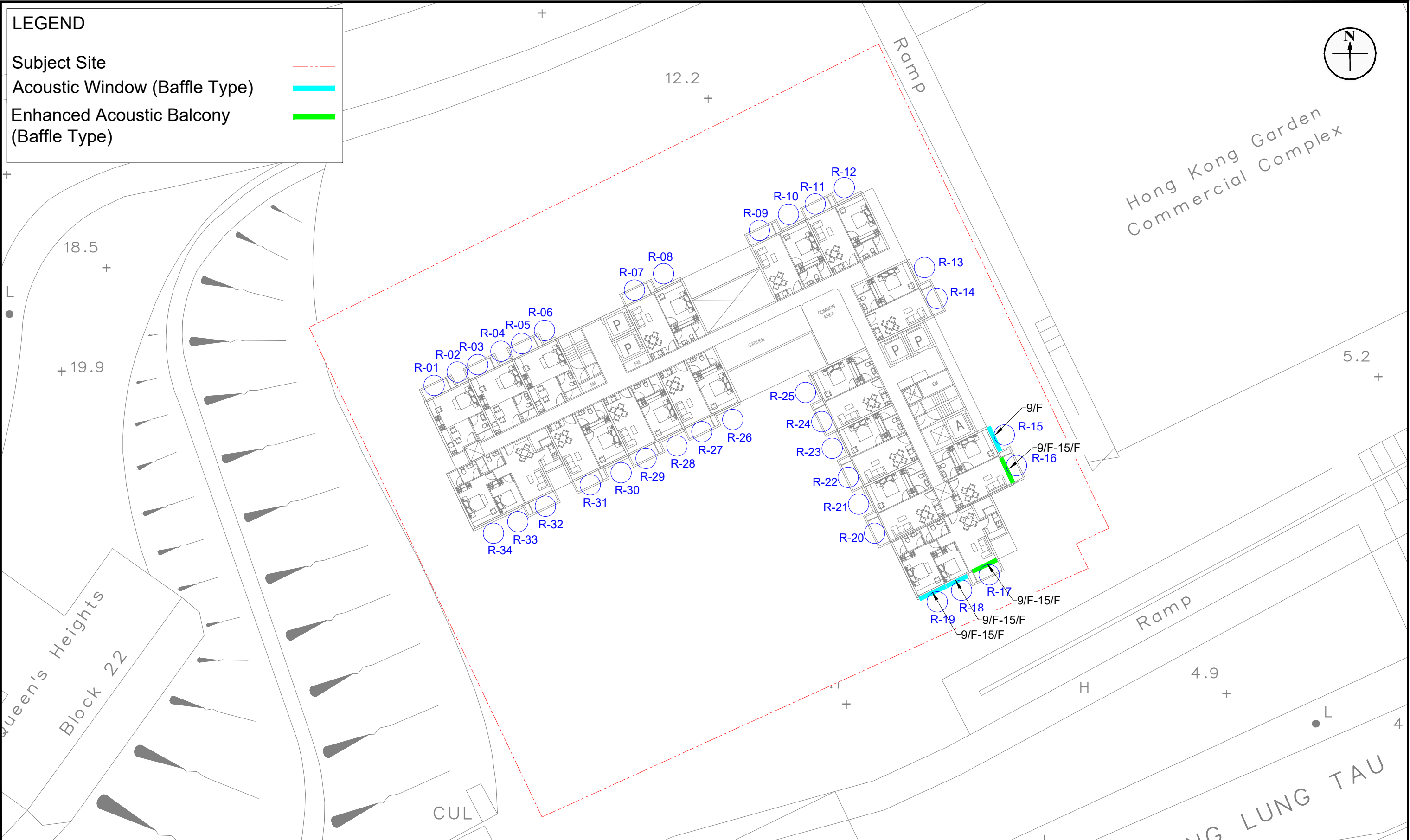


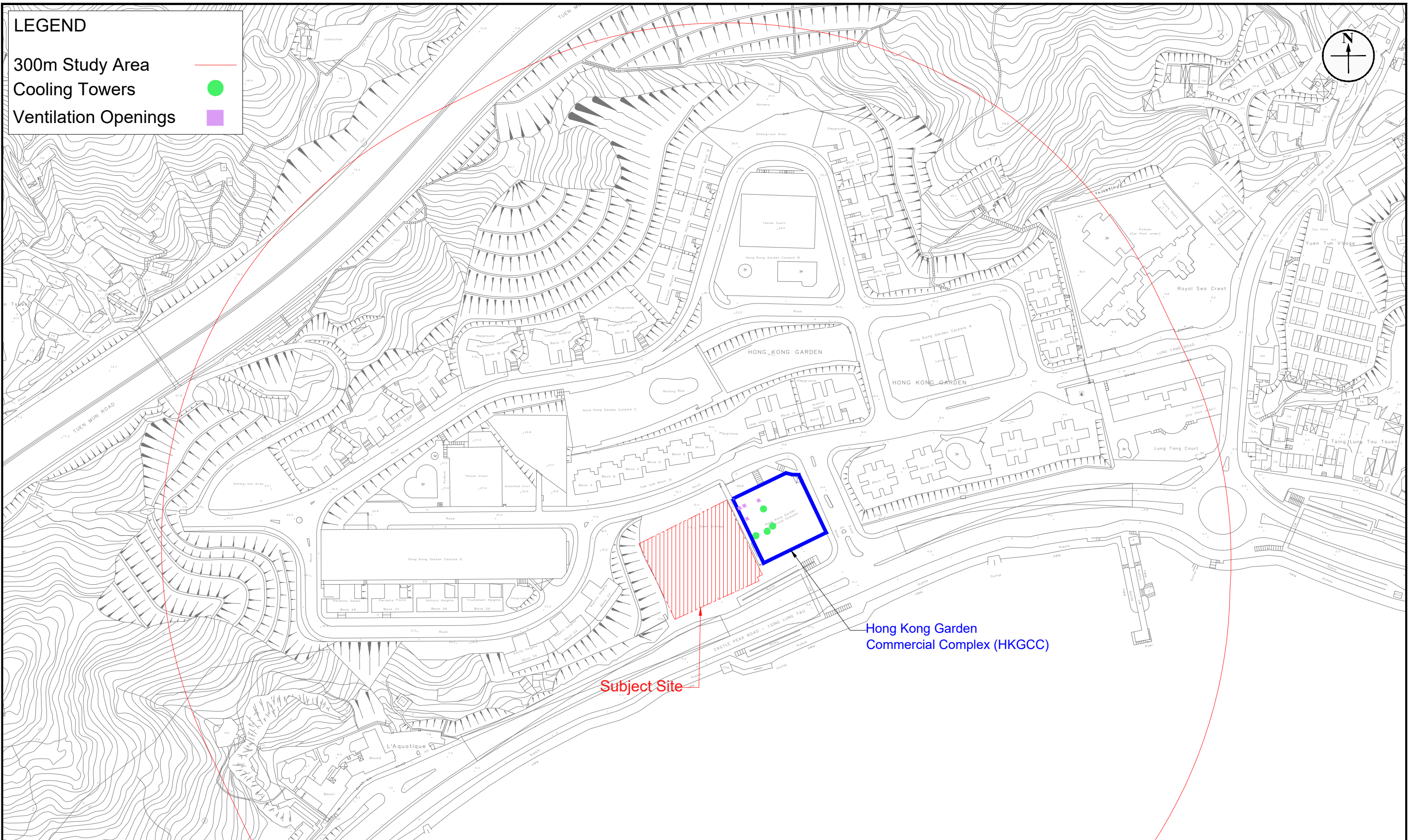


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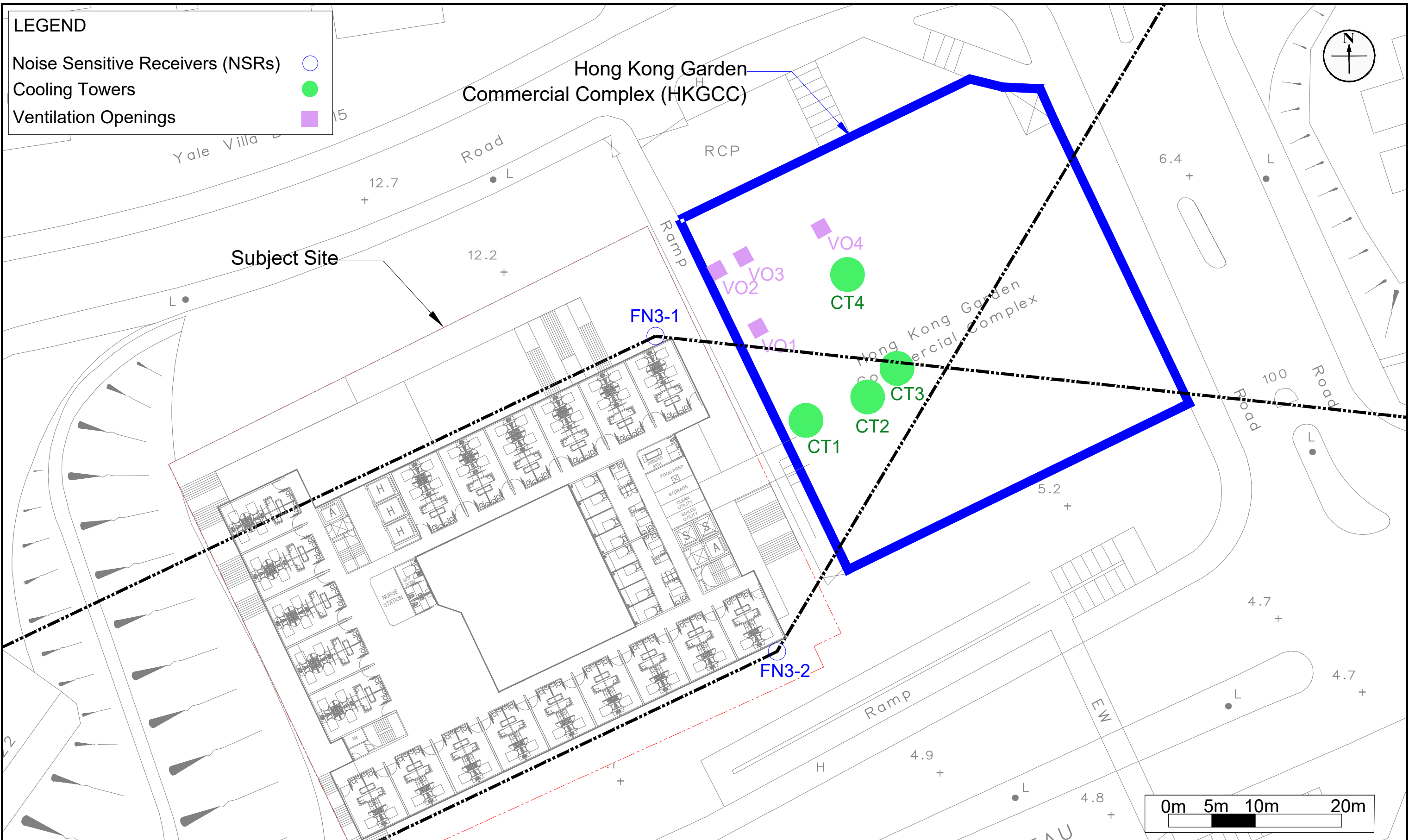
**Figure:** 5.1

**Title:** Location of the Fixed Noise Sources Identified Within 300m of the Subject Site

**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: AC  
 Checked by: CC  
 Rev.: 1.0  
 Date: Jun 2021



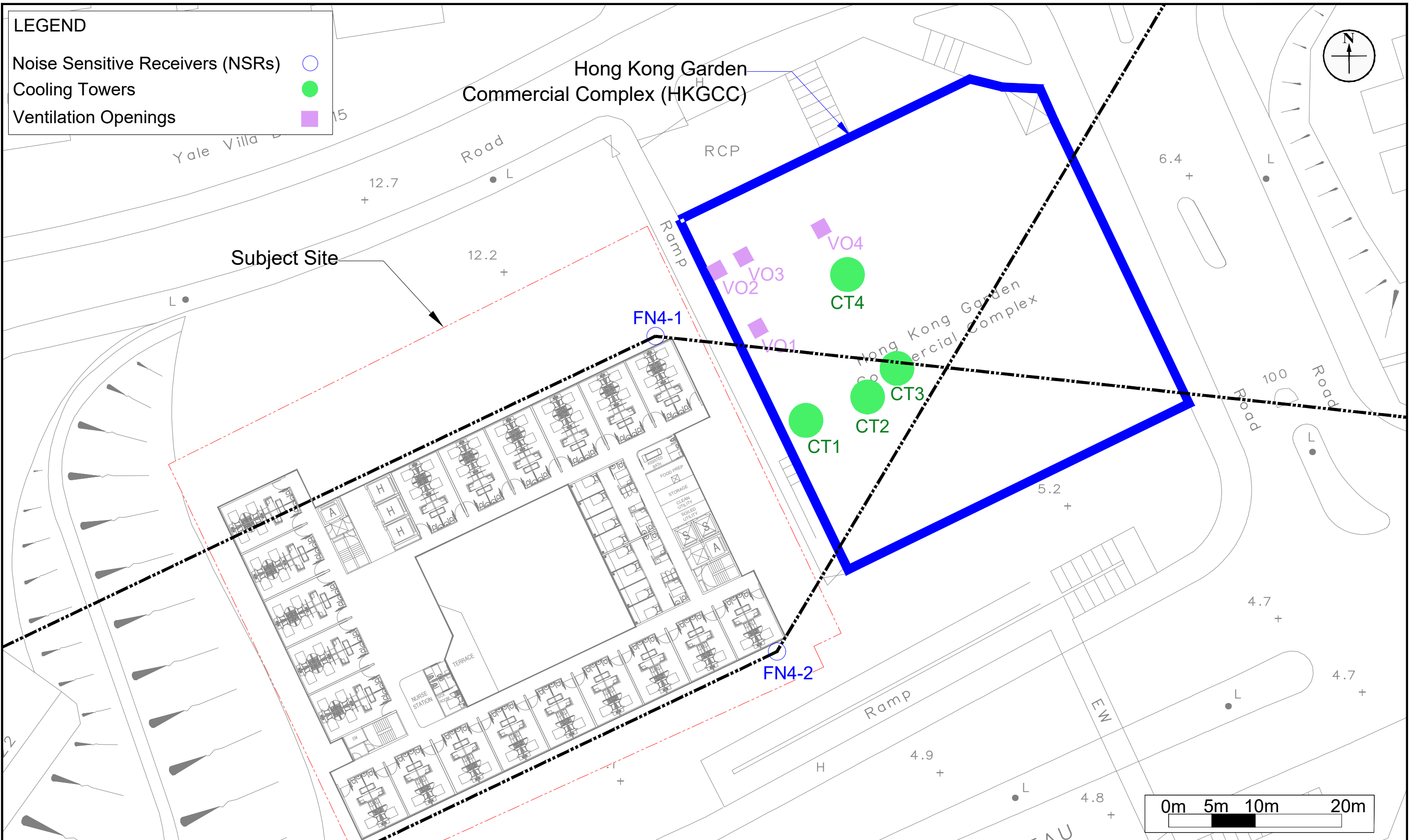
**Figure:** 5.2a

**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (RCHE-3/F)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024



**Figure:** 5.2b

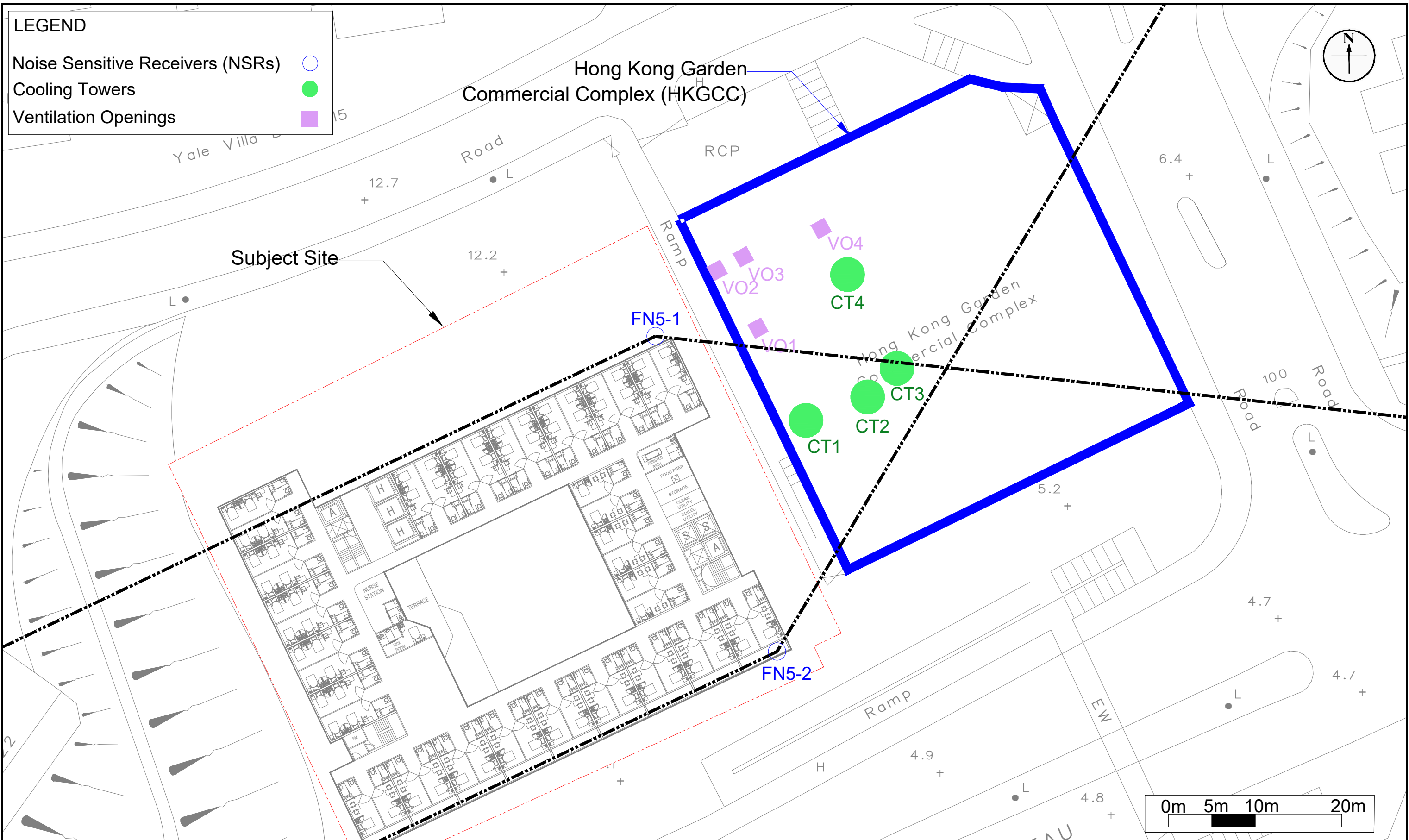
**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (RCHE-4/F)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024





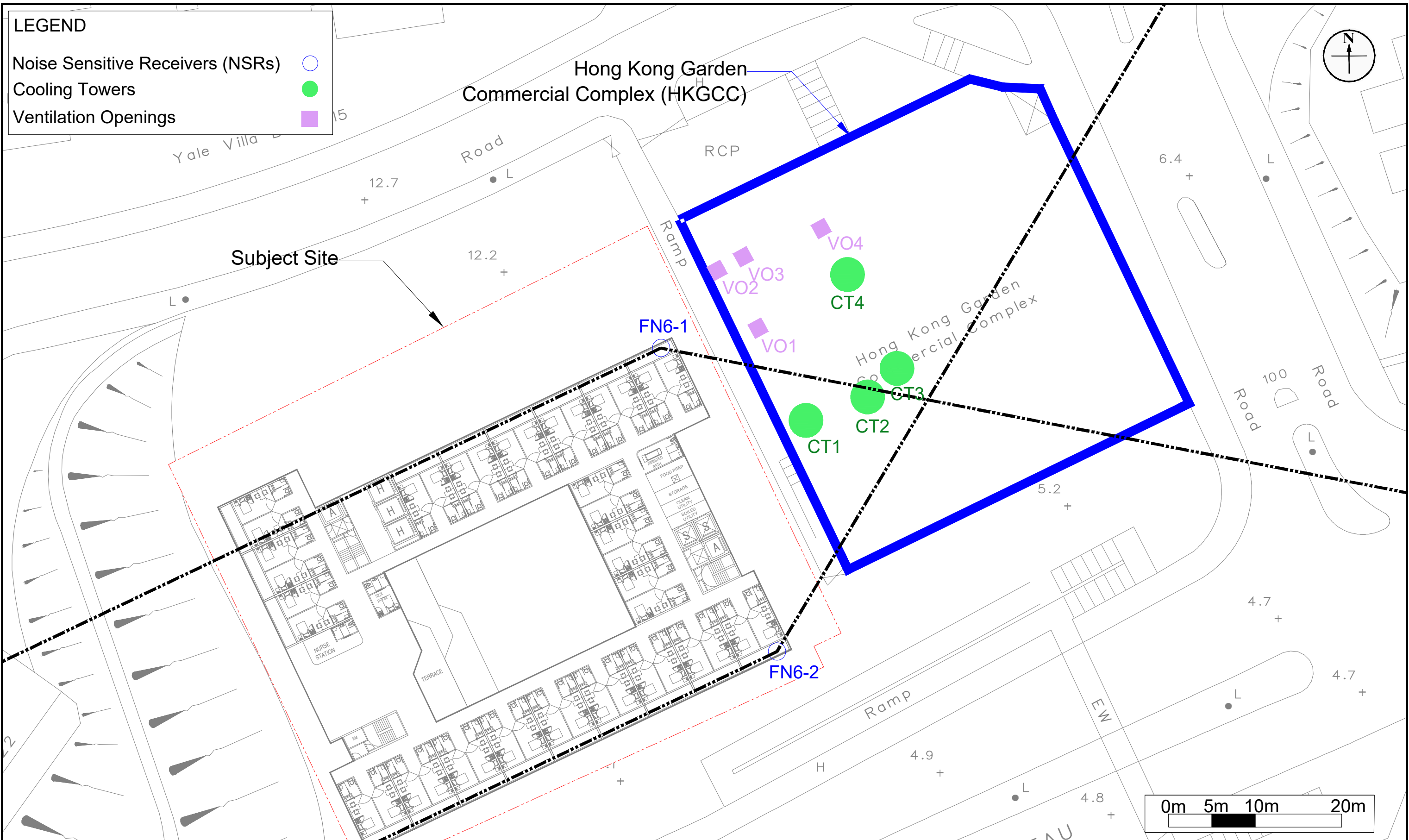
**Figure:** 5.2c

**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (RCHE-5/F)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024



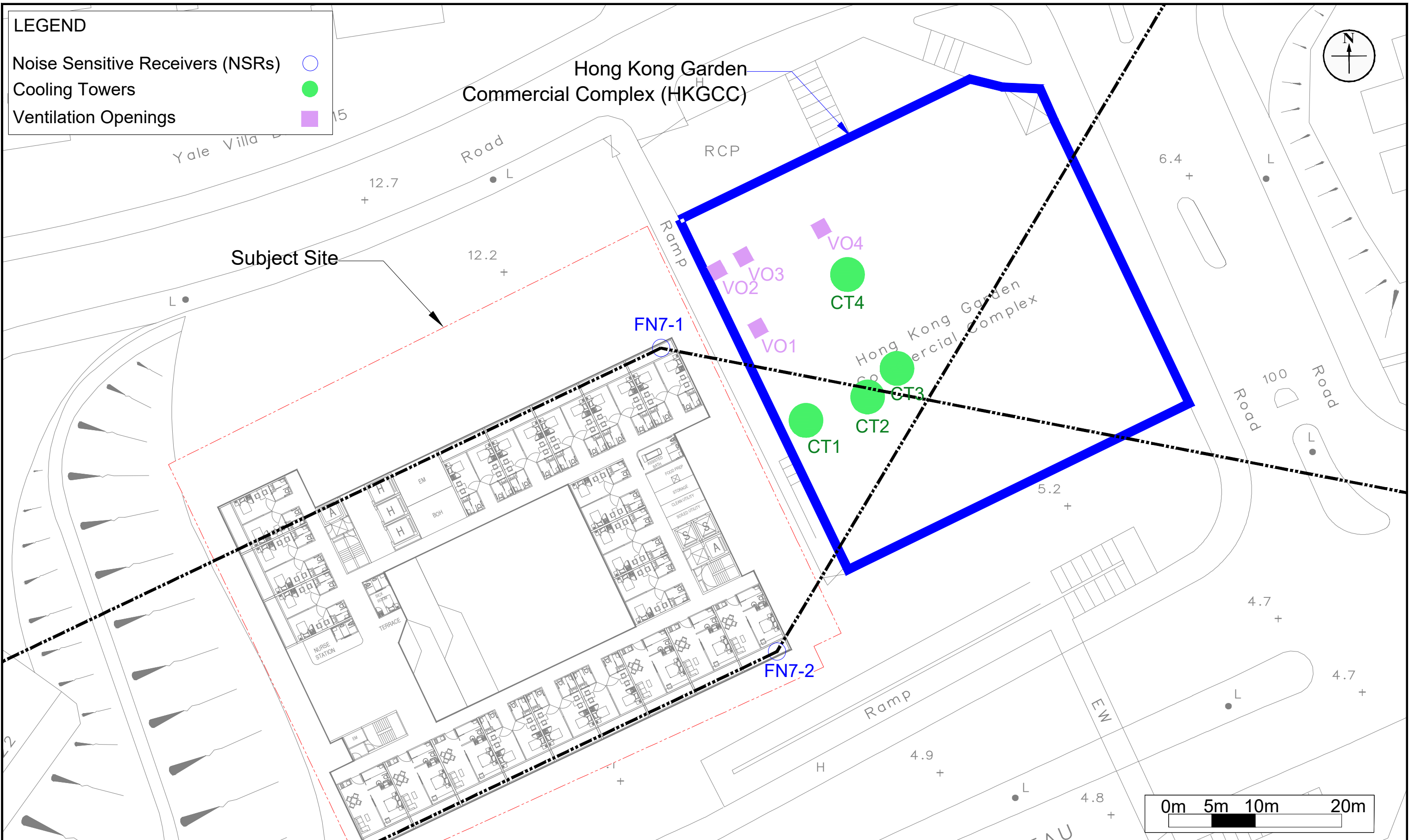
**Figure:** 5.2d

**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (RCHE-6/F)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024



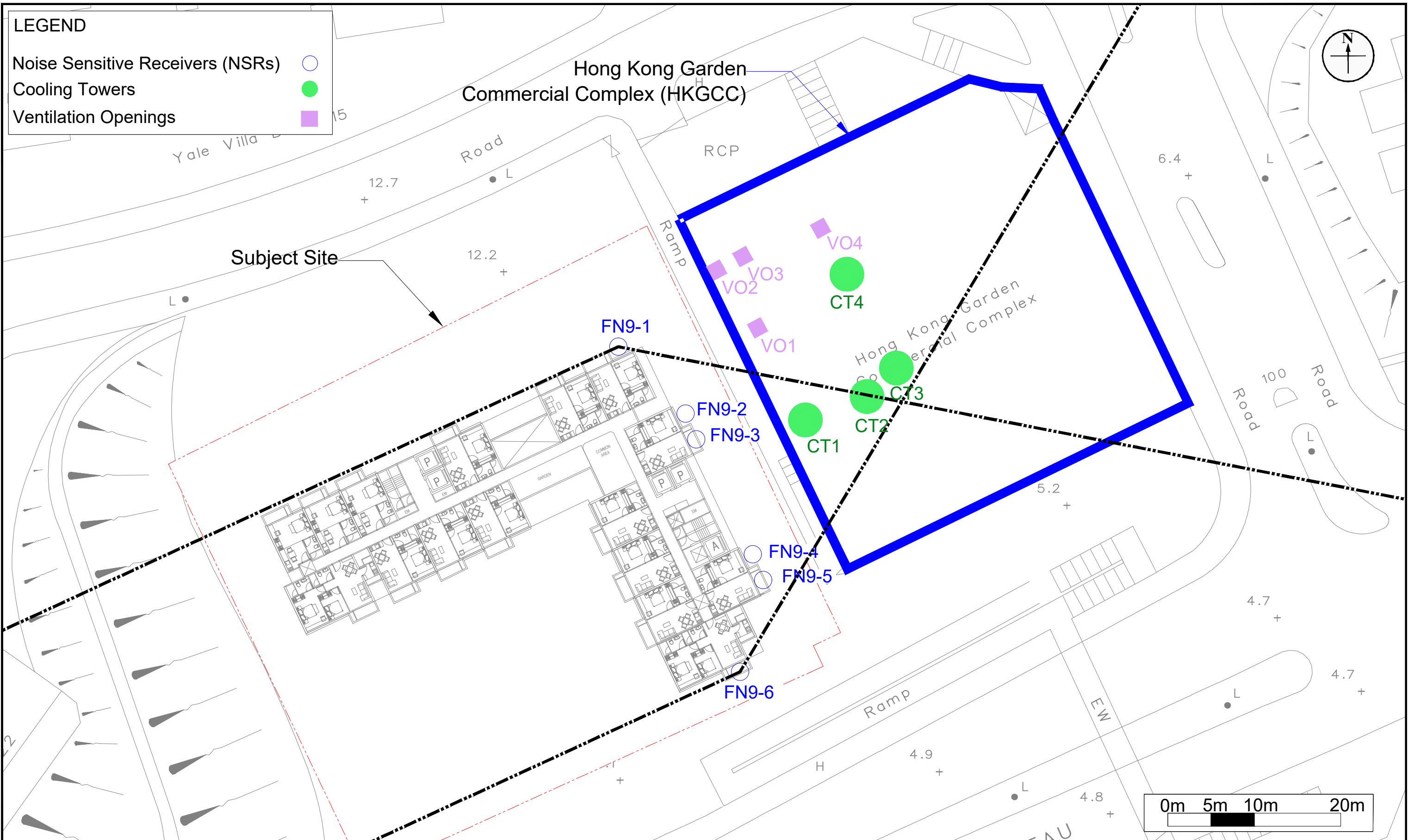
**Figure:** 5.2e

**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (RCHE-7/F)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024



**Figure:** 5.2f

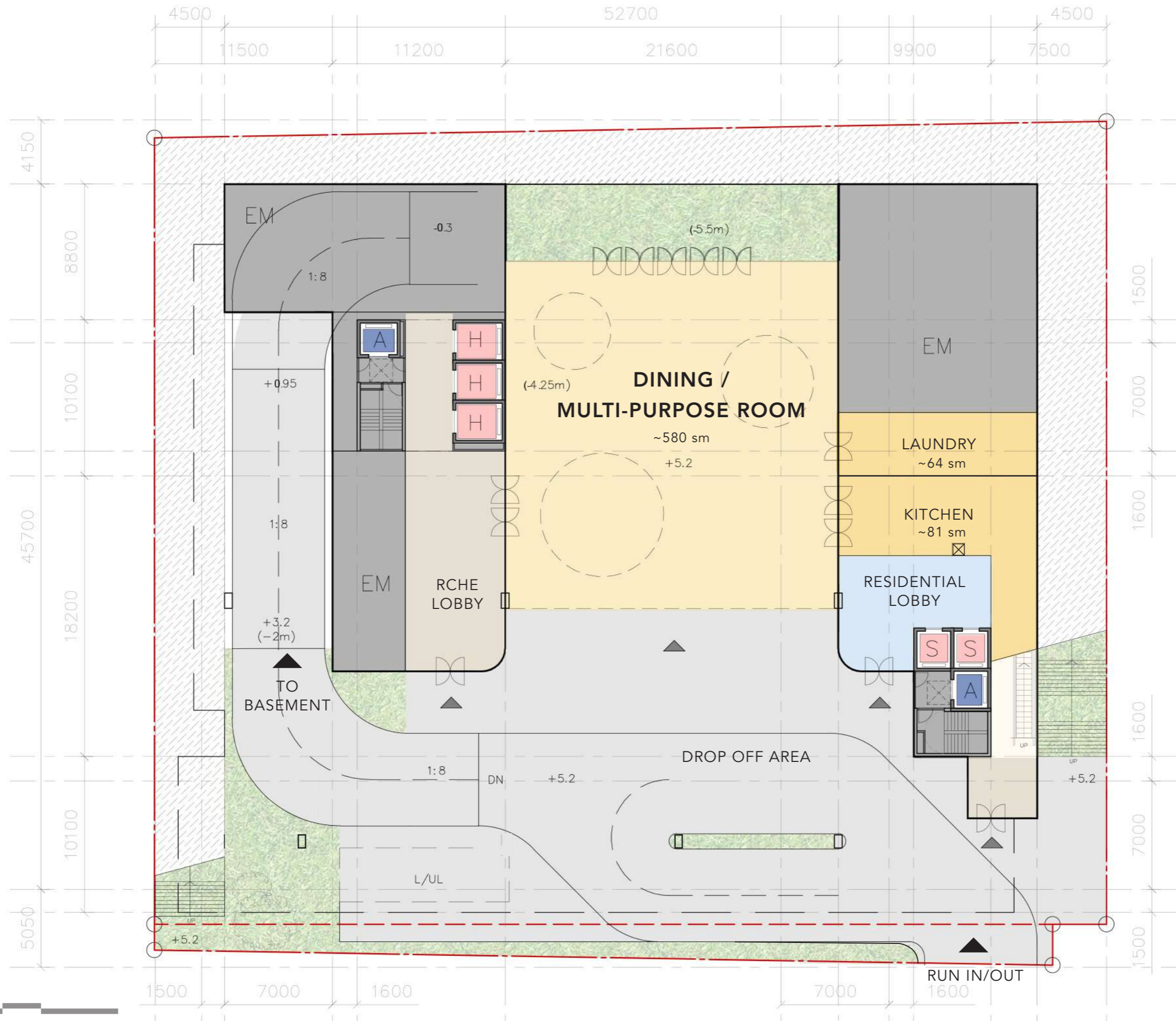
**Title:** Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment (Residential Tower)

**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: CM  
 Checked by: CC  
 Rev.: 2.0  
 Date: Jun 2024

**Appendix 1.1 Master Layout Plan of the Proposed Development**

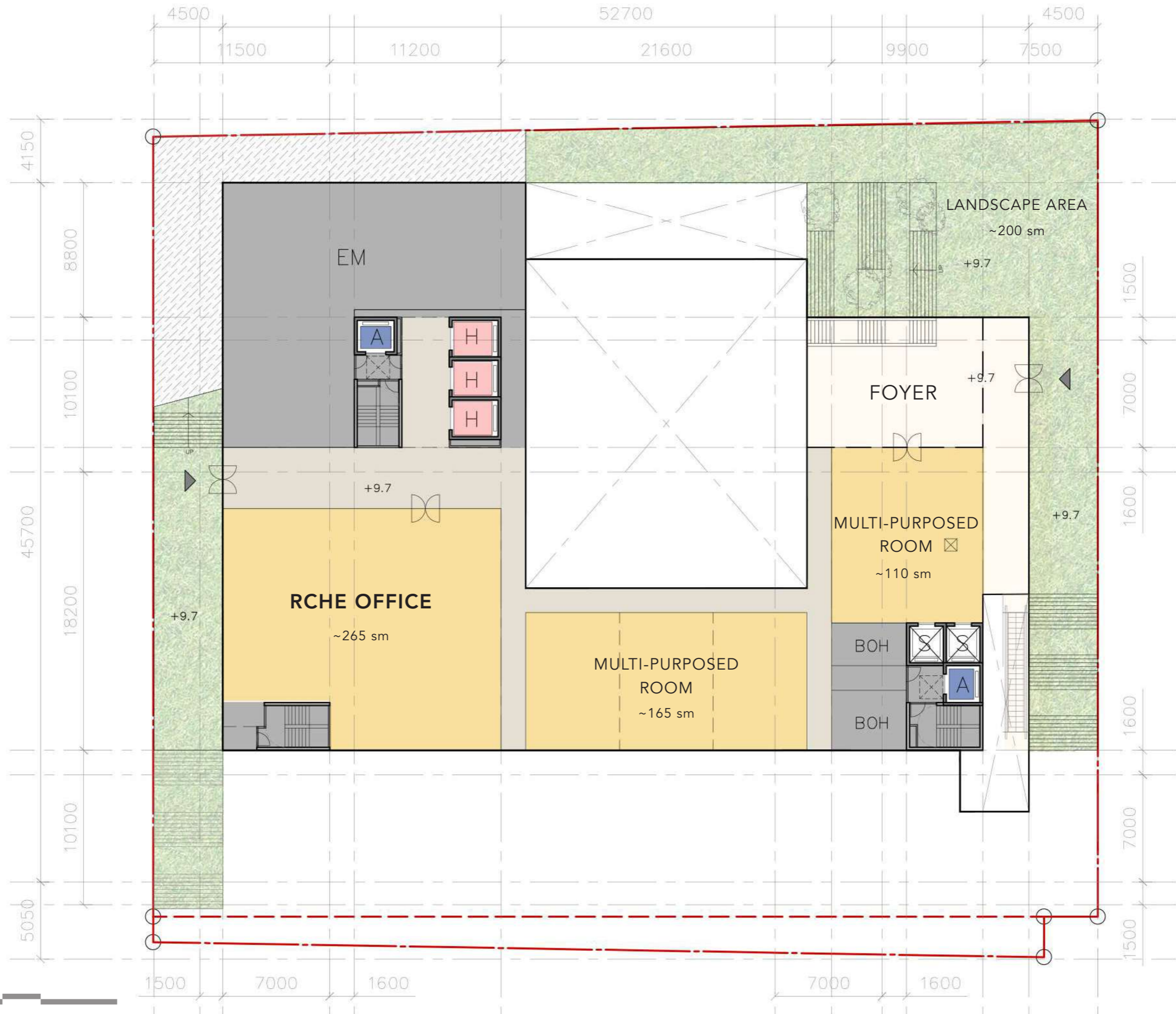


GF

1:250 @ A3

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

— MATTER



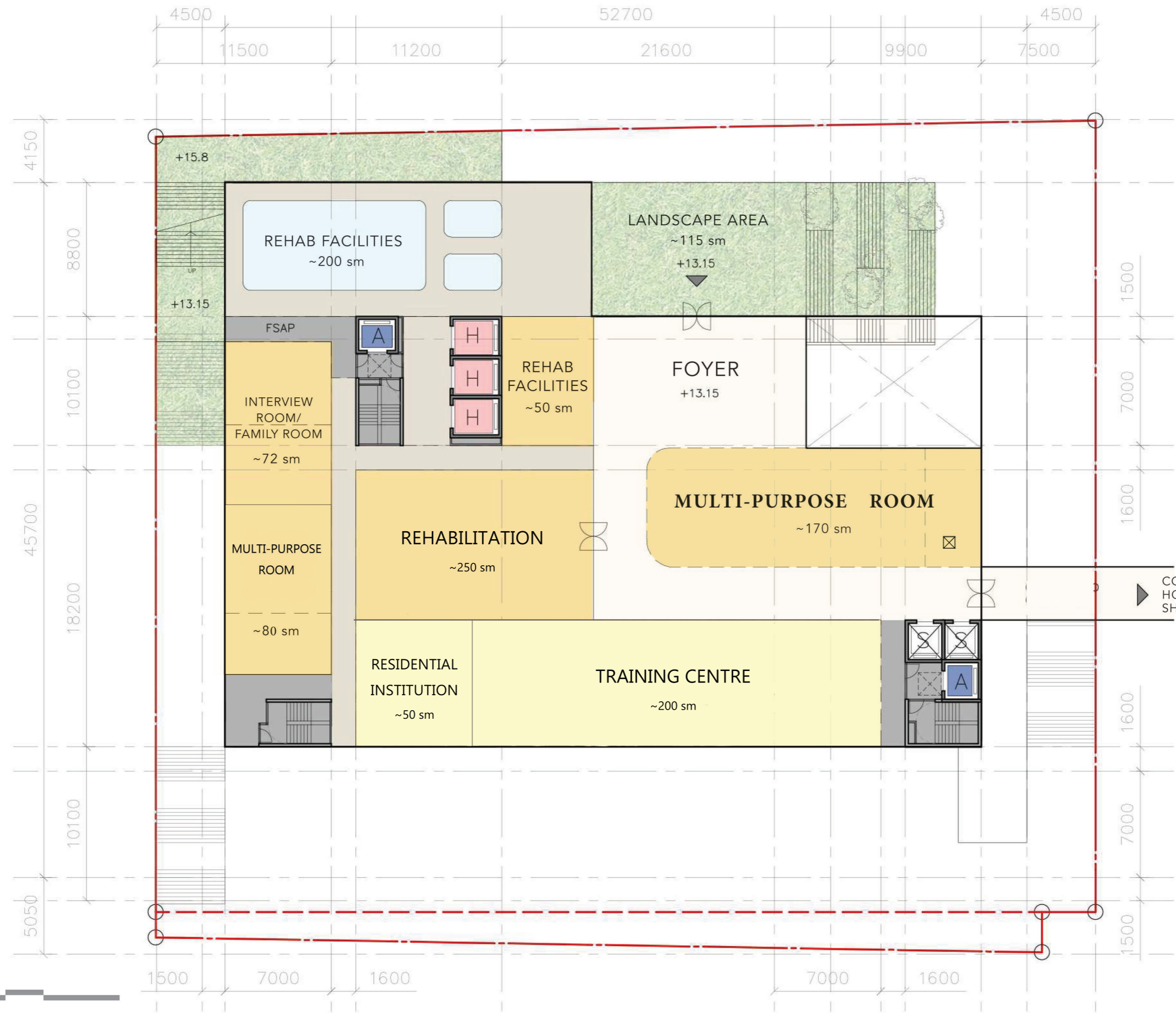
1F

1:250 @ A3



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

— MATTER



CONNECT TO HONG KONG GARDEN SHOPPING ARCADE

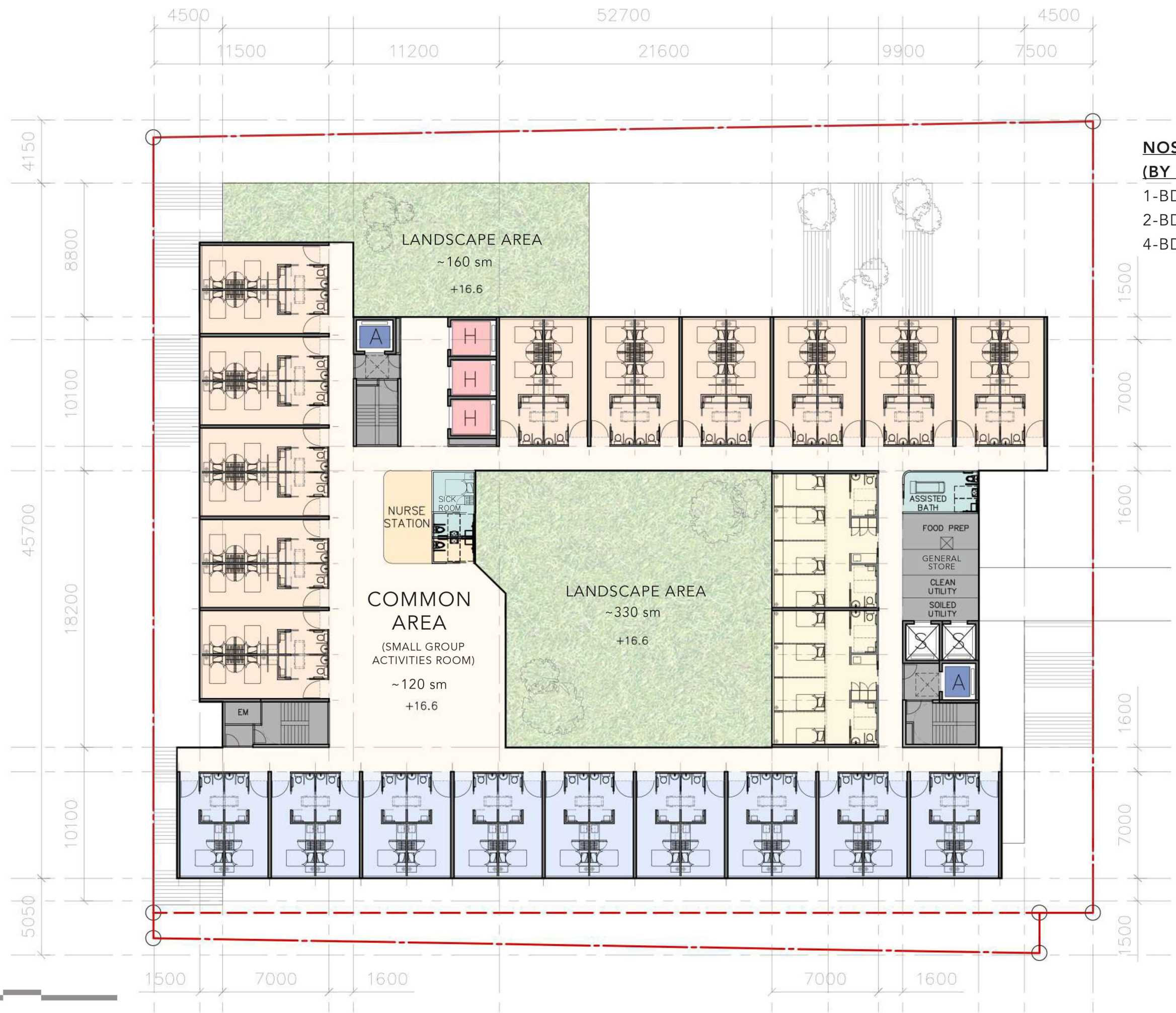
2F

1:250 @ A3



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





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

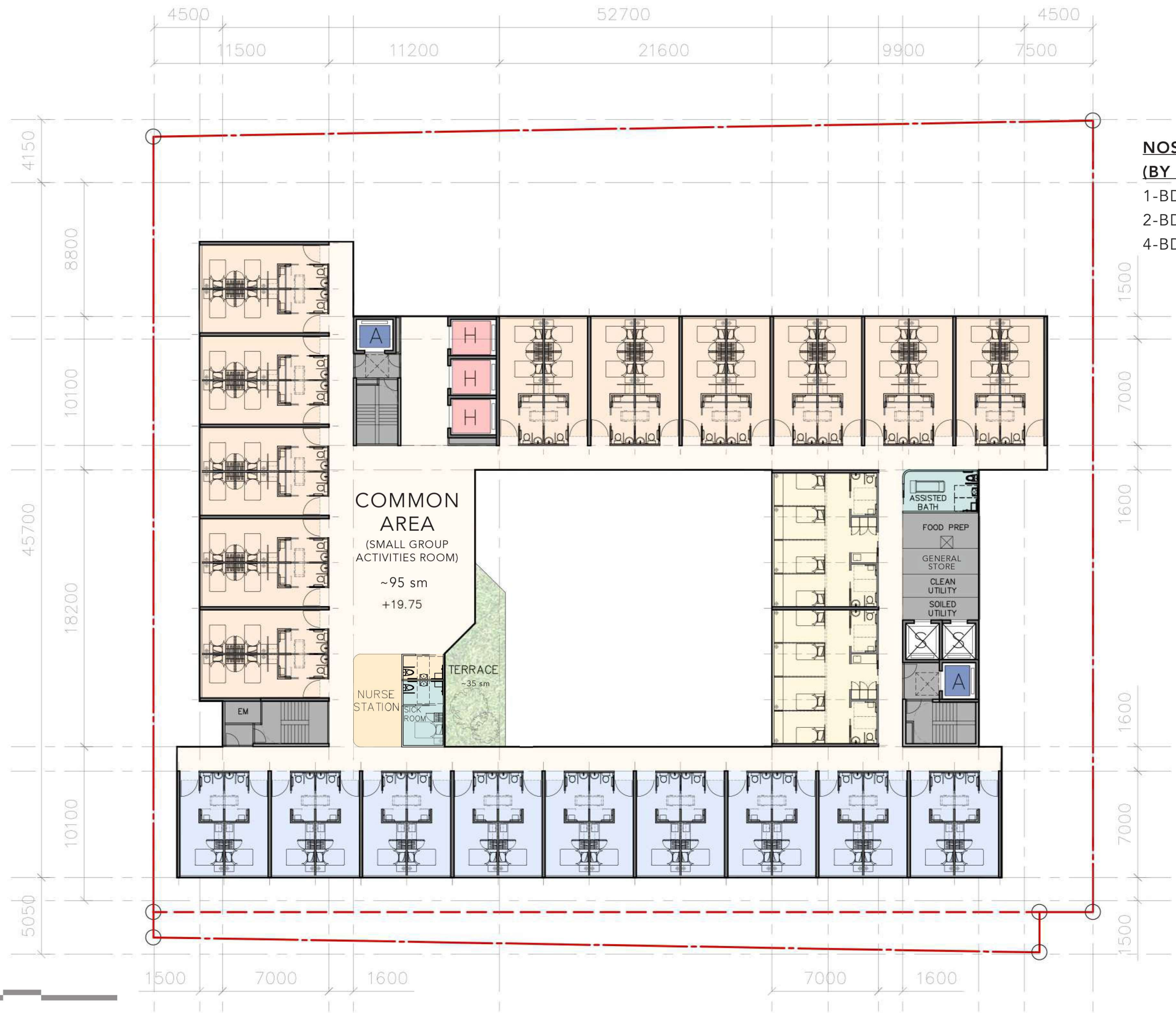
1-BD	: 18 BEDS
2-BD	: 44 BEDS
4-BD	: 8 BEDS

3F

1:250 @ A3



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



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

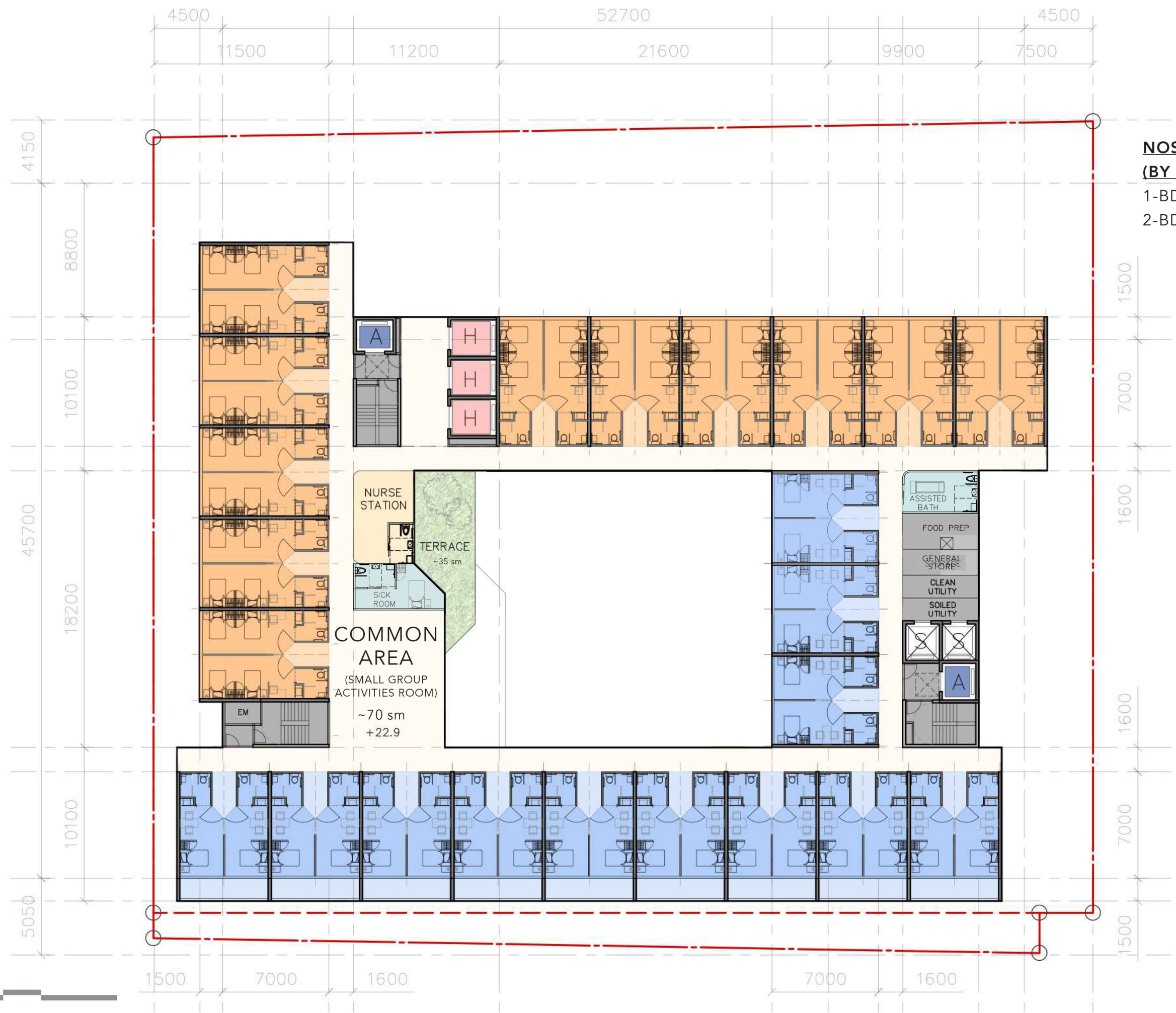
1-BD	: 18 BEDS
2-BD	: 44 BEDS
4-BD	: 8 BEDS

4F

1:250 @ A3



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



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

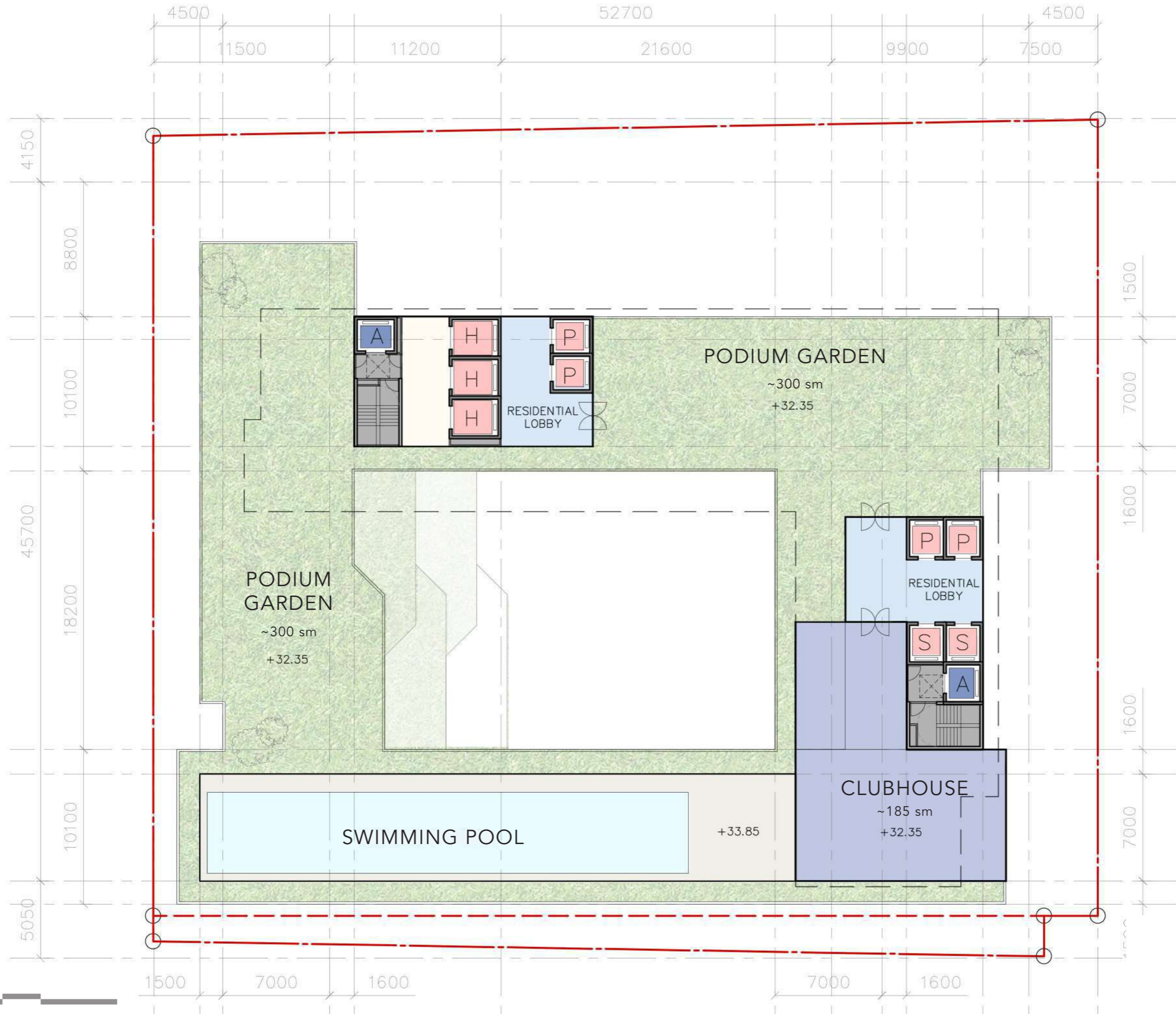
SUITE	: 6 BEDS
1-BD	: 28 BEDS

7F

1:250 @ A3



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

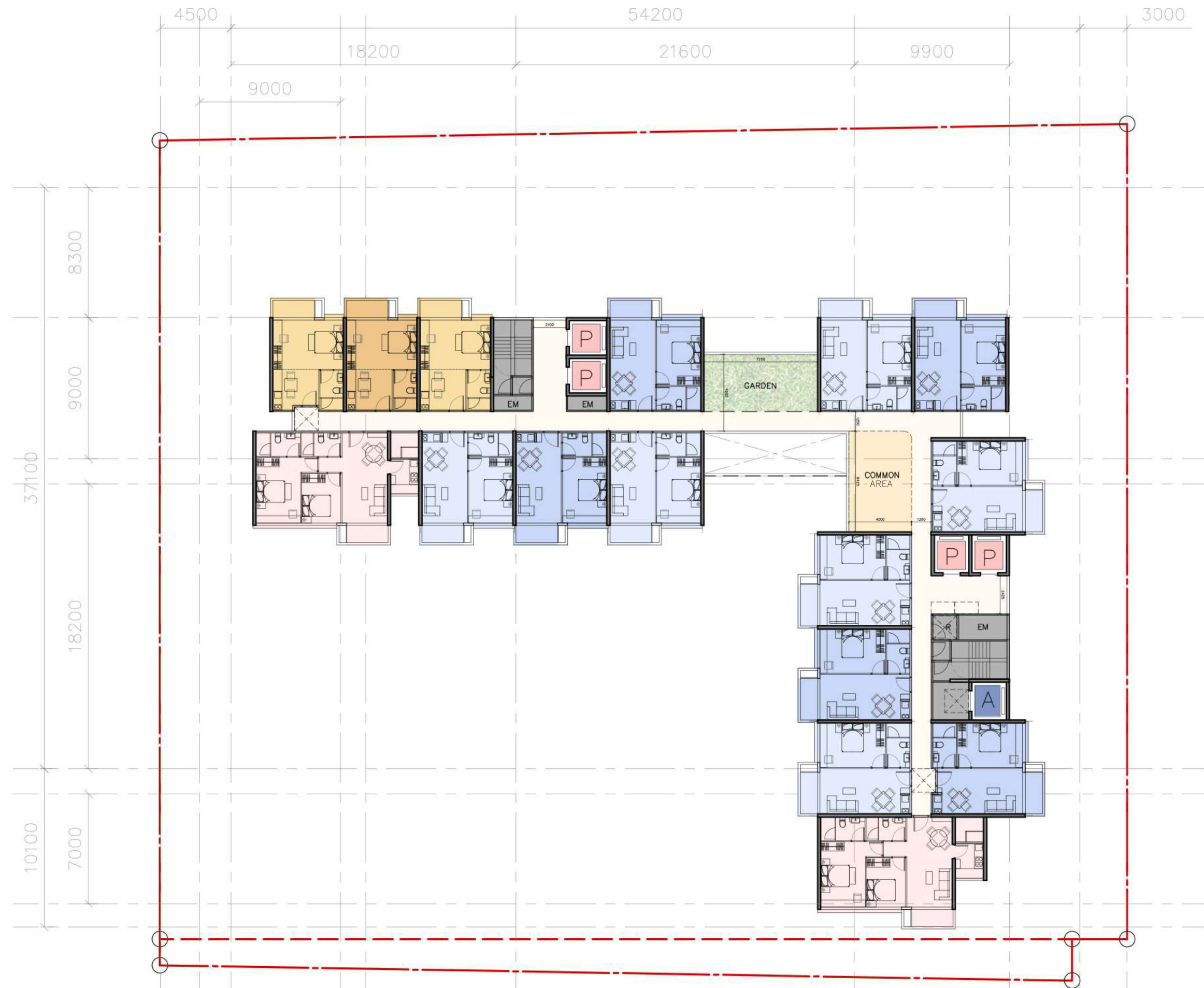


8F

1:250 @ A3

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

— MATTER



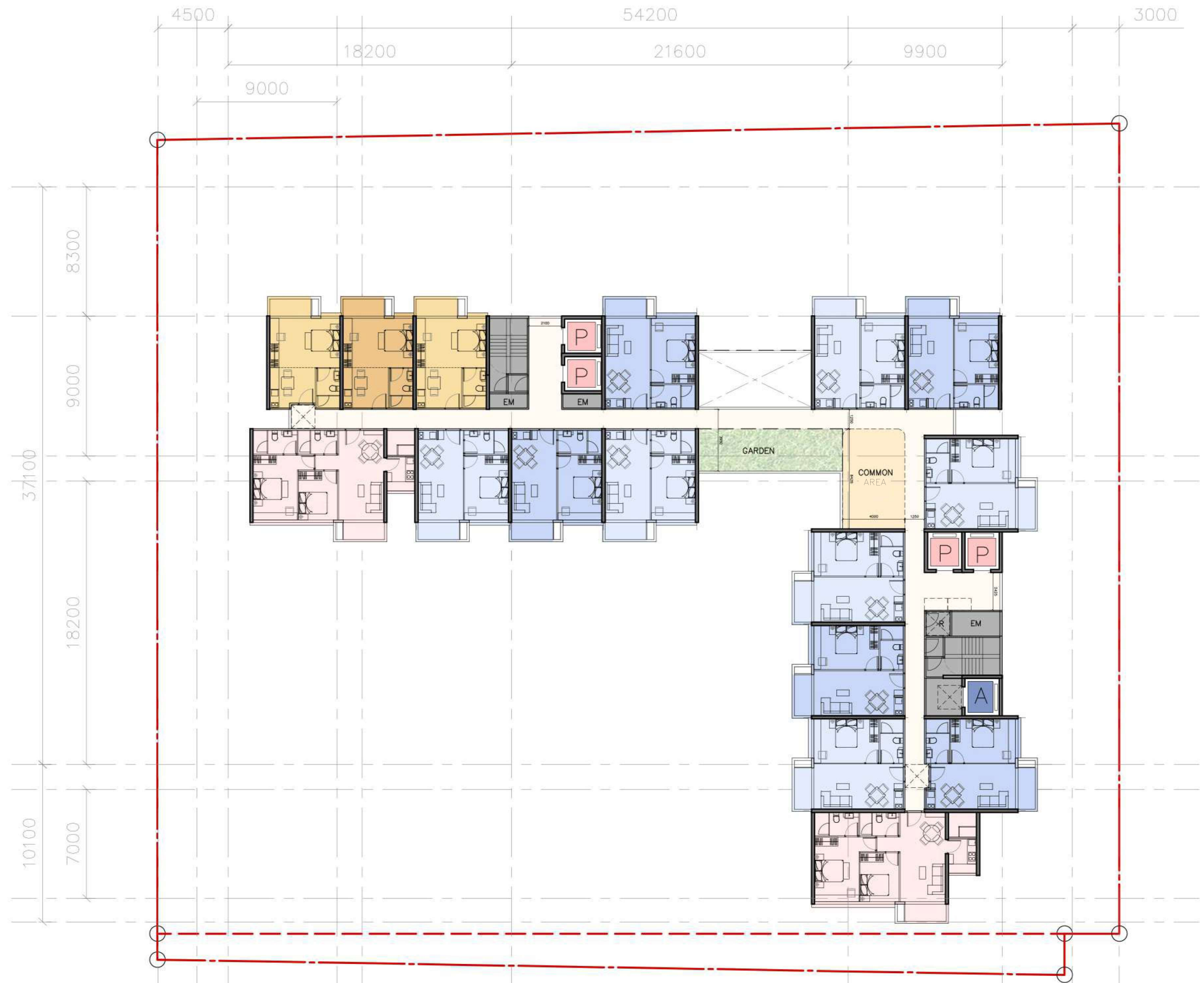
TYP

1:250 @ A3



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

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



TYP

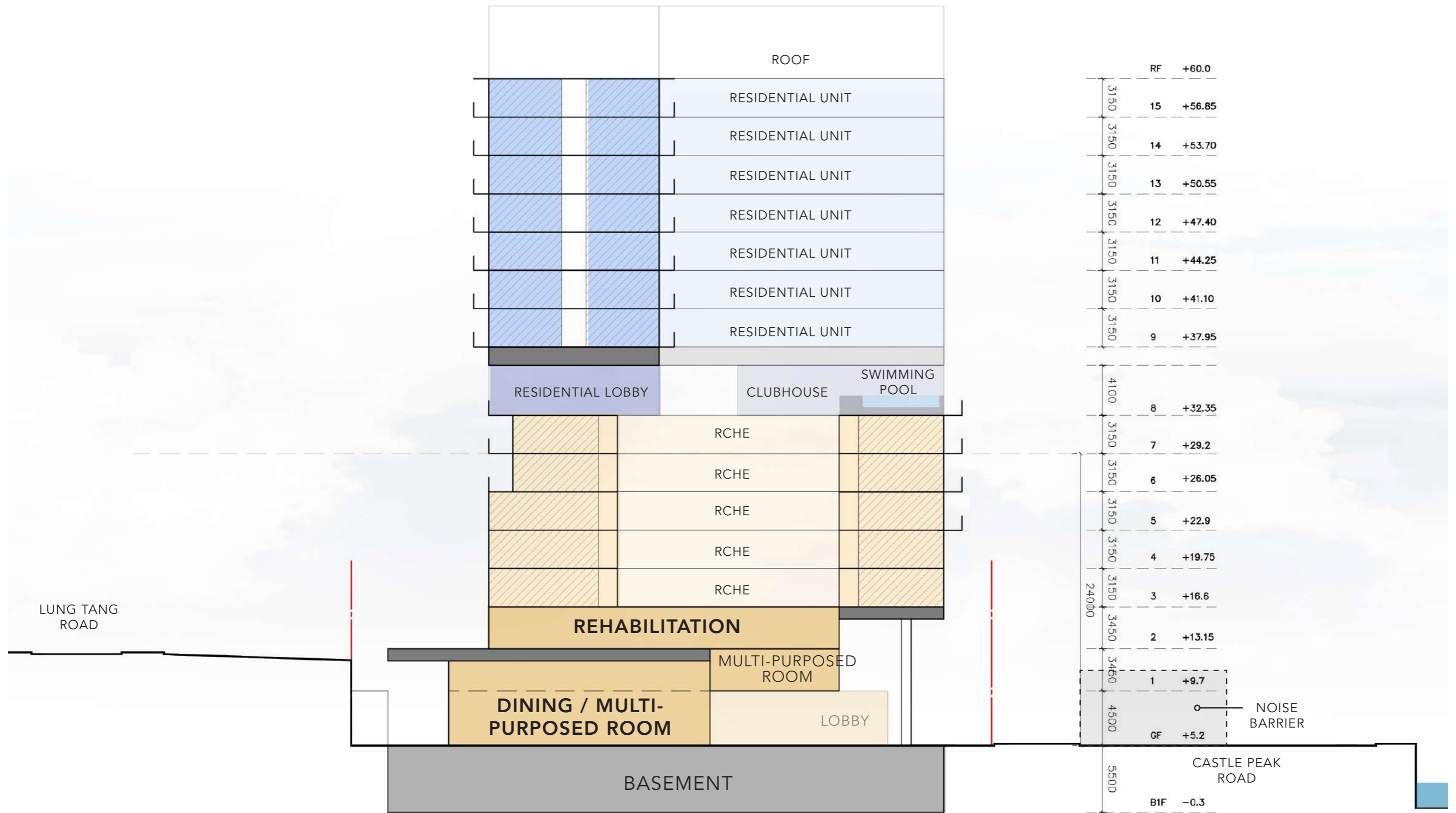
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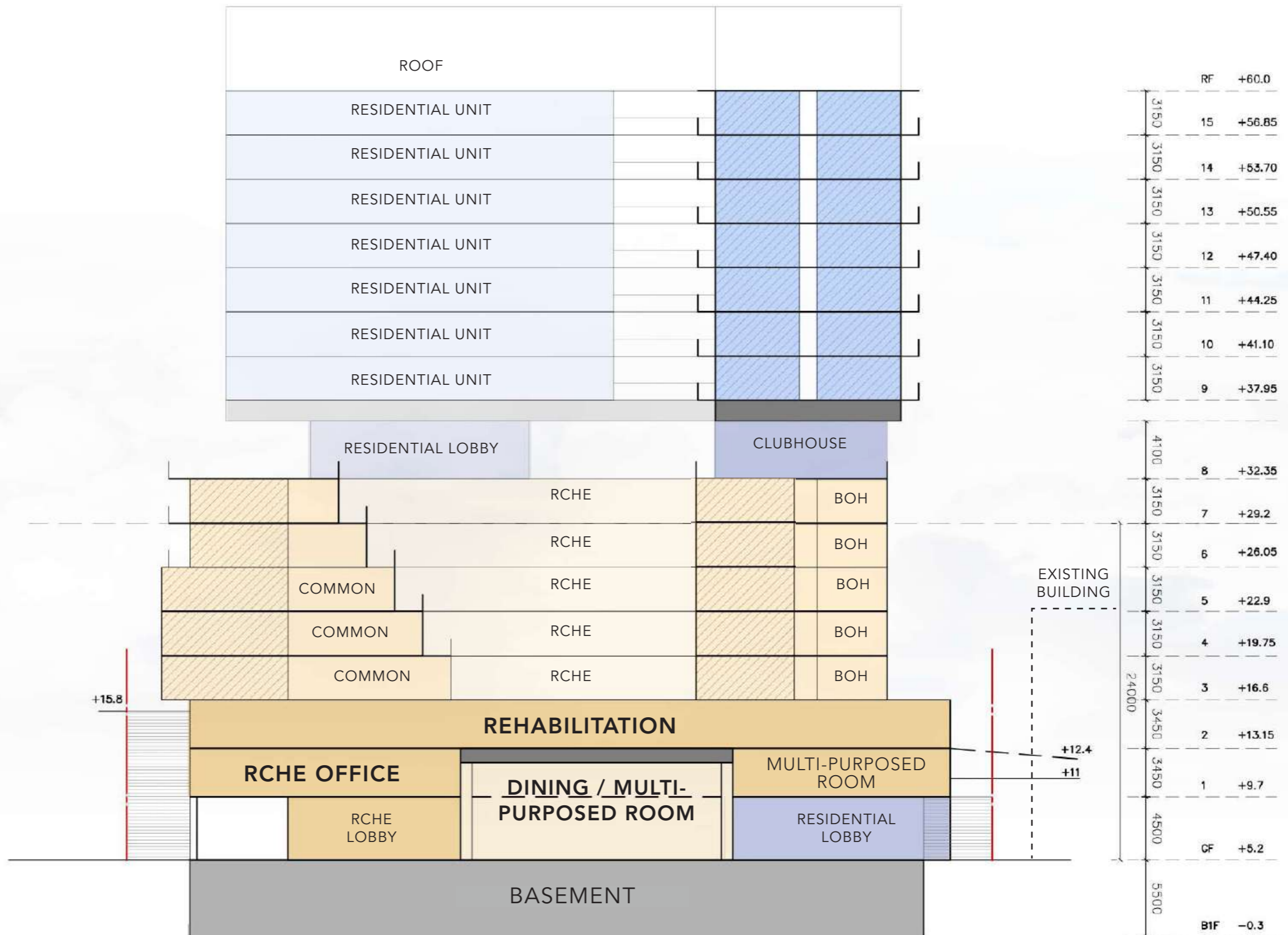


TYPICAL FLOORS - 10,12,14/F

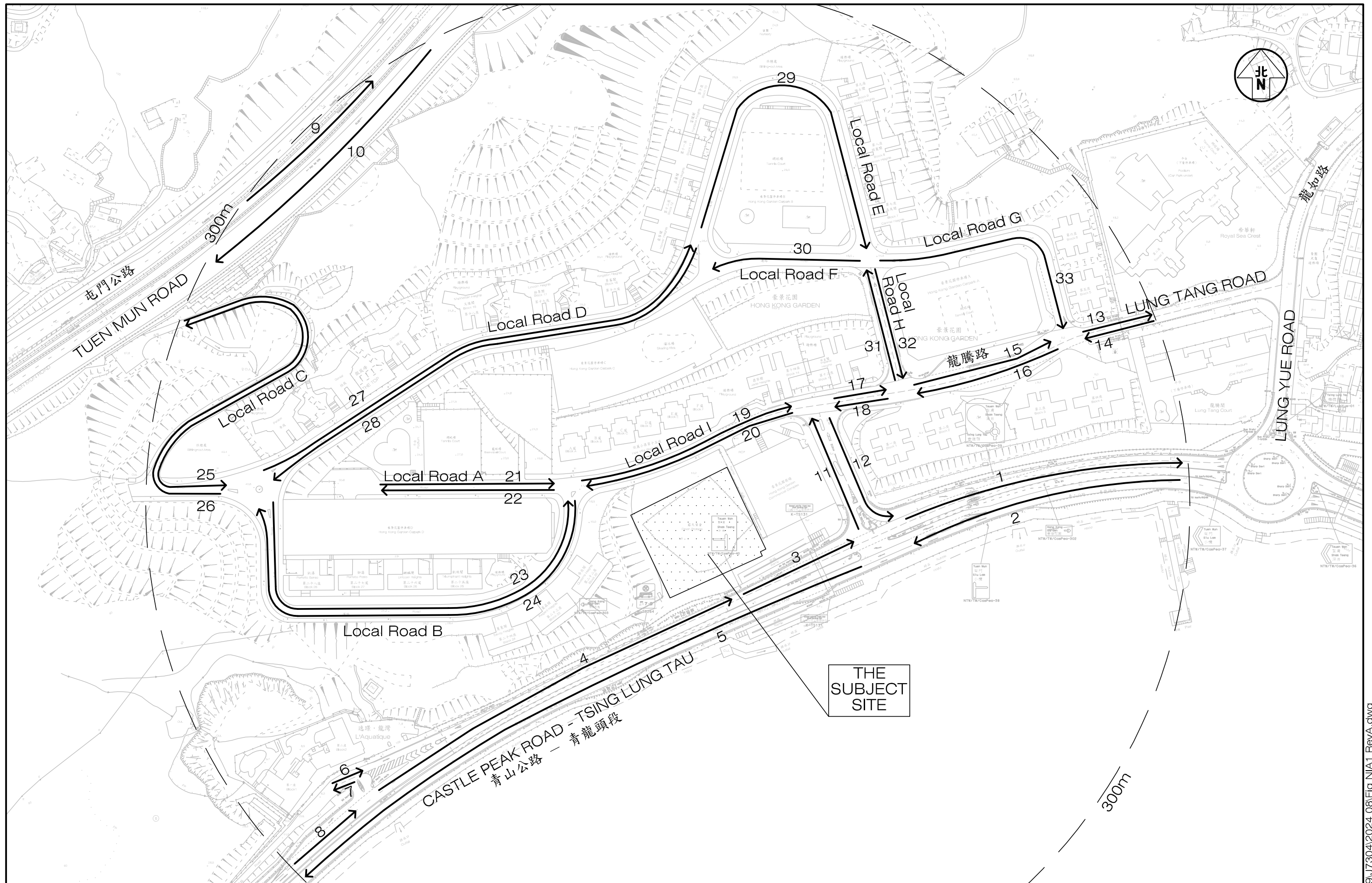
\*AREAS SUBJECTED TO FURTHER STRUCTURAL AND BUILDING SERVICES CONSULTANTS' COORDINATION







## **Appendix 4.1      Traffic Forecast for Year 2047**



Project Title SECTION 16 PLANNING APPLICATION FOR 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 J7304

Figure Title LOCATION OF TRAFFIC DATA WITHIN 300M STUDY AREA FROM SUBJECT SITE

Figure No.	NIA1		Revision	A	
Designed by	L C H	Drawn by	N C M	Checked by	K C
Scale in A3	1 : 2000		Date	01 AUG 2024	
CKM Asia Limited			Traffic and Transportation Planning Consultants		
21st Floor, Methodist House, 36 Hennessy Road			Wan Chai, Hong Kong		
Tel : (852) 2520 5990			Fax : (852) 2528 6343		
Email : mail@ckmasia.com.hk					

T:\JOB\J7300-J7349\J7304\2024 08\Fig NIA1 RevA.dwg

**TABLE E – PEAK HOUR TRAFFIC FLOW AND VEHICLE COMPOSITION**  
**YEAR 2047 TRAFFIC FORECAST**

Date: 2 July 2024

Job No.: J7304

Link ID	Road Section	From Road	To Road	AM Peak Hour		
				Traffic Flows (veh/hr)	Vehicle Composition	
					LV	HV
L001	Castle Peak Road - Tsing Lung Tau	Access Road of Hong Kong Garden	Lung Yue Road	2,200	84%	16%
L002	Castle Peak Road - Tsing Lung Tau	Lung Yue Road	Access Road of Hong Kong Garden	400	79%	21%
L003	Castle Peak Road - Tsing Lung Tau	Access Road of Subject Site	Access Road of Hong Kong Garden	1,850	84%	16%
L004	Castle Peak Road - Tsing Lung Tau	Access Road of L'Aquatique	Access Road of Subject Site	1,850	84%	16%
L005	Castle Peak Road - Tsing Lung Tau	Access Road of Hong Kong Garden	Access Road of Public Car Park	300	82%	18%
L006	Access Road of L'Aquatique (EB)	Cul-de-sac	Castle Peak Road - Tsing Lung Tau	50	95%	5%
L007	Access Road of L'Aquatique (WB)	Castle Peak Road - Tsing Lung Tau	Cul-de-sac	50	89%	11%
L008	Castle Peak Road - Tsing Lung Tau	Access Road of VISTACOVE	Access Road of L'Aquatique	1,850	84%	16%
L009	Tuen Mun Road (EB)	Tuen Mun Road Interchange	Sham Tseng Interchange	6,150	63%	37%
L010	Tuen Mun Road (WB)	Sham Tseng Interchange	Tuen Mun Road Interchange	4,600	60%	40%
L011	Access Road of Hong Kong Garden	Castle Peak Road - Tsing Lung Tau	Lung Tang Road	150	67%	33%
L012	Access Road of Hong Kong Garden	Lung Tang Road	Castle Peak Road - Tsing Lung Tau	400	86%	14%
L013	Lung Tang Road (EB)	Local Road H	Cul-de-sac	50	14%	86%
L014	Lung Tang Road (WB)	Cul-de-sac	Local Road H	50	15%	85%
L015	Lung Tang Road (EB)	Local Road G	Local Road H	50	14%	86%
L016	Lung Tang Road (WB)	Local Road H	Local Road G	150	80%	20%
L017	Lung Tang Road (EB)	Access Road of Hong Kong Garden	Local Road G	100	73%	27%
L018	Lung Tang Road (WB)	Local Road G	Access Road of Hong Kong Garden	300	83%	17%
L019	Local Road I (EB)	Local Road B	Access Road of Hong Kong Garden	150	90%	10%
L020	Local Road I (WB)	Access Road of Hong Kong Garden	Local Road B	100	63%	37%
L021	Local Road A (EB)	Cul-de-sac	Local Road B	100	93%	7%
L022	Local Road A (WB)	Local Road B	Cul-de-sac	100	90%	10%
L023	Local Road B (EB)	Local Road C	Local Road A	150	90%	10%
L024	Local Road B (WB)	Local Road A	Local Road C	50	59%	41%
L025	Local Road C (EB)	Cul-de-sac	Local Road D	50	81%	19%
L026	Local Road C (WB)	Local Road D	Cul-de-sac	50	80%	20%
L027	Local Road D (EB)	Local Road B	Local Road E	50	33%	67%
L028	Local Road D (WB)	Local Road E	Local Road B	50	100%	0%
L029	Local Road E (EB)	Local Road D	Local Road F	150	66%	34%
L030	Local Road F (WB)	Local Road E	Local Road D	50	68%	32%
L031	Local Road G (NB)	Lung Tang Road	Local Road F	100	97%	3%
L032	Local Road G (SB)	Local Road F	Lung Tang Road	150	87%	13%
L033	Local Road H (EB)	Local Road E	Lung Tang Road	150	95%	5%

Note: "LV" includes motorcycle, private car and taxi

"HV" includes light / medium / heavy goods vehicle, public / private light bus, non-franchised bus and franchised bus

**TABLE E – PEAK HOUR TRAFFIC FLOW AND VEHICLE COMPOSITION**  
**YEAR 2047 TRAFFIC FORECAST**

Date: 2 July 2024

Job No.: J7304

Link ID	Road Section	From Road	To Road	PM Peak Hour		
				Traffic Flows (veh/hr)	Vehicle Composition	
					LV	HV
L001	Castle Peak Road - Tsing Lung Tau	Access Road of Hong Kong Garden	Lung Yue Road	400	80%	20%
L002	Castle Peak Road - Tsing Lung Tau	Lung Yue Road	Access Road of Hong Kong Garden	600	83%	17%
L003	Castle Peak Road - Tsing Lung Tau	Access Road of Subject Site	Access Road of Hong Kong Garden	300	86%	14%
L004	Castle Peak Road - Tsing Lung Tau	Access Road of L'Aquatique	Access Road of Subject Site	250	86%	14%
L005	Castle Peak Road - Tsing Lung Tau	Access Road of Hong Kong Garden	Access Road of Public Car Park	350	79%	21%
L006	Access Road of L'Aquatique (EB)	Cul-de-sac	Castle Peak Road - Tsing Lung Tau	50	78%	22%
L007	Access Road of L'Aquatique (WB)	Castle Peak Road - Tsing Lung Tau	Cul-de-sac	50	87%	13%
L008	Castle Peak Road - Tsing Lung Tau	Access Road of VISTACOVE	Access Road of L'Aquatique	300	87%	13%
L009	Tuen Mun Road (EB)	Tuen Mun Road Interchange	Sham Tseng Interchange	4,700	69%	31%
L010	Tuen Mun Road (WB)	Sham Tseng Interchange	Tuen Mun Road Interchange	5,650	73%	27%
L011	Access Road of Hong Kong Garden	Castle Peak Road - Tsing Lung Tau	Lung Tang Road	350	89%	11%
L012	Access Road of Hong Kong Garden	Lung Tang Road	Castle Peak Road - Tsing Lung Tau	200	76%	24%
L013	Lung Tang Road (EB)	Local Road H	Cul-de-sac	50	0%	100%
L014	Lung Tang Road (WB)	Cul-de-sac	Local Road H	50	0%	100%
L015	Lung Tang Road (EB)	Local Road G	Local Road H	50	0%	100%
L016	Lung Tang Road (WB)	Local Road H	Local Road G	100	52%	48%
L017	Lung Tang Road (EB)	Access Road of Hong Kong Garden	Local Road G	200	89%	11%
L018	Lung Tang Road (WB)	Local Road G	Access Road of Hong Kong Garden	200	73%	27%
L019	Local Road I (EB)	Local Road B	Access Road of Hong Kong Garden	50	91%	9%
L020	Local Road I (WB)	Access Road of Hong Kong Garden	Local Road B	150	89%	11%
L021	Local Road A (EB)	Cul-de-sac	Local Road B	50	100%	0%
L022	Local Road A (WB)	Local Road B	Cul-de-sac	100	98%	2%
L023	Local Road B (EB)	Local Road C	Local Road A	50	85%	15%
L024	Local Road B (WB)	Local Road A	Local Road C	100	85%	15%
L025	Local Road C (EB)	Cul-de-sac	Local Road D	50	92%	8%
L026	Local Road C (WB)	Local Road D	Cul-de-sac	50	90%	10%
L027	Local Road D (EB)	Local Road B	Local Road E	100	82%	18%
L028	Local Road D (WB)	Local Road E	Local Road B	100	96%	4%
L029	Local Road E (EB)	Local Road D	Local Road F	150	81%	19%
L030	Local Road F (WB)	Local Road E	Local Road D	150	86%	14%
L031	Local Road G (NB)	Lung Tang Road	Local Road F	200	91%	9%
L032	Local Road G (SB)	Local Road F	Lung Tang Road	100	72%	28%
L033	Local Road H (EB)	Local Road E	Lung Tang Road	50	92%	8%

Note: "LV" includes motorcycle, private car and taxi

"HV" includes light / medium / heavy goods vehicle, public / private light bus, non-franchised bus and franchised bus

**Appendix 4.2 On-site Laser Distance Measurements for the Semi-Enclosures at Castle Peak Road – Tsing Lung Tau**

# Locations of the Semi Enclosure of Castle Peak Road – Tsing Lung Tau



View Point 2 – Semi Enclosure B



View Point 1 – Semi Enclosure A



## Photo Records – Semi Enclosure A



- The height of the semi enclosure was measured by laser distance sensor at the lower side. The measured height is about 6.2m.

## Photo Records – Semi Enclosure B



- The height of the semi enclosure was measured by laser distance sensor at the lower side. The measured height is about 7.1m.

**Appendix 4.3 Predicted Road Traffic Noise [L10(1hr) dB(A)] at Selected Noise Sensitive Receivers for Unmitigated Scenario and Mitigated Scenario**

**Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)**

**RCHE-2/F**

GBP Floor	mPD,m	D2-01
2/F	13.2	70
<b>Max Noise Level, dB(A)</b>		<b>70</b>

Noted:

56	Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms
71	Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level:	70
-------------------	----

**Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)**

**RCHE-2/F**

GBP Floor	mPD,m	D2-01
2/F	13.2	66
<b>Max Noise Level, dB(A)</b>		<b>66</b>

Noted:

56	Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms
71	Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level:	66
-------------------	----

**Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)**

**RCHE-2/F**

GBP Floor	mPD,m	D2-01
2/F	13.2	70
<b>Max Noise Level, dB(A)</b>		<b>70</b>

Noted:

	Acoustic Window (Baffle Type)
--	-------------------------------

Max. Noise Level:	70
-------------------	----

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)

RCHE-3/F

GBP Floor	mPD,m	S3-01	D3-01	D3-02	D3-03	D3-04	D3-05	D3-06	D3-07	D3-08	D3-09	D3-10	D3-11	D3-12	D3-13	D3-14
3/F	16.6	47	46	47	47	47	47	48	48	47	67	66	65	65	64	64
Max Noise Level, dB(A)		47	46	47	47	47	47	48	48	47	67	66	65	65	64	64

GBP Floor	mPD,m	D3-15	D3-16	D3-17	D3-18	D3-19	D3-20	D3-21	D3-22	D3-23	D3-24	D3-25	D3-26	D3-27	D3-28
3/F	16.6	64	63	63	62	68	69	69	70	70	71	72	72	73	73
Max Noise Level, dB(A)		64	63	63	62	68	69	69	70	70	71	72	72	73	73

GBP Floor	mPD,m	D3-29	D3-30	D3-31	D3-32	D3-33	D3-34	D3-35	D3-36	D3-37	D3-38	D3-39	D3-40	D3-41	D3-42
3/F	16.6	74	74	74	74	75	75	75	75	67	67	67	68	68	68
Max Noise Level, dB(A)		74	74	74	74	75	75	75	75	67	67	67	68	68	68

GBP Floor	mPD,m	D3-43	D3-44	D3-45	D3-46	D3-47	D3-48
3/F	16.6	68	68	68	68	67	66
Max Noise Level, dB(A)		68	68	68	68	67	66

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms ):	47
Max. Noise Level (Residential Portion and Dormitories ):	75

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)

RCHE-3/F

GBP Floor	mPD,m	S3-01	D3-01	D3-02	D3-03	D3-04	D3-05	D3-06	D3-07	D3-08	D3-09	D3-10	D3-11	D3-12	D3-13	D3-14
3/F	16.6	45	44	45	45	45	45	46	46	45	65	64	64	63	63	62
Max Noise Level, dB(A)		45	44	45	45	45	45	46	46	45	65	64	64	63	63	62

GBP Floor	mPD,m	D3-15	D3-16	D3-17	D3-18	D3-19	D3-20	D3-21	D3-22	D3-23	D3-24	D3-25	D3-26	D3-27	D3-28
3/F	16.6	62	62	61	61	66	66	67	67	67	68	68	69	69	69
Max Noise Level, dB(A)		62	62	61	61	66	66	67	67	67	68	68	69	69	69

GBP Floor	mPD,m	D3-29	D3-30	D3-31	D3-32	D3-33	D3-34	D3-35	D3-36	D3-37	D3-38	D3-39	D3-40	D3-41	D3-42
3/F	16.6	70	70	70	70	70	70	71	71	65	65	65	65	66	66
Max Noise Level, dB(A)		70	70	70	70	70	70	71	71	65	65	65	65	66	66

GBP Floor	mPD,m	D3-43	D3-44	D3-45	D3-46	D3-47	D3-48
3/F	16.6	66	66	66	65	65	64
Max Noise Level, dB(A)		66	66	66	65	65	64

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms ):	45
Max. Noise Level (Residential Portion and Dormitories ):	71

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)

RCHE-3/F

GBP Floor	mPD,m	S3-01	D3-01	D3-02	D3-03	D3-04	D3-05	D3-06	D3-07	D3-08	D3-09	D3-10	D3-11	D3-12	D3-13	D3-14
3/F	16.6	47	46	47	47	47	47	48	48	47	67	66	65	65	64	64
Max Noise Level, dB(A)		47	46	47	47	47	47	48	48	47	67	66	65	65	64	64

GBP Floor	mPD,m	D3-15	D3-16	D3-17	D3-18	D3-19	D3-20	D3-21	D3-22	D3-23	D3-24	D3-25	D3-26	D3-27	D3-28
3/F	16.6	64	63	63	62	68	69	69	70	70	70	70	70	70	70
Max Noise Level, dB(A)		64	63	63	62	68	69	69	70	70	70	70	70	70	70

GBP Floor	mPD,m	D3-29	D3-30	D3-31	D3-32	D3-33	D3-34	D3-35	D3-36	D3-37	D3-38	D3-39	D3-40	D3-41	D3-42
3/F	16.6	70	70	70	70	70	70	70	70	67	67	67	68	68	68
Max Noise Level, dB(A)		70	70	70	70	70	70	70	70	67	67	67	68	68	68

GBP Floor	mPD,m	D3-43	D3-44	D3-45	D3-46	D3-47	D3-48
3/F	16.6	68	68	68	68	67	66
Max Noise Level, dB(A)		68	68	68	68	67	66

Noted:

Acoustic Window (Baffle Type)

Max. Noise Level (Diagnostic Rooms ):	47
Max. Noise Level (Residential Portion and Dormitories ):	70

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)

RCHE-4/F

GBP Floor	mPD,m	S4-01	D4-01	D4-02	D4-03	D4-04	D4-05	D4-06	D4-07	D4-08	D4-09	D4-10	D4-11	D4-12	D4-13	D4-14
4/F	19.8	49	49	49	50	50	50	51	51	50	67	66	66	65	64	64
Max Noise Level, dB(A)		49	49	49	50	50	50	51	51	50	67	66	66	65	64	64

GBP Floor	mPD,m	D4-15	D4-16	D4-17	D4-18	D4-19	D4-20	D4-21	D4-22	D4-23	D4-24	D4-25	D4-26	D4-27	D4-28
4/F	19.8	64	64	63	63	69	69	70	70	71	71	72	72	73	73
Max Noise Level, dB(A)		64	64	63	63	69	69	70	70	71	71	72	72	73	73

GBP Floor	mPD,m	D4-29	D4-30	D4-31	D4-32	D4-33	D4-34	D4-35	D4-36	D4-37	D4-38	D4-39	D4-40	D4-41	D4-42
4/F	19.8	73	74	74	74	74	74	74	75	67	67	67	68	68	68
Max Noise Level, dB(A)		73	74	74	74	74	74	74	75	67	67	67	68	68	68

GBP Floor	mPD,m	D4-43	D4-44	D4-45	D4-46	D4-47	D4-48
4/F	19.8	68	68	68	68	68	68
Max Noise Level, dB(A)		68	68	68	68	68	68

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	49
Max. Noise Level (Residential Portion and Dormitories):	75

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)

RCHE-4/F

GBP Floor	mPD,m	S4-01	D4-01	D4-02	D4-03	D4-04	D4-05	D4-06	D4-07	D4-08	D4-09	D4-10	D4-11	D4-12	D4-13	D4-14
4/F	19.8	48	47	47	48	48	48	49	49	48	65	64	64	64	63	63
Max Noise Level, dB(A)		48	47	47	48	48	48	49	49	48	65	64	64	64	63	63

GBP Floor	mPD,m	D4-15	D4-16	D4-17	D4-18	D4-19	D4-20	D4-21	D4-22	D4-23	D4-24	D4-25	D4-26	D4-27	D4-28
4/F	19.8	62	62	62	61	67	67	68	68	68	68	69	69	69	69
Max Noise Level, dB(A)		62	62	62	61	67	67	68	68	68	68	69	69	69	69

GBP Floor	mPD,m	D4-29	D4-30	D4-31	D4-32	D4-33	D4-34	D4-35	D4-36	D4-37	D4-38	D4-39	D4-40	D4-41	D4-42
4/F	19.8	70	70	70	70	70	70	70	70	65	65	65	65	66	66
Max Noise Level, dB(A)		70	70	70	70	70	70	70	70	65	65	65	65	66	66

GBP Floor	mPD,m	D4-43	D4-44	D4-45	D4-46	D4-47	D4-48
4/F	19.8	66	66	66	66	66	66
Max Noise Level, dB(A)		66	66	66	66	66	66

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	48
Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)

RCHE-4/F

GBP Floor	mPD,m	S4-01	D4-01	D4-02	D4-03	D4-04	D4-05	D4-06	D4-07	D4-08	D4-09	D4-10	D4-11	D4-12	D4-13	D4-14
4/F	19.8	49	49	49	50	50	50	51	51	50	67	66	66	65	64	64
Max Noise Level, dB(A)		49	49	49	50	50	50	51	51	50	67	66	66	65	64	64

GBP Floor	mPD,m	D4-15	D4-16	D4-17	D4-18	D4-19	D4-20	D4-21	D4-22	D4-23	D4-24	D4-25	D4-26	D4-27	D4-28
4/F	19.8	64	64	63	63	69	69	70	70	70	70	70	70	70	70
Max Noise Level, dB(A)		0	64	63	63	69	69	70	70	70	70	70	70	70	70

GBP Floor	mPD,m	D4-29	D4-30	D4-31	D4-32	D4-33	D4-34	D4-35	D4-36	D4-37	D4-38	D4-39	D4-40	D4-41	D4-42
4/F	19.8	70	70	70	70	70	70	70	70	67	67	67	68	68	68
Max Noise Level, dB(A)		0	70	70	70	70	70	70	70	67	67	67	68	68	68

GBP Floor	mPD,m	D4-43	D4-44	D4-45	D4-46	D4-47	D4-48
4/F	19.8	68	68	68	68	68	68
Max Noise Level, dB(A)		68	68	68	68	68	68

Noted:

Acoustic Window (Baffle Type)

Max. Noise Level (Diagnostic Rooms):	49
Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)

RCHE-5/F

GBP Floor	mPD,m	S5-01	S5-02	D5-01	D5-02	D5-03	D5-04	D5-05	D5-06	D5-07	D5-08	D5-09	D5-10	D5-11	D5-12
5/F	22.9	53	53	53	54	54	54	55	54	67	66	66	65	65	64
<b>Max Noise Level, dB(A)</b>		<b>53</b>	<b>53</b>	<b>53</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>55</b>	<b>54</b>	<b>67</b>	<b>66</b>	<b>66</b>	<b>65</b>	<b>65</b>	<b>64</b>

GBP Floor	mPD,m	D5-13	D5-14	D5-15	D5-16	D5-17	D5-18	D5-19	D5-20	D5-21	D5-22	D5-23	D5-24	D5-25	D5-26
5/F	22.9	64	64	64	63	69	69	70	70	71	71	72	72	73	73
<b>Max Noise Level, dB(A)</b>		<b>64</b>	<b>64</b>	<b>64</b>	<b>63</b>	<b>69</b>	<b>69</b>	<b>70</b>	<b>70</b>	<b>71</b>	<b>71</b>	<b>72</b>	<b>72</b>	<b>73</b>	<b>73</b>

GBP Floor	mPD,m	D5-27	D5-28	D5-29	D5-30	D5-31	D5-32	D5-33	D5-34	D5-35	D5-36	D5-37	D5-38	D5-39	D5-40
5/F	22.9	73	73	74	74	74	74	74	74	68	68	68	68	68	68
<b>Max Noise Level, dB(A)</b>		<b>73</b>	<b>73</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>74</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>

GBP Floor	mPD,m	D5-41	D5-42	D5-43	D5-44	D5-45	D5-46
5/F	22.9	68	68	68	68	68	68
<b>Max Noise Level, dB(A)</b>		<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>

Noted:	<b>56</b> Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms	Max. Noise Level (Diagnostic Rooms):	53
	<b>71</b> Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises	Max. Noise Level (Residential Portion and Dormitories):	74

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)

RCHE-5/F

GBP Floor	mPD,m	S5-01	S5-02	D5-01	D5-02	D5-03	D5-04	D5-05	D5-06	D5-07	D5-08	D5-09	D5-10	D5-11	D5-12
5/F	22.9	52	52	51	52	52	53	53	52	65	64	64	64	63	63
<b>Max Noise Level, dB(A)</b>		<b>52</b>	<b>52</b>	<b>51</b>	<b>52</b>	<b>52</b>	<b>53</b>	<b>53</b>	<b>52</b>	<b>65</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>63</b>	<b>63</b>

GBP Floor	mPD,m	D5-13	D5-14	D5-15	D5-16	D5-17	D5-18	D5-19	D5-20	D5-21	D5-22	D5-23	D5-24	D5-25	D5-26
5/F	22.9	62	62	62	61	67	67	68	68	68	68	69	69	69	69
<b>Max Noise Level, dB(A)</b>		<b>62</b>	<b>62</b>	<b>62</b>	<b>61</b>	<b>67</b>	<b>67</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>69</b>	<b>69</b>	<b>69</b>	<b>69</b>

GBP Floor	mPD,m	D5-27	D5-28	D5-29	D5-30	D5-31	D5-32	D5-33	D5-34	D5-35	D5-36	D5-37	D5-38	D5-39	D5-40
5/F	22.9	69	69	70	70	70	70	70	70	66	65	66	66	66	66
<b>Max Noise Level, dB(A)</b>		<b>69</b>	<b>69</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>66</b>	<b>65</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>

GBP Floor	mPD,m	D5-41	D5-42	D5-43	D5-44	D5-45	D5-46
5/F	22.9	66	66	66	66	66	66
<b>Max Noise Level, dB(A)</b>		<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>

Noted:	<b>56</b> Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms	Max. Noise Level (Diagnostic Rooms):	52
	<b>71</b> Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises	Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)

RCHE-5/F

GBP Floor	mPD,m	S5-01	S5-02	D5-02	D5-03	D5-04	D5-05	D5-06	D5-07	D5-08	D5-09	D5-10	D5-11	D5-12	D5-13
5/F	22.9	53	53	53	54	54	54	55	54	67	66	66	65	65	64
<b>Max Noise Level, dB(A)</b>		<b>53</b>	<b>53</b>	<b>53</b>	<b>54</b>	<b>54</b>	<b>54</b>	<b>55</b>	<b>54</b>	<b>67</b>	<b>66</b>	<b>66</b>	<b>65</b>	<b>65</b>	<b>64</b>

GBP Floor	mPD,m	D5-13	D5-14	D5-15	D5-16	D5-17	D5-18	D5-19	D5-20	D5-21	D5-22	D5-23	D5-24	D5-25	D5-26
5/F	22.9	64	64	64	63	69	69	70	70	70	70	70	70	70	70
<b>Max Noise Level, dB(A)</b>		<b>0</b>	<b>64</b>	<b>64</b>	<b>63</b>	<b>69</b>	<b>69</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>

GBP Floor	mPD,m	D5-27	D5-28	D5-29	D5-30	D5-31	D5-32	D5-33	D5-34	D5-35	D5-36	D5-37	D5-38	D5-39	D5-40
5/F	22.9	70	70	70	70	70	70	70	70	68	68	68	68	68	68
<b>Max Noise Level, dB(A)</b>		<b>0</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>

GBP Floor	mPD,m	D5-41	D5-42	D5-43	D5-44	D5-45	D5-46
5/F	22.9	68	68	68	68	68	68
<b>Max Noise Level, dB(A)</b>		<b>0</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>

Noted:	Acoustic Window (Baffle Type)	Max. Noise Level (Diagnostic Rooms):	53
		Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)

RCHE-6/F

GBP Floor	mPD,m	S6-01	D6-01	D6-02	D6-03	D6-04	D6-05	D6-06	D6-07	D6-08	D6-09	D6-10	D6-11	D6-12	D6-13	D6-14
6/F	26.1	53	52	53	53	54	54	54	67	65	65	65	64	64	69	70
Max Noise Level, dB(A)		53	52	53	53	54	54	54	67	65	65	65	64	64	69	70

GBP Floor	mPD,m	D6-15	D6-16	D6-17	D6-18	D6-19	D6-20	D6-21	D6-22	D6-23	D6-24	D6-25	D6-26	D6-27	D6-28
6/F	26.1	70	70	71	71	72	72	72	73	73	73	73	74	74	74
Max Noise Level, dB(A)		70	70	71	71	72	72	72	73	73	73	73	74	74	74

GBP Floor	mPD,m	D6-29	D6-30	D6-31	D6-32	D6-33	D6-34	D6-35	D6-36	D6-37	D6-38	D6-39	D6-40	D6-41	D6-42
6/F	26.1	74	74	68	67	67	68	68	68	68	68	68	68	68	68
Max Noise Level, dB(A)		74	74	68	67	67	68	68	68	68	68	68	68	68	68

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	53
Max. Noise Level (Residential Portion and Dormitories):	74

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)

RCHE-6/F

GBP Floor	mPD,m	S6-01	D6-01	D6-02	D6-03	D6-04	D6-05	D6-06	D6-07	D6-08	D6-09	D6-10	D6-11	D6-12	D6-13	D6-14
6/F	26.1	51	51	51	52	52	53	52	65	64	63	63	62	62	67	67
Max Noise Level, dB(A)		51	51	51	52	52	53	52	65	64	63	63	62	62	67	67

GBP Floor	mPD,m	D6-15	D6-16	D6-17	D6-18	D6-19	D6-20	D6-21	D6-22	D6-23	D6-24	D6-25	D6-26	D6-27	D6-28
6/F	26.1	68	68	68	68	68	69	69	69	69	69	69	70	70	70
Max Noise Level, dB(A)		68	68	68	68	68	69	69	69	69	69	69	70	70	70

GBP Floor	mPD,m	D6-29	D6-30	D6-31	D6-32	D6-33	D6-34	D6-35	D6-36	D6-37	D6-38	D6-39	D6-40	D6-41	D6-42
6/F	26.1	70	70	66	65	65	66	66	66	66	66	66	66	66	66
Max Noise Level, dB(A)		70	70	66	65	65	66	66	66	66	66	66	66	66	66

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	51
Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)

RCHE-6/F

GBP Floor	mPD,m	S6-01	D6-01	D6-02	D6-03	D6-04	D6-05	D6-06	D6-07	D6-08	D6-09	D6-10	D6-11	D6-12	D6-13	D6-14
6/F	26.1	53	52	53	53	54	54	54	67	65	65	65	64	64	69	70
Max Noise Level, dB(A)		53	52	53	53	54	54	54	67	65	65	65	64	64	69	70

GBP Floor	mPD,m	D6-15	D6-16	D6-17	D6-18	D6-19	D6-20	D6-21	D6-22	D6-23	D6-24	D6-25	D6-26	D6-27	D6-28
6/F	26.1	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Max Noise Level, dB(A)		0	70	70	70	70	70	70	70	70	70	70	70	70	70

GBP Floor	mPD,m	D6-29	D6-30	D6-31	D6-32	D6-33	D6-34	D6-35	D6-36	D6-37	D6-38	D6-39	D6-40	D6-41	D6-42
6/F	26.1	70	70	68	67	67	68	68	68	68	68	68	68	68	68
Max Noise Level, dB(A)		0	70	68	67	67	68	68	68	68	68	68	68	68	68

Noted:

Acoustic Window (Baffle Type)

Max. Noise Level (Diagnostic Rooms):	53
Max. Noise Level (Residential Portion and Dormitories):	70



Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (AM Peak Flow)

RCHE-7/F

GBP Floor	mPD,m	S7-01	D7-01	D7-02	D7-03	D7-04	D7-05	D7-06	D7-07	D7-08	D7-09	D7-10	D7-11	D7-12	D7-13	D7-14
7/F	29.2	52	52	52	53	53	53	53	67	66	66	65	64	64	69	69
Max Noise Level, dB(A)		52	52	52	53	53	53	53	67	66	66	65	64	64	69	69

GBP Floor	mPD,m	D7-15	D7-16	D7-17	D7-18	D7-19	D7-20	D7-21	D7-22	D7-23	D7-24	D7-25	D7-26	D7-27	D7-28
7/F	29.2	70	70	71	71	71	72	72	72	73	73	73	73	73	74
Max Noise Level, dB(A)		70	70	71	71	71	72	72	72	73	73	73	73	73	74

GBP Floor	mPD,m	D7-29	D7-30	D7-31	D7-32	D7-33	D7-34	D7-35	D7-36	D7-37	D7-38	D7-39	D7-40
7/F	29.2	74	74	68	68	68	68	68	68	68	68	68	68
Max Noise Level, dB(A)		74	74	68	68	68	68	68	68	68	68	68	68

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	52
Max. Noise Level (Residential Portion and Dormitories):	74

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - RCHE (PM Peak Flow)

RCHE-7/F

GBP Floor	mPD,m	S7-01	D7-01	D7-02	D7-03	D7-04	D7-05	D7-06	D7-07	D7-08	D7-09	D7-10	D7-11	D7-12	D7-13	D7-14
7/F	29.2	50	50	51	51	52	52	51	65	64	64	64	63	63	67	67
Max Noise Level, dB(A)		50	50	51	51	52	52	51	65	64	64	64	63	63	67	67

GBP Floor	mPD,m	D7-15	D7-16	D7-17	D7-18	D7-19	D7-20	D7-21	D7-22	D7-23	D7-24	D7-25	D7-26	D7-27	D7-28
7/F	29.2	67	68	68	68	68	68	69	69	69	69	69	69	69	70
Max Noise Level, dB(A)		67	68	68	68	68	68	69	69	69	69	69	69	69	70

GBP Floor	mPD,m	D7-29	D7-30	D7-31	D7-32	D7-33	D7-34	D7-35	D7-36	D7-37	D7-38	D7-39	D7-40
7/F	29.2	70	70	66	66	66	66	66	66	66	66	66	66
Max Noise Level, dB(A)		70	70	66	66	66	66	66	66	66	66	66	66

Noted:

56 Exceeded Hong Kong Planning Standard Guidelines' Standard of 55 dB(A) - Diagnostic Rooms  
 71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Max. Noise Level (Diagnostic Rooms):	50
Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - RCHE (AM Peak Flow-Worst Case)

RCHE-7/F

GBP Floor	mPD,m	S7-01	D7-01	D7-02	D7-03	D7-04	D7-05	D7-06	D7-07	D7-08	D7-09	D7-10	D7-11	D7-12	D7-13	D7-14
7/F	29.2	52	52	52	53	53	53	53	67	66	66	65	64	64	69	69
Max Noise Level, dB(A)		52	52	52	53	53	53	53	67	66	66	65	64	64	69	69

GBP Floor	mPD,m	D7-15	D7-16	D7-17	D7-18	D7-19	D7-20	D7-21	D7-22	D7-23	D7-24	D7-25	D7-26	D7-27	D7-28
7/F	29.2	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Max Noise Level, dB(A)		0	70	70	70	70	70	70	70	70	70	70	70	70	70

GBP Floor	mPD,m	D7-29	D7-30	D7-31	D7-32	D7-33	D7-34	D7-35	D7-36	D7-37	D7-38	D7-39	D7-40
7/F	29.2	70	70	68	68	68	68	68	68	68	68	68	68
Max Noise Level, dB(A)		0	70	68	68	68	68	68	68	68	68	68	68

Noted:

Acoustic Window (Baffle Type)

Max. Noise Level (Diagnostic Rooms):	52
Max. Noise Level (Residential Portion and Dormitories):	70

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - Residential Tower (AM Peak Flow)

Residential Tower

GBP Floor	mPD,m	R-01	R-02	R-03	R-04	R-05	R-06	R-07	R-08	R-09	R-10	R-11	R-12	R-13	R-14
9/F	38.0	68	68	68	68	68	68	68	68	68	68	68	68	70	70
10/F	41.1	68	68	68	68	68	68	68	68	68	68	68	68	70	70
11/F	44.3	68	68	68	68	68	68	68	68	68	68	67	68	70	70
12/F	47.4	68	68	68	68	68	68	68	68	67	67	67	68	69	70
13/F	50.6	68	68	68	68	68	68	68	67	67	67	67	68	69	69
14/F	53.7	68	68	67	68	67	68	67	67	67	67	67	68	69	69
15/F	56.9	67	67	67	67	67	67	67	67	67	67	67	68	69	69
<b>Max Noise Level, dB(A)</b>		<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>70</b>	<b>70</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-15	R-16	R-17	R-18	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	R-27
9/F	38.0	71	71	73	73	73	62	58	57	56	56	55	55	55
10/F	41.1	70	71	73	73	72	65	61	59	57	57	56	56	56
11/F	44.3	70	71	72	72	72	66	64	61	59	57	56	56	56
12/F	47.4	70	71	72	72	72	66	65	63	61	59	57	57	57
13/F	50.6	70	71	72	72	72	66	65	64	62	61	59	59	59
14/F	53.7	70	71	72	72	71	66	65	65	63	62	60	61	61
15/F	56.9	70	71	72	71	71	66	65	65	64	63	61	62	62
<b>Max Noise Level, dB(A)</b>		<b>71</b>	<b>71</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>66</b>	<b>65</b>	<b>65</b>	<b>64</b>	<b>63</b>	<b>61</b>	<b>62</b>	<b>62</b>
<b>Exceedance</b>		<b>6</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-28	R-29	R-30	R-31	R-32	R-33	R-34
9/F	38.0	55	55	55	55	55	55	57
10/F	41.1	56	55	56	55	55	56	58
11/F	44.3	57	56	57	56	56	56	58
12/F	47.4	58	57	58	58	57	58	59
13/F	50.6	59	59	59	59	59	59	60
14/F	53.7	61	61	61	61	61	61	62
15/F	56.9	62	62	62	62	62	62	63
<b>Max Noise Level, dB(A)</b>		<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>63</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Noted:

71 Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Total no. of Flats:	112
Total no. of Exceedance:	12
Compliance Level:	89%
Max. Noise Level:	73

Results of Road Traffic Noise Impact Assessment (Unmitigated Scenario) - Residential Tower (PM Peak Flow)

Residential Tower

GBP Floor	mPD,m	R-01	R-02	R-03	R-04	R-05	R-06	R-07	R-08	R-09	R-10	R-11	R-12	R-13	R-14
9/F	38.0	66	66	66	66	66	66	66	66	66	66	66	67	67	67
10/F	41.1	66	66	66	66	66	66	66	66	66	66	66	67	67	67
11/F	44.3	66	66	66	66	66	66	66	66	66	66	66	66	67	67
12/F	47.4	66	66	66	66	66	66	66	66	66	66	66	66	67	67
13/F	50.6	66	66	66	66	66	66	66	66	66	66	65	66	67	67
14/F	53.7	66	66	66	66	66	66	66	66	66	65	65	66	67	67
15/F	56.9	66	66	66	66	66	66	66	66	65	65	65	66	67	67
<b>Max Noise Level, dB(A)</b>		<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>66</b>	<b>67</b>	<b>67</b>	<b>67</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-15	R-16	R-17	R-18	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	R-27
9/F	38.0	67	68	69	69	69	60	56	54	53	52	51	51	51
10/F	41.1	67	67	69	69	69	63	60	57	54	53	52	52	52
11/F	44.3	67	68	69	68	68	63	62	60	57	55	53	53	54
12/F	47.4	67	68	69	68	68	63	62	61	60	57	55	55	55
13/F	50.6	67	68	68	68	68	63	63	62	61	60	57	57	57
14/F	53.7	67	68	68	68	68	63	62	62	61	60	59	60	60
15/F	56.9	67	68	68	68	68	63	62	62	61	61	60	61	61
<b>Max Noise Level, dB(A)</b>		<b>67</b>	<b>68</b>	<b>69</b>	<b>69</b>	<b>69</b>	<b>63</b>	<b>63</b>	<b>62</b>	<b>61</b>	<b>61</b>	<b>60</b>	<b>61</b>	<b>61</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-28	R-29	R-30	R-31	R-32	R-33	R-34
9/F	38.0	52	52	52	52	52	52	55
10/F	41.1	53	53	53	53	53	53	56
11/F	44.3	54	54	54	54	54	54	56
12/F	47.4	55	55	56	56	56	56	57
13/F	50.6	58	58	58	58	58	58	59
14/F	53.7	60	60	61	60	61	61	61
15/F	56.9	61	61	61	61	61	62	62
<b>Max Noise Level, dB(A)</b>		<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>61</b>	<b>62</b>	<b>62</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Noted:

**71** Exceeded Hong Kong Planning Standard Guidelines' Standard of 70 dB(A) - Domestic Premises

Total no. of Flats:	112
Total no. of Exceedance:	0
Compliance Level:	100%
Max. Noise Level:	69

Results of Road Traffic Noise Impact Assessment (Mitigated Scenario) - Residential Tower (AM Peak Flow-Worst case)

Residential Tower

GBP Floor	mPD,m	R-01	R-02	R-03	R-04	R-05	R-06	R-07	R-08	R-09	R-10	R-11	R-12	R-13	R-14
9/F	38.0	68	68	68	68	68	68	68	68	68	68	68	68	70	70
10/F	41.1	68	68	68	68	68	68	68	68	68	68	68	68	70	70
11/F	44.3	68	68	68	68	68	68	68	68	68	68	67	68	70	70
12/F	47.4	68	68	68	68	68	68	68	68	67	67	67	68	69	70
13/F	50.6	68	68	68	68	68	68	68	67	67	67	67	68	69	69
14/F	53.7	68	68	67	68	67	68	67	67	67	67	67	68	69	69
15/F	56.9	67	67	67	67	67	67	67	67	67	67	67	68	69	69
<b>Max Noise Level, dB(A)</b>		<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>68</b>	<b>70</b>	<b>70</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-15	R-16	R-17	R-18	R-19	R-20	R-21	R-22	R-23	R-24	R-25	R-26	R-27
9/F	38.0	70	70	70	70	70	62	58	57	56	56	55	55	55
10/F	41.1	70	70	70	70	70	65	61	59	57	57	56	56	56
11/F	44.3	70	70	70	70	70	66	64	61	59	57	56	56	56
12/F	47.4	70	70	70	70	70	66	65	63	61	59	57	57	57
13/F	50.6	70	70	70	70	70	66	65	64	62	61	59	59	59
14/F	53.7	70	70	70	70	70	66	65	65	63	62	60	61	61
15/F	56.9	70	70	70	70	70	66	65	65	64	63	61	62	62
<b>Max Noise Level, dB(A)</b>		<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>70</b>	<b>66</b>	<b>65</b>	<b>65</b>	<b>64</b>	<b>63</b>	<b>61</b>	<b>62</b>	<b>62</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

GBP Floor	mPD,m	R-28	R-29	R-30	R-31	R-32	R-33	R-34
9/F	38.0	55	55	55	55	55	55	57
10/F	41.1	56	55	56	55	55	56	58
11/F	44.3	57	56	57	56	56	56	58
12/F	47.4	58	57	58	58	57	58	59
13/F	50.6	59	59	59	59	59	59	60
14/F	53.7	61	61	61	61	61	61	62
15/F	56.9	62	62	62	62	62	62	63
<b>Max Noise Level, dB(A)</b>		<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>62</b>	<b>63</b>
<b>Exceedance</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Noted:

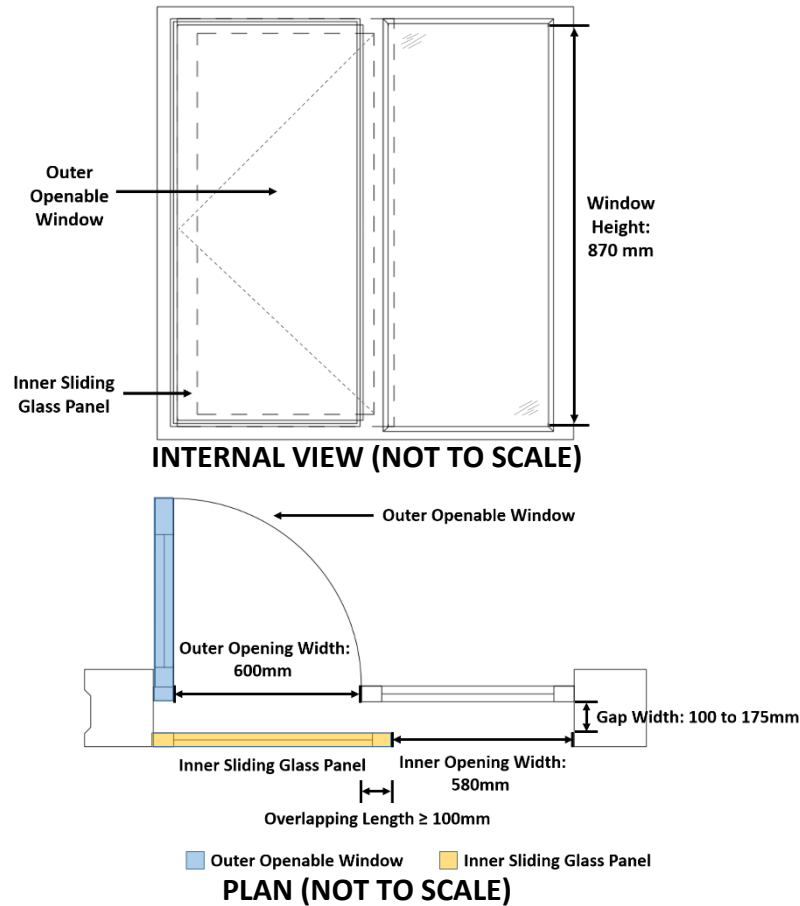
	Acoustic Window (Baffle Type)
	Enhanced Acoustic Balcony (Baffle Type)

Total no. of Flats:	112
Total no. of Exceedance:	0
Compliance Level:	100%
Max. Noise Level:	70

**Appendix 4.4 Reference Figures of Acoustic Window/Enhanced Acoustic Balcony (Baffle Type)**

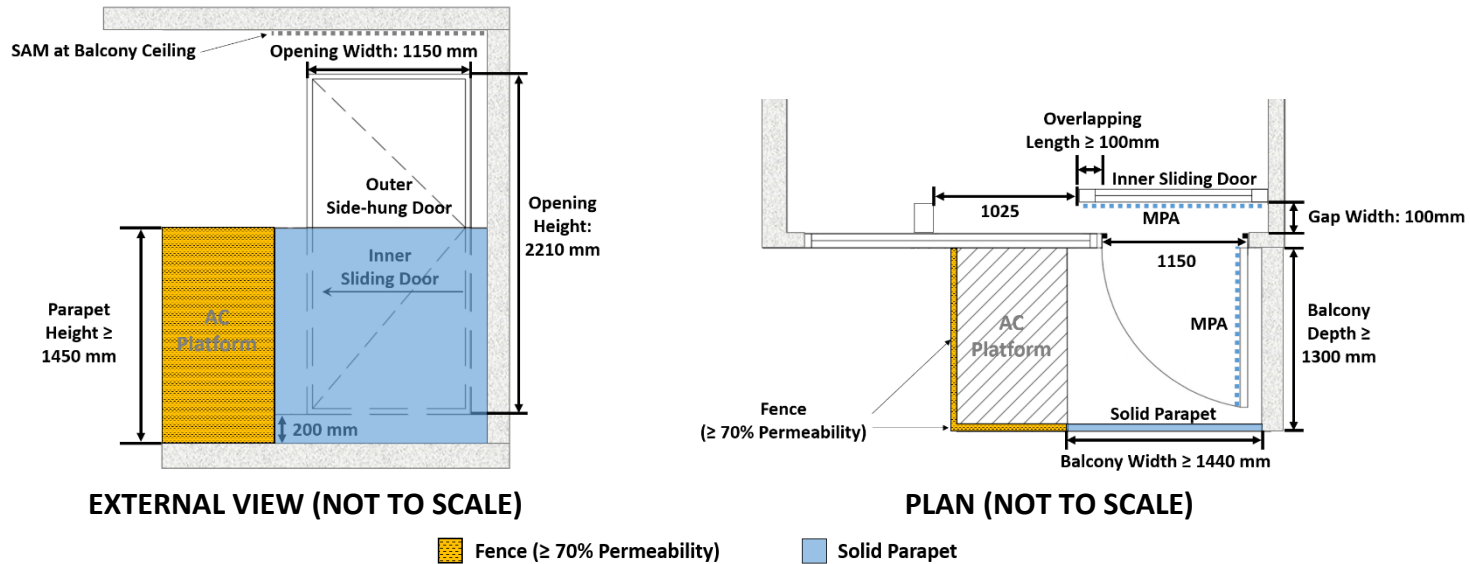
**Annex A**

**(I) A possible design of “Acoustic Window (Baffle Type)” for 8m<sup>2</sup> habitable room (i.e. dining room, living room or bedroom)**



<b>A Possible Design of “Acoustic Window (Baffle Type)” for 8m<sup>2</sup> room</b>				
<b>Room Dimensions (mm<sup>3</sup>)</b>	<b>Inner Window Opening (mm<sup>2</sup>)</b>	<b>Outer Window Opening (mm<sup>2</sup>)</b>	<b>Window Overlapping Length (mm)</b>	<b>Gap Width between Window Panels (mm)</b>
<b>3200 (W) x 2500 (D) x 3400 (H)</b>	<b>580 (W) x 870 (H)</b>	<b>600 (W) x 870 (H)</b>	<b>≥ 100</b>	<b>100 to 175</b>
<p><i>* This is one of feasible designs of AW(BT) for 8m<sup>2</sup> room. The key points of designs include:</i></p> <ul style="list-style-type: none"> <li>- <i>The resultant opening after aligning the inner sliding glass panel with the outer openable window will be taken as its openable window area for the purpose of regulations 30 and 31 of the Building (Planning) Regulations (B(P)R) and Part III of Appendix A of PNAP APP-130;</i></li> <li>- <i>For optimum performance, the air gap should have a pane-to-pane overlapping length of ≥ 100mm and a width between 100mm and 175mm, with the inner sliding glass panel in a closed position as required in PNAP APP-130. The window pane shall be ≥ 6mm in thickness.</i></li> </ul>				

(III) A possible design of “Enhanced Acoustic Balcony (Baffle Type)” in 14m<sup>2</sup> habitable room (i.e. dining room, living room or bedroom)



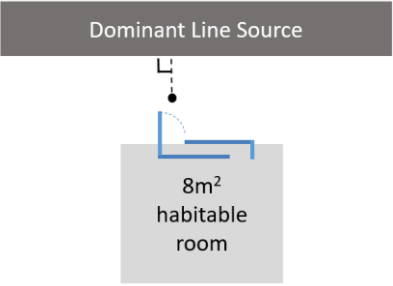
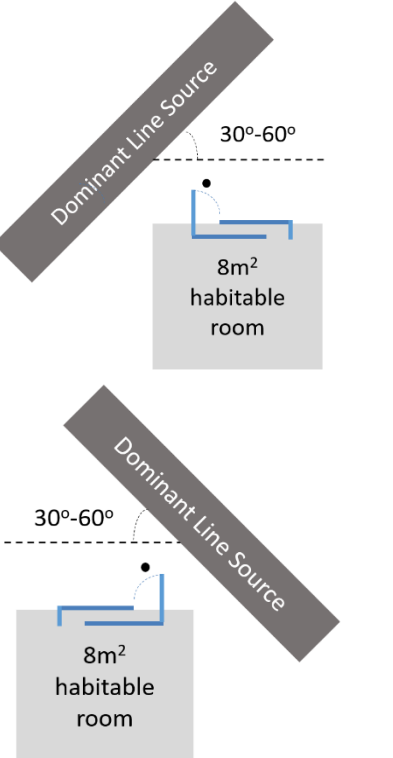
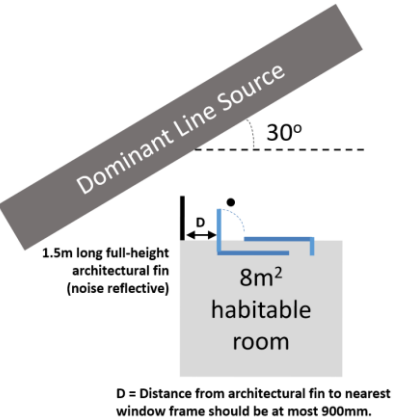
A Possible Design of “Enhanced Acoustic Balcony (Baffle Type)” for 14m <sup>2</sup> room							
Room Dimensions (mm <sup>3</sup> )	Balcony Width (mm)	Balcony Depth (mm)	Parapet Height (mm)	Inner Opening (mm <sup>2</sup> )	Outer Opening (mm <sup>2</sup> )	Overlapping Length (mm)	Gap Width between Panels (mm)
3400 (W) x 4100 (D) x 3100 (H)	≥ 1440	≥ 1300	≥ 1450	1025 (W) x 2210 (H)	1150 (W) x 2210 (H)	≥ 100	100
<p>* This is one of feasible designs of EAB for 14m<sup>2</sup> room. The room with EAB should meet the natural lighting and ventilation requirements in regulations 30 &amp; 31 of the Building (Planning) Regulations (B(P)R). The EAB door with MPA may not be accountable for complying with the natural lighting requirements in regulation 30(2)(a)(i) of B(P)R. The AC platform should comply with the requirements under Appendix B of Code of Practice on Access for External Maintenance 2021 (AfEM Code), and balconies for residential buildings should comply with the criteria and conditions set out in Joint Practice Note (JPN) 1 for application of exemption from gross floor area and/or site coverage under the B(P)R.</p> <p>* MPA refers to micro-perforated absorber of noise reduction coefficient ≥ 0.45; SAM refers to sound absorptive material of noise reduction coefficient ≥ 0.7.</p> <p>* Comparable noise performance is anticipated should the AC platform be replaced by balcony with solid parapet.</p>							

**Table 1: Summary on RNR of Acoustic Window (Baffle Type)**

(for use in NIA)

\*Plan not to scale

Correction  
dB(A) L10(1hr)

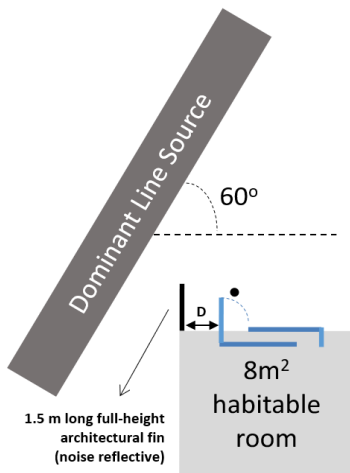
	<p>(a) Provision of AW(BT) parallel to dominant line source (whichever side the outer side-hung window is)</p>	<p>- 6.0</p>
	<p>(b) Tilting the AW(BT) in (a) above to 30°-60° horizontal incident angle to dominant line source (whichever side the outer side-hung window is)</p>	<p>Additional - 1.0 to (a)</p>
 <p>D = Distance from architectural fin to nearest window frame should be at most 900mm.</p>	<p>(b1) If tilted AW(BT) is at <u>30° horizontal incident angle</u> to dominant line source</p> <p>+ 1.5m long full-height architectural fin (noise reflective) <sup>Note1</sup></p> <p>* AW(BT) + fin should be considered as ONE package of noise mitigation measures. Outer side-hung window of AW(BT) and fin should be installed at the side nearer to dominant line source.</p>	<p>Additional - 1.0 to (b)</p>



**Table 1: Summary on RNR of Acoustic Window (Baffle Type)**  
(for use in NIA)

Correction  
dB(A) L10(1hr)

\*Plan not to scale



D = Distance from architectural fin to nearest window frame should be at most 900mm.

(b2) If tilted AW(BT) is at 60° horizontal incident angle to dominant line source

+ 1.5m long full-height architectural fin (noise reflective) <sup>Note1</sup>

\* AW(BT) + fin should be considered as ONE package of noise mitigation measures. Outer side-hung window of AW(BT) and fin should be installed at the side nearer to dominant line source.

Additional  
- 2.0  
to (b)

Note 1: The 1.5m long full-height architectural fin (noise reflective) may be subject to the requirements for natural lighting and ventilation, gross floor area and site coverage under the B(P)R.

Note 2: For case (a), (b), (b1) and (b2), addition of Sound Absorptive Material (SAM) of Noise Reduction Coefficient  $\geq 0.7$  at top and both side of window frame can offer an additional 1.5 dB(A) reduction. The material of SAM is subject to the requirements of section 3 of Building (Construction) Regulation. The examples below may serve as reference.

**Example 1**

Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 77.9	dB(A)
RNR of prescribed AW in (a) + SAM	: 6.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

**Example 2**

Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 78.9	dB(A)
RNR of prescribed AW in (b) + SAM	: 6.0 + 1.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

**Table 1: Summary on RNR of Acoustic Window (Baffle Type)**

(for use in NIA)

\*Plan not to scale

**Correction  
dB(A) L10(1hr)**

**Example 3**

Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 79.9	dB(A)
RNR of prescribed AW in (b1) + SAM	: 6.0 + 1.0 + 1.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

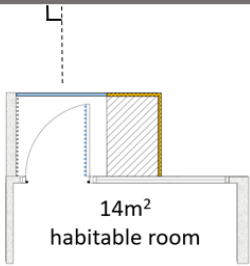
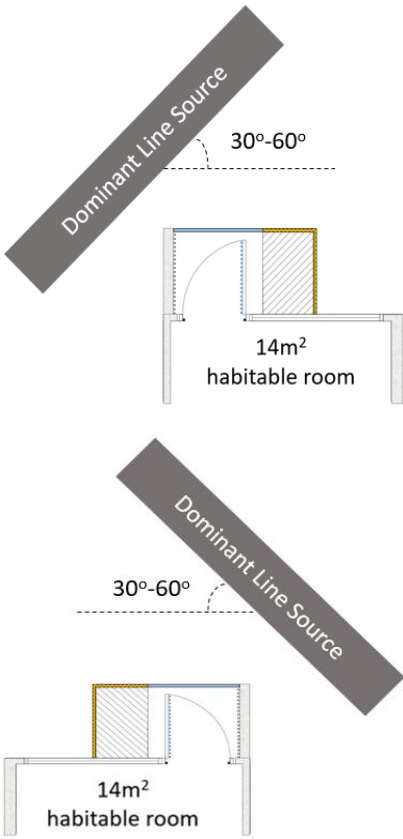
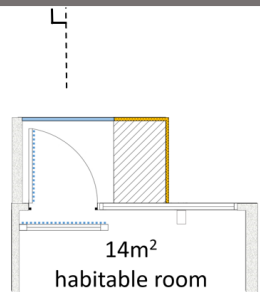
**Example 4**

Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 80.9	dB(A)
RNR of prescribed AW in (b2) + SAM	: 6.0 + 1.0 + 2.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

Table 2: Summary on RNR of Enhanced Acoustic Balconies  
(for use in NIA)

Correction  
dB(A) L10(1hr)

\*Plan not to scale

		Correction dB(A) L10(1hr)
<p>Dominant Line Source</p>  <p>14m<sup>2</sup> habitable room</p>	<p>(a) Provision of EAB(ST) parallel to dominant line source</p>	<p>- 2.0</p>
 <p>14m<sup>2</sup> habitable room</p> <p>14m<sup>2</sup> habitable room</p>	<p>(b) Tilting the EAB in (a) above to 30°-60° horizontal incident angle to dominant line source</p>	<p>Additional - 1.0 to (a)</p>
<p>Dominant Line Source</p>  <p>14m<sup>2</sup> habitable room</p>	<p>(c) Provision of EAB(BT) parallel to dominant line source</p>	<p>- 8.0</p>

**Table 2: Summary on RNR of Enhanced Acoustic Balconies**

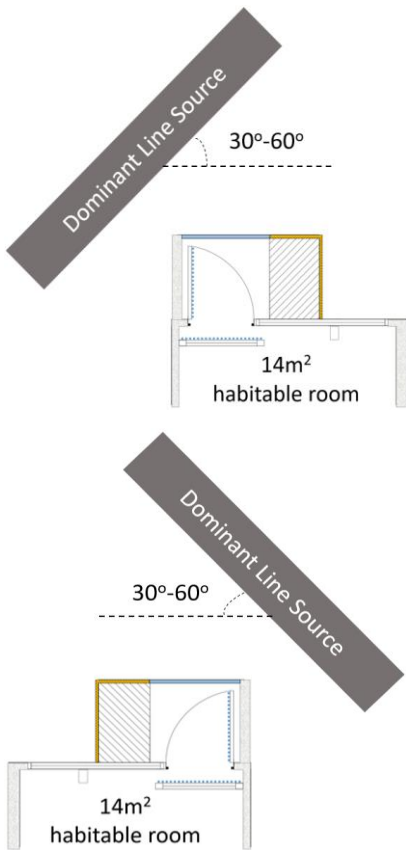
(for use in NIA)

\*Plan not to scale

Correction  
dB(A) L10(1hr)

(d) Tilting the EAB in (c) above to 30°-60° horizontal incident angle to dominant line source

Additional  
- 3.0  
to (c)



Note: For cases (c) and (d), addition of Sound Absorptive Material (SAM) of Noise Reduction Coefficient  $\geq 0.7$  at top and both side of the mullion can offer an additional 1.5 dB(A) reduction. The material of SAM is subject to the requirements of section 3 of Building (Construction) Regulation. The examples below may serve as reference.

**Example 1**

Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 72.4	dB(A)
RNR of prescribed EAB in (a)	: 2.0	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

Table 2: Summary on RNR of Enhanced Acoustic Balconies (for use in NIA) *Plan not to scale		Correction dB(A) L10(1hr)
<b>Example 2</b>		
Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 73.4	dB(A)
RNR of prescribed EAB in (b)	: 2.0 + 1.0	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	
<b>Example 3</b>		
Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 79.9	dB(A)
RNR of prescribed EAB in (c) + SAM	: 8.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	
<b>Example 4</b>		
Predicted Noise Level at Noise Sensitive Receiver (Base Case)	: 82.9	dB(A)
RNR of prescribed EAB in (d) + SAM	: 8.0 + 3.0 + 1.5	dB(A)
Predicted Noise Level at Noise Sensitive Receiver (Mitigated Case)	: 70.4	dB(A)
	= 70 dB(A) [rounded to the nearest whole number]	
	[complied with the HKPSG]	

<sup>i</sup> Should there be any variation on the proposed INMD, or practitioners and professionals consider that a higher RNR value should be adopted, justifications together with technical documents, e.g. corrections based on acoustic principles, laboratory testing reports, in-situ measurement reports, etc. should be submitted to the EPD for consideration. For requirements of laboratory measurement or in-situ measurement requirements, practitioners and professionals may contact EPD for further details. As RNR varies with room size, practitioners and professionals may like to propose the preferred RNR to EPD for consideration if different room size is encountered in the NIA study. Having said that, information indicates that for **Tables 1 and 2**:

- Variations of room size within +/- 10% would not affect the RNR;
- Variations of floor-to-ceiling height within +/- 5% would not affect the RNR; and
- Variations of window / door opening size within +/- 5% would not affect the RNR.

## **Appendix 4.5 Schedule of Noise Mitigation Measures on Traffic Noise**

## Schedule of Noise Mitigation Measures

### RCHE-3/F

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2a	Acoustic Window (Baffle Type)	D3-24	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-25	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-26	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-27	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-28	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-29	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-30	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-31	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-32	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-33	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-34	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-35	Dormitory: 3/F
	Acoustic Window (Baffle Type)	D3-36	Dormitory: 3/F

**RCHE-4/F**

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2b	Acoustic Window (Baffle Type)	D4-23	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-24	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-25	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-26	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-27	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-28	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-29	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-30	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-31	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-32	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-33	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-34	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-35	Dormitory: 4/F
	Acoustic Window (Baffle Type)	D4-36	Dormitory: 4/F



**RCHE-5/F**

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2c	Acoustic Window (Baffle Type)	D5-21	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-22	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-23	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-24	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-25	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-26	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-27	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-28	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-29	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-30	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-31	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-32	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-33	Dormitory: 5/F
	Acoustic Window (Baffle Type)	D5-34	Dormitory: 5/F

**RCHE-6/F**

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2d	Acoustic Window (Baffle Type)	D6-17	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-18	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-19	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-20	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-21	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-22	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-23	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-24	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-25	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-26	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-27	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-28	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-29	Dormitory: 6/F
	Acoustic Window (Baffle Type)	D6-30	Dormitory: 6/F

**RCHE-7/F**

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2e	Acoustic Window (Baffle Type)	D7-17	Living/Dining Room: 7/F
	Acoustic Window (Baffle Type)	D7-18	Bedroom: 7/F
	Acoustic Window (Baffle Type)	D7-19	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-20	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-21	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-22	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-23	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-24	Dormitory: 7/F
	Acoustic Window (Baffle Type)	D7-25	Living/Dining Room: 7/F
	Acoustic Window (Baffle Type)	D7-26	Bedroom: 7/F
	Acoustic Window (Baffle Type)	D7-27	Living/Dining Room: 7/F
	Acoustic Window (Baffle Type)	D7-28	Bedroom: 7/F
	Acoustic Window (Baffle Type)	D7-29	Living/Dining Room: 7/F
	Acoustic Window (Baffle Type)	D7-30	Bedroom: 7/F

## **Residential Tower**

<b>Ref. Figure</b>	<b>Noise Mitigation Measures</b>	<b>NSR</b>	<b>Location</b>
Figure 4.2f	Acoustic Window (Baffle Type)	R-15	Bedroom: 9/F
	Enhanced Acoustic Balcony (Baffle Type)	R-16	Living/Dining Room: 9/F-15/F
	Enhanced Acoustic Balcony (Baffle Type)	R-17	Living/Dining Room: 9/F-15/F
	Acoustic Window (Baffle Type)	R-18	Bedroom: 9/F-15/F
	Acoustic Window (Baffle Type)	R-19	Master Bedroom: 9/F-15/F

**Appendix 4.6 Draft Undertaking Letter of Noise Mitigation Measures on Traffic Noise**

# DRAFT

Our Ref :  
23 July 2024

Environmental Protection Department  
27<sup>th</sup> floor, Southorn Centre,  
130 Hennessy Road,  
Wan Chai, Hong Kong.

Attention: Mr. S. W. Tsang [Assistant Director (Environmental Assessment)]

Dear Sir,

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

We, Lo Hing Investment Company Limited, being the owner of the above lot, hereby undertake the followings for implementation of the proposed noise mitigation measures as shown in the Environmental Assessment Report (the EAR) named 'Proposed Minor Relaxation of Plot Ratio (PR) and Site Coverage (SC) for Proposed Social Welfare Facility (Residential Care Home for the Elderly) (RCHE(s)) and Permitted Residential Development (Flat) in Lot 94 in D.D. 388 and adjoining Government land, Castle Peak Road – Tsing Lung Tau, Tsuen Wan – Environmental Assessment' (Ref no.: R8126\_V2.0 dated July 2024), submitted to Town Planning Board by Ramboll Hong Kong Limited:-

1. All the noise mitigation measures proposed in the EAR shall be incorporated into the General Building Plans for the approval by the Building Authority.
2. To appoint an independent Authorized Person ("IAP") to certify and inform the Director of Environmental Protection that all noise mitigation measures identified in the EAR are duly implemented before the date of issue of Certificate of Compliances by Lands Department.
3. To be responsible for implementation and modification/ rectification of all deviations from the noise mitigation measures identified in the EAR before the date of issue of Certificate of Compliances by Lands Department, and be responsible for all the associated costs.
4. All noise mitigation measures proposed in the EAR shall be designated as Noise Mitigation Measures ("NMM") in the Deed of Mutual Covenant (DMC) with details of use and locations clearly indicated. Such DMC should contain binding and enforceable conditions for the control, operation, financial support and maintenance for such measures.
5. To agree that Environmental Protection Department ("EPD") could disclose the content of the EAR and this undertaking when required.
6. In case when changes to the building plans that would affect the noise performance, we will seek prior agreement with EPD and propose alternative measures with equivalent noise mitigation performance. The IAP will then check and certify implementation of these measures accordingly before the date of issue of Certificate of Compliances by Lands Department.
7. To allow access for the EPD to conduct on-site inspection / noise measurement before the full occupation of the development.

Thank you for your attention.

Yours faithfully,  
For and on behalf of  
Lo Hing Investment Company Limited

Authorized Signature(s)

## **Appendix 5.1 Site Visit and Fixed Noise Sources surveys**

## NOISE SURVEY FOR EXISTING FIXED NOISE SOURCES

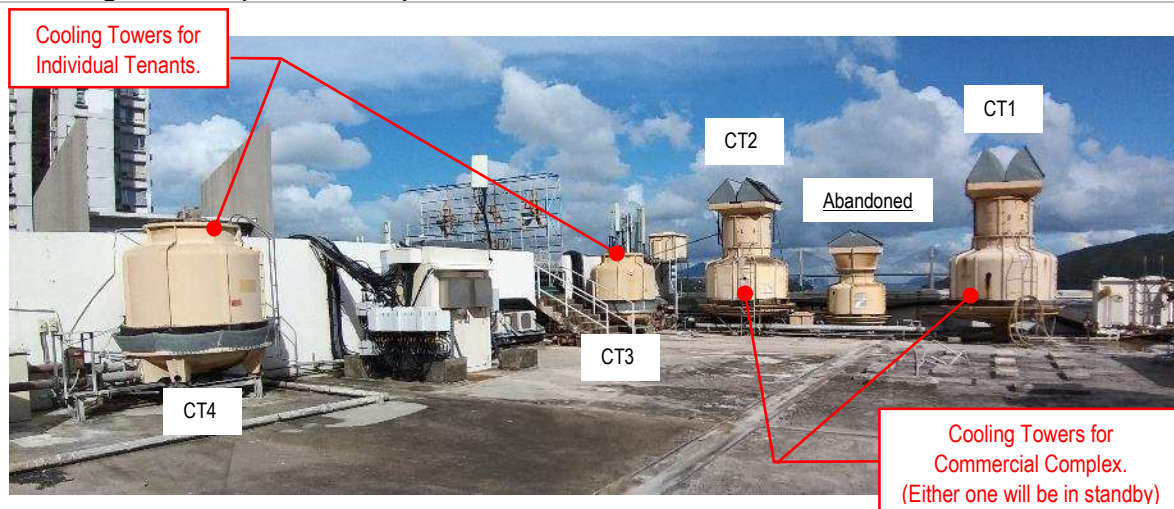
### Introduction

The environs of the Subject Site are dominated by residential uses. The only potential fixed noise source was identified at the rooftop of Hong Kong Garden Commercial Complex (HKGCC) to the immediate east of the Subject Site. Therefore, noise survey was conducted at HKGCC.

### *Hong Kong Garden Commercial Complex (HKGCC)*

According to the on-site observations, there are 5 numbers of cooling towers (one of them is abandoned) and 4 numbers of ventilation openings at the rooftop of HKGCC. Details of the observations and noise measurements are summarized below –

#### **Cooling Towers (CT1 to CT4)**



#### Information / Observations (7 June 2021):

According to the information provided from the operational staff of the HKGCC, the cooling tower between CT1 and CT2 is abandoned. CT1 and CT2 are for the Commercial Complex. CT3 and CT4 are for Individual Tenants. In addition, either one of CT1 and CT2 will be in standby mode. The operation periods of the cooling towers (i.e. CT1 to CT4) are from 7 a.m. to 11 p.m.

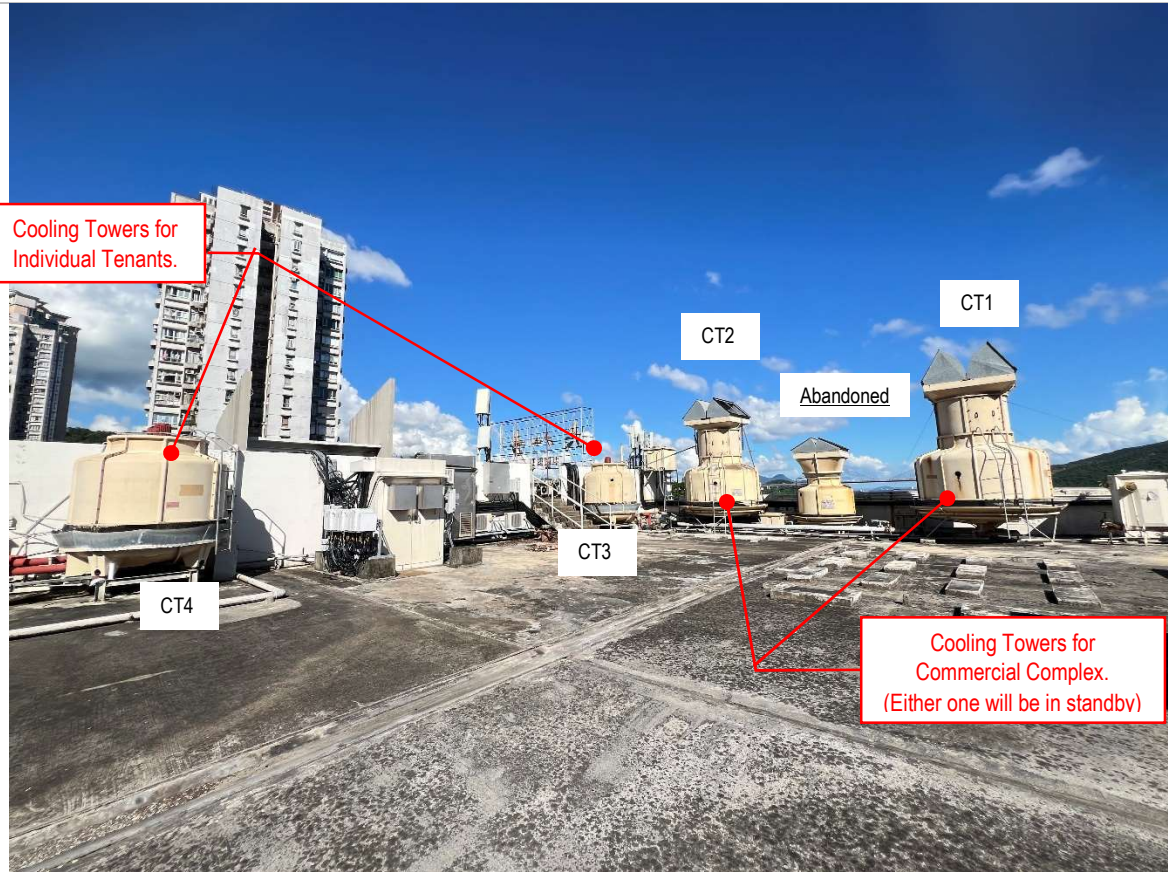
No acoustic lining was observed at the vent coil of CT1 and CT2. Given that no catalog could be provided from the operational staff of the HKGCC, the dimensions of the cooling towers are measured on-site -

**CT1 and CT2:** 2.9m Ø x 4.8 (H)

**CT3 and CT4:** 2.1m Ø x 2.0 (H)

CT1 and CT2 are the same module. CT3 and CT4 are the same module.





Information / Observations (3 July 2024):

Based on the updated survey and the confirmation from the operational staff from HKGCC, the location, status and the operation period of the cooling towers (i.e. CT1 to CT4) unchanged.

Noise Measurement (Methodology and Condition)

During the noise survey, only cooling tower CT1 is in operation. Therefore, noise measurement is only conducted for CT1.

The measurements were conducted in accordance with the international standard ISO 3746:2010 of following equation –

$$SWL = \text{Mean A-weighted SPL} - K_{1A} - K_{2A} + AC$$

where

- AC = Area Correction (i.e.  $10\log(S/S_0)$ )
- S = Surface area of the measurement box ( $m^2$ )
- $S_0$  = Reference area of the measurement box (i.e.  $1m^2$ )
- $K_{1A}$  = Background Noise Correction, dB(A)
- $K_{2A}$  = Environmental Correction for sound absorption and reflection, dB(A)

**Measurement Condition**

Date of Measurement	7 June 2021
Location of Measurement	Roof of HKGCC
Weather Condition	Sunny
Measurement Start / End Time	2:00 PM / 3:00 PM

**Measurement Equipment**

Sound Level Meter	Norsonic 139 (S/N: 1392834)
Calibrator Model	Norsonic Nor1256 (S/N: 125626667)

Calibration (@1k Hz) Start / Finish

94.0 dB(A) / 94.0 dB(A)

**Measurement Result**

The locations of the measurement points are shown in **Ref. A** below. Noise measurement results and the estimated SWL for the CT1 are presented in **Table 1 and 2**. No tonality, intermittency or impulsiveness were perceived during the noise measurement.

**Table 1 – Noise Measurement Result for the Cooling Tower CT1**

Measurement Item	Dimension of Reference Box	Measurement Distance	Measurement Point	Measurement Noise Level, $L_{eq(30s)}$ , dB(A)
CT1 – Cooling Towers for Commercial Complex	2.9m(L) x 2.9 (W) x 4.8 (H)	1m	P1	73.9
			P2	74.6
			P3	74.8
			P4	75.1
			P5	72.7
			P6	74.2
			P7	75.6
			P8	75.3
			P9	74.2
			P10	75.1
			P11	76.5
			P12	76.5
			P13	76.3
			P14	76.4
			P15	76.4
			P16	76.4
		Mean SPL, dB(A)	<b>75.5</b>	

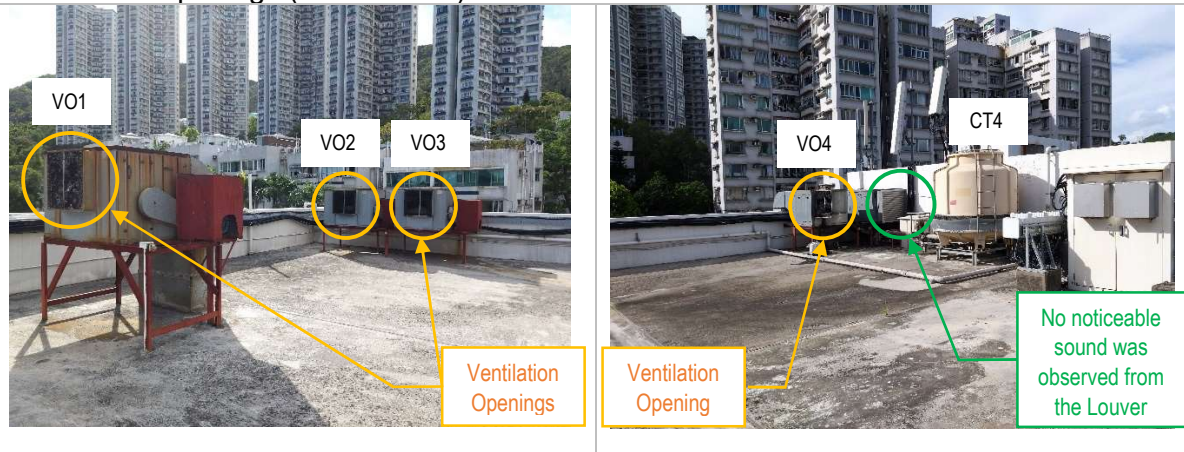
**Table 2 – Estimated SWL for the Cooling Tower CT1**

Item	Mean SPL, dB(A)	Measurement Box				Area Correction, dB(A)	$K_{1A}$ , dB(A) [1]	$K_{2A}$ , dB(A) [2]	Overall SWL, dB(A)
		L	W	H	Surface Area				
CT1	75.5	4.9m	4.9m	5.8m	138m <sup>3</sup>	21.4	0	0	96.9

Remark [1] – No background noise correction is applied (e.g.  $K_{1A} = 0$ ) as for conservative purpose.

Remark [2] – No environmental correction is applied (e.g.  $K_{2A} = 0$ ) as the measurement was conducted at free-field.

**Ventilation Openings (VO1 to VO4)**



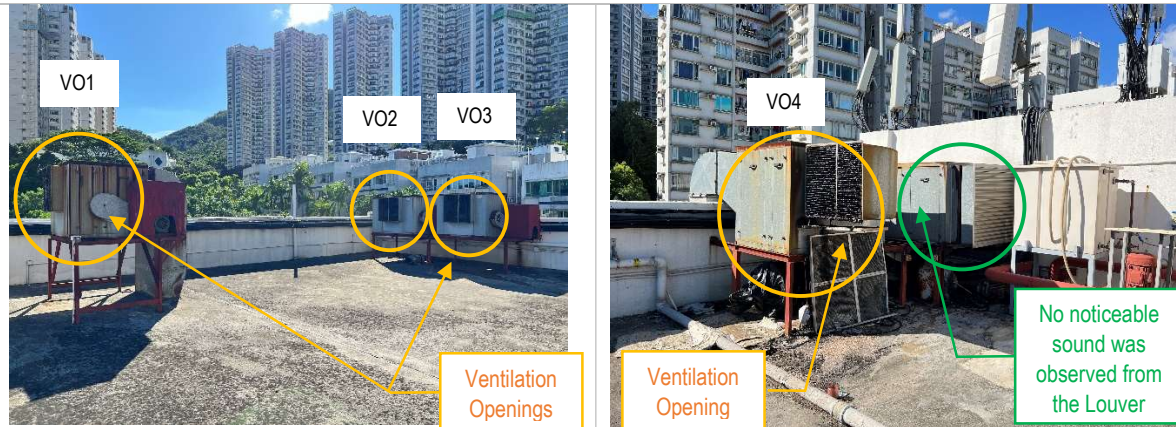
Information / Observations (7 June 2021):

According to the information provided from the operational staff of the HKGCC, the operation periods of the ventilation openings (i.e. VO1 to VO4) are from 7 a.m. to 11 p.m.

No noticeable sound was observed from the louver located next to VO4. Thus, the louver is not considered as fixed noise source. The dimensions of ventilation openings are measured on-site –

**VO1 to VO3:** 0.7m (W) x 0.65m (H)

**VO4:** 0.6m (W) x 0.5m (H)



Information / Observations (3 July 2024):

Based on the updated survey and the confirmation from the operational staff from HKGCC, the location, status and the operation period of the ventilation openings (i.e. VO1 to VO4) unchanged.

Noise Measurement (Methodology and Condition)

The measurements were conducted in accordance with the standard acoustical principle on a near field area source -

$$SWL = SPL + AC$$

where

- AC = Area Correction (i.e.  $10\log(S)$ )  
S = Surface Area of the source ( $m^2$ )

The measurement points will be assigned as close as possible to the ventilation openings. The distance from the ventilation opening to the microphone position must be less than 1m.

**Measurement Condition**

Date of Measurement	7 June 2021
Location of Measurement	Roof of HKGCC
Weather Condition	Sunny
Measurement Start / End Time	3:00 PM / 4:00 PM

**Measurement Equipment**

Sound Level Meter	Norsonic 139 (S/N: 1392834)
Calibrator Model	Norsonic Nor1256 (S/N: 125626667)
Calibration (@1k Hz) Start / Finish	94.0 dB(A) / 94.0 dB(A)

Measurement Result

The locations of the measurement points are shown in **Ref. B** below.

Noise measurement results and the estimated SWLs for the ventilation openings (i.e. VO1 to VO4) are presented in **Table 3**. No tonality, intermittency or impulsiveness were perceived during the noise measurement.

**Table 3 – Summary of SWL for the Ventilation Openings VO1 to VO4**

Item	SPL at Ventilation Opening, dB(A) [1]	Measurement Surface			Area Correction, dB(A)	Overall SWL, dB(A)
		W	H	Surface Area		
VO1	85.6	0.7m	0.65m	0.46m <sup>2</sup>	-3.4	82.2
VO2	91.5	0.7m	0.65m	0.46m <sup>2</sup>	-3.4	88.1
VO3	88.6	0.7m	0.65m	0.46m <sup>2</sup>	-3.4	85.2
VO4	92.7	0.6m	0.5m	0.30m <sup>2</sup>	-5.2	87.5

Remark [1] – No background noise correction is applied as for conservative purpose.

## **Summary**

Noise measurements were conducted for CT1 and VO1 to VO4. No tonality, intermittency or impulsiveness were perceived during the noise measurement.

Generally, a larger cooling tower would have a higher capacities of water flow rate and air flow rate. Moreover, the powers of motor and fan would also be greater. As such, a larger cooling tower would generally generate a higher noise level. Given that the largest cooling tower CT1 was measured, the SWLs of the CT2 and CT4 are reference to the SWL of CT1.

Based on the updated site survey on 3 July 2024, the observation during the pervious survey on 7 June 2021 is still valid.

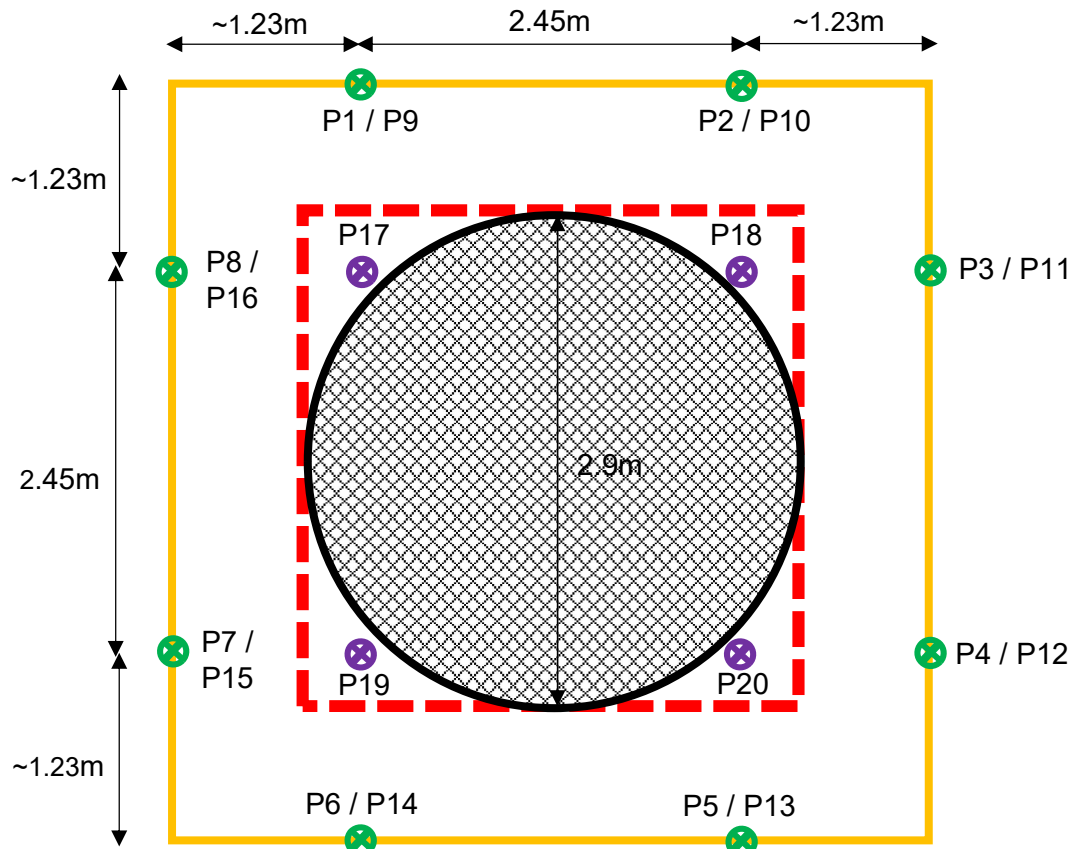
**Table 4** summarised the adopted SWL of this assessment.

**Table 4 – Summary of the SWL of Fixed Noise Sources at HKGCC**

Item	Dimension	SWL, dB(A)	Ref. Source	Remark
CT1	2.9m Ø x 4.8 (H)	96.9	From on-site measurement.	Either one in standby mode
CT2	2.9m Ø x 4.8 (H)	96.9	Reference to the SWL of CT1.	
CT3	2.1m Ø x 2.0 (H)	96.9	Reference to the SWL of CT1.	--
CT4	2.1m Ø x 2.0 (H)	96.9	Reference to the SWL of CT1.	--
VO1	0.7m (W) x 0.65m (H)	82.2	From on-site measurement.	--
VO2	0.7m (W) x 0.65m (H)	88.1	From on-site measurement.	--
VO3	0.7m (W) x 0.65m (H)	85.2	From on-site measurement.	--
VO4	0.6m (W) x 0.5m (H)	87.5	From on-site measurement.	--






# Reference A – Indicative Measurement Points for the Cooling Towers CT1

Top View



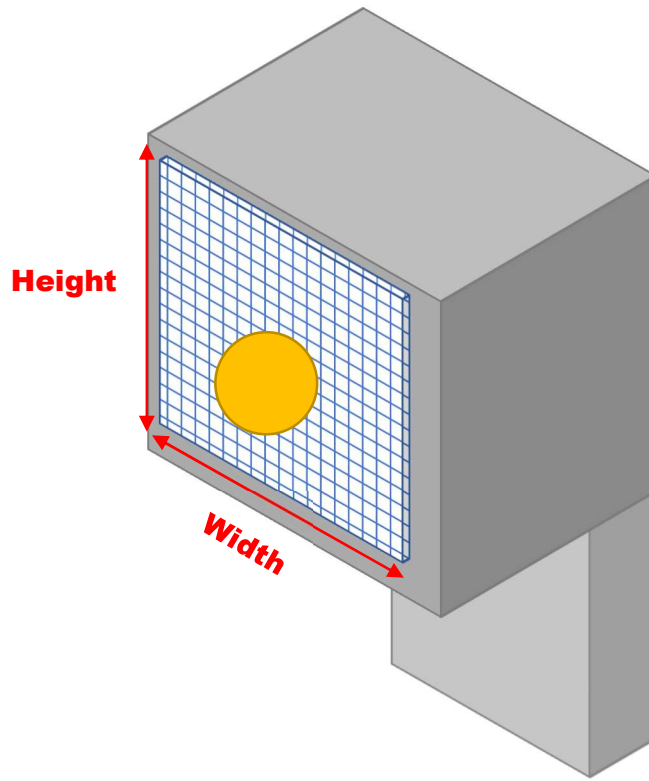
P1 – P8 is at 1.45mAG  
 P9 – P16 is at 4.35mAG

## Legend

Water Chillers	
Reference Box	
Measurement Box	
Measurement Point (1.45 and 4.35 mAG)	
Measurement Point (5.8m mAG)	

# Reference B – Indicative Measurement Point for the Ventilation Openings VO1 to VO4

Side View



## Legend

- Ventilation Duct
- Ventilation Opening
- Measurement Point



## **Appendix 5.2 Detailed Calculations of Fixed Noise Impact Assessment**

**Calculation of Fixed Noise Impact Assessment (Unmitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN3-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	20	-34.0	-10.0	3	55.9	69	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	26	-36.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	28	-37.0	0.0	3	62.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	23	-35.4	0.0	3	64.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	12	-29.6	0.0	3	55.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	11	-28.4	0.0	3	62.6		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	12	-29.8	0.0	3	58.4		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	23	-35.2	0.0	3	55.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN3-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	27	-36.6	-10.0	3	53.3	56	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	31	-37.9	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	36	-39.0	-10.0	3	50.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	44	-40.9	-10.0	3	48.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	37	-39.5	-10.0	3	35.7		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	45	-41.0	-10.0	3	40.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	45	-41.1	-10.0	3	37.1		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	49	-41.8	-10.0	3	38.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN4-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	20	-34.0	-10.0	3	55.9	69	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	26	-36.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	28	-37.0	0.0	3	62.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	23	-35.4	0.0	3	64.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	12	-29.6	0.0	3	55.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	11	-28.5	0.0	3	62.6		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	12	-29.8	0.0	3	58.3		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	23	-35.2	0.0	3	55.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN4-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	27	-36.6	-10.0	3	53.3	56	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	31	-37.9	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	36	-39.0	-10.0	3	50.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	44	-40.9	-10.0	3	48.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	37	-39.5	-10.0	3	35.7		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	45	-41.0	-10.0	3	40.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	45	-41.1	-10.0	3	37.1		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	49	-41.8	-10.0	3	38.7		



**Calculation of Fixed Noise Impact Assessment (Unmitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN5-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	20	-34.2	-10.0	3	55.6	69	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	26	-36.3	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	29	-37.1	0.0	3	62.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	24	-35.5	0.0	3	64.3		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	13	-30.2	0.0	3	55.0		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	12	-29.2	0.0	3	61.8		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	13	-30.4	0.0	3	57.8		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	23	-35.4	0.0	3	55.1		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN5-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	27	-36.7	-10.0	3	53.1	56	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	32	-38.0	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	36	-39.1	-10.0	3	50.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	45	-41.0	-10.0	3	48.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	38	-39.5	-10.0	3	35.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	45	-41.0	-10.0	3	40.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	45	-41.1	-10.0	3	37.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	49	-41.9	-10.0	3	38.6		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN6-1	CT1	Cooling Tower 1	Standby	Roof	0.0	20	-34.2	-10.0	3	0.0	69	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	26	-36.2	0.0	3	63.6		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	29	-37.1	0.0	3	62.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	24	-35.8	0.0	3	64.1		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	14	-30.9	0.0	3	54.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	14	-30.7	0.0	3	60.4		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	15	-31.6	0.0	3	56.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	24	-35.8	0.0	3	54.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN6-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	28	-37.0	-10.0	3	52.9	56	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	32	-38.2	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	36	-39.2	-10.0	3	50.6		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	45	-41.1	-10.0	3	48.8		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	38	-39.7	-10.0	3	35.5		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	45	-41.1	-10.0	3	40.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	46	-41.2	-10.0	3	37.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	50	-41.9	-10.0	3	38.5		

**Calculation of Fixed Noise Impact Assessment (Unmitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN7-1	CT1	Cooling Tower 1	Standby	Roof	0.0	22	-34.8	-10.0	3	0.0	69	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	27	-36.6	0.0	3	63.3		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	30	-37.4	0.0	3	62.5		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	26	-36.2	0.0	3	63.7		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	16	-32.1	0.0	3	53.1		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	16	-31.9	0.0	3	59.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	17	-32.6	0.0	3	55.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	26	-36.2	0.0	3	54.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN7-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	29	-37.3	-10.0	3	52.6	56	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	33	-38.4	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	37	-39.4	-10.0	3	50.4		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	46	-41.2	-10.0	3	48.7		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	39	-39.8	-10.0	3	35.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	46	-41.2	-10.0	3	39.8		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	46	-41.3	-10.0	3	36.8		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	50	-42.0	-10.0	3	38.4		

Note [1] - Either CT1 or CT2 will be in standby mode. Given that CT1 is closer to the NSRs, CT2 is assigned in "standby" whereas CT1 is assigned "in operate", unless CT1 is shielded.

Calculation of Fixed Noise Impact Assessment (Mitigated Scenario)

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN3-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	20	-34.0	-10.0	3	45.9	62	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	26	-36.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	28	-37.0	0.0	3	52.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	23	-35.4	0.0	3	54.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	12	-29.6	0.0	3	50.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	11	-28.4	0.0	3	57.6		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	12	-29.8	0.0	3	53.4		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	23	-35.2	0.0	3	50.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN3-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	27	-36.6	-10.0	3	43.3	47	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	31	-37.9	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	36	-39.0	-10.0	3	40.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	44	-40.9	-10.0	3	38.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	37	-39.5	-10.0	3	30.7		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	45	-41.0	-10.0	3	35.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	45	-41.1	-10.0	3	32.1		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	49	-41.8	-10.0	3	33.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN4-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	20	-34.0	-10.0	3	45.9	62	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	26	-36.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	28	-37.0	0.0	3	52.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	23	-35.4	0.0	3	54.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	12	-29.6	0.0	3	50.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	11	-28.5	0.0	3	57.6		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	12	-29.8	0.0	3	53.3		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	23	-35.2	0.0	3	50.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN4-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	27	-36.6	-10.0	3	43.3	47	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	31	-37.9	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	36	-39.0	-10.0	3	40.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	44	-40.9	-10.0	3	38.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	37	-39.5	-10.0	3	30.7		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	45	-41.0	-10.0	3	35.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	45	-41.1	-10.0	3	32.1		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	49	-41.8	-10.0	3	33.7		

Calculation of Fixed Noise Impact Assessment (Mitigated Scenario)

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FNS-1	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	20	-34.2	-10.0	3	45.6	61	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	26	-36.3	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	29	-37.1	0.0	3	52.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	24	-35.5	0.0	3	54.3		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	13	-30.2	0.0	3	50.0		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	12	-29.2	0.0	3	56.8		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	13	-30.4	0.0	3	52.8		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	23	-35.4	0.0	3	50.1		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FNS-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	27	-36.7	-10.0	3	43.1	47	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	32	-38.0	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	36	-39.1	-10.0	3	40.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	45	-41.0	-10.0	3	38.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	38	-39.5	-10.0	3	30.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	45	-41.0	-10.0	3	35.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	45	-41.1	-10.0	3	32.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	49	-41.9	-10.0	3	33.6		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FNS-1	CT1	Cooling Tower 1	Standby	Roof	0.0	-10	0.0	20	-34.2	-10.0	3	0.0	61	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	-10	86.9	26	-36.2	0.0	3	53.6		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	29	-37.1	0.0	3	52.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	24	-35.8	0.0	3	54.1		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	14	-30.9	0.0	3	49.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	14	-30.7	0.0	3	55.4		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	15	-31.6	0.0	3	51.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	24	-35.8	0.0	3	49.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FNS-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	28	-37.0	-10.0	3	42.9	47	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	32	-38.2	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	36	-39.2	-10.0	3	40.6		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	45	-41.1	-10.0	3	38.8		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	38	-39.7	-10.0	3	30.5		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	45	-41.1	-10.0	3	35.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	46	-41.2	-10.0	3	32.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	50	-41.9	-10.0	3	33.5		

**Calculation of Fixed Noise Impact Assessment (Mitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN7-1	CT1	Cooling Tower 1	Standby	Roof	0.0	-10	0.0	22	-34.8	-10.0	3	0.0	61	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	-10	86.9	27	-36.6	0.0	3	53.3		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	30	-37.4	0.0	3	52.5		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	26	-36.2	0.0	3	53.7		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	16	-32.1	0.0	3	48.1		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	16	-31.9	0.0	3	54.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	17	-32.6	0.0	3	50.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	26	-36.2	0.0	3	49.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN7-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	29	-37.3	-10.0	3	42.6	46	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	33	-38.4	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	37	-39.4	-10.0	3	40.4		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	46	-41.2	-10.0	3	38.7		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	39	-39.8	-10.0	3	30.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	46	-41.2	-10.0	3	34.8		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	46	-41.3	-10.0	3	31.8		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	50	-42.0	-10.0	3	33.4		

Note [1] - Either CT1 or CT2 will be in standby mode. Given that CT1 is closer to the NSRs, CT2 is assigned in "standby" whereas CT1 is assigned "in operate", unless CT1 is shielded.

**Calculation of Fixed Noise Impact Assessment (Unmitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-1	CT1	Cooling Tower 1	Standby	Roof	0.0	31	-37.7	-10.0	3	0.0	<u>66</u>	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	35	-39.0	0.0	3	60.9		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	38	-39.6	0.0	3	60.3		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	34	-38.7	0.0	3	61.2		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	26	-36.2	0.0	3	49.0		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	25	-35.8	0.0	3	55.3		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	26	-36.2	0.0	3	52.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	34	-38.5	0.0	3	51.9		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	24	-35.7	0.0	3	64.2	<u>68</u>	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	29	-37.2	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	32	-38.1	0.0	3	61.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	32	-38.0	0.0	3	61.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	24	-35.5	0.0	3	49.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	26	-36.4	0.0	3	54.7		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	27	-36.6	0.0	3	51.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	33	-38.4	0.0	3	52.1		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-3	CT1	Cooling Tower 1	In Operate	Roof	96.9	24	-35.5	0.0	3	64.4	<u>68</u>	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	29	-37.1	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	32	-38.0	0.0	3	61.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	33	-38.3	0.0	3	61.6		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	25	-35.9	0.0	3	49.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	28	-37.0	0.0	3	54.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	29	-37.2	0.0	3	51.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	35	-38.8	0.0	3	51.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-4	CT1	Cooling Tower 1	In Operate	Roof	96.9	26	-36.3	0.0	3	63.6	<u>67</u>	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	30	-37.6	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	34	-38.6	0.0	3	61.3		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	40	-39.9	0.0	3	59.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	33	-38.4	0.0	3	46.8		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	39	-39.7	0.0	3	51.3		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	39	-39.9	0.0	3	48.3		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	43	-40.7	0.0	3	49.7		

**Calculation of Fixed Noise Impact Assessment (Unmitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-5	CT1	Cooling Tower 1	In Operate	Roof	96.9	28	-36.8	0.0	3	63.0	66	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	32	-38.0	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	35	-38.9	0.0	3	60.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	42	-40.4	0.0	3	59.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	35	-39.0	0.0	3	46.2		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	41	-40.3	0.0	3	50.7		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	42	-40.4	0.0	3	47.7		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	46	-41.2	0.0	3	49.3		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
							Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-6	CT1	Cooling Tower 1	In Operate	Roof	96.9	36	-39.1	-10.0	3	50.7	54	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	40	-40.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	44	-40.9	-10.0	3	49.0		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	52	-42.2	-10.0	3	47.6		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	45	-41.0	-10.0	3	34.2		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	51	-42.1	-10.0	3	39.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	51	-42.2	-10.0	3	36.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	56	-42.9	-10.0	3	37.5		

Note [1] - Either CT1 or CT2 will be in standby mode. Given that CT1 is closer to the NSRs, CT2 is assigned in "standby" whereas CT1 is assigned "in operate", unless CT1 is shielded.

Calculation of Fixed Noise Impact Assessment (Mitigated Scenario)

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-1	CT1	Cooling Tower 1	Standby	Roof	0.0	-10	0.0	31	-37.7	-10.0	3	0.0	58	65
	CT2	Cooling Tower 2	In Operate	Roof	96.9	-10	86.9	35	-39.0	0.0	3	50.9		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	38	-39.6	0.0	3	50.3		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	34	-38.7	0.0	3	51.2		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	26	-36.2	0.0	3	44.0		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	25	-35.8	0.0	3	50.3		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	26	-36.2	0.0	3	47.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	34	-38.5	0.0	3	46.9		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-2	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	24	-35.7	0.0	3	54.2	59	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	29	-37.2	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	32	-38.1	0.0	3	51.8		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	32	-38.0	0.0	3	51.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	24	-35.5	0.0	3	44.6		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	26	-36.4	0.0	3	49.7		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	27	-36.6	0.0	3	46.6		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	33	-38.4	0.0	3	47.1		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-3	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	24	-35.5	0.0	3	54.4	59	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	29	-37.1	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	32	-38.0	0.0	3	51.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	33	-38.3	0.0	3	51.6		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	25	-35.9	0.0	3	44.3		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	28	-37.0	0.0	3	49.1		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	29	-37.2	0.0	3	46.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	35	-38.8	0.0	3	46.7		

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-4	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	26	-36.3	0.0	3	53.6	58	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	30	-37.6	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	34	-38.6	0.0	3	51.3		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	40	-39.9	0.0	3	49.9		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	33	-38.4	0.0	3	41.8		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	39	-39.7	0.0	3	46.3		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	39	-39.9	0.0	3	43.3		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	43	-40.7	0.0	3	44.7		



**Calculation of Fixed Noise Impact Assessment (Mitigated Scenario)**

NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-5	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	28	-36.8	0.0	3	53.0	57	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	32	-38.0	0.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	35	-38.9	0.0	3	50.9		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	42	-40.4	0.0	3	49.5		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	35	-39.0	0.0	3	41.2		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	41	-40.3	0.0	3	45.7		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	42	-40.4	0.0	3	42.7		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	46	-41.2	0.0	3	44.3		

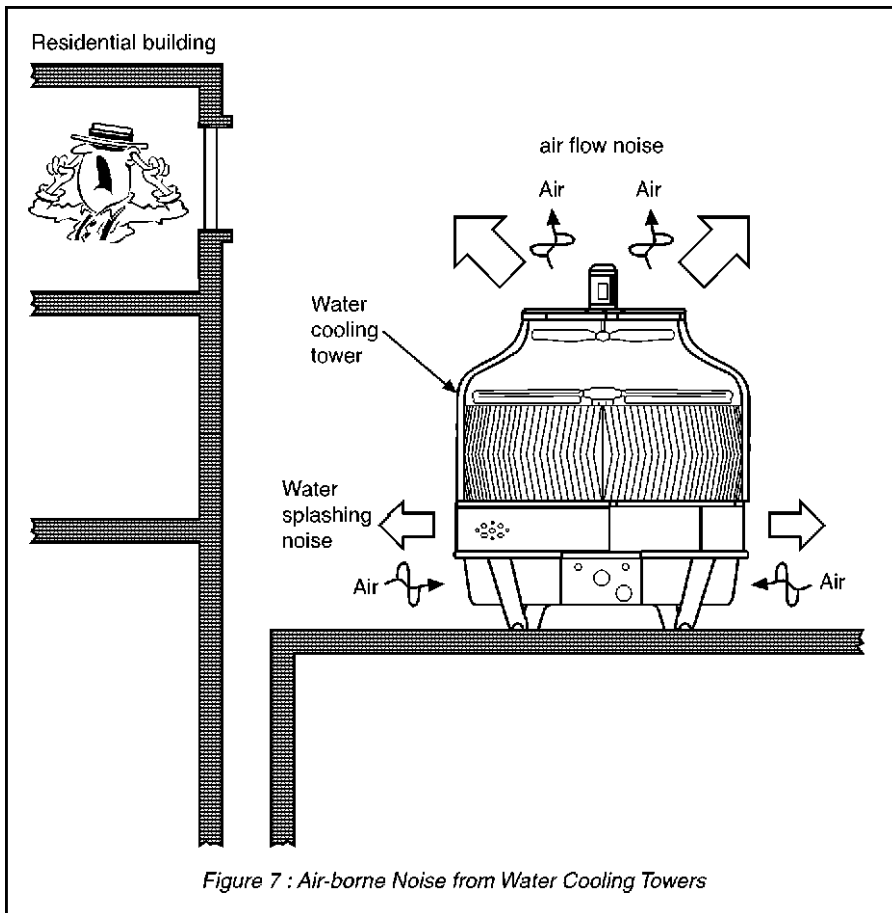
NSR	Fixed Source ID	Description	Operation Mode [1]	Location	SWL, dB(A)	Required Noise Reduction from At-Source Mitigation Measure, dB(A)	Mitigated SWL, dB(A)	Distance from Fixed Noise Source to Receiver, m	Correction Factors			Predicted Noise Level, dB(A)	Predicted Noise Level, dB(A)	Noise Criteria, dB(A)
									Distance Correction, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)			
FN9-6	CT1	Cooling Tower 1	In Operate	Roof	96.9	-10	86.9	36	-39.1	-10.0	3	40.7	45	65
	CT2	Cooling Tower 2	Standby	Roof	0.0	-10	0.0	40	-40.1	-10.0	3	0.0		
	CT3	Cooling Tower 3	In Operate	Roof	96.9	-10	86.9	44	-40.9	-10.0	3	39.0		
	CT4	Cooling Tower 4	In Operate	Roof	96.9	-10	86.9	52	-42.2	-10.0	3	37.6		
	VO1	Ventilation Opening 1	In Operate	Roof	82.2	-5	77.2	45	-41.0	-10.0	3	29.2		
	VO2	Ventilation Opening 2	In Operate	Roof	88.1	-5	83.1	51	-42.1	-10.0	3	34.0		
	VO3	Ventilation Opening 3	In Operate	Roof	85.2	-5	80.2	51	-42.2	-10.0	3	31.0		
	VO4	Ventilation Opening 4	In Operate	Roof	87.5	-5	82.5	56	-42.9	-10.0	3	32.5		

Note [1] - Either CT1 or CT2 will be in standby mode. Given that CT1 is closer to the NSRs, CT2 is assigned in "standby" whereas CT1 is assigned "in operate", unless CT1 is shielded.

### 4.3 Air-borne Noise from Water Cooling Towers

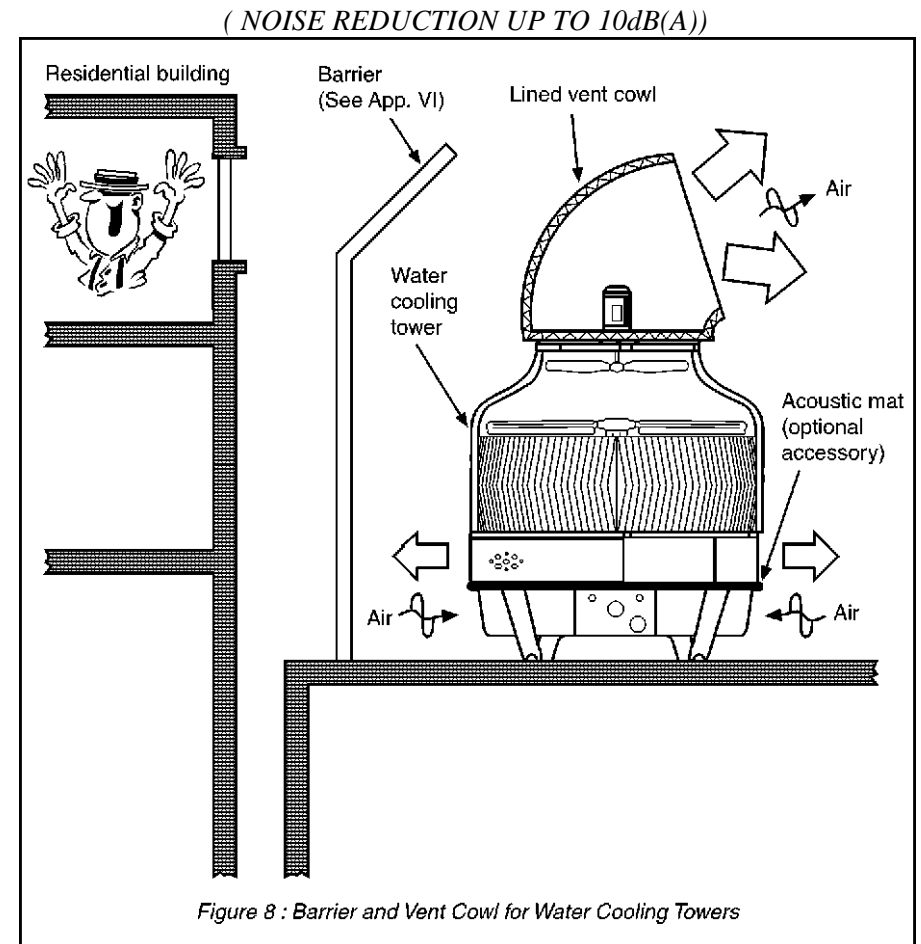
#### (A) Problems

Noise generated from water cooling towers may cause disturbance to nearby residents (see Fig. 7). It mainly comes from the air flow noise resulting from air turbulence at condenser fans and water splashing noise due to water flowing through the tower into the collection basin.



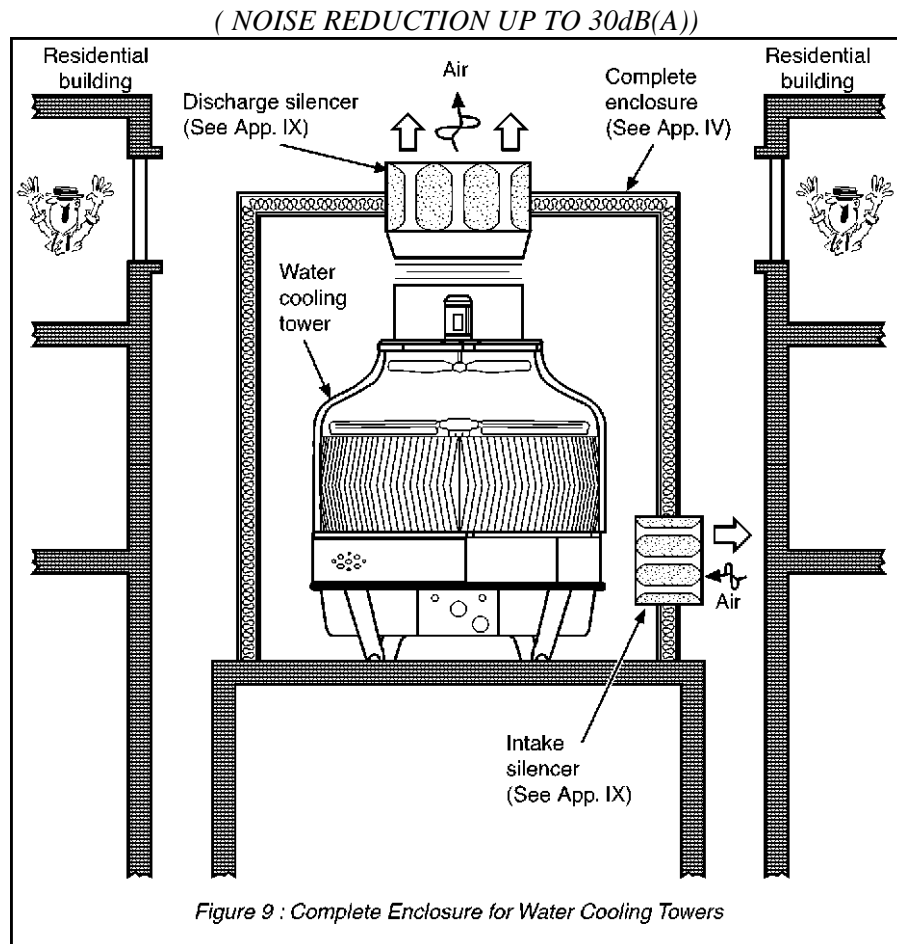
#### (B) Practical Remedies

- Erect a barrier or partial enclosure between the plant and nearby residential buildings so as to block the noise propagation path (see App. VI and V), provide acoustic mat on the water surface so as to reduce the water splashing noise, and install acoustically lined vent cowl at fan discharge outlet (see Fig. 8), if not much noise reduction is required.



### (B) Practical Remedies (Cont'd)

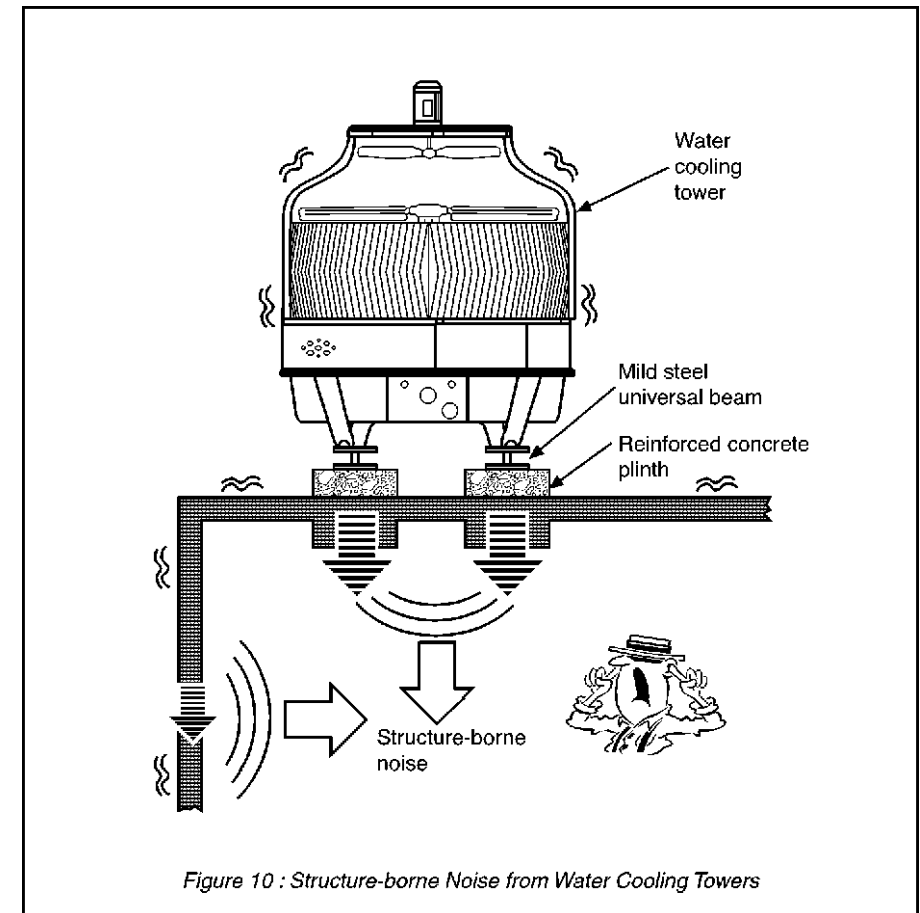
- Fabricate a complete enclosure with silencers at condenser fan outlets and at air inlets of the enclosure (see Fig. 9) so as to contain and absorb the noise from the water cooling tower (see App. IV) when there are noise sensitive receivers all around.



## 4.4 Structure-borne Noise from Water Cooling Towers

### (A) Problems

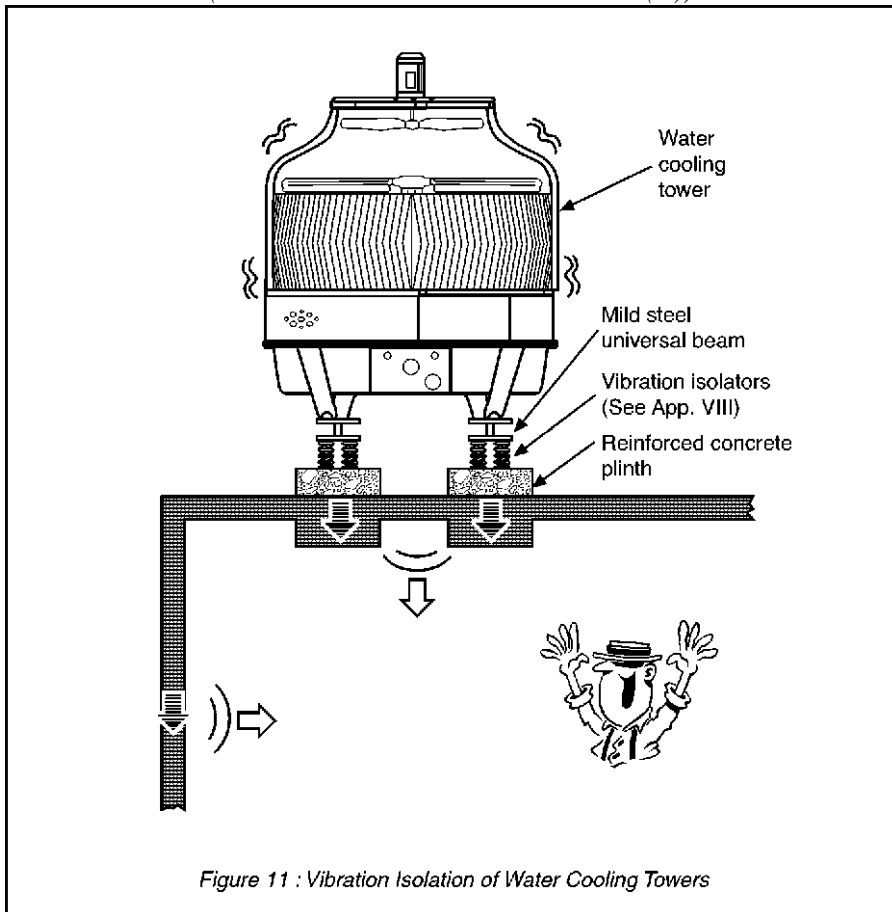
Vibration from a water cooling tower's operation may be transmitted indoors through building structure at points where the cooling tower is rigidly fixed to the structure without proper isolation (see Fig. 10). The vibration transmitted may activate the building structure to generate noise which causes noise disturbance to residents inside the building.



**(B) Practical Remedies**

- Provide vibration isolators to support a water cooling tower (see Fig. 11), thereby isolating it from the building structure (see App. VIII).

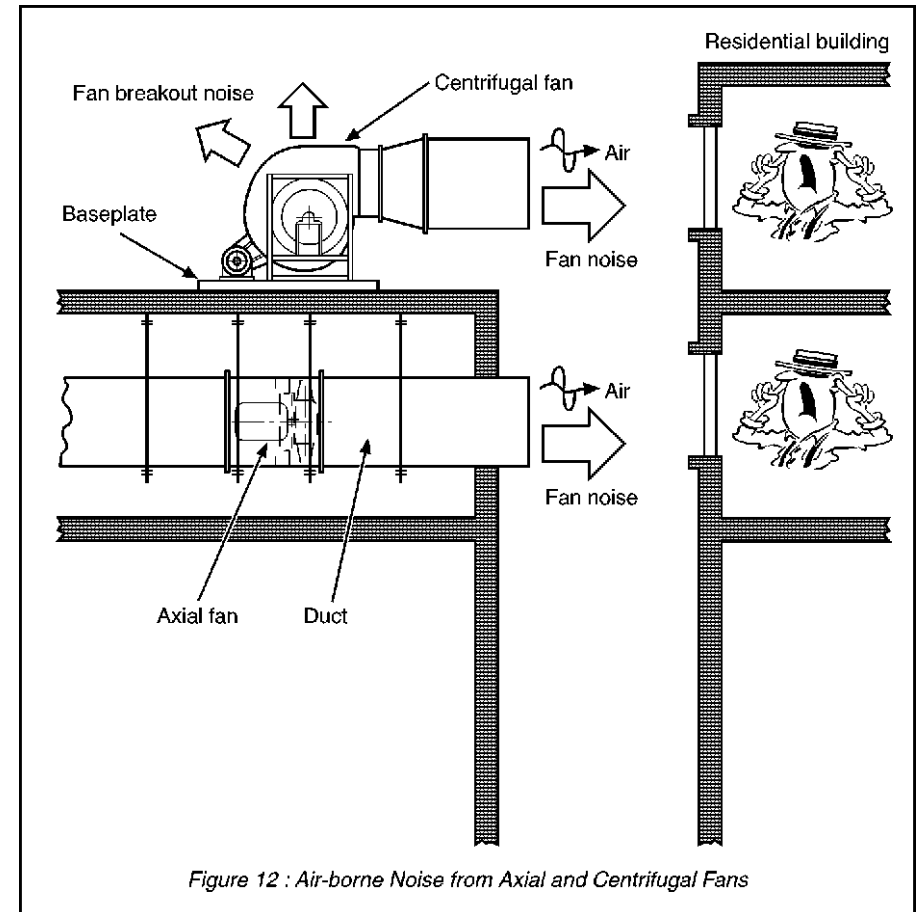
( NOISE REDUCTION UP TO 20dB(A) )



**4.5 Air-borne Noise from Fans**

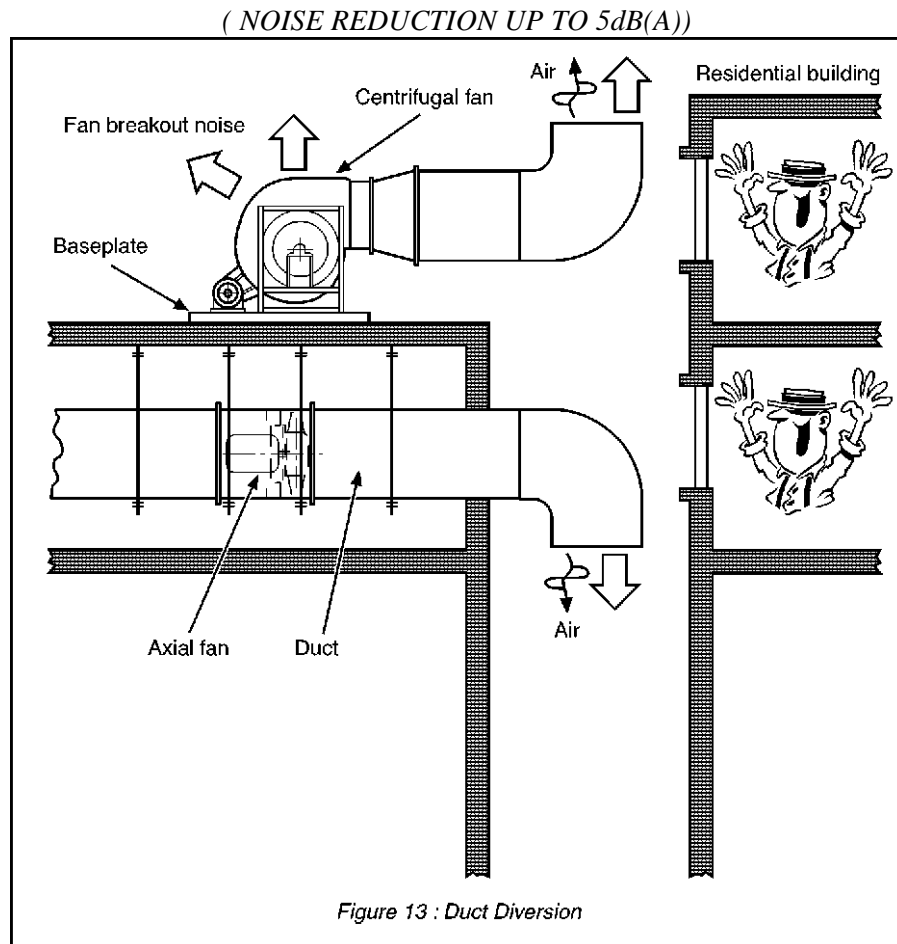
**(A) Problems**

The noise problem associated with fans may cause noise disturbance to nearby residents (see Fig.12). It mainly comes from the interaction of flow turbulence and solid surface of fan blades, and blade / fan vibration. The noise is transmitted upstream and downstream in the connecting ducts or to the atmosphere through the fan case.



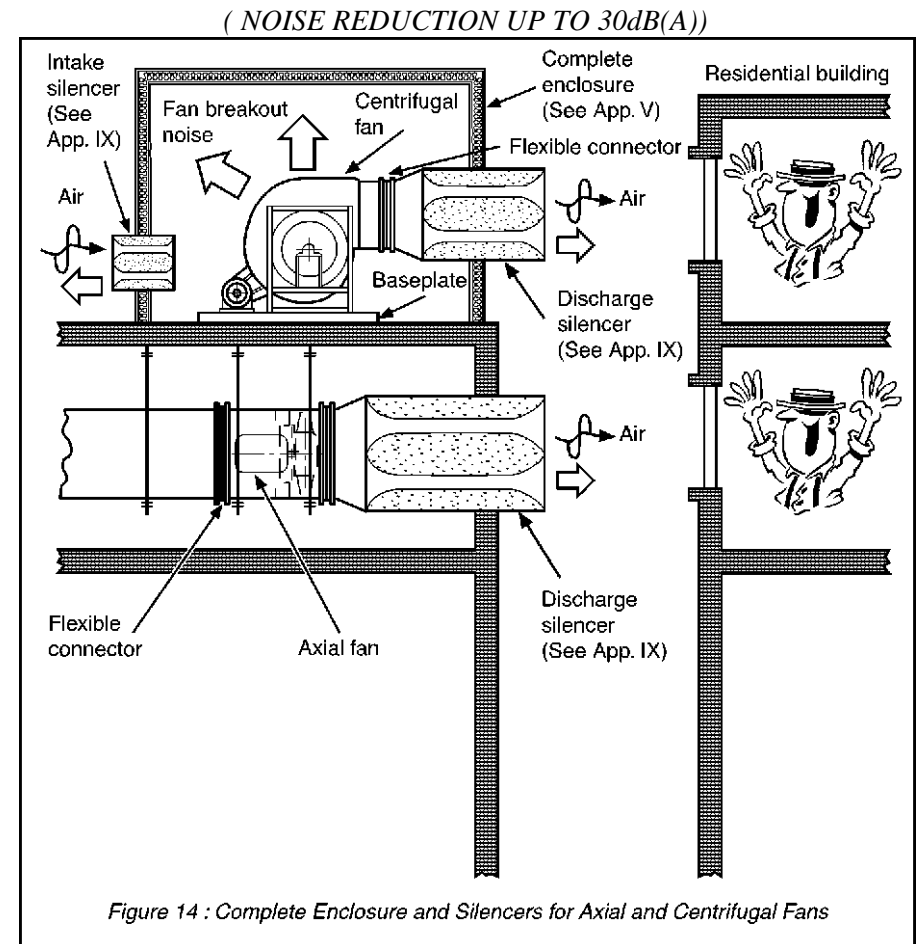
**(B) Practical Remedies**

- Reduce the speed of fans at non-rushed hours.
- Divert duct openings away from receivers (see Fig. 13).



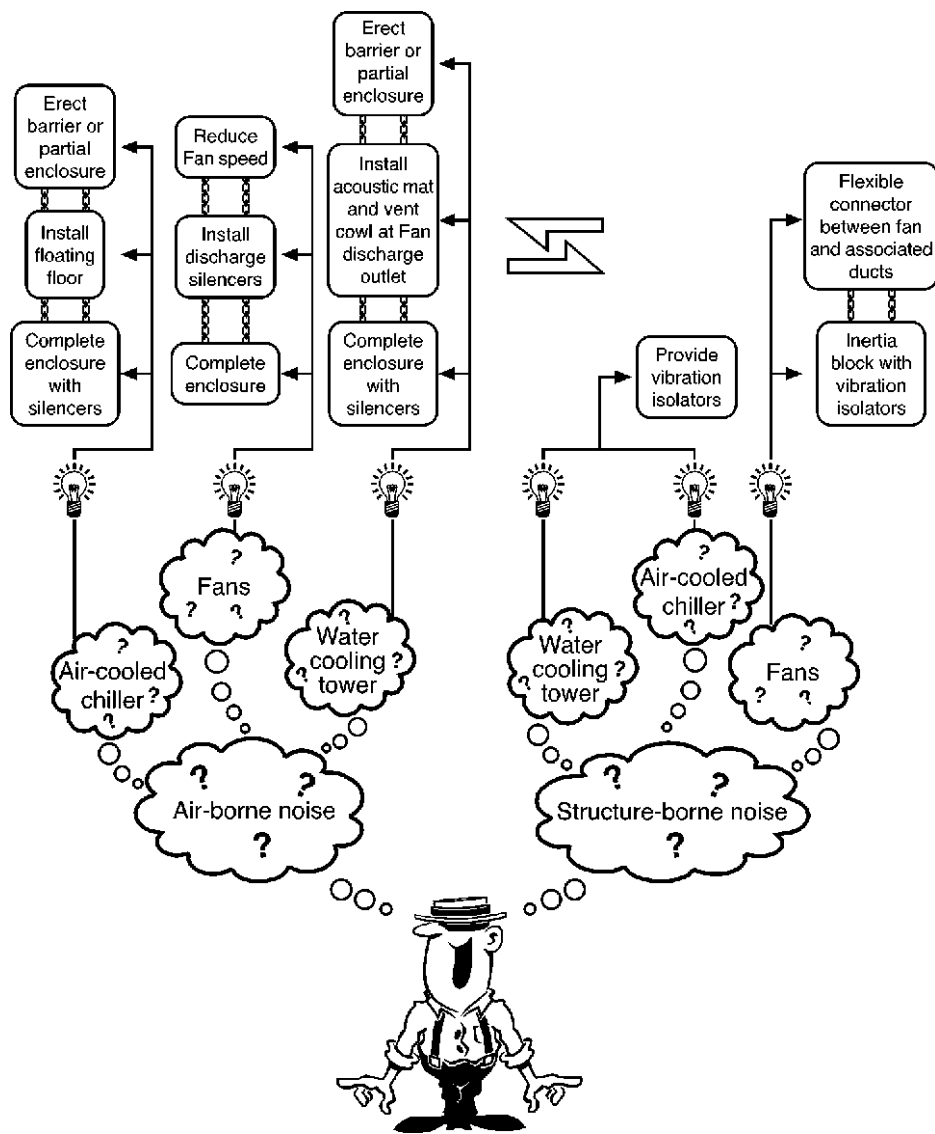
**(B) Practical Remedies (Cont'd)**

- Install a silencer at air discharge point of a fan (see Fig. 14) so as to absorb noise generated from the fan (see App IX).
- Fabricate a complete enclosure (see Fig. 14) to contain and absorb the noise energy radiated by the source (see App IV).



## 4.8 Important Note

The above only suggests solutions for a particular noise problem. In real life, the noise may be caused by more than one source. In those cases, several remedies may be required simultaneously to solve the problem.



## 5. RECOMMENDED PRACTICAL REMEDIES FOR DIFFERENT EXCEEDANCE LEVELS

The following recommended practical remedies for different noise exceedance levels are for reference purpose only. No guarantee is given to the performance of the application of the recommended remedies. The reader is advised to seek professional advice from independent experts in case of doubts or complicated problems.

Table 2 : Recommended Practical Remedies

Cause of Problem	Noise Exceedance Level (dB(A))	Recommended Practical Remedies
Air-borne Noise from Chillers	<10	- Barrier and/or silencers
	10 to 20	- Partial enclosure and silencers
	> 20	- Complete enclosure and silencers - Floating floor
Structure-borne Noise from Chillers	< 20	- Vibration isolators
	> 20	- Relocation
Air-borne Noise from Water Cooling Towers	< 10	- Acoustic mat, barrier and lined vent cowl
	10 to 20	- Partial enclosure and silencers
	> 20	- Complete enclosure and silencers
Structure-borne Noise from Water Cooling Towers	< 20	- Vibration isolators
	> 20	- Relocation
Fan Noise in Ductwork	< 5	- Duct opening away from receiver - Fan speed reduction
	5 to 10	- Silencers
	> 10	- Duct opening away from receiver - Silencers
Structure-borne Noise from Fans	< 20	- Inertia block and vibration isolators
	> 20	- Relocation
Rumbling Duct Noise	< 5	- Stiffening of the vibrating duct surface
	> 5	- Damping materials or composite lagging

**Appendix 5.3 Undertaking Letter from the Operator of Hong Kong Garden Commercial Complex (HKGCC)**

# 豪景花園管理有限公司

## T.L. 60 MANAGEMENT LIMITED

(牌照號碼：C-642565)

新界青山公路100號青龍頭豪景花園商場1樓22號舖

Shop 22, 1/F, Commercial Complex, Hong Kong Garden, No.100 Castle Peak Road, Tsing Lung Tau, N.T.

Tel : 2491 7234 Fax : 2496 1998

Our. Ref. : HKG-2024-L0570 , HKG-2021-L0637

25<sup>th</sup> July 2024

**To whom it may concern**

Dear Sirs

### Noise Abatement Measures for Cooling Towers in Hong Kong Garden

We, TL60 Management Limited, being the managers of Hong Kong Garden Commercial Complex (the Complex), hereby undertake to conduct appropriate retrofitting work with respect to existing noisy equipment installed at the roof top of the Complex (e.g. installation of partial/full enclosure, hood, silencer at existing cooling towers or any other noisy equipment) to control noise generation so that the future composite development at existing open ground to the immediate west of the Complex will not be subject to unacceptable noise impact as required by law due to operation of the Complex.

The exact retrofitting work will be determined in detailed design stage of this future composite development and will be implemented before OP stage of the development.

Yours Sincerely  
For and on behalf of  
**TL60 Management Limited**



**Ming Chan**  
Property Manager

/ja



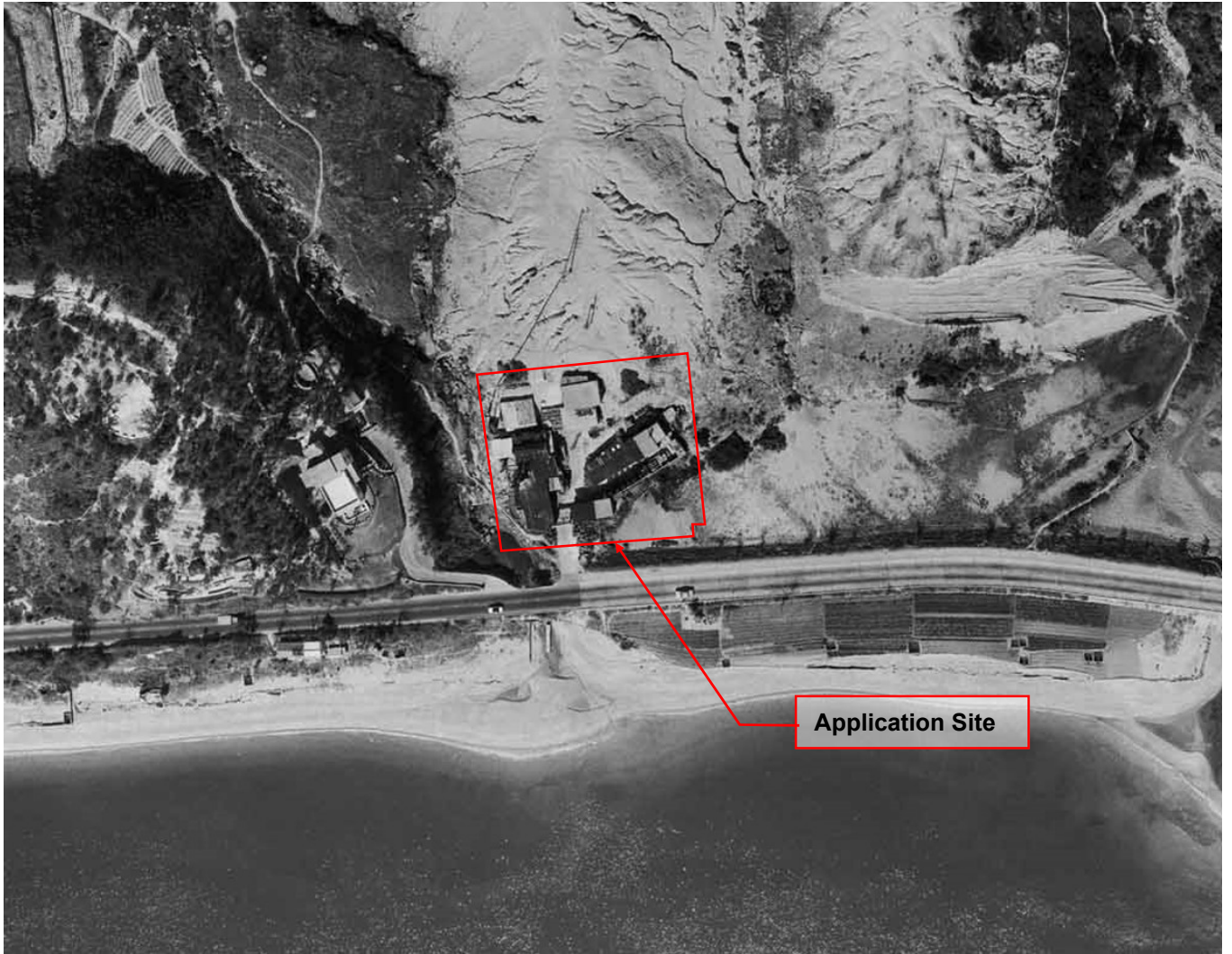
## **Appendix 6.1 Aerial Photographs**

**The Site in 1963**



**Site Description:** Unknown Building Structure

**The Site in 1964**



**Site Description:** Unknown Building Structure

**The Site in 1989**



**Site Description:** Unknown Building Structure

## The Site in 1990



**Site Description:** Unknown Building Structure was demolished. The Application Site was vacant.

**The Site in 1999**



**Application Site**

**Site Description:** Vacant Land

**The Site in 2000**



**Site Description:** Open Storage Area. Unknown material stored on the Site is observed.

**The Site in 2010**



**Site Description:** Open Storage Area. Unknown material stored on the Site is observed.



**The Site in 2017**



**Site Description:** General Storage Area. Unknown material stored on the Site is observed.

**The Site in 2018**



**Site Description:** Vacant Land.

**The Site in 2021**



**Site Description:** Vacant Land

**The Site in 2023**



**Application Site**

**Site Description:** Vacant Land

## **Appendix 6.2 Previous Correspondence with HKSAR Government Departments**

Fire Services Department  
Corporate Strategy Command,  
Corporate Services Division,  
9th Floor, Fire Services Headquarters Building,  
1 Hong Chong Road, Tsim Sha Tsui East, Kowloon

By Fax (2739 5879) & Post

Dear Sir / Madam,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories - Enquiry for Land Contamination Information**

We are conducting a Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories (see attached Figure 1). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests are spill and incident reports (including records of fire at the Application Site) that we believe your Department might have record of. Furthermore, we would also like to know whether anywhere of the Application Site had applied or possessed license for dangerous goods storage. We enclosed herewith a site map showing the location of the Application Site for your reference (see attached Figure 1).

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **17 July 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2811 (email: cchiu@ramboll.com) or Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter. Thank you in advance for any assistance you can provide.

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited



Calvin Chiu  
Technical Director

**Enclosure:** Figure 1 - Location Plan of the Application Site

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消防處  
香港九龍尖沙咀東部康莊道1號  
消防處總部大廈



FIRE SERVICES DEPARTMENT  
FIRE SERVICES HEADQUARTERS BUILDING,  
No.1 Hong Chong Road,  
Tsim Sha Tsui East, Kowloon,  
Hong Kong.

本處檔號 OUR REF. : (33) in FSD GR 6-5/4 R Pt. 54  
來函檔號 YOUR REF. : CCGCPRAFEI00\_0\_0017L.24.docx  
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk  
圖文傳真 FAX NO. : 2988 1196  
電話 TEL NO. : 2733 5848

RECEIVED  
16 JUL 2024  
BY: .....

12 July 2024

Ramboll Hong Kong Limited  
21/F, BEA Harbour View Centre,  
56 Gloucester Road,  
Wanchai, Hong Kong.  
**(Attn: Mr. Calvin CHIU, Technical Director)**

Dear Mr. CHIU,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories  
– Enquiry for Land Contamination Information  
Request for Information of Dangerous Goods & Incident Records**

I refer to your letter of 26.6.2024 regarding the captioned request and reply below in response to your questions:-

Please be advised that neither records of dangerous goods license, fire incidents nor incidents of spillage / leakage of dangerous goods were found in connection with the given conditions of your request at the subject location.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

Ramboll Hong Kong Ltd.

Project:	CCGCPRAFEI00_0_0024L.24		
Maconomy no.:	308001326		
Circulation:	Read	Action	
CC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MIC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Document Scan	<input type="checkbox"/>	Yes	No
Keep Hard Copy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(TSANG Chun-hei)  
for Director of Fire Services

Environmental Protection Department  
Environmental Compliance Division  
Regional Office (West)  
Tsuen Wan / North Lantau  
8th floor, Tsuen Wan Government Offices,  
38 Sai Lau Kok Road, Tsuen Wan, New Territories

By Fax (2411 3073) & Post

Dear Sir / Madam,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories - Enquiry for Land Contamination Information**

We are conducting a Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories (see attached Figure 1). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests is whether there are any registered chemical waste producers under your record in the Application Site, any waste disposal record, any accidental spillage record, any submission relating to land contamination assessment and any information you could provide which might be useful for our study. We enclosed herewith a site map showing the location of the Application Site for your reference.

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **17 July 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2811 (email: [cchiu@ramboll.com](mailto:cchiu@ramboll.com)) or Ms. Coco Ma at 3465 2807 (email: [cocoma@ramboll.com](mailto:cocoma@ramboll.com)). We sincerely seek your feedback on this matter. Thank you in advance for any assistance you can provide.

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited



Calvin Chiu  
Technical Director

**Enclosure:** Figure 1 - Location Plan of the Application Site

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Mike Kwan

---

From: Calvin Chiu  
Sent: Tuesday, July 23, 2024 10:54 AM  
To: Mike Kwan  
Subject: FW: Request for Land Contamination Info - Proposed Social Welfare Facility in Castle Peak Road Tsing Lung Tau

Calvin Chiu

Ph.D. B.Eng  
Technical Director

D 34652811  
M 96552669  
[cchiu@ramboll.com](mailto:cchiu@ramboll.com)

---

Ramboll  
21st Floor  
BEA Harbour View Centre  
56 Gloucester Road  
Wan Chai  
Hong Kong  
<https://ramboll.com>

Ramboll Hong Kong Limited

Classification: Confidential

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From: [wendywshung@epd.gov.hk](mailto:wendywshung@epd.gov.hk) <[wendywshung@epd.gov.hk](mailto:wendywshung@epd.gov.hk)> On Behalf Of WS\_HUNG/EEB/HKSARG@Not\_For\_Reply\_From\_Internet.hksarg.hk  
Sent: Tuesday, July 2, 2024 4:28 PM  
To: Calvin Chiu <[cchiu@ramboll.com](mailto:cchiu@ramboll.com)>  
Cc: [tomlau@epd.gov.hk](mailto:tomlau@epd.gov.hk); Coco Ma <[cocoma@ramboll.com](mailto:cocoma@ramboll.com)>  
Subject: Fw: Request for Land Contamination Info - Proposed Social Welfare Facility in Castle Peak Road Tsing Lung Tau

Some people who received this message don't often get email from [ws\\_hung/eeb/hksarg@not\\_for\\_reply\\_from\\_internet.hksarg.hk](mailto:ws_hung/eeb/hksarg@not_for_reply_from_internet.hksarg.hk).  
[Learn why this is important](#)

Dear Calvin,

Please note there is no record of registered chemical waste producer registration or chemical spillage/leakage incident was found for the application site.

Regards,  
Wendy Hung  
RWG/EPD  
2417 6123

Lands Department  
Land Administration Office  
District Lands Office, Tsuen Wan and Kwai Tsing  
10th and 11th floors, Tsuen Wan Multi-storey Carpark Building,  
174-208 Castle Peak Road, Tsuen Wan, New Territories

By Fax (2415 0703) & Post

Dear Sir / Madam,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories - Enquiry for Land Contamination Information**

We are conducting a Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories (see attached Figure 1). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests are information on spillage accidents, illegal/contaminating land uses or uncontrolled dumping uses, current and historical land use information, and any information relating to land contamination issues of the Application Site. We enclosed herewith a site map showing the location of the Application Site for your reference (see attached Figure 1).

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **17 July 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2811 (email: cchiu@ramboll.com) or Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter. Thank you in advance for any assistance you can provide.

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited



Calvin Chiu  
Technical Director

**Enclosure:** Figure 1 - Location Plan of the Application Site  
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電話 Tel: 2402 1064  
圖文傳真 Fax: 2415 0703 / 2412 0505  
電郵地址 Email:  
本署檔號 Our Ref: (49) in DLO/TWKT/TW 66/WLT/82 V  
來函檔號 Your Ref: CCGCPRAFEI00\_0\_00019L.24

來函請註明本署檔號

Please quote our reference in your reply



地政總署  
荃灣葵青地政處  
DISTRICT LANDS OFFICE/  
TSUEN WAN AND KWAI TSING  
LANDS DEPARTMENT

我們矢志努力不懈，提供盡善盡美的土地行政服務。  
We strive to achieve excellence in land administration.

新界荃灣青山公路 174-208 號荃灣多層停車場大廈 10 樓及 11 樓  
10/F. & 11/F., Tsuen Wan Multi-storey Carpark Building,  
174-208 Castle Peak Road, Tsuen Wan, New Territories.

網址 Website : [www.landsd.gov.hk](http://www.landsd.gov.hk)

Ramboll Hong Kong Limited  
c/o 21/F, BEA Harbour View Centre,  
56 Gloucester Road,  
Wan Chai, Hong Kong  
(Attn.: Mr. Calvin CHIU)

**By Fax (3465 2899) and Post**

5 July 2024

Dear Sirs,

**Land Contamination Assessment Study for a Proposed Residential Redevelopment  
at Lot No. 94 in Demarcation District No. 388 and Adjoining Government Land,  
Castle Peak Road – Tsing Lung Tau, New Territories  
Enquiry for Land Contamination Information**

I refer to your letter dated 26 June 2024.

2. I am not in a position to provide the information you requested. You are advised to approach the lot owner for the information.

Yours faithfully,

(K H CHAN)

for District Lands Officer,  
Tsuen Wan and Kwai Tsing

Planning Department  
District Planning Branch  
Metro District Planning Division  
Tsuen Wan and West Kowloon District Planning Office  
27/F, Tsuen Wan Government Offices,  
38 Sai Lau Kok Road, Tsuen Wan, New Territories

By Fax (2412 5435) & Post

Dear Sir / Madam,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories - Enquiry for Land Contamination Information**

We are conducting a Land Contamination Assessment Study for a Proposed Social Welfare Facility and Permitted Residential Development at Lot 94, D.D. 388 And Adjoining Government Land, Castle Peak Road Tsing Lung Tau, New Territories (see attached Figure 1). As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests are current and historical site information, any change on the land use, future land use and any information relating to land contamination issues of the Application Site. We enclosed herewith a site map showing the location of the Application Site for your reference (see attached Figure 1).

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **17 July 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2811 (email: cchiu@ramboll.com) or Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter. Thank you in advance for any assistance you can provide.

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited



Calvin Chiu  
Technical Director

**Enclosure:** Figure 1 - Location Plan of the Application Site

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## 規劃署

荃灣及西九龍規劃處  
新界荃灣西樓角路38號  
荃灣政府合署27樓



## Planning Department

Tsuen Wan & West Kowloon  
District Planning Office  
27/F, Tsuen Wan Government Offices,  
38 Sai Lau Kok Road,  
Tsuen Wan, N.T.

本函檔號 Your Reference CCGCPRAFEI00\_0\_0020L.24.docx  
本署檔號 Our Reference D/TWW/641  
電話號碼 Tel. No. : 2417 6686  
傳真機號碼 Fax No. : 2412 5435

By Post and Fax (3465 2899)

Ramboll Hong Kong Limited  
21/F, BEA Harbour View Centre, 56 Gloucester Road,  
Wan Chai, Hong Kong  
(Attn.: Mr. Calvin Chiu)

17 July 2024

Dear Sir/Madam,

**Land Contamination Assessment Study for a Proposed Social Welfare Facility  
and Permitted Residential Development at Lot 94, D.D. 388 and  
Adjoining Government Land, Castle Peak Road, Tsing Lung Tau, New Territories –  
Enquiry for Land Contamination Information**

Reference is made to your letter dated 26.6.2024 on the subject matter.

The subject site (the Site) falls within an area zoned “Residential (Group B)” (“R(B)”) on the approved Tsuen Wan West Outline Zoning Plan (OZP) No. S/TWW/21. According to the Notes of the OZP for the “R(B)” zone, ‘Flat’ is always permitted while ‘Social Welfare Facility (not elsewhere specified)’ requires planning permission from the Town Planning Board (the Board).

The Site is the subject of a planning application (No. A/TWW/122) for proposed minor relaxation of plot ratio restriction for permitted residential development (flat), which was approved by the Metro Planning Committee of the Board on 12.8.2022. The Site was zoned “R(B)” on the draft Tsuen Wan West OZP No. S/TWW/1 gazetted on 3.2.1989 and the zoning of the Site has remained unchanged since then. According to our record, the Site is currently vacant.

For history of land contamination and land record of the Site, you may wish to contact the Environmental Protection Department and the Lands Department for further information.

Yours faithfully,

( Jacqueline CHAN )  
for District Planning Officer/  
Tsuen Wan and West Kowloon,  
Planning Department

透過規劃工作，使香港成為一個宜居、具競爭力利可持續發展的亞洲國際都會  
We plan to make Hong Kong a Liveable • Competitive • Sustainable ASIA'S WORLD CITY

c.c.  
DLO/TW&KT, LandsD  
DEP

(Attn.: Mr. Koby KO)  
(Attn.: Mr. Keith LAM)

(Fax. No.: 2415 0703)  
(Fax. No.: 2591 0558)

MC/JC/jc