Appendix 3

Environmental Assessment

MOTT MACDONALD

Proposed Amendments to an Approved Scheme (Application No. A/YL-MP/344) for Comprehensive Residential Development to Include a Wetland Restoration Area at Lots 50 S.A and 77 in D.D. 101, Wo Shang Wai, Mai Po, Yuen Long

Environmental Assessment (Rev. A)

July 25

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Environmental Assessment (Rev. A)

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Background

The purpose of this s.16 application is to propose amendments to the previously approved scheme under application No. A/YL-MP/344, which was approved for a comprehensive residential development, including a Wetland Restoration Area (WRA), with filling and excavation of land.

The application site falls within an area zoned “Other Specified Uses” annotated “Comprehensive Development to include Wetland Restoration Area” (“OU(CDWRA)”) on the approved Mai Po and Fairview Park Outline Zoning Plan No. S/YL-MP/8 (the "OZP").

The proposed amendment relates to the approved layout of the residential portion, with no change to the plot ratio and gross floor area. Majority of the basement car parking spaces are relocated to ground level for cost-effectiveness and ease of implementation. No change is proposed to the already completed WRA. This Environmental Assessment is prepared in support of the subject s.16 application.

1 Air Quality

1.1 Introduction

This section reviews the air quality impact assessment findings from the previously approved Section 16 submission and identifies any changes of construction and operation impacts that may arise due to the proposed change in layout plan.

1.2 Legislation, Standards, Guidelines and Criteria

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

- Air Pollution Control Ordinance;
- Air Pollution Control (Construction Dust) Regulation;
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation;
- Air Pollution Control (Fuel Restriction) Regulation;
- Recommended Pollution Control Clauses for Construction Contracts;
- Environmental Impact Assessment Ordinance and Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM); and
- Hong Kong Planning Standards and Guidelines (HKPSG).

Air Pollution Control Ordinance

The principal legislation for the management of air quality is the APCO. The APCO specifies Air Quality Objectives (AQOs) which stipulate the statutory limits of air pollutants and the maximum allowable numbers of exceedances over specific periods. Updated AQOs which came into effect on 11 April 2025 are listed in **Table 1.1** below.

Table 1.1: Updated Air Quality Objectives

Pollutant	Averaging time	Concentration (μg/m^3)	Number of exceedances allowed
Respirable Suspended Particulates (PM_{10})	24-hour	75	9
	Annual	30	Not applicable
Fine Suspended Particulates ($PM_{2.5}$)	24-hour	37.5	18
	Annual	15	Not applicable
Nitrogen Dioxide (NO_2)	1-hour	200	18
	24-hour	120	9
	Annual	40	Not applicable
Sulphur Dioxide (SO_2)	10-minute	500	3
	24-hour	40	3
Ozone (O_3)	8-hour	160	9
	Peak season	100	Not applicable
Carbon Monoxide (CO)	1-hour	30,000	0
	8-hour	10,000	0
	24-hour	4,000	0

Pollutant	Averaging time	Concentration (μg/m^3)	Number of exceedances allowed
Lead (Pb)	Annual	0.5	Not applicable

Notes:

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

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

[iii]. Fine suspended particulates ($PM_{2.5}$) mean suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less.

Air Pollution Control (Construction Dust) Regulation

The Air Pollution Control (Construction Dust) Regulation enacted under the APCO defines notifiable and regulatory works activities that are subject to construction dust control. Notifiable works are site formation, reclamation, demolition of a building, construction of foundation and superstructure for a building, and road construction work. Regulatory works are renovation of building, road opening or resurfacing work, slope stabilisation work, and any work involving stockpiling, loading and unloading of dusty material, transfer of dusty material using belt conveyor system, etc.

Notifiable works require that advance notice of activities shall be given to EPD. The Air Pollution Control (Construction Dust) Regulation also requires the works contractor to ensure that both notifiable works and regulatory works are conducted in accordance with the Schedule of Regulation, which provides dust control and suppression measures.

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

The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation controls the emissions from non-road vehicle and regulated machines to be used in construction sites. The regulated machines must comply with the emission standards of Stage IIIA of the European Union (EU) or equivalent, while non-road vehicles must comply with the prevailing emission standards for newly registered road vehicles, which is Euro V. Upon confirmation of their compliance with the emission requirement, EPD will issue them with an approval label.

According to the regulation, mobile machine and equipment (regulated machines) means any mobile machine or transportable industrial equipment that is powered by an internal combustion engine with a rated engine power output that is greater than 19 kW but less than or equal to 560 kW. Non-road Mobile Machinery (NRMM) is intended to be used in a private road that is within an area wholly or mainly used for the carrying on of construction work/industry. The regulated machines include crawler cranes, excavators, etc., while non-road vehicles include private cars, goods vehicles, etc. Therefore, this regulation is applicable to the NRMM to be deployed for construction activities of the Project.

Air Pollution Control (Fuel Restriction) Regulation

The Air Pollution Control (Fuel Restriction) Regulation specifies the legal control on the type of fuels to be allowed for use and the sulphur contents of the fuels. The fuels to be used should comply the following respective requirements:

- Gaseous fuel; and
- Liquid fuel with a sulphur content not exceeding 0.001% by weight and a viscosity not more than 6centistokes at 40°C, such as Ultra Low Sulphur Diesel (“ULSD”)

Recommended Pollution Control Clauses (RPCC) for Construction Contracts

The RPCC for construction contracts provide generally good engineering practices to minimise inconvenience and environmental nuisance to nearby sensitive receivers during construction phase of development. Some modifications may be required to suit different site conditions.

Technical Memorandum on Environmental Impact Assessment Process

The criteria and guidelines for evaluating air quality impacts are laid out in Section 1 of Annex 4 and Annex 12 respectively of the EIAO-TM. Section 1 of Annex 4 stipulates the criteria for evaluating air quality impacts. This includes meeting the Air Quality Objectives (AQOs) and other standards established under the APCO, and the 5-second average odour concentration of 5 odour units (ou/m^3). Annex 12 provides the guidelines for conducting air quality assessments under the EIA process, including determination of Air Sensitive Receivers (ASRs), assessment methodology as well as impact prediction and assessment.

Hong Kong Planning Standards and Guidelines

According to the Table 3.1 in Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG), guidelines on the buffer distances for air sensitive uses from vehicular emissions and industrial emissions have been recommended. The type of pollution source, their associated parameters and respective minimum buffer distances for open space sites are given in **Table 1.2**. The HKPSG buffer distances recommended for "active and passive recreation uses" have been adopted as references for residential uses in this assessment.

Table 1.2: Guideline on Usage of Open Space Site

Pollutant Source	Parameter	Buffer Distance (m)	Permitted Uses
Road and Highways	*Type of Road:*		
	Trunk Road and Primary Distributor (PD)	>20	Active and passive recreation uses
		3-20	Passive recreational uses
		<3	Amenity areas
	District Distributor (DD)	>10	Active and passive recreation uses
		<10	Passive recreational uses
	Local Distributor (LD)	>5	Active and passive recreation uses
		<5	Passive recreational uses
	Under Flyovers	--	Passive recreational uses
Industrial Areas	*Difference in Height between Industrial Chimney Exit and the Site:*		
	<20m	>200	Active and passive recreational uses
		5-200	Passive recreational uses
	20-30m (*)	>100	Active and passive recreational uses
		5-100	Passive recreational uses
	30-40m	>50	Active and passive recreational uses
		5-50	Passive recreational uses
	>40m	>10	Active and passive recreational uses

Notes:

[i]. Buffer distance refers to the horizontal, shortest distance from the edge of the road kerb or the position of the existing chimney, to the boundary of open space sites.

[ii]. In situations where the height of chimneys is not known, the set of guidelines marked with an asterisk (*) are used for preliminary planning purposes and refined as and when more information is available.

1.3 Assessment Methodology

1.3.1 Construction Phase

Activities anticipated during the construction phase that could potentially give rise to fugitive dust emissions include site formation and construction of on-site infrastructure (roads/drains) and residential units. Other potential sources of air quality impacts may include exhaust emissions from construction vehicles and odour generated from excavation of fishpond deposits.

The San Tin Technopole Phase 1 Stage 1 Works under the San Tin / Lok Ma Chau Development Node (EIA Register No.: EIA-302/2023) has been identified as a concurrent project within 500m assessment area of the Project.

1.3.2 Operation Phase

Potential air quality impacts during the operational phase could be attributed to vehicular emissions from existing road traffic and project induced traffic emissions, as well as odour from the existing sewage treatment plants (STP) in the vicinity. Odour may also be generated from the planned on-site STP for the Development or the planned San Tin / Lok Ma Chau Effluent Polishing Plant (STLMC EPP) and food waste pre-treatment facilities (FWPF) under the San Tin / Lok Ma Chau Development Node Project. A site survey was conducted on 13 June 2024, during which no active chimney was identified within 200m from the Project site boundary, which is the buffer distance recommendation in the HKPSG.

1.4 Baseline Conditions / Sensitive Receivers

1.4.1 Baseline Conditions

Historical ambient air quality has been referenced from EPD's general air quality monitoring station (AQMS) located in Yuen Long, which is closest to the Project site. The recent five years' monitoring data (Year 2019 - 2023) recorded at the AQMS in Yuen Long is presented in **Table 1.3**.

Table 1.3: Historical Air Quality from EPD's general monitoring station at Yuen Long

Pollutant	Averaging Period	Concentration (µg/m³)						Corresponding AQOs (µg/m³)
		2019	2020	2021	2022	2023	5-year annual average	
Respirable Suspended Particulates (RSP or PM_{10})	24-hour - 10th highest	**83**	**77**	73	56	59	70	75
	Annual	**37**	30	30	25	26	30	30
Fine Suspended Particulates (FSP or $PM_{2.5}$)	24-hour - 19th highest	**38**	33	36	**38**	34	36	37.5
	Annual	**20**	**16**	**17**	**16**	**16**	**17**	15
Nitrogen Dioxide (NO_2)	1-hour - 19th highest	161	135	148	122	130	139	200
	24-hour - 10th highest	86	64	78	68	67	73	120
	Annual	**44**	32	40	37	37	38	40
	10-minute - 4th highest	42	26	24	21	20	27	500

Sulphur Dioxide (SO_2)	24-hour - 4th highest	11	10	14	7	10	10	40
Ozone (O_3)	8-hour - 10th highest	**200**	154	**178**	**194**	155	**176**	160
	Peak season	**102**	86	84	95	84	90	100
Carbon Monoxide (CO)	1-hour	2,150	1,530	2,090	1,700	1,580	1,810	30,000
	8-hour	1,903	1,279	1,591	1,519	1,273	1,513	10,000
	24-hour	1,630	1,182	1,183	1,159	1,047	1,240	4,000

Notes:
[i]. Data extracted from EPD's Smart Air Modelling Platform (SAMP) v2.1.
[ii]. Monitoring results that exceeded the AQO criteria are shown in **bold** characters.
[iii]. Lead is not measured at Yuen Long AQMS.

The predicted future background air pollutant concentrations within the Assessment Area are extracted from the relevant grids of the Pollutants in the Atmosphere and their Transport over Hong Kong (PATH) v.3.0 model for Year 2027 and are summarised in **Table 1.4** below. Year 2027 is referenced being the earliest planned Phase 1 population intake year of the Project.

Table 1.4: Future Background Air Quality from PATH for Year 2027

Pollutant	Averaging Period	Concentration (µg/m³)		Corresponding AQO (µg/m³)
		(28,51)	(28,52)	
RSP / PM_{10}	24-hour – 10th Highest	60	60	75
	Annual	22	23	30
FSP / $PM_{2.5}$	24-hour – 19th Highest	36	36	37.5
	Annual	14	14	15
NO_2	1-hour – 19th Highest	80	85	200
	24-hour – 10th Highest	28	28	120
	Annual	16	17	40
SO_2	10-min – 4th Highest	27	27	500
	24-hour – 4th Highest	8	8	40
Ozone (O_3)	8-hour – 10th highest	**190**	**187**	160
	Peak Season	**124**	**122**	100
Carbon Monoxide (CO)	1-hour	617	617	30,000
	8-hour	593	593	10,000
	24-hour	533	533	4,000

Notes:
[i]. Data extracted from EPD's Smart Air Modelling Platform (SAMP) v2.1.
[ii]. Monitoring results that exceeded the AQO criteria are shown in **bold** characters.

As shown in **Table 1.4**, the future background levels of all pollutants would below with their corresponding AQOs in 2027, with the exception of ozone which is a regional pollutant. The improvement in future ambient air quality can be attributed to the government's commitment to implement various planned emission reduction measures, as published on EPD's website[1].

[1] Air Pollution Control Strategies | Environmental Protection Department

1.4.2 Sensitive Receivers

Representative Air Sensitive Receivers (ASRs) within 500m of the site boundary have been identified according to the criteria set out in the EIAO-TM through site inspections and a review of land use plans. ASRs and their horizontal distance from the Project site boundary have been identified and are summarized in **Table 1.5**. Locations of the ASRs are shown in **Figure 1.1**.

Table 1.5: Locations of Representative Air Sensitive Receiver

ID	Receiver Description	Use	Construction Phase	Operation Phase	Approx. Horizontal Distance from:		
					Site Boundary (m)	Phase 1 Construction (m)	Phase 2 Construction (m)
ASR 1	Royal Palms	R	✓	✓	21	21	30
ASR 2a	Palm Springs	R	✓	✓	21	22	21
ASR 2b			✓	✓	15	91	15
ASR 3	Wo Shang Wai	R	✓	✓	51	118	51
ASR 4	Village House of Mai Po San Tsuen	R	✓	✓	64	64	89
ASR 5	Proposed Comprehensive Development at Wo Shang Wai (Project Area)	R	Phase 2	✓	Within Project Site	N/A	16

Notes:
R: Residential
N/A: Not Applicable as not an ASR during Phase 1 construction

1.5 Evaluation of Air Quality Impact

1.5.1 Construction Phase

The entire site will be divided into 2 portions i.e., 2 residential development phases. The construction of the Project will commence in 2026 with the residential development ready for occupation in phases, in line with the construction phases of the residential development. Each phase will begin to be occupied upon completion of its construction works. Wetland restoration works as described in the previous Section 16 submission were completed at the time of this study.

Fugitive dust could be generated during the construction of the Project as a result of construction activities like material handling, excavation, vehicles movement and erosion of unpaved area and stockpiles. The total volume of materials to be excavated is anticipated to be around 115,000 m^3, of which about 42,500 m^3 would have a potential for re-use.

Dust generation could be controlled by providing covers to dusty materials in order to prevent erosion, and dust could be suppressed by regular site watering. No change to the number of dump trucks from the previously approved Section 16 submission is anticipated, which the highest number is expected to be around 25-30 per hour, assuming 15 dump trucks shall be travelling on the haul road and 15 numbers will be stationary at various work phases for load/ unloading works. The speed of the trucks within site will be controlled to 10 kph to reduce air quality impact and for safe movement around the site. In addition, site hoarding shall be provided at the Project site

boundary as a control measure. Appropriate air quality control measures as stipulated in the Air Pollution Control (Construction Dust) Regulation under the APCO will be implemented.

The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation came into effect to control the emissions from diesel powered engines. The number of diesel-powered machinery to be used at the site is subject to site conditions and detailed construction methods. It is noted however that the works will be phased and there would be no population intake during the construction of Phase 1 of the development. Prior to the population intake for Phase 1 and remaining Phase 2 construction works, hoarding will be erected along the phased works boundary as planned ASRs within the Phase 1 portion of the development would be closer to the works boundary. There will be limited numbers of diesel-powered machinery used at the site. It is estimated that no more than 61 PME (including diesel-PME) would be operated at the same time under normal operation. Also, only about 14% of the construction period would use more than 42 numbers of PME at a time, which is when the works at both phases would overlap and therefore there would be no population intake at the planned ASRs within the development. According to the Air Pollution Control (Fuel Restriction) Regulations, liquid fuel with a sulphur content of less than 0.001% by weight should be used. Under the effects of the two regulations, emissions of gaseous pollutants from the operation of on-site diesel powered mechanical equipment would be controlled.

No concrete batching plants will be provided on-site. Concrete will be brought into site in “ready-mixed” state or in pre-cast sections. Given a relatively flat site, no rock crushing will be necessary.

Apart from the implementation of control measures, an EM&A programme will be undertaken to monitor the air quality impacts associated with construction to ensure no adverse construction air quality impacts on the adjacent ASRs and to verify the effectiveness of the control measures. In conclusion, adverse air quality impact during the construction stage is not anticipated given the proper control measures recommended and the EM&A programme.

Since the proposed Project Area was derived from fishponds, pond deposits underlay a majority of the Project Area. Pond deposits are a mixture of organic material and may release odour if excavated. In order to minimise the odour nuisance to surrounding environment, the following control measures are recommended:

- all malodorous excavated material should be placed as far as possible from any ASRs;
- the malodourous materials will be immediately contained in airtight and watertight containers on-site and transported off-site by trucks for disposal at a strategic landfill within one day. Sufficient number of containers will be provided;
- During transportation, odorous materials on the trucks should be properly covered by tarpaulin sheets;
- Limited number of ponds shall be excavated at a time, in line with the phased construction works; and
- Frequent site inspections shall be conducted to monitor odour impact.

With proper planning and measures in place, potential adverse odour impact is not anticipated. In case of future complaint against pond excavation work or if odour is detected during site inspections, the applicant shall be responsible for investigating the odour issue and taking remedial actions, as appropriate.

Based on the latest information available, the construction works for the San Tin Technopole Phase 1 Stage 1 Works - Site Formation and Engineering Infrastructure Project commenced in December 2024 and are scheduled to be completed in 2028. The San Tin Technopole Project site boundary is located approximately 188m away from Project, as indicated in **Figure 1.1**. Control measures and good site practices will be implemented by both parties to minimize construction air quality impacts and close liaison will be maintained to avoid heavy/ dusty

construction activities being carried out simultaneously, as far as practicable. Dust monitoring work will also be implemented by the proposed Project during the construction stage to ensure there is no adverse air quality impact.

1.5.2 Operation Phase

Impacts arising from the operation of this Project could primarily attribute to vehicular emissions that may affect the proposed development itself and identified ASRs off-site. Vehicular emission impacts from the major roads, San Tin Highway and Castle Peak Road are considered insignificant, as the nearest Project sensitive receivers are more than 107m from these major roads. According to the information provided by the Project's Traffic Consultant and agreed upon by the Transport Department (TD), the road leading to the project site (i.e., Mai Po South Road) is classified as a feeder road, which is similar to a local distributor under the road types listed in the HKPSG as advised by the Project's Traffic Consultant. The email correspondence between the Project's Traffic Consultant and the TD is presented in **Appendix 1.1**, and its buffer zone is shown in **Figure 1.2**. There exist a number of private roads surrounding the proposed development. As a conservative approach, a buffer distance of 10m corresponding to district distributors (DD) was applied, as shown in **Figure 1.2**, and found to be satisfied for these roads. No air-sensitive uses of the proposed development including openable window, fresh air intake and recreational use in the open space shall be located within the buffer zones. All internal roads within the proposed development are private roads, classified as emergency vehicular access (EVA) roads and therefore buffer distance requirements do not apply for these roads.

The HKPSG buffer distance requirement is met from all the surrounding roads for the proposed development subject to no proposed air sensitive uses being located within the buffer zones. By incorporating the recommended buffer zones into the design of the proposed development, adverse impact from vehicular emission to planned ASRs is not anticipated. Moreover, as per the information provided by the Project's Traffic Consultant, more than 90% of vehicles on the internal access road are private cars. The rest of vehicle types are light goods vehicles and a small number of heavy vehicles, such as refuse collection vehicles, would appear on the internal access road. In addition, Mai Po South Road is designated as a private road, mainly serving as an access road for the proposed development. No public transport service (including public transport interchange (PTI) and transport lay-by) will be provided within the site.

A proposed car park will be located at the basement of the northern part of the proposed residential development. Reference shall be made to ProPECC PN 2/96 "Control of Air Pollution in Car Parks" for its design and operation. The location of the ventilation exhausts of the basement car park will be determined in the detail design stage. These will however be located facing away from nearby ASRs as far as practicable.

Under the previously approved Section 16 submission, the on-site STP was proposed to serve a full intake of 789 residential units and would therefore have a capacity of 2,491 m^3/day. Under this Section 16 amendment scheme, the number of residential units will be reduced to 649 and hence the capacity of the on-site STP will be adjusted to 1,350 m^3/day accordingly. The location and height of the exhaust for the proposed STP is not available at this stage of the study which is subject to STP detailed design. However, it will be positioned as far away as possible from any nearby ASRs. The proposed STP will follow the Environmental Consideration specified in EPD Guidelines for the Design of Small Sewage Treatment Plants for minimization of the odour impact. The odorous gases will be extracted to an on-site chemical / biological deodourization facilities with a high hydrogen sulphide (H_2S) removal efficiency of at least 99.5% prior to discharge, with a design entirely enclosed and confined.

According to the EIA Report for the Expansion of Sha Tau Kok Sewage Treatment Works (Register No.: AEIAR-207/2017), the Sha Tau Kok Sewage Treatment Works (STKSTW) is designed to increase the treatment capacity to 10,000 m^3/day at average dry weather flow

(ADWF). The sewage treatment technology and odour control measures of STKSTW are similar to those proposed for the on-site STP, as summarized below.

- Enclosure of the major process equipment inside a building structure;
- Utilization of a Membrane Bioreactor (MBR) system equipped with a deodorizer (with 99.5% H_2S removal efficiency) to treat odorous emissions;
- Regular maintenance of the deodorizer to ensure that the odour removal efficiency remains at or above the design requirement; and
- Locating the exhaust of the deodorization facilities as far away as possible from any nearby ASRs.

The odour impact assessment of the approved EIA for STKSTW predicted 5-second odour concentrations at its closest ASR (20m away from the STW) of 0.03OU to 0.13OU at assessment heights of 1.5m to 10.5m above ground, which are well below the odour criterion of 5OU. The exhaust of the proposed on-site STP will also be placed more than 20m from the nearest air sensitive uses and facing away from them, as far as practicable. An indicative location of the STP exhaust is shown in **Figure 1.1**. Adverse odour impact from the on-site STP is therefore not anticipated.

To meet the 'no net increase in pollution load' requirement, sewage generated by the residential units will be treated through the on-site STP adopting membrane bioreactor (MBR) technology and the treated effluent will be fully reused on-site for toilet flushing and irrigation of landscaped areas. The on-site STP could be designed to achieve the tertiary treatment level by utilizing the MBR process and UV disinfection and shall be designed in accordance with EPD's 'Guidelines for the Design of Small Sewage Treatment Plant'. The preliminary design of the facilities has also referred to the water quality standards for reuse recommended by the 'Water Supplies Department (WSD) Inter-departmental Working Group on the Implementation of Reclaimed Water Supply in Sheung Shui and Fanling' for non-potable uses, as well as the USEPA Guidelines for Water Reuse (2012). Based on the information provided on the DSD's website[2], it is believed that the reclaimed water is clear in appearance, odourless, and safe for use. Therefore, potential odour impacts from the treated effluent are not expected and considered insignificant.

The layout of the facilities for the development has been carefully planned and the refuse collection point (a potential odour generator) has been deliberately situated away from the residential development and will be close to the main access area connecting the main road. During the detailed design phase, the minimisation of odours at the refuse collection point will be considered in more detail to reduce any potential for localised nuisance.

Within the 500m Assessment Area, there are two existing private sewage treatment plants that serve the Palm Springs and Royal Palms residential developments at more than 200m from the Project site as shown in **Figure 1.1**. The population size of Palm Springs and Royal Palms are about 3300 and 1700, respectively. According to the previously approved Section 16 submission, no sewage odour was detected when conducting site surveys at the Project Area over a 15-month period from April 2005 to June 2006. In addition, site surveys were conducted on 21 July 2023 and 13 June 2024 during which odour was also not detected around the Project site boundary of the proposed development and the site boundaries of both existing STPs.

The planned STLMC EPP and FWPF under the San Tin/ Lok Ma Chau Development Node, is located about 480m away from the nearest air-sensitive use of the proposed development, as indicated in **Figure 1.1**. Contour plots of predicted maximum 5-second average cumulative odour concentrations at various assessment heights between 1.5mAG and 20mAG, as presented in the approved EIA for San Tin / Lok Ma Chau Development Node (AEIAR-261/2024), indicated exceedances of odour impact away from proposed development. Exceedance zones were

[2] https://www.dsd.gov.hk/EN/Sewerage/Environmental_Consideration/Reclaimed_Water/index.html

identified over the STLMC EPP and FWPF's at 10mAG, 15mAG and 20mAG. The shortest separation distances between these exceedance zones and the nearest air-sensitive use of the proposed development were all found to be over 500m away. Therefore, odour impact from these facilities to the proposed development is not anticipated.

1.6 Mitigation of Impacts

1.6.1 Construction Phase

To ensure compliance with the AQOs at the ASRs at all times, it is recommended to include good site practice in the contract clauses to minimize cumulative construction air quality impact, and to implement an air quality monitoring and audit programme to ensure proper implementation of the identified mitigation measures. All the relevant control measures stipulated in the Air Pollution Control (Construction Dust) Regulation would be fully implemented. Mitigation measures include:

- hoarding at least 2.4m high from ground level shall be erected along the works boundary and higher hoarding shall be provided for the Phase 2 construction works boundary, as necessary, since planned Phase 1 ASRs would be closer to the works boundary;
- use of effective dust screens, sheeting or netting shall be provided to enclose dry scaffolding which may be provided from the ground floor level of the building or if a canopy is provided at the first floor level, from the first floor level, up to the highest level (maximum four floors for this Project) of the scaffolding where scaffolding is erected around the perimeter of a building under construction;
- dump trucks for material transport should be totally enclosed using impervious sheeting;
- any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;
- dusty materials remaining after a stockpile is removed should be wetted with water;
- the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with e.g., concrete, bituminous materials or hardcore or similar;
- the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;
- stockpile of dusty materials to be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;
- all dusty materials to be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;
- vehicle speed to be limited to 10 kph except on completed access roads;
- every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;
- the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
- the working area of excavation should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet;
- deploy electrified NRMMs as far as practicable;
- use of exempted NRMMs should be avoided;
- regular maintenance of construction equipment deployed on-site should be conducted;
- all malodorous excavated material should be placed as far as possible from any ASRs;

- the stockpiled malodorous materials should be kept in airtight and watertight containers on site and transported off site within 24 hours; and
- during transportation, these odorous materials on the trucks should be properly covered by tarpaulin sheets.
- Limited number of ponds shall be excavated at a time, in line with the phased construction works; and
- Frequent site inspections shall be conducted to monitor odour impact.

1.6.2 Operation Phase

As the potential impacts in terms of air quality during the operational phase will be insignificant, no specific mitigation measures are required.

1.7 Residual Impacts

No adverse residual impacts are envisaged for the construction and operational phase of the Project.

1.8 Environmental Monitoring and Audit

Although the proposed Project is not expected to generate excessive dust levels, an environmental monitoring and audit program is recommended to ensure compliance with air quality criteria and the proper implementation of mitigation measures. Details are discussed in the EM&A Manual of the approved EIA report.

1.9 Conclusions and Recommendations

Through proper implementation of control measures, construction dust and gaseous emissions can be controlled at source to acceptable levels and hence no unacceptable impacts are anticipated.

During the operational stage, no adverse air quality impact is anticipated.

2 Noise Impact

2.1 Introduction

This section reviews the noise impact assessment findings from the previously approved Section 16 submission (Application No.: A/YL-MP/344) and identifies any changes or additional noise impacts that may arise due to the proposed changes to the layout of the residential portion. At a later stage, a Noise Impact Assessment report will be conducted to review, explore, demonstrate and implement appropriate noise mitigation measures for full compliance with the relevant noise criteria and requirements under ProPECC PNs, HKPSG and NCO in both construction and operation phases of the proposed development.

2.2 Legislation, Standards, Guidelines and Criteria

2.2.1 Construction Phase

ProPECC PN1/24 offers guidance on the existing control on noise from construction activities under the Noise Control Ordinance (NCO) and Environmental Impact Assessment Ordinance (EIAO). It also outlines the requirements and recommendations on the practices for minimizing construction noise. The noise generated by construction activities for the project during non-restricted hours (7 a.m. to 7 p.m. on any day that is not a Sunday or general holiday) should be minimized to the greatest extent practicable. Additionally, the construction noise at the facade of the respective noise-sensitive receivers should not exceed the following noise levels.

Table 2.1: Relevant Noise Standard for Daytime Construction Activities

Noise Sensitive Receivers	Leq(30min) dB(A)
All domestic premises	75
Educational institutions (including kindergartens and nurseries)	70 (65 during examinations)

Notes:
[i] The above noise standards apply to uses, which rely on opened windows for ventilation
[ii] The above standards shall be viewed as the maximum permissible noise levels assessed at 1 m from the external façade.

2.2.2 Operational Phase

Road Traffic Noise Criteria

With reference to the guideline in Table 4.1 of Chapter 9 of the HKPSG, the summary of relevant noise criteria regarding road traffic noise is given in **Table 2.2** below.

Table 2.2: Relevant Road Traffic Noise Standard for Planning Purposes

Uses	Road Traffic Noise, L10 (1 Hour), dB(A)
All domestic premises, including temporary housing accommodation, hotels and hostels, offices	70
Educational institutions including kindergarten, child care centres and all other where unaided voice communication is required	65
Places of public worship and courts of law	65
Hospitals, clinics, convalescences and residential care home for the elderly - Diagnostic rooms - Wards	55

Notes:
[i] The above standards apply to uses which rely on opened windows for ventilation.
[ii] The above standards should be viewed as the maximum permissible noise levels assessed at 1m from the external façade

Fixed Noise Assessment Criteria

As stated by Section 4.2.13 of Chapter 9 of the HKPSG, noise assessments for fixed noise sources would normally be conducted in accordance with the Technical Memorandum for the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites (IND-TM) under the Noise Control Ordinance (NCO). The IND-TM lays down statutory Acceptable Noise Levels (ANLs). The level of the intruding noise at the facade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL shown in Table 3 of the IND-TM or, in the case of the background being 5 dB(A) lower than the ANL, the level should not be higher than the background. In accordance with IND-TIM, the ANLs for the Noise Sensitive Receivers (NSRs) are determined with consideration of the Area Sensitivity Rating (ASR). The ASR depends on the type of area and the degree of impact that Influencing Factors (IF) have on the NSRs. **Table 2.3** Shows the considerations for determining the appropriate ASR for different NSRs.

Table 2.3: Area Sensitivity Ratings

Type of Area Containing NSR	Degree to which NSR is affected by IF		
	Not Affected[c]	Indirectly Affected[d]	Directly Affected[e]
(i) Rural area, including country parks[a] or village type developments	A	B	B
(ii) Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
(iii) Urban area[b]	B	C	C
(iv) Area other than those above	B	B	C

Definitions:
a) "Country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance.
b) "Urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.
c) "Not Affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR.
d) "Indirectly Affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR.
e) "Directly Affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR.

The appropriate ANL, in dB(A), for a given NSR may be determined from **Table 2.4** having regard to the appropriate ASR and the time period under consideration.

Table 2.4: Acceptable Noise Levels (ANLs)

Time Period		Area Sensitivity Rating		
		A	B	C
Day	(0700 to 1900 hours)	60	65	70
Evening	(1900 to 2300 hours)			
Night	(2300 to 0700 hours)	50	55	60

Notes:
[i] The above standards apply to uses which rely on opened windows for ventilation.
[ii] The above standards should be viewed as the maximum permissible noise levels assessed at 1m from the external façade.

The proposed development in Wo Shang Wai is situated adjacent to low density residential areas, which include low-rise private residential units such as Royal Palms and Palm Spring. The proposed development consists of a number of low-rise houses which have two to three storeys in this S16 planning application. Therefore, when determining the type of area containing NSR, the Site is considered to be located in a low density residential area consisting of low-rise or isolated high-rise development in accordance with IND-TM. In addition, the type of area containing NSR is not considered to be urban areas because the Site is not within the area of San Tin / Lok Ma Chau Development Node.

For the degree to which NSRs are affected by IF, San Tin Highway (STH) is considered to be an IF since STH is an expressway that has Annual Average Daily Traffic (AADT) greater than 30,000. According to **Table 2.3**, the ASR of the NSR shall be classified as “B” for the assessment point directly or indirectly affected by the IF. The ASR of the NSR shall be classified as “A” for the assessment point not affected by the IF.

In accordance with Table 4.1 of chapter 9 of HKPSG, the noise standards of planned fixed noise sources should be 5 dB(A) below the appropriate the ANL shown in IND-TM or the prevailing background noise level, whichever is lower.

2.3 Identification of Potential Noise Impacts

The Assessment Area for the noise impact assessment has included all areas within 300m from the boundary of the Project site boundary as shown in **Figure 2.1**. Major land use within the Assessment Area includes residential developments such as Royal Palms, Palm Springs, Mai Po San Tsuen and Wo Shang Wai village, and roads such as Castle Peak Road, San Tin Highway and San Tam Road.

Potential noise impacts associated with the construction and operational phases of the proposed development are identified and described in this section.

2.3.1 Construction Phase

Potential construction noise impact would be associated with the use of Powered Mechanical Equipment (PME) for various construction activities of the Project. The construction activities are divided into three main categories - (A) Site Clearance, (B) Substructure Works and (C) Superstructure Works. Site Clearance works are further divided into two sub-groups, namely Pavement Breaking/Excavation (A1) and Compacting (A2), which are not carried out concurrently. Whilst there exists some overlap between the activities under categories (A) and (B), these do not ovelap with the Substructure works under category (C).

The construction activities for the proposed development are divided into two phases. It is assumed that Phase 1 and Phase 2 would be under construction at the same time in the assessment and the haul road would be equally distributed for each phase as shown in **Figure 2.2.**

Non-percussive piling shall be used for the foundation works at the subject development site. No noisy operations are expected during the 'finishing' activity of each phase as such activities are mostly confined to the inside of the already constructed houses. The above statement is the same as previously approved Section 16 submission.

2.3.1.1 Cumulative Impact from Concurrent Project

Based on the tentative construction programme, the construction of the Project will commence in 2026 and the planned population intake year will be in phases, in line with the construction phases of the residential development . The construction of the Project could be carried out concurrently with the San Tin/ Lok Ma Chau Development Node (Register No.: EIA-302/2023), particularly the San Tin Technopole Phase 1 Stage 1 Works. The location of the concurrent project is shown in **Figure 2.1**. Based on the latest information, the construction works started in 2024. The maximum sound power levels of work fronts falling into the 300m assessment area were extracted from the EIA for quantitative assessment.

The potential noise impact during the construction phase of the development was assessed quantitatively as detailed in **Section 2.6.1**.

2.3.2 Operational Phase

2.3.2.1 Road Traffic Noise

San Tin Highway is the dominant noise source within the Assessment Area. There is potential road traffic noise impact on the proposed development.

2.3.2.2 Fixed Noise Sources

Existing Fixed Noise Sources

Based on the approved EIA report (Ref. no. AEIAR-217/2018A), STP in Royal Palms and the Mai Po Ventilation Building of the XRL near the site entrance were identified within the Assessment Area. According to the latest site surveys conducted on 6 and 7 November 2024, a total of five fixed noise sources were identified, including Mai Po Substation and Mai Po Floodwater Pumping Station, STP in Palm Springs, STP in Royal Palms and Mai Po Ventilation Building. The information of the site visits is recorded in **Appendix 2.1**. Furthermore, no additional planned fixed plant has been identified since the previously approved Section 16 submission.

Planned Fixed Noise Sources

E&M buildings and one permanent on-site sewage treatment plant were proposed in the previous Section 16 submission in which the plants within the buildings will be entirely enclosed and confined. Hence, no adverse noise impact was concluded. According to the tentative layout, fully enclosed and confined E&M buildings and the one-site sewage treatment plant will still be provided on-site. Therefore, the conclusion from the previous report remains valid; no adverse fixed noise impact from the planned fixed noise sources is expected.

The operation noise impact assessment was detailed in **Section 2.6.2**.

2.4 Determination of Noise Sensitive Receivers

NSRs have been identified within the Assessment Area. These NSRs included all existing NSRs as well as planned/committed noise sensitive developments and uses earmarked on the relevant Outline Zoning Plans and development layout plans.

With reference to Planning Department's record, no planning application or rezoning application for residential development or other noise sensitive uses was identified in the nearby Other Specified Uses (OU) and Village (V) zones. The adjacent OU zone is being used for the Mai Po Ventilation Building of XRL Project.

Any future planned residential uses of these sites require the approval from Town Planning Board and application for such uses likely have to go through the EIA process. Therefore, there are currently no known planned sensitive uses in the OU. As New Territories Exempted Houses in V zone are always permitted, a representative NSR at the V zone in the vicinity of the proposed development is included in this assessment.

The uses and designation of the NSRs within the Assessment Area are shown in **Table 2.5**. The assessment points for construction noise impact assessment are shown in **Figure 2.2** and summarised in **Table 2.6**.

During the operation phase of the development, NSRs will be subject to noise impact from road traffic and fixed plant sources. As determined in the approved EIA of the proposed development (Register No. AEIAR-120/2008), the NSRs mostly affected by road traffic noise are those located close to the site access road connecting San Tin Highway. For the fixed plant noise impact, the most affected NSRs are those located near the XRL ventilation building (i.e. major fixed noise source). The assessment points identified for the operation phase assessment are shown in **Figure 2.3a** and **Figure 2.3b** and summarised in **Table 2.7** and **Table 2.8**, respectively.

Table 2.5: Noise Sensitive Receivers Identified within the Assessment Area

Designation	Uses
Proposed Comprehensive Development at Wo Shang Wai (Project Site)	Residential
Palm Springs	Residential
Royal Palms	Residential
Wo Shang Wai Village	Residential
Mai Po San Tsuen	Residential
Scenic Heights	Residential
St Lorraine English Kindergarten	Educational

Table 2.6: Horizontal Distances between the Representative NSRs and the Notional Source Position of Each Phase for Construction Phase

NSR ID	Uses	Locations / Descriptions	No. of storeys	Horizontal distance between NSRs and the notional source position of each phase, m [Note]				
				Phase 1	Phase 2	Phase 2A	Phase 2B	Phase 2C
NSR1	Residential	House No. 5, Cherry Path, Palm Springs	3	231	290	206	396	639
NSR2	Residential	House No. 5, Camelia Path, Palm Springs	3	76	237	146	381	646

NSR3	Residential	House No. 1, Pinaceae Drive	3	273	201	112	345	668
NSR4	Residential	House No. 17, Wo Shang Wai Village	3	174	86	106	129	494
NSR5	Residential	House No. 1, Narcissus Path, Royal Palms	3	137	42	89	95	457
NSR6	Residential	House No. 25, Narcissus Path, Royal Palms	3	198	53	110	62	398
NSR7	Educational	St Lorraine English Kindergarten	3	304	165	242	157	458
NSR8	Residential	House No. 61, Narcissus Path, Royal Palms	3	224	94	201	65	330
NSR9	Residential	House No. 1, Marin Avenue, Royal Palms	3	118	82	308	81	170
NSR10	Residential	House No. 1, Ventura Avenue, Royal Palms	3	74	79	361	87	112
NSR11	Residential	House No. 202, Mai Po San Tsuen	3	107	101	636	392	101
NSR12	Residential	House No. 330, Mai Po San Tsuen	3	172	126	630	383	126
NSR13	Residential	Block A1, Scenic Heights	3	500	259	694	502	259
NSR14	Residential	Planned Residential Development	2	N/A	64	36	247	540
NSR15	Residential	Planned Residential Development	2	N/A	67	46	137	432
NSR16	Residential	Planned Residential Development	2	N/A	20	96	58	366
NSR17	Residential	Planned Residential Development	2	N/A	91	150	73	331
NSR18	Residential	Planned Residential Development	2	N/A	77	261	40	225
NSR19	Residential	Planned Residential Development	2	N/A	33	511	260	32

Note:

(1) N/A means not applicable as NSR for that phase.
(2) Phase 2 Group C construction work will be separated into 3 sub-phases namely Phase 2A, Phase 2B and Phase 2C.

Table 2.7: Representative NSRs for Operation Phase (Road Traffic Noise)

NSR ID	Description	Uses	No. of storeys
TN1	Detached House	Residential	3
TN2	Detached / semi-detached house	Residential	2
TN3	Detached / semi-detached house	Residential	2
TN4	Detached / semi-detached house	Residential	2
TN5	Detached / semi-detached house	Residential	2
TN6	Detached / semi-detached house	Residential	2
TN7	Detached / semi-detached house	Residential	2
TN8	Detached / semi-detached house	Residential	2
TN9	Detached / semi-detached house	Residential	2
TN10	Detached / semi-detached house	Residential	2
TN11	Detached / semi-detached house	Residential	2
TN12	Detached / semi-detached house	Residential	2
TN13	Detached / semi-detached house	Residential	2
TN14	Detached / semi-detached house	Residential	2
TN15	Detached / semi-detached house	Residential	2
TN16	Detached / semi-detached house	Residential	2
TN17	Detached / semi-detached house	Residential	2
TN18	Detached / semi-detached house	Residential	2
TN19	Detached / semi-detached house	Residential	2

Table 2.8: Representative NSRs for Operation Phase (Fixed Plant Noise)

NSR ID	Description	Uses	No. of storeys	ASR*
FN1	Detached / semi-detached house	Residential	2	B
FN2	Detached / semi-detached house	Residential	2	
FN3	Detached / semi-detached house	Residential	2	
FN4	Detached / semi-detached house	Residential	2	
FN5	Detached / semi-detached house	Residential	2	
FN6	Detached / semi-detached house	Residential	2	
FN7	Detached / semi-detached house	Residential	2	
FN8	Detached / semi-detached house	Residential	2	
FN9	Detached / semi-detached house	Residential	2	

Note: (*) - the representative NSRs for fixed plant noise are directly or indirectly affected by IF. Therefore, the ASR for NSRs is “B”, and the noise criteria are 65dB(A) in day and evening time and 55dB(A) in nighttime.

2.5 Assessment Methodology

2.5.1 Construction Phase

Construction noise levels are predicted at the identified NSRs for both the foundation and superstructure work stages in order to assess the project feasibility during the planning stage and to identify if there are any potential constraints on the works programme or the use of construction equipment.

The methodology for the construction noise assessment other than percussive piling is based on the procedures set out in the GW-TM, as summarised below:

- To identify the affected NSRs within the Study Area;
- To identify the phasing of construction work and, locations and required number of construction plant items;
- To obtain the sound power levels in dB(A) of the construction equipment from the GW-TM;

- To determine the distance from the effective noise source location (or "notional source position") to the NSRs and distance attenuation (from geometric spreading and other absorption effects where appropriate), barrier corrections and reflection corrections at the NSR as prescribed in the GW-TM;
- To calculate the Corrected Noise Level (CNL) which will be generated by the construction works at the NSRs; and
- To propose direct mitigation measures, if necessary, to minimise the impact by the construction work in order to comply with the stipulated noise limits.

Construction Phases

Construction of the Project will commence in 2026 with the residential development will be ready for occupation in 2028. The entire site will be divided into two portions i.e., two residential development phases. It is assumed that the population intake for Phase 1 will take place after its completion and during the construction of superstructure works for Phase 2. Phase 2 Group C construction work will be separated into 3 sub-phases, namely Phase 2A, Phase 2B and Phase 2C. The phases are illustrated in **Figure 2.5**.

Non-restriction Hours

No evening or night time (7pm to 7am the next day) construction work is anticipated. Therefore, potential construction noise impacts during restricted hours were not assessed. The potential noise impacts on nearby NSRs arising from construction works during non-restricted hours (7am to 7pm) were assessed. Notwithstanding the above, for any construction works to be carried out during restricted hours, the Contractor will be required to submit a CNP application to the Noise Control Authority and has the responsibility to ensure compliance with the condition of the CNP, if need.

Construction Plant Inventory

A typical plant inventory for the major construction works, provided by the project team, was shown in **Appendix 2.2.**

Whilst it is possible that the future appointed Contractor may propose a different plant inventory, this assessment has been undertaken based on the anticipated plant inventory to allow for early identification of potential noise problems and to ensure there are practicable and sufficient noise mitigation measures that can be implemented to alleviate adverse noise impacts during the planning stage. The Contractor will be required to provide an updated Construction Noise Mitigation Plan (CNMP) with details of the updated plant inventory and mitigation measures to achieve acceptable noise levels on nearby NSRs.

2.5.2 Operational Phase

Road Traffic Noise

The road traffic noise level at the identified noise sensitive receivers were predicted based on the maximum projection of road traffic flow within 15 years upon the last phase occupation of the proposed residential development which is 2043. The traffic flow project in year 2043 as shown in **Table 2.9** is adopted.

Table 2.9: Traffic Flow Forecast of Road Networks (Year 2043) (1)

Index No.	Road Name	Direction	Road Speed (km/hr)	AM Peak		PM Peak	
				Total Flows(2) (Veh/hr)	HV% (3)	Total Flows(2) (Veh/hr)	HV% (3)
1	Mai Po South Road	EB	50	150	9%	150	9%
		WB	50	100	13%	150	8%
2	Castle Peak Road – Mai Po	2-way	50	400	29%	500	36%
3	San Tin Highway	NB	100	5350	39%	4750	38%
4	San Tin Highway	SB	100	4550	36%	4800	28%
5	San Tam Road	2-way	50	450	35%	400	28%
6	San Tam Road	2-way	50	450	32%	450	31%
7	San Tam Road	2-way	50	500	27%	500	22%
8	Ko Hang Road	2-way	50	50	30%	50	27%
9	Maple Po Gardens 1st St	2-way	50	100	16%	100	9%
10	Maple Po Gardens 1st St	2-way	50	100	16%	100	4%
11	Maple Po Gardens 5th St	2-way	50	50	11%	50	18%
12	Castle Peak Road – Mai Po	2-way	50	500	26%	550	33%
13	Mai Po Road	2-way	50	100	35%	50	28%
14	Royal Palms Boulevard	2-way	50	400	15%	450	11%

Notes:
1. The forecast data is provided by the traffic consultant;
2. Traffic flows are rounded up to the nearest 50 veh/hr;
3. Heavy vehicles include all category of motor vehicles except private car, taxi and motorcycle;
4. AM Peak is selected for assessment as worst-case scenario.

The road traffic noise calculation procedures prescribed in the "Calculation of Road Traffic Noise (1988)" (CRTN) published by the Department of Transport, UK have been adopted in this assessment. The traffic noise modelling was carried out using proprietary traffic noise model software “RoadNoise”, which implements the CRTN procedures. **Figure 2.4** shows the computer plot of the input features in the noise model.

Fixed Noise

With reference to the previously approved Section 16 submission, the existing STP at Royal Palms and Mai Po Ventilation Building were identified as the potential fixed noise sources. According to the latest site surveys conducted on 6 and 7 November 2024, a total of five fixed noise sources were identified, including Mai Po Substation and Mai Po Floodwater Pumping Station, STP in Palm Springs, STP in Royal Palms and Mai Po Ventilation Building. The information of the site visits is recorded in **Appendix 2.1**. As for the planned fixed noise sources (e.g., E&M Buildings) under the Project, it is similar to those previously approved in the Section

16 submission. Details of all the identified existing and planned fixed noise sources are presented below –

i. Existing Sewage Treatment Plant at Royal Palms

Within the Assessment Area, there is an existing STP at the entrance of Royal Palms at the northeast corner of the Project site. The STP at Royal Palms is located 184m from the Project site boundary. The location of the STP is shown in **Figure 2.3b**. With reference to the previously approved Section 16 submission, the noise level at 3m from the said plant is 56dB(A). The plant operates 24 hours a day and it is assumed that the operating noise is steady throughout the day.

The worst-case fixed plant noise level at the Project site was predicted using standard acoustics principles and practices. The predicted noise level at the Project Boundary is 20 dB(A) [56 - 20*log (184/3)] without background noise level superimposed which is far below the noise criteria for day and evening time (i.e., 65dB(A)) and night time (i.e., 55dB(A)). As such, it is anticipated that there will be no significant noise impact from this fixed plant.

ii. Existing Mai Po Ventilation Building (MPVB)

The noise data of the MPVB has been updated (compared to previously approved Section 16 submission) based on the Commissioning Test Report submitted under EP-349/2009/N for the Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link (XRL), the calculated SWLs of the MPVB ventilation openings have been adopted for assessment. The location of the louvres on the MPVB is shown in **Figure 2.3b**. Pages extracted from the Commissioning Test Report regarding the SWLs and louvre location of the MPVB are included in **Appendix 2.3**.

iii. Existing Mai Po Substation

Within the Assessment Area, there is a substation adjacent to the transitional Housing – The STEP, as shown in **Figure 2.3b**. The Mai Po Substation is located 322m from the Project site boundary, and they are separated by the San Tin Highway. Based on the site observation, equipment that generates noise appeared to be enclosed in a building structure. No noticeable noise was observed. Given the considerable separation distance and the site observation made, it is anticipated that the fixed noise impact from the existing Mai Po Substation will be insignificant.

iv. Existing Sewage Treatment Plant at Palm Springs

Within the Assessment Area, there is an existing STP at the western boundary of Palm Springs, as shown in **Figure 2.3b**. The STP at Palm Springs is located 239m from the Project site boundary. Based on the site observation, no noticeable noise was identified. Given the considerable separation distance and the site observation made, it is anticipated that the fixed noise impact from the existing STP at Palm Springs will be insignificant.

v. Existing Mai Po Floodwater Pumping Station

Within the Assessment Area, there is an existing floodwater pumping station adjacent to Mai Po San Tsuen, as shown in **Figure 2.3b**. The Mai Po Floodwater Pumping Station is located approximately 267m from the Project site boundary. Based on the site observation, equipment that generates noise appeared to be enclosed in a building structure. No noticeable noise was observed. Given the considerable separation distance and the site observation made, it is anticipated that the fixed noise impact from the Mai Po Floodwater Pumping Station will be insignificant.

vi. Planned E&M Buildings (from Project)

With reference to the current MLP, there will be one E&M building and one STP which will be entirely enclosed and confined (**Figure 2.3b**). Given that the scale and provisions are similar compared with previously approved layout, the conclusion of the previously approved EA Report,

i.e. no adverse fixed noise impact from the planned E&M building and STP, is still valid in the current layout.

2.6 Prediction and Evaluation of Noise Impact

2.6.1 Construction Phase

Construction Noise

With the adoption of the approved mitigation measure (i.e. noise barrier) during the construction phase in the latest EP (EP-311/2008/E) as shown in **Figure 2.5**, the proposed QPME / Quiet Construction Method as shown in **Table 2.11** and use of movable noise barriers where applicable (for Phase 1 NSRs), the maximum predicted construction noise levels at the identified NSRs are summarised in **Table 2.10**. As a conservative approach, the hoarding recommended in the air quality assessment along the phased works boundary, prior to the Phase 1 population intake and remaining Phase 2 construction works, is not taken into account in the noise calculation. The cross-section drawings between the existing temporary noise barriers for construction phase and selected NSRs have been provided in **Figure 2.7** and **Figure 2.8**. A detailed noise calculation is provided in **Appendix 2.4**.

Table 2.10: Maximum Predicted Construction Noise Levels at Representative NSRs

NSR	Maximum Predicted Construction Noise Level, dB(A)	Daytime Construction Noise Criteria, dB(A)
NSR 1	60	75
NSR 2	68	75
NSR 3	61	75
NSR 4	67	75
NSR 5	73	75
NSR 6	71	75
NSR 7	62	70 (65 for examination period)
NSR 8	66	75
NSR 9	68	75
NSR 10	70	75
NSR 11	72	75
NSR 12	75	75
NSR 13	66	75
NSR 14	72	75
NSR 15	70	75
NSR 16	69	75
NSR 17	67	75
NSR 18	71	75
NSR 19	71	75

Notes:
1. Bold values indicate exceedance of relevant noise criteria.

Table 2.11: QPME / Quiet Construction Method for Construction Phase

QPME / Quiet Construction Method	Description	SWL, dB(A)
Hydraulic Crusher	Replace traditional excavated-mounted breaker	94
Excavator, wheeled/tracked	Replace Regular PME [QPME ID: EPD-12299]	92
Bulldozer, tracked	Replace Regular PME [QPME ID: EPD-12694]	108
Crane, mobile	Replace Regular PME [QPME ID: EPD-12240]	101
Generator	Replace Regular PME [QPME ID: EPD-14730]	95

The maximum predicted construction noise levels at the representative NSRs range from $L_{eq(30mins)}$ 61 dB(A) to 75 dB(A). The assessment results indicate that construction noise levels at all identified NSRs are expected to comply with the construction noise criteria for domestic premises and educational institution. Adverse construction noise impact is not anticipated.

2.6.2 Operational Phase

Road Traffic Noise

Table 2.12 summarises the predicted noise levels at the representative NSRs, and noise exceedance was observed. Mitigation measure is required to alleviate the predicted road traffic noise impact.

Table 2.12: Predicted Road Traffic Noise Levels at Representative NSRs (Base Case)

NSR ID	Uses	Max. Predicted Noise Levels, L10(1hour), dB(A)	Noise Criteria, L10(1hour), dB(A)	Noise Exceedance? [Y/N]
TN1	Residential	69	70	N
TN2	Residential	69	70	N
TN3	Residential	68	70	N
TN4	Residential	68	70	N
TN5	Residential	69	70	N
TN6	Residential	69	70	N
TN7	Residential	68	70	N
TN8	Residential	69	70	N
TN9	Residential	70	70	N
TN10	Residential	**71**	70	Y
TN11	Residential	70	70	N
TN12	Residential	**71**	70	Y
TN13	Residential	**71**	70	Y
TN14	Residential	66	70	N
TN15	Residential	68	70	N
TN16	Residential	70	70	N
TN17	Residential	**73**	70	Y
TN18	Residential	**72**	70	Y
TN19	Residential	**71**	70	Y

Note:

1. **Bold** figures denote exceedance of relevant noise criteria.

Fixed Noise Sources

The potential fixed plant noise impact at the representative NSRs is assessed and the results are shown in **Table 2.13**. The detailed noise calculation is given in **Appendix 2.5**.

Table 2.13: Predicted Fixed Noise Level at Representative NSRs

NSR ID	Predicted Noise Level, dB(A)			
	Daytime	Daytime Criterion	Night-time	Night-time Criterion
FN1	37	65	36	55
FN2	37	65	37	55
FN3	38	65	38	55
FN4	39	65	38	55
FN5	39	65	39	55
FN6	45	65	44	55
FN7	45	65	44	55
FN8	40	65	39	55
FN9	40	65	39	55

Note:

1. **Bold** figures denote exceedance of relevant noise criteria.

No exceedances in fixed plant noise impact are predicted; therefore, no mitigation measures are necessary.

2.7 Mitigation Measures

2.7.1 Construction Phase

Construction noise assessment results show that, with the use of QPME, movable noise bariers and the temporary noise barriers as recommended in the approved EIA of this Project, the maximum construction noise levels at all of the existing representative NSRs are predicted to comply with the construction noise criterion of $L_{eq(30mins)}$ 75dB(A) for domestic premises and 70 dB(A) for educational institution as stipulated in the EIAO–TM.

In addition to the measures recommended in the approved EIA of this Project, practical mitigation measures should be implemented to further alleviate the potential noise impact. It is expected that with suitable on-site supervision in limiting the number of powered mechanical equipment and good site practices, the construction noise impact can be further reduced. The following mitigation measures are recommended to further alleviate the construction noise impact:-

- Scheduling of work - The Contractor will be required to determine the number and type of construction equipment taking into account the use of quiet plant while devising a feasible work programme.
- Sitting of facilities - This includes avoiding simultaneous operation of noisy equipment; retaining existing features that can act as a noise barrier until the last phase; and erecting, as early as possible, any new structures (e.g. movable noise barrier) which will have the effect of screening noise sources. Such screens can reduce noise levels by 15dB(A) or more. Noisy equipment should always be sited as far as possible from noise sensitive receivers. Consideration should also be given to the use of structures such as site offices and stores as noise barriers.

- Use of quiet Powered Mechanical Equipment (QPME) - The contractor should be requested, as far as possible, to use quiet PME, which has a lower SWL compared to one specified in GW–TM. This is one of the most effective measures to reduce noise emission at source and is increasingly practicable because of the availability of quiet equipment in the market.

Good site practices and noise management can further reduce the noise impact of the construction sites' activities on nearby NSRs. The following measures should be followed during each phase of construction:

- Only well-maintained plant should be operated on-site, and the plant should be serviced regularly during the construction programme;
- Machines and plant that may be intermittent in use should be shut down between work periods or should be throttled back to a minimum;
- Plant known to emit noise strongly in one direction, should, where possible, be oriented so that the noise is directed away from nearby NSRs;
- Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction period;
- Mobile plant should be sited as far away from NSRs as possible;
- Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities; and
- The Contractor shall at all times comply with all current statutory environmental legislation.

To ensure the proper implementation of mitigation measures, a Construction Noise Management Plan (CNMP) should be prepared and submitted. The future contractor will be required through contract specifications to provide and implement sufficient direct mitigation measures with reference to the recommendations in the approved EIA and this EA or the future detailed design to achieve acceptable noise levels on the nearby NSRs. The CNMP shall identify the inventory of noise sources and assess the effectiveness and practically of all mitigation measures to minimize the construction noise impact. The CNMP should further explore and maximize the use of quiet construction methods / equipment as far as practicable. The CNMP should also confirm and summarise the mitigation measures to be implemented for the Project. The CNMP shall be submitted three months prior to the issue of tender for the construction of the Project and shall be included in the construction tender document.

2.7.2 Operational Phase

Road Traffic Noise

Table 2.12 indicates that exceedance of the relevant noise criteria is predicted at the noise sensitive facades in TN10, TN12, TN13, and TN17 – TN19. Hence mitigation measure is necessary to minimise the noise impact.

With reference to "Practice Note for the Planning of Residential Developments Against Road Traffic Noise (ProPECC PN 4/23)", acoustic window (AW) and enhanced acoustic balcony (EAB) are proven to be capable of reducing the noise inside the flats by at least 6 dB(A)[3], even in different configurations and dimensions to suit the individual needs, and at the same time allowing adequate natural ventilation. Glass panes in all windows of all noise sensitive rooms within the development have a minimum thickness of 6mm. All these windows are well-gasketted, providing the future occupants an option for a quieter indoor noise environment.

[3] Based on the Practice Note on Application of Innovative Noise Mitigation Designs in Planning Private Residential Developments against Road Traffic Noise Impact and the findings from noise impact assessment reports prepared for private residential developments in the past.

The maximum traffic noise exceedance for the sensitive facades at residential buildings is 3 dB(A). Since AW can generally provide a notional noise reduction of about 6dB(A), it is recommended that those blocks (i.e. House Type D) with exceedance up to 3 dB(A) will be provided with acoustic windows at the affected facades (i.e. facades in the vicinity of TN10, TN12, TN13, and TN17 – TN19), as indicated in **Figure 2.6.**

With the implementation of the acoustic windows at the affected façades, the predicted road traffic noise levels at the representative NSRs are summarised in **Table 2.14** below, which are all in compliance with the noise criterion.

Table 2.14: Predicted Road Traffic Noise Levels at NSRs with Exceedance in Base Case for the Residential Buildings (Mitigated)

NSR ID	Mitigation Measures	Predicted Noise Levels, L10(1hour), dB(A)	Noise Criteria, L10(1hour), dB(A)	Noise Exceedance? [Y/N]
TN10	Residential	⩽70	70	N
TN12	Residential	⩽70	70	N
TN13	Residential	⩽70	70	N
TN17	Residential	⩽70	70	N
TN18	Residential	⩽70	70	N
TN19	Residential	⩽70	70	N

Fixed Noise Sources

According to **Table 2.13**, all NSRs comply with the relevant noise criteria. Therefore, no mitigation measures are necessary.

According to the latest EP under Wo Shang Wai (Figure 6 of EP-311/2008/E), the mitigation measures included 9.5m and 6.5m high noise barriers. Based on the above calculation (i.e. with adopting the latest noise data of MPVB from the Commissioning Test Report under EP-349/2009/N), both 9.5m and 6.5m high noise barriers mentioned in the VEP are not necessary in this assessment.

2.8 Conclusion

2.8.1 Construction Phase

With the implementation of noise mitigation measures during the construction phase, noise levels at the NSRs will comply with the noise criteria. Therefore, no residual noise impact is anticipated.

2.8.2 Operational Phase

For mitigating the potential traffic noise impact, it is recommended to adopt acoustic windows at the affected façades of the noise sensitive receivers. Glass panes in all windows of all noise sensitive rooms within the development have a minimum thickness of 6mm. With this recommended measure in place, no adverse road traffic noise impacts are anticipated.

For fixed plant noise impact during the operational phase, no potential noise impacts are anticipated from the fixed noise source of XRL MPVB.

3 Water Quality

3.1 Introduction

This section reviews the water quality impact assessment findings from the previously approved Section 16 submission and identifies any changes or additional water quality impacts that may arise due to the proposed change in layout of the residential portion.

3.2 Legislation, Standards, Guidelines and Criteria

Water quality impacts have been assessed with reference to the relevant environmental legislation and standards, which are the same as those adopted in the previously approved Section 16 submission. The following relevant pieces of legislation and associated guidance are applicable to the evaluation of water quality impacts associated with the Project.

- Water Pollution Control Ordinance (WPCO) (Cap. 358);
- Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (WPCO, Cap. 358, S.21);
- Town Planning Board Guidelines No. 12C;
- Environmental Impact Assessment Ordinance (Cap. 499., S.16), Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), Annexes 6 and 14;
- River Water Quality in Hong Kong in 2023;
- Hong Kong Planning Standard and Guidelines (Chapter 9);
- Practice Note for Professional Persons ProPECC PN 1/23 “Drainage Plan subject to Comment by the Environmental Protection Department”, Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations 40(1), 40(2), 41(1) and 90;
- Practice Note for Professional Persons ProPECC PN 2/24 “Construction Site Drainage”; and
- Environmental, Transport and Works Bureau Technical Circular (Works) No.5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works”, ETWB TC (Works) No. 5/2005.

3.3 Existing Environment and Sensitive Receivers

Existing Environment

Baseline conditions of the Project Area were identified as part of the previously approved Section 16 submission, which remain unchanged. The direction of water flow in the water ditches and drainage channels are basically from south to north diverting to the Shenzhen River in the Deep Bay Water Control Zone (WCZ). The Water Quality Objectives for Deep Bay WCZ are listed in **Table 3.1**.

Table 3.1: Summary of Water Quality Objectives for Deep Bay WCZ

Parameter	Objectives	Part(s) of Zone
Aesthetic Appearance	Waste discharges shall cause no objectionable odours or discolouration of the water.	Whole zone
	Tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substances should be absent.	
	Mineral oil should not be visible on the surface. Surfactants should not give rise to a lasting foam.	

Parameter	Objectives	Part(s) of Zone
	There should be no recognisable sewage-derived debris.	
	Floating, submerged and semi-submerged objects of a size likely to interfere with the free movement of vessels, or cause damage to vessels, should be absent.	
	Waste discharges shall not cause the water to contain substances which settle to form objectionable deposits.	
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 Mariculture Subzone
	The level of Escherichia coli should be zero per 100 mL, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	The level of Escherichia coli should not exceed 1 000 per 100 mL, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
	The level of Escherichia coli should not exceed 180 per 100 mL, calculated as the geometric mean of all samples collected from March to October inclusive in one calendar year. Samples should be taken at least 3 times in a calendar month at intervals of between 3 and 14 days.	Yung Long Bathing Beach Subzone
Colour	Waste discharges shall not cause the colour of water to exceed 30 Hazen units.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	Waste discharges shall not cause the colour of water to exceed 50 Hazen units.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Dissolved Oxygen	Waste discharges shall not cause the level of dissolved oxygen to fall below 4 milligrams per litre for 90% of the sampling occasions during the year; values should be taken at 1 metre below surface.	Inner Marine Subzone excepting Mariculture Subzone
	Waste discharges shall not cause the level of dissolved oxygen to fall below 4 milligrams per litre for 90% of the sampling occasions during the year; values should be calculated as water column average (arithmetic mean of at least 2 measurements at 1 metre below surface and 1 metre above seabed). In addition, the concentration of dissolved oxygen should not be less than 2 milligrams per litre within 2 metres of the seabed for 90% of the sampling occasions during the year.	Outer Marine Subzone excepting Mariculture Subzone
	The dissolved oxygen level should not be less than 5 milligrams per litre for 90% of the sampling occasions during the year; values should be taken at 1 metre below surface.	Mariculture Subzone
	Waste discharges shall not cause the level of dissolved oxygen to be less than 4 milligrams per litre.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Indus Subzone, Ganges Subzone, Water Gathering Ground Subzones and other inland waters of the Zone
pH	The pH of the water should be within the range of 6.5–8.5 units. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.2 units.	Marine waters excepting Yung Long Bathing Beach Subzone
	Waste discharges shall not cause the pH of the water to exceed the range of 6.5–8.5 units.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones

Parameter	Objectives	Part(s) of Zone
	The pH of the water should be within the range of 6.0–9.0 units.	Other inland waters
	The pH of the water should be within the range of 6.0–9.0 units for 95% of samples. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.5 units.	Yung Long Bathing Beach Subzone
Temperature	Waste discharges shall not cause the natural daily temperature range to change by more than 2.0°C.	Whole zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%.	Whole zone
Suspended Solids	Waste discharges shall neither cause the natural ambient level to be raised by 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
	Waste discharges shall not cause the annual median of suspended solids to exceed 20 milligrams per litre.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Ganges Subzone, Indus Subzone, Water Gathering Ground Subzones and other inland waters
Ammonia	The un-ionized ammoniacal nitrogen level should not be more than 0.021 milligram per litre, calculated as the annual average (arithmetic mean).	Whole zone
Nutrients	(a) Nutrients shall not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Inner and Outer Marine Subzones
	Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.7 milligram per litre, expressed as annual mean.	Inner Marine Subzone
	Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.5 milligram per litre, expressed as annual water column average (arithmetic mean of at least 2 measurements at 1 metre below surface and 1 metre above seabed).	Outer Marine Subzone
Five-Day Biochemical Oxygen Demand	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Chemical Oxygen Demand	Waste discharges shall not cause the chemical oxygen demand to exceed 15 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	Waste discharges shall not cause the chemical oxygen demand to exceed 30 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Toxins	Waste discharges shall not cause the toxins in water to attain such levels as to produce significant toxic carcinogenic, mutagenic or teratogenic effects in humans, fish or any other aquatic organisms, with due regard to biologically cumulative effects in food chains and to toxicant interactions with each other.	Whole Zone
	Waste discharges shall not cause a risk to any beneficial uses of the aquatic environment.	Whole Zone
Phenol	Phenols shall not be present in such quantities as to produce a specific odour, or in concentration greater than 0.05 milligrams per litre as C_6H_5OH.	Yung Long Bathing Beach Subzone

Parameter	Objectives	Part(s) of Zone
Turbidity	Waste discharges shall not reduce light transmission substantially from the normal level.	Yung Long Bathing Beach Subzone

Source: Statement of Water Quality Objectives (Deep Bay Water Control Zone). Water Pollution Control Ordinance (Cap. 358R), 1997.

The existing water pollution sources include the runoff from adjacent agricultural activities, effluent from fish-cum-duck activities at the northern boundary of the Project Area and the disposal of domestic sewage from the adjacent developments. The routine marine water quality monitoring data collected by EPD in 2023 has been reviewed for the monitoring stations (DM1 and DM2) at Deep Bay WCZ. The location of the representative marine water quality monitoring stations are shown in **Figure 3.1**. The summary of water quality for Inner Deep Bay WCZ in 2023 is presented in **Table 3.2**. The overall WQO compliance rate for the Inner Deep Bay WCZ was 53% in 2023, as compared with a ten-year average of 47% in 2009-2018. Overall, with the measures under the Deep Bay Water Pollution Control Joint Implementation Programme taken progressively by the governments of Hong Kong and Shenzhen, there have been significant water quality improvements in Deep Bay. In particular, there has been full compliance of the NH_3-N WQO in the past seven years. Although Deep Bay, as compared with other WCZs, shows higher nutrient levels with annual depth-averaged TIN levels exceeding the respective TIN WQOs, a noticeable long-term decrease in TIN levels since mid-2000s has been seen.

Table 3.2: Summary of Marine Water Quality for the Inner Deep Bay WCZ in 2023

Parameters	DM1	DM2
Temperature (°C)	25.6 (19.0 – 31.7)	25.5 (19.0 – 31.4)
Salinity	18.6 (9.7 – 23.3)	20.5 (11.5 – 25.5)
Dissolved Oxygen (mg/L)	5.2 (3.7 – 7.7)	5.4 (3.7 – 7.6)
Dissolved Oxygen (% Saturation)	70 (54 – 112)	74 (55 – 111)
pH	7.4 (7.1 – 7.8)	7.4 (6.8 – 7.8)
Secchi Disc Depth (m)	1.2 (0.9 – 1.6)	1.1 (0.8 – 1.5)
Turbidity (NTU)	27.2 (6.0 – 52.2)	29.1 (7.2 – 55.7)
Suspended Solids (mg/L)	28.3 (15.0 -61.0)	35.5 (15.0 – 72.0)
BOD_5 (mg/L)	1.0 (0.5 – 1.8)	1.0 (0.1 – 2.5)
Ammonia Nitrogen (mg/L)	0.397 (0.170 -0.810)	0.282 (0.076 – 0.860)
Unionised Ammonia (mg/L)	0.006 (0.001 – 0.012)	0.004 (<0.001 – 0.016)
Nitrite Nitrogen (mg/L)	0.118 (0.043 – 0.350)	0.094 (0.035 – 0.280)
Nitrate Nitrogen (mg/L)	0.883 (0.580 – 1.300)	0.724 (0.250 – 1.100)
Total Inorganic Nitrogen (mg/L)	1.40 (0.83 – 1.82)	1.14 (0.60 – 2.04)
Total Kjeldahl Nitrogen (mg/L)	0.76 (0.40 – 0.98)	0.64 (0.31 – 1.00)
Total Nitrogen (mg/L)	1.76 (1.24 – 2.20)	1.50 (0.97 – 2.18)
Orthophosphate Phosphorus (mg/L)	0.123 (0.069 – 0.170)	0.119 (0.049 – 0.320)
Total Phosphorus (mg/L)	0.20 (0.14 – 0.27)	0.19 (0.14 – 0.35)

Parameters	DM1	DM2
Silica (as SiO_2)(mg/L)	5.38 (1.90 – 10.00)	4.43 (1.00 – 11.00)
Chlorophyl l-a (µg/L)	3.5 (1.7 – 6.0)	5.5 (1.4 – 13.0)
***E.coli* (cfu/100mL)**	310 (24 - 3,300)	380 (21 – 80,000)
Faecal Coliforms (cfu/100mL)	640 (44 – 10,000)	730 (40 – 220,000)

Source: Marine Water Quality in Hong Kong in 2023 (EPD)

*Note: 1. Data presented are in annual arithmetic means of depth-average results, except for *E.coli* and faecal coliforms which are in annual geometric means.

2. Figures in brackets are annual ranges.

The routine river water quality monitoring data collected by EPD in 2023 has been reviewed for the nearest monitoring location to Wo Shang Wai at Fairview Park Nullah (FVR1). The location of the river water quality monitoring station is shown in **Figure 3.1**. This nullah is a short concrete channel within the Fairview Park residential development, which shares the same drainage basin as the southern part of the Project Area. The summary of the River Water Quality at Nearby Fairview Park Nullah in the Deep Bay Water Control Zones in 2023 is presented in **Table 3.3**. It is observed that compliance with river water quality objectives in the Fairview Park Nullah is improving from 47% in 2002 to 73% in 2023. The WQI grading remained “Fair’ in 2023 (EPD, 2023).

Table 3.3: Summary of River Water Quality at Nearby Fairview Park Nullah in the Deep Bay Water Control Zones in 2023

Parameters	FVR1
Dissolved Oxygen (mg/L)	5.4 (3.7 – 11.7)
pH	7.4 (7.1 – 8.5)
Suspended Solids (mg/L)	11.5 (6.8 – 22.0)
BOD_5 (mg/L)	6.9 (3.0 – 13.0)
COD (mg/L)	30 (9 – 70)
Oil & Grease (mg /L)	<0.5 (<0.5 – <0.5)
***E.coli* (cfu/100mL)**	25,146 (2,900 – 120,00)
Faecal Coliforms (cfu/100mL)	71,882 (14,000 – 440,000)
Ammonia-nitrogen (mg/L)	1.450 (0.450 – 2.800)
Nitrate-nitrogen (mg/L)	0.760 (0.340 – 1.200)
Total Kjeldahl Nitrogen (mg/L)	2.40 (0.92 – 4.00)
Orthophosphate Phosphorus (mg/L)	0.275 (0.095 – 0.530)
Total Phosphorus (mg/L)	0.45 (0.12 – 0.73)
Sulphide (mg/L)	<0.02 (<0.02 – 0.04)
Aluminium (µg/L)	<50 (<50 - <50)
Cadmium (µg/L)	<0.1 (<0.1 - <0.1)
Chromium (µg/L)	<1 (<1 – 1)
Copper (µg/L)	2 (<1 – 2)
Lead (µg/L)	<1

Parameters	**FVR1**
	(<1 - <1)
Zinc (µg/L)	10 (<10 – 20)
Flow (m^3/s)	NM

Source: River Water Quality in Hong Kong in 2023 (EPD)

*Note: 1. Data presented are in annual medians of monthly samples, except those for *E.coli* which are in annual geometric means.
2. Figures in brackets are annual ranges.
3. NM indicates no measurement taken.

Water Quality Sensitive Receivers

The existing or potential beneficial uses that are sensitive to water pollution include the fishponds in active use in the Conservation Area (CA) adjacent to the Project Area and the drainage channel connecting to the water ditch at the northern boundary of the Project Area. The Deep Bay Water Control Zone, the Ramsar Site and Mai Po Nature Reserve are the indirect sensitive receivers. The WSRs are listed in **Table 3.4** and locations are showed in **Figure 3.2**.

Table 3.4: Water Sensitive Receivers with Assessment Area

ID	WSR	Type	Description	Estimated distance from the Project Site (m)
WSR1	Fishponds near Tam Kon Chau Road	Fishpond	Active Fishponds	0m
WSR2	Pond near Wo Shang Wai Village	Pond	Individual pond, disconnected to river system	15m
WSR3	Ponds next to Palm Springs	Pond	Individual ponds, disconnected to river system	122m
WSR4	Ponds inside Palm Springs	Pond	Individual ponds, disconnected to river system	152m
WSR5	Pond near Palm Canyon Drive	Pond	Individual pond, disconnected to river system	295m
WSR6	Pond near Cypress Drive	Pond	Individual pond, disconnected to river system	474m
WSR7	Water Ditch around Tam Kon Chau Road	Water Ditch	Individual water ditch, disconnected to river system	0m
WSR8	Water Ditch near Camelia Path	Water Ditch	Water ditch downstream to Shan Pui River	137m
WSR9	Channels next to Palm Canyon Drive	Channel	Individual channels	45m
WSR10	Channel next to Castle Peak Road	Channel	Individual channel	330m
WSR11	Channels next to Sam Tam Road	Channel	Individual channels	139m
WSR12	Channels around the pond near Cypress Drive	Channel	Individual channels	460m
WSR13	Channels around the ponds near Palm Springs	Channel	Individual channels	250m

WSR14	Channel next to Mai Po Floodwater Pumping Station	Channel	Individual channel	307m

3.4 Assessment Methodology

All activities which have the potential to alter water quality have been identified in the previously approved Section 16 submission, and relevant mitigation measures were recommended to address those potential impacts. The findings from the previously approved Section 16 submission have been reviewed to identify any changes to the previous assessment due to the proposed change in layout of the residential portion, and any additional water quality impacts that need to be addressed. Where appropriate, additional mitigation measures are recommended to mitigation potential water quality impacts.

3.5 Water Quality Impact Assessment

3.5.1 Construction Phase

3.5.1.1 Review of Previously Identified Impacts

The previously approved Section 16 submission identified the following key potential impacts to water quality during the construction phase:

- Diversion of existing water ditches and marsh;
- Draining of existing water ditches;
- Soil excavation and stockpiling;
- Chemical waste from plant and equipment; and
- Domestic effluent.

3.5.1.2 Evaluation of Impacts due to the Proposed Change in Residential Units

The proposed change in residential units does not affect the types of construction activities to be carried out at the Project site, hence the previously identified potential impacts during construction phase are still valid. As there are no new construction activities associated with the proposed change in residential units, no new potential water quality impacts are identified during construction phase.

3.5.2 Operation Phase

3.5.2.1 Review of Previously Identified Impacts

The previously approved Section 16 submission identified the following key potential impacts to water quality during operation phase:

- Wastewater pollution;
- Diversion of existing water ditches and marsh; and
- Changes in hydrology.

3.5.2.2 Evaluation of Impacts

For the previously identified potential impacts during the operation phase, the volume of domestic sewage generated by the Project would change as a result of the proposed change in layout of residential portion. Other previously identified impacts would not be affected, and no new potential impacts are identified during the operation phase.

Wastewater Pollution

In the previously approved Section 16 submission, a permanent on-site STP using membrane MBR technology followed by UV treatment is proposed to provide treated effluent that can be fully reused on-site to meet the 'no net increase in pollution load' requirement. The on-site STP would serve a full intake of 789 residential units with a total population (resident and staff) of 2,220 persons. The corresponding average dry weather flow (ADWF) volume of domestic sewage was 830 m^3/day.

Under this Section 16 amendment scheme, the number of residential units will be reduced to 649 with corresponding ADWF of 675 m^3/day. The design capacity of the on-site STP is revised to 1,350 m^3/day in order to handle up to two times the ADWF of the full intake of 649 residential units. In addition, a storage tank of size approximately 225 m^3 (which can store up to four hours of ADWF is also provided as additional capacity for handling emergencies and as contingency for peak flows. The on-site STP will continue to adopt membrane bioreactor (MBR) technology followed by UV treatment, and there would be no off-site discharge of treated effluent. The design parameters for sewage loads, on-site STP capacity and reclaimed water demand are summarised in **Table 3.5**.

Table 3.5: Summary of Design Parameters for On-site Sewerage, Sewage Treatment and Reclaimed Water Systems

Design Parameters	Previous Section 16 Submission	This Submission
On-site Sewage Generation		
Population (resident + staff)	2220 persons (Full intake of 789 residential units)	1827 persons (Full intake of 649 residential units)
ADWF (m^3/day)	830	675
Capacity		
On-site STP (m^3/day)	2,491	1,350
Storage (equalisation) Tank (m^3)	415	225
On-site Reclaimed Water Demand		
Toilet flushing (m^3/day)	288	237
Landscape irrigation area (m^2)	62,232	62,232
Landscape irrigation (m^3/day)	622	622

As shown in **Table 3.5**, the sewage generated by the residential units can be fully utilised on-site for toilet flushing and irrigation, and there would be no discharge to Deep Bay.

Diversion of Existing Water Ditches and Marsh

As evaluated in the previously approved Section 16 submission, the existing water ditches and marsh within the Project Area mainly act as discharge points for the surface runoff generated within the Project Area to the Mai Po River at north. They will be filled in order to facilitate the construction of the site formation for the proposed Development. An internal drainage network underneath the future road system within the proposed development will be provided to collect the surface runoff generated within the Project Area. The proposed internal drainage network will have sufficient capacity to cater for the runoff generated from the proposed Development, to replace the existing water ditches and marsh. The proposed internal drainage network and box culvert are shown in **Figure 3.3**. No potential impacts are identified during the operation phase.

Change in Hydrology

The proposed development will generate changes to existing peak surface runoff due to the construction of additional paved area, roads and facilities associated with the residential development. The surface runoff will be discharged to Mai Po River on the north of the Project Area via the internal drainage system under the future internal road network. Based on the latest Drainage Impact Assessment under this Section 16 submission, the estimated peak discharge generated under a 50-year storm is 11.61 m^3/s, which is less than the peak discharge arising from pre-development. Since there is no increase in peak surface runoff, no adverse effect on the existing aquatic organisms or water quality in the drainage system is anticipated.

3.6 Mitigation of Impacts

3.6.1 Construction Phase

The previously approved Section 16 submission identified mitigation measures to be implemented to minimise potential water quality impacts due to construction activities of the Project. As there are no changes to the identified water quality impacts due to the proposed change in layout of residential portion, the previously identified good site practices and mitigation measures remain valid, and no changes to the previously identified mitigation measures for construction phase are required. Good site practices outlined in ProPECC PN 2/24 and ETWB TC (Works) No. 5/2005 should be adopted to minimise runoff from construction works areas. The following measures are recommended to minimise the impacts of construction on water quality.

- Temporary site drainage facilities and perimeter channels shall be designed and implemented by Contractor prior to commencement of construction to convey surface runoff to silt removal facilities. The design of the silt /sand removal traps and sediment basins shall follow the design in ProPECC PN 2/24;
- Runoff into the excavation areas during rainstorm events shall be minimised as far as practicable. Any wastewater pumped out of the excavation areas shall be treated to remove suspended solids prior to discharge;
- No discharge of silty water into the drainage channel within and in the vicinity of the site;
- Maintenance and inspection of the drainage system and sediment removal facilities should be carried out regularly to remove any sediment and blockages, especially when rainstorms are forecast;
- Stockpiles of construction materials should be properly covered and located away from any natural stream/river;
- Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby steam/river by rain;
- Construction effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order: (1) minimisation of wastewater generation; (2) reuse and recycle; (3) treatment. Proper locations for discharge outlets of wastewater treatment facilities well away from the natural stream/river should be identified;
- Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the stream/river, but without unduly impeding the flow during heavy rain;
- Manholes (including those constructed as part of the Project) should be adequately covered and temporarily sealed at all times;
- Temporary access road should be protected by crushed stone or gravel;
- Intercepting channels should be provided to prevent storm runoff from washing across exposed soil surfaces;

- Trenches should be dug and backfilled in short sections. Measures should be taken to minimize the ingress of rainwater into trenches when rainstorms are likely;
- Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials;
- Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;
- Chemical waste containers shall be labelled with appropriate warning signs in English and Chinese to avoid accidents. There shall also be clear instructions showing what action to take in the event of an accidental;
- Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area;
- Any construction plant which causes pollution to the water system due to leakage of oil or fuel shall be removed off-site immediately;
- Spillage or leakage of chemical waste to be controlled using suitable absorbent materials;
- Chemicals will always be stored on drip trays or in bunded areas where the volume is 110% of the stored volume;
- Regular clearance of domestic waste generated in the temporary sanitary facilities to avoid waste water spillage; and
- Temporary sanitary facilities to be provided for on-site workers during construction.

3.6.2 Operation Phase

During operation phase, the previously approved Section 16 submission recommended mitigation measures to address the identified potential impacts, including provision of an on-site STP to treat the sewage generated by the residential development. With the proposed reduction in population, the design capacity of the on-site STP has been reduced accordingly while tertiary treatment level with MBR technology followed by UV treatment will continue to be adopted and there would be no off-site discharge of treated sewage effluent. The design of the on-site STP should meet the requirements given in the “Guidelines for the Design of Small Sewage Treatment Plants". To enable the reclaimed water to be safely used, the on-site STP will follow the Water Supply Department (WSD) reuse water quality standard. The WSD’s reclaimed water standards are summarised in **Table 3.6**.

Table 3.6: WSD Reuse Water Quality Standard for Non-potable Uses

Parameters	Unit	WSD Criteria (Irrigation & Non-Potable Uses)
pH	-	6-9
Turbidity	NTU	≤5
Total Suspended Soilds	mg/L	≤5
BOD_5	mg/L	≤10
E.Coli	cfu/100mL	Non-detectable
Total Residual Chlorine	mg/L	≥1 (out of treatment system) ≥ 0.2 (at point of use)
Dissolved Oxygen (DO)	mg/L	≥2
Colour	Hazen Unit	≤20
Threshold Odour Number (TON)	TON	≤100
Ammonia-nitrogen	mg/L	≤1

Parameters	Unit	WSD Criteria (Irrigation & Non-Potable Uses)
Synthetic detergents	mg/L	≤5

Moreover, the treated effluent from the proposed on-site STP will be fully reused for toilet flushing and irrigation of landscape areas within the development site, hence the treated level for *E.coli* after UV treatment will be zero count/100mL. Provided that the on-site STP is adequately designed and implemented, no adverse impact is anticipated from reuse of treated effluent for irrigation.

A reclaimed water storage tank with a volume of 1284m^3 would be provided to store excessive reclaimed water. The stored reclaimed water would be consumed progressively upon shortage of irrigation water. Demand for reclaimed water is significant and excessive reclaimed water is not anticipated. Water quality impact as a result of discharge of excessive reclaimed water is therefore not anticipated. The reclaimed water storage tank will be drained down, cleaned and disinfected with sodium hypochlorite every six months and annual check will be conducted to ensure there are no leaks, no build-up of debris, and all tanks and cisterns are stable, and the covers are correctly fitted.

To minimise the risk of untreated sewage effluent discharge due to emergency events, a number of contingencies will be provided at the on-site STP, such as equalization tank, dual or standby power supply, flow sensors and alarm systems. With implementation of these measures, there would be no increase in net pollution load to Deep Bay and no adverse impacts on water quality.

3.7 Cumulative Impact

San Tin / Lok Ma Chau Development Node was identified within the 500m assessment area of the Project. San Tin / Lok Ma Chau Development Node will be developed in phases. Based on available information, the San Tan Technopole Phase 1 Stage 1 Works - Site Formation and Engineering Infrastructure (STT Phase 1) Project commenced on 31 December 2024 and is scheduled for completion in 2028. Therefore, STT Phase 1 Project is considered a concurrent project with potential cumulative water quality impacts which are evaluated below. The location of the concurrent project is presented in **Figure 3.2**.

The STT Phase 1 Project includes site formation of land, ground investigation works, land decontamination works, archaeological survey, diversion of existing infrastructure, and construction of new roads and associated facilities such as drainage, sewerage, water mains, landscaping, and slope works. As specified in the approved EIA report (AEIAR-261-2024), mitigation measures will be implemented to control construction site runoff near any inland watercourses and sewage effluent from construction works. During the operational phase, all the sewage generated from STT Phase 1 Project will be discharged to the public sewerage system and diverted to San Tin Lok Ma Chau Effluent Polishing Plant for proper treatment and precautionary measures will also be implemented to minimise the risk of emergency bypass and leakage of sewage. Therefore, with proper implementation of the recommended mitigation measures, adverse cumulative water quality impacts are not expected.

3.8 Residual Impacts

With implementation of the construction phase mitigation measures recommended in the **Section 3.6.1**, and the operation phase measures to fully reuse all treated effluent arising from the Project, no residual impact is anticipated during the construction or operation of the Project.

3.9 Environmental Monitoring and Audit

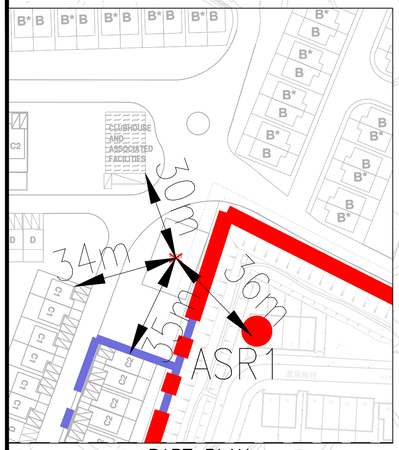
A water quality monitoring and site auditing programme has been recommended in the previously approved Section 16 submission to ensure mitigation measures during the construction phase will be implemented. No changes to the water quality monitoring and site auditing programme are required.

3.10 Conclusions and Recommendations

The previously approved Section 16 submission has been reviewed to identify any changes to the water quality impacts and consequently reconfirm the validity of the recommended mitigation measures. As the proposed change in layout of residential portion does not change the construction activities associated with the Project, no changes to the previously identified water quality impacts during the construction phase are required, and the findings of the previous construction phase water quality impact assessment remains valid. Thus, through proper implementation of water pollution mitigation measures, no adverse impact is anticipated.

During the operation phase, the proposed on-site STP with MBR technology followed by UV treatment will serve the full intake of 649 residential units. The sewage generated from residential units would be treated and fully reused on-site for toilet flushing and irrigation. Hence no off-site discharge of treated sewage effluent is required, and the requirement for ‘no net increase in pollution load’ will be met with no adverse impacts on water quality.

Figures



PART PLAN

TAM KON CHAU

MAI PO
SAN TSUEN

SCENIC HEIGHTS

ROYAL PALMS

PALM SPRINGS

SEWAGE TREATMENT PLANTS OF PALM SPRINGS

SEWAGE TREATMENT PLANT OF ROYAL PALMS

SEE PART PLAN

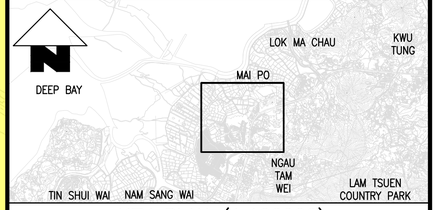
ASR1 ASR2a ASR2b ASR3 ASR4 ASR5

246m 217m 188m 184m

1 2 2

0 40 80 120 160 200
METRES
1 : 4000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (500m)
- (28,52) REPRESENTATIVE PATH GRIDS
- PHASE BOUNDARY
- 1 CONSTRUCTION PHASE NO.
- REPRESENTATIVE AIR SENSITIVE RECEIVERS
- SAN TIN /LOK MA CHAU (STLMC) EFFLUENT POLISHING PLANT AND FOOD WASTE PRE-TREATMENT FACILITIES
- LOCATION OF PROPOSED ON-SITE SEWAGE TREATMENT PLANT
- EXHAUST OF PROPOSED ON-SITE SEWAGE TREATMENT PLANT
- BOUNDARY OF SAN TIN TECHNOPOLE

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	JUN 25	TW	EA FIRST DRAFT	JC	EC

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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title

LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS AND CONCURRENT PROJECT

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	

Scale at A1	Status	Rev
1:4000	PRE	P1

Drawing Number

FIGURE 1.1

F:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 1.1.dwg Jul 8, 2025 - 4:24pm
WON102115

WETLAND RESTORATION AREA
(COMPLETED)

PALM SPRINGS

ROYAL PALMS

SCENIC HEIGHTS

CAMELIA PATH

PALM SPRINGS BOULEVARD

VENTURA AVENUE

NAPA AVENUE

CORONADO AVENUE

NARCISSUS PATH

MA PO SOUTH ROAD

CASTLE PEAK ROAD– MAI PO

SAN TIN HIGHWAY

1

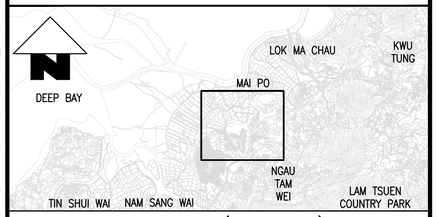
2

1m
1.5m
2m
2m
2m
2m
10m
33m
21m
31m
16m
5m
107m

REMARK:
NO AIR–SENSITIVE USES OF THE PROPOSED DEVELOPMENT INCLUDING OPENABLE WINDOWS, FRESH AIR INTAKES AND RECREATIONAL USES IN THE OPEN SPACE SHALL BE LOCATED WITHIN THE BUFFER ZONES.

0 20 40 60 80 100
METRES
1 : 2000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- PHASE BOUNDARY
- 1 CONSTRUCTION PHASE NO.
- BUFFER ZONES(10m)
- BUFFER ZONES(5m)

Rev	Date	Drawn	Description	Ch'k'd	App'd
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Title

BUFFER DISTANCES FOR VEHICULAR EMISSION IMPACT

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	

Scale at A1	Status	Rev
1:2000	PRE	P1

Drawing Number

FIGURE 1.2

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WON102115

E 823000
E 824000
E 825000
N 839500
N 838500

TAM KON CHAU

MAI PO
SAN TSUEN

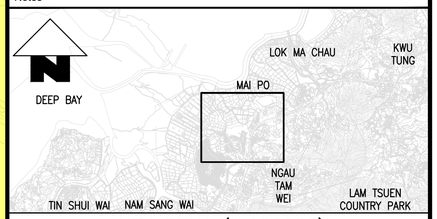
ROYAL PALMS

PALM SPRINGS

SCENIC
HEIGHTS

0 40 80 120 160 200
METRES
1 : 4000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

SITE BOUNDARY

ASSESSMENT AREA (300m)

BOUNDARY OF SAN TIN TECHNOPOLE

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Title

NOISE ASSESSMENT AREA
AND CONCURRENT PROJECT

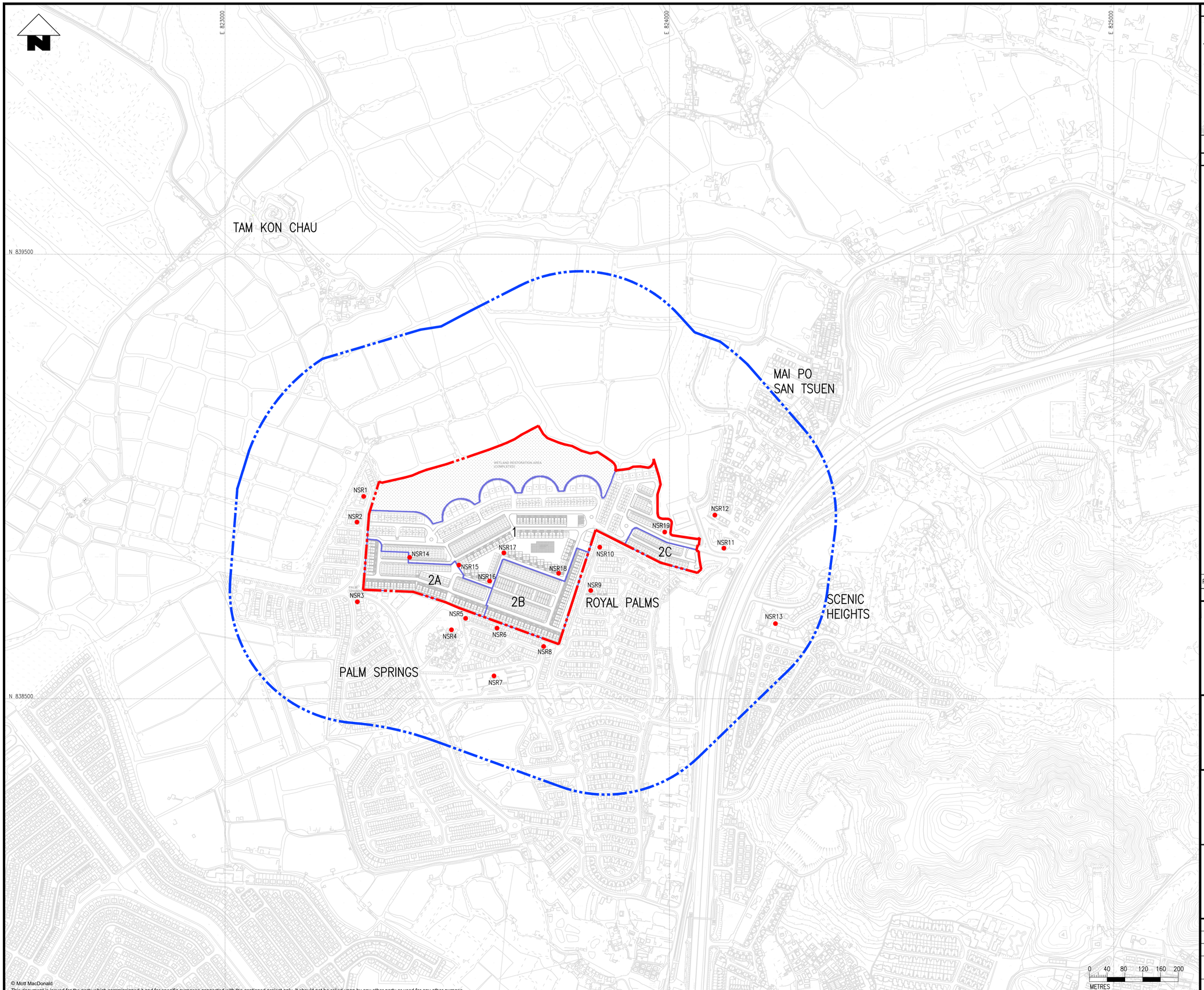
Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	

Scale at A1	Status	Rev
1:4000	PRE	P1

Drawing Number

FIGURE 2.1

P:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 2.1.dwg Jul 8, 2025 - 3:47pm
WON102115



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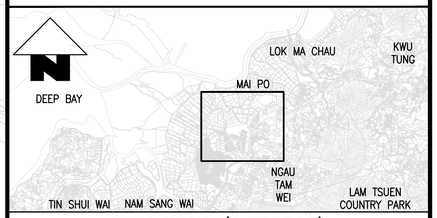

KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (300m)
- PHASE BOUNDARY
- 1 — CONSTRUCTION PHASE NO.
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS

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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title

LOCATION OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS (NSRS) IN CONSTRUCTION PHASE

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	
Scale at A1	1:4000	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.2

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WON102115

E 823000
E 824000
E 825000
N 839500
N 838500

TAM KON CHAU

MAI PO
SAN TSUEN

SCENIC
HEIGHTS

PALM SPRINGS

ROYAL PALMS

WETLAND RESTORATION AREA
(COMPLETED)

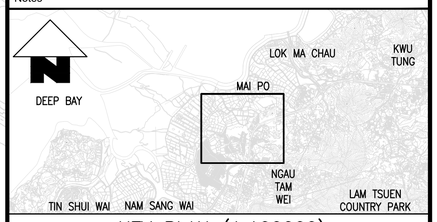
PLANNED
ON-SITE
SEWAGE
TREATMENT
PLANT

E&M BUILDING

TN1
TN2
TN3
TN3
TN4
TN5
TN6
TN7
TN8
TN9
TN10
TN11
TN12
TN13
TN14
TN15
TN16
TN17
TN18
TN19

0 40 80 120 160 200
METRES
1 : 4000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

SITE BOUNDARY

ASSESSMENT AREA (300m)

REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Rev	Date	Drawn	Description	Ch'k'd	App'd
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Title

LOCATION OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS (NSRS) IN OPERATION PHASE (TRAFFIC NOISE)

Designed	GK		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	SC		Approved	EC	

Scale at A1: 1:4000
Status: PRE
Rev: P1

Drawing Number: FIGURE 2.3a

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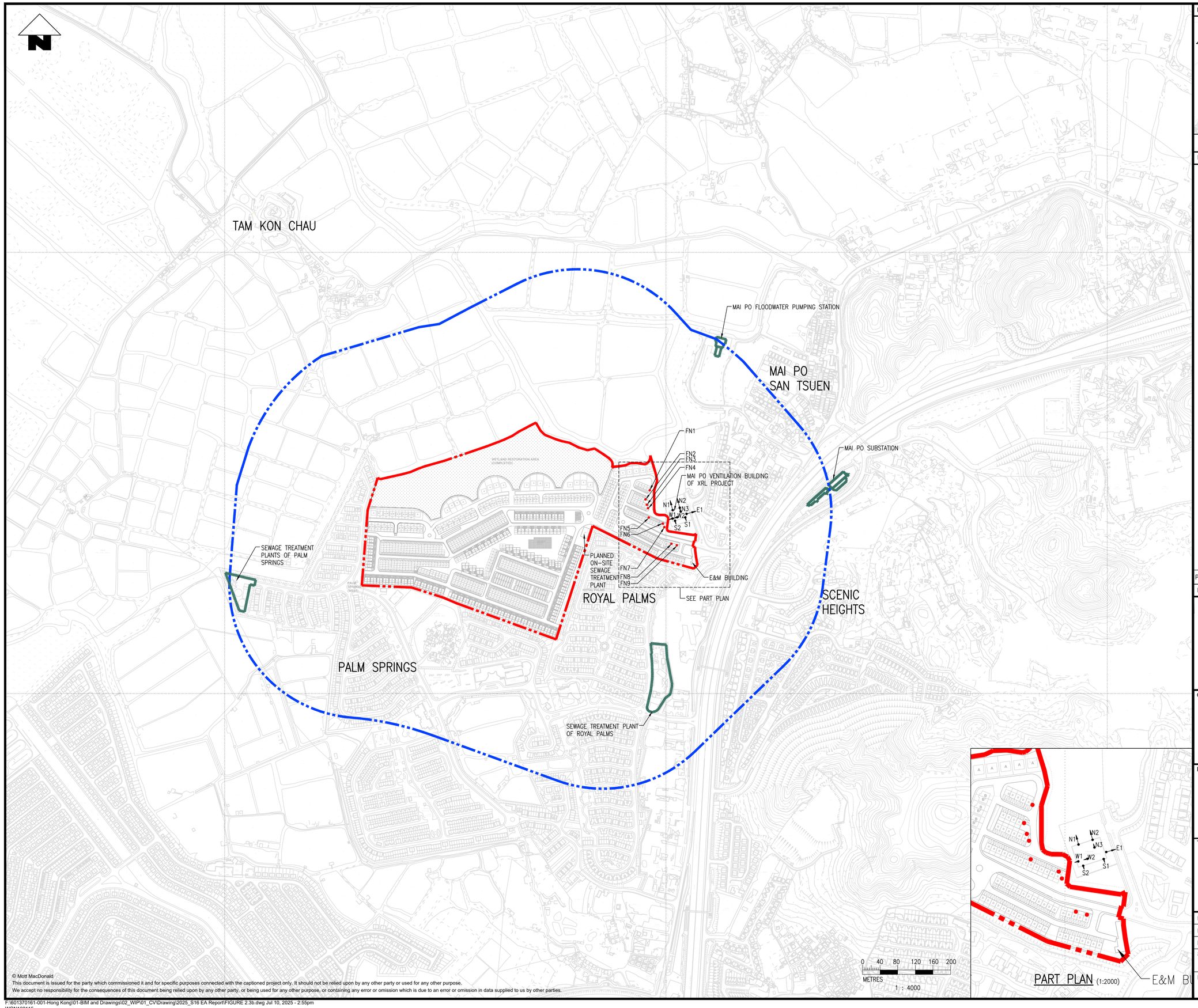
WON102115



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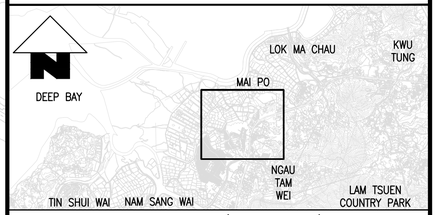

KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (300m)
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS
- LOUVER LOCATION

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Title

LOCATION OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS (NSRS) IN OPERATION PHASE (FIXED NOISE)

Designed	GK		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	SC		Approved	EC	

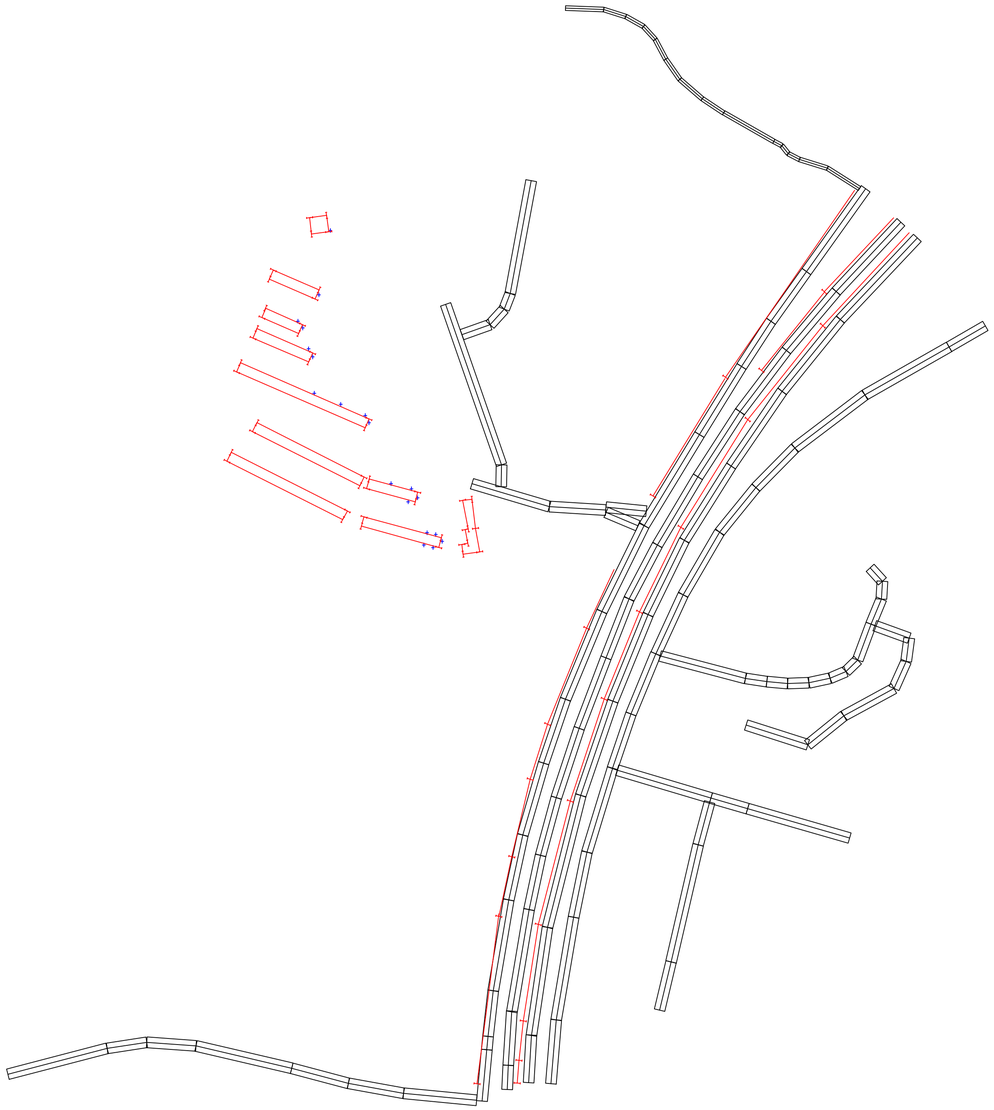
Scale at A1: 1:4000/ 1:2000

Status: PRE

Rev: P1

Drawing Number

FIGURE 2.3b



0 20 40 60 80 100
METRES
1 : 2000

Notes

Key to symbols

Rev	Date	Drawn	Description	Ch'k'd	App'd
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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

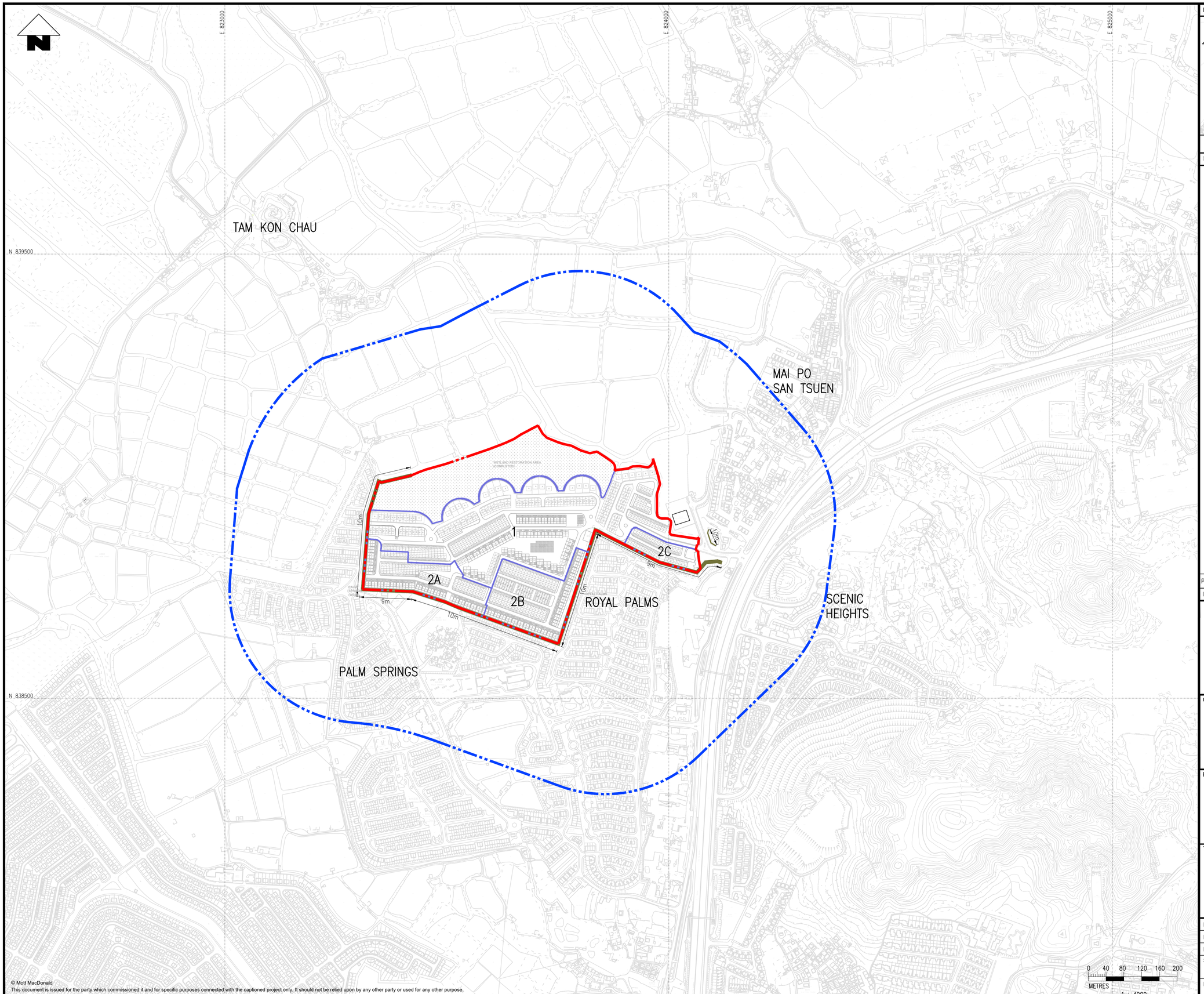
Title

COMPUTER PLOT OF NOISE MODEL

Designed	GK		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	SC		Approved	EC	
Scale at A1	1:2000	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.4



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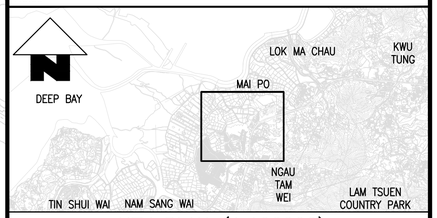

KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (300m)
- PHASE BOUNDARY
- 1 — CONSTRUCTION PHASE NO.
- EXTENT OF TEMPORARY NOISE BARRIERS FOR CONSTRUCTION PHASE

Rev	Date	Drawn	Description	Ch'k'd	App'd
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TO AMEND THE NOTES OF THE "COMPREHENSIVE DEVELOPMENT TO INCLUDE WETLAND RESTORATION AREA" ZONE FOR A PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI ,YUEN LONG, LOTS 77 AND 50 S.A IN DD101

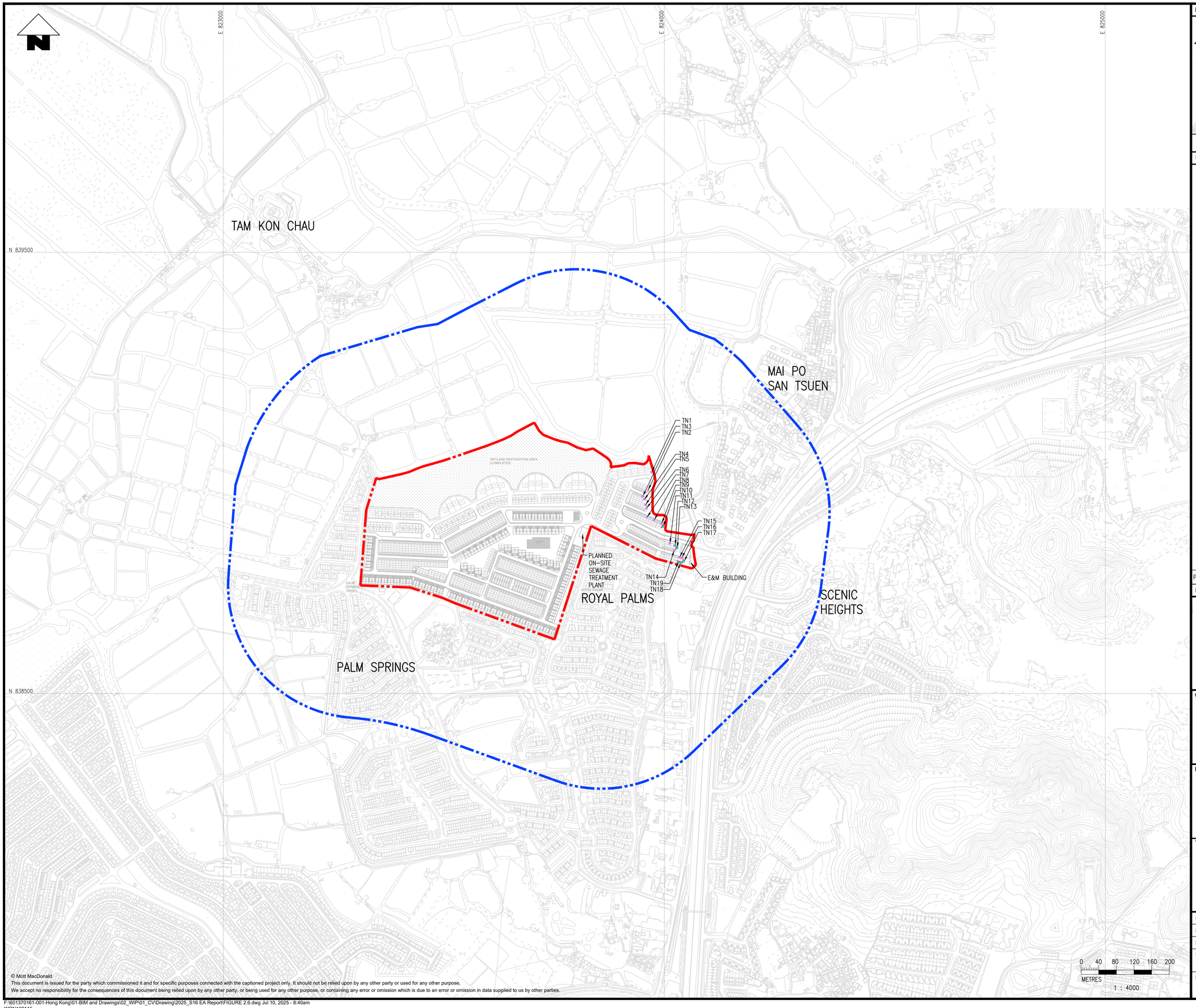
Title

PROPOSED NOISE BARRIERS LOCATIONS FOR CONSTRUCTION PHASE

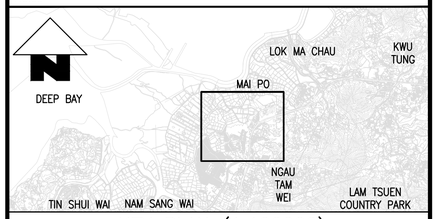
Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	
Scale at A1	1:4000	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.5



Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (300m)
- NSR (WITHOUT EXCEEDANCE / WITH EXCEEDANCE)
- FACADE WITH THE ADOPTION OF ACOUSTIC WINDOW

REMARKS:
FOR THE MITIGATION MEASURES OF THE RCHE PLEASE REFER TO APPENDIX 2.6

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PROFIT POINT ENTERPRISES LIMITED

Project

TO AMEND THE NOTES OF THE "COMPREHENSIVE DEVELOPMENT TO INCLUDE WETLAND RESTORATION AREA" ZONE FOR A PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI ,YUEN LONG, LOTS 77 AND 50 S.A IN DD101

Title

LOCATION OF MITIGATION MEASURES FOR TRAFFIC NOISE

Designed	GK		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	SC		Approved	EC	
Scale at A1	1:4000	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.6

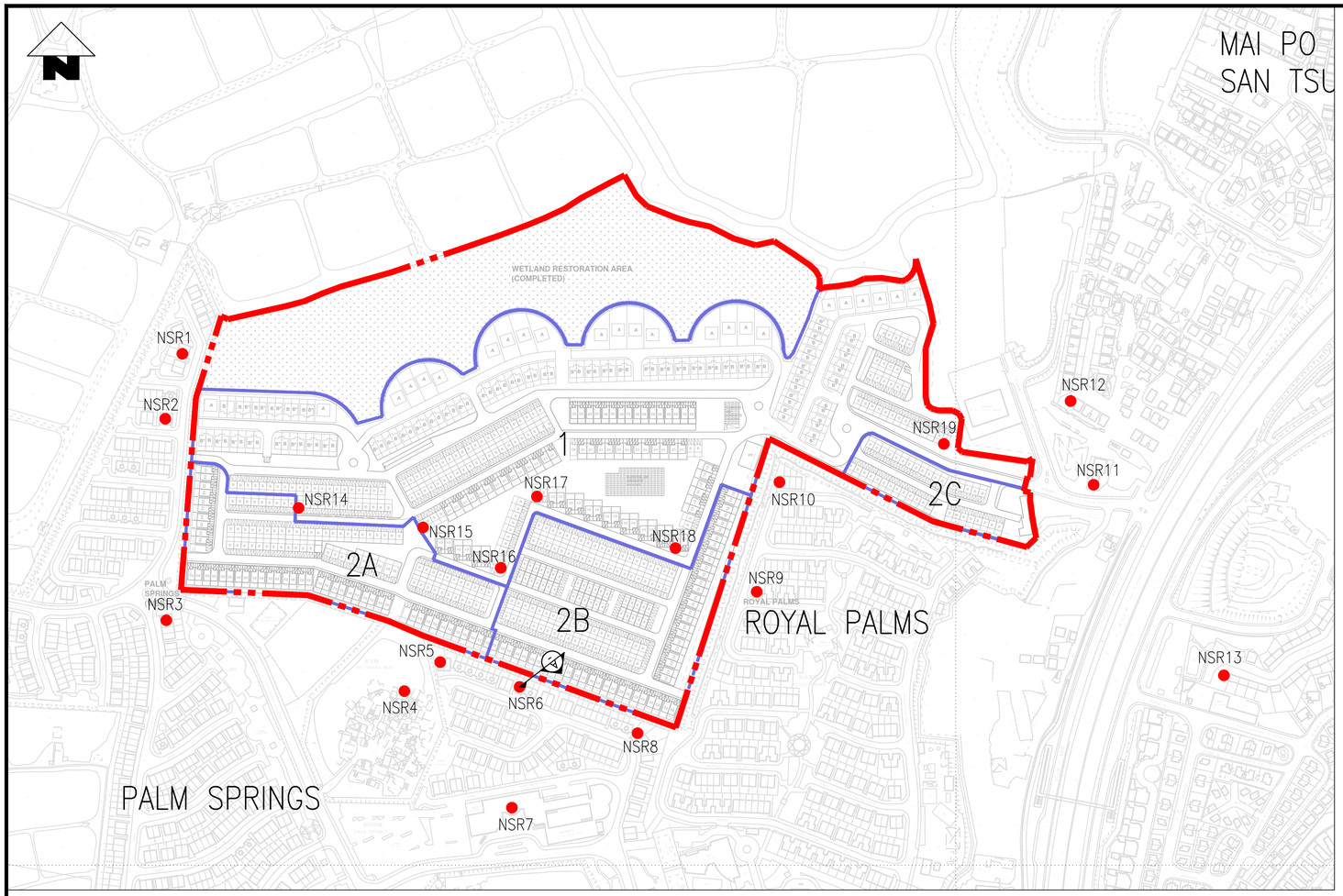
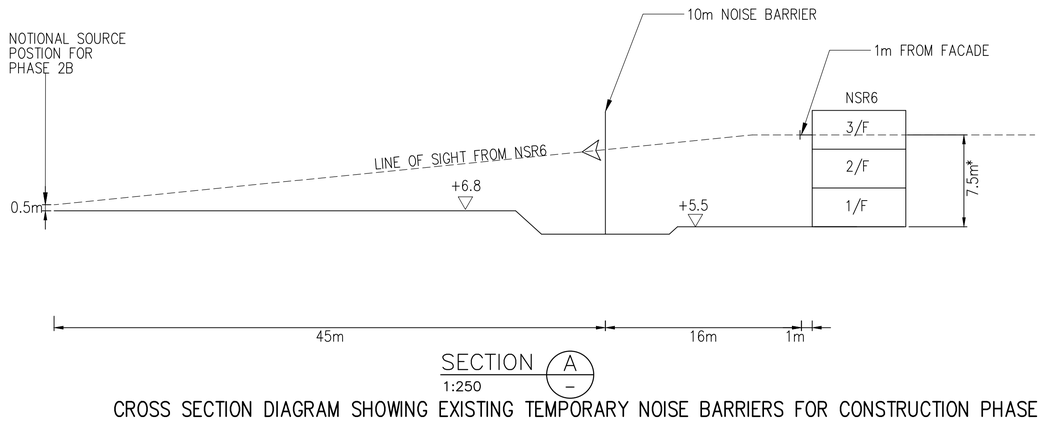


FIGURE 2.2
1:2500

0 25 50 75 100 125
METRES
1 : 2500



SECTION A
1:250

CROSS SECTION DIAGRAM SHOWING EXISTING TEMPORARY NOISE BARRIERS FOR CONSTRUCTION PHASE

* BUILDING HEIGHT INFORMATION IS OBTAINED FROM https://3d.map.gov.hk/LAST ACCESSED ON 17 JUL 25

0 2.5 5 7.5 10 12.5
METRES
1 : 250

F:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 2.7.dwg Jul 18, 2025 - 1:46pm
WON102115

Notes

LEGEND:

- SITE BOUNDARY
- PHASE BOUNDARY
- 1 CONSTRUCTION PHASE NO.
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Key to symbols

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	JUL 25	TW	EA FIRST DRAFT	JC	EC
P1	JUN 25	TW	EA FIRST DRAFT	JC	EC

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Client
PROFIT POINT ENTERPRISES LIMITED

Project
PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title
CROSS SECTION DIAGRAM SHOWING EXISTING TEMPORARY NOISE BARRIERS FOR CONSTRUCTION PHASE (SHEET 1 OF 2)

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	

Scale at A1	Status	Rev
AS SHOWN	PRE	P1

Drawing Number
FIGURE 2.7

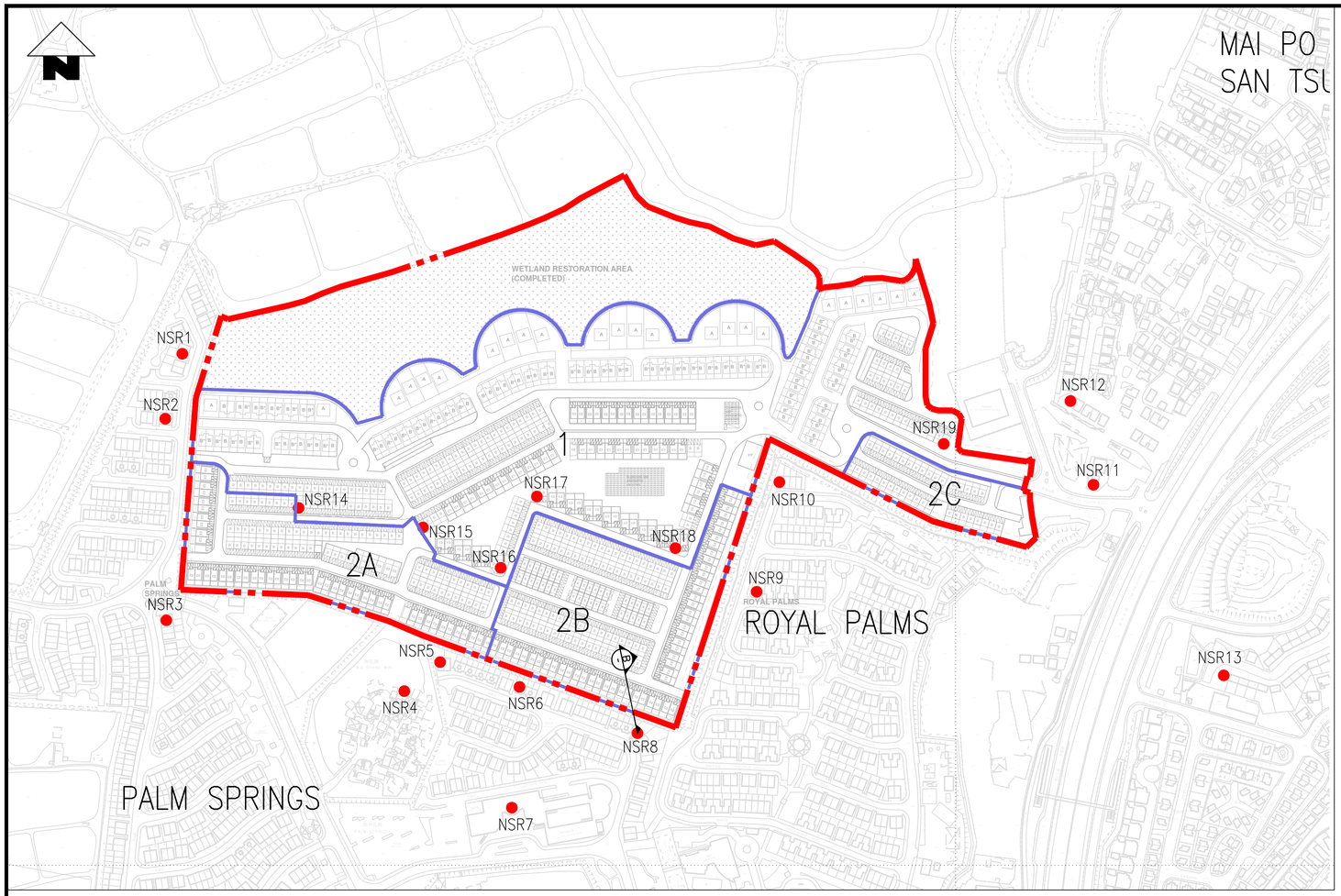
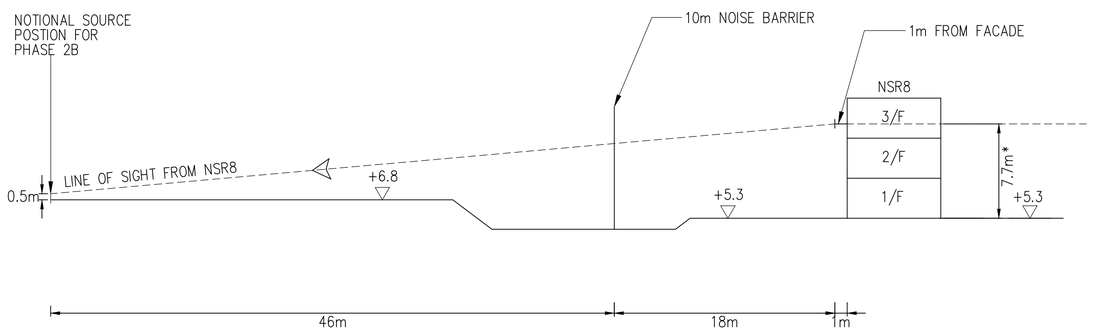


FIGURE 2.2
1:2500

0 25 50 75 100 125
METRES
1 : 2500



SECTION B
1:250

CROSS SECTION DIAGRAM SHOWING EXISTING TEMPORARY NOISE BARRIERS FOR CONSTRUCTION PHASE

* BUILDING HEIGHT INFORMATION IS OBTAINED FROM https://3d.map.gov.hk/LAST ACCESSED ON 17 JUL 25

0 2.5 5 7.5 10 12.5
METRES
1 : 250

F:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 2.8.dwg Jul 18, 2025 - 1:41pm
WON102115

Notes

LEGEND:

- SITE BOUNDARY
- PHASE BOUNDARY
- 1 CONSTRUCTION PHASE NO.
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Key to symbols

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	JUL 25	TW	EA FIRST DRAFT	JC	EC
P1	JUN 25	TW	EA FIRST DRAFT	JC	EC

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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title
CROSS SECTION DIAGRAM SHOWING EXISTING TEMPORARY NOISE BARRIERS FOR CONSTRUCTION PHASE (SHEET 2 OF 2)

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	AC		Approved	EC	

Scale at A1: AS SHOWN
Status: PRE
Rev: P1

Drawing Number
FIGURE 2.8

DEEP BAY
(SHENZHEN BAY)

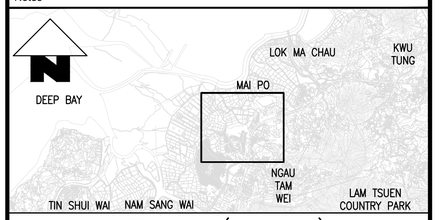
DM2

DM1

FVR1

0 150 300 450 600 750
METRES
1 : 15000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

SITE BOUNDARY

MARINE WATER QUALITY MONITORING STATION

RIVER WATER QUALITY MONITORING STATION

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	DEC23	NS	ENVIRONMENTAL ASSESSMENT	JC	EC

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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG WAI,MAI PO,YUEN LONG

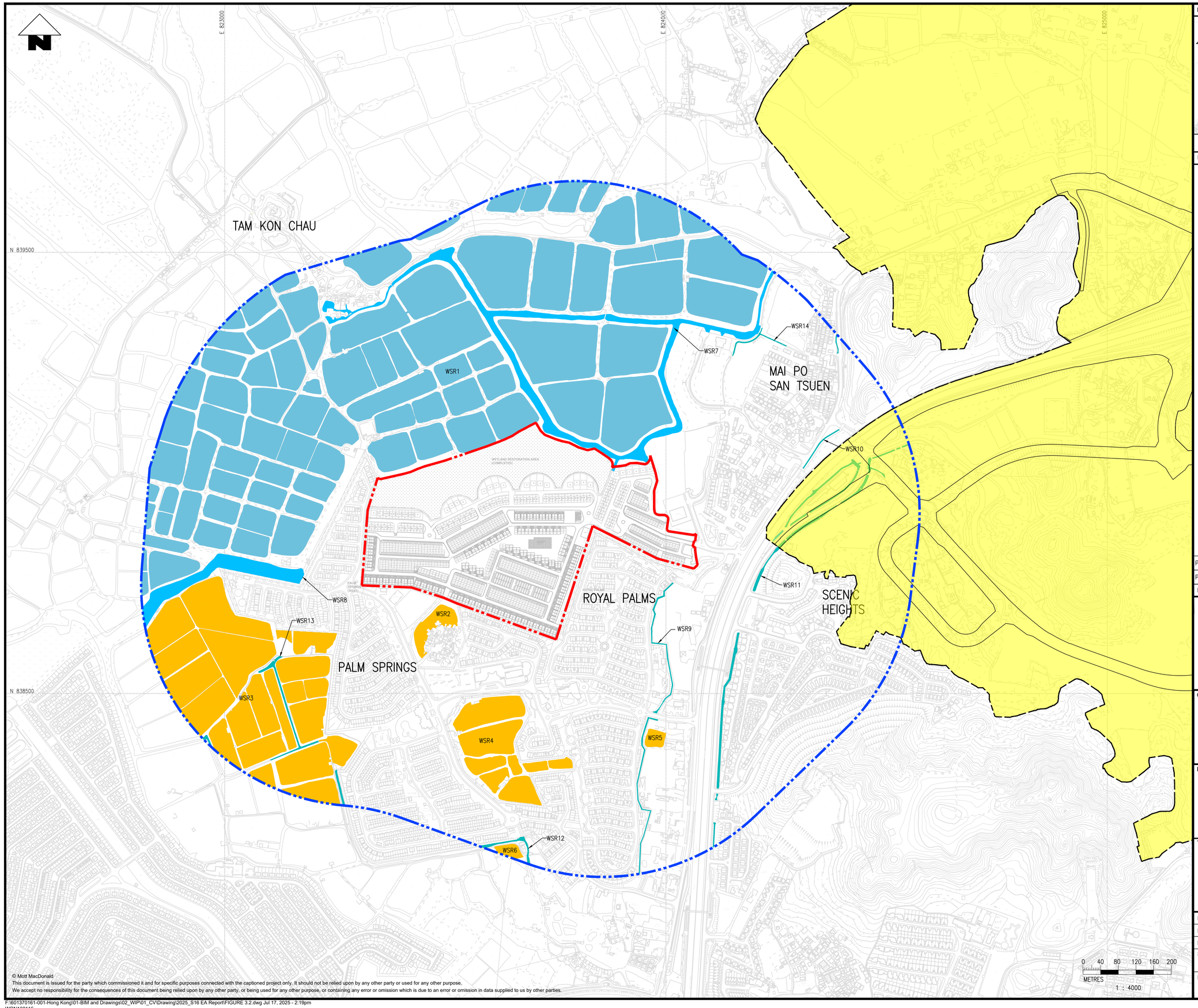
Title

LOCATION OF REPRESENTATIVE WATER QUALITY MONITORING STATIONS

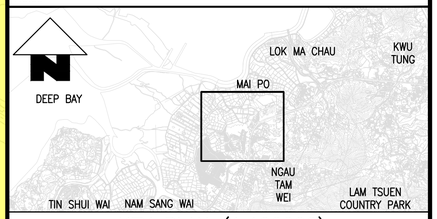
Designed	LC		Eng check	EC	
Drawn	NS		Coordination	LC	
Dwg check	LC		Approved	EC	
Scale at A1	1:15000	Status	PRE	Rev	P1

Drawing Number

FIGURE 3.1



Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (500m)
- WATER DITCH
- FISH POND
- POND
- CHANNEL
- BOUNDARY OF SAN TIN TECHNOPOLE

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	JUL 25	TW	EA FIRST DRAFT	JC	EC
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PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title

LOCATION OF REPRESENTATIVE WATER QUALITY SENSITIVE RECEIVERS AND CONCURRENT PROJECT

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	DC		Approved	EC	
Scale at A1	1:4000	Status	PRE	Rev	P2

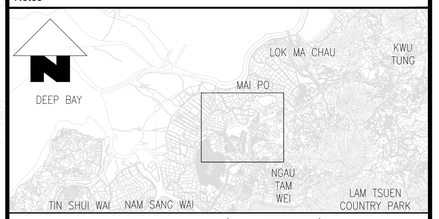
Drawing Number

FIGURE 3.2

F:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 3.2.dwg Jul 17, 2025 - 2:19pm
WON102115

E 823000
E 824000
E 825000
N 839500
N 838500
TAM KON CHAU
MAI PO
SAN TSUEN
SCENIC
HEIGHTS
ROYAL PALMS
PALM SPRINGS
WETLAND RESTORATION AREA (COMPLETED)
OUTFALL NO. 1 FLAP VALVE
OUTFALL NO. 2 FLAP VALVE
PALM SPRINGS (WEST)
ROYAL PALMS
0 40 80 120 160 200
METRES
1 : 4000

Notes



KEY PLAN (1:100000)

Key to symbols

LEGEND:

- SITE BOUNDARY
- ASSESSMENT AREA (500m)
- PROPOSED DRAINAGE SYSTEM
- PROPOSED BOX CULVERT
- PROPOSED MANHOLE

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	JUL 25	TW	EA FIRST DRAFT	JC	EC
P1	JUN 25	TW	EA FIRST DRAFT	JC	EC

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PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED AMENDMENTS TO AN APPROVED SCHEME (APPLICATION NO.A/YL-MP/344) FOR COMPREHENSIVE RESIDENTIAL DEVELOPMENT TO INCLUDE A WETLAND RESTORATION AREA AT LOTS S.A AND 77 IN D.D. 101 ,WA SHANG SHANG WAI,MAI PO,YUEN LONG

Title

PROPOSED DRAINAGE SYSTEM AND BOX CULVERT

Designed	NS		Eng check	JC	
Drawn	TW		Coordination	LC	
Dwg check	DC		Approved	EC	
Scale at A1	1:4000	Status	PRE	Rev	P2

Drawing Number

FIGURE 3.3

F:\601370161-001-Hong Kong\01-BIM and Drawings\02_WIP\01_CV\Drawing\2025_S16 EA Report\FIGURE 3.3.dwg Jul 17, 2025 - 2:20pm
WON102115

Appendices

Appendix 1.1: Email Correspondence between the Project's Traffic Consultant and the Transport Department

Nick Sin

From: Florence Tak Yee KWAN <florencekwan@td.gov.hk>
Sent: Thursday, December 21, 2023 2:33 PM
To: CHAN Kelvin
Cc: Chi Kong LEUNG; Ming Yip TSE
Subject: RE: Planning Application No. A/YL-MP/344 - Road Type Classification of Nearby Road of the Subject Site

Dear Kelvin,

Please be advised that I have no comment on your proposed classification of Mai Po South Road as "Feeder Road" from traffic engineering point of view.

Thank you very much.

Regards,

Florence KWAN
E/B2, Traffic Engineering (NTW) Division
Transport Department
Tel. No.: 2399 2727

From: CHAN Kelvin <kchan2@systra.com>
To: Florence Tak Yee KWAN <florencekwan@td.gov.hk>
Cc: Ming Yip TSE <mingyiptse@td.gov.hk>, Chi Kong LEUNG <chikongleung@td.gov.hk>
Date: 21/12/2023 12:29 PM
Subject: RE: Planning Application No. A/YL-MP/344 - Road Type Classification of Nearby Road of the Subject Site

---

Dear Florence,

Thanks for your prompt reply.

Therefore, it is proposed that Mai Po South Road should be classified as **"Feeder Road"** under the road classification in rural areas.

We would be most grateful if you could reply to us at your earliest convenience. Should you have any enquiries or require further information, please do not hesitate to contact the undersigned at 2864 6462.

Regards,

Kelvin Chan
Principal Traffic Engineer
Tel: +852 2864 6462 (Direct Line) • Gen: +852 2529 7037 • Fax: +852 2527 8490

SYSTRA MVA

22nd Floor • Genesis • 33-35 Wong Chuk Hang Road • Hong Kong

Appendix 2.1 Site Survey Records for Fixed Noise Sources

Location:	Sewage Treatment Plant at Royal Palms
Description:	No noticeable noise was heard at the side facing Castle Peak Road - Mai Po or the side facing Palm Canyon Drive.
Record Photo:	View 1: Facing Castle Peak Rod - Mai Po  View 2: Facing Palm Canyon Drive 
Remark:	

Appendix 2.1 Site Survey Records for Fixed Noise Sources

Location:	Mai Po Ventilation Building (MPVB)
Description:	No noticeable noise from Mai Po Ventilation Building was heard from the side facing Mai Po South Road.
Record Photo:	View 1: Facing Mai Po South Road  
Remark:	Mai Po Ventilation Building was inaccessible to public. Site photos of other angles could not be taken. 

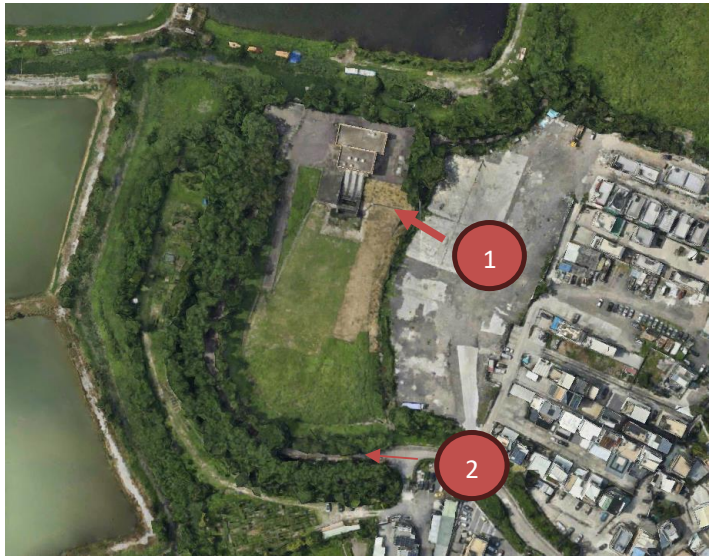
Appendix 2.1 Site Survey Records for Fixed Noise Sources

Location:	Mai Po Substation
Description:	No noticeable noise from Mai Po Substation was heard from the side facing San Tam Road. The equipment that generates noise appears to be enclosed in a building structure.
Record Photo:	View 1: Facing San Tam Road 
Remark:	Mai Po Substation was inaccessible to public. Site photos of other angles could not be taken. 

Appendix 2.1 Site Survey Records for Fixed Noise Sources

Location:	Sewage Treatment Plant at Palm Springs
Description:	No noticeable noise was heard from the side facing Springs Boulevard Road.
Record Photo:	View 1: Facing Palm Springs Boulevard Road 
Remark:	The sewage treatment plant at Palm Springs was inaccessible to public. Site photos of other angles could not be taken. 

Appendix 2.1 Site Survey Records for Fixed Noise Sources

Location:	Mai Po Floodwater Pumping Station
Description:	No noticeable noise from Mai Po Stormwater Pumping Station was heard from the side facing Mai Po Road or at the entrance of the Station. The equipment that generates noise appears to be enclosed in a building structure.
Record Photo:	View 1: Facing the brownfield land adjacent to Mai Po Road  View 2: Facing the entrance of the Floodwater Pumping Station 
Reference:	Mai Po Floodwater Pumping Station was inaccessible to public. Site photos of other angles could not be taken. 

Typical Plant Inventory (per phase)

QPME / Quiet Consturction Method (QCM) ?	PME	TM or Other Reference [1][2][3][4][5]	SWL, dB(A)	No. of PME	% on time	At-Source Nois Mitigation Measures, dB(A)			Total SWL, dB(A)
Group A - Site Formation									
Group A1 - Pavement Breaking / Excavation									
✓	Hydraulic Crusher for Concrete Breaking / Demolition Works	QME IN4	94	4	100%	✓	Movable Noise Barrier		100
✓	Excavator, wheeled/tracked (QPME)	QPME EPD 12299	92	4	80%	✓	Movable Noise Barrier		97
	Generator, silenced, 75 dB(A) at 7 m	CNP 102	100	4	100%	✓	Movable Noise Barrier		106
								Total SWL, dB (A)	**107**
Group A2 - Compacting									
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	6	50%	✓	Movable Noise Barrier		110
✓	Bulldozer, tracked (QPME)	EPD- 12694	108	4	50%	✓	Movable Noise Barrier		111
	Roller, vibratory	CNP 186	108	4	60%	✓	Movable Noise Barrier		112
								Total SWL, dB (A)	**116**
Group B - Substructure Works									
Group B1 - General Substructure Works									
✓	Crane, mobile (QPME)	EPD- 12240	101	4	80%	✓	Movable Noise Barrier		106
✓	Excavator, wheeled/tracked (QPME)	EPD- 12299	92	1	80%	✓	Movable Noise Barrier		91
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	4	60%	✓	Movable Noise Barrier		109
	Water pump (electric)	CNP 281	88	4	100%	✓	Movable Noise Barrier		94
	Generator, silenced, 75 dB(A) at 7 m	CNP 102	100	4	100%	✓	Movable Noise Barrier		106
	Concrete lorry mixer	CNP 044	109	4	70%	✓	Movable Noise Barrier		113
	Air compressor, air flow <= 10m3/min	CNP 001	100	4	70%	✓	Movable Noise Barrier		104
	Concrete pump, stationary mounted	CNP 047	109	3	60%	✓	Movable Noise Barrier		112
	Poker, vibratory, hand-held (electric)	OCUPME A19	102	6	50%	✓	Movable Noise Barrier		107
	Power pack for hand-held items of PME	CNP 168	100	6	50%				105
								Total SWL, dB (A)	**118**
Group C - Superstructure Works									
Group C1 - General Superstructure									
Phase 1									
✓	Crane, mobile (QPME)	EPD- 12240	101	4	80%	✓	Movable Noise Barrier		106
	Poker, vibratory, hand-held (electric)	OCUPME A19	102	5	60%	✓	Noise Insulating Fabric		107
	Power pack for hand-held items of PME	CNP 168	100	5	50%				104
	Compactor, vibratory	OCUPME 050	105	1	60%	✓	Movable Noise Barrier		103
	Bar bender and cutter (electric)	CNP 021	90	4	70%	✓	Movable Noise Barrier		94
	Concrete lorry mixer	CNP 044	109	4	70%	✓	Movable Noise Barrier		113
✓	Generator (QPME)	QPME EPD 14730	95	4	100%	✓	Movable Noise Barrier		101
	Drill/grinder, hand-held (electric)	CNP 065	98	5	60%	✓	Movable Noise Barrier		103
	Water pump (electric)	CNP 281	88	6	100%	✓	Movable Noise Barrier		96
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	4	60%	✓	Movable Noise Barrier		109
	Air compressor, air flow <= 10m3/min	CNP 001	100	6	100%	✓	Movable Noise Barrier		108
								Total SWL, dB (A)	**117**
Phase 2A									
✓	Crane, mobile (QPME)	EPD- 12240	101	2	80%	✓	Movable Noise Barrier		103
	Poker, vibratory, hand-held (electric)	OCUPME A19	102	2	60%	✓	Noise Insulating Fabric		103
	Power pack for hand-held items of PME	CNP 168	100	2	50%				100
	Compactor, vibratory	OCUPME 050	105	1	60%	✓	Movable Noise Barrier		103
	Bar bender and cutter (electric)	CNP 021	90	2	70%	✓	Movable Noise Barrier		91
	Concrete lorry mixer	CNP 044	109	2	70%	✓	Movable Noise Barrier		110
✓	Generator (QPME)	QPME EPD 14730	95	2	100%	✓	Movable Noise Barrier		98
	Drill/grinder, hand-held (electric)	CNP 065	98	2	60%	✓	Movable Noise Barrier		99
	Water pump (electric)	CNP 281	88	2	100%	✓	Movable Noise Barrier		91
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	2	60%	✓	Movable Noise Barrier		106
	Air compressor, air flow <= 10m3/min	CNP 001	100	2	100%	✓	Movable Noise Barrier		103
								Total SWL, dB (A)	**114**
Phase 2B									
✓	Crane, mobile (QPME)	EPD- 12240	101	2	80%	✓	Movable Noise Barrier		103
	Poker, vibratory, hand-held (electric)	OCUPME A19	102	2	60%	✓	Noise Insulating Fabric		103
	Power pack for hand-held items of PME	CNP 168	100	2	50%				100
	Compactor, vibratory	OCUPME 050	105	1	60%	✓	Movable Noise Barrier		103
	Bar bender and cutter (electric)	CNP 021	90	2	70%	✓	Movable Noise Barrier		91
	Concrete lorry mixer	CNP 044	109	2	70%	✓	Movable Noise Barrier		110
✓	Generator (QPME)	QPME EPD 14730	95	2	100%	✓	Movable Noise Barrier		98
	Drill/grinder, hand-held (electric)	CNP 065	98	2	60%	✓	Movable Noise Barrier		99
	Water pump (electric)	CNP 281	88	2	100%	✓	Movable Noise Barrier		91
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	2	60%	✓	Movable Noise Barrier		106
	Air compressor, air flow <= 10m3/min	CNP 001	100	2	100%	✓	Movable Noise Barrier		103
								Total SWL, dB (A)	**114**
Phase 2C									
✓	Crane, mobile (QPME)	EPD- 12240	101	1	80%	✓	Movable Noise Barrier		100
	Poker, vibratory, hand-held (electric)	OCUPME A19	102	1	70%	✓	Noise Insulating Fabric		100
	Power pack for hand-held items of PME	CNP 168	100	1	50%				97
	Compactor, vibratory	OCUPME 050	105	1	70%	✓	Movable Noise Barrier		103
	Bar bender and cutter (electric)	CNP 021	90	1	70%	✓	Movable Noise Barrier		88
	Concrete lorry mixer	CNP 044	109	1	70%	✓	Movable Noise Barrier		107
✓	Generator (QPME)	QPME EPD 14730	95	1	100%	✓	Movable Noise Barrier		95
	Drill/grinder, hand-held (electric)	CNP 065	98	1	70%	✓	Movable Noise Barrier		96
	Water pump (electric)	CNP 281	88	1	100%	✓	Movable Noise Barrier		88
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME A38	105	1	70%	✓	Movable Noise Barrier		103
	Air compressor, air flow <= 10m3/min	CNP 001	100	1	100%	✓	Movable Noise Barrier		100
								Total SWL, dB (A)	**111**

Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)

Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

MTR Corporation

July 2018

Location	NSR	Description
SMV	SM1	Sau Shan House, Cheung Shan Estate
	SM4	Shui Hong Nursing House
SPN	SS7	Leung Uk Tsuen Village House
	SS10	DD110 LOT 452, Wang Toi Shan
	SS15[(a)]	Abandoned village house in Shek Kong
SPS	SS11a[(a)]	Leung Uk Tsuen Squats
	SS20[(a)]	Village house in Shek Kong

Note:

(a) Certain direction of the ventilation shaft is totally or partially screened by the proposed noise barriers at Shek Kong Stabling Sidings (SSS).

3.2.4 Measurement Schedule

The noise measurements were carried out at the monitoring location for MPV, NTV, SMV, SPN and SPS, where the fixed plant items were operated steadily and continuously at their noisiest operating mode under normal scenario. The noise measurement schedule is shown in **Table 3.5**. Sample measurement photos of MPV, NTV, SMV, SPN and SPS are shown in **Appendix A3**.

Table 3.5 Measurement Schedule

Location	Date
MPV	25 – 26 Apr 2018
NTV	17 – 18 May 2018
SMV	8 – 9 Jun 2018
SPN	24 – 25 May 2018
SPS	24 – 25 May 2018

4 Measurement Results

4.1 The Noise Levels of Fixed Plant Noise Sources

The noise levels measured under the worst case scenario are determined and presented in **Table 4.1**. Details of the measurement results are shown in **Appendix A3**.

Table 4.1 Summary of Sound Power Levels for Fixed Plants

Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq}, dB(A)
MPV	North N1 [(a)]	67
	North N2	69
	North N3	72
	East E1	74
	South S1	74
	South S2	75
	West W1	70
	West W2 [(a)]	69
NTV	North N1	72

Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq}, dB(A)
	North N2	69
	North N3	61
	North N4 [(a)]	73
	East E1	77
	East E2	72
	South S1	78
	South S2	78
	South S3 [(a)]	71
	South S4 [(a)]	71
	South S5 [(a)]	76
	South S6 [(a)]	88
	West W1 [(a)]	82
SMV	North N1	80
	North N2	63
	North N3	77
	North N4	61
	North N5 [(a)]	74
	East E1 [(a)]	89
	East E2	81
	East E3	62
	East E4 [(a)]	74
	East E5 [(a)]	67
	South S1	89
	South S2	84
	South S3	86
	South S4	86
	South S5 [(a)]	68
	West W1	76
	West W2	76
	West W3 [(a)]	97
	West W4	78
SPN	North N1	84
	North N2	84
	North N3	66
	East E1	85
	East E2	64
	East E3	68
	South S1	90
	South S2	89
	West W1	87
	West W2	72
SPS	North N1	88
	North N2	90
	North N3	71

Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq}, dB(A)
	East E1	84
	East E2	90
	East E3	89
	East E4	78
	East E5	76
	South S1	82
	South S2	84
	South S3	82
	West W1	84
	West W2	76
	West W3	80
	West W4	74

Note:
(a) The plant would be operated during day and evening time only under normal scenario.

A compliance check against the fixed plant noise criteria at NSR was conducted. The cumulative noise levels from noise sources were assessed to ensure the compliance with the noise criterion. **Table 4.2** shows the results, details of the calculation are also given in **Appendix A3**.

Table 4.2 Cumulative Fixed Plant Noise at NSR

NSR	Source Location	Cumulative SPL, dB(A)		Noise Criteria, dB(A)		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
MP1	Ventilation Shaft and Building Service	29	28	60	50	Y	Y
MP5	Ventilation Shaft and Building Service	34	33	51	45	Y	Y
MP6	Ventilation Shaft and Building Service	35	35	60	50	Y	Y
NT1	Ventilation Shaft for N/B [(a)] and Building Service	42	36	55	44	Y	Y
	Ventilation Shaft for S/B [(a)] and Building Service	43	40	55	44	Y	Y
NT1a	Ventilation Shaft for N/B [(a)] and Building Service	43	40	55	44	Y	Y
	Ventilation Shaft	44	42	55	44	Y	Y

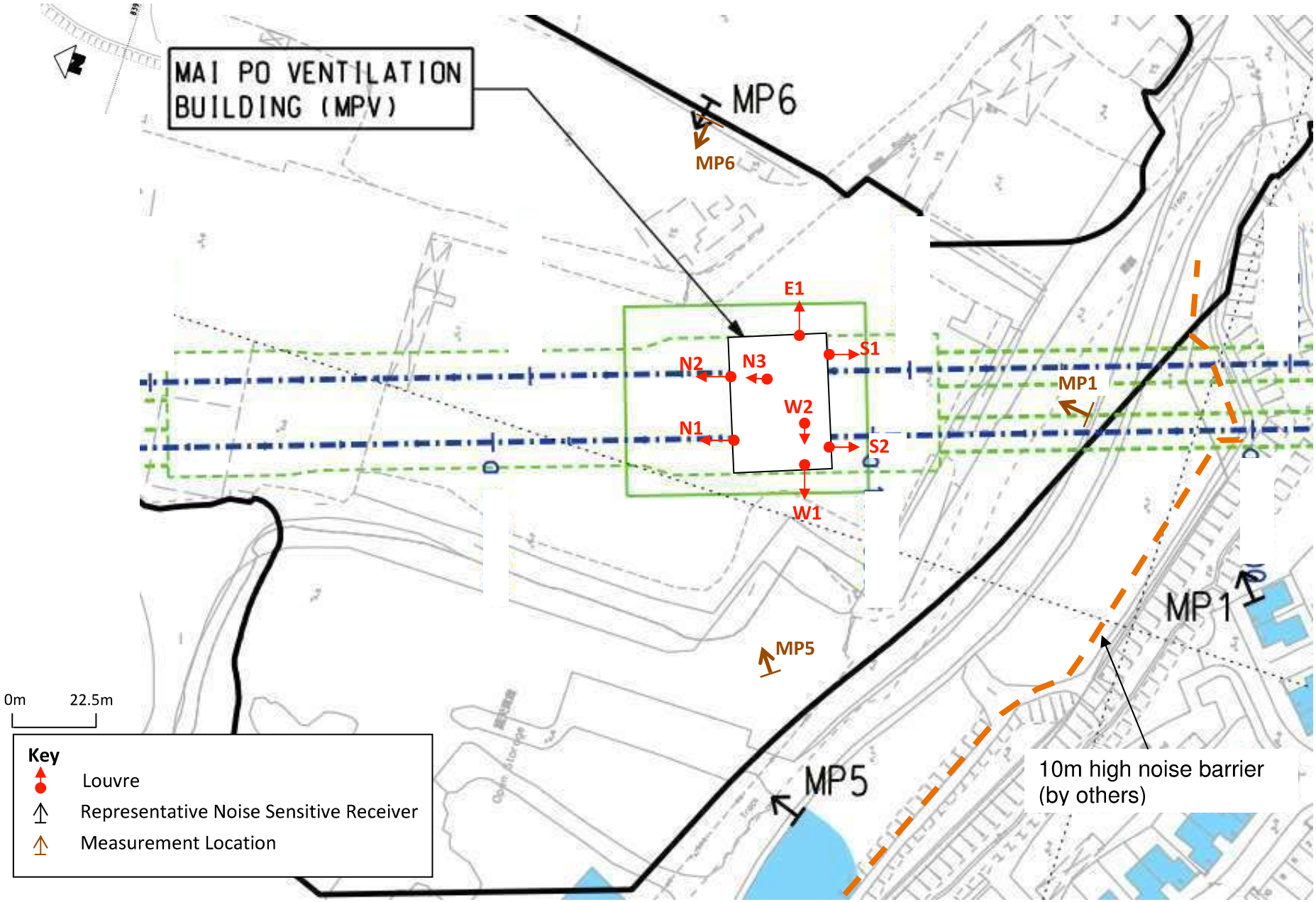


Figure 2.1 – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at MPV

Maximum SWL for Phase 1

								No. of PME													
QPME/ Quiet Construction Method (QCM)?	PME	TM Ref.		SWL/Unit, dB(A)	At-Source Mitigation Measures, dB(A)#		% on time	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26
Group A- Site Clearance^																					
Group A1 - Pavement Breaking/ Excavation																					
✓	Hydraulic Crusher for Concrete Breaking / Demolition Works	QME	IN4	94			100%				4	4	4	4	4	4					
✓	Excavator, wheeled/tracked (QPME)	QPME EPD	12299	92			80%				4	4	4	4	4	4					
	Generator, silenced, 75 dB(A) at 7 m	CNP	102	100			100%				4	4	4	4	4	4					
Group A2 - Compacting																					
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105			50%				6	6	6	6	6	6					
✓	Bulldozer, tracked (QPME)	QPME-EPD	12694	108			50%				4	4	4	4	4	4					
	Roller, vibratory	CNP	186	108			60%				4	4	4	4	4	4					
Group B - Substructure Work																					
✓	Crane, mobile (QPME)	QPME EPD -	12240	101			80%								4	4	4	4	4	4	4
✓	Excavator, wheeled/tracked (QPME)	QPME EPD -	12299	92			80%								1	1	1	1	1	1	1
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105			60%								4	4	4	4	4	4	4
	Water pump (electric)	CNP	281	88			100%								4	4	4	4	4	4	4
	Generator, silenced, 75 dB(A) at 7 m	CNP	102	100			100%								4	4	4	4	4	4	4
	Concrete lorry mixer	CNP	044	109			70%								4	4	4	4	4	4	4
	Air compressor, air flow <= 10m3/min	CNP	001	100			70%								4	4	4	4	4	4	4
	Concrete pump, stationary mounted	CNP	047	109			60%								3	3	3	3	3	3	3
	Poker, vibratory, hand-held (electric)	OCUPME	A19	102			50%								6	6	6	6	6	6	6
	Power pack for hand-held items of PME	CNP	168	100			50%								6	6	6	6	6	6	6
Group C - Superstructure Work																					
✓	Crane, mobile (QPME)	QPME EPD -	12240	101			80%														
	Poker, vibratory, hand-held (electric)	OCUPME	A19	102			60%														
	Power pack for hand-held items of PME	CNP	168	100			50%														
	Compactor, vibratory	OCUPME	050	105			60%														
	Bar bender and cutter (electric)	CNP	021	90			70%														
	Concrete lorry mixer	CNP	044	109			70%														
✓	Generator (QPME)	QPME EPD	14730	95			100%														
	Drill/grinder, hand-held (electric)	CNP	065	98			60%														
	Water pump (electric)	CNP	281	88			100%														
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105			60%														
	Air compressor, air flow <= 10m3/min	CNP	001	100			100%														
							Max SWL of Each Month:				116	116	116	116	120	120	118	118	118	118	118

PME	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	
Group A- Site Clearance^																													
Group A1 - Pavement Breaking/ Excavation																													
Hydraulic Crusher for Concrete Breaking / Demolition Works																													
Excavator, wheeled/tracked (QPME)																													
Generator, silenced, 75 dB(A) at 7 m																													
Group A2 - Compacting																													
Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne																													
Bulldozer, tracked (QPME)																													
Roller, vibratory																													
Group B - Substructure Work																													
Crane, mobile (QPME)																													
Excavator, wheeled/tracked (QPME)																													
Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne																													
Water pump (electric)																													
Generator, silenced, 75 dB(A) at 7 m																													
Concrete lorry mixer																													
Air compressor, air flow <= 10m3/min																													
Concrete pump, stationary mounted																													
Poker, vibratory, hand-held (electric)																													
Power pack for hand-held items of PME																													
Group C - Superstructure Work																													
Crane, mobile (QPME)	4	4	4	4	4	4	4	4	4	4	4	4																	
Poker, vibratory, hand-held (electric)	5	5	5	5	5	5	5	5	5	5	5	5																	
Power pack for hand-held items of PME	5	5	5	5	5	5	5	5	5	5	5	5																	
Compactor, vibratory	1	1	1	1	1	1	1	1	1	1	1	1																	
Bar bender and cutter (electric)	4	4	4	4	4	4	4	4	4	4	4	4																	
Concrete lorry mixer	4	4	4	4	4	4	4	4	4	4	4	4																	
Generator (QPME)	4	4	4	4	4	4	4	4	4	4	4	4																	
Drill/grinder, hand-held (electric)	5	5	5	5	5	5	5	5	5	5	5	5																	
Water pump (electric)	6	6	6	6	6	6	6	6	6	6	6	6																	
Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	4	4	4	4	4	4	4	4	4	4	4	4																	
Air compressor, air flow <= 10m3/min	6	6	6	6	6	6	6	6	6	6	6	6																	Maximum
Max SWL of Each Month:	117	117	117	117	117	117	117	117	117	117	117	117																	120

Noise reduction of 10 dB with screening for Stationary PME and 5 dB with screening for Movable PME

^ Activities under sub-groups A1 and A2 are not carried out concurrently

Maximum SWL for Phase 2 (Group A and Group B)

| QPME/ Quiet Construction Method (QCM)? | PME | TM Ref. | SWL/Unit, dB(A) | At-Source Mitigation Measures, dB(A)[#] | % on time | No. of PME | | |

Maximum SWL for Phase 2A (Group C)

QPME/ Quiet Construction Method (QCM)?	PME	TM Ref.		SWL/Unit, dB(A)	At-Source Mitigation Measures, dB(A)#		% on time	No. of PME																																										
								Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	
Group C - Superstructure Work (Phase 2A)																																																		
✓	Crane, mobile (QPME)	QPME EPD -	12240	101	Movable Noise Barrier	-5	80%																												2	2	2	2	2	2	2	2	2	2	2					
	Poker, vibratory, hand-held (electric)	OCUPME	A19	102	Movable Noise Barrier	-10	60%																												2	2	2	2	2	2	2	2	2	2	2					
	Power pack for hand-held items of PME	CNP	168	100	Movable Noise Barrier	-10	50%																												2	2	2	2	2	2	2	2	2	2	2					
	Compactor, vibratory	OCUPME	050	105			60%																												1	1	1	1	1	1	1	1	1	1	1					
	Bar bender and cutter (electric)	CNP	021	90			70%																												2	2	2	2	2	2	2	2	2	2	2					
	Concrete lorry mixer	CNP	044	109	Movable Noise Barrier	-10	70%																												2	2	2	2	2	2	2	2	2	2	2					
✓	Generator (QPME)	QPME EPD	14730	95	Movable Noise Barrier	-10	100%																												2	2	2	2	2	2	2	2	2	2	2					
	Drill/grinder, hand-held (electric)	CNP	065	98	Movable Noise Barrier	-10	60%																												2	2	2	2	2	2	2	2	2	2	2					
	Water pump (electric)	CNP	281	88			100%																												2	2	2	2	2	2	2	2	2	2	2					
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105	Movable Noise Barrier	-5	60%																												2	2	2	2	2	2	2	2	2	2	2					
	Air compressor, air flow <= 10m3/min	CNP	001	100	Movable Noise Barrier	-10	100%																												2	2	2	2	2	2	2	2	2	2	2					Maximum
Max SWL of Each Month:																																			108	108	108	108	108	108	108	108	108	108	108					108

Noise reduction of 10 dB with screening for Stationary PME and 5 dB with screening for Movable PME

^ Activities under sub-groups A1 and A2 are not carried out concurrently

Maximum SWL for Phase 2B (Group C)

								No. of PME														
QPME/ Quiet Construction Method (QCM)?	PME	TM Ref.		SWL/Unit, dB(A)	At-Source Mitigation Measures, dB(A)$^{\#}$		% on time	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
Group C - Superstructure Work (Phase 2B)																						
✓	Crane, mobile (QPME)	QPME EPD -	12240	101	Movable Noise Barrier	-5	80%															
	Poker, vibratory, hand-held (electric)	OCUPME	A19	102	Movable Noise Barrier	-10	60%															
	Power pack for hand-held items of PME	CNP	168	100	Movable Noise Barrier	-10	50%															
	Compactor, vibratory	OCUPME	050	105			60%															
	Bar bender and cutter (electric)	CNP	021	90			70%															
	Concrete lorry mixer	CNP	044	109	Movable Noise Barrier	-10	70%															
✓	Generator (QPME)	QPME EPD	14730	95	Movable Noise Barrier	-10	100%															
	Drill/grinder, hand-held (electric)	CNP	065	98	Movable Noise Barrier	-10	60%															
	Water pump (electric)	CNP	281	88			100%															
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105	Movable Noise Barrier	-5	60%															
	Air compressor, air flow <= 10m3/min	CNP	001	100	Movable Noise Barrier	-10	100%															
Max SWL of Each Month:																						

	No. of PME																											
PME	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	
Group C - Superstructure Work (Phase 2B)																												
Crane, mobile (QPME)													2	2	2	2	2	2	2	2	2	2	2					
Poker, vibratory, hand-held (electric)													2	2	2	2	2	2	2	2	2	2	2					
Power pack for hand-held items of PME													2	2	2	2	2	2	2	2	2	2	2					
Compactor, vibratory													1	1	1	1	1	1	1	1	1	1	1					
Bar bender and cutter (electric)													2	2	2	2	2	2	2	2	2	2	2					
Concrete lorry mixer													2	2	2	2	2	2	2	2	2	2	2					
Generator (QPME)													2	2	2	2	2	2	2	2	2	2	2					
Drill/grinder, hand-held (electric)													2	2	2	2	2	2	2	2	2	2	2					
Water pump (electric)													2	2	2	2	2	2	2	2	2	2	2					
Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne													2	2	2	2	2	2	2	2	2	2	2					
Air compressor, air flow <= 10m3/min													2	2	2	2	2	2	2	2	2	2	2					Maximum
Max SWL of Each Month:													108	108	108	108	108	108	108	108	108	108	108					108

Noise reduction of 10 dB with screening for Stationary PME and 5 dB with screening for Movable PME

^ Activities under sub-groups A1 and A2 are not carried out concurrently

Maximum SWL for Phase 2C (Group C)

								No. of PME																																												
QPME/ Quiet Construction Method (QCM)?	PME	TM Ref.		SWL/Unit, dB(A)	At-Source Mitigation Measures, dB(A)#		% on time	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26	Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	
Group C - Superstructure Work (Phase 2C)																																																		
✓	Crane, mobile (QPME)	QPME EPD -	12240	101	Movable Noise Barrier	-5	80%																												1	1	1	1	1	1	1	1	1	1	1					
	Poker, vibratory, hand-held (electric)	OCUPME	A19	102	Movable Noise Barrier	-10	70%																												1	1	1	1	1	1	1	1	1	1	1					
	Power pack for hand-held items of PME	CNP	168	100	Movable Noise Barrier	-10	50%																												1	1	1	1	1	1	1	1	1	1	1					
	Compactor, vibratory	OCUPME	050	105			70%																												1	1	1	1	1	1	1	1	1	1	1					
	Bar bender and cutter (electric)	CNP	021	90			70%																												1	1	1	1	1	1	1	1	1	1	1					
	Concrete lorry mixer	CNP	044	109	Movable Noise Barrier	-10	70%																												1	1	1	1	1	1	1	1	1	1	1					
✓	Generator (QPME)	QPME EPD	14730	95	Movable Noise Barrier	-10	100%																												1	1	1	1	1	1	1	1	1	1	1					
	Drill/grinder, hand-held (electric)	CNP	065	98	Movable Noise Barrier	-10	70%																												1	1	1	1	1	1	1	1	1	1	1					
	Water pump (electric)	CNP	281	88			100%																												1	1	1	1	1	1	1	1	1	1	1					
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	OCUPME	A38	105	Movable Noise Barrier	-5	70%																												1	1	1	1	1	1	1	1	1	1	1					
	Air compressor, air flow <= 10m3/min	CNP	001	100	Movable Noise Barrier	-10	100%																												1	1	1	1	1	1	1	1	1	1	1					Maximum
Max SWL of Each Month:																																			106	106	106	106	106	106	106	106	106	106	106					106

Noise reduction of 10 dB with screening for Stationary PME and 5 dB with screening for Movable PME

^ Activities under sub-groups A1 and A2 are not carried out concurrently

Appendix 2.4 Construction Noise Assessment

NSR: **NSR1**

		Max. SWL		(3) Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	231	-55	-10	3	58		
Phase 2	(Group A and B)	120	(1)	290	-57	-10	3	56	Total SPL	
									60	dB(A)
Phase 2A	(Group C)	114	(4)	206	-54	-10	3	53		
Phase 2B	(Group C)	111	(4)	396	-60	-10	3	44		
Phase 2C	(Group C)	111	(4)	639	-64	-10	3	40	Total SPL	
									53	dB(A)
								WSW (max spl)	**60**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR2**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	76	-46	-10	3	67		
Phase 2	(Group A and B)	120	(1)	237	-55	-10	3	58	Total SPL	
									68	dB(A)
Phase 2A	(Group C)	114	(4)	146	-51	-10	3	56		
Phase 2B	(Group C)	111	(4)	381	-60	-10	3	44		
Phase 2C	(Group C)	111	(4)	646	-64	-10	3	40	Total SPL	
									56	dB(A)
								WSW (max spl)	**68**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR3**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	273	-57	-10	3	56		
Phase 2	(Group A and B)	120	(1)	201	-54	-10	3	59	Total SPL	
									61	dB(A)
Phase 2A	(Group C)	114	(4)	112	-49	-10	3	58		
Phase 2B	(Group C)	111	(4)	345	-59	-10	3	45		
Phase 2C	(Group C)	111	(4)	668	-64	-10	3	40	Total SPL	
									58	dB(A)
								WSW (max spl)	**61**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR4**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	174	-53	-10	3	60		
Phase 2	(Group A and B)	120	(1)	86	-47	-10	3	66	Total SPL	
									67	dB(A)
Phase 2A	(Group C)	114	(4)	106	-49	-10	3	58		
Phase 2B	(Group C)	111	(4)	129	-50	-10	3	54		
Phase 2C	(Group C)	111	(4)	494	-62	-10	3	42	Total SPL	
									60	dB(A)
								WSW (max spl)	**67**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR5**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	137	-51	-10	3	62		
Phase 2	(Group A and B)	120	(1)	42	-40	-10	3	73	Total SPL	
									73	dB(A)
Phase 2A	(Group C)	114	(4)	89	-47	-10	3	60		
Phase 2B	(Group C)	111	(4)	95	-48	-10	3	56		
Phase 2C	(Group C)	111	(4)	457	-61	-10	3	43	Total SPL	
									62	dB(A)
								WSW (max spl)	**73**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR6**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	198	-54	-10	3	59		
Phase 2	(Group A and B)	120	(1)	53	-42	-10	3	71	Total SPL	
									71	dB(A)
Phase 2A	(Group C)	114	(4)	110	-49	-10	3	58		
Phase 2B	(Group C)	111	(4)	62	-44	-10	3	60		
Phase 2C	(Group C)	111	(4)	398	-60	-10	3	44	Total SPL	
									62	dB(A)
								WSW (max spl)	**71**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR7**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	304	-58	-10	3	55		
Phase 2	(Group A and B)	120	(1)	165	-52	-10	3	61	Total SPL	
									62	dB(A)
Phase 2A	(Group C)	114	(4)	242	-56	-10	3	51		
Phase 2B	(Group C)	111	(4)	157	-52	-10	3	52		
Phase 2C	(Group C)	111	(4)	458	-61	-10	3	43	Total SPL	
									55	dB(A)
								WSW (max spl)	**62**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR8**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	224	-55	-10	3	58		
Phase 2	(Group A and B)	120	(1)	94	-47	-10	3	66	Total SPL	
									66	dB(A)
Phase 2A	(Group C)	114	(4)	201	-54	-10	3	53		
Phase 2B	(Group C)	111	(4)	65	-44	-10	3	60		
Phase 2C	(Group C)	111	(4)	330	-58	-10	3	46	Total SPL	
									61	dB(A)
								WSW (max spl)	**66**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR9**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	118	-49	-10	3	64		
Phase 2	(Group A and B)	120	(1)	82	-46	-10	3	67	Total SPL	
									68	dB(A)
Phase 2A	(Group C)	114	(4)	308	-58	-10	3	49		
Phase 2B	(Group C)	111	(4)	81	-46	-10	3	58		
Phase 2C	(Group C)	111	(4)	170	-53	-10	3	51	Total SPL	
									59	dB(A)
								WSW (max spl)	**68**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR10**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	74	-45	-10	3	68		
Phase 2	(Group A and B)	120	(1)	79	-46	-10	3	67	Total SPL	
									70	dB(A)
Phase 2A	(Group C)	114	(4)	361	-59	-10	3	48		
Phase 2B	(Group C)	111	(4)	87	-47	-10	3	57		
Phase 2C	(Group C)	111	(4)	112	-49	-10	3	55	Total SPL	
									60	dB(A)
								WSW (max spl)	**70**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) NSR is >300m away from the concurrent project "San Tin/ Lok Ma Chau Development Node"

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR11**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	107	-49	-10	3	64		
Phase 2	(Group A and B)	120	(1)	101	-48	-10	3	65	Total SPL	
Concurrent Project		113	(3)	86	-47		3	69	**72**	dB(A)
Phase 2A	(Group C)	114	(4)	636	-64	-10	3	43		
Phase 2B	(Group C)	111	(4)	392	-60	-10	3	44		
Phase 2C	(Group C)	111	(4)	101	-48	-10	3	56	Total SPL	
Concurrent Project		113	(3)	86	-47		3	69	**56**	dB(A)
								WSW (max spl)	72	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR12**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1	(Group A and B)	120	(1)	172	-53		3	70		
Phase 2		120	(1)	126	-50		3	73	Total SPL	
Concurrent Project		113	(3)	115	-49		3	67	**75**	dB(A)
Phase 2A	(Group C)	114	(4)	630	-64		3	53		
Phase 2B	(Group C)	111	(4)	383	-60		3	54		
Phase 2C	(Group C)	111	(4)	126	-50		3	64	Total SPL	
Concurrent Project		113	(3)	115	-49		3	67	**65**	dB(A)
								WSW (max spl)	75	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: **NSR13**

		Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL		
Phase 1		120	(1)	500	-62	-10	3	51		
Phase 2	(Group A and B)	120	(1)	259	-56	-10	3	57	Total SPL	
Concurrent Project		113	(3)	138	-51		3	65	**66**	dB(A)
Phase 2A	(Group C)	114	(4)	694	-65	-10	3	42		
Phase 2B	(Group C)	111	(4)	502	-62	-10	3	42		
Phase 2C	(Group C)	111	(4)	259	-56	-10	3	48	Total SPL	
Concurrent Project		113	(3)	138	-51		3	65	**65**	dB(A)
								WSW (max spl)	66	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among all works activities

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

(4) Refence to the SWL in Appendix 2.2 to avoid double-counting the barrier effect of temporary noise barrier installed around the site and the movable noise barrier proposed at source.

Appendix 2.4 Construction Noise Assessment

NSR: NSR14 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	36	-39		3	72	
Phase 2B	108	(1)	247	-56		3	55	
Phase 2C	106	(1)	540	-63		3	46	
						WSW (max spl)	**72**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.4 Construction Noise Assessment

NSR: NSR15 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	46	-41		3	70	
Phase 2B	108	(1)	137	-51		3	60	
Phase 2C	106	(1)	432	-61		3	48	
						WSW (max spl)	**70**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.4 Construction Noise Assessment

NSR: NSR16 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	96	-48		3	63	
Phase 2B	108	(1)	58	-43		3	68	
Phase 2C	106	(1)	366	-59		3	50	
						WSW (max spl)	**69**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.4 Construction Noise Assessment

NSR: NSR17 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	150	-52		3	59	
Phase 2B	108	(1)	73	-45		3	66	
Phase 2C	106	(1)	331	-58		3	51	
						WSW (max spl)	**67**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.4 Construction Noise Assessment

NSR: NSR18 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	261	-56		3	55	
Phase 2B	108	(1)	40	-40		3	71	
Phase 2C	106	(1)	225	-55		3	54	
						WSW (max spl)	**71**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.4 Construction Noise Assessment

NSR: NSR19 (Phase 1)

	Max. SWL		Distance (m)	Distance Correction	Barrier Effect	Façade Correction	SPL	
Phase 2A	108	(1)	511	-62		3	49	
Phase 2B	108	(1)	260	-56		3	55	
Phase 2C	106	(1)	32	-38		3	71	
Concurrent Project	111	(3)	234	-55		3	58	
						WSW (max spl)	**71**	dB(A)

Note:

(1) Reference to the maximum mitigated sound power level among **superstructure works** only.

(2) Barrier correction provided by temporary noise barrier installed around the site

(3) Reference to the approved EIA (Register No.: EIA-302/2023) San Tin/ Lok Ma Chau Development Node.

Appendix 2.5 - Fixed Plant Noise Assessment

Daytime Fixed Plant Noise Assessment (Mai Po Ventilation Building)												
NSR ID	**Fixed Noise Source**	**Louvres - Direction Facing**	**SWL, dB(A)[1]**	**Horizontal Distance (m)**	**Distance Attenuation dB(A)**	**Tonality Correction dB(A)**	**Screening Correction dB(A)**	**Facade Correction dB(A)**	**Barrier Correction dB(A)**	**SPL, $L_{eq(30min)}$, dB(A)**	**Resultant SPL, $L_{eq(30min)}$, dB(A)**	**Daytime Noise Criteria, dB(A)**
FN1	Mai Po Ventilation Building	MPVB North N1 (N1)	67	70	-45	0	0	3	0	25	37	65
		MPVB North N2 (N2)	69	80	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	86	-47	0	0	3	0	28		
		MPVB East E1 (E1)	74	100	-48	0	0	3	0	29		
		MPVB South S1 (S1)	74	102	-48	0	0	3	0	29		
		MPVB South S2 (S2)	75	91	-47	0	0	3	0	31		
		MPVB West W1 (W1)	70	84	-46	0	0	3	0	27		
		MPVB West W2 (W2)	69	88	-47	0	0	3	0	25		
FN2	Mai Po Ventilation Building	MPVB North N1 (N1)	67	67	-45	0	0	3	0	25	37	65
		MPVB North N2 (N2)	69	81	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	86	-47	0	0	3	0	28		
		MPVB East E1 (E1)	74	100	-48	0	0	3	0	29		
		MPVB South S1 (S1)	74	100	-48	0	0	3	0	29		
		MPVB South S2 (S2)	75	84	-46	0	0	3	0	32		
		MPVB West W1 (W1)	70	76	-46	0	0	3	0	27		
		MPVB West W2 (W2)	69	84	-46	0	0	3	0	26		
FN3	Mai Po Ventilation Building	MPVB North N1 (N1)	67	60	-44	0	0	3	0	26	38	65
		MPVB North N2 (N2)	69	75	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	78	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	92	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	92	-47	0	0	3	0	30		
		MPVB South S2 (S2)	75	73	-45	0	0	3	0	33		
		MPVB West W1 (W1)	70	66	-44	0	0	3	0	29		
		MPVB West W2 (W2)	69	74	-45	0	0	3	0	27		
FN4	Mai Po Ventilation Building	MPVB North N1 (N1)	67	57	-43	0	0	3	0	27	39	65
		MPVB North N2 (N2)	69	72	-45	0	0	3	0	27		
		MPVB North N3 (N3)	72	75	-45	0	0	3	0	30		
		MPVB East E1 (E1)	74	89	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	88	-47	0	0	3	0	30		
		MPVB South S2 (S2)	75	68	-45	0	0	3	0	33		
		MPVB West W1 (W1)	70	61	-44	0	0	3	0	29		
		MPVB West W2 (W2)	69	70	-45	0	0	3	0	27		
FN5	Mai Po Ventilation Building	MPVB North N1 (N1)	67	58	-43	0	0	3	0	27	39	65
		MPVB North N2 (N2)	69	75	-45	0	0	3	0	27		
		MPVB North N3 (N3)	72	75	-45	0	0	3	0	30		
		MPVB East E1 (E1)	74	87	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	84	-46	0	0	3	0	31		
		MPVB South S2 (S2)	75	61	-44	0	0	3	0	34		
		MPVB West W1 (W1)	70	55	-43	0	0	3	0	30		
		MPVB West W2 (W2)	69	65	-44	0	0	3	0	28		
FN6	Mai Po Ventilation Building	MPVB North N1 (N1)	67	39	-40	0	0	3	0	30	45	65
		MPVB North N2 (N2)	69	54	-43	0	0	3	0	29		
		MPVB North N3 (N3)	72	49	-42	0	0	3	0	33		
		MPVB East E1 (E1)	74	58	-43	0	0	3	0	34		
		MPVB South S1 (S1)	74	53	-42	0	0	3	0	35		
		MPVB South S2 (S2)	75	28	-37	0	0	3	0	41		
		MPVB West W1 (W1)	70	25	-36	0	0	3	0	37		
		MPVB West W2 (W2)	69	36	-39	0	0	3	0	33		
FN7	Mai Po Ventilation Building	MPVB North N1 (N1)	67	42	-40	0	0	3	0	30	45	65
		MPVB North N2 (N2)	69	55	-43	0	0	3	0	29		
		MPVB North N3 (N3)	72	51	-42	0	0	3	0	33		
		MPVB East E1 (E1)	74	58	-43	0	0	3	0	34		
		MPVB South S1 (S1)	74	52	-42	0	0	3	0	35		
		MPVB South S2 (S2)	75	28	-37	0	0	3	0	41		
		MPVB West W1 (W1)	70	26	-36	0	0	3	0	37		
		MPVB West W2 (W2)	69	36	-39	0	0	3	0	33		
FN8	Mai Po Ventilation Building	MPVB North N1 (N1)	67	77	-46	0	0	3	0	24	40	65
		MPVB North N2 (N2)	69	85	-47	0	0	3	0	25		
		MPVB North N3 (N3)	72	77	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	77	-46	0	0	3	0	31		
		MPVB South S1 (S1)	74	69	-45	0	0	3	0	32		
		MPVB South S2 (S2)	75	54	-43	0	0	3	0	35		
		MPVB West W1 (W1)	70	58	-43	0	0	3	0	30		
		MPVB West W2 (W2)	69	62	-44	0	0	3	0	28		
FN9	Mai Po Ventilation Building	MPVB North N1 (N1)	67	81	-46	0	0	3	0	24	40	65
		MPVB North N2 (N2)	69	86	-47	0	0	3	0	25		
		MPVB North N3 (N3)	72	78	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	75	-46	0	0	3	0	31		
		MPVB South S1 (S1)	74	67	-45	0	0	3	0	32		
		MPVB South S2 (S2)	75	56	-43	0	0	3	0	35		
		MPVB West W1 (W1)	70	62	-44	0	0	3	0	29		
		MPVB West W2 (W2)	69	64	-44	0	0	3	0	28		

Notes: (1) The SWLs referenced the Commissioning Test Report submitted under EP-349/2009/N for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (Appendix 2.4). The plants (N1 and W2) would be operated during day and evening time only under normal scenario.

Appendix 2.5 - Fixed Plant Noise Assessment

Night time Fixed Plant Noise Assessment (Mai Po Ventilation Building)												
NSR ID	**Fixed Noise Source**	**Louvres - Direction Facing**	**SWL, dB(A)[1]**	**Horizontal Distance (m)**	**Distance Attenuation dB(A)**	**Tonality Correction dB(A)**	**Screening Correction dB(A)**	**Facade Correction dB(A)**	**Barrier Correction dB(A)**	**SPL, $L_{eq(30min)}$, dB(A)**	**Resultant SPL, $L_{eq(30min)}$, dB(A)**	**Nighttime Noise Criteria, dB(A)**
FN1	Mai Po Ventilation Building	MPVB North N1 (N1)	0	70	-45	0	0	3	0	0	36	55
		MPVB North N2 (N2)	69	80	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	86	-47	0	0	3	0	28		
		MPVB East E1 (E1)	74	100	-48	0	0	3	0	29		
		MPVB South S1 (S1)	74	102	-48	0	0	3	0	29		
		MPVB South S2 (S2)	75	91	-47	0	0	3	0	31		
		MPVB West W1 (W1)	70	84	-46	0	0	3	0	27		
		MPVB West W2 (W2)	0	88	-47	0	0	3	0	0		
FN2	Mai Po Ventilation Building	MPVB North N1 (N1)	0	67	-45	0	0	3	0	0	37	55
		MPVB North N2 (N2)	69	81	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	86	-47	0	0	3	0	28		
		MPVB East E1 (E1)	74	100	-48	0	0	3	0	29		
		MPVB South S1 (S1)	74	100	-48	0	0	3	0	29		
		MPVB South S2 (S2)	75	84	-46	0	0	3	0	32		
		MPVB West W1 (W1)	70	76	-46	0	0	3	0	27		
		MPVB West W2 (W2)	0	84	-46	0	0	3	0	0		
FN3	Mai Po Ventilation Building	MPVB North N1 (N1)	0	60	-44	0	0	3	0	0	38	55
		MPVB North N2 (N2)	69	75	-46	0	0	3	0	26		
		MPVB North N3 (N3)	72	78	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	92	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	92	-47	0	0	3	0	30		
		MPVB South S2 (S2)	75	73	-45	0	0	3	0	33		
		MPVB West W1 (W1)	70	66	-44	0	0	3	0	29		
		MPVB West W2 (W2)	0	74	-45	0	0	3	0	0		
FN4	Mai Po Ventilation Building	MPVB North N1 (N1)	0	57	-43	0	0	3	0	0	38	55
		MPVB North N2 (N2)	69	72	-45	0	0	3	0	27		
		MPVB North N3 (N3)	72	75	-45	0	0	3	0	30		
		MPVB East E1 (E1)	74	89	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	88	-47	0	0	3	0	30		
		MPVB South S2 (S2)	75	68	-45	0	0	3	0	33		
		MPVB West W1 (W1)	70	61	-44	0	0	3	0	29		
		MPVB West W2 (W2)	0	70	-45	0	0	3	0	0		
FN5	Mai Po Ventilation Building	MPVB North N1 (N1)	0	58	-43	0	0	3	0	0	39	55
		MPVB North N2 (N2)	69	75	-45	0	0	3	0	27		
		MPVB North N3 (N3)	72	75	-45	0	0	3	0	30		
		MPVB East E1 (E1)	74	87	-47	0	0	3	0	30		
		MPVB South S1 (S1)	74	84	-46	0	0	3	0	31		
		MPVB South S2 (S2)	75	61	-44	0	0	3	0	34		
		MPVB West W1 (W1)	70	55	-43	0	0	3	0	30		
		MPVB West W2 (W2)	0	65	-44	0	0	3	0	0		
FN6	Mai Po Ventilation Building	MPVB North N1 (N1)	0	39	-40	0	0	3	0	0	44	55
		MPVB North N2 (N2)	69	54	-43	0	0	3	0	29		
		MPVB North N3 (N3)	72	49	-42	0	0	3	0	33		
		MPVB East E1 (E1)	74	58	-43	0	0	3	0	34		
		MPVB South S1 (S1)	74	53	-42	0	0	3	0	35		
		MPVB South S2 (S2)	75	28	-37	0	0	3	0	41		
		MPVB West W1 (W1)	70	25	-36	0	0	3	0	37		
		MPVB West W2 (W2)	0	36	-39	0	0	3	0	0		
FN7	Mai Po Ventilation Building	MPVB North N1 (N1)	0	42	-40	0	0	3	0	0	44	55
		MPVB North N2 (N2)	69	55	-43	0	0	3	0	29		
		MPVB North N3 (N3)	72	51	-42	0	0	3	0	33		
		MPVB East E1 (E1)	74	58	-43	0	0	3	0	34		
		MPVB South S1 (S1)	74	52	-42	0	0	3	0	35		
		MPVB South S2 (S2)	75	28	-37	0	0	3	0	41		
		MPVB West W1 (W1)	70	26	-36	0	0	3	0	37		
		MPVB West W2 (W2)	0	36	-39	0	0	3	0	0		
FN8	Mai Po Ventilation Building	MPVB North N1 (N1)	0	77	-46	0	0	3	0	0	39	55
		MPVB North N2 (N2)	69	85	-47	0	0	3	0	25		
		MPVB North N3 (N3)	72	77	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	77	-46	0	0	3	0	31		
		MPVB South S1 (S1)	74	69	-45	0	0	3	0	32		
		MPVB South S2 (S2)	75	54	-43	0	0	3	0	35		
		MPVB West W1 (W1)	70	58	-43	0	0	3	0	30		
		MPVB West W2 (W2)	0	62	-44	0	0	3	0	0		
FN9	Mai Po Ventilation Building	MPVB North N1 (N1)	0	81	-46	0	0	3	0	0	39	55
		MPVB North N2 (N2)	69	86	-47	0	0	3	0	25		
		MPVB North N3 (N3)	72	78	-46	0	0	3	0	29		
		MPVB East E1 (E1)	74	75	-46	0	0	3	0	31		
		MPVB South S1 (S1)	74	67	-45	0	0	3	0	32		
		MPVB South S2 (S2)	75	56	-43	0	0	3	0	35		
		MPVB West W1 (W1)	70	62	-44	0	0	3	0	29		
		MPVB West W2 (W2)	0	64	-44	0	0	3	0	0		

Notes: (1) The SWLs referenced the Commissioning Test Report submitted under EP-349/2009/N for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (Appendix 2.4). The plants (N1 and W2) would be operated during day and evening time only under normal scenario.