

By Hand and Email (tpbpd@pland.gov.hk)
21 September 2026

The Secretary
Town Planning Board
15/F, North Point Government Offices
333 Java Road
North Point, Hong Kong

Your ref A/YL-TYST/1370
Our ref 303697/62/WLL/PLML/LYRC/LTAP/05877

arup.com

Dear Sir/Madam,

**Application for Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories
(Planning Application No. A/YL-TYST/1370)**

Submission of Further Information

We refer to the comments received from the Tuen Mun & Yuen Long West District Planning Office of the Planning Department and Environmental Protection Department between 15 and 21 September 2026 respectively regarding the captioned Application.

We are pleased to submit herewith the Responses-to-Comments Table (**Appendix A**), supplementary plans (**Appendix B**) and updated working paper on environmental assessment (**Appendix C**) for your consideration.

This submission only serves as providing supporting information and technical clarifications without changing the scheme or including any major changes in the assumptions, methodologies, findings and the proposed mitigation measures, and thus should be exempted from the recounting requirement.

We sincerely seek for the favourable consideration from the Town Planning Board to approve this S16 Planning Application. Should you have any queries, please contact the undersigned, Mr. Ryan CHAN at [REDACTED] or Ms. Avis POON at [REDACTED]

Yours faithfully,


Wai Lam LEE
Director of Planning

- [REDACTED]
- Enc - 4 copies of Responses-to-Comments Table (**Appendix A**), Supplementary Plans (**Appendix B**) and Updated Working Paper on Environmental Assessment (**Appendix C**)
- cc - Client
- DPO/TM&YLW (Attn.: Mr. TANG Wai Lap, Dino) (Email: wltang@pland.gov.hk)
 - DPO/TM&YLW (Attn.: Mr. FUNG Ka Lok, Jethro) (Email: jklfung1@pland.gov.hk)
- [REDACTED]

Application for Planning Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories (Planning Application No. A/YL-TYST/1370)

Responses to Comments – Departmental Comments

Comments from Related Departments

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1. Environmental Protection Department, dated 18 September 2026	2
2. Planning Department, District Planning Branch, New Territories District Planning Division, Tuen Mun and Yuen Long West District Planning Office, dated 15 September 2026	2
3. Planning Department, District Planning Branch, New Territories District Planning Division, Tuen Mun and Yuen Long West District Planning Office, dated 21 September 2026	3

Application for Planning Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories (Planning Application No. A/YL-TYST/1370)

Responses to Comments – Departmental Comments

COMMENTS FROM RELATED DEPARTMENTS

No.	Comments	Responses
1.	Environmental Protection Department, dated 18 September 2026 Figure 4.2 Please revise the figure title as “Locations of odour emission source and air sensitive receivers and 200m buffer distance”.	Noted, please refer to the revised Figure 4.2 in Appendix C.
2.	Planning Department, District Planning Branch, New Territories District Planning Division, Tuen Mun and Yuen Long West District Planning Office, dated 15 September 2026 As discussed earlier on the captioned application, to better support the application, please provide the following information: Building Height & Visual Impact: • Cross-section drawings showing the proposed development before and after the proposed increase in building height. • Photomontages illustrating the visual impact of the development before and after the building height increase from different viewpoints. Landscape Impact/ Mitigation Measures: • Plans showing any landscape mitigation measures to be adopted within the proposed development. Site Layout & Functionality: • Layout plans/drawings delineating the functional areas and uses within the application site, specifically the Sewage Treatment Plant (STP) and Organic Waste Co-digestion Facilities (OWCF). • Justification for the extent of the application site required for the proposed STP facilities, i.e. additional use, STP, as compared to the	Noted, please refer Drawing No. 3 of Appendix B for the typical cross-section plans of the proposed development before and after the proposed increase in building height. Noted, please refer Drawings No. 4 and 5 of Appendix B for photomontages illustrating the visual impact of the development before and after the building height increase from two different viewpoints. Noted, please refer Drawing No. 2 of Appendix B for the Landscape and Visual Mitigation Plan. Noted, please refer to Drawing No. 1 of Appendix B for the updated Master Layout Plan. The proposed STP at the Application Site is to accommodate the anticipated increases in sewerage flow arising from the further

Application for Planning Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories (Planning Application No. A/YL-TYST/1370)

Responses to Comments – Departmental Comments

No.	Comments	Responses
	southern site under the previously approved scheme under A/YL-TYST/1181. Gross Floor Area Details: Clarification on the total GFA for the overall YLSEPP under the current proposal—specifically confirming whether the total GFA across both the South and North portions remains unchanged at 53,200m², which is same as the approved scheme under A/YL-TYST/1181. We should be grateful if you could submit the above information at your earliest convenience to facilitate our further processing of the application. Thank you.	intensification of the YLS Third Phase Development and nearby projects. The proposed STP at the Application Site is to allow more design flexibility for the development of the YLSEPP. Please be clarified that the total GFA for the overall YLSEPP, including both the Application Site and the planned STP to the north of the Application Site, remains unchanged as 53,200m², which is the same as the Approved Scheme under Planning Application No. A/YL-TYST/1181.
3.	Planning Department, District Planning Branch, New Territories District Planning Division, Tuen Mun and Yuen Long West District Planning Office, dated 21 September 2026 Further to our earlier discussion, please provide supplementary details on the technical assessments conducted under the EIAO and the YLSEPP Study (Design & Construction) regimes.	The Environmental Impact Assessment (EIA) report (AEIAR-237/2022) including the Environmental Monitoring and Audit (E&MA) Manual of YLSEPP, prepared under Agreement No. CE 6/2019 (DS) Hung Shui Kiu Effluent Polishing Plant and Yuen Long South Effluent Polishing Plant – Investigation, was approved within conditions by the Director of Environmental Protection on 25 July 2022 under EIAO. The environmental impact assessments carried out under the EIA report includes air quality impact, noise impact, water quality impact, waste management implication, land contamination, ecology, landscape and visual impact, and hazard life. An Environmental Review Report (ERR) has been conducted based on the Reference Design of YLSEPP to ensure compliance with statutory environmental standards. Under the Agreement No. CE1/2023 (DS) Yuen Long South Effluent Polishing Plant –

Application for Planning Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories (Planning Application No. A/YL-TYST/1370)

Responses to Comments – Departmental Comments

No.	Comments	Responses
		Design and Construction, the following technical assessments have also been submitted to address the traffic, drainage, waterworks, sewerage and geotechnical implications in support of the current Reference Scheme of the YLSEPP: • Traffic Impact Assessment (TIA); • Drainage Impact Assessment (DIA); • Waterworks Impact Assessment (WIA); • Sewerage Impact Assessment (SIA); and • Geotechnical Assessment (GA).

(Last updated 21 September 2026)

Appendix B

Supplementary Plans

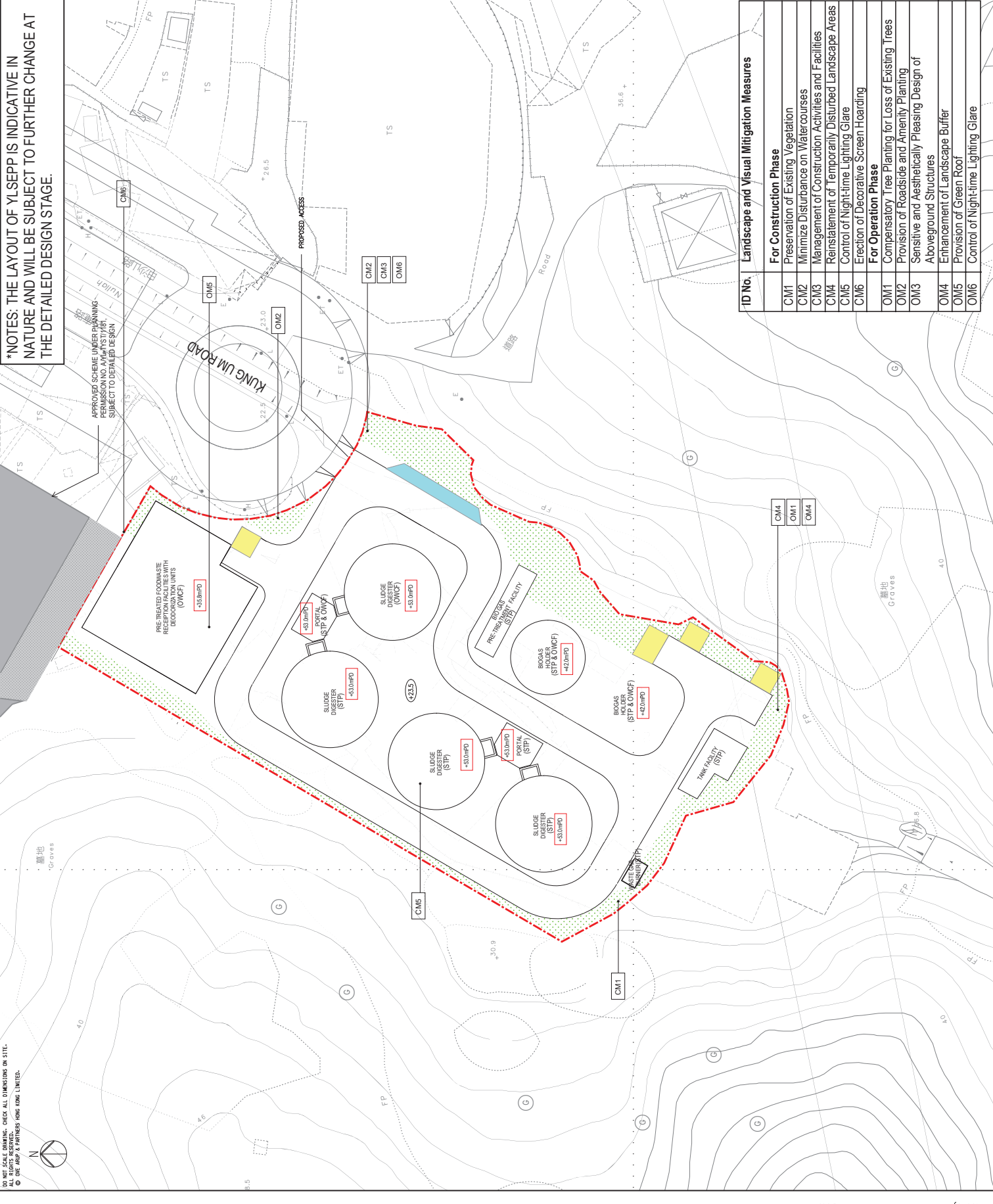
LEGEND:

- APPLICATION SITE BOUNDARY
- PROPOSED LEVEL OF GROUND
- PROPOSED HEIGHT LEVEL
- BURIED UTILITIES BETWEEN SITE C0.3 AND THE APPLICATION SITE (NOT PART OF THIS SECTION 16 APPLICATION)
- SITE C0.33 (NOT PART OF THIS SECTION 16 APPLICATION)
- POTENTIAL AREA FOR NEW TREES PLANTING
- CAR PARKING SPACE
- LOADING/UNLOADING BAY
- Sewage Treatment Plant
- Organic Waste Co-Digestion Facilities

NOTE:

1. CAR PARKING SPACES AND LOADING/UNLOADING BAYS AND TREE PLANTING ARE INDICATIVE ONLY. THE LAYOUT OF THESE AREAS IS SUBJECT TO THIS SECTION 16 APPLICATION AS REVIEWED IN THE APPROVED PLANNING PERMISSION NO. AYL17511181.

2. LANDSCAPE AND VISUAL MITIGATION MEASURES ARE INDICATIVE ONLY SUBJECT TO DETAILED DESIGN.



*NOTES: THE LAYOUT OF YLSEPP IS INDICATIVE IN NATURE AND WILL BE SUBJECT TO FURTHER CHANGE AT THE DETAILED DESIGN STAGE.

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Rev	Description	By	Date
-	FIRST ISSUE		06/25

Consultant

ARUP **ARUP** **ARUP**

Arup - Blumies Joint Venture

Project Title

Yuen Long South Effluent Polishing Plant – Design and Construction

Agreement No. CE 1/2023 (DS)

Drawing title

LANDSCAPE AND VISUAL MITIGATION PLAN - APPLICATION FOR PLANNING PERMISSION UNDER SECTION 16 OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED SEWAGE TREATMENT PLANT AND ORGANIC WASTE CO-DIGESTION FACILITIES AT GOVERNMENT LAND IN D.D. 117, YUEN LONG, NEW TERRITORIES

Drawn	Date	Checked	Approved

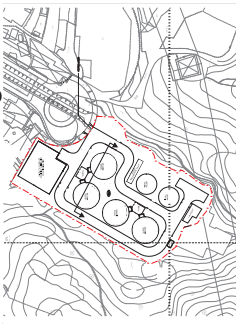
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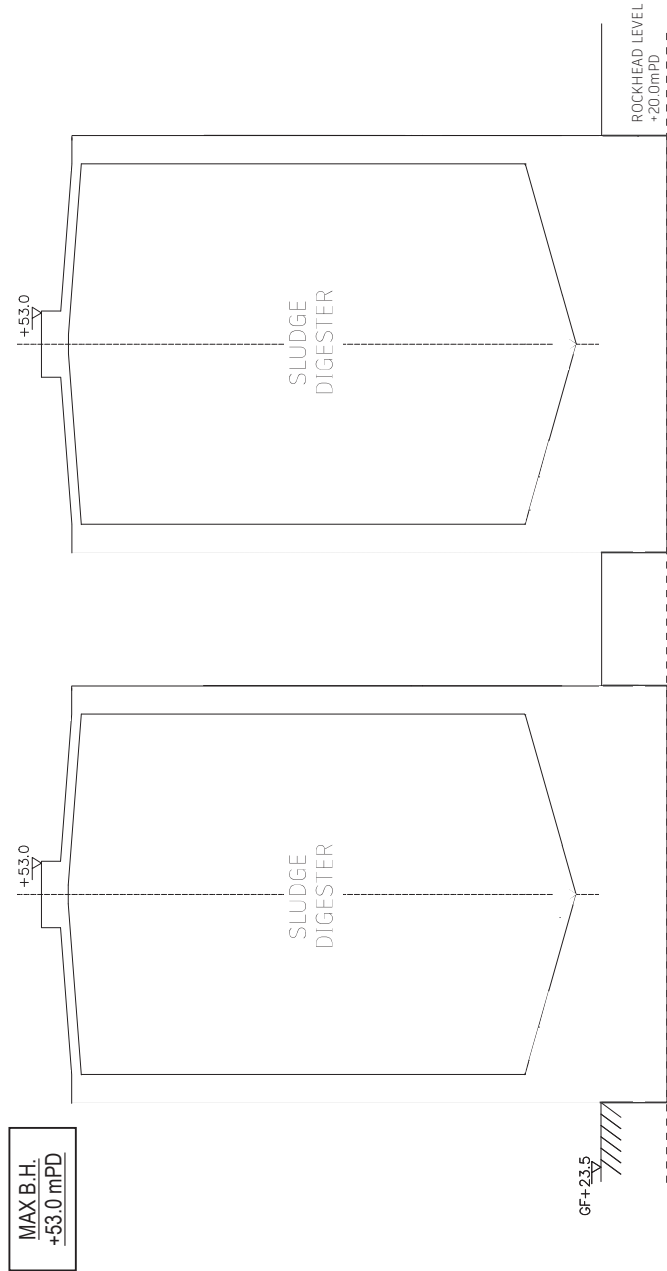
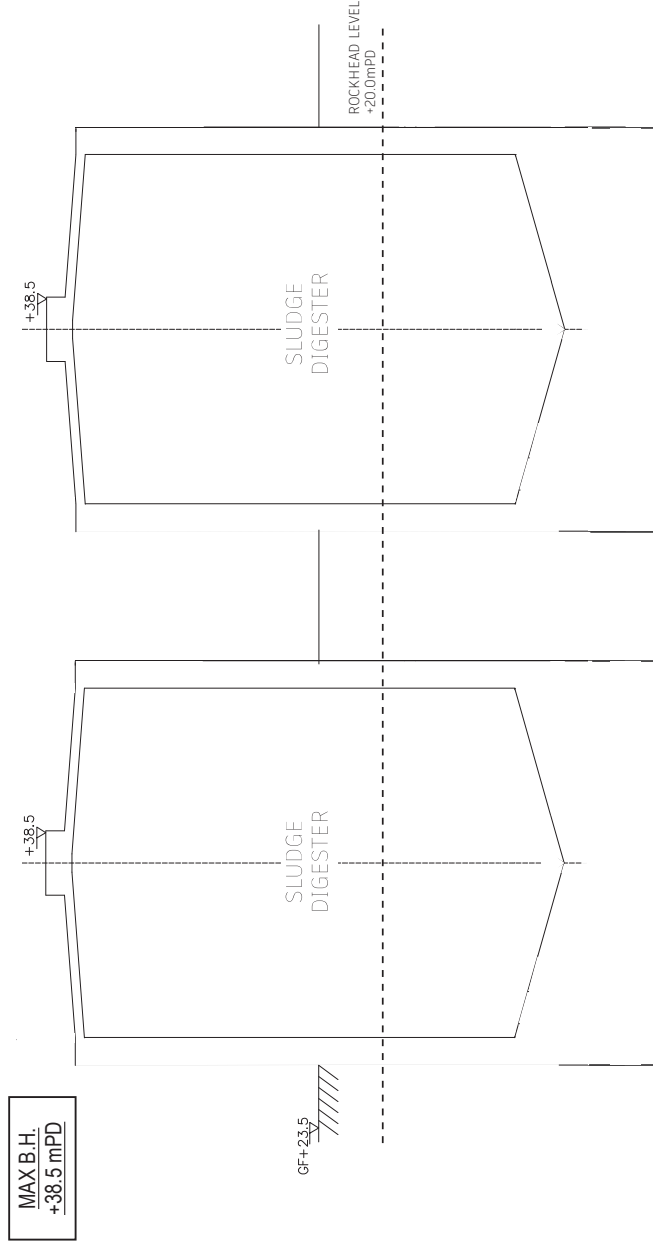
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LAND DEVELOPMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

ID No.	Landscaping and Visual Mitigation Measures
For Construction Phase	
CM1	Preservation of Existing Vegetation
CM2	Minimize Disturbance on Watercourses
CM3	Management of Construction Activities and Facilities
CM4	Reinstatement of Temporarily Disturbed Landscaping Areas
CM5	Control of Night-time Lighting Glare
CM6	Erection of Decorative Screen Hoarding
For Operation Phase	
OM1	Compensatory Tree Planting for Loss of Existing Trees
OM2	Provision of Roadside and Amenity Planting
OM3	Sensitive and Aesthetically Pleasing Design of Aboveground Structures
OM4	Enhancement of Landscape Buffer
OM5	Provision of Green Roof
OM6	Control of Night-time Lighting Glare



NOTE:

1. LEVELS SHOWN ARE INDICATIVE ONLY SUBJECT TO FURTHER CHANGE AT THE DETAILED DESIGN STAGE.
2. EXISTING ROCKHEAD LEVEL ARE INDICATIVE ONLY SUBJECT TO FURTHER GROUND INVESTIGATION AT THE DETAILED DESIGN STAGE.



Rev	Description	By	Date		



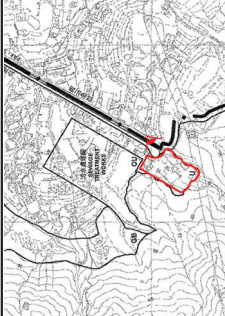
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Agreement No. CE 1/2023 (DS)
Yuen Long South
Effluent Polishing Plant
– Design and Construction

Drawing title
TYPICAL SECTION AT APPLICATION SITE

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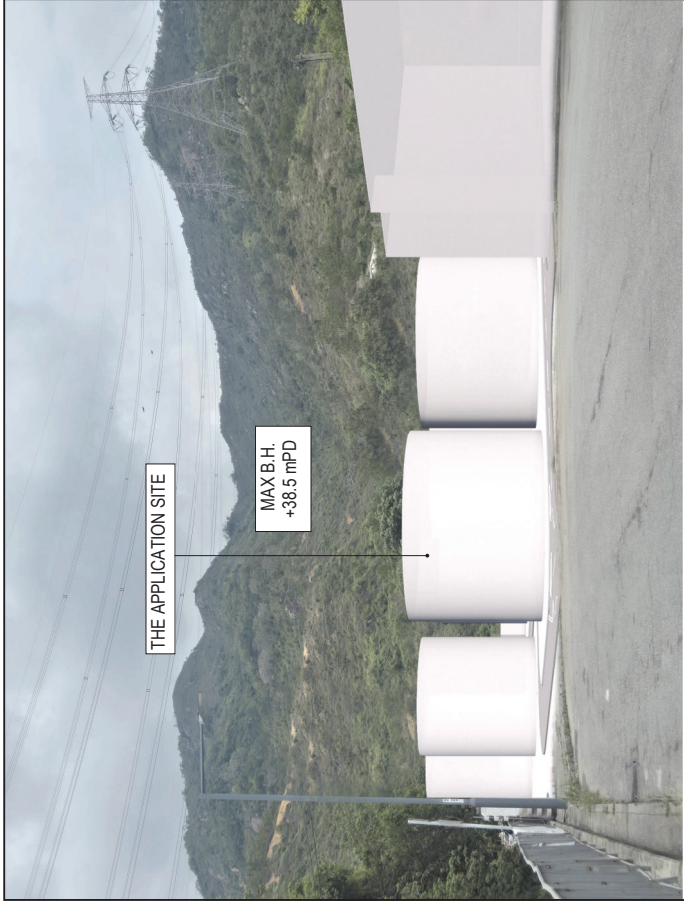
KEY PLAN

Legend
View Point

NOTE: PHOTOMONTAGE VIEW PREPARED FOR PURPOSE TO ILLUSTRATE THE HEIGHT COMPARISON BASED ON INDICATIVE SCHEME VIEW SHOWN ARE INDICATIVE PURPOSE SUBJECT TO FUTURE DETAILED DESIGN STAGE DEVELOPMENT



VP1 PHOTOMONTAGE VIEW FROM CHANNEL PATHWAY ON KUNG UM ROAD WITH HEIGHT LIMIT +53.0mPD



VP1 PHOTOMONTAGE VIEW FROM CHANNEL PATHWAY ON KUNG UM ROAD WITH HEIGHT LIMIT +38.5mPD

SOURCE OF VIEWING POINT PHOTO: STREET PHOTO TAKEN IN YEAR 2026

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Consultant					

Project Title
Agreement No. CE 1/2023 (DS)
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Drawing Title
PHOTOMONTAGE VIEW FROM VP2

Drawing no.	Rev.
FIGURE 4.3	
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Scale	Status
NTS	

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Appendix C

Updated Working Paper on Environmental Assessment





渠務署
Drainage Services Department

污水處理服務科 Sewage Services Branch
淨化海港計劃部 Harbour Area Treatment Scheme Division

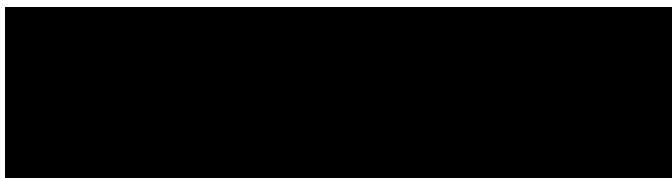
Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Sewage Treatment Plant and Organic Waste Co-digestion Facilities at Government Land in D.D. 117, Yuen Long, New Territories

Working Paper on Environmental Assessment for the Application Site

v.2 | 04 September 2026

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 303697



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1. Introduction

1.1 Background

- 1.1.1 To take forward the implementation of the Yuen Long South Effluent Polishing Plant (YLSEPP) and support the development at Yuen Long South (YLS) and surrounding area, Drainage Services Department (DSD) commenced an Investigation Study under Agreement No. CE 6/2019 (DS) “Hung Shui Kiu Effluent Polishing Plant and Yuen Long South Effluent Polishing Plant - Investigation” to carry out the investigation and preliminary design of YLSEPP. Upon the Investigation Study, the capacity of the YLSEPP has been revised to 65,000m³/day to provide holistic sewage treatment and disposal for the region.
- 1.1.2 Accordingly, a previous Planning Application No. A/YL-TYST/1181, including the Application Site and the planned YLSEPP at its northern portion involving the proposed Organic Waste Co-digestion Facilities (OWCF) and minor relaxation of maximum Building Height (BH), was approved with conditions by the Rural and New Town Planning Committee (RNTPC) of the TPB in 2022 (the “Approved Scheme”).
- 1.1.3 Under the further design development under Agreement No. CE 1/2023(DS) “Yuen Long South Effluent Polishing Plant – Design and Construction” with more geotechnical information obtained, it is noted that the Application Site is underlain by a relatively high rockhead level of about +20mPD. As a result, extensive deep excavation under the Southern Portion of the Approved Scheme would be required for basement construction, which would involve complex temporary works and structural support systems, and would increase technical demands, construction risks as well as time impact.
- 1.1.4 In light of the refined technical findings, an Indicative Scheme with proposed maximum BH of +53mPD would reduce reliance on deep underground construction and provide greater design flexibility. By accommodating more facilities above ground, the need for extensive excavation can be minimised, leading to improved construction efficiency and reduced costs associated with basement works, long-term operation, and maintenance.
- 1.1.5 Since the extent of the proposed changes in maximum BH between the Southern Portion of the Approved Scheme (+38.5mPD) and the Indicative Scheme (+53mPD) is beyond Class A or Class B amendments specified in the Town Planning Board’s Guidelines on Class A and Class B Amendments to the Approved Development Proposals (TPB PG-No. 36C), a fresh S16 Planning Application is required. The Indicative Scheme would follow the committed planning gains and design merits in the Approved Scheme from traffic, environmental, sewerage, drainage, landscape and visual aspects.
- 1.1.6 The YLSEPP is considered necessary and essential in catering the sewage treatment needs of the future development in YLS and surrounding area. The Indicative Scheme represents an efficient approach by making optimal use of existing resources, thereby enabling earlier delivery of infrastructure and enhancing overall cost-effectiveness of public works in accordance with the Policy Address objective of reducing construction costs. Approval of the S16 Planning Application would facilitate timely project delivery, contribute to overall cost savings, and support the expeditious implementation of the YLSEPP in line with the Government’s objectives.

1.2 Objectives of the Report

- 1.2.1 The objective of this Environmental Review Report (ERR) is to carry out an environmental review which aims to support the planning application in environmental aspect. The ERR will address any environmental implications resulting from the proposed maximum BH at the Southern Portion of YLSEPP and recommend additional mitigation measures if required. In addition, updating of the EM&A programme will be recommended as necessary. All necessary submissions will be prepared in close consultation with EPD to streamline the reports preparation and approval processes.

1.3 Report Structure

- 1.3.1 The remainder of this Report is organized as follows:
- a) Section 2 presents the information of the Application Site
 - b) Section 3 presents the previous EIA findings regarding to the YLSEPP.
 - c) Sections 4 to 8 provide a review on the potential environmental impacts due to the proposed Project and propose additional mitigation measures (if required) for compliance with the requirements in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM):
 - Section 4 Air Quality Impact Review
 - Section 5 Noise Impact Review
 - Section 6 Water Quality Impact Review
 - Section 7 Waste Management Implication Review
 - Section 8 Land Contamination Review
 - d) Section 9 presents the conclusion of this ERR.

2. Description of Application Site

2.1 Site Location

- 2.1.1 The Application Site, with an area of about 10,579 m², is situated at the southern end of YLS Development Area adjacent to the roundabout of Kung Um Road. The Application Site also falls within the planned Government (Reserve) intended for Government Depots (i.e. Site G3.1), as set out in the Revised Recommended Outline Development Plan (RODP) of YLS Development. The location of the Application Site on the Outline Zoning Plan (OZP) is presented in **Figure 2.1**.

2.2 Proposed changes and rationale

- 2.2.1 Under the Approved Scheme, the prevailing BHR restricted the height of the proposed facilities of the Application site, leading to the need for underground excavation during construction. As the Study has progressed, more detailed design development, cost estimation, and geotechnical assessments have been undertaken. These assessments have identified that the Application Site is potentially underlain by a relatively high rockhead level of about +20mPD.
- 2.2.2 In this regard, undertaking underground excavation into hard rock to comply with the BHR under the Approved Scheme would involve substantial technical challenges. Such construction works would be complex temporary works and structural support systems, thereby significantly increasing construction complexity, risks and overall costs associated with deep excavation in hard rock conditions.
- 2.2.3 Conversely, the presence of competent hard rock strata also presents an opportunity from a structural perspective, as it provides a stable and reliable founding medium. The proposed facilities can be supported by raft foundations bearing directly on the hard rock, thereby avoiding the need for excessive excavation while maintaining structural integrity.
- 2.2.4 In light of the refined technical findings and above considerations, the planning application seeks to relax the building height restriction from +38.5 mPD to +53 mPD to reduce reliance on deep underground construction and to provide greater design flexibility. The proposed layout is indicative only and remains subject to refinement during the detailed design stage. A further detailed assessment will be conducted in the Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM, and to support application of Variation of Environmental Permit, if necessary.
- 2.2.5 By accommodating more of the development above ground, the extent of excavation can be minimised, resulting in improved construction efficiency and cost-effectiveness, as well as facilitating more practical long-term operation and maintenance.

3. Review of EIA Findings

3.1 Overview

- 3.1.1 YLSEPP has been proposed within the YLS NDA to provide sewage treatment to the sewage generation from the population growth and development of YLS NDA and other developments in the North West New Territories (NWNT), which will prevent pollution and minimize any impact to the discharging water body (Deep Bay).
- 3.1.2 The following sections summarize the findings in the approved YLSEPP EIA report (AEIAR-237/2022) (hereinafter refer to as the Project).

3.2 Air Quality

- 3.2.1 The air quality impacts associated with the Project include construction dust emissions from excavation, piling, paving, and superstructure works, operational emissions from CHP units, boilers and nearby traffic, and potential odour emissions from treatment facilities. With the implementation of statutory dust control measures, good site practices, enclosure and deodorization of odour sources, and appropriate design and operational controls, all predicted air pollutant concentrations comply with relevant AQO criteria and identified odour exceedances are minor, infrequent, and largely attributable to existing sources rather than the Project and the Project demonstrates the net improvement in cumulative odour impact with the Project in place. Accordingly, no adverse air quality or residual odour impacts are anticipated at air sensitive receivers, and with the implementation of recommended EM&A measures, the Project is considered environmentally acceptable in terms of air quality.

3.3 Noise

- 3.3.1 The noise impact assessment identified potential construction noise exceedances arising from the use of Powered Mechanical Equipment at two assessment points, as well as operational noise from fixed plant sources such as pumps and ventilation fans. With the implementation of recommended mitigation measures including temporary movable noise barriers, acoustic enclosures, and Quality Powered Mechanical Equipment, construction noise levels will fully comply with the relevant criteria. Furthermore, operational noise levels were predicted to be well below the statutory standards across all time periods without the need for additional mitigation. In conclusion, no adverse residual noise impacts are anticipated, provided that the required environmental monitoring and audit programme is implemented during the construction phase and a commissioning test for fixed plant is conducted prior to operation.

3.4 Water Quality

- 3.4.1 The assessment identified minor construction water quality impacts from site runoff, wastewater generation, and accidental spillage, which will be fully mitigated through standard best management practices to ensure no adverse residual effects. During the operational phase, hydrodynamic modelling indicates that normal effluent discharge and temporary emergency events may cause localized fluctuations in pollutant levels. Any predicted non-compliances with water quality objectives are primarily driven by the existing high background pollution in Deep Bay rather than the Project itself. With the implementation of advanced tertiary treatment, robust backup systems, and an Emergency Response Plan, no adverse operational water quality impacts are expected. Comprehensive water quality monitoring, site audits, and strict adherence to Water Pollution Control Ordinance licensing requirements will be implemented across both phases to verify the effectiveness of mitigation measures and ensure overall environmental acceptability.

3.5 Waste Management Implication

- 3.5.1 The waste impacts identified for the Project include the generation of construction and demolition materials, chemical waste, and general refuse during the construction phase, alongside screenings, dewatered sludge, chemical waste, and general refuse during the operation phase. By implementing a Waste Management Plan, good site practices, and proper waste segregation during construction, coupled with appropriate storage and designated disposal strategies for operational waste streams, all generated waste will be managed safely and in compliance with regulatory requirements. As a result, no adverse residual waste impacts are anticipated throughout the project lifecycle. Environmental monitoring and audit site inspections are required during the construction phase to verify the implementation of waste management practices, while no regular waste-related monitoring is necessary during the operation phase.

3.6 Land Contamination

- 3.6.1 The assessment identified potential land contamination within the Project area, mainly associated with sites used for storage and warehousing, with possible presence of metals, VOCs, SVOCs, PCRs, and PCBs. As some sites were inaccessible during the study, further works including site re-appraisal, site investigation, and, if necessary, remediation with submission of relevant reports to EPD are required prior to construction. With proper implementation of these assessment and remediation measures, supported by environmental monitoring and audit where necessary, any contamination can be effectively identified and managed. Overall, land contamination impacts are not considered insurmountable, and no adverse residual impacts are anticipated.

4. Air Quality

4.1 Introduction

- 4.1.1 This Section reviews the construction and operational phase air quality impact arising from the proposed project.

4.2 Environmental Legislation and Criteria

- 4.2.1 The relevant legislation, standards and guidelines applicable to the present study for the assessment of air quality impact include:

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Air Pollution Control (Construction Dust) Regulation;
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation; and
- Air Quality Standards for Non-AQO Criteria Pollutants

Air Pollution Control Ordinance (APCO) (Cap. 311)

- 4.2.2 The principal legislation for the management of air quality in Hong Kong is the Air Pollution Control Ordinance (APCO) (Cap 311). A set of Air Quality Objectives (AQOs), effective from 11 April 2025, stipulates statutory ambient limits for air pollutants and the maximum allowable number of exceedances over specific averaging periods. These AQOs are presented in **Table 4.1**, and they are used as the evaluation criteria for this ERR.

Table 4-1 Hong Kong Air Quality Objectives

AIR POLLUTANT	AVERAGING TIME	CONCENTRATION ($\mu\text{g m}^{-3}$) ^(a)	NO. OF EXCEEDANCES ALLOWED PER YEAR
Sulphur Dioxide (SO ₂)	10-minute	500	3
	24-hours	40	3
Respirable Suspended Particulates (RSP) ^(b)	24-hours	75	9
	Annual	30	-
Fine Suspended Particulates (FSP) ^(c)	24-hours	37.5	18
	Annual	15	-
Nitrogen Dioxide (NO ₂)	1-hour	200	18
	24-hours	120	9
	Annual	40	-
Ozone (O ₃)	8-hours	160	9

AIR POLLUTANT	AVERAGING TIME	CONCENTRATION ($\mu\text{g m}^{-3}$) ^(a)	NO. OF EXCEEDANCES ALLOWED PER YEAR
	Peak	100	-
Carbon Monoxide (CO)	1-hour	30,000	0
	8-hours	10,000	0
	24-hours	4,000	0
Lead	Annual	0.5	-

Notes:

- Measured at 293K and 101.325 kPa.
- Suspended particles in air with a nominal aerodynamic diameter of 10 μm or less
- Suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less

Air Pollution Control (Construction Dust) Regulation

- 4.2.3 Notifiable and regulatory works are under the control of Air Pollution Control (Construction Dust) Regulation. This Project is expected to include notifiable works (foundation and superstructure construction) and regulatory works (dusty material handling and excavation). Contractors and site agents are required to inform the Environmental Protection Department (EPD) and adopt dust control requirements to abate dust emission, while carrying out construction works to the acceptable level.

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

- 4.2.4 The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation comes into effect on 1 June 2015. Under the Regulation, Non-road mobile machinery (NRMMS), except those exempted, are required to comply with the prescribed emission standards. From 1 September 2015, all regulated machines sold or leased for use in Hong Kong must be approved or exempted with a proper label in a prescribed format issued by EPD. Starting from 1 December 2015, only approved or exempted NRMMS with a proper label are allowed to be used in specified activities and locations including construction sites. The Contractor is required to ensure the adopted machines or non-road vehicle under the Project could meet the prescribed emission standards and requirement.

Air Quality Standards for Non-AQO Criteria Pollutants

- 4.2.5 Aside from the AQO criteria pollutants mentioned in Section 4.2.2, Volatile Organic Compounds (VOCs), Hydrogen Chloride (HCl), Hydrogen Fluoride (HF) and formaldehyde would also be emitted from the combustion of biogas at the proposed biogas engine and boilers. In accordance with Annex 4 of EIAO-TM, for air pollutants with no established criteria under the Air Pollution Control Ordinance nor in the EIAO-TM, standards or criteria should be adopted by recognized international organizations. The air quality standards for these pollutants are therefore employed by referring to standards by recognized international organizations and are detailed in **Table 4.2**.

Table 4-2 Air Quality Standards for Non-AQO Criteria Pollutants

Pollutants	Averaging Time	Air Quality Standard ($\mu\text{g /m}^3$)	Reference
Methane	1-hour	6,000	TEEL-0 (the threshold concentration below which most people will experience no adverse health effects) from https://edms3.energy.gov/pac/Docs/Revision_26_Table4.pdf

Pollutants	Averaging Time	Air Quality Standard ($\mu\text{g}/\text{m}^3$)	Reference
HCl	1-hour	2,100	Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database, California, USA (https://oehha.ca.gov/chemicals/hydrogen-chloride)
	Annual	20	Integrated Risk Information System, USEPA
HF	1-hour	240	Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database, California, USA (https://oehha.ca.gov/chemicals/hydrogen-fluoride)
	Annual	14	Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database, California, USA (https://oehha.ca.gov/chemicals/hydrogen-fluoride)
Formaldehyde	30-minute	100	World Health Organization Air Quality Guidelines for Europe (https://iris.who.int/server/api/core/bitstreams/7107999d-7e53-47aa-90e8-bb1d162ff46e/content)
	Annual	9	Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database, California, USA (https://oehha.ca.gov/chemicals/formaldehyde)

4.3 Description of Environment

- 4.3.1 The small site area of YLSEPP is about 1.12 hectares and located at the southern tip of YLS NDA. It is bound by Ma Shan (Kung Um Shan) and Tai Lam Country Park at its southwest. There will be a planned stormwater retention pond and green belt to its north, and planned government and institutional land use to its east side.
- 4.3.2 Currently, the YLS NDA is generally rural in character with a mixture of land uses. The predominant uses are brownfield operations including open storage yards, warehouses, industrial workshops, etc. These brownfield operations are intermingled with rural settlements and residential settlements, agricultural land, livestock farms and vacant land.
- 4.3.3 The nearest EPD Air Quality Monitoring Station is located at Yuen Long District Office. The annual average monitoring data recorded at EPD's Yuen Long Air Quality Monitoring Station has shown a declining trend of pollutants' concentration in the past five years. The recent five years (2021 – 2025) annual average concentrations of air pollutants relevant to the Project are summarized in **Table 4.3**.

Table 4-3 Air Quality Monitoring Data (Yuen Long AQMS, 2021-2025)

Pollutant	Averaging Time	AQOs ($\mu\text{g}/\text{m}^3$)	Pollutant Concentration ($\mu\text{g}/\text{m}^3$)					
			2021	2022	2023	2024	2025	5-year Mean
Respirable Suspended Particulates (RSP)	10th Highest 24-hour	75 (9)	73	56	59	61	63	62
	Annual	30 (N/A)	30	25	26	25	26	26
Fine Suspended Particulates (FSP)	19th Highest 24-hour	37.5 (18)	36	38	34	38	37	37
	Annual	15	<u>17</u>	<u>16</u>	<u>16</u>	<u>17</u>	<u>16</u>	<u>16</u>
Nitrogen Dioxide (NO_2)	19th Highest 1-hour	200 (18)	148	122	130	125	134	132
	10th Highest 24-hour	120 (9)	78	68	67	66	72	70
	Annual	40	40	37	37	35	36	37
Sulphur Dioxide (SO_2)	4th Highest 10-min	500 (3)	24	21	20	14	22	20
	4th Highest 24-hour	40 (3)	14	7	10	5	5	8
Carbon Monoxide (CO)	1st Highest 1-hour	30,000 (0)	2090	1700	1580	1920	2000	1858
	1st Highest 8-hour	10,000 (0)	1591	1519	1273	1778	1500	1532
	1st Highest 24-hour	4000 (0)	1183	1159	1047	1342	1400	1226
Ozone (O_3)	10th Highest 8-hour	160 (9)	178	194	155	168	141	167
	Peak season	100	84	95	84	92	84	88

Notes:

- Number of exceedances allowed under the AQO is shown in (). The 5-year mean is the average of the annual values.
- Monitoring results exceeding the AQO are bolded and underlined.

4.3.4

Apart from the air quality monitoring data, EPD has released a set of background levels from “Pollutants in the Atmosphere and their Transport over Hong Kong” (PATH v3.0) model in January 2024. The commencement year for the construction phase of the project is 2027. Therefore, the PATH data for Year 2027 has been adopted to represent the background air pollutant concentrations in the Study Area. According to the PATH v3.0 data published by EPD, the concentrations of SO₂, NO₂, RSP and FSP at various averaging times would be lower than the Air Quality Objectives (AQOs) in Year 2027 within the assessment area. **Table 4.4** summarises the background levels of relevant PATH grids from the PATH model against the AQOs and presented in **Figure 4.1**.

Table 4-4 Background Air Pollutants in Year 2027 Extracted from the PATH v3.0 Model (Level 0-17m)

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2027			
				24,43	24,44	25,43	25,44
Respirable Suspended Particulates (RSP)	24-hour	75 (9)	10th	58	57	58	60
			Exceedance	0	0	0	1
	Annual	30	-	21	21	22	23
Fine Suspended Particulates (FSP)	24-hour	37.5 (18)	19th	35	34	36	37
			Exceedance	13	13	17	18
	Annual	15	-	13	13	14	15
Nitrogen Dioxide (NO ₂)	1-hour	200 (18)	19th	78	73	80	80
			Exceedance	0	0	0	0
	24-hour	120 (9)	10th	32	30	33	33
			Exceedance	0	0	0	0
	Annual	40	-	17	16	17	17
Sulphur Dioxide (SO ₂)	10-Min	500 (3)	4th	28	29	28	28
			Exceedance	0	0	0	0
	24-hour	40 (3)	4th	7	7	7	7
			Exceedance	0	0	0	0
Ozone (O ₃)	8-Hour	160 (9)	10th	188	191	187	184
			Exceedance	21	23	21	20
	Peak Season	100	-	118	121	118	117
Carbon Monoxide (CO)	1-Hour	30000 (0)	1st	602	603	607	607
			Exceedance	0	0	0	0
	8-Hour	10000 (0)	1st	582	583	584	586
			Exceedance	0	0	0	0
	24-Hour	4000 (0)	1st	527	528	526	529
			Exceedance	0	0	0	0

Note:

1. Values in () mean the number of exceedances allowed per year.
2. Bolded values mean exceedance of the AQOs.
3. With reference to Guidelines on Choice of Models and Model Parameters.
4. All concentration units are in microgram per cubic metre (µg/m³).

4.4 Review of Air Sensitive Receivers (ASR)

4.4.1

The assessment area will be within 500m from the site boundary of the Application Site. Following an updated review, no changes have been identified to the ASRs listed in the approved EIA report (AEIAR-237/2022). No new ASRs have been identified. They mainly include villages, residential, educational, and institution / community. The location of representative air sensitive receivers was presented in **Figure 4.2** and **Figure 4.3**.

Table 4-5 Identified Air Sensitive Receivers in the Vicinity of the Application Site

ASR IDs	Description	Land Use	Shortest Distance from Site Boundary (m)	Assessment Heights (mAG)	Assessment Phase
YAE01	117, Wong Nai Tun Tsuen	Residential	394	1.5, 5	C, O
YAE02	125, Wong Nai Tun Tsuen	Residential	378	1.5, 5, 10	C, O
YAE03	121, Wong Nai Tun Tsuen	Residential	392	1.5, 5, 10	C, O
YAE04	128, Wong Nai Tun Tsuen	Residential	429	1.5, 5, 10	C, O
YAE06	Pui Hong Kui	Education	341	1.5, 5	C
YAE07	291, Pak Sha Tsuen	Residential	269	1.5, 5, 10	C

ASR IDs	Description	Land Use	Shortest Distance from Site Boundary (m)	Assessment Heights (mAG)	Assessment Phase
YAP04	Planned Residential (PDA Zone 2)	Residential	499	1.5, 5, 10 up to 75 at 5m interval	O
YAP08	Planned School (PDA Zone 2)	Education	480	1.5, 5, 10 up to 40 at 5m interval	O
YAP10	Planned Primary School	Education	452	1.5, 5, 10 up to 40 at 5m interval	O
YAP11	Planned Low-rise Residential Developments	Residential	381	1.5, 5, 10, 15, 20	O

Notes:

(a) ASR subject to change based on the final layout and development details.

(b) C – Construction; O – Operation

4.5 Review of Air Quality Impacts during Construction Phase

- 4.5.1 The proposed building height relaxation will not introduce additional construction activities or increase emissions beyond those assessed in the approved EIA. On the contrary, the reduced excavation requirement will lower fugitive dust generation. Less excavation directly reduces construction dust emissions because it minimizes the primary sources of fugitive dust generation. Excavation activities involve soil breaking, loading, unloading, stockpiling, and transportation of materials, all of which are major contributors to dust. By reducing the excavation volume, there is less exposed soil surface, fewer earth-moving operations, and lower handling and transfer of loose materials. This in turn decreases the frequency and intensity of dust-generating activities such as truck movements, material stockpiling, and wind erosion of exposed surfaces. Consequently, the overall potential for fugitive dust emissions during construction is substantially reduced.
- 4.5.2 While the relaxation may increase the building height and superstructure area, the additional dust from superstructure works remains minimal. Superstructure construction primarily involves reinforced concrete works, steelwork, and formwork, which generate far less dust than excavation. Superstructure works do not involve moving loose earth or handling excavation materials, which are the main sources of fugitive dust. Any dust from cutting concrete, drilling, or grinding is localized and can be effectively controlled with standard measures such as water spraying, dust extraction units, and good site practices. Even if there is slightly more superstructure work, the reduction in excavation volume (which dominates dust emissions) outweighs any marginal increase from superstructure activities, resulting in a net reduction of total dust emissions. The excavation depth of the Application Site is anticipated to be reduced from approximately 15m to 2m.
- 4.5.3 Emissions from powered mechanical equipment and construction vehicles will remain consistent with the EIA assumptions. With the implementation of established dust control measures and good site practices, no additional impact is expected from the Project, and no adverse construction air quality impact is anticipated.

4.6 Review of Air Quality Impacts during Operation Phase

- 4.6.1 The proposed relaxation of building height at the Application Site will not result in any change to the air pollutant emission sources identified in the approved EIA (AEIAR-237/2022). There is no air pollutant emission source at the Application Site, which is the same as the approved EIA (AEIAR-237/2022). Accordingly, the assessment results for **air pollutant** emissions presented in the EIA remain valid.

- 4.6.2 For odour impact, the deodorizers (DOs) are designed to provide adequate ventilation and odour extraction for treatment prior to the discharge to the atmosphere. **There is only one odour emission source (DO5) in the Application Site.** The summary of the DO5 design comparison with the approved EIA (AEIAR-237/2022) is summarized in **Table 4.6**.

Table 4-6 DO5 Odour Extraction Rates, Emission Rate and Removal Efficiencies of Approved EIA and the Application Site

	EIA (AEIAR-237/2022)			
	Extraction Rate (m ³ /hr)	Unmitigated Odour Emission Rate (ou/s)	Odour Removal Efficiency	Mitigated Odour Emission Rate (ou/s)
DO5	1,961	627	95%	31
	The Application Site			
	Extraction Rate (m ³ /hr)	Unmitigated Odour Emission Rate (ou/s)	Odour Removal Efficiency	Mitigated Odour Emission Rate (ou/s)
DO5: Food waste reception hall	1,100	227	96%	9

- 4.6.3 The location of the DO5 Food Waste Reception Hall may be adjusted, subject to Contractor's design, from the approved EIA (AEIAR-237/2022) layout. Nevertheless, the revised design demonstrates an improvement in odour control performance. Although the air extraction rate is reduced from 1,961 m³/hr to 1,100 m³/hr, the proposed system achieves a higher odour removal efficiency of 96%, compared to 95% in the approved EIA. As a result, the mitigated odour emission rate is reduced from 31 ou/s to 9 ou/s.
- 4.6.4 Consequently, potential odour nuisance to nearby sensitive receivers is expected to be well below the levels previously evaluated and approved. While the approved EIA report (AEIAR-237/2022) already demonstrated a net improvement in cumulative odour impact with the YLSEPP in place, the introduction of DO5 with an increased odour removal efficiency from 95% to 96% will further improve the odour impact at the ASRs. The net improvement demonstrated in the approved EIA will not be affected. No adverse residual odour impact is anticipated from the Project, and no additional air quality or odour-related environmental impacts are expected. Overall, this modification delivers enhanced environmental performance.
- 4.6.5 **The HKPSG should also be observed and followed to support the subject planning application.** According to the **Chapter 9 of HKPSG**, a minimum separation distance of 200 meters between the odour source and ASRs **should be required**. As shown in **Table 4-5**, the shortest distance from the site boundary of the Project to the identified ASRs is approximately 269 meters (YAE07). All identified ASRs are located more than 200 meters from the Project site boundary **as shown in Figure 4.2**. Therefore, the buffer distance requirements for odour impact under Chapter 9 of the HKPSG are fully satisfied. No adverse odour impact is anticipated.

4.7 Review of Environmental Monitoring and Audit Requirements

- 4.7.1 Since there are no identified changes in air quality impacts or mitigation measures compared to the approved EIA (AEIAR-237/2022), the environmental monitoring and audit requirements as outlined in the EIA report also remain **effective and** unchanged.

4.8 Conclusion

- 4.8.1 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.

- 4.8.2 With the implementation of air quality control measures together with good site practices, no adverse air quality impact is anticipated during the construction phase of this Project.
- 4.8.3 No adverse air quality and odour impact is anticipated during the operation phase of this Project.

5. Noise Impact Review

5.1 Introduction

- 5.1.1 This Section reviews the construction and operational phase noise impact arising from the proposed design changes.

5.2 Environmental Legislation and Criteria

- 5.2.1 The legislation and regulation used in the EIA Report for noise impact assessments have been reviewed to be valid.

Construction Phase

- 5.2.2 The principal legislation relating to the control of construction noise is the Environmental Impact Assessment Ordinance (Cap. 499). The Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), issued under the EIAO, provides guidelines and noise criteria for evaluating noise impacts. The assessment criteria are defined in Annex 5 of the EIAO-TM.
- 5.2.3 The Noise Control Ordinance (NCO) (Cap. 400) also provides means to assess construction noise impacts. Several Technical Memoranda (TMs) have been issued under the NCO to stipulate control approaches and criteria. The Technical Memorandum on Noise from Construction Work Other than Percussive Piling (GW-TM), which provides the guidelines for controlling the construction noise from powered mechanical equipment (PME) in general construction works, is applicable to the control of noise impacts from the construction of this Project. The Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM) provides the guidelines for controlling construction noise from the use of Specified Powered Mechanical Equipment (SPME) and the undertaking of Prescribed Construction Work (PCW) during the restricted hours in designated areas.

General Construction Works during Normal Working Hours

- 5.2.4 Under the EIAO, potential noise impact arising from general construction works during normal working hours (i.e. 07:00 to 19:00 hrs on any day not being a Sunday or public holiday) at 1 m from the external façade of the uses, which rely on opened windows for ventilation, is to be assessed in accordance with the noise criteria specified in the EIAO-TM. The EIAO-TM noise standards are presented in **Table 5.1**.

Table 5-1 EIAO-TM Day-time Construction Noise Standards

Uses	Noise Standard Leq, 30 min (dB(A))
• All domestic premises, • Temporary housing accommodation, • Hostels • Convalescent homes, and • Homes for the aged	75
• Places of public worship, • Courts of law, and • Hospitals and medical clinics	70
• Educational institutions (including kindergartens and nurseries)	70 65 (during examinations)

Uses	Noise Standard Leq, 30 min (dB(A))
Notes: (1) The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from external façade. (2) A Construction Noise Permit shall be required for carrying out relevant construction work during restricted hours under the Noise Control Ordinance. In case the applicant would like to evaluate whether carrying out relevant construction works during restricted hours under the Noise Control Ordinance is feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the Noise Control Ordinance.	

General Construction Works during Restricted Hours

- 5.2.5 The NCO provides statutory controls on general construction works during restricted hours (i.e. 1900 - 0700 hrs Monday to Saturday and at any time on Sundays and public holidays). The use of PME for carrying out construction works during these restricted hours would require a Construction Noise Permit (CNP). The Noise Control Authority will assess all CNP applications on a case-by-case basis and, in doing so, the authority advises that they will be guided by the GW-TM.
- 5.2.6 When assessing an application for CNP for the use of PME during restricted hours, the Noise Control Authority will compare the Acceptable Noise Levels (ANLs) specified in the GW-TM with the Corrected Noise Levels (CNLs) (i.e. after accounting for factors such as barrier effects and reflections) associated with the proposed PME operations. The NCO requires that noise levels from construction at affected Noise Sensitive Receiver (NSR) be less than the specified ANL. The ANLs are related to the inherent noise sensitivity of the noise receiver areas in question, and different Area Sensitivity Ratings (ASRs, i.e. A, B or C, see **Table 5.2**) have been established to reflect the background characteristics of different areas. Each noise receiver area is assigned an ASR based on its predominant land use and the presence, if any, of Influencing Factors (IFs) such as nearby industrial areas, major roads or airports. The appropriate ASR for the NSR is determined with reference to **Table 5.2**.

Table 5-2 Area Sensitivity Ratings

Types of Area Containing NSR	Degree to which NSR is affected by Influencing Factor (IF)		
	Not Affected	Indirectly Affected	Directly Affected
Rural area, including Country Parks or village type developments	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban area	B	C	C
Area other than those above	B	B	C

Notes:

The following definitions apply:

- (a) "Country Park" means an area that is designated as a country park pursuant to section 14 of the *Country Parks Ordinance*;
- (b) "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;
- (c) "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;
- (d) "not affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR; and

Types of Area Containing NSR	Degree to which NSR is affected by Influencing Factor (IF)		
	Not Affected	Indirectly Affected	Directly Affected
(e) "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.			

5.2.7 The relevant ANLs for each ASR are shown in **Table 5.3**.

Table 5-3 Acceptable Noise Levels (ANLs) for General Construction Works to be carried out during Restricted Hours (GW-TM) ^(a)

Time period	Area Sensitivity Rating Leq, 5 min (dB(A))		
	A	B	C
All days during the evening (i.e. 1900-2300 hrs) and general holidays (including Sundays) during the day and evening (i.e. 0700-2300 hrs)	60	65	70
All days during the night-time (i.e. 2300-0700 hrs)	45	50	55
Note:			
(a) The above standard applies to uses which rely on opened windows for ventilation.			

5.2.8 The Noise Control Authority will consider a well-justified CNP application for construction works within restricted hours as guided by the relevant Technical Memorandum issued under the NCO. The Noise Control Authority will take into account adjoining land uses and any previous complaints against construction activities at the site before making a decision. Factors influencing the outcome of a CNP application, such as the assigning of ANLs, would be determined by the Noise Control Authority at the time of the application review based on the prevailing site conditions which may change from time to time.

5.2.9 The DA-TM issued under the NCO indicates a list of Specified Powered Mechanical Equipment (SPME) and the types of Prescribed Construction Work (PCW) to be regulated within restricted hours in Designated Areas (DAs). Under the DA-TM, the use of five types of SPME and the carrying out of three types of PCW within a designated area during restricted hours would require a valid CNP. The SPME includes hand-held breaker, bulldozer, concrete lorry mixer, dump truck and hand-held vibratory poker. The PCW are:

- Erecting or dismantling of formwork or scaffolding;
- Loading, unloading, or handling of rubble, wooden boards, steel bars, wood or scaffolding material; and
- Hammering.

5.2.10 Any PCW and use of SPME during the restricted hours within the designated area shall be guided by the DA-TM under the control of the NCO. The Noise Control Authority will assess the CNP applications based on procedures and requirements as described in the DA-TM. In general, it should not be presumed that a CNP would be granted for the carrying out of PCW within a designated area during the restricted hours. The CNP may be granted for the execution of construction works within a designated area during restricted hours involving the use of SPME if the relevant ANL and criteria stipulated in the DA-TM can be satisfied. Nonetheless, according to the latest design, no part of the construction works of the Project will fall within the Designated Areas established under the NCO.

Operational Phase

- 5.2.11 Fixed plant noise associated with the operation of a project is controlled under Section 13 of the NCO, and the Technical Memorandum on Noise From Places Other than Domestic Premises, Public Places or Construction Sites (IND-TM) specifies the applicable ANLs for assessing potential operational noise impacts. The noise standards are set out in the EIAO-TM as follows:
- The total fixed source noise level at the facade of the nearest NSR is at least 5 dB(A) lower than the appropriate ANL (as shown in **Table 5.4**) as specified in the IND-TM; or
 - Where the prevailing noise level in the area is 5 dB(A) or more below the appropriate ANL, the total fixed source noise level must not exceed this noise level.
- 5.2.12 The noise criteria stipulated in the IND-TM apply for all days and general holidays. The ANLs are dependent on the ASR of the NSRs and the time of the day and are presented in **Table 5.4**.

Table 5-4 ANLs to be used as Operational Noise Criteria

Time Period	Leq 30min (dB(A))		
	ASR "A"	ASR "B"	ASR "C"
Day-time (0700 - 1900 hrs)	60 (55)	65 (60)	70 (65)
Evening (1900 - 2300 hrs)	60 (55)	65 (60)	70 (65)
Night-time (2300 - 0700 hrs)	50 (45)	55 (50)	60 (55)

Note: The number in brackets indicates the noise limit (ANL -5) for operational noise impact assessment.

- 5.2.13 The Project site is in a rural area without any influencing factors affecting the NSRs. An ASR "A" has been assumed for the NSR located in the vicinity of the works areas. Noise criteria were assigned based on the ANL and the prevailing noise levels for the assessment of operational noise impact from the Project were described in Chapter 4 of the approved EIA report (AEIAR-237/2022).
- 5.2.14 In any event, the noise criterion employed in this Report is for an indicative operational noise assessment only. It should be noted that fixed noise sources are controlled under Section 13 of the NCO. At the time of investigation, the Noise Control Authority shall determine noise impact from concerned fixed noise sources on the basis of prevailing legislation and practices being in force and taking account of contemporary conditions / situations of adjoining land uses. Nothing in this Report shall bind the Noise Control Authority in the context of law enforcement against any fixed noise source being assessed.

5.3 Description of the Noise Environment

- 5.3.1 The Application Site is located at the southern tip of YLS NDA. It is bound by Ma Shan (Kung Um Shan) and Tai Lam Country Park at its southwest. There will be a planned retention pond and green belt to its north, and planned government and institutional land use to its east side.
- 5.3.2 The YLS NDA is generally rural in character with a mixture of land uses. The predominant uses are brownfield operations including open storage yards, warehouses, industrial workshops, etc. These brownfield operations are intermingled with rural settlements and residential settlements, agricultural land, livestock farms and vacant land. The prevailing noise climate of the assessment area is dominated by the brownfield operations.

5.4 Review of Noise Sensitive Receivers

- 5.4.1 The assessment area will be within 300m from the site boundary of the Application Site. No changes to the noise sensitive receivers (NSRs) identified in the approved EIA report (AEIAR-237/2022) have been identified. The location of representative noise sensitive receivers was presented in **Figure 5.1**.

Table 5-5 Identified Noise Sensitive Receivers in the Vicinity of the Application Site

NSR ID	Description	Land Use	Existing/ Planned
PST	PAK Sha Tsuen	Residential	Existing
TLCP	Tai Lam Country Park	Country Park	Existing

- 5.4.2 The first layer of NSRs located close to the subject noise sources are considered as the most affected location and would provide acoustic shielding to those receivers at further distance behind. The first layer of NSRs represent the worst-case scenario and are selected as representative noise assessment points (NAPs) for the noise assessment. No changes to the NAPs identified in the approved EIA report (AEIAR-237/2022) have been identified. The location of representative NAPs was presented in **Figure 5.2**.

Table 5-6 Identified Noise Assessment Points in the Vicinity of the Application Site

ID	Description	Land Use	No. of Storeys	Shortest Distance from Project Site Boundary (m)	Existing/ Planned	Assessment Phase
YE01*	291 Pak Sha Tsuen	Residential	3	269	Existing	C

Notes:

- ASR subject to change based on the final layout and development details.
- C – Construction
- *This NAP would be demolished no later than 2029 under YLSDA Stage 3 in accordance with its latest programme.

5.5 Review of Construction Noise Impacts

- 5.5.1 The proposed building height relaxation will not introduce additional construction activities or increase the use of Powered Mechanical Equipment (PME) beyond that assessed in the approved EIA. As such, construction noise impacts remain unchanged, and no additional noise impact is anticipated. With the implementation of mitigation measures and good site practices recommended in the EIA, noise impacts during construction will remain acceptable. Similarly, operational noise from fixed plant equipment will be consistent with the EIA assumptions, and no adverse noise impact is expected.

5.6 Review of Environmental Monitoring and Audit Requirements

- 5.6.1 Since there are no identified changes in impacts or mitigation measures compared to the EIA, the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

5.7 Conclusion

- 5.7.1 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.

- 5.7.2 The proposed building height relaxation will not result in any additional noise impacts compared with the approved EIA. Both construction and operational noise levels remain consistent with the original assessment and comply with relevant criteria. With the implementation of established mitigation measures, all noise impacts are considered acceptable.

6. Water Quality

6.1 Introduction

6.1.1 This Section reviews the construction and operational phase water quality impact arising from the Project.

6.2 Environmental Legislation and Criteria

Environmental Impact Assessment Ordinance (EIAO)

6.2.1 The EIAO-TM specifies the assessment method and criteria that need to be followed in the EIA. Reference sections in the EIAO-TM provide the details of the assessment criteria and guidelines that are relevant to the water quality impact assessment, including:

- Annex 6 – Criteria for Evaluating Water Pollution
- Annex 14 –Guidelines for Assessment of Water Pollution

Water Pollution Control Ordinance (WPCO)

6.2.2 The Water Pollution Control Ordinance (WPCO, Cap. 358) provides the major statutory framework for the protection and control of water quality in Hong Kong. According to the WPCO and its subsidiary legislation, Hong Kong waters are divided into ten Water Control Zones (WCZs). Corresponding statements of WQOs are stipulated for different water regimes (marine waters, inland waters, bathing beaches subzones, secondary contact recreation subzones and fish culture subzones) in the WCZ based on their beneficial uses. The Project site is located within Deep Bay WCZs and may have potential impacts to the North Western WCZ. The corresponding WQOs are summarized in **Table 6.1** and **Table 6.2** below.

Table 6-1 Summary of Water Quality Objectives for Deep Bay WCZ

Parameter	Criteria	Subzone
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.	
	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	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 (L.N. 455 of 1991)
	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
	Should not exceed 1000 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

Parameter	Criteria	Subzone
	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 (L.N. 455 of 1991)
Dissolved Oxygen (DO) within 2m of the seabed	Not less than 2 mg/L for 90% of the sample	Outer Marine Subzone excepting Mariculture Subzone
Dissolved Oxygen (DO)	Not less than 4 mg/L for 90% of the sample, taken at 1 metre below surface	Inner Marine Subzone excepting Mariculture Subzone
	Not less than 4 mg/L for 90% of the sampling, calculated as water column average	Outer Marine Subzone excepting Mariculture Subzone
	Not less than 5 mg/L for 90% of the sample, taken at 1 metre below surface	Mariculture Subzone
	Not less than 4 mg/L	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
Colour	Human activity should 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
	Human activity should not cause the colour of water to exceed 50 Hazen units.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Temperature	Waste discharges shall not cause the natural daily temperature range to change by more than 2°C	Whole Zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%	Whole Zone
pH	To be in the range of 6.5-8.5, change due to human activity not to exceed 0.2 units	Marine waters excepting Yung Long Bathing Beach Subzone
	To be in the range of 6.5-8.5	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	To be in the range of 6.0-9.0	Other inland waters
	To be in the range of 6.0-9.0 for 95% of samples, change due to human activity not to exceed 0.5 units	Yung Long Bathing Beach Subzone
Suspended solids (SS)	Human activity shall neither cause the natural ambient SS level to be raised by 30% nor give rise to accumulation of SS which may adversely affect aquatic communities	Marine waters
	Human activity shall not cause the annual median of SS to exceed 20 mg/L.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Ganges Subzone, Indus Subzone, Water Gathering Ground Subzones and other inland waters
Un-ionized ammonia (UIA)	The un-ionized ammoniacal nitrogen level should not be more than 0.021 mg/L, 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
	(b) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.7 mg/L, expressed as annual mean.	Inner Marine Subzones
	(c) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.5 mg/L, expressed as annual water column average (arithmetic mean of at least 2 measurements at 1 m below surface and 1 m above seabed).	Outer Marine Subzones

Parameter	Criteria	Subzone
5-Day Biochemical Oxygen Demand (BOD5)	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 mg/L	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 mg/L	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Chemical Oxygen Demand (COD)	Waste discharges shall not cause the chemical oxygen demand to exceed 15 mg/L	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 mg/L	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 mg/L as C6H5OH.	Yung Long Bathing Beach Subzone
Turbidity	Waste discharges shall not reduce light transmission substantially from the normal level.	Yung Long Bathing Beach Subzone

Table 6-2 Summary of Water Quality Objectives for North Western WCZ-

Parameter	Criteria	Subzone
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.	
	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	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
	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.	Tuen Mun (A) and Tuen Mun (B) Subzones and Water Gathering Ground Subzones
	Should not exceed 1000 per 100 mL, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Tuen Mun (C) Subzone and other inland waters
	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.	Bathing Beach Subzones
Dissolved Oxygen (DO) within 2m of the seabed	Not less than 2 mg/L for 90% of the sample	Marine waters
Dissolved Oxygen (DO)	Not less than 4 mg/L for 90% of the sample, taken at 1 metre below surface	Marine waters
	Not less than 4 mg/L for 90% of the sampling, calculated as water column average	Outer Marine Subzone excepting Mariculture Subzone
	Not less than 5 mg/L for 90% of the sample, taken at 1 metre below surface	Mariculture Subzone

Parameter	Criteria	Subzone
	Not less than 4 mg/L	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones, Water Gathering Ground Subzones and other inland waters
Colour	Human activity should not cause the colour of water to exceed 30 Hazen units.	Tuen Mun (A) and Tuen Mun (B) Subzones and Water Gathering Ground Subzones
	Human activity should not cause the colour of water to exceed 50 Hazen units.	Tuen Mun (C) Subzone and other inland waters
Temperature	Waste discharges shall not cause the natural daily temperature range to change by more than 2°C	Whole Zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%	Whole Zone
pH	To be in the range of 6.5-8.5, change due to human activity not to exceed 0.2 units	Marine waters excepting Bathing Beach Subzones
	To be in the range of 6.5-8.5	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	To be in the range of 6.0-9.0	Other inland waters
	To be in the range of 6.0-9.0 for 95% of samples, change due to human activity not to exceed 0.5 units	Bathing Beach Subzone
Suspended solids (SS)	Human activity shall neither cause the natural ambient SS level to be raised by 30% nor give rise to accumulation of SS which may adversely affect aquatic communities	Marine waters
	Human activity shall not cause the annual median of SS to exceed 20 mg/L.	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	Human activity shall not cause the annual median of SS to exceed 25 mg/L.	Other inland waters
Un-ionized ammonia (UIA)	The un-ionized ammoniacal nitrogen level should not be more than 0.021 mg/L, 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.	Marine waters
	(b) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.7 mg/L, expressed as annual mean.	Castle Peak Bay Subzone
	(c) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.5 mg/L, expressed as annual water column average (arithmetic mean of at least 2 measurements at 1 m below surface and 1 m above seabed).	Marine waters excepting Castle Peak Bay Subzone
5-Day Biochemical Oxygen Demand (BOD5)	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 mg/L	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Water Gathering Ground Subzones
	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 mg/L	Other inland waters
Chemical Oxygen Demand (COD)	Waste discharges shall not cause the chemical oxygen demand to exceed 15 mg/L	Tuen Mun (A), Tuen Mun (B) and Tuen Mun (C) Subzones and Gathering Ground Subzones
	Waste discharges shall not cause the chemical oxygen demand to exceed 30 mg/L	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 mg/L as C6H5OH.	Bathing Beach Subzone
Turbidity	Waste discharges shall not reduce light transmission substantially from the normal level.	Bathing Beach Subzone

- 6.2.3 For mangroves, there is considerable evidence that mangroves are generally adapted to muddy or sandy substrate and used to turbid water and are survived in dramatic changes in salinity environment due to the nature of the inter-tidal habitat in which they grow (i.e. salinity levels can fluctuate from freshwater to sea water (0-34 ppt). No suspended solids and salinity criteria are recommended for this WSR.

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

- 6.2.4 Apart from the WQOs, Section 21 of the WPCO (Cap. 358), Technical Memorandum - Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) also specifies the limits to control the physical, chemical and microbial parameters for effluent discharges into drainage and sewerage system at both inland and coastal waters. The limits vary with the effluent flow rates. Group B, C and D inland water standards in TM-DSS are adopted and the effluent discharge standards are presented in **Table 6.3**, **Table 6.4** and **Table 6.5** respectively.

Table 6-3 Standards for effluents discharged into Group B Inland Waters

Determinant	Flow rate (m ³ /day)							
	≤200	>200 and ≤400	>400 and ≤600	>600 and ≤800	>800 and ≤1000	>1000 and ≤1500	>1500 and ≤2000	>2000 and ≤3000
pH (pH units)	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5
Temperature (°C)	35	30	30	30	30	30	30	30
Colour (lovibond units) (25mm cell length)	1	1	1	1	1	1	1	1
Suspended Solids	30	30	30	30	30	30	30	30
BOD	20	20	20	20	20	20	20	20
COD	80	80	80	80	80	80	80	80
Oil & grease	10	10	10	10	10	10	10	10
Iron	10	8	7	5	4	3	2	1
Boron	5	4	3	2.5	2	1.5	1	0.5
Barium	5	4	3	2.5	2	1.5	1	0.5
Mercury	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cadmium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Selenium	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
Other toxic metals individually	0.5	0.5	0.2	0.2	0.2	0.1	0.1	0.1
Total toxic metals	2	1.5	1	0.5	0.5	0.2	0.2	0.2
Cyanide	0.1	0.1	0.1	0.08	0.08	0.05	0.05	0.03
Phenols	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sulphide	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fluoride	10	10	8	8	8	5	5	3
Sulphate	800	800	600	600	600	400	400	400
Chloride	1000	1000	800	800	800	600	600	400
Total phosphorus	10	10	10	8	8	8	5	5
Ammonia nitrogen	5	5	5	5	5	5	5	5
Nitrate + nitrite nitrogen	30	30	30	20	20	20	10	10
Surfactants (total)	5	5	5	5	5	5	5	5
E. coli (count/100mL)	100	100	100	100	100	100	100	100

Table 6-4 Standards for effluents discharged into Group C Inland Waters

Determinant	Flow rate (m ³ /day)			
	≤100	>100 and ≤500	>500 and ≤1000	>1000 and ≤2000
pH (pH units)	6-9	6-9	6-9	6-9
Temperature (°C)	30	30	30	30
Colour (lovibond units) (25mm cell length)	1	1	1	1
Suspended Solids	20	10	10	5
BOD	20	15	10	5
COD	80	60	40	20
Oil & grease	1	1	1	1

Determinant	Flow rate (m3/day)			
	≤100	>100 and ≤500	>500 and ≤1000	>1000 and ≤2000
Iron	0.5	0.4	0.3	0.2
Boron	10	5	4	2
Barium	1	1	1	0.5
Mercury	0.001	0.001	0.001	0.001
Cadmium	0.001	0.001	0.001	0.001
Silver	0.1	0.1	0.1	0.1
Copper	0.1	0.1	0.05	0.05
Selenium	0.1	0.1	0.05	0.05
Other toxic metals individually	0.5	0.4	0.3	0.2
Total toxic metals	0.5	0.4	0.3	0.2
Cyanide	0.05	0.05	0.05	0.01
Phenols	0.1	0.1	0.1	0.1
Sulphide	0.2	0.2	0.2	0.1
Fluoride	10	7	5	4
Sulphate	800	600	400	200
Chloride	1000	1000	1000	1000
Total phosphorus	10	10	8	8
Ammonia nitrogen	2	2	2	
Nitrate + nitrite nitrogen	30	30	20	20
Surfactants (total)	2	2	2	1
E. coli (count/100mL)	1000	1000	1000	1000

Table 6-5 Standards for effluents discharged into Group D Inland Waters

Determinant	Flow rate (m³/day)							
	≤200	>200 and ≤400	>400 and ≤600	>600 and ≤800	>800 and ≤1000	>1000 and ≤1500	>1500 and ≤2000	>2000 and ≤3000
pH (pH units)	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
Temperature (°C)	35	30	30	30	30	30	30	30
Colour (lovibond units) (25mm cell length)	1	1	1	1	1	1	1	1
Suspended Solids	30	30	30	30	30	30	30	30
BOD	20	20	20	20	20	20	20	20
COD	80	80	80	80	80	80	80	80
Oil & grease	10	10	10	10	10	10	10	10
Iron	10	8	7	5	4	2.7	2	1.3
Boron	5	4	3.5	2.5	2	1.5	1	0.7
Barium	5	4	3.5	2.5	2	1.5	1	0.7
Mercury	0.1	0.05	0.001	0.001	0.001	0.001	0.001	0.001
Cadmium	0.1	0.05	0.001	0.001	0.001	0.001	0.001	0.001
Other toxic metals individually	1	1	0.8	0.8	0.5	0.5	0.2	0.2
Total toxic metals	2	1.5	1	0.5	0.5	0.2	0.2	0.2
Cyanide	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.05
Phenols	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Sulphide	1	1	1	1	1	1	1	1
Fluoride	10	8	8	8	5	5	3	3
Sulphate	800	600	600	600	600	400	400	400
Chloride	1000	800	800	800	800	600	600	400
Total phosphorus	10	10	10	8	8	8	5	5
Ammonia nitrogen	20	20	20	20	20	20	20	10
Nitrate + nitrite nitrogen	50	50	50	30	30	30	30	20
Surfactants (total)	15	15	15	15	15	15	15	15
E. coli (count/100mL)	1000	1000	1000	1000	1000	1000	1000	1000

6.2.5 The TM-DSS also specifies the discharge standards into foul sewers leading into the Government's sewage treatment plants as shown in Table 6.6 and Table 6.7 below. Subject to the flow rate of the effluents, corresponding standards for the effluent discharge into the Government's foul sewers should be followed.

Table 6-6 Standards for effluents discharged into Foul Sewers leading into Government Sewage Treatment Plants

Determinant	Flow rate (m ³ /day)												
	≤10	>10 and ≤100	>100 and ≤200	>200 and ≤400	>400 and ≤600	>600 and ≤800	>800 and ≤1000	>1000 and ≤1500	>1500 and ≤2000	>2000 and ≤3000	>3000 and ≤4000	>4000 and ≤5000	>5000 and ≤6000
pH (pH units)	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
Temperature (°C)	43	43	43	43	43	43	43	43	43	43	43	43	43
Suspended Solids	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Settleable Solids	100	100	100	100	100	100	100	100	100	100	100	100	100
BOD	1200	1000	900	800	800	800	800	800	800	800	800	800	800
COD	3000	2500	2200	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Oil & grease	100	100	100	100	100	100	100	100	100	100	100	100	100
Iron	30	25	25	25	15	12.5	10	7.5	5	3.5	2.5	2	1.5
Boron	8	7	6	5	4	3	2.4	1.6	1.2	0.8	0.6	0.5	0.4
Barium	8	7	6	5	4	3	2.4	1.6	1.2	0.8	0.6	0.5	0.4
Mercury	0.2	0.15	0.1	0.1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cadmium	0.2	0.15	0.1	0.1	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Copper	4	4	4	3	1.5	1.5	1	1	1	1	1	1	1
Nickel	4	3	3	2	1.5	1.5	1	0.8	0.7	0.7	0.6	0.6	0.6
Chromium	2	2	2	2	1	0.7	0.6	0.4	0.3	0.2	0.1	0.1	0.1
Zinc	5	5	4	3	1.5	1.5	1	0.8	0.7	0.7	0.6	0.6	0.6
Silver	4	3	3	2	1.5	1.5	1	0.8	0.7	0.7	0.6	0.6	0.6
Other toxic metals individually	2.5	2.2	2	1.5	1	0.7	0.6	0.4	0.3	0.2	0.15	0.12	0.1
Total toxic metals	10	10	8	7	3	2	2	1.6	1.4	1.2	1.2	1.2	1
Cyanide	2	2	2	1	0.7	0.5	0.4	0.27	0.2	0.13	0.1	0.08	0.08
Phenols	1	1	1	1	0.7	0.5	0.4	0.27	0.2	0.13	0.1	0.1	0.1
Sulphide	10	10	10	10	5	5	4	2	2	2	1	1	1
Sulphate	1000	1000	1000	1000	1000	1000	1000	900	800	600	600	600	600
Total nitrogen	200	200	200	200	200	200	200	100	100	100	100	100	100
Total phosphorus	50	50	50	50	50	50	50	25	25	25	25	25	25
Surfactants (total)	200	150	50	40	30	25	25	25	25	25	25	25	25

Note: All units in mg/L unless otherwise stated; all figures are upper limits unless otherwise indicated.

Table 6-7 Standards for effluents discharged into Foul Sewers leading into Government Sewage Treatment Plants with Microbial Treatment

Determinant	Flow rate (m ³ /day)												
	≤10	>10 and ≤100	>100 and ≤200	>200 and ≤400	>400 and ≤600	>600 and ≤800	>800 and ≤1000	>1000 and ≤1500	>1500 and ≤2000	>2000 and ≤3000	>3000 and ≤4000	>4000 and ≤5000	>5000 and ≤6000
Copper	1.5	1	1	1	0.8	0.6	0.5	0.4	0.3	0.2	0.15	0.1	0.05

Notes: All units in mg/L unless otherwise stated; all figures are upper limits unless otherwise indicated. Standards in this table apply in place of those in Table 5.6 for the corresponding determinant

Practice Notes

- 6.2.6 A “Professional Persons Environmental Consultative Committee Practice Note” (ProPECC PN) was issued by the EPD to provide guidelines for handling and disposal of construction site discharges. The ProPECC PN 2/24 "Construction Site Drainage" provides good practice guidelines for dealing with 10 types of discharge from construction sites. These include surface run-off, groundwater, boring and drilling water, bentonite slurry, water for testing and sterilisation of water retaining structures and water pipes, wastewater from building constructions, acid cleaning, etching and pickling wastewater, and wastewater from site facilities. Practices given in the ProPECC PN 2/24 should be followed as far as possible during construction to minimise the water quality impact due to construction site drainage.

- 6.2.7 The “Drainage Plans Subject to Comment by the EPD” (ProPECC PN 1/23) provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers during the operation phase. The design of site drainage and disposal of various site effluents generated within the new development area should follow the relevant guidelines and practices as given in the ProPECC PN 1/23.

Technical Circular

- 6.2.8 Environment, Transport and Works Bureau Technical Circular (ETWB TC) (Works) No. 5/2005 provides an administrative framework to better protect all natural streams/rivers from the impacts of construction works. The procedures promulgated under this Circular aim to clarify and strengthen existing measures for protection of natural streams/rivers from government projects and private developments. The guidelines and precautionary mitigation measures given in the ETWB TC (Works) No. 5/2005 should be followed as far as possible to protect the inland watercourses at or near the Project area during the construction phase.

Hong Kong Planning Standards and Guidelines (HKPSG)

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

Water Quality Standards for Reclaimed Water

- 6.2.10 The water quality standards for reclaimed water to be adopted by this Project are based on the water quality standards endorsed by the “Working Group on the Implementation of Reclaimed Water Supply in Sheung Shui and Fanling” at its meeting on 13 July 2012 for non-potable uses. Details of the standards are summarized in **Table 6-8** below.

Table 6-8 Reclaimed Water Quality Standards for Non-Potable Uses

Parameters	Unit	Recommended Water Quality Standards
<i>E. coli</i>	Cfu/100mL	Non detectable
Total Residual Chlorine	mg/L	≥ 1 exiting treatment system; ≥ 0.2 at user end
Dissolved Oxygen	mg/L	≥ 2
Suspended Solids (SS)	mg/L	≤ 5
Colour	Hazen unit	≤ 20
Turbidity	NTU	≤ 5
pH	-	6-9
Threshold Odour Number (TON)	-	≤ 100
5-day Biochemical Oxygen Demand (BOD5)	mg/L	≤ 10
Ammoniacal Nitrogen	mg/L as N	≤ 1
Synthetic Detergents	mg/L	≤ 5

Source: Final Environmental Impact Assessment Report under Agreement No. CE 61/2007(CE) - "North East New Territories New Development Areas Planning and Engineering Study – Investigation", Table 6.18.

Notes:

1. Apart from total residual chlorine which has been specified, the water quality standards for all parameters shall be applied at the point-of-use of the system.
2. Where reclaimed water is treated for immediate usage, the level of total residual chlorine may be lower than the one specified in this table.
3. Immediate usage means the collected grey water / rainwater is drawn into the treatment process immediate before a particular round of usage and the treated water will be depleted after that round of usage is completed.

6.3 Description of the Environment

Study Area

- 6.3.1 The Study Area for the water quality impact assessment include areas within 500m from the boundary of the Project and shall cover Deep Bay, North Western and other affected WCZs as designated under the WPCO and water sensitive receivers, such as the natural streams and nullah in the vicinity of the Project. The baseline condition of water bodies in the Study Area have been established with reference to routine river and marine water quality monitoring data collected by EPD. Descriptions of the baseline conditions provided in the subsequent sections are extracted from the EPD's reports "Marine Water Quality in Hong Kong in 2023" and "River Water Quality in Hong Kong in 2023" which contains the latest information published by EPD on river and marine water quality.

Marine Water

- 6.3.2 The baseline water quality condition of marine water was established from the marine water quality monitoring data routinely collected by EPD in the Deep Bay and North Western WCZs. A summary of EPD monitoring data collected in 2025 for Deep Bay WCZ and North Western WCZ were presented in **Table 6.9** and **Table 6.10** respectively.

Table 6-9 Summary EPD's Routine Marine Water Quality Data for Deep Bay WCZ in Year 2025

Parameter	Inner Deep Bay			Outer Deep Bay	
	DM1	DM2	DM3	DM4	DM5
Temperature (°C)	24	24.1	24	24.1	24
	(17.7 - 29.9)	(17.4 - 29.9)	(17.6 - 29.3)	(18.0 - 29.0)	(18.0 - 28.7)
Salinity	16	19.2	22.2	24.4	26.7
	(5.4 - 22.9)	(9.5 - 26.3)	(12.0 - 28.9)	(13.1 - 30.9)	(17.2 - 32.0)
Dissolved Oxygen (mg/L)	6.8	7	6.6	6.7	7.1
	(4.6 - 9.5)	(4.9 - 9.3)	(4.5 - 9.0)	(4.3 - 9.8)	(4.7 - 11.4)
Bottom	#NA	#NA	#NA	7	7.7
	#NA	#NA	#NA	(4.5 - 10.7)	(4.7 - 13.9)
Dissolved Oxygen (% Saturation)	87	92	89	91	97
	(59 - 114)	(66 - 114)	(63 - 115)	(62 - 125)	(69 - 147)
Bottom	#NA	#NA	#NA	94	105
	#NA	#NA	#NA	(66 - 136)	(68 - 179)
pH	7.5	7.6	7.7	7.8	7.9
	(7.1 - 8.2)	(7.2 - 8.3)	(7.3 - 8.1)	(7.4 - 8.1)	(7.5 - 8.1)
Secchi Disc Depth (m)	1.2	1.2	1.3	1.6	1.9
	(0.5 - 1.7)	(0.5 - 1.6)	(0.8 - 1.8)	(1.0 - 2.0)	(1.3 - 2.5)
Turbidity (NTU)	15.3	10.9	5.5	3.7	3.9
	(3.1 - 48.3)	(1.6 - 31.6)	(1.1 - 13.1)	(0.9 - 11.9)	(0.7 - 12.6)
Suspended Solids (mg/L)	19.3	13.2	7.7	5.1	5.7
	(6.4 - 46.0)	(5.2 - 29.0)	(4.3 - 17.0)	(2.5 - 7.3)	(2.7 - 11.4)
5-day Biochemical Oxygen Demand (mg/L)	1.6	1.1	0.8	0.6	0.5
	(0.4 - 3.3)	(0.2 - 4.5)	(<0.1 - 5.2)	(<0.1 - 1.5)	(0.1 - 1.2)
Ammonia Nitrogen (mg/L)	0.427	0.224	0.127	0.109	0.087
	(0.130 - 0.970)	(0.047 - 0.550)	(0.018 - 0.330)	(0.010 - 0.255)	(0.019 - 0.170)
Unionised Ammonia (mg/L)	0.007	0.004	0.003	0.003	0.003
	(0.002 - 0.030)	(<0.001 - 0.011)	(<0.001 - 0.009)	(<0.001 - 0.005)	(<0.001 - 0.004)
Nitrite Nitrogen (mg/L)	0.123	0.094	0.072	0.069	0.06
	(0.035 - 0.350)	(0.011 - 0.340)	(0.008 - 0.210)	(0.006 - 0.180)	(0.007 - 0.153)
Nitrate Nitrogen (mg/L)	1.12	0.908	0.684	0.613	0.498
	(0.730 - 1.600)	(0.280 - 1.300)	(0.130 - 1.400)	(0.150 - 1.400)	(0.099 - 1.220)
Total Inorganic Nitrogen (mg/L)	1.67	1.23	0.88	0.79	0.65
	(0.94 - 2.53)	(0.36 - 1.72)	(0.19 - 1.58)	(0.23 - 1.57)	(0.18 - 1.39)
Total Kjeldahl Nitrogen (mg/L)	0.76	0.49	0.33	0.29	0.23
	(0.35 - 1.40)	(0.20 - 0.94)	(0.13 - 0.59)	(0.15 - 0.61)	(0.13 - 0.43)
Total Nitrogen (mg/L)	2	1.49	1.08	0.97	0.79
	(1.21 - 3.11)	(0.49 - 2.20)	(0.27 - 1.77)	(0.31 - 1.76)	(0.24 - 1.56)
	0.13	0.101	0.058	0.039	0.028

Orthophosphate Phosphorus (mg/L)	(0.097 - 0.200)	(0.044 - 0.140)	(0.009 - 0.110)	(0.003 - 0.085)	(0.004 - 0.058)
Total Phosphorus (mg/L)	0.25 (0.18 - 0.40)	0.19 (0.14 - 0.27)	0.16 (0.09 - 0.37)	0.1 (0.07 - 0.16)	0.09 (0.06 - 0.14)
Silica (as SiO₂) (mg/L)	6.78 (2.80 - 10.00)	5.33 (0.72 - 8.50)	3.59 (0.38 - 6.60)	2.99 (0.22 - 6.65)	2.38 (0.16 - 5.27)
Chlorophyll-a (µg/L)	5.5 (1.1 - 15.0)	2.3 (0.7 - 4.9)	2 (0.5 - 6.1)	2.5 (0.5 - 13.7)	2 (0.4 - 5.2)
<i>E. coli</i> (count/100mL)	400 (6 - 48000)	75 (1 - 2200)	12 (<1 - 1200)	6 (<1 - 710)	16 (1 - 340)
Faecal Coliforms (count/100mL)	940 (31 - 130000)	180 (2 - 4200)	35 (3 - 2800)	16 (1 - 1400)	38 (2 - 990)

Notes:

1. Data source: EPD Marine Water Quality in Hong Kong in 2025
2. Unless otherwise specified, data presented are depth-averaged (A) values calculated by taking the means of three depths; Surface (S), Mid-depth (M), Bottom (B).
3. Data presented are annual arithmetic means of the depth-averaged results except for *E. coli* and faecal coliforms which are annual geometric means.
4. Data in brackets indicate the ranges.
5. NA (Not Applicable) indicates the measurement was not made due to shallow water.

Table 6-10 Summary EPD's Routine Marine Water Quality Data for North Western WCZ in Year 2025

Parameter	Lantau Island				Chek Lap Kok	
	(North)	Pearl Island	Pillar Point	Urmston Road	(North)	(West)
	NM1	NM2	NM3	NM5	NM6	NM8
Temperature (° C)	24.2 (17.4 - 29.1)	24.4 (17.3 - 29.3)	24.4 (17.3 - 29.4)	24.5 (17.4 - 29.2)	24.6 (17.2 - 29.4)	24.5 (17.0 - 29.6)
Salinity	29 (24.0 - 32.9)	28 (21.8 - 32.9)	27.8 (22.5 - 32.7)	27 (20.5 - 32.6)	25.6 (17.4 - 32.0)	26.9 (16.1 - 33.1)
Dissolved Oxygen (mg/L)	5.3 (2.7 - 7.0)	6.1 (3.5 - 11.0)	5.8 (3.1 - 8.9)	5.6 (2.9 - 7.2)	6.3 (3.9 - 10.4)	6.6 (3.5 - 10.4)
Bottom	4.7 (1.6 - 6.4)	5.8 (2.2 - 13.7)	5.1 (2.2 - 6.8)	4.9 (2.0 - 6.6)	6.1 (3.2 - 12.7)	6.2 (2.6 - 12.7)
Dissolved Oxygen (% Saturation)	74 (39 - 88)	84 (51 - 154)	81 (44 - 125)	78 (42 - 96)	87 (56 - 147)	91 (52 - 147)
Bottom	66 (24 - 91)	81 (32 - 191)	71 (32 - 91)	67 (28 - 91)	84 (47 - 179)	86 (39 - 179)
pH	7.8 (7.5 - 8.1)	7.9 (7.6 - 8.2)	7.9 (7.5 - 8.2)	7.8 (7.5 - 8.2)	7.9 (8.2 - 8.3)	7.9 (7.4 - 8.3)
Secchi Disc Depth (m)	2.3 (1.6 - 3.6)	2.2 (1.7 - 3.4)	2.1 (1.8 - 2.9)	2 (1.5 - 2.8)	2.1 (1.5 - 3.0)	2 (1.6 - 2.4)
Turbidity (NTU)	2.8 (0.8 - 6.9)	2.4 (0.7 - 6.7)	3.1 (0.9 - 7.3)	4.2 (1.2 - 15.6)	3.1 (0.8 - 10.2)	5.8 (1.4 - 19.2)
Suspended Solids (mg/L)	5.2 (2.4 - 10.1)	4.2 (2.0 - 8.1)	4.6 (2.3 - 8.2)	5.6 (2.1 - 10.0)	4.7 (2.8 - 8.3)	6.7 (3.6 - 15.0)
5-day Biochemical Oxygen Demand (mg/L)	0.5 (<0.1 - 1.1)	0.5 (<0.1 - 0.8)	0.5 (<0.1 - 1.0)	0.5 (<0.1 - 1.5)	0.6 (<0.1 - 1.6)	0.7 (<0.1 - 2.0)
Ammonia Nitrogen (mg/L)	0.107 (0.037 - 0.177)	0.094 (0.038 - 0.190)	0.092 (0.034 - 0.147)	0.097 (0.046 - 0.163)	0.068 (0.008 - 0.157)	0.044 (0.005 - 0.104)
Unionised Ammonia (mg/L)	0.003 (<0.001 - 0.010)	0.003 (<0.001 - 0.010)	0.003 (<0.001 - 0.011)	0.003 (<0.001 - 0.010)	0.003 (<0.001 - 0.009)	0.002 (<0.001 - 0.008)
Nitrite Nitrogen (mg/L)	0.033 (0.003 - 0.088)	0.04 (0.002 - 0.123)	0.042 (0.002 - 0.115)	0.047 (0.004 - 0.133)	0.051 (0.004 - 0.143)	0.045 (0.002 - 0.117)
Nitrate Nitrogen (mg/L)	0.317 (0.065 - 0.793)	0.373 (0.061 - 1.000)	0.408 (0.062 - 0.933)	0.459 (0.081 - 1.020)	0.52 (0.095 - 1.200)	0.469 (0.015 - 1.430)
Total Inorganic Nitrogen (mg/L)	0.46 (0.17 - 0.93)	0.51 (0.16 - 1.14)	0.54 (0.16 - 1.08)	0.6 (0.20 - 1.22)	0.64 (0.19 - 1.34)	0.56 (0.07 - 1.56)
Total Kjeldahl Nitrogen (mg/L)	0.29 (0.15 - 0.62)	0.26 (0.14 - 0.71)	0.26 (0.14 - 0.49)	0.29 (0.17 - 0.71)	0.27 (0.14 - 0.65)	0.28 (0.14 - 0.71)
Total Nitrogen (mg/L)	0.64 (0.33 - 1.05)	0.67 (0.33 - 1.25)	0.71 (0.33 - 1.22)	0.79 (0.33 - 1.33)	0.84 (0.33 - 1.51)	0.79 (0.32 - 1.77)
Orthophosphate Phosphorus (mg/L)	0.02 (0.012 - 0.033)	0.02 (0.011 - 0.034)	0.021 (0.011 - 0.034)	0.022 (0.008 - 0.046)	0.023 (0.010 - 0.040)	0.018 (<0.002 - 0.044)
Total Phosphorus (mg/L)	0.08 (0.04 - 0.14)	0.08 (0.03 - 0.13)	0.08 (0.04 - 0.14)	0.08 (0.04 - 0.11)	0.07 (0.04 - 0.11)	0.07 (0.03 - 0.14)

Parameter	Lantau Island				Chek Lap Kok	
	(North)	Pearl Island	Pillar Point	Urmston Road	(North)	(West)
	NM1	NM2	NM3	NM5	NM6	NM8
Silica (as SiO ₂) (mg/L)	1.5 (0.26 - 3.37)	1.62 (0.26 - 4.23)	1.73 (0.29 - 3.93)	1.98 (0.34 - 4.83)	2.14 (0.34 - 4.87)	2.11 (0.12 - 6.13)
Chlorophyll-a (µg/L)	1.9 (0.5 - 7.6)	1.8 (0.2 - 7.9)	1.9 (0.2 - 6.1)	2.2 (0.4 - 8.1)	2.8 (0.2 - 12.7)	3.2 (0.7 - 6.7)
<i>E. coli</i> (count/100mL)	40 (2 - 670)	28 (4 - 160)	33 (6 - 200)	28 (6 - 230)	4 (1 - 64)	2 (<1 - 11)
Faecal Coliforms (count/100mL)	90 (3 - 1100)	64 (13 - 670)	78 (16 - 830)	63 (12 - 740)	13 (1 - 230)	5 (1 - 50)
Notes:						
1. Data source: EPD Marine Water Quality in Hong Kong in 2025						
2. Except as specified, data presented are depth-averaged values calculated by taking the means of three depths: Surface, Mid-depth, Bottom.						
3. Data presented are annual arithmetic means of depth-averaged results except for <i>E. coli</i> and faecal coliforms that are annual geometric means.						
4. Data in brackets indicate the ranges.						

6.3.4 In 2025, the overall WQO compliance rate for the Deep Bay WCZ was 67%, as compared with a ten-year average of 47% in 2009-2018. Overall, with the measures taken progressively by the governments of Hong Kong and Shenzhen under the Deep Bay Water Pollution Control Joint Implementation Programme, there have been significant water quality improvements in Deep Bay. In particular, the NH₃-N WQO has been fully met in the past ten 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.

6.3.5 In 2025, the overall WQO compliance rate of the North Western WCZ was 44%, with the NH₃-N WQOs fully met. Under the influence of high seasonal background level in the Pearl River Estuary, the compliance rate for TIN WQO was 17%. With intensive stratification of water column during the summer and stormy months in the year, the compliance rate for DO WQO was only 17%.

Inland Water

6.3.6 The water quality monitoring results at stations in Yuen Long Nullah, namely YL1, YL2, YL3 and YL4, are shown in **Table 6.11**. According to the EPD's publication "River Water Quality in Hong Kong in 2025", the overall compliance rate of Yuen Long Nullah in 2025 was 58%, as compared with 30% in 1995. In terms of Water Quality Index (WQI) grading, the two upstream monitoring stations (YL1 and YL2) were both graded as "Fair", while the downstream stations (YL3 and YL4) were graded as "Bad" and "Very Bad" gradings respectively. In terms of *E. coli*, the four river monitoring stations of Yuen Long Nullah recorded "High" or "Very High" *E. coli* levels (annual geometric mean >10,000 counts/100mL), mainly due to discharges from livestock farms, surface runoffs from unsewered villages as well as expedient connections in old districts.

Table 6-11 Summary Statistic of 2025 River Water Quality of Yuen Long Nullah

Parameter	Unit	Yuen Long Nullah			
		YL1	YL2	YL3	YL4
Dissolved Oxygen	mg/L	5.6	6	4.3	3.1
		(3.2 - 7.9)	(4.4 - 8.8)	(2.8 - 5.2)	(1.8 - 4.4)
pH	-	7.2	7.2	7.3	7.1
		(7.0 - 7.4)	(7.0 - 7.6)	(7.1 - 7.9)	(6.9 - 7.3)
Suspended Solids	mg/L	6.4	3.7	18.5	23
		(1.9 - 23.0)	(1.6 - 7.4)	(7.0 - 83.0)	(12.0 - 48.0)
5-Day Biochemical Oxygen Demand	mg/L	8.1	9.5	52.5	102
		(2.0 - 42.0)	(5.5 - 44.0)	(17.0 - 160.0)	(71.0 - 200.0)
Chemical Oxygen Demand	mg/L	16	14	37	75
		(10 - 70)	(5 - 19)	(14 - 190)	(28 - 180)
Oil & Grease	mg/L	0.5	<0.5	1.8	5.2

Parameter	Unit	Yuen Long Nullah			
		YL1	YL2	YL3	YL4
		(<0.5 - 4.5)	(<0.5 - <0.5)	(<0.5 - 7.3)	(2.2 - 20.0)
<i>E. coli</i>	counts/ 100mL	75 718 (34000 - 880000)	70 893 (24000 - 510000)	1 158 178 (560000 - 8000000)	2 529 015 (720000 - 15000000)
Faecal Coliforms	counts/ 100mL	205 073 (72000 - 1100000)	391 410 (80000 - 1600000)	2 426 249 (900000 - 30000000)	6 836 820 (1700000 - 26000000)
Ammonia-Nitrogen	mg/L	4.8 (1.200 - 17.000)	3.25 (2.300 - 4.100)	4.3 (2.000 - 7.800)	6.6 (4.100 - 8.500)
Nitrate-Nitrogen	mg/L	0.49 (<0.002 - 0.900)	0.63 (0.410 - 0.990)	0.139 (<0.002 - 1.100)	0.002 (<0.002 - 0.032)
Total Kjeldahl Nitrogen	mg/L	7.4 (3.30 - 19.00)	4 (2.60 - 11.00)	6.6 (2.90 - 19.00)	10 (5.50 - 13.00)
Orthophosphate Phosphorus	mg/L	0.485 (0.140 - 1.300)	0.25 (0.150 - 0.510)	0.29 (0.100 - 0.580)	0.55 (0.290 - 0.710)
Total Phosphorus	mg/L	0.85 (0.35 - 1.70)	0.35 (0.27 - 0.57)	0.73 (0.38 - 1.70)	0.96 (0.57 - 1.70)
Sulphide	mg/L	<0.02 (<0.02 - 0.07)	<0.02 (<0.02 - 0.04)	0.08 (<0.02 - 0.41)	0.37 (0.11 - 0.57)
Aluminium	µg/L	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)	<50 (<50 - <50)
Cadmium	µg/L	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)	<0.1 (<0.1 - <0.1)
Chromium	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Copper	µg/L	2 (<1 - 3)	<1 (<1 - 3)	<1 (<1 - 3)	<1 (<1 - 3)
Lead	µg/L	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)	<1 (<1 - <1)
Zinc	µg/L	<10 (<10 - 20)	<10 (<10 - 20)	<10 (<10 - 20)	<10 (<10 - 20)
Flow	m ³ /s	0.209 (0.004 - 1.200)	0.019 (0.006 - 0.058)	0.621 (0.068 - 3.875)	0.161 (0.063 - 0.304)

Notes:

1. Data source: EPD River Water Quality in Hong Kong in 2025
2. Data presented are in annual medians of monthly samples; except those for faecal coliforms and *E. coli* which are in annual geometric means
3. Figures in brackets are annual ranges
4. Values at or below laboratory reporting limits are presented as laboratory reporting limits
5. Equal values for annual median (or geometric means) and ranges indicate that all data are the same as or below laboratory reporting limits

6.4 Review of Water Sensitive Receivers

6.4.1 With reference to previously approved EIA report (AEIAR-237/2022), the 500m assessment area from the site boundary of the Project and the representative WSRs within the assessment area are shown in **Figure 6.1**. No changes to the WSRs identified in the approved EIA report have been observed following the updated review.

Existing Inland Watercourses

6.4.2 Major existing watercourses identified within and near the Project are summarized below and are shown in **Figure 6.1**, which include:

- Yuen Long Nullah (S1)
- Immediate upstream of the southern end of Yuen Long Nullah (S2)
- Yeung Ka Tsuen Ecologically Important Stream (EIS) (S3)

- Near YLSEPP (S4)
- Modified watercourse along the fence of the existing brownfield operation in the northern side of the Project site (S9)
- Catchwater which lead to Wong Nai Tun Irrigation Reservoir (S10)

Existing Ponds and other WSRs

6.4.3 A summary of all ponds and other inland water bodies identified within the assessment area is provided in **Table 6.12** and illustrated in **Figure 6.1**.

Table 6-12 Ponds and other WSRs within Assessment Area

WSR ID	Description	Location	Status
P1	Ponds	To the north west of the proposed Project site.	Overgrown with vegetation
P2	Ponds	To the north west of the proposed Project site.	Overgrown with vegetation
P3	Ponds	To the south east of the proposed Project site.	Overgrown with vegetation
P4	Ponds	To the north east of the proposed Project site.	Overgrown with vegetation
W1	Water Gathering Ground	To the south west of the proposed Project site.	Rainwater is collected via catchwaters and is then stored in Wong Nai Tun Irrigation Reservoir.
W2	Country Park	To the south of the proposed Project site.	-
W3	Conservation Area	To the south of the proposed Project site.	-

Marine Water Sensitive Receivers

6.4.4 The key marine WSRs within the Deep Bay WCZs have been identified as follows:

- Mai Po Marshes SSSI (E1)
- Mai Po and Inner Deep Bay Ramsar Site / Inner Deep Bay SSSI (E2)
- Oyster Culture Area in Deep Bay (E3)
- Mangroves (E4)
- Mangroves along Shan Pui River (E5)

6.4.5 The indicative locations of these major marine WSRs are shown in **Figure 6.2**.

6.5 Review of Water Quality Impact during Construction Phase and Operational Phase

6.5.1 The proposed building height relaxation will not introduce additional sources of wastewater nor increase the scale of such activities when compared with those assessed in the approved EIA during construction and operational phase. Therefore, no additional water quality impact is anticipated.

6.6 Review of Environmental Monitoring and Audit Requirements

- 6.6.1 Since there are no identified changes in impacts or mitigation measures compared to the EIA, the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

6.7 Conclusion

- 6.7.1 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.
- 6.7.2 The proposed building height relaxation will not introduce additional sources of wastewater nor increase the scale of such activities when compared with those assessed in the approved EIA during construction and operational phase. Therefore, no additional water quality impact is anticipated.
- 6.7.3 Since there are no identified changes in impacts or mitigation measures compared to the EIA, the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

7. Waste Management Implication

7.1 Introduction

- 7.1.1 This Section reviews the construction and operational phase waste management impact arising from the Project.

7.2 Environmental Legislation and Criteria

- 7.2.1 The relevant legislation and associated guidelines applicable to the study for the assessment of waste management implications include:
- Waste Disposal Ordinance (Cap. 354);
 - Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
 - Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N);
 - Land (Miscellaneous Provisions) Ordinance (Cap. 28); and
 - Public Health and Municipal Services Ordinance (Cap. 132BK) – Public Cleansing and Prevention Nuisances Regulation.
 - Other relevant guidelines (as listed in **Table 7.1**).

Table 7-1 Other relevant documents and guidelines

Bureau / Department	Documents / Guidelines / Technical Circulars
CEDD	• Section 4.1.3 of Chapter 4 of the Project Administration Handbook (PAH) for Civil Engineering Works, Management of Construction/ Demolition Materials including Rocks.
EPD	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (EPD); • A Guide to the Chemical Waste Control Scheme (EPD)
Development Bureau	• Works Branch Technical Circular (WBTC) No. 2/93 Public Dumps • WBTC No. 2/93B Public Filling Facilities • WBTC No. 12/2000 Fill Management • WBTC No. 19/2001 Metallic Site Hoardings and Signboards • WBTC No. 12/2002 Specifications Facilitating the Use of Recycled Aggregates • Environment, Transport and Works Bureau Technical Circular (Works) (ETWB TCW) No. 19/2005 Environmental Management on Construction Sites • Development Bureau Technical Circular (Works) (DEVB TCW) No. 06/2010 Tripbicket System for Disposal of Construction and Demolition Material • DEVB TCW No. 08/2010 Enhanced Specification for Site Cleanliness and Tidiness • DEVB TCW No. 09/2011 Enhanced Control measures for Management of Public Fill
PlanD	• Hong Kong Planning Standards and Guidelines

7.3 Assessment Methodology

- 7.3.1 The potential waste management implications of the Project have been assessed through:
- Estimation of the types and quantities of the wastes generated;
 - Evaluation of opportunities for waste reduction and re-use;
 - Identification of disposal options for each type of wastes;
 - Assessment of potential environmental impacts arising from the wastes management with respect of potential hazards, air and odour emissions, noise, wastewater discharge, and public transport; and
 - Assessment of the impacts caused by handling, collection, transportation and re-use / disposal of wastes.

- 7.3.2 Prior to considering the disposal options for various types of waste, opportunities for reducing waste generation, on-site or off-site reuse and recycling have been evaluated. Measures which can be taken in the planning and design phases (e.g. by modifying the design approach) and in the construction phase for maximizing waste reduction have been separately considered. Practices to promote segregation of waste materials are additionally considered for advancing the waste management efficiency.
- 7.3.3 After considering all the opportunities for reducing waste generation and maximizing reuse, the types and quantities of the waste required to be disposed of have been estimated and the disposal options for each type of waste have been described. The disposal method recommended for each type of waste has been taken into account the result of the assessment. The impacts caused by handling (including stockpiling, labelling, packaging and storage), collection and reuse/ disposal of waste have been addressed, and appropriate mitigation measures have been proposed.

7.4 Evaluation of Waste Implication during Construction Phase

- 7.4.1 The proposed building height relaxation will not induce any additional waste management implications compared to the approved EIA (AEIAR-237/2022). Assessments on waste management implications, including updated waste volume estimates, were also conducted in the updated draft Environmental Review Report (ERR) and EM&A Manual (Draft - Issue 3) (REP-011-00) under CE 1/2023 (DS). By accommodating more of the development above ground, the revised design minimizes the extent of excavation, which actually reduces the generation of Construction and Demolition (C&D) materials. No new waste generation sources or disposal requirements are introduced by this modification. The quantities of chemical waste and general refuse will remain consistent with the original assessment. With the implementation of the recommended good site practices, waste reduction measures, and the Waste Management Plan (WMP), no adverse waste impacts are anticipated during the construction phase.

7.5 Evaluation of Waste Implication during Operation Phase

- 7.5.1 The proposed building height relaxation will not alter the operational capacity of the Project and therefore will not induce any additional waste management implications compared to the approved EIA (AEIAR-237/2022). Assessments on waste management implications, including updated waste volume estimates, were also conducted in the updated draft ERR and EM&A Manual (Draft - Issue 3) (REP-011-00) under CE 1/2023 (DS). During the operational phase, the types and quantities of waste generated will remain unchanged. All generated waste will continue to be properly stored, handled, collected, and disposed of at designated facilities in accordance with relevant EPD guidelines and established site practices. Consequently, no adverse environmental impacts related to operational waste management are anticipated.

7.6 Review of Environmental Monitoring and Audit Requirements

- 7.6.1 Assessments on waste management implications was conducted in the updated draft ERR and EM&A Manual (Draft - Issue 3) (REP-011-00) under CE 1/2023 (DS). Since there are no identified changes in impacts or mitigation measures compared to the approved EIA (AEIAR-237/2022), the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

7.7 Conclusion

- 7.7.1 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.
- 7.7.2 Construction and demolition materials will inevitably be produced during the construction phase of the Project. Waste generated during construction works include inert C&D materials, non-inert C&D materials, chemical waste and general refuse. Provided that there is strict control of construction and demolition materials generated from construction works and that all arisings are stored, handled, transported and disposed of in accordance with the recommended mitigation measures, no unacceptable impact due to waste management is expected during construction phase. The recommended mitigation measures can be enforced by incorporating them into the waste management requirements as part of the Environmental Management Plan. Environmental audit would be necessary to ensure the implementation of proper waste management practices during construction.
- 7.7.3 Provided proper handling procedures and disposal method are adopted, no adverse waste management issue is expected during operational phase.

8. Land Contamination

8.1 Introduction

8.1.1 This Section reviews the potential land contamination impact arising from the Project.

8.2 Environmental Legislation and Criteria

8.2.1 The relevant environmental legislation guidelines and standards on land contamination aspect include the following:

- Section 3 (Potential Contaminated Land Issues) of Annex 19 “Guidelines for Assessment of Impact on Sites of Cultural Heritage and Other Impacts” of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).
- Guidance Note for Contaminated Land Assessment and Remediation (Guidance Note): The Guidance Note sets out the requirements for proper assessment and management of potentially contaminated sites such as oil installations (e.g. oil depots, petrol filling stations), gas works, power plants, shipyards / boatyards, chemical manufacturing / processing plants, steel mills / metal workshops, car repairing / dismantling workshops and scrap yards. In addition, this Guidance Note provides guidelines on how site assessments should be conducted and analysed and suggests practical remedial measures that can be adopted for the remediation of contaminated sites.
- Practice Guide for Investigation and Remediation of Contaminated Land (Practice Guide): This guide outlines typical investigation methods and remediation strategies for the range of potential contaminants typically encountered in Hong Kong.
- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management (Guidance Manual): The Guidance Manual introduces the risk-based approach in land contamination assessment and present instructions for comparison of soil and groundwater data to the Risk-Based Remediation Goals (RBRGs) for 54 chemicals of concern (COCs) commonly found in Hong Kong. The RBRGs were derived to suit Hong Kong conditions by following the international practice of adopting a risk-based methodology for contaminated land assessment and remediation and were designed to protect the health of people who could potentially be exposed to land impacted by chemicals under four broad post restoration land use categories. The RBRGs also serve as the remediation targets if remediation is necessary.

8.3 Review of Land Contamination Potential

8.3.1 Land contamination assessment covering the whole Project Site is shown in Figure 2.1.

8.3.2 Most anthropogenic contamination from sources such as open storage areas and warehouses is likely to be confined to shallow layers just below the surface. Site clearance and formation works will be carried out by CEDD, and therefore, any land contamination assessment and remediation work (if required) will also be undertaken by CEDD.

- 8.3.3 According to the approved YLSEPP EIA report (AEIAR-237/2022), most of the potentially contaminated sites identified were inaccessible for site walkover to assess the site condition. Further works including site re-appraisal for the entire proposed YLSEPP site, SI and if necessary, remediation works are recommended to be carried out for the concerned sites prior to the construction of the proposed YLSEPP. Relevant assessments on land contamination were also conducted in the updated draft ERR and EM&A Manual (Draft - Issue 3) (REP-011-00) under CE 1/2023 (DS).
- 8.3.4 It is anticipated that the land contamination assessment and remediation work (if any) on the site will be completed. No land contamination impact is anticipated during the construction phase. The future land uses of the Project Site, which include the Application Site, will have no land contamination potential. Land contamination due to the operation of the Project is also not anticipated.

8.4 Review of Environmental Monitoring and Audit Requirements

- 8.4.1 Assessments on land contamination was also conducted in the updated draft ERR and EM&A Manual (Draft - Issue 3) (REP-011-00) under CE 1/2023 (DS). Since there are no identified changes in impacts or mitigation measures compared to the EIA, the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

8.5 Conclusion

- 8.5.1 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.
- 8.5.2 The land contamination issues identified within the Application Site are considered manageable and surmountable. With the implementation of the recommended further works, including site re-appraisal, SI, and, if necessary, remediation, the risks associated with land contamination will be effectively mitigated, ensuring safe and sustainable development of the Application Site.

9. Conclusion

9.1 Introduction

9.1.1 This ERR report presents the assessments of water air quality, noise, water quality, waste management and land contamination implication for the construction and operation of the proposed project.

9.1.2 The proposed layout is indicative only and remains subject to refinement during the detailed design stage and a further detailed assessment will be conducted in a separated Environmental Review Report to demonstrate that the proposed design changes can achieve full compliance with the relevant criteria of the EIAO-TM.

9.2 Air Quality

9.2.1 With the implementation of air quality control measures together with good site practices, no adverse air quality impact is anticipated during the construction phase of this Project.

9.2.2 No adverse air quality and odour impact is anticipated during the operation phase of this Project.

9.3 Noise

9.3.1 The proposed building height relaxation will not result in any additional noise impacts compared with the approved EIA. Both construction and operational noise levels remain consistent with the original assessment and comply with relevant criteria. With the implementation of established mitigation measures, all noise impacts are considered acceptable.

9.4 Water Quality

9.4.1 The proposed building height relaxation will not introduce additional sources of wastewater nor increase the scale of such activities when compared with those assessed in the approved EIA during construction and operational phase. Therefore, no additional water quality impact is anticipated.

9.4.2 Since there are no identified changes in impacts or mitigation measures compared to the EIA, the environmental monitoring and audit requirements as outlined in the assessment also remain unchanged.

9.5 Waste Management

9.5.1 Construction and demolition materials will inevitably be produced during the construction phase of the Project. Waste generated during construction works include inert C&D materials, non-inert C&D materials, chemical waste and general refuse. Provided that there is strict control of construction and demolition materials generated from construction works and that all arisings are stored, handled, transported and disposed of in accordance with the recommended mitigation measures, no unacceptable impact due to waste management is expected during construction phase. The recommended mitigation measures can be enforced by incorporating them into the waste management requirements as part of the Environmental Management Plan. Environmental audit would be necessary to ensure the implementation of proper waste management practices during construction.

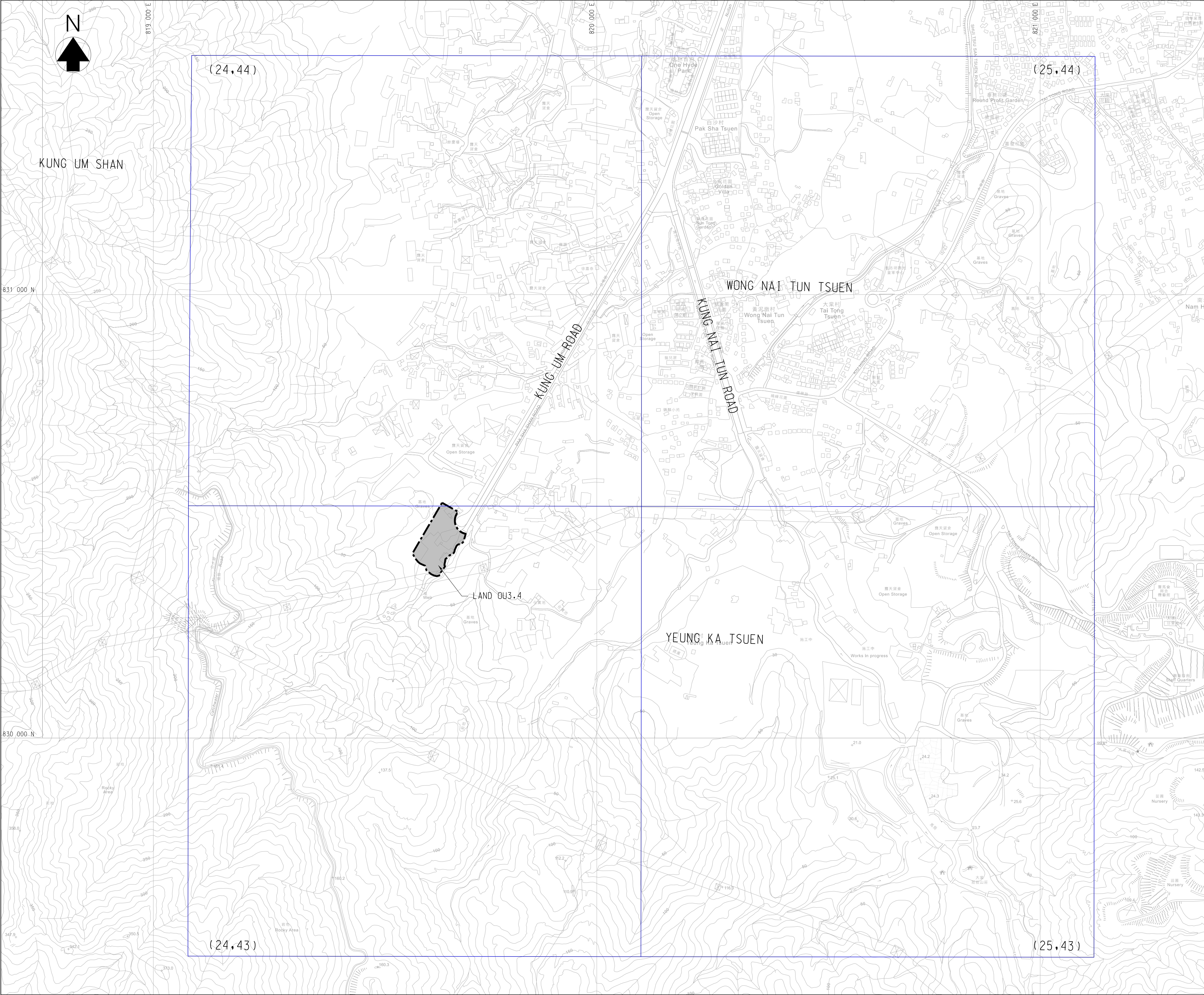
- 9.5.2 Provided proper handling procedures and disposal method are adopted, no adverse waste management issue is expected during operational phase.

9.6 Land Contamination

- 9.6.1 The land contamination issues identified within the Application Site are considered manageable and surmountable. With the implementation of the recommended further works, including site re-appraisal, SI, and, if necessary, remediation, the risks associated with land contamination by CEDD will be effectively mitigated, ensuring safe and sustainable development of the Application Site.

Appendix A

Figures



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LEGEND:



APPLICATION SITE



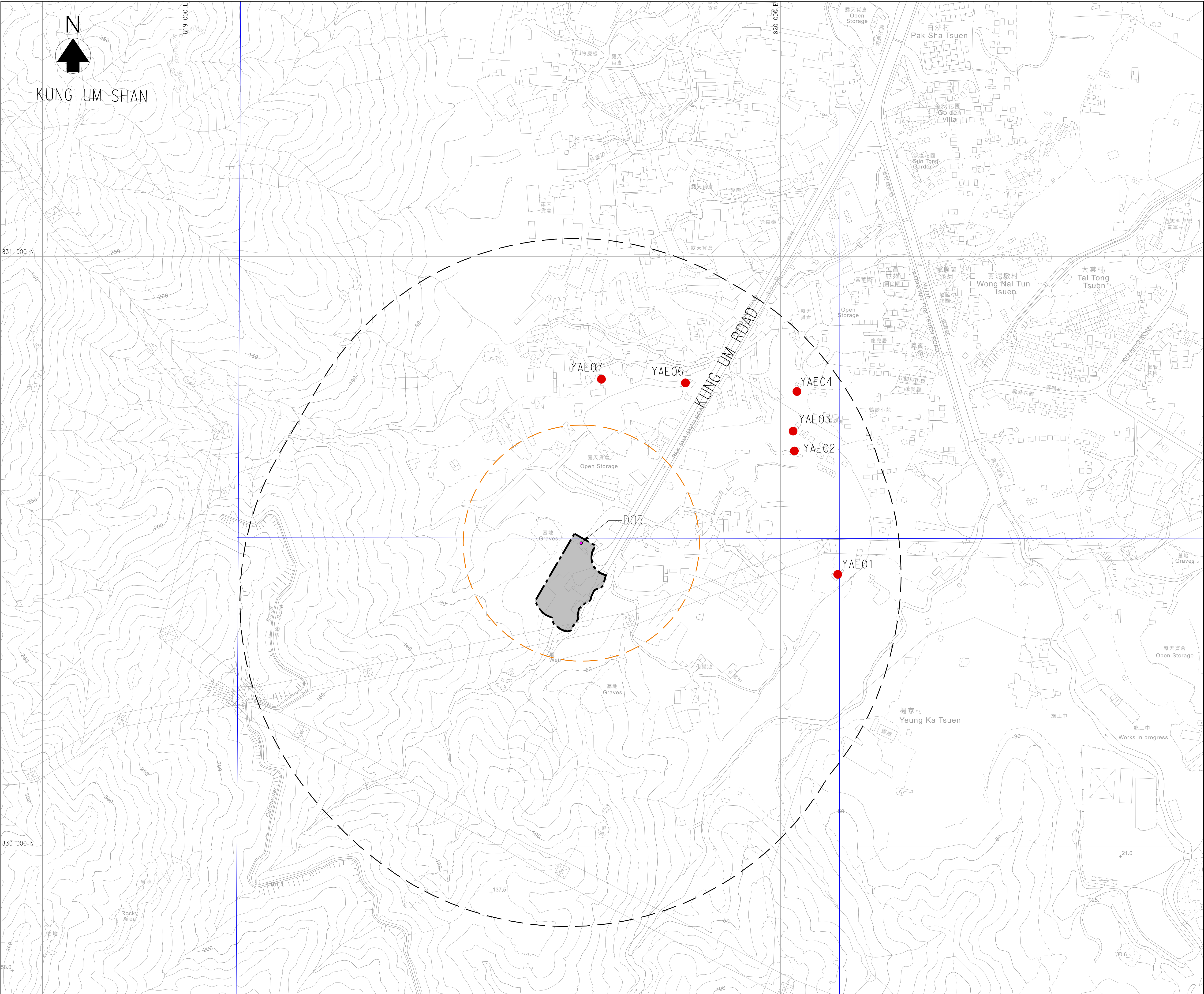
PATH GRID

Rev	Description	By	Date
Consultant			
ARUPbinnies Arup - Binnies Joint Venture			
Project Title			
Agreement No. CE 1/2023 (DS) Yuen Long South Effluent Polishing Plant – Design and Construction			
Drawing title			
LOCATION OF PATH GRIDS			
Drawing no.		Rev.	
FIGURE 4.1		–	
Drawn	Date	Checked	Approved
Scale		Status	
1:4000 @ A1			

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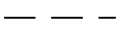
香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION



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LEGEND:

APPLICATION SITE

500m ASSESSMENT AREA

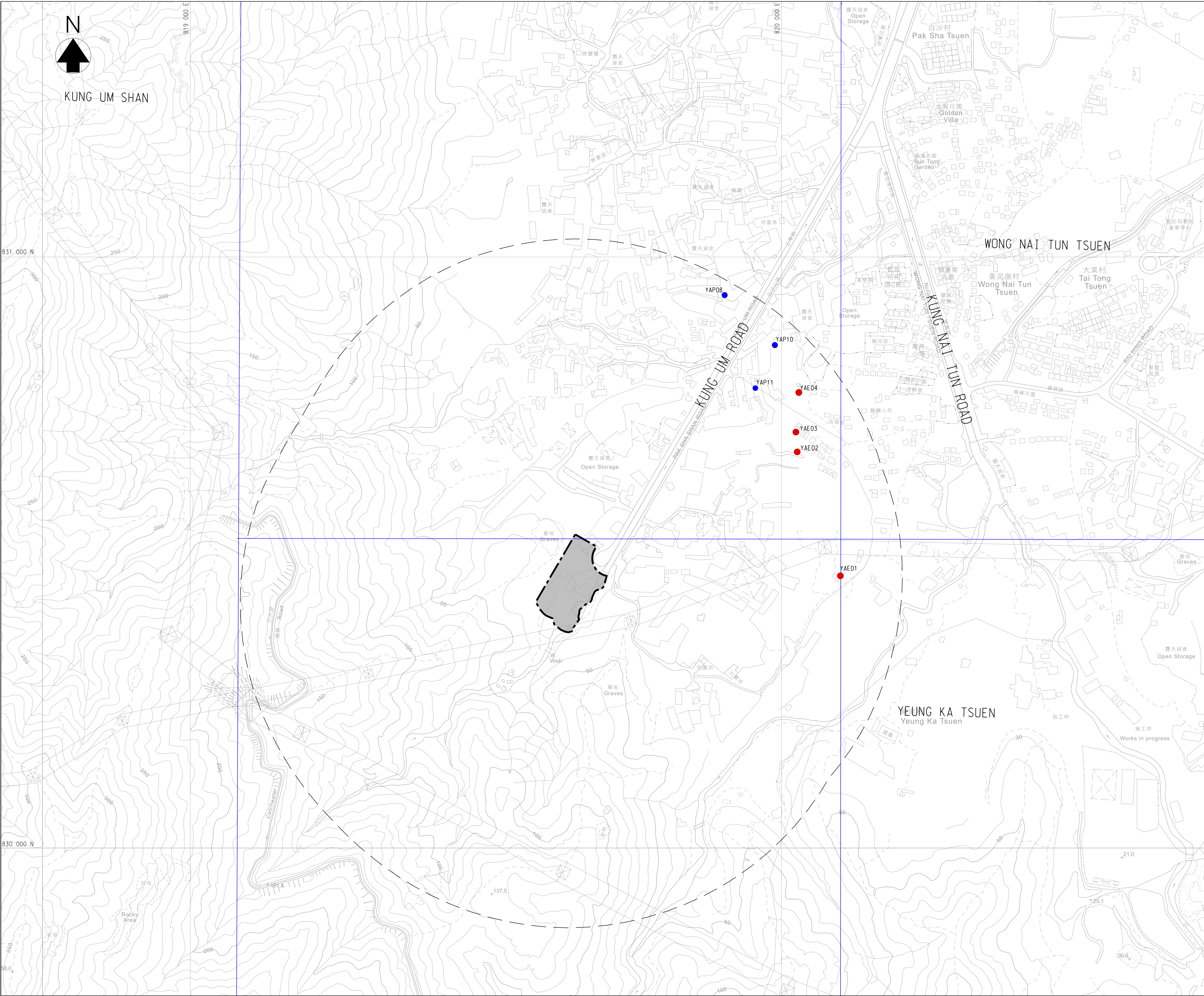
200m BUFFER DISTANCE OF D05

ODOUR EMISSION SOURCE

EXISTING AIR SENSITIVE RECEIVERS

PATH GRID

Rev	Description	By	Date
Consultant			
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Project Title			
Agreement No. CE 1/2023 (DS) Yuen Long South Effluent Polishing Plant – Design and Construction			
Drawing title			
LOCATIONS OF ODOUR EMISSION SOURCE AND AIR SENSITIVE RECEIVERS AND 200m BUFFER DISTANCE			
Drawing no.		Rev.	
FIGURE 4.2		—	
Drawn	Date	Checked	Approved
Scale		Status	
1:3000 @ A1			
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APPLICATION SITE

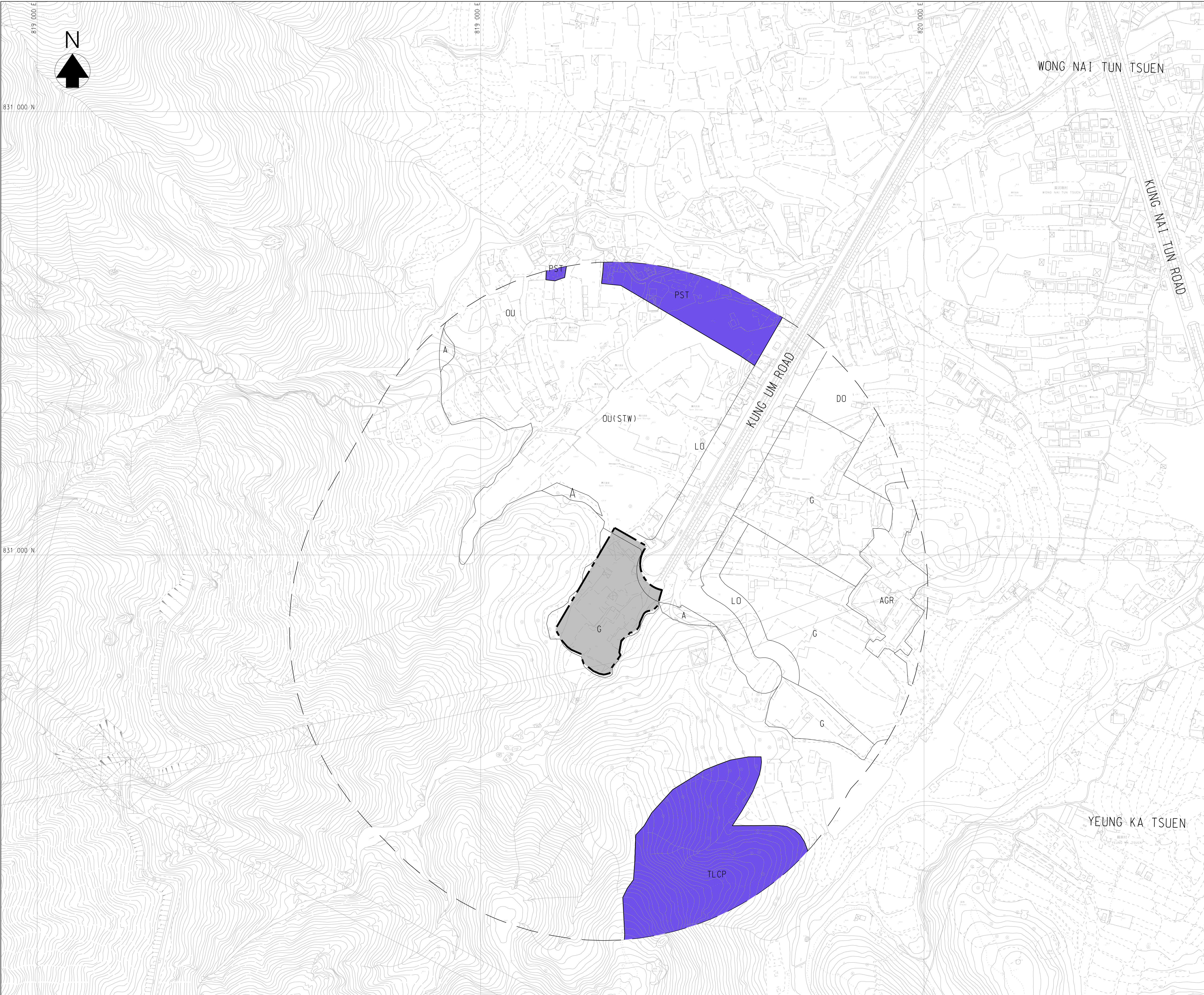
500m ASSESSMENT AREA

EXISTING AIR SENSITIVE RECEIVERS

PLANNED AIR SENSITIVE RECEIVERS

PATH GRID

Rev	Description	By	Date
Consultant			
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Project Title			
Agreement No. CE 1/2023 (DS) Yuen Long South Effluent Polishing Plant – Design and Construction			
Drawing title			
LOCATION OF REPRESENTATIVE AIR SENSITIVE RECEIVERS (OPERATION PHASE)			
Drawing no.		Rev.	
FIGURE 4.3		—	
Drawn	Date	Checked	Approved
Scale		Status	
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LEGEND:

APPLICATION SITE

300m ASSESSMENT AREA

NOISE SENSITIVE RECEIVER

RESIDENTIAL - ZONE 2 (R2)

RESIDENTIAL - ZONE 3 (R3)

RESIDENTIAL - ZONE 6 (R6)

OTHER SPECIFIED USES (SEWAGE TREATMENT WORKS)

OTHER SPECIFIED USES

GOVERNMENT (G)

EDUCATION (E)

DISTRICT OPEN SPACE (DO)

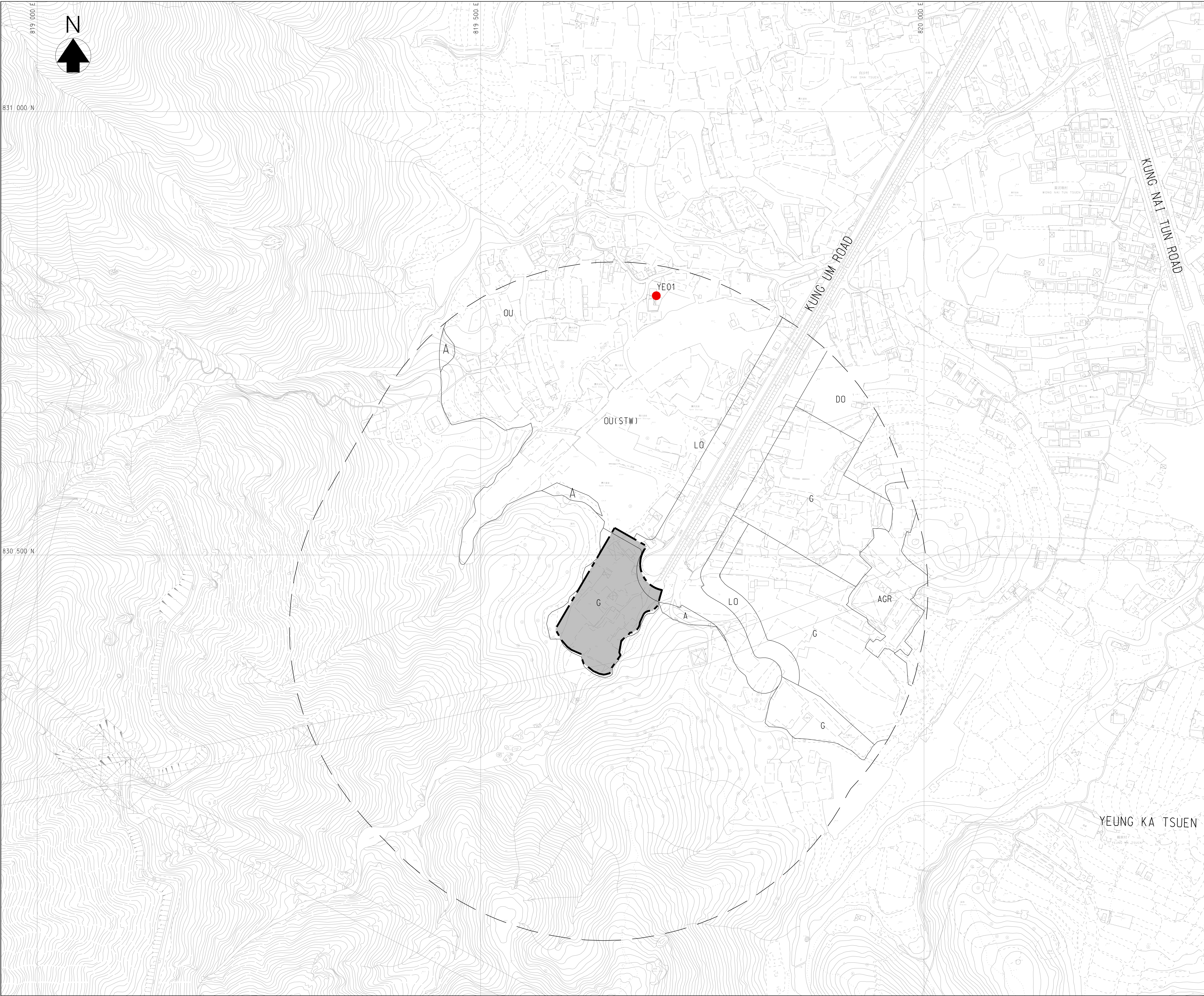
LOCAL OPEN SPACE (LO)

AMENITY (A)

AGRICULTURE (AGR)

GREEN BELT (1)(GB(1))

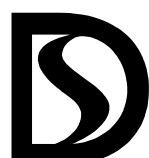
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Project Title			
Agreement No. CE 1/2023 (DS)			
Yuen Long South			
Effluent Polishing Plant			
– Design and Construction			
Drawing title			
LOCATION OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS			
Drawing no.		Rev.	
FIGURE 5.1		–	
Drawn	Date	Checked	Approved
Scale		Status	
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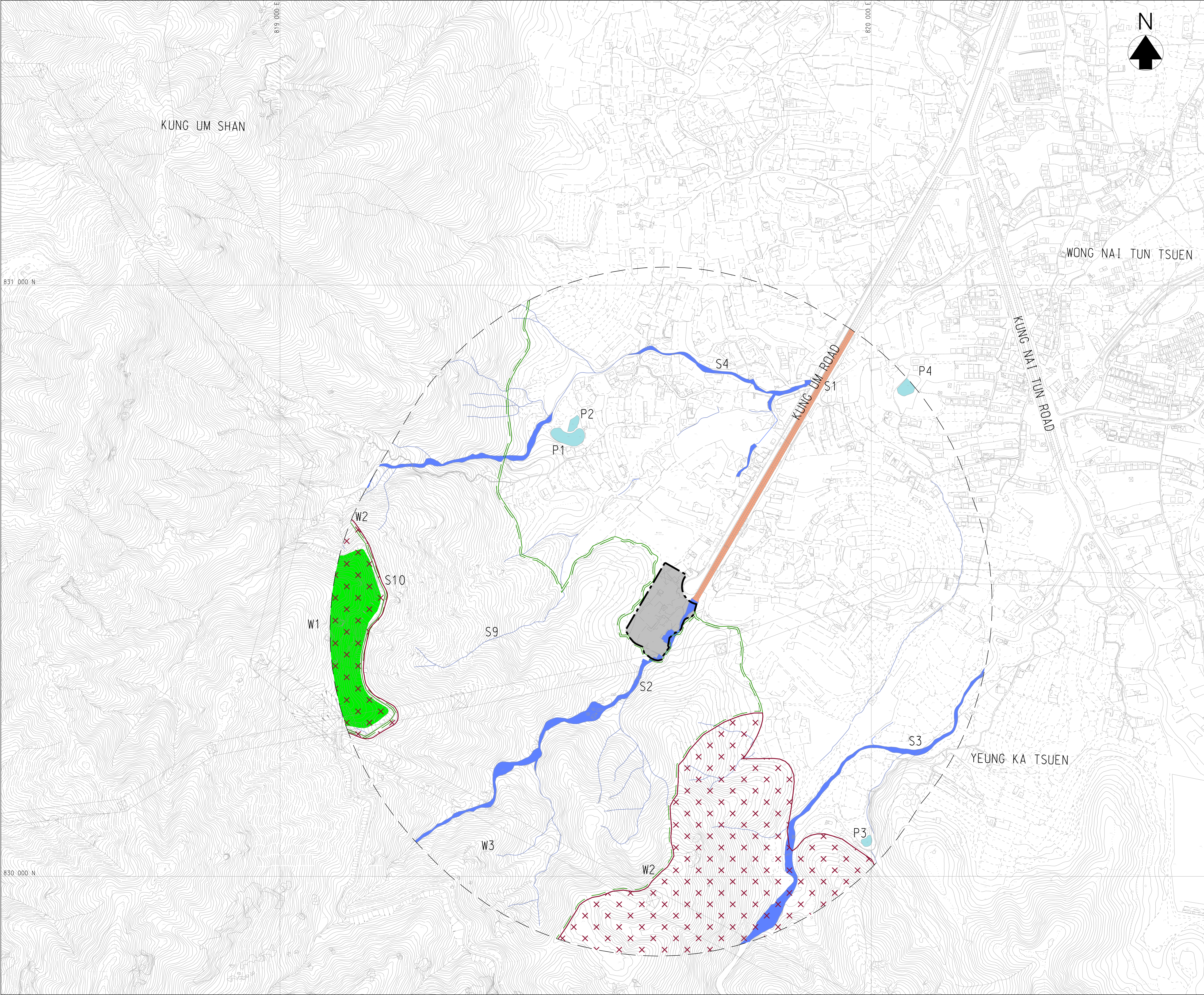


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LEGEND:

- APPLICATION SITE
- 500m ASSESSMENT AREA
- CONSTRUCTION PHASE NOISE ASSESSMENT POINT
- RESIDENTIAL - ZONE 2 (R2)
- RESIDENTIAL - ZONE 3 (R3)
- RESIDENTIAL - ZONE 6 (R6)
- OTHER SPECIFIED USES (SEWAGE TREATMENT WORKS)
- OTHER SPECIFIED USES
- GOVERNMENT (G)
- EDUCATION (E)
- DISTRICT OPEN SPACE (DO)
- LOCAL OPEN SPACE (LO)
- AMENITY (A)
- AGRICULTURE (AGR)
- GREEN BELT (1)(GB(1))

Rev	Description	By	Date
Consultant			
ARUP			
Arup - Binnies Joint Venture			
Project Title			
Agreement No. CE 1/2023 (DS) Yuen Long South Effluent Polishing Plant – Design and Construction			
Drawing title			
LOCATION OF REPRESENTATIVE ASSESSMENT POINTS AND FIXED NOISE SOURCE			
Drawing no.		Rev.	
FIGURE 5.2		—	
Drawn	Date	Checked	Approved
Scale	Status		
1:2000 @ A1			
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LEGEND:

APPLICATION SITE

500m ASSESSMENT AREA

COUNTRY PARK

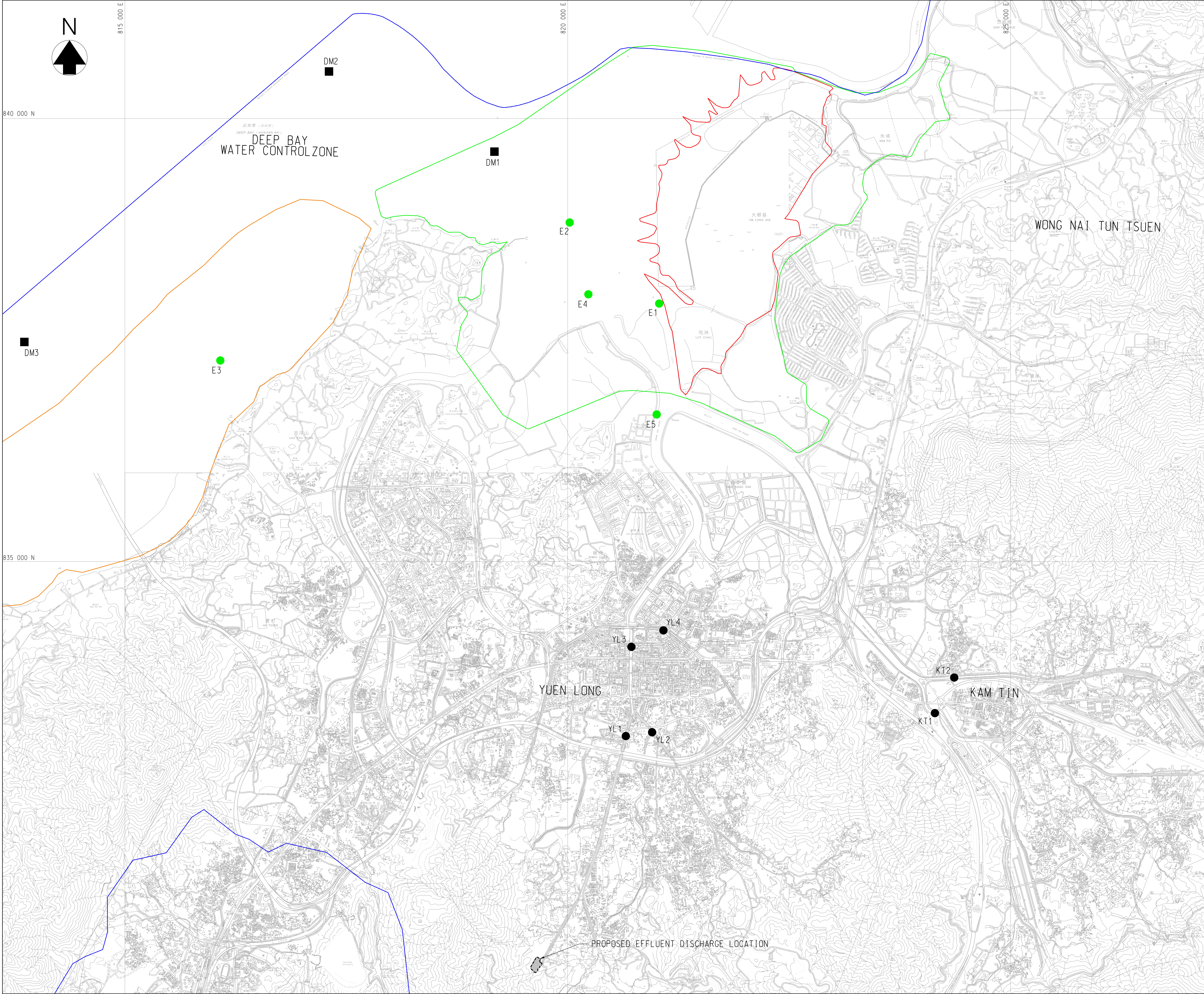
CONSERVATION AREA

WATERCOURSE

WATERCOURSE (CHANNELISED)

WATER GATHERING GROUND

ABANDONED FISH POND



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LEGEND:

- OYSTER CULTURE AREA
- MAI PO INNER DEEP BAY RAMSAR SITE
- MAI PO MARSHES SSSI
- BOUNDARY OF DEEP BAY WATER CONTROL ZONE
- EPD MARINE WATER QUALITY MONITORING STATIONS
INNER DEEP BAY
DM1
DM2
DM3
- EPD RIVER WATER QUALITY MONITORING STATIONS
YUEN LONG CREEK
YL1
YL2
YL3
YL4
KAM TIN RIVER
KT1
KT2
- ECOLOGICAL/FISHERIES RESOURCES SURVEY STATIONS
E1 - MAI PO MARSHES SSSI
E2 - MAI PO INNER DEEP BAY RAMSAR SITE / INNER DEEP BAY SSSI
E3 - OYSTER CULTURE AREA
E4 - MANGROVES
E5 - MANGROVES ALONG SHAN PUI RIVER

Rev	Description	By	Date
Consultant			
ARUP binnies Arup - Binnies Joint Venture			
Project Title			
Agreement No. CE 1/2023 (DS) Yuen Long South Effluent Polishing Plant – Design and Construction			
Drawing title			
LOCATION OF MAJOR MARINE WATER SENSITIVE RECEIVERS			
Drawing no.		Rev.	
FIGURE 6.2		-	
Drawn	Date	Checked	Approved
Scale		Status	
1:20000 @ A1			
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