

**APPENDIX E  
PRELIMINARY ENVIRONMENTAL ASSESSMENT  
REPORT**

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**Agreement No. CE 92/2017 (CE)**

**Site Formation and Infrastructure Works  
for Public Housing Development near Tan Kwai Tsuen,  
Yuen Long – Investigation, Design and Construction**

**DRAFT PRELIMINARY  
ENVIRONMENTAL  
ASSESSMENT REPORT**

199086/BIN/092/Issue 2  
November 2022



土木工程拓展署  
Civil Engineering and  
Development Department





**Agreement No. CE 92/2017 (CE)**  
**Site Formation and Infrastructure**  
**Works for Public Housing Development**  
**near Tan Kwai Tuen, Yuen Long –**  
**Investigation, Design and Construction**





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**Draft Preliminary Environmental**  
**Assessment Report**

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*199086/BIN/092/Issue 2*

November 2022

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## **1 INTRODUCTION**

### **1.1 Background**

- 1.1.1 As a prevailing policy to increase land supply to meet the housing demand in the short, medium and long terms, the Government has identified sites in various districts with the potential to be developed for residential use. Amongst others, a site near Tan Kwai Tsuen (the Application Site), Yuen Long has been identified for public housing development. The location of the Application Site is indicated in **Figure 1.1**.
- 1.1.2 Binnies Hong Kong Limited was commissioned by the Civil Engineering and Development Department (CEDD) under Agreement No. CE 92/2017 (CE) Site Formation and Infrastructural Works for the Development near Tan Kwai Tsuen, Yuen Long – Investigation, Design and Construction for site formation and provision of essential infrastructures to support the housing development at the Application Site.
- 1.1.3 In accordance with the “Tong Yan San Tsuen Outline Zoning Plan No. S/YL-TYST/14”, the current land use zoning of the Application Site is “Residential (Group A)2” (“R(A)2”). Under the 'Remarks' column in the Notes for R(A) use, for R(A)2, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 6.5, and maximum building height of 205mPD, or the plot ratio and height of the existing building, whichever is the greater.
- 1.1.4 In view of the acute shortage of housing, the domestic plot ratio of the Application Site is proposed to be intensified to 6.5 with an aim to increase flat production. The Application Site will provide a total of 7,420 public housing units with planned population intake from 2030 by phases. An “Application for Permission under Section 16 of the Town Planning Ordinance” is being prepared for the Proposed Development in order to obtain planning permission from the Town Planning Board for minor relaxation of the following restrictions:
- Maximum plot ratios:
    - Phase 1: from 6.5 to 7.0 (i.e. domestic PR of 6.5 and non-domestic PR of 0.5)
    - Phase 2: from 6.5 to 7.2 (i.e. domestic PR of 6.5 and non-domestic PR of 0.7)
    - Phase 3: from 6.5 to 7.3 (i.e. domestic PR of 6.5 and non-domestic PR of 0.8)
  - Maximum building heights:
    - Phase 1: from 205 mPD to 240 mPD
    - Phases 2 and 3: from 205 mPD to 235 mPD

### **1.2 Purpose of this Report**

- 1.2.1 The purpose of this Preliminary Environmental Assessment (PEA) is to evaluate the potential environmental impacts associated with the proposed housing development (the Proposed Development) due to the proposed increase in maximum plot ratio and building height with respect to guidance for environmental considerations provided in Chapter 9 – Environment of the Hong Kong Planning Standards & Guidelines (HKPSG) to support the Section 16 planning application.

### **1.3 Scoping of Environmental Issues**

- 1.3.1 The environmental implications associated with the proposed minor relaxation of OZP parameters and update of the preliminary layout plan for the Proposed Development have

been reviewed. The main environmental concerns are summarised below:

- Road traffic noise from the existing road network and proposed access roads to the Proposed Development;
- Fixed plant noise impact from the existing and planned noise sources to the Proposed Development;
- Fixed plant noise impact from the proposed public transportation interchange (PTI);
- Vehicular emissions from the existing roads to the proposed air sensitive receivers during operation phase;
- Odour from North West New Territories Refuse Transfer Station (NWNT RTS) to the Proposed Development;
- Odour from the proposed refuse collect points (RCPs) and wet market to the Proposed Development;
- Industrial emissions from active chimneys to the Proposed Development; and
- Construction dust impacts from the construction activities of the later phases to the earlier phases with of the Proposed Development with population intake.

1.3.2 Potential environmental impacts arising from the construction phase of the Proposed Development are anticipated to be of similar scale as addressed in the PER Report considering that the construction methodology, programme and scale of site formation and superstructure works would be similar due to the minor changes in the plot ratio and building height. Findings in the PER Report remains valid for the proposed minor relaxation of plot ratio and building height. The footprint of the Project is no larger than that assessed in the PER, the findings in the PER Report concerning land contamination implication therefore remains valid. As such, re-assessment for the environmental impacts arising during the construction phase and land contamination implication is deemed not necessary in this PEA report.

## **2 SITE LOCATION AND PRELIMINARY BUILDING LAYOUT**

### **2.1 Site Location and Description**

2.1.1 As shown in **Figure 1.1**, the Application Site is located on the south eastern side of Tan Kwai Tsuen and fronting Yuen Long Highway. Tan Kwai Tsuen South Fresh Water Service Reservoir and Tan Kwai Tsuen Salt Water Service Reservoir are located to the northeast of the Application Site. North West New Territories Refuse Transfer Station (NWNT RTS) is located ~200 m west to the Application Site.

2.1.2 The Application Site is currently occupied by village houses and vegetations. Based on site observation, the noise climate in vicinity of the Application Site is dominated by road traffic noise from the nearby Yuen Long Highway.

### **2.2 Preliminary Building Layout**

2.2.1 Based on the preliminary scheme layout, the Proposed Development are divided into three phases located on different formation platforms. Phase 1 on the upper platform consists of two cross-shape 50-storey domestic blocks (i.e. Blocks A and B). There are 43 domestic storeys, one refuge floor, a ground floor and a 5-storey podium for both blocks.

2.2.2 Phase 2 on the middle platform consists of two cross-shape 51-storey domestic blocks (i.e. Blocks 4 and 5). There are 44 domestic storeys, a refuge floor, a ground floor and a 5-storey podium for both blocks.

2.2.3 Phase 3 on the lower platform consists of one cross-shape and two T-shape 60-storey domestic blocks (i.e. Blocks 1 to 3). There are 50 domestic storeys, two refuge floors, a ground floor and a 7-storey podium for all the three blocks.

2.2.4 For all the three phases, the podium consists of commercial, retail, carpark, and / or social welfare facilities underneath, subject to the detailed design. A covered public transportation interchange (PTI) is proposed within the podium of Phase 3, with the ingress and egress connecting to the proposed access road to the north of the Application Site. The multi-storey podium design increases the separation between the nearby carriageways (the proposed access road and Yuen Long Highway) and the residential premises. The podium itself can at the same time screen off traffic noise for residential units which are in close proximity to the roads. For all the domestic blocks, setback distances from Yuen Long Highway and the proposed access road are optimized to minimise the road traffic noise impact and the air quality impact as far as practicable.

2.2.5 The master layout plan of the Application Site is presented in **Appendix 2.1**.

2.2.6 The tentative population intake of the Proposed Development will be from 2030/31 by phases. Although the Proposed Development will have phased population intake, the gap between the intake year will only be about 1 year apart (year 2030/31 for Phase 1&2 and year 2031/32 for Phase 3). Hence, by the time the Phase 1&2 of the Proposed Development is occupied, the bulk of the construction work of the remaining phases would have completed and most of the remaining works are anticipated to be indoor fitting works. Hence, no significant potential environmental impact due to the phased population intake is anticipated.

### **2.3 Interfacing Projects**

2.3.1 Notable potential interfacing projects in the vicinity of the Application Site include:



- CE 2/2011 (CE) - Hung Shui Kiu (HSK) New Development Area (NDA) Planning and Engineering Study - Investigation
- CE 35/2012 (CE) – Planning and Engineering Study for Housing Sites in Yuen Long South - Investigation
- CE 19/2015 (TP) - Preliminary Land Use Study for Lam Tei Quarry and the Adjoining Areas – Feasibility Study
- Development at Lam Tei North East
- CE 39/2018 - Strategic Cavern Areas to Accommodate Existing and Proposed Service Reservoirs in Lam Tei and Adjoining Area
- A/YL-TYST/1146 - Proposed Service Reservoirs in “Green Belt” Zone

2.3.2 The location of the above concurrent studies/projects are depicted in **Appendix 2.2**. For all the interfacing projects, close liaisons with relevant project proponents will be maintained to avoid conducting noisy and dusty construction activities (e.g. excavation) concurrently in close proximity to each other. Planning and review of construction schedule, as well as plant inventories and construction methodologies will be conducted with consideration of minimizing the cumulative environmental impacts. A summary of the concurrent studies/projects is provided as follows:

***Hung Shui Kiu New Development Area Planning and Engineering Study - Investigation***

2.3.3 According to the approved Environmental Impact Assessment Report (EIA report) of the Hung Shui Kiu New Development Area (HSKNDA) (Register No.: AEIAR-203/2016), the construction work commenced in year 2019 and would be completed in year 2038 tentatively. However, it is located more than 500m from the Application Site. Therefore, no significant cumulative impact is anticipated from the captioned project.

***Planning and Engineering Study for Housing Sites in Yuen Long South – Investigation***

2.3.4 According to the approved EIA Report of the Housing Sites in Yuen Long South (YLS) (Register No.: AEIAR-215/2017), part of the YLS development near the Tin Shui Wai West Interchange would overlap with this Project from year 2023 to 2026. According to Section 5.3.1 of YLS EIA Report, some works during Stage 1 (2020 – 2029) and Stage 2 (2022 – 2033) of the YLS construction activities will be conducted concurrently with the Project. However, it is located more than 500m from the Application Site. Therefore, no significant cumulative impact is anticipated from the captioned project.

***Preliminary Land Use Study for Lam Tei Quarry and the Adjoining Areas – Feasibility Study***

2.3.5 According to the Tuen Mun District Council document (2015\_020), the proposed study sites and proposed cavern areas adjoining the existing Lam Tei Quarry under the subject study, with an area of around 66 ha and 206 ha respectively, are predominantly located in Tuen Mun. There will be a proposed cavern near the eastern and southern sides of the Site. A new dual-2 through road with cycle track is also proposed alongside Yuen Long Highway connecting to TSWWI, near the Site. This study is still under feasibility study, and its design and construction programme are very uncertain. Also, the Lam Tei quarrying contract will be terminated in 2023 and the quarry is located more than 500m from the Application Site. Therefore, there would be no overlap of construction works between the subject project and our site formation and infrastructure works, and the potential cumulative environmental impacts such as construction noise and dust are not expected.

***Development at Lam Tei North East***

- 2.3.6 Based on the Project Profile for Development at Lam Tei North East (LTNE) (Project Profile No. PP-642/2022), public housing, special industries (including relocation of NWNT RTS and brownfield operations) and community facilities, etc. are proposed for the LTNE development. The development also involves associated infrastructure works, including the necessary slope works, road works, potential sewage treatment works (STW) in cavern, sewerage works, drainage works, waterworks, utility works, etc. for serving the proposed land uses. The details and programme for the construction and operation for LTNE development have not been formulated at this stage. According to the Project Profile, the project proponent of LTNE development is aware that the Proposed Development might be a concurrent project. The status and information of the Proposed Development will be reviewed and with cumulative impacts addressed as appropriate during the LTNE development EIA study. The Proposed Development shall also be identified as one of the environmental sensitive receivers for the study.

***Strategic Cavern Areas to Accommodate Existing and Proposed Service Reservoirs in Lam Tei and Adjoining Area***

- 2.3.7 Based on the latest available information, the tentative construction period of the captioned project is scheduled to be from 2027 to 2033. Other detailed information, e.g. the construction methodologies, location of the open workfronts and planned portal(s), is unavailable in the public domain at this stage. The Proposed Development shall be taken into account as a potential concurrent project with the cumulative impacts assessed in the future environmental submission of the captioned project. The Proposed Development shall also be identified as one of the environmental sensitive receivers for the study.

***Proposed Service Reservoirs in “Green Belt” Zone***

- 2.3.8 The proposed service reservoirs will tentatively be completed in 2030 (for freshwater service reservoir) and 2032 (for flushing water service reservoir). However, detailed programme of the captioned project are currently unavailable in the public domain. Nevertheless, as it is located more than 500m from the Proposed Development, no significant cumulative impact is anticipated from the captioned project.

### 3 ROAD TRAFFIC NOISE IMPACT

#### 3.1 Environmental Legislation, Policies, Standards and Criteria

3.1.1 The HKPSG provides guidance on the acceptable road traffic noise levels at noise sensitive uses which rely on the opened windows for ventilation. The relevant criteria are shown in **Table 3.1**.

**Table 3.1 Road Traffic Noise Planning Criteria**

Common Noise Sensitive Uses	Road Traffic Noise, L10 (1-hour), 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
Hospitals, clinics, convalescences and residential care homes for the elderly - diagnostic rooms - wards	55

Note: The above criteria apply to noise sensitive uses which rely on open window for ventilation and should be viewed as the maximum permissible noise levels assessed at 1 m from the external façades.

#### 3.2 Potential Road Traffic Noise Impacts

3.2.1 Road traffic noise impact would be generated by Yuen Long Highway and the proposed access roads on the planned noise sensitive receivers (NSRs) of the Development. Potential road traffic noise impacts from the roads to the planned NSRs of the Development have already been assessed in the PER report under *Agreement No. CE 92/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development near Tan Kwai Tsuen, Yuen Long – Investigation, Design and Construction*. The assessment results in the PER report has been extracted and presented in **Appendix 3.1** and summarized in **Table 3.2** for reference.

**Table 3.2 Summary of Traffic Noise Assessment Findings in PER**

NSR Description	Noise Impact, L10 1hr dB(A)	
	AM Peak	PM Peak
Block 1 - facing Yuen Long Highway	60 - 74	59 - 73
Block 1 - facing away from Yuen Long Highway	58 - 68	56 - 66
Block 2 - facing the access road	63 - 74	64 - 72
Block 2 - facing away from the access road	51 - 69	50 - 69
Block 3 - facing Yuen Long Highway	53 - 71	51 - 71
Block 3 - facing away from Yuen Long Highway	63 - 68	61 - 66
Block 4	51 - 69	50 - 68
Block 5	44 - 70	43 - 69
Block 6	40 - 61	38 - 59
Block 7	41 - 67	39 - 65
Welfare Uses under Podium and Welfare Block in Phase 2	59 - 76	58 - 75
Welfare Uses under Podium in Phase 3	59 - 76	58 - 75



- 3.2.2 Based on the preliminary development layout plan, noise exceedances of up to 4 dB(A) are anticipated at façades of Blocks 1 to 3 facing Yuen Long Highway, and the façade of Block 2 adjacent to the proposed access road. Noise levels at all façades of Blocks 4 to 7 comply with the noise criteria. Noise levels at all façades of the podiums of Phases 2 and 3 are anticipated to be higher than 55 dB(A). Subject to the uses and layout plans of the podiums, which are unavailable at this stage, mitigation measures would be required for the planned uses at the podiums. Based on the findings of the PER, the façades potentially prone to road traffic noise exceedance in the Proposed Development are indicated in **Figure 3.1**. For the additional storeys proposed under this Application, considering the relatively large distance from the ground level (at least 40 storeys), further increase in height would result in greater noise attenuation due to the increase in distance from the noise source (i.e. the roads). Therefore, the noise levels at the additional storeys higher up would be similar or less than those predicted at the top floors as presented in the PER report. It should be noted that the road traffic noise impacts will be further assessed in the Environmental Assessment Study (EAS) by Hong Kong Housing Authority (HKHA) based on the final design and layout of the Proposed Development as well as the latest traffic forecast with adequate mitigation measures to be recommended. The no. of storeys that require the proposed at-source mitigation measures in the PER report will be further reviewed in HKHA's EAS based on the final design of the Proposed Development in the detailed design stage.

### **3.3 Proposed Mitigation Measures**

- 3.3.1 At-source mitigation measures in the form of provision of low noise road surfacing (LNRS) material and roadside barrier or enclosure have been studied and considered as infeasible due to site constraints as detailed in the PER report under Agreement No. CE 92/2017 (CE). At-receiver mitigation measures at the Development are therefore proposed. For the housing blocks, the provision of acoustic windows with up to 3.7dB(A) noise attenuation is recommended for the affected planned NSRs. As the building block arrangement in the current preliminary layout plan is generally similar to that assessed in the PER report, it is expected that the magnitude of noise impact with the current layout would be broadly similar and the provision of acoustic windows would be practical to mitigate the noise exceedances.
- 3.3.2 Based on the predicted noise levels at the welfare uses under the podium in Phases 2 and 3, diagnostic rooms and wards of clinics, of convalescences and of residential care homes for the elderly which rely on opened windows for ventilation are not recommended to be located at façades facing the access roads, as exceedance of the noise criteria of 55 dB(A) is anticipated. For the façades directly facing Yuen Long Highway and the proposed access roads, exceedance of 70 dB(A) is anticipated. Fixed windows with central air ventilation for all noise sensitive uses are recommended for these facades. For façades facing the proposed access road located under the podium of Block 4 and Block 5, educational institutions including kindergartens, child care centres which rely on opened windows for ventilation are not recommended as exceedance of the noise criteria of 65 dB(A) is anticipated. Otherwise, fixed windows with central air ventilation shall be provided to these uses to mitigate the potential road traffic noise impact. The proposed mitigation measures are indicated in **Figure 3.2**. The building layout and design of the podiums shall be further massaged in the detailed design, e.g. adjust the orientation of the opening windows, consider building setback, etc., as a way to further explore other possible noise mitigation measures in order to avoid the need for provision of fixed windows with central air ventilation as far as possible.
- 3.3.3 HKHA has undertaken to conduct an EAS in the detailed design stage to review and assess the road traffic noise impact with respect to the HKPSG and suitable mitigation measures will be

proposed based on the final design of the Proposed Development. HKHA has acknowledged and committed to implementing at-receiver noise mitigation measures at the public housing blocks, subject to the findings in the EAS.

- 3.3.4 With the implementation of the proposed mitigation measures, no noise exceedance is anticipated at the Proposed Development due to the road traffic from the existing road network and the proposed access roads.

## **4 FIXED NOISE SOURCES IMPACT**

### **4.1 Potential Fixed Noise Sources Impacts**

4.1.1 Five existing fixed plant noise sources within 300m of the boundary of the Application Site that may give rise to fixed plant noise impacts to the planned NSRs within the Application Site have been identified as listed below:

- NWNT RTS;
- Tan Kwai Tsuen South Fresh Water Service Reservoir;
- Tan Kwai Tsuen Salt Water Service Reservoir;
- Tan Kwai Tsuen North Fresh Water Service Reservoir; and
- Tan Kwai Tsuen Fresh Water Pumping Station.

4.1.2 Upon the operation of the Proposed Development, the following planned infrastructure would be constructed. They are potential fixed plant noise sources:

- planned fresh water pumping station;
- planned flushing water service reservoir; and
- planned fresh water service reservoir.

4.1.3 The locations of the existing and planned potential fixed plant noise sources are indicated in **Figure 4.1**.

4.1.4 Based on the PER report under Agreement No. CE 92/2017 (CE), these fixed noise sources are not expected to pose adverse noise impact at the Proposed Development. As the building block arrangement in the current preliminary layout plan is generally similar to that assessed in the PER report, the findings in the PER remains applicable for the current layout.

4.1.5 For the proposed potential fixed noise sources at the PTI (e.g. ventilation exhaust) and ventilation equipment of the uses at the podium (e.g. chillers), if any, they would be designed to be located or directed away from the NSRs as far as possible and to be installed with appropriate acoustic treatment e.g. silencer as necessary. With these designs incorporated, no adverse noise impact is anticipated from the proposed facilities.

### **4.2 Proposed Mitigation Measures**

4.2.1 No mitigation measure is required to combat noise impacts from the existing noise sources as the noise from the operation of the identified sources has been verified to be inaudible through site visits.

4.2.2 For the proposed potential noise sources, at-source mitigation measures, e.g. enclosing noise emitting parts, installation of silencer and locating louvres, exhausts or openings away from the NSRs as far as possible, would be incorporated to the proposed facilities to control the noise levels to comply with the relevant criteria.

4.2.3 HKHA has undertaken to conduct an EAS in the detailed design stage to review and assess the potential fixed noise impact with respect to the HKPSG and suitable mitigation measures will be proposed based on the final design of the Proposed Development. HKHA has acknowledged and committed to implementing at-receiver noise mitigation measures at the public housing blocks, subject to the findings in the EAS.

4.2.4 With the implementation of appropriate at-source design measures by the future owners of the proposed fixed noise sources (i.e. WSD for the planned fresh water pumping station, planned flushing water service reservoir and planned fresh water service reservoir; and

HKHA for the proposed PTI), no adverse fixed noise impact from the planned fixed noise source is anticipated.

## **5 POTENTIAL NOISE IMPACTS FROM THE PROPOSED PTI**

### **5.1 Potential Noise Impacts from the Proposed PTI**

- 5.1.1 A covered PTI is proposed in the podium of Phase 3, with the ingress and egress connecting to the proposed access road to the north of the Application Site, as shown in **Figure 5.1**. The detailed design of the PTI is not available at this stage.
- 5.1.2 As the PTI is covered under the podium of Phase 3, there will be no line of sight from the PTI to the NSRs. The ingress and egress points of the PTI are designed to locate away from the NSRs, i.e. facing Yuen Long Highway, in order to minimize the potential noise impacts from the vehicular movements along the ingress and egress. As vehicles will not be idling on the ingress and egress road outside the podium area, loud engine starting noise will unlikely be generated on the ingress and egress road. Noise from the ingress and egress road outside the podium area will be similar to regular road traffic noise.
- 5.1.3 Subject to the detailed design of the PTI, mechanical ventilation system might be required for the PTI. The exhausts of the mechanical ventilation system would be a potential noise source. Exhaust of the ventilation system, if any, will be designed to face away from the NSRs.

### **5.2 Proposed Mitigation Measures**

- 5.2.1 In addition to the abovementioned noise mitigation measures which would be incorporated into the design of the PTI, absorptive lining is recommended to be provided on ceiling and interior walls of the PTI as far as practicable to minimize the reverberance. Acoustic louvre and/or silencers will be provided for the exhausts of the mechanical ventilation system, if necessary, to ensure the noise level at nearby NSRs including the Proposed Development would be in compliance with the relevant noise standards.
- 5.2.2 With the incorporation of appropriate mitigation measures into the design of the PTI, potential noise nuisance arising from the proposed PTI on the Proposed Development and other existing NSRs in the proximity is not anticipated.

## 6 AIR QUALITY IMPACT

### 6.1 Environmental Legislation, Policies, Standards and Criteria

#### *Air Pollution Control Ordinance (Cap. 311)*

6.1.1 The Air Pollution Control (Amendment) Ordinance 2021 specifies Air Quality Objectives (AQOs), which are statutory limits for a number of pollutants, and the maximum number of times that they may be exceeded in a year for specified averaging periods. The prevailing AQOs, shown in **Table 6.1**, became effective since 1 January 2022 and are subject to review every five years.

**Table 6.1 The Hong Kong Air Quality Objectives**

Pollutant	Averaging Time	Concentration Limit ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>	Number of Exceedances allowed per year
Sulphur dioxide, SO <sub>2</sub>	10-minute	500	3
	24-hour	50	3
Respirable suspended particulates, RSP (PM <sub>10</sub> ) <sup>(2)</sup>	24-hour	100	9
	Annual	50	Not applicable
Fine suspended Particulates, FSP (PM <sub>2.5</sub> ) <sup>(3)</sup>	24-hour	50	35 (18) <sup>(4)</sup>
	Annual	25	Not applicable
Nitrogen dioxide, NO <sub>2</sub>	1-hour	200	18
	Annual	40	Not applicable
Ozone, O <sub>3</sub>	8-hour	160	9
Carbon monoxide, CO	1-hour	30,000	0
	8-hour	10,000	0
Lead	Annual	0.5	Not applicable

Notes:

- (1) All measurements of the concentration of gaseous air pollutants, i.e., sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to 293 K and 101.325 kPa
- (2) Respirable suspended particulates in air with a nominal aerodynamic diameter of 10  $\mu\text{m}$  or less
- (3) Fine suspended particulates in air with a nominal aerodynamic diameter of 2.5  $\mu\text{m}$  or less
- (4) The number of exceedances allowed per year is 35. However, for Government projects, a more stringent standard shall be applied with the number of allowable exceedances of 18 days per year.

#### ***Hong Kong Planning Standards and Guidelines (HKPSG)***

6.1.2 The Hong Kong Planning Standards and Guidelines (HKPSG) is a Government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The purpose of the HKPSG is to provide general guidelines to ensure that, during the planning process, the Government will reserve adequate land to facilitate social and economic development and provide appropriate public facilities to meet the needs of the public.

6.1.3 Table 3.1 of the HKPSG provides the broad guidelines for locating active open spaces close to potentially polluting uses, viz. road traffic. The recommended buffer distances are reproduced in **Table 6.2**.



**Table 6.2 Recommended Minimum Buffer Distance from Roads**

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

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

- 6.1.4 Table 3.1 of the HKPSG also provides the broad guidelines for locating active open spaces close to potentially polluting uses, viz. industrial chimneys emissions. The recommended buffer distances are reproduced in **Table 6.3**.

**Table 6.3 Recommended Minimum Buffer Distance from Industrial Chimneys**

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

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

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.
- (4) Amenity areas are permitted in any situation.

- 6.1.5 Section 3.3.10 of the HKPSG recommends that a buffer distance of at least 200m from the air sensitive receivers (ASRs) should be provided for odour sources.

**Public Transport Interchange Air Quality Guideline**

- 6.1.6 A covered public transport interchange (PTI) has been proposed for the Development. According to Section 4.5 of the HKPSG, the design of the PTI should make reference to EPD's *Practice Note for Professional Persons for Control of Air Pollution in Semi-confined Public Transport Interchanges (ProPECC PN 1/98)*. Maximum allowable concentrations in the PTI have been recommended for several concerned air pollutants and are outlined in **Table 6.4** below. The exhaust (if any) of the covered PTI shall be located away from any air-sensitive

uses as far as possible.

**Table 6.4 Public Transport Interchange Air Quality Guideline**

Air Pollutant	Maximum Concentration not to be Exceeded ( $\mu\text{g}/\text{m}^3$ ) <sup>(1)</sup>	
	1-hour Average	5-minute Average
Carbon Monoxide (CO)	30,000	115,000
Sulphur Dioxide (SO <sub>2</sub> )	800	1,000
Nitrogen Dioxide (NO <sub>2</sub> )	300	1,800

Source: ProPECC PN 1/98 Table 1: Air Quality Guidelines

Note: (1) Expressed at the reference condition of 25°C and 101.325 kPa.

### **Carparks Air Quality Guideline**

- 6.1.7 Carparks have been proposed for the Development. The design and operation of the proposed carparks should make reference to EPD's *Practice Note for Professional Persons for Control of Air Pollution in Car Parks (ProPECC PN 2/96)* such that the air quality guidelines set out in the *ProPECC PN 2/96* as summarized in **Table 6.5** are met under all conditions. The exhaust (if any) of the proposed car park shall be located away from any air-sensitive uses as far as possible.

**Table 6.5 Carparks Air Quality Guideline**

Air Pollutant	Maximum Concentration not to be Exceeded <sup>(1)</sup>		
	Averaging time	In $\mu\text{g}/\text{m}^3$	In ppm
Carbon Monoxide (CO)	5 minutes	115,000	100
Nitrogen Dioxide (NO <sub>2</sub> )	5 minutes	1,800	1

Source: ProPECC PN 2/96

Note: (1) Expressed at the reference condition of 25°C and 101.325 kPa.

## **6.2 Vehicular Emissions**

- 6.2.1 The design of the Development has incorporated appropriate setback distance from the road network. Yuen Long Highway is the only existing road in close vicinity to the Development. According to the Annual Traffic Census (ATC) 2021 published by the TD, Yuen Long Highway is an Expressway. Access roads have been proposed for the Development. As advised by the Project Traffic Consultant and adopted in the PER, the proposed access roads are classified as Local Distributors. As presented in **Table 6.2**, HKPSG's minimum requirements on the buffer distances from Yuen Long Highway (classified as Expressway) and the proposed access roads (classified as Local Distributor) are 20 m and 5 m respectively. **Figure 6.1** shows that all ASRs within the Application Site satisfy both requirements recommended in the HKPSG, except a small area of the podium near Block 1 and a small area of the podium near Block 4. There should not be any air sensitive uses (such as window opening for ventilation and fresh air intake) including active recreation uses in open space located within the buffer distance. With the recommendation incorporated into the future design of the Proposed Development by HKHA, adverse impact from vehicular emission to the planned ASRs is not anticipated.

## **6.3 Odour Emissions**

- 6.3.1 NWNT RTS located ~200 m west to the Application Site has been identified as the only potential source of odour located within 500 m from the Proposed Development. The major sources of odour at NWNT RTS are the waste tipping hall and the wastewater treatment plant which are both located inside a fully enclosed tipping hall building and installed with odour

removal units and maintained with negative pressure. Stringent odour management measures are implemented at NWNT RTS. The HKPSG's recommended buffer distance for odorous uses is 200 m. As shown in **Figure 6.2**, the residential blocks are located beyond 200 m from NWNT RTS, satisfying HKPSG's recommended buffer distance for odour. Part of the Application Site is within the 200 m radius from NWNT RTS. There should not be any air sensitive uses (such as window opening for ventilation and fresh air intake, etc.) including active recreation uses in open space located within the buffer distance. Adverse impact from odour from NWNT RTS to the planned ASRs is not anticipated provided that no air sensitive uses would be located within the 200m buffer distance from the RTS.

- 6.3.2 Potential odour impact may also arise from transportation of collected refuse to and from NWNT RTS on the Proposed Development. As stipulated in the Amendment to Cap 354L Waste Disposal (Designated Waste Disposal Facility) Regulation, Refuse Collection Vehicles (RCVs) entering landfills or RTSs are statutorily required to be equipped with a metal tailgate cover and a waste water sump tank. The tailgate cover and the waste water sump tank must be suitably constructed and designed following the "Guidelines on the Design and Construction of Metal Tailgate Cover and Waste Water Sump Tank installed on Refuse Collection Vehicle", and in good working condition. The hopper and the compactor on the RCVs shall be enclosed by the metal tailgate cover to effectively mitigate the spread of odour. The operation of the RCVs shall following the "Code of Practice on the Operation of Refuse Collection Vehicles (RCVs)" compiled by EPD. With proper operation of RCVs, odour impact from the transportation of collected refuse to and from NWNT RTS using the RCVs is anticipated to be insignificant. In addition, the RCVs will be moving on the road. Therefore, odour impact from the transportation of collected refuse to and from NWNT RTS, if any, will be transient and temporary only.
- 6.3.3 Based on the Project Profile for LTNE development (Project Profile No. PP-642/2022), NWNT RTS would be relocated within the project site of the LTNE development. The engineering feasibility of the development including the relocation of NWNT RTS is still being studied. Thus, no detailed information including the proposed location and timeline of the relocation is available at this stage of the study. NWNT RTS constitute a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO), thus, its relocation would require a submission under the EIAO. Relevant odour emission from the relocated NWNT RTS to the Proposed Development shall be assessed under the statutory EIAO submission for NWNT RTS and/or other environmental deliverable under the LTNE study, if any, to ensure that no nearby ASRs including the Proposed Development will be subject to adverse odour impact from the operation of the relocated NWNT RTS.
- 6.3.4 Refuse collection points (RCPs) and a wet market are proposed for the Proposed Development. The detailed designs of the RCPs and wet market are unavailable at this stage of the study. In order to alleviate the potential odour impact from these facilities, mechanical ventilation and odour removal system will be provided for the RCPs and wet market to remove malodour in air discharged from these facilities. The ventilation exhausts will be designed to locate and orient away from the nearby ASRs as far as practicable. In addition, the RCPs will be properly cleansed immediately after each collection operation. Like other public RCPs, operational guidelines and monitoring mechanisms, such as regular checks and surprise inspections, by the Food and Environmental Hygiene Department (FEHD) will be in place to ensure proper operation of the RCPs. For the wet market, a sufficiently designed mechanical ventilation system will be provided. Similar to the arrangement for the RCPs, the ventilation exhausts for the wet market will be designed to locate and orient away from the nearby ASRs as far as practicable. The wet market should be designed to allow for ease of

cleaning and management. Good hygiene and effective operational and waste management practices are essential in ensuring that odour from the wet market is minimised. With appropriate design and management, no unacceptable odour impact from the operation of the proposed RCPs and wet market to the Proposed Development is anticipated.

#### **6.4 Industrial Emissions**

- 6.4.1 The chimneys at Pun Chun Sauce & Preserved Fruit Factory Ltd. have been identified as the industrial emissions located closest to the Application Site. As shown in **Figure 6.3**, the Application Site is located beyond 200 m from the nearest chimneys, satisfying HKPSG's recommended buffer distance for industrial uses of 200 m as presented in **Table 6.3**. With the provision of adequate buffer distances recommended in the HKPSG for chimneys, adverse air quality impacts are not anticipated at the Proposed Development.
- 6.4.2 As shown in **Appendix 2.2**, the proposed Lam Tei cavern site under LTNE development will be located less than 200 m to the southeast to the Proposed Development. The uses inside the cavern and the location of portal(s) are unavailable at this stage. Industrial emissions may arise from the industrial uses inside the cavern, if any, posing potential air quality impact to the Proposed Development. As discussed in **Section 2.3.6**, the potential air quality impact arising from the LTNE development on the nearby ASRs including the Proposed Development will be assessed under the LTNE development EIA study.

## **7 CONCLUSION**

### **7.1 General**

7.1.1 A Preliminary Environmental Assessment has been conducted to support the Section 16 planning application for proposed minor relaxation in maximum plot ratio and maximum building height for the proposed public housing development near Tan Kwai Tsuen, Yuen Long.

### **7.2 Road Traffic Noise Impact**

7.2.1 Road traffic noise from Yuen Long Highway and the proposed access roads is anticipated to give rise to noise exceedance at the planned NSRs facing these roads at the Application Site. Mitigation measures in the form of acoustic windows for domestic uses and fixed windows with central air ventilation for other non-domestic uses have been proposed. With the mitigation measures in place, no unacceptable adverse noise impact to the Proposed Development is anticipated.

### **7.3 Fixed Noise Sources Impact**

7.3.1 No adverse fixed noise impact is anticipated from the operation of the existing and planned facilities near the Application Site.

### **7.4 Potential Noise Impacts from the Proposed PTI**

7.4.1 A covered PTI is proposed in the podium of Phase 3. The proposed PTI will be designed to have no line of sight to the nearby NSRs in order to avoid adverse noise impacts to the nearby NSRs. Other mitigation measures, such as placing the exhaust of the ventilation system away from the NSRs, provision of absorptive lining on ceiling and interior walls of the PTI, and provision of acoustic louvre and/or silencers to the exhaust of the ventilation system will be incorporated as necessary into the design of the PTI to further minimize the potential noise impacts. With the appropriate design measures incorporated into the PTI design, no adverse noise impact from the proposed PTI is anticipated.

### **7.5 Air Quality Impact**

7.5.1 In order to satisfy the requirements recommended in the HKPSG, no air sensitive uses (such as window opening for ventilation and fresh air intake, etc.) including active recreation uses in open space will be located within the buffer distance from roads. The recommendation will be incorporated into the design of the Proposed Development by the relevant departments, e.g. HKHA. As such, no insurmountable air quality impact on the Proposed Development at the Application Site is anticipated.

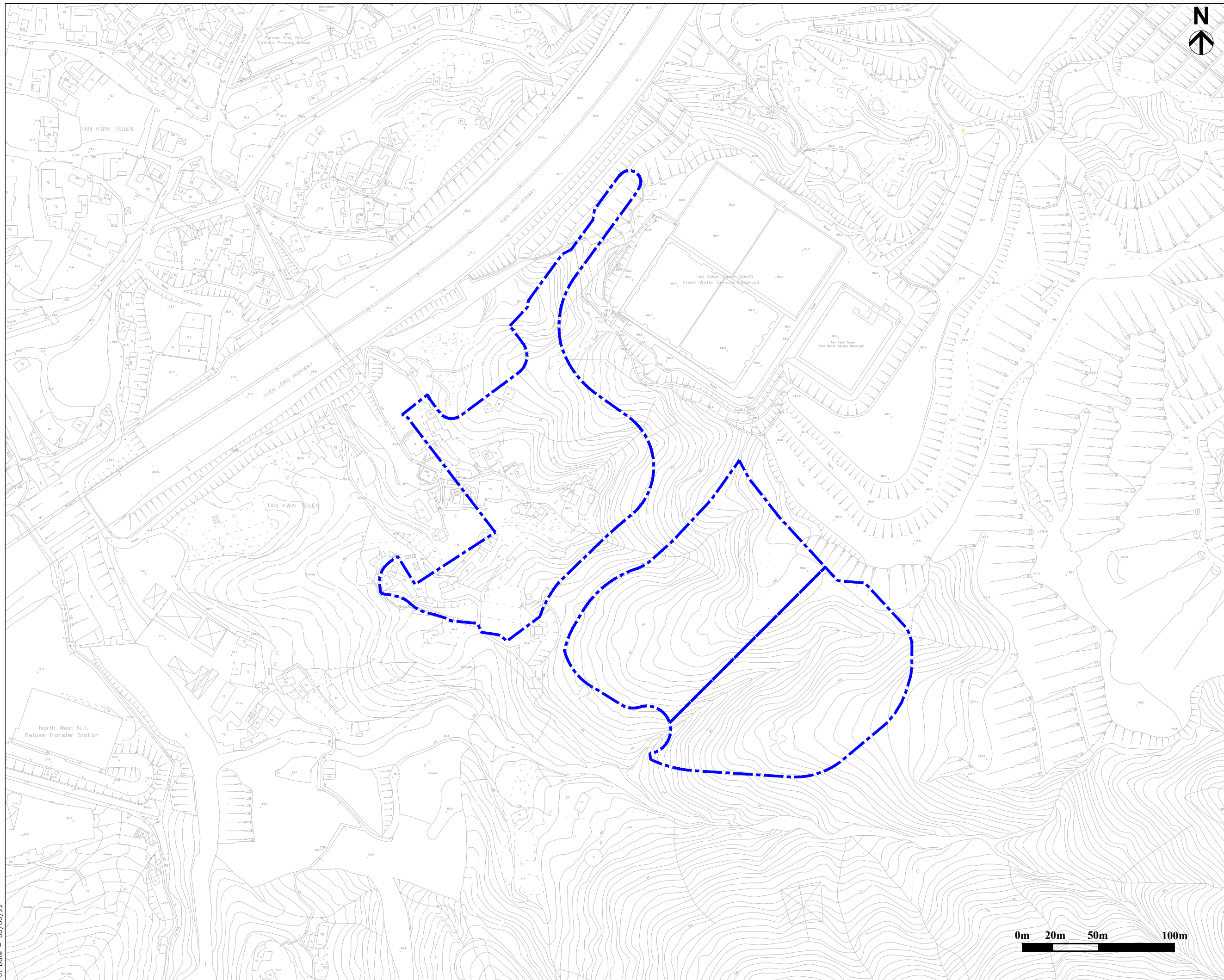
7.5.2 Residential blocks of the Proposed Development are located beyond 200 m from NWNT RTS. There should not be any air sensitive uses (such as window opening for ventilation and fresh air intake, etc.) including active recreation uses in open space located within the HKPSG's recommended buffer distance of 200 m from NWNT RTS. With the compliance of the HKPSG buffer distance requirement and the stringent odour management measures implemented at NWNT RTS, no adverse odour impact on the Proposed Development is anticipated. NWNT RTS would be relocated under the LTNE development. Detailed information is not available at this stage. The potential odour impacts from the relocated NWNT RTS to the Proposed Development shall be addressed in the LTNE development study.

- 7.5.3 For the operation of the proposed RCPs and wet market of the Proposed Development, with proper design and management, no unacceptable odour impact is anticipated.
- 7.5.4 No active chimneys have been identified within HKPSG 's recommended buffer of 200m from the Application Site. Adverse air quality impacts due to industrial emission are not anticipated at the Development.

**END OF TEXT**



## **FIGURE**



LEGEND:

 APPLICATION SITE



Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
Initial				SN	KY
Date				11/22	11/22

Approved

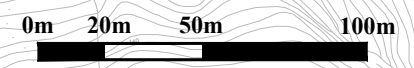
Agreement no. CE 92/2017 (CE)

Agreement title  
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
 LOCATION OF THE APPLICATION SITE

Drawing No. Figure 1.1

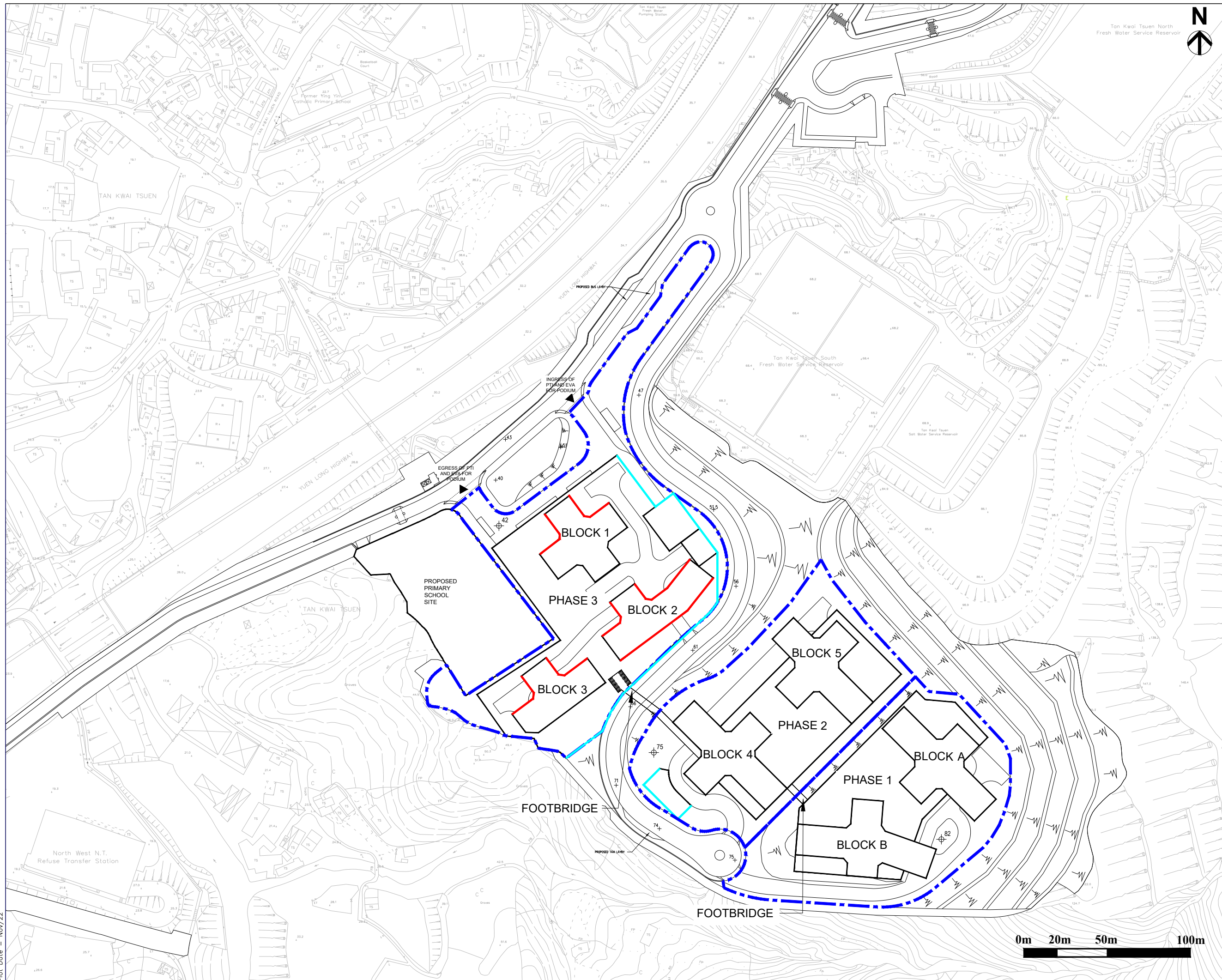
Scale



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- LEGEND:
- APPLICATION SITE
  - FACADE POTENTIALLY PRONE TO ROAD TRAFFIC NOISE EXCEEDANCE
  - DOMESTIC BLOCK
  - PODIUM (SUBJECT TO THE USES)

Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
Initial				SN	KY
Date				11/22	11/22

Approved

Agreement no. CE 92/2017 (CE)

Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
LOCATION OF FAÇADES POTENTIALLY PRONE TO ROAD TRAFFIC NOISE EXCEEDANCE

Drawing No. Figure 3.1

Scale

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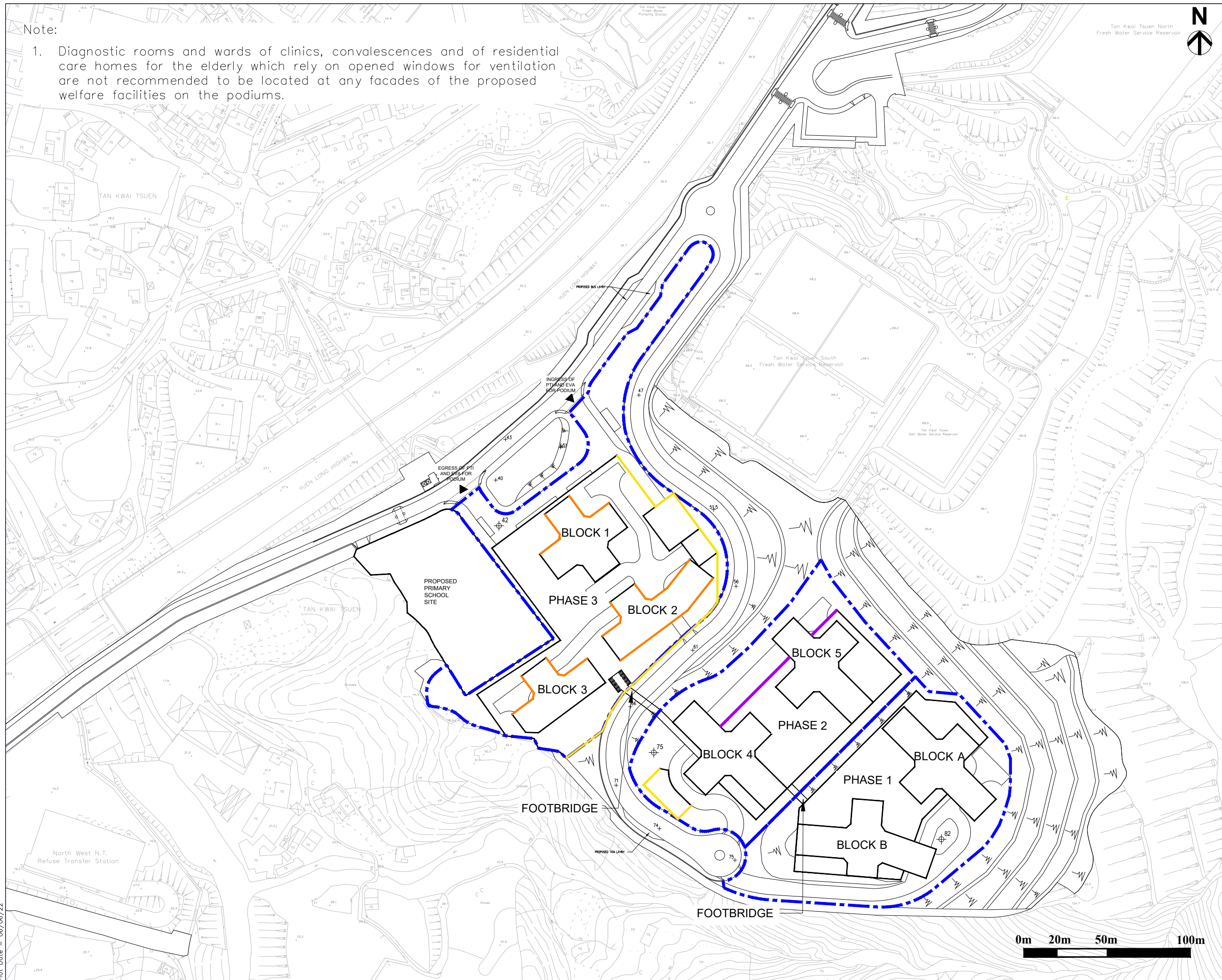
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Note:

1. Diagnostic rooms and wards of clinics, convalescences and of residential care homes for the elderly which rely on opened windows for ventilation are not recommended to be located at any facades of the proposed welfare facilities on the podiums.



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LEGEND:

- APPLICATION SITE
- ACOUSTIC WINDOWS
- FIXED WINDOWS WITH MECHANICAL AIR VENTILATION
- PROHIBITED FOR CLINICS, CONVALESCENCES AND HOMES FOR THE AGED DIAGNOSTIC ROOMS AND WARDS AND EDUCATIONAL INSTITUTIONS USES, INCLUDING KINDERCARTENS, CHILD CARE CENTRES, ETC. WHICH RELY ON OPENED WINDOWS FOR VENTILATION

Revision	Date	Description	Initial
Initial	Designed	Checked	Drawn
			SN
Date			11/22
			KY
			11/22

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Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
PROPOSED ROAD TRAFFIC NOISE MITIGATION MEASURES FOR PLANNED NOISE SENSITIVE RECEIVERS

Drawing No. Figure 3.2

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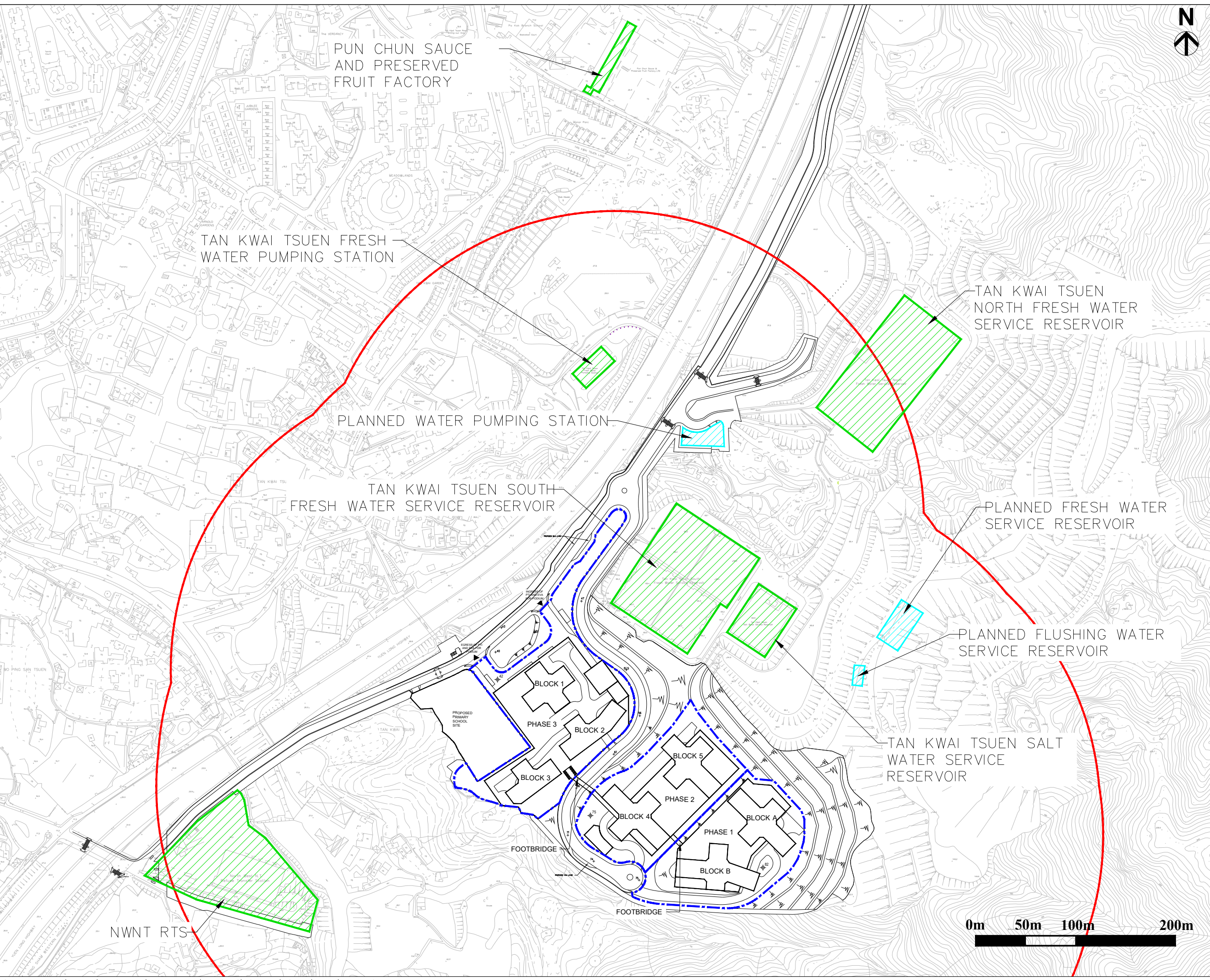
Plot Date = 06/06/22





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- LEGEND:
-  APPLICATION SITE
  -  300m ASSESSMENT AREA FOR FIXED PLANT NOISE IMPACT ASSESSMENT
  -  EXISTING POTENTIAL FIXED PLANT NOISE SOURCE
  -  PLANNED POTENTIAL FIXED PLANT NOISE SOURCE WITHIN THE DEVELOPMENT



Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
Initial				SN	KY
Date				11/22	11/22

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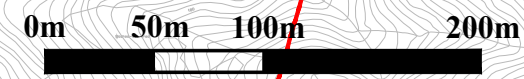
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Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
LOCATION OF THE EXISTING AND PLANNED POTENTIAL FIXED PLANT NOISE SOURCES




Drawing No. Figure 4.1

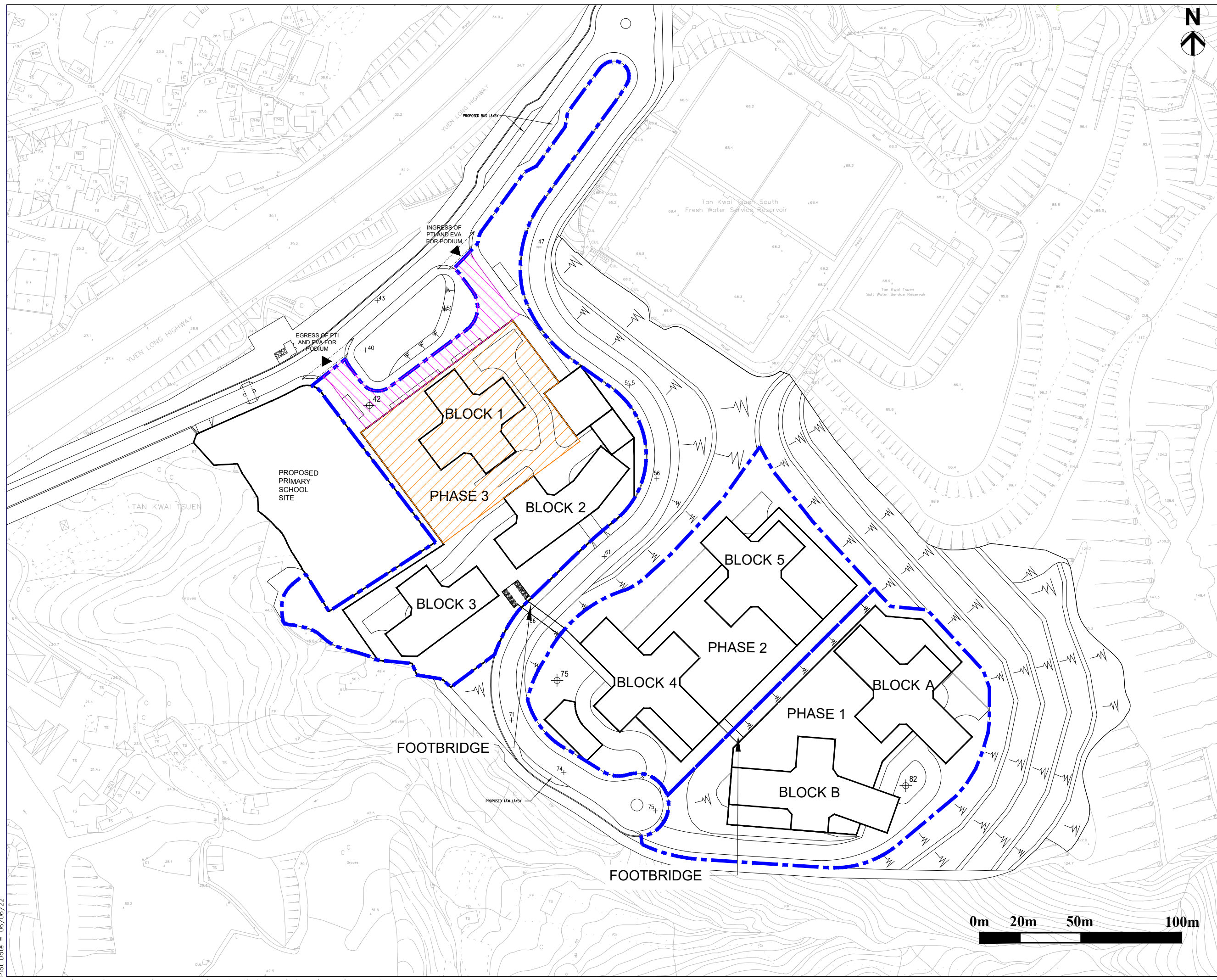
Scale



Plot Date = 06/06/22



- LEGEND:
-  APPLICATION SITE
  -  PROPOSED PTI UNDER THE PODIUM
  -  INGRESS AND EGRESS OF THE PROPOSED PTI OUTSIDE THE PODIUM



Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
Initial				SN	KY
Date				11/22	11/22

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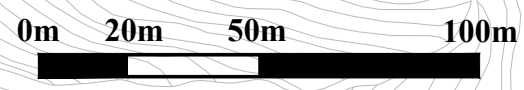
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Agreement title  
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
 INDICATIVE LOCATION OF THE PROPOSED PUBLIC TRANSPORT INTERCHANGE

Drawing No. Figure 5.1

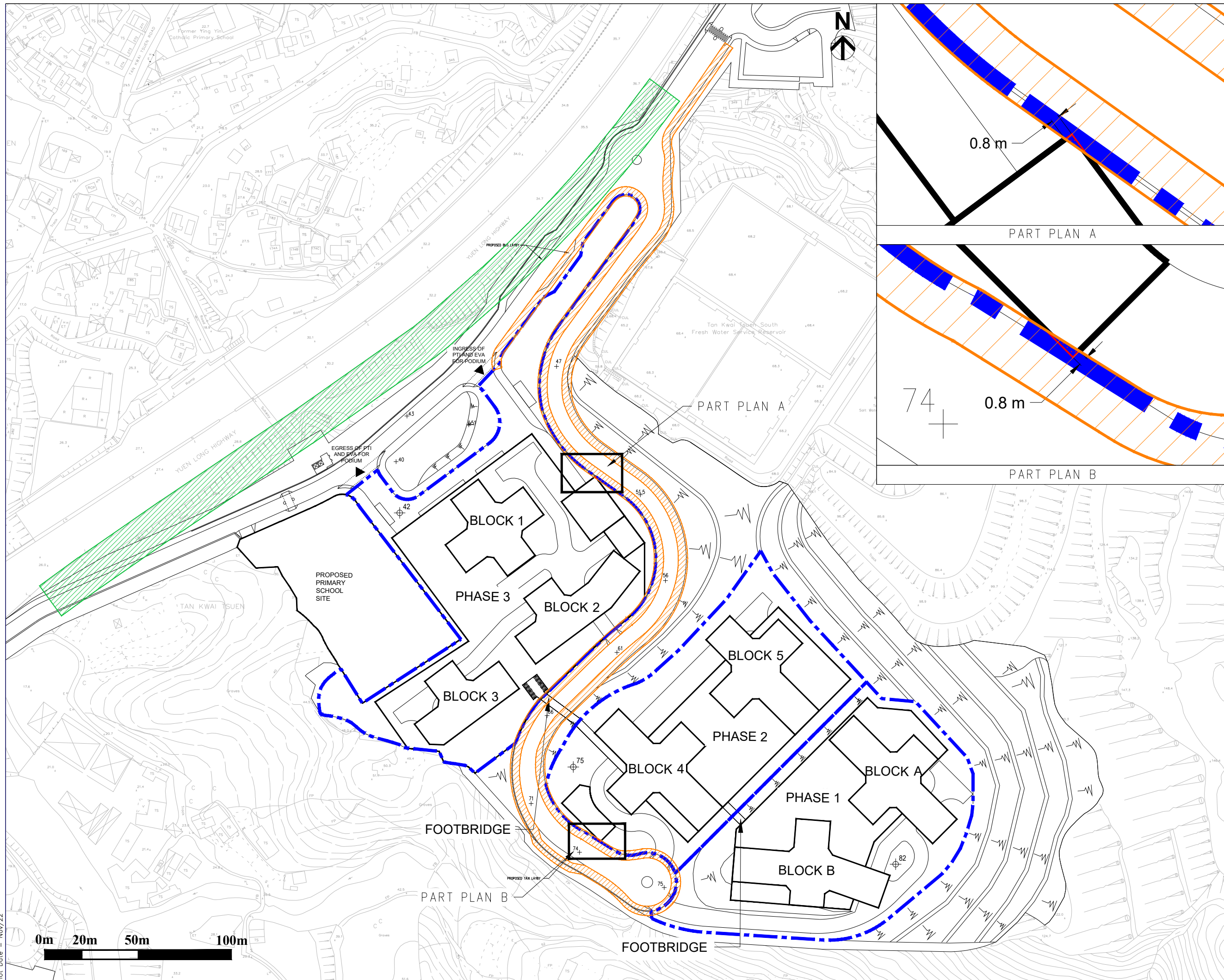
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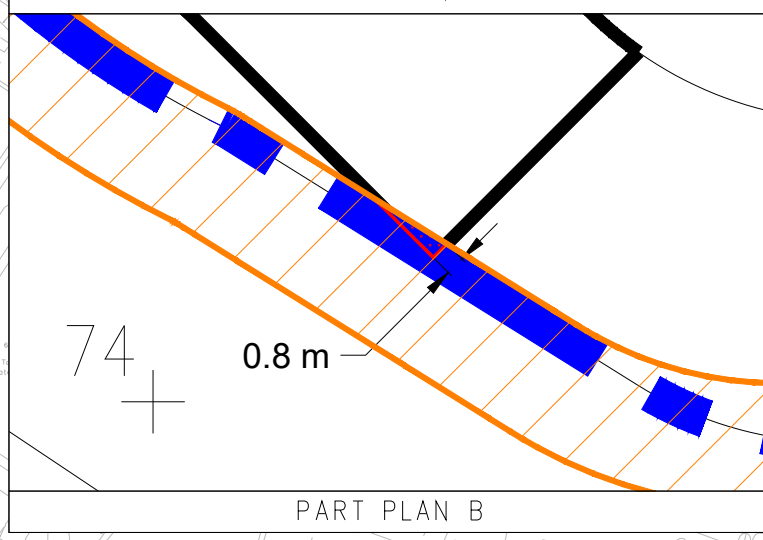
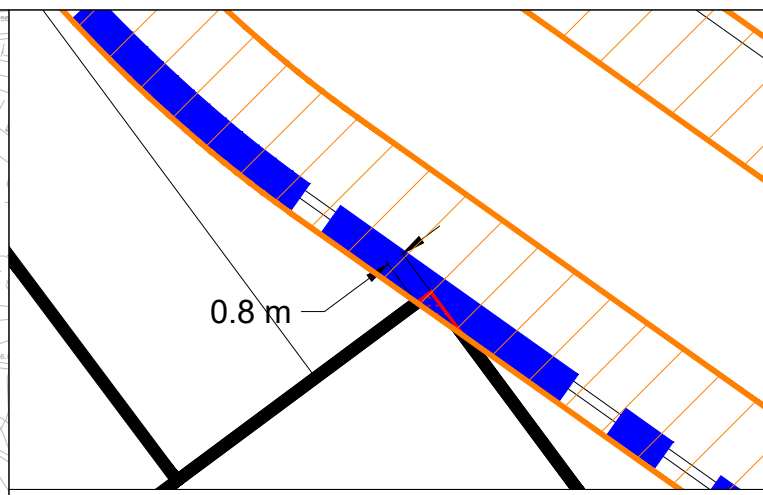
  
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- LEGEND:
- APPLICATION SITE
  - HKPSG'S RECOMMENDED BUFFER DISTANCE OF 20m FOR TRUNK ROAD
  - HKPSG'S RECOMMENDED BUFFER DISTANCE OF 5m FOR LOCAL DISTRIBUTORS
  - AREA PROHIBITED FOR AIR SENSITIVE USES INCLUDING OPENABLE WINDOW, FRESH AIR INTAKE AND RECREATIONAL USE IN THE OPEN SPACE

REMARKS:  
 NO AIR SENSITIVE USES INCLUDING OPENABLE WINDOW, FRESH AIR INTAKE AND RECREATIONAL USE IN THE OPEN SPACE ARE ALLOWED WITHIN THE HKPSG'S RECOMMENDED BUFFER ZONES.



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		Designed	Checked	Drawn	Checked
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Date				11/22	11/22

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Agreement no. CE 92/2017 (CE)

Agreement title  
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
 HKPSG'S RECOMMENDED BUFFER DISTANCE FOR ROADS

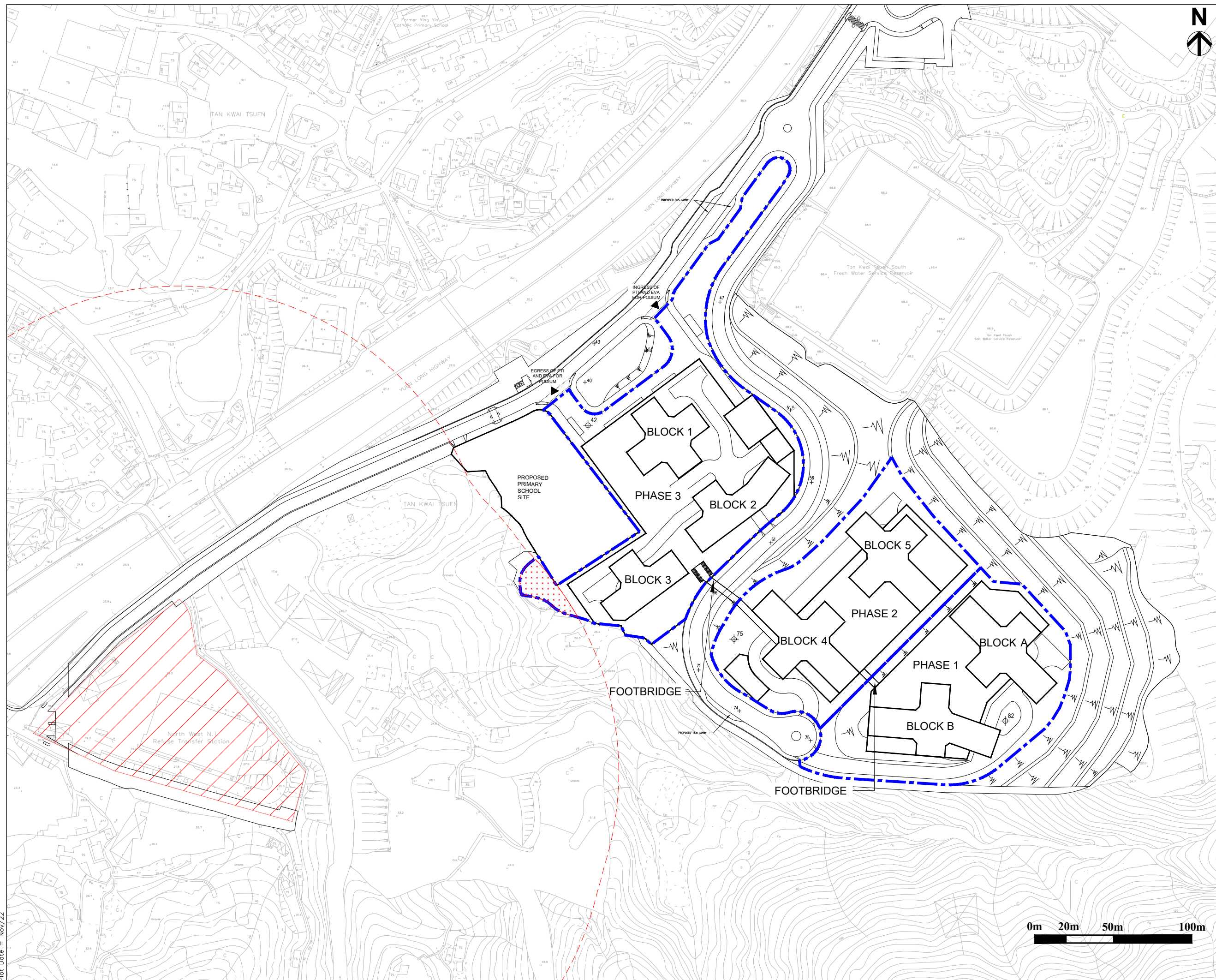
Drawing No. Figure 6.1

Scale



Plot Date = Nov/22





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- LEGEND:
- APPLICATION SITE
  - POTENTIAL SOURCE OF ODOUR (N.W.T. REFUSE TRANSFER STATION)
  - 200m RADIUS FROM POTENTIAL SOURCE OF ODOUR
  - AREA PROHIBITED FOR AIR SENSITIVE USES INCLUDING OPENABLE WINDOW, FRESH AIR INTAKE AND RECREATIONAL USE IN THE OPEN SPACE

Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
				SN	KY
Date				11/22	11/22

Approved

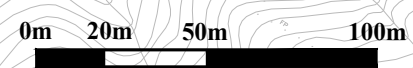
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Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
LOCATION OF POTENTIAL SOURCE OF ODOUR

Drawing No. Figure 6.2

Scale

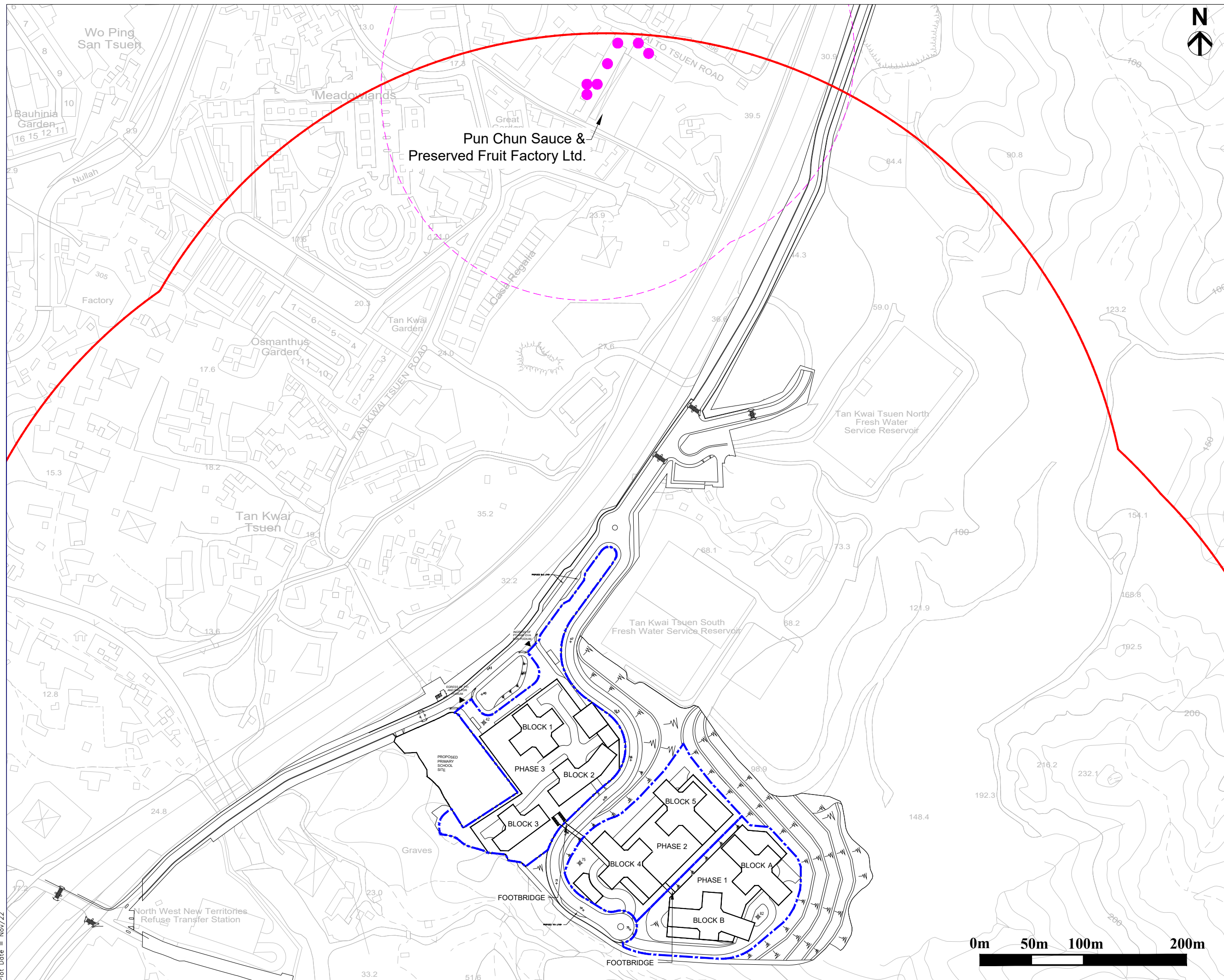


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LEGEND:

- APPLICATION SITE
- 500m AIR QUALITY IMPACT ASSESSMENT AREA
- IDENTIFIED ACTIVE CHIMNEYS
- 200m RADIUS FROM THE CHIMNEYS



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	Designed	Checked	Drawn	Checked	SN	KY
Initial					SN	KY
Date					11/22	11/22

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Agreement no. CE 92/2017 (CE)

Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
LOCATION OF IDENTIFIED ACTIVE CHIMNEYS

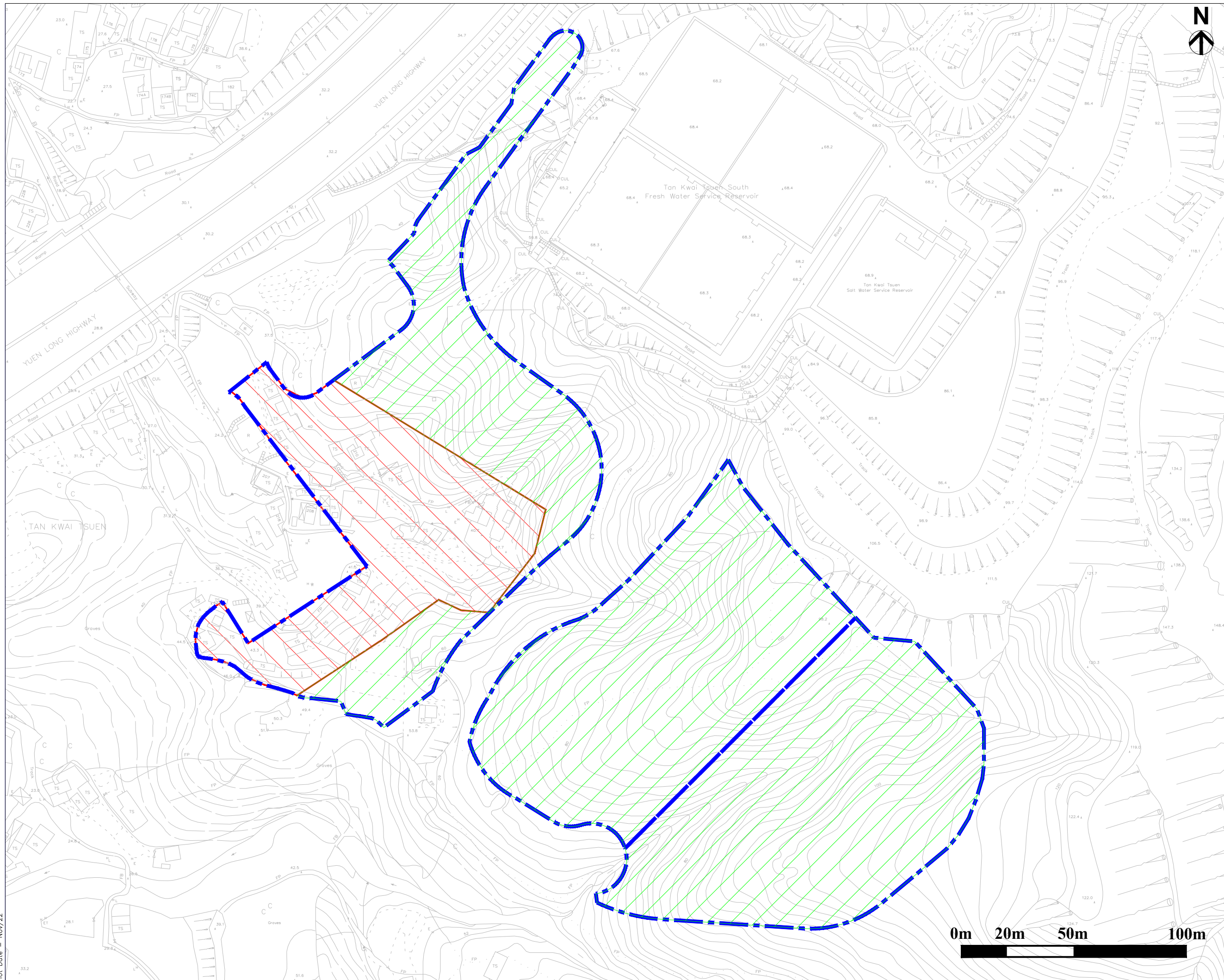
Drawing No. Figure 6.3

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LEGEND:

- APPLICATION SITE
- AREA OF VEGETATION AND SLOPE
- AREA OF VILLAGE HOUSES

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		Designed	Checked	Drawn	Checked
Initial				SN	KY
Date				11/22	11/22

Approved

Agreement no. CE 92/2017 (CE)

Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
EXISTING LANDUSES OF THE APPLICATION SITE

Drawing No. Figure 7.1

Scale

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## **APPENDIX 2.1**

# **MASTER LAYOUT PLAN**





丹桂村  
TAN KWAI TSUEN

元朗公路  
YUEN LONG HIGHWAY

丹桂村配水庫

TAN KWAI TSUEN  
FRESH WATER SERVICE  
RESERVOIR

PROPOSED PRIMARY  
SCHOOL SITE

**BLOCK 3**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

**BLOCK 1**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

**BLOCK 2**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

**BLOCK 5**  
TOTAL 51 STOREYS  
(44 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

**BLOCK A**  
TOTAL 50 STOREYS  
(43 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

**BLOCK 4**  
TOTAL 51 STOREYS  
(44 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

**BLOCK B**  
TOTAL 50 STOREYS  
(43 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

**LEGEND**

- SITE BOUNDARY
- EVA / DRIVEWAY
- DOMESTIC BLOCK
- PODIUM (COMMERCIAL / RETAIL / CARPARK / MARKET / SOCIAL WELFARE FACILITIES / PTI UNDERNEATH)
- FOOTBRIDGE
- REFUSE COLLECTION POINT

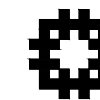
**DRAFT**

PROJECT TITLE

**PUBLIC HOUSING DEVELOPMENT AT  
NEAR TAN KWAI TSUEN PHASES 1, 2 & 3**

DRAWING TITLE

**PROPOSED SITE LAYOUT PLAN**



房屋署  
HOUSING DEPARTMENT

DRAWING NO.  
YL52/S16/A/LO-01

DATE:  
13/6/2022

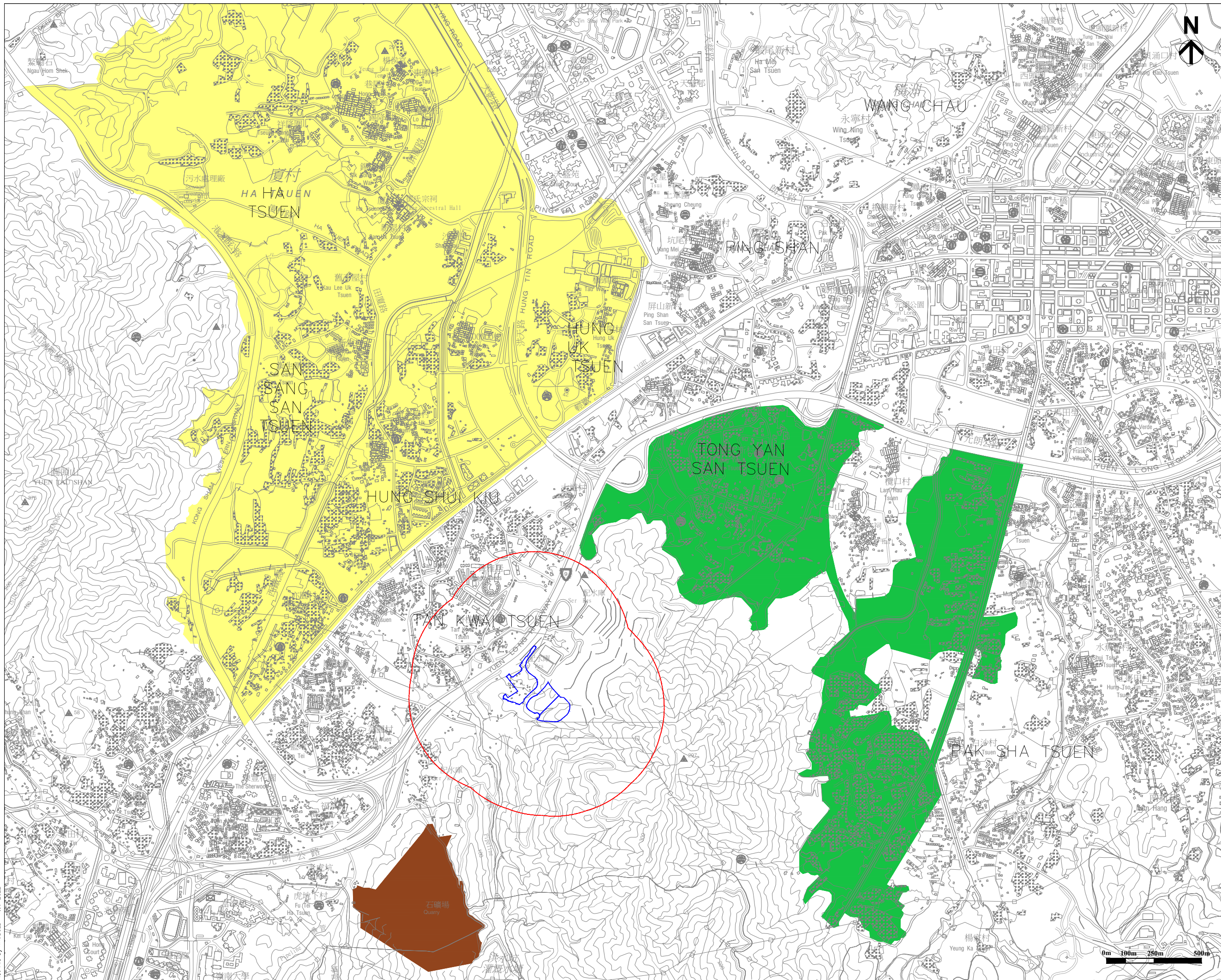
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## **APPENDIX 2.2**

# **LOCATIONS OF CONCURRENT PROJECTS**





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LEGEND:

- APPLICATION SITE
- 500m RADIUS FROM THE APPLICATION SITE
- HUNG SHUI KIU NEW DEVELOPMENT AREA
- YUEN LONG SOUTH POTENTIAL DEVELOPMENT AREA
- LAM TEI QUARRY AREA



Revision	Date		Description		Initialed	
	Designd	Checked	Drawn	Checked	SN	KY
Date			11/22		11/22	

Approved

Agreement no. CE 92/2017 (CE)

Title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENT NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title  
LOCATIONS OF CONCURRENT PROJECTS

Drawing No. APPENDIX 2.2

Scale

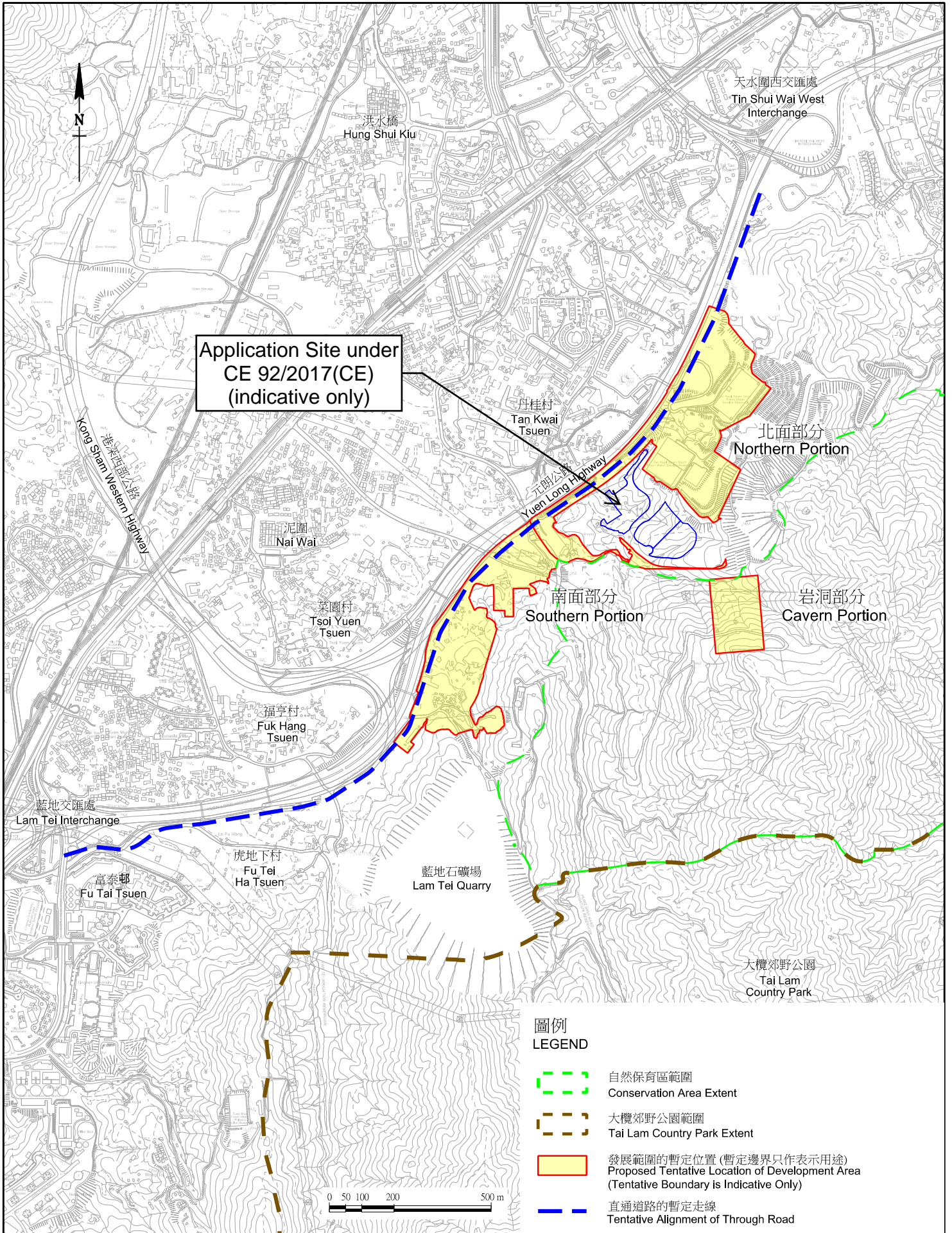
土木工程拓展署  
**CEDD Civil Engineering and Development Department**

**binnes**  
BINNES HONG KONG LIMITED  
實尼新工程顧問有限公司



Plot File by RAMBOLL Nov-2022





Application Site under  
CE 92/2017(CE)  
(indicative only)

圖例  
LEGEND

- - - 自然保育區範圍  
Conservation Area Extent
- - - 大欖郊野公園範圍  
Tai Lam Country Park Extent
- 發展範圍的暫定位置 (暫定邊界只作表示用途)  
Proposed Tentative Location of Development Area  
(Tentative Boundary is Indicative Only)
- - - 直通道路的暫定走線  
Tentative Alignment of Through Road

0 50 100 200 500 m

圖則名稱 drawing title

藍地東北發展 - 位置圖  
DEVELOPMENT AT LAM TEI NORTH EAST - LOCATION PLAN

比例 scale

1 : 15 000

圖則編號 drawing no.

WDOST-Z0300

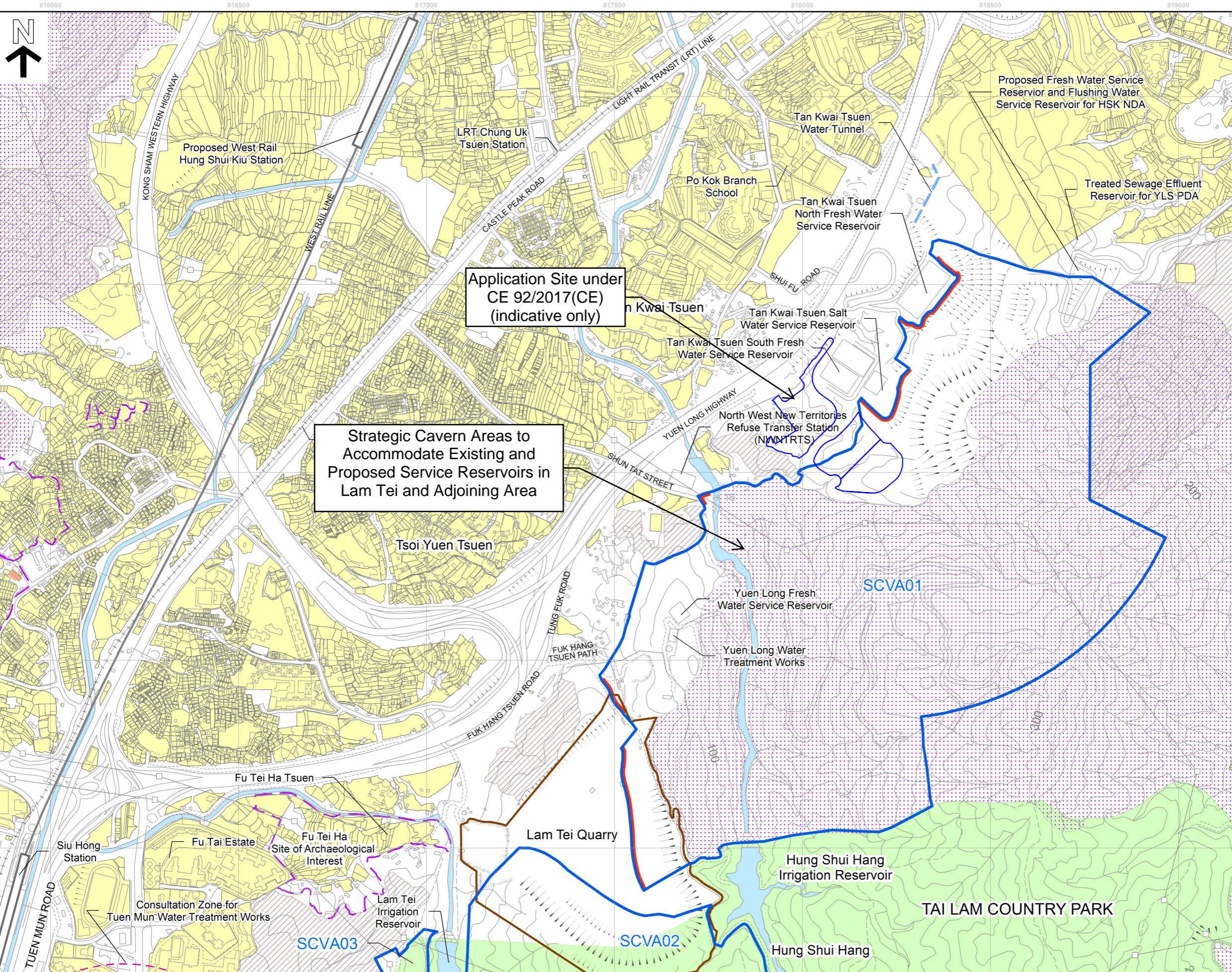
辦事處 office

西拓展處  
WEST DEVELOPMENT OFFICE



土木工程拓展署  
CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT

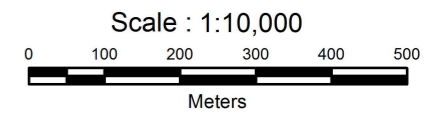




- Legend**
- Strategic Cavern Area
  - Extent of Potential Portal Locations
  - Quarry
  - Existing Railway Line
  - Existing Light Rail
  - Water Supplies Department Tunnel
  - Reservoir / River / Nullah
  - Site of Archaeological Interest
  - Graded Historic Building
  - Private Lot
  - Burial Ground
  - Consultation Zone of Potentially Hazardous Installation
  - Major Conservation Area
  - Country Park

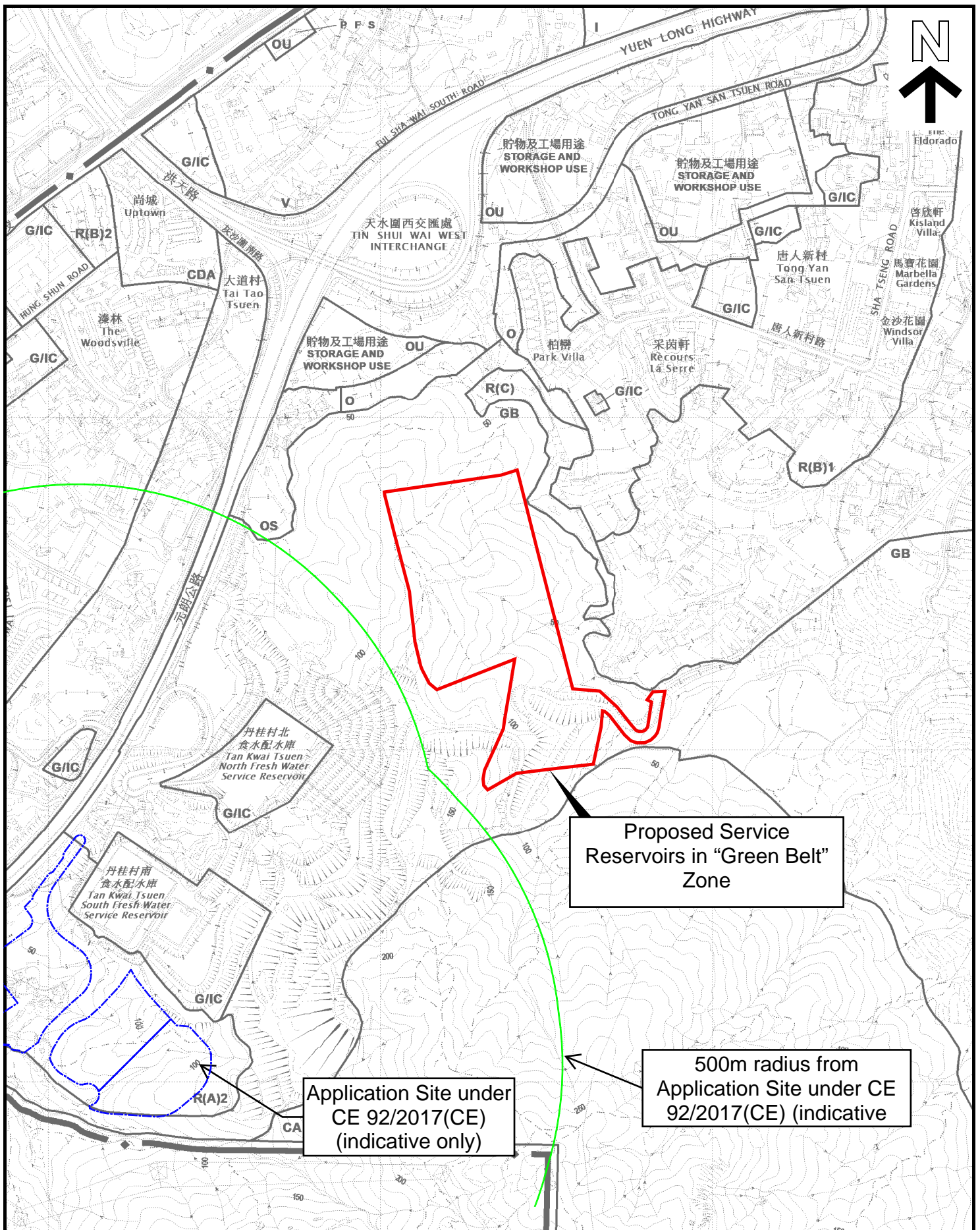
Application Site under CE 92/2017(CE) (indicative only)

Strategic Cavern Areas to Accommodate Existing and Proposed Service Reservoirs in Lam Tei and Adjoining Area



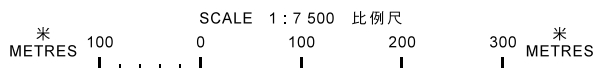
REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 01 - HUNG SHUI HANG





位置圖 LOCATION PLAN

本摘要圖於2022年1月7日擬備，  
 所根據的資料為於2021年8月10日  
 核准的分區計劃大綱圖編號 S/YL-TYST/14  
 EXTRACT PLAN PREPARED ON 7.1.2022  
 BASED ON OUTLINE ZONING PLAN No.  
 S/YL-TYST/14 APPROVED ON 10.8.2021



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

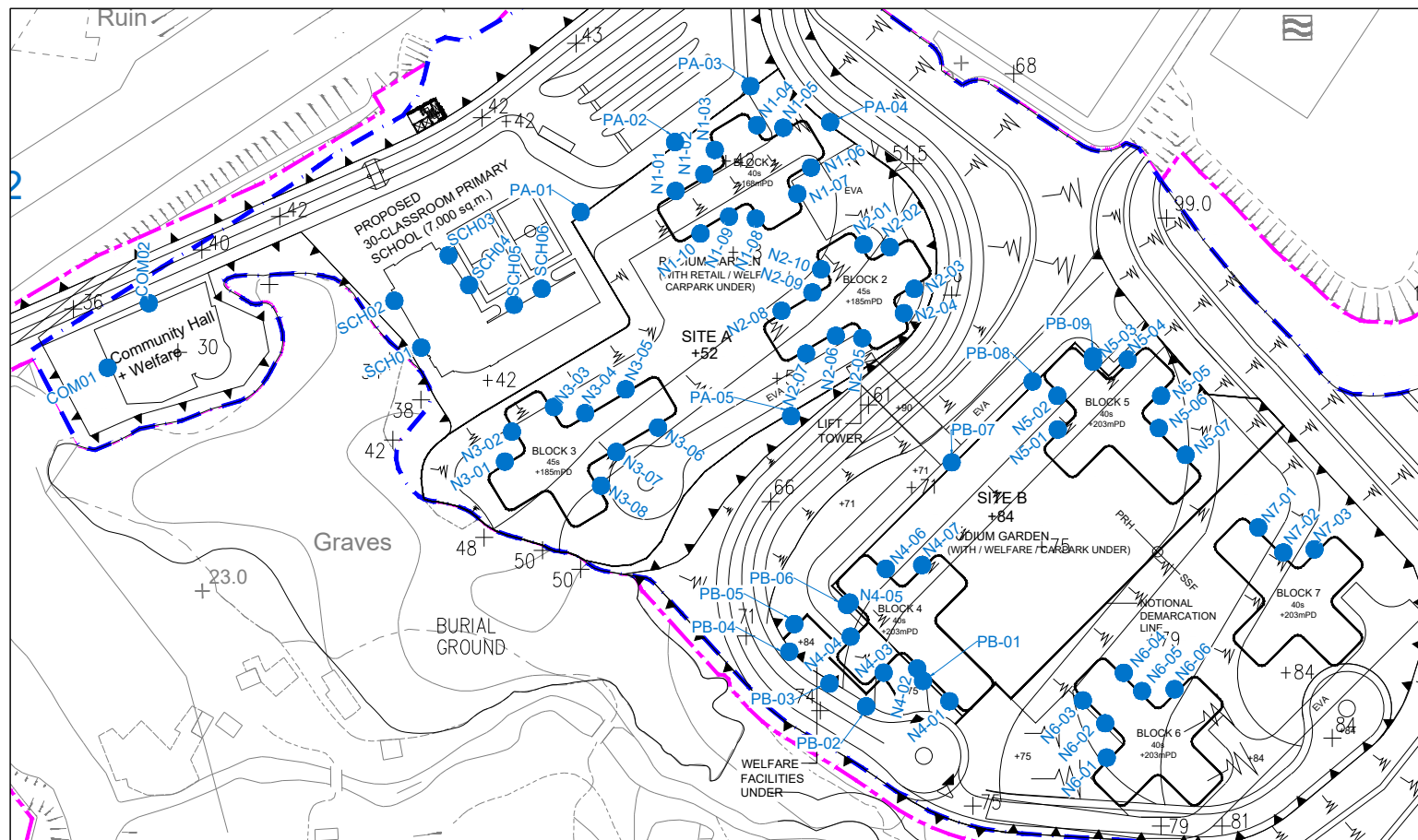
參考編號  
 REFERENCE No.

A/YL-TYST/1146

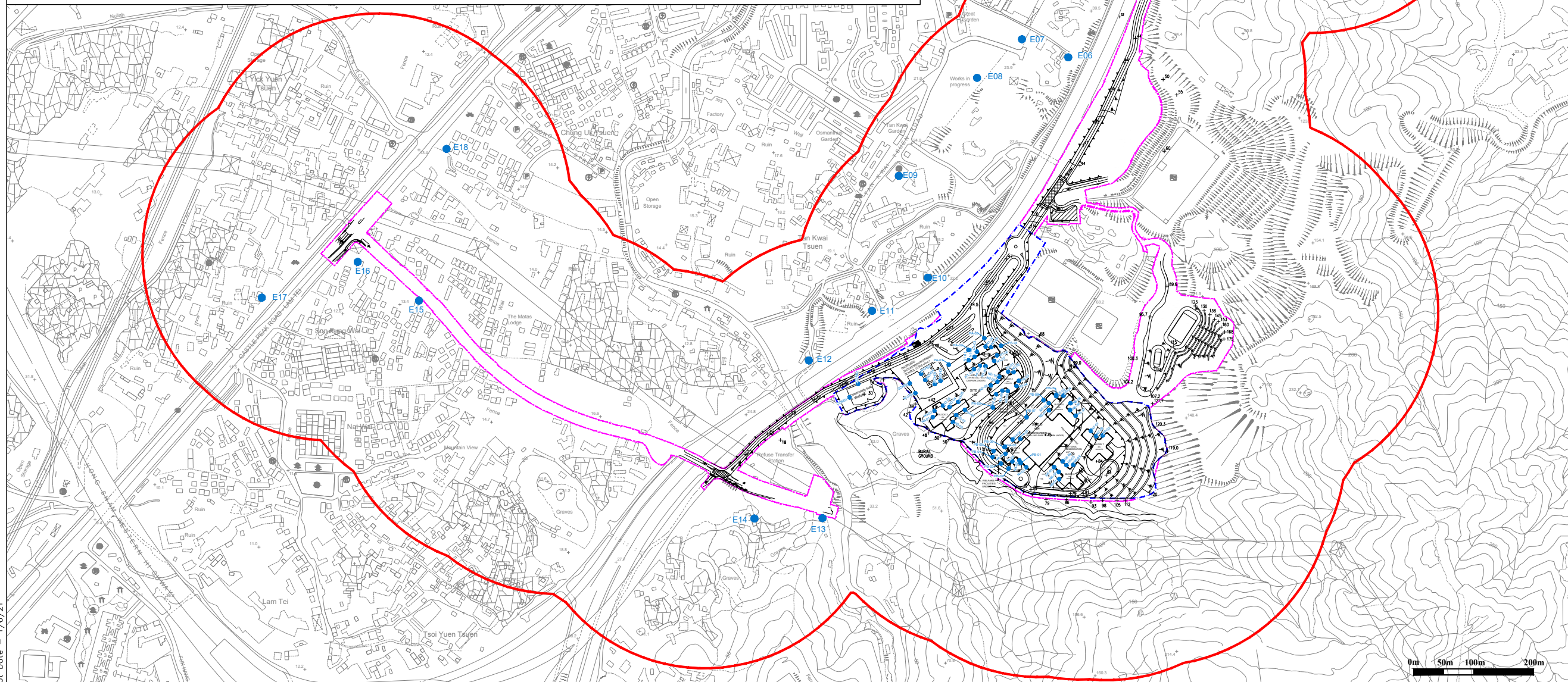
## **APPENDIX 3.1**

# **SUMMARY OF ROAD TRAFFIC NOISE IMPACT ASSESSMENT RESULTS EXTRACTED FROM THE PER REPORT FOR AGREEMENT NO. CE 92/2017 (CE)**





CLOSE-UP PLAN FOR PLANNED RECEIVERS OF PROPOSED DEVELOPMENT



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- LEGEND:
- 300m ASSESSMENT AREA FOR ROAD TRAFFIC NOISE IMPACT ASSESSMENT
  - PROJECT BOUNDARY
  - PROPOSED SITE FOR PUBLIC HOUSING DEVELOPMENT AND ASSOCIATED GIC FACILITIES
  - REPRESENTATIVE ROAD TRAFFIC NOISE SENSITIVE RECEIVER

Revision	Date	Description		Initial	
		Designed	Checked	Drawn	Checked
Initial				KL	KY
Date				01/21	01/21

Approved

Agreement no. CE 92/2017 (CE)

Agreement title  
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS NEAR TAN KWAI TSUEN, YUEN LONG – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing title  
ASSESSMENT AREA AND REPRESENTATIVE NOISE SENSITIVE RECEIVERS FOR OPERATIONAL ROAD TRAFFIC NOISE IMPACT ASSESSMENT

Drawing No. Figure 4.3

Scale

土木工程拓展署  
**CEDD** Civil Engineering and Development Department

**binnes**  
BINNIES HONG KONG LIMITED  
實尼新工程顧問有限公司

Plot Date = 1/6/21



Appendix 3.1 Summary of Road Traffic Noise Impact Assessment Results Extracted from the PER Report for Agreement No. CE 92/2017 (CE)

Predicted Road Traffic Noise Impact (AM Peak) at NSRs under Unmitigated Scenario

NSR ID <sup>(1)</sup>	NSR Description	Criterion, L <sub>10 1hr</sub> dB(A)	Noise Impact, L <sub>10 1hr</sub> dB(A) <sup>(2)(3)</sup>			Project Road Contribution, dB(A) <sup>(3)(4)</sup>	Mitigation Measures Required [Y/N]
			Existing Road	Project Road	Overall		
PA-01	Welfare Uses under Podium (Site A)	55/65/70 <sup>(5)</sup>	59 - 61	62 - 63	64 - 65	3.8 - 5.3	- <sup>(6)</sup>
PA-02			54 - 60	58 - 59	59 - 62	2.5 - 5.4	- <sup>(6)</sup>
PA-03			70	68 - 69	72	2.4	Y
PA-04			57 - 59	75 - 76	75 - 76	17.3 - 17.8	Y
PA-05			45 - 48	72 - 73	72 - 73	24.6 - 26.6	Y
PB-01	Welfare Uses under Podium (Site B) and the nearby Welfare Facilities Block	55/65/70 <sup>(5)</sup>	39	63	63	23.5 - 23.7	- <sup>(6)</sup>
PB-02			50	73 - 74	73 - 74	23.1 - 23.7	Y
PB-03			51	74 - 75	74 - 75	23.4 - 24.0	Y
PB-04			59 - 60	75 - 76	76	16.0 - 17.5	Y
PB-05			59 - 60	73	73	12.9 - 13.6	Y
PB-06			58 - 59	64 - 66	65 - 67	7.2 - 8.1	- <sup>(6)</sup>
PB-07			54 - 55	65 - 70	66 - 70	12.2 - 14.8	- <sup>(6)</sup>
PB-08			57 - 59	66 - 69	67 - 69	10.1 - 11.4	- <sup>(6)</sup>
PB-09			56 - 59	57 - 60	59 - 63	3.5 - 4.1	- <sup>(6)</sup>
N1-01	Planned NSRs of Block 1	70	63 - 74	57 - 63	64 - 74	0.3 - 1.1	Y
N1-02			60 - 73	51 - 60	61 - 73	0.2 - 1.1	Y
N1-03			59 - 72	50 - 60	60 - 72	0.2 - 1.1	Y
N1-04			64 - 72	61 - 68	65 - 73	0.7 - 2.7	Y
N1-05			61 - 73	61 - 69	64 - 74	0.6 - 4.7	Y
N1-06			46 - 54	63 - 68	63 - 68	N/A	N
N1-07			46 - 55	63 - 66	63 - 66	N/A	N
N1-08			48 - 60	56 - 59	59 - 61	N/A	N
N1-09			47 - 53	57 - 60	58 - 60	N/A	N
N1-10			47 - 55	59 - 62	60 - 62	N/A	N
N2-01	Planned NSRs of Block 2	70	53 - 70	65 - 69	66 - 72	1.4 - 13.7	Y
N2-02			53 - 70	64 - 69	67 - 72	1.1 - 14.2	Y
N2-03			43 - 50	66 - 74	66 - 74	15.6 - 29.6	Y
N2-04			45 - 53	65 - 74	66 - 74	12.4 - 28.8	Y
N2-05			43 - 48	63 - 71	63 - 71	15.0 - 26.4	Y
N2-06			43 - 49	64 - 70	64 - 70	N/A	N
N2-07			43 - 50	65 - 71	65 - 71	14.7 - 26.3	Y
N2-08			53 - 68	50 - 60	55 - 69	N/A	N
N2-09			51 - 67	46 - 57	52 - 67	N/A	N
N2-10			50 - 65	43 - 56	51 - 65	N/A	N
N3-01	Planned NSRs of Block 3	70	59 - 71	51 - 61	60 - 71	0.3 - 1.2	Y
N3-02			59 - 70	51 - 60	60 - 71	0.3 - 1.1	Y
N3-03			50 - 70	49 - 58	53 - 71	0.2 - 2.5	Y
N3-04			52 - 70	47 - 59	54 - 71	0.2 - 1.1	Y
N3-05			54 - 71	48 - 60	55 - 71	0.2 - 1	Y
N3-06			44 - 50	63 - 68	64 - 68	N/A	N
N3-07			44 - 50	63 - 67	63 - 67	N/A	N
N3-08			44 - 49	63 - 67	63 - 67	N/A	N
N4-01	Planned NSRs of Block 4	70	41 - 50	60 - 65	61 - 65	N/A	N
N4-02			39 - 44	60 - 64	60 - 64	N/A	N
N4-03			39 - 44	51 - 65	51 - 65	N/A	N
N4-04			54 - 63	63 - 68	64 - 69	N/A	N
N4-05			59 - 62	64 - 67	66 - 68	N/A	N
N4-06			54 - 65	53 - 66	57 - 68	N/A	N
N4-07			53 - 66	51 - 66	55 - 69	N/A	N
N5-01	Planned NSRs of Block 5	70	52 - 64	51 - 67	54 - 68	N/A	N
N5-02			49 - 60	54 - 67	55 - 67	N/A	N
N5-03			61 - 70	55 - 62	62 - 70	N/A	N
N5-04			60 - 70	60 - 63	63 - 70	N/A	N
N5-05			42 - 50	41 - 61	45 - 61	N/A	N

NSR ID <sup>(1)</sup>	NSR Description	Criterion, L <sub>10 1hr</sub> dB(A)	Noise Impact, L <sub>10 1hr</sub> dB(A) <sup>(2)(3)</sup>			Project Road Contribution, dB(A) <sup>(3)(4)</sup>	Mitigation Measures Required [Y/N]
			Existing Road	Project Road	Overall		
N5-06			41 - 53	41 - 61	44 - 61	N/A	N
N5-07			43 - 66	41 - 61	45 - 67	N/A	N
N6-01	Planned NSRs of Block 6	70	48	56 - 58	57 - 58	N/A	N
N6-02			37 - 45	54 - 57	55 - 57	N/A	N
N6-03			36 - 39	56 - 57	56 - 57	N/A	N
N6-04			36 - 47	40 - 60	42 - 60	N/A	N
N6-05			36 - 48	38 - 58	40 - 58	N/A	N
N6-06			35 - 58	38 - 58	40 - 61	N/A	N
N7-01	Planned NSRs of Block 7	70	39 - 66	40 - 61	42 - 67	N/A	N
N7-02			38 - 65	39 - 61	41 - 66	N/A	N
N7-03			37 - 64	38 - 61	41 - 66	N/A	N

## Notes:

- (1) The assessment only includes NSRs which rely on opened windows for ventilation.
- (2) Bolded values mean exceedance of the relevant noise criteria.
- (3) Predicted noise levels and project road contributions are expressed in range unless the minimum and maximum values (rounded to the nearest whole number for noise impacts, and to the nearest one decimal place for project road contribution) are the same.
- (4) Project Road Contribution is indicated as "N/A" if the overall levels comply with the noise criterion.
- (5) For NSRs "PA" and "PB", the type of welfare use cannot be confirmed at this stage and the criteria for different uses vary. According to the HKPSG, 55 dB(A) shall be applied for diagnostic rooms and wards of clinics, convalescences and of residential care homes for the elderly which rely on opened windows for ventilation; 65 dB(A) shall apply to educational institutions, including kindergartens, child care centres, etc., which rely on opened windows for ventilation; and 70 dB(A) shall apply to hostels (including elderly homes), which rely on opened windows for ventilation.
- (6) The requirement for mitigation measures will depend on the type of welfare use to be adopted.

Predicted Road Traffic Noise Impact at NSRs under Mitigated Scenario (AM Peak)

NSR ID <sup>(1)</sup>	NSR Description	Criterion, L <sub>10 1hr</sub> dB(A)	Overall Noise Impact, L <sub>10 1hr</sub> dB(A) <sup>(2)</sup>	Application of Acoustic Window [Y/N]	Application of Fixed Windows or Acoustic Insulation with Mechanical Air Ventilation [Y/N]
PA-01	Proposed Welfare Uses under Podium (Site A)	55/65/70 <sup>(3)</sup>	62 - 64	N	Y <sup>(4)</sup>
PA-02			59 - 62	N	Y <sup>(4)</sup>
PA-03			72	N	Y
PA-04			75 - 76	N	Y
PA-05			72 - 73	N	Y
PB-01	Proposed Welfare Uses under Podium (Site B) and the nearby Welfare Facilities Block	55/65/70 <sup>(3)</sup>	63	N	Y <sup>(4)</sup>
PB-02			73 - 74	N	Y
PB-03			74 - 75	N	Y
PB-04			76	N	Y
PB-05			73	N	Y
PB-06			65 - 67	N	Y (1/F) <sup>(4)</sup> Y (2/F - 3/F) <sup>(5)</sup>
PB-07			66 - 70	N	Y <sup>(5)</sup>
PB-08			67 - 69	N	Y <sup>(5)</sup>
PB-09			59 - 63	N	Y <sup>(4)</sup>
N1-01	Planned NSRs of Block 1	70	64 - 74	Y	N
N1-02			60 - 73	Y	N
N1-03			60 - 72	Y	N
N1-04			65 - 73	Y	N
N1-05			64 - 74	Y	N
N1-06			63 - 68	N	N
N1-07			63 - 66	N	N
N1-08			59 - 61	N	N
N1-09			58 - 60	N	N
N1-10			60 - 62	N	N
N2-01	Planned NSRs of Block 2	70	66 - 72	Y	N
N2-02			67 - 72	Y	N
N2-03			66 - 74	Y	N
N2-04			66 - 74	Y	N
N2-05			63 - 71	Y	N
N2-06			64 - 70	N	N
N2-07			65 - 71	Y	N
N2-08			54 - 69	N	N
N2-09			52 - 67	N	N
N2-10			51 - 65	N	N
N3-01	Planned NSRs of Block 3	70	60 - 71	Y	N
N3-02			60 - 71	Y	N
N3-03			53 - 71	Y	N
N3-04			54 - 71	Y	N
N3-05			55 - 71	Y	N
N3-06			64 - 68	N	N
N3-07			63 - 67	N	N
N3-08			63 - 67	N	N
N4-01	Planned NSRs of Block 4	70	61 - 65	N	N
N4-02			60 - 64	N	N
N4-03			51 - 65	N	N
N4-04			64 - 69	N	N
N4-05			66 - 68	N	N
N4-06			57 - 68	N	N
N4-07			55 - 69	N	N
N5-01	Planned NSRs of Block 5	70	54 - 68	N	N
N5-02			55 - 67	N	N
N5-03			62 - 70	N	N
N5-04			63 - 70	N	N
N5-05			45 - 61	N	N

NSR ID <sup>(1)</sup>	NSR Description	Criterion, L <sub>10 1hr</sub> dB(A)	Overall Noise Impact, L <sub>10 1hr</sub> dB(A) <sup>(2)</sup>	Application of Acoustic Window [Y/N]	Application of Fixed Windows or Acoustic Insulation with Mechanical Air Ventilation [Y/N]
N5-06			44 - 61	N	N
N5-07			45 - 67	N	N
N6-01	Planned NSRs of Block 6	70	57 - 58	N	N
N6-02			55 - 57	N	N
N6-03			56 - 57	N	N
N6-04			42 - 60	N	N
N6-05			40 - 58	N	N
N6-06			40 - 61	N	N
N7-01			Planned NSRs of Block 7	70	42 - 67
N7-02	41 - 66	N			N
N7-03	41 - 66	N			N

## Notes:

- (1) The assessment only includes NSRs which rely on opened windows for ventilation.
- (2) Bolded values mean exceedance of the relevant noise criteria.
- (3) For NSRs "PA" and "PB", the type of welfare use cannot be confirmed at this stage and the criteria for different uses vary. According to the HKPSG, 55 dB(A) shall be applied for diagnostic rooms and wards of clinics, convalescences and of residential care homes for the elderly which rely on openable windows for ventilation; 65 dB(A) shall apply to educational institutions, including kindergartens, child care centres, etc., which rely on opened windows for ventilation; and 70 dB(A) shall apply to hostels (including elderly homes), which rely on opened windows for ventilation.
- (4) Only applicable if diagnostic rooms and wards of clinics, convalescences and of residential care homes for the elderly which rely on opened windows for ventilation is adopted.
- (5) Only applicable if educational institutions or diagnostic rooms and wards of clinics, convalescences and of residential care homes for the elderly which rely on opened windows for ventilation is adopted.
- (6) The provision of acoustic insulation with mechanical air ventilation is subject to further review.