Appendix E –

Environmental Assessment

SECTION 16 PLANNING APPLICATION FOR PROPOSED MIXED-USE DEVELOPMENT AT LOT NO 4354 IN DD124, KIU TAU WAI, YUEN LONG

ENVIRONMENTAL ASSESSMENT

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1. INTRODUCTION

1.1 Background

1.1.1 The Application Site is located at lot no. 4354 in D.D. 124, Kiu Tau Wai, Ping Shan. It falls within an area zoned "Commercial (2)" ("C(2)") on the Hung Shui Kiu and Ha Tsuen Outline Zoning Plan (OZP) No. S/HSK/3.

1.1.2 This planning application is submitted to seek permission from the Town Planning Board (the Board) in support of a proposed mixed- use development with residential and commercial uses and minor relaxation of building height restrictions.

1.1.3 To support this planning application, Ramboll Hong Kong Limited has been commissioned by the Applicant to conduct the Environmental Assessment to demonstrate the feasibility of the proposed development from environmental point of view. Architectural drawings and technical information of the developments are provided by the Project Architect.

1.2 Application Site and its Environs

1.2.1 The Application Site is currently zoned "C(2)" under the Hung Shui Kiu and Ha Tsuen OZP (No.: S/HSK/3). According to the OZP, the area surrounding the Subject Site is mostly zoned "C(2)" or "Other Specified Uses (Mixed-Use)" ("OU(MU)") to the west and to the south with the Tuen Ma Line viaduct located in between. To the north of the Subject Site, Ping Ha Road is immediate abutting with the existing residential use, Tin Shing Court located further north. **Figure 1.1** shows the location of the Application Site and its environs.

1.3 Proposed Development

1.3.1 The Proposed Development consists of a five-storey podium accommodating retail facilities and an above-ground car park, with a roughly triangular footprint aligning with the Application Site boundary. Above the podium, two residential towers (each reaching not more than 160 mPD) are positioned on the northern portion of the site, while a single office tower, rising to about 106 mPD, is located on the southern portion. A pedestrian footbridge at the 1/F level connects the podium directly to another existing footbridge accessing Tin Shui Wai Station. The master layout plan and sections of the Proposed Development are shown in **Appendix 1.1**.

1.3.2 The tentative completion year of the Proposed Development is 2030.

1.4 Concurrent Project

1.4.1 Concurrent projects in the vicinity of the Project are identified. The implementation of individual project would be subject to further development and subsequent actions of the respective project proponent.

Hung Shui Kiu and Ha Tsuen New Development Area (HSK/HT NDA)

1.4.2 Planning Department published the Hung Shui Kiu and Ha Tsuen Outline Development Plan No. D/HSK/2 in August 2024, which includes the Application Site.

1.4.3 The future road network and the uses under the HSK/HT NDA are considered in this study.

1.5 Environmental Appraisal of the Development Site

Noise - Road Traffic Noise

1.5.1 The nearby carriageways such as Ping Ha Road, Hung Tin Road and some future roads may impose potential road traffic noise impact on the Proposed Development. Practical noise mitigation measures would be recommended where required. The details will be discussed in **Section 2**.

Noise – Railway Noise

1.5.2 The Tuen Ma Line viaduct is located south of the Application Site and may impose railway noise impact on the Proposed Development. Proactive layout design, such as using the office tower as noise barrier for the residential tower behind, and localized layout design to minimize the angle of view from the residential units to the Tuen Ma Line viaduct, have been incorporated into the Master Layout Design. On-site measurement on the operational noise of the Tuen Ma Line viaduct has been carried out providing the information for evaluating the potential railway noise impact upon the residential towers. Practical noise mitigation measures would be recommended where required. The details will be discussed in **Section 3**.

Air Quality

1.5.3 According to site survey conducted in Dec 2025, no chimney or industrial activity is identified within 200m of the Application Site.

1.5.4 With respect to the potential vehicular emission impact, a qualitative air quality impact assessment has been conducted (refer to **Section 4**) to recommend the necessary air buffer distance from the nearest road to the Development Site according to HKPSG.

1.5.5 During the construction phase, the potential air quality impacts would be mainly caused by the air pollutant emissions generated during construction activities. A qualitative air quality impact assessment for construction phase is prepared and will be discussed in **Section 4**.

Fixed Noise Impact

1.5.6 The fixed noise sources within the Application Site (e.g. ventilation system, the exhaust and the control of emission of oily fume and cooling odour of the commercial use of the Proposed Development) may have potential fixed noise impact on the NSRs of the Proposed Development or the surrounding noise sensitive receivers (NSRs). The design of these future noise sources should follow the requirements of the HKPSG Chapter 9, such that the Noise Control Ordinance (NCO) should be met so that the surrounding NSRs would not be subject to significant noise impact. Mitigation measures (such as enclosure and acoustic louvre) may be required to be considered during the detailed design.

1.5.7 According to OZP, the Sites to the immediate west and south are zoned "C(2)"for commercial use. The current use of the Sites to the north and east is residential use. As such, it is considered that the future residents during the operation of the proposed development is unlikely to be subject to industrial impact. There is no external noise sources, such as chillers, identified to the south of the Tuen Ma Line during the site visits in Nov 2025. From site visits, these Sites are currently occupied by temporary structures and car services centres for car parking or the activities carried out at indoor. It is considered that these structures would not induce any adverse noise impact to the Proposed Development which has a proposed commercial tower located at the southern portion of the Application Site.

1.5.8 From the site visit, within 300m study area, there are some chillers at the roof top of the existing Ping Shan Tin Shui Wai Leisure and Cultural Building which is around 290m

to the east of the Application Site. In between the Ping Shan Tin Shui Wai Leisure and Cultural Building and the Application Site is the Ping Yan Court. As compared with Ping Yan Court, the Proposed Development has a comparatively longer buffer distance away from the leisure and cultural building. Therefore, it is considered that the chillers would not induce any significant impact upon the Proposed Development.

1.5.9 Similarly, there are two chillers at the roof top of the Ping Yan Shopping Centre, which is around 210m east of the Application Site. Since the Ping Yan Court is located in between these two chillers and the Proposed Development, it is also considered that these chillers would not induce any significant impact upon the Proposed Development.

1.5.10 To the west of the site, around 250m, there is an enclosed Ha Tsuen Sewage Pumping Station. During the site visit carried in Nov 2025, no noticeable noise was heard along the site boundary of the pumping station. Also, Tin Shing Court is located closer to the pumping station than the Proposed Development, it is also considered that the pumping station would not induce any significant impact upon the Proposed Development.

1.5.11 In addition, the chillers of the Tin Shui Wai Station are located over 300m (~ 505m away from the Application Site). It is also considered that these chillers would not induce any significant impact upon the Proposed Development.

1.5.12 In general, as compared to the existing noise sensitive uses, the Proposed Development has a comparatively longer buffer distance from the identified fixed noise sources. Therefore, it would not be subject to significant operation phase noise impact.

Waste Management

1.5.13 Potential waste management issues in connection with construction and operation of the Project will be discussed in **Section 6**. It also recommends mitigation measures to alleviate impacts, where necessary.

2. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This section is prepared to address road traffic noise impact on the noise sensitive uses of the Proposed Development and to recommend mitigation measures where practicable to attenuate the impact.

2.2 Assessment Criteria

2.2.1 Noise standards are recommended in the HKPSG for planning against possible noise impact from road traffic.

2.2.2 The Proposed Development includes domestic dwellings and clubhouse. Clubhouse will be provided with centralized air conditioning system with proper insulation and will not rely on openable window for ventilation. Domestic dwellings will rely on openable window for ventilation. According to the guidelines, the maximum noise level from road traffic, measured in terms of L_{10} (1-hr), is recommended to be 70 dB(A) at typical facades of new dwellings.

2.3 Assessment Methodology

2.3.1 The methodology involves the prediction of future noise impacts on Noise Sensitive Receivers (NSRs) arising from traffic flows on existing and future road carriageways in the vicinity of the Proposed Development.

2.3.2 The U.K. Department of Transport's procedure "Calculation of Road Traffic Noise" was applied to predict the hourly L_{10} noise level generated from road traffic at selected representative facades (NSRs) of the Proposed Development. The predicted noise levels were then compared with the HKPSG noise criterion for assessing the impact.

2.3.3 Based on the tentative completion year of the development (Year 2030), traffic forecast for the Year 2045 on the road carriageways in the vicinity of the Development Site, which has the maximum traffic projection within 15 years from the completion of the Development Site, was provided by the project traffic consultant for prediction of the worst-case traffic noise impact. The projected traffic flows and vehicle composition of the road carriageways provided by the project traffic consultant are shown in **Appendix 2.1**.

2.3.4 Reply from Transport Department (TD) on the methodology adopted for the traffic forecast and the confirmation letter from traffic consultant on the validity of the traffic data will be provided when available.

2.3.5 As shown in **Appendix 2.2**, two sets of the traffic flow (AM peak and PM peak) are provided and the assessment on both set of traffic data have been tested.

2.4 Road Characteristics

2.4.1 In this assessment, all roads are assumed as impervious surface with a speed limit of 50km/hr. The information on traffic volume and percentage of heavy vehicle using these roads is shown in **Appendix 2.1**.

2.5 Noise Sensitive Receivers

2.5.1 Residential dwellings with openable windows/ doors for prescribed ventilation purposed, are selected as noise sensitive receivers (NSRs). The assessment points of NSRs are taken 1.2m above the floors and 1m away from the facades of openable windows (which would be used for ventilation purpose). Locations of planned NSRs for the road traffic noise impact assessment are shown in **Figure 2.1**.

2.6 Noise Mitigation Measures Incorporated under Base Case Scenario

2.6.1 Noise mitigation measures have been duly studied and applied where practicable.

a. *Podium*

2.6.2 A podium (from +23.5 to 32.5mPD) has been provided to the Application Site. The podium would provide some shielding effects and increase the separation between the noise sources for the residential units.

b. *Fixed Glazing with/without Maintenance Window*

2.6.3 For those window façades that are not necessary to serve ventilation purpose yet exposed to adverse road traffic noise, fixed glazing with/without maintenance window is proposed. The fixed glazing is not less than 8 mm. It will be equipped with well gasketed maintenance window with a removable handle or key lock system to ensure the maintenance window remains locked except for cleaning and maintenance purpose.

2.7 Assessment Results under Base-case Scenario

2.7.1 The predicted road traffic noise impacts on the planned NSRs for the Base-case Scenario (i.e., without application of any noise mitigation measures) were assessed. The predicted noise levels for the Proposed Development are summarised in **Table 2.1** and shown in **Appendix 2.2**. The assessment results indicated that the predicted noise levels at the façade facing towards the Ping Ha Road would have exceedance during both AM and PM peak in comparing with the noise criteria as stipulated in Table 4.1 of the Chapter 9 of the HKPSG road traffic noise standards (i.e. 70dB(A)).

Table 2.1 Predicted Road Traffic Noise Assessment Result (Base-case Scenario)

	AM Peak	PM Peak
Total Number of Units	1140	1140
Total Number of Exceedances	530	520
Predicted Maximum Noise Level, dB(A)	76	76
% of Compliance	54%	54%

2.7.2 Based on the result table above, scenario for AM peak flow is considered to be the worst-case scenario. Noise mitigation measures are recommended for the Proposed Development based on the AM scenario to attenuate the road traffic noise impact.

2.8 Consideration of Noise Mitigation Measures for Proposed Development

2.8.1 Noise mitigation measures have been duly studied and applied where practicable, so that the predicted noise level at the Noise Sensitive Receivers to comply with the recommended traffic noise level stipulated into the Hong Kong Standard and Guidelines, i.e. 70 dB(A). A schedule of noise mitigation measures is tabulated in **Table 2.2**.

Innovative Noise Mitigation Measure

2.8.2 Innovative noise mitigation measures in terms of acoustic balcony (Baffle Type) and various design of acoustic window (baffle type) have been proposed to further mitigate

the traffic noise exceedance after the provision of the traditional mitigation measures above. The design of the innovative noise mitigation measures mentioned in below are referred to other project information which has been approved by EPD. Details of the innovative noise mitigation measures are described at below.

a. Acoustic Window (Baffle Type)- Tin Shui Wai Town Lot No. 34 [Case ID: AB(BT)-TSW34]

2.8.3 The reference acoustic window and balcony design in EPD-Practice note (ProPECC 5/23) [EPD-PN] have been made to adopt in first place for the Proposed Development. However, some major parameters in EPD-PN cannot be followed (i.e., outer/inner opening is much larger than the EPD-PN etc.), reference cases from other developments are therefore adopted.

2.8.4 Acoustic window [AW(BT)-TSW34] are proposed and the noise attenuation performance are referenced to a development project at TSWTL No. 34 (Wetland Season Park) (hereafter referred as "TSW34"), which was completed at year 2020. The project owner of TSW34 and this project is the same. The noise attenuation performance provided by the AW(BT)-TSW34 are obtained via mock-up test which has been approved by EPD.

2.8.5 The AW(BT) in TSW34 refers to the type of window that has an inner sliding panel behind the outer opening, both readily openable, for creating an air gap for the supply of fresh air with noise mitigation effect. It comprises two glazing:

i. The outer window system with side hung openable window; and

ii. The inner sliding panel.

For all cases, the air gap will be maintained at 100mm.

2.8.6 The "designed setting" to reduce noise entering indoor area is achieved by placing the inner sliding panel behind the outer openable window, so that noise from outside cannot pass through the opening and enter indoor area directly. As there is no gap at top and bottom of the sliding panel, direct transmission of sound energy into the habitable room is avoided. Instead, outdoor noise has to pass through the gap between the inner sliding panel and outer façade aside the opening in order to enter indoor area. The design allows natural ventilation through the aforementioned gap (although extent of natural ventilation may be inferior to the case without the inner sliding panel behind) and prevent most noise from entering indoor environment. According to the latest PNAP APP-130: "Lighting and Ventilation Requirements – Performance-based Approach", the proposed AB(BT) are considered complying with prescribed ventilation requirement if the net opening when the inner sliding panel is moved to another side with least obstruction to the openable window at the outer façade.

2.8.7 In this study, the use of micro-perforated absorber (MPA) panel and sound absorptive material (SAM) have been proposed where necessary.

- MPA is applied to the inner sliding panel of acoustic balcony (baffle type) wherever necessary (if the case without MPA is found to be inadequate to reduce noise to acceptable level); and

2.8.8 A road traffic noise sound attenuation of acoustic balcony with MPA applied in 4.4m^2 bedrooms of TSW34 reaches 6.3 dB(A). The above noise attenuation performance is obtained via mock-up test which has been approved by EPD.

2.8.9 The configurations of AW(BT)-TSW34 design are shown in **Appendix 2.3**. The configurations will be followed and optimized to suit the Proposed Development. The noise reduction effectiveness of the proposed AW(BT)-TSW34 should not be worse than the reference cases. It is anticipated the proposed AW(BT)-TSW34 should have

at least the same sound transmission loss performance as the reference case. Further, if the room size of the Proposed Development is lower than the reference case in TSW34, room size adjustment is conducted (shown in **Appendix 2.4**), so that the noise reduction will be lowered.

b. Acoustic Balcony (Baffle Type) – Kai Tak NKIL No. 6568 [Case ID: AB(BT)-KT6568]

2.8.10 Acoustic Balcony (Baffle Type) [AB(BT)-KT6568] are proposed and the noise attenuation performance are referenced to a development project at NKIL No. 6568 in Kai Tak (hereafter referred as "KT6568"), which was previously proposed in an approved noise impact report and the KT6568 is under construction. The project owner of KT6568 and this project are the same. The noise attenuation performance provided by the [AB(BT)-KT6568] are obtained via mock-up test which has been approved by EPD.

2.8.11 The AB(BT) in KT6568 refers to the type of balcony that has an inner sliding panel behind the outer opening, both readily openable, for creating an air gap for the supply of fresh air with noise mitigation effect. It comprises two glazing:

i. The outer window system with side hung openable window; and

ii. The inner sliding panel.

For all cases, the air gap will be maintained at 100mm.

2.8.12 The "designed setting" to reduce noise entering indoor area is achieved by placing the inner sliding panel behind the outer openable window, so that noise from outside cannot pass through the opening and enter indoor area directly. As there is no gap at top and bottom of the sliding panel, direct transmission of sound energy into the habitable room is avoided. Instead, outdoor noise has to pass through the gap between the inner sliding panel and outer façade aside the opening in order to enter indoor area. The design allows natural ventilation through the aforementioned gap (although extent of natural ventilation may be inferior to the case without the inner sliding panel behind) and prevent most noise from entering indoor environment. According to the latest PNAP APP-130: "Lighting and Ventilation Requirements – Performance-based Approach", the proposed AB(BT) are considered complying with prescribed ventilation requirement if the net opening when the inner sliding panel is moved to another side with least obstruction to the openable window at the outer façade.

2.8.13 In this study, the use of micro-perforated absorber (MPA) panel and sound absorptive material (SAM) have been proposed where necessary.

- MPA is applied to the inner sliding panel of acoustic balcony (baffle type) wherever necessary (if the case without MPA is found to be inadequate to reduce noise to acceptable level); and

2.8.14 A road traffic noise sound attenuation of acoustic balcony with MPA applied in 11.2m^2 living rooms of KT6568 reaches 6.8 dB(A). The above noise attenuation performance is obtained via mock-up test which has been approved by EPD.

2.8.15 The configurations of AB(BT)-KT6568 design are shown in **Appendix 2.3**. The configurations will be followed and optimized to suit the Proposed Development. The noise reduction effectiveness of the proposed AB(BT)-KT6568 should not be worse than the reference cases. It is anticipated the proposed AB(BT)-KT6568 should have at least the same sound transmission loss performance as the reference case. Further, if the room size of the Proposed Development is lower than the reference case in KT6568, room size adjustment is conducted (shown in **Appendix 2.4**), so that the noise reduction will be lowered.

2.9 Assessment Results under Mitigated Scenario

2.9.1 The predicted road traffic noise impact on the representative NSRs based on the noise mitigation measures discussed above has been assessed.

2.9.2 With practical noise mitigation measures considered and incorporated for implementation as described in **Section 2.8**, all dwellings would have the predicted noise level complying with relevant standard (i.e., $L_{10(1\text{-hour})}$ 70 dB(A)), **Appendix 2.5** shows the assessment result under mitigation scenario.

Table 2.2 Proposed Noise Mitigation Measures

NSR	Room	Floor	Noise Mitigation Measures
T1-01	MBR	4/F- 41/F	AW(BT)-TSW34
T1-02	BR1	4/F- 41/F	AW(BT)-TSW34
T1-03	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-04	MBR	4/F- 41/F	AW(BT)-TSW34
T1-05	LIV/DIN	4/F- 41/F	AW(BT)-TSW34
T1-06	BR1	4/F- 32/F	AW(BT)-TSW34
T1-08	MBR	4/F- 41/F	AW(BT)-TSW34
T1-09	BR1	4/F- 41/F	AW(BT)-TSW34
T1-10	BR1	4/F- 41/F	AW(BT)-TSW34
T1-11	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-12	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-13	BR1	4/F- 41/F	AW(BT)-TSW34
T1-14	MBR	4/F- 41/F	AW(BT)-TSW34
T1-15	MBR	4/F- 41/F	AW(BT)-TSW34
T1-16	BR1	4/F- 41/F	AW(BT)-TSW34
T1-17	BR1	4/F- 41/F	AW(BT)-TSW34
T1-18	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-19	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-20	BR1	4/F- 41/F	AW(BT)-TSW34
T1-21	MBR	4/F- 41/F	AW(BT)-TSW34
T1-22	LIV/DIN	4/F- 41/F	AB(BT)-KT6568

NSR	Room	Floor	Noise Mitigation Measures
T1-23	BR1	4/F- 41/F	AW(BT)-TSW34
T1-24	BR1	4/F- 41/F	AW(BT)-TSW34
T1-25	MBR	4/F- 41/F	AW(BT)-TSW34
T2-02	MBR	4/F- 41/F	AW(BT)-TSW34
T2-03	BR1	4/F- 41/F	AW(BT)-TSW34
T2-04	BR1	4/F- 41/F	AW(BT)-TSW34
T2-05	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-06	MBR	4/F- 41/F	AW(BT)-TSW34
T2-07	BR1	4/F- 41/F	AW(BT)-TSW34
T2-08	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-09	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-10	BR1	4/F- 41/F	AW(BT)-TSW34
T2-11	BR1	4/F- 41/F	AW(BT)-TSW34
T2-12	MBR	4/F- 41/F	AW(BT)-TSW34
T2-13	MBR	4/F- 41/F	AW(BT)-TSW34
T2-14	BR1	4/F- 41/F	AW(BT)-TSW34
T2-15	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-16	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-17	MBR	4/F- 41/F	AW(BT)-TSW34
T2-18	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-19	BR1	4/F- 41/F	AW(BT)-TSW34
T2-20	BR1	4/F- 41/F	AW(BT)-TSW34
T2-21	MBR	4/F- 41/F	AW(BT)-TSW34
T2-26	BR1	7/F- 13/F	AW(BT)-TSW34
T2-27	MBR	8/F- 13/F	AW(BT)-TSW34
T2-28	LIV/DIN	7/F- 18/F	AB(BT)-KT6568

NSR	Room	Floor	Noise Mitigation Measures
T2-29	BR1	8/F- 14/F	AW(BT)-TSW34
T2-30	MBR	6/F- 33/F	AW(BT)-TSW34

2.10 Conclusion for Road Traffic Noise Impact on Proposed Development

2.10.1 Road traffic noise impact assessment has been carried out for the Proposed Development.

2.10.2 All practical and effective noise mitigation measures have been explored, which include podium, acoustic window and balcony (baffle type), and fixed glazing with/ without maintenance window.

2.10.3 After mitigation, no adverse road traffic noise impact is anticipated for the Proposed Development. **Figure 2.2** and **Appendix 2.6** show the consolidated noise mitigation measures and schedule.

3. RAILWAY NOISE IMPACT ASSESSMENT

3.1 Introduction

3.1.1 The proposed residential towers are situated in the vicinity of the Tuen Men Line viaduct. Due to the short distance to the viaduct, railway noise impact is expected in the proposed residential towers. This assessment is to evaluate the potential railway noise upon the residential towers of the Proposed Development and to demonstrate that the noise mitigation measures adopted in the development would provide adequate protection to future residents, if any.

3.2 Assessment Criteria

3.2.1 According to the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Site (IND-TM) published under Noise Control Ordinance, the noise levels shall comply with the Acceptable Noise Level (ANL) which depends on the Area Sensitivity Rating (ASR) and the time period concerned. The ASR of Noise Sensitive Receivers (NSR) is determined on the basis of the perceived usage of the assessment area and the presence of any influencing factors such as major roads, industrial areas and airports.

3.2.2 The study area within Hung Shui Kiu and Ha Tsuen OZP is a developed area, particular the surrounding uses are Zoned "C(2)" for commercial development. According to Table 1 in the IND-TM, the type of area should be (iii) Urban Area. Moreover, according to the Annual Traffic Census 2019, the annual average daily traffic flow of Ping Ha Road is less than 30,000 and there is no industrial zone located in between, i.e. there is no influence factor surrounding the Application Site. As such, ASR "B" would be adopted.

Table 3.1 Noise Criteria for Railway Noise Impact Assessment

Criteria	Acceptable Noise Level (ANL)*
Leq (30 minutes) (0700 to 2300)	65 dB(A), Leq (30 min)
Leq (30 minutes) (2300 to 0700)	55 dB(A), Leq (30 min)

*Note: * Accepted Noise Level for Area Sensitivity Ratings of "B" stipulated in the 'Technical Memorandum for the Assessment of Noise from Places other than Domestic premises, Public Places or Construction Sites"*

3.2.3 ANL criteria for night-time period (i.e. Leq(30 min) = 55 dB(A)) is generally regarded the most stringent. Should the ANL for the night-time period be complied with in the most critical night-time period, no unacceptable railway noise impact is envisaged on future noise sensitive uses with respect to other noise criteria.

3.2.4 Beside the ANL standard above, the Hong Kong Planning Standards and Guidelines also provide additional criteria for assessing railway noise. These noise criteria are specified in terms of A-weighted maximum noise level and daily railway noise exposure level, as shown in the below table.

Table 3.2 HKPSG Recommended Railway Noise Standard

Noise Sensitive Uses	Railway Noise, dB(A)	
	Leq (24-hr)	Lmax (2300-0700)
All domestic premises including temporary housing accommodation	65	85
Hotels and hostels		
Offices		

Education institutions including kindergartens and nurseries		
Hospitals, clinics, convalescences and homes for the aged (diagnostic rooms and wards)		

Note: The above standards apply to uses which reply on opened windows for ventilation.
Source: HKPSG Table 4-1.

3.3 Tuen Ma Line (formerly known as West Rail)

3.3.1 In accordance with the latest Environmental Permit for West Rail (Ref.: Environmental Permit No. FEP-24/004/1998/J), there would be 40 trains per hour during 0600-0700 (or 11 trains per direction in 30 minutes for the worst case scenario). Moreover, the number of cars per train has been reduced from 12 cars to 9 cars, thus a 9-car per train is assumed in this assessment to represent the worst case scenario.

3.4 Assessment Methodology

3.4.1 The noise data of the Tuen Men Line viaduct obtained is based on onsite noise measurement. The onsite noise measurement was conducted at three locations within the Application Site where is the closest to the Tuen Ma Line viaduct. The measurement captured the existing operational noise of the Tuen Ma Line on different track characteristics. There is no rail joint and crossover. To the immediate northeast of the Application Site, there is a section of full enclosure, and there is one measurement location next to the full enclosure within the Application Site. Therefore, this measurement has also captured the potential reverberation noise from the full enclosure. As such, no additional correction is required to adopted in the calculation.

3.4.2 The measurement height is up to 56m above existing ground where there is no shielding effect provided by existing noise barrier up on the measured data. The measurement locations and photos of measurement setup are shown in **Appendix 3.1**.

3.4.3 The Tuen Ma Line noise was captured during daytimes using B&K Type 1 noise meter (model no. 2250) and was calibrated using the B&K sound level calibrator type 4231 with a calibration signal of 94.0 dB(A) at 1 kHz. During the noise measurement, the weather was sunny and the wind speed was about 1 m/s. The passing time of individual trains from both directions were recorded. Regarding the background noise, the major background noise is road traffic. They were considered having significant contribution to the measured noise level. The measured noise level should be adjusted to discount the effect of the background noise.

3.4.4 The measured SEL at the 2 measurement points are converted into corrected SEL with the reference distance (i.e. 25m away from the ballast track) and the angle of view normalization. The angle of view normalization is to adopt the view angle correction with reference to the "Calculation of Railway Noise" (CRN) published by the Department of Transport of London.

3.4.5 The corrected SEL is then be adopted in the track segments for the RNIA calculation. The corrected SELs at Measurement Points 1 and 2 are adopted in their neighbouring track segments. The track segments, source term measurement locations, corrected SEL at 25m away from track, angles α and θ determined for view angle correction are illustrated in **Appendix 3.1**.

3.4.6 Determination of measured noise level is to discount the background effect. The Leq level recorded during the same period without Tuen Ma Line is regarded as the background noise level and deducted to determine the noise level due to railway noise only.

3.4.7 The noise level of each train is converted to Sound Exposure Level (SEL). During the measurement, the noise levels of several events where train passes by Tin Shui Wai Station is recorded. The corresponding sound energy levels are then averaged to obtain the average SEL.

3.4.8 Also, the angle of view correction in Calculation of Railway Noise (CRN) is supposed to be corrected from SEL of a train running on an infinitive long segment with 180 degrees. Therefore, the reference SEL should be normalized to 180 degrees in the first place. The corrected average SEL is used for this assessment.

3.4.9 Table 3 shows the corrected SEL in different track segments. The average SEL is tabulated in the table below. The detail calculation is shown in Appendix H.

Table 3.3 SEL in Different Track Segment

Train Direction	Track ID	Corrected Average SEL @ 25m in 9 cars, dB(A)
To Hung Hom (Near Track)	S1	79.5 dB(A)
	S2	79.0 dB(A)
	S3	79.0 dB(A)
To Tuen Mun (Far Track)	S4	79.4 dB(A)
	S5	81.2 dB(A)
	S6	81.2 dB(A)

3.4.10 The railway track within 300m radius of the Subject Site has been taken into account and it has been divided into segments for detailed assessment. Their locations are shown in Figure 7. Generally, there are total six segments, three for near side heading to Hung Hom, and three for far side heading to Tuen Mun.

3.4.11 The "Calculation of Railway Noise" (CRN) published by the Department of Transport of London is used to predict the hourly Leq (30 min) noise levels generated from railway tracks at selected NSRs. For ordinary assessment based on the corrected SEL, the Leq (30 min) level during the night-time period can be determined by accounting the following equation and factors:

3.4.12 Predicted Noise Level (PNL) = SEL + 10 log (N/T) + Cdist + Cav + Cbar + Cdet + Cfac

- Conversion from SEL to Leq (30 min) during night-time SEL to Leq Corr = 10 x log (F / 1800) where F is the frequency in 30 minutes, 11 trains per direction in 30 minutes are assumed for the worst case scenario.
- C_{dist}: Distance Correction = -10*log(D/ D_{ref}) where D_{ref} is reference distance during measurement and D is the perpendicular distance between the source and receiver. In this assessment, since the SEL has been corrected to 25m away from the ballast track, the reference is 25m away from the ballast track;
- C_{bar}: Barrier Correction = -10*log{3+20*[(2*PD)/(330/500)]}, where PD is the Path Length Difference, referencing the Maekawa's approach;
- C_{av}: View Angle Correction = $10*\log(\pi\theta/180 - \cos 2\alpha \sin\theta) - 5]$ where θ is the view angle to railway track not shielded from the NSR and α is the acute angle as defined in CRN;
- C_{det}: Track Deterioration Correction: [+3dB(A)] to account for potential deterioration in train operating conditions such as wheel / rail wearing varying with time; and
- C_{fac}: Façade Correction: [+2.5dB(A)];

3.5 Noise Sensitive Receivers

3.5.1 The locations of the representative NSRs are selected to represent the worst affected location of the habitable room. The NSRs are taken at 1m away from the façade opening for ventilation purpose and at 1.2m above the floor slab of the habitable rooms. **Figure 3.1** shows the locations of the representative NSRs.

3.6 Predicted Railway Noise Impact (Base Case Scenario)

3.6.1 The maximum predicted Leq (30 minutes) levels for the selected NSRs are summarised in the **Table 3.4**. Detailed assessment is presented in **Appendix 3.2**.

Table 3.4 Predicted Maximum Leq (30-min) Noise Level (Base Case Scenario) at Selected NSRs

NSR	Maximum Leq (30-min) Noise Level, dB(A)	Night-time Criteria, dB(A)	Floor with Exceedance, if it is applicable
		55	
		Comply or Not	
RN01	57	Not Comply	4/F to 9/F
RN02	55	Comply	N/A
RN03	58	Not Comply	4/F to 21/F
RN04	48	Comply	N/A
RN05	56	Not Comply	4/F to 17/F
RN06	52	Comply	N/A
RN07	60	Not Comply	4/F to 41/F
RN08	59	Not Comply	4/F to 38/F
RN09	60	Not Comply	4/F to 41/F
RN10	60	Not Comply	4/F to 41/F
RN11	59	Not Comply	4/F to 38/F
RN12	57	Not Comply	4/F to 26/F
RN13	56	Not Comply	6/F to 17/F
RN14	52	Comply	N/A
RN15	52	Comply	N/A

3.6.2 It is found that some of the noise sensitive receivers exceed the criteria. Noise mitigation measure in terms of innovative noise mitigation measures – acoustic window (baffle type), enhanced acoustic balcony (baffle type) are proposed to mitigate the railway noise impact.

3.6.3 In adopting the innovative noise mitigation measures, the assessment criteria at the indoor would be adopted.

3.6.4 With the provision of acoustic window (baffle type) and enhanced acoustic balcony (baffle type) as at receiver mitigation measure, it is considered the point of assessment should be an internal location of the room. According to the Technical Memorandum, the appropriate ANL shall be 10 dB(A) less than the outdoor criteria. Thus, the target noise level of internal location with corresponding mitigation measure is 45 dB(A).

3.7 Proposed Noise Mitigation Measures

3.7.1 Various noise mitigation measures as listed in below have been studied and incorporated in the layout plan where practicable.

a) Acoustic Window (Baffle Type)

3.7.2 Acoustic window (baffle type) refers to the type of window that has a sliding glass panel behind an outer window, both readily openable, for creating an air gap for the supply of fresh air with noise mitigation effect. It comprises two glazing:

1) The outer window system with side hung openable window; and

2) The inner sliding panel

3.7.3 The "designed setting" for reducing noise entry to indoor area by moving the inner sliding panel to the side behind the openable window so that noise from outside cannot pass through the opening and enter indoor area directly. Instead, noise needs to pass through the gap between the inner sliding panel and outer façade aside the openable window in order to enter indoor area. According to the Practice Note for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) App-130 "Lighting and Ventilation Requirements – Performance-based Approach", the proposed acoustic window (baffle type) is considered in compliance with prescribed ventilation requirement if the net opening when inner sliding panel is moved to another side with least obstruction to the openable window at the outer façade. Micro-perforated absorber (MPA) panel and sound absorptive material (SAM) will be provided to improve the performance of the proposed acoustic window (baffle type). Below is the general description of the design of the acoustic window (baffle type) to be adopted in this project.

a) MPA is applied to the inner sliding panel of acoustic window (baffle type), and;

b) SAM is adopted on the two sides of the window frame between the outer window and inner sliding panel to absorb sound energy during its propagation to indoor area.

c) The overlapping of the inner panel to the outer window opening is at least 300mm

d) The gap between the openable side hung window and the inner panel is not more than 100mm which fulfil the APP-130 requirement.

3.7.4 Based on the Consultant's other project experience, such as the project near Kam Sheung Road Station, the attenuation provided by the acoustic window can achieve around 16 dB(A) reduction for indoor criteria, and this is considered to be sufficient for mitigating the predicted exceedance at the Proposed Development. From the Table 5 above, the maximum exceedance to the indoor criteria of 45 dB(A) is 60 dB(A) – 45 dB(A) = 15 dB(A).

3.7.5 Mock-up test for the detailed acoustic window design will be carried out at detailed design stage to demonstrate and verify the acoustic performance of the acoustic window would achieve the required sound attenuation.

b) Enhanced Acoustic Balcony (Baffle Type)

3.7.6 The enhanced acoustic balcony (baffle type) in the proposed development is based on the design of combination of a balcony and utility platform with an A/C platform. The enhanced acoustic balcony (baffle type) is proposed as an innovative mitigation measures for the residential development (such as in ex-North Point Estate redevelopment). The acoustic window/door (Baffle Type) refers to the type of

window/door that has an inner sliding glass panel behind an outer window, both readily openable, for creating an air gap for the supply of fresh air with noise mitigation effect. It comprises of two glazings:

1) The outer window system with openable window/door; and

2) The inner sliding panel

3.7.7 For all cases, the air gap will be maintained at 100mm.

3.7.8 The "designed setting" to reduce noise entry to indoor area is that the inner sliding panel is moved to the side behind the outer openable window so that noise from outside cannot penetrate through the opening and enter indoor area directly. Instead, noise needs to pass through the gap between the inner sliding panel and outer façade aside the openable window in order to enter indoor area. Such design can enable natural ventilation through the gap between the outer façade and inner sliding panel on one hand (although extent of natural ventilation may be inferior to the case without the inner sliding panel behind) and prevent most noise from penetrating indoor environment on the other hand. According to the latest Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-130 "Lighting and Ventilation Requirements – Performance-based Approach", the proposed enhanced acoustic balcony (baffle type) is considered complying with prescribed ventilation requirement when the inner sliding panel is not on the same side as the openable balcony door at the outer façade and with adequate net opening area. The design of the proposed baffle type enhanced acoustic balcony (baffle type) in its "designed setting" for noise reduction is confirmed by the project architect to meet the relevant natural ventilation requirement under the regulation 30, 31 and 32 of Building (Planning) Regulations (B(P)R).

3.7.9 In this study, the use of various sound absorption enhancements, including micro-perforated absorber (MPA) and sound absorptive material (SAM) have been proposed.

3.7.10 Below is the description of the general design parameters of the acoustic balcony (baffle type).

a) MPA is applied to the inner sliding panel of acoustic window (baffle type);

b) SAM is adopted on the two sides of acoustic window/door frame between the outer window and inner sliding panel to absorb sound energy during its propagation to indoor area;

c) SAM is adopted on the acoustic balcony ceiling aiming to reduce the sound energy reflected into indoor area by the ceiling, and;

d) There is a full-height sidewall at one side of the balcony where A/C units are not located. SAM (length of at least 600mm) is adopted at acoustic balcony sidewall aiming to reduce the sound energy reflected into indoor area by the sidewall (if present).

e) The overlapping of the inner panel to the outer door opening is at least 300mm

f) The gap between the openable side hung window and the inner panel is not more than 100mm which fulfil the APP-130 requirement.

3.7.11 Based on the Consultant's other project experience, such as the project near Kam Sheung Road Station, the attenuation provided by such acoustic balcony design can achieve around 16 dB(A) reduction for indoor criteria, and this is considered to be sufficient for mitigating the predicted exceedance at the Proposed Development. From the Table 5 above, the maximum exceedance to the indoor criteria of 45 dB(A) is 60 dB(A) – 45 dB(A) = 15 dB(A).

3.7.12 Mock-up test for the detailed acoustic window design will be carried out at detailed design stage to demonstrate and verify the acoustic performance of the acoustic balcony would achieve the required sound attenuation.

3.8 Predicted Railway Noise Impact (Mitigated Scenario)

3.8.1 Since exceedance was predicted in night-time criteria under the base case scenario, mitigation measures mentioned in **Section 3.7** have been adopted. The predicated noise levels of mitigated scenario for the selected NSRs after the application of noise mitigation measures are summarized in **Table 3.5**. The detailed result of the railway noise impact assessment of all NSRs can be found in **Appendix 3.2**.

Table 3.5 Predicted Indoor Leq(30-min) Noise Level (Mitigated Scenario) at Selected NSRs

NSR	Indoor Noise Criteria (i.e. ANL-10)	Indoor Leq $_{(30\text{-min})}$, dB(A) (Mitigated Scenario With AW or EAB) (1) (2)	Comply or Not
RN01	45	57 – 16 = <45	Comply
RN02	45	No mitigation measure required	Comply
RN03	45	58 – 15 = <45	Comply
RN04	45	No mitigation measure	Comply
RN05	45	56 – 16 = <45	Comply
RN06	45	52 – 16 = <45	Comply
RN07	45	60 – 16 = <45	Comply
RN08	45	59 – 16 = <45	Comply
RN09	45	60 – 16 = <45	Comply
RN10	45	60 – 16 = <45	Comply
RN11	45	59 – 16 = <45	Comply
RN12	45	57 – 16 = <45	Comply
RN13	45	56 – 16 = <45	Comply
RN14	45	No mitigation measure required	Comply
RN15	45	No mitigation measure required	Comply

Notes:

AW: Acoustic Window (Baffle Type)

EAB: Enhanced Acoustic Balcony (Baffle Type)

(1) *Applied with acoustic window (baffle type) or enhanced acoustic balcony (baffle type). Considered as specially provided glazing for reducing noise under the relevant TM of NCO. At these locations, indoor*

noise criteria would be applied. Hence, indoor noise levels instead of the outdoor noise levels are presented.

(2) *For each NSRs with AW(BT) or EAB(BT) application which the noise reductions are higher than the required noise reduction, the claimed noise reductions of the NMMs are set to be the same as the required noise reductions, in the aim of presenting a worst-case scenario. Such that, the noise levels at NSRs with AW(BT) and EAB(BT) application which comply the indoor noise criteria are the same as the indoor noise criteria.*

3.8.2 With the implementation of proposed mitigation measures, the predicted noise levels at the concerned NSRs would comply with the night-time criteria.

3.9 Predicted of Lmax Noise Level

3.9.1 According to the onsite measurement noise level, the Lmax of the west rail to Hung Hom (near track) and to Tuen Mun (far track) is 67 dB(A) at ~ 45 m and 65 dB(A) at 57m respectively. The shortest horizontal separation distance between the viaduct noise source and the NSR (N2) is about 37m to the near track and about 57m to the far track. Corrections of distance correction (10 x log(measured distance/distance to railway segment)), i.e. 10 x log (45/37) for near side and 10 x log (57/57) for far side, façade correction (+2.5 dB(A)) and track deterioration correction (+3 dB(A)) are adopted for Lmax calculation. The predicted Lmax noise level for the NSR is shown in below table.

Table 3.6 Predicted Lmax Noise Level

NSR	Shortest Dist. to the railway segment	Distance correction	Façade Correction	Track Deterioration Correction	L_{max}, dB(A)
N2	37m for near track	+0.9 dB(A)	+2.5 dB(A)	+3 dB(A)	73.4
	57m for far track	0	+2.5 dB(A)	+3 dBA(A)	70.5

3.9.2 The predicted Lmax noise level of the nearest NSR is ~ 73 dB(A). Barrier correction and view angle correction are not accounted in the assessment to represent the worst case scenario. For others NSRs, they are further remote from the viaduct and would have even lower Lmax level. Therefore, it is considered that all NSRs can be complied with the criteria.

3.10 Prediction of Leq (24 hours) noise level

3.10.1 The difference between calculation of the night-time period and Leq (24 hour) is the correction of the conversion of SEL to Leq (i.e. 10 x log(N/T) where N is the total number of events and T is the total time in second). According to the latest Environmental Permit for West Rail (Ref.: Environmental Permit No. FEP-24/004/1998/J), there would be 40 trains per hour during 0600-0700 (or 11 trains per direction in 30 minutes for the worst case scenario). Therefore, the worst case scenario 11 trains per direction in 30 minutes is adopted for day-time and night-time. According to the MTRCL's website, the operation hours for Tuen Ma Line is about 20 hours per day. Therefore, the total events of trains are 880 per day. The correction for Leq (24 hours) is 10xlog[880/(60x60x24)] = -19.9 dB(A). There are only 2.2 dB(A) increment for the Leq (24hours) against the Leq(30mins). For the criteria of Leq(24hours) is 10 dB(A) more than the night-time criteria, thus, the slightly increment of correction would not affect the predicted noise level of Leq(24hours) exceed the criteria of 65 dB(A).

3.11 Conclusion

3.11.1 The potential noise impact from railway noise has been assessed based on the Proposed Development. The predicted noise level of selected NSR comply with the relevant Noise Control Ordinance standard. **Appendix 3.4** show the noise mitigation measures schedule.

4. QUALITATIVE AIR QUALITY IMPACT ASSESSMENT

4.1 Introduction

4.1.1 This section examines the potential air quality and odour impacts that could arise from the construction phase and operation phase of the Proposed Development.

4.2 Relevant Legislations, Standards and Guidelines

4.2.1 The following legislation and regulations provide the standards and guidelines for evaluation of air quality and odour impacts and the type of works that are subject to air pollution and odour control:

- Air Pollution Control Ordinance (APCO) (Cap. 311) and the Air Quality Objectives (AQO)
- Air Pollution Control (Construction Dust) Regulation
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation
- Air Pollution Control (Fuel Restriction) Regulations
- Recommended Pollution Control Clauses for Construction Contracts
- Development Bureau Technical Circular (Works) No.13/2020, Timely Application of Temporary Electricity and Water Supply for Public Works Contracts and Wider Use of Electric Vehicles in Public Works Contracts (DEVB TC No. 13/2020)
- Development Bureau Technical Circular (Works) No.1/2015, Emissions Control of NRMM in Capital Works Contracts of Public Work (DEVB TC No. 1/2015)
- Control of Air Pollution in Car Parks (ProPECC PN 2/96)
- Hong Kong Planning Standards and Guidelines (HKPSG)
- Criteria for Evaluating Air Quality Impact (Annex 4 of the EIAO-TM)
- Guidelines for the Design of Small Sewage Treatment Plants
- Guidelines on Air Pollution Control for Joss Paper Burning at Chinese Temples, Crematoria and Similar Places
- Control of Oily Fume and Cooking Odour from Restaurants and Food Business
- Practice Note for Control of Air Pollution in Semi-Confined Public Transport Interchanges (ProPECC PN1/22)

Air Pollution Control Ordinance (CAP 311)

4.2.2 To achieve as soon as reasonably practicable and to maintain thereafter to safeguard the health of the community, a set of Air Quality Objectives (AQOs) is established under the Air Pollution Control Ordinance (Cap. 311). The current set of AQOs that came into effect on 11 April 2025 is presented in **Table 4.1**.

Table 4.1 Current Hong Kong Air Quality Objectives (AQOs)

Pollutants	Average Time	Standard [i] (µg/m3)	No. of exceedances allowed
SO_2	10-min	500	3
	24-Hour	40	3
RSP (PM_{10}) [ii]	24-Hour	75	9
	Annual	30	NA
FSP ($PM_{2.5}$) [iii]	24-Hour	37.5	18

Pollutants	Average Time	Standard [i] (µg/m3)	No. of exceedances allowed
	Annual	15	NA
NO_2	1-Hour	200	18
	24-Hour	120	9
	Annual	40	NA
Ozone (O_3)	8-Hour	160	9
	Peak Season	100	NA
Carbon Monoxide (CO)	1-Hour	30,000	0
	8-Hour	10,000	0
	24-Hour	4,000	0
Lead (Pb)	Annual	0.5	NA

Notes:

[i] All measurements of the concentration of gaseous air pollutants, i.e. sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

[ii] Respirable suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 10 µm or less.

[iii] Fine suspended particulates mean suspended particles in air with a nominal aerodynamic diameter of 2.5 µm or less.

Air Pollution Control (Construction Dust) Regulation

4.2.3 Made under Section 43 of the APCO, this Regulation defines notifiable and regulatory works for achieving the purpose of dust control for a number of activities. The Regulation requires that any notifiable work shall give advance notice to EPD, and the Contractors shall ensure that the notifiable and regulatory works are carried out in accordance with the Schedule of the Regulation. Dust control and suppression measures are also provided in the Schedule.

4.2.4 The proposed construction works for the proposed Project are both regulatory and notifiable works due to activities including material stockpiling and dusty material handling as potential sources of fugitive dust emissions as detailed under Parts I to IV of the Schedule on Dust Control Requirements.

Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

4.2.5 The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, which aims to control emissions from non-road mobile machinery (NRMMs) to improve air quality, became effective on 1 June 2015. NRMMs include non-road vehicles, as well as mobile machines and equipment (regulated machines) such as crawler cranes, excavators and air compressors.

4.2.6 Under the regulation, regulated machines have to comply with the Stage IIIA emission standards of the European Union (EU). It also requires all regulated machines sold or leased for use in Hong Kong to bear an approval or exemption label issued to them by the EPD, started from 1 September 2015. It restricts specified activities and locations including construction sites, designed waste disposal facilities and specified processes to use only NRMMs that bear an approval or exemption label issued to them by the EPD, with effect from 1 December 2015.

Air Pollution Control (Fuel Restriction) Regulations

4.2.7 The Air Pollution Control (Fuel Restriction) Regulations was enacted in 1990 to impose legal control on the type of fuels allowed for use and their sulphur contents in commercial and industrial processes to reduce sulphur dioxide (SO2) emissions. In June 2008, the Regulation was amended to tighten the control requirements of liquid fuels. On 1 April 2025, the sulphur content of liquid fuel is further tightened to 0.001% by weight.

Practice Note on Control of Air Pollution in Car Parks

4.2.8 This practice notes include air quality guidelines required for the protection of public health and factors that should be considered in the design and operation of car parks in order to achieve the required air quality. The limits for air pollutants as recommended by the practice notes are summarised in **Table 4.2**.

Table 4.2 Limits of Air Pollutant Concentrations Inside Car Parks

Air Pollutant	Average Time	Maximum Concentration (µg/m3) [i]	Parts Per Million (ppm)
Carbon Monoxide (CO)	5 minutes	115,000	100
Nitrogen Dioxide (NO_2)	5 minutes	1,800	1

Notes:

*[i] *All limits are expressed as at reference conditions of 298K and 101.325kPa.*

Hong Kong Planning Standards and Guidelines (HKPSG)

4.2.9 Potential air quality impacts associated with the surrounding road carriageways and chimney emission from industrial stack shall be evaluated in accordance with the guidelines set out in the HKPSG.

4.2.10 Table 3.1 of Chapter 9 of the HKPSG provides the broad guidelines for locating open spaces close to potentially polluting uses, viz. road traffic. The recommended buffer distances are reproduced in **Table 4.3**.

Table 4.3 Recommended Minimum Buffer Distance from Roads

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Road and Highways	Type of Road		
	Trunk Road and Primary Distributor	> 20 m	Active and passive recreation uses
		3 – 20 m	Passive recreational uses
		< 3 m	Amenity areas
	District Distributor	> 10 m	Active and passive recreational uses
		< 10 m	Passive recreational uses
	Local Distributor	> 5 m	Active and passive recreational uses
		< 5 m	Passive recreational uses
	Under Flyovers	-	Passive recreational uses

Source:HKPSG Chapter 9 Table 3.1: Guidelines on Usage of Open Space Site

4.2.11 Table 3.1 of Chapter 9 of the HKPSG also provides the broad guidelines for locating open spaces close to potentially polluting uses, viz. industrial chimneys emissions. The recommended buffer distances are reproduced in **Table 4.4**.

Table 4.4 Recommended Minimum Buffer Distance from Industrial Chimneys

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Industrial Areas	Difference in Height between Industrial Chimney Exit and the Site		
	< 20 m	> 200 m	Active and passive recreation uses
		5 – 200 m	Passive recreational uses
	20 m – 30 m (*)	> 100 m	Active and passive recreational uses
		5 – 100 m	Passive recreational uses
	30 m – 40 m	> 50 m	Active and passive recreational uses
		5 – 50 m	Passive recreational uses
	> 40 m	10 m	Active & Passive recreational uses

Notes:

(i) In situations where the height of chimneys is not known, use the set of guidelines marked with an asterisk for preliminary planning purpose and refine as and when more information is available.

(ii) The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.

(iii) The guidelines are generally applicable to major industrial areas but NOT individual large industrial establishment which are likely to be significant air pollution sources. Consult EPD when planning open spaces close to such establishments.

(iv) Amenity areas are permitted in any situation.

Source: HKPSG Chapter 9 Table 3.1: Guidelines on Usage of Open Space Site

Control of Oily Fume and Cooking Odour from Restaurants and Food Business

4.2.12 This note provides guidance to the owners and operator of restaurants and food business on the application of the best practical control measures to minimize the air emissions and preventing air pollution.

Practice Note for Control of Air Pollution in Semi-Confined Public Transport Interchanges (ProPECC PN1/22)

4.2.13 This Practice Note sets out the air quality guidelines inside PTIs and outlines the major considerations and guidance for the design and management of PTIs to ensure proper design, operation and maintenance of mechanical ventilation systems in semi-confined PTIs to minimize the air emissions.

4.3 Existing Air Quality in Tin Shui Wai District

4.3.1 The nearest air quality monitoring station (AQMS) to the Subject Site is the Yuen Long AQMS. The five most recent years of air quality monitoring data, 2020 to 2024, from this station are summarized in **Table 4.5**. According to the AQMS monitoring data, exceedance in daily RSP, annual RSP, daily FSP, annual FSP, annual NO_2 and 8-hour O_3 concentration are recorded.

Table 4.5 Air Quality Monitoring Data at Yuen Long AQMS

Air Pollutant	Averaging Time	AQO[a] [b]	Concentration Level (µg/m³)				
			2019	2020	2021	2022	2023
RSP	10th Highest 24-hour	75 (9)	**77**	73	56	59	61
	Annual	30	**30**	**30**	25	26	25
FSP	19th Highest 24-hour	37.5 (18)	33	36	**38**	34	**38**
	Annual	15	**16**	**17**	**16**	**16**	**17**
NO_2	19th Highest hour	200 (18)	135	148	122	130	125
	10th Highest 24-hour	120 (9)	64	78	68	67	66
	Annual	40	32	**40**	37	37	35
SO_2	4th Highest 10-Min	500 (3)	26	24	21	20	14
	4th Highest 24-hour	40 (3)	10	14	7	10	5
O_3	10th Highest 8-hour	160 (9)	154	**178**	**194**	155	**168**
	Peak season	100	86	84	95	84	92
CO	1st Highest hour	30000 (0)	1530	2090	1700	1580	1920
	1st Highest 8-hour	10000 (0)	1279	1591	1519	1273	1778
	1st Highest 24-hour	4000 (0)	1182	1183	1159	1047	1342

Notes:
a. The measured concentrations are benchmarked against the prevailing AQOs.
b. Numbers in brackets is the number of exceedances allowed per calendar year.
c. Bolded values exceed the relevant AQO.
d. Data extracted from EPD's Smart Air Modelling Platform (SAMP).

4.3.2 Apart from the air quality monitoring data, EPD has released a set of background levels from "Pollutants in the Atmosphere and their Transport over Hong Kong", PATH model (PATHv3.0). As the tentative completion year of the Proposed Development is 2030, the PATH background concentrations in Year 2030 has been reviewed. The hourly background concentrations of pollutants of the year of 2030 in Grid 23, 47 is summarized in **Table 4.6**. With respect to the future background air quality predicted by PATH v3.0, all values are below the relevant AQOs except O_3.

Table 4.6 Year 2030 (Level L1) Background Annual Average Concentrations of the Air Pollutants from PATH v3.0

Pollutant	Averaging Time	AQO	Data Summary	Concentration Level (µg/m³)(b)
				Grid 23, 47
RSP	24-hour	75 (9)	10th	53.08
			Exceedance	0
	Annual	30	-	19.86
FSP	24-hour	37.5 (18)	19th	30.76
			Exceedance	5
	Annual	15	-	12.3
NO_2	1-hour	200 (18)	19th	73.34
			Exceedance	0
	24-hour	120 (9)	10th	30.91
			Exceedance	0
	Annual	40	-	17.03
SO_2	10-Min	500 (3)	4th	25.76
			Exceedance	0
	24-hour	40 (3)	4th	6.87
			Exceedance	0
O_3	8-Hour	160 (9)	10th	**189.92**
			Exceedance	29
	Peak	100	-	**121.53**
CO	1-Hour	30000 (0)	1st	529.1
			Exceedance	0
	8-Hour	10000 (0)	1st	489.18
			Exceedance	0
	24-Hour	4000 (0)	1st	460.52
			Exceedance	0

(a) Numbers in brackets is the number of exceedances allowed per calendar year.
(b) Bolded values exceed the relevant AQO.
(c) Data extracted from EPD's Smart Air Modelling Platform (SAMP).

4.4 Potential Impacts On the Proposed Development – Operation Phase

Review on Industrial Emission Impact

4.4.1 The buffer distance of 200m from the Application Site is shown in **Figure 4.1**. Site survey was conducted in Nov 2025 to verify the presence of chimneys. There were no chimney or industrial activities identified within 200m from the Application Development. As such, it is anticipated that the Proposed Development would not be subject to unacceptable industrial emission impact.

Review on Vehicular Emission Impact

4.4.2 The Application Site is mainly bounded by the Ping Ha Road to the north and a local road to the south. The road classification of the nearby road network provided by project traffic consultant is shown in **Figure 4.2**.

4.4.3 According to the Traffic Census 2024, Ping Ha Road is classified as District Distributor. Therefore, a minimum of 10m setback would be required for complying with the recommendations of HKPSG in **Table 4.3** above. As shown in **Figure 4.2**, the setback

from the road kerb of Ping Ha Road is around 40m which is well above the HKPSG recommended buffer distance for vehicular emission.

4.4.4 Similarly, for the local road to the south, at least 5m buffer distance is required. As shown in **Figure 4.2**, the setback from the residential tower is around 12m from the tower to the site boundary, i.e. the recommended HKPSG buffer distance for local road can be fulfilled.

4.4.5 For the fresh air intake of the commercial tower, it will be located at the area where the HKPSG vehicular emission buffer zone of 5m setback would be fulfilled.

4.4.6 No air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and recreational uses in the open area, would be located within the buffer zones

Review on Odour Impact

4.4.7 According to site survey, there is no odour nuisance from the nullah located at the north of the site.

4.5 Review on Potential Air Quality Impact from Oily Fume and Cooking Odour

4.5.1 Food and Beverage (F&B) areas will be provided within the Proposed Development. Exhaust hoods and appropriate Air Pollution Control Equipment and grease trap will be provided and the air change rate for the F&B area will be designed according to the standard of kitchen as stipulated in Building Department's Practice Note for Authorized Persons (PNAP). Potential odour emissions will be minimised as far as practicable. The following considerations recommended in EPD's Control of Oil Fume and Cooking Odour from Restaurant and Food Business shall be taken into account in the detailed design when positioning the exhaust outlets:

- Locate the outlet at such a place where the ventilation is good and the emissions from them can be adequately dispersed without hindrance
- Provide sufficient separation distance from any sensitive receptor in the vicinity so that the emissions will not cause, or contribute to, an odour nuisance or other type of air pollution to the public
- Ensure the emissions from the exhaust system will be directed vertically upwards, unless it can be demonstrated by an environmental professional that other direction is more advantageous in preventing emissions from causing air pollution problems
- Ensure that emissions from the exhaust system will not be restricted nor deflected by, for example, the use of plates or caps

4.6 Potential Impact Arising from Proposed Development – Construction Phase

4.6.1 During the construction phase of the Proposed Development, there may be potential air quality impacts upon the nearby air sensitive receivers (ASRs). The representative ASRs representing existing and planned ASRs during construction phase among all Development Sites are identified and listed in **Table 4.7** and their locations are shown in **Figure 4.3**.

Table 4.7 Distance of the ASRs from the Application Site Boundary

ASR IDs	Descriptions	Distance from the Application Site Boundary (m)
A1	Ping Yan Court	~54
A2	Yuen Long Public Middle School Alumni Association (YLPMSAA) Tang Siu Tong Secondary School	~70

Identification of Potential Emissions

4.6.2 Construction vehicles and machinery are a potential source of air pollutant emissions during the construction phase. Significant emissions are not anticipated from the criteria pollutants – NO_2, SO_2, and CO, etc. as only a limited number of diesel/ petroleum fuelled machinery would be operated at the Subject Site. Besides, the Subject Site is located at an area where supply of electricity is available. Therefore, the number of diesel/ petroleum fuelled machinery operated at the Subject Site shall be minimized as practically as possible with the use of electric construction machinery. Moreover, 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, etc.) with a proper label are allowed to be used in the construction site, which would meet the prescribed emission standards and requirement. According to the requirements stipulated in the Air Pollution Control (Fuel Restriction) Regulations and its amendment, using liquid fuel with a sulphur content of less than 0.001% by weight (such as Ultra Low Sulphur Diesel) for the equipment should be fulfilled to control the SO_2 and PM emissions. Travelling of the dump trucks is another potential source of air emission of construction. At this planning application stage, there is no detailed information on the construction program or amount of excavated material to be handled. However, it is anticipated that the volume of excavated materials to be handled would be about 131,130 m^3. The period of excavation is anticipated to be around 2 years. There is likely to be around 39 dump trucks per day (assuming each truck can carry 15 tones and there is around 270 working days per year) during the site formation stage of the Development Site. Watering the haul road and the site once per hour would be implemented to minimize the potential dust emission during the travelling of the dump trucks within the site. With reference to other similar scale projects, the number of on-site diesel/petroleum fuelled machinery (20-21 machineries) to be used for construction works is limited owing to the small size of the work site with an area of 9945 m2. 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 electric non-road mobile machinery (NRMMs) and with least reliance of diesel fuelled equipment (e.g. for electricity powered stationary equipment such as pump instead of using generator). Moreover, air quality impact due to construction shall be reviewed at the later stage.

Mitigation Measures for Fugitive Dust and Air Quality Impact

4.6.3 Since paved roads are already existing within the Subject Site, it is expected that the construction dust to be generated by vehicle movement within the Subject Site are limited. Air pollutant emission mostly arises from construction activities and can be effectively suppressed by incorporating proper mitigation measures into work procedures through contractual clauses with reference to EPD's Recommended

Pollution Control Clauses for Construction Contracts, where applicable, good site management, and close monitoring by the resident engineers. The contractor shall be required to follow the requirements of the Air Pollution Control (Construction Dust) Regulations for demolition and construction of the project. With the adoption of good practices, it is expected that emission of construction dust can be kept at an acceptable level. Mitigation measures including but not limited to the followings with respect to demolition, infrastructure construction of a building should be implemented as appropriate.

In the case of demolition works:

- The area at which demolition work takes place shall be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the demolition activities so as to maintain the entire surface wet;
- For any wall of the building to be demolished that abuts or fronts upon a street, service lane or other open area accessible to the public, impervious dust screens or sheeting shall be used to enclose the whole wall to a height of at least 1m higher than the highest level of the structure being demolished;
- Any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads or streets.

In the case of infrastructure construction works/ site formation/ excavation/ earthworks:

- Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting shall be provided to enclose the scaffolding from the ground floor level of the building;
- Any skip hoist for material transport shall be totally enclosed by impervious sheeting;
- Any relevant requirements set outs in Parts III and IV of Air Pollution Control (Construction Dust) Regulations shall be met;
- Vehicle washing facilities including a high pressure water jet shall be provided at every discernible or designated vehicle exit point;
- Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level shall be provided along the entire length of that portion of the site boundary except for a site entrance or exit;
- Locate all the dusty activities away from any nearby ASRs as far as practicable;
- Erect higher hoarding at the locations with ASRs in immediate proximity to the project site boundary;
- Avoid using exempted non-road mobile machineries;
- Consider connecting construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable.

The additional dust mitigation measures are described below:

Monitoring and Auditing

4.6.4 Regular site audit will be implemented to ensure that mitigation measures are in place.

General Site Management

4.6.5 Appropriate working methods should be devised and arranged to minimise air pollutant emissions and to ensure any installed control system and/or measures are operated and/or implemented in accordance with their design merits. No free falling of construction debris should be allowed, which should be let down by hoist or enclosed tunnel to the ground.

4.6.6 A high standard of housekeeping shall be maintained. Any piles of materials accumulated on or around the work areas shall be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas shall be carried out in a manner to minimize air emissions. Prior to cleaning, the materials should be handled properly to prevent fugitive dust emission. Any exposed earth shall be properly treated by compacting or hydro seeding, within 6 months after the last construction activity.

4.6.7 Frequent mist/ water spraying should be applied on dusty areas. The frequency of spraying will depend upon local conditions such as rainfall, temperature, wind speed and humidity. The amount of water spraying should be just enough to dampen the material without over-watering which could result in surface water runoff.

Material Stockpiling and Handling

4.6.8 The amount of stockpiling should be minimised where possible. Construction material or debris should be covered and stored inside enclosed areas. Other control measures such as enclosed or semi-enclosed windboard should be used, where applicable, to minimise dust emission. Regular watering is needed at areas such as storage piles, where there could be potential dust emission.

Dust Emissions from Site Traffic

4.6.9 Dust emission from construction traffic is generated predominantly from the travelling of dump trucks. Areas within the Subject Site where there are regular vehicle movements should have a hard surface. Speed controls at an upper limit of 10km/hr should be imposed and their movements should be confined to designated roadways within the Subject Site. All dusty vehicle loads should have side and tail boards covered by tarpaulin extending at least 300mm over the edges. Wheel-wash troughs and hoses should be provided at exit points of the Subject Site.

4.6.10 "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.

4.6.11 With the adoption of good practices, it is expected that construction air quality impact can be minimized.

5. WATER QUALITY

5.1 Introduction

5.1.1 This section presents the water quality impact assessment for the construction and operational phases of the Project. Potential impacts have been identified and their significance on the Water Sensitive Receivers (WSRs) evaluated. The location of these WSRs can be referred to **Figure 5.1**. Appropriate mitigation measures and good site practices are recommended, where necessary, to reduce the potential water quality impacts in order to control the residual impacts to acceptable levels. Any effluent discharge shall comply with Water Pollution Control Ordinance (WPCO) requirement and relevant WPCO licence shall be applied from the EPD.

5.1.2 The details of the WSR are summarized in **Table 5.1**.

Table 5.1 Details of the WSR

WSR ID	Description	Type	Status	Estimated Distance (m)
WSR 01	Tin Shui Wai Storm Water Channel	Concrete Nullah	Active	~4m

5.2 Environmental Legislation, Standards and Guidelines on Construction Phase Water Quality Impact

5.2.1 Construction activities may induce potential water quality impact due to the discharge of the effluent generated from the construction site. Effluent discharges from construction site are subject to control under the Water Pollution Control Ordinance and the Technical Memorandum Standards for Effluents Discharged in Drainage and Sewerage Systems, Inland and Coastal Water issued by EPD. Information in the ProPECC PN2/24 Construction Site Drainage will also be considered to provide some basic environmental guidelines for handling and disposal of construction site discharges.

5.3 Construction Phase Water Quality Impacts

5.3.1 Site construction activities will inevitably have the potential to generate wastewater. As such works should be carried out in such a manner as to minimize potential impacts on the water quality. Pollution sources could include:

- Construction runoff and drainage;
- Sewage effluent from construction site; and
- Liquid spillage, e.g. oil, diesel and solvents etc.

Construction Runoff and Drainage

5.3.2 Construction runoff contains increased loads of sediments, other suspended solids and contaminants. Potential sources of pollution include runoff and erosion from the site surfaces, drainage channels; bentonite slurries and other grouting materials, concrete washout and drainage from dust suppression sprays, fuel, oil and lubricants from construction vehicles and other equipment.

5.3.3 Sufficient silt removal facilities should be installed to settle out sediment prior to discharge. Such facilities shall be properly designed in accordance with guidelines from the Civil Engineering and Development Department (CEDD) to achieve the desired mitigating effect. Typically, a detention time not less than 5 minutes for maximum design flow of inlet should achieve adequate sediment removal. Channels or earth berm or sand bag barriers should be provided on site to properly direct surface runoff to such silt removal facilities. Sediment traps, channels and manholes should be maintained and the deposited silt and grit should be removed on regular basis so that potential impacts on WSR can be minimized.

Sewage Effluent from Construction Site

5.3.4 Water pollution due to site facilities e.g. toilets could be source of pollution if appropriate measures are not implemented properly in respect of storage and discharge.

5.3.5 In this construction site, portable chemical toilets will be provided. Chemical toilets should be provided at a minimum rate of about 1 per 50 workers. The facility should be serviced and cleaned by a specialist contractor at regular intervals. Sewage generated from the construction workforce will be contained in chemical toilets and be tanked away. Therefore, no adverse water quality impact is anticipated on WSR.

Liquid Spillage

5.3.6 To prevent spillage of fuel oils or other polluting fluids at sources, it is recommended that all the stocks should be stored inside proper containers and sited on sealed areas, preferably surrounded by bunds.

5.3.7 "Recommended Pollution Control Clauses for Construction Contracts" (RPCC) also recommends appropriate wastewater control measures to be implemented at the construction site by the contractor. The RPCC is available on EPD website.

5.3.8 The quality of the discharge wastewater should meet the standards specified in the Technical Memorandum – Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. The above proposed mitigation measures and control measures should be implemented and an environmental monitoring and audit should be carried out to ensure the effectiveness of the proposed mitigation measures and subsequently ensure the water quality of the nearby water sensitive receivers would not be adversely affected by the construction of the project.

5.4 Best Management Practices (BMPs) for Stormwater Discharge

5.4.1 The BMPs given in the ProPECC PN 2/24 shall be implemented in controlling water pollution during the whole construction phase to minimize the impact on WSR. The main practices provided in the above-mentioned document (i.e. ProPECC PN 2/24) are also summarized in the following paragraphs which should be implemented by the contractor during the construction phase, where practicable:

- High loading of suspended solids (SS) in construction site runoff will be prevented through proper site management by the contractor;

- The boundary of critical work areas will be surrounded by ditches or embankment. Accidental release of soil or refuse into the adjoining lands should be prevented by the provision of site hoarding or earth bunds, etc. at the site boundary. These facilities should be constructed in advance of the site formation works and roadworks;

- Consideration will be given to plan construction activities to allow the use of natural topography of the Project Site as a barrier to minimize uncontrolled non-point discharge of construction runoff;

- Temporary ditches, earth bunds should be provided to facilitate controlled discharge of runoff into storm drains via sand/ silt removal facilities such as sand traps and sedimentation basins. Oil and grease removal facilities should also be provided where appropriate, for example, in area near plant workshop/ maintenance areas;

- Sedimentation basins and sand traps designed in accordance with the requirements of ProPECC Note PN 2/24 should be installed at the construction site for collecting surface runoff;

- Sand and silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly by the contractor, and at the onset of and after each rainstorm to ensure that these facilities are functioning properly;

- Slope exposure should be minimized where practicable especially during the wet season. Exposed soil surfaces should be protected from rainfall through covering the temporarily exposed slope surfaces or stockpiles with tarpaulin or the like;

- Haul roads should be protected by crushed rock, gravel or other granular materials (i.e. hard paved) to minimize discharge of contaminated runoff;

- Slow down water run-off flowing across exposed soil surfaces;

- Plant workshop/ maintenance areas should be bonded and constructed on a hard standing. Sediment traps and oil interceptors should be provided at appropriate locations;

- Manholes (including newly constructed ones) should be adequately covered or temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system;

- Construction works should be programmed to operate in dry seasons and minimize soil excavation works where practicable during the rainy days;

- Chemical stores will be contained (bonded) to prevent any spills from contact with water bodies. All fuel tanks and/ or storage areas should be provided with locks and be sited on hard surface;

- Chemical waste arising from the Project Site should be properly stored, handled, treated and disposed of in compliance with the requirements stipulated under the Waste Disposal (Chemical Waste) (General) Regulation;

- Drainage facilities must be adequate for the controlled release of storm flows.

- Vehicle wheel washing facilities should be provided at the site exit such that mud, debris, etc. attached to the vehicle wheels or body can be washed off before the vehicle leaves the work site;

- Section of the road between the wheel washing bay and the public road will be paved to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.

- Bentonite slurries, if any to be generated, shall be reconditioned and reused as far as practicable. Spent bentonite should be kept in a separate slurry collection system for disposal at a marine spoil grounds subject to obtaining a marine dumping licence from EPD. If used bentonite slurry is to be disposed of through public drainage system, it should be treated to meet the respective applicable effluent standards for discharges into sewers, storm drains or the receiving waters.

5.5 Potential Operation Phase Water Quality Impacts

5.5.1 According to the major operation phase activities in the Proposed Development, the key potential water quality impact is due to the surface runoff and treated effluent discharge from the Proposed Development.

5.5.2 The management and mitigation strategy of the potential water quality impact is addressed below, with appropriate environmental control measures recommended.

5.5.3 Best practices as stated in ProPECC PN 1/23 "Drainage Plans Subject to Comment by the Environmental Protection Department" shall be followed. It states out the handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers during the operation phase. Some examples of the recommendations listed in the ProPECC PN 1/23 are as below.

- Drainage in covered carparks should be connected to foul sewers via petrol interceptors.
- Disposal of commercial and industrial wastewater by injection into the ground (e.g. by soakaway pits) is normally not allowed.
- All wastewater collected from a restaurant kitchen, including that from basins, sinks and floor drains, should be discharged via a grease trap capable of providing at least 20 minutes retention during peak flow.

5.6 Surface Runoff Discharge/ Stormwater Discharge

5.6.1 During operation, the irrigation runoff and surface runoff during rainfall events, which is known as non-point source of pollution, may be the cause potential water quality impact. Fallen leaves, particles, litter from open areas, which is a source of organic and nutrient pollutants, can be washed into the drainage system during heavy rainfall if it is not properly controlled. Pollutants, contributed by non-point source are often bound or adsorbed onto particles, thus an effective stormwater management system will be required for the removal of pollution sources prior to rainstorm and the provision of degritting/screening facilities will be required for sediment collection. As the particles settle out, the associated pollutants will also settle out and removed from stormwater.

5.6.2 Under normal condition, runoff carrying pollutants will not be generated in low rainfall intensity, but increased runoff may occur during heavy rainfall condition. The first flush flow would carry most of the pollutants and the subsequent overland flow generated from rainstorms is expected to be uncontaminated. Thus, prevention of "first flush" pollution in stormwater runoff will be an effective way in controlling pollution at source and to abate pollutants.

5.6.3 Relevant assessment on the total peak flow of stormwater of the Proposed Development and the capacity of proposed drainage system are provided in a separate Drainage Proposal.

5.7 Sewage Effluent from Proposed Development

5.7.1 The sewage generated from the Proposed Development will be discharged to the public sewerage system nearby. It is expected that the operation of the proposed development would not cause operational phase water quality impact.

5.8 Implementation of Best Management Practices (BMPs)

5.8.1 Surface runoff can be controlled by good drainage design and implementation of BMPs. The Proposed Development shall adopt the following BMPs.

Runoff Control

5.8.2 Site drainage system of the development shall be reviewed regularly in such way that surface runoff shall be directed towards the internal access road. If necessary, additional paved U-channels with screening facilities shall also be provided along the edge of Proposed Development to avoid uncontrolled spillage of runoff.

Prevention of Pollution at Source

5.8.3 Regular cleaning and sweeping of road surface/ open areas is suggested so as to minimize exposure of pollutants to stormwater. The road surface/ open area cleaning should also be carried out prior to occurrence of rainstorm.

5.8.4 With the above measures, the amount of pollutants at source has been largely reduced/ avoided as far as possible so that the impact on WSR would not be adverse.

Devices for Removal of Pollutants

5.8.5 In addition to the above, screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system as well as at upstream location of the u-channels. It is expected that most of the large substances in stormwater runoff would be removed with such devices so as to prevent it from entering the drainage system. Road gullies with standard design should be incorporated during the detailed design to remove particles present in stormwater runoff.

5.8.6 In the event of emergency (e.g. car accident) where there is a major spillage of oil, chemical or fuel, dispersants or firefighting foam, etc., a system of contaminant bunding will be implemented as appropriate.

Management Measures

5.8.7 Good management measures such as regular cleaning and sweeping of road surface/ open areas is suggested. The road surface/ open area cleaning should also be carried out prior to occurrence of rainstorm.

5.8.8 Stormwater gullies and ditches provided among the Proposed Development will be regularly inspected and cleaned by the property management company.

5.8.9 With the removal of pollutants, the pollution levels from stormwater would be much reduced, and given the stochastic nature of non-point source pollution and the proposed management measures, there will be no significant impact expected on WSR.

5.8.10 With appropriate management measures in place, the risk of untreated sewage effluent discharge to North Western Control Zone due to emergency events is considered to be negligible.

6. WASTE MANAGEMENT

6.1 Introduction

6.1.1 This section presents an assessment of the potential waste management issues in connection with construction and operation of the Project. The options for waste minimization, reuse, recycling, collection, transport and disposal of wastes arising from the construction and demolition work have been examined. Where appropriate, procedures for waste reduction and management are considered and environmental control measures for avoiding and minimising the potential impacts are recommended.

6.1.2 Recommended Pollution Control Clauses for Construction Contracts published by Environmental Protection Department would be implemented during the construction phase of the proposed development. Waste generated from the Proposed Development would be properly controlled and adverse waste management would not be anticipated.

6.2 Relevant Legislation, Standards & Guidelines

6.2.1 In carrying out the assessment, reference has been made to the following relevant Hong Kong legislation governing waste management and disposal. Directly relevant legislation include:

1. The Waste Disposal Ordinance (Cap. 354) and subsidiary legislation such as the Waste Disposal (Chemical Waste) (General) Regulation, and the Waste Disposal (Clinical Waste) (General) Regulation, set out requirements for the storage, handling and transportation of all types of wastes;
2. Land (Miscellaneous Provisions) Ordinance (Cap 28);
3. Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisance Regulation – control of disposal of general refuse.

6.2.2 Other relevant documents and guidelines that are applicable to waste management and disposal include:

4. PNAP 243 ADV-19 - Construction and Demolition Waste
5. Development Bureau Technical Circular (Works) No. 8/2010 - Enhanced Specification for Site Cleanliness and Tidiness
6. ETWB TCW No. 22/2003A - Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites;
7. Development Bureau Technical Circular (Works) No. 6/2010 - Trip-ticket System for Disposal of Construction and Demolition Materials;
8. WBTC No. 19/2001 - Metallic Site Hoardings and Signboards;
9. Works Bureau Technical Circular No. 12/2000 - Fill Management;
10. Works Branch Technical Circular No. 2/93 - Public Dumps; and
11. Works Branch Technical Circular No. 2/93B - Public Filling Facilities;
12. Project Administration Handbook for Civil Engineering concerning Management of Construction and Demolition Materials Including Rock

6.3 Identification and Evaluation of Potential Waste Impact during Construction Phase

6.3.1 The construction activities to be carried out for the proposed Project would generate a variety of wastes that can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- Construction and Demolition (C&D) materials;
- Chemical waste; and
- General refuse.

C&D Materials

6.3.2 C&D materials comprise mainly of unwanted materials, including surplus materials arising from excavations that are generated from the works (e.g. site clearance, site formation works, excavation work for basement). Inert soft C&D materials comprise of soil, sand, clay, slurry, etc., while hard C&D materials comprise of crushed concrete, asphalt, rock, etc. The amount of non-inert C&D materials generated during site clearance would be minor (as there is little vegetation at the Subject Site). C&D materials may comprise different types of materials, including:

- Non-inert C&D materials (e.g. bamboo, timber, paper, metal, glass, plastic, packaging wastes, etc.) decompose and are not suitable for land reclamation. Non-inert C&D materials should be reused or recycled as far as possible. For those non-inert C&D materials that cannot be reused or recycled should be disposed of at landfill as last resort. For those dead vegetative materials and timber (if any), should be sent to Yard Waste Recycling Centre in Y-Park for recycling;
- Inert C&D materials do not decompose (e.g. soil, rock debris, rubble earth, concrete, etc.) and is suitable to reuse as filling materials for land reclamation and site formation. Inert C&D materials could be reused on-site as filling materials. For those inert C&D materials that cannot be reused should be disposed at a Public Fill Reception Facilities.

6.3.3 The general waste management strategy is to avoid waste generation in the first place. Should it be unavoidable, reduction and segregation at-source should be exercised as far as practicable, and recycling and reuse should be adopted at the same time to salvage all the recyclable and reusable materials as much as possible.

6.3.4 Inert C&D materials should be re-used on-site (e.g for backfilling) if it is practical and/or disposed of at public filling area or other CEDD designated public fill reception facilities. Non-inert C&D materials (i.e. C&D waste) should be re-used or recycled. For those that cannot be reused or recycled, they should be disposed of at designated landfill sites as last resort.

6.3.5 The Contractor(s) should be responsible for ensuring that all on-site wastes will be collected by approved waste collectors and appropriate measures should be undertaken to minimise adverse impacts to the surrounding environment, such as dust generation. The Contractor(s) must also ensure that all necessary waste disposal permits have been obtained before actions.

6.3.6 Prior to disposal of non-inert C&D materials, it is recommended that wood, steel, glass and other metals will be collected separately for re-use and/or recycling and inert C&D materials utilized as fill materials to minimize the quantity of waste to be disposed of at the Public Fill Reception Facilities and landfill.

General Refuse

6.3.7 Throughout the construction stage, the workforce would generate general refuse comprising food scraps, waste paper, empty containers, etc. Release of general refuse into watercourses or marine waters should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Effective collection of site wastes would be required to prevent waste materials being blown around by wind, flushed or leached into the marine environment, and odour nuisance. The work sites may also attract pests and vermin if the waste storage area is not well maintained and cleaned regularly. Disposal of refuse at sites other than approved waste transfer or disposal facilities can also result in similar impacts. The number of work force to be employed for the Project is around 20. Based on the generation rate of 0.65kg/person/day, the estimated total refuse generated per day (maximum) would be about 13kg/day.

6.3.8 Recyclable materials (i.e. paper, plastic bottles and aluminium cans) will be collected separately for recycling, in order to reduce the amount of general refuse to be disposed into the landfill. Adequate number of enclosed waste containers will be provided to avoid over-spillage of waste. The non-recyclable refuse will be placed in bags and stored in enclosed containers, and disposed of on a daily basis to the designated landfill. With the implementation of the recommended waste management practices at the site, adverse environmental impacts would not arise from the storage, handling and transportation of refuse.

Chemical Waste

6.3.9 Apart from above, Construction plant and equipment will require regular maintenance and servicing, which would generate waste such as solvents, lubrication oil and fuel, etc. Chemical wastes arising during the construction phase may pose serious environmental, health and safety hazards if not stored and disposed of in an appropriate manner.

6.3.10 The amount of chemical waste would be depended on the contractor's on-site maintenance practice and the quantities of plant and vehicles utilised at the construction site. Nevertheless, it is anticipated that the quantity of chemical waste such as lubrication oil and solvent produced from equipment maintenance would be less than hundred litres per month. The quantity of chemical waste to be generated would be quantified in the Waste Management Plan as part of the Environmental Management Plan to be prepared by the contractor.

6.3.11 The contractor is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.

6.3.12 Mitigation and control requirements for chemical waste are provided in the "Recommended Pollution Control Clauses for Construction Contracts" available in EPD website mentioned the handling, storage, transportation and disposal of chemical wastes. With good management and site practices, adverse environmental impacts should not result.

6.3.13 Preliminary quantity estimation of construction waste involved and disposal method is summarised in the **Table 6.1** below.

Table 6.1 Summary of Estimated Construction Waste and Disposal Method

Waste Material Type		(a) Estimated Quantity Generated (b) Quantity to be disposed / transported to PFRF (c) Quantity of waste material for on-site re-use or recycling	Handling Arrangement / Disposal Method
Inert C&D Materials	Site Formation	(a) ~ 8,956 m^3 (b) ~ 8,508 m^3 (c) ~ 448 m^3	Around 0.5% to be reused on-site or in other projects, remainders which cannot be reused or recycled will be transported to public fill reception facilities (proposed to be Tuen Mun Area 38 Fill Bank), subject to the designation by the Public Fill Committee according to DEVB TC(W) No.6/2010
	Construction of New Buildings/Structures	(a) ~ 7,200 m^3 (b) ~ 6,840 m^3 (c) ~ 360 m^3	
Non-inert C&D Materials	Site Formation	(a) ~990 m^3 (b) ~ 660 m^3 (c) ~ 330 m^3	Recycling and disposal to NENT landfill. For those dead vegetative materials and timber (if any), should be sent to Yard Waste Recycling Centre in Y-Park for recycling.
	Construction of New Buildings/Structures	(a) ~800 m^3 (b) ~ 530 m^3 (c) ~ 270 m^3	
Chemical Waste	-	(a), (b) Less than hundred litres /month (preliminary estimate) (c) Not applicable	Collected by licensed collector and sent to Chemical Waste Treatment Centre
General Refuse	-	(a), (b) 13kg/day (preliminary estimate, assuming there are 20 workers at any one time with generation rate of 0.65kg per worker per day) (c) Not applicable	Recyclable materials (i.e. paper, plastic bottles, aluminium cans and food waste) will be collected separately for recycling, remainders will be sent to Refuse Transfer Station (proposed to be North West New Territories Transfer Station) for compaction and then disposed of at NENT landfill

6.4 Waste Disposal and Mitigation Measures

6.4.1 Waste generated by construction activities should be properly sorted and certain waste management requirements must be followed to minimize the impacts arising because

of the generation, storage, handling, transport and disposal of wastes. Good site management and control can prevent the generation of significant amounts of "mixed waste". For unavoidable wastes, reuse, recycling and optimal disposal are most practical when segregation occurs on the construction site, categorized as follows:

- Inert C&D materials for reuse on-site or delivering to Public Fill Reception Facilities for beneficial reuse at other projects;
- Non-inert C&D materials for reuse or recycle or disposal at landfill as last resort;
- Chemical waste for treatment at licensed facilities; and
- General refuse for disposal at landfill.

C&D Material

6.4.2 Proper storage and site practices should be adopted to minimize the damage to, or contamination of, C&D materials that may reduce their recyclability and suitability for disposal in public fill reception facilities. The inert C&D materials shall be reused in earth filling, reclamation or site formation works. The non-inert C&D materials shall be reused or recycled and, as the last resort, disposed of at landfills. GPS monitoring are suggested to implement to dump trucks to prevent illegal dumping.

6.4.3 Appropriate measures should also be employed to minimize windblown litter and dust during transportation by either covering trucks with tarpaulin or transporting wastes in enclosed containers. Waste should only be disposed at licensed sites. Resident site staff and the contractors should develop procedures to ensure that illegal disposal of waste does not occur. In addition, waste storage areas within the Project should be well maintained and cleaned regularly to prevent cross-contamination. The disposal of inert C&D materials and non-inert C&D materials to public fill reception facilities/sorting facilities respectively through a trip-ticket system, while general refuse will be disposed of at landfill.

6.4.4 Earthworks (excavation and backfilling) for site formation would be required for the proposed development. The volume of excavated materials to be handled would be around 16,160 m^3 for inert material with density of 1.8 kg /m^3 and 1,790 m^3 for non-inert material with density of 1 kg /m^3. The period of excavation is anticipated to be around 1 year. In view of the relatively large size excavation, phasing of the excavation work is suggested to avoid large scale of excavation at the same period as well as to reduce the number of dump trucks on site. The number of dump trucks is anticipated to be around 8 trucks / day for inert material and 1 truck / day for non-inert material (assuming each truck can carry 15 tonnes and there is around 270 working days per year), based on the current information presented above.

Chemical Waste

6.4.5 Chemical and oily wastes generated from the construction activities, vehicle and plant maintenance should be disposed of as chemical waste in strict compliance with the Waste Disposal (Chemical Waste) (General) Regulations.

General Refuse

6.4.6 For general refuse, mitigation measures should include provision of a collection area where waste can be sorted, stored and loaded prior to removal from the site during construction phase.

6.4.7 In additional, with the implementation of the recommended mitigation measures in the "Recommended Pollution Control Clauses for Construction Contracts" available in EPD website, the potential environmental impacts resulting from the storage, handling and transportation of inert C&D materials, non-inert C&D materials, chemical wastes and

general site wastes would be minimal. Below are the examples of the relevant measures:

Waste Minimisation

- The Contractor shall submit to the Engineer for approval a Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) with appropriate mitigation measures including the allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.
- The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.
- The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets as appropriate.
- The reuse and recycling of waste shall be practised as far as possible.
- The Contractor shall record the amount of wastes generated, recycled and disposed of (including the disposal sites).
- The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill.

Waste Nuisance Control

6.4.8 The Contractor shall not permit any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land or allow any waste matter (or refuse) which is not part of the final product from waste processing plants to be deposited anywhere within the Site (or onto any adjoining land). He shall arrange removal of such matter from the site (or any building erected or to be erected thereon) in a proper manner to the satisfaction of the Engineer in consultation with the Director of Environmental Protection.

Chemical Waste Control

- The Contractor shall observe and comply with the Waste Disposal (Chemical Waste) (General) Regulation.
- The Contractor shall apply for registration as chemical waste producer under the Waste Disposal (Chemical Waste) (General) Regulation when chemical waste is produced. All chemical waste shall be properly stored, labelled, packaged and collected in accordance with the Regulation.
- The Contractor shall follow the guideline stated in the Code of practice on the Packaging, Labelling and Storage of Chemical Wastes.

6.5 Identification and Evaluation of Potential Impact during Operational Phase

6.5.1 During operational phase of the proposed development, since the uses is residential only, disposal of any other additional waste type, including chemical, livestock and clinical waste are not anticipated. Instead, general waste is anticipated to be the major type of waste generated during the operation of the proposed development.

6.5.2 Release of general refuse into watercourses or marine waters should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Effective collection of site wastes is suggested to prevent waste materials being blown around by wind, flushed or leached into the marine environment, and odour nuisance.

General Refuse

6.5.3 With the implementation of the *Producer Responsibility Scheme on Waste Electrical and Electronic Equipment* (WPRS), the amount of domestic electrical waste being disposed would not be significant as customers are encouraged to contact the WEEE recycling firm for the recycling of electrical equipment. The disposal of electrical equipment and its impact is not anticipated to be significant.

6.5.4 For other general waste such as metal, paper, plastic and glass, recycling bins for each type of wastes will be placed at prominent locations such as areas near lobby to reduce waste disposal amount. Also, the waste collection frequency is recommended to be at least once a day to reduce chances of hygiene issue.

6.5.5 For wastes such as leftover, an adequate number of enclosed waste containers will be provided to avoid over-spillage of waste. Also, leftover will be placed in bags and stored in enclosed containers, and disposed of on a daily basis to the designated landfill. In addition, the project proponent is recommended to deliver leftover generated to Organic Resources Recovery Centre (ORRC) or installation of food waste recycling machines for composting treatment, etc. Therefore, the chances of odour nuisance and hygiene issue are reduced.

6.5.6 According to Monitoring of Solid Waste in Hong Kong - Waste Statistics for 2023, the most recent domestic waste disposal rate and commercial waste disposal rate are 0.89 kg/person/day and 0.55 kg/person/day respectively. According to the Project Architect, the number of units in the Proposed Development is 1,140 unit. With reference to the 2021 Population By-census for Tin Shui Wai, the average domestic household size is assumed to be 2.8 persons/unit, which means that the total residential population of the Proposed Development will be approximately 3,192 persons. As a result, the total domestic waste to be generated every year is estimated to be around 3,596 kg (i.e. 3,192 persons x (0.89 kg/person/day / (1 - 0.21 Recovery Rate))).

6.5.7 The non-domestic GFA of the Proposed Development is about 27,871 m^2. With reference to Table 2 in Chapter 5 of HKPSG, the density of workers in business use is 20m^2 to 25m^2/worker. Assuming a worker density of 20m^2/worker, the number of workers is estimated to be 1,394. As a result, the total commercial waste generated every year is estimated to be 1,419 kg (i.e. 1,394 persons x (0.55 kg/person/day / (1 - 0.46 Recovery Rate))).

6.5.8 Since the remaining domestic and commercial waste will be collected on a regular basis by waste collectors and disposed of at landfill managed by EPD, the impact from the waste disposal of the operational phase is anticipated to be insignificant with the implementation of the above measures.

6.6 Environmental Monitoring & Audit Requirements

6.6.1 The foregoing assessment has concluded that proper handling, storage, collection, transportation and disposal of waste materials generated during construction of the Project will not give rise to significant impacts to nearby sensitive receivers.

6.6.2 Whilst no specific environmental monitoring requirements are considered necessary, it is recommended that during the construction phase, site inspections and supervisions of waste management procedures and auditing of the effectiveness of implemented mitigation measures should be undertaken on a regular basis.

6.6.3 These tasks shall be scheduled in a Waste Management Plan ("WMP") to be prepared by the contractor and updated regularly. The WMP shall be submitted to the Architect/Engineer for approval. A summary of the site audits shall be presented in the monthly EM&A reports.

6.7 Conclusion and Recommendation

6.7.1 The potential impacts of wastes arising from the construction and operation of the Proposed Development have been assessed. The construction activities will generate a variety of wastes including C&D materials from site clearance, excavated materials, construction wastes, chemical and general refuse. General waste is anticipated to be the major type of waste generated during the operation of the proposed development.

6.7.2 Recommended Pollution Control Clauses for Construction Contracts published by Environmental Protection Department would be implemented during the construction phase of the proposed development.

6.7.3 During the operation phase, domestic waste and commercial waste are the major type of waste generated. Both types of waste will be collected on a regular basis by waste collectors and will be disposed at a landfill managed by EPD.

6.7.4 With the recommended waste management practices put in place, no unacceptable impacts associated with waste management during the construction and operation phase are envisaged.

7. CONCLUSION

7.1.1 This planning application is submitted to seek permission from the Town Planning Board in support of a proposed mixed-use development with residential and commercial uses and minor relaxation of building height restriction. The Application Site is located at lot no. 4354 in D.D. 124, Kiu Tau Wai, Yuen Long. It falls within an area zoned "Commercial (2)" on the Approved Hung Shui Kiu and Ha Tsuen OZP No. S/HSK/2.

7.1.2 The key environmental issues associated with both operation and construction phase of the Development Site are qualitatively/quantitatively discusses in this report.

Fixed Noise

7.1.3 Desktop studies and several site visits have been conducted to identify the potential fixed noise sources within 300m assessment area. The future residents would not be subject to significant fixed noise impact.

7.1.4 The fixed noise sources within the Application Site (e.g. ventilation system, the exhaust and the control of emission of oily fume and cooling odour of the commercial use of the Proposed Development) may have potential fixed noise impact on the NSRs of the Proposed Development or the surrounding NSRs. The design of these future noise sources should follow the requirements of the HKPSG such that the NCO should be met so that the surrounding NSRs would not be subject to significant noise impact. Mitigation measures (such as enclosure and acoustic louvre) may be required to be considered during the detailed design. As such, it is anticipated that Development Site would not be subject to any significant fixed noise impact.

Road Traffic Noise

7.1.5 A road traffic noise impact assessment has been carried out for the Application Site. The assessment results indicated that the predicted noise levels at some NSRs would exceed the noise criteria as stipulated in the HKPSG. Noise mitigation measures in terms of acoustic window and acoustic balcony have been recommended at the locations where it is required. With the provision of noise mitigation measures, the proposed development would comply with the relevant HKPSG criteria, and the future occupants would not be subject to significant impacts.

Railway Noise

7.1.6 Since the Application Site is located closed to the Tuen Ma Line viaduct, special master layout design has been incorporated to minimize the potential railway noise impact upon the future residential occupants. The special layout design includes 1. the commercial tower at southern portion of the Application Site to provide shielding for the residential tower behind; 2. Arrange the residential tower perpendicular to the railway track to minimize the angle of view from the residential unit to the noise source; 3. vertical fins are located at strategic locations to further reduce the angle of view. Based on the on-site noise measurement, the predicted noise level at the proposed development has been assessed, and some residential units at the eastern end of the residential tower would exceed the relevant criteria stipulated in NCO. Acoustic window and acoustic balcony will be provided at these residential units to further mitigate the railway noise. With the provision of noise mitigation measures, the predicted noise level at all residential units would comply with the relevant criteria stipulated in the NCO. The future occupants would not be subject to significant railway noise impact.

Air Quality

7.1.7 There is no chimney or industrial activity identified within 200m from the site boundary of Application Site. As such, it is anticipated that the Proposed Development Site would not be subject to any adverse industrial emission impact.

7.1.8 No air sensitive uses shall be located within the buffer zones. No adverse vehicular emission impacts on the proposed development are anticipated.

7.1.9 Air quality impact from the proposed carpark shall be further reviewed in the later stage to ensure no adverse air quality impact to the nearby air sensitives uses.

Water Quality

7.1.10 The sewage generated from the proposed development would be discharged into the public sewerage system. The nearby water sensitive receivers would not be subject to significant impact.

7.1.11 Recommended Pollution Control Clauses for Construction Contracts published by Environmental Protection Department would be implemented during the construction phase of the proposed development.

7.1.12 With the recommended construction water quality control practices put in place, no unacceptable impacts associated with water quality during the construction and operation phase are envisaged.

Waste

7.1.13 The potential impacts of wastes arising from the construction and operation of the Proposed Development have been assessed. The construction activities will generate a variety of wastes including C&D materials from site clearance, excavated materials, construction wastes, chemical and general refuse.

7.1.14 Recommended Pollution Control Clauses for Construction Contracts published by Environmental Protection Department would be implemented during the construction phase of the proposed development.

7.1.15 With the recommended waste management practices put in place, no unacceptable impacts associated with waste management during the construction and operation phase are envisaged.

7.1.16 The environmental assessment study confirms the Proposed Development would be acceptable in environmental terms.

Figures

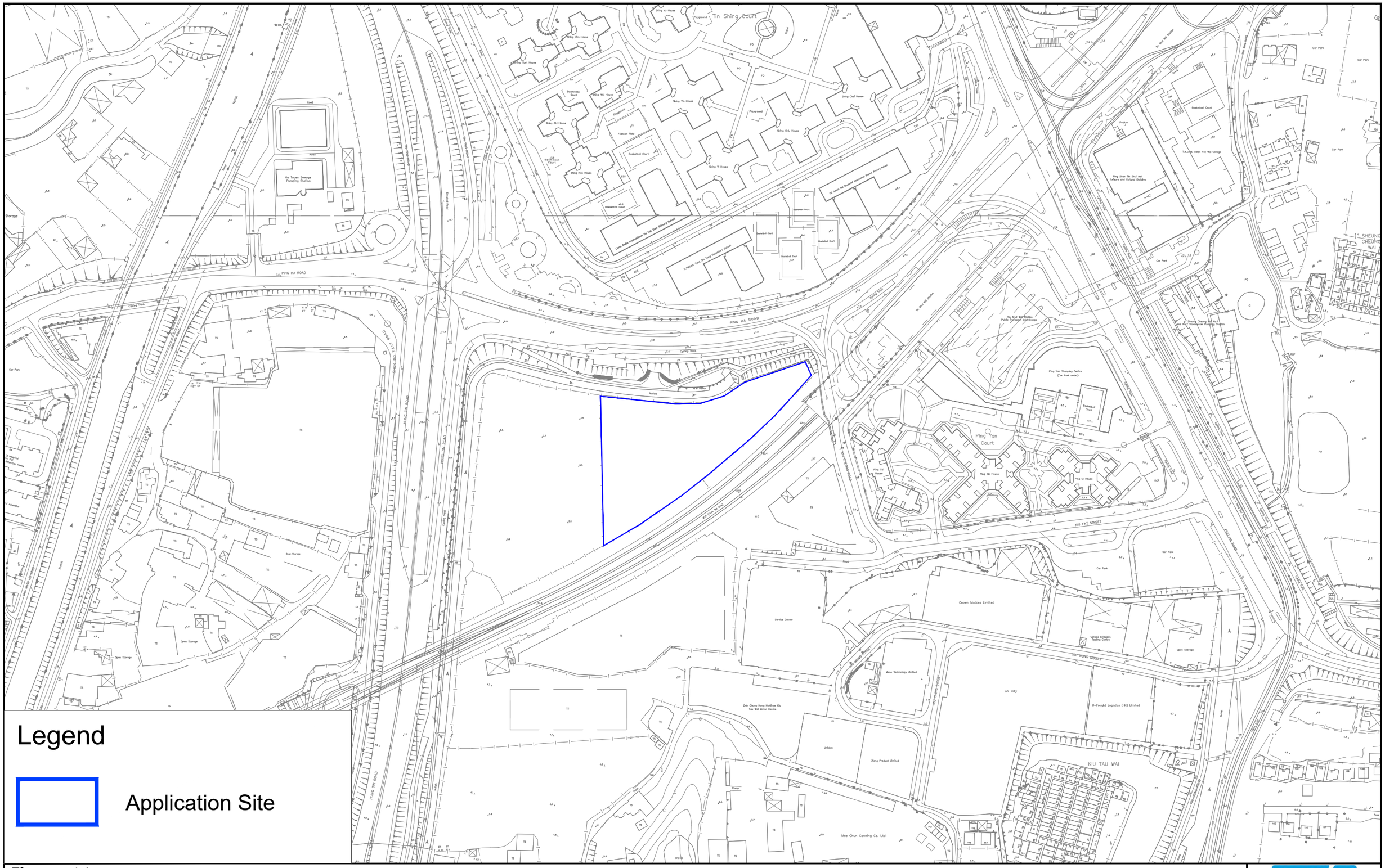

Figure: 1.1

Title: The Location of the Application Site and its Environmental

Project: Section 16 Planning Application for Proposed Mixed-Use Development at Lot No 4354 in D.D. 124, Kiu Tau Wai, Yuen Long

RAMBOLL

Drawn by:	KT
Checked by:	KK
Rev.:	1.0
Date:	Jan 2026

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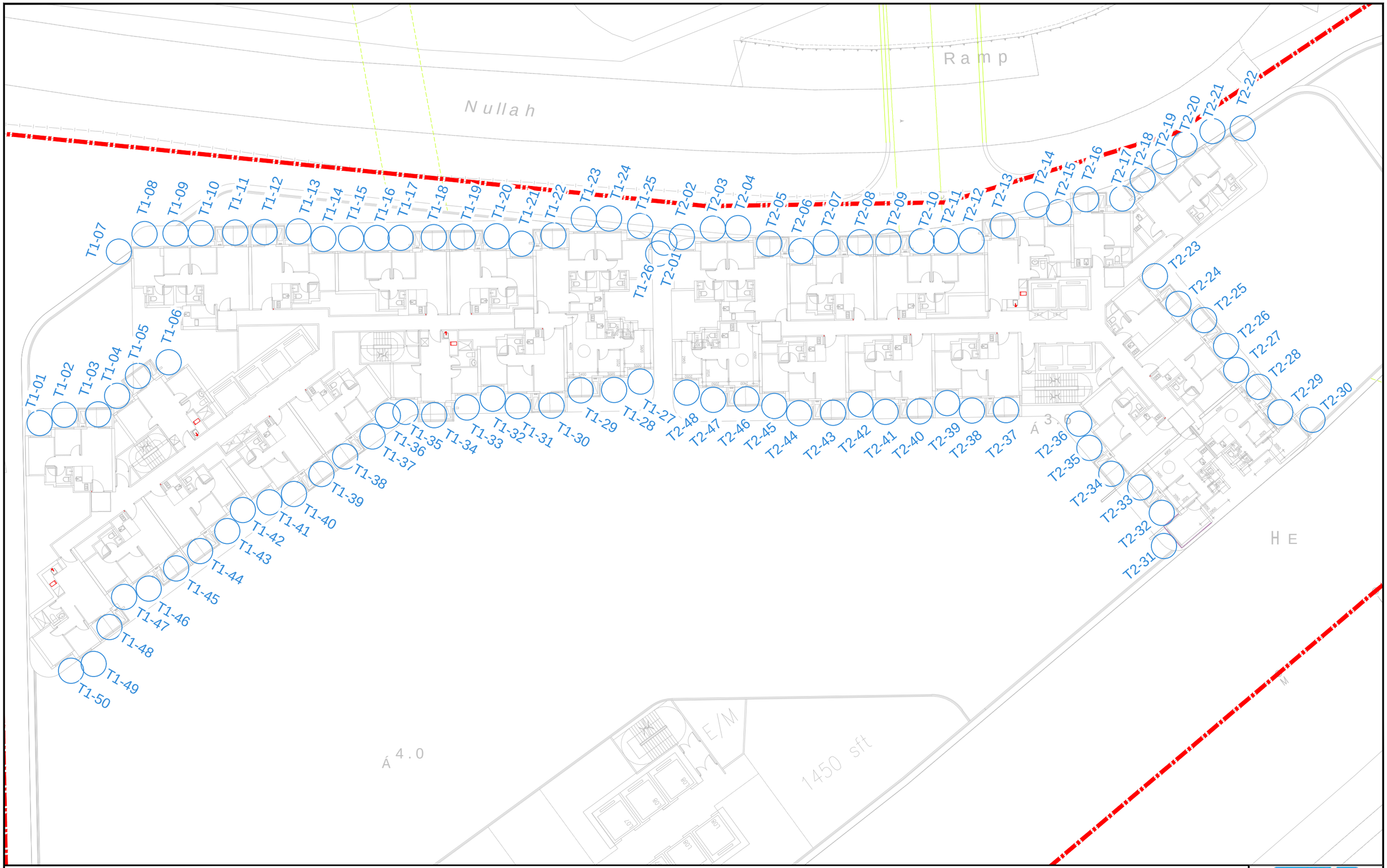

Figure: 2.1	RAMBOLL
Title: Location of Noise Sensitive Receivers for Road Traffic Noise Impact Assessment	Drawn by: KK Checked by: TC
Project: Section 16 Planning Application For Proposed Mixed-Use Development At Lot No 4354 In Dd 124, Kiu Tau Wai, Yuen Long	Rev.: 1.0 Date: Feb 2026

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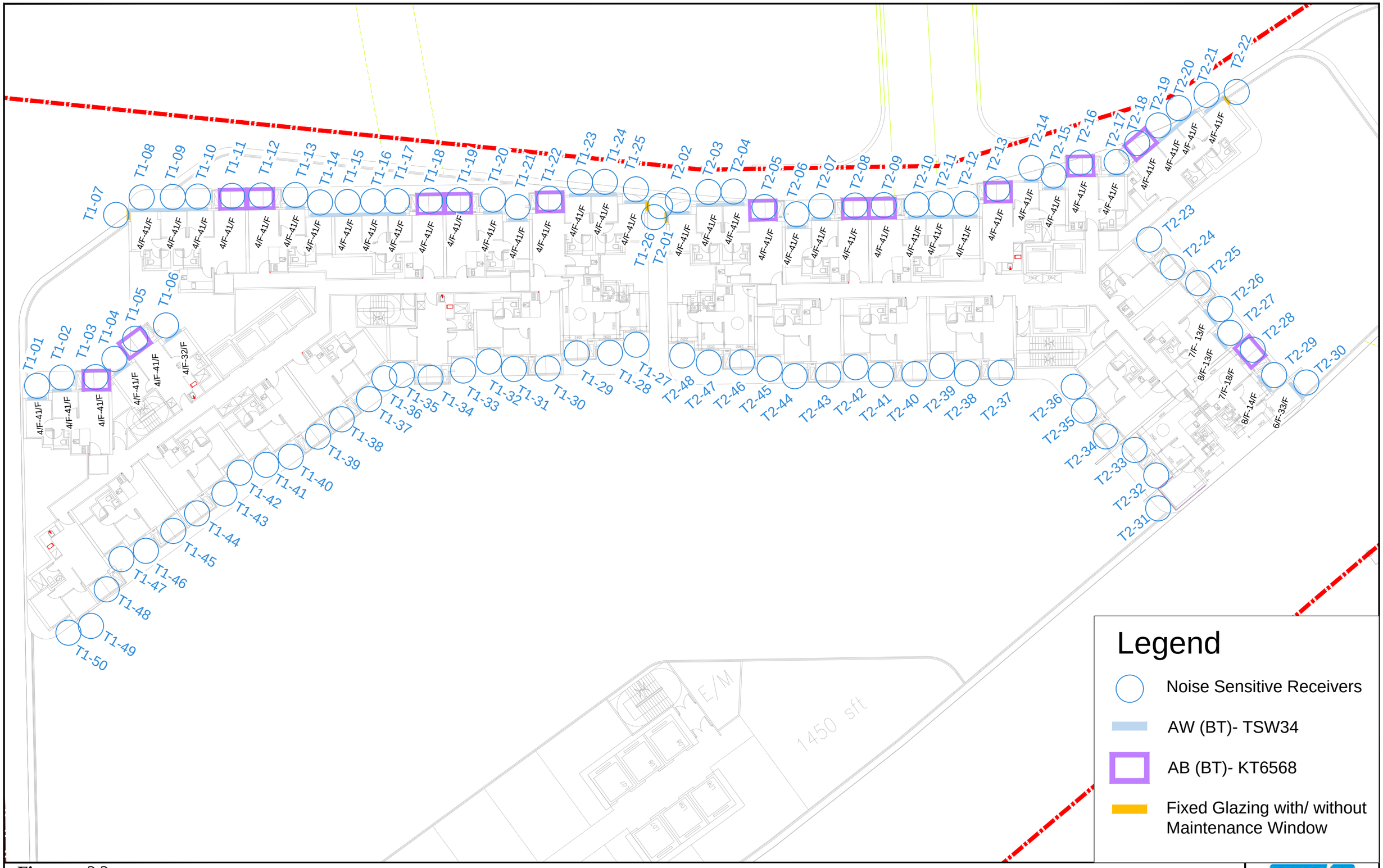

Figure: 2.2	RAMBOLL
Title: Propose Road Traffic Noise Mitigation Measures	Drawn by: KK Checked by: TC
Project: Section 16 Planning Application For Proposed Mixed-Use Development At Lot No 4354 In Dd 124, Kiu Tau Wai, Yuen Long	Rev.: 1.0 Date: Feb 2026

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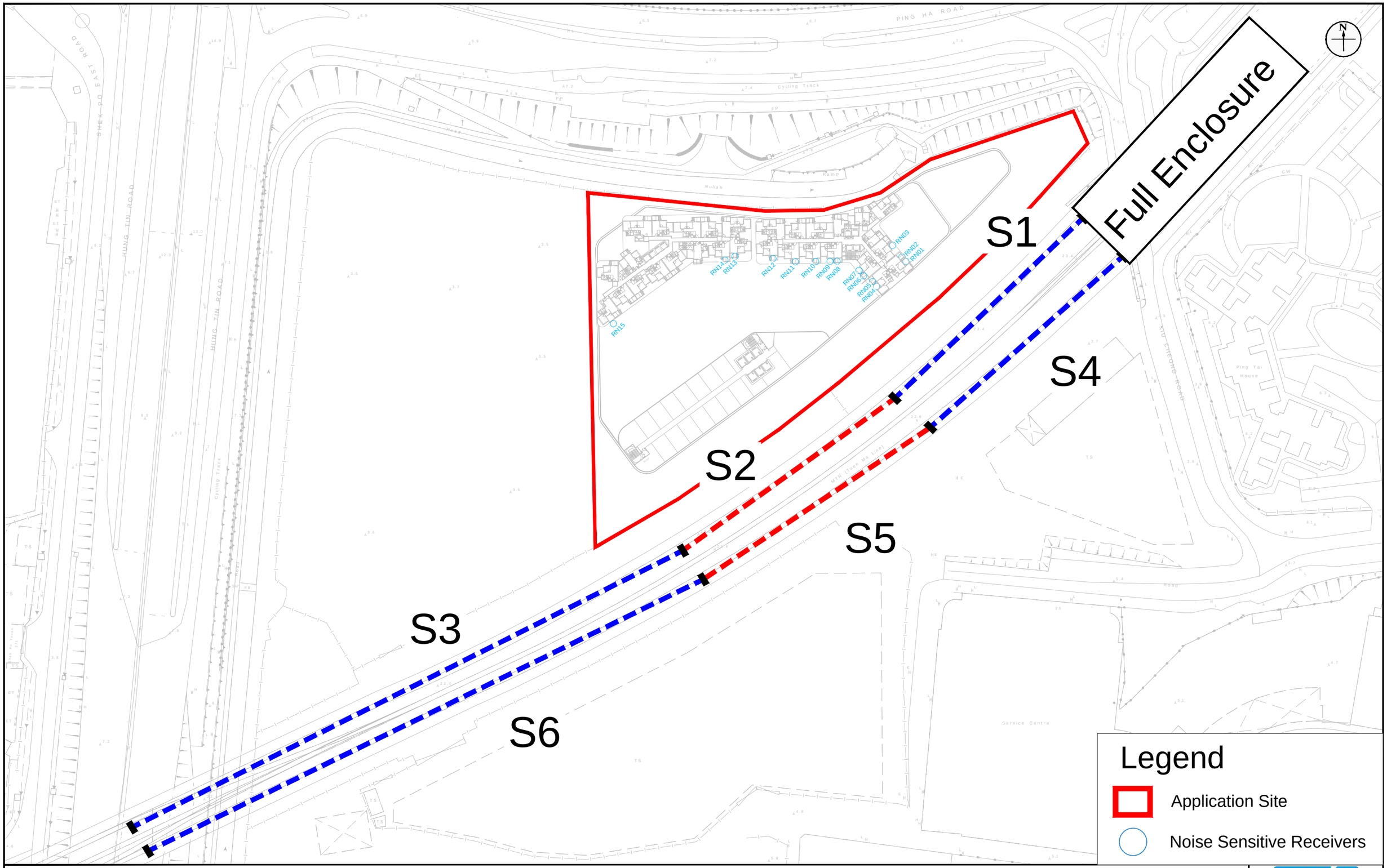

Figure: 3.1	RAMBOLL
Title: Location of Representative Noise Sensitive Receivers and Track Segments for Railway Noise Impact Assessment	Drawn by: KK Checked by: TC
Project: Section 16 Planning Application For Proposed Mixed-Use Development At Lot No 4354 In Dd 124, Kiu Tau Wai, Yuen Long	Rev.: 1.0 Date: Feb 2026

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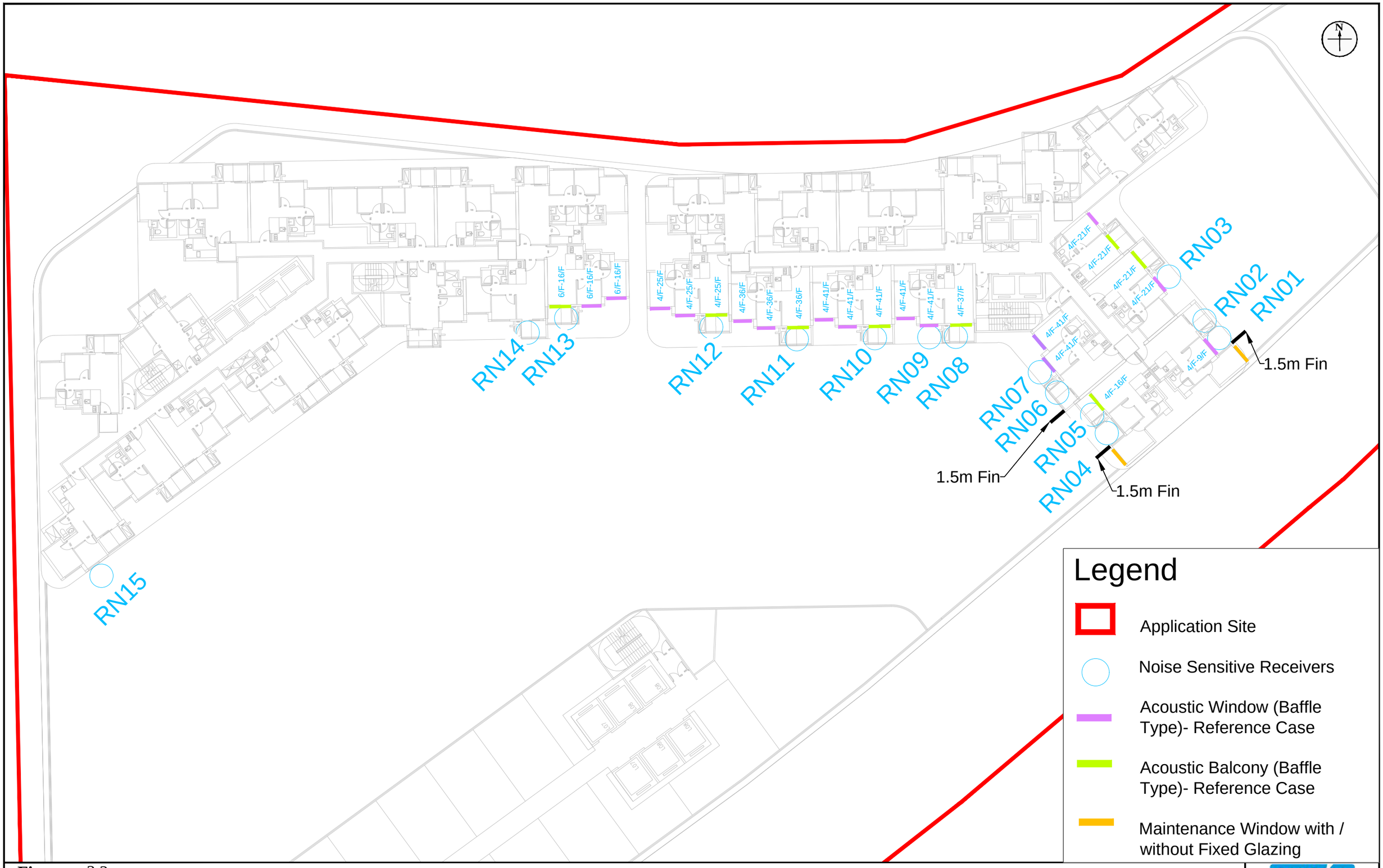

Figure: 3.2	RAMBOLL
Title: Propose Railway Noise Mitigation Measures	Drawn by: KK
	Checked by: TC
Project: Section 16 Planning Application For Proposed Mixed-Use Development At Lot No 4354 In Dd 124, Kiu Tau Wai, Yuen Long	Rev.: 1.0
	Date: Feb 2026

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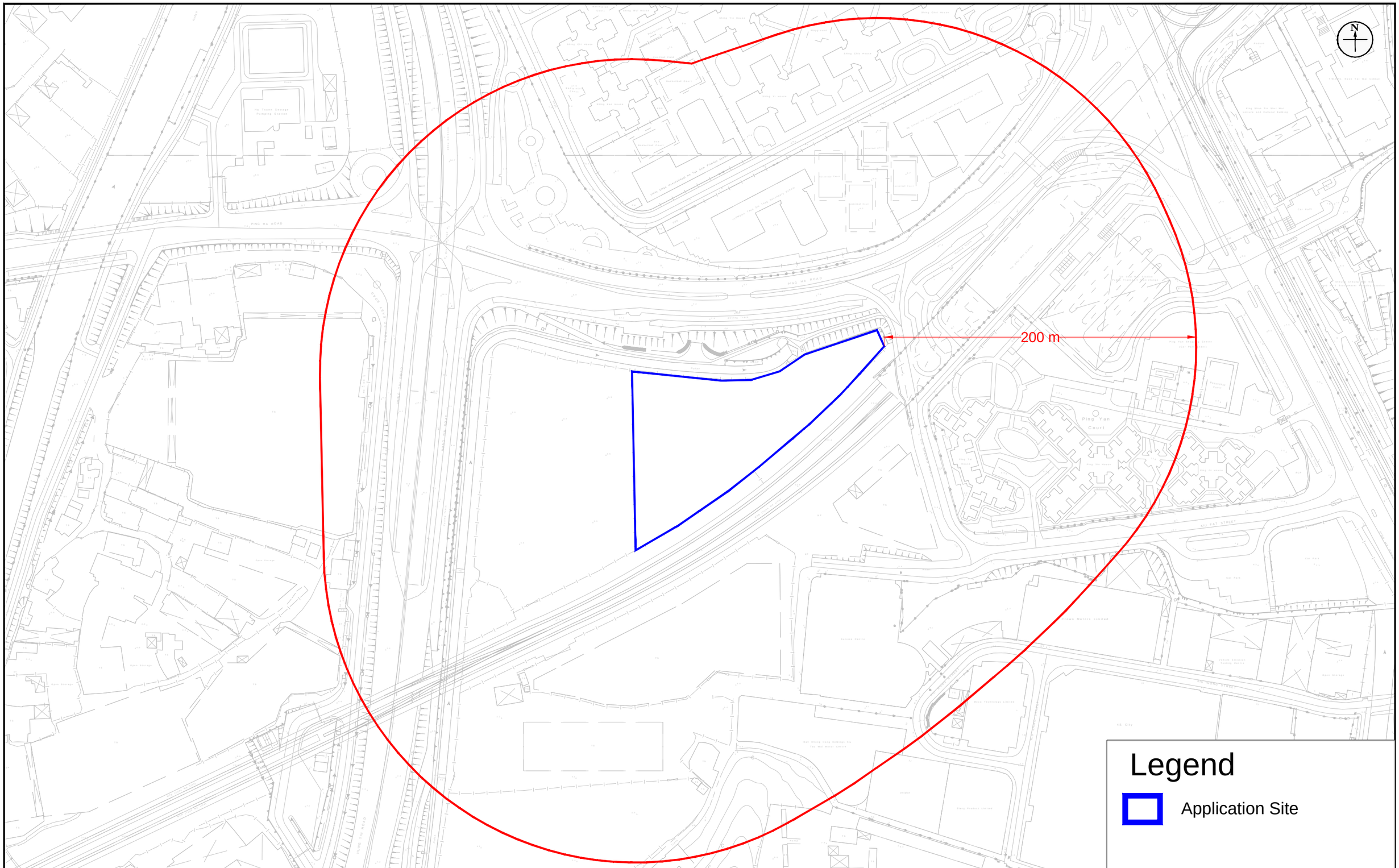

Figure: 4.1

Title: 200m Buffer Distance from the Application Site

Project: Section 16 Planning Application For Proposed Mixed-Use Development At Lot No 4354 In Dd 124, Kiu Tau Wai, Yuen Long

RAMBOLL

Drawn by:	KK
Checked by:	TC
Rev.:	1.0
Date:	Feb 2026

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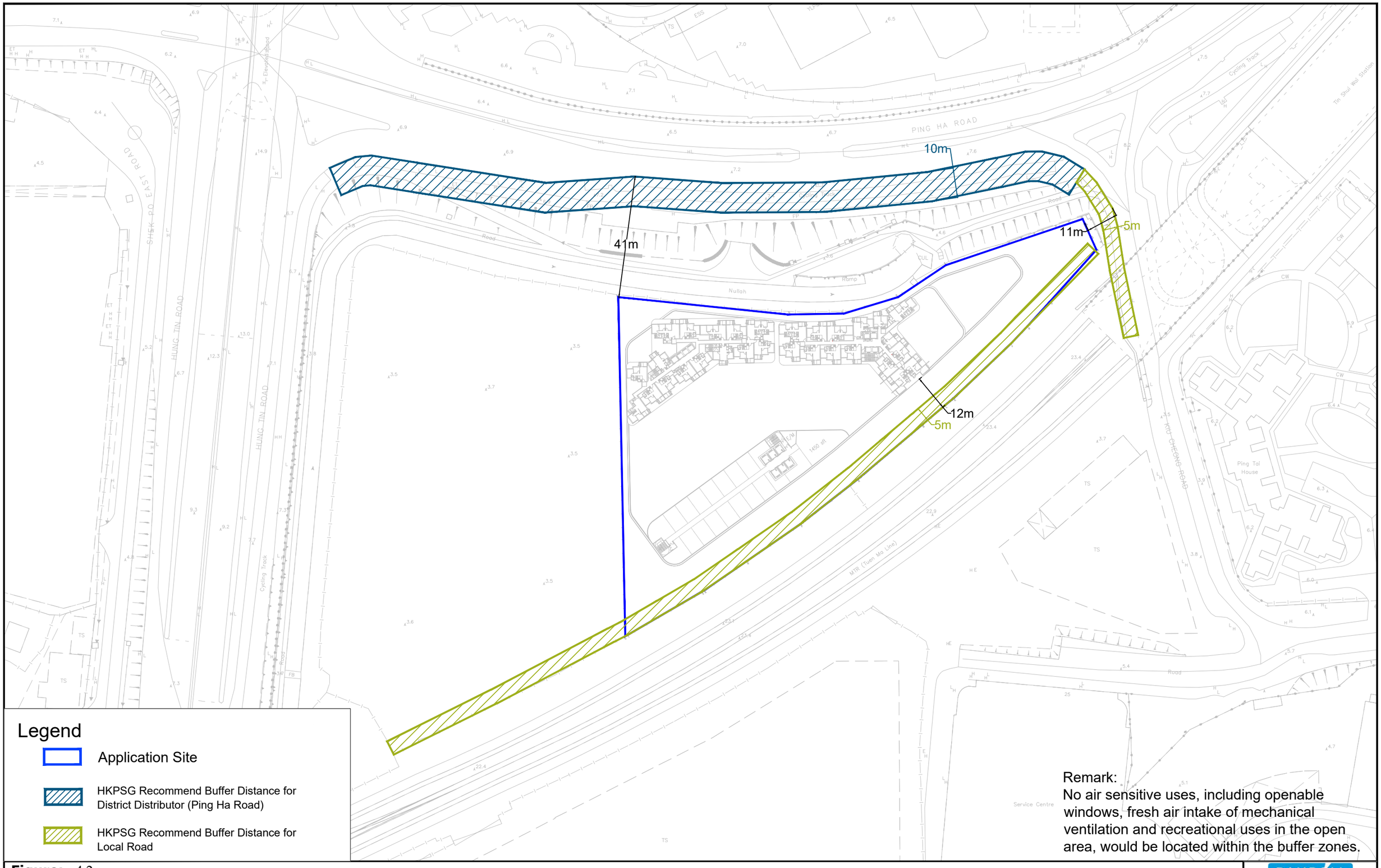

Remark:
No air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and recreational uses in the open area, would be located within the buffer zones.

Figure: 4.2

Title: Buffer Distance between the Development Site and Kerb Side of the Nearest Carriageways

Project: Section 16 Planning Application for Proposed Comprehensive Development at Lot No 4354 in D.D. 124, Kiu Tau Wai, Ping Shan, Yuen Long

RAMBOLL

Drawn by:	CL
Checked by:	TC
Rev.:	1.0
Date:	Apr 2026

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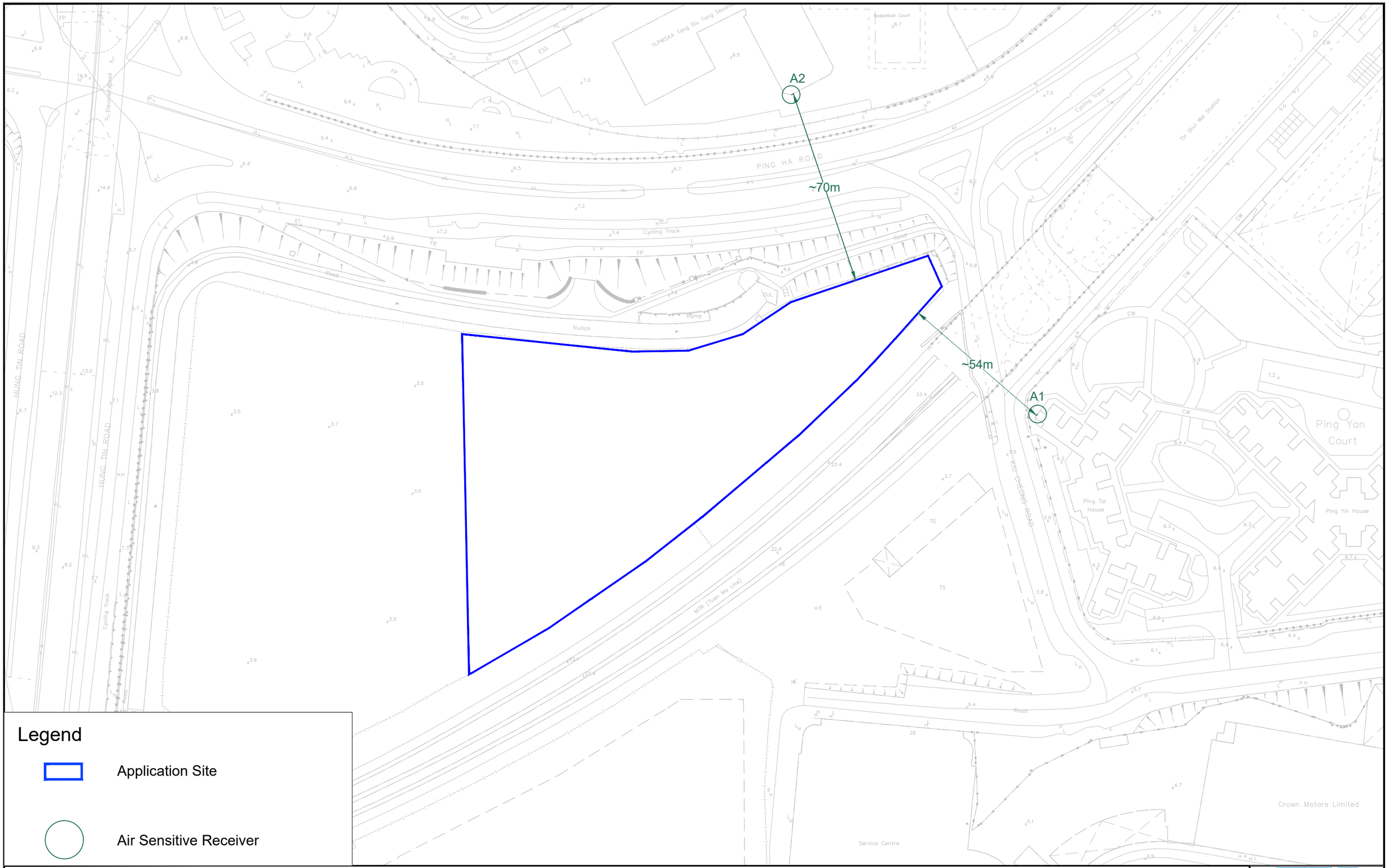

Figure: 4.3

Title: Location of Representative Air Sensitive Receivers

Project: Section 16 Planning Application for Proposed Mixed-Use Development at Lot No 4354 in D.D. 124, Kiu Tau Wai, Yuen Long

RAMBOLL

Drawn by:	CL
Checked by:	TC
Rev.:	1.0
Date:	Feb 2026

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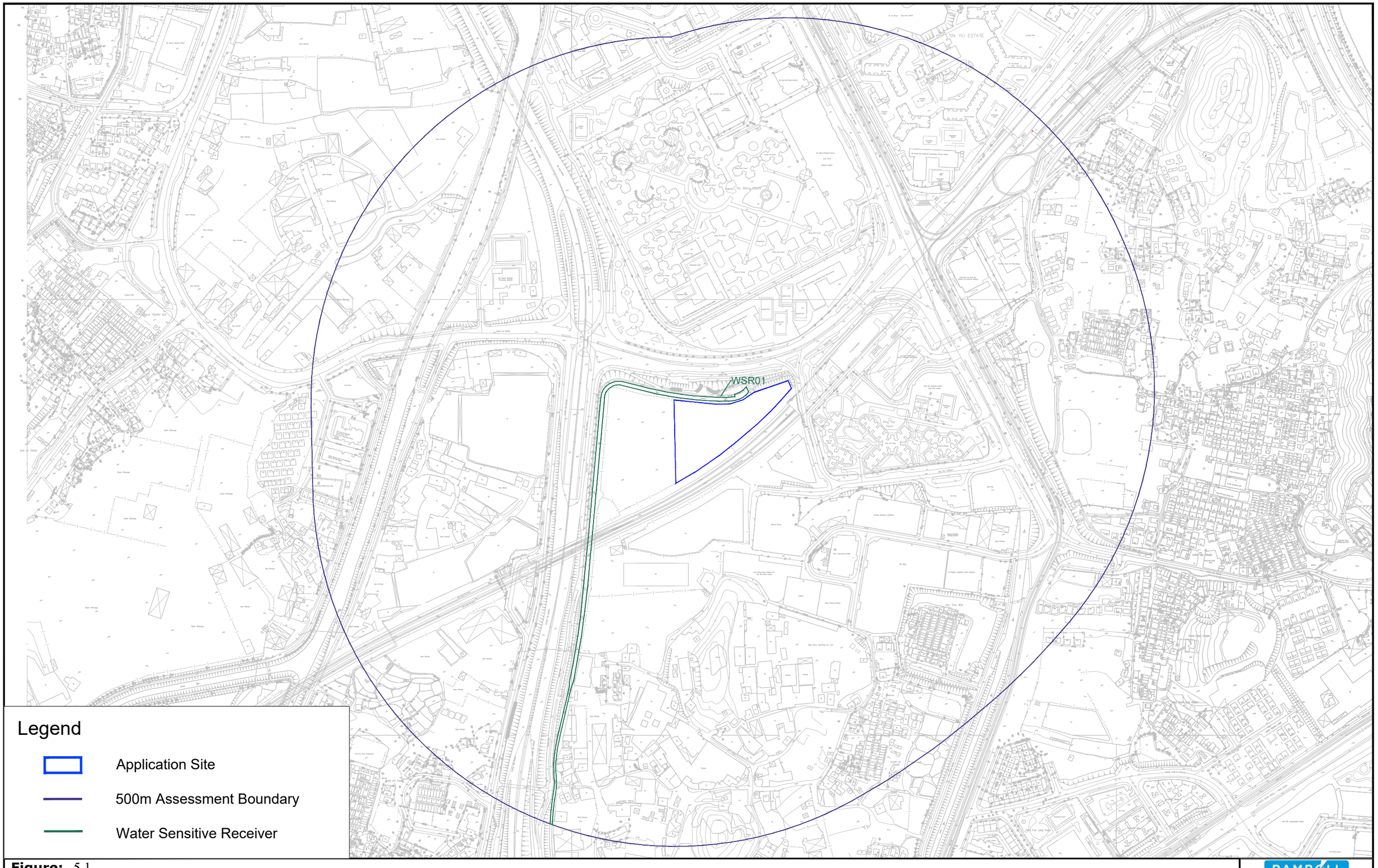

Figure: 5.1

Title: 500m Assessment Area from the Site Boundary of Development Site for Water Quality Impact Assessment and Water Sensitive Receiver

Project: Section 16 Planning Application for Proposed Mixed-Use Development at Lot No 4354 in D.D. 124, Kiu Tau Wai, Yuen Long

RAMBOLL

Drawn by:	CL
Checked by:	TC
Rev.:	1.0
Date:	Feb 2026

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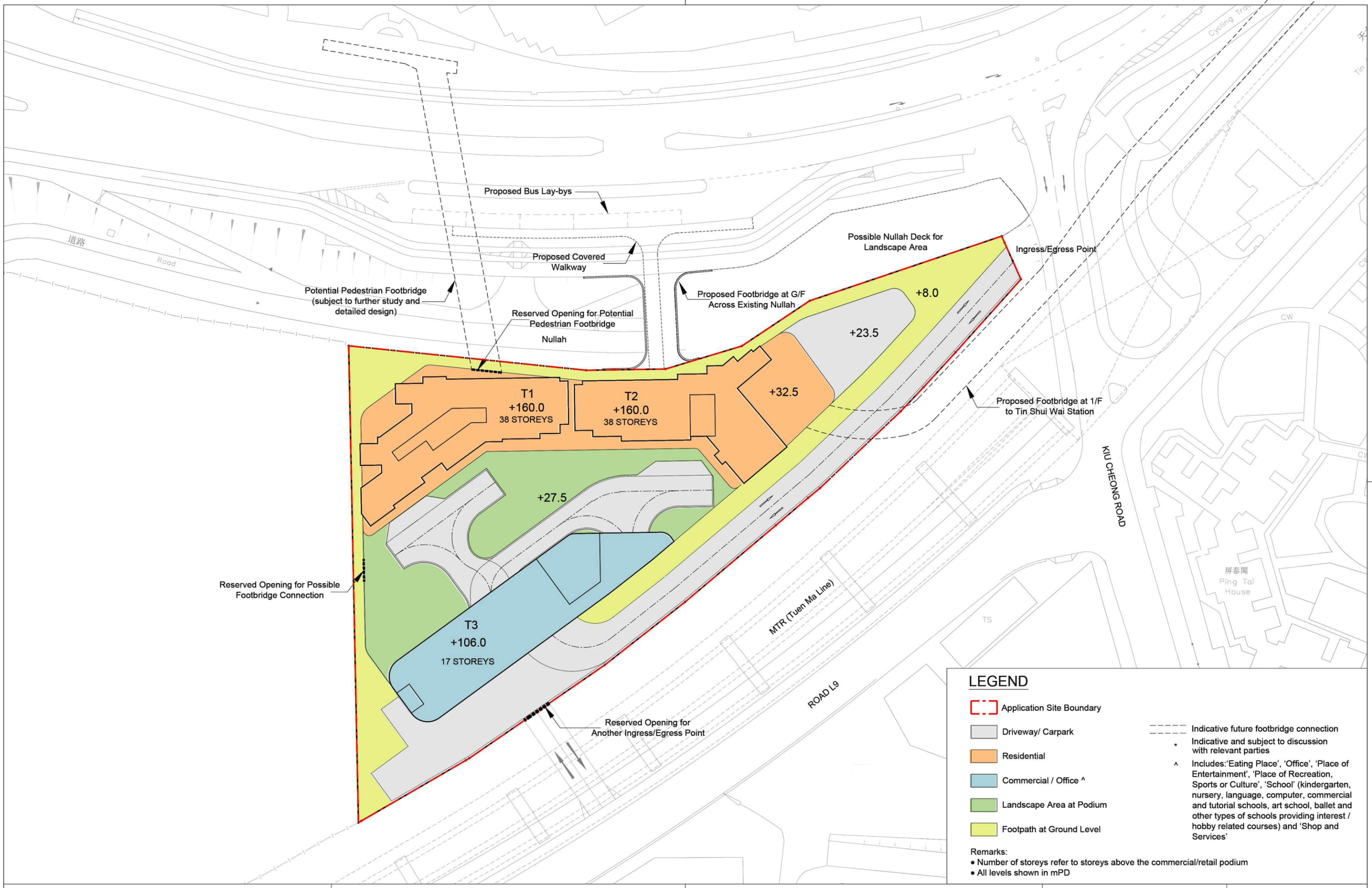
Appendix 1.1 Master Layout Plan and Section of the Development Site



LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Residential
- Commercial / Office ^
- Landscape Area at Podium
- Footpath at Ground Level
- Indicative future footbridge connection
- * Indicative and subject to discussion with relevant parties
- ^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

Remarks:
- Number of storeys refer to storeys above the commercial/retail podium
- All levels shown in mPD

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T:+852 3547 2111

PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative Master Layout Plan

0 5 10 20 m
1:800 @ A3

19-05-2026

LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Commercial / Retail ^
- Footpath at Ground Level
- E&M
- Escalator
- Staircase
- Lift
- Indicative future footbridge connection
- * Indicative and subject to discussion with relevant parties
- ^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

Remarks:
- All levels shown in mPD

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PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative G/F Plan

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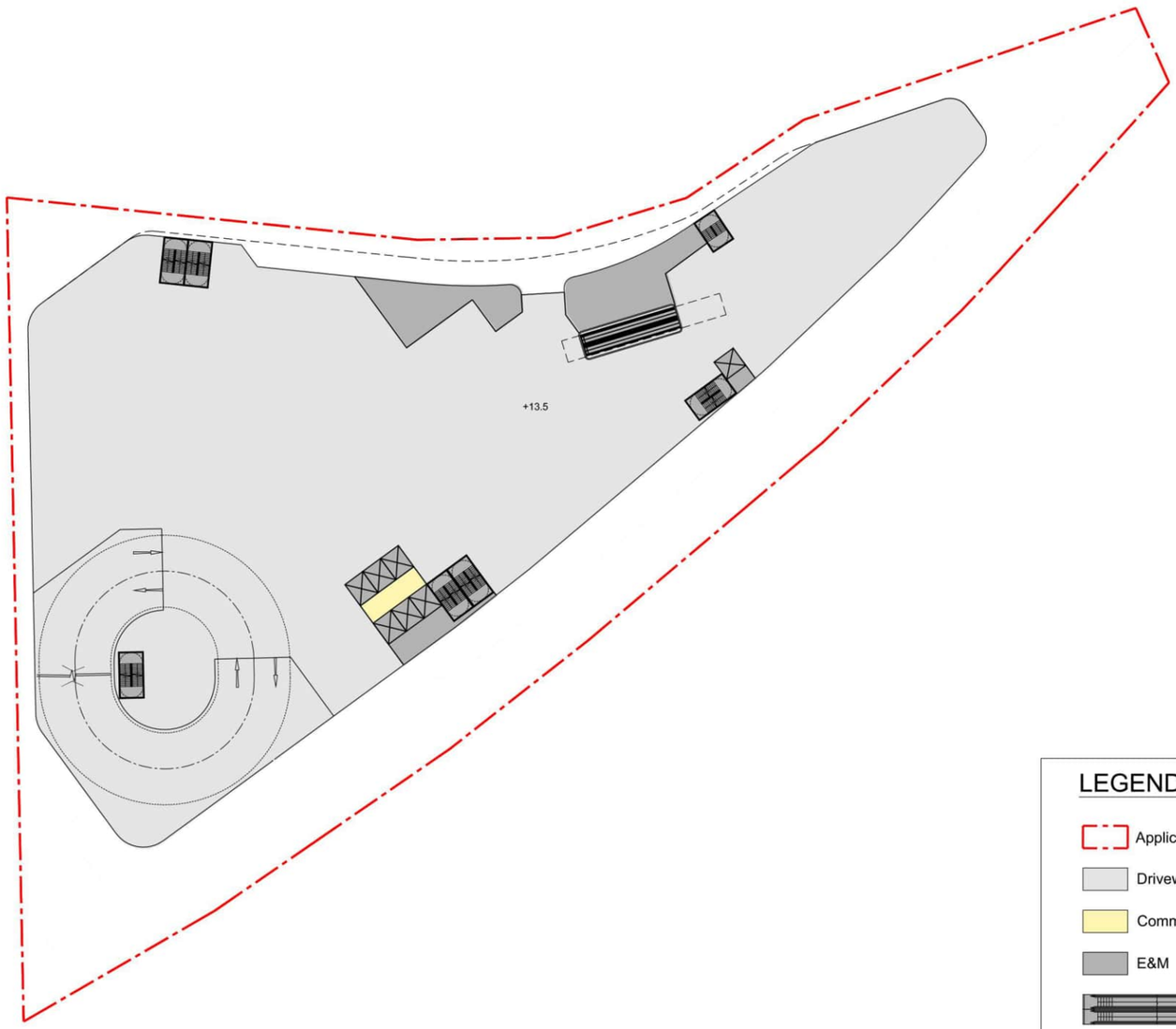
m 1:800 @ A3

19-05-2026



LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Commercial / Retail ^
- E&M
- Escalator
- Staircase
- Lift

* Indicative and subject to discussion with relevant parties

^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

Remarks:
• All levels shown in mPD

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PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative M/F Plan

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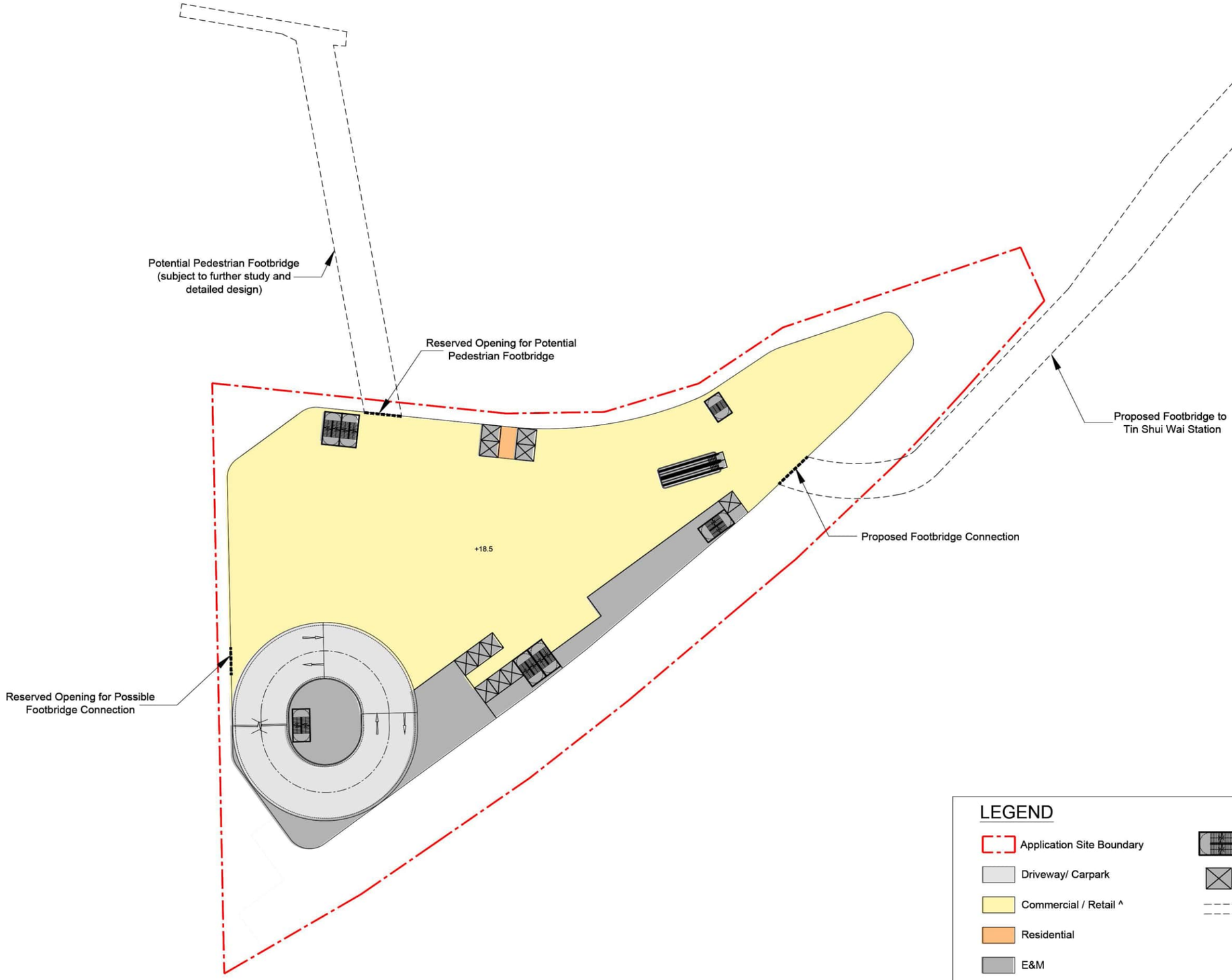

LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Commercial / Retail ^
- Residential
- E&M
- Escalator
- Staircase
- Lift
- Indicative future footbridge connection
- * Indicative and subject to discussion with relevant parties
- ^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

Remarks:
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PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative 1/F Plan

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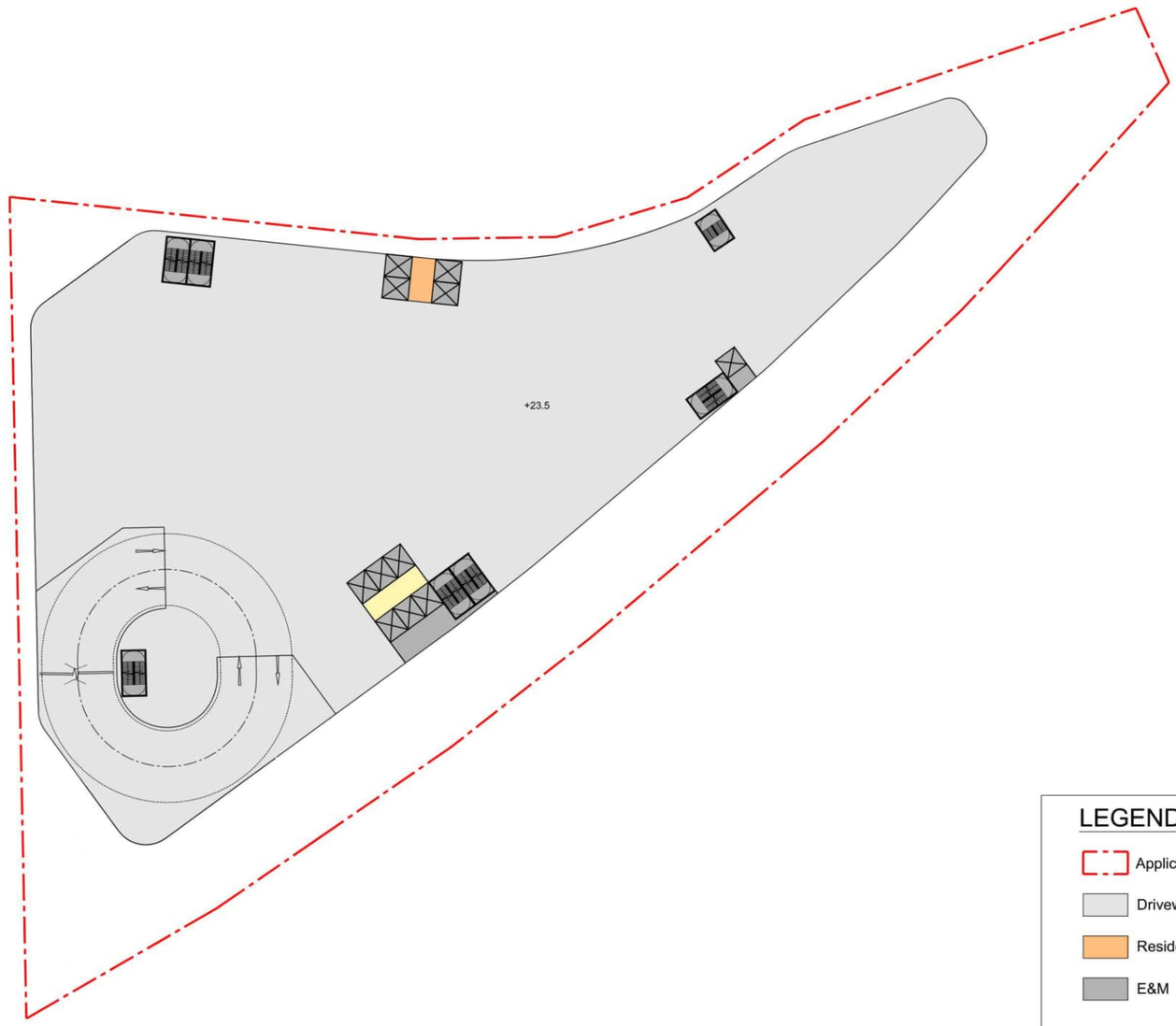
m 1:800 @ A3

19-05-2026



LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Residential
- E&M
- Staircase
- Lift
- Commercial / Retail ^

* Indicative and subject to discussion with relevant parties

^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

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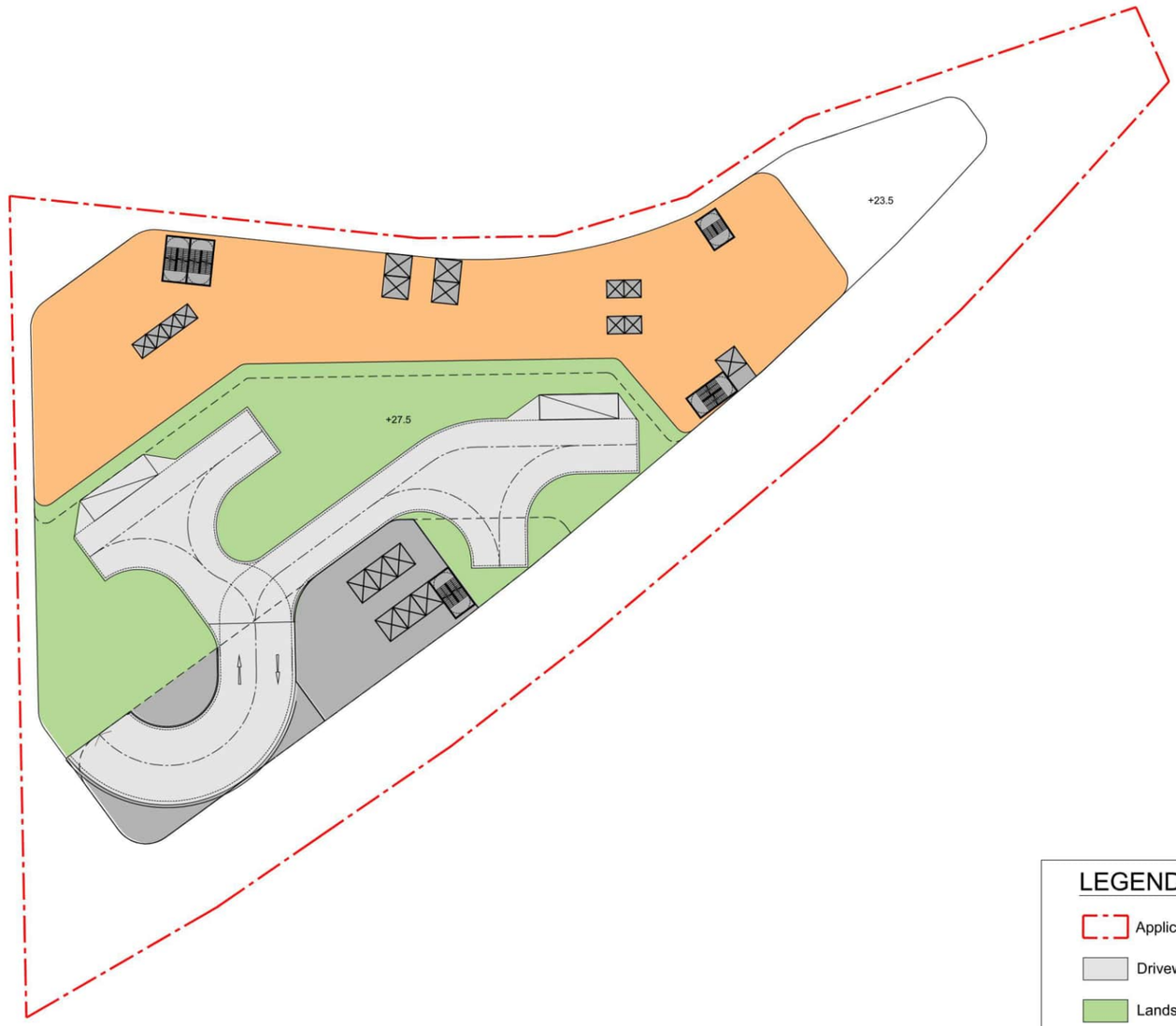
PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative 2/F Plan

0 5 10 20
m 1:800 @ A3

20-01-2026



LEGEND

- Application Site Boundary
- Driveway/ Carpark
- Landscape Area
- Residential
- E&M
- Staircase
- Lift

Remarks:
• All levels shown in mPD

* Indicative and subject to discussion with relevant parties

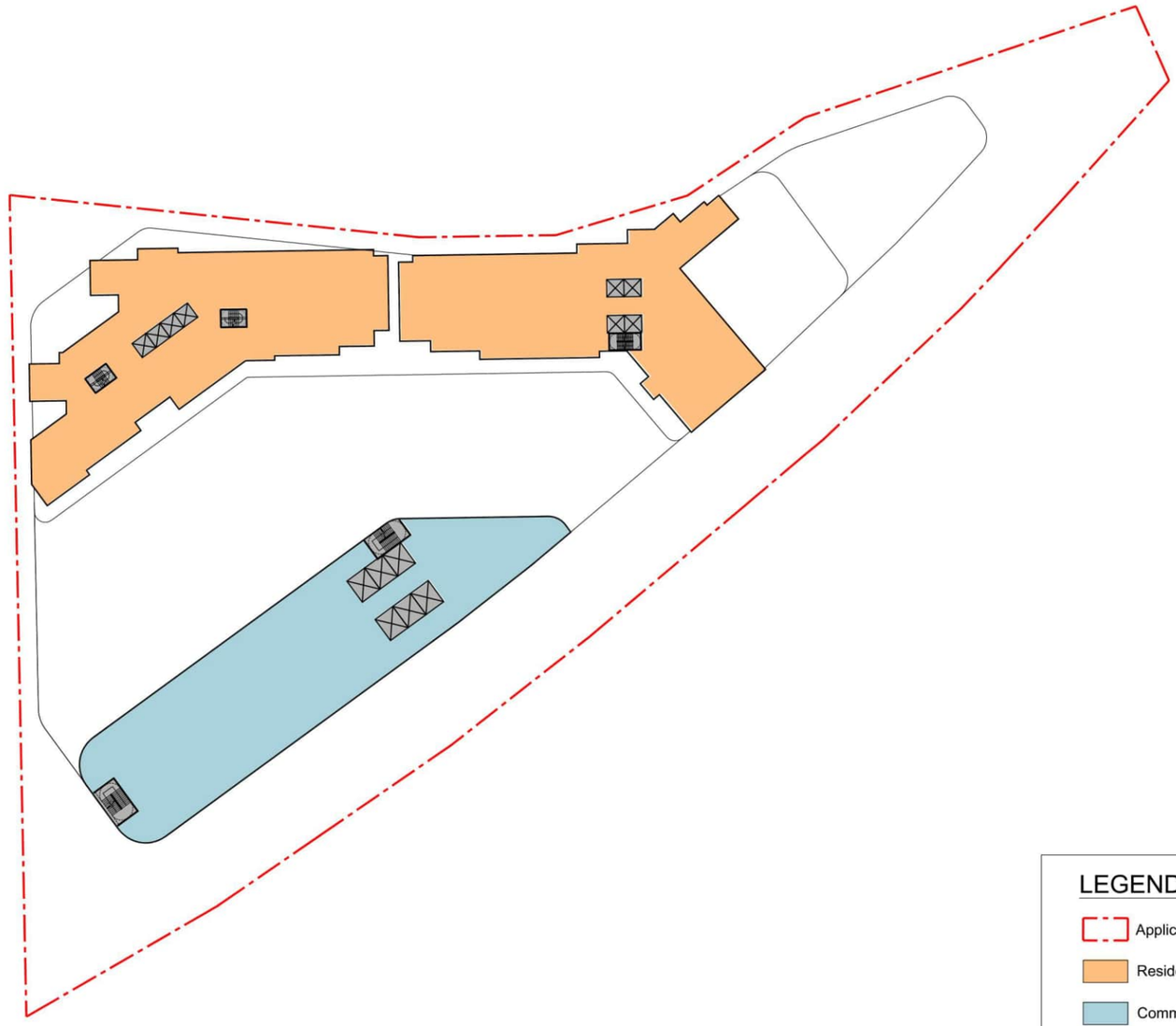
香港匯序建築設計有限公司
ATELIER GLOW LIMITED
香港灣仔譚臣道141號大業大廈25樓
25/F, Tai Yip Building, 141 Tamson Road, Wan Chai, Hong Kong
T:+852 3547 2111

PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative 3/F Plan

0 5 10 20
m 1:800 @ A3

20-01-2026



LEGEND

- Application Site Boundary
- Residential
- Commercial / Office
- E&M
- Staircase
- Lift
- * Indicative and subject to discussion with relevant parties

Remarks:
• All levels shown in mPD

香港匯序建築設計有限公司
ATELIER GLOW LIMITED
香港灣仔譚臣道141號大業大厦25樓
25/F, Tai Yip Building, 141 Tamson Road, Wan Chai, Hong Kong
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PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative Typical Floor Plan

0 5 10 20
m 1:800 @ A3

20-01-2026

LEGEND

- Application Site Boundary
- Residential
- Commercial / Office
- Landscape Area
- E&M
- Staircase
- Lift
- * Indicative and subject to discussion with relevant parties

Remarks:
• All levels shown in mPD

香港匯序建築設計有限公司
ATELIER GLOW LIMITED
香港灣仔譚臣道141號大業大廈25樓
25/F, Tai Yip Building, 141 Tamson Road, Wan Chai, Hong Kong
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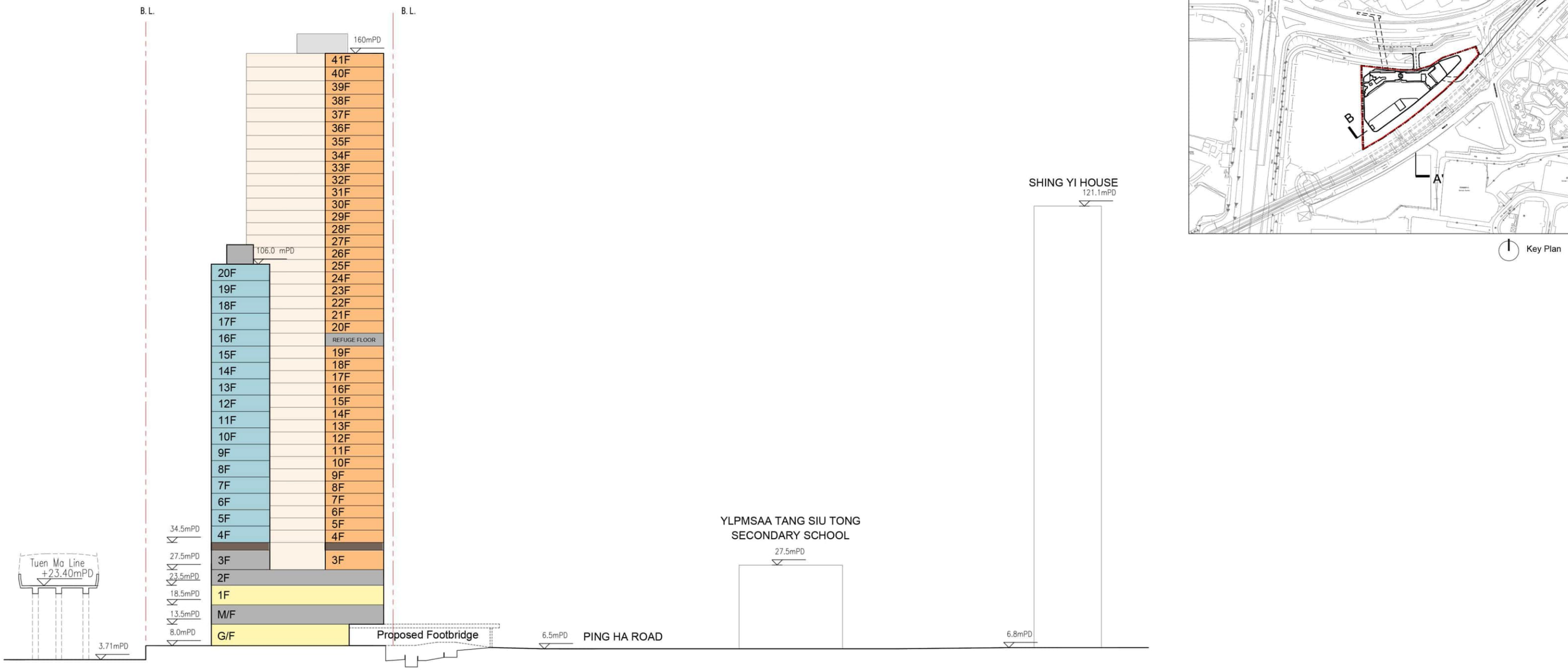
PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative R/F Plan

0 5 10 20
m 1:800 @ A3

20-01-2026



1 SECTION A - A'

LEGEND

- Application Site Boundary
- Residential
- Commercial / Office
- Carpark / E&M
- Transfer Plate
- Commercial / Retail

* Indicative and subject to discussion with relevant parties

^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

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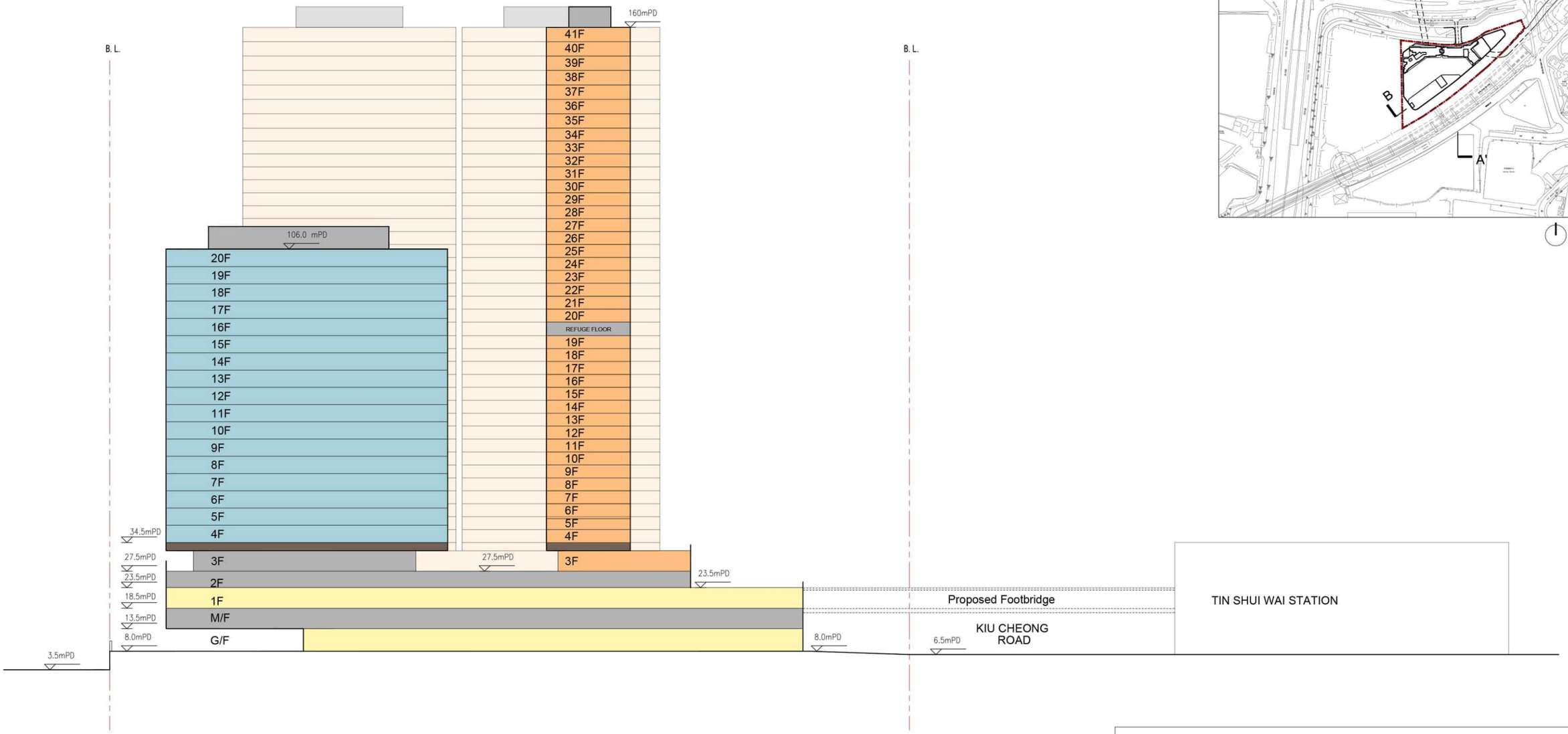
PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative Section

0 5 10 20
m 1:1000 @ A3

19-05-2026



Key Plan

1 SECTION B - B'

LEGEND

- Application Site Boundary
- Residential
- Commercial / Office
- Carpark / E&M
- Transfer Plate
- Commercial / Retail

* Indicative and subject to discussion with relevant parties

^ Includes:'Eating Place', 'Office', 'Place of Entertainment', 'Place of Recreation, Sports or Culture', 'School' (kindergarten, nursery, language, computer, commercial and tutorial schools, art school, ballet and other types of schools providing interest / hobby related courses) and 'Shop and Services'

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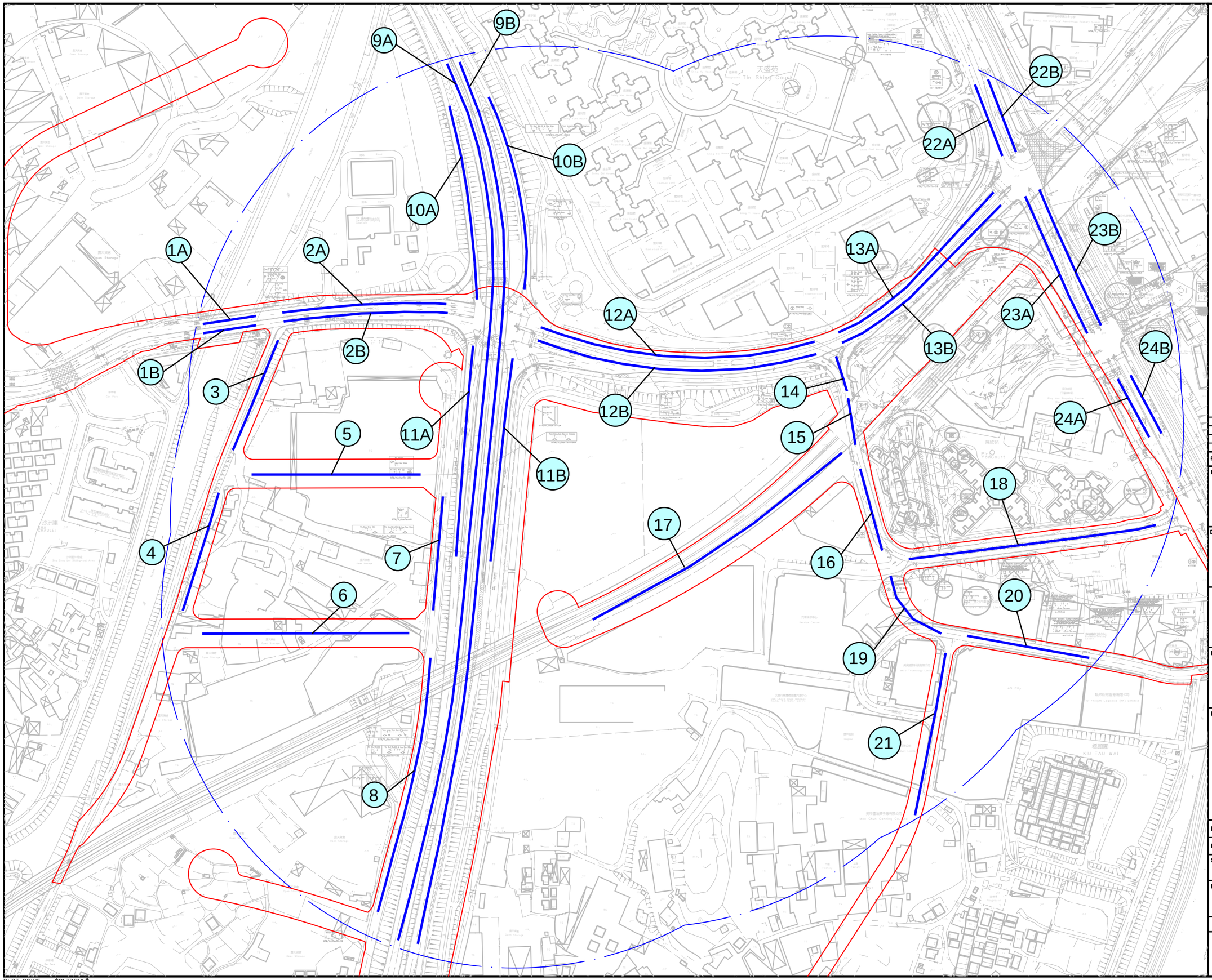
PROPOSED DEVELOPMENT
AT LOT NO. 4354 IN D.D. 124
KIU TAU WAI IN TIN SHUI WAI

Indicative Section

0 5 10 20
m 1:1000 @ A3

19-05-2026

Appendix 2.1 Year 2045 Traffic Forecast for Road Traffic Noise Impact Assessment



Rev.	Date	Drawn	Description	Checked	Approved

DEVELOPER

CONSULTANT

asia infrastructure solutions

PROJECT

PROPOSED COMMERICAL DEVELOPMENT AT LOT NO. 4354 IN D.D. 124, KIU TAU WAI IN TIN SHUI WAI

DRAWING TITLE

INDEX NO.

DESIGNED		CHECKED	
DRAWN		APPROVED	

SCALE AT A1	STATUS	REV

Drawing No.

PRINTED BY: $USER$ $DATE$ $TIME$
FILENAME: $FILE$
PLOT DRIVE: $PLTDRVL$

No.	Remark	Speed Limit (kph)	2045 AM VEH	AM Heavy Veh %	2045 PM VEH	PM Heavy Veh %
1A	Out of 300m	50	830	37%	870	24%
1B	Out of 300m	50	1260	26%	1130	29%
2A	A1	50	890	34%	880	22%
2B	A6	50	1140	28%	1130	27%
3	Out of 300m	50	320	16%	260	20%
4	Out of 300m	50	190	20%	170	26%
5	E1	50	190	10%	190	10%
6	F1	50	310	16%	250	21%
7	D2	50	180	10%	210	10%
8	D1	50	310	16%	290	19%
9A	B1	70	480	31%	560	35%
9B	B2	70	510	40%	520	24%
10A	C2	50	200	30%	300	15%
10B	C3	50	180	23%	270	27%
11A	C1	50	1510	30%	1440	30%
11B	C4	50	1750	35%	1410	25%
12A	A2	50	1150	30%	1230	28%
12B	A5	50	1680	32%	1440	26%
13A	A3	50	840	29%	890	26%
13B	A4	50	1900	28%	1460	27%
14	G5	50	490	33%	440	33%
15	G4	50	510	32%	430	33%
16	G3	50	390	36%	470	35%
17	H1	50	590	40%	630	40%
18	J1	50	360	37%	440	34%
19	G2	50	110	43%	150	30%
20	G1	50	710	47%	1000	28%
21	I1	50	750	47%	1070	27%
22A	K3	50	810	33%	780	33%
22B	K4	50	1000	36%	710	28%
23A	K2	50	1040	33%	1090	32%
23B	K5	50	560	36%	630	32%
24A	K1	50	960	32%	1060	28%
24B	K6	50	530	35%	630	28%

Appendix 2.2 Road Traffic Noise Impact Assessment Result – Base-case Scenario

Predicted Road Traffic Noise [L10(1h) dB(A)] at Representative Sensitive Receivers (Based on Year 2045 Traffic Forecast)
Unmitigated Scenario (AM)

Floor	mPD	T1-01	T1-02	T1-03	T1-04	T1-05	T1-06	T1-07	T1-08	T1-09	T1-10	T1-11	T1-12	T1-13	T1-14	T1-15	T1-16	T1-17	T1-18	T1-19	T1-20	T1-21	T1-22	T1-23	T1-24	T1-25
4/F	34.5	74	74	73	73	73	71	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
5/F	37.7	74	74	73	73	73	72	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
6/F	40.8	74	74	73	73	73	72	76	76	76	76	76	76	76	76	76	76	76	76	76	76	75	76	76	76	76
7/F	44.0	74	74	73	73	73	72	76	76	76	76	76	76	76	75	75	75	75	75	75	75	75	75	75	75	75
8/F	47.1	74	74	73	73	73	72	76	76	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
9/F	50.3	74	74	73	73	73	72	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
10/F	53.4	74	74	73	73	73	72	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
11/F	56.6	74	74	73	73	73	72	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
12/F	59.7	74	74	73	73	73	72	76	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
13/F	62.9	74	74	73	73	73	72	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
14/F	66.0	74	74	73	73	73	72	76	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
15/F	69.2	74	73	73	73	72	72	76	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	75	75
16/F	72.3	74	73	73	73	72	72	75	75	75	75	75	75	75	75	75	75	74	74	74	74	74	74	74	74	74
17/F	75.5	74	73	73	73	72	72	75	75	75	75	75	75	75	74	74	74	74	74	74	74	74	74	74	74	74
18/F	78.6	74	73	73	73	72	71	75	75	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
19/F	81.8	74	73	73	73	72	71	75	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
20/F	88.2	74	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
21/F	91.4	74	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
22/F	94.5	74	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
23/F	97.7	74	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
24/F	100.8	73	73	72	72	72	71	75	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	74	74	74
25/F	104.0	73	73	72	72	72	71	75	74	74	74	74	74	74	74	74	73	73	73	73	73	73	73	74	73	73
26/F	107.1	73	73	72	72	72	71	75	74	74	74	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73
27/F	110.3	73	73	72	72	72	71	75	74	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73
28/F	113.4	73	73	72	72	72	71	74	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
29/F	116.6	73	73	72	72	72	71	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
30/F	119.7	73	72	72	72	72	71	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
31/F	122.9	73	72	72	72	71	71	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
32/F	126.0	73	72	72	72	71	71	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
33/F	129.2	73	72	72	72	71	71	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
34/F	132.3	73	72	71	72	71	70	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
35/F	135.5	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73	73	73	72	73	73	73	73
36/F	139.0	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73	73	72	72	72	73	72	72
37/F	142.5	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	72	72	72	72	72	72	72	72
38/F	146.0	72	72	71	71	71	70	74	73	73	73	73	73	73	72	72	72	72	72	72	72	72	72	72	72	72
39/F	149.5	72	72	71	71	71	70	74	73	73	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72
40/F	153.0	72	72	71	71	71	70	74	73	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
41/F	156.5	72	72	71	71	71	70	74	73	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Exceedance		38	38	38	38	38	30	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
No. of flats with exceedance		38			38			38					38			38				38			38			
Max. Noise Level		74	74	73	73	73	72	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76

Floor	mPD	T1-26	T1-27	T1-28	T1-29	T1-30	T1-31	T1-32	T1-33	T1-34	T1-35	T1-36	T1-37	T1-38	T1-39	T1-40	T1-41	T1-42	T1-43	T1-44	T1-45	T1-46	T1-47	T1-48	T1-49	T1-50
4/F	34.5	75	63	63	63	63	64	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	57	58	67	68
5/F	37.7	75	64	64	64	64	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	62	58	58	68	68
6/F	40.8	75	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	64	64	63	63	58	59	68	69
7/F	44.0	75	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	63	64	64	64	63	59	59	68	69
8/F	47.1	75	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	59	60	68	69
9/F	50.3	75	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	59	60	68	69
10/F	53.4	75	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
11/F	56.6	75	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	69	69
12/F	59.7	74	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
13/F	62.9	74	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
14/F	66.0	74	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	69	69
15/F	69.2	74	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
16/F	72.3	74	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	60	68	69
17/F	75.5	74	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	68	69
18/F	78.6	74	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	68	69
19/F	81.8	74	66	66	66	66	66	65	65	65	65	64	65	64	64	64	64	64	64	64	64	63	60	60	68	69
20/F	88.2	73	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
21/F	91.4	73	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
22/F	94.5	73	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
23/F	97.7	73	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	63	60	60	68	69
24/F	100.8	73	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
25/F	104.0	73	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
26/F	107.1	73	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
27/F	110.3	73	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	59	60	68	69
28/F	113.4	73	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	63	63	63	59	60	68	69
29/F	116.6	72	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	63	64	63	63	63	59	60	68	69
30/F	119.7	72	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
31/F	122.9	72	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	63	60	60	68	69
32/F	126.0	72	66	66	66	66	65	65	65	65	65	64	65	65	65	64	64	64	64	64	64	63	61	61	68	69
33/F	129.2	72	66	66	66	66	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	61	68	69
34/F	132.3	72	66	66	66	66	65	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	61	61	68	69
35/F	135.5	72	66	66	66	66	65	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	61	61	68	69
36/F	139.0	72	66	66	65	66	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	61	68	69
37/F	142.5	72	66	66	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
38/F	146.0	72	65	66	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
39/F	149.5	72	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
40/F	153.0	71	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
41/F	156.5	71	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	62	62	68	69
Exceedance		38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance			0			0			0			0			0			0			0			0		
Max. Noise Level		75	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	62	62	69	69

Floor	mPD	T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09	T2-10	T2-11	T2-12	T2-13	T2-14	T2-15	T2-16	T2-17	T2-18	T2-19	T2-20	T2-21	T2-22	T2-23	T2-24
4/F	34.5	73	76	76	76	75	75	76	76	75	75	75	75	75	76	75	75	75	76	76	76	76	76	59	60
5/F	37.7	73	76	76	76	75	75	75	75	75	75	75	75	75	76	75	75	75	75	76	76	76	76	62	64
6/F	40.8	73	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	76	76	76	64	67
7/F	44.0	73	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	76	66	68
8/F	47.1	73	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	66	68
9/F	50.3	73	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	67	68
10/F	53.4	73	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	67	68
11/F	56.6	72	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	76	67	68
12/F	59.7	72	75	75	75	75	74	75	75	75	75	75	74	75	75	75	75	75	75	75	75	75	76	67	68
13/F	62.9	72	75	75	75	74	74	74	74	74	74	74	74	74	75	74	75	74	74	75	75	75	75	67	68
14/F	66.0	72	74	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	75	75	67	68
15/F	69.2	72	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	75	67	68
16/F	72.3	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	66	67
17/F	75.5	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	66	67
18/F	78.6	71	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	66	67
19/F	81.8	71	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	66	67
20/F	88.2	71	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75	66	67
21/F	91.4	71	74	74	74	73	73	74	74	73	73	73	73	73	74	74	74	73	74	74	74	74	74	66	67
22/F	94.5	71	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74	74	74	66	67
23/F	97.7	71	73	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74	74	66	67
24/F	100.8	71	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74	66	67
25/F	104.0	71	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74	66	67
26/F	107.1	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	66	67
27/F	110.3	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	66	66
28/F	113.4	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	66	66
29/F	116.6	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	65	66
30/F	119.7	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74	65	66
31/F	122.9	70	73	73	73	72	72	73	73	73	72	72	72	73	73	73	73	73	73	73	73	73	74	65	66
32/F	126.0	70	73	73	73	72	72	73	73	72	72	72	72	72	73	72	72	72	72	73	73	73	74	65	66
33/F	129.2	70	73	73	73	72	72	72	72	72	72	72	72	72	73	72	72	72	72	72	73	73	73	65	66
34/F	132.3	70	72	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	73	73	65	66
35/F	135.5	70	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	73	65	66
36/F	139.0	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	73	65	66
37/F	142.5	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	65	66
38/F	146.0	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	65	66
39/F	149.5	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	65	66
40/F	153.0	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	65	66
41/F	156.5	69	72	72	72	72	71	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	65	66
Exceedance		22	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	0	0
No. of flats with exceedance		38					38			38				38			38		38					0	
Max. Noise Level		73	76	76	76	75	75	76	76	75	75	75	75	75	76	75	75	75	76	76	76	76	76	67	68

Floor	mPD	T2-25	T2-26	T2-27	T2-28	T2-29	T2-30	T2-31	T2-32	T2-33	T2-34	T2-35	T2-36	T2-37	T2-38	T2-39	T2-40	T2-41	T2-42	T2-43	T2-44	T2-45	T2-46	T2-47	T2-48
4/F	34.5	63	63	63	65	65	70	70	64	65	65	64	62	62	62	62	63	63	63	63	63	63	63	63	63
5/F	37.7	66	67	67	68	67	71	70	65	65	66	65	65	64	64	64	64	64	64	64	64	64	64	64	64
6/F	40.8	69	69	69	69	68	71	70	65	66	66	66	65	66	66	66	66	66	65	65	65	65	65	65	65
7/F	44.0	70	71	70	71	70	72	70	65	66	66	66	66	66	66	66	66	66	66	66	66	65	65	65	65
8/F	47.1	70	71	71	71	71	72	70	65	66	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
9/F	50.3	70	71	71	71	71	73	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
10/F	53.4	70	71	71	71	71	73	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
11/F	56.6	70	71	71	71	71	73	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
12/F	59.7	70	71	71	71	71	73	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
13/F	62.9	70	71	71	71	71	72	69	64	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
14/F	66.0	70	70	70	71	71	72	69	64	65	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
15/F	69.2	70	70	70	71	70	72	69	64	65	66	66	66	66	66	66	67	67	66	67	66	66	66	66	66
16/F	72.3	70	70	70	71	70	72	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
17/F	75.5	70	70	70	71	70	72	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
18/F	78.6	69	70	70	71	70	72	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
19/F	81.8	69	70	70	70	70	72	69	64	65	66	66	65	66	66	66	66	67	66	66	66	66	66	66	66
20/F	88.2	69	70	70	70	70	72	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
21/F	91.4	69	70	70	70	70	72	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
22/F	94.5	69	70	70	70	70	71	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
23/F	97.7	69	70	70	70	70	71	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
24/F	100.8	69	69	69	70	70	71	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
25/F	104.0	69	69	69	70	69	71	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
26/F	107.1	69	69	69	70	69	71	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
27/F	110.3	69	69	69	70	69	71	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
28/F	113.4	69	69	69	70	69	71	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
29/F	116.6	68	69	69	69	69	71	68	64	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66
30/F	119.7	68	69	69	69	69	71	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
31/F	122.9	68	69	69	69	69	71	68	64	65	66	65	65	65	66	66	66	66	66	66	66	66	66	66	66
32/F	126.0	68	69	69	69	69	71	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
33/F	129.2	68	69	69	69	69	71	68	65	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
34/F	132.3	68	69	69	69	69	70	68	65	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
35/F	135.5	68	69	69	69	69	70	68	65	66	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
36/F	139.0	68	69	68	69	69	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
37/F	142.5	68	68	68	69	69	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
38/F	146.0	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
39/F	149.5	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
40/F	153.0	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
41/F	156.5	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
Exceedance		0	7	6	12	7	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance		7			29			0			0			0			0			0			0		
Max. Noise Level		70	71	71	71	71	73	70	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66

(shaded) Noise level that will exceed limit of 70dB(A)

Max Noise Level (dB(A)) =	76
Total no. of Exceedance =	1861
Total no. of flat Exceedance =	530
Total no. of Premises =	1140
% Compliance =	54%

Predicted Road Traffic Noise [L10(1h) dB(A)] at Representative Sensitive Receivers (Based on Year 2045 Traffic Forecast)
Unmitigated Scenario (PM)

Floor	mPD	T1-01	T1-02	T1-03	T1-04	T1-05	T1-06	T1-07	T1-08	T1-09	T1-10	T1-11	T1-12	T1-13	T1-14	T1-15	T1-16	T1-17	T1-18
4/F	34.5	73	73	72	72	72	71	76	75	75	75	75	75	75	75	75	75	75	75
5/F	37.7	74	73	72	72	72	71	76	75	75	75	75	75	75	75	75	75	75	75
6/F	40.8	74	73	72	72	72	71	75	75	75	75	75	75	75	75	75	75	75	75
7/F	44.0	74	73	72	72	72	71	75	75	75	75	75	75	75	75	75	75	75	75
8/F	47.1	74	73	72	72	72	71	75	75	75	75	75	75	75	75	75	75	75	75
9/F	50.3	74	73	72	72	72	71	75	75	75	75	75	75	75	75	75	75	75	75
10/F	53.4	74	73	72	72	72	71	75	75	75	75	75	75	75	74	74	74	74	74
11/F	56.6	74	73	72	72	72	71	75	75	75	75	74	74	74	74	74	74	74	74
12/F	59.7	73	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74
13/F	62.9	73	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74
14/F	66.0	73	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74
15/F	69.2	73	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74
16/F	72.3	73	73	72	72	72	71	75	75	74	74	74	74	74	74	74	74	74	74
17/F	75.5	73	73	72	72	72	71	75	74	74	74	74	74	74	74	74	74	74	74
18/F	78.6	73	73	72	72	72	71	75	74	74	74	74	74	74	74	74	74	74	74
19/F	81.8	73	73	72	72	71	71	75	74	74	74	74	74	74	73	73	73	73	73
20/F	88.2	73	72	72	72	71	71	74	74	74	73	73	73	73	73	73	73	73	73
21/F	91.4	73	72	72	72	71	70	74	74	74	73	73	73	73	73	73	73	73	73
22/F	94.5	73	72	71	72	71	70	74	74	73	73	73	73	73	73	73	73	73	73
23/F	97.7	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73
24/F	100.8	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73
25/F	104.0	73	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73
26/F	107.1	72	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73
27/F	110.3	72	72	71	71	71	70	74	74	73	73	73	73	73	73	73	73	73	73
28/F	113.4	72	72	71	71	71	70	74	73	73	73	73	73	73	73	73	73	73	73
29/F	116.6	72	72	71	71	71	70	74	73	73	73	73	73	73	72	73	72	72	72
30/F	119.7	72	72	71	71	71	70	74	73	73	73	73	73	72	72	72	72	72	72
31/F	122.9	72	72	71	71	71	70	73	73	73	73	73	72	72	72	72	72	72	72
32/F	126.0	72	72	71	71	71	70	73	73	73	73	72	72	72	72	72	72	72	72
33/F	129.2	72	72	71	71	71	70	73	73	73	72	72	72	72	72	72	72	72	72
34/F	132.3	72	72	71	71	71	70	73	73	73	72	72	72	72	72	72	72	72	72
35/F	135.5	72	71	71	71	71	70	73	73	72	72	72	72	72	72	72	72	72	72
36/F	139.0	72	71	71	71	70	70	73	73	72	72	72	72	72	72	72	72	72	72
37/F	142.5	72	71	71	71	70	70	73	73	72	72	72	72	72	72	72	72	72	72
38/F	146.0	72	71	70	71	70	70	73	73	72	72	72	72	72	72	72	72	72	72
39/F	149.5	72	71	70	71	70	70	73	73	72	72	72	72	72	72	72	72	72	72
40/F	153.0	72	71	70	70	70	69	73	73	72	72	72	72	72	72	72	72	72	72
41/F	156.5	72	71	70	70	70	69	73	73	72	72	72	72	72	72	71	71	71	71
Exceedance		38	38	34	36	32	17	38	38	38	38	38	38	38	38	38	38	38	38
No. of flats with exceedance		38			36			38					38			38			
Max. Noise Level		74	73	72	72	72	71	76	75	75	75	75	75	75	75	75	75	75	75

Floor	mPD	T1-19	T1-20	T1-21	T1-22	T1-23	T1-24	T1-25	T1-26	T1-27	T1-28	T1-29	T1-30	T1-31	T1-32	T1-33	T1-34	T1-35	T1-36	T1-37	T1-38
4/F	34.5	75	75	75	75	75	75	75	75	63	63	63	63	63	63	63	62	62	62	62	62
5/F	37.7	75	75	75	75	75	75	75	75	64	64	64	64	64	63	63	63	63	62	62	62
6/F	40.8	75	75	75	75	75	75	75	74	64	64	64	64	64	64	64	63	63	63	63	63
7/F	44.0	75	75	75	75	75	75	75	74	64	64	64	64	64	64	64	64	63	63	63	63
8/F	47.1	75	75	75	75	75	75	75	74	65	65	64	64	64	64	64	64	64	63	63	63
9/F	50.3	75	75	74	75	75	75	75	74	65	65	65	65	65	64	64	64	64	63	64	63
10/F	53.4	74	74	74	74	74	74	74	74	65	65	65	65	65	65	65	64	64	64	64	64
11/F	56.6	74	74	74	74	74	74	74	74	65	65	65	65	65	65	65	64	64	64	64	64
12/F	59.7	74	74	74	74	74	74	74	74	65	65	65	65	65	65	65	65	64	64	64	64
13/F	62.9	74	74	74	74	74	74	74	74	65	65	65	65	65	65	65	65	64	64	64	64
14/F	66.0	74	74	74	74	74	74	74	73	65	65	65	65	65	65	65	65	64	64	64	64
15/F	69.2	74	74	74	74	74	74	74	73	65	65	65	65	65	65	65	65	64	64	64	64
16/F	72.3	74	74	74	74	74	74	74	73	65	65	65	65	65	65	65	65	64	64	64	64
17/F	75.5	74	74	74	74	74	74	74	73	65	65	65	65	65	65	65	64	64	64	64	64
18/F	78.6	74	74	74	74	74	74	74	73	65	65	65	65	65	65	65	64	64	64	64	64
19/F	81.8	73	73	73	73	74	73	73	73	65	65	65	65	65	65	65	64	64	64	64	64
20/F	88.2	73	73	73	73	73	73	73	73	65	65	65	65	65	65	64	64	64	64	64	64
21/F	91.4	73	73	73	73	73	73	73	73	65	65	65	65	65	65	64	64	64	64	64	64
22/F	94.5	73	73	73	73	73	73	73	72	65	65	65	65	65	65	64	64	64	64	64	64
23/F	97.7	73	73	73	73	73	73	73	72	65	65	65	65	65	64	64	64	64	64	64	64
24/F	100.8	73	73	73	73	73	73	73	72	65	65	65	65	65	64	64	64	64	64	64	64
25/F	104.0	73	73	73	73	73	73	73	72	65	65	65	65	65	64	64	64	64	63	64	63
26/F	107.1	73	73	73	73	73	73	73	72	65	65	65	65	65	64	64	64	64	63	63	63
27/F	110.3	73	73	72	73	73	73	73	72	65	65	65	65	64	64	64	64	64	63	63	63
28/F	113.4	73	73	72	72	73	72	72	72	65	65	65	65	64	64	64	64	64	63	63	63
29/F	116.6	72	72	72	72	72	72	72	72	65	65	65	65	64	64	64	64	64	63	63	63
30/F	119.7	72	72	72	72	72	72	72	72	65	65	65	65	64	64	64	64	64	63	64	63
31/F	122.9	72	72	72	72	72	72	72	72	65	65	65	65	65	64	64	64	64	64	64	64
32/F	126.0	72	72	72	72	72	72	72	71	65	65	65	65	65	65	64	64	64	64	64	64
33/F	129.2	72	72	72	72	72	72	72	71	65	65	65	65	65	65	65	64	64	64	64	64
34/F	132.3	72	72	72	72	72	72	72	71	65	65	65	65	65	65	65	64	64	64	64	64
35/F	135.5	72	72	72	72	72	72	72	71	65	65	65	65	65	65	65	64	64	64	64	64
36/F	139.0	72	72	72	72	72	72	72	71	65	65	65	65	65	65	65	64	64	64	64	64
37/F	142.5	72	72	72	72	72	72	72	71	65	65	65	65	65	65	64	64	64	64	64	64
38/F	146.0	72	72	72	72	72	72	72	71	65	65	65	65	65	64	64	64	64	64	64	64
39/F	149.5	72	72	72	72	72	72	72	71	65	65	65	65	65	64	64	64	64	64	64	64
40/F	153.0	72	71	71	71	72	72	71	71	65	65	65	65	65	64	64	64	64	64	64	64
41/F	156.5	71	71	71	71	71	71	71	71	65	65	65	65	65	64	64	64	64	64	64	64
Exceedance		38	38	38	38	38	38	38	38	0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance		38			38					0			0			0			0		
Max. Noise Level		75	75	75	75	75	75	75	75	65	65	65	65	65	65	65	65	64	64	64	64

Floor	mPD	T1-39	T1-40	T1-41	T1-42	T1-43	T1-44	T1-45	T1-46	T1-47	T1-48	T1-49	T1-50
4/F	34.5	62	62	62	62	62	62	62	61	57	58	67	67
5/F	37.7	62	62	62	62	62	62	62	62	58	58	67	68
6/F	40.8	63	63	63	62	63	63	63	62	58	59	67	68
7/F	44.0	63	63	63	63	63	63	63	62	59	59	67	68
8/F	47.1	63	63	63	63	63	63	63	62	59	60	67	68
9/F	50.3	64	64	63	63	63	63	63	63	60	60	68	68
10/F	53.4	64	64	63	63	63	63	63	63	60	60	68	68
11/F	56.6	64	64	64	63	64	64	63	63	60	61	68	69
12/F	59.7	64	64	64	63	64	64	63	63	60	61	68	69
13/F	62.9	64	64	64	63	64	64	63	63	61	61	68	69
14/F	66.0	64	64	64	63	64	64	63	63	61	61	68	69
15/F	69.2	64	64	64	63	64	64	63	63	61	61	68	69
16/F	72.3	64	64	64	63	64	64	63	63	61	61	68	69
17/F	75.5	64	64	64	63	64	63	63	63	60	61	68	69
18/F	78.6	64	64	64	63	64	63	63	63	60	61	68	69
19/F	81.8	64	64	64	63	63	63	63	63	60	61	68	69
20/F	88.2	64	64	63	63	63	63	63	62	60	60	68	68
21/F	91.4	64	64	63	63	63	63	63	62	60	60	67	68
22/F	94.5	64	64	63	63	63	63	63	62	60	60	67	68
23/F	97.7	64	64	63	63	63	63	63	62	60	60	67	68
24/F	100.8	64	64	63	63	63	63	63	62	60	60	67	68
25/F	104.0	63	63	63	63	63	63	63	62	60	60	67	68
26/F	107.1	63	63	63	63	63	63	63	62	60	60	67	68
27/F	110.3	63	63	63	63	63	63	63	62	60	60	67	68
28/F	113.4	63	63	63	63	63	63	63	62	60	60	67	68
29/F	116.6	63	63	63	63	63	63	63	62	60	60	67	68
30/F	119.7	63	63	63	63	63	63	63	62	60	60	67	68
31/F	122.9	64	64	63	63	63	63	63	62	60	60	67	68
32/F	126.0	64	64	64	63	63	63	63	63	61	61	67	68
33/F	129.2	64	64	64	63	64	64	63	63	61	61	67	68
34/F	132.3	64	64	64	63	64	64	63	63	61	61	67	68
35/F	135.5	64	64	64	63	64	64	63	63	61	61	67	68
36/F	139.0	64	64	64	63	64	64	63	63	61	62	67	68
37/F	142.5	64	64	64	64	64	64	63	63	61	62	67	68
38/F	146.0	64	64	64	64	64	64	63	63	61	62	67	68
39/F	149.5	64	64	64	64	64	64	63	63	61	62	67	68
40/F	153.0	64	64	64	64	64	64	63	63	62	62	67	68
41/F	156.5	64	64	64	64	64	64	63	63	62	62	67	68
Exceedance		0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance		0			0			0			0		
Max. Noise Level		64	64	64	64	64	64	63	63	62	62	68	69

Floor	mPD	T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09	T2-10	T2-11	T2-12	T2-13	T2-14	T2-15	T2-16	T2-17	T2-18
4/F	34.5	72	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
5/F	37.7	72	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
6/F	40.8	72	75	75	75	75	74	75	75	75	74	74	74	75	75	75	75	75	75
7/F	44.0	72	75	75	75	74	74	74	74	74	74	74	74	74	75	74	75	74	75
8/F	47.1	72	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
9/F	50.3	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
10/F	53.4	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
11/F	56.6	72	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
12/F	59.7	71	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
13/F	62.9	71	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
14/F	66.0	71	74	74	74	74	73	74	74	74	74	74	74	74	74	74	74	74	74
15/F	69.2	71	74	74	74	74	73	74	74	74	74	74	73	74	74	74	74	74	74
16/F	72.3	71	74	74	74	73	73	73	73	73	73	73	73	73	74	73	74	73	73
17/F	75.5	71	73	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73
18/F	78.6	71	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
19/F	81.8	71	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
20/F	88.2	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
21/F	91.4	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
22/F	94.5	70	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
23/F	97.7	70	73	73	73	73	72	73	73	73	73	73	72	73	73	73	73	73	73
24/F	100.8	70	73	73	73	72	72	73	72	72	72	72	72	72	73	73	73	72	73
25/F	104.0	70	73	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72
26/F	107.1	70	72	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72
27/F	110.3	70	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
28/F	113.4	70	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
29/F	116.6	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
30/F	119.7	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
31/F	122.9	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
32/F	126.0	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
33/F	129.2	69	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
34/F	132.3	69	72	72	72	72	71	72	72	72	72	72	72	72	72	72	72	72	72
35/F	135.5	69	72	72	72	72	71	72	72	72	72	72	71	71	72	72	72	72	72
36/F	139.0	69	72	72	72	71	71	71	71	71	71	71	71	71	72	72	72	71	72
37/F	142.5	69	71	72	72	71	71	71	71	71	71	71	71	71	72	71	71	71	71
38/F	146.0	69	71	72	72	71	71	71	71	71	71	71	71	71	71	71	71	71	71
39/F	149.5	68	71	72	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
40/F	153.0	68	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
41/F	156.5	68	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
Exceedance		16	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
No. of flats with exceedance		38					38			38				38			38		38
Max. Noise Level		72	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75

Floor	mPD	T2-19	T2-20	T2-21	T2-22	T2-23	T2-24	T2-25	T2-26	T2-27	T2-28	T2-29	T2-30	T2-31	T2-32	T2-33	T2-34	T2-35	T2-36	T2-37	T2-38
4/F	34.5	75	75	75	75	59	60	63	63	63	65	65	70	70	64	65	66	64	62	61	62
5/F	37.7	75	75	75	75	62	63	66	67	67	68	67	71	70	65	66	66	66	65	64	64
6/F	40.8	75	75	75	75	64	66	69	69	69	69	68	71	70	65	66	66	66	65	66	66
7/F	44.0	75	75	75	75	66	67	70	70	70	70	69	72	70	65	66	66	66	66	66	66
8/F	47.1	75	75	75	75	67	68	70	71	70	71	70	72	70	65	66	66	66	66	66	66
9/F	50.3	74	75	75	75	67	68	70	71	71	71	70	72	70	65	66	66	66	66	66	66
10/F	53.4	74	74	75	75	67	68	70	71	70	71	70	72	69	65	66	66	66	66	66	66
11/F	56.6	74	74	74	75	67	68	70	70	70	71	70	72	69	64	66	66	66	66	66	66
12/F	59.7	74	74	74	75	67	67	70	70	70	71	70	72	69	64	66	66	66	66	66	66
13/F	62.9	74	74	74	75	67	67	70	70	70	71	70	72	69	64	66	66	66	65	66	66
14/F	66.0	74	74	74	75	67	67	70	70	70	71	70	72	69	64	65	66	66	65	66	66
15/F	69.2	74	74	74	75	67	67	70	70	70	70	70	72	69	64	65	66	66	65	66	66
16/F	72.3	74	74	74	74	66	67	69	70	70	70	70	72	69	64	65	66	66	65	66	66
17/F	75.5	73	74	74	74	66	67	69	70	70	70	70	72	69	64	65	66	66	65	66	66
18/F	78.6	73	73	74	74	66	67	69	70	70	70	70	72	69	64	65	66	66	65	66	66
19/F	81.8	73	73	74	74	66	67	69	70	70	70	70	72	69	64	65	66	66	65	66	66
20/F	88.2	73	73	73	74	66	67	69	70	69	70	69	71	68	64	65	66	65	65	66	66
21/F	91.4	73	73	73	74	66	67	69	69	69	70	69	71	68	64	65	66	65	65	66	66
22/F	94.5	73	73	73	74	66	67	69	69	69	70	69	71	68	64	65	66	65	65	65	66
23/F	97.7	73	73	73	74	66	66	69	69	69	70	69	71	68	64	65	65	65	65	65	66
24/F	100.8	73	73	73	74	66	66	69	69	69	70	69	71	68	64	65	65	65	65	65	66
25/F	104.0	73	73	73	74	66	66	69	69	69	69	69	71	68	64	65	65	65	65	65	66
26/F	107.1	72	73	73	73	66	66	68	69	69	69	69	71	68	64	65	65	65	65	65	66
27/F	110.3	72	72	73	73	66	66	68	69	69	69	69	71	68	64	65	65	65	65	65	65
28/F	113.4	72	72	73	73	66	66	68	69	69	69	69	71	68	64	65	65	65	65	65	65
29/F	116.6	72	72	72	73	65	66	68	69	69	69	69	71	68	64	65	65	65	65	65	65
30/F	119.7	72	72	72	73	65	66	68	69	69	69	69	70	68	64	65	65	65	65	65	65
31/F	122.9	72	72	72	73	65	66	68	69	69	69	69	70	68	64	65	65	65	65	65	65
32/F	126.0	72	72	72	73	65	66	68	69	68	69	68	70	68	64	65	65	65	65	65	65
33/F	129.2	72	72	72	73	65	66	68	68	68	69	68	70	68	64	65	66	65	65	65	65
34/F	132.3	72	72	72	73	65	66	68	68	68	69	68	70	68	64	65	66	65	65	65	65
35/F	135.5	72	72	72	73	65	66	68	68	68	69	68	70	68	64	65	66	65	65	65	65
36/F	139.0	72	72	72	73	65	65	68	68	68	69	68	70	68	64	65	66	65	65	65	66
37/F	142.5	72	72	72	73	65	65	68	68	68	68	68	70	68	64	65	66	65	65	65	66
38/F	146.0	71	72	72	72	65	65	68	68	68	68	68	70	68	64	65	66	65	65	65	66
39/F	149.5	71	71	72	72	65	65	67	68	68	68	68	70	68	65	65	66	66	65	66	66
40/F	153.0	71	71	72	72	65	65	67	68	68	68	68	70	68	65	65	66	66	65	66	66
41/F	156.5	71	71	72	72	65	65	67	68	68	68	68	70	68	65	66	66	66	65	66	66
Exceedance		38	38	38	38	0	0	0	3	1	7	0	25	0	0	0	0	0	0	0	0
No. of flats with exceedance						0		3			25			0			0			0	
Max. Noise Level		75	75	75	75	67	68	70	71	71	71	70	72	70	65	66	66	66	66	66	66

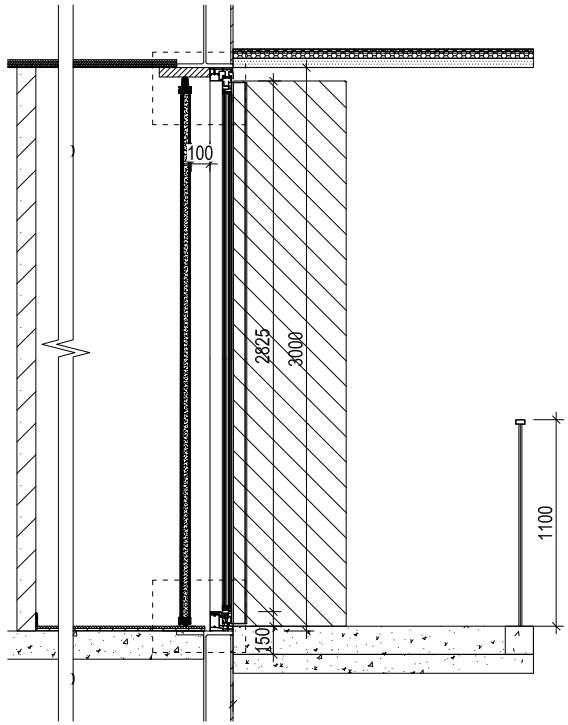
Floor	mPD	T2-39	T2-40	T2-41	T2-42	T2-43	T2-44	T2-45	T2-46	T2-47	T2-48
4/F	34.5	62	63	63	63	63	63	63	62	62	62
5/F	37.7	64	64	64	64	64	64	64	64	64	64
6/F	40.8	66	66	65	65	65	65	65	64	64	64
7/F	44.0	66	66	66	66	66	66	65	65	65	65
8/F	47.1	66	66	66	66	66	66	66	66	65	65
9/F	50.3	66	66	66	66	66	66	66	66	66	65
10/F	53.4	66	66	66	66	66	66	66	66	66	66
11/F	56.6	66	66	66	66	66	66	66	66	66	66
12/F	59.7	66	66	66	66	66	66	66	66	66	66
13/F	62.9	66	66	66	66	66	66	66	66	66	66
14/F	66.0	66	66	66	66	66	66	66	66	66	66
15/F	69.2	66	66	66	66	66	66	66	66	66	66
16/F	72.3	66	66	66	66	66	66	66	66	66	66
17/F	75.5	66	66	66	66	66	66	66	66	66	66
18/F	78.6	66	66	66	66	66	66	66	66	66	66
19/F	81.8	66	66	66	66	66	66	66	66	66	66
20/F	88.2	66	66	66	66	66	66	66	66	66	65
21/F	91.4	66	66	66	66	66	66	66	66	65	65
22/F	94.5	66	66	66	66	66	66	66	66	65	65
23/F	97.7	66	66	66	66	66	66	66	65	65	65
24/F	100.8	66	66	66	66	66	66	66	65	65	65
25/F	104.0	66	66	66	66	66	66	65	65	65	65
26/F	107.1	66	66	66	66	66	66	65	65	65	65
27/F	110.3	66	66	66	66	66	66	65	65	65	65
28/F	113.4	65	66	66	66	66	66	65	65	65	65
29/F	116.6	65	66	66	66	66	66	65	65	65	65
30/F	119.7	65	66	66	66	66	66	65	65	65	65
31/F	122.9	65	66	66	65	66	66	65	65	65	65
32/F	126.0	65	66	66	66	66	66	65	65	65	65
33/F	129.2	65	66	66	66	66	66	65	65	65	65
34/F	132.3	65	66	66	66	66	66	65	65	65	65
35/F	135.5	65	66	66	66	66	66	66	65	65	65
36/F	139.0	66	66	66	66	66	66	66	66	65	65
37/F	142.5	66	66	66	66	66	66	66	66	65	65
38/F	146.0	66	66	66	66	66	66	66	65	65	65
39/F	149.5	66	66	66	66	66	66	66	65	65	65
40/F	153.0	66	66	66	66	66	66	66	65	65	65
41/F	156.5	66	66	66	66	66	66	65	65	65	65
Exceedance		0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance			0			0			0		
Max. Noise Level		66	66	66	66	66	66	66	66	66	66

(Shaded cell) Noise level that will exceed limit of 70dB(A)

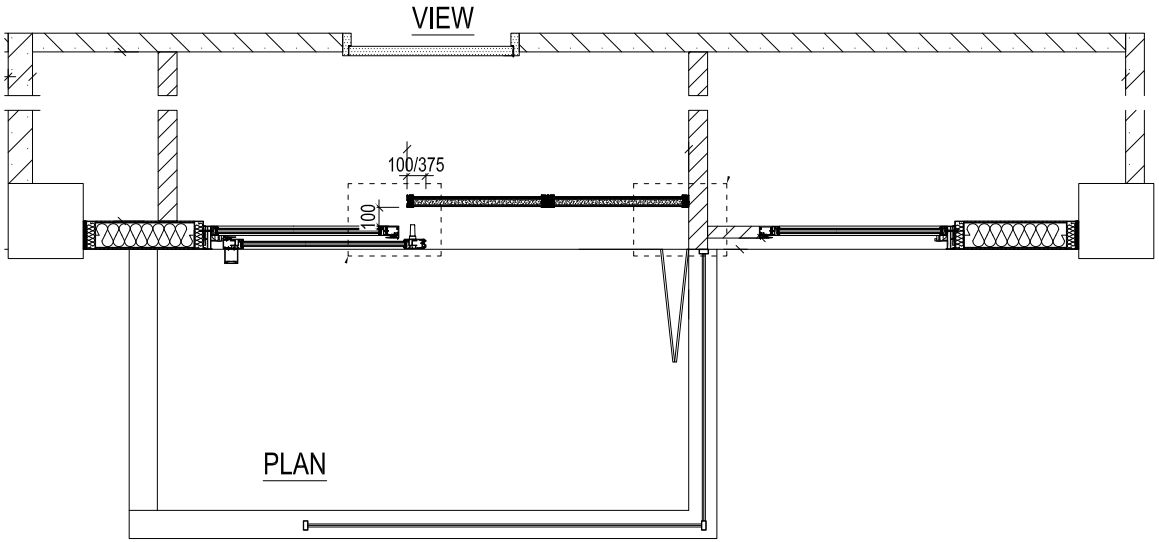
Max Noise Level (dB(A)) =	76
Total no. of Exceedance =	1805
Total no. of flat Exceedance =	520
Total no. of Premises =	1140
% Compliance =	54%

Appendix 2.3 Indicative Design of All Mitigation Measures Adopted in the Proposed Development

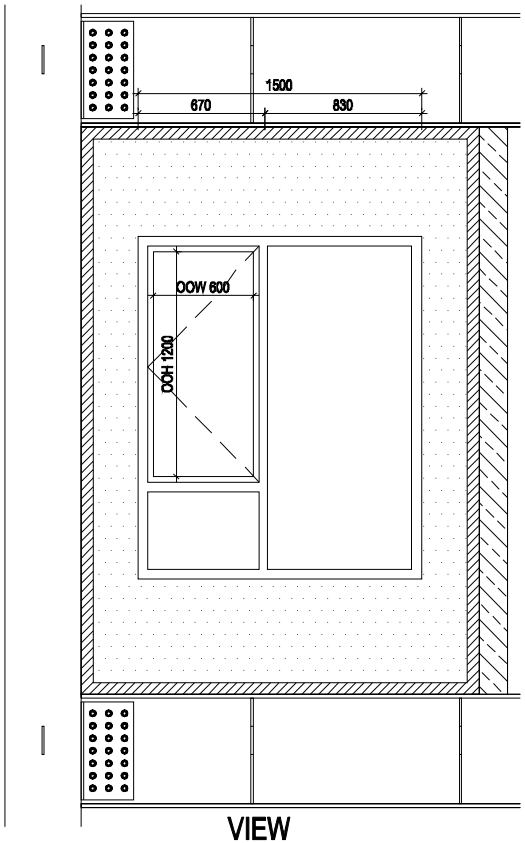
AB(BT)-KT6568



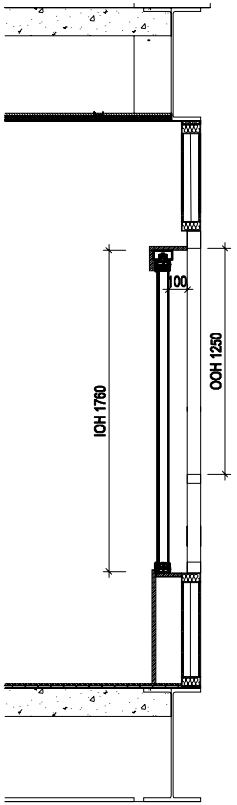
SECTION



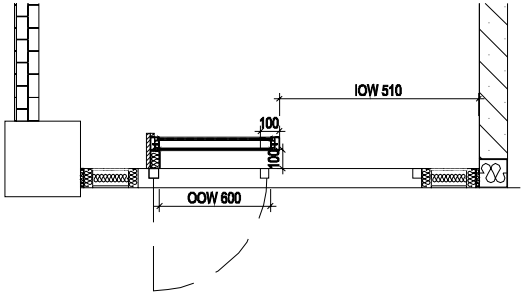
AW(BT)-TSW34



VIEW



SECTION



PLAN

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Appendix 2.4 Sound Attenuation Adjustment of AW(BT) & AB(BT) Adopted in the Proposed Development

Adjustment of Sound Attenuation for Traffic Noise Impact Assessment

Reference Case

Acoustic Window/ Door System	SAM	MPA	Air Gap, mm	Overlapping length, mm	Room area (RAref), m^2	Ref. sound attenuation, dB(A)
AB(BT)-KT6568	No	Yes	100	100	11.2	6.8

Acoustic Window/ Door System	SAM	MPA	Air Gap, mm	Overlapping length, mm	Room area (RAref), m^2	Ref. sound attenuation, dB(A)
AW(BT)-TSW34	No	Yes	100	100	4.2	6.3

Proposed Development								Reference Case					
NSRs with Acoustic Window / Balcony (Baffle Type)	Tower	Room	Referred Case ID	Max. Noise Level, dB(A)	Required Max. Sound Attenuation, dB(A)	Overlapping length, mm	Room area (RA), m^2	Air Gap, mm	Overlapping length, mm	Room area (RAref), m^2	Ref. sound attenuation, dB(A)	Adjustment: 10xlog(RA/RAref)	Adjusted sound attenuation, dB(A)
T1-01	T1	MBR	AW(BT)-TSW34	74	3.9	100	5.6	100	100	4.2	6.3	0.0	6.3
T1-02	T1	BR1	AW(BT)-TSW34	74	3.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-03	T1	LIV/DIN	AB(BT)-KT6568	73	2.7	100	13.3	100	100	11.2	6.8	0.0	6.8
T1-04	T1	MBR	AW(BT)-TSW34	73	2.6	100	5.7	100	100	4.2	6.3	0.0	6.3
T1-05	T1	LIV/DIN	AW(BT)-TSW34	73	2.3	100	11.9	100	100	4.2	6.3	0.0	6.3
T1-06	T1	BR1	AW(BT)-TSW34	72	1.2	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-08	T1	MBR	AW(BT)-TSW34	76	5.6	100	6.9	100	100	4.2	6.3	0.0	6.3
T1-09	T1	BR1	AW(BT)-TSW34	76	5.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-10	T1	BR1	AW(BT)-TSW34	76	5.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-11	T1	LIV/DIN	AB(BT)-KT6568	76	5.4	100	17.8	100	100	11.2	6.8	0.0	6.8
T1-12	T1	LIV/DIN	AB(BT)-KT6568	76	5.4	100	13.3	100	100	11.2	6.8	0.0	6.8
T1-13	T1	BR1	AW(BT)-TSW34	76	5.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-14	T1	MBR	AW(BT)-TSW34	76	5.3	100	5.6	100	100	4.2	6.3	0.0	6.3
T1-15	T1	MBR	AW(BT)-TSW34	76	5.3	100	7.2	100	100	4.2	6.3	0.0	6.3
T1-16	T1	BR1	AW(BT)-TSW34	76	5.2	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-17	T1	BR1	AW(BT)-TSW34	76	5.2	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-18	T1	LIV/DIN	AB(BT)-KT6568	76	5.2	100	14.3	100	100	11.2	6.8	0.0	6.8
T1-19	T1	LIV/DIN	AB(BT)-KT6568	76	5.2	100	13.3	100	100	11.2	6.8	0.0	6.8
T1-20	T1	BR1	AW(BT)-TSW34	76	5.2	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-21	T1	MBR	AW(BT)-TSW34	76	5.1	100	5.6	100	100	4.2	6.3	0.0	6.3
T1-22	T1	LIV/DIN	AB(BT)-KT6568	76	5.2	100	15.4	100	100	11.2	6.8	0.0	6.8
T1-23	T1	BR1	AW(BT)-TSW34	76	5.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-24	T1	BR1	AW(BT)-TSW34	76	5.4	100	4.2	100	100	4.2	6.3	0.0	6.3
T1-25	T1	MBR	AW(BT)-TSW34	76	5.3	100	7.0	100	100	4.2	6.3	0.0	6.3

T2-02	T2	MBR	AW(BT)-TSW34	76	5.2	100	7.0	100	100	4.2	6.3	0.0	6.3
T2-03	T2	BR1	AW(BT)-TSW34	76	5.3	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-04	T2	BR1	AW(BT)-TSW34	76	5.3	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-05	T2	LIV/DIN	AB(BT)-KT6568	75	5.0	100	15.4	100	100	11.2	6.8	0.0	6.8
T2-06	T2	MBR	AW(BT)-TSW34	75	4.9	100	5.6	100	100	4.2	6.3	0.0	6.3
T2-07	T2	BR1	AW(BT)-TSW34	76	5.1	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-08	T2	LIV/DIN	AB(BT)-KT6568	76	5.1	100	13.3	100	100	11.2	6.8	0.0	6.8
T2-09	T2	LIV/DIN	AB(BT)-KT6568	75	5.0	100	17.8	100	100	11.2	6.8	0.0	6.8
T2-10	T2	BR1	AW(BT)-TSW34	75	5.0	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-11	T2	BR1	AW(BT)-TSW34	75	5.0	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-12	T2	MBR	AW(BT)-TSW34	75	4.9	100	6.9	100	100	4.2	6.3	0.0	6.3
T2-13	T2	MBR	AW(BT)-TSW34	75	4.9	100	5.6	100	100	4.2	6.3	0.0	6.3
T2-14	T2	BR1	AW(BT)-TSW34	76	5.1	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-15	T2	LIV/DIN	AB(BT)-KT6568	75	5.0	100	13.3	100	100	11.2	6.8	0.0	6.8
T2-16	T2	LIV/DIN	AB(BT)-KT6568	75	5.0	100	10.1	100	100	11.2	6.8	-0.4	6.4
T2-17	T2	MBR	AW(BT)-TSW34	75	5.0	100	5.4	100	100	4.2	6.3	0.0	6.3
T2-18	T2	LIV/DIN	AB(BT)-KT6568	76	5.1	100	14.0	100	100	11.2	6.8	0.0	6.8
T2-19	T2	BR1	AW(BT)-TSW34	76	5.2	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-20	T2	BR1	AW(BT)-TSW34	76	5.3	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-21	T2	MBR	AW(BT)-TSW34	76	5.4	100	7.0	100	100	4.2	6.3	0.0	6.3
T2-26	T2	BR1	AW(BT)-TSW34	71	0.5	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-27	T2	MBR	AW(BT)-TSW34	71	0.4	100	5.8	100	100	4.2	6.3	0.0	6.3
T2-28	T2	LIV/DIN	AB(BT)-KT6568	71	0.8	100	14.4	100	100	11.2	6.8	0.0	6.8
T2-29	T2	BR1	AW(BT)-TSW34	71	0.5	100	4.2	100	100	4.2	6.3	0.0	6.3
T2-30	T2	MBR	AW(BT)-TSW34	73	2.2	100	5.7	100	100	4.2	6.3	0.0	6.3

Appendix 2.5 Road Traffic Noise Impact Assessment Result (Mitigated Case)

Predicted Road Traffic Noise [L10(1h) dB(A)] at Representative Sensitive Receivers (Based on Year 2045 Traffic Forecast)
Mitigated Scenario (AM)

Floor	mPD	T1-01	T1-02	T1-03	T1-04	T1-05	T1-06	T1-07	T1-08	T1-09	T1-10	T1-11	T1-12	T1-13	T1-14	T1-15	T1-16	T1-17	T1-18	T1-19	T1-20	T1-21	T1-22	T1-23	T1-24	T1-25	T1-26	T1-27	T1-28	T1-29	T1-30	T1-31	T1-32	T1-33	T1-34	T1-35	T1-36	T1-37	T1-38	T1-39	T1-40	T1-41	T1-42	T1-43	T1-44	T1-45	T1-46	T1-47	T1-48	T1-49	T1-50
4/F	34.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	63	63	63	63	64	63	63	63	63	63	63	63	63	63	63	63	63	63	63	62	57	58	67	68
5/F	37.7	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	64	64	64	64	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	62	58	58	68	68
6/F	40.8	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	64	64	63	63	58	59	68	69
7/F	44.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	63	64	64	64	63	59	59	68	69
8/F	47.1	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	59	60	68	69
9/F	50.3	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	59	60	68	69
10/F	53.4	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
11/F	56.6	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	69	69
12/F	59.7	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
13/F	62.9	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
14/F	66.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	69	69
15/F	69.2	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	61	68	69
16/F	72.3	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	60	60	68	69
17/F	75.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	68	69
18/F	78.6	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	60	60	68	69
19/F	81.8	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	66	65	65	65	65	64	65	64	64	64	64	64	64	64	64	63	60	60	68	69
20/F	88.2	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
21/F	91.4	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
22/F	94.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	63	60	60	68	69
23/F	97.7	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	63	60	60	68	69
24/F	100.8	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
25/F	104.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
26/F	107.1	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
27/F	110.3	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	59	60	68	69
28/F	113.4	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	63	63	63	59	60	68	69
29/F	116.6	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	63	64	63	63	63	59	60	68	69
30/F	119.7	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	63	64	64	63	63	60	60	68	69
31/F	122.9	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	63	63	60	60	68	69
32/F	126.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	64	65	65	65	64	64	64	64	64	64	63	61	61	68	69
33/F	129.2	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	61	68	69
34/F	132.3	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	61	61	68	69
35/F	135.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	66	66	65	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	61	61	68	69
36/F	139.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	66	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	61	68	69
37/F	142.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
38/F	146.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
39/F	149.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
40/F	153.0	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	61	62	68	69
41/F	156.5	70	70	70	70	70	70	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	65	65	65	65	65	65	65	65	64	65	65	65	65	64	64	64	64	64	63	62	62	68	69
Exceedance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance			0			0				0				0			0				0				0				0			0			0			0			0			0			0			0	
Max. Noise Level		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	66	66	66	66	66	65	65	65	65	65	65	65	65	65	64	64	64	64	64	63	62	62	69	69

Floor	mPD	T2-01	T2-02	T2-03	T2-04	T2-05	T2-06	T2-07	T2-08	T2-09	T2-10	T2-11	T2-12	T2-13	T2-14	T2-15	T2-16	T2-17	T2-18	T2-19	T2-20	T2-21	T2-22	T2-23	T2-24	T2-25	T2-26	T2-27	T2-28	T2-29	T2-30	T2-31	T2-32	T2-33	T2-34	T2-35	T2-36	T2-37	T2-38	T2-39	T2-40	T2-41	T2-42	T2-43	T2-44	T2-45	T2-46	T2-47	T2-48
4/F	34.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	59	60	63	63	63	65	65	70	70	64	65	65	64	62	62	62	62	63	63	63	63	63	63	63	63	63
5/F	37.7	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	62	64	66	67	67	68	67	70	70	65	65	66	65	65	64	64	64	64	64	64	64	64	64	64	64	64
6/F	40.8	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	64	67	69	69	69	69	68	70	70	65	66	66	66	65	66	66	66	66	66	65	65	65	65	65	65	65
7/F	44.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	68	70	70	70	70	70	70	70	65	66	66	66	66	66	66	66	66	66	66	66	66	65	65	65	65
8/F	47.1	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	68	70	70	70	70	70	70	70	65	66	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
9/F	50.3	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
10/F	53.4	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
11/F	56.6	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
12/F	59.7	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
13/F	62.9	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	64	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
14/F	66.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	64	65	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66
15/F	69.2	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	67	68	70	70	70	70	70	70	69	64	65	66	66	66	66	66	66	67	67	66	67	66	66	66	66	66
16/F	72.3	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	70	70	70	70	70	70	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
17/F	75.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	70	70	70	70	70	70	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
18/F	78.6	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	69	64	65	66	66	66	66	66	66	67	67	66	66	66	66	66	66	66
19/F	81.8	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	69	64	65	66	66	65	66	66	66	66	67	66	66	66	66	66	66	66
20/F	88.2	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
21/F	91.4	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
22/F	94.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
23/F	97.7	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	70	70	70	70	70	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
24/F	100.8	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	69	69	70	70	70	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
25/F	104.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	69	69	70	69	70	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
26/F	107.1	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	67	69	69	69	70	69	70	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
27/F	110.3	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	69	69	69	70	69	70	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
28/F	113.4	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	66	66	69	69	69	70	69	70	68	64	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66
29/F	116.6	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	64	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66
30/F	119.7	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
31/F	122.9	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	64	65	66	65	65	65	66	66	66	66	66	66	66	66	66	66	66
32/F	126.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	64	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
33/F	129.2	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	65	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
34/F	132.3	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	65	65	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
35/F	135.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	69	69	69	70	68	65	66	66	66	65	66	66	66	66	66	66	66	66	66	66	66	66
36/F	139.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	69	68	69	69	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
37/F	142.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	68	68	69	69	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
38/F	146.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
39/F	149.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
40/F	153.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
41/F	156.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	-	65	66	68	68	68	69	68	70	68	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
Exceedance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of flats with exceedance				0				0			0				0		0				0			0			0			0			0			0			0			0			0			0	
Max. Noise Level		70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	67	68	70	70	70	70	70	70	70	65	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66

Noise level that will exceed limit of 70dB(A)

Max Noise Level (dB(A)) =	70
Total no. of Exceedance =	0
Total no. of flat Exceedance =	0
Total no. of Premises =	1140
% Compliance =	100%

Noted:

	Noise level exceed stardand of 70 c
--	Non-applicable
	AW(BT)-TSW34
	AB(BT)-KT6568
	Fixed Glazing with / without Maintenance W

Appendix 2.6 Proposed Overall Noise Mitigation Measures Schedule

Schedule of Noise Mitigation Measures

NSR	Room	Floor	Noise Mitigation Measures
T1-01	MBR	4/F- 41/F	AW(BT)-TSW34
T1-02	BR1	4/F- 41/F	AW(BT)-TSW34
T1-03	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-04	MBR	4/F- 41/F	AW(BT)-TSW34
T1-05	LIV/DIN	4/F- 41/F	AW(BT)-TSW34
T1-06	BR1	4/F- 32/F	AW(BT)-TSW34
T1-08	MBR	4/F- 41/F	AW(BT)-TSW34
T1-09	BR1	4/F- 41/F	AW(BT)-TSW34
T1-10	BR1	4/F- 41/F	AW(BT)-TSW34
T1-11	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-12	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-13	BR1	4/F- 41/F	AW(BT)-TSW34
T1-14	MBR	4/F- 41/F	AW(BT)-TSW34
T1-15	MBR	4/F- 41/F	AW(BT)-TSW34
T1-16	BR1	4/F- 41/F	AW(BT)-TSW34
T1-17	BR1	4/F- 41/F	AW(BT)-TSW34
T1-18	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-19	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-20	BR1	4/F- 41/F	AW(BT)-TSW34
T1-21	MBR	4/F- 41/F	AW(BT)-TSW34
T1-22	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T1-23	BR1	4/F- 41/F	AW(BT)-TSW34
T1-24	BR1	4/F- 41/F	AW(BT)-TSW34
T1-25	MBR	4/F- 41/F	AW(BT)-TSW34
T2-02	MBR	4/F- 41/F	AW(BT)-TSW34
T2-03	BR1	4/F- 41/F	AW(BT)-TSW34
T2-04	BR1	4/F- 41/F	AW(BT)-TSW34
T2-05	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-06	MBR	4/F- 41/F	AW(BT)-TSW34
T2-07	BR1	4/F- 41/F	AW(BT)-TSW34
T2-08	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-09	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-10	BR1	4/F- 41/F	AW(BT)-TSW34
T2-11	BR1	4/F- 41/F	AW(BT)-TSW34
T2-12	MBR	4/F- 41/F	AW(BT)-TSW34
T2-13	MBR	4/F- 41/F	AW(BT)-TSW34
T2-14	BR1	4/F- 41/F	AW(BT)-TSW34
T2-15	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-16	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-17	MBR	4/F- 41/F	AW(BT)-TSW34
T2-18	LIV/DIN	4/F- 41/F	AB(BT)-KT6568
T2-19	BR1	4/F- 41/F	AW(BT)-TSW34
T2-20	BR1	4/F- 41/F	AW(BT)-TSW34
T2-21	MBR	4/F- 41/F	AW(BT)-TSW34
T2-26	BR1	7/F- 13/F	AW(BT)-TSW34
T2-27	MBR	8/F- 13/F	AW(BT)-TSW34
T2-28	LIV/DIN	7/F- 18/F	AB(BT)-KT6568
T2-29	BR1	8/F- 14/F	AW(BT)-TSW34
T2-30	MBR	6/F- 33/F	AW(BT)-TSW34

Appendix 3.1 Railway Noise Measurement Details and Calculations of Corrected Sound Exposure Level

Point 1

Point 2

S1

Corrected SEL at 25m: 75.9 dB(A)

S2

Corrected SEL at 25m: 79.0 dB(A)

S3

S3 adopt the measurement data at Point 2 SEL: 79.0 dB(A)

S4

Corrected SEL at 25m: 79.4 dB

S5

Corrected SEL at 25m: 81.2 dB(A)

S6

S6 adopt the measurement data at Point 2 SEL: 81.2 dB(A)

Calculation of Corrected SEL based on Onsite Noise Measurement at Pt1

	Event ID	Train Direction/Track	Date of Measuremnt	Time (Start)	Time (End)	Sound Exposure Level (SEL)	Duration	Min $L_{A,eq}$	Sound Exposure Level (SEL)	Number of cars
TML	WB01	TML to Ma On Shan	9/30/2025	10:02:24	10:02:38	-	15	61.5	76.6	8
	WB02	TML to Ma On Shan	9/30/2025	10:13:37	10:13:51	-	15	61.3	76.5	8
	WB03	TML to Ma On Shan	9/30/2025	9:54:07	9:54:21	-	15	59.4	76.0	8
	WB04	TML to Ma On Shan	9/30/2025	9:58:08	9:58:22	-	15	58.2	75.3	8
	WB05	TML to Ma On Shan	9/30/2025	10:03:43	10:03:57	-	15	60.9	74.9	8
								Log Average	75.9	

Note:
Measurement point at free-field, no façade correction is accounted.
SEL is measured for the period when noise from railway operation is audible.
Duration represents the length of the period measured.
Min $L_{A,eq}$ is the minimum noise level measured within the train event period.

SEL w/o background is derived by discounting noise contribution from background, $Background\ Noise\ Level = 10\log(\frac{\sum_{n=1} 10^{\frac{LAeq_n}{10}}}{n})$, where n is the number of seconds during the whole measurement with all the trains passby events omitted.

Measurement Results:	EB (TML)
Measured SEL with background correction (dBA) =	75.9
Measurement point distance from track (m) =	44.6
View angle, θ (°) =	102.8
Acute angle, α (°) (refer to CRN for definition of acute angle) =	88.4
Number of car per train =	8

Application of distance, view angle and number of car correction	EB (TML)
Expected number of car per train upcon completion of development =	9
Distance Correction *	2.52
Correction for 8-car train, 10*log(B/A) =	0.51
View angle correction # (refer to CRN) =	0.58
Reference SEL (with 9-car-train and view angle correction) (dBA) =	79.5

Note:
* : Distance Correction = 10*log(D/25)
# : View Angle Corre$10 * \log(\pi\theta/180 - \cos 2\alpha \sin\theta) - 5$

Calculation of Corrected SEL based on Onsite Noise Measurement at Pt1

	Event ID	Train Direction/Track	Date of Measuremnt	Time (Start)	Time (End)	Sound Exposure Level (SEL)	Duration	Min $L_{A,eq}$	Sound Exposure Level (SEL)	Number of cars
TML	EB01	TML to Tin Shui Wai	9/30/2025	9:58:36	9:58:49	-	14	58.0	75.2	8
	EB02	TML to Tin Shui Wai	9/30/2025	10:13:15	10:13:28	-	14	54.5	73.9	8
	EB03	TML to Tin Shui Wai	9/30/2025	10:15:04	10:15:17	-	14	59.4	73.7	8
	EB04	TML to Tin Shui Wai	9/30/2025	9:54:22	9:54:35	-	14	55.4	73.7	8
	EB05	TML to Tin Shui Wai	9/30/2025	10:03:20	10:03:33	-	14	52.3	73.4	8
								Log Average	74.0	

Note:
Measurement point at free-field, no façade correction is accounted.
SEL is measured for the period when noise from railway operation is audible.
Duration represents the length of the period measured.
Min $L_{A,eq}$ is the minimum noise level measured within the train event period.

SEL w/o background is derived by discounting noise contribution from background, $Background\ Noise\ Level = 10\log(\frac{\sum_{n=1} 10^{\frac{LAeq_n}{10}}}{n})$, where n is the number of seconds during the whole measurement with all the trains passby events omitted.

Measurement Results:	WB (TML)
Measured SEL with background correction (dBA) =	74.0
Measurement point distance from track (m) =	58.0
View angle, θ (°) =	79.7
Acute angle, α (°) (refer to CRN for definition of acute angle) =	89.5
Number of car per train =	8

Application of distance, view angle and number of car correction	WB (TML)
Expected number of car per train upcon completion of development =	9
Distance Correction *	3.65
Correction for 8-car train, 10*log(B/A) =	0.51
View angle correction # (refer to CRN) =	1.24
Reference SEL (with 9-car-train and view angle correction) (dBA) =	79.4

Note:
* : Distance Correction = 10*log(D/25)
# : View Angle Corre$10 * \log(\pi\theta/180 - \cos 2\alpha \sin\theta) - 5$

Calculation of Corrected SEL based on Onsite Noise Measurement at Pt2

	Event ID	Train Direction/Track	Date of Measuremnt	Time (Start)	Time (End)	Sound Exposure Level (SEL)	Duration	Min $L_{A,eq}$	Sound Exposure Level (SEL)	Number of cars
TML	WB01	TML to Ma On Shan	9/30/2025	10:46:55	10:47:09	-	15	60.5	74.8	8
	WB02	TML to Ma On Shan	9/30/2025	10:45:27	10:45:41	-	15	56.0	74.5	8
	WB03	TML to Ma On Shan	9/30/2025	10:59:19	10:59:33	-	15	54.6	74.3	8
	WB04	TML to Ma On Shan	9/30/2025	11:06:21	11:06:35	-	15	55.6	74.1	8
	WB05	TML to Ma On Shan	9/30/2025	11:01:24	11:01:38	-	15	57.5	73.4	8
								Log Average	74.2	

Note:
Measurement point at free-field, no façade correction is accounted.
SEL is measured for the period when noise from railway operation is audible.
Duration represents the length of the period measured.
Min $L_{A,eq}$ is the minimum noise level measured within the train event period.

SEL w/o background is derived by discounting noise contribution from background, $Background\ Noise\ Level = 10\log(\frac{\sum_{n=1} 10^{\frac{LAeq_n}{10}}}{n})$, where n is the number of seconds during the whole measurement with all the trains passby events omitted.

Measurement Results:	WB (TML))
Measured SEL with background correction (dBA) =	74.2
Measurement point distance from track (m) =	45.38
View angle, θ (°) =	83.55
Acute angle, α (°) (refer to CRN for definition of acute angle) =	67.26
Number of car per train =	8

Application of distance, view angle and number of car correction	WB (TML))
Expected number of car per train upcon completion of development =	9
Distance Correction *	2.59
Correction for 8-car train, 10*log(B/A) =	0.51
View angle correction # (refer to CRN) =	1.67
Reference SEL (with 9-car-train and view angle correction) (dBA) =	79.0

Note:
* : Distance Correction = 10*log(D/25)
# : View Angle Corre($10 * \log(\pi\theta/180 - \cos 2\alpha \sin\theta) - 5$

Calculation of Corrected SEL based on Onsite Noise Measurement at Pt2

	Event ID	Train Direction/Track	Date of Measuremnt	Time (Start)	Time (End)	Sound Exposure Level (SEL)	Duration	Min $L_{A,eq}$	Sound Exposure Level (SEL)	Number of cars
TML	EB01	TML to Tin Shui Wai	9/30/2025	10:42:35	10:42:48	-	14	62.6	78.4	8
	EB02	TML to Tin Shui Wai	9/30/2025	10:39:38	10:39:51	-	14	61.0	76.1	8
	EB03	TML to Tin Shui Wai	9/30/2025	10:57:35	10:57:48	-	14	56.9	74.3	8
	EB04	TML to Tin Shui Wai	9/30/2025	11:04:01	11:04:14	-	14	54.3	72.4	8
	EB05	TML to Tin Shui Wai	9/30/2025	10:49:06	10:49:19	-	14	53.1	72.1	8
								Log Average	75.3	

Note:
Measurement point at free-field, no façade correction is accounted.
SEL is measured for the period when noise from railway operation is audible.
Duration represents the length of the period measured.
Min $L_{A,eq}$ is the minimum noise level measured within the train event period.

SEL w/o background is derived by discounting noise contribution from background, $Background\ Noise\ Level = 10\log(\frac{\sum_{n=1} 10^{\frac{LAeq_n}{10}}}{n})$, where n is the number of seconds during the whole measurement with all the trains passby events omitted.

Measurement Results:	EB (TML)
Measured SEL with background correction (dBA) =	75.3
Measurement point distance from track (m) =	56.6126
View angle, θ (°) =	75.51
Acute angle, α (°) (refer to CRN for definition of acute angle) =	72.03
Number of car per train =	8

Application of distance, view angle and number of car correction	EB (TML)
Expected number of car per train upcon completion of development =	9
Distance Correction *	3.55
Correction for 8-car train, 10*log(B/A) =	0.51
View angle correction # (refer to CRN) =	1.77
Reference SEL (with 9-car-train and view angle correction) (dBA) =	81.2

Note:
* : Distance Correction = 10*log(D/25)
# : View Angle Corre $10 * \log(\pi\theta/180 - \cos 2\alpha \sin\theta) - 5$

Appendix 3.2 Railway Noise Impact Assessment Results

Predicted Railway Noise Impact - Overall Leq Summary

Overall Noise Contribution

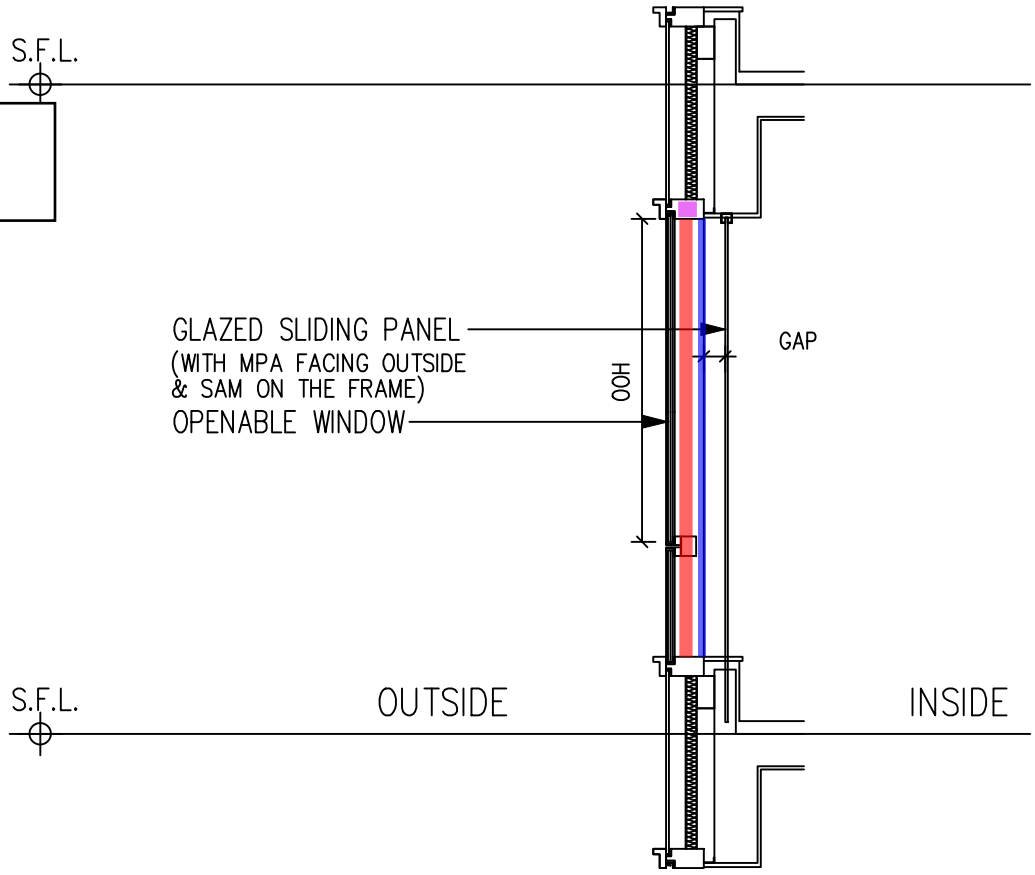
NSR	RN01	RN02	RN03	RN04	RN05	RN06	RN07	RN08	RN09	RN10	RN11	RN12	RN13	RN14	RN15
4/F	57	55	58	48	56	52	59	59	59	59	58	56	55	48	49
5/F	56	55	58	48	56	52	60	59	60	59	58	56	55	49	50
6/F	56	54	58	48	57	52	60	59	60	60	59	57	56	50	51
7/F	56	54	58	48	57	52	60	59	60	60	59	57	56	51	52
8/F	56	54	58	48	57	52	60	59	60	60	59	57	56	52	52
9/F	56	54	57	48	56	51	60	59	60	59	58	57	56	52	52
10/F	55	54	57	47	56	51	59	59	60	59	58	57	56	52	52
11/F	55	53	57	47	56	51	59	59	59	59	58	57	56	52	52
12/F	55	53	57	47	56	51	59	58	59	59	58	57	56	52	52
15/F	55	53	57	47	56	51	59	58	59	59	58	57	56	51	52
16/F	55	53	57	47	56	51	59	58	59	59	58	57	56	51	52
15/F	55	53	57	47	56	51	59	58	59	59	58	57	56	51	52
16/F	55	53	57	47	56	51	59	58	59	59	58	57	56	51	52
17/F	54	53	56	47	55	50	59	58	59	59	58	56	55	51	52
18/F	54	52	56	46	55	50	59	58	59	59	58	56	55	51	52
19/F	54	52	56	46	55	50	58	58	59	58	58	56	55	51	52
R	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20/F	54	52	56	46	55	50	58	58	58	58	57	56	55	51	51
21/F	53	52	56	46	55	50	58	57	58	58	57	56	55	51	51
22/F	53	51	55	46	55	49	58	57	58	58	57	56	55	51	51
23/F	53	51	55	45	54	49	58	57	58	58	57	56	55	51	51
25/F	53	51	55	45	54	49	58	57	58	58	57	56	55	50	51
26/F	53	51	55	45	54	49	58	57	58	57	57	55	54	50	51
27/F	53	51	55	45	54	49	57	57	58	57	57	55	54	50	51
28/F	52	51	55	45	54	49	57	57	57	57	56	55	54	50	51
29/F	52	50	54	45	54	49	57	56	57	57	56	55	54	50	51
30/F	52	50	54	45	54	49	57	56	57	57	56	55	54	50	50
31/F	52	50	54	44	54	48	57	56	57	57	56	55	54	50	50
32/F	52	50	54	44	53	48	57	56	57	57	56	55	54	50	50
33/F	52	50	54	44	53	48	57	56	57	57	56	55	54	50	50
34/F	52	50	54	44	53	48	57	56	57	57	56	55	54	50	50
35/F	51	50	54	44	53	48	56	56	57	56	56	55	54	49	50
36/F	51	50	54	44	53	48	56	56	57	56	56	54	53	49	50
37/F	51	49	53	44	53	48	56	56	56	56	55	54	53	49	50
38/F	51	49	53	44	53	48	56	55	56	56	55	54	53	49	50
39/F	51	49	53	43	53	47	56	55	56	56	55	54	53	49	50
40/F	51	49	53	43	53	47	56	55	56	56	55	54	53	49	50
41/F	51	49	53	43	52	47	56	55	56	56	55	54	53	49	49
No. of Unit	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
No. of Exceedances	6	0	18	0	13	0	37	33	37	37	32	21	11	0	0
Max. dBA	57	55	58	48	57	52	60	59	60	60	59	57	56	52	52

Remark:

--	Not Application
	Shadedcell denotes noise level exceedances

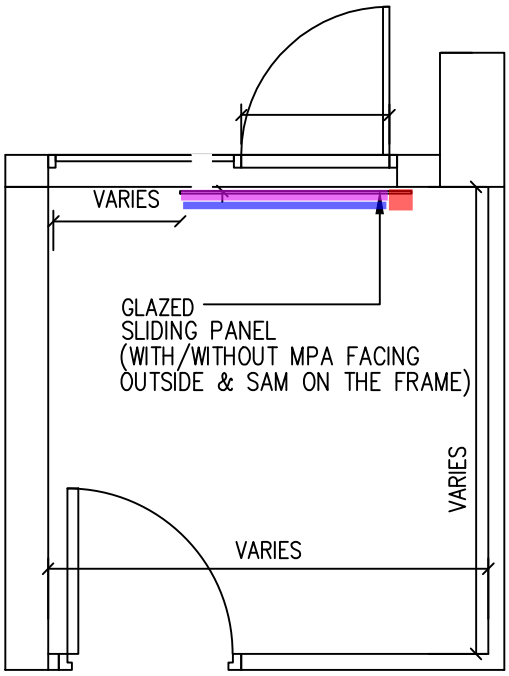
Appendix 3.3 Indicative Design of Mitigation Measures Adopted in the Proposed Development

AW(BT)-
Reference
Case



TYPICAL SECTION

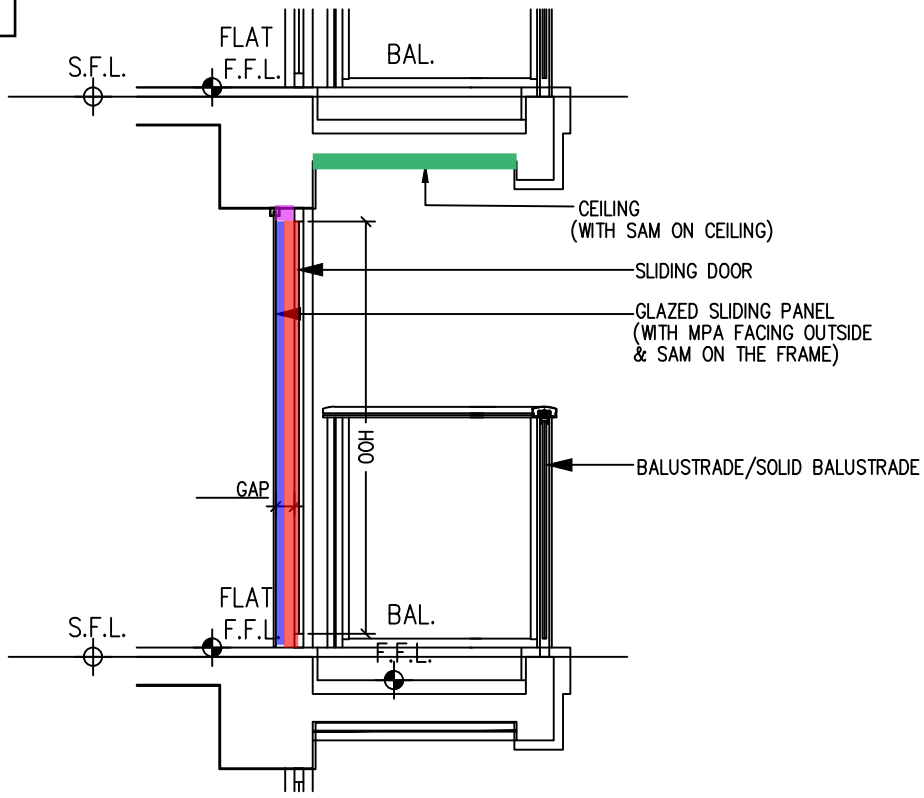
MPA on sliding panel
Sound absorption material on top window frame
Sound absorption material on vertical window frame



TYPICAL PLAN

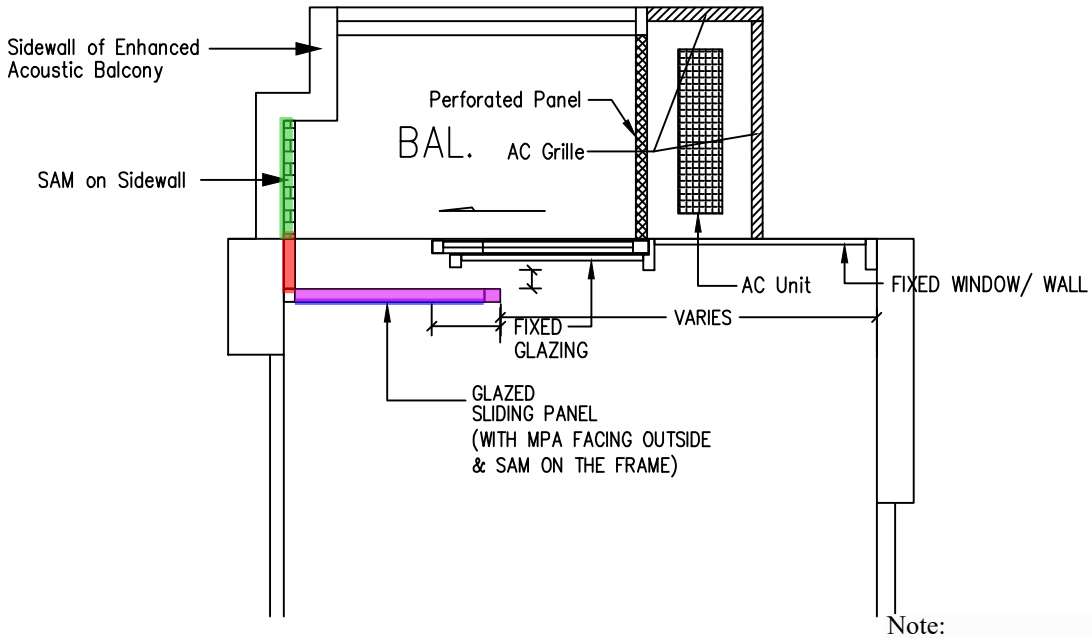
Note:
OOW Outer Opening Width
OOH Outer Opening Height

AB(BT)-
Reference
Case



TYPICAL SECTION

- MPA on inner sliding panel
- Sound absorptive material on top door frame
- Sound absorptive material on vertical door frame
- Sound absorptive material at ceiling and sidewall



TYPICAL PLAN

Note:
OOW Inner Opening Width
OOH Outer Opening Height

Appendix 3.4 Proposed Overall Noise Mitigation Measures Schedule

Schedule of Noise Mitigation Measures

NSR	Room	Floor	Noise Mitigation Measures
RN01	BR1	4/F- 9/F	AW(BT)
RN03	MBR	4/F- 21/F	AW(BT)
RN05	LIV	4/F- 16/F	AB(BT)
RN07	BR1	4/F- 41/F	AW(BT)
RN08	LIV	4/F- 37/F	AB(BT)
RN09	BR1	4/F- 41/F	AW(BT)
RN10	LIV	4/F- 41/F	AB(BT)
RN11	LIV	4/F- 36/F	AB(BT)
RN12	LIV	4/F- 25/F	AB(BT)
RN13	LIV	6/F- 16/F	AB(BT)