Appendix E

Environmental Assessment

Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories

Environmental Assessment Study

REP-01-001

Job number 292635

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Executive Summary

This Environmental Assessment Study (EAS) was prepared in support of the Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories. The total area of the Application Site (the Site) is about 14,879m^2.

An Indicative Scheme has been formulated to demonstrate the technical feasibility and suitability of the Proposed Amendment. An indicative access road is proposed to connect the Application Site and external transport network. In addition, a saltwater pumping station is proposed in the vicinity of the existing saltwater network near Yung Yi Road to support the proposed residential development.

The Application Site is located to the southwest of Yung Yi Road and Tai Po Road (Yuen Chau Tsai). Road traffic noise assessment for existing NSRs has estimated that a total number of 4 existing NAPs will be exposed to the noise level in excess of the 70 dB(A) criterion for domestic uses, 2 NAPs will be exposed to the noise level in excess of the 65 dB(A) criterion for place of public worship, and 1 NAP will be exposed to the noise level in excess of the 65 dB(A) criterion for educational institutions. Direct mitigation measures such as vertical noise barriers are proposed. With the direct mitigation measures in place, a 100% noise compliance rate can be achieved for all existing NSRs.

For road traffic noise assessment of planned NSRs, all flats will comply with the 70dB(A) criterion and a compliance rate of 100% can be achieved. Hence, no mitigation measure is proposed.

No major fixed noise sources are found within 300m from the proposed residential blocks. Potential fixed noise impact on the proposed residential development is not anticipated.

Constructional air quality impacts have been assessed. Given the use of the recommended good site practices and mitigation measures, constructional air quality impacts are not anticipated. For operational phase, the current scheme has allowed sufficient setback distances from the nearby roads to meet the minimum requirement as stipulated in HKPSG. No existing chimney is identified within 500m of the study area Hence, no adverse air quality impact on the proposed development is anticipated.

A preliminary land contamination site appraisal through desktop research and site survey has been conducted. Results indicate that land contamination within the Application Site is not anticipated.

Waste management implications due to construction and operational phases are not anticipated provided good practices are in place.

Potential water pollution sources have been identified and mitigation measures have been recommended to mitigate any potential water quality impacts during the construction phase. With the implementation of good site practices and mitigation measures, adverse water quality impacts are not anticipated. Operational impacts associated with runoff and sewage from the development would be insignificant with proper management practices in place. The proposed development will be properly sewered and adverse water quality impact is not anticipated.

It is concluded that there are no adverse environmental impacts on the Application Site at Wong Yi Au, Tai Po for the Application under Section 12A of the TPO.

1 Introduction

1.1.1.1 This Environmental Assessment Study (EAS) was prepared in support of the Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories.

1.1.1.2 The Application Site (the Site) is located at Sheung Wong Yi Au, and to the southwest of Tai Po Road (Yuen Chau Tsai) and Yung Yi Road. It has a total site area of about 14,879m^2. In accordance with the draft Tai Po Outline Zoning Plan (OZP) No. S/TP/31 gazetted on 28 March 2025, the current land use zoning of the Application Site is "Green Belt" ("GB").

1.1.1.3 An Indicative Scheme has been formulated to demonstrate the technical feasibility and suitability of the Proposed Amendment. An indicative access road (the proposed access road) is proposed to connect the Application Site and external transport network. In addition, an indicative saltwater pumping station (the proposed saltwater pumping station) is proposed in the vicinity of the existing saltwater network near Yung Yi Road to support the proposed residential development. The architectural layout of the Indicative Scheme can be referred to the Supporting Planning Statement.

1.1.1.4 This EAS is conducted to evaluate the potential environmental impacts on the proposed development with respect to the guidance for environmental considerations provided in Chapter 9 – Environment of the Hong Kong Planning Standards & Guidelines (HKPSG). The major potential environmental impacts on the site include:

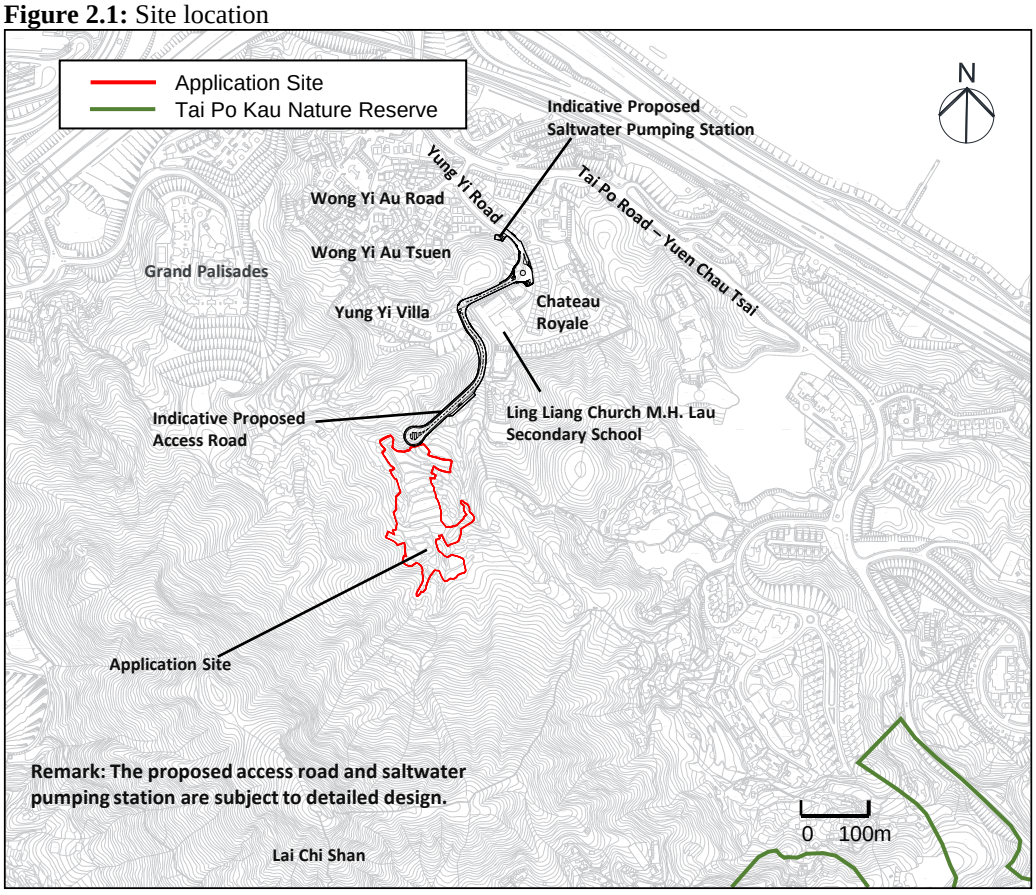
- traffic noise impact from the nearby road network;
- fixed noise impact from nearby fixed noise sources;
- air quality impact for construction phase and operation phase due to nearby road network and chimneys;
- land contamination;
- waste management implications during construction and operation phase; and
- water quality impacts due to construction and operation phase.

2 Site Location and Building Design

2.1 Site Location and Description

2.1.1.1 The Application Site is located at Wong Yi Au, and to the southwest of Yung Yi Road and Tai Po Road (Yuen Chau Tsai). Surrounding the Application Site are Chateau Royale and Ling Liang Church MH Lau Secondary School to the northeast, Yung Yi Villa to the north, and Lai Chi Shan to the south. Moreover, Tai Po Kau Nature Reserve (TPKNR) is located at around 650m to the further southeast of the Application Site. The location of the Application Site is illustrated in **Figure 2.1**.

Figure 2.1: Site location



2.1.1.2 In accordance with the draft Tai Po Outline Zoning Plan (OZP) No. S/TP/31 gazetted on 28 March 2025, the Application Site is currently zoned as "Green Belt" ("GB"). The areas in the vicinity are mainly zoned as "Government, Institution or Community" ("G(IC)"), "Residential (Group B)" ("R(B)"), "Residential (Group C)" ("R(C)"), "Village Type Development" ("V"), and "Green Belt" ("GB").

2.2 Building and Site Design

2.2.1.1 The proposed development consists of four 11-13 storeys high residential blocks (excluding basement carpark below G/F) with a total number of 500 residential flats. A clubhouse is

planned at 1/F and the basement level. Moreover, underground car parks are planned in the basement of the proposed development. The anticipated population intake year of the whole development is Year 2030 tentatively.

2.2.1.2 In support of the proposed development at the Application Site, a new access road which is subject to detailed design is proposed. The proposed access road (**Figure 2.2**) extends from the existing Ha Wong Yi Au Road and runs along the west of Ling Liang Church MH Lau Secondary School up to the north of Lai Chi Shan. Road widening works are planned at Ha Wong Yi Au Road which will result in change of one-way road to two-way road. Junction improvement works are planned at the existing Yung Yi Road roundabout connecting to the widened Ha Wong Yi Au Road. No road works would be involved for the section of Yung Yi Road to the north of Yung Yi Road roundabout.

2.2.1.3 In addition, a proposed saltwater pumping station which is subject to detailed design is planned to the northwest of Yung Yi Road roundabout to support the proposed development.

2.2.1.4 The latest site layout plan and residential block layouts are illustrated in **Figures 2.2 – 2.10**.

Figure 2.2: Site layout plan – Typical Floor

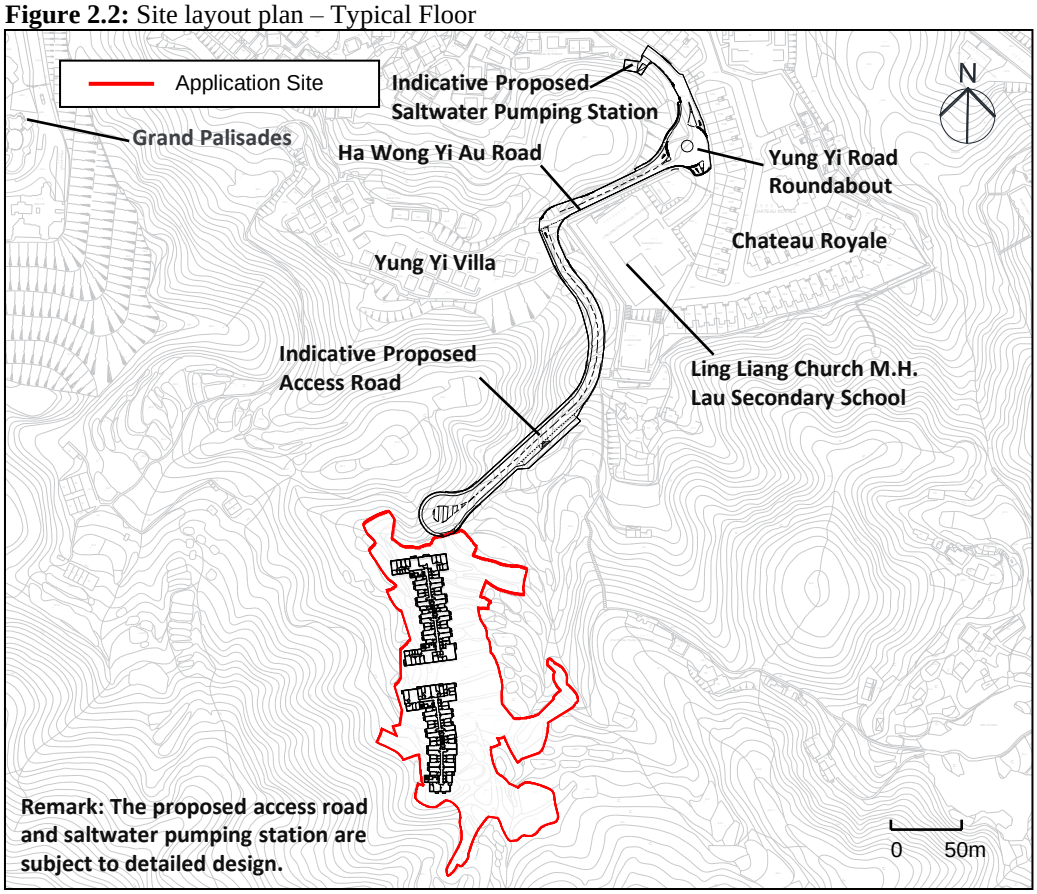


Figure 2.3: Floor plan of Block T1 (1/F)

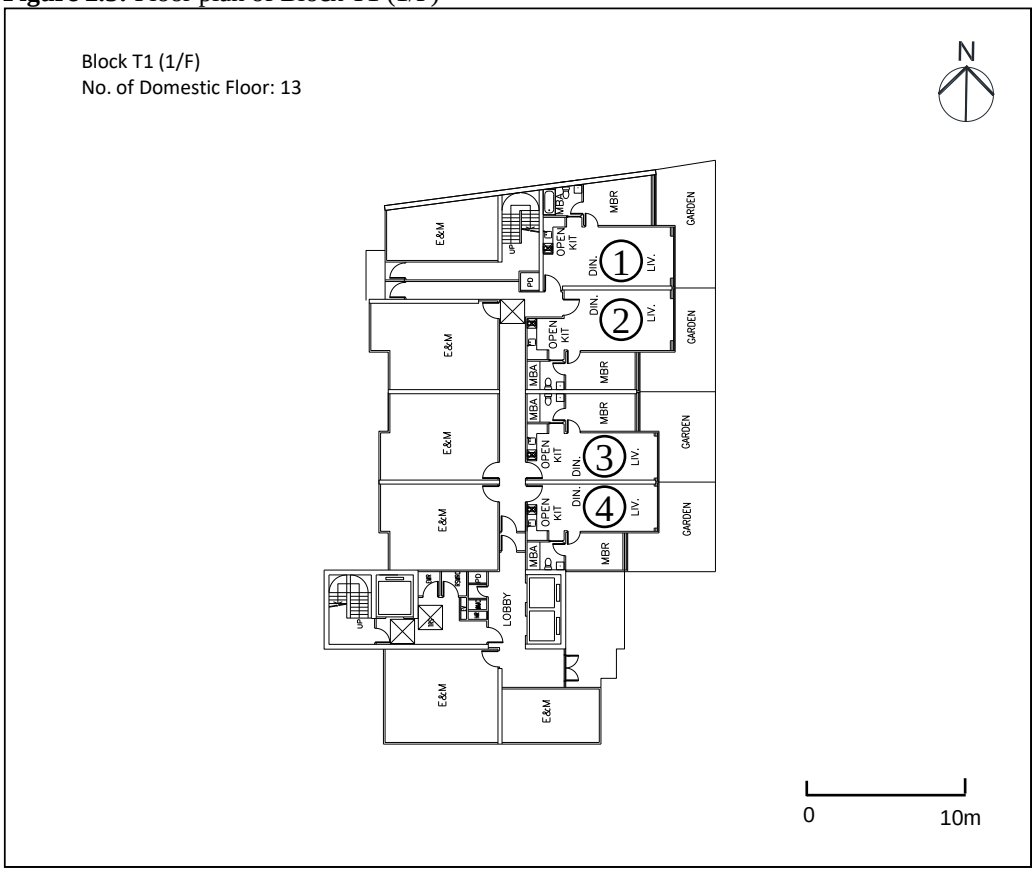


Figure 2.4: Floor plan of Block T1 (2/F – 13/F)

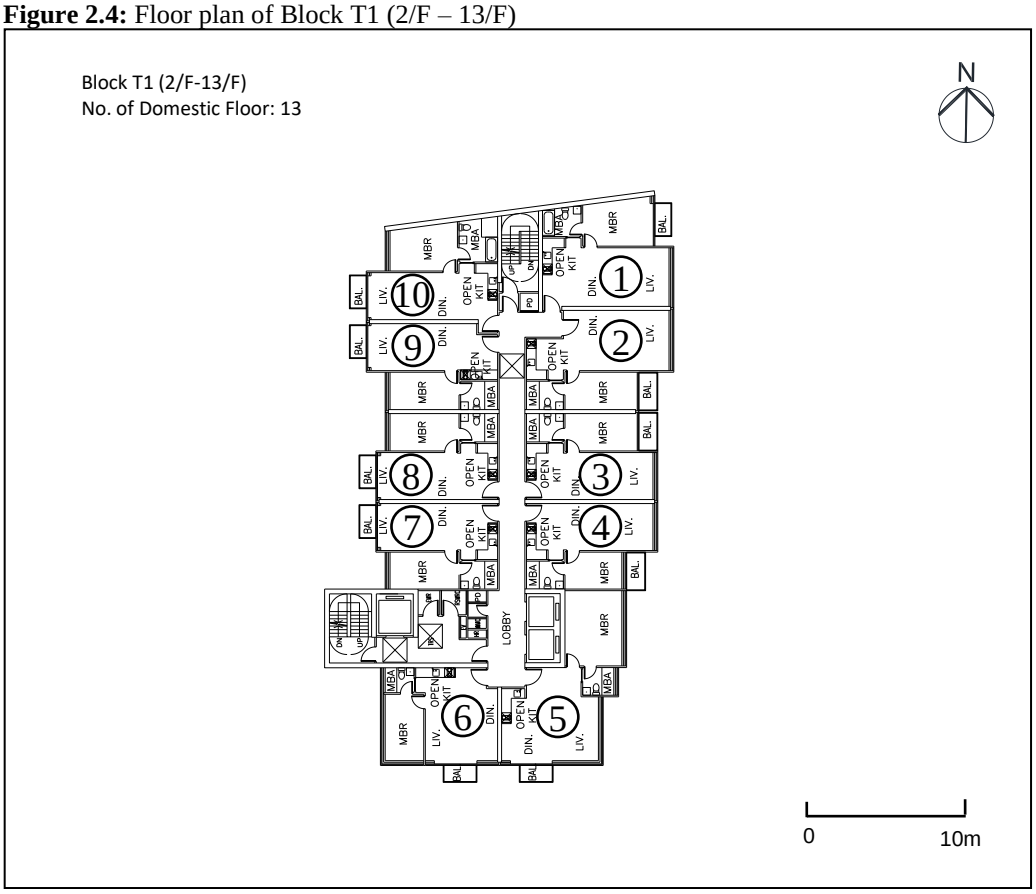


Figure 2.5: Floor plan of Block T2 (1/F)

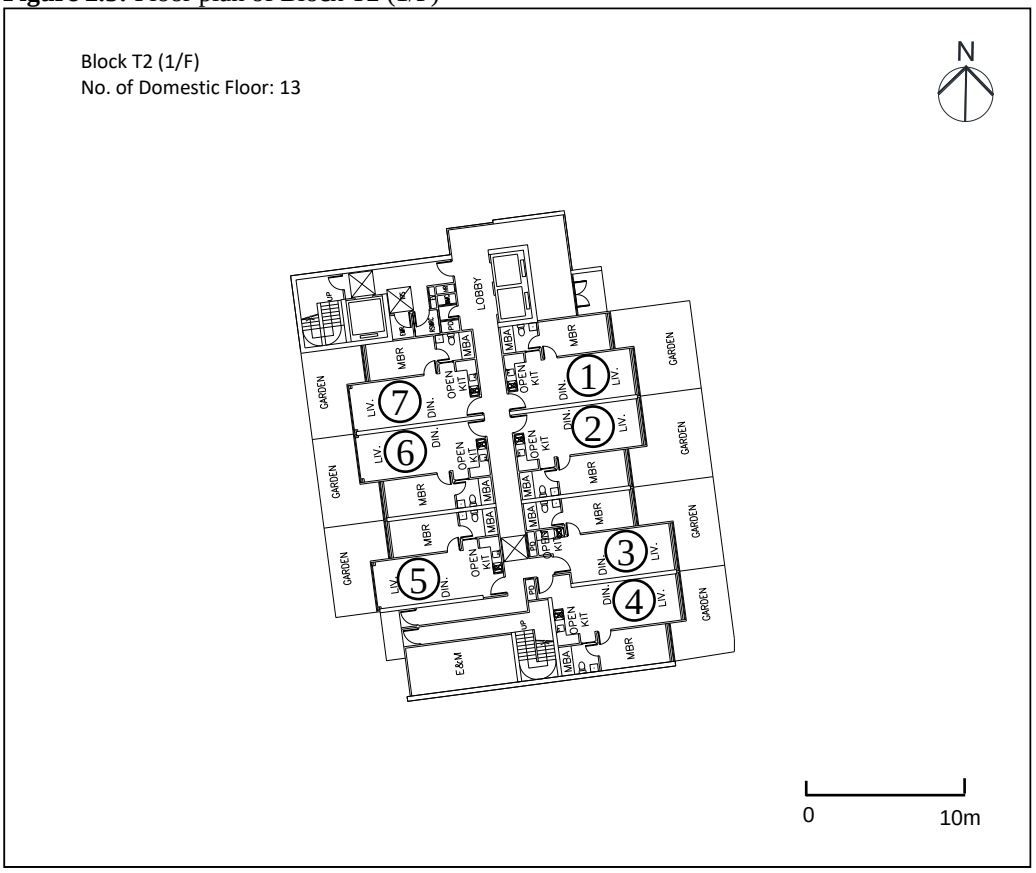


Figure 2.6: Floor plan of Block T2 (2/F-13/F)

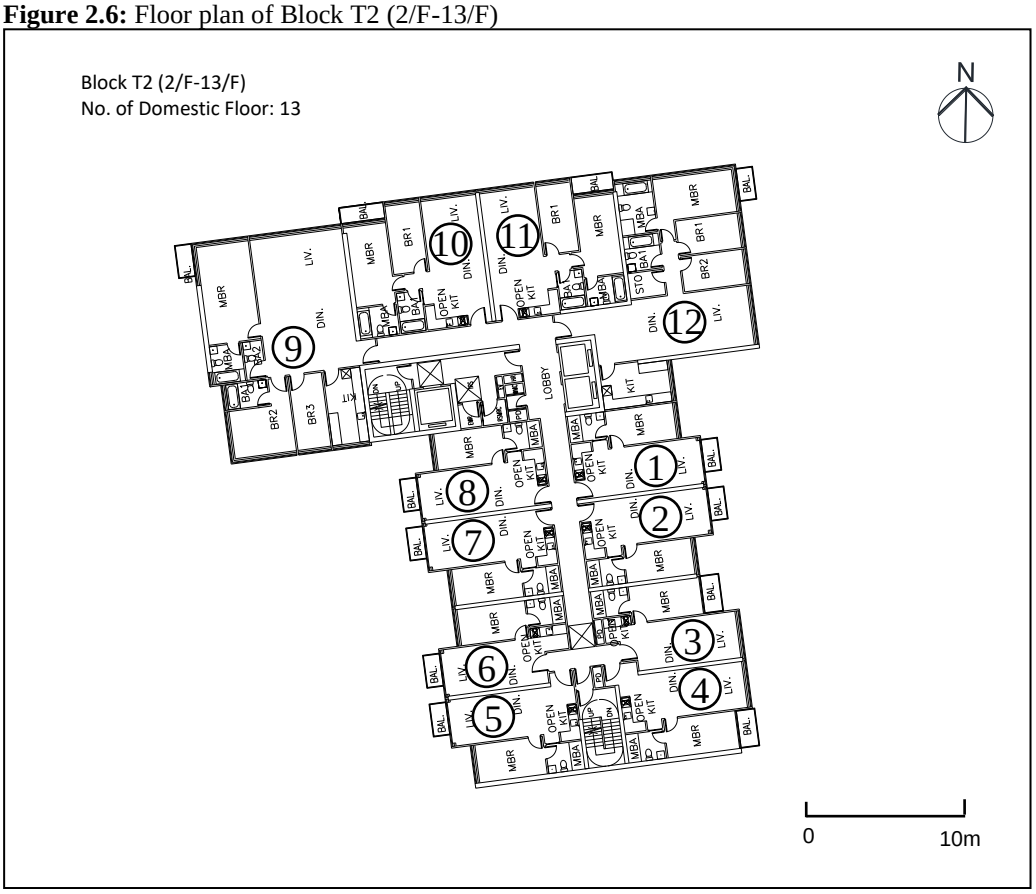


Figure 2.7: Floor plan of Block T3 (1/F)

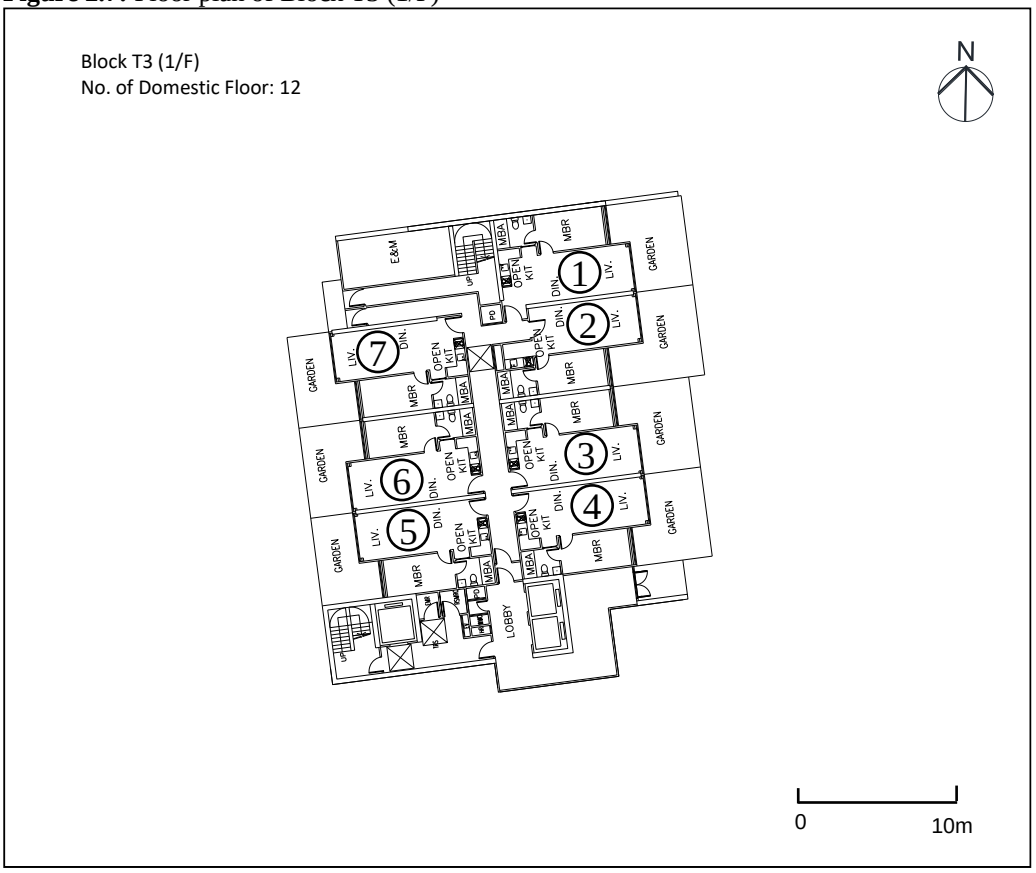


Figure 2.8: Floor plan of Block T3 (2/F – 12/F)

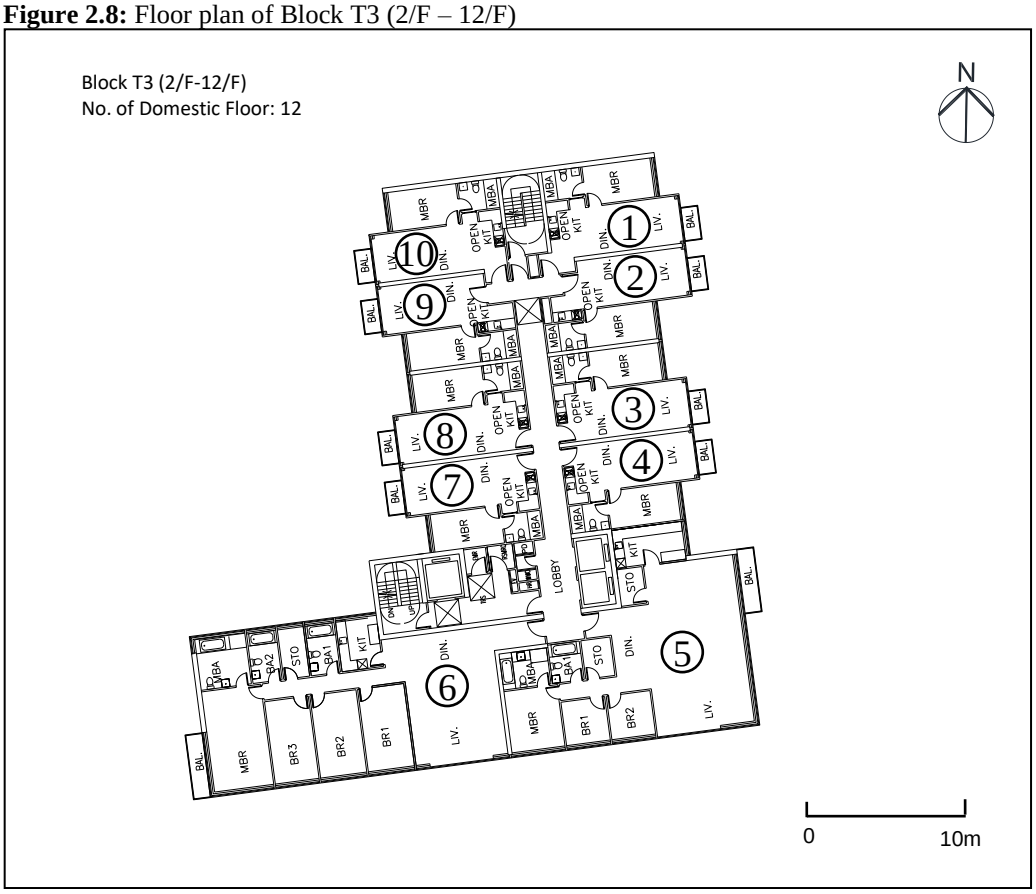


Figure 2.9: Floor plan of Block T4 (1/F)

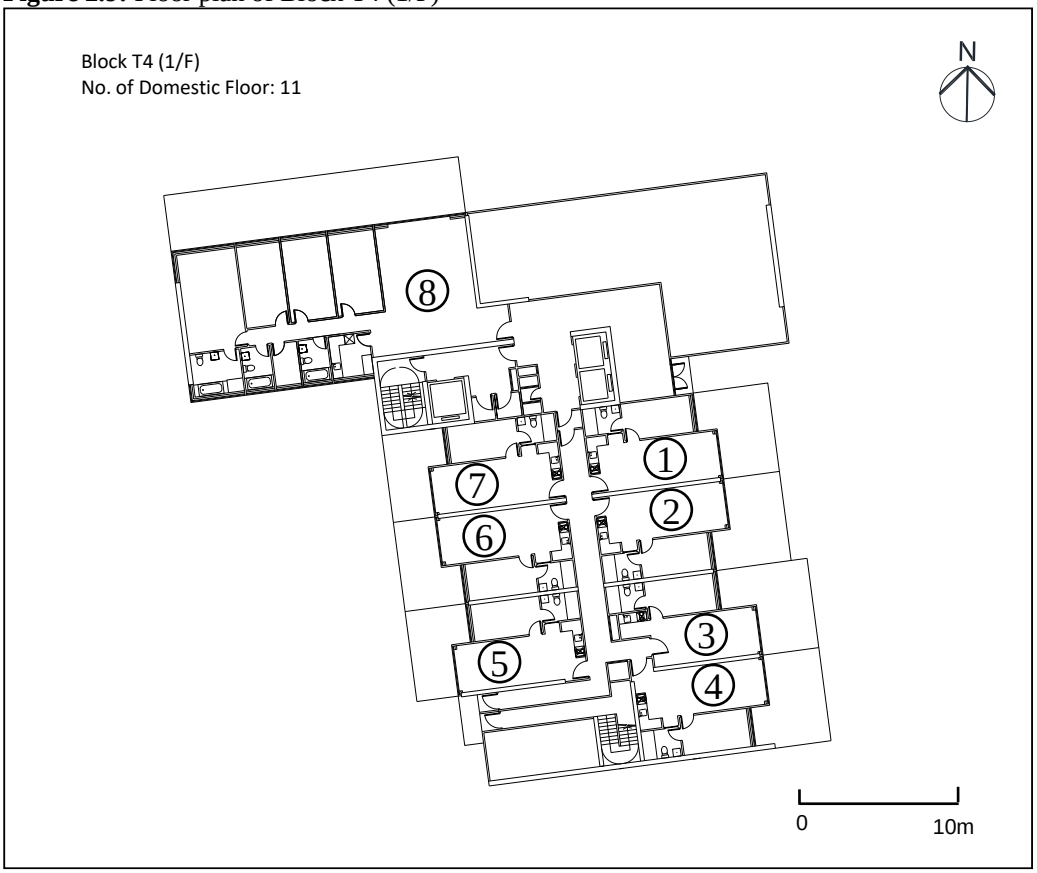
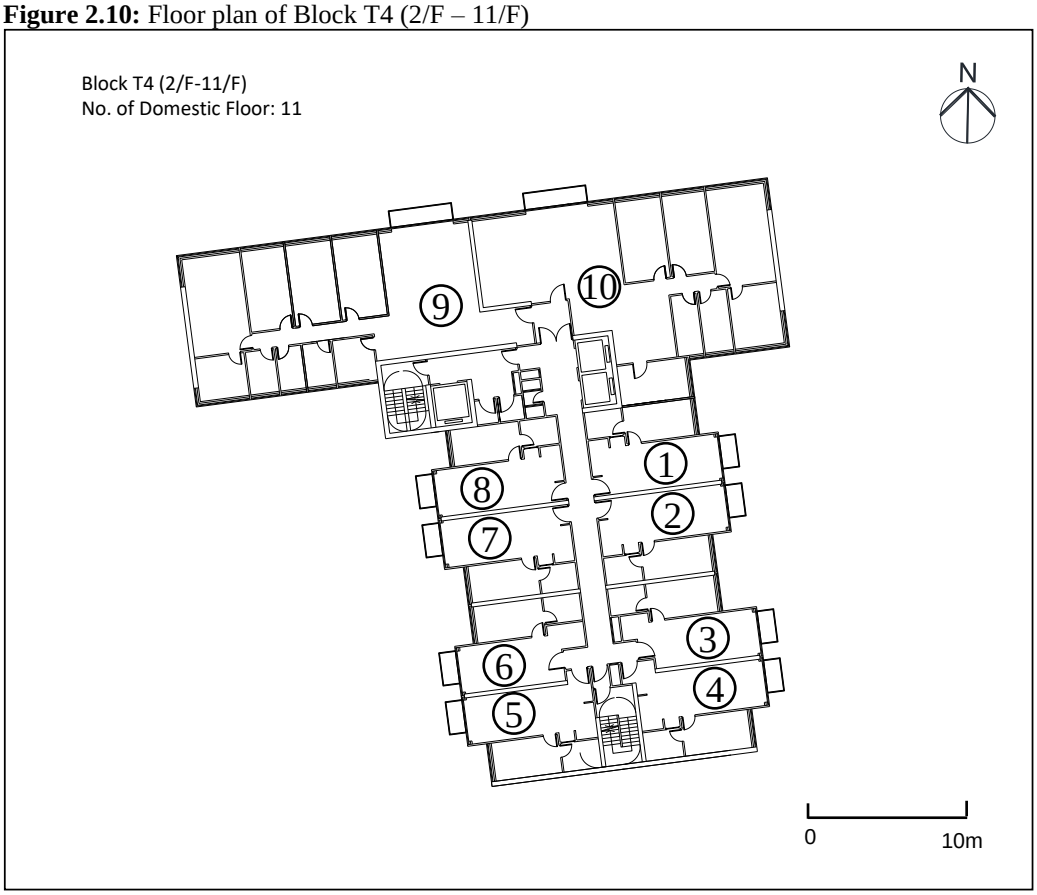


Figure 2.10: Floor plan of Block T4 (2/F – 11/F)



2.2.1.5 The key development parameters for the Application Site are given in **Table 2.1**. The detailed layout plans and schematic section drawings are provided in the Planning Statement.

Table 2.1: Key domestic development parameters for the proposed development

Parameters	Block T1	Block T2	Block T3	Block T4
Total no. of storeys	13	13	12	11
No. of residential storeys	13	13	12	11
Floor to floor height (m)	1/F: 4.35[1] 2/F – 13/F: 3.15[2]	1/F: 4.35[1] 2/F – 13/F: 3.15[2]	1/F: 4.35[1] 2/F – 12/F: 3.15[2]	1/F: 4.35[1] 2/F – 11/F: 3.15[2]
First NSR level (mPD) [3]	55.05	55.05	55.05	55.05
Main roof level (mPD)	96	96	92.85[4]	89.7
Number of flats per block	124	151	117	108
Total number of flats	500			
Anticipated Total Population	1,400			
Tentative population intake year	2030			

Note:
[1] For modelling purpose, a floor-to-floor height of 4.3m is adopted.
[2] For modelling purpose, a floor-to-floor height of 3.1m is adopted.
[3] For modelling purpose, a first NSR level of 55.0mPD is adopted
[4] For modelling purpose, a main roof level of 92.8mPD is adopted.

2.3 EIAO Implication

2.3.1.1 This section is to identify if the proposed works/facilities of the development would constitute any Designated Project(s) (DPs) under the Environmental Impact Assessment Ordinance (EIAO). Details are discussed below.

Engineering Feasibility Study for Urban Development Projects

2.3.1.2 The proposed development site is less than 50ha and hence it does not fall into Schedule 3 of EIAO.

Road Works

2.3.1.3 The Site is currently served by the existing Ha Wong Yi Au Road which will be widened to provide an additional lane in order to alleviate impact arising from the proposed development on the traffic condition. A new access road (subject to detailed design) is proposed which extends from the existing Ha Wong Yi Au Road (**Figure 2.2** and **Figure 4.11**). Junction improvement works are planned at the existing Yung Yi Road roundabout connecting to the widened Ha Wong Yi Au Road. As confirmed by the Project Traffic Engineer, the widened Ha Wong Yi Au Road and proposed new access road will be

classified as Local Distributor (LD). Therefore, it does not fall into the category of Item A.1 of Schedule 2 of EIAO and does not constitute a DP under EIAO.

Drainage Works

2.3.1.4 There are existing watercourses running within and in close vicinity of the proposed development. Watercourses within the proposed development would be replaced by a proposed local drainage system that connects to the existing downstream drainage system. The changes in total flow discharged to existing drainage system will be minor and no adverse drainage impact is expected. The stormwater from the proposed development is proposed to be discharged into the proposed local drainage system and then the existing downstream drainage box culvert along the Yung Yi Road.

2.3.1.5 The diversion works are not classified as Item I.1 of Schedule 2 of EIAO because the widths of all corresponding channels are less than 100m and not encroach into the 300m distance from the nearest boundary of the sensitive areas listed in Item I.1. Therefore, the proposed drainage works do not fall into the category of Item I.1 of Schedule 2 of EIAO and do not constitute a DP under EIAO. Furthermore, the proposed works will not involve dredging works. Therefore, it does not fall into the category of Item C.12 of Schedule 2 of EIAO and does not constitute a DP under EIAO.

Works within Nearby Sensitive Areas Listed in Item Q.1

2.3.1.6 All works of the Project will not encroach in an existing or gazetted proposed country park or special area, a conservation area, an existing or gazetted proposed marine park or marine reserve, a site of cultural heritage, and a site of special scientific interest. Therefore, the proposed works for the Site do not fall into the category of Item Q.1 of Schedule 2 of EIAO and do not constitute a DP under EIAO.

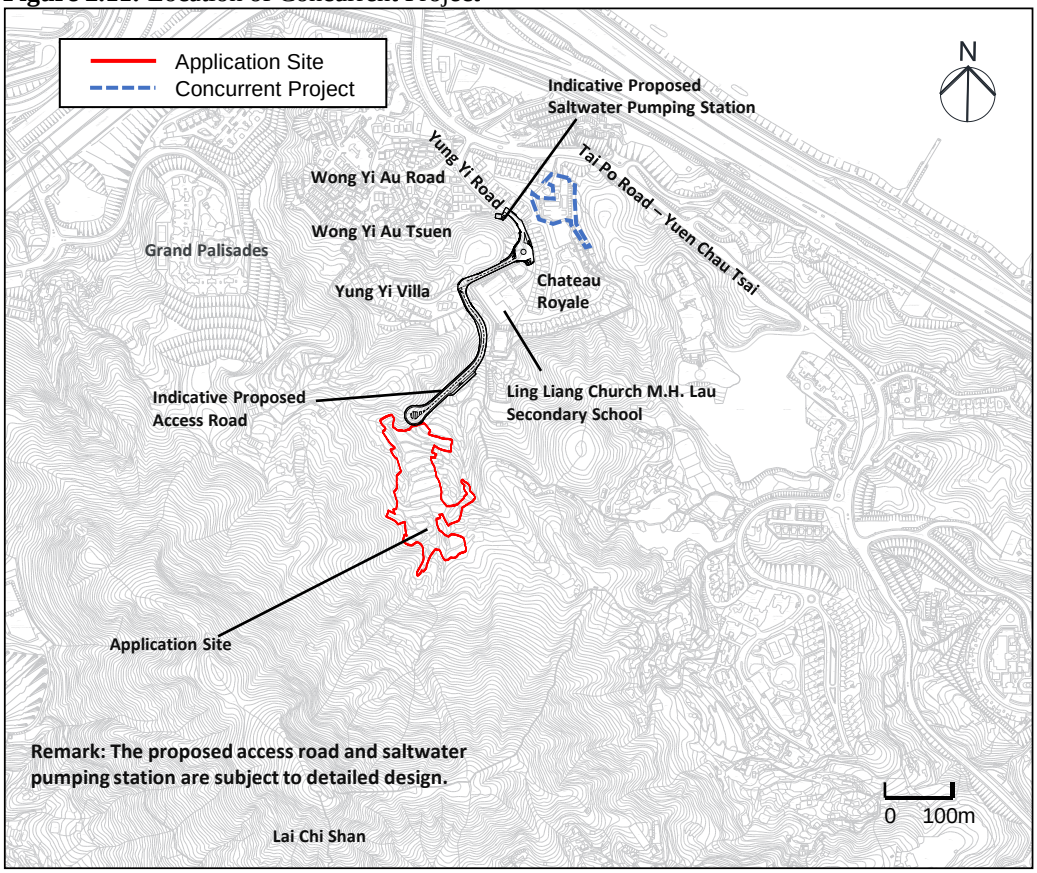
2.4 Interaction with Other Projects

2.4.1.1 Based on review of concurrent projects in the vicinity, one concurrent project is identified within 500m from the boundary of the Project. The concurrent project is summarized in **Table 2.2** and shown in **Figure 2.11** below.

Table 2.1: Summary of Concurrent Project

Concurrent Project	**Potential Cumulative Impacts**	
	Construction Phase	Operational Phase
Proposed Minor Relaxation of Building Height Restriction for Proposed Social Welfare Facility (Residential Care Home for Persons with Disabilities) in "Government, Institution or Community" and "Green Belt" Zones, Government Land at "Former Fish Marketing Organization Tai Po Primary School", Wong Yi Au, Tai Po	Cumulative impacts were addressed in this report.	The concurrent project is planned for social welfare facility, no potential cumulative impacts are anticipated.

Figure 2.11: Location of Concurrent Project



3 Site Inspection

3.1.1.1 Site visit was carried out in March 2023 and September 2024. Photographs taken at the site and the neighbouring areas are given in **Photo 3.1** to **Photo 3.7** below.

3.1.1.2 The Application Site (**Photo 3.1**) and its surrounding areas are currently vegetated land (**Photo 3.2**). Yung Yi Road (**Photo 3.3**) and Tai Po Road (Yuen Chau Tsai) (**Photo 3.4**) are located to the north of the site. Yung Yi Villa (**Photo 3.5**), Chateau Royale (**Photo 3.6**) and Ling Liang Church MH Lau Secondary School (**Photo 3.7**) are located to the north and northeast of the Application Site.

3.1.1.3 Based on site observation, the noise climate in the vicinity of the Application Site is tranquil. No noisy activities were perceived at the Application Site and its surrounding areas.

Photo 3.1: Application Site	**Photo 3.2:** Vegetated land surrounding the site
	
Photo 3.4: Yung Yi Road	**Photo 3.4:** Tai Po Road (Yuen Chau Tsai)
	

Photo 3.5: Yung Yi Villa	**Photo 3.6**: Chateau Royale
	
Photo 3.7: Ling Liang Church MH Lau Secondary School	
	

4 Road Traffic Noise Impact Assessment

4.1 Concerned Road Sections and Noise Sensitive Receivers

4.1.1.1 The noise climate in the vicinity of the Application Site is currently dominated by road traffic noise from Yung Yi Road and Ha Wong Yi Au Road. Road traffic noise from the proposed access road, which is subject to detailed design, will also contribute to the noise environment upon completion of the Project. As mentioned in **Section 2**, there will be road works involved for the section from the existing Ha Wong Yi Au Road and beyond; while the existing Ying Yi Road roundabout will only involve junction improvement works. Hence, only the proposed access road section from Ha Wong Yi Au Road up to the roundabout adjacent to the proposed development are considered as "Project Roads".

4.1.1.2 With reference to the HKPSG, Noise Sensitive Receivers (NSRs) shall include residential uses (all domestic premises including temporary housing accommodation), institutional uses (educational institutions including kindergarten, child care centres and all others where unaided voice communication is required), hotels, hostels, offices, places of public worship, courts of law, hospitals, clinics, convalescences, residential care homes for the elderly, amphitheatres, auditoria, libraries, performing arts centres and country parks. Based on the current development plan, the proposed residential blocks within the Application Site are regarded as NSRs. Existing residential blocks at Chateau Royale and Yung Yi Villa, village houses to the south of Chateau Royale, educational institutions such as Ling Liang Church M.H. Lau Secondary School and places of public worship at Ling Liang Worldwide Evangelistic Mission Tai Po Ling Liang Church within Ling Liang Church M.H. Lau Secondary School are also regarded as NSRs due to potential road traffic noise impacts from the proposed access road.

4.2 Noise Criteria

4.2.1.1 The HKPSG has stipulated the noise standards for various noise sources as shown in **Table 4.1**.

Table 4.1: Noise standards for operational phase

Common Uses	**Noise Standards [1][2]**
	Road Traffic Noise L_{10} (1hour) dB(A)
All domestic premises including temporary housing accommodation	70
Hotels and hostels	70
Offices	70
Educational institutions including kindergartens, child care centres and all others where unaided voice communication is required	65
Places of public worship and courts of law	65

Common Uses	Noise Standards [1][2]
	Road Traffic Noise L_{10} (1hour) dB(A)
Hospitals, clinics, convalescences and residential care homes for the elderly - diagnostic rooms - wards	55

Note:
[1] The above standards apply to uses which rely on opened windows for ventilation.
[2] The above standards should be viewed as the maximum permissible noise levels at the external façade.

4.2.1.2 Direct mitigation measures should be considered or proposed on the road project if there would be adverse environmental impact. If the NSRs are affected by noise from other existing roads, direct mitigation measures are required to reduce the noise from concerned road project to a level that:

- It is not higher than the standard; and
- It has no significant contribution to the overall noise from other existing roads, if the cumulative noise level, i.e. noise from the new road together with other existing roads exceeds the standard (i.e. less than 1.0 dB(A)).

4.2.1.3 The maximum permissible hourly road traffic noise levels at the external facades of different uses of NSRs for the proposed development are summarized in **Table 4.2**.

Table 4.2: Summary of noise criteria for road traffic noise

Proposed/ Existing Developments and Facilities	Noise Sensitive Room with Openable Windows for Ventilation [1]	Uses	Noise Standards for Road Traffic Noise, $L_{10(1\ hour)}$ dB(A)
Planned Residential Blocks	Residential Units	Domestic	70

Note:
[1] The type of facilities and use of noise sensitive rooms are generally determined with respect to with reference to Table 4.1 of HKPSG, unless otherwise specified. All sensitive rooms which rely on opened windows for ventilation are identified.

4.3 Noise Assessment Points

4.3.1.1 Representative noise assessment points have been assigned for the existing NSRs. Though the extent of proposed access road of Indicated Scheme is subject to design, locations of the representative noise assessment points for the existing NSRs have been assigned for preliminary assessment. As the detailed layout plans for proposed residential blocks are not available at this stage, noise assessment points have been assigned to the external facades of the proposed residential blocks as representative noise assessment points. The locations of the selected assessment points are illustrated in **Figures 4.1 – 4.10**.

Figure 4.1: Selected assessment points for existing NSRs (road traffic noise assessment)

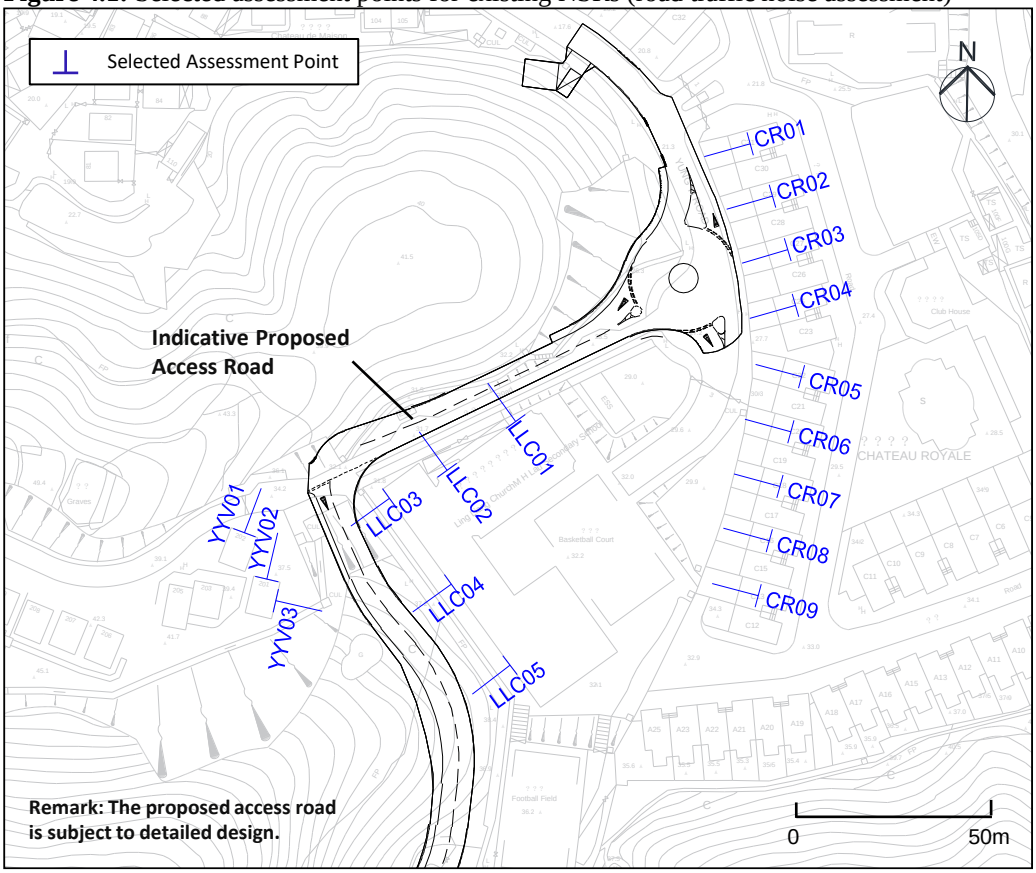


Figure 4.2: Selected assessment points for existing NSRs (road traffic noise assessment)

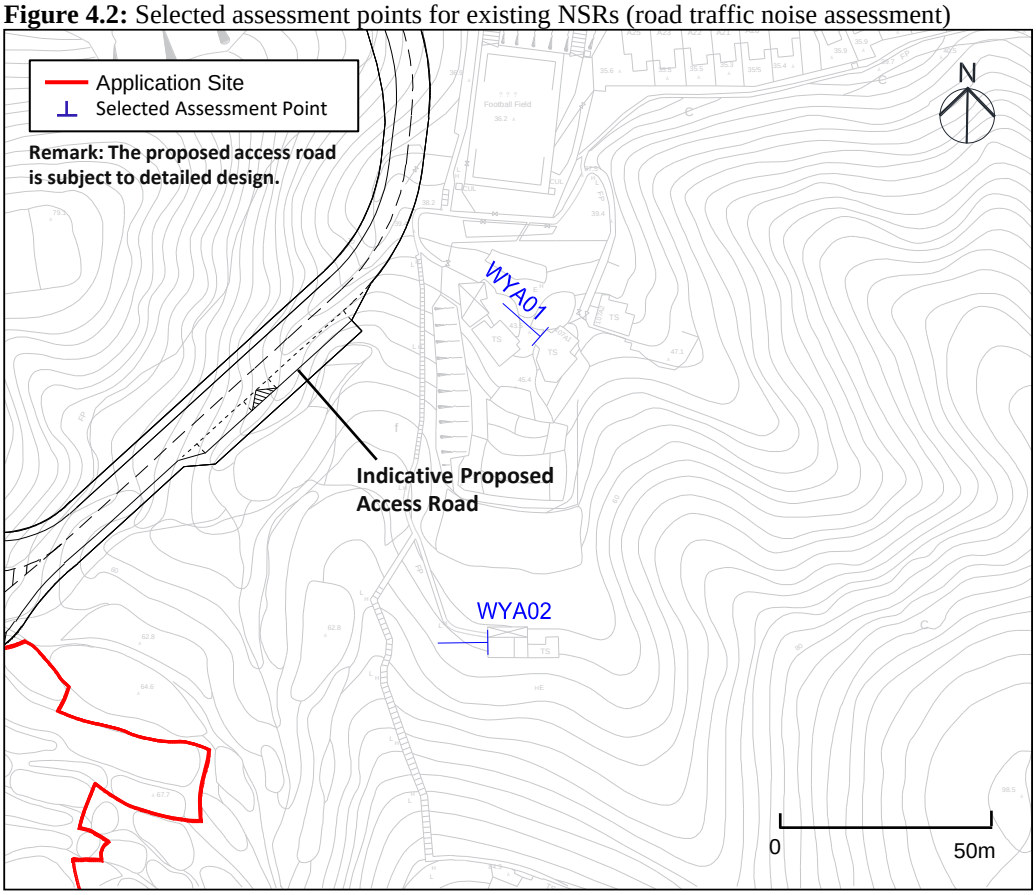


Figure 4.3: Selected assessment points for Block T1 (1/F) (road traffic noise assessment)

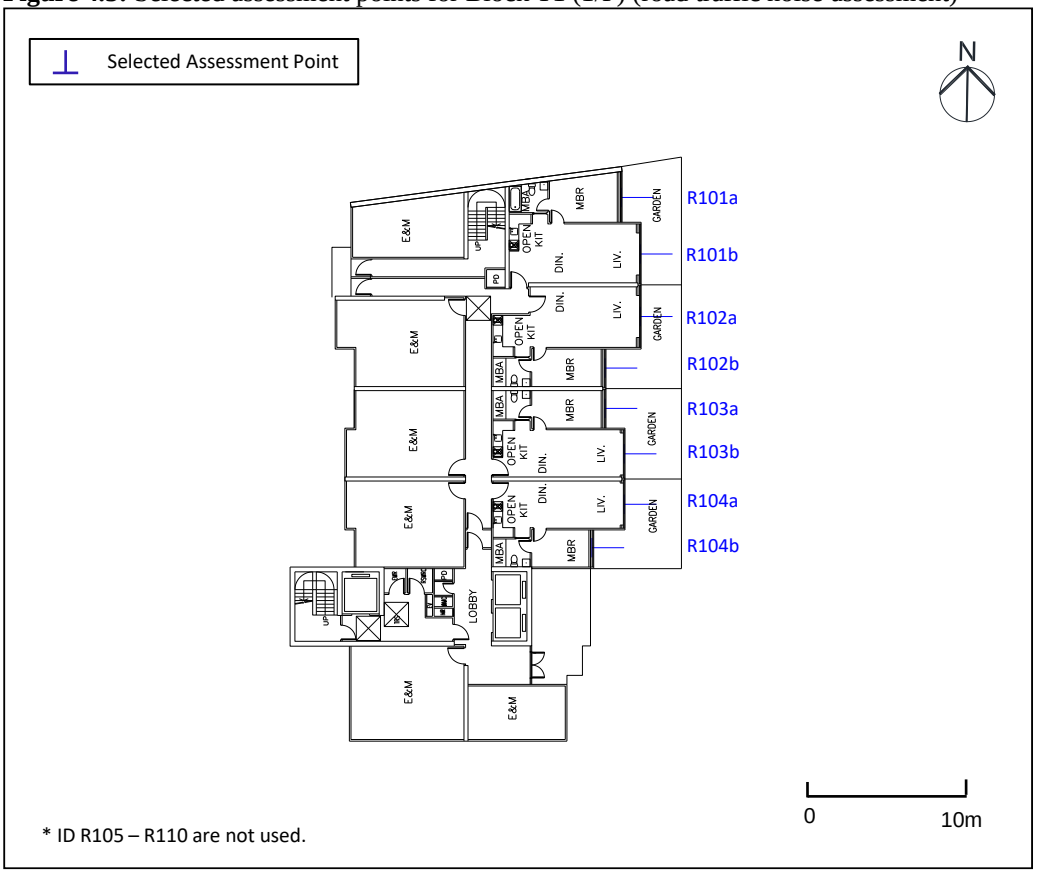


Figure 4.4: Selected assessment points for Block T1 (2/F – 13/F) (road traffic noise assessment)

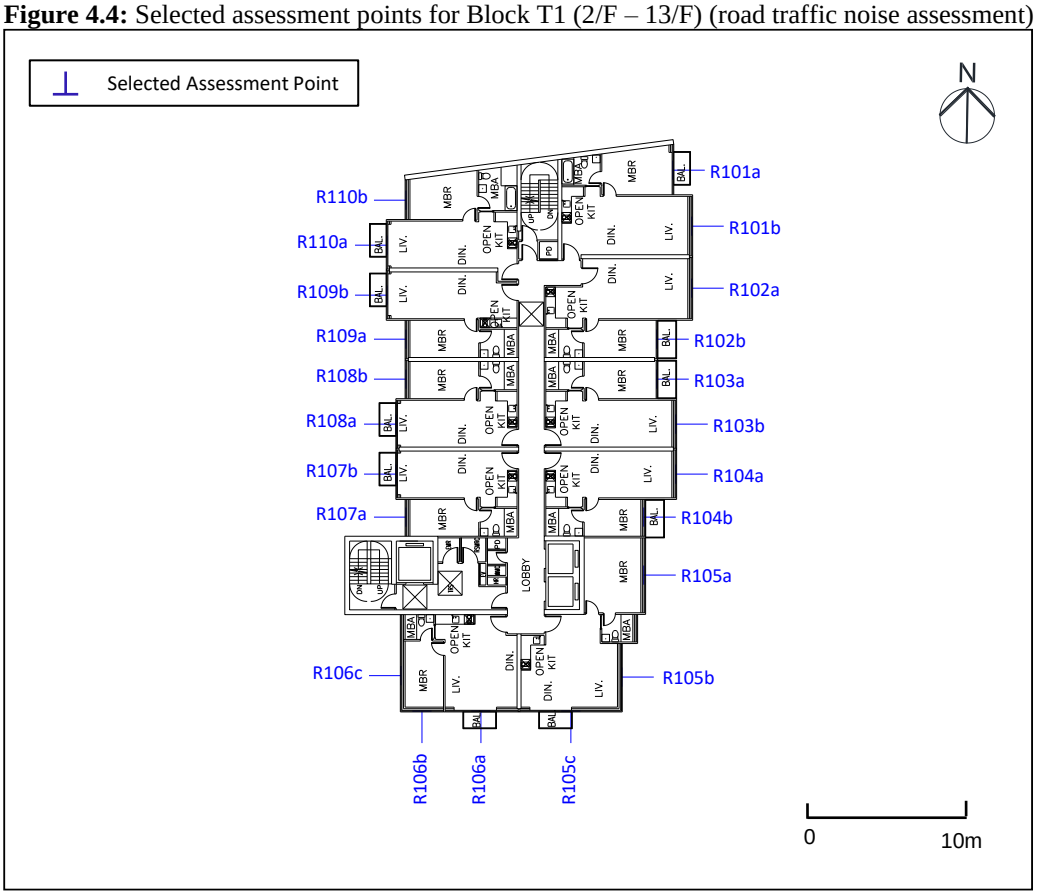


Figure 4.5: Selected assessment points for Block T2 (1/F) (road traffic noise assessment)

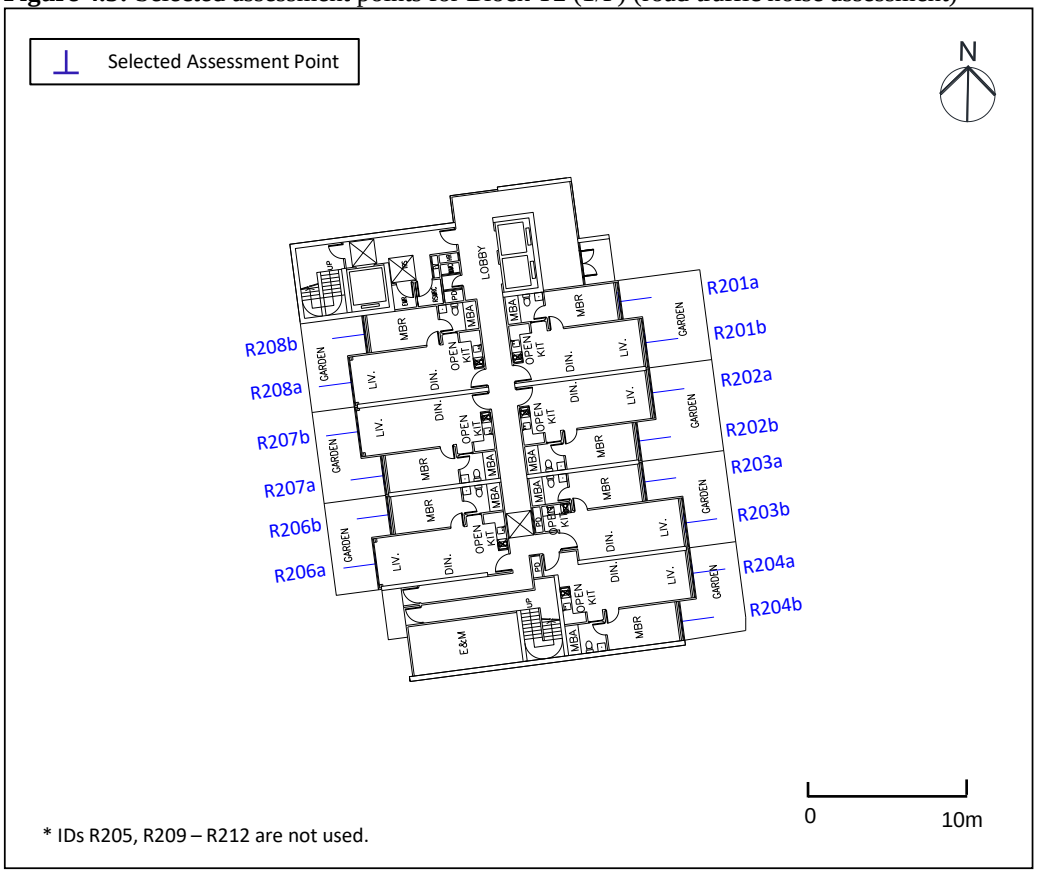


Figure 4.6: Selected assessment points for Block T2 (2/F – 13/F) (road traffic noise assessment)

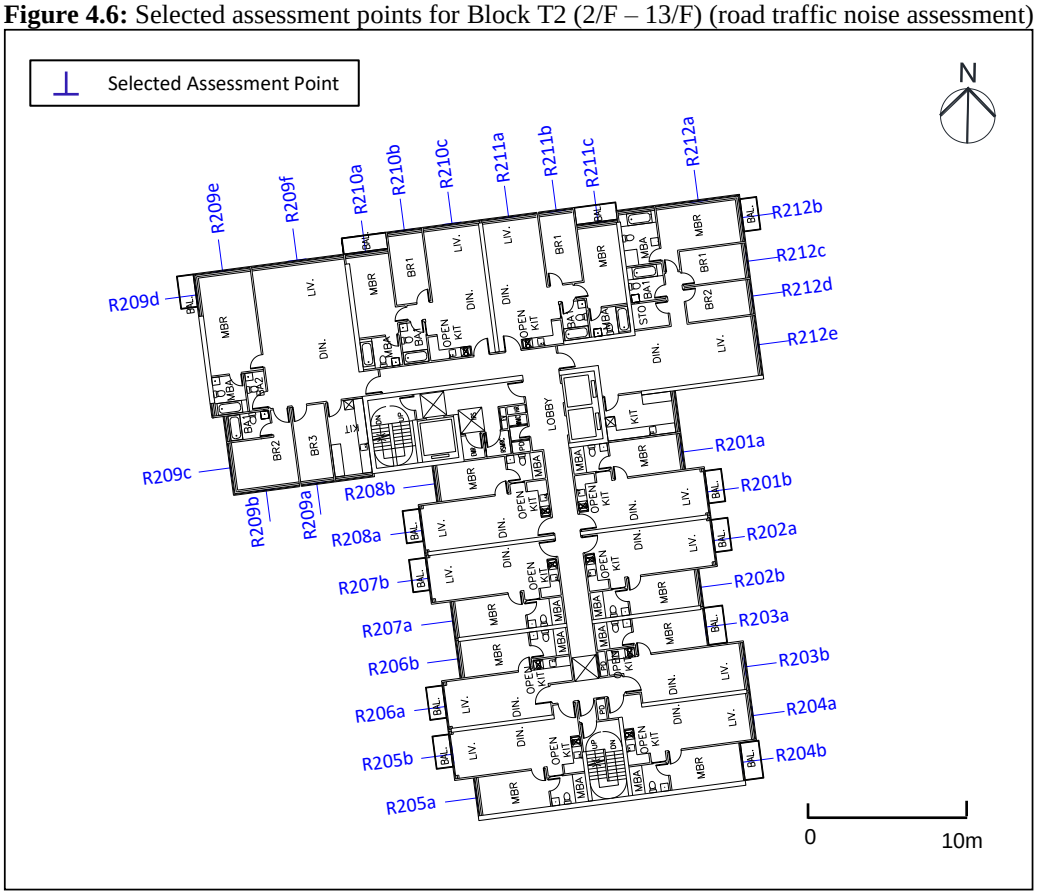


Figure 4.7: Selected assessment points for Block T3 (1/F) (road traffic noise assessment)

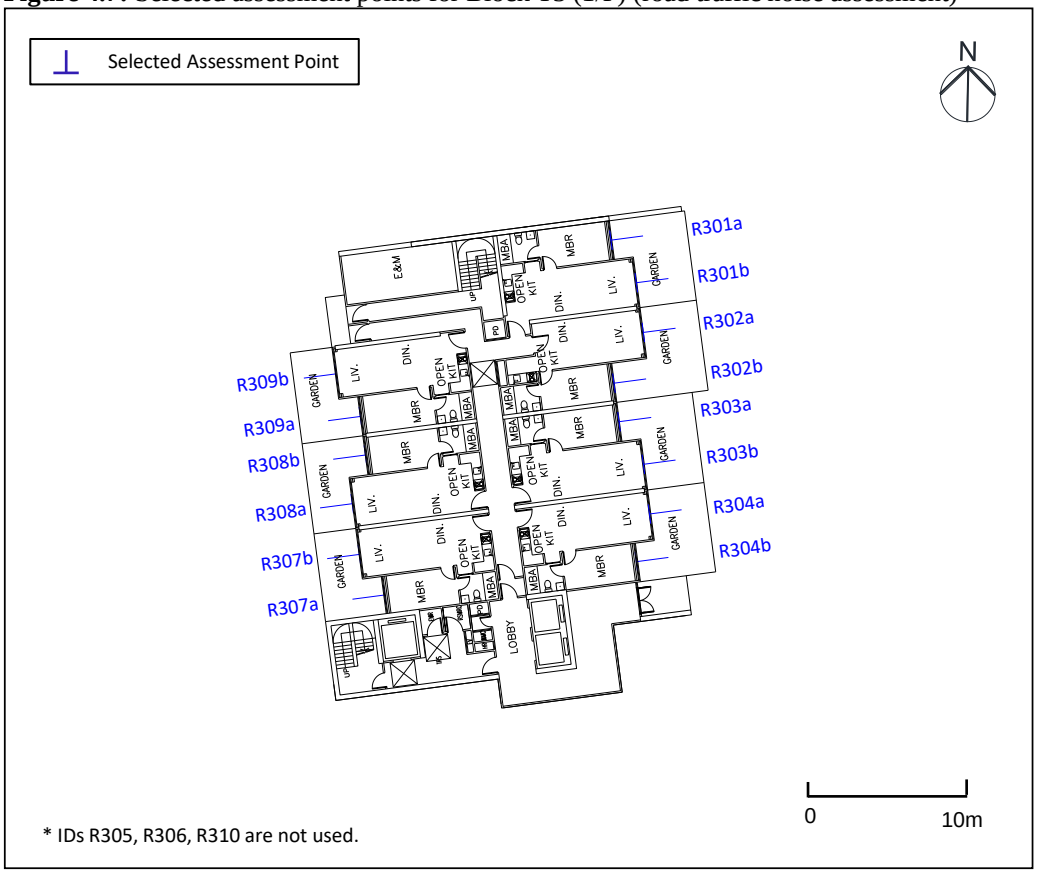


Figure 4.8: Selected assessment points for Block T3 (2/F – 12/F) (road traffic noise assessment)

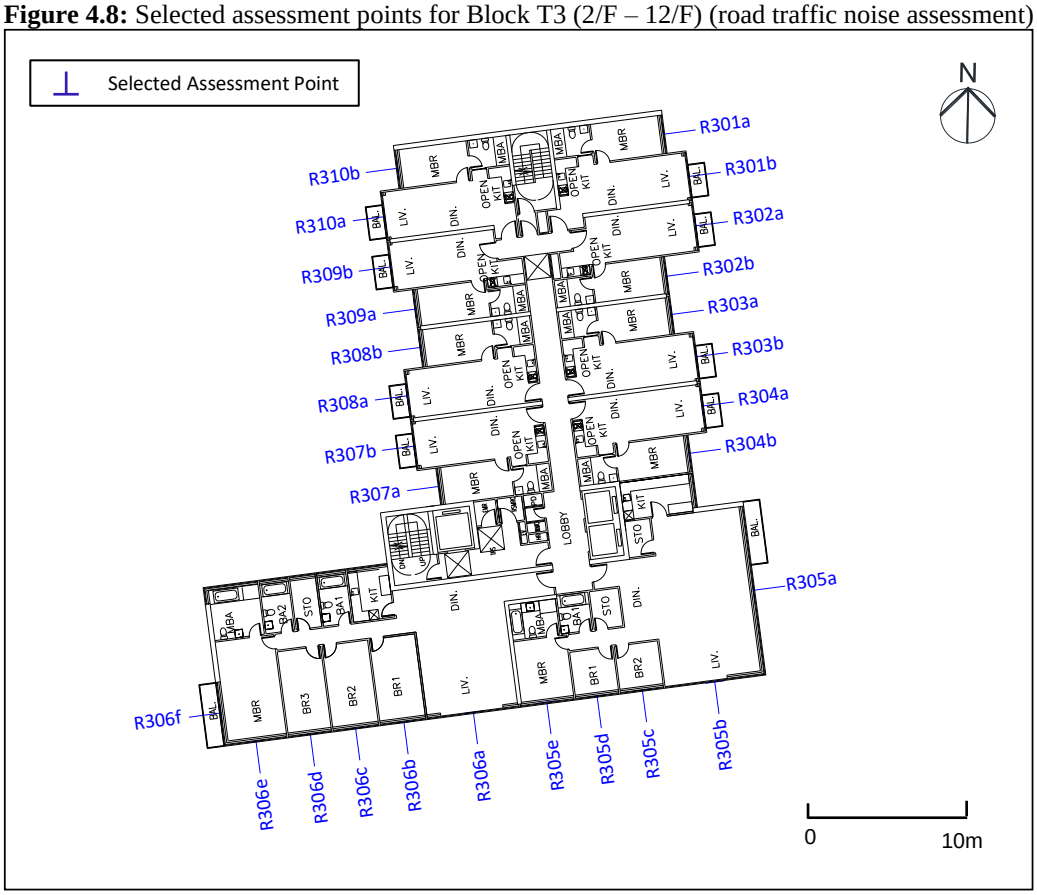


Figure 4.9: Selected assessment points for Block T4 (1/F) (road traffic noise assessment)

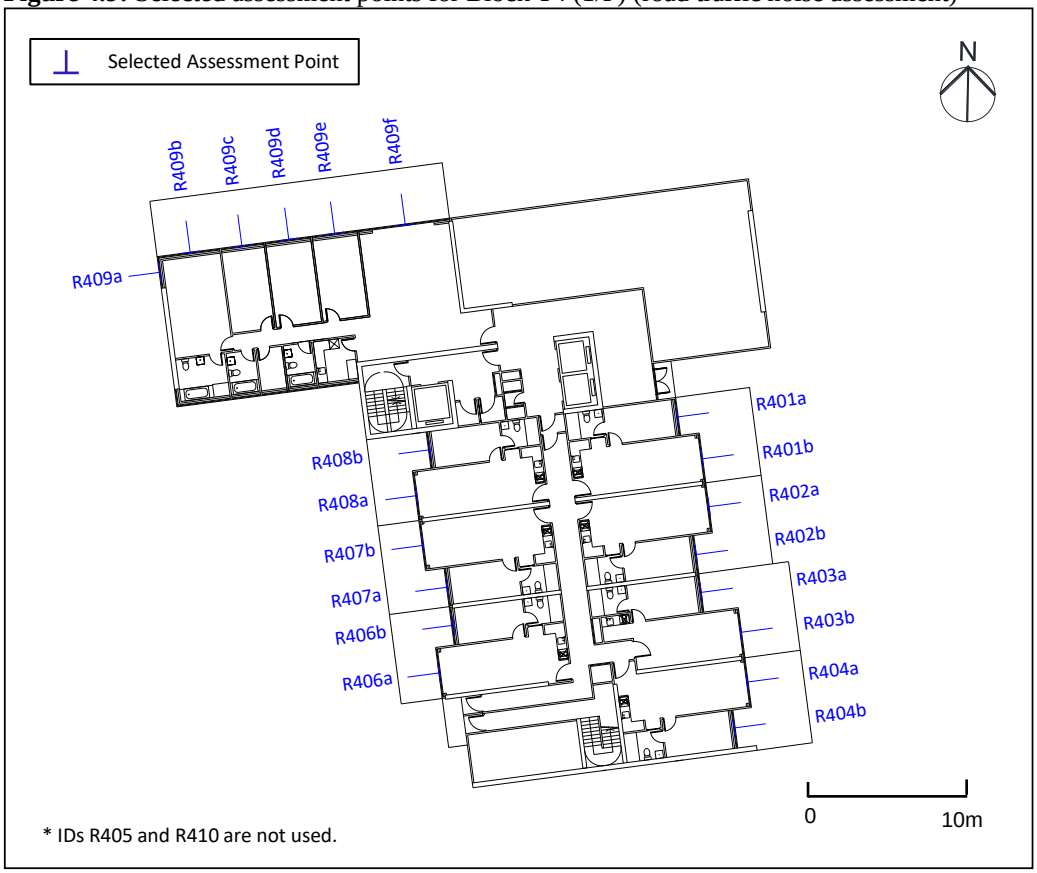
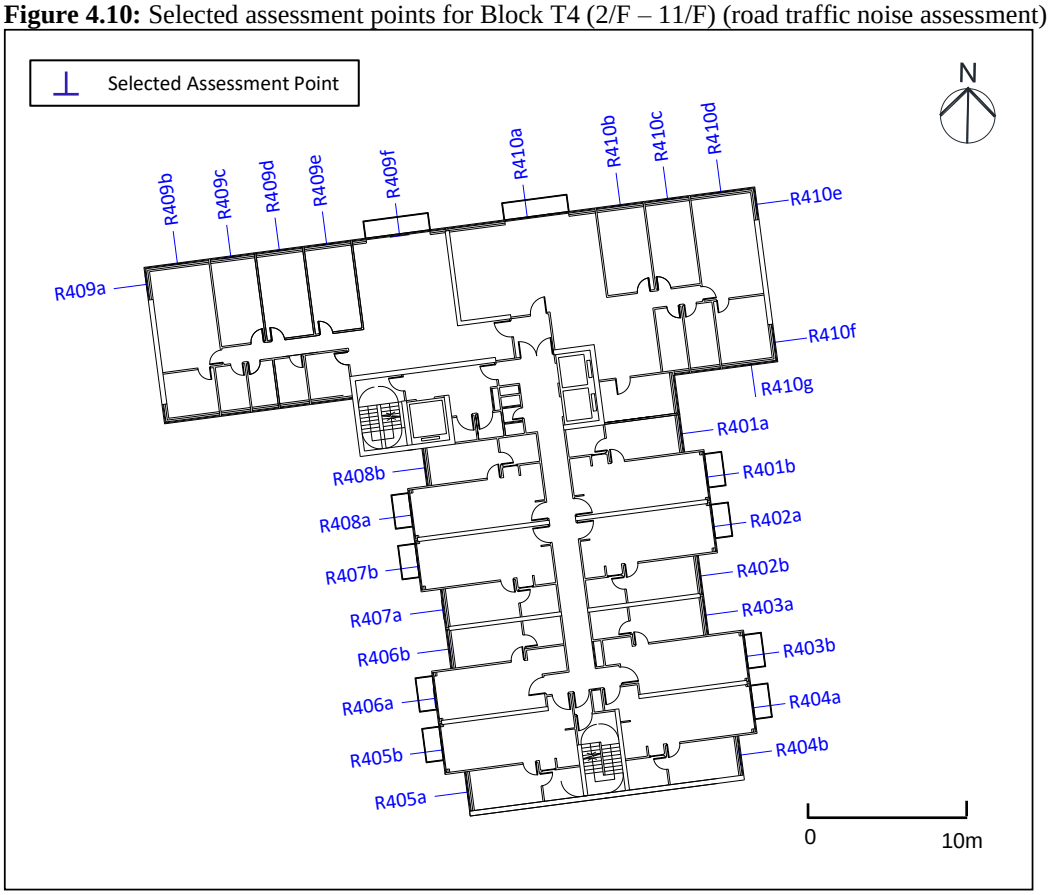


Figure 4.10: Selected assessment points for Block T4 (2/F – 11/F) (road traffic noise assessment)



4.4 Assessment Methodology

4.4.1.1 Traffic noise levels at the facades of the selected assessment points have been predicted. The prediction is based on the maximum traffic projection within 15 years upon the population intake of the development and calculation method in accordance with the UK Department of the Transport "Calculation of Road Traffic Noise" (CRTN).

4.4.1.2 Calculations of future road traffic noise have been based on the peak hourly flow for the maximum traffic projected from the full operation of the proposed/ upgraded roads to 15 years period after operation. The traffic projection has taken into account the induced traffic due to the operation of other planned roads and committed projects.

4.4.1.3 For the purpose of this assessment, roads are classified as the following categories in the table below (see **Figure 4.11**). The "Project Road" includes all roads which are proposed to be physically altered and modified under this proposed development, leading to potential road traffic noise impacts. Existing roads and other roads planned/to be undertaken under other project are grouped into "Other Roads". As mentioned in **Section 2.2.1.3**, the existing Ha Wong Yi Au Road would be widened, and the one-way road will be turned into a two-way road during operational phase (subject to detailed design). Therefore, Ha Wong Yi Au Road and the proposed access road connecting to the proposed development, which is subject to detailed design, are classified as "Project Road". Yung Yi Road roundabout will only involve junction improvement works which will not result in changes to the number of traffic lanes. Hence, the Yung Yi Road roundabout will be classified as "Other Roads" despite being located within the site boundary.

Table 4.3: Road category

Category	Road
Project Roads	Widening section of Ha Wong Yi Au Road and provision of access road extended from Ha Wong Yi Au Road
Other Roads	Yung Yi Road, Yung Yi Road roundabout, Tai Po Road (Yuen Chau Tsai/ Tai Po Kau), Wong Yi Au Road and roads within Wong Yi Au Village

4.5 Traffic Flow Data for Assessment

4.5.1.1 As advised by the Traffic Consultant, the maximum traffic flow within 15 years upon population intake of the residential development will occur in Year 2045. Traffic Impact Assessment (TIA) including the methodology on the traffic forecast for the EAS has been submitted to Transport Department (TD) for endorsement. Reply from TD is yet to be provided at the time of preparing this report and will be supplemented in later stage. The traffic consultant had checked and confirmed the validity of the traffic data. TD's correspondence on confirmation of road type is supplemented in **Appendix 4.1**.

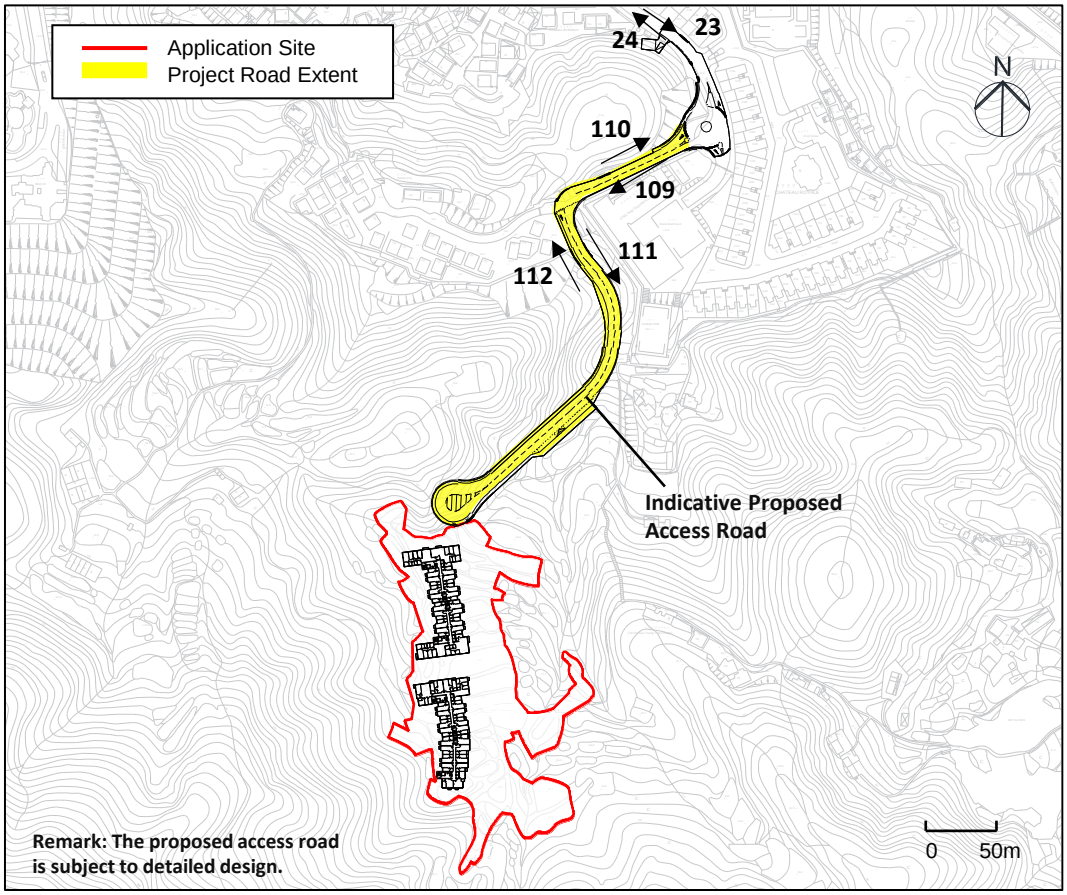
4.5.1.2 The roads surrounding the Application Site and the predicted peak hourly traffic flows are presented in **Figure 4.11** and **Table 4.4** respectively. The traffic flow data for all roads is given in **Appendix 4.1**.

Table 4.4: Predicted peak hourly traffic flow data on major roads

Road ID [1]	Road Description	Direction	Speed Limit (km/hr)	Year 2045	
				Traffic Flow (veh/hr)	% of Heavy Vehicles
23	Yung Yi Road	SB	50	195	38.0%
24	Yung Yi Road	NB	50	205	30.0%
109	Ha Wong Yi Au Road	EB	50	35	35.2%
110	Ha Wong Yi Au Road	WB	50	65	28.0%
111	Proposed Access Road	SB	50	35	35.2%
112	Proposed Access Road	NB	50	55	27.0%

Note:
[1] Only the major roads are shown in the table above. Hence, the flow ID is not in sequential order.

Figure 4.11: Traffic ID for major road in the vicinity



4.6 Existing Noise Mitigation Measures on Nearby Roads

4.6.1.1 Noise mitigation measures including noise barrier and low noise road surfacing are not in place along existing Yung Yi Road and Ha Wong Yi Au Road.

4.7 Optimized Building Design

4.7.1.1 Optimized building design and orientation have already been incorporated into the current layout scheme for the base scenario, as described below:

4.7.2 Building Block Design, Layout and Orientation

4.7.2.1 The current scheme is found to be the optimal option from the perspective of development efficiency, flat production, noise performance, scenery and angle of view, etc.

4.7.3 Building Setback

4.7.3.1 The Application Site is very small and has limited space available for building setback to reduce the noise impact effectively. Nonetheless, the building block has been deposited with optimised setback distance from the proposed access road as far as practicable to minimize the traffic noise impact.

4.8 Assessment Results for Existing NSRs

4.8.1.1 It is estimated that a total number of 4 existing NAPs will be exposed to the noise level in excess of the 70 dB(A) criterion for domestic uses, 2 NAPs will be exposed to the noise level in excess of the 65 dB(A) criterion for place of public worship and 1 NAP will be exposed to the noise level in excess of the 65 dB(A) criterion for educational institutions. Results of the road traffic noise assessments for the existing NSRs are summarised in **Table 4.5**. Details are presented in **Appendix 4.2**.

Table 4.5: Road noise assessment results at existing NSRs (Unmitigated Scenario)

NSR Location	NAP	Uses	Max. Predicted Noise Levels, dB(A) [1]				Compliance	Noise mitigation required (Y/N)
			Overall	Existing Roads	Project Roads	Max. Project Road Contribution		
Chateau Royale	CR01	Domestic	**74.6**	**74.6**	56.0	0.1	N	N
	CR02	Domestic	**74.2**	**74.1**	55.2	0.1	N	N
	CR03	Domestic	**73.0**	**73.0**	47.3	0	N	N
	CR04	Domestic	**71.1**	**71.0**	53.6	0.1	N	N
	CR05	Domestic	68.1	67.9	51.2	-	Y	N
	CR06	Domestic	65.9	65.7	52.9	-	Y	N
	CR07	Domestic	65.2	65.1	50.9	-	Y	N
	CR08	Domestic	64.4	64.1	52.7	-	Y	N
	CR09	Domestic	64.3	63.9	53.6	-	Y	N
Ling Liang Church M.H. Lau Secondary School	LLC01	Place of Public Worship	**69.8**	**67.2**	**66.5**	2.6	N	**Y**
	LLC02	Place of Public Worship	**67.8**	64.5	65.0	3.3	N	N
	LLC03	Educational Institution	**66.2**	33.4	**66.2**	32.8	N	**Y**
	LLC04	Educational Institution	64.7	31.3	64.7	-	Y	N
	LLC05	Educational Institution	64.0	30.3	64.0	-	Y	N
Yung Yi Villa	YYV01	Domestic	65.4	61.8	63.0	-	Y	N
	YYV02	Domestic	65.8	60.7	64.2	-	Y	N
	YYV03	Domestic	66.5	58.9	65.6	-	Y	N
Village House at Wong Yi Au	WYA01	Domestic	61.2	51.1	60.8	-	Y	N
	WYA02	Domestic	58.0	46.1	57.7	-	Y	N

Note:
[1] Only the results of floors with maximum overall noise level are presented.

4.8.1.2 The results in **Table 4.5** show that the overall noise levels at some existing NSRs at Chateau Royale (e.g. NAP CR05 – CR09), Yung Yi Villa and village houses at Wong Yi Au would comply with the relevant noise criteria and hence no adverse impacts are anticipated.

4.8.1.3 Although exceedances are predicted at some existing NSRs at Chateau Royale (e.g. NAP CR01 – CR04), the noise contribution from Project Roads is less than relevant standard and the project road contribution is also considered insignificant (i.e. less than 1.0dB(A)). With reference to **Section 4.2.1.2**, adverse road traffic noise impacts due to the Project Roads are not anticipated. Therefore, mitigation measures are not required for these existing NSRs.

4.8.1.4 Results indicate that the predicted exceedances are located at Ling Liang Church M.H. Lau Secondary School (e.g. NAP LLC01 and LLC03). The predicted noise levels from project roads for these NSRs have exceeded the stipulated noise criterion of 65dB(A) for

educational institutions, and significant contribution from Project Roads is predicted for these NSRs. Direct noise mitigation measures are therefore required for these NSRs.

4.9 Direct Noise Mitigation Measures for Existing NSRs

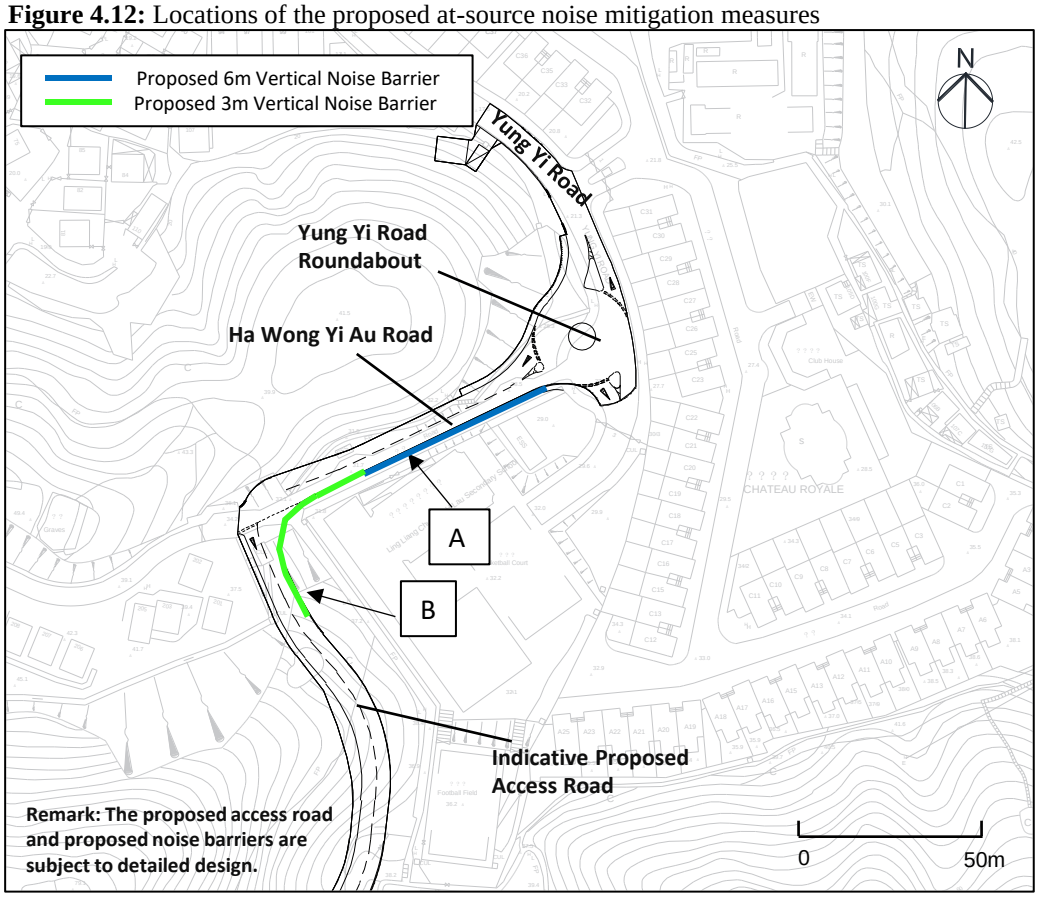
4.9.1.1 Direct noise mitigation measures would be provided as far as practicable until the mitigated overall noise levels comply with the relevant standards or the mitigated noise levels from the Project roads does not exceed the relevant standards and does not contribute to the overall noise levels by 1.0 dB(A) or more. Hence, direct noise mitigation measures as listed below are proposed to alleviate adverse traffic noise impact on the affected NSRs:

A. One section of 6m vertical barrier along the westbound carriageway of Ha Wong Yi Au Road;

B. One section of 3m vertical barrier along the westbound carriageway of Ha Wong Yi Au Road and southbound carriageway of the proposed access road; and

4.9.1.2 The locations of the proposed noise mitigation measures are shown in **Figure 4.12** below.

Figure 4.12: Locations of the proposed at-source noise mitigation measures



4.9.1.3 With the provision of the proposed vertical noise barriers, for all NSRs exposed to noise exceedance, their respective contributions from Project roads would be less than 1.0 dB(A), and their predicted traffic noise levels due to Project roads would comply with the respective

traffic noise criteria. Details are presented in **Appendix 4.3**. Nevertheless, the proposed noise mitigation measures will be further reviewed and optimised in detailed design stage.

4.10 Assessment Results for Planned Residential Blocks

4.10.1.1 With the above optimised design, it is estimated that all flats will comply with the 70dB(A) criterion and a compliance rate of 100% can be achieved. Results of the road traffic noise assessments for the proposed residential development are summarised in **Table 4.6**. Details are presented in **Appendix 4.4** for the Site.

Table 4.6: Road noise assessment results (Base Case Scenario)

Scenario	Total No. of Flats	No. of Flats Exceeding the Noise Criteria	Max. Predicted Noise Levels, dB(A)	Compliance Rate
Base Case	500	0	60.9	100%

5 Review of Fixed Noise Impact

5.1 Identification of Fixed Noise Sources

5.1.1.1 Desktop study and site survey have been carried out in March 2023 and September 2024 to identify any potential fixed noise sources within 300m from the proposed residential blocks. No existing major fixed noise sources were found within 300m of the subject site. Hence, potential fixed noise impact on the proposed residential development is not anticipated.

5.1.1.2 The proposed saltwater pumping station, which is subject to detailed design, and any other planned fixed noise sources, such as MVAC system and pumping system, in the proposed development should be designed to comply with the requirements under the HKPSG in detailed design stage. Noise mitigation measures such as enclosing pumps and noisy plants inside a building structure, proper selection of quiet plant aiming to reduce the tonality at NSRs, installation of silencer / acoustic enclosure / acoustic louvre for the exhaust of ventilation system and locating all openings of ventilation systems facing away from NSRs shall be considered in the design of the proposed development as far as practicable.

6 Review of Potential Air Quality Impact

6.1 Legislation, Standards and Guidelines

6.1.1 General

6.1.1.1 The relevant legislations, standards and guidelines applicable to the present study for the assessment of air quality impacts include:

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Air Pollution Control (Construction Dust) Regulation;
- Air Pollution Control (Non-road Machinery) (Emission) Regulation;
- Air Pollution Control (Fuel Restriction) Regulations;
- Recommended Pollution Control Clauses for Construction Contracts; and
- Hong Kong Planning Standards and Guidelines (HKPSG)

6.1.2 Air Pollution Control Ordinance

6.1.2.1 The principal legislation for controlling air pollutants is the APCO (Cap. 311) and its subsidiary regulations, which defines statutory Air Quality Objectives (AQOs).

6.1.2.2 The APCO (Cap. 311) provides the power for controlling air pollutants from a variety of stationary and mobile sources and encompasses a number of AQOs. In addition to the APCO, the following overall policy objectives are laid down in Chapter 9 of the HKPSG as follows:

- Limit the contamination of the air in Hong Kong, through land use planning and through the enforcement of the APCO to safeguard the health and well-being of the community; and
- Ensure that the AQOs for 7 common air pollutants are met as soon as possible.

6.1.2.3 The prevailing AQOs, which took effect on 11 April 2025, are listed in **Table 6.1** below.

Table 6.1: Hong Kong air quality objectives

Pollutant	**Limits on Concentration, µg/m^3 [1] (Number of Exceedance per year allowed in brackets)**				
	10-min	**1-hr**	**8-hr**	**24-hr [2]**	**Annual [2]**
Sulphur Dioxide (SO_2)	500 (3)	-	-	40 (3)	-
Respirable Suspended Particulates (RSP, or PM_{10}) [3]	-	-	-	75 (9)	30
Fine Suspended Particulates (FSP, or $PM_{2.5}$) [4]	-	-	-	37.5 (35/18) [5]	15

Pollutant	Limits on Concentration, µg/m^3 [1] (Number of Exceedance per year allowed in brackets)				
	10-min	1-hr	8-hr	24-hr [2]	Annual [2]
Carbon Monoxide (CO)	-	30,000 (0)	10,000 (0)	-	-
Nitrogen Dioxide (NO_2)	-	200 (18)	-	-	40
Ozone (O_3)	-	-	160 (9)	-	-
Lead (Pb)	-	-	-	-	0.5

Note:
[1] Measured at 293K and 101.325 kPa (for gaseous pollutants only).
[2] Arithmetic mean.
[3] RSP means suspended particulates in air with a nominal aerodynamic diameter of 10 micrometres or smaller.
[4] FSP means suspended particulates in air with a nominal aerodynamic diameter of 2.5 micrometres or smaller.
[5] A more stringent standard of 24-hour AQO for FSP (i.e. tightening the number of allowable exceedances to 18 days per calendar year) would be adopted for government projects.

6.1.2.4 The APCO (Cap. 311) also specifies that for premises that contain asbestos containing materials (ACM), the owner/occupier of the premises shall hire a registered a registered asbestos contractor to carry out the removal of the ACM. They shall give a written notice to the Environmental Protection Department (EPD) not less than 28 days prior to the commencement of the work.

6.1.3 Air Pollution Control (Construction Dust) Regulation

6.1.3.1 The Air Pollution Control (Construction Dust) Regulation specifies processes that require special dust control. The Contractors are required to inform the Environmental Protection Department (EPD) and adopt proper dust suppression measures while carrying out "Notifiable Works" (which requires prior notification by the regulation) and "Regulatory Works" to meet the requirements as defined under the regulation.

6.1.4 Air Pollution Control (Non-road mobile Machinery) (Emission) Regulation

6.1.4.1 Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation specifies that all Non-road Mobile Machinery (NRMMs), except those exempted, used in specified activities and locations including construction sites, container terminals and back up facilities, restricted areas of the airport, designated waste disposal facilities and specified processes are required to comply with the prescribed emission standards.

6.1.5 Air Pollution Control (Fuel Restriction) Regulations

6.1.5.1 Air Pollution Control (Fuel Restriction) Regulations controls the types of fuel allowed for use and their sulphur contents in commercial and industrial processes to reduce SO_2 emissions. Under Air Pollution Control (Fuel Restriction)

Regulations, it is restricted to use any liquid fuel that has a sulphur content of more than 0.001% by weight.

6.1.6 Recommended Pollution Control Clauses for Construction Contracts

6.1.6.1 The recommended pollution control clauses are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The Contractors shall design, construct, operate and maintain pollution control measures to ensure compliance with the contract provisions as well as the environmental ordinances and their regulations.

6.1.7 Hong Kong Planning Standards and Guidelines

6.1.7.1 Chapter 9 of HKPSG outlines the environmental requirements that need to be considered in land use planning. The recommended guidelines, standards and guidance cover the selection of suitable locations for the developments and sensitive uses, provision of environmental facilities, and design, layout, phasing and operational controls to minimise adverse environmental impacts. It also lists out environmental factors influencing land use planning and recommends buffer distances for land uses. The HKPSG also recommends minimum setback distance from different categories of air pollution sources, as summarised in **Table 6.2**.

Table 6.2: Guidelines on buffer distance between air pollution sources and different land uses

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Road and Highways	*Type of Road*		
	Trunk Road and Primary Distributor	> 20m	Active and passive recreational uses
		3 – 20m	Passive recreational uses
		< 3m	Amenity areas
	District Distributor	> 10m	Active and passive recreational uses
		< 10m	Passive recreational uses
	Local Distributor	> 5m	Active and passive recreational uses
		< 5m	Passive recreational uses
Industrial Areas	*Difference in Height between Industrial Chimney Exit and the Site*		
	< 20m	> 200m	Active and passive recreational uses
		5 – 200m	Passive recreational uses
	20 – 30m (*)	> 100m	Active and passive recreational uses

Pollution Source	Parameter	Buffer Distance	Permitted Uses
		5 – 100m	Passive recreational uses
	30m – 40m	> 50m	Active and passive recreational uses
		5 – 50m	Passive recreational uses
	> 40m	> 10m	Active and passive recreational uses
Construction and Earth Moving Activities	-	< 50m	Passive recreational uses
		> 50m	Active and passive recreational uses
Odour Sources	-	200m	Sensitive uses

Notes:

[1] 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.

[2] 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.

[3] The guidelines are generally applicable to major industrial areas but NOT individual large industrial establishments which are likely to be significant air pollution sources. EPD shall be consulted when planning open space sites close to such establishments.

[4] Amenity areas are permitted in any situation.

6.2 Description of Environment

Existing Ambient Air Quality Conditions

6.2.1.1 Currently, there are 18 Air Quality Monitoring Stations (AQMS) in Hong Kong, including 15 General Monitoring Stations and 3 Roadside Monitoring Stations, operated by EPD to monitor the air quality in Hong Kong.

6.2.1.2 This Project is located at Wong Yi Au, Tai Po. The existing ambient air quality could be referred to the EPD's Tai Po AQMS which is the nearest one to the Project Site. The air quality monitoring data between Year 2019 and Year 2023 of various air pollutants monitored at Tai Po AQMS is presented in **Table 6.3** and compared with the AQOs.

Table 6.3: Ambient Air Quality in Tai Po (2019-2023)

Pollutant	Parameter	Concentrations (μg/m³) [1] [2] [3]						AQOs (μg/m³)
		2019	2020	2021	2022	2023	5-year mean	
SO_2	4th highest 10-minute	20	19	15	12	27	19 [4%]	500(3)
	4th highest 24-hour	10	7	8	5	4	7 [18%]	40 (3)
NO_2	19th highest 1-hour	142	106	115	93	95	110 [55%]	200 (18)
	Annual	36	30	32	27	27	30 [76%]	40 (N/A)
CO	Max. 1-hour	N/M	N/M	N/M	N/M	N/M	N/M	30,000 (0)
	Max. 8-hour	N/M	N/M	N/M	N/M	N/M	N/M	10,000 (0)
Ozone	10th highest 8-hour	**197**	**165**	**168**	**188**	**163**	**176 [110%]**	160 (9)
RSP	10th highest 24-hour	65	58	60	48	53	57 [76%]	75 (9)
	Annual	**31**	24	26	21	25	25 [83%]	30 (N/A)
FSP	19th highest 24-hour [4]	**41**	33	32	30	30	33 [88%]	37.5 (18/35)
	36th highest 24-hour	35	28	27	25	26	28 [75%]	
	Annual	**20**	15	**16**	14	15	**16 [107%]**	15 (N/A)

Note:

[1] Number of exceedance allowed under the AQO is shown in ( ), % of the AQO is shown in [ ]

[2] Monitoring results exceeding the AQO are **bolded**.

[3] N/M = Not Measured.

[4] 19th highest 24-hour FSP concentration is not a criterion in HKAQO. Nevertheless, on a best endeavours basis for government projects, a more stringent standard of 24-hour AQO for FSP at a concentration level of 50 μg/m3 and the number of allowable exceedances of 18 days per calendar year as the benchmark for conducting air quality assessment. It is also reported in this table for reference.

Future Air Quality

6.2.1.3 In order to predict the future ambient air quality taking into account the emission reduction plan for Pearl River Delta (PRD) region up to Year 2030, PATH v3.0 (Pollutants in the Atmosphere and their Transport over Hong Kong), a regional air quality model, has been developed by EPD to simulate Hong Kong's future background air quality concentrations. The population intake year of project would tentatively be Year 2030. The pollutant concentrations predicted by PATH v3.0 for Year 2030 for the concerned PATH grids are summarised in **Table 6.4**. It is predicted all AQO parameters would be below the AQOs, except for O_3 which is a regional air pollutant not directly emitted from any pollution source.

Table 6.4: Summary of Year 2030 background from PATH v3.0

Pollutant	**Parameter**	**Concentrations in various PATH grids (µg/m^3)**		**AQOs[1] (µg/m^3)**
		40_46	**40_47**	
SO_2	4th highest 10-minute [2]	23	24	500 (3)
	4th highest 24-hour	7	7	40 (3)
NO_2	19th highest 1-hour	41	55	200 (18)
	Annual	11	14	40 (N/A)
CO	Max. 1-hour	520	539	30,000 (0)
	Max. 8-hour	489	502	10,000 (0)
O_3	10th highest 8-hour	169	172	160 (9)
RSP	10th highest 24-hour	49	50	75 (9)
	Annual	19	20	30 (N/A)
FSP	19th highest 24-hour	29	30	37.5 (35)
	36th highest 24-hour	26	27	
	Annual	12	13	15 (N/A)

Note:
[1] Values in ( ) indicate numbers of exceedances allowed under the AQOs
[2] Values are given as highest 10-minute SO_2 concentrations, which are estimated based on EPD's "Guidelines on the Estimation of 10-minute Average SO_2 Concentration for Air Quality Assessment in Hong Kong".
[3] Concentration in PATH grid exceeding the AQO are bolded and underlined.

6.3 Identification of Representative Air Sensitive Receivers

6.3.1.1 Existing ASRs are identified by means of reviewing topographic maps, aerial photos, land status plans and supplemented by site inspections, whilst planned/ committed ASRs are reviewed by making reference to relevant Outline Zoning Plans (OZP), Outline Development Plans, Layout Plans and other published plans in the vicinity of the site.

6.3.1.2 Representative existing and planned ASRs have been reviewed. Since the proposed access roads and saltwater pumping station are subject to detailed design, locations of the existing representative ASRs are assigned for preliminary assessment. Details of the identified ASRs are summarised in **Table 6.5**. and its corresponding location is illustrated in **Figure 6.1** and **Figure 6.1a**.

Figure 6.1: Location of representative ASRs nearby

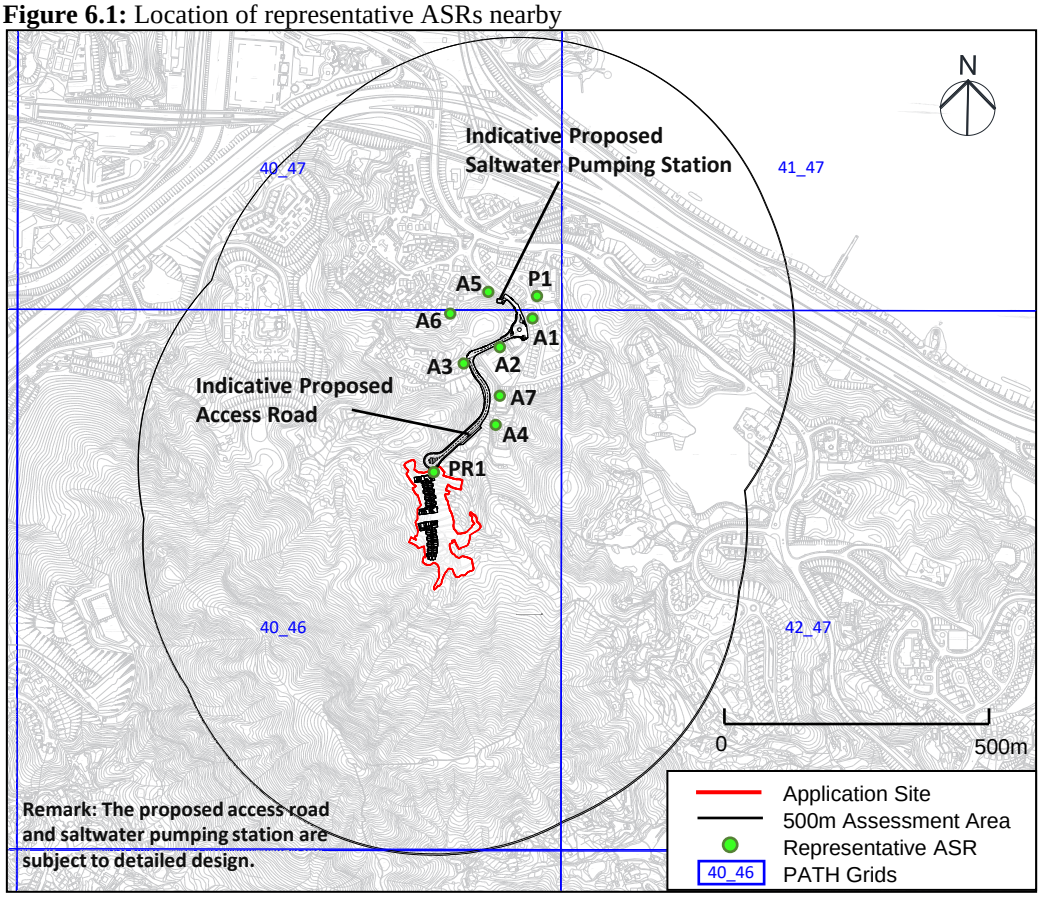


Figure 6.1a: Location of representative ASRs nearby

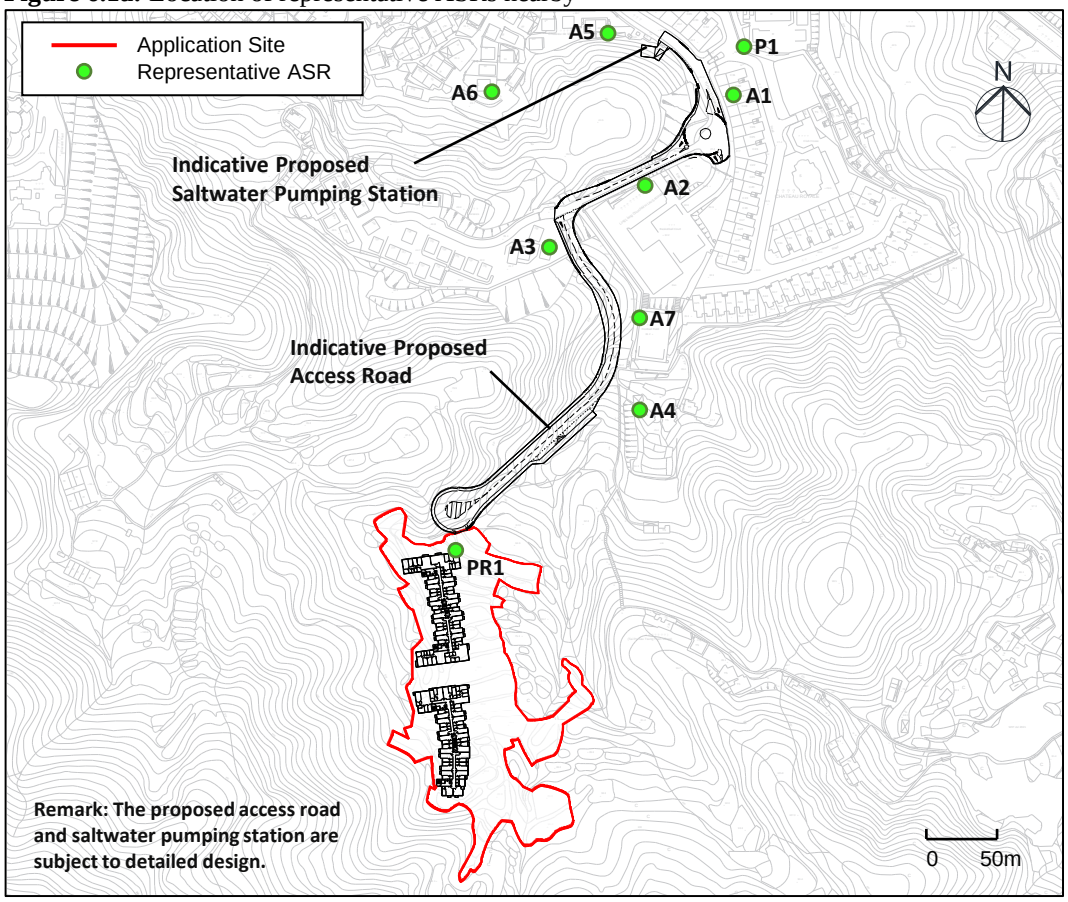


Table 6.5: Representative ASR within 500m study area

ASR ID	Location	Land Use	Assessment Height (mPD)	Approx. Shortest Horizontal Distance from ASR to the Closest Site Boundary/ Proposed Access Road Boundary (m)
A1	Chateau Royale	Residential	29	10
A2	Ling Liang Church MH Lau Secondary School	Educational	33	5.1
A3	Yung Yi Villa	Residential	39	7
A4	Village House at Wong Yi Au	Residential	45	25
A5	Chateau De Mansion	Residential	19	55
A6	Wong Yi Au Village	Residential	21	80
A7	Football Field of Ling Liang Church MH Lau Secondary School	Recreational	37	13
P1	Planned Social Welfare Facility	Government /Institution /Community	26	30
PR1	Proposed Residential Development	Residential	56	Within the Site

6.4 Evaluation of Construction Phase Impact

6.4.1 Identification and Evaluation of Impact

6.4.1.1 The key sources of potential air quality impact during construction phase would be the dust emission generated from the construction activities associated with the Project, including site clearance, demolition, piling works, soil excavation for basement and superstructure, loading and unloading dusty material, and wind erosion of open sites. Based on the latest available information at the time of preparing this Report, the size of site formation and amount of excavated materials would be about 19,858m^2 and no more than 110,000 m^3 respectively. The horizontal separation distance from the nearest ASR identified (i.e. Ling Liang Church MH Lau Secondary School (A2)) is around 5m. Nevertheless, given the proper implementation of recommended good site practices as stipulated in Air Pollution Control (Construction Dust) Regulation in place, any potential construction dust impact is expected to be minimized.

6.4.1.2 Fuel combustion from the use of Powered Mechanical Equipment (PME) during construction works could be a source of NO_2, SO_2 and CO. Information regarding the number of machinery anticipated on site during construction stage is unavailable at the time of preparing this Report. Nevertheless, in order to improve air quality and protect public health, EPD has introduced the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, which came in effect on 1 June 2015, to regulate emissions from machines and non-road vehicles. Starting from 1 December 2015, only approved or exempted non-road mobile machinery are allowed to be used in construction sites. Hence, the emissions from PMEs are considered relatively small and will not cause insurmountable adverse air quality impact to nearby ASRs with the effect of the Regulation.

6.4.1.3 As mentioned in **Section 2.4**, one concurrent project for the proposed social welfare facility at Wong Yi Au has been identified within 500m from the boundary of the Project. With reference to the concurrent project's planning statement (https://www.tpb.gov.hk/en/plan_application/A_TP_694/Planning_Statement_1.pdf), the concurrent project is expected to commence in 2025 and complete in 2026. As the Project will tentatively start construction works in Q3 of 2026, overlapping of works are anticipated. However, close liaison will be made with the corresponding parties of the concurrent project to avoid any overlapping of dusty works as far as practicable. Besides, the concurrent project is located at around 40m from the tentative minor junction improvement works area at Yung Yi Road roundabout; while the major dusty works from the site formation and building construction works of the proposed residential blocks are located at more than 320m away. Considering the separation distance between the concurrent project and the residential site works area and that it is anticipated the concurrent project will also implement all the best practices to abate air quality impacts where practicable, adverse cumulative air quality impacts are therefore not anticipated.

6.4.2 Recommended Practices

6.4.2.1 The Contractor is recommended to follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation. It stipulates the construction dust control requirements for both Notifiable and Regulatory Works to be carried out by the Contractor. The following dust suppression measures should be incorporated by the Contractor to monitor and control the dust nuisance throughout the construction phase:

- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;
- Any dusty material remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;
- A stockpile of dusty material should not extend beyond the pedestrian barriers, fencing or traffic cones;
- The load of dusty materials on vehicles leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
- Where practicable, vehicles washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
- When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;
- The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;
- Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation take place should be sprayed with water or a dust suppression chemical continuously;
- Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the 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 1 m higher than the highest level of the structure being demolished;
- Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to

enclose the scaffolding from the ground level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;

- Any skip hoist for material transport should be totally enclosed by impervious sheeting;
- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the three sides;
- Immediately before leaving a construction site, all vehicles shall be washed to remove any dusty materials from its body and wheels;
- Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; and
- Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.
- Connecting construction plant and equipment to mains electricity supply should be considered and use of diesel generators and diesel-powered equipment should be avoided as far as possible.

6.4.2.2 Fuel combustion from the use of PME during construction works would be a source of air emission. Ultra-low sulphur diesel (ULSD) with a sulphur content of not more than 0.001% by weight and a viscosity of not more than 6 centistokes at 40^{o}C will be used to minimise SO_2 emissions in accordance with Air Pollution Control (Fuel Restriction) Regulations. Under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, NRMMs, except those exempted, are required to comply with the prescribed emission standards. All regulated machines sold or leased for use in Hong Kong must be approved or exempted with a proper label in a prescribed format issued by EPD. Only approved or exempted NRMMs with a proper label are allowed to be used in specified activities and locations including construction sites.

6.4.2.3 To further control and reduce the emission from the use of NRMM from the Project, the following good site practices are recommended:

- Regulated machines shall be used and exempted NRMMs should be avoided where practicable;
- Use cleaner fuel such as ultra-low sulphur diesel in diesel-operated construction plant to reduce sulphur dioxide emission;
- Zero emission or clean fuels shall be considered as far as practicable for transportation activities;
- Use of electric PMEs where practicable;

- Connect construction plant and equipment to main electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable;
- Switch off the engine of PMEs when idling;
- Implement regular and proper maintenance for plant and equipment; and
- Employ plant and equipment of adequate size and power output and avoid overloading of the plant.

6.4.2.4 Given that some ASRs (i.e. ASR A2 to A3) are located close to the Application Site, the following measures shall also be considered near those ASRs during construction phase to further minimize the dust impact:

- Adopt site hoarding at sufficient height close to those concerned ASRs;
- Avoid dusty works or placing stockpiles near to those concerned ASRs;
- Minimization of unpaved, exposed earth by immediate covering/ permanent paving as soon as the works have been completed; and
- Avoiding dusty processing during school hours or arrange dusty work on non-school hours, and keep school management informed of any possible impacts in advance.

6.4.2.5 Furthermore, guidelines stipulated in EPD's Recommended Pollution Control Clauses for Construction Contracts should also be incorporated in the contract documents to abate dust impacts. The clauses include:

- The Contractor shall observe and comply with the Air Pollution Control Ordinance and its subsidiary regulations, particularly the Air Pollution Control (Open Burning) Regulation, Air Pollution Control (Construction Dust) Regulation, Air Pollution Control (Non-road Mobile Machinery)(Emission) Regulation , Air Pollution Control (Fuel Restriction) Regulations and Air Pollution Control (Smoke) Regulation;
- In addition to the statutory requirements of the Regulations, the Contractor of the public works contracts shall also observe the requirements as set out in the government circulars, including DEVB's TC 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) and DEVB's TC No. 1/2015 (Emissions Control of NRMM in Capital Works Contracts of Public Works);
- The Contractor shall undertake at all times to prevent dust nuisance and smoke as a result of his activities, and minimise the emission of air pollutants from construction plant and equipment;
- The Contractor shall ensure that there will be adequate water supply/storage for dust suppression;
- The Contractor shall devise, arrange methods of working and carrying out the works in such a manner so as to minimise dust impacts on the surrounding

environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented;

- For better smoke control, the Contractor shall not use diesel hammer for percussive piling; and
- Before the commencement of any work, the Engineer may require the methods of working, plant, equipment and air pollution control system to be used on the site to be made available for inspection and approval to ensure that they are suitable for the project.

6.4.2.6 With the implementation of these good practice and measures, adverse construction dust impacts on the ASRs are not anticipated. Construction dust impacts are therefore not insurmountable.

6.5 Evaluation of Operational Phase Impact

6.5.1 Vehicular Emission

6.5.1.1 Hong Kong Planning Standards and Guidelines (HKPSG) provides environmental guidance for residential developments on air quality. The guidelines recommend the minimum buffer distance required for active and passive recreational uses.

6.5.1.2 The buffer distances between the sensitive uses of the current development scheme and the surrounding major roads are summarized in **Table 6.6** and illustrated in **Figures 6.2-6.3** below.

Table 6.6: Separation distances between sensitive uses and nearby major roads

Name of Road	Type of Road [1]	HKPSG Recommended Setback Distance	Nearest Air Sensitive Use	Shortest Horizontal Setback Distance from the Nearest Air Sensitive Uses to Road Kerb	Change of Distances from the Nearest Air Sensitive Uses to the Roads due to Proposed Road Works
Yung Yi Road	LD	>5m	Chateau Royale	9m	-
Yung Yi Road Roundabout	LD	>5m	Chateau Royale	10m	-
Ha Wong Yi Au Road	LD	>5m	Ling Liang Church M. H. Lau Secondary School	5.1m	-
Proposed access road	LD	>5m	Yung Yi Villa	8m	N/A

Note:
[1] Classification of the roads has been confirmed by Transport Department (**Appendix 4.1**).

Figure 6.2: HKPSG recommended setback distance from nearby roads

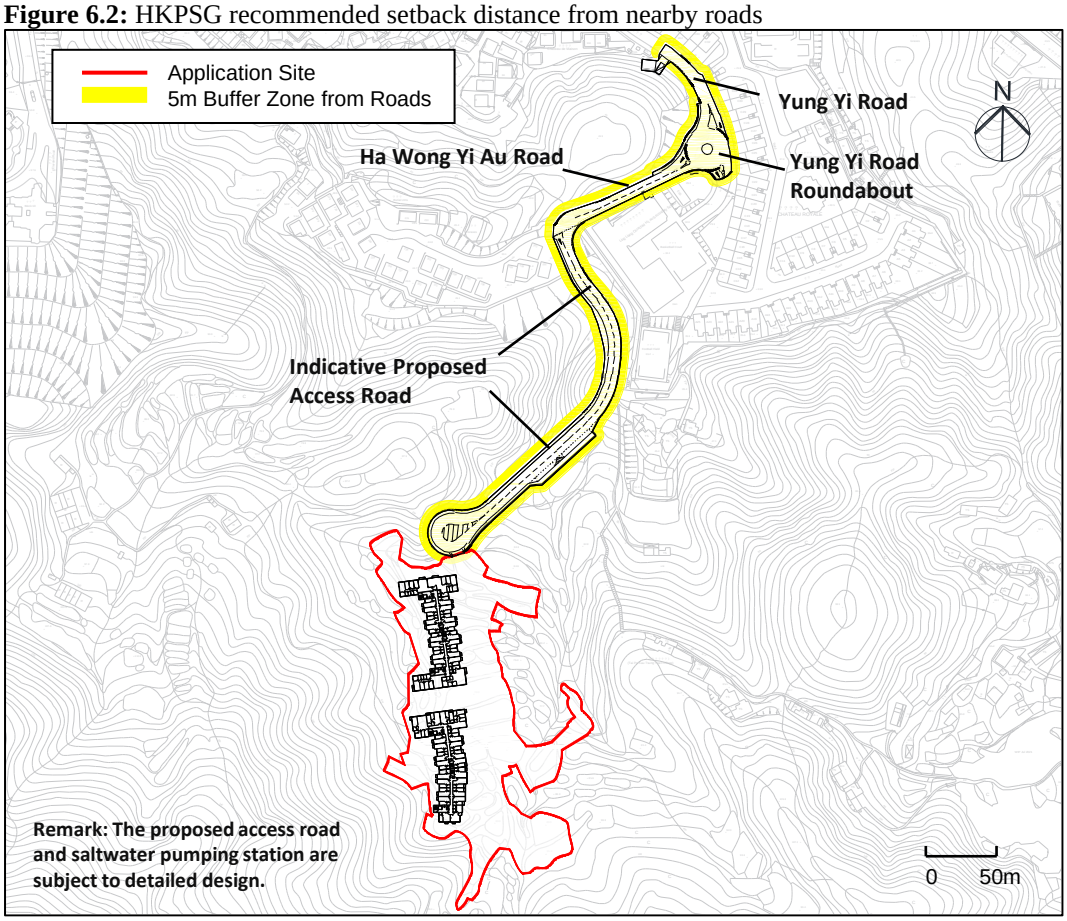


Figure 6.3a: Separation distances between air sensitive uses and Yung Yi Road, Ha Wong Yi Au Road and proposed access road

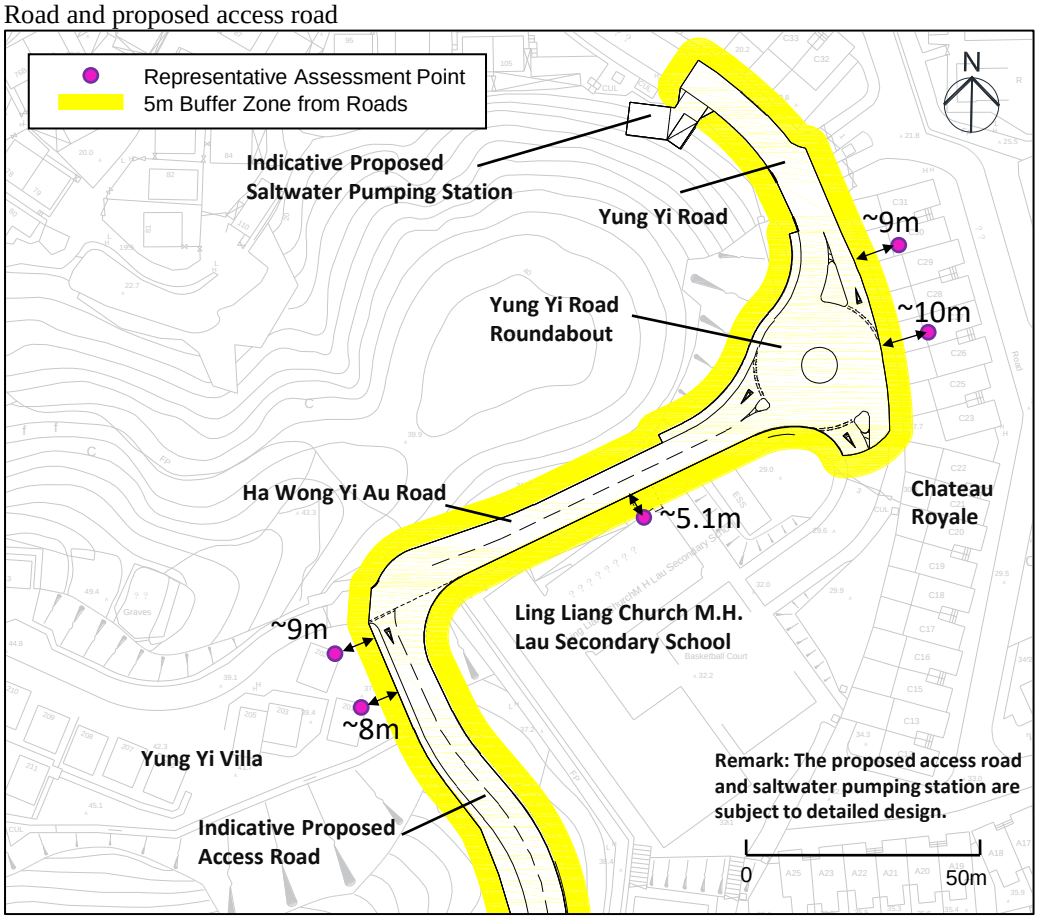
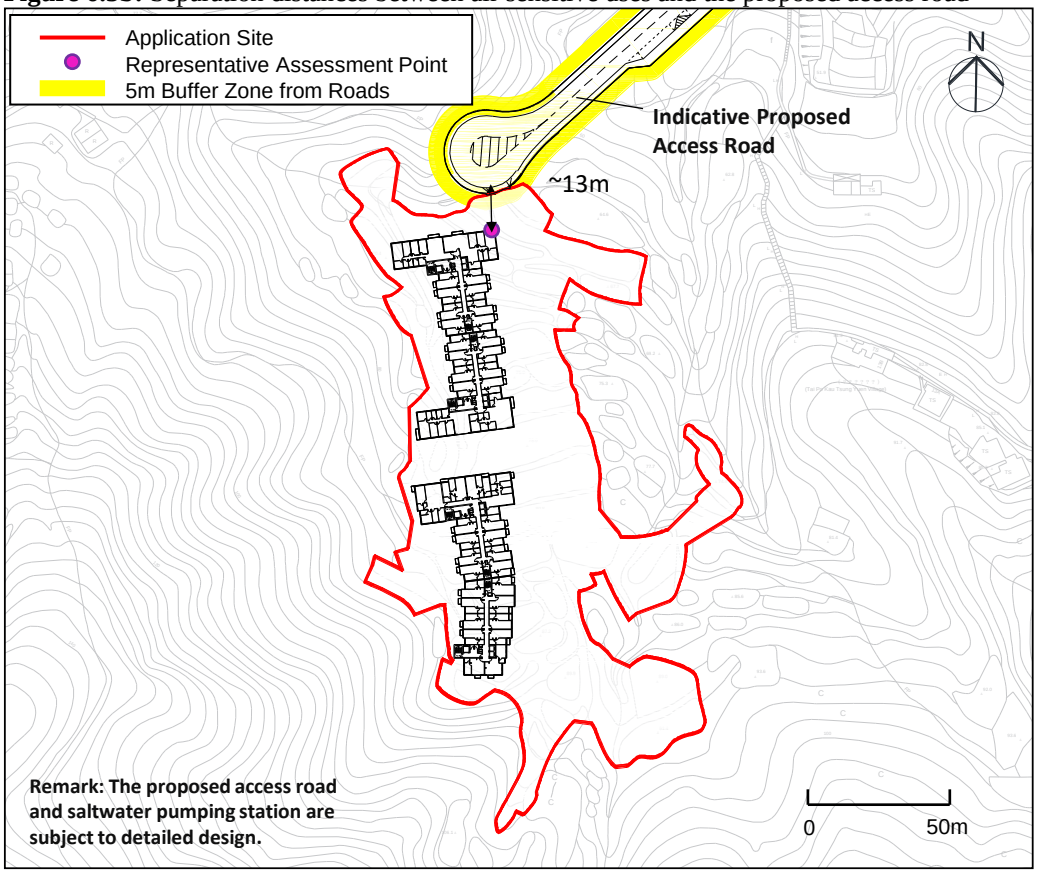


Figure 6.3b: Separation distances between air sensitive uses and the proposed access road



6.5.1.3 The internal loop road system within the proposed development is private road with security gate limiting the access. Therefore, it is not regarded as road system stated in Table 3.1 of the HKPSG and the buffer distance requirement is not applicable.

6.5.1.4 The current scheme can satisfy the setback distance requirements as stipulated in the HKPSG. No sensitive active and passive uses have been planned within the recommended buffer zone of 5m setback from road kerbs of Yung Yi Road, Ha Wong Yi Au Road and the proposed access road respectively. Besides, no pedestrian area (i.e. seating place) have been planned within the recommended buffer zone. Adverse vehicular emission impact on the existing and proposed residential developments are therefore not anticipated.

6.5.1.5 The proposed car park will be located in the basement and hence no adverse air quality impact is anticipated due to the enclosed environment. Nevertheless, for the detailed design of the basement car park, the ventilation exhaust of the car park shall be located away from any ASRs as far as possible and the Air Quality Guidelines and Design Considerations specified in EPD ProPECC PN 2/96 on Control of Air Pollution in Car Parks will be followed to minimise air quality impacts from the proposed car park.

6.6 Chimney Emissions

6.6.1.1 According to the HKPSG, the recommended minimum buffer distance required for active and passive recreational uses depends on the difference in height between industrial chimney exit and the site as indicated in **Table 6.2**.

6.6.1.2 A chimney survey was conducted on a walk-over basis within the 500m of the boundary of the Application site where site access was allowed and practicable on 10 March 2023 and 11 September 2024. No existing chimneys were found within 500m of the subject site. Besides, there will be no chimneys for the proposed development. Air quality impacts from chimney emissions are therefore not anticipated.

6.7 Odour Emission Impact

6.7.1.1 As mentioned in **Section 2**, a saltwater pumping station, which is subject to detailed design, is planned to the northwest of the Yung Yi Road roundabout to support the proposed development. Since the pumping station would be handling saltwater only, no adverse odour impact from the proposed saltwater pumping station is anticipated.

7 Land Contamination Appraisal

7.1 Site Description

7.1.1.1 The site is situated at Wong Yi Au, Tai Po, New Territories. The site is currently occupied by vegetation and is primarily surrounded by woody vegetation. The location of Application Site is indicated in **Figure 2.1**.

7.2 Review of Aerial Photographs and Historical Land Uses

7.2.1.1 Selected historical aerial photographs between 1963 to 2023 (i.e. 1963, 1973, 1982, 1991, 1998, 2014, 2018 and 2024) have been reviewed to identify any past land uses which may have the potential for causing land contamination. The historical aerial photographs are given in **Appendix 7.1**. The key findings are summarised in **Table 7.1** below.

Table 7.1: Description of historical land uses

Year	Description
1963	• The Application Site was filled with farmland and vegetation.
1973	• No significant change in historical land use was observed in the Application Site as compared with that in Year 1963 within the site.
1982	• No significant change in historical land use was observed in the Application Site as compared with that in Year 1973 within the site. • Farmland located in the northern side of the indicative site boundary for the proposed access road was replaced by vegetation.
1991	• No significant change in historical land use was observed in the Application Site as compared with that in Year 1982 within the site.
1998	• No significant change in historical land use was observed in the Application Site as compared with that in Year 1991 within the site. • The northern part of the indicative site boundary for the proposed access road is converted to roads.
2014	• No significant change in historical land use was observed in the Application Site as compared with that in Year 1998 within the site.
2018	• No significant change in historical land use was observed in the Application Site as compared with that in Year 2014 within the site.
2024	• No significant change in historical land use was observed in the Application Site as compared with that in Year 2018 within the site.

7.2.1.2 Based on site observation, the Application Site is currently occupied by woody vegetation. Neither storage of dangerous goods and chemicals nor oil stains and cracks were observed. Therefore, there are no historical or current land use/ activities which may cause land contamination.

7.3 Site Survey Findings

7.3.1.1 Site survey was conducted in March 2023 and September 2024 to identify any existing land uses within the Application Site and the adjoining sites which may have potential for causing land contamination. Photo record of the site survey is given in **Appendix 7.2** and the site walkover checklist is given in **Appendix 7.3**. The site is primarily occupied by vegetation based on site observation. Potential land contamination activities were not identified. By site observation, chemicals and dangerous goods (DGs) were not found within the site. No potential land contamination issue was observed during the site visits.

7.4 Relevant Information Request

7.4.1 Fire Services Department

7.4.1.1 Information request on any Dangerous Goods (DGs) license registered, and any record of DGs spillage/leakage incidents within the Application Site have been sent to FSD. The correspondence with FSD is enclosed in **Appendix 7.4**. Reply from FSD is still pending and will be incorporated once available.

7.4.2 Environmental Protection Department

7.4.2.1 Information request on any Chemical Waste Producer (CWP) registered, and any record of chemical spillage/leakage incidents within the Application Site were made to EPD. The correspondence with EPD is attached in **Appendix 7.5**. EPD advised that no record of accidents of spillage/leakage of chemicals and chemical waste producers were found associated with the Application Site.

7.5 Identification of Potentially Contaminated Site

7.5.1.1 Review of desktop data and site visits have been conducted. In addition, as confirmed through site visits, potentially land contamination activities, such as car repairing and car scarping were not observed within the Application Site. Chemicals/DGs were not found within the Application Site. The land contamination potential would be determined upon receipt of correspondences from EPD and FSD on any record of chemical spillage/ leakage or DG spillage/ leakage incidence.

8 Waste Management

8.1 Evaluation of Constructional Phase Impact

8.1.1 Identification and Evaluation of Impact

8.1.1.1 During the construction phase, key construction activities which would potentially result in the generation of waste include minor site clearance including any temporary structure, piling works, soil excavation for basement and superstructure, etc. within the site area. These activities would result in the generation of wastes including both inert and non-inert construction and demolition (C&D) materials, chemical wastes and general refuse from on-site workforce.

8.1.1.2 However, in general, the handling and disposal of these materials and wastes will require proper management in order not to cause environmental impacts and nuisance. It is anticipated that there would not be any insurmountable impacts provided good site practices and other appropriate mitigation measures are implemented.

8.1.2 C&D Materials

8.1.2.1 Based on the preliminary design, it is estimated that about 64,000 m^3 of inert soft C&D materials (e.g. excavated soil, demolition C&D materials) and 4,300 m^3 non-inert C&D materials will be generated during the construction phase of the site clearance and site formation works. All C&D materials arising from the construction will be sorted on–site to recover the inert C&D materials as well as the reusable and recyclable materials.

8.1.2.2 Any surplus C&D materials will become the property of the Contractor once they are removed from the site. The Contractor will be responsible for devising a system to work for on–site sorting of C&D materials and to promptly remove all sorted and processed material arising from the construction activities to optimise temporary stockpiling on–site. It is recommended that the system should include the identification of the source of generation, estimated quantity, arrangement for on–site sorting and/or collection, temporary storage areas, and frequency of collection by recycling contractors or frequency of removal off–site.

8.1.2.3 Disposal of C&D materials can be minimized through careful planning during the detailed design stage and with good site practice during construction. This includes the use of non–timber formwork and temporary works and on–site sorting of the C&D materials for reuse and recycling as far as practicable. For the inert C&D materials, it would be reused on–site as far as possible or else it would be delivered

to public fill reception facilities which would be designated by the Public Fill Committee for beneficial reuse in other projects. The opportunity of reusing excavated C&D materials would be investigated in the Waste Management Plan, which will be derived in later detailed design stage. Meanwhile, non-inert C&D materials should be recycled whenever possible and be disposed of at public landfills (i.e. WENT landfill) as a last resort. In order to prevent spillage and dust impacts during transportation, mitigation measures such as using water-tight containers and dump trucks equipped with mechanical cover shall be considered.

8.1.2.4 With the proper implementation of good construction site practice and recommended mitigation measures, the on-site handling, reuse, transportation and disposal of C&D materials would not cause adverse environmental impacts.

8.1.3 Chemical Waste

8.1.3.1 Chemical wastes likely to be generated from the construction activities and associated facilities may include:

- scrap batteries or spent acid/alkali from their maintenance;
- used paint, engine oils, hydraulic fluids and waste fuel;
- spent mineral oils/cleansing fluids from mechanical machinery; and
- spent solvents/solutions, some of which may be halogenated, from equipment cleansing activities.

8.1.3.2 Chemical wastes may pose environmental, health and safety hazards if not stored and disposed of in an appropriate manner as outlined in the Waste Disposal (Chemical Waste) (General) Regulation and the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. These hazards may include:

- toxic effects to workers;
- adverse effects on air, water and land from spills; and
- fire hazards.

8.1.3.3 It is difficult to quantify the amount of chemical waste as it will be highly dependent on the contractor's on–site maintenance practice the number of plant and vehicles utilized. Nevertheless, it is anticipated that the quantity of chemical wastes would be small and in the order of few hundred litres per month. The estimated amount of chemical waste to be generated during construction phase is summarized in **Table 8.1**.

Table 8.1 Summary of chemical waste during construction phase

Waste type	Total amount generated
Scrap batteries	A few hundred kilograms per month

Waste type	Total amount generated
Spend hydraulic oil and waste fuel	A few hundred litres per month
Spent lubrication oil and cleaning fluids	
Spend solvent	

8.1.3.4 Suitable arrangements for the storage, handling, transport and disposal of chemical wastes shall be made in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. Wherever possible opportunities should be taken to reuse and recycle materials.

8.1.4 General Refuse

8.1.4.1 The general refuse generated by the construction workforces mainly consists of food waste, aluminium cans and wastepaper. These general refuses will require off–site disposal. The number of workforce (clerical and workers) to be employed for the Project is not available at this stage, but is anticipated not to be over 1,000 staff. Based on the generation rate of 0.65kg/person/day, the total refuse generated per day would be less than 650kg/day. Therefore, it is estimated that 592 tonnes of general refuse would be generated during construction phase. The breakdown of estimated amount of general refuse to be generated during construction phase is summarised in **Table 8.2** below.

Table 8.2 Summary of general refuse during construction phase

Activities	Period [1]	Daily Waste Generation (kg/day)	Total Amount Generated (tonne)
Construction phase	Approx. 3.5 years	< 650	< 592

Note:
[1] 260 working days per year is assumed for assessment

8.1.4.2 Effective collection of site waste will be required to prevent waste materials being blown around by wind, flushed or leached into the marine environment, or creating an odour nuisance or pest and vermin problem. Waste storage areas shall be well maintained and cleaned regularly. In addition, disposal of waste at sites other than approved waste transfer or disposal facilities shall be prohibited. All collected waste shall be properly disposed of at public landfills (i.e. WENT Landfill). Windblown litter could be minimised during transportation of waste by covering trucks or by transporting wastes in enclosed containers.

8.1.4.3 With the implementation of good waste management practices as mentioned in **Section 8.2**, adverse environmental impacts are not expected to arise from the storage handling and transportation of general refuse generated from the site.

8.2 Recommended Practices for Construction Phase

8.2.1.1 Good site practice to avoid or reduce potential adverse environmental impacts associated with handling, collection and disposal of waste are proposed. These recommendations are based on the waste management hierarchy principles. The waste management options considered to be most preferable have the least environmental impacts and are more sustainable in the long term. The hierarchy is as follows (the priority follows descending order):

- avoidance and minimization,
- separation of inert C&D materials, reusable and recyclable materials from other wastes,
- reuse of materials,
- recovery and recycling, and
- treatment and disposal.

8.2.1.2 Prior to the commencement of the construction works, the contractors should incorporate these recommendations into a Waste Management Plan to provide an overall framework for waste management and reduction. Recommended good site practice, waste reduction measures as well as the waste transportation, storage and collection are as follows:

8.2.2 Good Site Practices

8.2.2.1 Adverse waste management implications are not expected, provided that good site practices are strictly implemented. The following good site practices are recommended throughout the construction phase of the Project:

8.2.2.2 nomination of an approved personnel to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site;

- training of site personnel in proper waste management and chemical handling procedures;
- provision of sufficient waste disposal points and regular collection for disposal;
- separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre;
- regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;
- implementation of a recording system for the amount of wastes generated/recycled and disposal sites. and

- Waste Management Plan (WMP) should be prepared and implemented by the Contractor in accordance with the Building Department's "Practice Note for Authorized Persons and Registered Structural Engineers (PN for AP & RSE) No. 243". The WMP will be submitted to the Architect/Engineer for approval.

8.2.3 Waste Reduction Measures

8.2.3.1 The amount of waste generated can be significantly reduced through good management and control. Waste reduction is best achieved at the site planning and design phase, as well as by ensuring the implementation of good site practices when the works are in progress. Recommendations for achieving waste reduction include:

- on–site reuse of any material excavated as far as practicable;
- segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal;
- collection of aluminium cans and waste paper by individual collectors during construction should be encouraged. Separately labelled recycling bins should also be provided to segregate these wastes from other general refuse by the workforce;
- recycling of any unused chemicals and those with remaining functional capacity as far as possible;
- prevention of potential damage or contamination to the construction materials through proper storage and good site practices;
- planning and stocking of construction materials should be made carefully to minimise amount of waste generated and to avoid unnecessary generation of waste; and
- training on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling should be provided to workers.

8.2.4 Storage, Collection and Transportation of Waste

8.2.4.1 Storage of waste on site may induce adverse environmental implications if not properly managed. The following recommendations should be implemented to minimise the impacts:

- waste such as soil should be handled and stored well to ensure secure containment;
- stockpiling area should be provided with covers and water spraying system to prevent materials from being washed away and to reduce wind–blown litter

- different locations should be designated to stockpile each material to enhance reuse.

8.2.4.2 With respect to the collection and transportation of waste from the construction works area to respective disposal sites, the following recommendations should be implemented to minimise the potential adverse environmental impacts:

- remove waste in timely manner;
- employ trucks with cover or enclosed containers for waste transportations;
- obtain relevant waste disposal permits from the appropriate authorities; and
- disposal of waste should be done at licensed waste disposal facilities.

8.2.4.3 In addition to the above measures, other specific mitigation measures on handling other specific waste generated from construction phase are recommended in the following subsections

8.2.5 C&D Materials

8.2.5.1 Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public filling areas or reclamation sites. The following mitigation measures should be implemented in handling the waste:

- maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;
- carry out on–site sorting;
- make provisions in the contract documents to allow and promote the use of recycled aggregates where appropriate;
- implement a trip–ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and
- equip waste collection trucks with real-time tracking and monitoring devise as far as practicable to prevent fly-tipping.

8.2.5.2 In addition, disposal of the C&D materials onto any sensitive location such as agricultural land, etc. should be avoided. Disposal of C&D materials or any other wastes at unauthorized locations and sites other than approved waste transfer or disposal facilities shall be prohibited.

8.2.5.3 Standard formwork or pre–fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of

construction materials should be carefully planned in order to avoid over ordering and wastage.

8.2.5.4 The contractor should recycle as much of the C&D materials as possible on–site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the construction site should be considered for such segregation and storage.

8.2.5.5 According to the "Project Administrative Handbook Chapter 4, Section 4.1.3", for DPs, a Construction and Demolition Material Management Plan (C&DMMP) has to be submitted to the Public Fill Committee (PFC) for approval in case of C&D materials disposal exceeding 50,000m^3. For non–DPs, a C&DMMP has to be submitted to PFC for approval prior to commencement of the detailed design in case of generating surplus C&D materials in excess of 300,000 m^3 or requiring imported fill exceeding 300,000m^3. The C&DMMP should be vetted and endorsed by the departmental Vetting Committee before submitting to PFC for approval. Since the proposed development is a non-DP and will generate less than 300,000m^3 C&D materials, a C&DMMP is not required under PAH. Nonetheless, the Project Proponent shall consult the Public Fill Committee of CEDD for the advisory outlet of the C&D materials.

8.2.6 Chemical Waste

8.2.6.1 For those processes that generate chemical wastes, the contractor shall identify any alternatives that generate reduced quantities or even no chemical wastes, or less dangerous types of chemical wastes.

8.2.6.2 If chemical wastes are produced at the construction site, the contractors should register with EPD as chemical waste producers. Chemical wastes should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. Containers used for storage of chemical wastes should:

- be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;
- have a capacity of less than 450 L unless the specification has been approved by EPD; and
- display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

8.2.6.3 The storage area for chemical wastes should:

- be clearly labelled and used solely for the storage of chemical wastes;
- be enclosed on at least 3 sides;
- has an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical wastes stored in the area, whichever is greatest;
- have adequate ventilation;
- be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical wastes, if necessary); and
- be arranged so that incompatible materials are adequately separated.

8.2.6.4 Disposal of chemical wastes should:

- be via a licensed chemical waste collector; and
- be to a facility licensed to receive chemical wastes, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or
- be to a re–user of the waste, upon approval granted by EPD.

8.2.7 General Refuse

8.2.7.1 General refuse generated on–site should be stored in enclosed bins or compaction units separated from construction and chemical wastes. Recycling bins should also be provided to encourage recycling. A reputable waste collector should be employed by the contractor to remove general refuse from the site on a daily basis separate from the construction and chemical wastes. Burning of refuse on construction sites or fly tipping is prohibited by law.

8.3 Evaluation of Operational Phase Impact

8.3.1 Identification and Evaluation of Impact

8.3.1.1 The operational phase of the proposed development would generate municipal solid waste. With reference to the latest data from "Monitoring of Solid Waste in Hong Kong 2023" by EPD, the MSW disposal rate was 1.44 kg/person/day in Year 2023, and the recovery rate for recycling was 33% of the MSW generation. By calculation, the MSW generation rate, disposal rate and recycled rate were 2.15 kg/person/day, 1.44 kg/person/day and 0.71 kg/person/day in 2023 respectively. The estimated MSW based on planned residential and employment populations respectively is summarized in **Table 8.3**.

Table 8.3 Estimated quantities of MSW from planned Residential and Employment Population during operation phase

Estimated MSW from Residential Population (tpd)[1]			
Residential Population	**Generated [2]**	**Required Disposal [2]**	**Recycled [2]**
1,400	3.0	2.0	1

Note:
[1] tpd: tonne per day
[2] MSW disposal rate was 1.44 kg/person/day according to "Monitoring of Solid Waste in Hong Kong 2023" by EPD (https://www.wastereduction.gov.hk/sites/default/files/resources_centre/waste_statistics/msw2023_eng.pdf). By calculation, the MSW generation rate was 2.15kg/person/day. MSW recovery rate for recycling was 33% of the MSW generation. by calculation, the MSW recycling rate was 0.71kg/person/day.

8.3.1.2 A reputable waste collector should be employed to provide routine cleaning of the proposed development to minimize odour, pest and litter impacts associated with the generation of general refuse. Recycling bins should also be provided to encourage recycling.

8.3.1.3 With the implementation of the recommended mitigation measures for the handling, transportation and disposal of the identified waste, adverse residual waste management implications are not anticipated for the operational phase.

8.4 Recommended Practices for Operational Phase

8.4.1 Waste Collection and Disposal

8.4.1.1 An effective and efficient waste handling system is essential in order to minimize potential adverse environmental impacts during waste storage, collection and transport, such impacts may include odour if waste is not collected frequently; water quality if waste enters storm water drains; aesthetics and vermin problems if the waste storage area is not well maintained and cleaned regularly. The waste handling system may also facilitate materials recovery and recycling.

8.4.1.2 A refuse collection room would be installed at the ground floor for localized refuse collection and the waste would be transported to a refuse transfer station (RFS). To avoid potential odour nuisance during transport of waste, enclosed waste collection trucks should be used and the collection route and time should be properly planned. At least daily collection should be arranged by the waste collector.

8.4.2 Waste Recycling

8.4.2.1 In order to facilitate recycling, a 4-bin recycling system for paper, metals, plastics and glass should be adopted together with a general refuse bin. They should be placed in prominent places to promote waste separation at source. All recyclable

materials should be collected by recyclers. Food waste recycling bins should be set up at a designated location to collect food waste during operational phase. The collected food waste should be delivered to the EPD's food waste recycling facilities for turning into energy or resources.

9 Water Quality Impact

9.1 Legislation, Standards and Guidelines

9.1.1 General

9.1.1.1 The relevant legislation, standards, and guidelines applicable to the present study for the assessment of water quality impacts include:

- Water Pollution Control Ordinance (WPCO) (Cap. 358);
- Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS);
- Practice Note for Professional Persons on Construction Site Drainage (ProPECC) PN 2/24;
- Practice Note for Professional Persons on Drainage Plan Subject to Comment by the Environmental Protection Department (ProPECC) PN 1/23; and
- Hong Kong Planning Standards and Guidelines (HKPSG).

9.1.2 Water Pollution Control Ordinance (Cap. 358)

9.1.2.1 WPCO (Cap. 358) provides the major statutory framework for the protection and control of water quality in Hong Kong. According to the Ordinance and its subsidiary legislation, the entire Hong Kong waters are divided into ten Water Control Zones (WCZs) and four supplementary WCZs. Each WCZ has a designated set of statutory Water Quality Objectives (WQOs) designed to protect the inland and/ or marine environment and its users. The Project is located within the Tolo Harbour and Channel WCZ with corresponding WQOs as summarised in **Table 9.1**.

Table 9.1: Water Quality Objectives for Tolo Harbour and Channel Water Control Zone

Parameters	Objectives	Sub-Zone
Aesthetic appearance	(a) Waste discharges shall cause no noxious or offensive odour or offensive taint or colour in either waters or edible aquatic organisms in the subzone to be present in concentrations detectable by bioassay or organoleptic tests.	Harbour subzone, Buffer subzone and Channel subzone
	(b) Waste discharges shall cause no visible foam, oil, grease, scum, litter or other objectionable matter in waters of the subzone.	Harbour subzone, Buffer subzone and Channel subzone
Bacteria	The level of Escherichia coli should not exceed 610 per 100 mL, calculated as the geometric mean of all samples collected in one calendar year.	Secondary contact recreation subzone and Fish culture subzones
Cholorophyll-A	(a) Waste discharges shall not cause the level of chlorophyll-a in waters of the subzone to exceed 20 milligrams per cubic metre, calculated as a running arithmetic mean of	Harbour subzone

Parameters	Objectives	Sub-Zone
	5 daily measurements for any single location and depth.	
	(b) Waste discharges shall not cause the level of chlorophyll-a in waters of the subzone to exceed 10 milligrams per cubic metre, calculated as a running arithmetic mean of 5 daily measurements for any single location and depth.	Buffer subzone
	(c) Waste discharges shall not cause the level of chlorophyll-a in waters of the subzone to exceed 6 milligrams per cubic metre, calculated as a running arithmetic mean of 5 daily measurements for any single location and depth.	Channel subzone
Dissolves oxygen (DO)	(a) Waste discharges shall not cause the level of dissolved oxygen in waters of the subzone to be less than 2 milligrams per litre within two metres of the bottom, or to be less than 4 milligrams per litre in the remainder of the water column.	Harbour subzone
	(b) Waste discharges shall not cause the level of dissolved oxygen in waters of the subzone to be less than 3 milligrams per litre within two metres of the bottom, or to be less than 4 milligrams per litre in the remainder of the water column.	Buffer subzone
	(c) Waste discharges shall not cause the level of dissolved oxygen in waters of the subzone to be less than 4 milligrams per litre at any point in the water column.	Channel subzone
Light penetration	(a) No changes in turbidity, suspended material, colour or other parameters arising from waste discharges shall reduce light transmission by more than 20 per cent of the normal level in the subzone at any location or any time.	Harbour subzone
	(b) No changes in turbidity, suspended material, colour or other parameters arising from waste discharges shall reduce light transmission by more than 15 per cent of the normal level in the subzone at any location or any time.	Buffer subzone
	(c) No changes in turbidity, suspended material, colour or other parameters arising from waste discharges shall reduce light transmission by more than 10 per cent of the normal level in the subzone at any location or any time.	Channel subzone
pH	Waste discharges shall not cause the normal pH range of any waters of the subzone to be extended by greater than +/- 0.5 pH units at any time.	Harbour subzone
	Waste discharges shall not cause the normal pH range of any waters of the subzone to be	Buffer subzone

Parameters	Objectives	Sub-Zone
	extended by greater than +/- 0.3 pH units at any time.	
	Waste discharges shall not cause the normal pH range of any waters of the subzone to be extended by greater than +/- 0.1 pH units at any time.	Channel subzone
Salinity	Waste discharges shall not cause the normal salinity range of any waters of the subzone to be extended by greater than +/- 3 parts per thousand at any time.	Harbour subzone, Buffer subzone and Channel subzone
Settleable material	Waste discharges shall give rise to no bottom deposits or submerged objects which adversely influence bottom-living communities, alter the basic Harbour geometry or shipping channels, present any hazard to shipping or diving activities, or affect any other beneficial use of the waters of the subzone.	Harbour subzone, Buffer subzone and Channel subzone
Temperature	Waste discharges shall not cause the natural daily temperature range in waters of the subzone to be extended by greater than +/- 1.0℃ at any location or time. The rate of temperature change shall not exceed 0.5℃ per hour at any location, unless due to natural phenomena.	Harbour subzone, Buffer subzone and Channel subzone
Toxicants	Waste discharges shall not cause the toxicants in waters of the subzone to attain such a level as to produce significant toxic effects in humans, fish or any other aquatic organism, with due regard to biologically cumulative effects in food chains and to toxicant interactions with each other.	Harbour subzone, Buffer subzone and Channel subzone

9.1.2.2 The WPCO also established WQOs for the watercourses within Tolo Harbour and Channel WCZ, as summarised in **Table 9.2** below.

Table 9.2: Water Quality Objectives for Watercourses within Tolo Harbour and Channel Water Control Zone

Parameters	Objectives	Sub-Zone
Aesthetic Appearance	Waste discharges shall not cause waters of the subzone to contain substances that— (a) settle to form objectionable deposits; (b) float as debris, scum, oil or other matter to form nuisances; (c) produce objectionable colour, odour, taste or turbidity; (d) injure or are toxic or produce adverse physiological responses in humans, animals or plants; or (e) are conducive to undesirable aquatic life or a nuisance to aquatic life.	All Watercourses
Bacteria	Waste discharges shall not cause the level of Escherichia coli to exceed 1 000 per 100 mL in waters of the subzone, levels to be calculated as a running median of the most recent 5	(a) SM(A) (b) SM(C) (c) SM(D)

Parameters	Objectives	Sub-Zone
	consecutive samples taken at intervals of between 7 and 21 days (or 14 and 42 days).	(d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the level of Escherichia coli to exceed 0 per 100 mL in waters of the subzone, levels to be calculated as a running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days (or 14 and 42 days).	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
Colour	Waste discharges shall not cause the colour of waters of the subzone to exceed 50 Hazen units at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the colour of waters of the subzone to exceed 30 Hazen units at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
pH	Waste discharges shall not cause the pH of waters of the subzone to exceed the range of 6.0 to 9.0 at any time.	(a) SM(D) (b) SM(E) (c) SM(I) (d) Other Watercourses
	Waste discharges shall not cause the pH of waters of the subzone to exceed the range of 6.5 to 8.5 at any time.	(a) SM(A) (b) SM(B) (c) SM(C) (d) SM(F) (e) SM(G) (f) SM(H) (g) LT(C) (h) LT(D) (i) TP(A) (j) TP(B) (k) TP(C)

Parameters	Objectives	Sub-Zone
Temperature	Waste discharges shall not cause the natural daily temperature range in waters of the subzone to be extended by greater than ± 2.0 degrees Celsius at any location or time.	All Watercourses
Suspended Solids	Waste discharges shall not cause the annual median of suspended solids in waters of the subzone to exceed 25 milligrams per litre.	(a) SM(D) (b) SM(E) (c) SM(I) (d) Other Watercourses
	Waste discharges shall not cause the annual median of suspended solids in waters of the subzone to exceed 20 milligrams per litre.	(a) SM(A) (b) SM(B) (c) SM(C) (d) SM(F) (e) SM(G) (f) SM(H) (g) LT(C) (h) LT(D) (i) TP(A) (j) TP(B) (k) TP(C)
Dissolved Oxygen	Waste discharges shall not cause the level of dissolved oxygen in waters of the subzone to be less than 4 milligrams per litre or 40% saturation (at 15 degrees Celsius) at any time.	All Watercourses
5 Days Biochemical Oxygen Demand	Waste discharges shall not cause the 5 days biochemical oxygen demand in waters of the subzone to exceed 5 milligrams per litre at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B) (h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the 5 days biochemical oxygen demand in waters of the subzone to exceed 3 milligrams per litre at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
Chemical Oxygen Demand	Waste discharges shall not cause the chemical oxygen demand in waters of the subzone to exceed 30 milligrams per litre at any time.	(a) SM(A) (b) SM(C) (c) SM(D) (d) SM(E) (e) SM(H) (f) SM(I) (g) TP(B)

Parameters	Objectives	Sub-Zone
		(h) TP(C) (i) Other Watercourses
	Waste discharges shall not cause the chemical oxygen demand in waters of the subzone to exceed 15 milligrams per litre at any time.	(a) SM(B) (b) SM(F) (c) SM(G) (d) LT(C) (e) LT(D) (f) TP(A)
Ammoniacal Nitrogen	Waste discharges shall not cause the ammoniacal nitrogen in waters of the subzone to exceed 0.5 milligrams per litre at any time.	All Watercourses
Toxicants	Waste discharges shall not cause the toxicants in waters of the subzone to attain such a level as to produce significant toxic effects in humans, fish or any other aquatic organism, with due regard to biologically cumulative effects in food chains and to toxicant inter-actions with each other.	All Watercourses

9.1.3 Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland & Coastal Waters (TM-DSS)

9.1.3.1 Discharges of effluents are subject to control under the WPCO. The Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) sets limits for effluent discharges. Specific limits apply for different areas and are different between surface waters and sewers. The limits vary with the rate of effluent flow. TM-DSS specifies the limits to control the physical, chemical and microbial parameters for effluent discharges into foul sewers leading into Government's sewage treatment plants.

9.1.4 Practice Note for Professional Persons on Construction Site Drainage (ProPECC) PN 2/24

9.1.4.1 The Practice Note for Professional Persons (ProPECC Note PN 2/24) on Construction Site Drainage provides guidelines for the handling and disposal of construction discharges. It is applicable to this study for the control of site runoff and wastewater generated during the construction phase of the Project. The types of discharges from construction sites outlined in the ProPECC Note PN 2/24 include:

- surface runoff;
- groundwater;
- boring and drilling water;
- wastewater from concrete batching and precast concrete casting;
- wheel washing water;
- bentonite slurries;
- water for testing and sterilization of water retaining structures and water pipes;
- wastewater from building construction and site facilities; and
- acid cleaning, etching and pickling wastewater.

9.1.5 Practice Note for Professional Persons on Drainage Plan Subject to Comment by the Environmental Protection Department (ProPECC) PN 1/23

9.1.5.1 The Practice Note for Professional Persons (ProPECC Note PN1/23) on Drainage Plans subject to Comment by the Environmental Protection Department provides non-statutory guidelines in preparing drainage plans for the operational phase of the Project. It suggests that drainage plans submitted to the Building Authority should be referred to the Environmental Protection Department (EPD) for comment whenever there is a concern for pollution control.

9.1.6 Hong Kong Planning Standards and Guidelines (HKPSG)

9.1.6.1 Chapter 9 of the HKPSG outlines environmental requirements that need to be considered in land use planning. The recommended guidelines, standards and guidance cover the selection of suitable locations for the developments and sensitive uses, provision of environmental facilities, and design, layout, phasing and operational controls to minimize the adverse environmental impacts. It also lists out environmental factors influencing land use planning and recommended buffer distances for land uses.

9.2 Description of the Environment

9.2.1.1 The Application Site falls within the Tolo Harbour and Channel WCZ. The Application Site is located inland, therefore water quality impact to coastal water is not anticipated. This section presents the assessment of potential water quality impact associated with the construction and operation phases of the proposed development. Recommendations for mitigation measures have been made, where necessary, to minimize the potential water quality impacts.

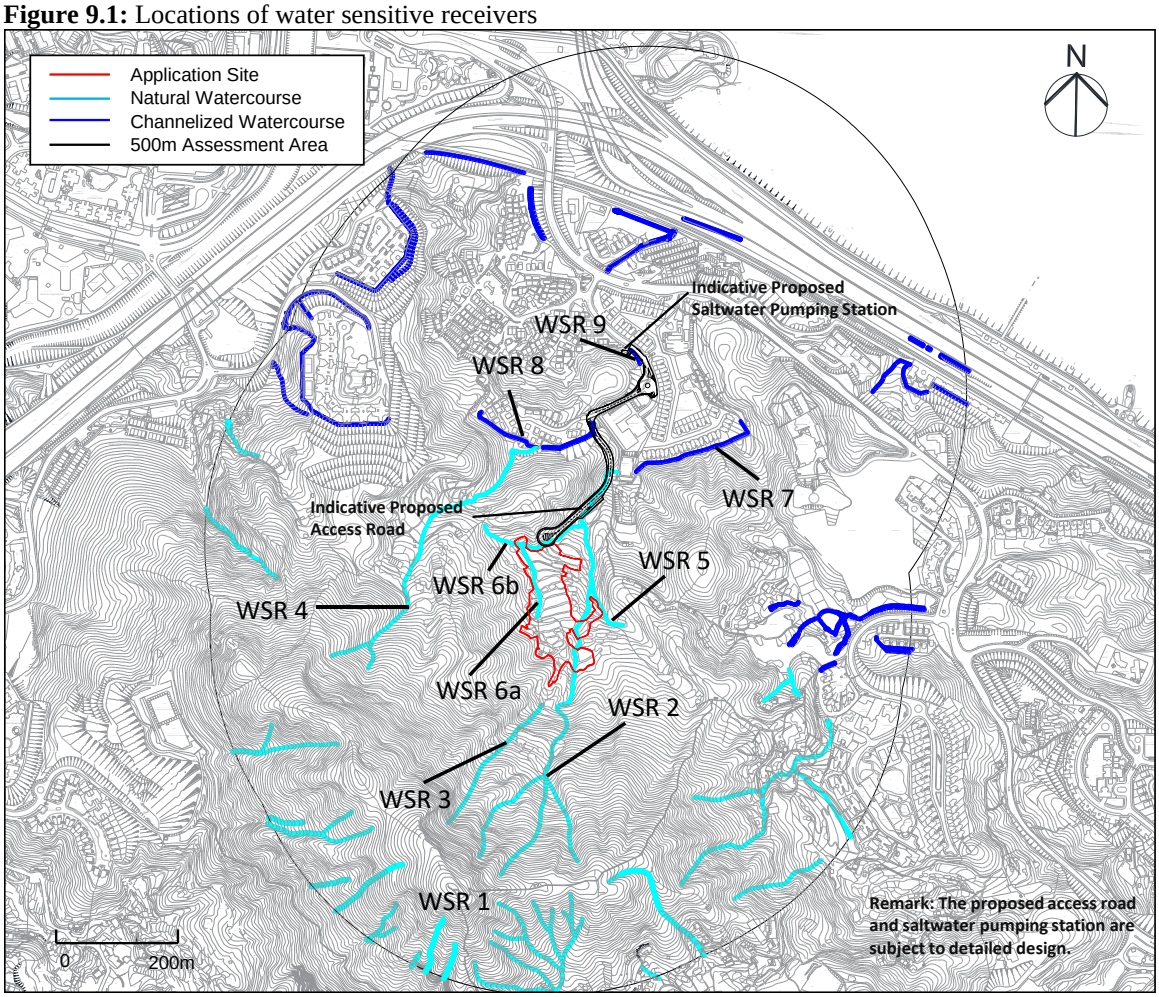
9.3 Water Sensitive Receivers

9.3.1.1 Water Sensitive Receivers (WSRs) within 500 from the Application Site and proposed access road are identified and presented in **Figure 9.1**. Major WSRs are listed in **Table 9.3**.

Table 9.3: Water sensitive receivers

ID	WSRs	Status	Distance from the Site/ Proposed Access Road
WSR 1	Watercourses located in Lai Chi Shan	Natural Watercourse	~ 360m
WSR 2	From Lai Chi Shan to the south of Ling Liang Church MH Lau Secondary School	Natural Watercourse	WSR runs within the site
WSR 3	From Lai Chi Shan to the south of the Application Site	Natural Watercourse	~ 30m
WSR 4	From Sheung Wong Yi Au to the culvert south of Yung Yi Villa	Natural Watercourse	~ 90m
WSR 5	From near Tai Po Kau Tsung Yuen Village and joint into WSR2	Natural Watercourse	< 5m
WSR 6a	From the east of Sheung Wong Yi Au and joint into WSR6b	Natural Watercourse	WSR runs within the site
WSR 6b	From the east of Sheung Wong Yi Au and joint into WSR2	Natural Watercourse	WSR runs within the site
WSR 7	From the culvert east of Ling Liang Church MH Lau Secondary School to the southeast side of Chateau Royale	Perennial Channelized Watercourse	~ 35m
WSR 8	From the west of Yung Yi Villa to the culvert near the east of Yung Yi Villa	Perennial Channelized Watercourse	WSR runs within the proposed access road
WSR 9	Opposite to the entrance of Chateau Royale	Perennial Channelized Watercourse	< 5m

Figure 9.1: Locations of water sensitive receivers



9.4 Construction Phase Impact Evaluation

9.4.1 Construction Site Runoff

9.4.1.1 During rainstorm events, construction site runoff would come from all over the works site. The surface runoff might be polluted by:

- Runoff and erosion from site surfaces, earth working areas and stockpiles;
- Wash water from dust suppression sprays and wheel washing facilities; and
- Chemicals spillage such as fuel, oil, solvents and lubricants from maintenance of construction machinery and equipment.

9.4.1.2 Construction runoff may cause physical, biological and chemical effects. The physical effects include potential blockage of drainage channels and increase of suspended solid levels in the receiving water bodies. Runoff containing significant amounts of concrete and cement–derived material may cause primary chemical effects such as increasing turbidity and discoloration, elevation in pH, and accretion of solids. A number of secondary effects may also result in toxic effects to water biota due to elevated pH values, and reduced decay

rates of faecal microorganisms and photosynthetic rate due to the decreased light penetration.

9.4.1.3 Construction site runoff could be carefully controlled and mitigated through the recommended mitigation measures outlined in **Section 9.4**. Construction site runoff impacts would therefore be reduced to satisfactory levels before discharges such that adverse water quality impact would not be anticipated.

9.4.2 Construction Works in Close Proximity of Inland Waters

9.4.2.1 Some of the watercourses are located within or near the Application Site. Construction works near these watercourses may pollute the storm water or inland waters due to potential release of construction wastes. Construction wastewater are generally characterised by high concentration of suspended solid (SS) and elevated pH. Adoption of good housekeeping and mitigation measures would reduce the generation of construction wastes and potential water pollution. The implementation of measures to control run-off and drainage water will be important for the construction works adjacent to the inland water in order to prevent run-off and drainage water with high levels of SS from entering the water environment. With the implementation of adequate construction site drainage and provision of mitigation measures as specified in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works", it is anticipated that water quality impacts would be minimised.

9.4.3 Sewage from Workforce

9.4.3.1 Sludge and sewage effluents will arise from the sanitary facilities provided for the on–site construction workforce. The sewage is characterized by high levels of biochemical oxygen demand (BOD), ammonia, E. coli and oil / grease.

9.4.3.2 The sewage generated should be properly managed to minimize the adverse impact of odour and potential health risks to the workers by attracting pests and other disease vectors.

9.4.3.3 Adequate portable chemical toilets should be provided to ensure all sewage is properly collected. It is anticipated that no adverse environmental implications would arise if the chemical toilets are properly maintained and licensed collectors are employed for the collection and disposal of sewage on a regular basis.

9.4.4 Alteration of Watercourses

9.4.4.1 Watercourses are running close and within the proposed development. In consideration of various design constraints on the proposed development, it is advised that the current alignment is the optimum and cannot be further adjusted. Due to close proximity to the proposed development, the streams would unavoidably be affected. Therefore, a

watercourse (i.e. WSR6a) within the Application Site would be removed while other watercourses (i.e. WSR6b and WSR 2) intersecting the Application Site would be retained. The detailed schedule of the diversion works is not available at this stage but is anticipated to be completed by the population intake year of 2030. Details shall be referred to the separated DIA Report.

9.4.5 Concurrent Project

9.4.5.1 As mentioned in **Section 2.4**, one concurrent project for the proposed social welfare facility at Wong Yi Au has been identified within 500m from the boundary of the Project. However, the concurrent project is located at downstream of WSRs 1 to 9, cumulative water quality impacts are therefore not anticipated.

9.5 Recommended Mitigation Measures for Construction Phase

9.5.1 Construction Site Runoff

9.5.1.1 In accordance with the Practice Note for Professional Persons on Construction Site Drainage, EPD, 2024 (ProPECC PN 2/24), the proposed construction phase mitigation measures include but not limited to the following.

- At the start of site establishment, perimeter cut–off drains to direct off–site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on–site drainage system will be undertaken by the contractor prior to the commencement of construction.
- Diversion of natural storm water should be provided as far as possible. The design of temporary on–site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre–formed individual cells of approximately 6 to 8m^3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.
- The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates.
- The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 2/24. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.
- Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. Temporary

access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.

- Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.
- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.
- Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.
- All open stockpiles of construction materials (for example, aggregates, sand and fill material) should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.
- Precautions should be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 2/24. Particular attention should be paid to the control of silty surface runoff during storm events.
- All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash–water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel–wash bay to the public road should be paved with sufficient back fall toward the wheel–wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.
- Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.
- Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.
- All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.

- Groundwater pumped out of wells, etc, for the lowering of groundwater level in basement or foundation construction should be discharge into storm drains after the removal of silt in silt removal facilities.
- Water used in ground boring and drilling for site investigation or rock/soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal， the wastewater should be discharged into storm drains via silt removal facilities.

9.5.1.2 By adopting the above mitigation measures with best management practices, it is anticipated that the impacts of construction site runoff from the construction site will be reduced to satisfactory levels before discharges. The details of best management practices will be highly dependent to actual site condition and the Contractor shall apply for a discharge license under WPCO.

9.5.2 Construction Works in Close Proximity of Inland Waters

9.5.2.1 Apart from the general site best management practices, extra care shall be paid for works near watercourses to minimise the potential water quality impacts. The measures described in ETWB TC (Works) No. 5/2005 “Protection of natural streams / rivers from adverse impacts arising from construction works” should be adopted where applicable. The major measures are list below:

- Stockpiling of construction materials and dusty materials should be located away from any watercourses, contained in bunded areas and covered with tarpaulin.
- Construction debris and spoil should be covered with tarpaulin during storage. Timely removal of materials away from the site for disposal should be arranged to avoid being washed into the nearby watercourses.
- Water pumps should be used to collect any wastewater and construction site surface runoff. The collected wastewater shall be properly treated before discharge.
- Toe-board and bunds shall be provided along the edge of the works area to prevent wastewater/ debris from falling into the watercourses.
- Proper shoring may need to be erected in order to prevent soil / mud from slipping into the inland water bodies.
- Construction effluent, site run-off and sewage should be properly collected and/or treated.
- Construction works close to the inland waters should be carried out in dry season as far as practicable where the flow in the surface channel or stream is low.
- The use of less or smaller construction plants may be specified in areas close to the watercourses to reduce the disturbance to the surface water.

9.5.3 Sewage from Workforce

9.5.3.1 Portable chemical toilets and sewage holding tanks should be provided for handling the sewage generated by the construction workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater employed populations and be responsible for appropriate disposal and maintenance.

9.5.3.2 Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.

9.5.4 Alteration of Watercourses

9.5.4.1 Prior to the proposed removal and diversion of the watercourses, it is recommended that a set of U-channel and temporary channel shall be constructed and implemented in advance. The watercourses should remain undisturbed during construction of the channel.

9.5.4.2 Furthermore, precautionary measures shall be implemented to prevent adverse water quality impact to the surrounding environment during removal and diversion of watercourse. Good site practices as described in ETWB TC (Works) No. 5/2005 "Protection of natural streams / rivers from adverse impacts arising from construction works" and ProPECC PN 2/24 "Construction Site Drainage" should be adopted where applicable. The following major measures shall be implemented:

- Cofferdams and impermeable sheet piles should be installed as appropriate to isolate the water flow from the construction works area.
- Dewatering or flow diversion shall be conducted prior to the construction works to prevent water overflow to the surrounding area.
- Watercourse removal and flow diversion should be conducted in dry season as far as practicable when the water flow is low.
- Water drained from the watercourse shall be diverted to new/ temporary drainage for watercourse diversion. For watercourse removal, the water drained shall be collected and treated to meet the requirements of WPCO and TM-DSS before discharge.
- Any excavated land-based sediment from the removal/ diversion of watercourse shall be properly stored at bunded areas away from any watercourse and covered with tarpaulin before transporting out of the site.

9.5.4.3 With the implementation of mitigation measures and good site practices as mentioned above, adverse water quality impacts due to the alteration of these watercourses are not anticipated.

9.6 Operational Phase Impact and Mitigation Measures

9.6.1.1 The Professional Persons Environmental Consultative Committee Practice Note 1/23 Drainage Plans subject to Comment by the Environmental Protection Department – Building (Standards of Sanitory Fitments, Plumbing, Drainage Works and Latrines) Regulations (ProPECC PN 1/23), also provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of

site drainage and disposal of site effluents generated within the proposed development area should follow the relevant guidelines and practices as given in the ProPECC PN 1/23.

9.6.2 Runoff from the Development

9.6.2.1 The proposed development will lead to an increase in area of impermeable surfaces and hence the peak surface runoff rates. Besides, vehicle dust, tyre scraps and oils might be washed away from the road surface to the nearby water courses by surface runoff or road surface cleaning. Subject to detailed design and requirement of relevant government departments, the capacities of road drainage system shall cater the runoff from 50 year-return-period rainstorm. Proper drainage systems with silt traps and oil interceptors should be installed and connected to the existing drainage system. The design of road gullies with silt traps should be incorporated in the detailed design stage.

9.6.2.2 Runoff will be controlled by best management practice. Runoff will be intercepted by properly designed and managed silt traps at appropriate spacings so that common roadside debris, refuse and fallen leaves etc. can be captured before allowing the runoff to drain into the drainage system. At the outlets to the drainage system, the Project Proponent or the delegated operation parties should manage the road/open area cleaning prior to the occurrence of a storm. Moreover, it is recommended each of the cleaning events should be carried out during low traffic flow period, preferably using either manual methods or mechanical means such as vacuum sweeper/truck equipped with side broom to sweep road sludge and debris into the suction nozzle to increase the removal efficiency of pollutants. The collected pollutants would be tankered away for off-site disposal at landfill sites. After the removal of the pollutants, the pollution levels from stormwater would be much reduced.

9.6.3 Sewage from the Development

9.6.3.1 As there are currently no existing sewer networks at the location of the proposed development, a new sewerage network will be constructed to connect the proposed development to the existing sewers near Yung Yi Road. Given that the proposed development will be properly sewered by the time of population intake in 2030, adverse water quality impact is not anticipated. A separate Sewerage Impact Assessment (SIA) has been conducted to assess the impact of sewage generation as a result of the proposed development. It is anticipated that the proposed development would generate an average dry weather flow of 532.8m^3/day. Sewage flow from the proposed development will be discharged to Tai Po Sewage Treatment Works via Tai Po Kau Sewage Pumping Station. Details shall be referred to the separated SIA Report.

9.6.4 Use of Fertilisers and Pesticides for Landscaping

9.6.4.1 The application of fertilisers or pesticides for landscaping may lead to surface run off into nearby water bodies. The use of fertilisers and pesticides shall be properly scheduled and

applied in accordance with the recommended dosage to prevent overuse. Alternatively, the use of organic or more environmentally friendly fertilisers and pesticides shall be considered to minimise the water quality impacts in case of surface run off.

10 Conclusion

10.1.1.1 An Environmental Assessment Study has been conducted to support the Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories.

10.1.1.2 An Indicative Scheme has been formulated to demonstrate the technical feasibility and suitability of the Proposed Amendment. An indicative access road is proposed to connect the Application Site and external transport network. In addition, a saltwater pumping station is proposed in the vicinity of the existing saltwater network near Yung Yi Road to support the proposed residential development.

10.1.1.3 With the implementation of the recommended direct noise mitigation measures for the proposed access road, all existing NSRs will comply with the noise criterion of 70dB(A) for domestic premises, and 65dB(A) for places of public worship and educational premises respectively, as stipulated in the HKPSG. All residential units for the proposed residential blocks at the Site will comply with the noise criterion of 70dB(A) under base case scenario, as stipulated in the HKPSG. Hence, no mitigation measure is required. Adverse road traffic noise impact on the proposed development is not anticipated.

10.1.1.4 No existing major fixed noise sources were found within 300m of the subject site. Hence, potential fixed noise impact on the proposed residential development is not anticipated. The proposed saltwater pumping station and any other planned fixed noise sources, such as MVAC system and pumping system, in the proposed development should be designed to comply with the requirements under the HKPSG in detailed design stage.

10.1.1.5 Constructional air quality impacts have been assessed. Given the use of the recommended good site practices and mitigation measures, constructional air quality impacts are not anticipated. For operational phase, the current design scheme has allowed sufficient setback from the surrounding roads to meet the minimum requirement as stipulated in the HKPSG. Hence potential vehicular emission impact is not anticipated. Based on the chimney survey, no existing chimneys were found within 500m of the subject site.

10.1.1.6 A preliminary land contamination site appraisal through desktop review and site survey has been conducted to review any past and existing land uses within and adjoining the Application Site. It is found that there is no potential of land contamination within and adjoining the Application Site.

10.1.1.7 For waste management, implications due to construction and operational phases are not anticipated provided good practices are in place.

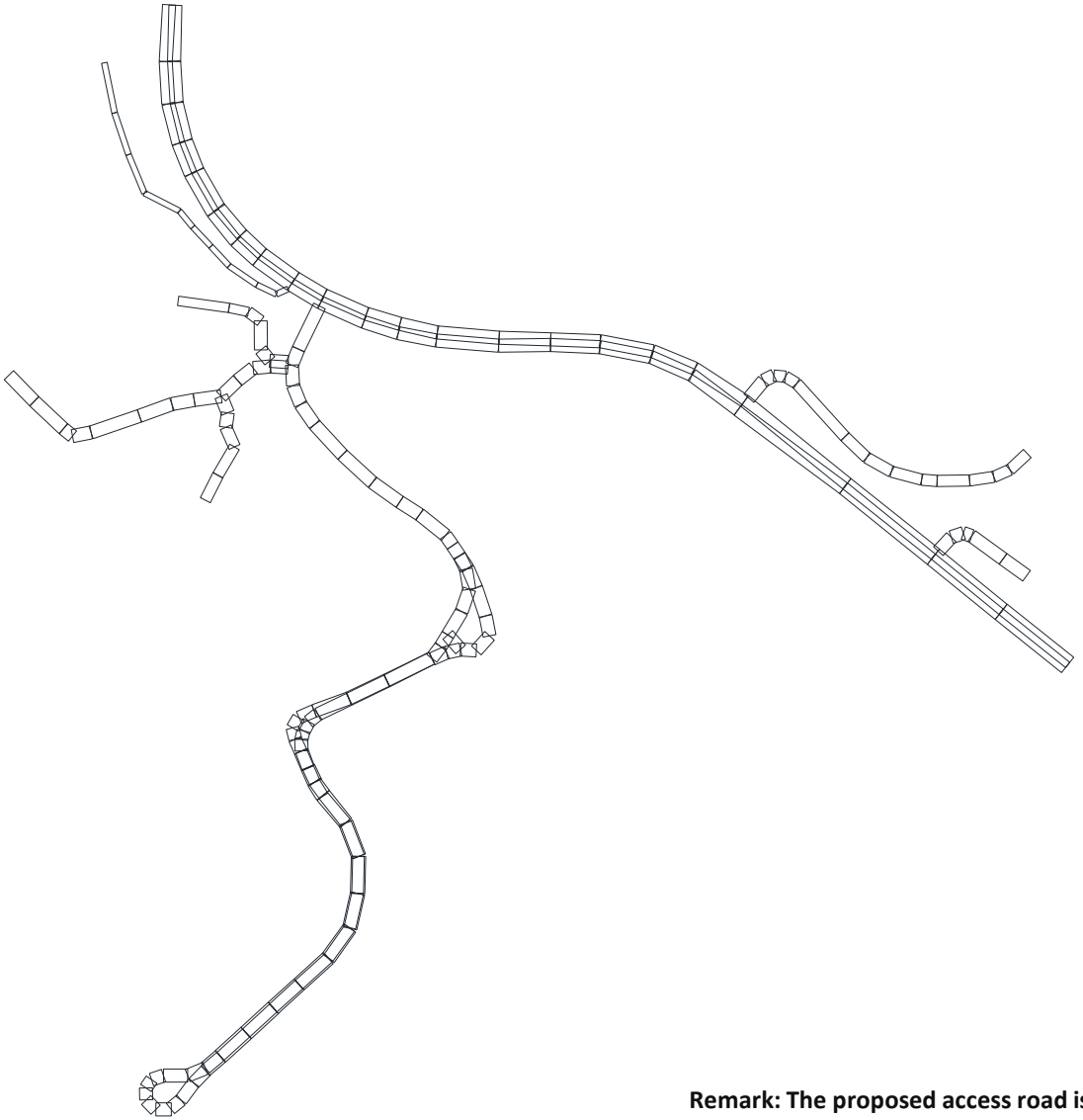
10.1.1.8 Potential water pollution sources have been identified and mitigation measures have been recommended to mitigate any potential water quality impacts during the construction phase. With the implementation of good site practices and mitigation measures, adverse water quality impacts are not anticipated. Operational impacts associated with runoff and sewage from the development would be insignificant with proper management practices in place. The proposed development will be properly sewered and adverse water quality impact is not anticipated.

10.1.1.9 It is concluded that there are no insurmountable environmental impacts on the Application Site at Wong Yi Au, Tai Po.

Appendix 4.1

Traffic Forecast for the
Assessment Year at 2045

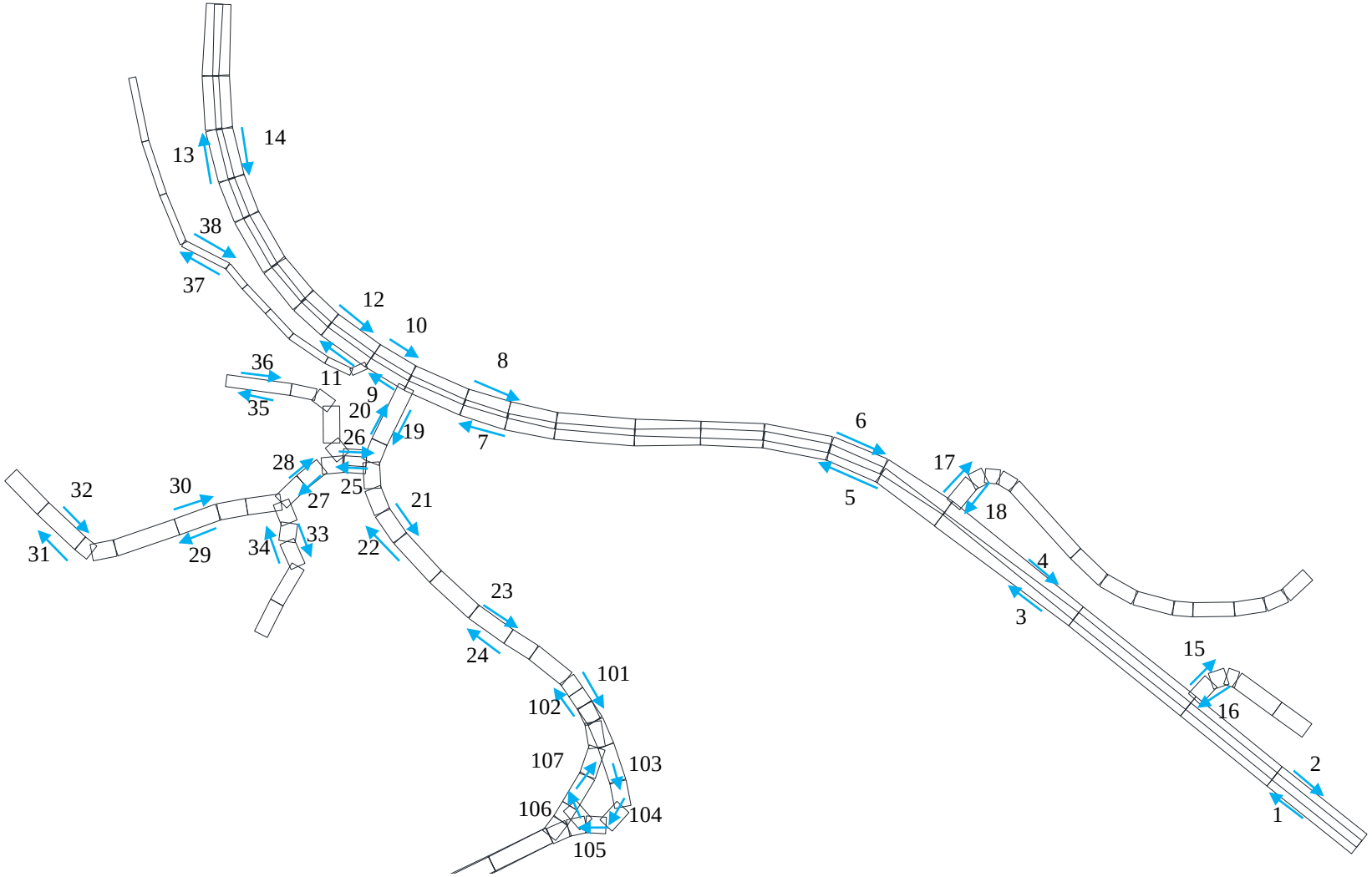
Traffic ID



Remark: The proposed access road is subject to detailed design.

ARUP

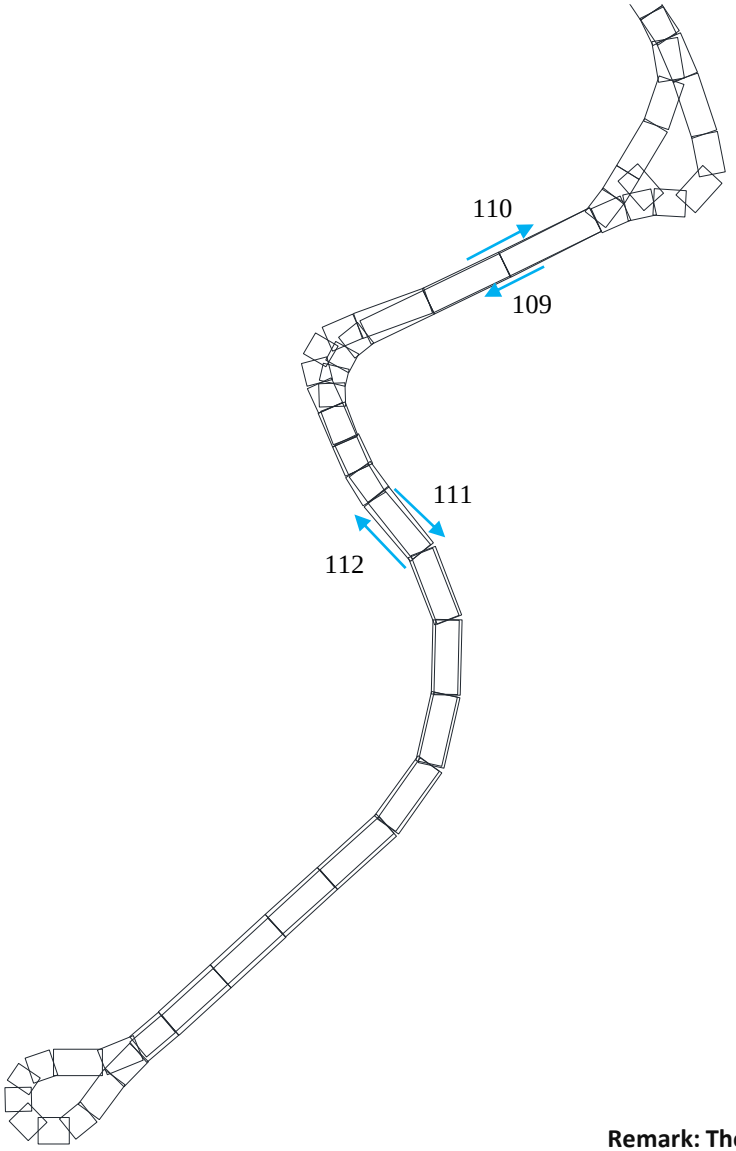
Traffic ID



Remark: The proposed access road is subject to detailed design.

ARUP

Traffic ID



Remark: The proposed access road is subject to detailed design.

ARUP

Index.	Design Speed	Road Links	Year 2045 (AM)	
			Flow (Veh/hr)	HV %
1	50	Tai Po Road - Tai Po Kau (WB)	425	34.9%
2	50	Tai Po Road - Tai Po Kau (EB)	625	41.9%
3	50	Tai Po Road - Tai Po Kau (WB)	430	34.4%
4	50	Tai Po Road - Tai Po Kau (EB)	625	41.9%
5	50	Tai Po Road - Yuen Chau Tsai (WB)	465	34.8%
6	50	Tai Po Road - Yuen Chau Tsai (EB)	650	42.4%
7	50	Tai Po Road - Yuen Chau Tsai (WB)	465	34.8%
8	50	Tai Po Road - Yuen Chau Tsai (EB)	650	42.4%
9	50	Tai Po Road - Yuen Chau Tsai (WB)	640	28.7%
10	50	Tai Po Road - Yuen Chau Tsai (EB)	815	45.0%
11	50	Tai Po Road - Yuen Chau Tsai (WB)	640	28.7%
12	50	Tai Po Road - Yuen Chau Tsai (EB)	815	45.0%
13	50	Tai Po Road - Yuen Chau Tsai (WB)	650	28.7%
14	50	Tai Po Road - Yuen Chau Tsai (EB)	820	45.0%
15	50	Access Road from/to Redland Garden (NB)	25	0.0%
16	50	Access Road from/to Redland Garden (SB)	30	0.0%
17	50	Access Road from/to Trackside Villas (NB)	30	58.8%
18	50	Access Road from/to Trackside Villas (SB)	35	41.7%
19	50	Yung Yi Road (SB)	250	35.2%
20	50	Yung Yi Road (NB)	255	19.4%
21	50	Yung Yi Road (SB)	195	38.0%
22	50	Yung Yi Road (NB)	205	30.0%
23	50	Yung Yi Road (SB)	195	38.0%
24	50	Yung Yi Road (NB)	205	30.0%
25	50	Wong Yi Au Road (WB)	55	25.0%
26	50	Wong Yi Au Road (EB)	50	7.5%
27	50	Wong Yi Au Road (WB)	65	14.7%
28	50	Wong Yi Au Road (EB)	65	6.9%
29	50	Wong Yi Au Road (WB)	55	14.3%
30	50	Wong Yi Au Road (EB)	50	5.9%
31	50	Wong Yi Au Road (WB)	55	14.3%
32	50	Wong Yi Au Road (EB)	40	6.5%
33	50	Unnamed Access Road (SB)	20	14.3%
34	50	Unnamed Access Road (NB)	10	12.5%
35	50	Unnamed Access Road (WB)	20	25.0%
36	50	Unnamed Access Road (EB)	30	28.6%
37	50	Unnamed Access Road (WB)	5	0.0%
38	50	Unnamed Access Road (EB)	10	0.0%
101	50	Yung Yi Road (SB)	185	35.1%
102	50	Yung Yi Road (NB)	190	31.9%
103	50	Circular Road of Proposed Yung Yi Road / Ha Wong Yi Au Road Roundabout (SB)	185	35.1%
104	50	Circular Road of ProposedYung Yi Road / Ha Wong Yi Au Road Roundabout (WB)	155	32.6%
105	50	Circular Road of Proposed Yung Yi Road / Ha Wong Yi Au Road Roundabout (WB)	160	34.4%
106	50	Circular Road of Proposed Yung Yi Road / Ha Wong Yi Au Road Roundabout (NB)	125	34.2%
107	50	Circular Road of Proposed Yung Yi Road / Ha Wong Yi Au Road Roundabout (EB)	190	32.1%
109	50	Ha Wong Yi Au Road (WB)	35	35.2%
110	50	Ha Wong Yi Au Road (EB)	65	28.0%
111	50	Proposed Access Road (SB)	35	35.2%
112	50	Proposed Access Road (NB)	55	27.0%

From: Ka Fai CHAN
To: Jason Leung WY
Cc: Angus Liu; Edmond Cheng (TY); Johnny So; Karen Chan K K; Yanny OY LI
Subject: Re: S12A Planning Application for Proposed Residential Development with Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories - Proposed Road Types for EAS
Date: Wednesday, December 11, 2024 11:58:26 AM
Attachments: Location Plan.pdf

Dear Mr. LEUNG,

I have no objection that the four road links are Local Distributor.

Regards,
Issac K F Chan
E/TP2, TE/NTE, TD
Tel: 2399 2406

Date: 23/09/2024 11:54 AM
Subject: S12A Planning Application for Proposed Residential Development with Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories - Proposed Road Types for EAS

Dear Issac,

We are the traffic consultants for the captioned project. For the purpose of Environmental Assessment Study (EAS) preparation for the project, we would like to seek your confirmation on the road type classification for the road links indicated in the table below, which are not covered in the ATC.

The proposed road types for the concerned road links are shown below and the location plan is attached herewith for your reference.

Index.	Road Links	Road Type
1	Yung Yi Road	Local Distributor
2	Proposed Yung Yi Road / Ha Wong Yi Au Road Roundabout	Local Distributor
3	Modified Ha Wong Yi Au Road	Local Distributor
4	Proposed Access Road	Local Distributor

Should you have any query or require further information, please feel free to contact me.

Thank you very much.

Regards,
Jason Leung
Planner | Transport Consulting

Appendix 4.2

Predicted Road Traffic Noise Levels for Existing NSRs (Unmitigated Case)

Project: Wong Yi Au
Project no.: 292635
Scenario: Detailed Road Traffic Noise Level of Exisitng NSRs (Unmitigated Scenario)

Assessment Point				EXISTING ROADS	PROJECT ROAD Wong Yi Au Proposed Access Road	ALL ROADS OVERALL NOISE LEVEL	Noise Criteria dB(A)	Exceedance Overall [C] > Criteria	Check Project Impact Significance		Project Road > Criteria	Direct Mitigation Measures Required (Y/N) [2]
Location	NSR	Floor	Use [1]	[A] dB(A)	[B] *dB(A)*	[C] = [A]+ [B] dB(A)		(Y/N)	Project Road Contribtion [C] - [A] dB(A)	> or = 1dB(A)		
Chateau Royale	CR01	1	R	**74.6**	56.0	**74.6**	70	**Y**	0.0	N	N	N
	CR01	2	R	**74.4**	56.0	**74.4**	70	**Y**	0.0	N	N	N
	CR01	3	R	**73.9**	56.0	**74.0**	70	**Y**	0.1	N	N	N
	CR02	1	R	**74.1**	55.2	**74.2**	70	**Y**	0.1	N	N	N
	CR02	2	R	**73.9**	55.2	**74.0**	70	**Y**	0.1	N	N	N
	CR02	3	R	**73.6**	55.1	**73.6**	70	**Y**	0.0	N	N	N
	CR03	1	R	**73**	47.3	**73.0**	70	**Y**	0.0	N	N	N
	CR03	2	R	**72.9**	47.3	**72.9**	70	**Y**	0.0	N	N	N
	CR03	3	R	**72.5**	47.1	**72.5**	70	**Y**	0.0	N	N	N
	CR04	1	R	**71**	53.6	**71.1**	70	**Y**	0.1	N	N	N
	CR04	2	R	**70.9**	53.6	**70.9**	70	**Y**	0.0	N	N	N
	CR04	3	R	**70.5**	53.5	**70.6**	70	**Y**	0.1	N	N	N
	CR05	1	R	67.9	52.6	68.1	70	N	-	-	N	N
	CR05	2	R	67.7	53.4	67.9	70	N	-	-	N	N
	CR05	3	R	67.4	54.1	67.6	70	N	-	-	N	N
	CR06	1	R	65.7	51.2	65.9	70	N	-	-	N	N
	CR06	2	R	65.6	52.1	65.8	70	N	-	-	N	N
	CR06	3	R	65.4	52.9	65.6	70	N	-	-	N	N
	CR07	1	R	65.1	50.9	65.2	70	N	-	-	N	N
	CR07	2	R	65	51.5	65.2	70	N	-	-	N	N
	CR07	3	R	64.8	52.4	65.1	70	N	-	-	N	N
	CR08	1	R	64.1	52.4	64.4	70	N	-	-	N	N
	CR08	2	R	64.1	52.5	64.4	70	N	-	-	N	N
	CR08	3	R	64.1	52.7	64.4	70	N	-	-	N	N
	CR09	1	R	63.9	53.5	64.2	70	N	-	-	N	N
	CR09	2	R	63.9	53.6	64.3	70	N	-	-	N	N
	CR09	3	R	63.8	53.6	64.2	70	N	-	-	N	N
Ling Liang Church M.H. Lau Secondary School	LLC01	1	W	**67.2**	**66.5**	**69.8**	65	**Y**	2.6	**Y**	**Y**	**Y**
	LLC01	2	W	**67.2**	**66.1**	**69.7**	65	**Y**	2.5	**Y**	**Y**	**Y**
	LLC02	1	W	64.5	65.0	**67.8**	65	**Y**	3.3	**Y**	N	N
	LLC02	2	W	64.6	64.9	**67.8**	65	**Y**	3.2	**Y**	N	N
	LLC03	1	E	33.4	**66.2**	**66.2**	65	**Y**	32.8	**Y**	**Y**	**Y**
	LLC03	2	E	34.3	**66.2**	**66.2**	65	**Y**	31.9	**Y**	**Y**	**Y**
	LLC03	3	E	35.1	**66.2**	**66.2**	65	**Y**	31.1	**Y**	**Y**	**Y**
	LLC03	4	E	36.2	**66.1**	**66.1**	65	**Y**	29.9	**Y**	**Y**	**Y**
	LLC03	5	E	37.2	**65.9**	**65.9**	65	**Y**	28.7	**Y**	**Y**	**Y**
	LLC03	6	E	38.5	**65.8**	**65.8**	65	**Y**	27.3	**Y**	**Y**	**Y**
	LLC03	7	E	39.1	**65.6**	**65.6**	65	**Y**	26.5	**Y**	**Y**	**Y**
	LLC03	8	E	40	65.4	**65.5**	65	**Y**	25.5	**Y**	N	N

Project: Wong Yi Au
Project no.: 292635
Scenario: Detailed Road Traffic Noise Level of Exisitng NSRs (Unmitigated Scenario)

Assessment Point				EXISTING ROADS	PROJECT ROAD Wong Yi Au Proposed Access Road	ALL ROADS OVERALL NOISE LEVEL	Noise Criteria dB(A)	Exceedance Overall [C] > Criteria	Check Project Impact Significance		Project Road > Criteria	Direct Mitigation Measures Required (Y/N) [2]
Location	NSR	Floor	Use [1]	[A] dB(A)	[B] *dB(A)*	[C] = [A]+ [B] dB(A)		(Y/N)	Project Road Contribtion [C] - [A] dB(A)	> or = 1dB(A)		
Ling Liang Church M.H. Lau Secondary School	LLC04	1	E	28.2	64.7	64.7	65	N	-	-	N	N
	LLC04	2	E	29.1	64.7	64.7	65	N	-	-	N	N
	LLC04	3	E	30.2	64.7	64.7	65	N	-	-	N	N
	LLC04	4	E	31.3	64.7	64.7	65	N	-	-	N	N
	LLC04	5	E	32.4	64.6	64.6	65	N	-	-	N	N
	LLC04	6	E	33.4	64.6	64.6	65	N	-	-	N	N
	LLC04	7	E	34.5	64.5	64.5	65	N	-	-	N	N
	LLC04	8	E	35.3	64.4	64.4	65	N	-	-	N	N
	LLC05	1	E	26.6	63.9	63.9	65	N	-	-	N	N
	LLC05	2	E	27.4	63.9	63.9	65	N	-	-	N	N
	LLC05	3	E	28.3	64.0	64.0	65	N	-	-	N	N
	LLC05	4	E	29.2	64.0	64.0	65	N	-	-	N	N
	LLC05	5	E	30.3	64.0	64.0	65	N	-	-	N	N
	LLC05	6	E	31.3	63.9	63.9	65	N	-	-	N	N
	LLC05	7	E	32.4	63.8	63.8	65	N	-	-	N	N
	LLC05	8	E	33.2	63.7	63.7	65	N	-	-	N	N
Yung Yi Villa	YYV01	1	R	61.8	63	65.4	70	N	-	-	N	N
	YYV01	2	R	61.9	62.8	65.4	70	N	-	-	N	N
	YYV01	3	R	62.1	62.6	65.4	70	N	-	-	N	N
	YYV02	1	R	60.7	64.2	65.8	70	N	-	-	N	N
	YYV02	2	R	60.8	64.1	65.7	70	N	-	-	N	N
	YYV02	3	R	60.9	63.9	65.7	70	N	-	-	N	N
	YYV03	1	R	58.9	65.6	66.5	70	N	-	-	N	N
	YYV03	2	R	59	65.6	66.4	70	N	-	-	N	N
	YYV03	3	R	59.1	65.4	66.3	70	N	-	-	N	N
Village House at Wong Yi Au	WYA01	1	R	51.1	60.8	61.2	70	N	-	-	N	N
	WYA01	2	R	51.1	60.8	61.2	70	N	-	-	N	N
	WYA02	1	R	46.1	57.7	58	70	N	-	-	N	N
	WYA02	2	R	46.3	57.6	58	70	N	-	-	N	N

Notes:
[1] R – ResidentiaL; E – Educational Institutions; W – Place of Public Worship
[2] For existing NSRs, direct mitigation measures will be required when Project Road > Criteria and Project Road Contribution > 1dB(A).

Appendix 4.3

Predicted Road Traffic Noise Levels for Existing NSRs (Mitigated Case)

Project: Wong Yi Au
Project no.: 292635
Scenario: Detailed Road Traffic Noise Level of Exisitng NSRs (Mitigated Scenario)

Assessment Point				EXISTING ROADS	PROJECT ROAD Wong Yi Au Proposed Access Road	ALL ROADS OVERALL NOISE LEVEL	Noise Criteria dB(A)	Exceedance Overall [C] > Criteria	Check Project Impact Significance		Project Road > Criteria	Direct Mitigation Measures Required (Y/N) [2]
Location	NSR	Floor	Use [1]	[A] dB(A)	[B] *dB(A)*	[C] = [A]+ [B] dB(A)		(Y/N)	Project Road Contribtion [C] - [A] dB(A)	> or = 1dB(A)		
Chaleau Royale	CR01	1	R	**74.6**	55.8	**74.7**	70	**Y**	0.1	N	N	N
	CR01	2	R	**74.4**	55.8	**74.4**	70	**Y**	0.0	N	N	N
	CR01	3	R	**74.0**	55.8	**74.0**	70	**Y**	0.0	N	N	N
	CR02	1	R	**74.1**	55.0	**74.2**	70	**Y**	0.1	N	N	N
	CR02	2	R	**73.9**	55.0	**74.0**	70	**Y**	0.1	N	N	N
	CR02	3	R	**73.6**	54.9	**73.6**	70	**Y**	0.0	N	N	N
	CR03	1	R	**73.0**	45.7	**73.0**	70	**Y**	0.0	N	N	N
	CR03	2	R	**72.9**	45.5	**72.9**	70	**Y**	0.0	N	N	N
	CR03	3	R	**72.5**	45.4	**72.5**	70	**Y**	0.0	N	N	N
	CR04	1	R	**71.0**	50.5	**71.1**	70	**Y**	0.1	N	N	N
	CR04	2	R	**70.9**	50.4	**70.9**	70	**Y**	0.0	N	N	N
	CR04	3	R	**70.5**	50.2	**70.5**	70	**Y**	0.0	N	N	N
	CR05	1	R	67.9	48.2	68.0	70	N	-	-	N	N
	CR05	2	R	67.7	48.2	67.7	70	N	-	-	N	N
	CR05	3	R	67.4	48.2	67.4	70	N	-	-	N	N
	CR06	1	R	65.7	45.7	65.8	70	N	-	-	N	N
	CR06	2	R	65.6	45.7	65.6	70	N	-	-	N	N
	CR06	3	R	65.4	45.7	65.4	70	N	-	-	N	N
	CR07	1	R	65.1	46.9	65.1	70	N	-	-	N	N
	CR07	2	R	65.0	47.0	65.1	70	N	-	-	N	N
	CR07	3	R	64.8	47.0	64.9	70	N	-	-	N	N
	CR08	1	R	64.1	49.3	64.3	70	N	-	-	N	N
	CR08	2	R	64.1	49.3	64.3	70	N	-	-	N	N
	CR08	3	R	64.1	49.3	64.2	70	N	-	-	N	N
	CR09	1	R	63.9	51.7	64.1	70	N	-	-	N	N
	CR09	2	R	63.9	51.7	64.1	70	N	-	-	N	N
	CR09	3	R	63.8	51.7	64.1	70	N	-	-	N	N
Ling Liang Church M.H. Lau Secondary School	LLC01	1	W	60.2	48.9	60.5	65	N	-	-	N	N
	LLC01	2	W	65.1	53.4	65.4	65	N	-	-	N	N
	LLC02	1	W	54.2	48.5	55.3	65	N	-	-	N	N
	LLC02	2	W	58.0	52.1	59.0	65	N	-	-	N	N
	LLC03	1	E	28.8	60.8	60.8	65	N	-	-	N	N
	LLC03	2	E	32.3	61.0	61.0	65	N	-	-	N	N
	LLC03	3	E	35.1	61.5	61.5	65	N	-	-	N	N
	LLC03	4	E	36.2	62.7	62.7	65	N	-	-	N	N
	LLC03	5	E	37.2	63.6	63.6	65	N	-	-	N	N
	LLC03	6	E	38.5	64.4	64.4	65	N	-	-	N	N
	LLC03	7	E	39.1	64.9	64.9	65	N	-	-	N	N
	LLC03	8	E	40.0	65.1	65.1	65	N	-	-	N	N

Project: Wong Yi Au
Project no.: 292635
Scenario: Detailed Road Traffic Noise Level of Exisitng NSRs (Mitigated Scenario)

Assessment Point				EXISTING ROADS	PROJECT ROAD Wong Yi Au Proposed Access Road	ALL ROADS OVERALL NOISE LEVEL	Noise Criteria dB(A)	Exceedance Overall [C] > Criteria	Check Project Impact Significance		Project Road > Criteria	Direct Mitigation Measures Required (Y/N) [2]
Location	NSR	Floor	Use [1]	[A] dB(A)	[B] *dB(A)*	[C] = [A]+ [B] dB(A)		(Y/N)	Project Road Contribtion [C] - [A] dB(A)	> or = 1dB(A)		
Ling Liang Church M.H. Lau Secondary School	LLC04	1	E	24.6	63.6	63.6	65	N	-	-	N	N
	LLC04	2	E	27.1	63.6	63.6	65	N	-	-	N	N
	LLC04	3	E	29.5	63.6	63.6	65	N	-	-	N	N
	LLC04	4	E	31.2	63.6	63.6	65	N	-	-	N	N
	LLC04	5	E	32.4	63.6	63.6	65	N	-	-	N	N
	LLC04	6	E	33.4	63.6	63.6	65	N	-	-	N	N
	LLC04	7	E	34.5	63.6	63.6	65	N	-	-	N	N
	LLC04	8	E	35.3	63.6	63.6	65	N	-	-	N	N
	LLC05	1	E	23.5	63.5	63.5	65	N	-	-	N	N
	LLC05	2	E	25.3	63.6	63.6	65	N	-	-	N	N
	LLC05	3	E	27.2	63.6	63.6	65	N	-	-	N	N
	LLC05	4	E	29.0	63.7	63.7	65	N	-	-	N	N
	LLC05	5	E	30.3	63.6	63.6	65	N	-	-	N	N
	LLC05	6	E	31.3	63.5	63.5	65	N	-	-	N	N
	LLC05	7	E	32.4	63.5	63.5	65	N	-	-	N	N
	LLC05	8	E	33.2	63.4	63.4	65	N	-	-	N	N
Yung Yi Villa	YYV01	1	R	61.6	63.7	65.8	70	N	-	-	N	N
	YYV01	2	R	61.8	63.6	65.8	70	N	-	-	N	N
	YYV01	3	R	62.1	63.3	65.8	70	N	-	-	N	N
	YYV02	1	R	58.6	64.3	65.4	70	N	-	-	N	N
	YYV02	2	R	59.3	64.3	65.5	70	N	-	-	N	N
	YYV02	3	R	60.2	64.1	65.6	70	N	-	-	N	N
	YYV03	1	R	55.6	65.7	66.1	70	N	-	-	N	N
	YYV03	2	R	56.8	65.7	66.2	70	N	-	-	N	N
	YYV03	3	R	58.1	65.5	66.2	70	N	-	-	N	N
Village House at Wong Yi Au	WYA01	1	R	51.1	60.7	61.1	70	N	-	-	N	N
	WYA01	2	R	51.1	60.7	61.1	70	N	-	-	N	N
	WYA02	1	R	46	57.6	57.9	70	N	-	-	N	N
	WYA02	2	R	46.3	57.6	57.9	70	N	-	-	N	N

Notes:
[1] R – ResidentiaL; E – Educational Institutions; W – Place of Public Worship
[2] For existing NSRs, direct mitigation measures will be required when Project Road > Criteria and Project Road Contribution > 1dB(A).

Appendix 4.4

Predicted Road Traffic Noise Levels for Planned Residential Block (Base Case)

Floor	R101a	R101b	R102a	R102b	R103a	R103b	R104a	R104b	R105a	R105b	R105c	R106a	R106b	R106c	R107a	R107b	R108a
13	50.5	50.6	50.4	<40	<40	49.9	49.8	<40	46.8	46.2	<40	<40	<40	<40	<40	<40	<40
12	50.5	50.6	50.4	<40	<40	49.9	49.8	<40	46.8	46.2	<40	<40	<40	<40	<40	<40	<40
11	50.6	50.6	50.4	<40	<40	49.9	49.8	<40	46.9	46.2	<40	<40	<40	<40	<40	<40	<40
10	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
9	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
8	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
7	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
6	50.6	50.7	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
5	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
4	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
3	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
2	50.6	50.6	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
1	50.6	50.6	50.4	<40	<40	49.9	49.8	<40									
Max	50.6	50.7	50.5	<40	<40	49.9	49.8	<40	46.9	46.3	<40	<40	<40	<40	<40	<40	<40
Min	50.5	50.6	50.4	<40	<40	49.9	49.8	<40	46.8	46.2	<40	<40	<40	<40	<40	<40	<40

Total Flats	500
Exceedance	0
Compliance Rate	100.0%

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R108b	R109a	R109b	R110a	R110b	R201a	R201b	R202a	R202b	R203a	R203b	R204a	R204b	R205a	R205b	R206a	R206b
13	<40	<40	<40	<40	<40	<40	44.7	49.0	48.8	49.5	50.9	50.9	50.6	<40	<40	<40	<40
12	<40	<40	<40	<40	<40	<40	44.7	49.1	48.8	49.5	51.0	51.0	50.6	<40	<40	<40	<40
11	<40	<40	<40	<40	<40	<40	44.8	49.1	48.8	49.5	51.0	51.0	50.6	<40	<40	<40	<40
10	<40	<40	<40	<40	<40	<40	44.8	49.1	48.8	49.5	51.0	51.0	50.6	<40	<40	<40	<40
9	<40	<40	<40	<40	<40	<40	44.8	49.1	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
8	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
7	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
6	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
5	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
4	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
3	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
2	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
1						<40	44.8	49.1	48.8	49.5	51.0	51.0	50.6			<40	<40
Max	<40	<40	<40	<40	<40	<40	44.9	49.2	48.9	49.6	51.0	51.0	50.7	<40	<40	<40	<40
Min	<40	<40	<40	<40	<40	<40	44.7	49.0	48.8	49.5	50.9	50.9	50.6	<40	<40	<40	<40

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R207a	R207b	R208a	R208b	R209a	R209b	R209c	R209d	R209e	R209f	R210a	R210b	R210c	R211a	R211b	R211c	R212a
13	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.0
12	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	49.9
11	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	49.9
10	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.0
9	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.0
8	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.0
7	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.0
6	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.1
5	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.1
4	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.1
3	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.1
2	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	49.3
1	<40	<40	<40	<40													
Max	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	50.1
Min	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	49.3

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R212b	R212c	R212d	R212e	R301a	R301b	R302a	R302b	R303a	R303b	R304a	R304b	R305a	R305b	R305c	R305d	R305e
13	52.3	52.3	52.3	52.2													
12	52.4	52.4	52.3	52.3	55.7	55.7	55.5	<40	53.3	54.9	54.8	53.5	54.3	<40	<40	<40	<40
11	52.4	52.4	52.4	52.3	55.8	55.8	55.6	<40	53.4	55.0	54.8	53.5	54.3	<40	<40	<40	<40
10	52.4	52.4	52.4	52.3	55.9	55.9	55.7	<40	53.5	55.1	54.9	53.6	54.4	<40	<40	<40	<40
9	52.5	52.5	52.4	52.3	56.0	55.9	55.7	<40	53.5	55.1	54.9	53.6	54.4	<40	<40	<40	<40
8	52.5	52.5	52.5	52.4	56.1	56.0	55.8	<40	53.6	55.2	55.0	53.7	54.4	<40	<40	<40	<40
7	52.5	52.5	52.5	52.4	56.1	56.1	55.9	<40	53.6	55.2	55.0	53.7	54.5	<40	<40	<40	<40
6	52.5	52.5	52.5	52.4	56.2	56.1	55.9	<40	53.6	55.2	55.0	53.7	54.5	<40	<40	<40	<40
5	52.5	52.5	52.5	52.4	56.2	56.1	55.9	<40	53.7	55.2	55.1	53.8	54.5	<40	<40	<40	<40
4	52.5	52.5	52.5	52.4	56.2	56.1	55.9	<40	53.7	55.3	55.1	53.8	54.5	<40	<40	<40	<40
3	52.5	52.5	52.5	52.4	56.2	56.2	55.9	<40	53.7	55.2	55.1	53.8	54.5	<40	<40	<40	<40
2	52.5	52.5	52.5	52.4	56.2	56.1	55.9	<40	53.7	55.2	55.0	53.7	54.5	<40	<40	<40	<40
1					56.1	56.1	55.8	<40	53.6	55.2	55.0	53.7					
Max	52.5	52.5	52.5	52.4	56.2	56.2	55.9	<40	53.7	55.3	55.1	53.8	54.5	<40	<40	<40	<40
Min	52.3	52.3	52.3	52.2	55.7	55.7	55.5	<40	53.3	54.9	54.8	53.5	54.3	<40	<40	<40	<40

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R306a	R306b	R306c	R306d	R306e	R306f	R307a	R307b	R308a	R308b	R309a	R309b	R310a	R310b	R401a	R401b	R402a
13																	
12	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40			
11	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	52.8	55.0
10	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.0	55.2
9	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.2	55.3
8	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.3	55.5
7	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.5	55.6
6	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.7
5	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.8
4	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.8
3	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.8
2	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.8
1							<40	<40	<40	<40	<40	<40			<40	53.5	55.7
Max	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	53.6	55.8
Min	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	52.8	55.0

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R402b	R403a	R403b	R404a	R404b	R405a	R405b	R406a	R406b	R407a	R407b	R408a	R408b	R409a	R409b	R409c	R409d
13																	
12																	
11	54.9	55.3	56.1	56.0	55.7	<40	<40	<40	<40	<40	<40	<40	<40	44.2	55.1	55.2	55.4
10	55.0	55.4	56.3	56.2	55.8	<40	<40	<40	<40	<40	<40	<40	<40	44.1	55.2	55.3	55.5
9	55.2	55.5	56.4	56.3	55.9	<40	<40	<40	<40	<40	<40	<40	<40	44.1	55.4	55.5	55.7
8	55.3	55.7	56.5	56.4	56.0	<40	<40	<40	<40	<40	<40	<40	<40	44.1	55.5	55.6	55.9
7	55.4	55.8	56.6	56.5	56.1	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.6	55.8	56.0
6	55.5	55.8	56.7	56.5	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.7	55.9	56.1
5	55.6	55.9	56.7	56.5	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.8	55.9	56.2
4	55.6	55.9	56.7	56.6	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.9	56.0	56.3
3	55.6	55.9	56.7	56.6	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.9	56.0	56.3
2	55.6	55.9	56.7	56.6	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.8	55.9	56.3
1	55.5	55.8	56.6	56.5	56.1			<40	<40	<40	<40	<40	<40	44.0	55.7	55.9	56.2
Max	55.6	55.9	56.7	56.6	56.2	<40	<40	<40	<40	<40	<40	<40	<40	44.2	55.9	56.0	56.3
Min	54.9	55.3	56.1	56.0	55.7	<40	<40	<40	<40	<40	<40	<40	<40	44.0	55.1	55.2	55.4

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R409e	R409f	R410a	R410b	R410c	R410d	R410e	R410f	R410g
13									
12									
11	55.7	56.0	57.1	58.4	59.0	59.5	59.8	58.5	50.4
10	55.9	56.2	57.3	58.6	59.2	59.7	59.9	58.7	50.5
9	56.1	56.4	57.5	58.8	59.3	59.9	60.1	58.9	50.5
8	56.2	56.6	57.6	59.0	59.5	60.1	60.3	59.0	50.5
7	56.4	56.7	57.8	59.1	59.7	60.2	60.4	59.1	50.5
6	56.5	56.8	57.9	59.3	59.9	60.4	60.6	59.2	50.5
5	56.6	56.9	58.0	59.5	60.0	60.6	60.7	59.3	50.5
4	56.7	57.1	58.2	59.6	60.2	60.7	60.8	59.3	50.5
3	56.7	57.1	58.2	59.7	60.2	60.8	60.9	59.3	50.5
2	56.7	57.1	58.2	59.6	60.2	60.8	60.8	59.3	50.5
1	56.6	56.9							
Max	56.7	57.1	58.2	59.7	60.2	60.8	60.9	59.3	50.5
Min	55.7	56.0	57.1	58.4	59.0	59.5	59.8	58.5	50.4

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R101max	R102max	R103max	R104max	R105max	R106max	R107max	R108max	R109max	R110max	R201max	R202max	R203max	R204max	R205max	R206max	R207max	R208max
13	50.6	50.4	49.9	49.8	46.8	<40	<40	<40	<40	<40	44.7	49.0	50.9	50.9	<40	<40	<40	<40
12	50.6	50.4	49.9	49.8	46.8	<40	<40	<40	<40	<40	44.7	49.1	51.0	51.0	<40	<40	<40	<40
11	50.6	50.4	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.8	49.1	51.0	51.0	<40	<40	<40	<40
10	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.8	49.1	51.0	51.0	<40	<40	<40	<40
9	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.8	49.1	51.0	51.0	<40	<40	<40	<40
8	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
7	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
6	50.7	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
5	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
4	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
3	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
2	50.6	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
1	50.6	50.4	49.9	49.8							44.8	49.1	51.0	51.0		<40	<40	<40
Max	50.7	50.5	49.9	49.8	46.9	<40	<40	<40	<40	<40	44.9	49.2	51.0	51.0	<40	<40	<40	<40
Min	50.6	50.4	49.9	49.8	46.8	<40	<40	<40	<40	<40	44.7	49.0	50.9	50.9	<40	<40	<40	<40

Total Flats	500
Exceedance	0
Compliance Rate	100.0%

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Floor	R209max	R210max	R211max	R212max	R301max	R302max	R303max	R304max	R305max	R306max	R307max	R308max	R309max	R310max	R401max	R402max	R403max	R404max
13	<40	<40	<40	52.3														
12	<40	<40	<40	52.4	55.7	55.5	54.9	54.8	54.3	<40	<40	<40	<40	<40				
11	<40	<40	<40	52.4	55.8	55.6	55.0	54.8	54.3	<40	<40	<40	<40	<40	52.8	55.0	56.1	56.0
10	<40	<40	<40	52.4	55.9	55.7	55.1	54.9	54.4	<40	<40	<40	<40	<40	53.0	55.2	56.3	56.2
9	<40	<40	<40	52.5	56.0	55.7	55.1	54.9	54.4	<40	<40	<40	<40	<40	53.2	55.3	56.4	56.3
8	<40	<40	<40	52.5	56.1	55.8	55.2	55.0	54.4	<40	<40	<40	<40	<40	53.3	55.5	56.5	56.4
7	<40	<40	<40	52.5	56.1	55.9	55.2	55.0	54.5	<40	<40	<40	<40	<40	53.5	55.6	56.6	56.5
6	<40	<40	<40	52.5	56.2	55.9	55.2	55.0	54.5	<40	<40	<40	<40	<40	53.6	55.7	56.7	56.5
5	<40	<40	<40	52.5	56.2	55.9	55.2	55.1	54.5	<40	<40	<40	<40	<40	53.6	55.8	56.7	56.5
4	<40	<40	<40	52.5	56.2	55.9	55.3	55.1	54.5	<40	<40	<40	<40	<40	53.6	55.8	56.7	56.6
3	<40	<40	<40	52.5	56.2	55.9	55.2	55.1	54.5	<40	<40	<40	<40	<40	53.6	55.8	56.7	56.6
2	<40	<40	<40	52.5	56.2	55.9	55.2	55.0	54.5	<40	<40	<40	<40	<40	53.6	55.8	56.7	56.6
1					56.1	55.8	55.2	55.0			<40	<40	<40		53.5	55.7	56.6	56.5
Max	<40	<40	<40	52.5	56.2	55.9	55.3	55.1	54.5	<40	<40	<40	<40	<40	53.6	55.8	56.7	56.6
Min	<40	<40	<40	52.3	55.7	55.5	54.9	54.8	54.3	<40	<40	<40	<40	<40	52.8	55.0	56.1	56.0

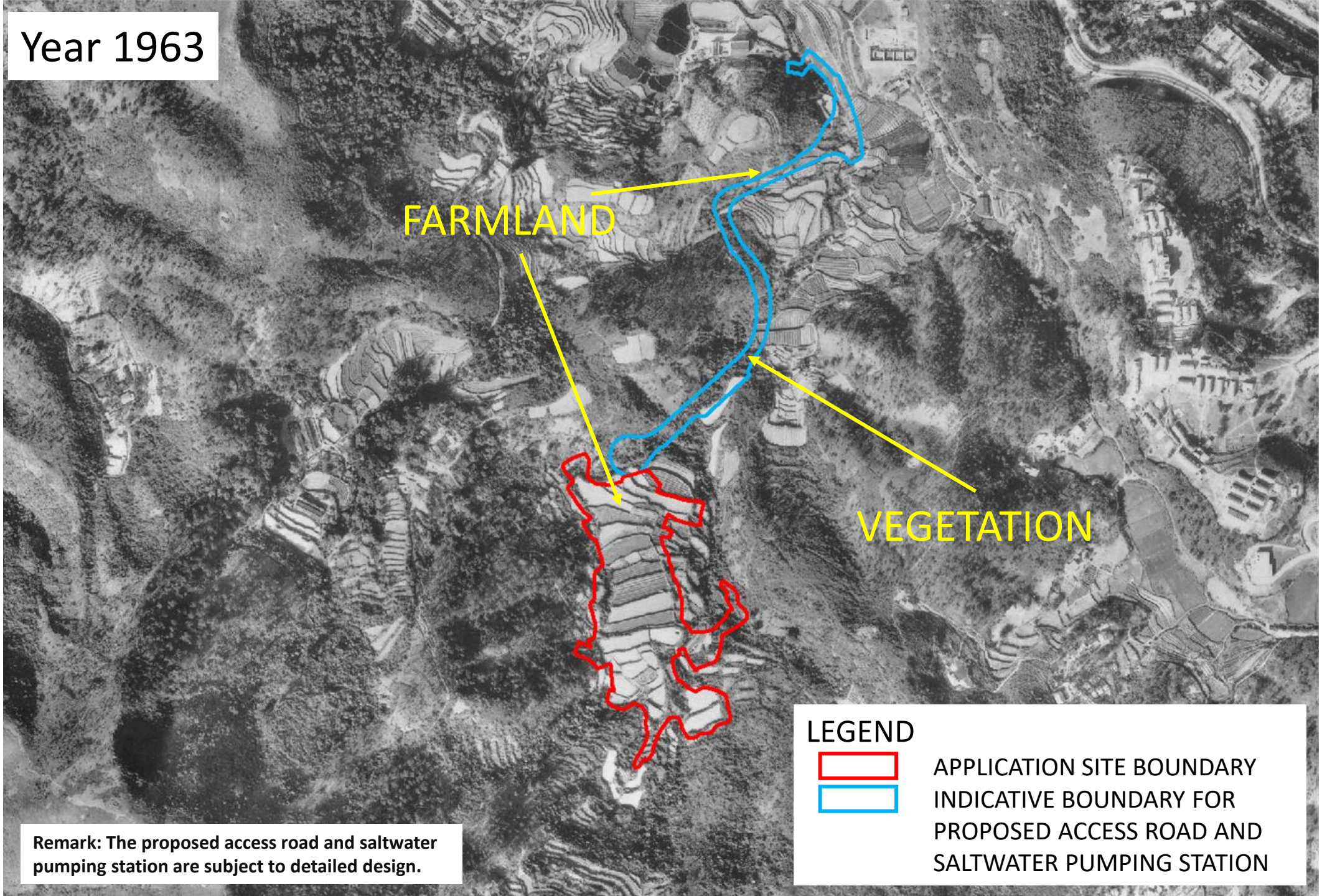
Noise sensitive receivers with exceedance ($\geq$70.5 dB(A))

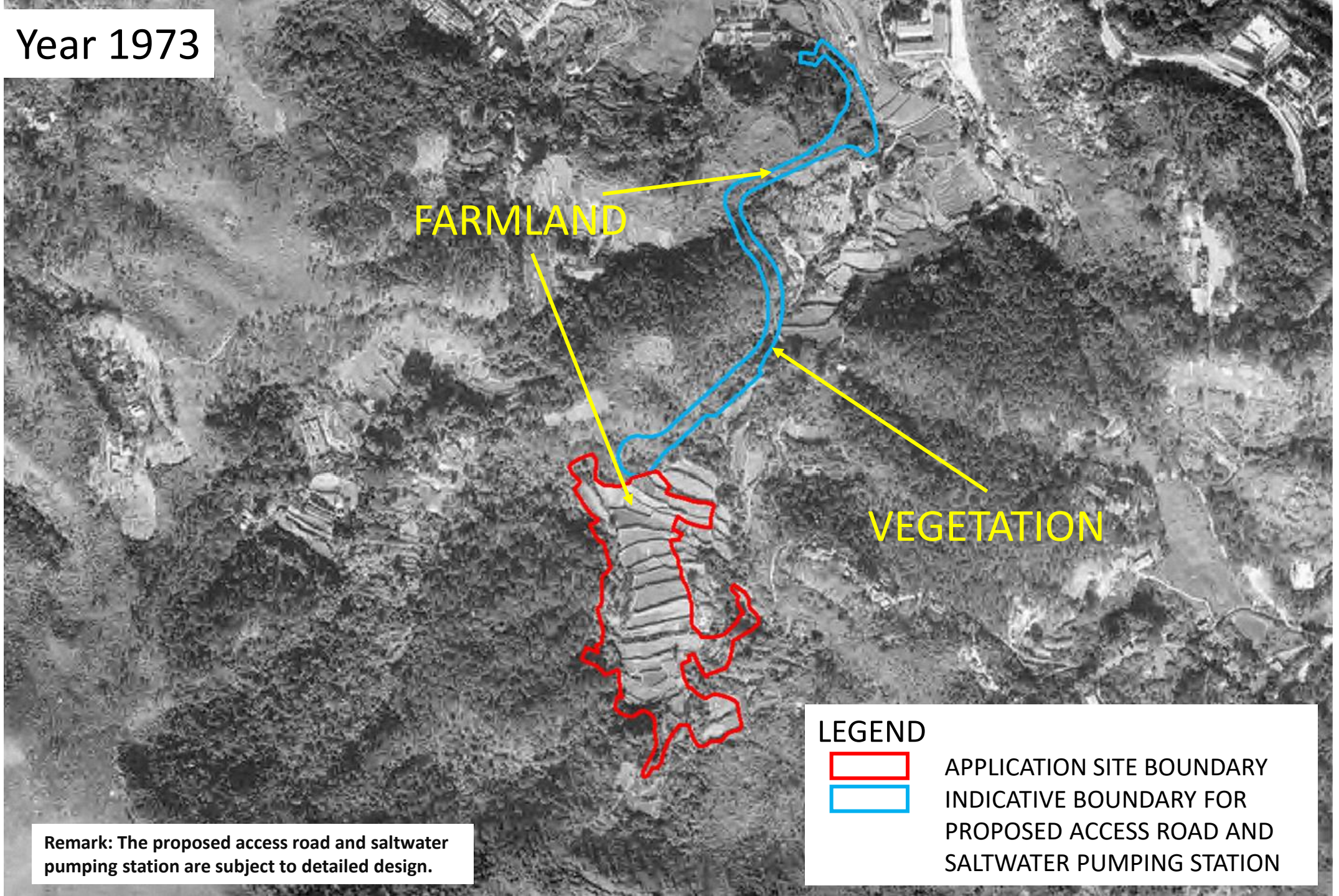
Floor	R405max	R406max	R407max	R408max	R409max	R410max
13						
12						
11	<40	<40	<40	<40	56.0	59.8
10	<40	<40	<40	<40	56.2	59.9
9	<40	<40	<40	<40	56.4	60.1
8	<40	<40	<40	<40	56.6	60.3
7	<40	<40	<40	<40	56.7	60.4
6	<40	<40	<40	<40	56.8	60.6
5	<40	<40	<40	<40	56.9	60.7
4	<40	<40	<40	<40	57.1	60.8
3	<40	<40	<40	<40	57.1	60.9
2	<40	<40	<40	<40	57.1	60.8
1		<40	<40	<40	56.9	
Max	<40	<40	<40	<40	57.1	60.9
Min	<40	<40	<40	<40	56.0	59.8

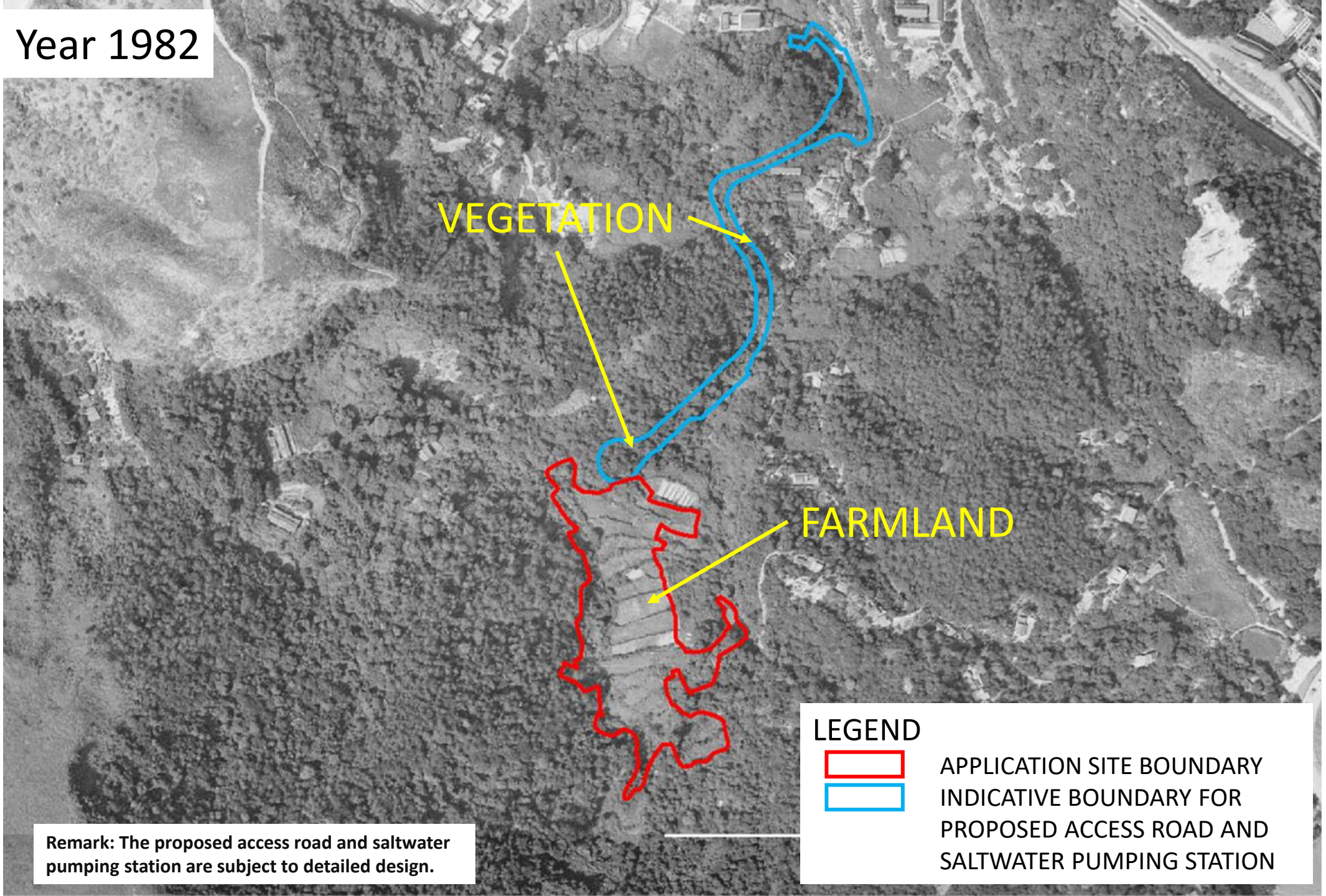
Noise sensitive receivers with exceedance (≥70.5 dB(A))

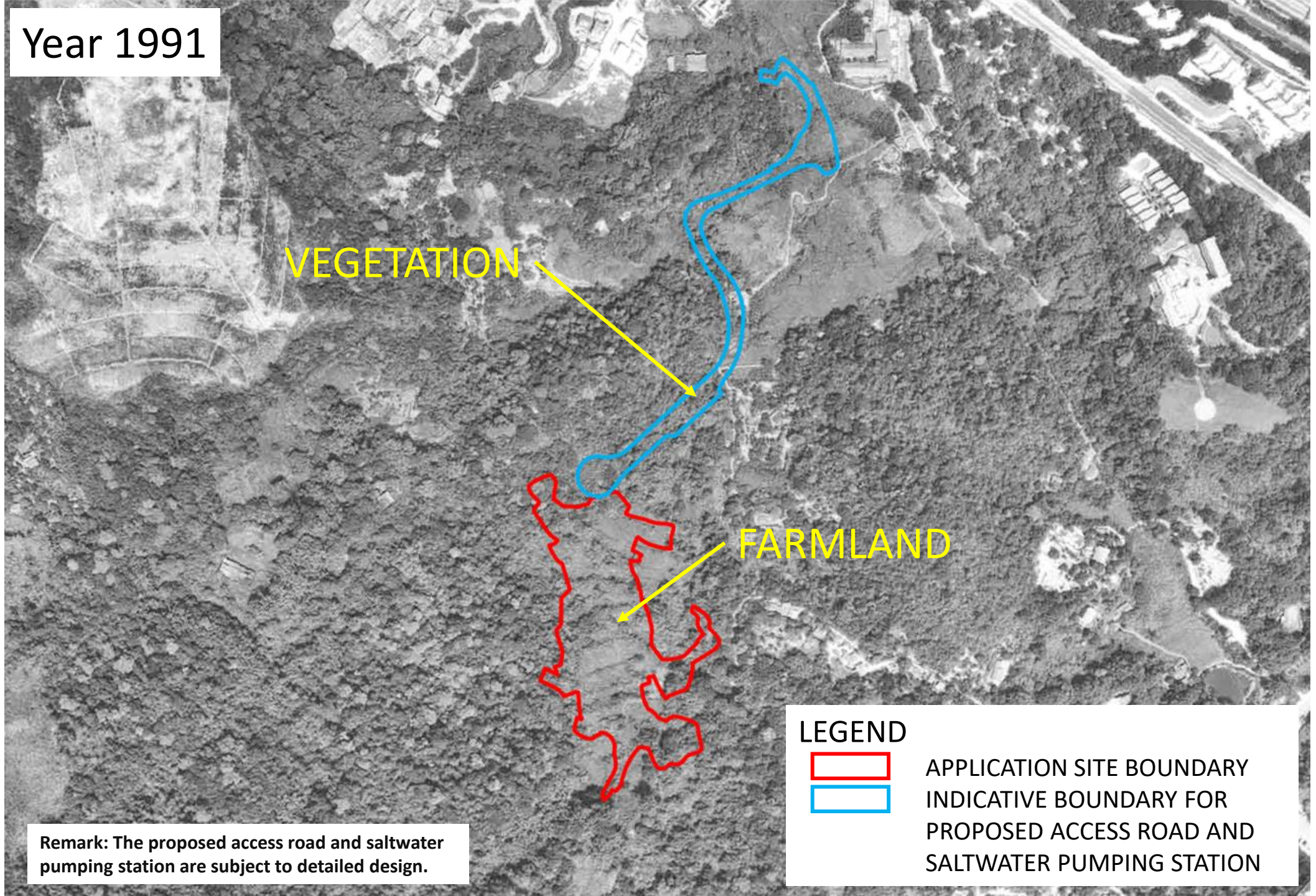
Appendix 7.1

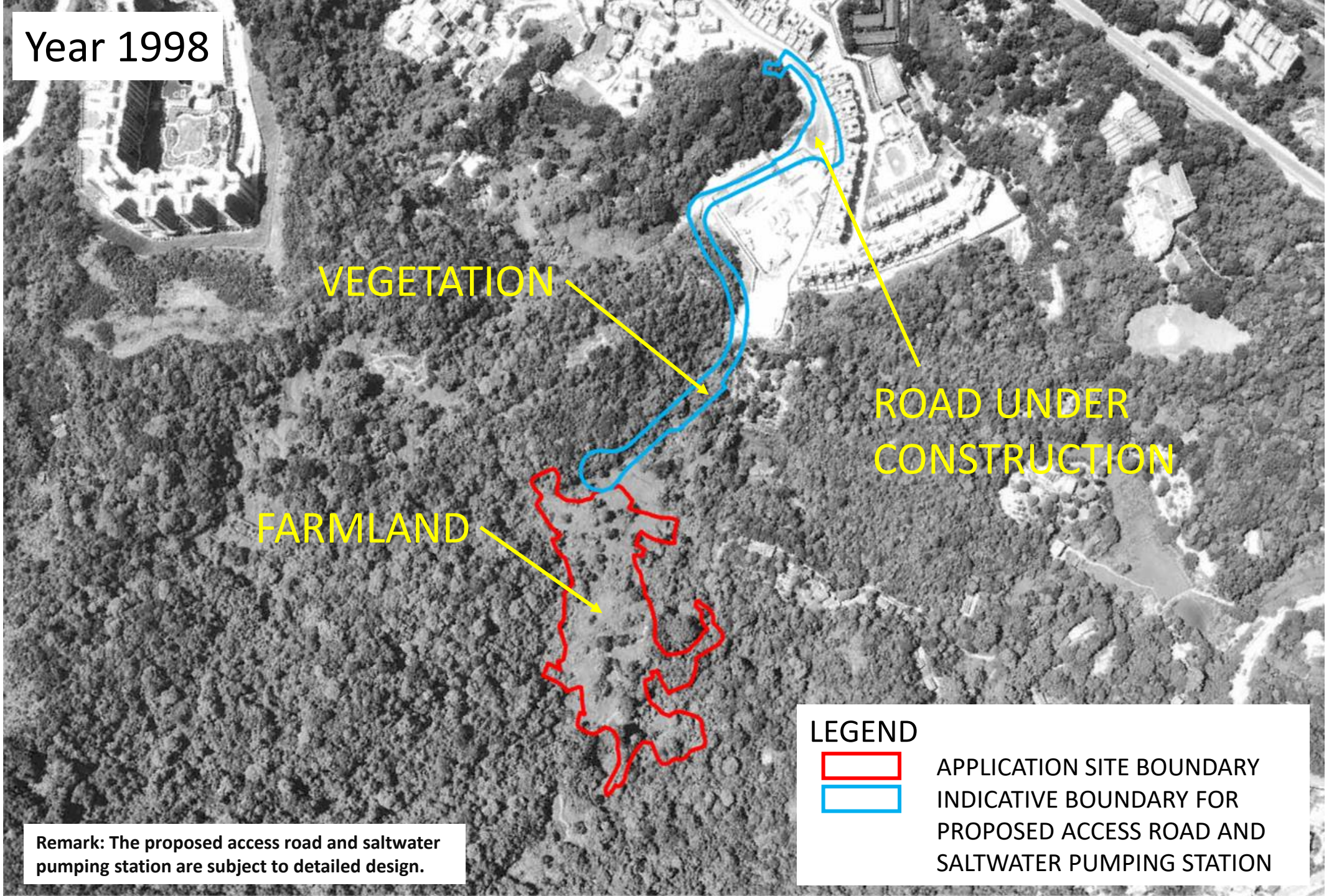
Historical Aerial Photos

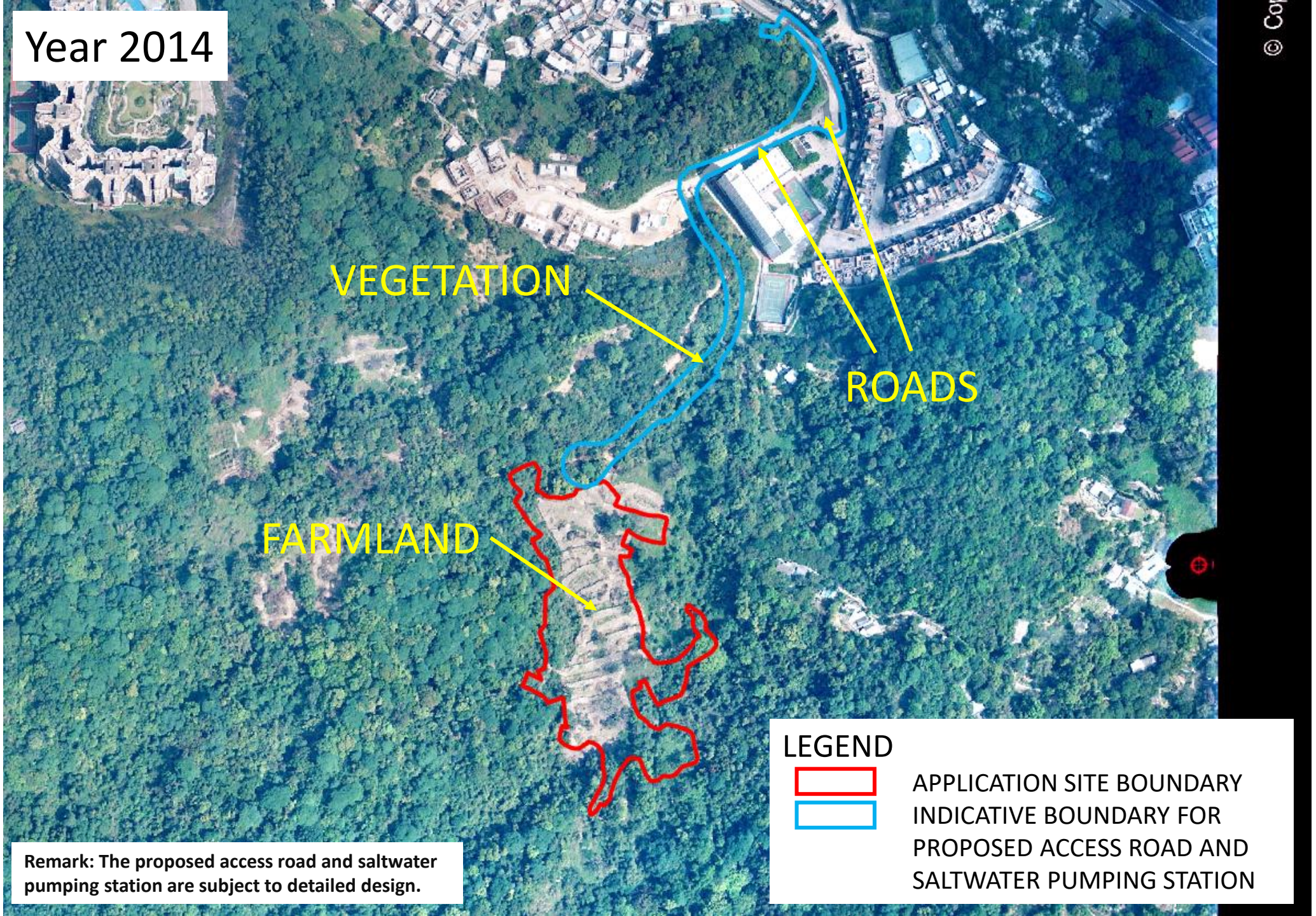

Year 1963
FARMLAND
VEGETATION
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.

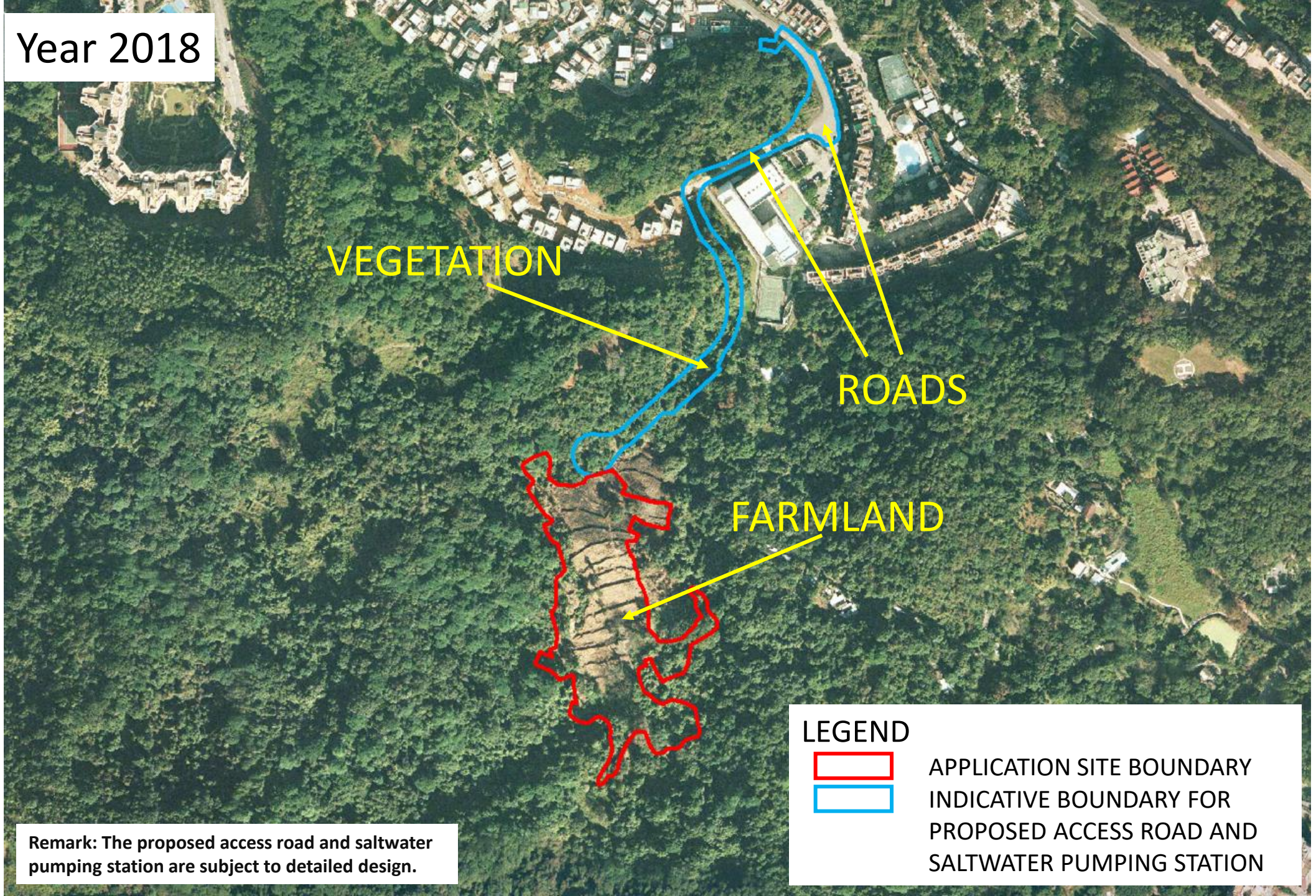

Year 1973
FARMLAND
VEGETATION
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.

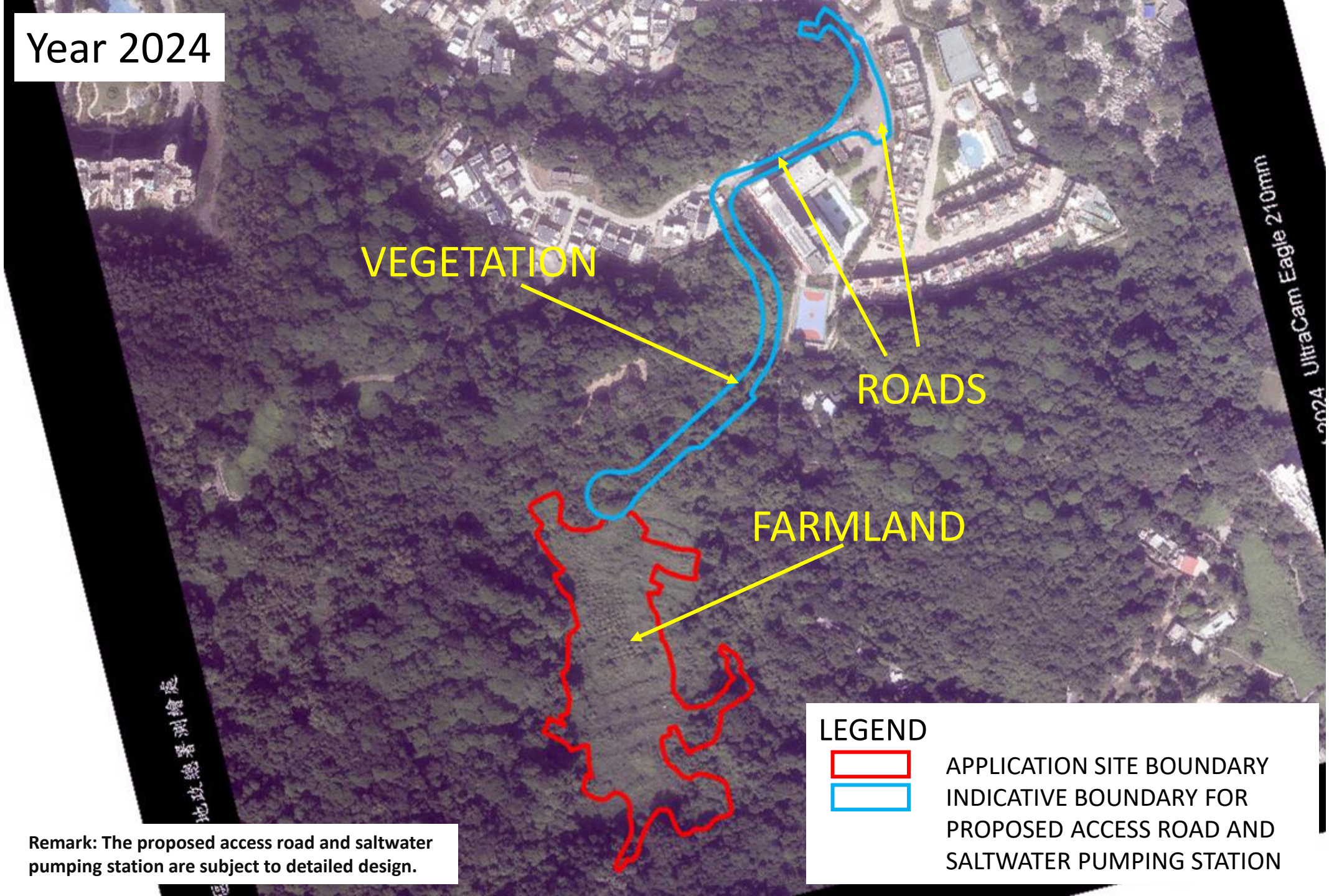

Year 1982
VEGETATION
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.


Year 1991
VEGETATION
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.


Year 1998
VEGETATION
ROAD UNDER CONSTRUCTION
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.


Year 2014
VEGETATION
ROADS
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.


Year 2018
VEGETATION
ROADS
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.


Year 2024
VEGETATION
ROADS
FARMLAND
LEGEND
APPLICATION SITE BOUNDARY
INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION
Remark: The proposed access road and saltwater pumping station are subject to detailed design.

Appendix 7.2

Photo Record of Site Survey

APPENDIX 7.2 - PHOTO RECORD OF SITE SURVEY

Photo No.	Description	Contamination Potential
1	Public Road	Unlikely
2	Vegetation	Unlikely
3	Vegetation	Unlikely

PHOTO 1

PHOTO 2

PHOTO 3

YUNG YI ROAD

PHOTO 1

PHOTO 2

PHOTO 3

CHATEAU ROYALE

N

0 20 40 60 80 100

METRES

REMARK: THE PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION ARE SUBJECT TO DETAILED DESIGN.

LEGEND

APPLICATION SITE BOUNDARY

INDICATIVE BOUNDARY FOR PROPOSED ACCESS ROAD AND SALTWATER PUMPING STATION

VIEW ANGLE

Appendix 7.3

Site Walkover Checklist

Site Walkover Checklist

1) GENERAL SITE DETAILS	
Site Owner/Client	Great China Limited
Property Address	Wong Yi Au, Tai Po
Person Conducting the Questionnaire (name & position)	Name: Mr. Angus Liu; Position: Assistant Environmental Consultant
Authorised Owner/ Client Representative (if applicable) (name, position & telephone)	N/A

2) ACTIVITIES	
Briefly describe activities carried out on site, including types of products/chemicals/materials handled. **Obtain a flow schematic if possible.**	
Number of employees:	N/A
- Full-time:	N/A
- Part-time:	N/A
- Temporary/Seasonal:	N/A
Maximum no. of people on site at any time:	N/A
Typical hours of operation:	N/A
Number of shifts:	N/A
Days per week:	N/A
Weeks per year:	N/A
Scheduled plant shut-down:	N/A
Detail the main sources of energy at the site:	
Gas (Yes/No)	No
Electricity (Yes/No)	Yes
Coal (Yes/No)	No
Oil (Yes/No)	No
Other (Yes/No)	No

3) SITE DESCRIPTION	
This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.	
What is the total site area:	About 14,879 m^2
What area of the site is covered by buildings (%):	<10%
Please list all current and previous owners/occupiers if possible.	Great China Limited
Is a site plan available? (Yes/No) If yes, please attach.	No
Are there any other parties on site as tenants or sub-tenants? (Yes/No) If yes, identify those parties.	No
Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.	
North:	Village houses and vegetation
South:	Mainly vegetation
East:	Ling Liang Church MH Lau Secondary School, Chateau Royale and and vegetation
West:	Mainly vegetation and a few temporary structures
Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).	By a large body of vegetation
State the size and location of the nearest residential communities.	Village houses surrounding the site with the shortest distance of about 3m
Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands, or sites of special scientific interest?	No

Site Walkover Checklist

4) QUESTIONNAIRE WITH EXISTING/ PREVIOUS SITE OWNER OR OCCUPIER		
	Yes/No	**Notes**
1. What are the main activities/operations at the above address?	-	Vegetation and public roads
2. How long have you been occupying the site?	-	N/A
3. Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy.)	No	N/A
4. Prior to your occupancy, who occupied the site?	-	The site is mainly occupied by vegetation, and roads are owned by the Government
5. What were the main activities/operations during their occupancy?	-	No activities on vegetation, roads used by pedestrians and vehicles
6. Have there been any major changes in operations carried out at the site in the last 10 years?	No	N/A
7. Have any polluting activities been carried out in the vicinity of the site in the past?	No	N/A
8. To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	No	N/A
9. Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	No	N/A
10. Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	No	N/A
11. Are any chemicals used in your daily operations? (If yes, please provide details.)	No	N/A
- Where do you store these chemicals?	-	N/A
12. Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	N/A
13. Has the facility produced a separate hazardous substance inventory?	No	N/A
14. Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	No
15. How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bays, silos, cisterns, vaults and cylinders)?	-	N/A

4) QUESTIONNAIRE WITH EXISTING/ PREVIOUS SITE OWNER OR OCCUPIER (CONTINUED)		
	Yes/No	**Notes**
16. Do you have any underground storage tanks? (If yes, please provide details.)	No	N/A
- How many underground storage tanks do you have on site?	-	N/A
- What are the tanks constructed of?	-	N/A
- What are the contents of these tanks?	-	N/A
- Are the pipelines above or below ground?	-	N/A
- If the pipelines are below ground, has any leak and integrity testing been performed?	-	N/A
- Have there been any spills associated with these tanks?	-	N/A
17. Are there any disused underground storage tanks?	No	N/A
18. Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	No chemicals are stored within the site.
19. How are the wastes disposed of?	No	No chemicals are stored within the site.
20. Have you ever received any notices of violation of environmental regulations or received public complains? (If yes, please provide details.)	No	N/A
21. Have any spills occurred on site? (If yes, please provide details)	No	N/A
- When did the spill occur?	-	N/A
- What were the substances spilled?	-	N/A
- What was the quantity of material spilled?	-	N/A
- Did you notify the relevant departments of the spill?	-	N/A
- What were the actions taken to clean up the spill?	-	N/A
- What were the areas affected?	-	N/A
22. Do you have any records of major renovation of your site or re-arrangement of underground utilities, pipe work/underground tanks? (If yes, please provide details.)	No	N/A
23. Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	N/A
24. Are there any known contaminations on site? (If yes, please provide details.)	No	N/A
25. Has the site ever been remediated? (If yes, please provide details.)	No	N/A

Site Walkover Checklist

5) OBSERVATIONS		
	Yes/No	**Notes**
1. Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	No	No chemicals are stored within the site.
2. What are the conditions of the bund walls and floors?	No	N/A
3. Are any surface water drains located near to drum storage and unloading areas?	No	N/A
4. Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	N/A
5. Is there a storage site for the wastes?	No	N/A
6. Is there an on-site landfill?	No	N/A
7. Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	N/A
8. Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	No	N/A
9. Are there any potential off-site sources of contamination?	No	N/A
10. Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	N/A
11. Are there any sumps, effluent pits, interceptors or lagoons on site?	No	N/A
12. Any noticeable odours during site walkover?	No	N/A
13. Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives, and polyurethane foam?	No	N/A

Appendix 7.4

Relevant Correspondence with FSD

Our ref 302190/00/WSTY/MYNL/TYEC//05298

ARUP

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
t +852 [redacted]
f +852 [redacted]
d +852 [redacted]
[redacted]
www.arup.com

By Fax (2739 5879), Post and Email (aio_fsd@hkfsd.gov.hk)

Access to Information Officer
Management Group
9/F, Fire Services Headquarters Building
1 Hong Chong Road
Tsim Sha Tsui East, Kowloon

30 April 2024

Dear Sir/Madam,

Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories

Request for Information of Dangerous Goods and Incident Records

We have been appointed by our Client as the Consultant to prepare an application under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories

As part of the Environmental Assessment Study (EAS), we are required to review the historical and present land use around the area, and evaluate any potential land contamination issues within the Site Boundary as shown in **Attachment A**. We would like to request the following information for our land contamination assessment:

- The records of Dangerous Goods License issued within the Site Boundary;
- Any past and present information related to the use and/or storage of dangerous goods within the Site Boundary; and
- Past and present incident records within the Site Boundary.

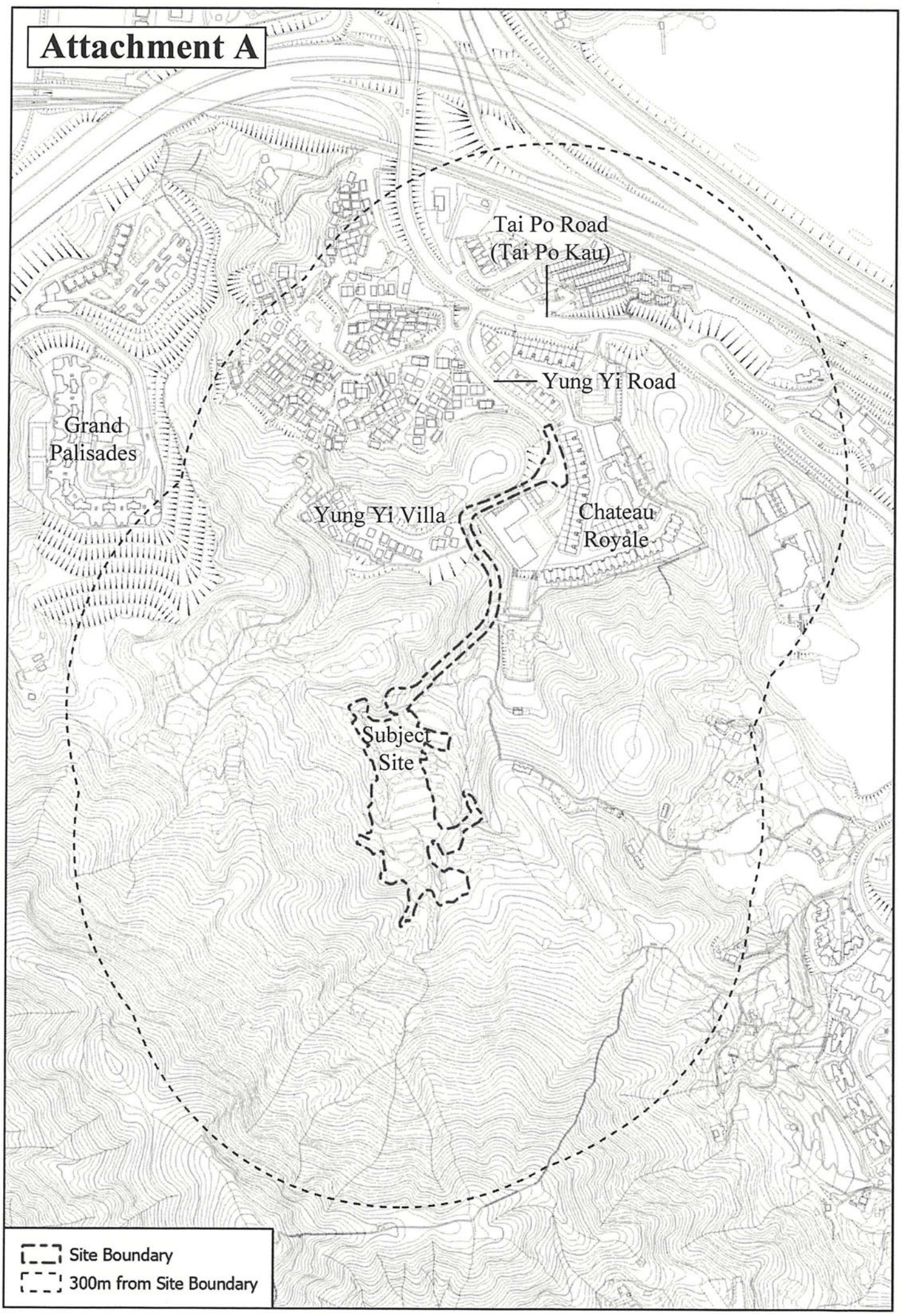
We would be grateful if you could provide the requested information at your earliest convenience and before **14 May 2024**.

If you require any further information, please do not hesitate to contact our [redacted] at [redacted].

Yours faithfully,

Theresa YEUNG
Director

Encl. **Attachment A** – Site Location Plan


Attachment A
Tai Po Road
(Tai Po Kau)
Yung Yi Road
Grand
Palisades
Yung Yi Villa
Chateau
Royale
Subject
Site
Site Boundary
300m from Site Boundary

Appendix 7.5

Relevant Correspondence with EPD

From: [redacted]
Sent: Friday, May 3, 2024 3:34 PM
To: [redacted]
Cc: [redacted]
Subject: Application for Amendment of Plan under Section 12 A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Won...

Dear Sir / Madam,

Application for Amendment of Plan under Section 12 A of the Town Planning Ordinance (Cap. 131)
for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure
at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, N.T.

Request for Information of Chemical Waste Producers Registration and Chemical Spillage Accident Records

I refer to your letter under ref.: 302190/00/WSTY/MYNL/TYEC/05297 dated 30 April 2024.

Per your request under para. 2 of the letter, please note nil return from this office please.

For enquiry, please contact our Ms. KC LEE at 2158 5723. Thank you.

Regards,
Fanny FAN / E(RN)11, RO(N), EPD
Tel.: 2158 5811

Our ref 302190/00/WSTY/MYNL/TYEC/05297

ARUP

By Fax (2650 6033) and Post

Regional Office (North)
Environmental Compliance Division
Environmental Protection Department
10/F, Sha Tin Government Offices
No.1 Sheung Wo Che Road
Sha Tin, New Territories

Attention: Ms. FAN Ying Shan, Fanny (Env Protection Offr(Regional N)11)

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
t +852 [redacted]
f +852 [redacted]
d +852 [redacted]
[redacted]
www.arup.com

30 April 2024

Dear Madam,

Application for Amendment of Plan under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories

Request for Information of Chemical Waste Producers Registration and Chemical Spillage Accident Records

We have been appointed by our Client as the Consultant to prepare an application under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Residential Development with Social Welfare Facility and Supporting Infrastructure at Various Lots in D.D. 32 and Adjoining Government Land, Wong Yi Au, Tai Po, New Territories.

As part of the Environmental Assessment Study (EAS), we are required to review the historical and present land use around the area, and evaluate any potential land contamination issues within the Site Boundary as shown in **Attachment A**. We would like to request the following information for our land contamination assessment:

- The records of Chemical Waste Producers Registration of the area within the Site Boundary; and
- Past and present chemical spillage / leakage records of the area within the Site Boundary.

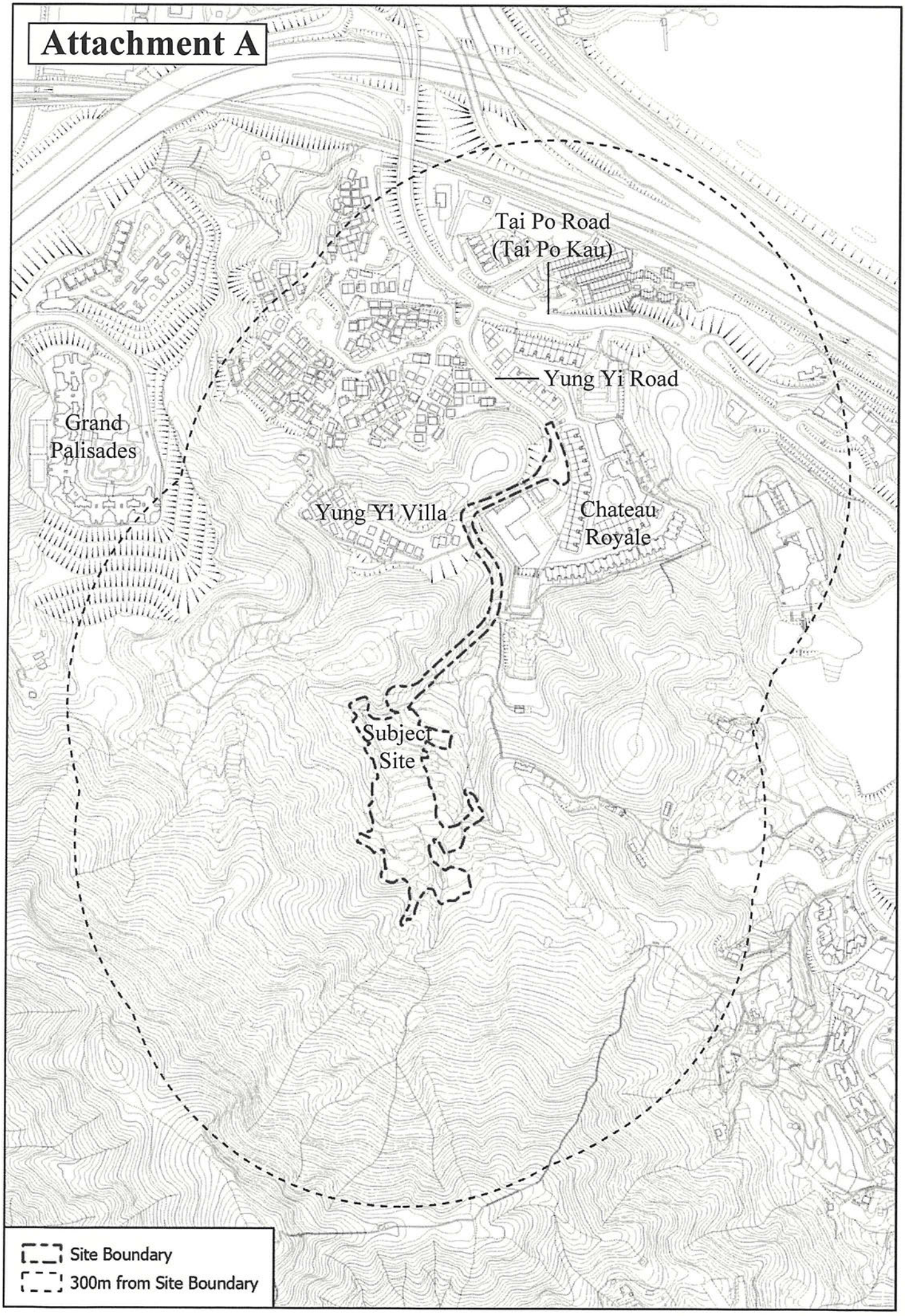
We would be grateful if you could provide the requested information at your earliest convenience and before **14 May 2024**.

If you require any further information, please do not hesitate to contact our [redacted] at [redacted].

Yours faithfully,

Theresa YEUNG
Director

Encl. **Attachment A** – Site Location Plan


Attachment A
Tai Po Road
(Tai Po Kau)
Yung Yi Road
Grand
Palisades
Yung Yi Villa
Chateau
Royale
Subject
Site
Site Boundary
300m from Site Boundary