Civil Engineering and Development Department

Agreement No. CE 59/2015 (EP)
Environmental Team for
Tseung Kwan O – Lam Tin Tunnel
Design and Construction

Monthly Environmental Monitoring and Audit Report for March 2025

(Version 1.1)

Approved By 

(Dr. HF Chan,
Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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ANEWR

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Your reference:

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Date: 8 April 2025

Attention: Mr Arnold Wong

BY FAX & POST
(Fax no.: 2739 0076)

Dear Sirs

Agreement No.: NTE 06/2016
Independent Environmental Checker for Tseung Kwan O – Lam Tin Tunnel
Monthly Environmental Monitoring and Audit Report for March 2025 (Version 1.1)

We refer to the email of 7 April 2025 from Cinotech Consultants Limited attaching the Monthly Environmental Monitoring and Audit Report for March 2025 (Version 1.1).

We have no comment and hereby verify the captioned report in accordance with Clause 4.4 of the Environmental Permit no. EP-458/2013/C.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Alex Chan on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/CYCA/thy

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EXECUTIVE SUMMARY

Introduction

1. This is the 101st Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the "Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction" (hereinafter called "the Project"). This report documents the findings of EM&A Works conducted in March 2025.

2. During the reporting month, the following works contracts were undertaken:
   - Contract No. NE/2015/01 – Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works;
   - Contract No. NE/2015/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works;
   - Contract No. NE/2017/01 – Tseung Kwan O – Lam Tin Tunnel –Tseung Kwan O Interchange and Associated Works
   - Contract No. NE/2017/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works.
   - Contract No. NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System (TCSS) and Associated Works
   - Contract No. NE/2017/07 – Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked. The implementation of mitigation measures in operation phase is presented in **Appendix X**.

4. Operation phase traffic noise monitoring for four representative NSRs (OM1, OM2, OM3 & OM4) at YauTong side and 4 representative NSRs (OM5, OM7, OM8 & OM9) at TKO side was carried out on 29 May 2023, 21 September 2023, 28 September 2023, 3 November 2023, 10 November 2023 and 20 November 2023 respectively.

5. Summary of the non-compliance (exceedance) in the reporting month for the Project is tabulated in **Table I**.

6. As all the works contracts under the Project have been substantially completed in 2024 according to the completion certificates supplied by CEDD and the Engineer, termination of the EM&A programme including environmental monitoring, site inspection and reporting was proposed accordingly. The termination proposal was submitted to EPD on 12 July 2024 to seek approval of the termination of EM&A programme.

Table I Non-compliance (exceedance) Record for the Project in the Reporting Month

Environmental Monitoring	No. of Non-compliance (Exceedance)		No. of Non-compliance (Exceedance) due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
Air Quality	0	0	0	0	N/A
Noise	0	0	0	0	N/A
Impact Marine Water Quality *	N/A	N/A	N/A	N/A	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	0	N/A[1]	0	N/A[1]	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	0	0	0	0	N/A
Landfill Gas	0	0	0	0	N/A

Note:(1) No Limit Level for Groundwater Level Monitoring (Piezometer Monitoring).
*No impact marine water quality monitoring was conducted as all marine works completed on 17 May 2023.

Air Quality Monitoring

7. No Action/Limit Level exceedance for 1-hour TSP monitoring was recorded.

8. No Action Level exceedance for 24-hour TSP monitoring was recorded.

9. No Limit Level exceedances for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

10. No Action Level exceedance was recorded due to documented complaints in the reporting month. The Summary of Documented Complaints in Reporting Month is tabulated in **Table III.**

11. No project-related Limit Level exceedance was recorded due to monitoring results in this reporting month.

Water Quality Monitoring

12. Groundwater quality monitoring had been suspended since October 2019 upon the agreement by EPD. Further details should be founded at **Section 5.1**.

13. No marine water quality monitoring was conducted in the reporting month as all the marine woks under the Environmental Permit No. EP-458/2013/C have been completed on 17 May 2023 and the 4 weeks post-marine water quality monitoring was initiated afterwards. The post-marine water quality monitoring was commenced on 18 May 2023 and completed on 14 June 2023 (both days inclusive). The monitoring location is presented in **Figure 5,** no further monitoring is required in the reporting month. Details of this investigation are presented in **Section 5**.

14. Since all reclamation works for Road P2 are completed in November 2021, the post-reclamation marine water quality monitoring was initiated in December 2021. In accordance to EP condition No. 3.4, upon the completion of the year-round monitoring, the marine water quality in the embayment area shall be summarised and reported with suggestions for improvements, if applicable. The monitoring location is presented in **Figure 9** and the last monitoring was carried out in November 2022, no further monitoring is required.

15. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis on 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

Ecological Monitoring

16. Post-translation coral monitoring survey shall be conducted once every 3 months for a period of 12 months after completion of coral translocation. The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

17. Monitoring of impacts on Cultural Heritage at Cha Kwo Ling Tin Hau Temple commenced in May 2017. No Alert, Alarm, and Action (AAA) Level exceedance was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

18. The implementation of landscape and visual mitigation measures was checked during the environmental site inspections. Recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in **Section 10**.

Landfill Gas Monitoring

19. Monitoring of landfill gases commenced in December 2016 and was carried out by the Contractor at excavation location, Portion III. Upon the completion of construction within the concerned area, landfill gas monitoring for operation phase was commenced from the end of December 2022 and the monitoring was completed in November 2024.

Environmental Site Inspection

20. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer, and Environmental Team. The representative of the IEC joined the site inspection for NE2015/01, NE/2017/07, NE/2015/02, NE/2017/01, NE/2017/02, and NE/2017/06 on 19 March 2025 respectively. Details of the audit findings and implementation status are presented in **Section 10**.

Waste Management

21. Wastes generated from this Project include inert construction and demolition (C&D) materials, non-inert C&D materials, and marine sediment. Details of waste management data are presented in **Section 11** and **Appendix P**.

Key Information in the Reporting Month

22. Summary of key information in the reporting month is tabulated in **Table II**

Table II Key Information in the Reporting Month

Monthly Complaints	Event Details		Action Taken	Status
	Number	Nature		
March 2025	0	---	N/A	N/A
February 2025	0	---	N/A	N/A
January 2025	0	---	N/A	N/A
December 2024	0	---	N/A	N/A
November 2024	0	---	N/A	N/A
October 2024	0	---	N/A	N/A
September 2024	0	---	N/A	N/A
August 2024	0	---	N/A	N/A
July 2024	0	---	N/A	N/A
June 2024	0	---	N/A	N/A
May 2024	0	---	N/A	N/A
April 2024	1	Water	Details refer to App O	Closed
March 2024	0	---	N/A	N/A
February 2024	0	---	N/A	N/A
January 2024	0	---	N/A	N/A
Notifications of any summons & prosecutions received	0	---	N/A	N/A

23. Summary of complaints received in the reporting month is tabulated in **Table III.**

Table III Summary of Complaints Details in Reporting Month

Complaint No.	Complaint	Investigation Findings	Follow-up Action / Mitigation Measure
Lam Tin Side			
---	---	---	---
Tseung Kwan O Side			
---	---	---	---

Key Construction Work in the reporting month & the next reporting month

24. Summary of key construction work in the reporting month is tabulated in **Table IV**.

Table IV Summary Table for Key Construction Work in the Reporting Month

Contract No.	Project Title	Site Activities (March 2025)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) Slope Stabilization at Area 1G1, 1G2, 2 & 5 2) Soft Landscape 3) SES Miscellaneous / E&M Works 4) Road S02 Miscellaneous / E&M Works 5) LTI Drainage, Road Pavement 6) Stage 1 Commissioning Outstanding Works
		Main Tunnel	7) N/A
		TKO Interchange	8) N/A
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) N/A	
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. The EM&A works were terminated in late April 2020.	
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	The construction works under the contract had been completed in January 2022. The EM&A works will be terminated after the approval by EPD.	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System (TCSS) and Associated Works	The construction works under the contract had been completed in August 2023. The EM&A works will be terminated after the approval by EPD.	
NE/2017/07	Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.	

Future Key Issues

25. The future key environmental issues in the coming month include:

Table V Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (April 2025)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) Slope Stabilization at Area 1G1, 1G2, 2 & 5 2) Soft Landscape 3) LTI Drainage 4) Stage 1 Commissioning Outstanding Works	(A) / (C) / (D) / (E) / (G) / (H)
	Main Tunnel	5) N/A	N/A
	TKO Interchange	6) N/A	N/A
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) N/A		N/A
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. Materials are being removed from works area.		N/A
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	The construction works under the contract had been completed in January 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/02 –Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System (TCSS) and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/07 - Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A

Note:
(A) Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
(B) Noisy construction activity such as rock-breaking activities and piling works;
(C) Runoff from exposed slope or site area;
(D) Wastewater and runoff discharge from site;
(E) Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
(F) Set up and implementation of temporary drainage system for the surface runoff;
(G) Storage of chemicals/fuel and chemical waste/waste oil on site;
(H) Accumulation and storage of general and construction waste on site; and
(I) Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation

1. INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) as the Environmental Team (ET) to undertake environmental monitoring and auditing services for the Works Contracts involved in the implementation of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) project to ensure that the environmental performance of the Works Contracts comply with the requirements specified in the Environmental Permit (EP), Environmental Monitoring & Audit (EM&A) Manual, Environmental Impact Assessment (EIA) Report of the TKO-LTT project and other relevant statutory requirements. This is the 101st Monthly EM&A report summarizing the EM&A works for the Project in March 2025.

Purpose of the Report

1.2 This is the 101st Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in March 2025.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction** – purpose and structure of the report.

Section 2: **Contract Information** – summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

Section 3: **Air Quality Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Ecological Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and Action and Limit Levels, monitoring results and Event / Action Plans.

Section 7: **Cultural Heritage** –summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and monitoring results.

Section 8: **Landscape and Visual Monitoring Requirements** – summarises the requirements of landscape and visual monitoring

Section 9: **Landfill Gas Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, monitoring results and Limit Levels and Action Plan

Section 10: **Environmental Site Inspection** – summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 11: **Waste Management** – summarises the waste management data in the reporting month.

Section 12: **Environmental Non-conformance** – summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 13: **Future Key Issues** – summarises the impact forecast and monitoring schedule for the next three months.

Section 14: **Conclusions and Recommendation**

2. PROJECT INFORMATION

Background

2.1 In 2002, Civil Engineering and Development Department (CEDD) commissioned an integrated planning and engineering study under Agreement No. CE 87/2001 (CE) "Further Development of Tseung Kwan O – Feasibility Study" (the "TKO Study") to formulate a comprehensive plan for further development of TKO New Town. It recommended to further develop TKO to house a total population of 450,000 besides the district's continuous commercial and industrial developments.

2.2 At present, the Tseung Kwan O Tunnel is the main connection between Tseung Kwan O (TKO) and other areas in the territory. To cope with the anticipated transport need, the TKO Study recommended the provision of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) (hereinafter referred to as "the Project") and Cross Bay Link (CBL) to meet the long-term traffic demand between TKO and the external areas. The site layout plan for the Project is shown in **Figure 1**. CBL was also entrusted with part of the marine viaducts near Tseung Kwan O Interchange since the commencement of the CBL project the December 2018.

2.3 The Environmental Impact Assessment (EIA) Report for the TKO-LTT project was approved under the Environmental Impact Assessment Ordinance (EIAO) in July 2013. The corresponding Environmental Permit (EP) was issued in August 2013 (EP no.: EP-458/2013). Variations to the EP was applied and the latest EP (EP no.: EP-458/2013/C) was issued by the Director of Environmental Protection (DEP) in January 2017.

2.4 The commencement dates of construction of this Project are:

- Contract No. NE/2015/01 and Contract No. NE/2015/02: 7 November 2016.
- Contract No. NE/2015/03: 29 May 2017.
- Contract No. NE/2017/02: 15 March 2018.
- Contract No. NE/2017/01: 23 May 2018.
- Contract No. NE/2017/06: 09 November 2018.
- Contract No. NE/2017/07: 22 February 2021

2.5 The implementation of mitigation measures in operation phase of NE/2015/02 and NE/2017/02 is presented in **Appendix X**.

Project Organizations

2.6 Different parties with different levels of involvement in the project organization include:

- Project Proponent – Civil Engineering and Development Department (CEDD)
- The Engineer and the Engineer's Representative (ER) – AECOM
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
- Independent Environmental Checker (IEC) – AnewR Consulting Limited (AnewR)

2.7 The key contacts of the Project are shown in **Table 2.1**.

Table 2.1 Key Project Contacts

Party	Role	Contact Person	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Ng Chou Keen, Horace	3842 7091	2739 0076
AECOM	Engineer's Representative	Mr. Jackie CW, Ng	3910 1601	3910 1600
Cinotech	Environmental Team	Dr. HF Chan	2151 2088	3107 1388
		Mr. KS Lee	2151 2091	
AnewR	Independent Environmental Checker	Mr. James Choi	2618 2836	3007 8648

Construction Activities undertaken during the Reporting Month

2.8 The major site activities undertaken in the reporting month included:

Table 2.2 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Project Title	Site Activities (March 2025)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) Slope Stabilization at Area 1G1, 1G2, 2 & 5 2) Soft Landscape 3) SES Miscellaneous / E&M Works 4) Road S02 Miscellaneous / E&M Works 5) LTI Drainage , Road Pavement 6) Stage 1 Commissioning Outstanding Works
		Main Tunnel	7) N/A
		TKO Interchange	8) N/A
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) N/A	
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. The EM&A works were terminated in late April 2020.	
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	The construction works under the contract had been completed in January 2022. The EM&A works will be terminated after the approval by EPD.	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System (TCSS) and Associated Works	The construction works under the contract had been completed in August 2023. The EM&A works will be terminated after the approval by EPD.	
NE/2017/07	Cross Bay Link, Tseung Kwan O –	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.	

Contract No.	Project Title	Site Activities (March 2025)
	Main Bridge and Associated Works	

2.9 The construction programme showing the inter-relationship with environmental protection/mitigation measures are presented in **Table 2.3**.

Table 2.3 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
As mentioned in **Table 2.2**	Dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities • Properly cover the stockpiles • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge

Status of Environmental Licences, Notification and Permits

2.10 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.4**.

Table 2.4 Summary of the Status of Environmental Licences, Notification and Permits

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
N/A	EP-458/2013/C	20/1/2017	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
NE/2015/01	EPD Ref no.: 405305	21/07/2016	N/A	Valid
	EPD Ref no.: 405582	28/07/2016	N/A	Valid
NE/2015/02	EPD Ref no.: 406100	12/08/2016	N/A	Valid
NE/2015/03	EPD Ref no.: 416072	26/04/2017	N/A	Valid
NE/2017/02	EPD Ref no.: 429867	19/01/2018	N/A	Valid
NE/2017/01	EPD Ref no.: 430070	25/01/2018	N/A	Valid
NE/2017/06	EPD Ref no.: 461507	03/11/2020	N/A	Valid
Billing Account for Construction Waste Disposal				
NE/2015/01	Account No. 7025431	11/07/2016	N/A	Valid
NE/2015/02	Account No. 7025654	16/08/2016	N/A	Valid
NE/2015/03	Account No. 7026805	30/12/2016	N/A	Valid
NE/2017/02	Account No. 7029651	22/12/2017	N/A	Valid
NE/2017/01	Account No. 7029994	01/02/2018	N/A	Valid
NE/2017/06	Account No. 7032520	22/11/2018	N/A	Valid
NE/2017/07	Account No. 7031412	24/07/2018	N/A	Valid
Billing Account for Vessel Disposal				
N/A	N/A	N/A	N/A	N/A
Registration of Chemical Waste Producer				
NE/2015/01	Waste Producer No. 5218-290-L2881-02	22/08/2016	N/A	Valid
	Waste Producer No. 5213-833-L2532-03	22/08/2016	N/A	Valid
NE/2015/02	Waste Producer No. 5213-838-C4094-01	23/08/2016	N/A	Valid
NE/2015/03	Waste Producer No. 5213-265-W3435-04	19/07/2017	N/A	Valid
NE/2017/02	Waste Producer No. 5213-833-Z4004-04	01/02/2018	N/A	Valid
NE/2017/01	Waste Producer No. 5213-833-C4262-01	12/02/2018	N/A	Valid
NE/2017/07	Waste Producer No. 5213-839-C1232-19	28/08/2018	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
NE/2015/01	WT00039948-2021	28/02/2022	30/11/2026	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
	WT00040291-2022	13/01/2022	30/11/2026	Valid
	WT00041172-2022	09/06/2022	31/03/2027	Valid
	WT00041237-2022	09/06/2022	31/03/2027	Valid
	WT00041840-2022	17/08/2022	31/08/2027	Valid
Construction Noise Permit (CNP)				
NE/2015/01	GW-RE0127-25	01/03/2025	30/06/2025	Valid
Marine Dumping Permit				
NE/2017/01	EP/MD/21-011	N/A	N/A	N/A

Summary of EM&A Requirements

2.11 The EM&A programme requires construction noise monitoring, air quality monitoring, water quality monitoring, environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA Report.

2.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 10** of this report.

2.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in the reporting month.

3. AIR QUALITY

Monitoring Requirements

3.1 According to EM&A Manual of the Project, 1-hour and 24-hour TSP monitoring are required to monitor the air quality. For regular impact monitoring, a sampling frequency of at least once in every six days shall be undertaken at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Six designated monitoring stations were selected for air quality monitoring programme. **Table 3.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 3.1 Locations for Air Quality Monitoring

Monitoring Stations	Location	Location of Measurement
AM1	Tin Hau Temple	Ground Level
AM2	Sai Tso Wan Recreation Ground	Ground Level
AM3	Yau Lai Estate Bik Lai House	Rooftop (41/F)
AM4(1)	Sitting-out Area at Cha Kwo Ling Village	Ground Level
AM4(B)(2) (*)(^)	Flat 103 Cha Kwo Ling Village	Ground Level
AM5(A)(*)	Tseung Kwan O DSD Desilting Compound	Ground Level
AM6(A) (*)	Park Central, L1/F Open Space Area	1/F

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

(*) Air quality monitoring at designated station AM4(24hr TSP), AM5 and AM6 was rejected by the premise owners. Therefore, baseline and impact air quality monitoring works were carried out at alternative air quality monitoring stations AM4(A) (24hr TSP only), AM5(A) and AM6(A) respectively.

(^) In June 2022, the 24 TSP Monitoring at AM4(A) is suspended and under application for relocation, as the office had to be demolished. Once the proposal for relocation is approved, the monitoring at AM4(A) will be conducted at AM4(B). For the time being, as the station CKL2 for the 24 hr TSP monitoring, carried out under EM&A works for Trunk Road T2 Project (EP-451/2013), is located in close proximity to AM4(A); the results from CKL2 are adopted as reference for the 24 TSP monitoring at AM4(A), which has similar environment when compared with that for CKL2.

Monitoring Equipment

3.3 High Volume Samplers (HVS) were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined periodically by HVS to check the validity and accuracy of the results measured by direct reading method.

3.4 Wind data monitoring equipment was set at rooftop (about 41/F) of Yau Lai Estate Bik Lai House for logging wind speed and wind direction such that the wind sensors are clear of obstructions or turbulence caused by building. The wind data monitoring equipment is re-calibrated at least once every six months and the wind directions are divided into 16 sectors of 22.5 degrees each. The location is shown in **Figure 2**.

3.5 **Table 3.2** summarizes the equipment to be used in the air quality monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 3.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH Model: TE-5025A	1
1-hour TSP Dust Meter	Sibata Model No.: LD-3B / LD-5R	7
	Met One Instruments Model No.: AEROCET-831	0
	Handheld Particle Counter Hal-HPC300 / Hal-HPC301	0
HVS Sampler	TISCH Model: TE-5170	1
	GMW Model: GS2310	5
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1
	Davis Weather Stations, Vantage Pro 2, Model No. 6152CUK	0

Monitoring Parameters and Frequency

3.6 **Table 3.3** summarizes the monitoring parameters, monitoring period and frequencies of air quality monitoring.

Table 3.3 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Frequency
AM1, AM2, AM3, AM4, AM5(A) and AM6(A)	1-hour TSP	3 times per 6 days
AM1, AM2, AM3, AM4(B), AM5(A) and AM6(A)	24-hour TSP	Once per 6 days

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

3.7 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Model LD3 / LD3B / LD5R)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

(AEROCET-531)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Remove the red rubber cap from the AEROCET-531 inlet nozzle.
- Turn on the power switch that is located on the right side of the AEROCET-531.
- On power up the product intro screen is displayed for 3 seconds. The intro screen displays the product name and firmware version.
- Then the main counter screen will be displayed.
- Press the START button. Internal vacuum pump start running. After 1 minute the pump will stop and the 0.5μm and 5μm channels will show the cumulative counts of particles larger than 0.5μm and 5μm per cubic foot.
- The AEROCET-531 is now checked out and ready for use.
- To switch off the AEROCET-531 power to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, and display value and site condition were recorded during the monitoring period.
-
- (Equipment: Hal Technology; Model no. Hal-HPC300 / Hal-HPC301)
- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

3.8 The following maintenance/calibration is required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

3.9 High volume samplers (HVS) (TISCH Model: TE-5170 and GMW Model: GS2310) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

3.10 The positioning of the HVS samplers are as follows:

- a horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
- no two samplers shall be placed less than 2 meters apart

- the distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
- a minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
- no furnace or incinerator flue is nearby;
- airflow around the sampler is unrestricted;
- the sampler is more than 20 metres from the dripline;
- any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
- permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- a secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

3.11 Prior to the commencement of the dust sampling, the flow rate of the high-volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

3.12 For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3μm diameter were used.

3.13 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

3.14 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centred with the stamped number upwards, on a supporting screen.

3.15 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

3.16 The shelter lid was closed and secured with the aluminium strip.

3.17 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

3.18 After sampling, the filter was removed and sent to the HOKLAS laboratory (ALS Hong Kong) for weighing. The elapsed time will be also recorded.

3.19 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

3.20 The following maintenance/calibration is required for the HVS:

- The high-volume motors and their accessories will be properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking will be made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers will be calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

3.21 No Action/Limit Level exceedance was recorded for 1-hour TSP monitoring.

3.22 No Action Level and No Limit Level exceedance was recorded for 24-hour TSP monitoring.

3.23 The air temperature, precipitation and the relative humidity data was obtained from Hong Kong Observatory where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop of Yau Lai Estate Bik Lai House (41/F). The location is shown in **Figure 2**. This weather information for the reporting month is summarized in **Appendix C**.

3.24 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.

3.25 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 3.4 Major Dust Source during Air Quality Monitoring

Station	Major Dust Source
AM1 – Tin Hau Temple	Road Traffic at Cha Kwo Ling Road
AM2 – Sai Tso Wan Recreation Ground	N/A
AM3 – Yau Lai Estate Bik Lai House	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
AM4 - Sitting-out Area at Cha Kwo Ling Village	Road Traffic at Cha Kwo Ling Road
AM4(B) – Flat 103 Cha Kwo Ling Village*	Road Traffic at Cha Kwo Ling Road
AM5(A) - Tseung Kwan O DSD Desilting Compound	Vehicle Movement within the Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

* In June 2022, the 24 TSP Monitoring at AM4(A) is suspended and under application for relocation, as the office had to be demolished. Once the proposal for relocation is approved, the monitoring at AM4(A) will be conducted at AM4(B). For the time being, as the station CKL2 for the 24hr TSP monitoring, carried out under EM&A works for Trunk Road T2 Project (EP-451/2013), is located in close proximity to AM4(A); the results from CKL2 are adopted as reference for the 24 TSP monitoring at AM4(A), which has similar environment when compared with that for CKL2.

4. NOISE

Monitoring Requirements

4.1 According to EM&A Manual of the Project, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

4.2 Noise monitoring was conducted at 8 designated monitoring stations (CM1, CM2, CM3, CM4, CM5, CM6 (A), CM7 (A), and CM8 (A) in the reporting period. **Table 4.1** and **Figure 3** show the locations of these stations.

Table 4.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Rooftop (40/F)
CM4	Tin Hau Temple, Cha Kwo Ling	Ground Level
CM5	CCC Kei Faat Primary School, Yau Tong	Rooftop (6/F)
CM6(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Ground Level
CM7(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Ground Level
CM8(A)*	Park Central, L1/F Open Space Area	1/F

Remarks:
* Noise monitoring at designated station CM6, CM7 & CM8 was rejected by the premise owners. Therefore, baseline and impact noise monitoring works were carried out at alternative noise monitoring stations CM6(A), CM7(A) and CM8(A) respectively.

Monitoring Equipment

4.3 Integrating Sound Level Meter was used for impact noise monitoring. The meters are Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 4.2** summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix B**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 957/ 959 / 979	0
	BSWA308 SLM	4
Calibrator	SV30A	0
	AWA6021A	1
	ST-120	1

4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**. Additional weekly impact monitoring are carried out for evening time (1900 – 2300 hours) for monitoring stations CM1, CM2, CM3 & CM6(A) and night-time (2300 – 0700 hours) for monitoring stations CM1, CM2 & CM3.

Table 4.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
CM1	L_{10}(30 min) dB(A) L_{90}(30 min) dB(A) L_{eq}(30 min) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
CM2				Façade
CM3				Façade
CM4				Façade
CM5				Façade
CM6(A)				Free Field
CM7(A)				Free Field
CM8(A)				Façade
CM1	L_{10}(5 min) dB(A) L_{90}(5 min) dB(A) L_{eq}(5 min) dB(A)	1900 – 0700 hrs on normal weekdays^		Façade
CM2				Façade
CM3				Façade
CM6(A)		1900 – 2300 hrs on normal weekdays^		Free Field
^As the construction activities in restricted hours have been completed, no noise monitoring for evening-time and nighttime at CM1, CM2, CM3 & CM6(A) is needed in the reporting month.				

Monitoring Methodology and QA/QC Procedure

4.5 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time was set as follows:
  - frequency weighting: A
  - time weighting : Fast
  - measurement time : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement will be more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} was recorded. In addition, noise sources were recorded on a standard record sheet.
- Noise monitoring will be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. Supplementary monitoring was provided to ensure sufficient data would be obtained.

Maintenance and Calibration

4.6 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.

4.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.

4.8 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

4.9 No Action Level exceedance was recorded due to documented complaints in the reporting month. No project-related Limit Level exceedance during daytime was recorded due to monitoring results in this reporting month. No project-related Limit level exceedances for evening/night-time construction noise monitoring was recorded.

4.10 Noise monitoring results and graphical presentations are shown in **Appendix G**.

4.11 The major noise source identified at the noise monitoring stations are shown in **Table 4.4**.

Table 4.4 Major Noise Source during Noise Monitoring

Monitoring Stations	Locations	Major Noise Source
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM4	Tin Hau Temple, Cha Kwo Ling	Road Traffic at Cha Kwo Ling Road
CM5	CCC Kei Faat Primary School, Yau Tong	Road Traffic at Yau Tong Road
CM6(A)	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Road Traffic at O King Road near Ocean Shores
CM7(A)	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Road Traffic at Tong Yin Street
CM8(A)	Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

4.12 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 4.5, 4.6 and 4.7**.

Table 4.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
CM1	65.5	75
CM2	63.6	
CM3	65.6	
CM4	62.0	
CM5	68.2	70*
CM6(A)	61.9	75
CM7(A)	58.3	
CM8(A)	69.1	
(*) Noise Limit Level is 65 dB(A) during school examination periods.		

Table 4.6 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Evening-time & Daytime (Holiday))

Station	Baseline Noise Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))	Noise Limit Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))
CM1	64.4	70
CM2	62.2	
CM3	64.7	
CM6(A)	60.2	65[1]
1. ASR B was adopted according to the EIA as traffic in the surrounding area has not been changed.		

Table 4.7 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Night-time)

Station	Baseline Noise Level, dB (A) (Night-time (2300 – 0700 hrs)	Noise Limit Level, dB (A) (Night-time (2300 – 0700 hrs)
CM1	14-day baseline monitoring results for the time period of impact measurement at each station would be adopted	55
CM2		
CM3		

5. WATER QUALITY

Monitoring Requirements

Groundwater Quality

5.1 The existing groundwater quality monitoring programme has been suspended as the monitoring results had been deemed non-representative of the impact from the project justified by two major factors: (1) influence on the monitoring results from non-project related factors, such as anthropogenic activities and natural phenomenon; and (2) large separation between the monitoring stations and works area. In addition, as no alternative locations for the groundwater quality monitoring were available, the groundwater quality monitoring has been suspended since October 2019 upon the agreement by EPD.

Marine Water Quality

5.2 Marine water quality monitoring was conducted three times per week at the designated monitoring stations. Monitoring took place two times per monitoring day during mid ebb and mid flood tides at three depths (1 meter from surface, mid depth and 1 meter from the bottom). For Tseung Kwan O Salt Water Intake (i.e. Station M6), water sampling and in-situ measurements was taken at the vertical level where the water abstraction point of the intake is located (i.e. approximately mid-depth level). If the water depth is less than 6m, the mid-depth measurement may be omitted. If the depth is less than 3m, only the mid-depth measurements need to be taken.

5.3 Duplicate in-situ measurements (Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity) and water samples (suspended solids (SS)) at each depth were monitored in accordance with the requirements in the EM&A Manual. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides were not less than 0.5m.

5.4 According to the Environmental Review Report (ERR) for Variations of Environmental Permit (Ref: C45-03), water quality monitoring and audit programme was implemented for monitoring of oxygen depletion (e.g. Dissolved Oxygen (DO) level) in these embayed waters during the period when the fully enclosed barrier is installed. A "Proposal for Water Quality Monitoring in Temporary Marine Embayment" has been submitted to EPD in July 2017 to propose the monitoring frequency, parameter, location, etc. EPD has no further comment on the Proposal. Since January 2020, the cofferdam has been partially removed and the seawater is no longer enclosed. Therefore, no embayment water quality monitoring is required.

5.5 In accordance to EM&A Manual Section 4.4.9, upon completion of all marine works, a post-project monitoring should be carried out for 4 weeks in the same manner as the impact monitoring. As all the marine works have been completed on 17 May 2023, the 4 weeks post project monitoring was commenced from 18 May 2023 and completed on 14 June 2023 (both days inclusive).

Groundwater Level Monitoring (Piezometer Monitoring)

5.6 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. The monitoring commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

5.7 Referring to EM&A Manual Section 4.2.5, after completion of the tunnel construction, a 1- year post-monitoring on the groundwater levels (piezometer monitoring) above the tunnel is needed to be carried out by contractor responsible for tunnel construction. The frequency of groundwater level monitoring is recommended to conduct on a monthly basis by the Engineer.

5.8 Alternative groundwater level monitoring locations, namely TKO-LBH403(P) and TKO-LBH434(P), are proposed for the post-construction monitoring since most of the previously adopted monitoring locations became obsolete for the following reasons:

1) recorded dry since baseline monitoring
2) destroyed due to tunnel excavations work
3) inaccessible due to obstruction by fallen trees.

Results and Observations

Groundwater Quality Monitoring

5.9 Monitoring of groundwater quality had been suspended since October 2019. (Details refer to **Section 5.1**)

Marine Water Quality Monitoring

5.10 Monitoring of marine water quality had been completed since June 2023. (Details refer to **Section 5.2-5.5**)

5.11 Groundwater Level Monitoring (Piezometer Monitoring)

5.12 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan.

5.13 Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. As the construction activity was 120m away from the piezometer gate, no monitoring was conducted in this reporting month.

5.14 A 1- year post-monitoring in operation phase conducted by the Contractor was commenced in December 2022 due to the completion of the tunnel construction. The monitoring was completed in November 2023.

Mitigation Measures Adopted by Contractors for Surface runoff Prevention

5.15 During dry season, the Contractors have maintained the mitigation measures adopted on Site, in order to prevent surface run-off and muddy water from discharging to the public areas. The mitigation measures adopted by each Contract are summarised below:

NE2015/01

5.16 At Lam Tin Side, the Site drainage systems are divided into two parts, namely the site formation and tunnel site drainage which includes:

1. Site formation drainage system collects surface run-off from open excavation areas including slope works and flows naturally to the lowest point in the Site, where they are pumped to the wetseps and sedimentation tank for treatment near LTI site entrance before they are discharged to the designated discharge point.
2. Tunnel drainage system collects surface run-off from the tunnel which are then pumped to the sedimentation tanks near tunnel adit, where three sets of wetseps and sedimentation tanks were set up. The treated water will be discharged to designated discharge point near the Eastern Harbour Crossing (EHC) area.

5.17 At Eastern Harbour Crossing (EHC), two sets of wetseps and sedimentation tanks are set up on site. The wastewater will flow to the lowest catchpit by gravity, which are then pumped to wetseps for wastewater treatment. The sandbags/bunds are also set up at the vehicle entrance to surface run-off from the Site.

5.18 At Tseung Kwan O (TKO), the surface run-off from the slope are directed to the lowest point at cavern via the permanent drainage, which are then pumped to the sedimentation tanks for wastewater treatment via temporary pipes. The treated water will be discharged at designated discharge points. The wetseps and sedimentation tanks are provided under the BMCPC bridge and at the two sides of marine working platform. Water from natural stream will also be diverted to existing drainage to avoid overloading the capacity of the wastewater treatment system. The reservoir on the right side of marine working platform will be enlarged to cater for higher water storage demands. During heavy rainfall, the water stored at the exit of the tunnel shall be pumped into the sedimentation tanks on the right.

NE2015/02

5.19 The exposed sloped area at Portion 9 has been covered with geotextile or tarpaulin to avoid surface run-off. Since March 2021, the stormwater at Portion IX, VIII, VII, VI, II and I will be collected towards to the sedimentation tanks at the edge of site boundary.

5.20 Certain amount of stormwater received in Portion 9 will be directed and pumped via the flex tube and sump towards the water treatment system and the approved discharge points (as shown in **Appendix V**). Water generated from Portion VI and V and some water in Portion IX are treated via storage tanks and sedimentation tanks and discharged into approved discharge points (manholes of DN2100 Drain and Area Z).

5.21 The peripheral open U-channel are also provided along the site boundary, which shall be directed to the storage tank and WetSep for treatment in Area A.

5.22 Regular cleaning depending on site conditions are provided for the WetSep at Area A and Z; and the storage tanks and sedimentation tanks at Area A. The water treated by the sedimentation tank and the wetsep shall be discharged towards the designated discharge point. Quality of the effluent are also monitored regularly.

NE2017/02

5.23 Existing manholes are covered with sandbags and geotextiles to avoid surface run-off from entering the channels.

5.24 Stockpiles are covered with tarpaulin to avoid surface run-off.

5.25 Concrete blocks and sandbags are placed along the periphery of the site boundary to avoid surface run-off.

5.26 Stormwater within the site enters the excavated area and flow naturally into the sump due height difference. The stormwater collected in the sump shall be pumped into the sedimentation tank where the run-off is treated before discharging into the designated discharge point.

NE2015/03

5.27 The existing manhole cover are covered with geotextile to prevent muddy water from entering the existing U-channels along the side of Po Shun Road. Manhole inspection is carried out by taking silt measurement regularly in case if silt enters the channel, and silt shall be removed from the manhole if silt were found.

5.28 Sandbags were placed at the periphery of the site along the hoarding to prevent surface runoff from escaping the site.

5.29 Exposed slopes are covered with tarpaulin to prevent surface run-off.

5.30 The surface run-off shall be pumped into the sedimentation tank where they are treated before entering the designated discharge points.

NE2017/01

5.31 Temporary peripheral open U-channels and sumps are provided for collecting the stormwater, which are pumped and directed towards the sedimentation tank for treatment. The treated water shall be directed to the designated discharge point.

6. ECOLOGY

Post-Translocation Coral Monitoring

6.1 Post-translocation monitoring survey is recommended in the EM&A Manual to audit the success of coral translocation. Information gathered during each post-translocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.

6.2 Under Contract No. NE/2015/01 and NE/2015/02, a total of 14 and 29 coral colonies were tagged and translocated respectively from the Donor Site to the Recipient Site in November 2016. Ten (10) corals at the Recipient Site were also tagged by each Contract as reference for post-translocation monitoring.

6.3 The post-translocation coral monitoring shall be conducted once every 3 months after completion for a period of 12 months. Location of post-translocation coral monitoring is shown in **Figure 7**. The fourth post-translocation coral monitoring was carried out on 07 November 2017. No further monitoring is required.

7. CULTURAL HERITAGE

Monitoring Requirement

7.1 According to the EP Conditions and EM&A Manual, monitoring of vibration impacts was conducted when the construction works are less than 100m from the Built Heritage in close proximity of the worksite, namely the Cha Kwo Ling Tin Hau temple. Tilting and settlement monitoring should be applied on the Cha Kwo Ling Tin Hau Temple. Construction works less than 100m from the Cha Kwo Ling Tin Hau temple commenced on 8 May 2017.

7.2 As stated in the "*Built Heritage Mitigation Plan*" for this Project, during the period of the construction works conducted within 100m from the Cha Kwo Ling Tin Hau Temple, monitoring on settlement and tilting will be conducted once a day for the Cha Kwo Ling. Monitoring of vibration will be conducted during blasting at Cha Kwo Ling area once a day. When there is no blasting to be conducted at the area, vibration monitoring at the Cha Kwo Ling Tin Hau Temple will be conducted once per day when there are piling works or rock breaking works within the 100m from the Cha Kwo Ling Tin Hau Temple.

Monitoring Locations

7.3 One vibration monitoring point and three building settlement monitoring points were proposed for monitoring of the cultural heritage. The building settlement markers were placed on the wall on three sides of the Temple, except the front, of the Cha Kwo Ling Tin Hau Temple and the vibration monitoring point is located within the Cha Kwo Ling Tin Hau Temple. Monitoring Location is shown in **Figure 8**.

Monitoring Equipment

7.4 Building settlement is measured via a settlement marker attached to the wall of Cha Kwo Ling Tin Hau Temple by adhesive tape.

7.5 Vibration monitoring was conducted by using vibrographs: MicroMate manufactured by Instantel. These vibrographs will be calibrated annually and its performance follows the requirements given in the "*Guidance Note on Vibration Monitoring*" (GN-VM) issued by the Civil Engineering and Development Department, which is based on the Performance Specification for Blasting Seismographs by International Society of Explosive Engineers (ISEE (2000)).

7.6 **Table 7.1** summarizes the equipment employed by the Contractor for cultural heritage monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 7.1 Cultural Heritage Monitoring Equipment

Equipment	Manufacturer and Model	Quantity
Digital Level for tilting	Leica LS15 Serial No.: 701141	1
Digital Caliper for tilting	Mitutoyo CD-6" ASX Serial No.: A17047921	1
iCivil-1011 Inclinometer for building settlement	iCivil-1011 Inclinometer Serial No.: HK110118 / HK110120	2
Vibrographs for vibration monitoring	MicroMate manufactured by Instantel Serial No.: UM13704 (Main unit with Geophone)	0

Monitoring Methodology

7.7 Vibrograph (velocity seismograph) was deployed at each monitoring station to measure and record the PPV and amplitude of ground motion in three mutually perpendicular directions. Vibration monitoring equipment fulfils the requirements stated in the Government guidelines and is calibrated to HOKLAS standards. Each monitoring would not be more than 10 minutes. Settlement monitoring should be conducted by surveyors manually.

Alert, Alarm and Action Levels

7.8 The Alert, Alarm and Action (AAA) Levels are given in **Table 7.2**.

Table 7.2 AAA Levels for Monitoring for Cultural Heritage

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv: 4.5 mm/s	ppv: 4.8 mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Markers	6mm	8mm	10mm
Building Tilting(1)	1:2000	1:1500	1:1000

Remarks:
(1) Building tilting measurement was replaced by building settlement point measurement. The tilting can be calculated by the ratio of the maximum settlement difference between 2 points and the distance between the 2 points.

Results

7.9 In the reporting month, cultural heritage monitoring was carried out by the Contractor at the aforesaid location on 26 occasions. No AAA Level exceedance was recorded in the reporting month. The monitoring results are presented in **Appendix T**.

Mitigation Measures for Cultural Heritage

7.10 According to Condition 3.6 of the EP (EP No.: EP-458/2013/C), to prevent damage to Cha Kwo Ling Tin Hau Temple and its Fung Shui rocks (Child-given rocks) during the construction phase, a temporarily fenced-off buffer zone (Rocks buffer zone is 5 m from the edge of Rocks and 15m from the edge of Rocks alter) with allowance for public access (minimum 1 m) around the temple and the Fung Shui rocks shall be provided. The open yard in front of the temple should be kept as usual for annual Tin Hau festival.

7.11 As there is a large buffer distance from the current works to Cha Kwo Ling Tin Hau Temple and the Fung Shui rocks (Child-given rocks), the temporarily fenced-off rocks buffer zone and from the edge of Rocks alter is not required. The fenced-off rocks buffer zone would be implemented when there are construction activities in vicinity of the cultural heritage.

8. LANDSCAPE AND VISUAL IMPACT REQUIREMENTS

8.1 Landscape and visual mitigation measures during the construction phase shall be checked to ensure that they are fully realized and implemented on site.

8.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures listed in "Implementation Schedule and Recommended Mitigation Measures" (shown in **Appendix N)**. The summaries of observations and recommendations related to landscape and visual impacts, if any, are shown in **Appendix L**.

8.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

9. LANDFILL GAS MONITORING

Monitoring Requirement

9.1 In accordance with the EM&A Manual, monitoring of landfill gas is required for construction works within the Sai Tso Wan Landfill Consultation Zone during the construction phase & within buildings and enclosures during the operation phase. This section presents the results of landfill gas measurements performed by the Contractor. **Appendix A** shows the Limit Levels for the monitoring works.

9.2 The "Landfill Gas Monitoring Proposal", including the monitoring programme and detailed actions, is submitted to the EPD for approval. Details of monitoring in this Proposal is in line with the monitoring requirements stipulated in the EM&A Manual.

9.3 Inspection and landfill gas monitoring should be carried out at buildings and enclosures (e.g. administration building, ventilation building, workshop, tunnel, etc.) prior to the operation as preventive measures. The monitoring should be continued through the operation of the Project.

9.4 As the completion date of construction within the concerned areas was 11 December 2022. A prior measure was conducted on 09 December 2022. Upon the completion of construction within the concerned area, landfill gas monitoring for operation phase was commenced from the end of December 2022 and the monitoring was completed in November 2024.

10. ENVIRONMENTAL AUDIT

Site Audits

10.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix L**.

10.2 Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting month as shown in below:

- Contract No. NE/2015/01: 5, 12, 19, 26
- Contract No. NE/2015/02: 5, 12, 19, 26
- Contract No. NE/2017/01: 5, 12, 19, 26
- Contract No. NE/2017/02: 5, 12, 19, 26
- Contract No. NE/2017/06: 5, 12, 19, 26
- Contract No. NE/2017/07: 5, 12, 19, 26

10.3 Monthly joint site inspection with the representative of IEC were conducted for NE/2015/01, NE/2017/07, NE/2015/02, NE/2017/01, NE/2017/02 and NE/2017/06 on 19 March 2025.

10.4 The EM&A programme of Contract No. NE/2015/03 had been terminated on 21 April 2020 under the approval of EPD.

Implementation Status of Environmental Mitigation Measures

10.5 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Implementation Schedule and Recommended Mitigation Measures is provided in **Appendix N**.

10.6 During site inspections in the reporting month, no non-compliance was recorded on reporting month. The observations and recommendations made during the audit sessions are summarized in **Appendix L**.

11. WASTE MANAGEMENT

11.1 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Inert C&D waste includes soil, broken rock, broken concrete and building debris, while non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. Marine sediment shall be expected from excavation and dredging works of this Project.

11.2 With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised and presented in **Appendix P**.

11.3 The Contractors are advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the approved EM&A Manual and waste management plans shall be fully implemented. The status of implementation of waste management and reduction measures are summited in **Appendix N**.

12. ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

12.1 No project-related Limit Level exceedance of noise was recorded due to the monitoring results in the reporting month. No Action Level exceedances of construction noise were recorded in the reporting month.

12.2 No Limit Level exceedance of air quality was recorded in the reporting month. No Action Level exceedance of air quality monitoring was recorded in the reporting month.

12.3 Marine water quality monitoring was completed in May 2023 and the post-marine water quality monitoring was completed in June 2023.

12.4 Post-reclamation marine water quality monitoring was completed in November 2022.

12.5 Actions carried out in accordance with the Event and Action Plans in **Appendix M** are presented in **Appendix K** – Summary of Exceedance.

Summary of Environmental Complaint

12.6 No environmental complaint was received in the reporting month. The Cumulative Complaint Log is presented in **Appendix O**. The investigation status and result are also reported in **Appendix O**.

Summary of Environmental Summon and Successful Prosecution

12.7 No notification of summon or successful environmental prosecution was received in this reporting period. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix O**.

13. FUTURE KEY ISSUES

13.1 Tentative construction programmes for the next three months are provided in **Appendix Q**.

13.2 Major site activities to be undertaken for the next reporting period are summarized in **Table 13.1**.

Table 13.1 Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (April 2025)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) Slope Stabilization at Area 1G1, 1G2, 2 & 5 2) Soft Landscape 3) LTI Drainage 4) Stage 1 Commissioning Outstanding Works	(A) / (C) / (D) / (E) / (G) / (H)
	Main Tunnel	5) N/A	N/A
	TKO Interchange	6) N/A	N/A
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) N/A		N/A
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. Materials are being removed from works area.		N/A
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	The construction works under the contract had been completed in January 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/02 –Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System (TCSS) and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A
NE/2017/07 - Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	The construction works under the contract had been completed in December 2022. The EM&A works will be terminated after the approval by EPD.		N/A

Note:
(A) Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
(B) Noisy construction activity such as rock-breaking activities and piling works;

(C) Runoff from exposed slope or site area;
(D) Wastewater and runoff discharge from site;
(E) Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
(F) Set up and implementation of temporary drainage system for the surface runoff;
(G) Storage of chemicals/fuel and chemical waste/waste oil on site;
(H) Accumulation and storage of general and construction waste on site; and
(I) Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

Key Issues for the Coming Month

13.3 Key environmental issues in the coming month include:

- Noisy construction activity such as use of hand tools;
- Runoff from exposed slope or site area;
- Wastewater and runoff discharge from site;
- Accumulation and storage of general and construction waste on site

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

14.1 This is the 101st Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in March 2025 in accordance with EM&A Manual and the requirement under EP.

Air Quality Monitoring

14.2 No Action/Limit Level exceedance for 1-hour TSP monitoring was recorded.

14.3 No Limit Level exceedance for 24-hour TSP monitoring was recorded.

14.4 No Action Level exceedance for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

14.5 No project-related Limit Level exceedance was recorded due to the monitoring results recorded in this reporting month.

14.6 No Action Level exceedance was recorded for documented complaints. The details of complaint shall be referred to **Appendix O**.

Water Quality Monitoring

14.7 Groundwater quality monitoring had been suspended since October 2019. Details shall be referred to **Section 5.1**.

14.8 Monitoring of marine water quality had been completed since June 2023. (Details refer to **Section 5.2-5.5**.

14.9 Post-reclamation marine water quality monitoring was completed in November 2022.

14.10 Tunnel construction activities are within +/- 50m of the piezometer gate in plan. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

14.11 Upon completion of the tunnel construction, a 1- year post-monitoring on the groundwater levels (piezometer monitoring) above the tunnel was carried out by contractor responsible for tunnel construction.

Ecological Monitoring

14.12 The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

14.13 No Alert Alarm and Action (AAA) Level exceedance of cultural heritage monitoring on cultural heritage was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

14.14 No non-compliance of the landscape and visual impact was recorded in the reporting month.

Landfill Gas Monitoring

14.15 As the excavation works at Portion III was completed on 11 December 2022, a prior measure was conducted on 09 December 2022 and the landfill gas monitoring for operation phase was commenced from the end of December 2022 and the monitoring was completed in November 2024.

Environmental Site Inspection

14.16 Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. During site inspections in the reporting month, no non-compliance was identified. The environmental deficiency observed during the reporting month are shown in **Appendix L.**

Complaint, Prosecution and Notification of Summons

14.17 No environmental complaint, no successful prosecution and notification of summon were received during the reporting period.

Recommendations

14.18 The following recommendations were made to the Contractor for the reporting month:
Air Quality Impact

- To regularly apply watering on dry surface should be applied to minimize erosion.
- To aim the water spray at the dusty point for effective dust suppression.

Construction Noise

- To ensure no noise generated from hand tools.
- Apply noise acoustic sheet to site boundary.

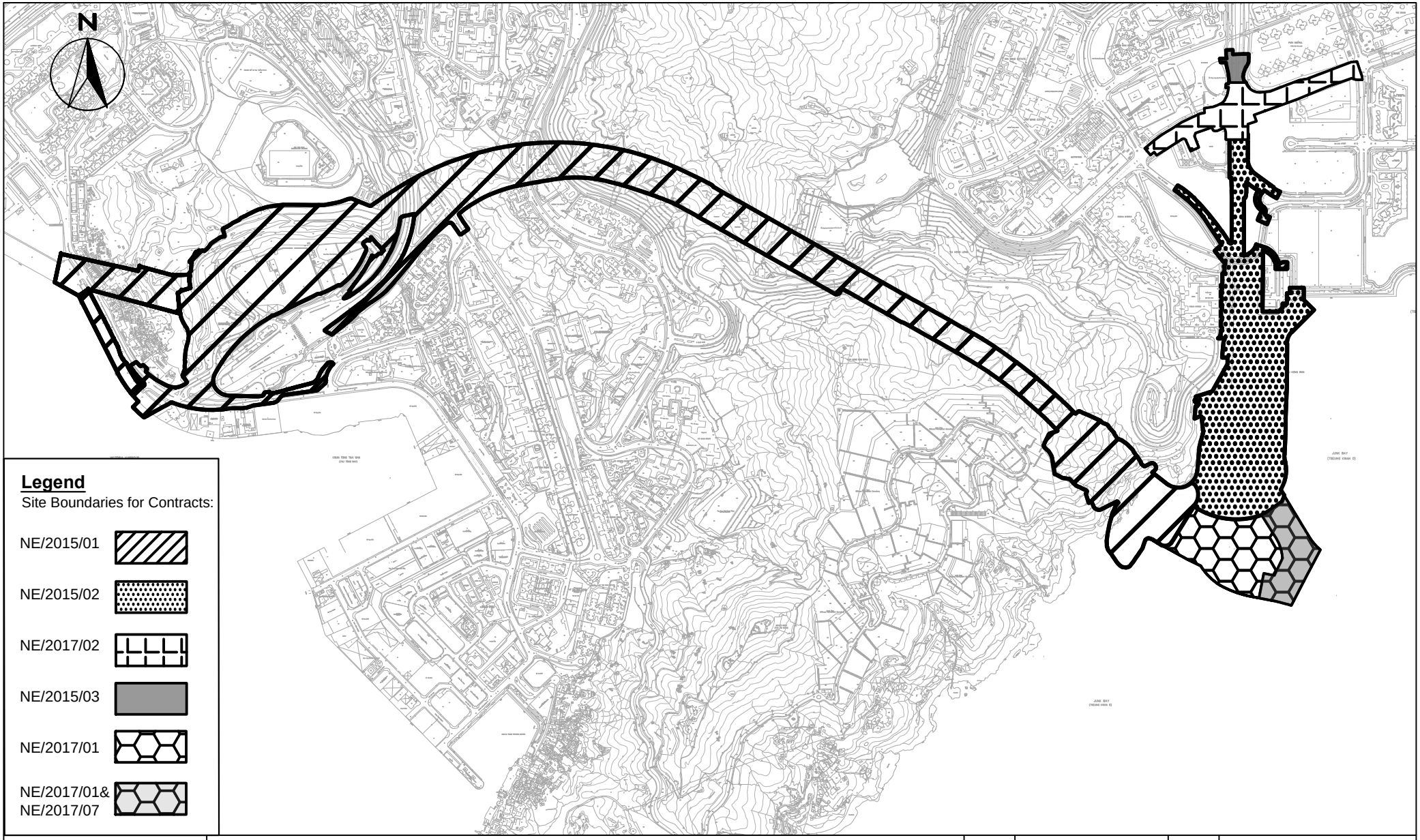
Waste/Chemical Management

- To bund or lock the chemical storage area.
- To clear oil stains on the floor.
- Provide drip trays to fuel drums or chemical containers

Landscape and Visual

- To avoid placing any construction materials in the tree protection zone.

FIGURES



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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Layout Plan

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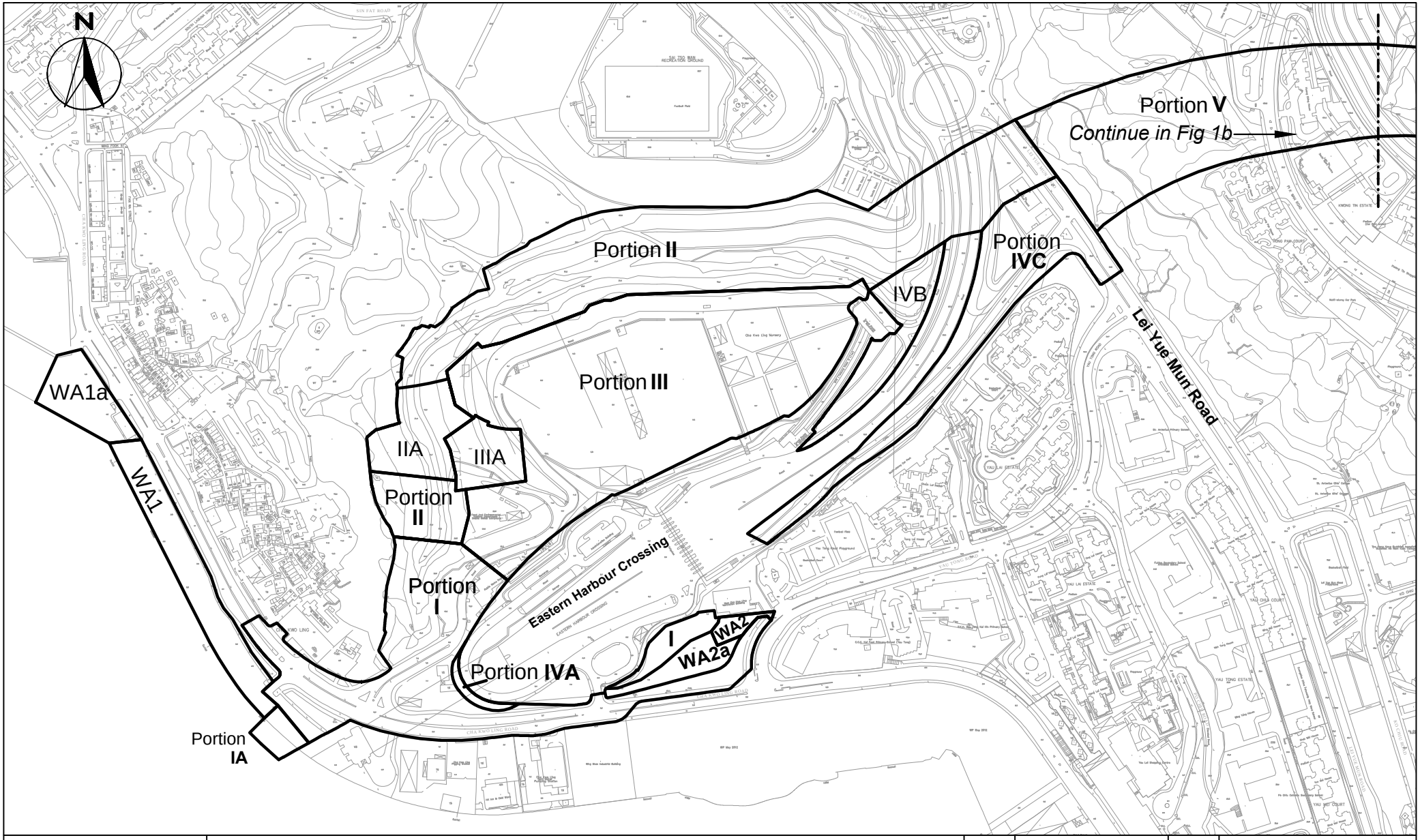

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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions under Works Contract No. NE/2015/01 (LT)

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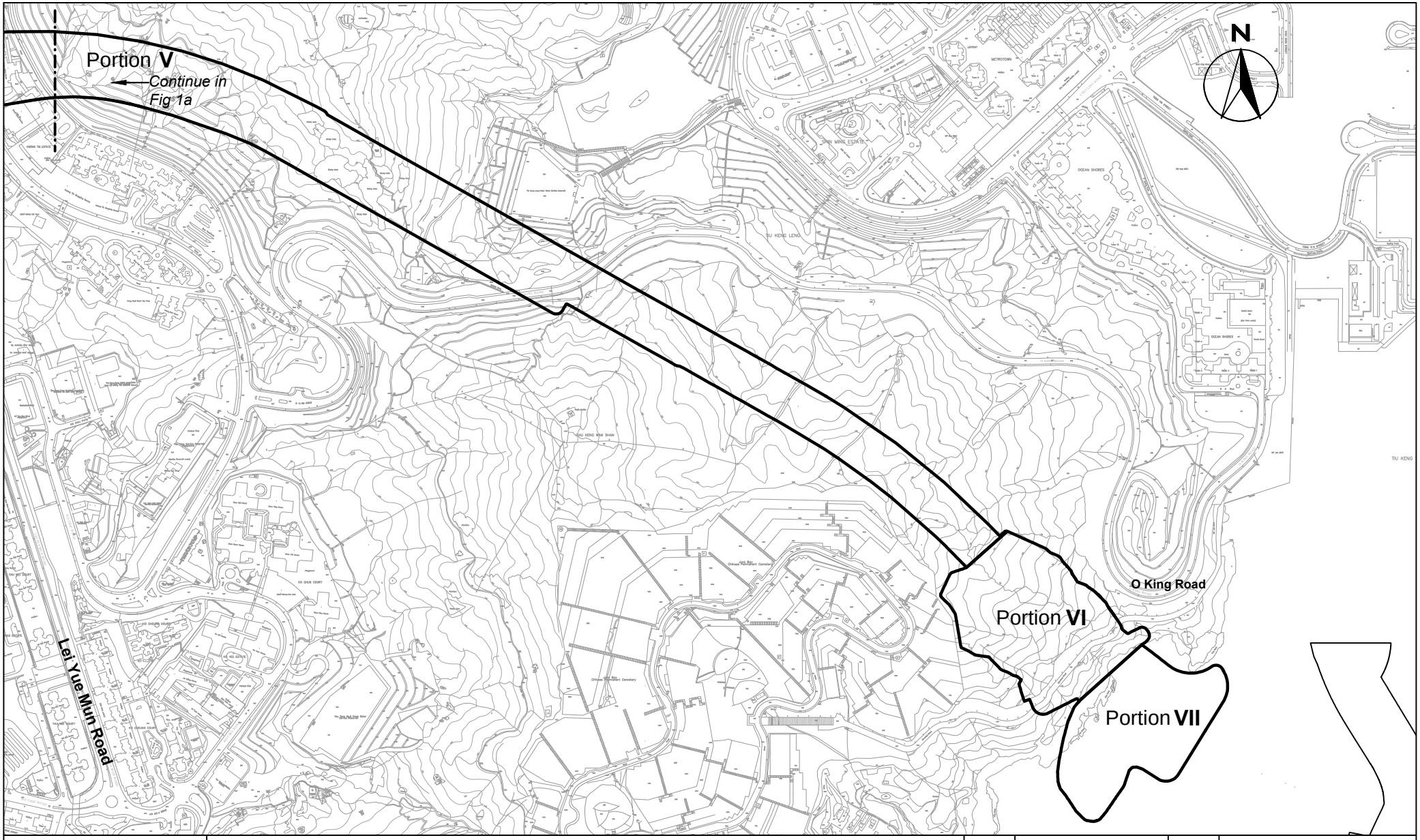

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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions under Works Contract No. NE/2015/01 (TKO)

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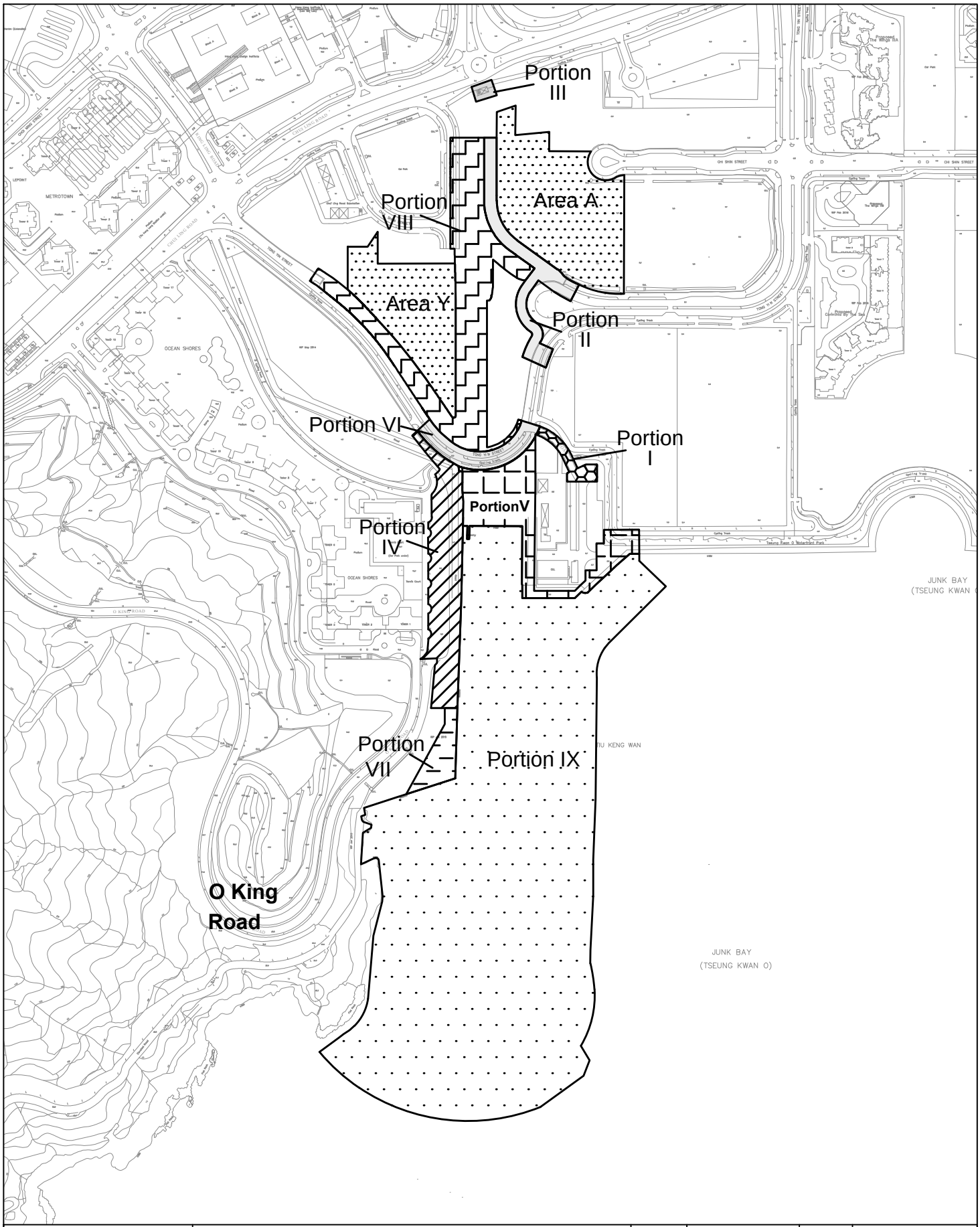

CINOTECH Cinotech Consultants Limited	Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction **Site Portions under Works Contract No. NE/2015/02**	SCALE	1:5000@A4	DATE	25 July 2021
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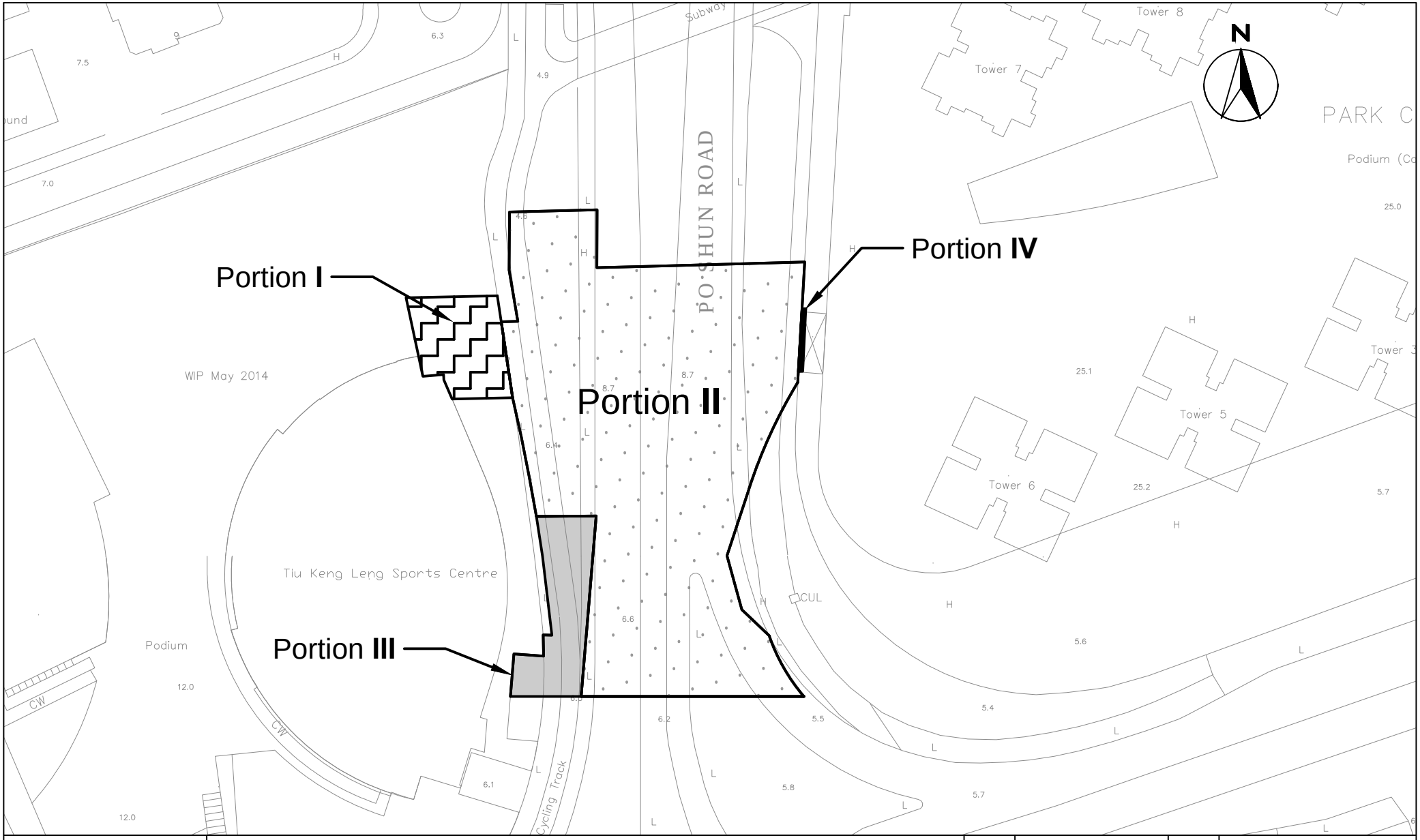

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions in Tseung Kwan O under Works Contract No. NE/2015/03

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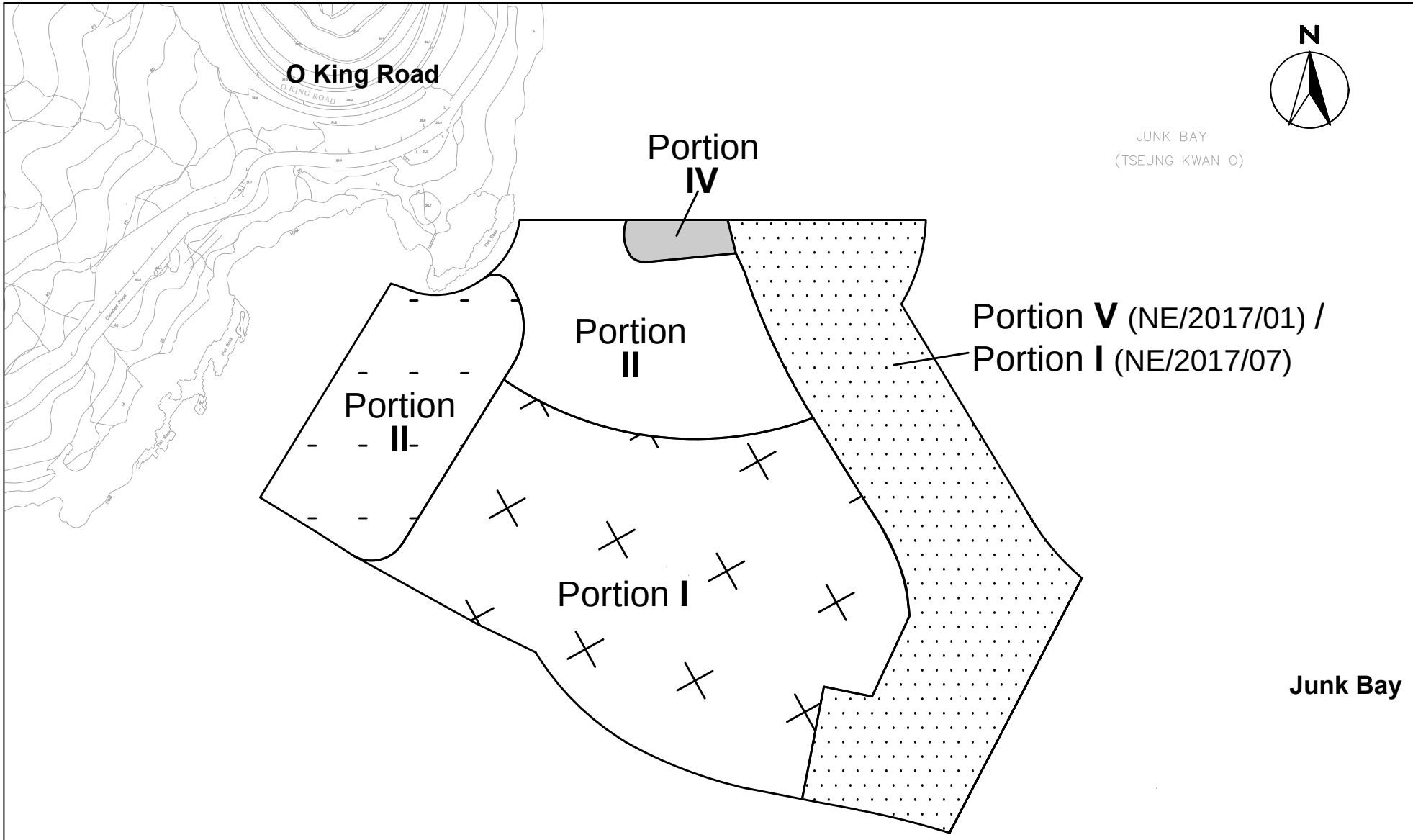

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions in Tseung Kwan O under Works Contract No. NE/2017/01

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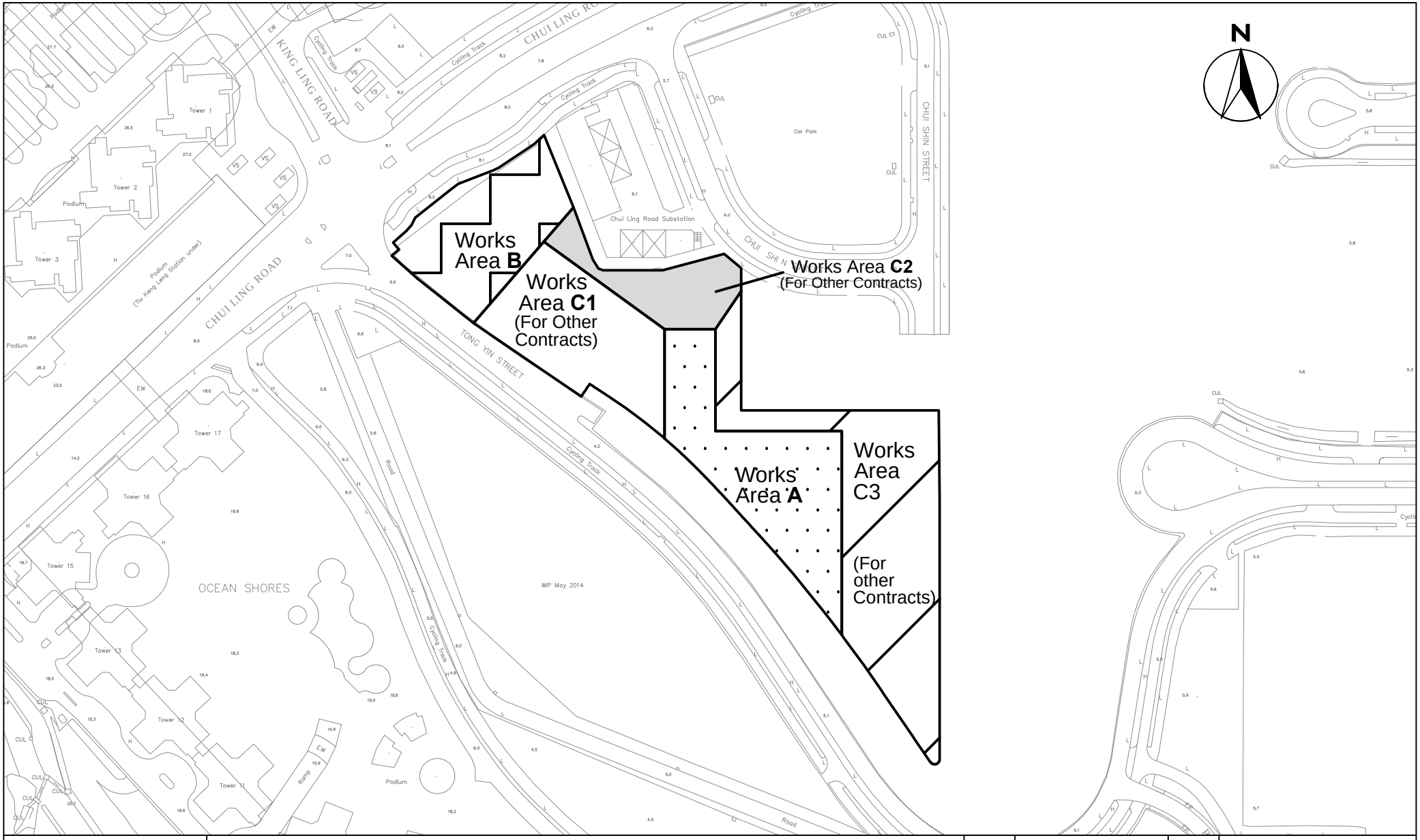

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions in Tseung Kwan O (Site Office) under Works Contract No. NE/2017/02

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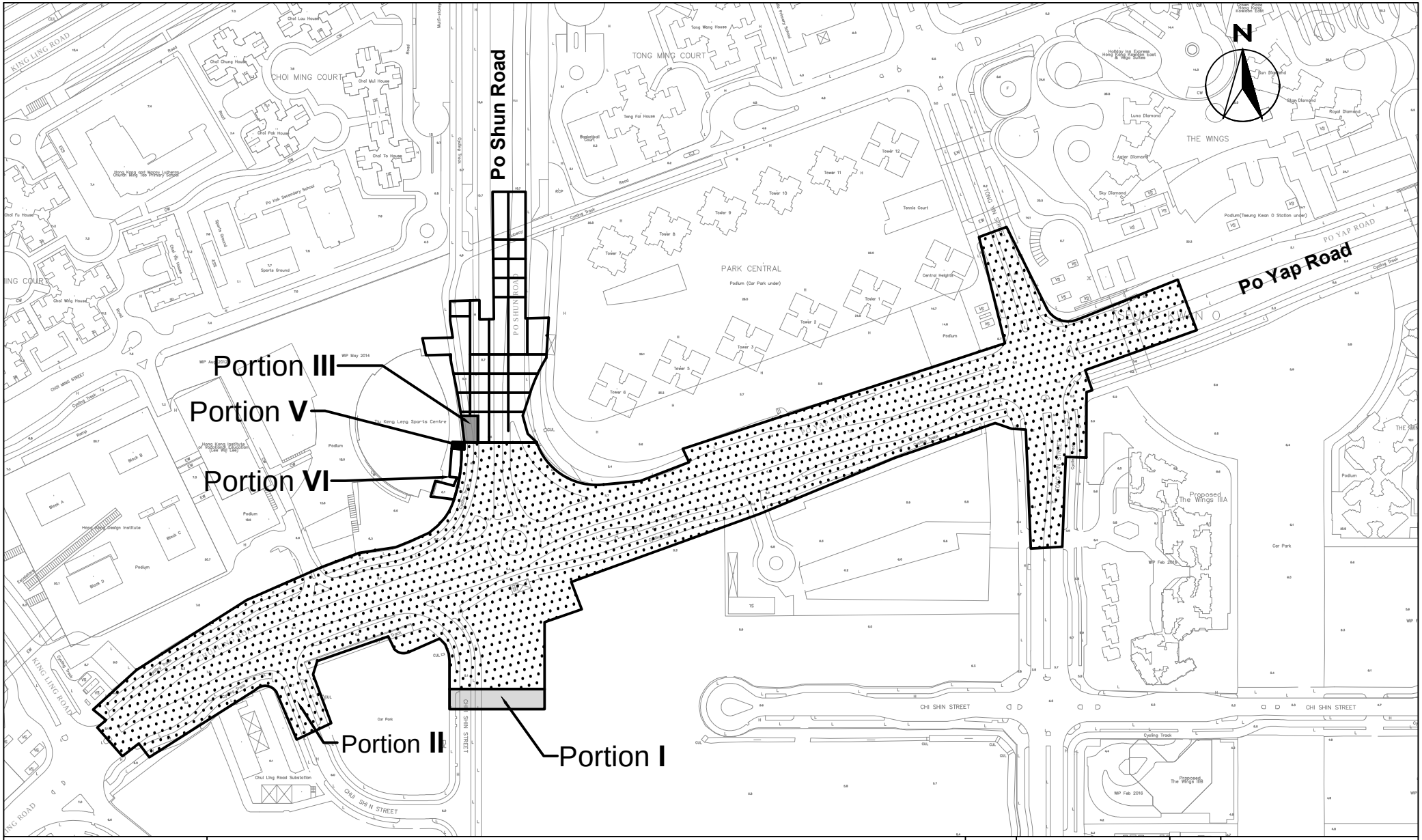

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Site Portions in Tseung Kwan O under Works Contract No. NE/2017/02

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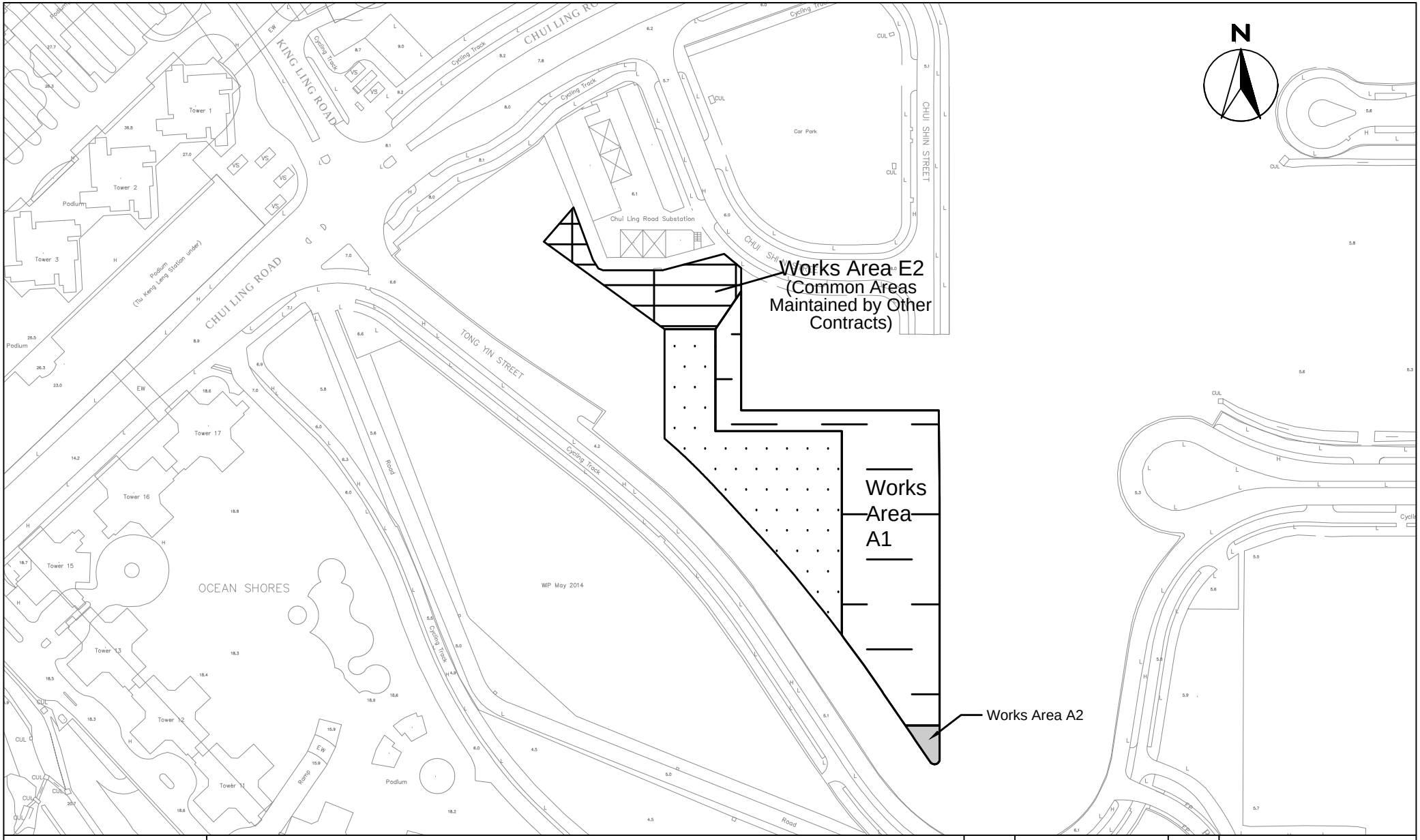

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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Site Portions in Tseung Kwan O (Site Office) under Works Contract No. NE/2017/01

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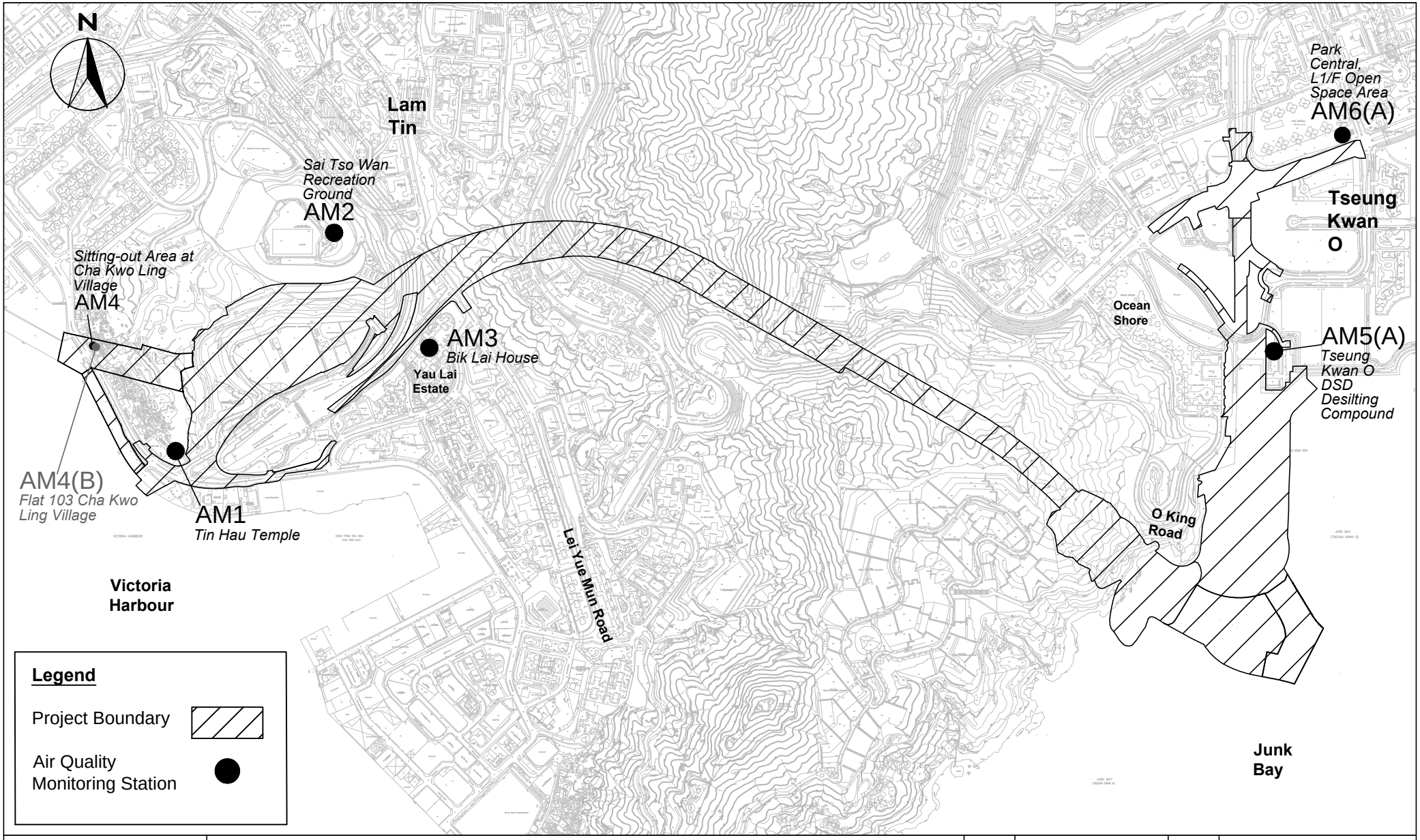

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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Air Quality Monitoring Station

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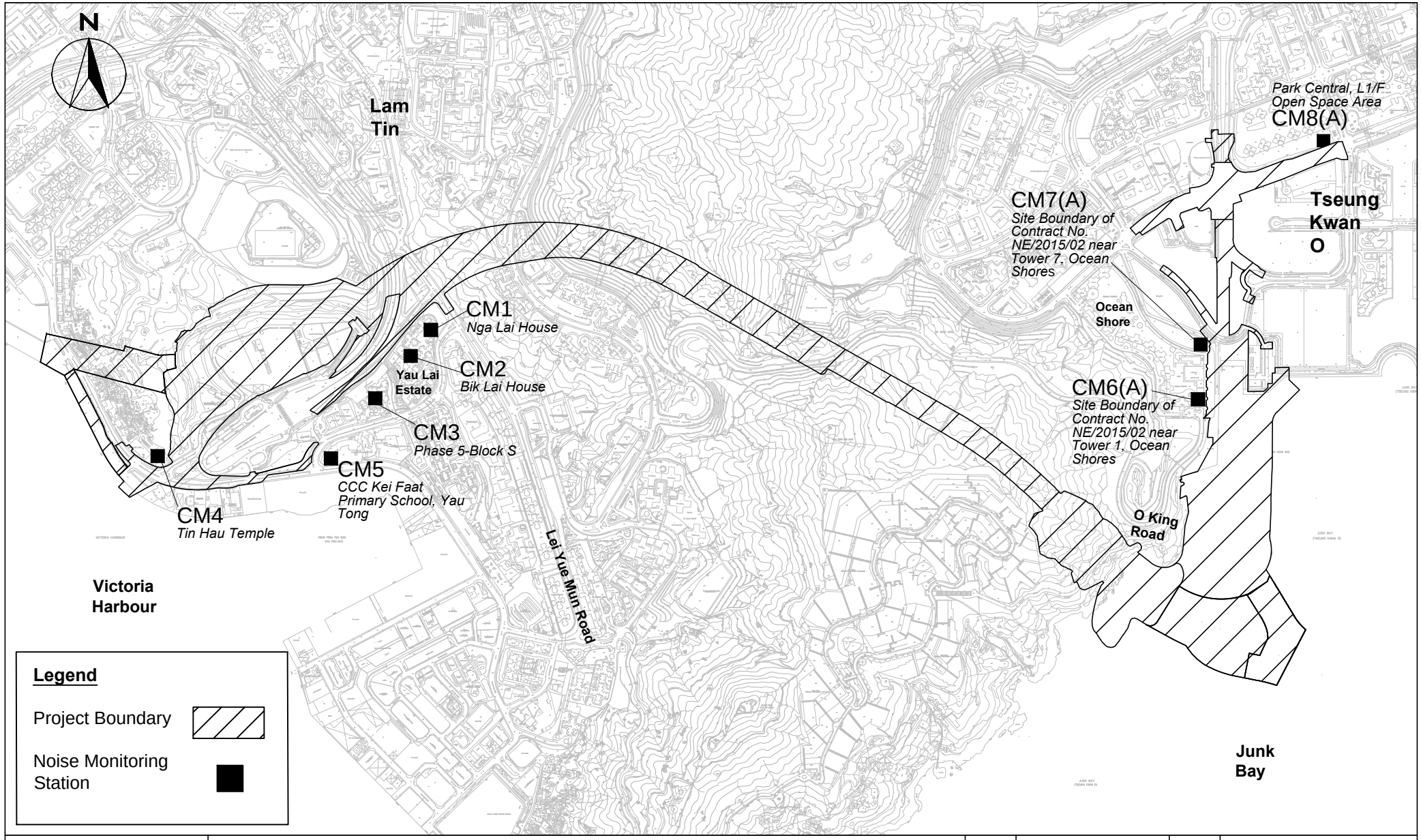
		REV	-



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Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Noise Monitoring Stations

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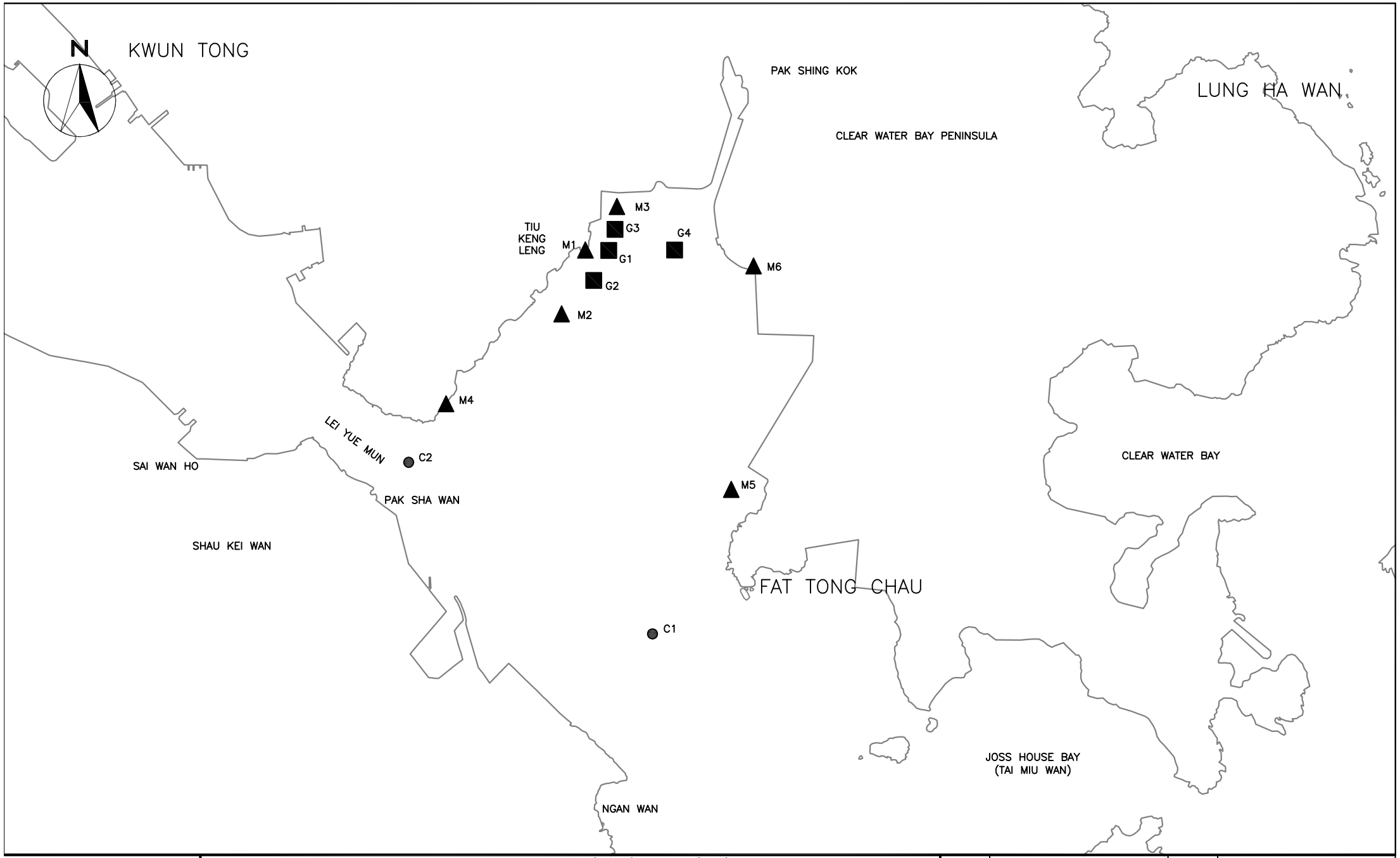

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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction

Locations of Water Quality Monitoring Stations

SCALE	N.T.S	DATE	AUG 2016
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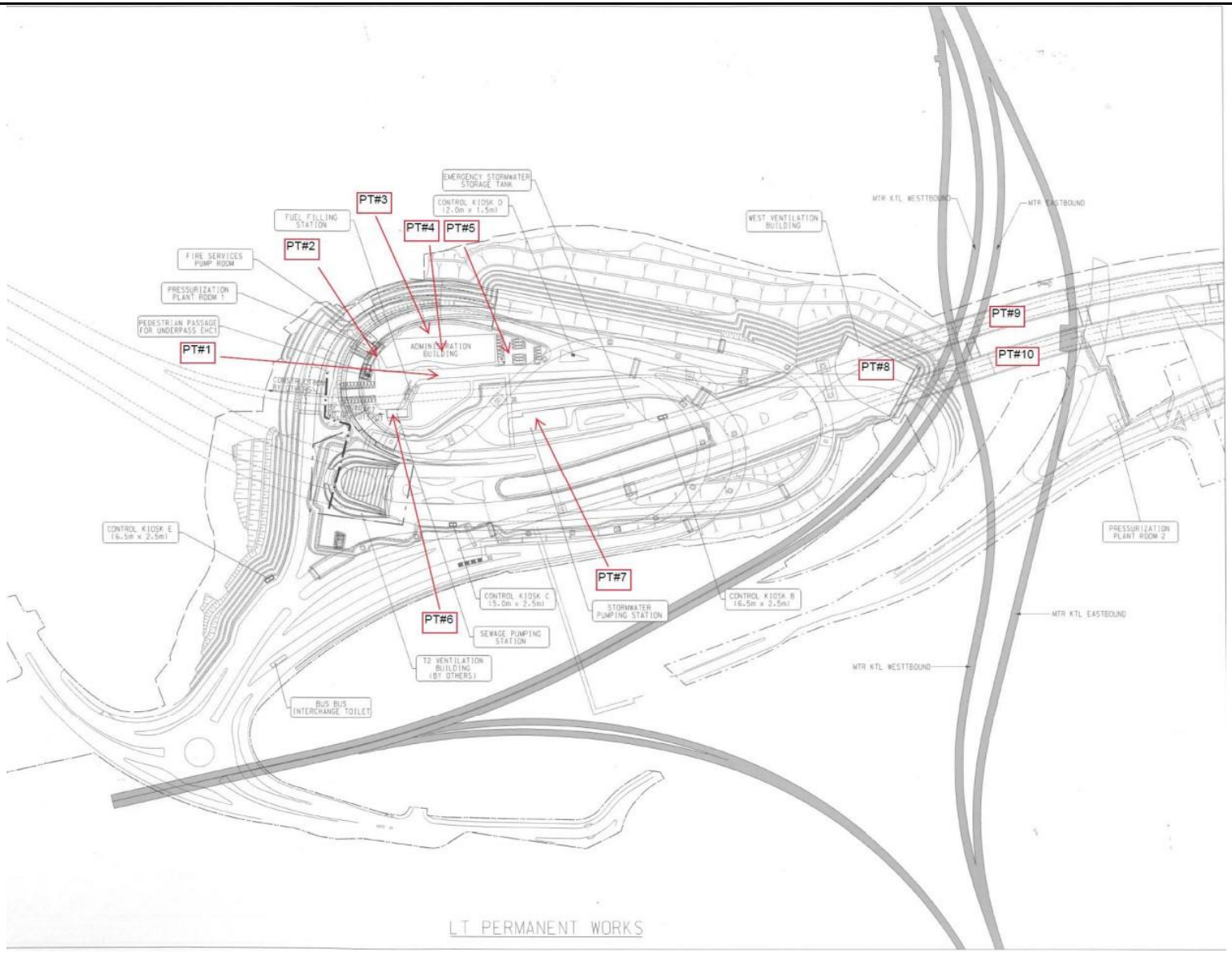
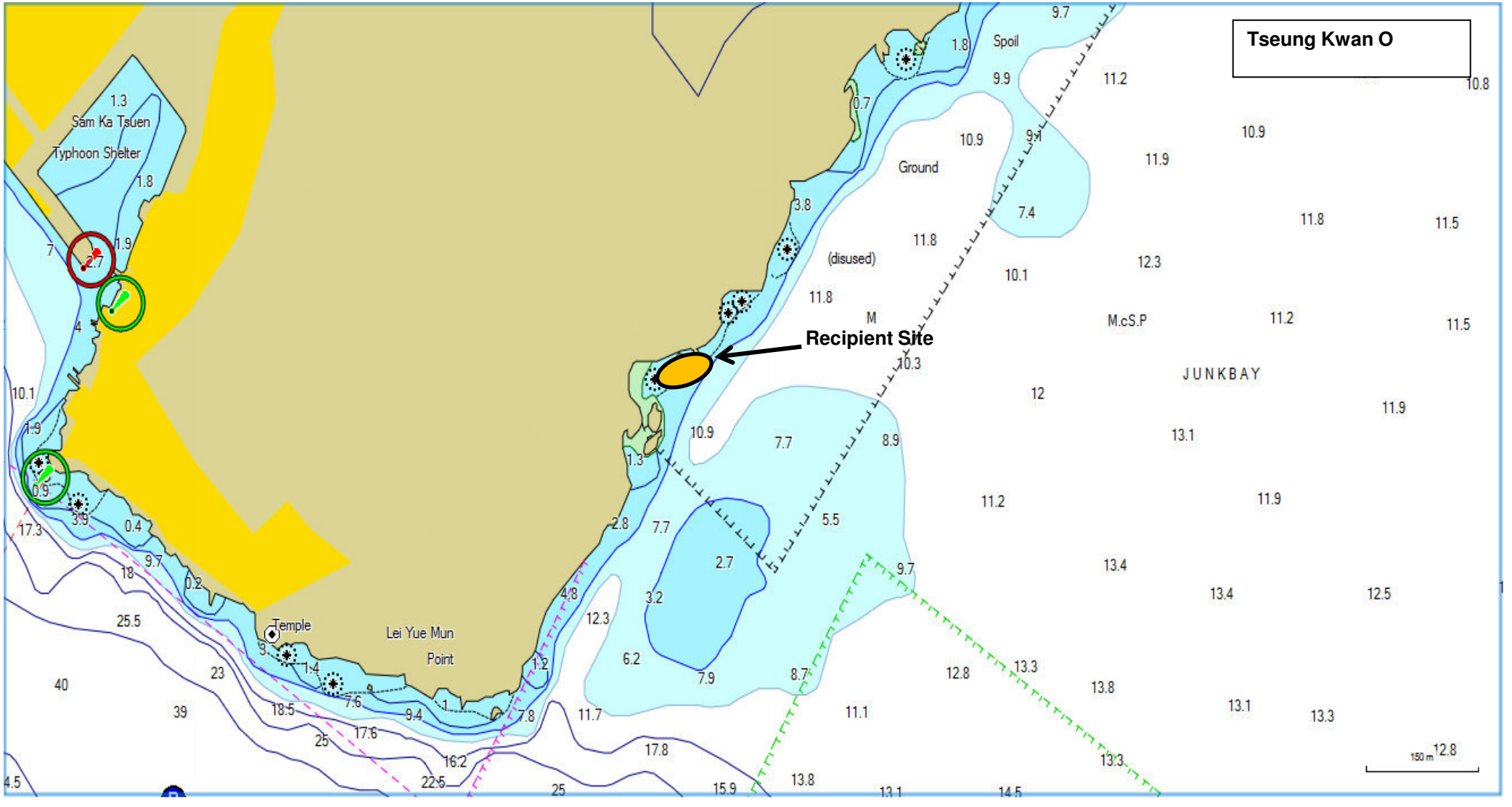
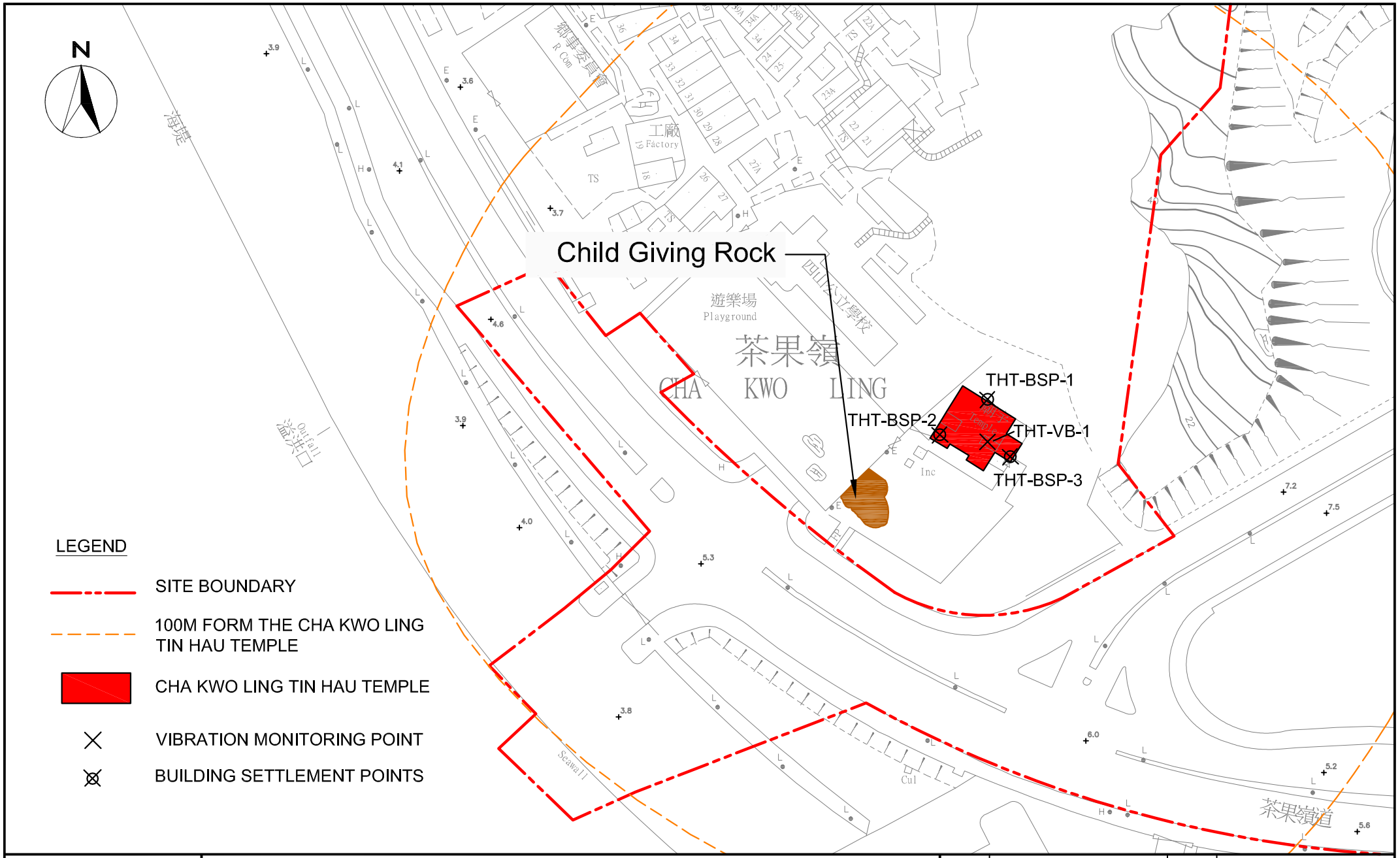
PROJECT NO.	MA16034	FIGURE NO.	5
		REV	–



Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Locations of Operational Phase Landfill Gas Monitoring	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec-2022	Figure: 6	



Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Location of Post-translocation Coral Monitoring	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Mar-17	Figure: 7	

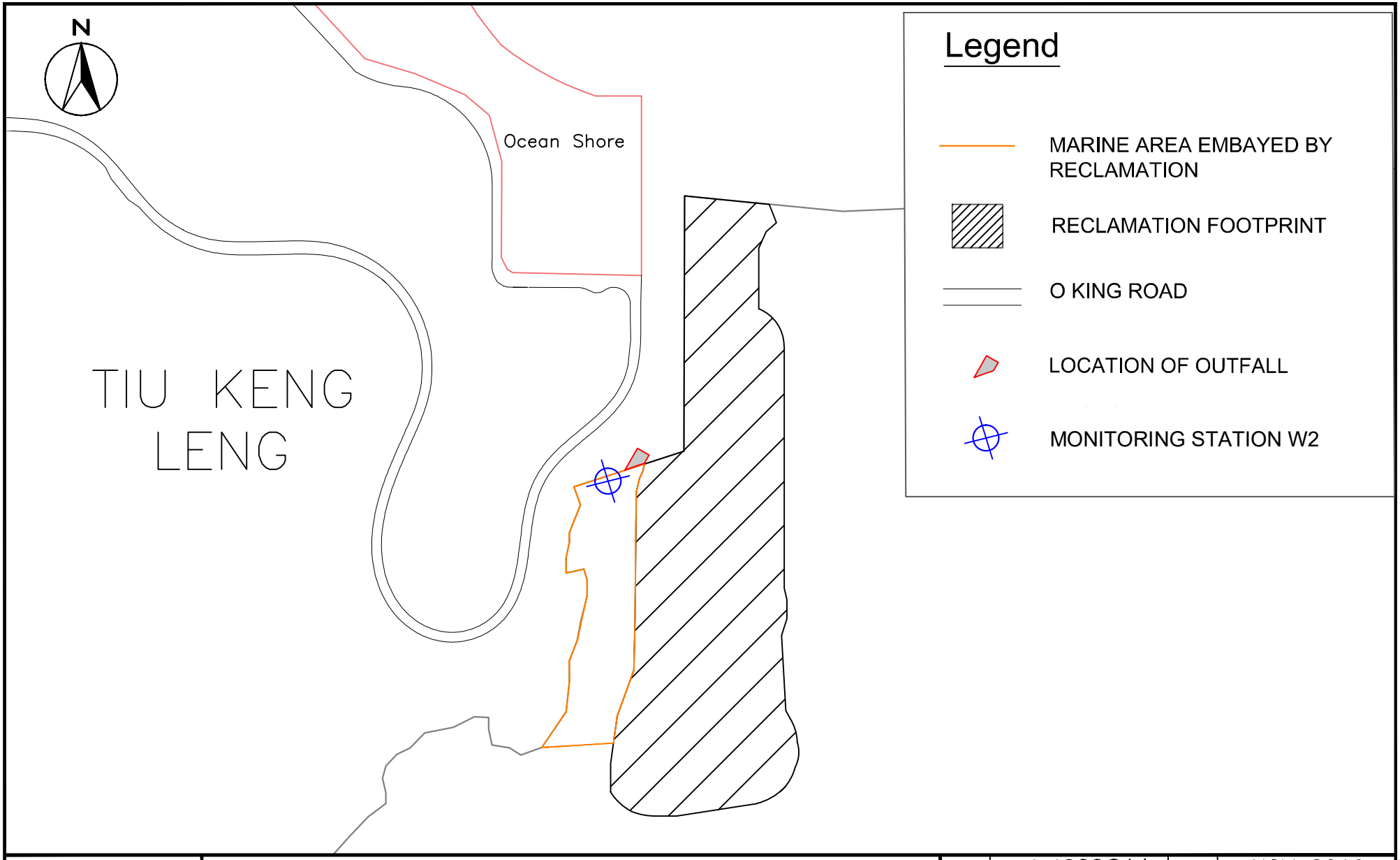


CINOTECH
Cinotech Consultants Limited

Agreement No. CE/59/2015 (EP)
Environmental Team for Tsueng Kwan O - Lam Tin Tunnel - Design and Construction

Locations of Monitirong for Cultural Heritage

SCALE	N.T.S.	DATE	FEB 2018
CHECK	JF	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 8	REV -



CINOTECH
Cinotech Consultants Limited

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction

Location of Embayment formed by Reclamation and Monitoring Station W2

SCALE	1:4000@A4	DATE	NOV 2019
CHECK	BC	DRAWN	KC
PROJECT NO.	MA16034	FIGURE NO.	9
		REV	—

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Air Quality

1-hr TSP

Monitoring Stations	**Location**	Action Level, µg/m³	**Limit** Level, µg/m³
AM1	Tin Hau Temple	275	500
AM2	Sai Tso Wan Recreation Ground	273	
AM3	Yau Lai Estate Bik Lai House	271	
AM4	Sitting-out Area at Cha Kwo Ling Village	278	
AM5(A)	Tseung Kwan O DSD Desilting Compound	273	
AM6(A)	Park Central, L1/F Open Space Area	285	

24-hr TSP

Monitoring Stations	**Location**	Action Level, µg/m³	**Limit** Level, µg/m³
AM1	Tin Hau Temple	173	260
AM2	Sai Tso Wan Recreation Ground	192	
AM3	Yau Lai Estate Bik Lai House	167	
AM4(B)	Flat 103 Cha Kwo Ling Village	210	
AM5(A)	Tseung Kwan O DSD Desilting Compound	175	
AM6(A)	Park Central, L1/F Open Space Area	165	

Noise

Time Period	**Action Level**	**Limit Level**
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) [(1)]
1900-2300 on all days and 0700-2300 on general holidays (including Sundays)		60/65/70 dB(A)[(2)(3)]
2300-0700 on all days		45/50/55 dB(A)[(2)(3)]

[1] 70 dB(A) for schools and 65 dB(A) for schools during examination period.
[2] Acceptable Noise Levels for Area Sensitivity Rating of A/B/C
3 If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

Water Quality

Groundwater

Parameters	Action	Limit
DO in mg L^{-1}	7.6	7.6
pH	6.0 – 8.9	6.0 – 9.0
BOD_5 in mg L^{-1}	2.0	2.0
TOC in mg L^{-1}	Stream 1 and Stream 2: 9	Stream 1 and Stream 2: 9
	Stream 3: 6	Stream 3: 6
Total Nitrogen in mg L^{-1}	2.0	2.1
Ammonia-N in mg L^{-1}	0.15	0.20
Total Phosphate in mg L^{-1}	0.05	0.05
SS in mg L^{-1}	7.6	12.1
Turbidity in NTU	2.1	2.3

Notes:

1. For pH, non-compliance of the water quality limits occurs when monitoring result is out of the range of the limits.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. For turbidity, SS, 5-day biochemical oxygen demand (BOD_5), Total organic carbon (TOC), Total Nitrogen, Ammonia-N and Total Phosphate, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
4. All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.

Groundwater Level Monitoring

Drill Hole No.	38568-LDH1	TKO-LBH907
Action Level (mPD)	+74.65	+17.59

Marine Water Quality

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2, 4 and 5)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU*** or 120% of upstream control station's Turbidity at the same tide of the same day	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2, 4 ad 5)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***6.9mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L*** or 120% of upstream control station's SS at the same tide of the same day	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.
5. Refer to Appendix I – Marine Water Quality Monitoring Results and Graphical Presentations for results of upstream control stations at each tide on each day.

Water Quality Monitoring in Temporary Marine Embayment

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 2)	Depth Average	***4.8 mg/L*** (4)	***4 mg/L*** (3)
	Bottom	***2.4 mg/L*** (4)	***2 mg/L*** (3)

Notes:
1. "depth-averaged" is calculated by taking the arithmetic means of reading of all sampling depths.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. Current Water Quality Objectives (WQOs) for marine waters of Hong Kong
4. As an alert for adverse water quality impact, the Action Level is set as 120% of the Current WQOs for marine waters of Hong Kong.

Ecology

Post-translocation Coral Monitoring

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of partial mortality occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.

Landfill Gas Monitoring

Parameter	Limit Level
Oxygen	<19%
	<18%
Methane	>10% LEL (i.e. > 0.5% by volume)
	>20% LEL (i.e. > 1% by volume)
Carbon Dioxide	>0.5%
	>1.5%

Alert, Alarm, Action Levels for Built Heritage Monitoring

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv:4.5mm/s	ppv: 4.8mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Point	6mm	8mm	10mm
Building Tilting	1:2000	1:1500	1:1000

APPENDIX B
COPIES OF CALIBRATION CERTIFICATES

Certificate of Calibration - Wind Monitoring Station

Description:	Yau Lai Estate, Bik Lai House
Manufacturer:	Davis Instruments
Model No.:	Davis7440
Serial No.:	MC01010A44
Equipment No.:	SA-03-04
Date of Calibration	17-Feb-2025
Next Due Date	17-Aug-2025

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V2)	D = V1 – V2
0.0	0.0	0.0
1.5	1.4	0.1
2.5	2.4	0.1
4.0	3.8	0.2

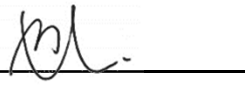
2. Performance check of Wind Direction

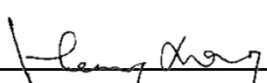
Wind Direction (^{o})		Difference D (^{o})
Wind Direction Reading (W1)	Marine Compass Value (W2)	D = W1 - W2
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by:  Wong Shing Kwai

Approved by:  Henry Leung

TISCH Environmental

RECALIBRATION DUE DATE:
January 7, 2026

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 7, 2025	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 759.0	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3864**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4590	3.2	2.00
2	3	4	1	1.0360	6.4	4.00
3	5	6	1	0.9160	8.0	5.00
4	7	8	1	0.8800	8.8	5.50
5	9	10	1	0.7270	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0114	0.6932	1.4252	0.9958	0.6825	0.8787
1.0071	0.9721	2.0156	0.9916	0.9571	1.2427
1.0050	1.0971	2.2535	0.9895	1.0802	1.3893
1.0039	1.1408	2.3635	0.9884	1.1232	1.4572
0.9987	1.3737	2.8505	0.9833	1.3525	1.7574
QSTD	**m=**	**2.08969**	**QA**	**m=**	**1.30853**
	b=	**-0.02374**		**b=**	**-0.01464**
	r=	**0.99985**		**r=**	**0.99985**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/05/0052

Project No. AM1 - Tin Hau Temple

Date: 14-Feb-25 Next Due Date: 14-Apr-25 Operator: SK

Equipment No.: A-01-05 Model No.: GS2310 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	291.2	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.1	3.67	62.45	8.6	2.97
2	10.2	3.24	55.15	6.4	2.56
3	7.1	2.70	46.08	4.2	2.08
4	5.1	2.29	39.12	2.7	1.67
5	2.9	1.73	29.60	1.4	1.20

By Linear Regression of Y on X

Slope , mw = **0.0543** **Intercept, bw =** **-0.4289**

Correlation coefficient* = **0.9996**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.54**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 14-Feb-25

Checked by: Henry Leung Signature: Date: 14-Feb-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/08/0052

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 14-Feb-25 Next Due Date: 14-Apr-25 Operator: SK

Equipment No.: A-01-08 Model No.: GS2310 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	291.2	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.4	3.71	63.16	8.4	2.94
2	10.2	3.24	55.15	6.2	2.52
3	7.6	2.80	47.66	4.1	2.05
4	5.3	2.33	39.87	2.6	1.63
5	3.2	1.82	31.12	1.4	1.20

By Linear Regression of Y on X

Slope , mw = **0.0550** **Intercept, bw =** **-0.5354**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.25**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 14-Feb-25

Checked by: Henry Leung Signature: Date: 14-Feb-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0052

Project No. AM3 - Yau Lai Estate, Bik Lai House

Date: 14-Feb-25 Next Due Date: 14-Apr-25 Operator: SK

Equipment No.: A-01-03 Model No.: GS2310 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	291.2	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.0	3.66	62.21	8.1	2.89
2	10.1	3.22	54.88	6.1	2.50
3	7.5	2.78	47.35	4.3	2.10
4	5.1	2.29	39.12	2.6	1.63
5	3.0	1.76	30.10	1.5	1.24

By Linear Regression of Y on X

Slope , mw = 0.0519 **Intercept, bw = -0.3513**

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.44**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 14-Feb-25

Checked by: Henry Leung Signature: Date: 14-Feb-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/37/0052

Project No. AM5(A) - Tseung Kwan O DSD Desilting Compound

Date: 14-Feb-25 Next Due Date: 14-Apr-25 Operator: SK

Equipment No.: A-01-37 Model No.: GS2310 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	291.2	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.8	3.63	61.74	8.4	2.94
2	10.4	3.27	55.69	6.2	2.52
3	7.8	2.83	48.28	4.5	2.15
4	4.8	2.22	37.96	2.5	1.60
5	3.3	1.84	31.54	1.5	1.24

By Linear Regression of Y on X

Slope , mw = **0.0551** **Intercept, bw =** **-0.4995**

Correlation coefficient* = **0.9991**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.40**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 14-Feb-25

Checked by: Henry Leung Signature: Date: 14-Feb-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/07/0051

Project No. AM6 - Park Central

Date: 6-Jan-25 Next Due Date: 7-Mar-25 Operator: SK

Equipment No.: A-01-07 Model No.: GS2310 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	291.2	Pressure, Pa (mmHg)	764.2

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05976	Intercept, bc	-0.05018
Last Calibration Date:	15-Jan-24	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	14-Jan-25	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.9	3.64	61.81	7.7	2.81
2	9.0	3.04	51.76	5.2	2.31
3	7.4	2.76	47.02	4.1	2.05
4	4.9	2.25	38.41	2.8	1.70
5	3.0	1.76	30.24	1.7	1.32

By Linear Regression of Y on X

Slope , mw = **0.0470** **Intercept, bw =** **-0.1157**

Correlation coefficient* = **0.9990**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.53**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 6-Jan-25

Checked by: Henry Leung Signature: Date: 6-Jan-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/07/0052

Project No. AM6 - Park Central

Date: 7-Mar-25 Next Due Date: 7-May-25 Operator: SK

Equipment No.: A-01-07 Model No.: GS2310 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	286.5	Pressure, Pa (mmHg)	766

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.8	3.66	62.34	7.8	2.86
2	9.2	3.11	52.91	5.3	2.36
3	7.3	2.77	47.18	4.3	2.12
4	4.6	2.20	37.53	2.7	1.68
5	3.2	1.83	31.37	1.9	1.41

By Linear Regression of Y on X

Slope , mw = **0.0463** **Intercept, bw =** **-0.0550**

Correlation coefficient* = **0.9991**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.57**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 7-Mar-25

Checked by: Henry Leung Signature: Date: 7-Mar-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA20003/55/030

Project No. CKL 2 - Flat 103 Cha Kwo Ling Village

Date: 4-Jan-25 Next Due Date: 6-Mar-25 Operator: SK

Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956

Ambient Condition			
Temperature, Ta (K)	292.7	Pressure, Pa (mmHg)	765.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05976	Intercept, bc	-0.05018
Last Calibration Date:	15-Jan-24	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	14-Jan-25	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.6	3.73	63.33	9.2	3.07
2	11.2	3.39	57.55	7.3	2.74
3	9.0	3.04	51.67	5.7	2.42
4	5.3	2.33	39.85	2.6	1.63
5	3.6	1.92	32.99	1.8	1.36

By Linear Regression of Y on X

Slope , mw = **0.0581** **Intercept, bw =** **-0.6068**

Correlation coefficient* = **0.9980**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.49**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 4-Jan-25

Checked by: Henry Leung Signature: Date: 4-Jan-25

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA20003/55/031

Project No. CKL 2 - Flat 103 Cha Kwo Ling Village

Date: 6-Mar-25 Next Due Date: 6-May-25 Operator: SK

Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956

Ambient Condition			
Temperature, Ta (K)	287.5	Pressure, Pa (mmHg)	764.8

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05914	Intercept, bc	-0.02377
Last Calibration Date:	7-Jan-25	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7-Jan-26	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler					
Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	13.5	3.75	63.85	9.1	3.08
2	11.0	3.39	57.68	7.2	2.74
3	9.1	3.08	52.50	5.6	2.42
4	5.1	2.31	39.40	2.6	1.65
5	3.8	1.99	34.07	1.9	1.41

By Linear Regression of Y on X

Slope , mw = **0.0571** **Intercept, bw =** **-0.5684**

Correlation coefficient* = **0.9994**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

mw x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.42**

Remarks:

Conducted by: Wong Shing Kwai Signature: Date: 6-Mar-25

Checked by: Henry Leung Signature: Date: 6-Mar-25

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Laser Dust Monitor

Date of Calibration 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 1-Apr-25

Model No.: LD-3B

Serial No.: 2Y6194

Equipment No.: SA-01-02

Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-03

Before Sensitivity Adjustment 578

Tisch Calibration Orifice No.: 3864

After Sensitivity Adjustment 578

Calibration of 1 hr TSP

Calibration Point	Laser Dust Monitor		HVS
	Total Count	Count / Minute **X-axis**	Mass concentration ($\mu g/m^3$) **Y-axis**
1	4000	74.0	143.0
2	3600	64.0	121.0
3	3000	54.0	101.0
Average		**64.0**	**121.7**

By Linear Regression of Y on X

Slope , mw = **2.1000**

Intercept, bw = **-12.7333**

Correlation coefficient* = **0.9996**

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μ g/m3)] **1.9**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Limited)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration: 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record: 1-Apr-25

Model No.: LD-5R

Serial No.: 8Y2374

Equipment No.: SA-01-04 — Sensitivity: 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment: 652

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment: 652

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	75.0	136.0
2	63.0	118.0
3	53.0	101.0
Average	**63.7**	**118.3**

By Linear Regression of Y on X

Slope , mw = **1.5879** **Intercept, bw =** **17.2363**

Correlation coefficient* = **0.9994**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	118.3
Particaulate Concentration by Dust Meter (µg/m^3)	63.7
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**1.9**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration: 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record: 1-Apr-25

Model No.: LD-5R

Serial No.: 8Y2373

Equipment No.: SA-01-05 — Sensitivity: 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment: 657

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment: 657

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	76.0	132.0
2	64.0	116.0
3	55.0	102.0
Average	**65.0**	**116.7**

By Linear Regression of Y on X

Slope , mw = **1.4234** **Intercept, bw =** **24.1441**

Correlation coefficient* = **0.9990**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	116.7
Particaulate Concentration by Dust Meter (µg/m^3)	65.0
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**1.8**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration: 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record: 1-Apr-25

Model No.: LD-5R

Serial No.: 972777

Equipment No.: SA-01-06 — Sensitivity: 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment: 645

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment: 645

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	75.0	133.0
2	63.0	117.0
3	52.0	101.0
Average	**63.3**	**117.0**

By Linear Regression of Y on X

Slope , mw = **1.3904** **Intercept, bw =** **28.9395**

Correlation coefficient* = **0.9997**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	117.0
Particaulate Concentration by Dust Meter (µg/m^3)	63.3
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**1.8**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record 1-Apr-25

Model No.: LD-5R

Serial No.: 972778

Equipment No.: SA-01-07 — Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment 735 CPM

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment 735 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (µg/m3) **X-axis**	**HVS** Mass concentration (µg/m^3) **Y-axis**
1	77.0	141.0
2	67.0	120.0
3	56.0	100.0
Average	**66.7**	**120.3**

By Linear Regression of Y on X

Slope , mw = **1.9502** **Intercept, bw =** **-9.6767**

Correlation coefficient* = **0.9991**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	120.3
Particaulate Concentration by Dust Meter (µg/m^3)	66.7
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **1.8**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration: 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record: 1-Apr-25

Model No.: LD-5R

Serial No.: 972780

Equipment No.: SA-01-09 — Sensitivity: 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment: 739 CPM

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment: 739 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	73.0	139.0
2	63.0	117.0
3	55.0	101.0
Average	**63.7**	**119.0**

By Linear Regression of Y on X

Slope , mw = **2.1148** **Intercept, bw =** **-15.6393**

Correlation coefficient* = **0.9996**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	119.0
Particaulate Concentration by Dust Meter (µg/m^3)	63.7
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**1.9**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

CINOTECH CONSULTANTS LIMITED

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator — Date of Calibration 30-Jan-25

Manufacturer: Sibata Scientific Technology LTD. — Validity of Calibration Record 1-Apr-25

Model No.: LD-5R

Serial No.: 972781

Equipment No.: SA-01-10 — Sensitivity 0.001 mg/m3

High Volume Sampler No.: A-01-03 — Before Sensitivity Adjustment 734 CPM

Tisch Calibration Orifice No.: 3864 — After Sensitivity Adjustment 734 CPM

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor**	**HVS**
	Mass Concentration (µg/m3) **X-axis**	Mass concentration (µg/m^3) **Y-axis**
1	79.0	135.0
2	67.0	114.0
3	60.0	100.0
Average	**68.7**	**116.3**

By Linear Regression of Y on X

Slope , mw = **1.8321** **Intercept, bw =** **-9.4729**

Correlation coefficient* = **0.9994**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	116.3
Particaulate Concentration by Dust Meter (µg/m^3)	68.7
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**1.7**

In-house method in according to the instruction manual:

The Dust Monitor was compared with a calibrated High Volume Sampler and The result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: _____

Technical Officer (Wong Shing Kwai)

Approved by: _____

Project Manager (Henry Leung)

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 01015 Issue Date : 04 Feb 2025
Application No. : HP00868

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-16-02

Manufacturer: : Hangzhou Aihua Instruments Co., Ltd.

Other information :

Model No.	AWA6021A
Serial No.	1023064

Date Received : 28 Jan 2025

Test Period : 03 Feb 2025 to 04 Feb 2025

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 01015 Issue Date : 04 Feb 2025
Application No. : HP00868

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Description	Sound Meter
Manufacturer	SVANTEK
Model No.	SVAN 977
Serial No.	92677
Microphone No.	10352
Equipment No.	N-14-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.2	+ 0.2	± 0.3
114.0	114.3	+ 0.3	± 0.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 01016 Issue Date : 04 Feb 2025
Application No. : HP00869

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Sound Level Calibrator.

Equipment No.: : N-13-02

Manufacturer: : SOUNDTEK

Other information :

Model No.	ST-120
Serial No.	181001636

Date Received : 28 Jan 2025

Test Period : 03 Feb 2025 to 04 Feb 2025

Test Requested : Performance checking for Sound Level Calibrator

Test Method : The Sound Level Meter and Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 01016 Issue Date : 04 Feb 2025
Application No. : HP00869

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Description	Sound Meter
Manufacturer	SVANTEK
Model No.	SVAN 977
Serial No.	92677
Microphone No.	10352
Equipment No.	N-14-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+ 0.1	± 0.3
114.0	114.2	+ 0.2	± 0.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00647 Issue Date : 11 Apr 2024
Application No. : HP00514

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-01

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	570183
Microphone No.	590073

Date Received : 09 Apr 2024

Test Period : 09 Apr 2024 to 09 Apr 2024

Test Requested : Performance checking for Sound Level Meter

Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00647 Issue Date : 11 Apr 2024
Application No. : HP00514

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+ 0.1	± 1.5
114.0	114.2	+ 0.2	± 1.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00845 Issue Date : 24 Sep 2024
Application No. : HP00700

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-03

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	570188
Microphone No.	570608

Date Received : 16 Sep 2024

Test Period : 23 Sep 2024 to 23 Sep 2024

Test Requested : Performance checking for Sound Level Meter

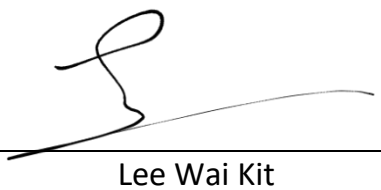
Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED



Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00845 Issue Date : 24 Sep 2024
Application No. : HP00700

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.0	± 0.0	± 1.5
114.0	113.8	- 0.2	± 1.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
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NT, Hong Kong
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Report No. : 00648 Issue Date : 11 Apr 2024
Application No. : HP00515

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-05

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	580287
Microphone No.	570610

Date Received : 09 Apr 2024

Test Period : 09 Apr 2024 to 09 Apr 2024

Test Requested : Performance checking for Sound Level Meter

Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED

Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00648 Issue Date : 11 Apr 2024
Application No. : HP00515

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.1	+ 0.1	± 1.5
114.0	114.1	+ 0.1	± 1.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
18 On Lai Street, Shatin
NT, Hong Kong
Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00803 Issue Date : 20 Aug 2024
Application No. : HP00654

Certificate of Calibration

Applicant : Cinotech Consultants Limited
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Sample Description : Submitted equipment stated to be Integrating Sound Level Meter.

Equipment No.: : N-12-07

Manufacturer: : BSWA Technology

Other information :

Model No.	BSWA 308
Serial No.	620091
Microphone No.	620230

Date Received : 09 Aug 2024

Test Period : 16 Aug 2024 to 16 Aug 2024

Test Requested : Performance checking for Sound Level Meter

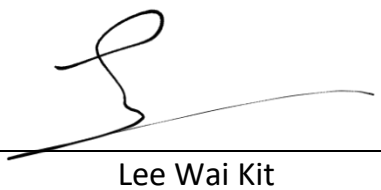
Test Method : The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard and instrument which are recommended by the manufacturer, or equivalent.

Test conditions : Room Temperature: 22-25 degree Celsius
Relative Humidity: 35-70%

Test Result : Refer to the test result(s) on page 2.

Remark : 1. Information of the sample description provided by the Applicant.
2. The result(s) relate only to the items tested or calibrated.

For and on behalf of
HIGH PRECISION CHEMICAL TESTING LIMITED



Lee Wai Kit
Laboratory Manager

High Precision Chemical Testing Ltd.
Rm 1904, Technology Park
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Tel: +852 3841 4388 Website: https://www.hpct.com.hk

Report No. : 00803 Issue Date : 20 Aug 2024
Application No. : HP00654

Certificate of Calibration

Measuring equipment :

Description	Sound Calibrator
Manufacturer	Brüel & Kjær
Model No.	TYPE 4231
Serial No.	2326353
Equipment No.	N-02-01

Test Result :

Reference value, dB	Indication value, dB	Deviation, dB	Allowed deviation, dB
94.0	94.0	± 0.0	± 1.5
114.0	114.1	+ 0.1	± 1.5

Note : 1. "Instrument Readings" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.
2. The indication value was obtained from the average of ten replicated measurement.

- End of report -

APPENDIX C
WEATHER INFORMATION

Table I: Weather over the Reporting Month

March 2025				
Table I				
Day	Mean Pressure (hPa)	Air Temperature Mean (°C)	Mean Relative Humidity (%)	Total Rainfall (mm)
1	1014.7	21.9	87.0	Trace
2	1012.4	22.8	87.0	0.0
3	1010.8	23.7	84.0	0.0
4	1010.3	24.4	85.0	0.0
5	1013.4	19.6	89.0	1.0
6	1019.7	14.5	83.0	11.5
7	1021.2	13.5	84.0	5.3
8	1020.8	16.6	72.0	0.0
9	1022.0	18.3	68.0	0.0
10	1020.3	20.4	70.0	Trace
11	1016.6	22.0	75.0	0.0
12	1014.3	22.4	86.0	2.8
13	1013.4	24.3	82.0	0.0
14	1014.4	21.5	90.0	Trace
15	1014.3	21.2	88.0	12.6
16	1019.3	17.6	57.0	Trace
17	1021.0	16.4	53.0	Trace
18	1022.4	17.1	52.0	Trace
19	1024.4	18.5	54.0	0.0
20	1024.1	19.4	61.0	0.0
21	1022.7	20.5	57.0	0.0
22	1020.5	21.2	60.0	0.0
23	1017.6	21.8	61.0	0.0
24	1013.4	22.4	60.0	0.0
25	1009.4	23.5	61.0	0.0
26	1007.9	23.9	77.0	0.0
27	1007.2	25.2	78.0	0.0
28	1010.7	25.1	86.0	1.5
29	1017.5	16.5	83.0	1.2
30	1020.6	13.7	82.0	2.2
31	1019.5	13.6	82.0	Trace

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
1 Mar 2025	12:00 AM	ESE	0.9
1 Mar 2025	1:00 AM	E	1.3
1 Mar 2025	2:00 AM	ENE	1.3
1 Mar 2025	3:00 AM	ENE	0.9
1 Mar 2025	4:00 AM	E	0.9
1 Mar 2025	5:00 AM	ENE	0.9
1 Mar 2025	6:00 AM	E	0.4
1 Mar 2025	7:00 AM	ENE	0.9
1 Mar 2025	8:00 AM	NW	0.4
1 Mar 2025	9:00 AM	ENE	0.9
1 Mar 2025	10:00 AM	WNW	0.9
1 Mar 2025	11:00 AM	W	0.9
1 Mar 2025	12:00 PM	W	1.3
1 Mar 2025	1:00 PM	W	0.4
1 Mar 2025	2:00 PM	NE	0.4
1 Mar 2025	3:00 PM	NNW	0.9
1 Mar 2025	4:00 PM	NE	0.4
1 Mar 2025	5:00 PM	NE	0.4
1 Mar 2025	6:00 PM	NNW	0.4
1 Mar 2025	7:00 PM	NNW	0.9
1 Mar 2025	8:00 PM	NNW	0.9
1 Mar 2025	9:00 PM	WSW	0.4
1 Mar 2025	10:00 PM	WSW	0.4
1 Mar 2025	11:00 PM	W	0.4
2 Mar 2025	12:00 AM	NW	0.9
2 Mar 2025	1:00 AM	W	1.3
2 Mar 2025	2:00 AM	W	1.3
2 Mar 2025	3:00 AM	W	1.3
2 Mar 2025	4:00 AM	WNW	1.3
2 Mar 2025	5:00 AM	W	0.9
2 Mar 2025	6:00 AM	W	1.3
2 Mar 2025	7:00 AM	W	1.8
2 Mar 2025	8:00 AM	W	1.3
2 Mar 2025	9:00 AM	W	1.3
2 Mar 2025	10:00 AM	WNW	1.3
2 Mar 2025	11:00 AM	W	1.3
2 Mar 2025	12:00 PM	W	1.3
2 Mar 2025	1:00 PM	W	0.9
2 Mar 2025	2:00 PM	W	1.3
2 Mar 2025	3:00 PM	WNW	1.3
2 Mar 2025	4:00 PM	W	1.8
2 Mar 2025	5:00 PM	W	1.3
2 Mar 2025	6:00 PM	W	1.8
2 Mar 2025	7:00 PM	NE	1.8
2 Mar 2025	8:00 PM	NNW	2.2
2 Mar 2025	9:00 PM	NE	1.3

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
2 Mar 2025	10:00 PM	NE	1.8
2 Mar 2025	11:00 PM	NNW	1.3
3 Mar 2025	12:00 AM	NNW	0.9
3 Mar 2025	1:00 AM	NNW	0.9
3 Mar 2025	2:00 AM	W	1.3
3 Mar 2025	3:00 AM	W	1.3
3 Mar 2025	4:00 AM	WNW	0.9
3 Mar 2025	5:00 AM	WNW	1.3
3 Mar 2025	6:00 AM	W	0.9
3 Mar 2025	7:00 AM	NW	1.3
3 Mar 2025	8:00 AM	NW	1.3
3 Mar 2025	9:00 AM	NW	1.8
3 Mar 2025	10:00 AM	WNW	0.9
3 Mar 2025	11:00 AM	W	1.3
3 Mar 2025	12:00 PM	W	1.3
3 Mar 2025	1:00 PM	W	2.2
3 Mar 2025	2:00 PM	NE	1.8
3 Mar 2025	3:00 PM	NNW	1.8
3 Mar 2025	4:00 PM	NE	1.8
3 Mar 2025	5:00 PM	NE	1.8
3 Mar 2025	6:00 PM	NNW	0.9
3 Mar 2025	7:00 PM	NNW	3.6
3 Mar 2025	8:00 PM	NNW	3.1
3 Mar 2025	9:00 PM	NW	3.1
3 Mar 2025	10:00 PM	NW	3.6
3 Mar 2025	11:00 PM	NW	1.3
4 Mar 2025	12:00 AM	NW	1.3
4 Mar 2025	1:00 AM	WNW	1.3
4 Mar 2025	2:00 AM	W	0.9
4 Mar 2025	3:00 AM	W	0.9
4 Mar 2025	4:00 AM	W	0.9
4 Mar 2025	5:00 AM	NE	0.9
4 Mar 2025	6:00 AM	NNW	1.3
4 Mar 2025	7:00 AM	NE	0.9
4 Mar 2025	8:00 AM	NE	0.9
4 Mar 2025	9:00 AM	NNW	0.4
4 Mar 2025	10:00 AM	NNW	0.9
4 Mar 2025	11:00 AM	NNW	1.8
4 Mar 2025	12:00 PM	E	0.9
4 Mar 2025	1:00 PM	E	1.8
4 Mar 2025	2:00 PM	E	1.3
4 Mar 2025	3:00 PM	E	0.4
4 Mar 2025	4:00 PM	ENE	0.4
4 Mar 2025	5:00 PM	E	0.9
4 Mar 2025	6:00 PM	ENE	0.9
4 Mar 2025	7:00 PM	E	1.8

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
4 Mar 2025	8:00 PM	E	0.9
4 Mar 2025	9:00 PM	ENE	1.8
4 Mar 2025	10:00 PM	E	0.9
4 Mar 2025	11:00 PM	E	1.8
5 Mar 2025	12:00 AM	E	1.3
5 Mar 2025	1:00 AM	ESE	0.4
5 Mar 2025	2:00 AM	ESE	0.4
5 Mar 2025	3:00 AM	NW	0.9
5 Mar 2025	4:00 AM	E	0.9
5 Mar 2025	5:00 AM	E	1.8
5 Mar 2025	6:00 AM	E	0.9
5 Mar 2025	7:00 AM	E	0.9
5 Mar 2025	8:00 AM	ENE	1.8
5 Mar 2025	9:00 AM	E	1.8
5 Mar 2025	10:00 AM	E	1.3
5 Mar 2025	11:00 AM	ENE	1.3
5 Mar 2025	12:00 PM	ENE	1.3
5 Mar 2025	1:00 PM	ENE	0.9
5 Mar 2025	2:00 PM	E	1.3
5 Mar 2025	3:00 PM	ESE	0.4
5 Mar 2025	4:00 PM	NW	0.0
5 Mar 2025	5:00 PM	ENE	0.0
5 Mar 2025	6:00 PM	ENE	0.4
5 Mar 2025	7:00 PM	E	0.4
5 Mar 2025	8:00 PM	E	0.9
5 Mar 2025	9:00 PM	E	1.3
5 Mar 2025	10:00 PM	E	0.9
5 Mar 2025	11:00 PM	E	0.9
6 Mar 2025	12:00 AM	ENE	0.9
6 Mar 2025	1:00 AM	ESE	0.4
6 Mar 2025	2:00 AM	E	0.9
6 Mar 2025	3:00 AM	E	1.3
6 Mar 2025	4:00 AM	E	1.8
6 Mar 2025	5:00 AM	ESE	1.8
6 Mar 2025	6:00 AM	ENE	0.9
6 Mar 2025	7:00 AM	E	1.3
6 Mar 2025	8:00 AM	NW	1.3
6 Mar 2025	9:00 AM	E	0.9
6 Mar 2025	10:00 AM	ENE	2.7
6 Mar 2025	11:00 AM	E	1.3
6 Mar 2025	12:00 PM	E	0.9
6 Mar 2025	1:00 PM	ENE	0.9
6 Mar 2025	2:00 PM	ENE	0.0
6 Mar 2025	3:00 PM	ENE	0.4
6 Mar 2025	4:00 PM	E	0.0
6 Mar 2025	5:00 PM	ESE	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
6 Mar 2025	6:00 PM	NW	0.4
6 Mar 2025	7:00 PM	ENE	0.4
6 Mar 2025	8:00 PM	ENE	0.4
6 Mar 2025	9:00 PM	E	0.0
6 Mar 2025	10:00 PM	E	0.4
6 Mar 2025	11:00 PM	E	0.4
7 Mar 2025	12:00 AM	W	0.4
7 Mar 2025	1:00 AM	E	0.4
7 Mar 2025	2:00 AM	ENE	0.4
7 Mar 2025	3:00 AM	ENE	0.4
7 Mar 2025	4:00 AM	E	0.4
7 Mar 2025	5:00 AM	N	0.4
7 Mar 2025	6:00 AM	ENE	0.4
7 Mar 2025	7:00 AM	E	1.3
7 Mar 2025	8:00 AM	NW	1.3
7 Mar 2025	9:00 AM	NW	2.2
7 Mar 2025	10:00 AM	NW	1.3
7 Mar 2025	11:00 AM	NW	0.4
7 Mar 2025	12:00 PM	E	0.9
7 Mar 2025	1:00 PM	E	0.4
7 Mar 2025	2:00 PM	ESE	0.4
7 Mar 2025	3:00 PM	ESE	0.4
7 Mar 2025	4:00 PM	ESE	0.4
7 Mar 2025	5:00 PM	ESE	0.4
7 Mar 2025	6:00 PM	NNE	0.4
7 Mar 2025	7:00 PM	E	0.4
7 Mar 2025	8:00 PM	NW	0.4
7 Mar 2025	9:00 PM	NW	0.9
7 Mar 2025	10:00 PM	NE	0.4
7 Mar 2025	11:00 PM	NW	0.9
8 Mar 2025	12:00 AM	NW	0.4
8 Mar 2025	1:00 AM	NE	0.9
8 Mar 2025	2:00 AM	NW	1.3
8 Mar 2025	3:00 AM	NW	1.3
8 Mar 2025	4:00 AM	NW	1.8
8 Mar 2025	5:00 AM	NW	1.8
8 Mar 2025	6:00 AM	NW	2.2
8 Mar 2025	7:00 AM	NW	0.4
8 Mar 2025	8:00 AM	NW	0.4
8 Mar 2025	9:00 AM	NW	0.4
8 Mar 2025	10:00 AM	NW	0.4
8 Mar 2025	11:00 AM	NW	1.3
8 Mar 2025	12:00 PM	ENE	1.3
8 Mar 2025	1:00 PM	NW	2.2
8 Mar 2025	2:00 PM	NW	1.3
8 Mar 2025	3:00 PM	NW	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
8 Mar 2025	4:00 PM	NW	0.9
8 Mar 2025	5:00 PM	NW	0.4
8 Mar 2025	6:00 PM	NW	0.4
8 Mar 2025	7:00 PM	NW	0.4
8 Mar 2025	8:00 PM	NW	0.4
8 Mar 2025	9:00 PM	NW	0.4
8 Mar 2025	10:00 PM	N	0.4
8 Mar 2025	11:00 PM	NNW	0.4
9 Mar 2025	12:00 AM	NNW	0.4
9 Mar 2025	1:00 AM	NW	0.9
9 Mar 2025	2:00 AM	NNW	0.4
9 Mar 2025	3:00 AM	NW	0.9
9 Mar 2025	4:00 AM	E	0.9
9 Mar 2025	5:00 AM	ENE	0.9
9 Mar 2025	6:00 AM	E	1.3
9 Mar 2025	7:00 AM	E	2.2
9 Mar 2025	8:00 AM	ENE	2.7
9 Mar 2025	9:00 AM	ENE	1.3
9 Mar 2025	10:00 AM	ENE	1.3
9 Mar 2025	11:00 AM	E	1.8
9 Mar 2025	12:00 PM	ESE	1.3
9 Mar 2025	1:00 PM	NW	1.3
9 Mar 2025	2:00 PM	ENE	0.9
9 Mar 2025	3:00 PM	ENE	0.9
9 Mar 2025	4:00 PM	E	0.4
9 Mar 2025	5:00 PM	E	0.0
9 Mar 2025	6:00 PM	E	0.4
9 Mar 2025	7:00 PM	NW	0.0
9 Mar 2025	8:00 PM	---	0.0
9 Mar 2025	9:00 PM	---	0.0
9 Mar 2025	10:00 PM	NNW	0.0
9 Mar 2025	11:00 PM	NW	0.4
10 Mar 2025	12:00 AM	NW	0.4
10 Mar 2025	1:00 AM	NW	0.4
10 Mar 2025	2:00 AM	NW	0.4
10 Mar 2025	3:00 AM	E	1.3
10 Mar 2025	4:00 AM	E	1.3
10 Mar 2025	5:00 AM	ENE	2.2
10 Mar 2025	6:00 AM	ESE	1.3
10 Mar 2025	7:00 AM	NW	0.4
10 Mar 2025	8:00 AM	NW	0.9
10 Mar 2025	9:00 AM	NW	0.4
10 Mar 2025	10:00 AM	NW	0.4
10 Mar 2025	11:00 AM	NW	0.4
10 Mar 2025	12:00 PM	NW	0.4
10 Mar 2025	1:00 PM	E	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
10 Mar 2025	2:00 PM	ENE	0.4
10 Mar 2025	3:00 PM	E	0.4
10 Mar 2025	4:00 PM	E	0.4
10 Mar 2025	5:00 PM	ENE	0.9
10 Mar 2025	6:00 PM	ENE	0.4
10 Mar 2025	7:00 PM	ENE	0.4
10 Mar 2025	8:00 PM	E	0.9
10 Mar 2025	9:00 PM	ESE	0.0
10 Mar 2025	10:00 PM	NW	0.9
10 Mar 2025	11:00 PM	ENE	0.9
11 Mar 2025	12:00 AM	ENE	0.9
11 Mar 2025	1:00 AM	E	0.4
11 Mar 2025	2:00 AM	E	1.3
11 Mar 2025	3:00 AM	E	0.4
11 Mar 2025	4:00 AM	NNE	0.9
11 Mar 2025	5:00 AM	NW	0.9
11 Mar 2025	6:00 AM	NW	1.3
11 Mar 2025	7:00 AM	NW	2.7
11 Mar 2025	8:00 AM	NW	2.7
11 Mar 2025	9:00 AM	NW	2.7
11 Mar 2025	10:00 AM	NW	1.8
11 Mar 2025	11:00 AM	NW	0.4
11 Mar 2025	12:00 PM	NW	0.9
11 Mar 2025	1:00 PM	NW	1.3
11 Mar 2025	2:00 PM	W	0.4
11 Mar 2025	3:00 PM	NW	0.9
11 Mar 2025	4:00 PM	NW	0.4
11 Mar 2025	5:00 PM	WSW	0.4
11 Mar 2025	6:00 PM	NW	1.3
11 Mar 2025	7:00 PM	NW	0.9
11 Mar 2025	8:00 PM	NW	1.8
11 Mar 2025	9:00 PM	NW	1.8
11 Mar 2025	10:00 PM	NW	1.8
11 Mar 2025	11:00 PM	NW	0.9
12 Mar 2025	12:00 AM	NW	1.3
12 Mar 2025	1:00 AM	NW	0.9
12 Mar 2025	2:00 AM	W	0.4
12 Mar 2025	3:00 AM	NW	0.4
12 Mar 2025	4:00 AM	NW	0.9
12 Mar 2025	5:00 AM	ENE	1.3
12 Mar 2025	6:00 AM	NW	0.9
12 Mar 2025	7:00 AM	ENE	1.3
12 Mar 2025	8:00 AM	ENE	1.8
12 Mar 2025	9:00 AM	NW	2.7
12 Mar 2025	10:00 AM	NE	1.8
12 Mar 2025	11:00 AM	NW	0.9

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
12 Mar 2025	12:00 PM	ENE	0.4
12 Mar 2025	1:00 PM	E	0.4
12 Mar 2025	2:00 PM	E	0.4
12 Mar 2025	3:00 PM	E	0.4
12 Mar 2025	4:00 PM	NW	0.4
12 Mar 2025	5:00 PM	NW	0.4
12 Mar 2025	6:00 PM	ESE	2.2
12 Mar 2025	7:00 PM	WNW	0.9
12 Mar 2025	8:00 PM	WNW	0.9
12 Mar 2025	9:00 PM	E	2.2
12 Mar 2025	10:00 PM	ENE	1.8
12 Mar 2025	11:00 PM	NW	1.8
13 Mar 2025	12:00 AM	ENE	2.2
13 Mar 2025	1:00 AM	ENE	2.2
13 Mar 2025	2:00 AM	NW	1.3
13 Mar 2025	3:00 AM	NE	1.8
13 Mar 2025	4:00 AM	NW	1.8
13 Mar 2025	5:00 AM	ENE	1.3
13 Mar 2025	6:00 AM	E	2.7
13 Mar 2025	7:00 AM	E	2.7
13 Mar 2025	8:00 AM	E	2.7
13 Mar 2025	9:00 AM	E	3.1
13 Mar 2025	10:00 AM	E	1.8
13 Mar 2025	11:00 AM	E	1.8
13 Mar 2025	12:00 PM	ESE	1.3
13 Mar 2025	1:00 PM	E	1.3
13 Mar 2025	2:00 PM	E	1.3
13 Mar 2025	3:00 PM	ENE	0.9
13 Mar 2025	4:00 PM	ESE	0.9
13 Mar 2025	5:00 PM	ESE	1.3
13 Mar 2025	6:00 PM	E	0.9
13 Mar 2025	7:00 PM	NNW	0.9
13 Mar 2025	8:00 PM	ENE	1.8
13 Mar 2025	9:00 PM	E	1.3
13 Mar 2025	10:00 PM	E	2.7
13 Mar 2025	11:00 PM	ENE	2.7
14 Mar 2025	12:00 AM	SE	2.7
14 Mar 2025	1:00 AM	NW	3.1
14 Mar 2025	2:00 AM	NW	1.8
14 Mar 2025	3:00 AM	E	1.8
14 Mar 2025	4:00 AM	E	1.3
14 Mar 2025	5:00 AM	E	1.3
14 Mar 2025	6:00 AM	E	1.3
14 Mar 2025	7:00 AM	E	0.9
14 Mar 2025	8:00 AM	SE	0.9
14 Mar 2025	9:00 AM	E	1.3

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
14 Mar 2025	10:00 AM	ESE	0.9
14 Mar 2025	11:00 AM	ESE	0.9
14 Mar 2025	12:00 PM	ESE	0.9
14 Mar 2025	1:00 PM	ESE	1.3
14 Mar 2025	2:00 PM	ESE	1.3
14 Mar 2025	3:00 PM	ESE	0.9
14 Mar 2025	4:00 PM	ESE	1.3
14 Mar 2025	5:00 PM	ESE	0.9
14 Mar 2025	6:00 PM	E	0.4
14 Mar 2025	7:00 PM	SE	0.9
14 Mar 2025	8:00 PM	SE	0.9
14 Mar 2025	9:00 PM	SE	1.3
14 Mar 2025	10:00 PM	SE	1.3
14 Mar 2025	11:00 PM	WNW	1.8
15 Mar 2025	12:00 AM	WNW	1.3
15 Mar 2025	1:00 AM	WNW	1.8
15 Mar 2025	2:00 AM	NNW	1.8
15 Mar 2025	3:00 AM	WNW	0.9
15 Mar 2025	4:00 AM	WNW	0.9
15 Mar 2025	5:00 AM	NNW	1.3
15 Mar 2025	6:00 AM	NNW	1.8
15 Mar 2025	7:00 AM	WNW	0.9
15 Mar 2025	8:00 AM	NW	0.4
15 Mar 2025	9:00 AM	NW	0.4
15 Mar 2025	10:00 AM	NNW	0.4
15 Mar 2025	11:00 AM	ENE	0.4
15 Mar 2025	12:00 PM	NW	1.3
15 Mar 2025	1:00 PM	ENE	0.9
15 Mar 2025	2:00 PM	ENE	1.8
15 Mar 2025	3:00 PM	NW	1.3
15 Mar 2025	4:00 PM	NE	2.2
15 Mar 2025	5:00 PM	NW	2.7
15 Mar 2025	6:00 PM	ENE	2.7
15 Mar 2025	7:00 PM	E	1.3
15 Mar 2025	8:00 PM	E	1.8
15 Mar 2025	9:00 PM	E	1.3
15 Mar 2025	10:00 PM	NNW	0.9
15 Mar 2025	11:00 PM	NNW	0.4
16 Mar 2025	12:00 AM	NNW	0.4
16 Mar 2025	1:00 AM	NNW	0.9
16 Mar 2025	2:00 AM	NNW	0.9
16 Mar 2025	3:00 AM	NNW	0.4
16 Mar 2025	4:00 AM	NNW	0.4
16 Mar 2025	5:00 AM	NNW	0.4
16 Mar 2025	6:00 AM	NNW	0.9
16 Mar 2025	7:00 AM	NNW	0.9

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
16 Mar 2025	8:00 AM	N	0.4
16 Mar 2025	9:00 AM	NNW	0.0
16 Mar 2025	10:00 AM	NNW	0.9
16 Mar 2025	11:00 AM	NW	0.4
16 Mar 2025	12:00 PM	NNW	0.4
16 Mar 2025	1:00 PM	N	0.4
16 Mar 2025	2:00 PM	NNW	0.9
16 Mar 2025	3:00 PM	NNW	0.9
16 Mar 2025	4:00 PM	N	0.4
16 Mar 2025	5:00 PM	ENE	0.0
16 Mar 2025	6:00 PM	ENE	0.0
16 Mar 2025	7:00 PM	ENE	0.0
16 Mar 2025	8:00 PM	ENE	0.0
16 Mar 2025	9:00 PM	ENE	0.0
16 Mar 2025	10:00 PM	N	0.0
16 Mar 2025	11:00 PM	N	0.0
17 Mar 2025	12:00 AM	N	0.4
17 Mar 2025	1:00 AM	NNW	0.9
17 Mar 2025	2:00 AM	NW	0.9
17 Mar 2025	3:00 AM	NNW	1.8
17 Mar 2025	4:00 AM	NNW	1.8
17 Mar 2025	5:00 AM	W	0.9
17 Mar 2025	6:00 AM	NNW	0.9
17 Mar 2025	7:00 AM	W	1.3
17 Mar 2025	8:00 AM	W	0.9
17 Mar 2025	9:00 AM	W	0.4
17 Mar 2025	10:00 AM	NNW	0.4
17 Mar 2025	11:00 AM	ENE	0.4
17 Mar 2025	12:00 PM	E	0.9
17 Mar 2025	1:00 PM	ENE	0.9
17 Mar 2025	2:00 PM	NE	0.9
17 Mar 2025	3:00 PM	NE	0.9
17 Mar 2025	4:00 PM	ENE	1.3
17 Mar 2025	5:00 PM	E	1.3
17 Mar 2025	6:00 PM	E	0.9
17 Mar 2025	7:00 PM	E	0.9
17 Mar 2025	8:00 PM	E	0.9
17 Mar 2025	9:00 PM	E	0.9
17 Mar 2025	10:00 PM	ENE	0.9
17 Mar 2025	11:00 PM	ENE	0.9
18 Mar 2025	12:00 AM	N	0.9
18 Mar 2025	1:00 AM	ENE	0.9
18 Mar 2025	2:00 AM	NE	0.9
18 Mar 2025	3:00 AM	NNW	1.3
18 Mar 2025	4:00 AM	W	1.8
18 Mar 2025	5:00 AM	NNW	1.3

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
18 Mar 2025	6:00 AM	NNW	1.8
18 Mar 2025	7:00 AM	NNW	1.8
18 Mar 2025	8:00 AM	NNW	2.2
18 Mar 2025	9:00 AM	NNW	1.8
18 Mar 2025	10:00 AM	NNW	2.2
18 Mar 2025	11:00 AM	NE	1.8
18 Mar 2025	12:00 PM	ENE	0.9
18 Mar 2025	1:00 PM	NE	0.1
18 Mar 2025	2:00 PM	NNE	0.1
18 Mar 2025	3:00 PM	ENE	0.1
18 Mar 2025	4:00 PM	NE	0.1
18 Mar 2025	5:00 PM	ENE	0.1
18 Mar 2025	6:00 PM	NNE	0.1
18 Mar 2025	7:00 PM	NE	0.1
18 Mar 2025	8:00 PM	E	0.1
18 Mar 2025	9:00 PM	ENE	0.2
18 Mar 2025	10:00 PM	NE	0.2
18 Mar 2025	11:00 PM	ENE	0.2
19 Mar 2025	12:00 AM	SW	0.3
19 Mar 2025	1:00 AM	S	0.3
19 Mar 2025	2:00 AM	SE	0.1
19 Mar 2025	3:00 AM	ESE	0.1
19 Mar 2025	4:00 AM	ESE	0.1
19 Mar 2025	5:00 AM	NE	0.1
19 Mar 2025	6:00 AM	NE	0.1
19 Mar 2025	7:00 AM	NE	0.1
19 Mar 2025	8:00 AM	ENE	0.2
19 Mar 2025	9:00 AM	ENE	1.1
19 Mar 2025	10:00 AM	ENE	0.8
19 Mar 2025	11:00 AM	ENE	0.7
19 Mar 2025	12:00 PM	ENE	0.1
19 Mar 2025	1:00 PM	ENE	0.1
19 Mar 2025	2:00 PM	NE	0.3
19 Mar 2025	3:00 PM	ENE	0.2
19 Mar 2025	4:00 PM	ENE	0.2
19 Mar 2025	5:00 PM	ENE	0.1
19 Mar 2025	6:00 PM	NE	0.6
19 Mar 2025	7:00 PM	ENE	0.2
19 Mar 2025	8:00 PM	WNW	0.7
19 Mar 2025	9:00 PM	W	0.1
19 Mar 2025	10:00 PM	SE	0.1
19 Mar 2025	11:00 PM	WSW	0.7
20 Mar 2025	12:00 AM	SW	0.3
20 Mar 2025	1:00 AM	SW	0.5
20 Mar 2025	2:00 AM	W	0.1
20 Mar 2025	3:00 AM	W	0.1

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
20 Mar 2025	4:00 AM	SW	0.1
20 Mar 2025	5:00 AM	SSW	0.1
20 Mar 2025	6:00 AM	E	0.1
20 Mar 2025	7:00 AM	WSW	0.1
20 Mar 2025	8:00 AM	SW	0.1
20 Mar 2025	9:00 AM	SW	0.1
20 Mar 2025	10:00 AM	NNE	0.1
20 Mar 2025	11:00 AM	NE	0.1
20 Mar 2025	12:00 PM	NE	0.1
20 Mar 2025	1:00 PM	NE	0.1
20 Mar 2025	2:00 PM	NE	0.1
20 Mar 2025	3:00 PM	N	0.1
20 Mar 2025	4:00 PM	SSW	0.1
20 Mar 2025	5:00 PM	NE	0.1
20 Mar 2025	6:00 PM	S	0.1
20 Mar 2025	7:00 PM	NE	0.1
20 Mar 2025	8:00 PM	SSE	0.1
20 Mar 2025	9:00 PM	ESE	0.2
20 Mar 2025	10:00 PM	NE	0.3
20 Mar 2025	11:00 PM	ENE	0.2
21 Mar 2025	12:00 AM	ENE	0.3
21 Mar 2025	1:00 AM	ENE	0.2
21 Mar 2025	2:00 AM	E	0.1
21 Mar 2025	3:00 AM	ENE	0.1
21 Mar 2025	4:00 AM	E	0.2
21 Mar 2025	5:00 AM	ENE	0.1
21 Mar 2025	6:00 AM	ESE	0.1
21 Mar 2025	7:00 AM	NE	0.1
21 Mar 2025	8:00 AM	ENE	0.1
21 Mar 2025	9:00 AM	ENE	0.1
21 Mar 2025	10:00 AM	E	0.1
21 Mar 2025	11:00 AM	NE	0.1
21 Mar 2025	12:00 PM	NNE	0.1
21 Mar 2025	1:00 PM	NNE	0.1
21 Mar 2025	2:00 PM	NNE	0.4
21 Mar 2025	3:00 PM	NE	0.1
21 Mar 2025	4:00 PM	NNE	0.2
21 Mar 2025	5:00 PM	NE	0.9
21 Mar 2025	6:00 PM	E	0.1
21 Mar 2025	7:00 PM	ESE	0.2
21 Mar 2025	8:00 PM	NW	0.3
21 Mar 2025	9:00 PM	NE	0.3
21 Mar 2025	10:00 PM	NE	0.1
21 Mar 2025	11:00 PM	ENE	0.1
22 Mar 2025	12:00 AM	NNE	0.1
22 Mar 2025	1:00 AM	NNE	0.1

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
22 Mar 2025	2:00 AM	NNE	0.2
22 Mar 2025	3:00 AM	ENE	0.1
22 Mar 2025	4:00 AM	E	0.4
22 Mar 2025	5:00 AM	NE	0.2
22 Mar 2025	6:00 AM	NE	0.2
22 Mar 2025	7:00 AM	N	0.2
22 Mar 2025	8:00 AM	E	0.8
22 Mar 2025	9:00 AM	NE	0.2
22 Mar 2025	10:00 AM	N	0.5
22 Mar 2025	11:00 AM	ENE	0.9
22 Mar 2025	12:00 PM	NE	0.4
22 Mar 2025	1:00 PM	NNE	0.2
22 Mar 2025	2:00 PM	ENE	0.3
22 Mar 2025	3:00 PM	N	0.2
22 Mar 2025	4:00 PM	NE	0.2
22 Mar 2025	5:00 PM	N	1.8
22 Mar 2025	6:00 PM	NNE	0.8
22 Mar 2025	7:00 PM	NE	0.7
22 Mar 2025	8:00 PM	N	0.1
22 Mar 2025	9:00 PM	ENE	0.1
22 Mar 2025	10:00 PM	ENE	0.3
22 Mar 2025	11:00 PM	N	0.2
23 Mar 2025	12:00 AM	NW	0.2
23 Mar 2025	1:00 AM	NNE	0.1
23 Mar 2025	2:00 AM	NNE	0.6
23 Mar 2025	3:00 AM	NNE	0.2
23 Mar 2025	4:00 AM	ENE	0.7
23 Mar 2025	5:00 AM	NE	0.4
23 Mar 2025	6:00 AM	N	0.7
23 Mar 2025	7:00 AM	NNE	0.2
23 Mar 2025	8:00 AM	NNE	0.1
23 Mar 2025	9:00 AM	ENE	0.1
23 Mar 2025	10:00 AM	NE	0.1
23 Mar 2025	11:00 AM	NNE	0.2
23 Mar 2025	12:00 PM	ENE	1.5
23 Mar 2025	1:00 PM	ENE	0.1
23 Mar 2025	2:00 PM	NE	1.5
23 Mar 2025	3:00 PM	N	0.9
23 Mar 2025	4:00 PM	NE	0.1
23 Mar 2025	5:00 PM	NE	0.2
23 Mar 2025	6:00 PM	SE	0.2
23 Mar 2025	7:00 PM	E	0.2
23 Mar 2025	8:00 PM	ENE	0.3
23 Mar 2025	9:00 PM	ENE	0.7
23 Mar 2025	10:00 PM	NNW	2.5
23 Mar 2025	11:00 PM	NNE	0.8

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
24 Mar 2025	12:00 AM	ENE	0.2
24 Mar 2025	1:00 AM	NNE	0.1
24 Mar 2025	2:00 AM	NE	0.3
24 Mar 2025	3:00 AM	NE	0.2
24 Mar 2025	4:00 AM	ENE	1.8
24 Mar 2025	5:00 AM	ENE	0.8
24 Mar 2025	6:00 AM	W	0.9
24 Mar 2025	7:00 AM	ESE	1.8
24 Mar 2025	8:00 AM	E	3.6
24 Mar 2025	9:00 AM	WSW	3.1
24 Mar 2025	10:00 AM	E	3.1
24 Mar 2025	11:00 AM	ESE	3.6
24 Mar 2025	12:00 PM	W	1.3
24 Mar 2025	1:00 PM	WSW	1.3
24 Mar 2025	2:00 PM	W	1.3
24 Mar 2025	3:00 PM	WSW	0.9
24 Mar 2025	4:00 PM	W	0.9
24 Mar 2025	5:00 PM	WNW	0.9
24 Mar 2025	6:00 PM	W	0.9
24 Mar 2025	7:00 PM	SSW	1.3
24 Mar 2025	8:00 PM	WSW	0.9
24 Mar 2025	9:00 PM	S	0.9
24 Mar 2025	10:00 PM	WSW	0.4
24 Mar 2025	11:00 PM	WNW	0.9
25 Mar 2025	12:00 AM	SSW	1.8
25 Mar 2025	1:00 AM	SW	0.9
25 Mar 2025	2:00 AM	SW	1.8
25 Mar 2025	3:00 AM	WSW	1.3
25 Mar 2025	4:00 AM	WSW	0.4
25 Mar 2025	5:00 AM	WNW	0.4
25 Mar 2025	6:00 AM	WNW	0.9
25 Mar 2025	7:00 AM	S	0.9
25 Mar 2025	8:00 AM	ESE	1.8
25 Mar 2025	9:00 AM	SE	0.9
25 Mar 2025	10:00 AM	SE	0.9
25 Mar 2025	11:00 AM	SSW	1.8
25 Mar 2025	12:00 PM	SSW	1.8
25 Mar 2025	1:00 PM	SSE	1.3
25 Mar 2025	2:00 PM	SSE	1.3
25 Mar 2025	3:00 PM	---	1.3
25 Mar 2025	4:00 PM	SSE	0.9
25 Mar 2025	5:00 PM	SSW	1.3
25 Mar 2025	6:00 PM	SSW	0.4
25 Mar 2025	7:00 PM	SSW	0.0
25 Mar 2025	8:00 PM	SSW	0.0
25 Mar 2025	9:00 PM	SSW	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
25 Mar 2025	10:00 PM	WNW	0.4
25 Mar 2025	11:00 PM	WNW	0.4
26 Mar 2025	12:00 AM	WNW	0.4
26 Mar 2025	1:00 AM	WNW	0.4
26 Mar 2025	2:00 AM	SW	0.4
26 Mar 2025	3:00 AM	WNW	0.4
26 Mar 2025	4:00 AM	SSW	1.3
26 Mar 2025	5:00 AM	SSW	1.3
26 Mar 2025	6:00 AM	SSW	2.2
26 Mar 2025	7:00 AM	WSW	1.3
26 Mar 2025	8:00 AM	WSW	0.4
26 Mar 2025	9:00 AM	W	0.9
26 Mar 2025	10:00 AM	SSW	0.4
26 Mar 2025	11:00 AM	SSW	0.4
26 Mar 2025	12:00 PM	SSW	0.4
26 Mar 2025	1:00 PM	SSW	0.4
26 Mar 2025	2:00 PM	SSW	0.4
26 Mar 2025	3:00 PM	SW	0.9
26 Mar 2025	4:00 PM	SW	0.9
26 Mar 2025	5:00 PM	SW	0.0
26 Mar 2025	6:00 PM	NW	0.4
26 Mar 2025	7:00 PM	NW	0.0
26 Mar 2025	8:00 PM	NW	0.4
26 Mar 2025	9:00 PM	NW	0.4
26 Mar 2025	10:00 PM	NW	0.4
26 Mar 2025	11:00 PM	NW	0.4
27 Mar 2025	12:00 AM	NW	0.0
27 Mar 2025	1:00 AM	NW	0.4
27 Mar 2025	2:00 AM	WNW	0.4
27 Mar 2025	3:00 AM	NW	0.4
27 Mar 2025	4:00 AM	NW	0.4
27 Mar 2025	5:00 AM	SSW	0.4
27 Mar 2025	6:00 AM	SW	0.4
27 Mar 2025	7:00 AM	SE	0.4
27 Mar 2025	8:00 AM	SE	0.4
27 Mar 2025	9:00 AM	SE	0.4
27 Mar 2025	10:00 AM	SSE	1.3
27 Mar 2025	11:00 AM	SSW	1.3
27 Mar 2025	12:00 PM	SSW	2.2
27 Mar 2025	1:00 PM	SW	1.3
27 Mar 2025	2:00 PM	SW	0.4
27 Mar 2025	3:00 PM	WNW	0.9
27 Mar 2025	4:00 PM	ESE	0.4
27 Mar 2025	5:00 PM	E	0.4
27 Mar 2025	6:00 PM	E	0.4
27 Mar 2025	7:00 PM	E	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
27 Mar 2025	8:00 PM	NW	0.4
27 Mar 2025	9:00 PM	W	0.4
27 Mar 2025	10:00 PM	W	0.4
27 Mar 2025	11:00 PM	NW	0.4
28 Mar 2025	12:00 AM	NW	0.9
28 Mar 2025	1:00 AM	ESE	0.4
28 Mar 2025	2:00 AM	E	0.9
28 Mar 2025	3:00 AM	E	0.4
28 Mar 2025	4:00 AM	E	0.9
28 Mar 2025	5:00 AM	NW	1.3
28 Mar 2025	6:00 AM	W	1.3
28 Mar 2025	7:00 AM	W	1.8
28 Mar 2025	8:00 AM	NW	1.8
28 Mar 2025	9:00 AM	NW	2.2
28 Mar 2025	10:00 AM	NW	1.3
28 Mar 2025	11:00 AM	WNW	0.4
28 Mar 2025	12:00 PM	NW	0.9
28 Mar 2025	1:00 PM	W	0.9
28 Mar 2025	2:00 PM	ESE	0.9
28 Mar 2025	3:00 PM	E	1.3
28 Mar 2025	4:00 PM	WSW	2.2
28 Mar 2025	5:00 PM	E	2.7
28 Mar 2025	6:00 PM	ESE	1.3
28 Mar 2025	7:00 PM	W	1.3
28 Mar 2025	8:00 PM	WSW	1.8
28 Mar 2025	9:00 PM	W	1.3
28 Mar 2025	10:00 PM	SW	1.3
28 Mar 2025	11:00 PM	SSW	0.9
29 Mar 2025	12:00 AM	SSW	0.9
29 Mar 2025	1:00 AM	SSW	0.4
29 Mar 2025	2:00 AM	SSW	0.0
29 Mar 2025	3:00 AM	SSW	0.4
29 Mar 2025	4:00 AM	SW	0.0
29 Mar 2025	5:00 AM	WNW	0.0
29 Mar 2025	6:00 AM	WNW	0.0
29 Mar 2025	7:00 AM	WNW	0.0
29 Mar 2025	8:00 AM	W	0.4
29 Mar 2025	9:00 AM	WSW	0.4
29 Mar 2025	10:00 AM	WSW	0.4
29 Mar 2025	11:00 AM	WSW	0.4
29 Mar 2025	12:00 PM	WNW	1.3
29 Mar 2025	1:00 PM	ENE	1.3
29 Mar 2025	2:00 PM	WNW	1.3
29 Mar 2025	3:00 PM	WNW	0.9
29 Mar 2025	4:00 PM	WNW	1.8
29 Mar 2025	5:00 PM	WNW	1.3

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
29 Mar 2025	6:00 PM	WNW	2.2
29 Mar 2025	7:00 PM	WNW	1.8
29 Mar 2025	8:00 PM	WNW	2.2
29 Mar 2025	9:00 PM	NNE	1.3
29 Mar 2025	10:00 PM	WNW	0.4
29 Mar 2025	11:00 PM	WNW	0.9
30 Mar 2025	12:00 AM	WNW	0.4
30 Mar 2025	1:00 AM	WNW	0.4
30 Mar 2025	2:00 AM	WNW	0.9
30 Mar 2025	3:00 AM	WNW	0.4
30 Mar 2025	4:00 AM	WNW	0.4
30 Mar 2025	5:00 AM	WNW	0.9
30 Mar 2025	6:00 AM	WNW	0.0
30 Mar 2025	7:00 AM	WNW	0.9
30 Mar 2025	8:00 AM	WNW	0.9
30 Mar 2025	9:00 AM	WNW	0.9
30 Mar 2025	10:00 AM	WNW	0.4
30 Mar 2025	11:00 AM	WNW	0.9
30 Mar 2025	12:00 PM	WNW	0.9
30 Mar 2025	1:00 PM	W	0.0
30 Mar 2025	2:00 PM	WNW	0.4
30 Mar 2025	3:00 PM	WNW	0.0
30 Mar 2025	4:00 PM	WNW	0.4
30 Mar 2025	5:00 PM	WNW	0.4
30 Mar 2025	6:00 PM	NW	0.4
30 Mar 2025	7:00 PM	ESE	0.4
30 Mar 2025	8:00 PM	ESE	0.0
30 Mar 2025	9:00 PM	NW	0.4
30 Mar 2025	10:00 PM	WNW	0.4
30 Mar 2025	11:00 PM	WNW	0.4

Appendix C - Weather Conditions during Monitoring Period

March 2025			
Table II: Wind Speed and Directions			
Date	**Time**	**Direction**	**Wind Speed m^{-s}**
31 Mar 2025	12:00 AM	WNW	0.4
31 Mar 2025	1:00 AM	WNW	0.4
31 Mar 2025	2:00 AM	WNW	0.4
31 Mar 2025	3:00 AM	WNW	0.4
31 Mar 2025	4:00 AM	WNW	0.4
31 Mar 2025	5:00 AM	WNW	0.4
31 Mar 2025	6:00 AM	WNW	1.3
31 Mar 2025	7:00 AM	WSW	1.3
31 Mar 2025	8:00 AM	WSW	0.9
31 Mar 2025	9:00 AM	WNW	1.3
31 Mar 2025	10:00 AM	WNW	0.9
31 Mar 2025	11:00 AM	WNW	1.3
31 Mar 2025	12:00 PM	WSW	0.9
31 Mar 2025	1:00 PM	W	0.4
31 Mar 2025	2:00 PM	WNW	0.9
31 Mar 2025	3:00 PM	W	0.9
31 Mar 2025	4:00 PM	WNW	1.3
31 Mar 2025	5:00 PM	NNE	1.3
31 Mar 2025	6:00 PM	W	1.8
31 Mar 2025	7:00 PM	WNW	1.3
31 Mar 2025	8:00 PM	WNW	1.8
31 Mar 2025	9:00 PM	WNW	1.8
31 Mar 2025	10:00 PM	WNW	0.9
31 Mar 2025	11:00 PM	WNW	0.9

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Air Quality and Noise Monitoring Schedule (March 2025)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Mar
2-Mar	3-Mar	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar
		24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]			
9-Mar	10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar
	24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]				**24 hr TSP**
16-Mar	17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar
	1 hr TSP X3 [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]				**24 hr TSP**	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)]
23-Mar	24-Mar	25-Mar	**26-Mar**	**27-Mar**	**28-Mar**	**29-Mar**
				24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]	
30-Mar	31-Mar	1-Apr				

Air Quality Monitoring Station

AM1 - Tin Hau Temple
AM2 - Sai Tso Wan Recreation Ground
AM3 - Yau Lai Estate Bik Lai House
AM4[(1)] - Sitting-out Area at Cha Kwo Ling Village
AM4(B)[(2)] - Flat 103 Cha Kwo Ling Village
AM5(A) - Tseung Kwan O DSD Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area

Noise Monitoring Station

CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong
CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong
CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong
CM4 - Tin Hau Temple, Cha Kwo Ling
CM5 - CCC Kei Faat Primary School, Yau Tong
CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores
CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores
CM8(A) - Park Central, L1/F Open Space Area

Note (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Air Quality and Noise Monitoring Schedule (April 2025)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Apr	2-Apr	3-Apr	4-Apr	5-Apr
		24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]			
6-Apr	7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr
	24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]				**24 hr TSP**
13-Apr	14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr
	1 hr TSP X3 [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]				**24 hr TSP**	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)]
20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr
				24 hr TSP	**1 hr TSP X3** [AM1, AM2, AM3] [AM4,AM5(A), AM6(A)] **Noise [Daytime (07:00-19:00)]** [CM1, CM2, CM3, CM4, CM5] [CM6(A), CM7(A), CM8(A))]	
27-Apr	28-Apr	29-Apr	**30-Apr**	**1-May**	**2-May**	**3-May**
			24 hr TSP			

Air Quality Monitoring Station

AM1 - Tin Hau Temple
AM2 - Sai Tso Wan Recreation Ground
AM3 - Yau Lai Estate Bik Lai House
AM4[(1)] - Sitting-out Area at Cha Kwo Ling Village
AM4(B)[(2)] - Flat 103 Cha Kwo Ling Village
AM5(A) - Tseung Kwan O DSD Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area

Noise Monitoring Station

CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong
CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong
CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong
CM4 - Tin Hau Temple, Cha Kwo Ling
CM5 - CCC Kei Faat Primary School, Yau Tong
CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores
CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores
CM8(A) - Park Central, L1/F Open Space Area

Note (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM1 - Tin Hau Temple			
Date	Time	Weather	Particulate Concentration (µg/m^3)
5-Mar-25	11:45	Cloudy	7.2
5-Mar-25	12:45	Cloudy	5.4
5-Mar-25	13:45	Cloudy	3.6
11-Mar-25	11:37	Cloudy	36.0
11-Mar-25	12:37	Cloudy	45.0
11-Mar-25	13:37	Cloudy	50.4
17-Mar-25	13:30	Fine	26.6
17-Mar-25	14:30	Fine	28.5
17-Mar-25	15:30	Fine	20.9
22-Mar-25	10:00	Fine	42.5
22-Mar-25	11:00	Fine	45.9
22-Mar-25	12:00	Fine	35.7
28-Mar-25	15:35	Fine	17.1
28-Mar-25	16:35	Fine	34.2
28-Mar-25	17:35	Fine	32.3
		Average	28.8
		Maximum	50.4
		Minimum	3.6

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
5-Mar-25	11:07	Cloudy	5.1
5-Mar-25	12:07	Cloudy	10.2
5-Mar-25	13:07	Cloudy	13.6
11-Mar-25	16:00	Sunny	27.0
11-Mar-25	17:00	Sunny	28.8
11-Mar-25	18:00	Sunny	32.4
17-Mar-25	9:00	Fine	32.4
17-Mar-25	10:00	Fine	27.0
17-Mar-25	11:00	Fine	25.2
22-Mar-25	9:00	Fine	30.4
22-Mar-25	10:00	Fine	22.8
22-Mar-25	11:00	Fine	38.0
28-Mar-25	9:04	Cloudy	102.6
28-Mar-25	10:04	Cloudy	97.2
28-Mar-25	11:04	Cloudy	79.2
		Average	38.1
		Maximum	102.6
		Minimum	5.1

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	***Particulate Concentration (µg/m ^{3})***
5-Mar-25	10:15	Cloudy	16.2
5-Mar-25	11:15	Cloudy	18.0
5-Mar-25	12:15	Cloudy	21.6
11-Mar-25	15:21	Cloudy	43.2
11-Mar-25	16:21	Cloudy	41.4
11-Mar-25	17:21	Cloudy	45.0
17-Mar-25	11:30	Fine	18.7
17-Mar-25	12:30	Fine	22.1
17-Mar-25	13:30	Fine	22.1
22-Mar-25	14:00	Fine	34.2
22-Mar-25	15:00	Fine	41.8
22-Mar-25	16:00	Fine	32.3
28-Mar-25	10:35	Cloudy	100.7
28-Mar-25	11:35	Cloudy	51.3
28-Mar-25	12:35	Cloudy	81.7
		Average	39.4
		Maximum	100.7
		Minimum	16.2

Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	***Particulate Concentration (µg/m ^{3})***
5-Mar-25	9:02	Cloudy	10.8
5-Mar-25	10:02	Cloudy	12.6
5-Mar-25	11:02	Cloudy	14.4
11-Mar-25	9:00	Cloudy	27.0
11-Mar-25	10:00	Cloudy	30.6
11-Mar-25	11:00	Cloudy	34.2
17-Mar-25	14:30	Fine	23.8
17-Mar-25	15:30	Fine	27.2
17-Mar-25	16:30	Fine	20.4
22-Mar-25	14:00	Fine	52.7
22-Mar-25	15:00	Fine	40.8
22-Mar-25	16:00	Fine	44.2
28-Mar-25	15:35	Fine	62.7
28-Mar-25	16:35	Fine	72.2
28-Mar-25	17:35	Fine	68.4
		Average	36.1
		Maximum	72.2
		Minimum	10.8

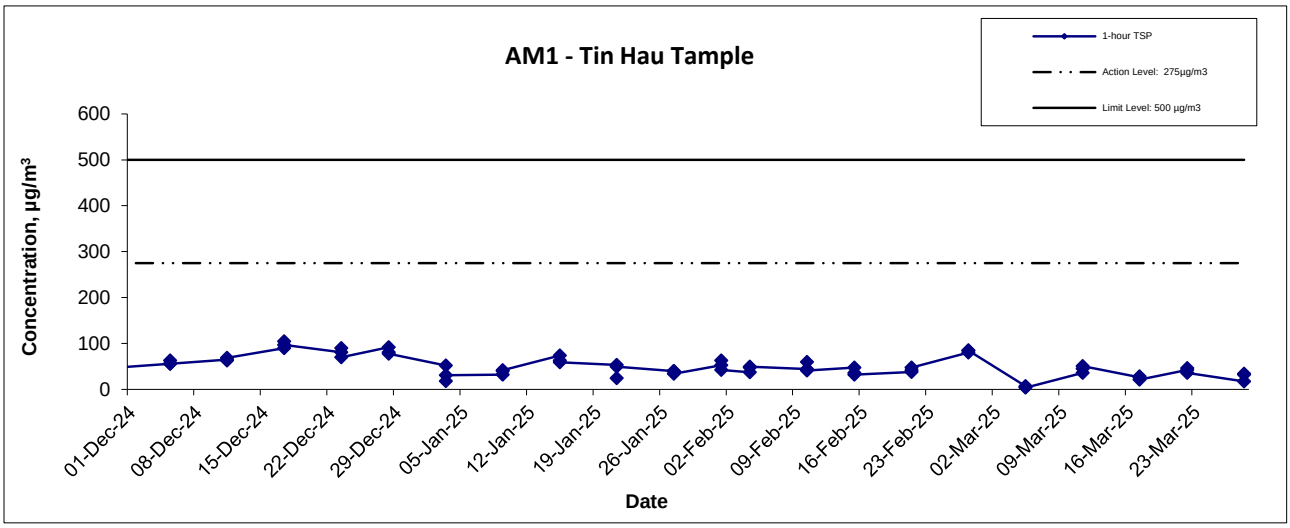
APPENDIX E - 1-HOUR TSP MONITORING RESULTS

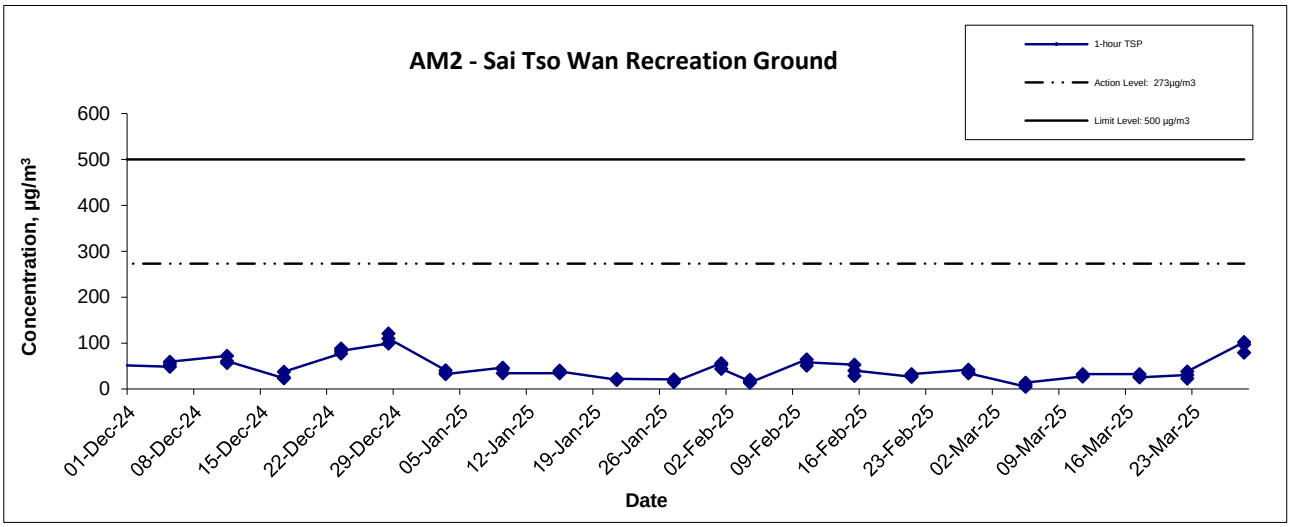
Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
5-Mar-25	13:18	Cloudy	11.9
5-Mar-25	14:18	Cloudy	17.0
5-Mar-25	15:18	Cloudy	17.0
11-Mar-25	13:00	Sunny	37.8
11-Mar-25	14:00	Sunny	36.0
11-Mar-25	15:00	Sunny	41.4
17-Mar-25	16:00	Fine	45.0
17-Mar-25	17:00	Fine	46.8
17-Mar-25	18:00	Fine	50.4
22-Mar-25	16:00	Fine	39.1
22-Mar-25	17:00	Fine	30.6
22-Mar-25	18:00	Fine	30.6
28-Mar-25	13:01	Cloudy	86.4
28-Mar-25	14:01	Cloudy	66.6
28-Mar-25	15:01	Cloudy	63.0
		Average	41.3
		Maximum	86.4
		Minimum	11.9

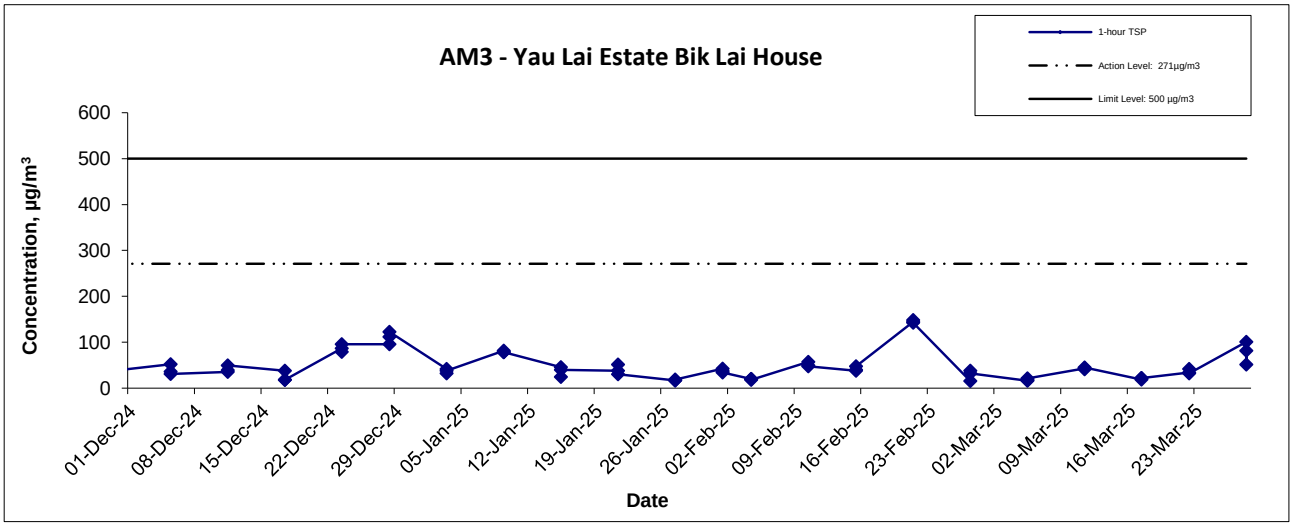
Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration (µg/m^3)
5-Mar-25	14:39	Cloudy	19.8
5-Mar-25	15:39	Cloudy	19.8
5-Mar-25	16:39	Cloudy	18.0
11-Mar-25	9:00	Sunny	45.0
11-Mar-25	10:00	Sunny	46.8
11-Mar-25	11:00	Sunny	39.6
17-Mar-25	13:00	Fine	45.0
17-Mar-25	14:00	Fine	39.6
17-Mar-25	15:00	Fine	46.8
22-Mar-25	12:00	Fine	35.7
22-Mar-25	13:00	Fine	23.8
22-Mar-25	14:00	Fine	25.5
28-Mar-25	15:57	Cloudy	82.8
28-Mar-25	16:57	Cloudy	91.8
28-Mar-25	17:57	Cloudy	99.0
		Average	45.3
		Maximum	99.0
		Minimum	18.0

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

1-hr TSP Concentration Levels



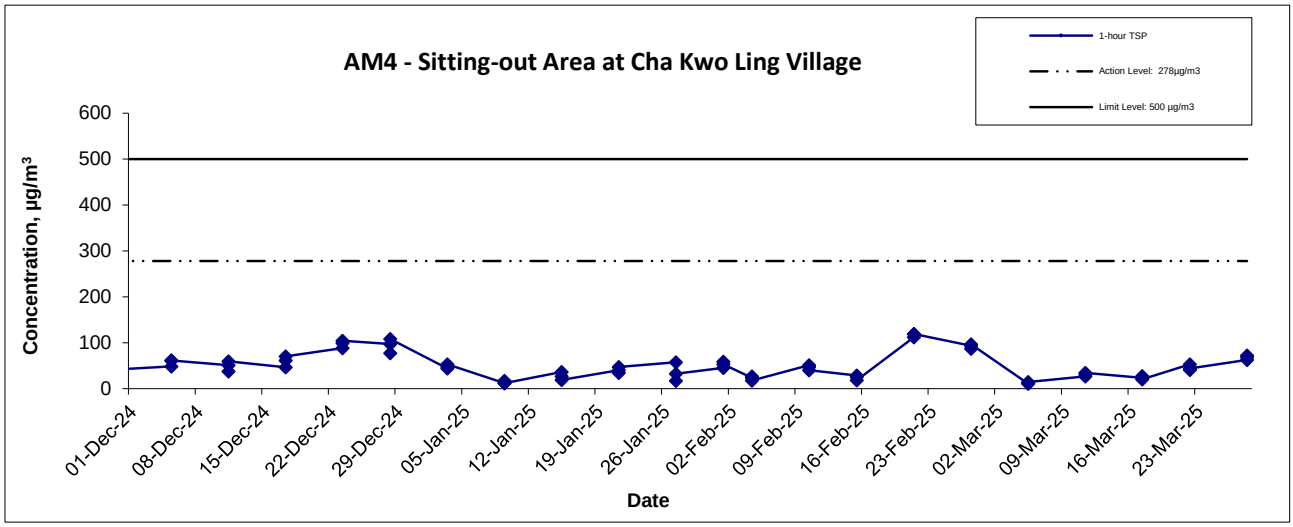


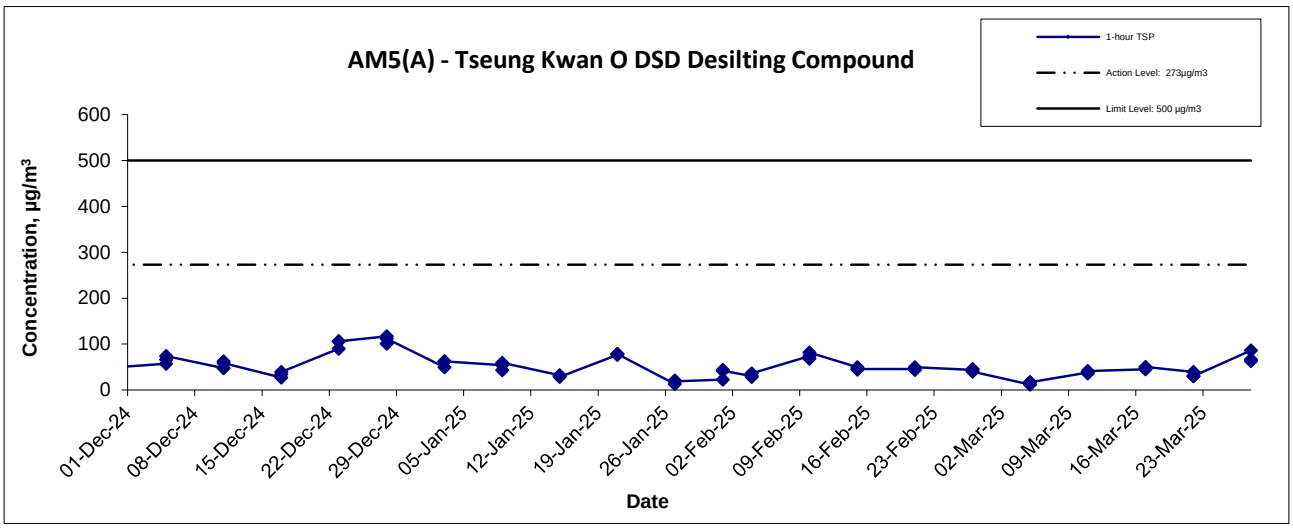


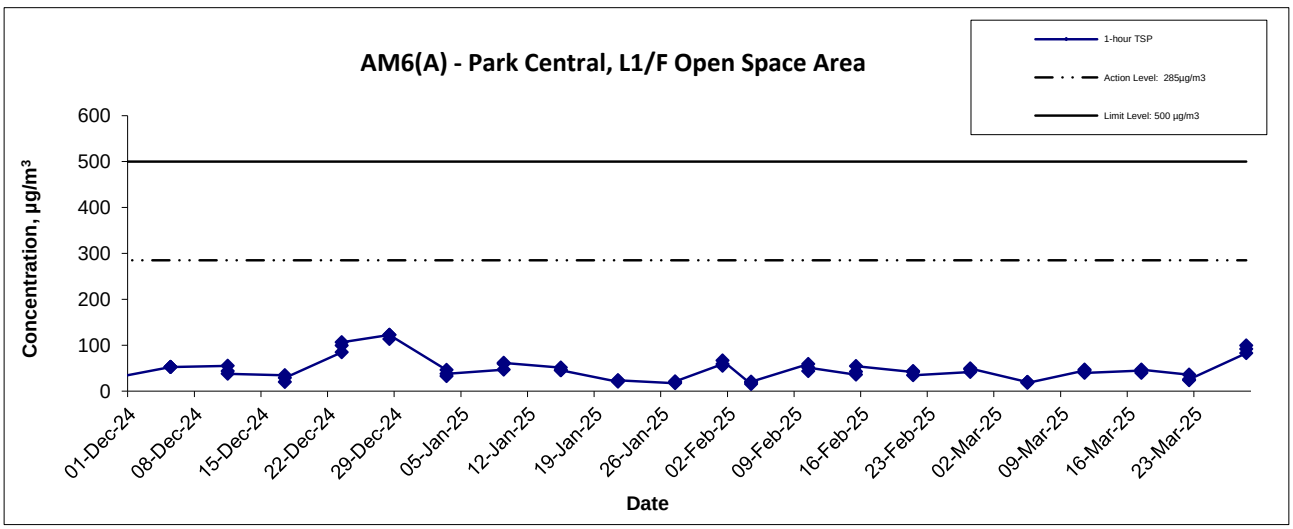
Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S Date Mar-25	Project No. MA16034 Appendix E	CINOTECH

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

1-hr TSP Concentration Levels







Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S Date Mar-25	Project No. MA16034 Appendix E	CINOTECH

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - 24-hour TSP Monitoring Results

Location AM1 - Tin Hau Temple

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	2.8273	2.9121	0.0848	14634.6	14658.6	24.0	1.20	1.21	1.21	1741.0	48.7
10-Mar-25	Fine	3.4002	3.4617	0.0614	14658.6	14682.6	24.0	1.22	1.21	1.21	1747.6	35.2
15-Mar-25	Cloudy	2.8148	2.9116	0.0969	14682.6	14706.6	24.0	1.21	1.22	1.22	1750.8	55.3
21-Mar-25	Sunny	2.8453	2.9512	0.1059	14706.6	14730.6	24.0	1.22	1.21	1.22	1750.6	60.5
27-Mar-25	Sunny	2.8613	2.9375	0.0761	14730.6	14754.6	24.0	1.20	1.20	1.20	1731.5	44.0
											Min	35.2
											Max	60.5
											Average	48.7

Location AM2 - Sai Tso Wan Recreation Ground

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	2.8028	2.8921	0.0893	35751.5	35775.5	24.0	1.20	1.21	1.21	1739.2	51.4
10-Mar-25	Fine	2.6947	2.7126	0.0180	35775.5	35799.5	24.0	1.21	1.21	1.21	1745.3	10.3
15-Mar-25	Fine	2.8462	2.9421	0.0959	35799.5	35823.5	24.0	1.21	1.22	1.21	1748.4	54.9
21-Mar-25	Cloudy	2.8650	2.9295	0.0645	35823.5	35847.5	24.0	1.22	1.21	1.21	1748.2	36.9
27-Mar-25	Fine	2.8307	2.9151	0.0844	35847.5	35871.5	24.0	1.20	1.20	1.20	1730.1	48.8
											Min	10.3
											Max	54.9
											Average	40.4

Location AM3 - Yau Lai Estate, Bik Lai House

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	3.3834	3.4342	0.0508	10046.1	10070.1	24.0	1.20	1.21	1.21	1739.5	29.2
10-Mar-25	Fine	3.3981	3.4215	0.0235	10070.1	10094.1	24.0	1.21	1.21	1.21	1746.2	13.4
15-Mar-25	Cloudy	2.8282	2.8672	0.0390	10094.1	10118.2	24.0	1.21	1.22	1.21	1750.3	22.3
21-Mar-25	Cloudy	2.8281	2.8627	0.0346	10118.2	10142.2	24.0	1.22	1.21	1.21	1751.6	19.7
27-Mar-25	Sunny	2.8205	2.8746	0.0540	10142.2	10166.2	24.0	1.20	1.20	1.20	1729.6	31.2
											Min	13.4
											Max	31.2
											Average	23.2

Location AM4(B) - Flat 103 Cha Kwo Ling Village

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	2.6694	2.8728	0.2034	21506.0	21530.0	24.0	1.21	1.21	1.21	1742.5	116.7
10-Mar-25	Fine	2.8185	3.0804	0.2618	21530.0	21554.0	24.0	1.21	1.21	1.21	1738.2	150.6
15-Mar-25	Cloudy	3.3598	3.5204	0.1607	21554.0	21578.0	24.0	1.21	1.21	1.21	1741.3	92.3
21-Mar-25	Sunny	3.3978	3.6603	0.2625	21578.0	21602.0	24.0	1.21	1.21	1.21	1741.1	150.8
27-Mar-25	Sunny	2.8301	3.0413	0.2112	21602.0	21626.0	24.0	1.20	1.20	1.20	1723.2	122.6
											Min	92.3
											Max	150.8
											Average	126.6

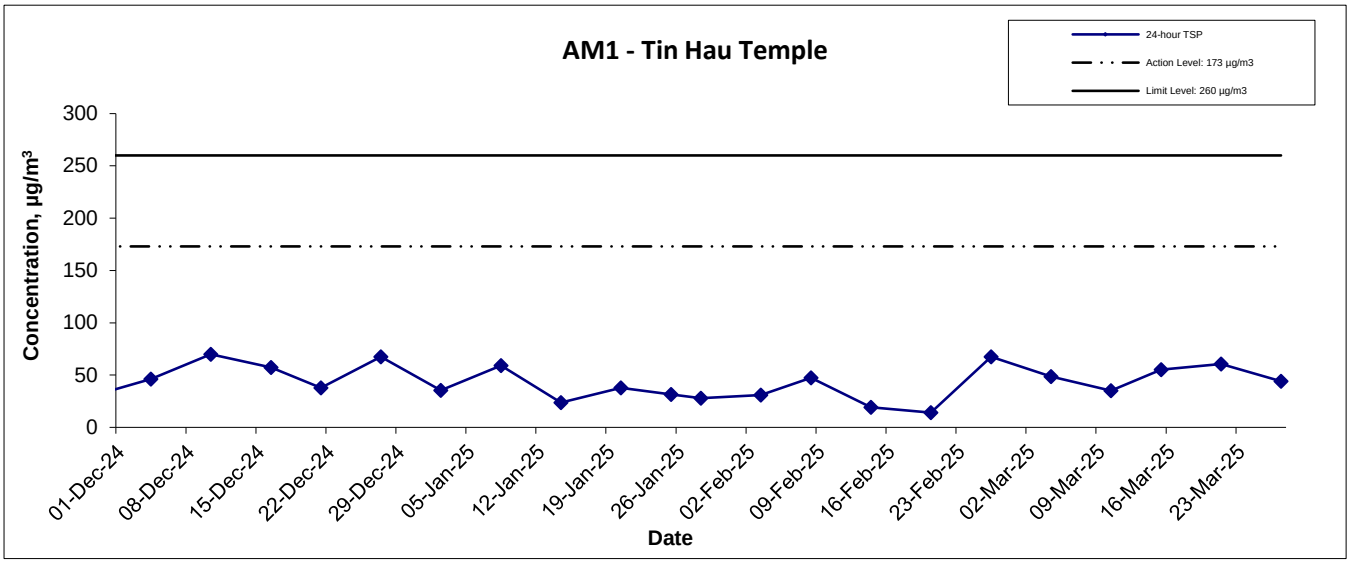
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

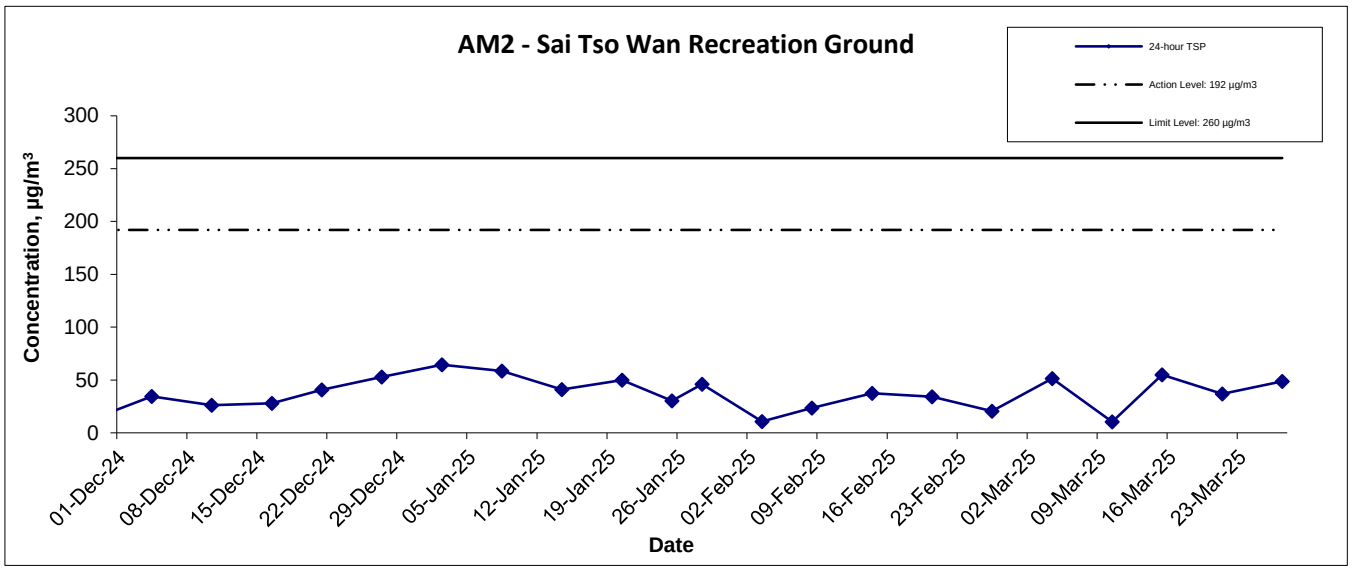
Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	2.6820	2.7240	0.0420	37171.5	37195.5	24.0	1.20	1.21	1.21	1740.0	24.1
10-Mar-25	Sunny	2.8234	2.8696	0.0462	37195.5	37219.5	24.0	1.21	1.21	1.21	1746.3	26.4
15-Mar-25	Fine	2.8283	2.8532	0.0250	37219.5	37243.5	24.0	1.21	1.22	1.21	1749.5	14.3
21-Mar-25	Sunny	2.8207	2.8686	0.0478	37243.5	37267.5	24.0	1.22	1.21	1.21	1749.3	27.4
27-Mar-25	Cloudy	2.8273	2.8764	0.0491	37267.5	37291.5	24.0	1.20	1.20	1.20	1730.8	28.4
											Min	14.3
											Max	28.4
											Average	24.1

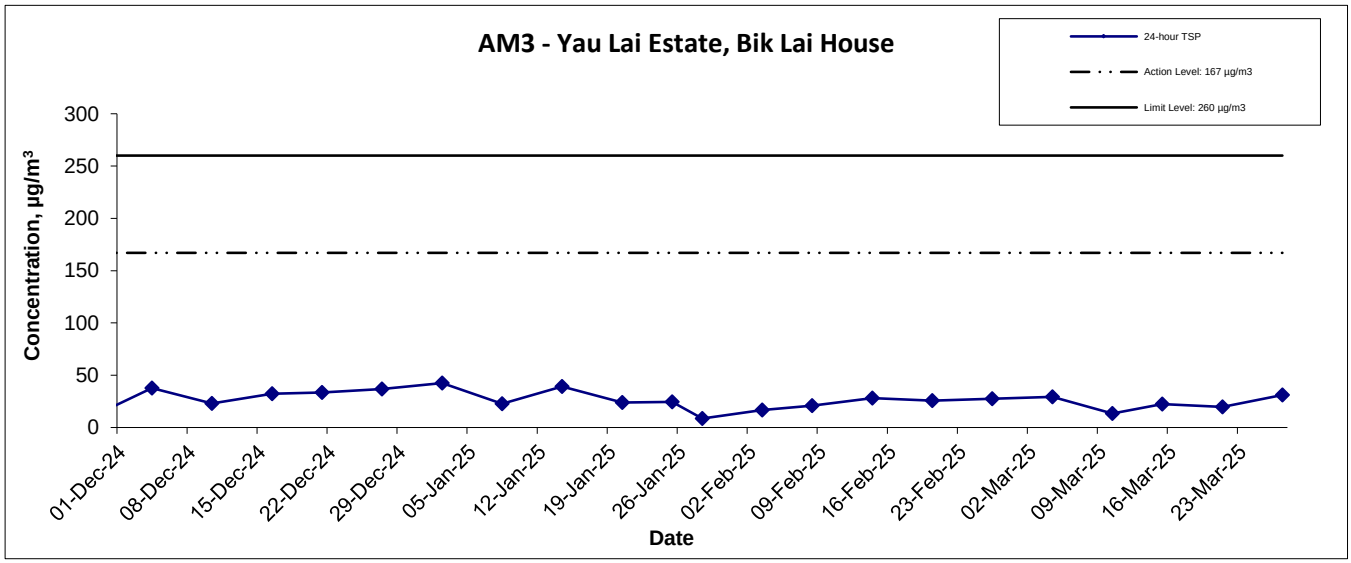
Location AM6(A) - Park Central, L1/F Open Space Area

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
4-Mar-25	Cloudy	2.6839	2.7702	0.0863	9073.8	9097.8	24.0	1.20	1.21	1.21	1737.6	49.7
10-Mar-25	Sunny	2.8327	2.9289	0.0962	9097.8	9121.8	24.0	1.20	1.20	1.20	1727.5	55.7
15-Mar-25	Sunny	2.6851	2.6969	0.0117	9121.8	9145.8	24.0	1.20	1.21	1.20	1731.3	6.8
21-Mar-25	Cloudy	2.8273	2.9091	0.0818	9145.8	9169.8	24.0	1.20	1.20	1.20	1731.1	47.2
27-Mar-25	Sunny	2.8177	2.8768	0.0591	9169.8	9193.8	24.0	1.19	1.19	1.19	1708.5	34.6
											Min	6.8
											Max	55.7
											Average	38.8

24-hr TSP Concentration Levels

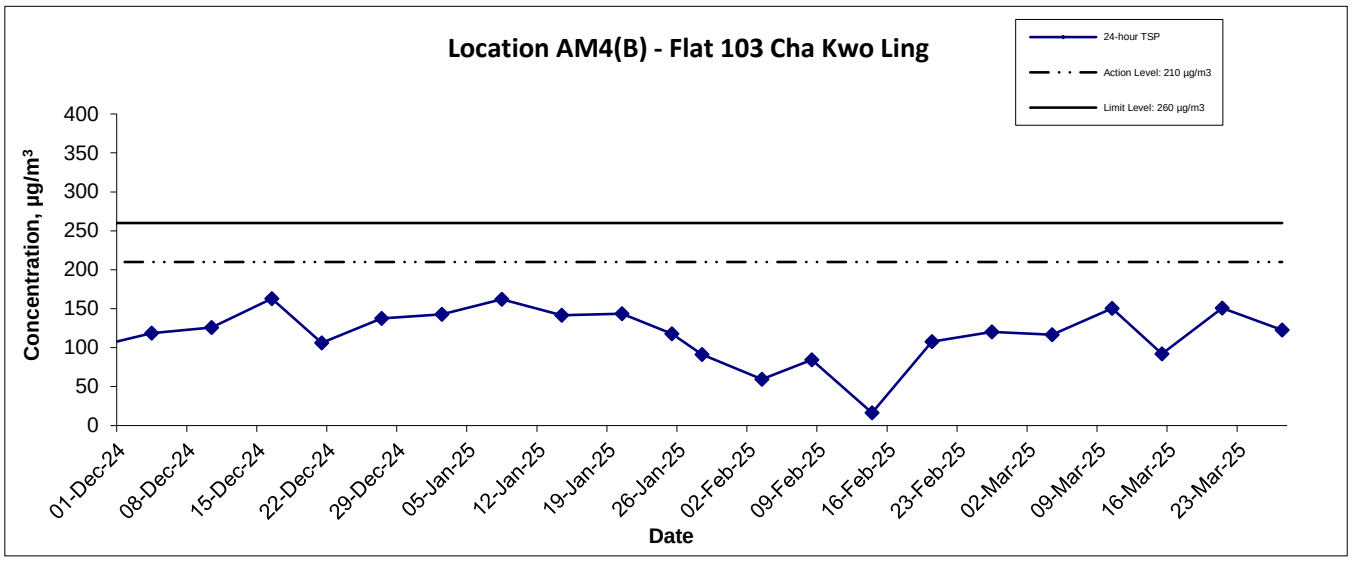


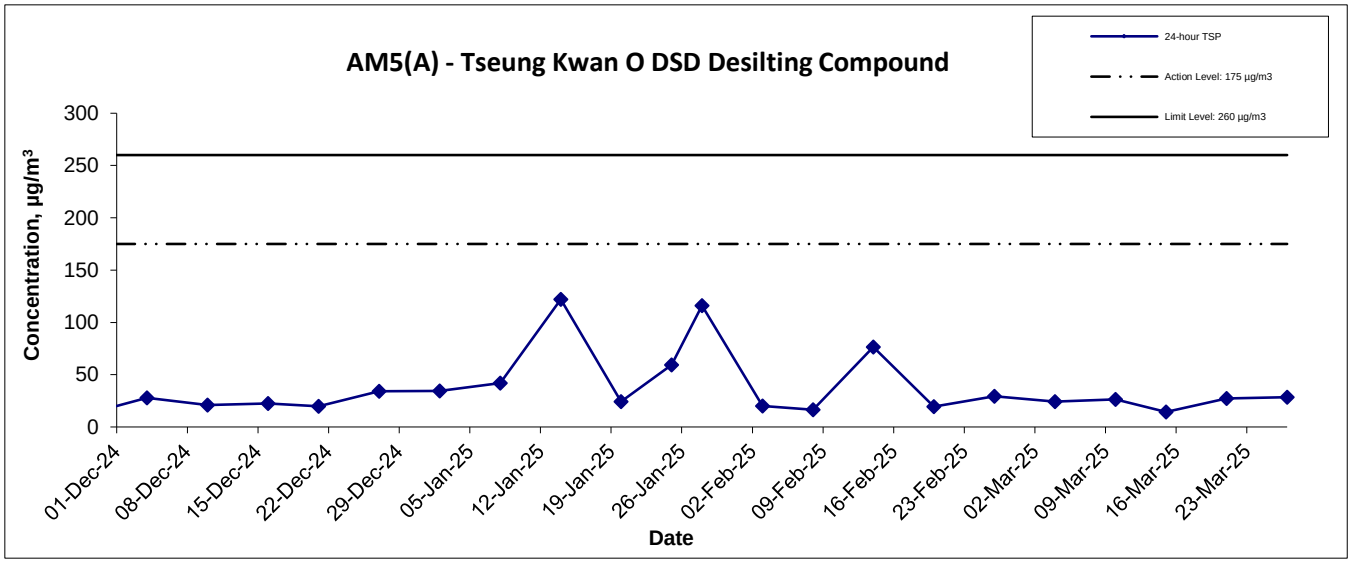


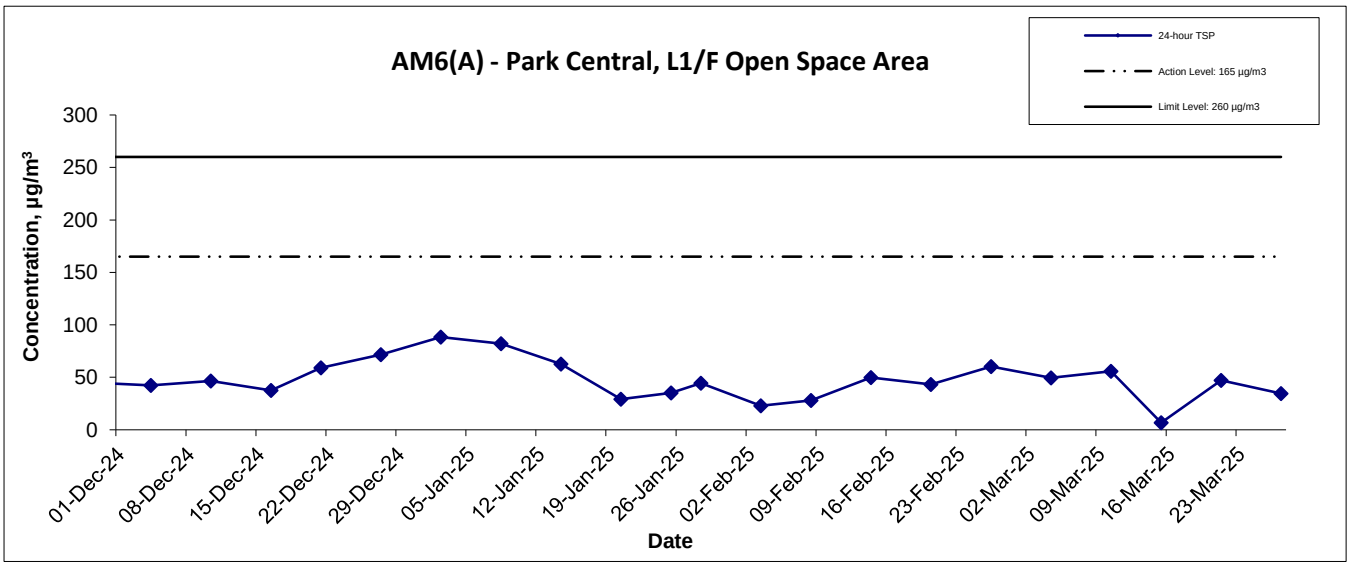


Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Mar-25	Project No. MA16034 Appendix F	CINOTECH

24-hr TSP Concentration Levels







Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S Date Mar-25	Project No. MA16034 Appendix F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix G - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	18:20	Cloudy	71.0	72.2	69.6	65.5	70
11-Mar-25	16:32	Cloudy	69.7	70.8	68.1	65.5	68
17-Mar-25	12:30	Fine	68.4	69.8	66.5	65.5	65
28-Mar-25	11:10	Cloudy	67.3	68.7	65.7	65.5	63

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	16:31	Cloudy	70.5	71.5	69.2	63.6	70
11-Mar-25	17:11	Cloudy	69.3	70.4	68.0	63.6	68
17-Mar-25	11:45	Fine	69.2	70.5	67.7	63.6	68
28-Mar-25	10:30	Cloudy	67.5	68.8	66.0	63.6	65

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	17:40	Cloudy	68.2	69.1	67.3	65.6	65
11-Mar-25	15:05	Cloudy	68.0	69.2	66.6	65.6	64
17-Mar-25	13:04	Fine	66.6	67.9	65.0	65.6	60
28-Mar-25	11:55	Cloudy	66.6	67.9	65.2	65.6	60

Location CM4 - Tin Hau Temple, Cha Kwo Ling							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	13:07	Cloudy	59.1	61.7	53.9	62.0	59 Measured ≦ Baseline
11-Mar-25	12:58	Cloudy	61.2	62.0	53.5	62.0	61 Measured ≦ Baseline
17-Mar-25	16:30	Fine	59.9	60.4	52.6	62.0	60 Measured ≦ Baseline
28-Mar-25	13:45	Fine	57.2	59.7	52.9	62.0	57 Measured ≦ Baseline

Location CM5 - CCC Kei Faat Primary School, Yau Tong							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	15:30	Cloudy	69.1	71.0	65.6	68.2	62
11-Mar-25	15:46	Cloudy	68.0	70.4	64.3	68.2	68 Measured ≦ Baseline
17-Mar-25	14:20	Fine	66.9	69.2	63.6	68.2	67 Measured ≦ Baseline
28-Mar-25	14:53	Cloudy	66.0	68.4	61.2	68.2	66 Measured ≦ Baseline

Appendix G - Noise Monitoring Results

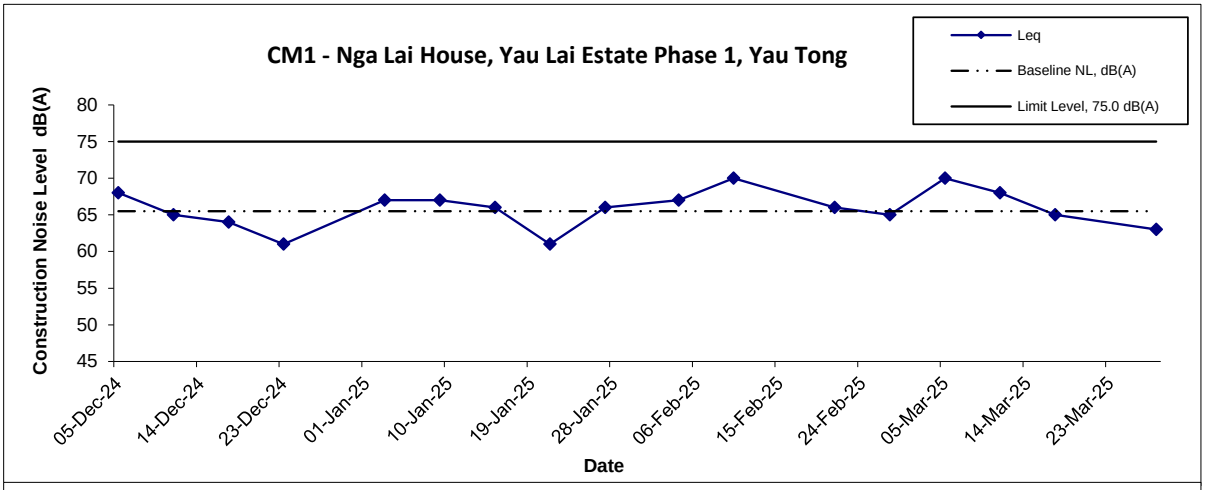
(0700-1900 hrs on Normal Weekdays)

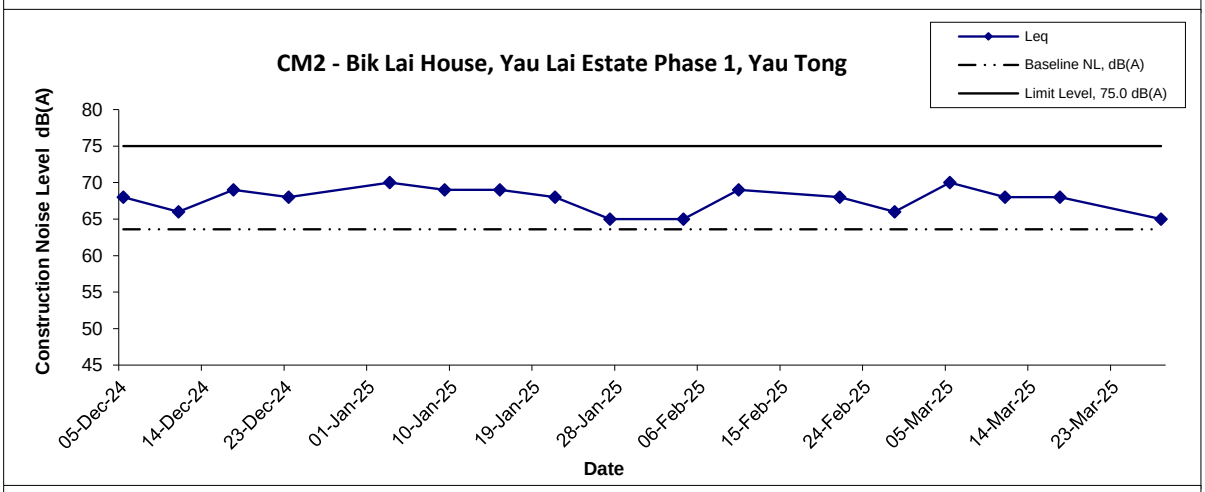
Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	13:43	Cloudy	54.4	56.1	52.1	61.9	54 Measured ≦ Baseline
11-Mar-25	11:00	Sunny	66.8	70.4	62.7	61.9	65
17-Mar-25	13:00	Fine	65.3	68.1	60.8	61.9	63
28-Mar-25	14:20	Cloudy	55.0	56.8	52.7	61.9	55 Measured ≦ Baseline

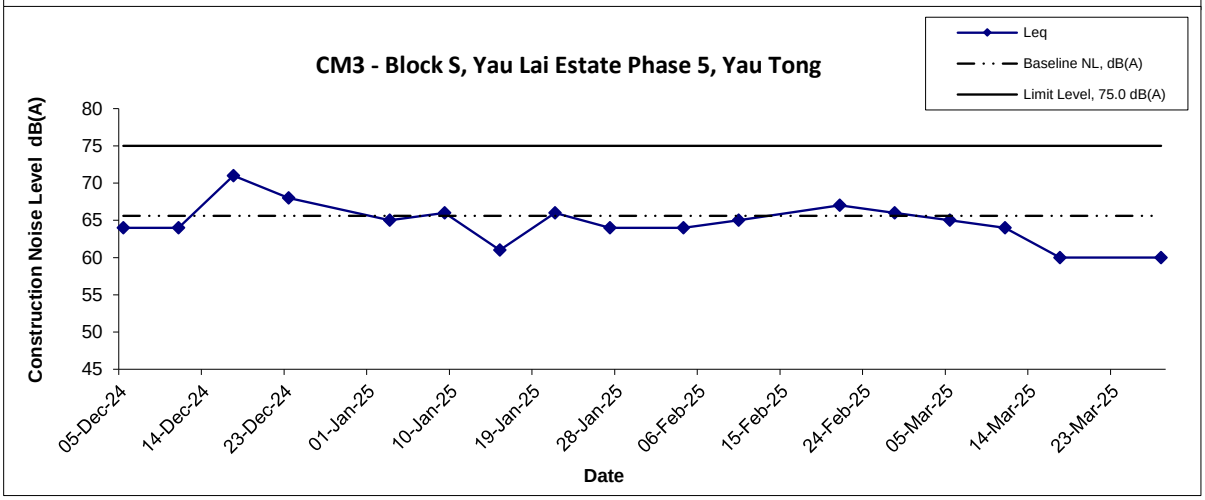
Location CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	13:08	Cloudy	60.1	61.9	58.0	58.3	55
11-Mar-25	10:00	Sunny	65.6	68.8	61.8	58.3	65
17-Mar-25	14:00	Fine	65.9	69.1	61.7	58.3	65
28-Mar-25	15:53	Cloudy	62.1	62.9	59.4	58.3	60

Location CM8(A) - Park Central, L1/F Open Space Area							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
05-Mar-25	16:10	Cloudy	75.7	76.9	73.2	69.1	75
11-Mar-25	9:00	Sunny	67.6	70.1	62.9	69.1	68 Measured ≦ Baseline
17-Mar-25	15:00	Fine	69.8	72.7	65.6	69.1	62
28-Mar-25	12:45	Cloudy	72.9	74.4	70.8	69.1	71

Noise Levels

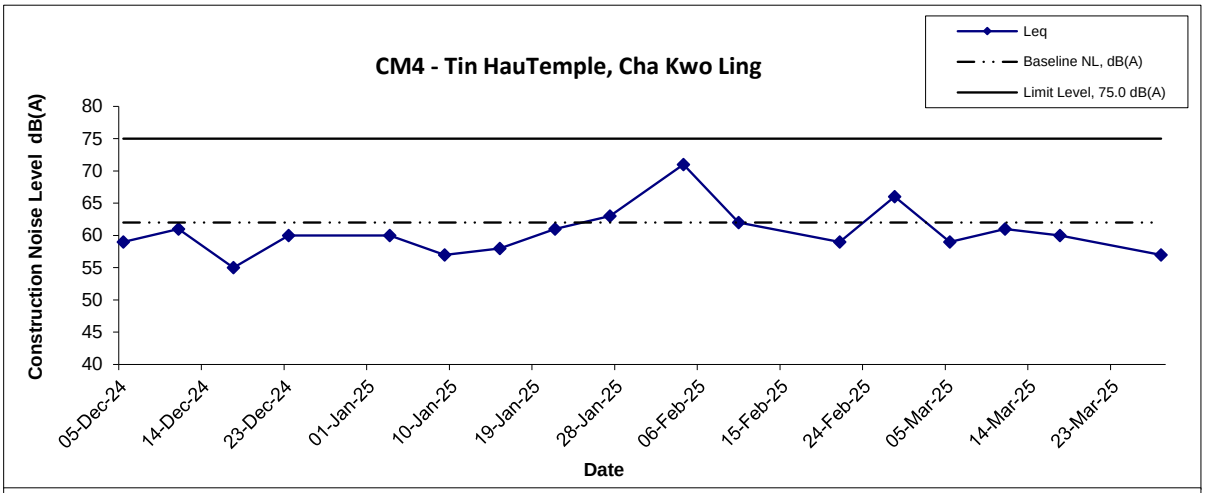


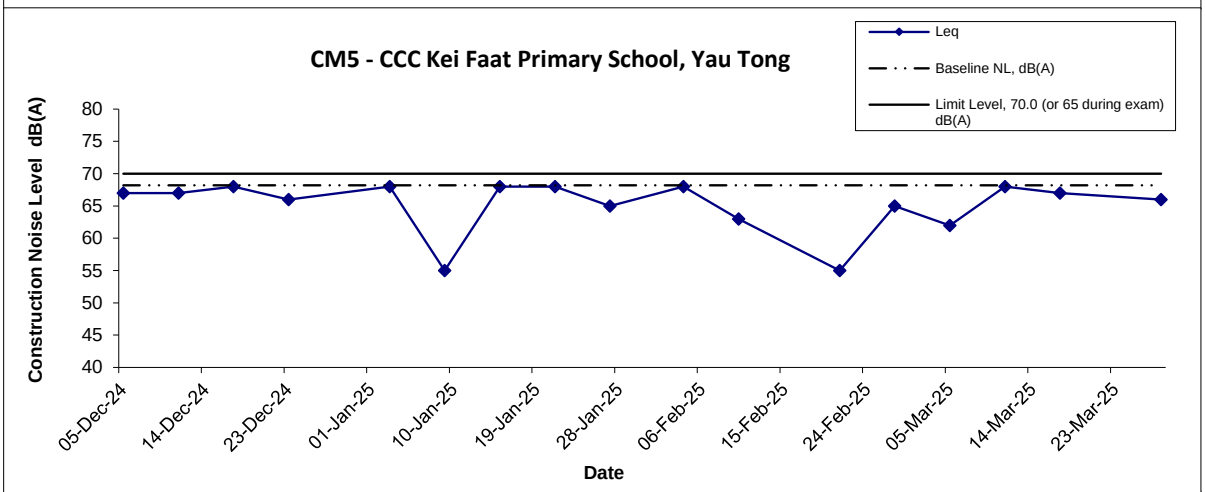


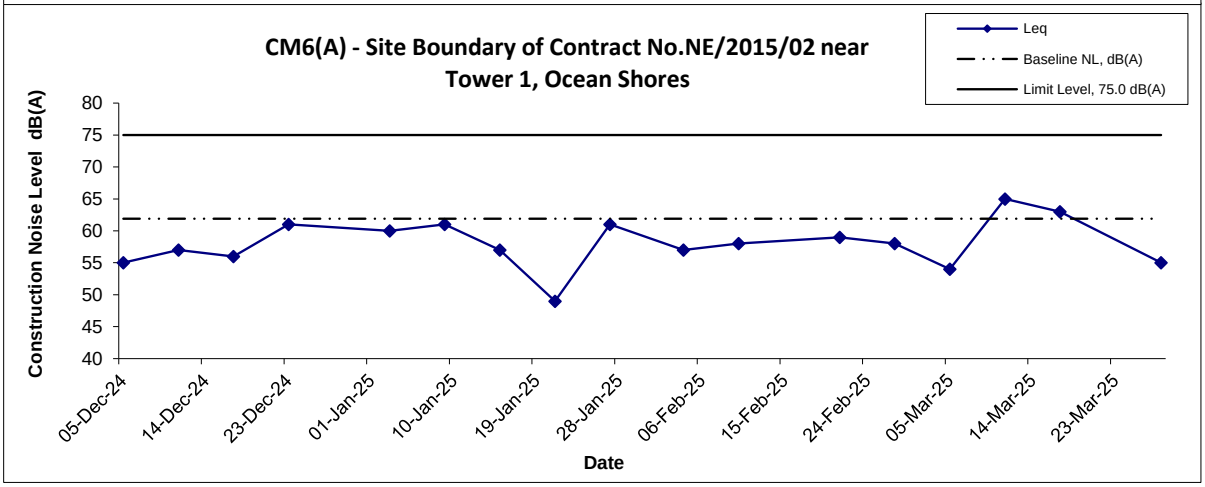


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar-25	Project No. MA16034 Appendix G	CINOTECH

Noise Levels



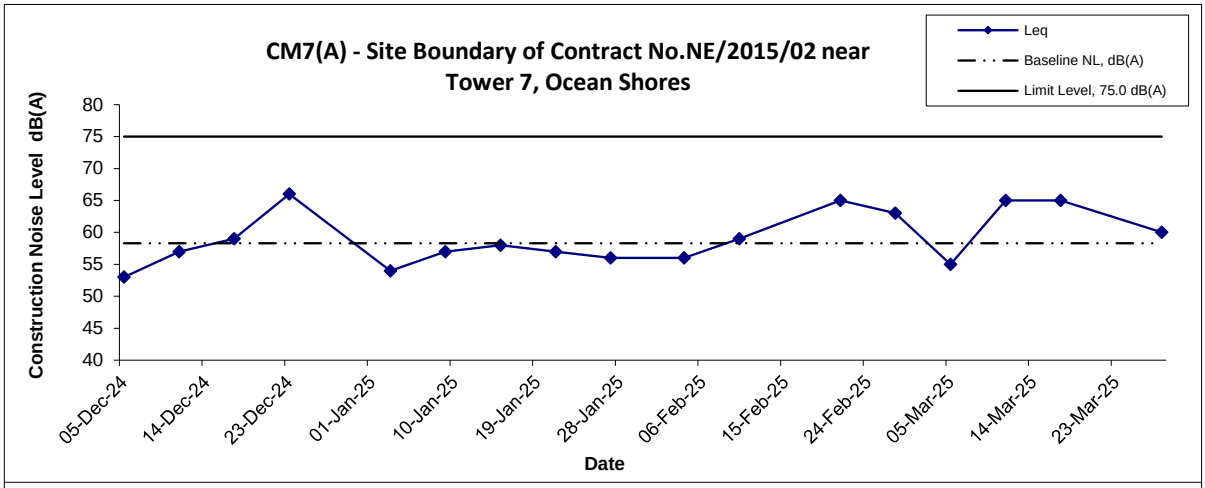


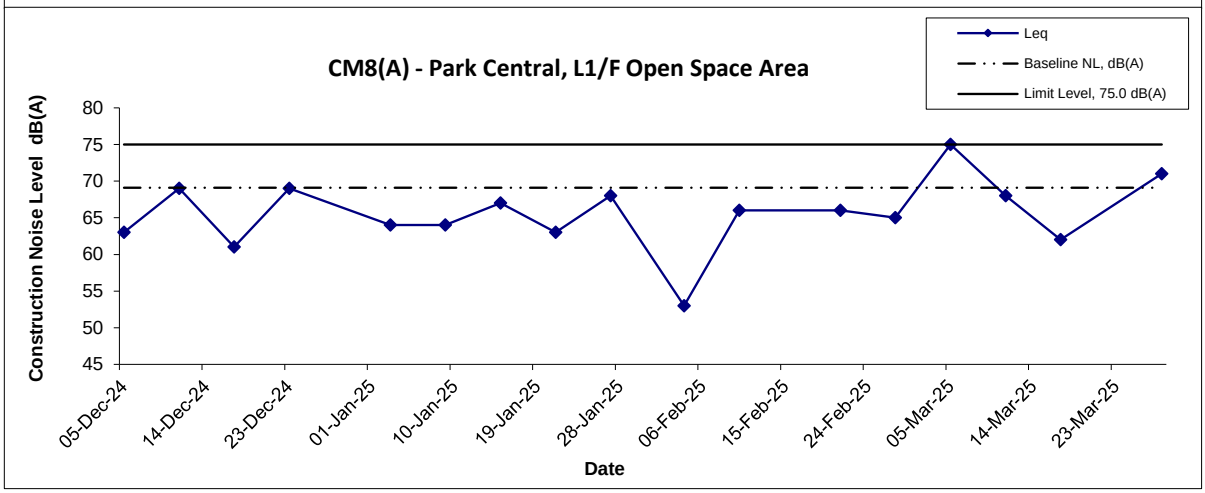


Title		Scale	Project
Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction		N.T.S	No. MA16034
Graphical Presentation of Construction Noise Monitoring Results		Date Mar-25	Appendix G

CINOTECH

Noise Levels





Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Mar-25	Project No.: MA16034 Appendix: G	CINOTECH

APPENDIX K
SUMMARY OF EXCEEDANCE

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction

Appendix K – Summary of Exceedance

Reporting Period: March 2025

(A) Exceedance Report for Air Quality

No limit level exceedance for air quality monitoring of 24-hr TSP was recorded in the reporting month.

No action level exceedance for air quality monitoring of 24-hr TSP was recorded in the reporting month.

No exceedance for air quality monitoring of 1-hr TSP was recorded in the reporting month.

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise

No action level exceedances were recorded due to the documented complaints received in this reporting month.

Limit Level for Construction Noise

No limit level exceedance for daytime construction noise monitoring was recorded in the reporting month.

No exceedance for evening-time construction noise monitoring was recorded in the reporting month.

No exceedance for nighttime construction noise monitoring was recorded in the reporting month.

(C) Exceedance Report for Water Quality

(NIL in the reporting month)

Since October 2019, groundwater monitoring had been suspended.
Since June 2023, marine water quality monitoring had been completed.

(D) Exceedance Report for Ecology

(NIL in the reporting month)

(E) Exceedance Report for Cultural Heritage

(NIL in the reporting month)

(F) Exceedance Report for Landfill Gas

(NIL in the reporting month)

APPENDIX L
SITE AUDIT SUMMARY

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report

Appendix L - Site Audit Summary

Contract No. — NE2015/01
Tseung Kwan O - Lam Tin Tunnel — Main Tunnel and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
Tree protection zone should be set up to protect the retained trees.	19-Mar-25	✓	26-Mar-25: ' A tree protection zone was set up to protect the retained trees.
Air Quality			
--	--	--	--
Waste/Chemical Management			
The contractor was reminded to keep the drainage clean and maintain regularly	26-Mar-25	✓	26-Mar-25: Accumulated sand/silt inside the catchpits was removed.
Impact on Cultural Heritage			
--	--	--	--
Permit/Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary

Contract No. — NE2015/02
Tseung Kwan O - Lam Tin Tunnel — Road P2 and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste/Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary

Contract No. — NE2017/02
Tseung Kwan O - Lam Tin Tunnel — Road P2/D4 and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste/Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permit/Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary

Contract No. — NE2017/06
Tseung Kwan O - Lam Tin Tunnel — Traffic Control and Surveillance System (TCSS) and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste/Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permit/Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary

Contract No. — NE2017/01
Tseung Kwan O - Lam Tin Tunnel — Tseung Kwan O Interchange and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste/Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permit/Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

Appendix L - Site Audit Summary

Contract No. — NE2017/07
Tseung Kwan O - Lam Tin Tunnel — Cross Bay Link Main Bridge and Associated Works

Mar-2025

Items	Date	Status*	Follow up Action
Water Quality			
--	--	--	--
Ecology			
--	--	--	--
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste/Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permit/Licenses			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
\# Follow up action will be reported in next reporting month
✻ Non-compliance of mitigation measure
• Non-compliance but improved by the contractor

APPENDIX M
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality (Dust)

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action level being exceeded by one sampling	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER;	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	8. If exceedance stops, cease additional monitoring.			
Limit level being exceeded by one sampling	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor ,IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals;

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	3. Supervise the implementation of remedial measures.	4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.			

Event and Action Plan for Marine Water Quality

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action level being exceeded by one sampling day at water sensitive receiver(s)	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; • If exceedance is found to be caused by the reclamation activities, repeat *in-situ* measurement to confirm findings; • Inform IEC and contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • If exceedance occurs at WSD salt water intake, inform WSD; • Discuss mitigation measures with IEC and Contractor; • Repeat measurement on next day of exceedance.	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Discuss with IEC on the proposed mitigation measures; • Make agreement on the mitigation proposal.	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice; • Check all plant and equipment; • Amend working methods if appropriate; • Discuss with ET and IEC and propose mitigation measures to IEC and ER; • Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures;	• Discuss with IEC on the proposed mitigation measures; • Make agreement on the mitigation proposal;	• Inform the Engineer and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
sampling days at water sensitive receiver(s)	• If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IEC and contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC and Contractor; • Ensure mitigation measures are implemented; • Prepare to increase the monitoring frequency to daily; • If exceedance occurs at WSD salt water intake, inform WSD; • Repeat measurement on next day of exceedance.	• Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures.	• Assess the effectiveness of the implemented mitigation measures.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; • Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly;	• Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods;	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
	• If exceedance is found to be caused by the reclamation activities, repeat *in-situ* measurement to confirm findings; • Inform IEC, contractor, AFCD and EPD • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC, ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level; • If exceedance occurs at WSD salt water intake, inform WSD.	• Assess the effectiveness of the implemented mitigation measures.	• Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and submit proposal of mitigation measures to IEC and ER within 3 working days of notification; • Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling days at	• Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate;	• Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly;	• Discuss with IC(E), ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods;	• Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	**IEC**	**ER**	**CONTRACTOR**
water sensitive receiver(s)	• If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IC(E), AFCD, contractor and EPD; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IC(E), ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days; • If exceedance occurs at WSD salt water intake, inform WSD.	• Assess the effectiveness of the implemented mitigation measures.	• Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures; • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	• Check all plant and equipment and consider changes of working methods; • Discuss with ET, IC(E) and ER and submit proposal of mitigation measures to IC(E) and ER within 3 working days of notification; • Implement the agreed mitigation measures; • As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Limit Levels and Action Plan for Landfill Gas

Parameter	Limit Level	Action
Oxygen	<19%	• Ventilate to restore oxygen to >19%
	<18%	• Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5% by volume)	• Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. > 1% by volume)	• Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	• Ventilate to restore carbon dioxide to < 0.5%
	>1.5%	• Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore carbon dioxide to < 0.5%

Event and Action Plan for Coral Post-Translocation Monitoring

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level Exceedance	1. Check monitoring data; 2. Inform the IEC, ER and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1.Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.
Limit Level Exceedance	Undertake Steps 1-4 as in the Action Level Exceedance. If further exceedance of Limit Level, suspend construction works until an effective solution is identified.	1.Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.

Mitigation Measures for Vibration Monitoring

Level	Contingency Action
Alert Level	● The Engineer shall be informed immediately. ● The Contractor shall submit an investigation report to describe works being undertaken. To review the instrument responses and to study the cause of undue response. ● The Contractor shall review and increase the instrumentation monitoring and reporting frequency, if applicable. ● The Contractor shall submit a detailed plan of action describing the measures to be taken should the concerned instrument reach the action level to the Engineer for approval.
Alarm Level	● The Engineer shall be informed immediately. ● The active construction works may require to be suspended subject to the Engineer's review of monitoring data. ● The Contractor shall immediately implement the measures as defined in the detailed plan of action to prevent further ground movement and groundwater drawdown etc. ● The Contractor shall prepare a detailed investigation report to study the cause of the exceedance ● The Contractor shall propose a contingency plan for the Engineer's approval in the event that alarm value is reached or exceeded ● The Contractor shall develop an emergency plan for the Engineer's approval in the event the applied contingency measures cannot control the situation. ● The Contractor shall meet the Engineer to discuss the instrument response and review the effectiveness of the implemented measures. ● The Contractor shall carry out design review of the works

Action Level	● Consideration shall be given to suspend all active construction works and the Engineer shall be informed immediately ● The Contractor shall immediately implement the measures defined in the contingency plan ● The Contractor shall implement the measures defined in the emergency plan in the event that the applied contingency measures are found inadequate ● The Contractor shall provide a complete report to examine the construction method and review the response of the instruments with full history of the monitoring data and construction activities and necessary design update ● To resume the suspended activities, the Contractor shall demonstrate to the Engineer's satisfaction that it is safe to do so with approval from the Engineer.

APPENDIX N
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

App N1 - IMPLEMENTATION SCHEDULE AND RECOMMANDED MITIGATION MEASURES

Table I - Recommended Mitigation Measures stipulated in EM&A Manual for the Project

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
Air Quality						
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO
S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7 S3.8.7	Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs.. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation
/	Emission from Vehicles and Plants • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	APCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
/	Valid No-road Mobile Machinery (NRMM) labels should be provided to regulated machines	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	APCO
Noise Impact (Construction Phase)						
S4.8	• Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump.	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO
S4.9	**Good Site Practice** • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO
S4.9						
S4.9						
S4.9						
S4.9						
S4.9						
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO
Water Quality Impact (Construction Phase)						
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m^3, with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m^3 (i.e. 1,000 m^3 per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
Silt Curtain Deployment Plan	• Silt curtains should be deployed properly to surround the works area.	Control potential impacts from marine woroks	Contractor	NE/2015/01	Construction stage	EIAO
Silt Curtain Deployment Plan	• Maintenance of silt curtain should be provided.					
Silt Curtain Deployment Plan	• Sufficient stock of silt curtain should be provided on site.					
S5.8.3	Other good site practices should be undertaken during filling operations include:	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)
S5.8.3	• all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea;					
S5.8.3	• floating single silt curtain shall be employed for all marine works;					
S5.8.3	• all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;					
S5.8.3	• all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;					
S5.8.3	• excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved;					
S5.8.3	• adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;					
S5.8.3	• loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation;					
S5.8.3	• any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;					
S5.8.3	• construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; and					
S5.8.3	• before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.					
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
ERR S5.6.1	To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented: - Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall) - The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works. - Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier. - Silt curtains shall be deployed for the installation and removal of the temporary barrier and at the double water gates marine access opening during its operation.	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
ERR S5.6.1						
ERR S5.6.1						
ERR S5.6.1						
ERR S5.6.1						
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps; and • adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.8						
S5.8.8						
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.18	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and washwater should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

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S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.46 S5.8.46 S5.8.46 S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; • chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and • storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,

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Ecological Impact						
S6.8.4	**Measures to Minimize Disturbance** • Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. • Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; • Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A
S6.8.4						
S6.8.4						
S6.8.4						
S6.8.5	**Standard Good Site Practice** • Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. • Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. • Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. • General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. • Open burning on works sites is illegal, and should be strictly prohibited. • Measures should also be put into place so that litter, fuel and solvents do not enter the nearby watercourses.	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A
S6.8.5						
S6.8.5						
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S6.8.5						
S6.8.5						
S6.8.6	**Measure to Minimize Groundwater Inflow** • The drained tunnel construction method with groundwater inflow control measures would generally be adopted. • During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements.	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A
S6.8.6						
S6.8.6						

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S6.8.8	**Measure to Minimize Impact on Corals**	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A
S6.8.8	Coral translocation					
S6.8.8	• It is recommended to translocate the affected coral colonies, except the locally common *Oulastrea crispata* , within the reclamation area and bridge footprint to the other suitable locations as far as practicable.					
S6.8.8	• The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October).					
S6.8.8	• A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage.					
S6.8.8	• The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation.					
S6.8.8	Post translocation Monitoring					
S6.8.8	• A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities					
S6.8.8	• Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.					
S6.8.9 S6.8.10	**Measure to Control Water Quality Impact** • Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. • Diverting of the site runoff to silt trap facilities before discharging into storm drain; • Proper waste and dumping management; and • Standard good-site practice for land-based construction.	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies	Design Team, contractor	Marine and landbased works area	Construction phase	WQO
S6.8.11	**Compensation for Vegetation Loss** • Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition.	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A

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Fisheries Impact						
S7.7.3	**Measure to Control Water Quality Impact** • Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area.	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO
Waste Management (Construction Phase)						
S8.6.3	**Good Site Practices and Waste Reduction Measures** • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste; • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.4	***Good Site Practices and Waste Reduction Measures (con't)*** • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.5	**Good Site Practices and Waste Reduction Measures (con't)** The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.6	**Good Site Practices and Waste Reduction Measures (con't)** • C&D materials would be reused in the project and other local concurrent projects as far as possible.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005

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S8.6.7	**Storage, Collection and Transportation of Waste**	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.7	Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:					
S8.6.7	• Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution;					
S8.6.7	• Maintain and clean storage areas routinely;					
S8.6.7	• Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and					
S8.6.7	• Different locations should be designated to stockpile each material to enhance reuse.					
S8.6.8/ Waste Management Plan	**Storage, Collection and Transportation of Waste (con't)**	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.8/ Waste Management Plan	• Remove waste in timely manner;					
S8.6.8/ Waste Management Plan	• Waste collectors should only collect wastes prescribed by their permits;					
S8.6.8/ Waste Management Plan	• Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers;					
S8.6.8/ Waste Management Plan	• Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28);					
S8.6.8/ Waste Management Plan	• Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and					
S8.6.8/ Waste Management Plan	• Maintain records of quantities of waste generated, recycled and disposed.					
S8.6.9/ Waste Management Plan	**Storage, Collection and Transportation of Waste (con't)** • Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010
S8.6.11 - S8.6.13/ Waste Management Plan	**Sorting of C&D Materials**	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010
S8.6.11 - S8.6.13/ Waste Management Plan	• Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site.					
S8.6.11 - S8.6.13/ Waste Management Plan	• Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials.					ETWB TCW No. 33/2002
S8.6.11 - S8.6.13/ Waste Management Plan	• The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills					ETWB TCW No. 19/2005

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S8.6.17 – S8.6.20	**Sediments (con't)**	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TCW No. 19/2005
S8.6.17 – S8.6.20	• Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment.					
S8.6.17 – S8.6.20	• A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).					
S8.6.17 – S8.6.20	• In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.					
S8.6.17 – S8.6.20	• In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.					
	Sediments (con't)	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance
S8.6.24 - S8.6.28/ Waste Management Plan	• The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excaveted sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002.					
S8.6.24 - S8.6.28/ Waste Management Plan	• Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).					
S8.6.24 - S8.6.28/ Waste Management Plan	• In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.					
S8.6.24 - S8.6.28/ Waste Management Plan	• The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.					

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S8.6.24 - S8.6.28/ Waste Management Plan S8.6.24 - S8.6.28/ Waste Management Plan	• In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. • Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance
S8.6.26/ Waste Management Plan	**Chemical Wastes.** • If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes Waste Disposal (Chemical Waste) (General) Regulation
S8.6.27/ Waste Management Plan	**General Refuse** • General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)
Impact on Cultural Heritage (Construction Phase)						
S9.6.4	**Dust and visual impacts** • Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; • The open yard in front of the temple should be kept as usual for annual Tin Hau festival; • Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple.	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S9.6.4	**Indirect vibration impact** • Vibration level is suggest to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings; • Monitoring of vibration should be carried out during construction phase. • Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well. • A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.
Built Heritage Mitigation Plan	• Established Alert, Alarm and Action Level for the monitoring parameters. • To increase the instrumentation monitoring and reporting frequency. • To propose detailed action plan or contingency plan for the Engineer's approval when AAA Level is reached or exceeded.	To prevent vibration impacts	NE/2015/01	Tin Hau Temple	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.
Landscape and Visual Impact (Construction Phase)						
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification

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Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodie	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	Construction planning and reclamation stages	N/A
Landfill Gas Hazard (Design and Construction Phase)						
S11.5.9	A Safety Officer, trained in the use of gas detection equipment and landfill gas-related hazards, should be present on site throughout the groundworks phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following gases in the ranges indicated below: Methane 0-100% LEL and 0100% v/v Carbon dioxide 0-100% Oxygen 0-21%	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note
S11.5.10 S11.5.25	**Safety Measures**	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note Labour Department's Code of Practice for Safety and Health at Work in Confined Space
S11.5.10 S11.5.25	• For staff who work in, or have responsibility for "at risk" area, such as all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards.					
S11.5.10 S11.5.25	• An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out.					
S11.5.10 S11.5.25	• No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed.					
S11.5.10 S11.5.25	• Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. "No smoking" and "No naked flame" notices should be posted prominently on the construction site and, if necessary, special areas should be designed for smoking.					
S11.5.10 S11.5.25	• Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation.					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S11.5.10 S11.5.25	• Welding, flame-cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Officer (or, in the case of small developments, other appropriately qualified person).	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note Labour Department's Code of Practice for Safety and Health at Work in Confined Space
S11.5.10 S11.5.25	• The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person, in attendance outside the 'confined area', who should be responsible for reviewing the gas measurements as they are made, and who should have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas.	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note Labour Department's Code of Practice for Safety and Health at Work in Confined Space
S11.5.10 S11.5.25	• Where there are any temporary site offices, or any other buildings located within the Sai Tso Wan Landfill Consultation Zone which have enclosed spaces with the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas (by survey using portable gas detectors); or be raised clear of the ground by a minimum of 500mm. This aims to create a clear void under the structure which is ventilated by natural air movement such that emission of gas from the ground are mixed and diluted by air.					
S11.5.10 S11.5.25	• Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conduiting should be capped at the end of each working day.					
S11.5.10 S11.5.25	• During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.					
S11.5.10 S11.5.25	• Fire drills should be organized at not less than six monthly intervals.					
S11.5.10 S11.5.25	• The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow.					
S11.5.10 S11.5.25	• All personnel who work on the site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices (in Chinese and English) should be posted at prominent position around the site warning danger of the potential hazards.					
S11.5.10 S11.5.25	• Service runs within the Consultation Zone should be designated as "special routes"; utilities companies should be informed of this and precautionary measures should be implemented. Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces such as manholes and service chambers, and that appropriate monitoring procedures are in place to prevent hazards due to asphyxiating atmospheres in confined spaces. Detailed guidance on entry into confined spaces is given in Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong).					

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?
S11.5.10 S11.5.25	• Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person.	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note Labour Department's Code of Practice for Safety and Health at Work in Confined Space
S11.5.26 - S11.5.31	**Monitoring** ● Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters into the area.	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note
S11.5.26 - S11.5.31	● For excavations **deeper than 1m**, measurements should be carried out:					
S11.5.26 - S11.5.31	• at the ground surface before excavation commences;-					
S11.5.26 - S11.5.31	• immediately before any worker enters the excavation;					
S11.5.26 - S11.5.31	• at the beginning of each working day for the entire period the excavation remains open; and					
S11.5.26 - S11.5.31	• periodically throughout the working day whilst workers are in the excavation.					
S11.5.26 - S11.5.31	● For excavations **between 300mm and 1m deep**, measurements should be carried out:					
S11.5.26 - S11.5.31	• directly after the excavation has been completed; and					
S11.5.26 - S11.5.31	• periodically whilst the excavation remains open.					
S11.5.26 - S11.5.31	● For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.					
S11.5.26 - S11.5.31	● Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person.					
S11.5.26 - S11.5.31	● The exact frequency of monitoring should be determined prior to the commencement of works, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system.					
S11.5.32	The hazards from landfill gas during the construction stage within the Sai Tso Wan Landfill Consultation Zone should be minimized by suitable precautionary measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note.	construction stage within the Sai Tso Wan Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note

Table II - Observation / Reminder / Non-compliance made during Site Audit

Key:
- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✕ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- ✻ Non-compliance of mitigation measure
- · Non-compliance but improved by the contractor

EIA Ref	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Reminder/Observation	Recorded Date	Status
Water Quality Impact						
--	--	--	--	--	--	--
Ecological Impact						
--	--	--	--	--	--	--
Construction Noise Impact						
--	--	--	--	--	--	--
Landscape and Visual Impact						
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	NE2015/01	EHC	Tree protection zone should be set up to protect the retained trees.	19-Mar-25	✓
Air Quality Impact						
--	--	--	--	--	--	--
Fisheries Impaxt						
--	--	--	--	--	--	--
Waste Management						
S8.6.27/ Waste Management Plan	General Refuse	NE2015/01	Portion II	The contractor was reminded to keep the drainage clean and maintain regularly	26-Mar-25	✓
Landfill Gas Hazards						
--	--	--	--	--	--	--

APPENDIX O
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Appendix O - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Table O2 - Summary of Cumulative Complaint Log for Tseung Kwan O - Lam Tin Tunnel

Reporting Month/Year	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
2016	11	0	0
2017	99	1	0
2018	150	0	1
2019	156	0	0
2020	88	0	0
2021	87	0	0
2022	54	0	0
2023	7	0	0
2024	1	0	0
Jan-25	0	0	0
Feb-25	0	0	0
Mar-25	0	0	0
Total	**653**	**1**	**1**

Table O3 - Cumulative Log for Notifications of Summons

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this Reporting Month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	The Summon was issued on 22 Dec 2017 First hearing on 29/3/2018	1	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--
NE/2017/06	--	--	--	--	--	--
NE/2017/07	--	--	--	--	--	--

Table O4 - Cumulative Log for Successful Prosecutions

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	Successful prosecution to the subcontractor on 27 June 2018	1	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--
NE/2017/06	--	--	--	--	--	--
NE/2017/07	--	--	--	--	--	--

APPENDIX P
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: Civil Engineering Development Department

Contract No.: NE/2015/01

LEIGHTON 禮頓-中建聯營 Leighton - China State Joint Venture

Monthly Summary Waste Flow Table for March 2025

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	0.324	0.025	0.000	0.000	0.324	0.000	0.000	0.000	0.000	0.000	0.407
February	0.754	0.100	0.000	0.000	0.754	0.000	0.000	0.000	0.000	0.000	0.240
March	0.836	0.130	0.000	0.00	0.836	0.000	0.000	0.000	0.000	0.000	0.469
April	0.000										
May	0.000										
June	0.000										
Sub-total	1.914	0.255	0.000	0.000	1.914	0.000	0.000	0.000	0.000	0.000	1.116
July	0.000										
August	0.000										
September	0.000										
October	0.000										
November	0.000										
December	0.000										
Total	1.914	0.255	0.000	0.000	1.914	0.000	0.000	0.000	0.000	0.000	1.116

Total inert C&D waste generated = c+d+e

Total inert C&D waste recycled = c+d

% of recycled inert C&D waste = Total C&D waste recycled / Total C&D waste generated

Notes:

(1) The performance target are given in PS Clause 6(14)

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m3. (PS Clause 1.105(4) refers)

(5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.

(6) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m^3; soil = 2.0 tonnes/m^3

(7) excavated: rock = 2.0 tonnes/m^3; soil = 1.8 tonnes/m^3; broken concrete and bitumen = 2.4 tonnes/m^3, soil and rock = 1.9 tonnes/m^3

(8) C&D Waste = 0.9 tonnes/m^3; bentonite slurry = 2.8 tonnes/m^3

Diesel density: 0.8kg/l

Numbers are rounded off to the nearest three decimal places

The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"

GTECH Services (Hong Kong) Limited

Name of Department: Civil Engineering & Development Department

Contract No.: NE/2017/06

Monthly Summary Waste Flow Table For 2025

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. General Refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0.006
Apr											
May											
Jun											
Sub-total	0	0	0	0	0	0	0	0	0	0	0.006
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0.006

Notes:

(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material.

(3) Each dump truck carries 6m^3 of general refuse when full-load.

(4) The commencement date of the Contract is 9 November 2018. The current reporting period is from 1 March 2025 to 31 March 2025.

APPENDIX Q
TENTATIVE CONSTRUCTION PROGRAMME

High Level 3 Months Look Ahead Programme

Activities	Mar-25	Apr-25	May-25
Lam Tin Interchange			
Site Formation - Area 1G1 & 1G2 &5			
Site Formation - Area 2			
Site Formation - Slope Stabilisation			
SES Miscellaneous / E&M works			
Road S02 Miscellaneous / E&M works			
Soft Landscape			
LTI Drainage			
LTI Road Pavement			
Stage 1 Commissioning Outstanding Works			

APPENDIX T
CULTURAL HERITAGE MONITORING RESULTS

Appendix T – Cultural Heritage Monitoring Results

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01A	THT-TM-02A	THT-TM-03A	THT-TM-04A	THT-BSP-1A	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitudinal
01-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
03-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
04-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
05-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
06-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
07-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
08-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
10-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
11-Mar-25	1 : 10465	1 : 4628	-1 : 9782	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---

Appendix T – Cultural Heritage Monitoring Results

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01A	THT-TM-02A	THT-TM-03A	THT-TM-04A	THT-BSP-1A	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitudinal
12-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
13-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
14-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
15-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
17-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
18-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
19-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
20-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
21-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---

Appendix T – Cultural Heritage Monitoring Results

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01A	THT-TM-02A	THT-TM-03A	THT-TM-04A	THT-BSP-1A	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitudinal
22-Mar-25	---	---	---	Obstructed by work from stakeholder	-1	+0	Stop Monitoring	---	---	---
24-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
25-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
26-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
27-Mar-25	---	---	---	Obstructed by work from stakeholder	---	---	Stop Monitoring	---	---	---
28-Mar-25										
29-Mar-25										
31-Mar-25										
Alert Level	1:2000				6			4.5		
Alarm Level	1:1500				8			4.8		

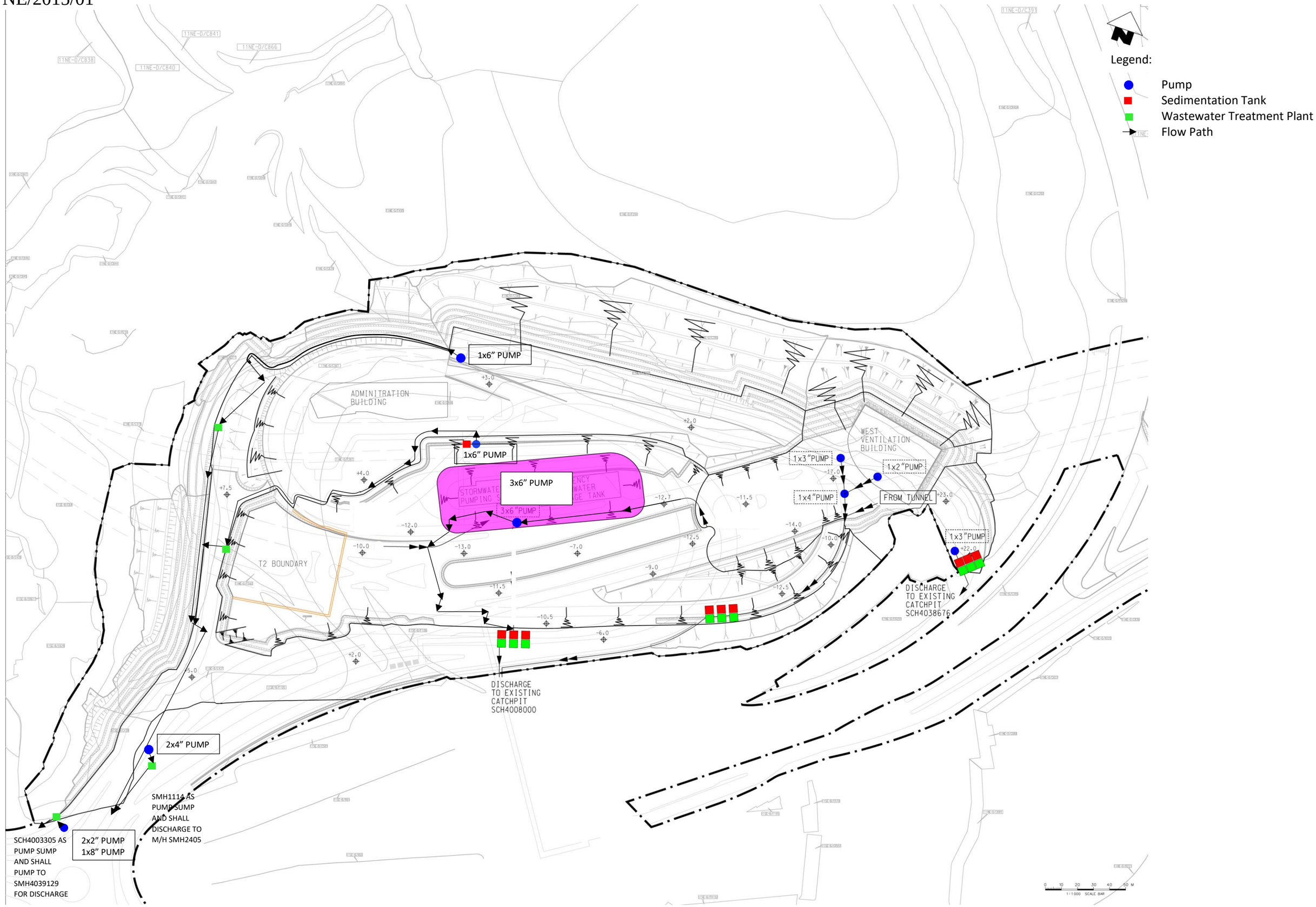
Appendix T – Cultural Heritage Monitoring Results

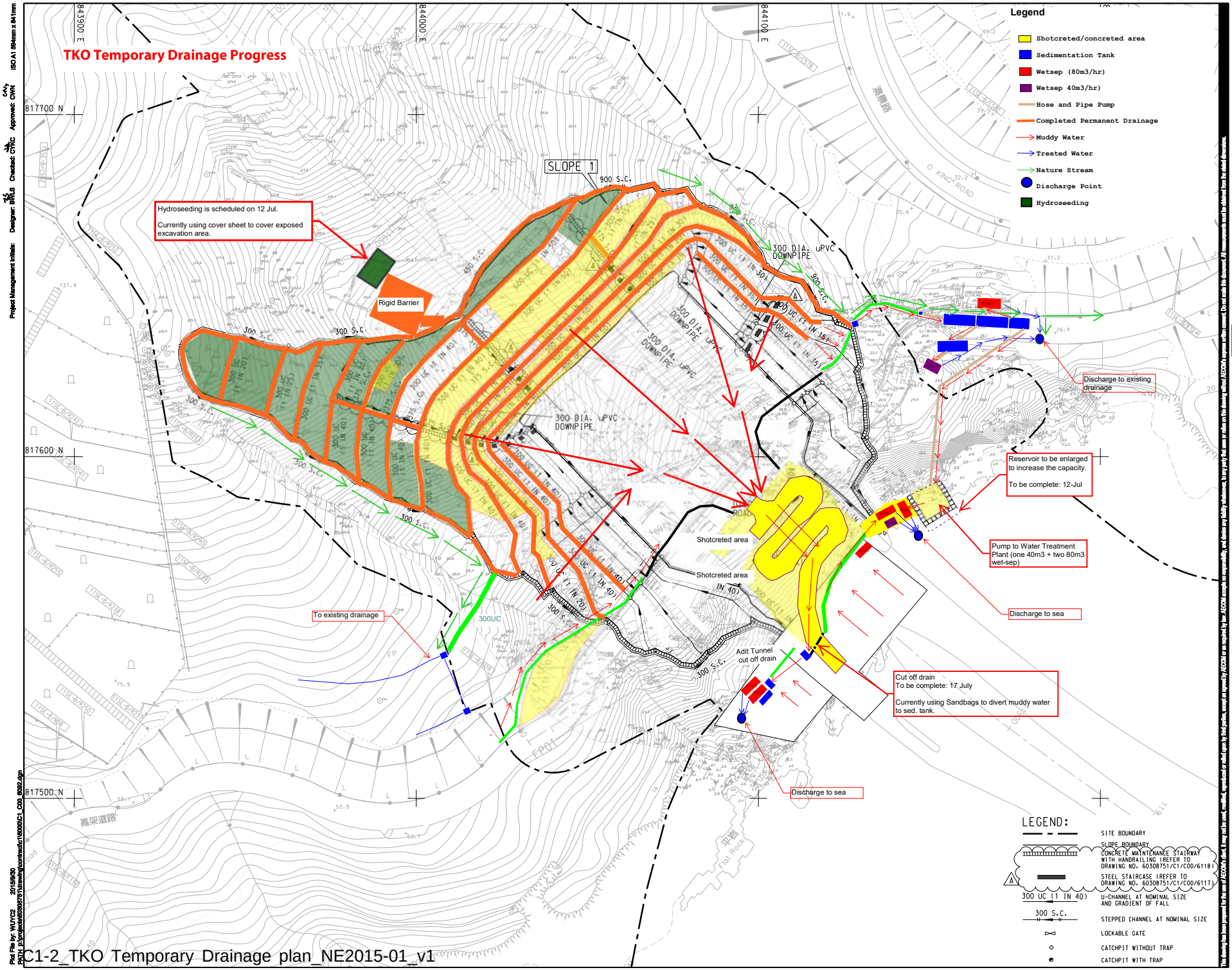
Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01A	THT-TM-02A	THT-TM-03A	THT-TM-04A	THT-BSP-1A	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitudinal
Action Level	1:1000				10			5		

Note:
Bold means Alert Level exceedance
Bold Italic means Alarm Level exceedance
Bold Italic with underline means Action Level exceedance

APPENDIX V
SURFACE RUNOFF MANAGEMENT PLAN

Contract No.
NE/2015/01





AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL MAIN TUNNEL AND ASSOCIATED WORKS

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

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

FOR CONSTRUCTION

ISSUE/REVISION

B	JUL. 16	WORKING DRAWING	ALC
A	OCT.15	TENDER ADDENDUM NO.1	CYKC
-	AUG.15	TENDER DRAWING	CYKC
DR.	DATE	DESCRIPTION	CHK.

STATUS
WORKING DRAWING

SCALE
A1 1:500

DIMENSION UNIT
METRES

KEY PLAN

PROJECT NO.
60308751

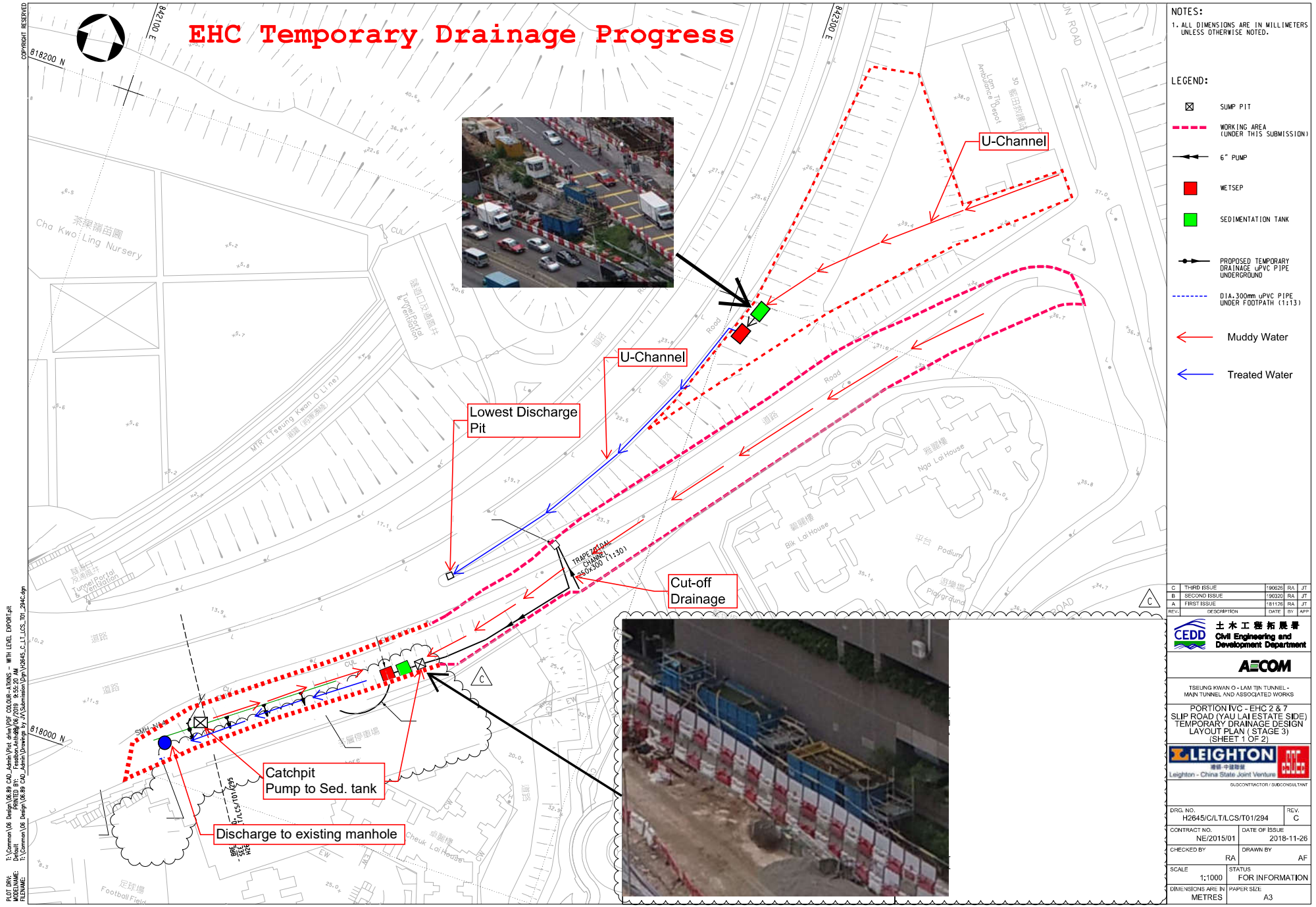
CONTRACT NO.
NE/2015/01

SHEET TITLE
TSEUNG KWAN O PORTAL
SITE FORMATION
DRAINAGE LAYOUT PLAN

SHEET NUMBER
60308751/C1/C00/6092B

Designer: BWLS Checked: CYKC Approved: CWN
Project Management Initials:
ISO A1 594mm x 841mm
Plot File by: WUYC2 2016/9/30
PATH: p:\projects\60308751\drawing\contract\c1\60000\C1_C00_6092.dgn


Maintenance Schedule
Wetsep ,Sed tanks and drainage will be clean once or twice per week.
(Depends on the weather condition)
Sed tanks
Site Clearance & provide cover to exposed excavation area
Contract Number NE/2015/01
Wetsep
Effluent
Extension of Sed tanks


EHC Temporary Drainage Progress
U-Channel
U-Channel
Lowest Discharge Pit
Cut-off Drainage
Catchpit
Pump to Sed. tank
Discharge to existing manhole
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
LEGEND:
SUMP PIT
WORKING AREA (UNDER THIS SUBMISSION)
6" PUMP
WETSEP
SEDIMENTATION TANK
PROPOSED TEMPORARY DRAINAGE uPVC PIPE UNDERGROUND
DIA.300mm uPVC PIPE UNDER FOOTPATH (1:13)
Muddy Water
Treated Water
TSEUNG KWAN O - LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS
PORTION IVC - EHC 2 & 7
SLIP ROAD (YAU LAI ESTATE SIDE)
TEMPORARY DRAINAGE DESIGN
LAYOUT PLAN (STAGE 3)
(SHEET 1 OF 2)
DRG. NO. H2645/C/LT/LCS/T01/294
REV. C
CONTRACT NO. NE/2015/01
DATE OF ISSUE 2018-11-26
CHECKED BY RA
DRAWN BY AF
SCALE 1:1000
STATUS FOR INFORMATION
DIMENSIONS ARE IN METRES
PAPER SIZE A3

CRBC-Build King Joint Venture

Our Ref.:JV/TKO-P2/NE201502/19.00.00.00/017621/L
Your Ref.: TLT/(NE/2015/02)/C30/650/(0205)

29 March 2021

* N E - 0 0 0 1 7 5 7 0 *

AECOM Asia Company Limited
8/F, Tower 2, Grand Central Plaza
138 Shatin Rural Committee Road
Shatin, Hong Kong

By Hand

Attn.: Mr C. W. Lam, Dominic (CRE)

Dear Sir,

Contract No.: NE/2015/02
Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works
Submission of Layout Plan for Site Surface Run-off Control

We would like to submit herewith a Layout Plan for Site Surface Run-off Control so as to illustrate our site preparedness for the coming typhoon and wet season as per PS Clause 25.08.

Yours faithfully,
For and on behalf of
CRBC-Build King Joint Venture

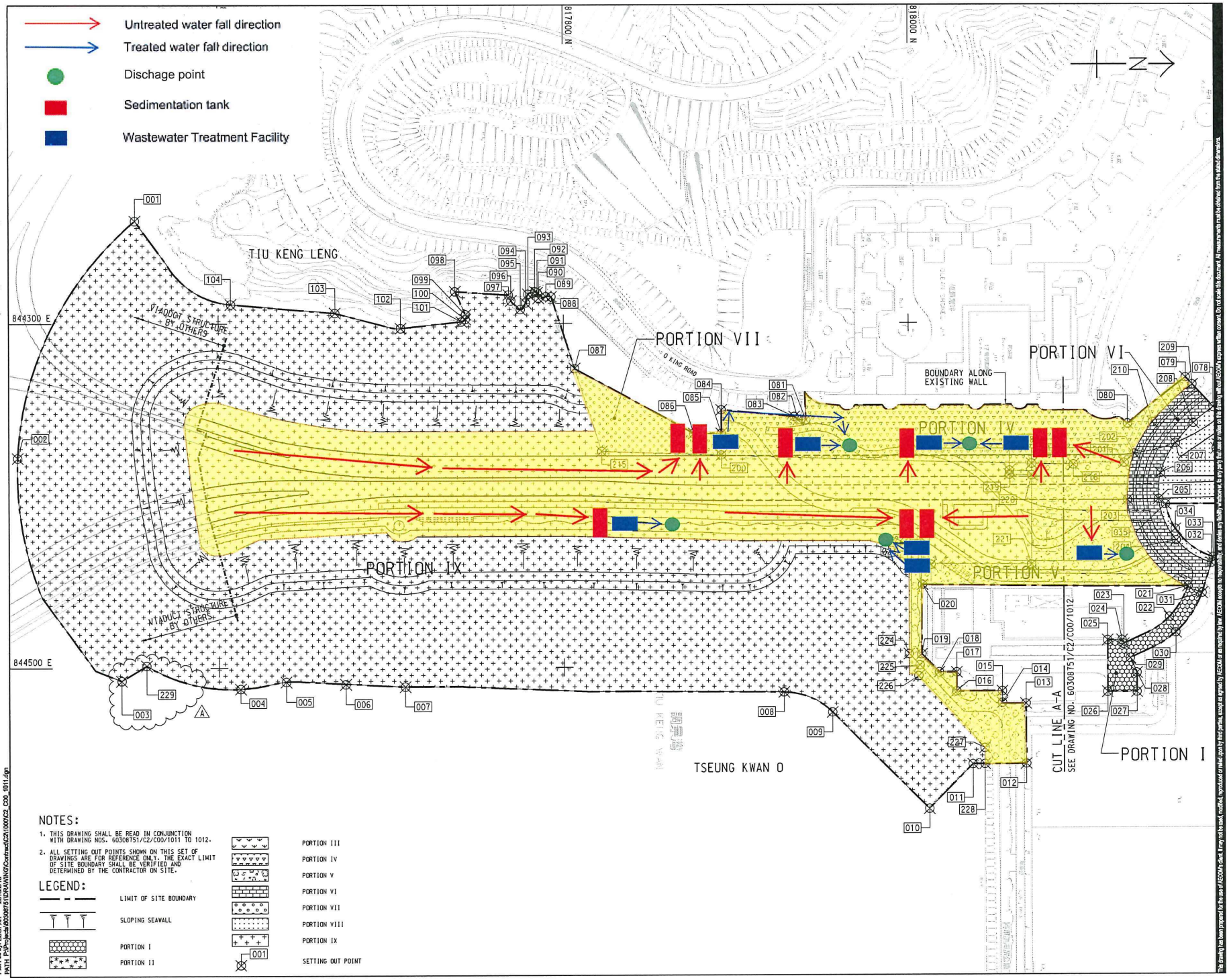
YU Man Kit, Andy
Site Agent

Encl.

c.c.:
The Project Manager for the contract, (CE/E1, CEDD) – Attn.: Mr. Sunny SP LO Fax: 2739 0076
The Project Manager's Delegate, AECOM (HO) - Attn: Mr. Ivan Tsang Fax: 3922 9797

AY/GN/WW/RP/KC

香港北角渣華道 191 號嘉華國際中心 23 A 字樓 07 - 11 室
Units 07-11, 23A/F., K. Wah Centre, 191 Java Road, North Point, Hong Kong
Tel: 852-2283 1688 Fax: 852-2283 1689



Project Management Initials: Designer: ATH Checked: RPCM Approved: GWN

ISO A1 594mm x 841mm

Plot File by: LUOFA 2016/2/18
PATH: P:\Projects\60308751\DRAWINGS\Contract\C2\1000\C2_C00_1011.dgn

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

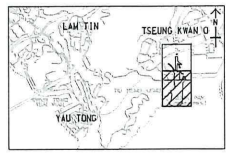
I/R	DATE	DESCRIPTION	CHK
B	SEP. 16	WORKING DRAWING	RPCM
A	FEB.16	TENDER ADDENDUM NO. 1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

STATUS
WORKING DRAWING

SCALE
A1 1 : 1000

DIMENSION UNIT
METRES

KEY PLAN A1 1 : 50000



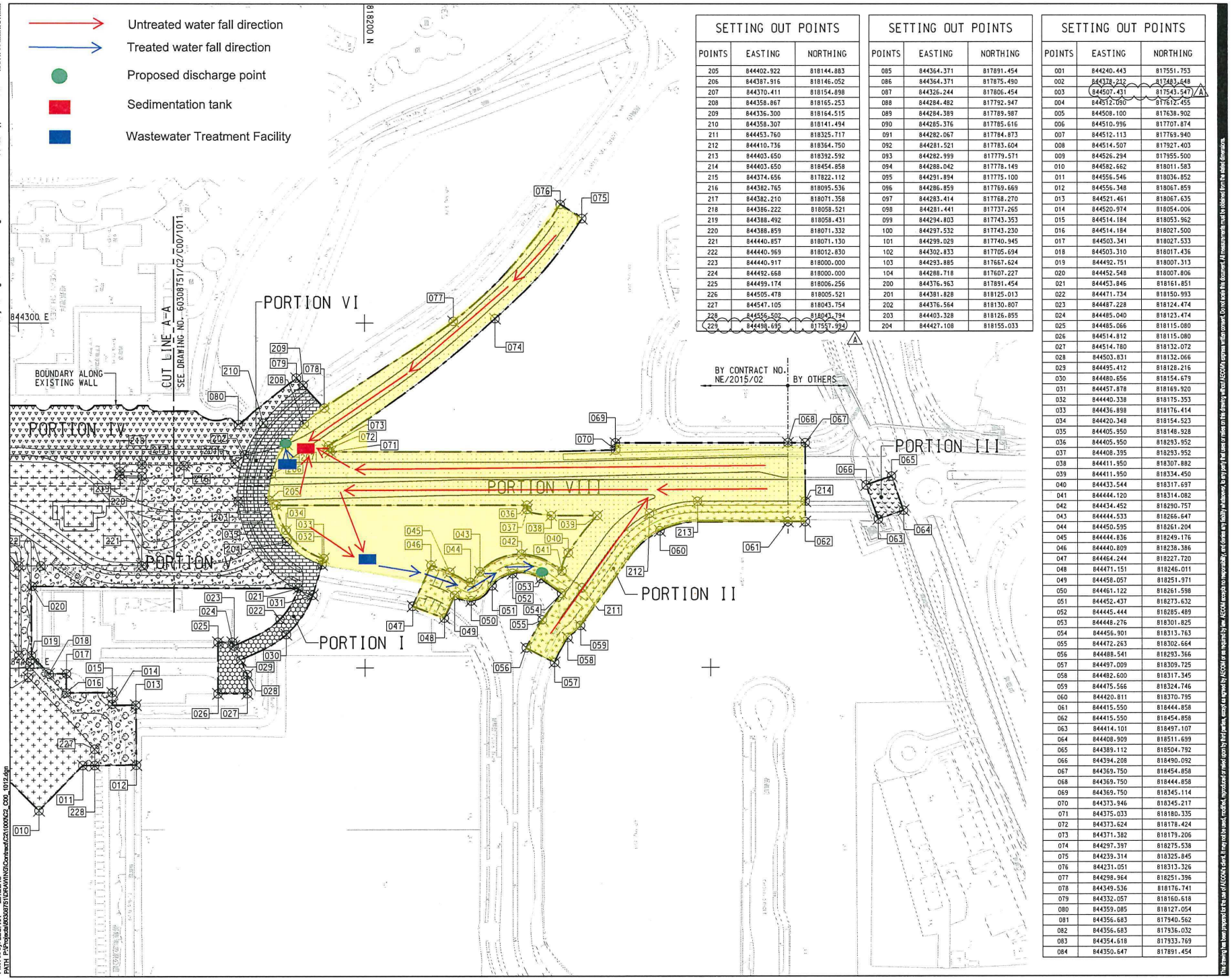
PROJECT NO.
60308751

CONTRACT NO.
NE/2015/02

SHEET TITLE
PORTION OF SITE

SHEET 1 OF 2

SHEET NUMBER
60308751/C2/C00/1011B



SETTING OUT POINTS

POINTS	EASTING	NORTHING
205	844402.922	818144.883
206	844387.916	818146.052
207	844370.411	818154.898
208	844358.867	818165.253
209	844336.300	818164.515
210	844358.307	818141.494
211	844453.760	818325.717
212	844410.736	818364.750
213	844403.650	818392.592
214	844403.650	818454.858
215	844374.656	817822.112
216	844382.765	818095.536
217	844382.210	818071.358
218	844386.222	818058.521
219	844388.492	818058.431
220	844388.859	818071.332
221	844440.857	818071.130
222	844440.969	818012.830
223	844440.917	818000.000
224	844492.668	818000.000
225	844499.174	818006.256
226	844505.478	818005.521
227	844547.105	818043.754
228	844556.502	818041.794
229	844498.695	817557.994

SETTING OUT POINTS

POINTS	EASTING	NORTHING
085	844364.371	817891.454
086	844364.371	817875.490
087	844326.244	817806.454
088	844284.482	817792.947
089	844284.389	817789.987
090	844285.376	817785.616
091	844282.067	817784.873
092	844281.521	817783.604
093	844282.999	817779.571
094	844288.042	817778.149
095	844291.894	817775.100
096	844286.859	817769.669
097	844283.414	817768.270
098	844281.441	817737.265
099	844294.803	817743.353
100	844297.532	817743.230
101	844299.029	817740.945
102	844302.833	817705.694
103	844293.885	817667.624
104	844288.718	817607.227
200	844376.963	817891.454
201	844381.828	818125.013
202	844376.564	818130.807
203	844403.328	818126.855
204	844427.108	818155.033

SETTING OUT POINTS

POINTS	EASTING	NORTHING
001	844240.443	817551.753
002	844378.212	817483.648
003	844507.431	817543.547
004	844512.090	817612.455
005	844508.100	817638.902
006	844510.996	817707.874
007	844512.113	817769.940
008	844514.507	817927.403
009	844526.294	817955.500
010	844582.662	818011.583
011	844556.546	818036.852
012	844556.348	818067.859
013	844521.461	818067.635
014	844520.974	818054.006
015	844514.184	818053.962
016	844514.184	818027.500
017	844503.341	818027.533
018	844503.310	818017.436
019	844492.751	818007.313
020	844452.548	818007.806
021	844453.846	818161.851
022	844471.734	818150.993
023	844487.228	818124.474
024	844485.040	818123.474
025	844485.066	818115.080
026	844514.812	818115.080
027	844514.780	818132.072
028	844503.831	818132.066
029	844495.412	818128.216
030	844480.656	818154.679
031	844457.878	818169.920
032	844440.338	818175.353
033	844436.898	818176.414
034	844420.348	818154.523
035	844405.950	818148.928
036	844405.950	818293.952
037	844408.395	818293.952
038	844411.950	818307.882
039	844411.950	818334.450
040	844433.544	818317.697
041	844444.120	818314.082
042	844434.452	818290.757
043	844444.533	818266.647
044	844450.595	818261.204
045	844444.836	818249.176
046	844440.809	818238.386
047	844464.244	818227.720
048	844471.151	818246.011
049	844458.057	818251.971
050	844461.122	818261.598
051	844452.437	818273.632
052	844445.444	818285.489
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054	844456.901	818313.763
055	844472.263	818302.664
056	844488.541	818293.366
057	844497.009	818309.725
058	844482.600	818317.345
059	844475.566	818324.746
060	844420.811	818370.795
061	844415.550	818444.858
062	844415.550	818454.858
063	844414.101	818497.107
064	844408.909	818511.699
065	844389.112	818504.792
066	844394.208	818490.092
067	844369.750	818454.858
068	844369.750	818444.858
069	844369.750	818345.114
070	844373.946	818345.217
071	844375.033	818180.335
072	844373.624	818178.424
073	844371.382	818179.206
074	844297.397	818275.538
075	844239.314	818325.845
076	844231.051	818313.326
077	844298.964	818251.396
078	844349.536	818176.741
079	844332.057	818160.618
080	844359.085	818127.054
081	844356.683	817940.562
082	844356.683	817936.032
083	844354.618	817933.769
084	844350.647	817891.454

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
AECOM Asia Company Ltd.
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SUB-CONSULTANTS

ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK.
B	SEP. 16	WORKING DRAWING	RPCM
A	FEB.16	TENDER ADDENDUM NO. 1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

STATUS
WORKING DRAWING

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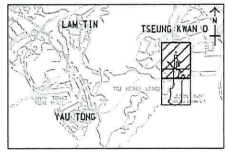
KEY PLAN A1 1 : 60000



PROJECT NO. 60308751
CONTRACT NO. NE/2015/02

SHEET TITLE
PORTION OF SITE

SHEET 2 OF 2

SHEET NUMBER
60308751/C2/C00/1012B

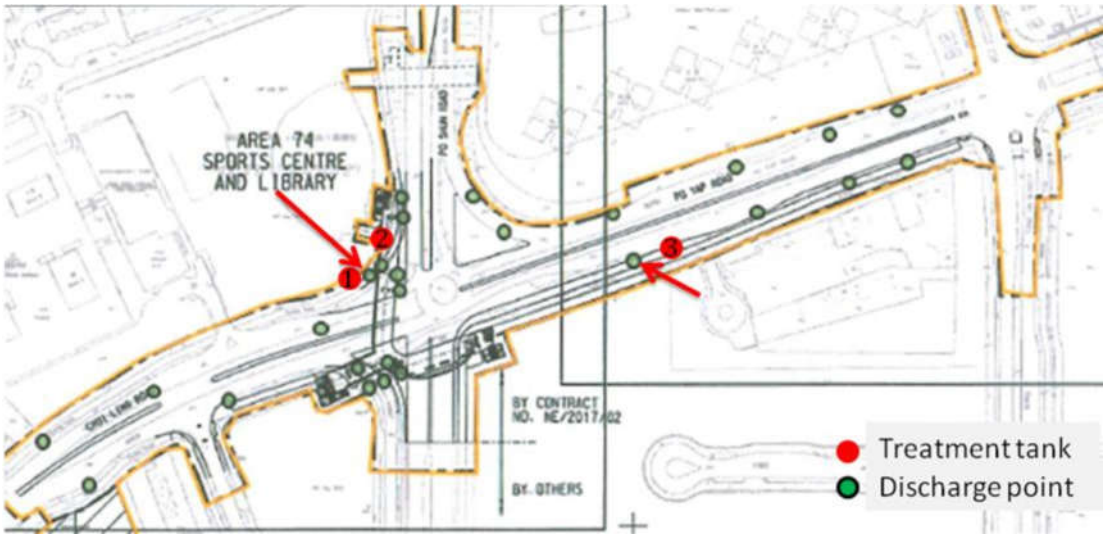
ISO A1 594mm x 841mm
Approved: CWN
Checked: RPCM
Designer: ATKH
Project Management Initials:
Plot File by: LUOFXA 2018/2/18
PATH: P:\Projects\60308751\DRAWING\Contract\C2\1000\C2_C00_1012.dgn

Contract No.: NE/2017/02

Contract Title: Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works

Flooding Mitigation Plan

Treatment facility
   

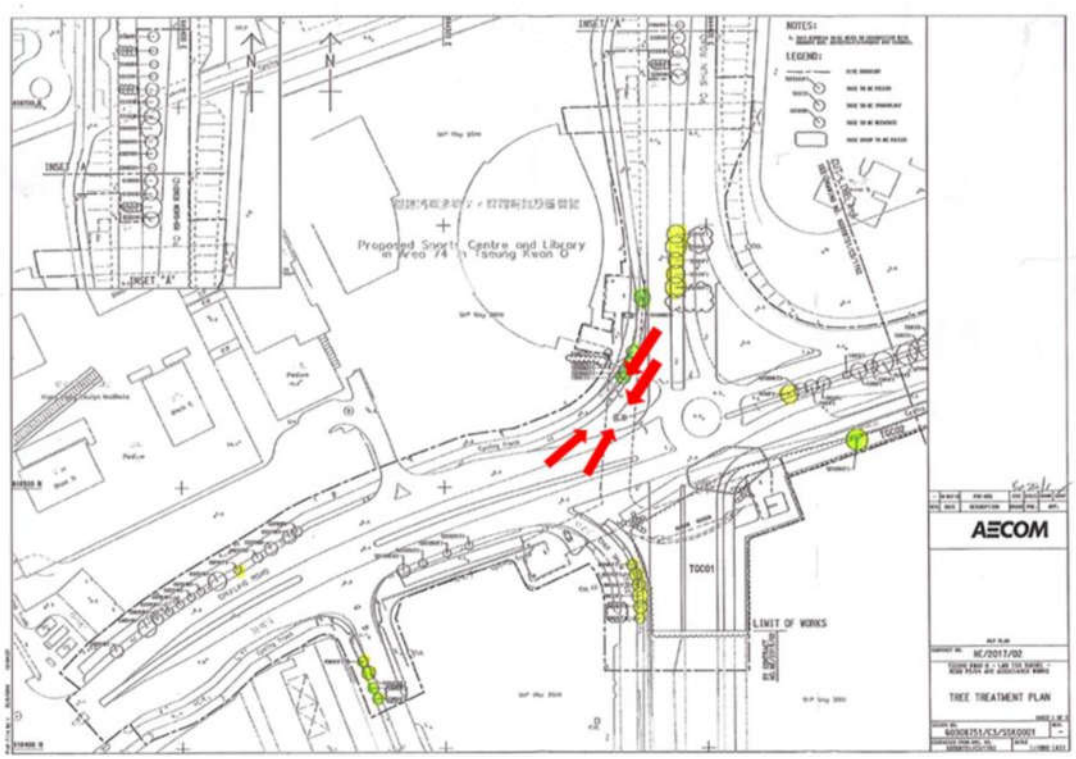


Three treatment facilities are provided on-site.

Bunding

Bunding is provided to prevent the surface runoff.

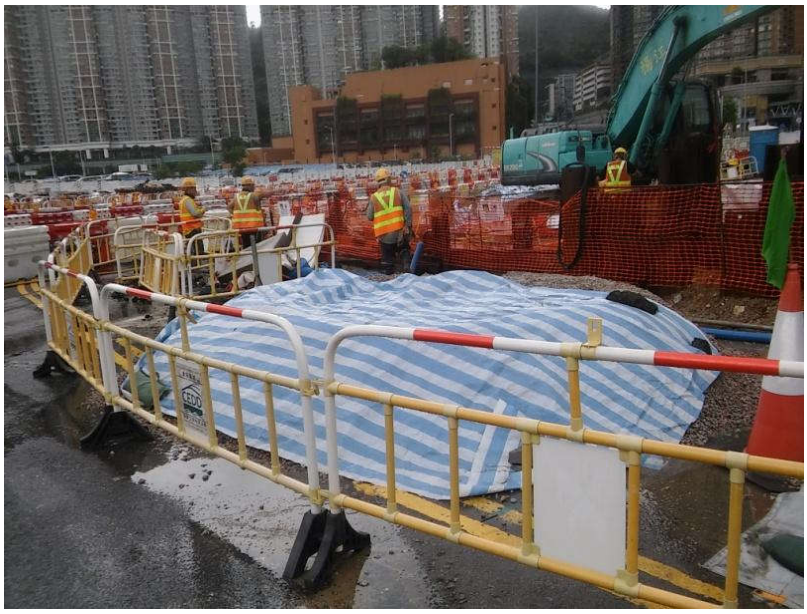
Surface runoff collection



Height difference between the road and site area to form a natural flow. Sump pit was provided for wastewater collection.

Gully Protection
 
Gully were protected and covered by geotextile.

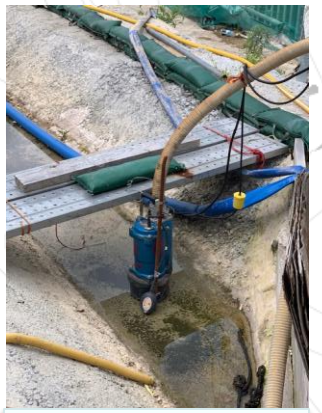
Stockpile Cover



Stockpile Should be proper cover with tarpaulin.

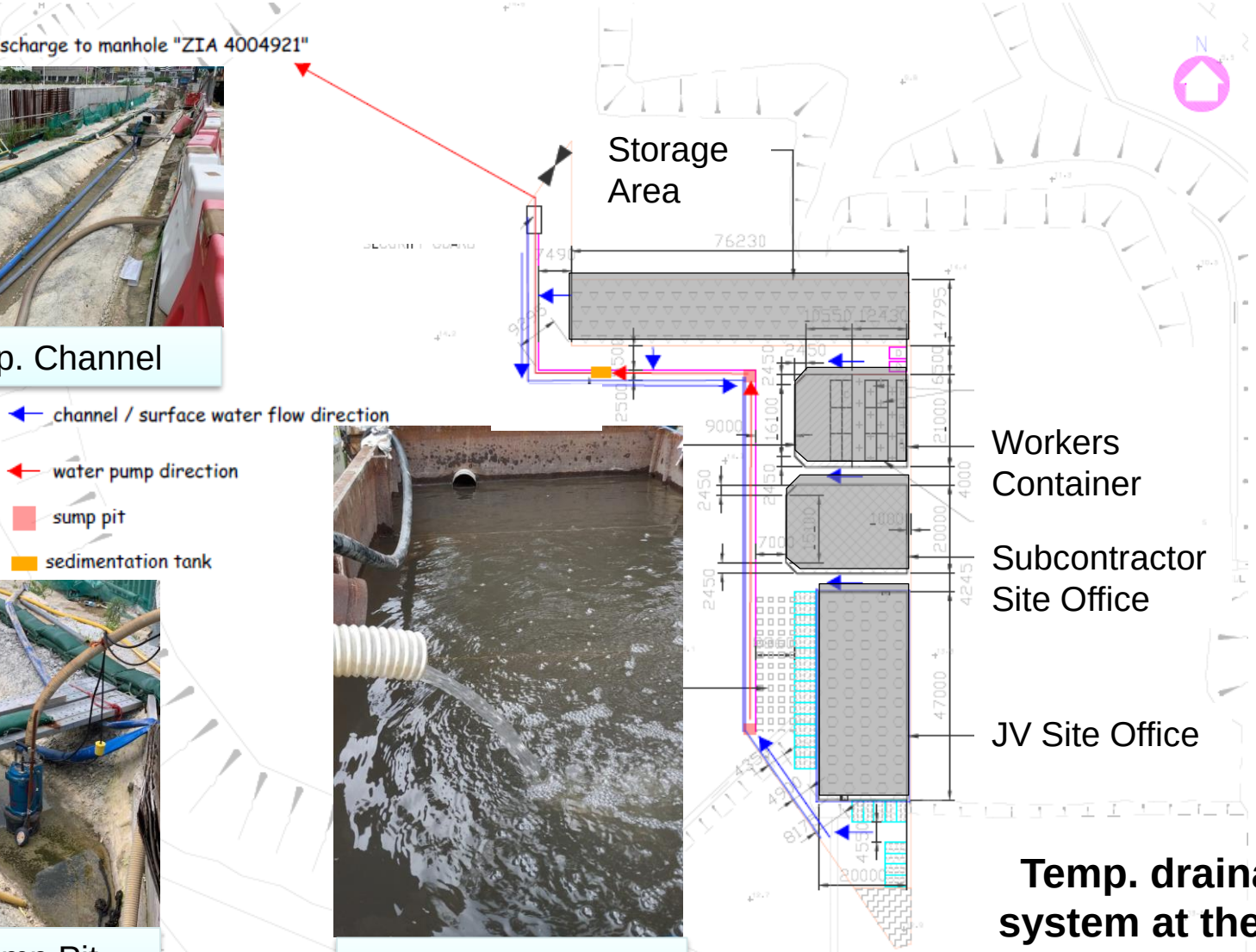
Site Surface Runoff Measures

Temp. Channel



Sump Pit

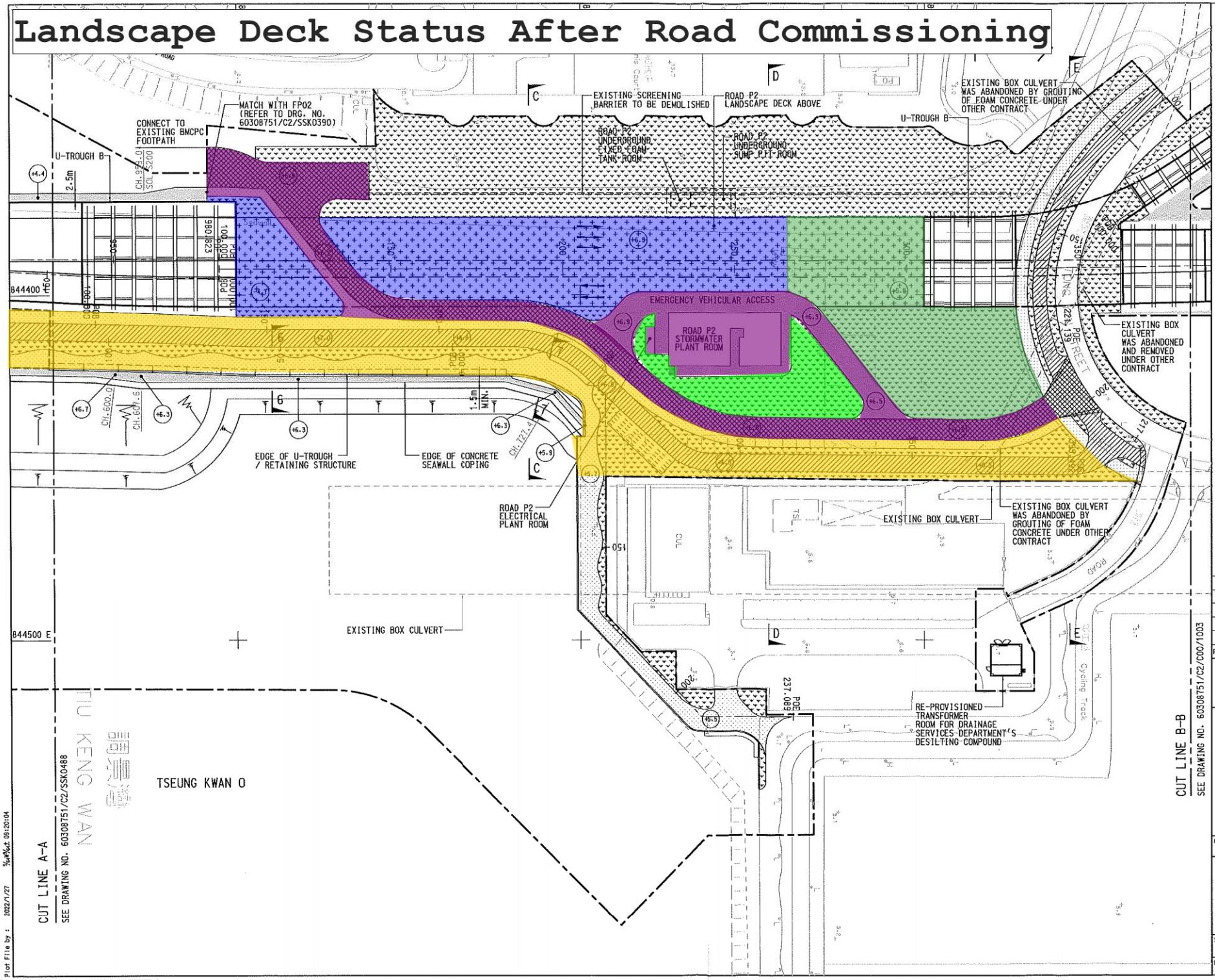
Sedimentation Tank



Temp. drainage system at the site office area

APPENDIX X
IMPLEMENTATION OF MITIGATION MEASURES IN OPERATION PHASE

Landscape Deck Status After Road Commissioning



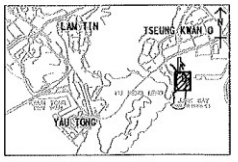
NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60308751/C2/SSK0488.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/SSK488 & SSK0510.

- Landscape Deck Upgrading Works
- Material Storage Area with Artificial Lawn
- Material Storage Area
- Hard Landscaping Works
- All Soft and Hard Landscape Completed

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
D	06-JAN-22	RFI 00518	KMC1	CHWT	JCPL	FWYL
C	29-MAR-21	--	KMC1	MKTC	JCPL	FWYL
B	11-NOV-20	PWI 239	DKSS	JCWL	JCPL	FWYL
A	09-JAN-20	PWI 197	DKSS	--	YYL	SHWY
--	08-AUG-19	RFI 00226	DKSS	FKCS	YYL	SHWY

AECOM



KEY PLAN

CONTRACT NO. NE/2015/02

TSEUNG KWAN O – LAM TIN TUNNEL – ROAD P2 AND ASSOCIATED WORKS

GENERAL ARRANGEMENT

SHEET 2 OF 3

SKETCH NO. 60308751/C2/SSK0517 REV. D

EXTRACTED FROM DRG. NO. 60308751/C2/C00/1002 SCALE 1:1000 (A3)

Plot File by : 2022/1/27 %m%d%t 09:20:04

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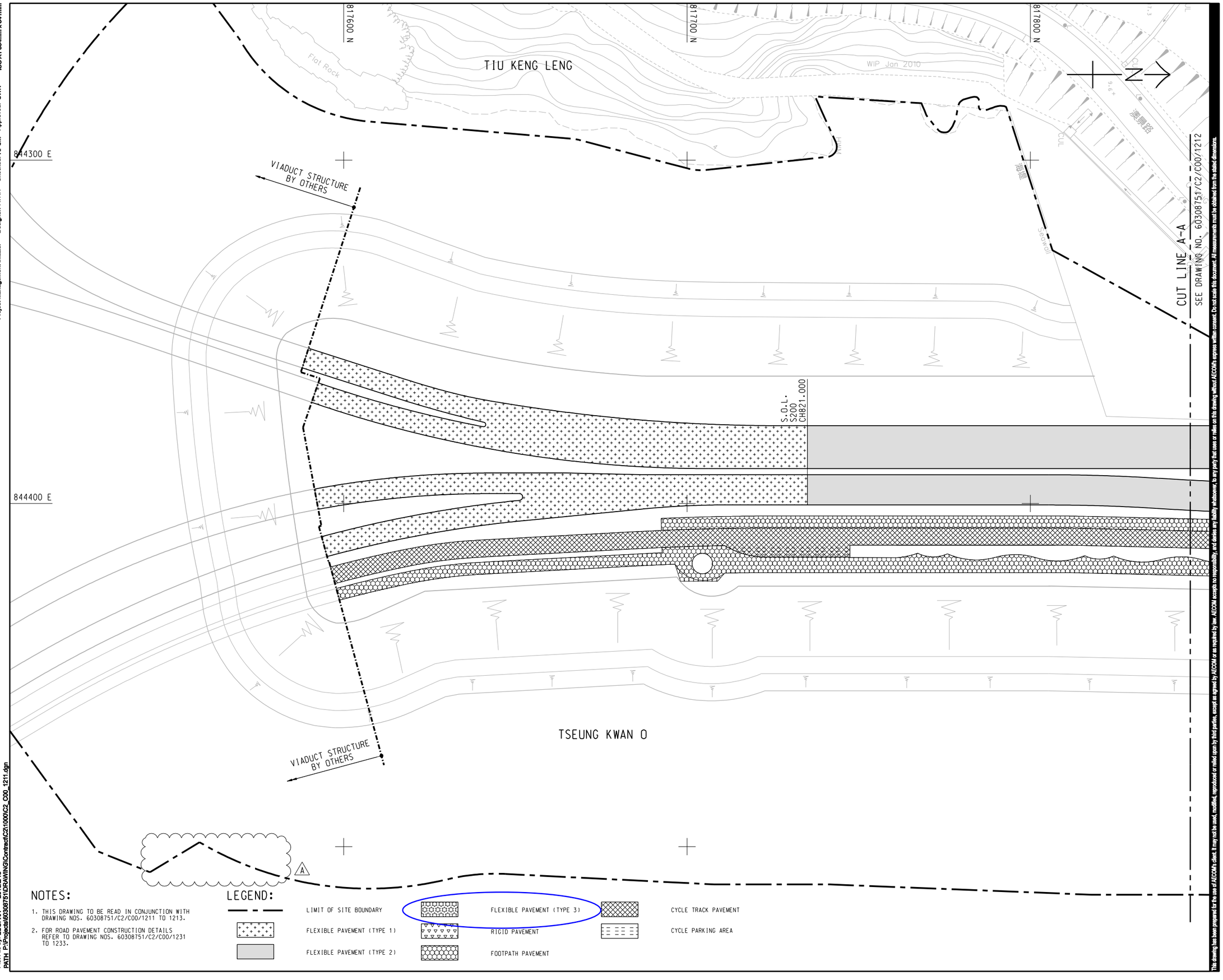
Project Management Initials: Designer: ATHH Checked: RPCM Approved: CWN ISO A1 594mm x 841mm



NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1211 TO 1213.
2. FOR ROAD PAVEMENT CONSTRUCTION DETAILS REFER TO DRAWING NOS. 60308751/C2/C00/1231 TO 1233.

LEGEND:

- LIMIT OF SITE BOUNDARY
- FLEXIBLE PAVEMENT (TYPE 1)
- FLEXIBLE PAVEMENT (TYPE 2)
- FLEXIBLE PAVEMENT (TYPE 3)
- RIGID PAVEMENT
- FOOTPATH PAVEMENT
- CYCLE TRACK PAVEMENT
- CYCLE PARKING AREA

Plot File by: LUOFXA 2016/2/18
PATH P:\Projects\60308751\DRAWING\Contract\C2\1000\C2_C00_1211.dgn

AECOM

PROJECT 項目

TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE

TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

CLIENT 業主

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

CONSULTANT 工程顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS 分判工程顧問公司

ISSUE/REVISION 修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核
B	SEP. 16	WORKING DRAWING	RPCM
A	FEB.16	TENDER ADDENDUM NO. 1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

STATUS 階段

WORKING DRAWING

SCALE 比例

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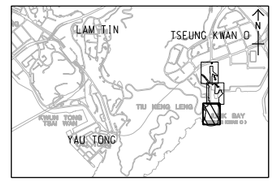
DIMENSION UNIT 尺寸單位

METRES

KEY PLAN 索引圖 A1 1 : 50000



PROJECT NO. 項目編號

60308751

CONTRACT NO. 合約編號

NE/2015/02

SHEET TITLE 圖紙名稱

ROAD PAVEMENT LAYOUT

SHEET 1 OF 3

SHEET NUMBER 圖紙編號

60308751/C2/C00/1211B

818200 N
818300 N
818400 N
844300 E
844500 E
Road
Cycling Track
Chui Ling Road Substation
CHUI LING ROAD
CHUI SHA STREET
CUL
S.O.L. SR2 CH250.000
S.O.L. P2 CH500.000
S.O.L. P2 CH572.000
S.O.L. P2 CH598.000
BY CONTRACT NO. NE/2015/02
BY OTHERS
CUT LINE B-B
SEE DRAWING NO. 60308751/C2/C00/1212
MATCH WITH EXISTING
N

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60308751/C2/C00/1211.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1211 TO 1213.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
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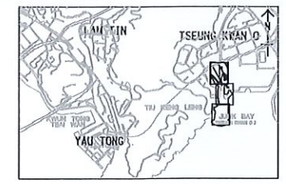
-	09-MAR-20	-	DKSS	-	JPCL SHNY

AECOM



KEY PLAN

CONTRACT NO. NE/2015/02

TSEUNG KWAN O - LAM TIN TUNNEL - ROAD P2 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SKETCH NO. 60308751/C2/SSK0608 REV. A

EXTRACTED FROM DRG. NO. 60308751/C2/C00/1213 SCALE 1:500 (A1)

Plot File by : 15/4/2021 3:57:50 PM

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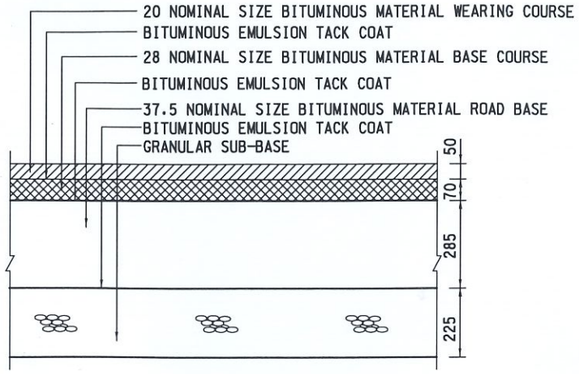
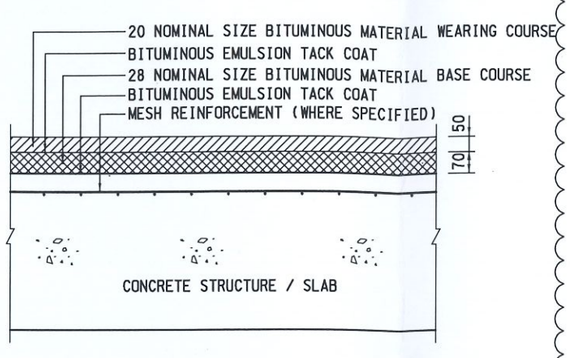
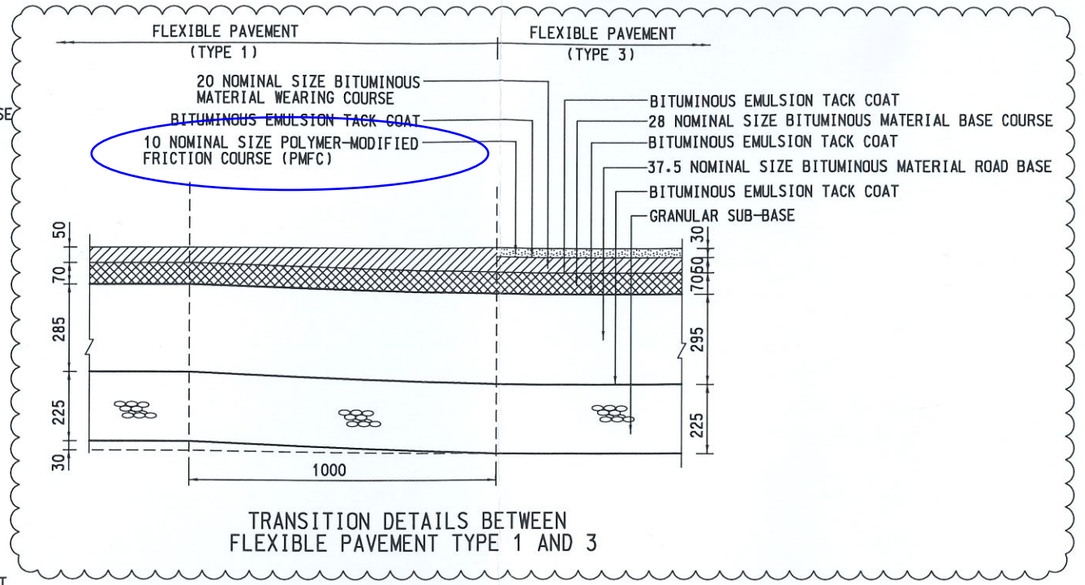


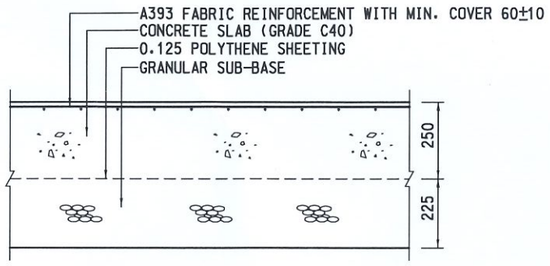
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 1)



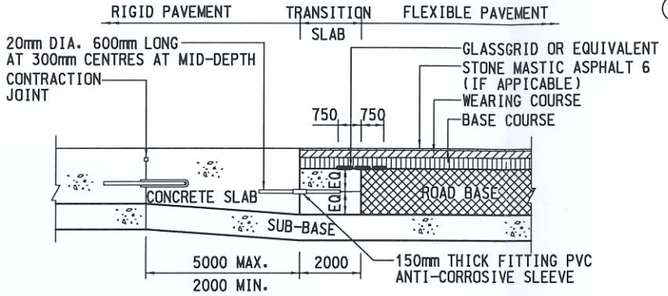
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 2)



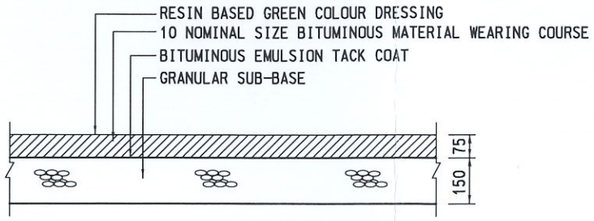
TRANSITION DETAILS BETWEEN
FLEXIBLE PAVEMENT TYPE 1 AND 3



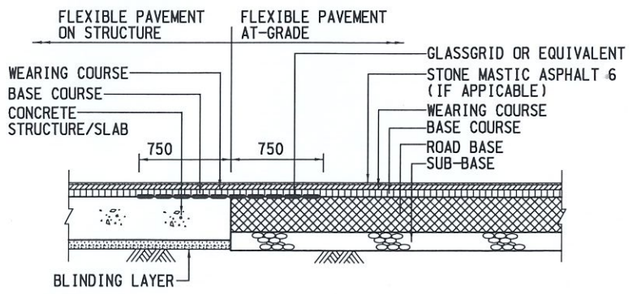
TYPICAL DETAILS FOR RIGID PAVEMENT



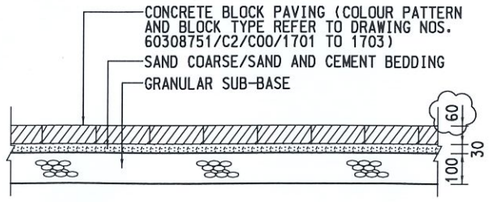
TRANSITION DETAILS BETWEEN RIGID PAVEMENT
AND FLEXIBLE PAVEMENT
N.T.S.



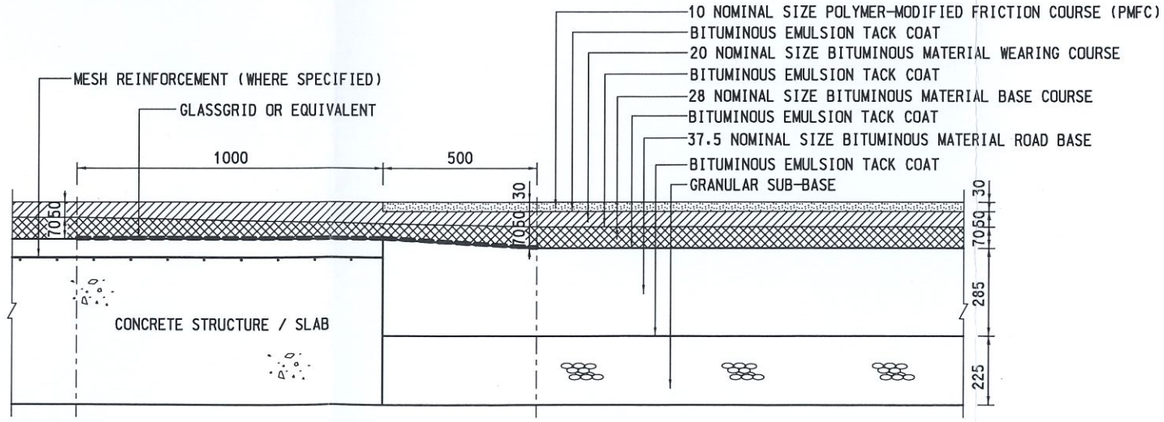
TYPICAL DETAILS FOR CYCLE TRACK PAVEMENT



TRANSITION DETAILS BETWEEN FLEXIBLE PAVEMENT
ON STRUCTURE AND FLEXIBLE PAVEMENT AT-GRADE
N.T.S.



TYPICAL DETAILS FOR FOOTPATH PAVEMENT



TRANSITION DETAILS BETWEEN TYPE 2 AND
TYPE 3 FLEXIBLE PAVEMENT

NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1231 TO 1233.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST REVISION OF HIGHWAYS DEPARTMENT STANDARD DRAWINGS INCLUDING BUT NOT LIMITED TO DRAWING NOS. H1101 TO H1134.
3. FOR MESH REINFORCEMENT DETAILS REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H1102.
4. WHERE A CAPPING LAYER IS REQUIRED, IT SHALL BE CONSTRUCTED TO GIVE A MINIMUM CBR VALUE OF 15%.
5. AT JOINTS, THE FIRST SLAB SHALL BE CAST BEFORE THE SECOND SLAB.
6. RESIN BASED COLOUR DRESSING APPROVED BY THE SUPERVISOR IN ACCORDANCE WITH PS SECTION 11 SHALL BE APPLIED ON CYCLE TRACK.
7. THE CONTRACTOR MAY SUBMIT ALTERNATIVE SUPPORT DETAILS FOR DOWEL AND TIE BARS FOR THE SUPERVISOR'S ACCEPTANCE.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
C	05-MAR-20	-	DKSS	JCWL	JPCL SHMY
B	21-JAN-20	-	DKSS	JCWL	JPCL SHMY
A	27-DEC-19	-	DKSS	-	JPCL SHMY
-	10-OCT-17	-	DKSS	JJL	YYL SHMY

AECOM

KEY PLAN

CONTRACT NO. NE/2015/02

TSEUNG KWAN O - LAM TIN TUNNEL - ROAD P2 AND ASSOCIATED WORKS

ROAD WORKS DETAILS

SKETCH NO. 60308751/C2/SSK0256 REV. C

EXTRACTED FROM DRG. NO. 60308751/C2/C00/1231 SCALE 1:20 (A3)

Plot File by : 06-Mar-20 5:08:21 PM

J:\C2\Site Sketch\SSK0256\SSK0256C.dgn

NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C3/DF0275.
2. FOR ROAD PAVEMENT CONSTRUCTION DETAILS REFER TO DRAWING NOS. 60308751/C3/1211 TO 1213.
3. THE LOW NOISE ROAD SURFACE (LNRS) MATERIAL POLYMER MODIFIED FRICTION COURSE (PMFC) IS NOT APPLIED AT BUS STOP AREA IN ACCORDANCE WITH THE GUIDANCE NOTE ON LOW NOISE ROAD SURFACE [HYD PUBLICATION NO. RD/GN/011C] SECTION 3.2.3.

LEGEND:

- CYCLE TRACK PAVEMENT
- FOOTPATH PAVEMENT
- FLEXIBLE PAVEMENT (TYPE 1)
- FLEXIBLE PAVEMENT (TYPE 3)
- RIGID PAVEMENT
- CONCRETE SURFACING

844200 E
844300 E
844400 E
818600 N
818500 N

N

WIP May 2014

擬建將軍澳第７４區體育館及圖書館
Sports Centre and Library in Area 74 in Tseung Kwan O

AREA 74 SPORTS CENTRE AND LIBRARY

PARK CENTRAL

PO SHUN ROAD

CUT LINE A-A
SEE DRAWING NO. 60308751/C3/DF0275

SOUTHERN FOOTBRIDGE
(NOT SHOWN FOR CLARITY)

CHUI LING ROAD

LIN TIN STREET

LIMIT OF WORKS
BY CONTRACT NO.NE/2015/02

AREA 67

CIC CLUSTER

香港專業教育學院（李惠利）
Hong Kong Institute of Vocational Education (Lee Wai Lee)

香港設計學院
Hong Kong Design Institute

B座 Block B
C座 Block C
D座 Block D
平台 Podium
Ramp
Cycling Track
CUL
EW
VS

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
–	02-FEB-23	–	–	–	–

AECOM

KEY PLAN

CONTRACT NO. NE/2017/02

TSEUNG KWAN O – LAM TIN TUNNEL – ROAD P2/D4 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SHEET 1 OF 2

SKETCH NO.	REV.
60308751/C3/DF0274	–
EXTRACTED FROM DRG. NO. 60308751/C3/1201	SCALE 1:1000(A3)

Plot File by : 3/2/2023 13:21:10

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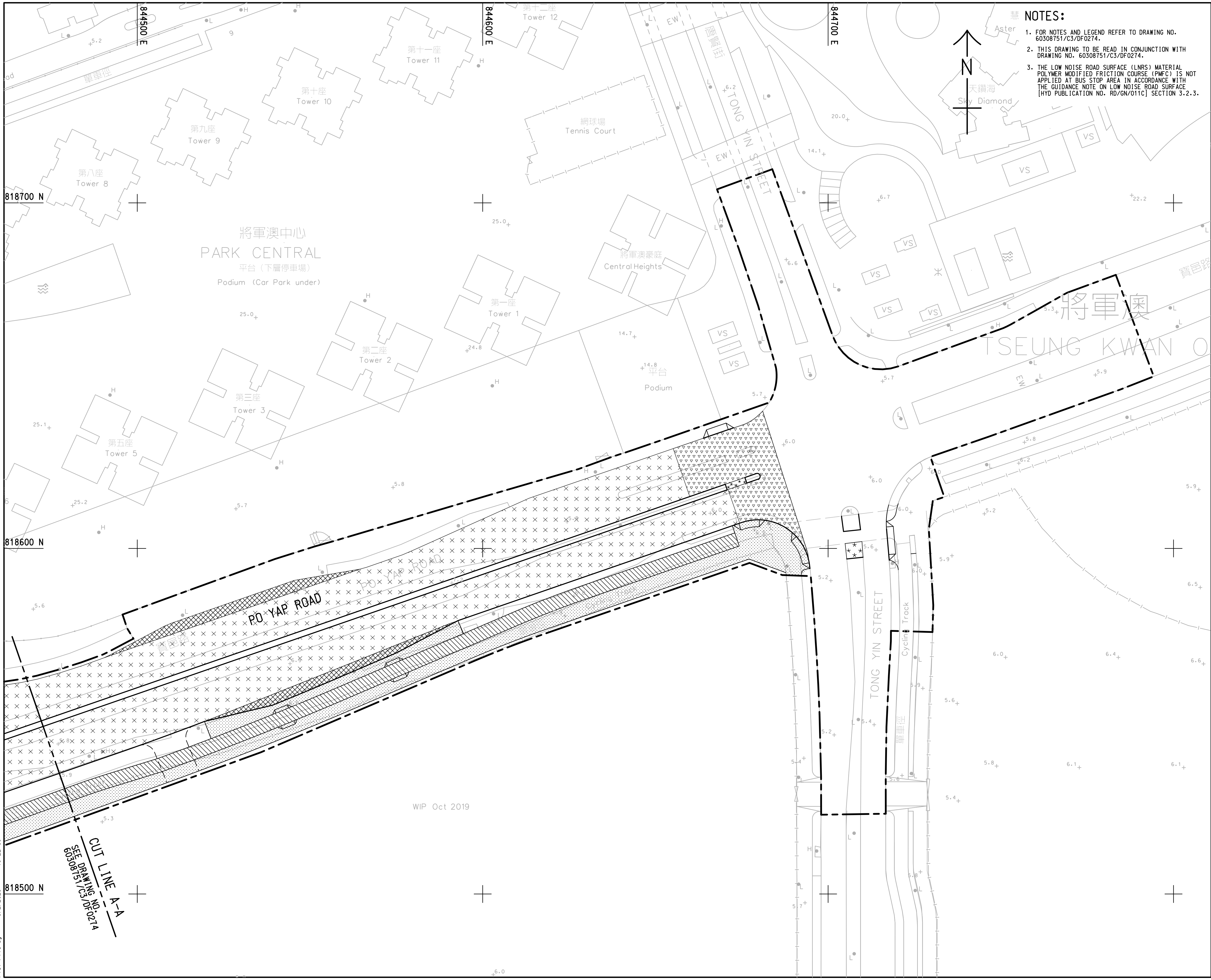


NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60308751/C3/DF0274.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C3/DF0274.
3. THE LOW NOISE ROAD SURFACE (LNRS) MATERIAL POLYMER MODIFIED FRICTION COURSE (PMFC) IS NOT APPLIED AT BUS STOP AREA IN ACCORDANCE WITH THE GUIDANCE NOTE ON LOW NOISE ROAD SURFACE [HYD PUBLICATION NO. RD/GN/011C] SECTION 3.2.3.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
-	02-FEB-23	-	-	-	-

AECOM

KEY PLAN

CONTRACT NO. NE/2017/02

TSEUNG KWAN O - LAM TIN TUNNEL - ROAD P2/D4 AND ASSOCIATED WORKS

ROAD PAVEMENT LAYOUT

SHEET 2 OF 2

SKETCH NO. 60308751/C3/DF0275

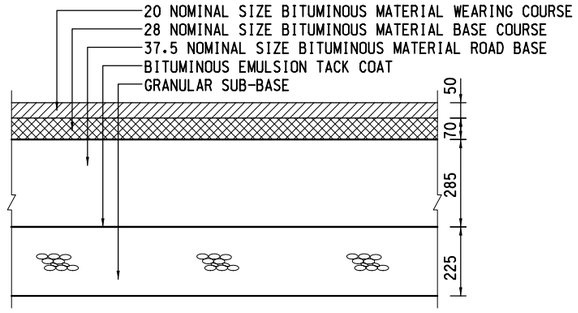
REV. -

EXTRACTED FROM DRG. NO. 60308751/C3/1202

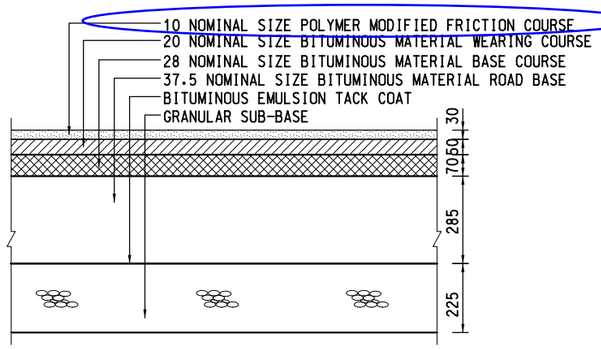
SCALE 1:1000 (A3)

Plot File by : 3/2/2023 13:22:09

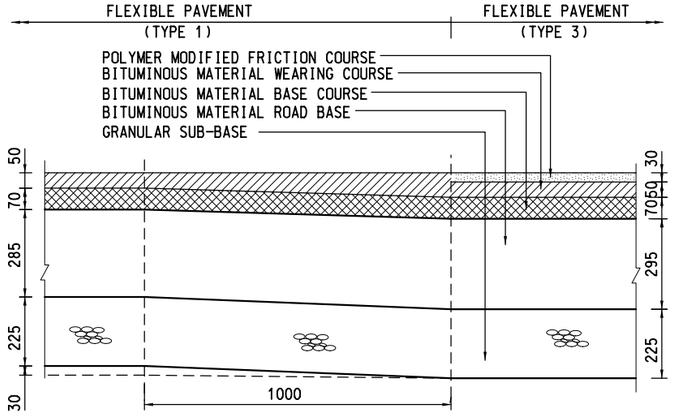
J:*C3*Site Sketch Draft*DF0274 - 0275*C3DF0275.dgn



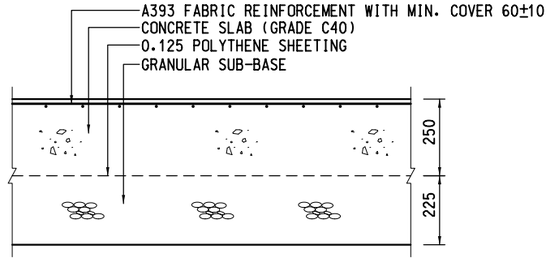
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 1)



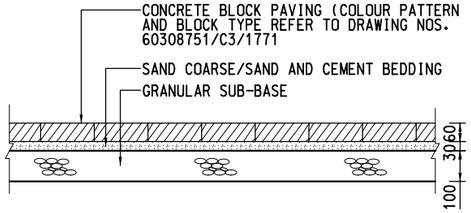
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 3)



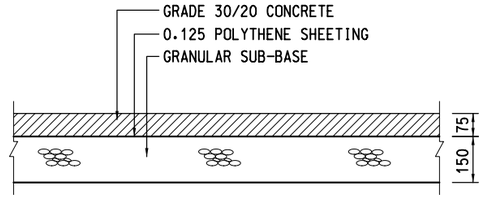
TRANSITION DETAILS BETWEEN
FLEXIBLE PAVEMENT TYPE 1 AND 3



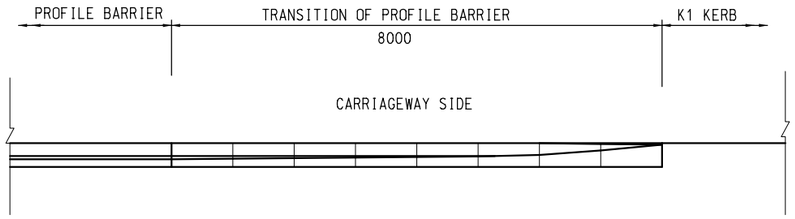
TYPICAL DETAILS FOR RIGID PAVEMENT



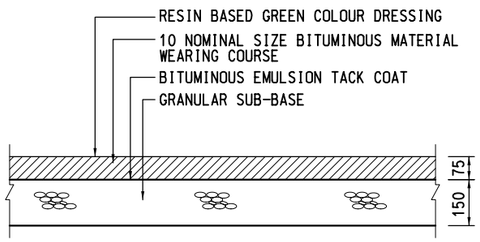
TYPICAL DETAILS FOR FOOTPATH PAVEMENT



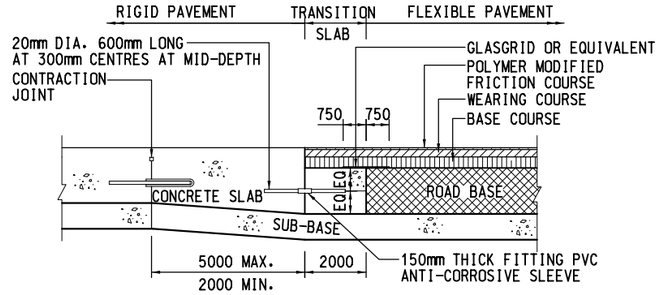
TYPICAL DETAILS FOR CONCRETE SURFACING



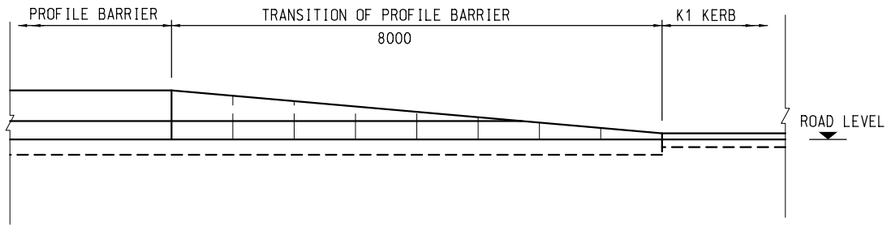
PLAN OF CONCRETE PROFILE BARRIER TERMINATION
SCALE 1 : 100



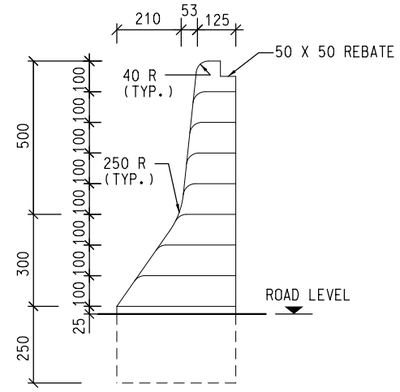
TYPICAL DETAILS FOR CYCLE TRACK PAVEMENT



TRANSITION DETAILS BETWEEN RIGID PAVEMENT
AND FLEXIBLE PAVEMENT
N.T.S.



ELEVATION OF CONCRETE PROFILE BARRIER TERMINATION
SCALE 1 : 100



PROFILE BARRIER TERMINATION SECTION
SCALE 1 : 200

NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C3/1212 AND 1213.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST REVISION OF HIGHWAYS DEPARTMENT STANDARD DRAWINGS INCLUDING BUT NOT LIMITED TO DRAWING NOS. H1101 TO H1134 AND RD/GN/011C IN GUIDANCE NOTES ON LOW NOISE ROAD SURFACING.
3. FOR MESH REINFORCEMENT DETAILS REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H1102.
4. WHERE A CAPPING LAYER IS REQUIRED, IT SHALL BE CONSTRUCTED TO GIVE A MINIMUM CBR VALUE OF 15%.
5. AT JOINTS, THE FIRST SLAB SHALL BE CAST BEFORE THE SECOND SLAB.
6. RESIN BASED COLOUR DRESSING APPROVED BY THE SUPERVISOR IN ACCORDANCE WITH PS SECTION 11 SHALL BE APPLIED ON CYCLE TRACK.
7. THE CONTRACTOR MAY SUBMIT ALTERNATIVE SUPPORT DETAILS FOR DOWEL AND TIE BARS FOR THE SUPERVISOR'S ACCEPTANCE.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
9. STEP JOINT SHOULD BE PROVIDED AT THE TRANSITION WITH EXISTING FLEXIBLE PAVEMENT ACCORDING TO HYD STANDARD DRAWING NO. H1101 AT THE LATEST VERSION.
10. DETAIL OF CONCRETE PROFILE BARRIER REFER HyD STANDARD DRAWING NO. H2101 TO H2105.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
-	02-FEB-23	-	-	-	-

AECOM

KEY PLAN

CONTRACT NO.
NE/2017/02

TSEUNG KWAN O – LAM TIN TUNNEL –
ROAD P2/D4 AND ASSOCIATED WORKS

ROAD WORKS DETAILS

SHEET 1 OF 3

SKETCH NO.
60308751/C3/DF0276

REV.
–

EXTRACTED FROM DRG. NO.
60308751/C3/1211

SCALE
AS SHOWN (A3)

Plot File by : 2/2/2023 16:28:45

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