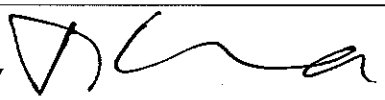
Civil Engineering and Development Department

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 December 2020

(version 1.0)

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

Civil Engineering and Development Department
East Development Office
8/F, South Tower, West Kowloon Government Offices
11 Hoi Ting Road
Yau Ma Tei
Kowloon

Your reference:

Our reference: HKCEDD08/50/107043

Date: 22 January 2021

Attention: Mr Raymond Chan

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 December 2020 (version 1.0)

We refer to email of 15 January 2021 from Cinotech Consultants Limited attaching the Monthly Environmental Monitoring and Audit Report for December 2020 (version 1.0).

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 Ricky Lau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Ann Lee
Independent Environmental Checker

LYMA/LCCR/lsmt

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EXECUTIVE SUMMARY

Introduction

1. This is the 50th 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 December 2020.

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/2015/03 – Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge;
   - 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.

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

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	13	0	10	0	Refer to Appendix K & O
Marine Water Quality	41	123	0	0	Refer to Appendix K
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).

Air Quality Monitoring

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

6. No Action/Limit Level exceedance for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

7. Ten (10) Action Level exceedances were recorded due to the documented complaints received in this reporting month. The Summary of Documented Complaints in Reporting Month is tabulated in Table III.

8. No Limit Level exceedance for day time and no limit level exceedance for night time construction noise monitoring were recorded in the reporting month.

Water Quality Monitoring

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

10. All marine water quality monitoring was conducted as scheduled in the reporting month. There were forty-one (41) Action Level and one hundred and twenty-three (123) Limit Level exceedances in Monitoring Stations (M) during marine water quality monitoring. During this reporting month, no sand plume was observed during the water quality monitoring and site audits, therefore there is no direct evidence that the recent exceedances were due to the construction works of the Project. Details of this investigation are presented in **Section 5**. Daily silt curtain inspection and weekly diving inspection have been carried out by contractor, the record, as reviewed by the site auditors, indicated that silt curtains were found in good conditions.

11. 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.

Ecological Monitoring

12. 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

13. 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

14. 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

15. Monitoring of landfill gases commenced in December 2016 and were carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

16. 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 NE/2015/01, NE/2015/02, NE/2017/01, NE/2017/02 and NE/2017/06 on 24 December 2020 respectively. Details of the audit findings and implementation status are presented in **Section 10**.
17. The representative of the IEC did not join the joint weekly site inspection of NE/2015/01 due to the pandemic crisis.

Waste Management

18. 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 is presented in **Section 11** and **Appendix P**.

Key Information in the Reporting Month

19. 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		
December 2020	13	Noise / Operating hours	Details refer to App O	Draft CIRs submitted
November 2020	14	Air / Noise	Details refer to App O	Draft CIRs submitted/ On-going
October 2020	11	Air / Noise	Details refer to App O	Draft CIRs submitted/ On-going
September 2020	9	Noise / Operation hours / Water	Details refer to App O	Draft CIRs submitted/ On-going
August 2020	6	Noise / Operation hours / Water	Details refer to App O	Draft CIRs submitted/ Closed
July 2020	5	Air / Noise	Details refer to App O	Draft CIRs submitted
Notifications of any summons & prosecutions received	0	---	N/A	N/A

20. 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
Tseung Kwan O Side			
493	Percussive noise nuisance at early morning	No PME(s) working under TKOLTT project at the time of complaint is known to emit percussive noise. The complaint is considered non-project-related and details shall be referred to CIR-N123	NIL
495	Night time mechanical noise nuisance	The complaint is considered as project-related as the noise nuisance originated from water pumps that working 24/7. No non-compliance was found. The details shall be referred to CIR-N124	NIL
498	Low frequency noise & occasional piling noise nuisance during night time	The complaint is considered as project-related as the noise nuisance was coming from water pumps that working 24/7. No non-compliance was found. Details shall be referring to CIR-N125.	NIL
499	Horning noise nuisance on Sunday	The complaint is considered as non-project-related as no barge was working under the TKOLTT project at the time of complaint. The details shall be referred to CIR-O6.	NIL
500, 501, 501B, 502, 503	Noise nuisance at nighttime on a weekday	The Contractor operated PME(s) at evening-/ night- time without an approved valid CNP. The complaint is considered as project related. The details shall be referred to CIR-N126.	The Contractor should submit a noise mitigation proposal to ET&IEC for ensuring similar events will not happen again.
501A		No direct evidence show that the Contractor operated barges at the time of complaint. Therefore the complaint was considered as non-project related. The details shall be referred to CIR-N126.	NIL
Lam Tin Side			
494, 496, 497	Noise Nuisance near Lam Tin Interchange (December)	Investigation Undergoing	

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

21. 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 (December 2020)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities
		Main Tunnel	8) S02_2 Excavation 9) Main Tunnel Lining Works
		TKO Interchange	10) Bridge Construction 11) East Ventilation Building
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) At-grade road and drainage construction 2) Underpass and structural works 3) Excavation, piling and pre-boring works 4) Abutment & seawall construction 5) Back-filling	
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	1) Construction of Pier 2) Construction of Pier Head Works 3) Construction of Pile Cap Shell 4) Segment Erection Works 5) Installation of Parapet Skin 6) Dismantling of Temporary Working Platform	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shalt Construction 5) Road Works	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Installation works at Tunnel 3) Project Signboard set up 4) Goods arrival & storage on site	

Future Key Issues

22. 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 (January 2021)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities	(A) / (B) / (C) / (D) / (E) / (G)
	Main Tunnel	8) S02_2 Excavation 9) Main Tunnel Lining Works	(B)
	TKO Interchange	10) Bridge Construction 11) East Ventilation Building	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) At-grade road and drainage construction 2) Underpass and structural works 3) Excavation, piling and pre-boring works 4) Abutment & seawall construction 5) Back-filling		(A) / (B) / (C) / (D) / (E) / (G) / (I)
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	1) Installation of Precast Pile Cap Shell 2) Construction of Pile Cap 3) Construction of Pier 4) Construction of Pier Head works 5) Segment erection works 6) Construction of Bridge Decks 7) Installation of Parapet Skin		(A) / (B) / (E) / (F) / (G)
NE/2017/02 –Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shalt Construction 5) Road Works		(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Installation works at Tunnel 3) Project Signboard set up 4) Goods arrival & storage on site		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 50th Monthly EM&A report summarizing the EM&A works for the Project in December 2020.

Purpose of the Report

1.2 This is the 50th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in December 2020.

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.

Project Organizations

2.5 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)

2.6 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. LO Sai Pak, Sunny	2301 1384	2739 0076
AECOM	Engineer's Representative	Mr. KY Chan	3922 9000	2759 1698
Cinotech	Environmental Team	Dr. HF Chan	2151 2088	3107 1388
		Mr. KS Lee	2151 2091	
AnewR	Independent Environmental Checker	Mr. Adi Lee	2618 2836	3007 8648

Construction Activities undertaken during the Reporting Month

2.7 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 (December 2020)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities
		Main Tunnel	8) S02_2 Excavation 9) Main Tunnel Lining Works
		TKO Interchange	10) Bridge Construction 11) East Ventilation Building
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) At-grade road and drainage construction 2) Underpass and U-through structural works 3) Excavation, piling and pre-boring works 4) Abutment & seawall construction 5) Back-filling	
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	1) Construction of Pier 2) Construction of Pier Head Works 3) Construction of Pile Cap Shell 4) Segment Erection Works 5) Installation of Parapet Skin 6) Dismantling of Temporary Working Platform	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shalt Construction 5) Road Works	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Installation works at Tunnel 3) Project Signboard set up 4) Goods arrival & storage on site	

2.8 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**	Noise, 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 • Use of quiet plant and well-maintained construction plant • Provide movable noise barrier

Status of Environmental Licences, Notification and Permits

2.9 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
Registration of Chemical Waste Producer				
NE/2015/01	Waste Producer No. 5218-290-L2881-02	22/08/2016	N/A	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
	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
Effluent Discharge License under Water Pollution Control Ordinance				
NE/2015/01	WT00025806-2016	18/07/2018	30/11/2021	Valid
	WT00026212-2016	16/05/2017	30/11/2021	Valid
	WT00027354-2017	22/03/2017	31/03/2022	Valid
	WT00027405-2017	22/03/2017	31/03/2022	Valid
	WT00028495-2017	11/08/2017	31/08/2022	Valid
NE/2015/02	WT00026386-2016	15/12/2016	31/12/2021	Valid
	WT00027226-2017	23/02/2017	28/02/2022	Valid
	WT00030654-2018	16/04/2018	30/04/2023	Valid
NE/2015/03	WT00027295-2017	20/03/2017	31/03/2022	Valid
NE/2017/01	WT00030711-2018	11/04/2018	30/04/2023	Valid
	WT00030716-2018	23/05/2018	31/05/2023	Valid
NE/2017/02	WT00030654-2018	16/04/2018	30/04/2023	Valid
Construction Noise Permit (CNP)				
NE/2015/01	GW-RE0486-20	23/06/2020	21/12/2020	Valid until 21/12/2020
	GW-RE0697-20	04/09/2020	03/03/2021	Valid
	GW-RE0738-20	17/09/2020	16/12/2020	Valid
	GW-RE0767-20	23/09/2020	21/03/2021	Valid
	GW-RE0909-20	06/11/2020	05/01/2021	Valid
	GW-RE0959-20	21/11/2020	20/02/2021	Valid
	GW-RE1032-20	06/12/2020	27/12/2020	Valid
	GW-RE1039-20	16/12/2020	16/03/2021	Valid
	GW-RE1070-20	22/12/2020	21/06/2021	Valid
	GW-RE1094-20	01/01/2021	05/04/2021	Valid
NE/2015/02	GW-RE0503-20	12/06/2020	04/12/2020	Valid
	GW-RE0730-20	13/09/2020	12/03/2021	Valid
	GW-RE0970-20	28/10/2020	27/01/2021	Valid
	GW-RE1080-20	14/12/2020	06/05/2021	Valid
NE/2017/01	GW-RE0549-20	30/06/2020	28/12/2020	Valid
NE/2017/02	GW-RE0896-20	03/11/2020	02/05/2021	Valid
Marine Dumping Permit				
NE/2017/01	EP/MD/21-011	N/A	N/A	N/A
NE/2015/01	CEDD01062	N/A	10/11/2020	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Specified Process (SP) License				
NE/2015/01	L-11-053	09/03/2018	08/03/2021	Valid

Summary of EM&A Requirements

2.10 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.

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

2.12 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 December 2020.

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(A)(2) (*)	Cha Kwo Ling Public Cargo Working Area Administrative Office	Rooftop (3/F)
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(24-hr 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) (24-hr TSP only), AM5(A) and AM6(A) respectively.

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	8
	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(A), 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 meter 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 was 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 both 1-hour TSP and 24-hour TSP monitoring respectively.

3.22 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**.

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

3.24 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(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office	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

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 9 designated monitoring stations (CM1, CM2, CM3, CM4, CM5, CM6(A), CM7(A), CM8(A), CM9(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
CM9(A)[1]	Rooftop of Capri Tower 10	Rooftop (12/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.
[1] Ad-hoc noise monitoring at station CM9(A) was commenced in September 2019.

4.3 Since the population intake of Capri had commenced during the construction of the TKOLTT, the noise monitoring work in daytime period was conducted at CM9(A) – Rooftop of Capri Tower 10 on normal weekdays. The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.

Monitoring Equipment

4.4 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	2
	BSWA308 SLM	1
Calibrator	SV30A	0
	Brüel & Kjær 4231	0
	ST-120	2

4.5 **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
CM9(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

Monitoring Methodology and QA/QC Procedure

4.6 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 was 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 was 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

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

4.8 The sound level meter and calibrator was checked and calibrated at yearly intervals.

4.9 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

4.10 Twelve (12) Action Level exceedances were recorded due to the documented complaints received in this reporting month. No Limit level exceedances for night-time construction noise monitoring were recorded and no Limit Level exceedance for day time was recorded in the reporting month.

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

4.12 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
CM9(A)	Rooftop of Capri Tower 10	Construction Noise from Portion V/Area A of NE/2015/02 site area

4.13 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured L_{eq} – Baseline L_{eq} = 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	
CM9(A)	N/A(1)	
(*) Noise Limit Level is 65 dB(A) during school examination periods. (1)) The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.		

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		

Current Tunnel Blasting Arrangement

4.14 The drill and blast method was evaluated as the most appropriate method and the general practice of this method was introduced during the EIA report assessment. The paragraphs 2.9.9 and 2.9.33 of the EIA Report mention that there might be one blast or multiple blasts and the maximum number of blast location per day would be determined by the Contractor to suite his method of working.

4.15 Notwithstanding the information provided by the Engineer at paragraphs 4.6.4 and 6.6.12 of the EIA Report, to minimize blast nuisance to the public and to respond to the community concerns, the tunnel blast should be arranged, where possible, avoiding the blast to be carried out during night time and shortening the blast duration by arranging various work fronts to be blasted at different time slots. Hence, it has become more desirable to split one tunnel blasting operation, which may consist of several blasting work fronts along the tunnels, into a total of two to three tunnel blasts per day. The tunnel blasts, which locate outside the MTR Protection Zone (RPZ) possessing insignificant risk to the MTR's structures would be carried out during day time and before 22:00. For the tunnel blasts within and in close vicinity to RPZ, Contractor's blasting assessment report revealed that those blasts have to be carried out after train service and, generally, at around 01:40.

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 this 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.

Groundwater Level Monitoring (Piezometer Monitoring)

5.5 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.

Monitoring Locations

Marine Water Quality

5.6 A total of twelve monitoring stations are designated for the water quality monitoring program according to EM&A Manual. One additional monitoring station (W1) is designated for monitoring of oxygen depletion in the embayed waters during the period when the fully enclosed barrier is installed. The locations are also summarized in **Table 5.2** and shown on **Figure 5**.

Table 5.2 Marine Quality Monitoring Stations

Monitoring Stations	Descriptions	Coordinates	
		Easting	Northing
M1	Junk Bay Coral Site – Junk Bay near Chiu Keng Wan	844255	817565
M2	Junk Bay Coral Site – Junk Bay	844076	817087
M3	Junk Bay Coral Site – Junk Island	844491	817890
M4	Junk Bay Coral Site –Chiu Keng Wan	843209	816416
M5	Junk Bay Coral Site – Fat Tong Chau	845463	815769
M6	Tseung Kwan O Salt Water Intake	845512	817442
C1	Control Station – Southeast	844696	814773
C2	Control Station – Northwest	842873	816014
G1	Gradient Station	844418	817560
G2	Gradient Station	844290	817384
G3	Gradient Station	844488	817735
G4	Gradient Station	844967	817551

Monitoring Equipment

5.7 For in-situ monitoring, a multi-parameter meter (Aquaread AP-2000-D) was used to measure Dissolved oxygen (DO) concentration, DO saturation (DO %), pH, temperature and turbidity. A sampler was used to collect water samples for laboratory analysis of SS, BOD_5, TOC, Total Nitrogen, Ammonia-N and Total Phosphate.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

5.8 The instrument for measuring dissolved oxygen and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
- a temperature of 0-45 degree Celsius.

5.9 It has a membrane electrode with automatic temperature compensation complete with a cable.

5.10 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.

5.11 Salinity compensation was built-in in the DO equipment.

Turbidity

5.12 Turbidity was measured in-situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not be less than 25m in length.

pH

5.13 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

Water Depth Detector

5.14 A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

Water Sampler

5.15 Water samples collected for laboratory analysis were stored in high density polythene bottles sample containers, with appropriate preservatives added. All sampling bottles were labelled (waterproof) with the sampling date and time, sample lot number and sampling location reference number to avoid mishandling.

Sample Container and Storage

5.16 Following collection, water samples for laboratory analysis were stored in high density polythene bottles, with preservative appropriately added where necessary. They will be packed in ice (cooled to 4°C without being frozen), delivered to the laboratory and analysed as soon as possible.

Calibration of In-Situ Instruments

5.17 All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring.

5.18 For the on-site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" was observed.

5.19 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of Aquaread AP-2000-D. The probe was then be calibrated with a solution of known NTU.

5.20 Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was also made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

5.21 **Table 5.3** summarizes the equipment used in the water quality monitoring program. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 5.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820-C-M	0
	Aquaread AP-2000-D	0
	YSI EXO1 Multiparameter Sondes	1
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

Monitoring Parameters and Frequency

5.22 **Table 5.4** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring in the reporting period.

Table 5.4 Water Quality Monitoring Parameters and Frequency

Monitoring Stations	Parameters, unit	Depth	Frequency
Marine Water Quality			
M1 M2 M3 M4 M5 M6 C1 C2 G1 G2 G3 G4	*In-situ*: Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity Laboratory Testing: Suspended Solids (SS)	M1-M5, C1-C2, G1-G4 • 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If the water depth is less than 6m, omit mid-depth sampling. M6 • at the vertical level where the water abstraction point of the intake is located(i.e. approximately mid-depth level)	3 days per week / 2 per monitoring day (1 for mid-ebb and 1 for mid-flood)

Monitoring Methodology

Marine Water Quality

5.23 The monitoring stations were accessed using survey boat by the guide of a hand-held Global Positioning System (GPS). The depth of the monitoring location was measured using depth meter in order to determine the sampling depths. Afterwards, the probes of the in-situ measurement equipment was lowered to the predetermined depths (1 m below water surface, mid-depth and 1 m above seabed) and the measurements was carried out accordingly. The in-situ measurements at predetermined depths was carried out in duplicate. In case the difference in the duplicate in-situ measurement results was larger than 25%, the third set of in-situ measurement would be carried out for result confirmation purpose.

5.24 Water sampler was lowered into the water to the required depths of sampling. Upon reaching the pre-determined depth, a messenger to activate the sampler was then released to travel down the wire. The water sample was sealed within the sampler before retrieving. At each station, water samples for SS at three depths (1 m below water surface, mid-depth and 1 m above seabed) were collected accordingly. Water samples were stored in a cool box and kept at less than 4°C but without frozen and sent to the laboratory as soon as possible.

Laboratory Analytical Methods

5.25 The testing of all parameters were conducted by ALS Hong Kong (HOKLAS Registration No.083) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results. The testing method and limit of reporting are provided in **Table 5.5**.

Table 5.5 Methods for Laboratory Analysis for Water Samples

Parameters (Unit)	Proposed Method	Reporting Limit	Detection Limit
SS (mg/L)	APHA 2540 D	0.5 mg/L (1)	0.5 mg/L
BOD_5 (mg O_2/L)	APHA 19ed 5210B	2 mg O_2/L	--
TOC (mg-TOC/L)	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L	--
Total Nitrogen (mg/L)	In-house method SOP063 (FIA)	0.6 mg/L	--
Ammonia-N (mg NH_3-N/L)	In-house method SOP057 (FIA)	0.05 mg NH_3-N/L	--
Total Phosphorus (mg-P/L)(2)	In-house method SOP055 (FIA)	0.05 mg-P/L	--

Note:
1) Limit of Reporting is reported as Detection Limit for non-HOKLAS report.
2) Parameter Total Phosphorus represents the laboratory testing for total phosphate content in water which is the sum of all three forms of phosphates in water.

QA/QC Requirements

Decontamination Procedures

5.26 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

Sampling Management and Supervision

5.27 Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

5.28 QA/QC procedures as attached in **Appendix J** are available for the parameters analysed in the HOKLAS-accredited laboratory, ALS Hong Kong.

Results and Observations

Groundwater Quality Monitoring

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

Marine Water Quality Monitoring

5.30 Marine water monitoring results and graphical presentations are shown in **Appendix I**. Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.

5.31 Calculated Action and Limit Levels for Marine Water Quality is presented in **Appendix I**. Forty-one (41) Action Level and one hundred and twenty-three (123) Limit Level exceedances on Monitoring Stations (M) were recorded in marine water quality monitoring.

5.32 Exceedances of turbidity and suspended solid were recorded on from various monitoring stations non-specifically among all stations including the control stations. Investigations over December 2020 showed that the range of SS levels recorded in December 2020 remained consistent with the records in recent months. All Contractor is reminded to strictly follow the approved drainage plan and clear drainage regularly. In particular, all drainage shall be checked and cleared after heavy rainstorm as sediments may accumulate along pipes and culverts. Further details of the exceedance investigation reports can be found in **Appendix K**.

5.33 Silt curtain inspections are carried out before the commencement of the construction works every day and diving surveys are also conducted once a week to inspect the silt curtain below the water level. The inspection report are verified by both the RE and the diving specialist and the records are reviewed weekly during the site audits.

Groundwater Level Monitoring (Piezometer Monitoring)

5.34 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.

5.35 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.

Mitigation Measures Adopted by Contractors for Surface runoff Prevention

5.36 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

5.37 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.

5.38 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.

5.39 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

5.40 The exposed sloped area at Portion 9 has been covered with geotextile or tarpaulin to avoid surface run-off. Temporary peripheral open U-channel are also provided along the surcharge area within the rock mount to collect stormwater and surface run-off.

5.41 Soak away pit with a 600mm in diameter were bored into the ground, down to -14mPD, near the piling works area to cater for the surface runoff at Portion IX (Figure 1C). The stormwater and the water generated from the piling works are stored temporary at the pit around the soak away pit, which shall be pumped automatically into the soak away pit where they are soaked into the soil naturally.

5.42 The stormwater received in Portion 9 shall be directed and pumped via the flex tube and sump towards the water treatment system and the approved discharge points. 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).

5.43 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.

5.44 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

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

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

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

5.48 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 are treated before discharging into the designated discharge point.

NE2015/03

5.49 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 are 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.

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

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

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

NE2017/01

5.53 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: Minimate Plus 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	MiniMate Plus / MicroMate manufactured by Instantel Model No.: 716A0403 / 721A2501	33

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 is 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. 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.

Monitoring Parameters and Frequency

9.3 Monitoring parameters for Landfill gas monitoring include Methane, Carbon dioxide and Oxygen.

9.4 According to the implementation schedule and recommended mitigation measures of the EM&A Manual, measurements of the following frequencies should be carried out:

Excavations deeper than 1m
- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically throughout the working day whilst workers are in the excavation.

Excavations between 300mm and 1m deep
- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

For excavations less than 300mm deep
- monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person

Monitoring Locations

9.5 Monitoring of oxygen, methane and carbon dioxide was performed for excavations at 1m depth or more within the Consultation Zone. In this reporting month, the area required to be monitored for landfill gas are shown below and **Figure 6** shows the landfill gas monitoring locations.
- Excavation Locations : Portion III
- Manholes and Chambers : N/A
- Relocation of monitoring wells : N/A
- Any other Confined Spaces : N/A

Monitoring Equipment noise mitigation

9.6 **Table 9.1** summarizes the equipment employed by the Contractor for the landfill gas monitoring.

Table 9.1 Landfill Gas Monitoring Equipment

Equipment	Model and Make	Quantity
Portable gas detector	ALTAIR 5X Multigas Detector (Serial No. 137333)	1

Results and Observations

9.7 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on 130 occasions. No Limit Level exceedance for landfill gas monitoring was recorded in the reporting month. The monitoring results are provided in **Appendix R**. Copies of calibration certificates are attached in **Appendix B.**

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: 2, 9, 30
- Contract No. NE/2015/02: 3, 10, 17, 24, 31
- Contract No. NE/2017/01: 3, 10, 18, 24, 31
- Contract No. NE/2017/02: 3, 10, 18, 24, 31
- Contract No. NE/2017/06: 4, 10, 18, 24, 28

10.3 Monthly joint site inspection with the representative of IEC was conducted for NE/2015/02, NE/2017/01, NE/2017/02 and NE/2017/06 on 24 December 2020.

10.4 No joint site inspection for NE/2015/01 with the representative of IEC was conducted in the reporting month due to pandemic crisis.

10.5 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

10.6 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**.

10.7 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 Ten (10) Action Level exceedances of noise were recorded due to the documented complaints received in the reporting month. No Limit Level exceedances of construction noise monitoring were recorded for day-time in the reporting month.

12.2 Forty-one (41) Action Level and one hundred and twenty-three (123) Limit Level exceedances were recorded in monitoring stations (M) during marine water quality monitoring.

12.3 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 Non-Compliance

12.4 No non-compliance was recorded on this reporting month.

Summary of Environmental Complaint

12.5 Thirteen (13) environmental complaints were received in the reporting month. The Cumulative Complaint Log is presented in **Appendix O**. The investigation status and result is also reported in **Appendix O**.

Summary of Environmental Summon and Successful Prosecution

12.6 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 (January 2021)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities	NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works
	Main Tunnel	8) S02_2 Excavation 9) Main Tunnel Lining Works	(B)
	TKO Interchange	10) Bridge Construction 11) East Ventilation Building	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) At-grade road and drainage construction 2) Road diversion of Tong Yin Street 3) U-through and underpass structural works 4) Excavation, piling and pre-boring works 5) Abutment & seawall construction 6) Back-filling		(A) / (B) / (C) / (D) / (E) / (G) / (I)
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	1) Installation of Precast Pile Cap Shell 2) Construction of Pile Cap 3) Construction of Pier 4) Construction of Pier Head works 5) Segment erection works 6) Construction of Bridge Decks 7) Installation of Parapet Skin		(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shalt Construction 5) Road Works		(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and	1) System Integration Test 2) Installation works at Tunnel 3) Project Signboard set up 4) Goods arrival & storage on site		(G)

Contract No. and Project Title	Site Activities (January 2021)	Key Environmental Issues *
Surveillance System(TCSS) and Associated Works		

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:

- Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Noisy construction activity such as rock-breaking activities and piling works;
- Runoff from exposed slope or site area;
- Wastewater and runoff discharge from site;
- Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
- Set up and implementation of temporary drainage system for the surface runoff;
- Precaution measures in case of heavy rainfall brought along by typhoon;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation and storage of general and construction waste on site; and
- Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

14.1 This is the 50th Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in December 2020 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 Action/Limit Level exceedance for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

14.4 Ten (10) Action Level exceedances were recorded due to the documented complaints received in this reporting month.

14.5 No Limit Level exceedances was recorded for daytime construction noise in the reporting month. No limit level exceedances were recorded for night-time.

Water Quality Monitoring

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

14.7 Forty-one (41) Action Level and one hundred and twenty-three (123) Limit Level exceedances were recorded in Monitoring Stations (M) during marine water quality monitoring.

14.8 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.

Ecological Monitoring

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

Monitoring on Cultural Heritage

14.10 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

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

Landfill Gas Monitoring

14.12 Monitoring of landfill gases in the reporting month was carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

14.13 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 K.

Complaint, Prosecution and Notification of Summons

14.14 Thirteen (13) environmental complaints, no successful prosecution and notification of summon were received during the reporting period.

Recommendations

14.15 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 rock breaking point for effective dust suppression.
- To water materials before loading/unloading.
- To turn off idle equipment.

Construction Noise

- To provide sufficient noise barriers for noisy PMEs as practically at LTI according to CNMP.
- To repair the gaps between the noise barriers.
- To place compatible noise barrier close to the breaking point for effective noise screening.
- To erect sound proof canvases on derrick lighter barge

Water Quality Impact

- To clear the oil slick and check for any damage of the silt curtain.
- To repair damaged or missing silt curtain
- To check whether the curtain has been set to the seabed.
- To ensure that the pumping rate of bored pile is sufficient to avoid discharging waste water into the sea.
- To clear floating refuse between the cofferdam and silt curtain.
- To clear oil slick within and outside cofferdam.
- To control the amount of loading materials in the barge to avoiding spillage.
- To cover stockpile near seafront.
- To remove wastewater and oil in drip tray.
- To remove pond/still water.

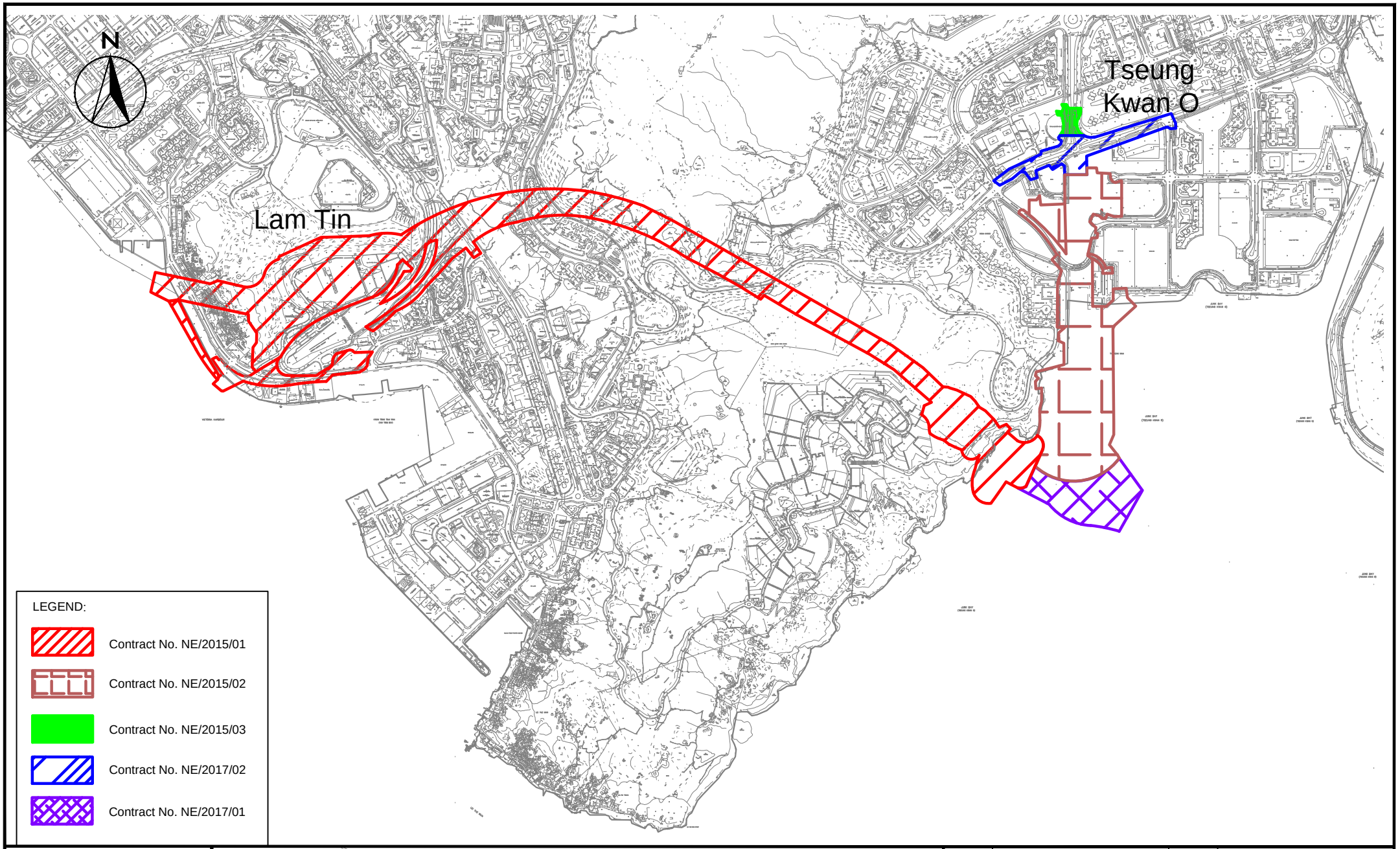
Waste/Chemical Management

- To bund or lock the chemical storage area.
- To clear dripping oil from bored piling machine.
- To clear oil slick on seawater.
- To clear oil on the floor.

Landscape and Visual

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

FIGURES

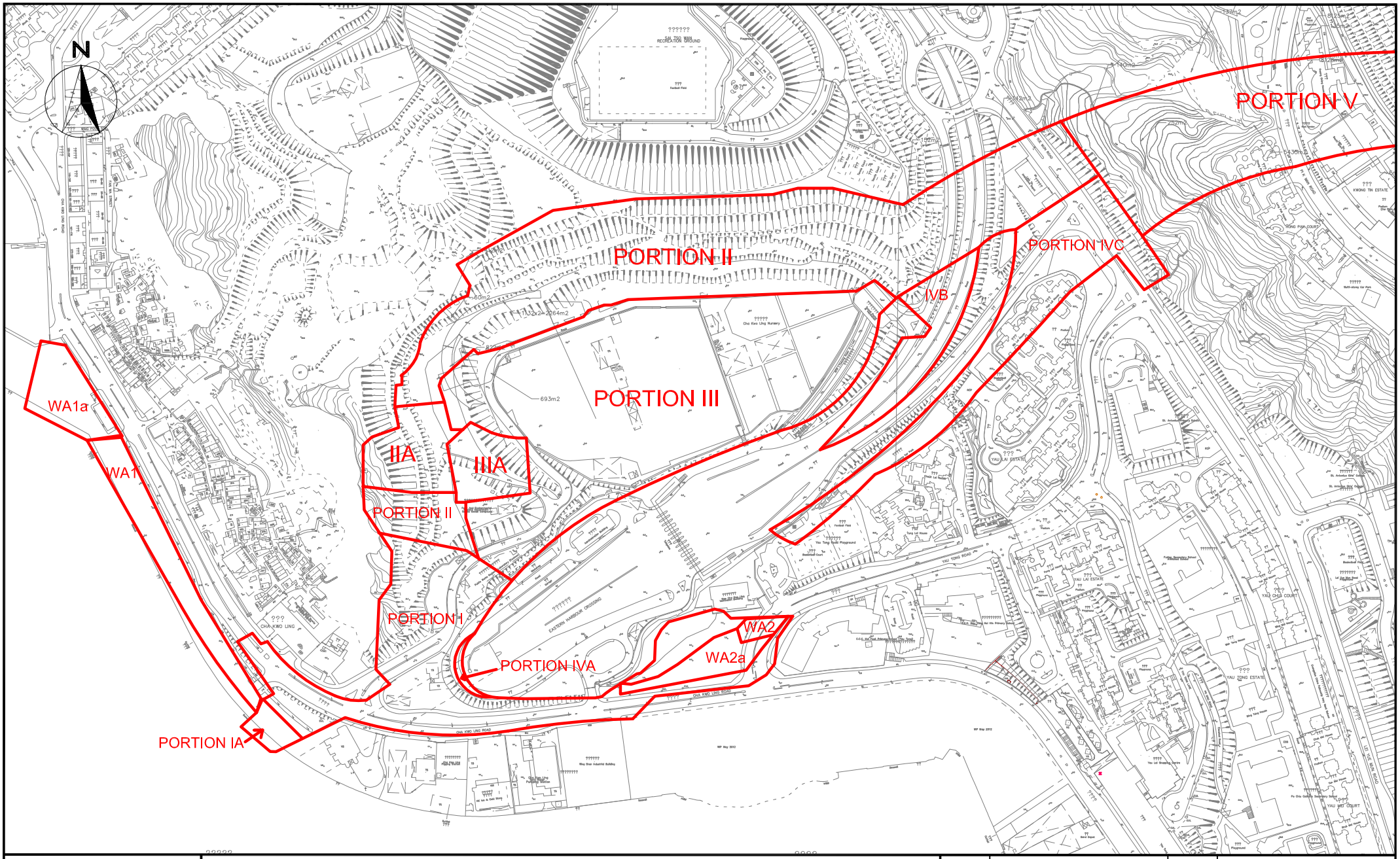


CINOTECH
Cinotech Consultants Limited

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

Site Layout Plan

SCALE	1:16000 @ A4	DATE	Jan 2020
CHECK	BC	DRAWN	KC
JOB No.	MA16034	FIGURE NO. 1	REV -



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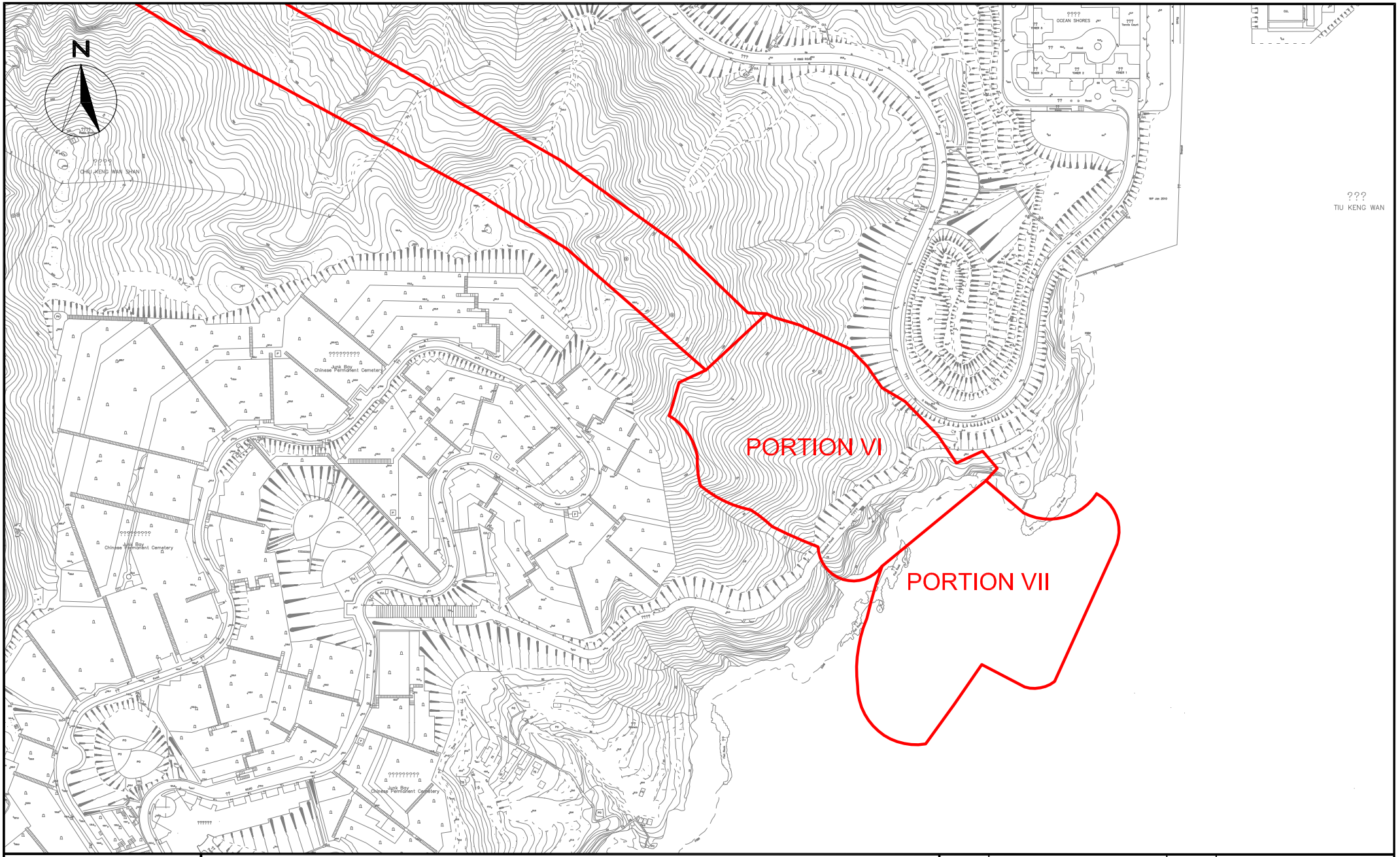
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Works Contract No. NE/2015/01 (Lam, Tin Side)

SCALE	1:15000 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 1a	REV -



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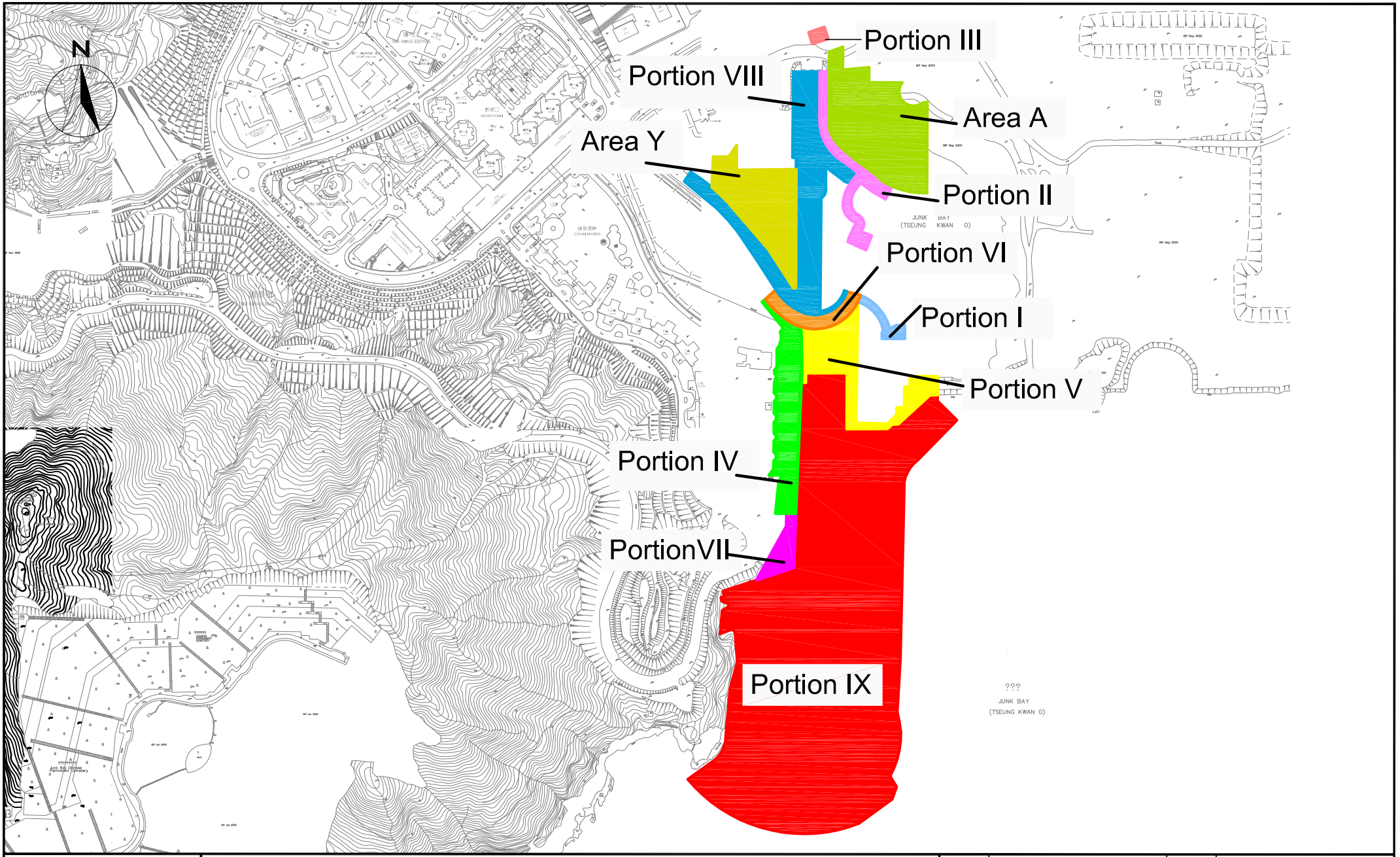
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Works Contract No. NE/2015/01 (Tsuneg Kwan O Side)

SCALE	1:15000 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 1b	REV -



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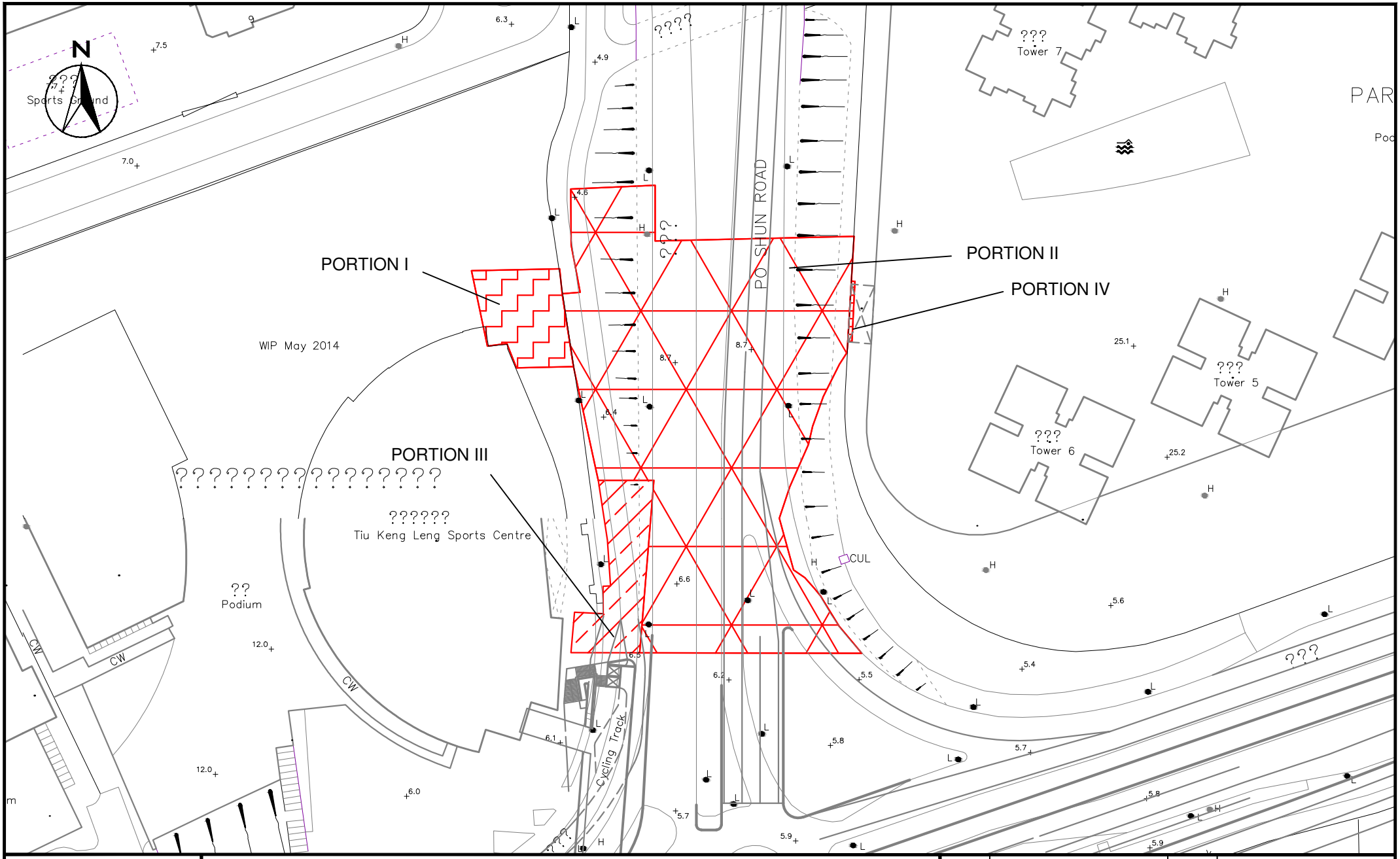
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Site Portions under Works Contract No. NE/2015/02

SCALE	N.T.S.	DATE	AUG 2017
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO.	1c
		REV	-



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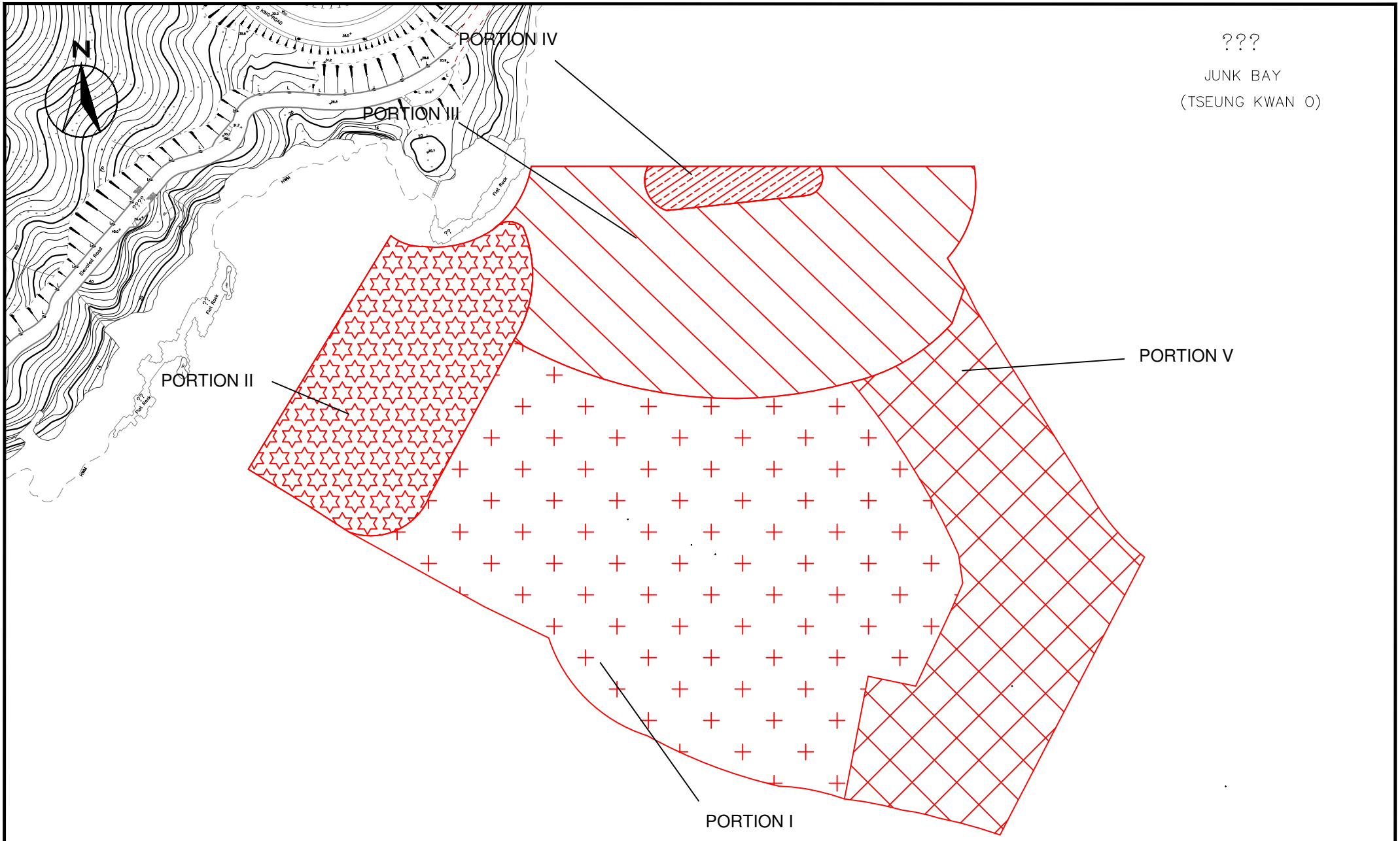
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2015/03

SCALE	1:2500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1d	REV -



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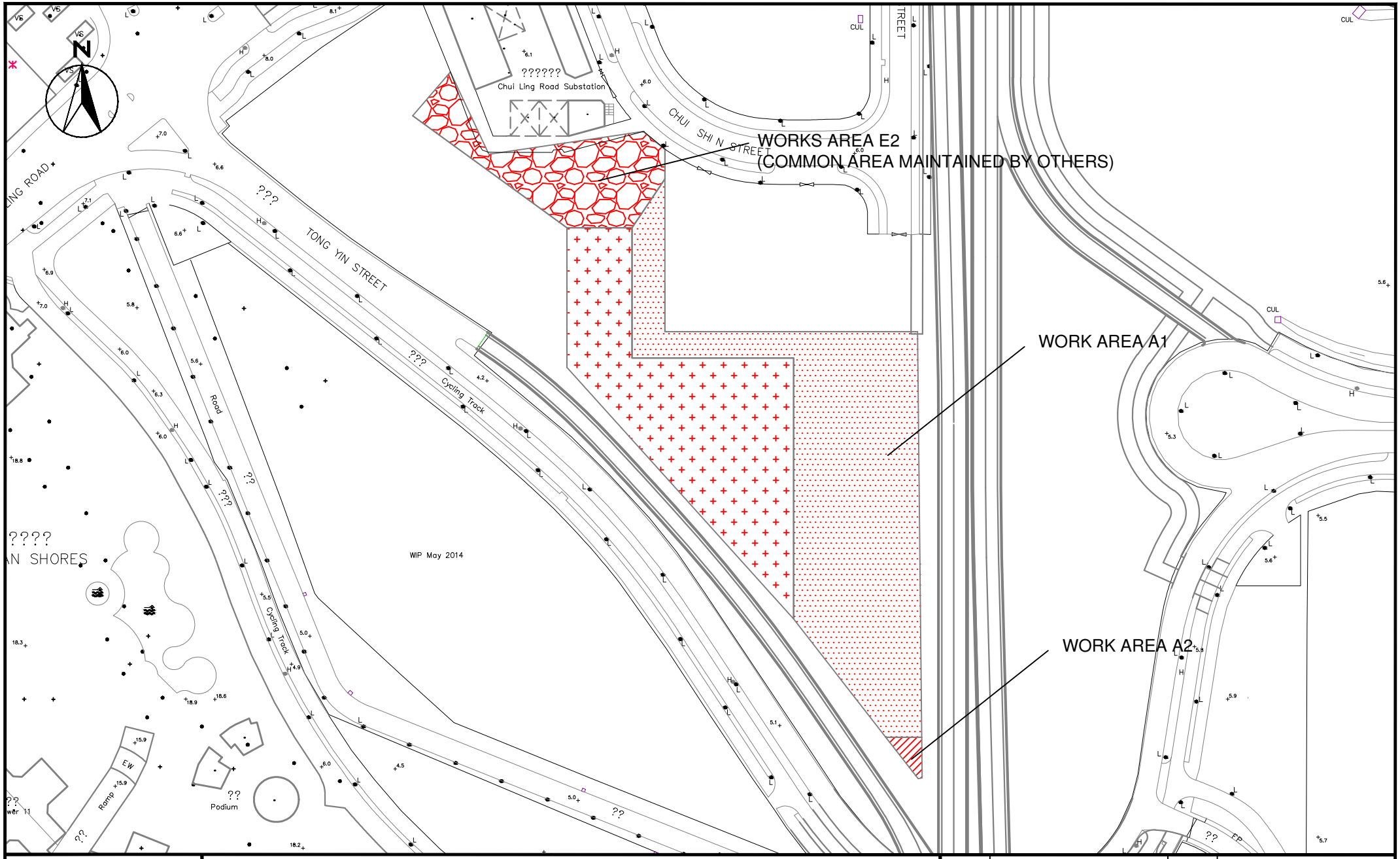
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/01

SCALE	1:2500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1e	REV -



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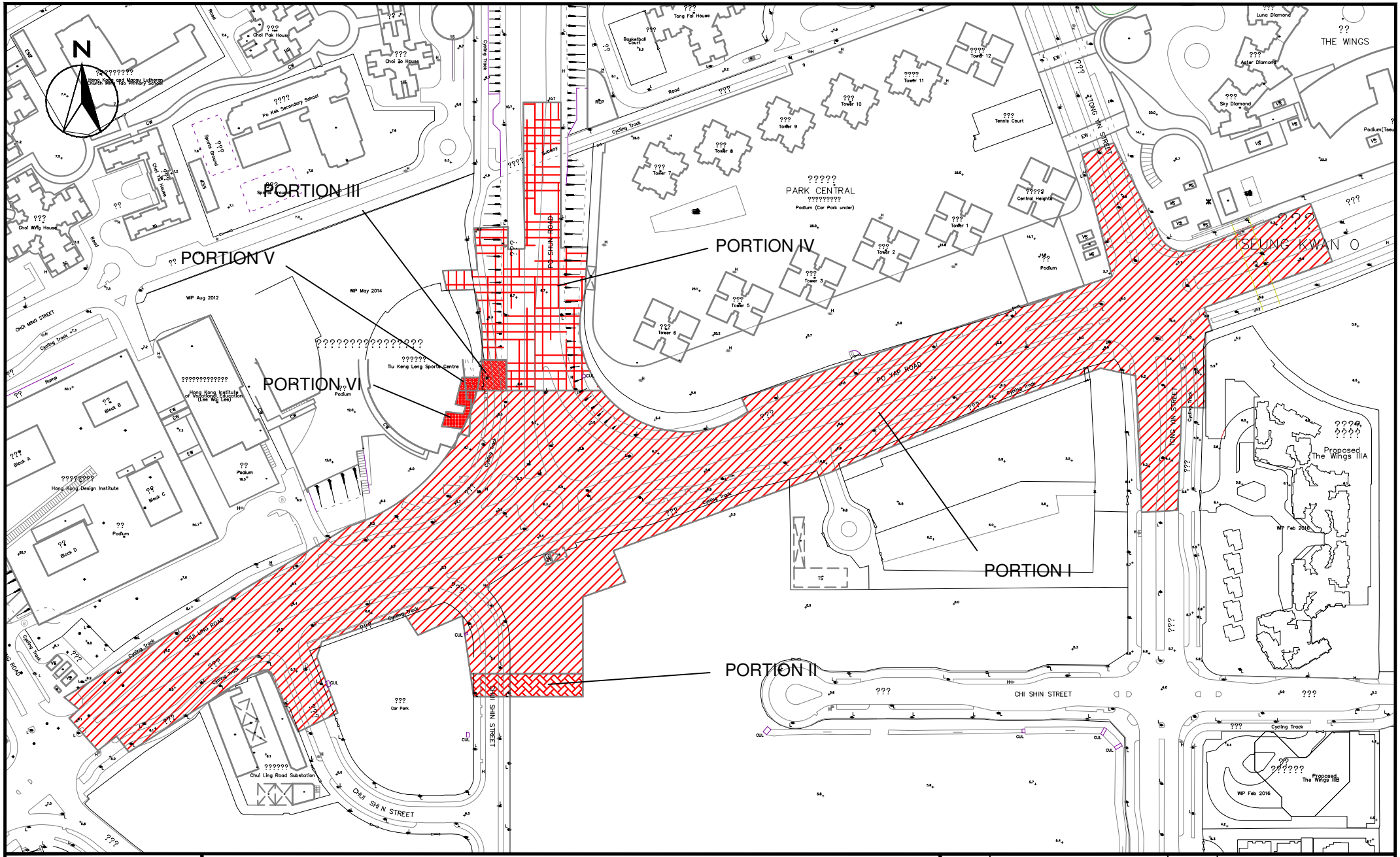
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/01

SCALE	1:1500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1f	REV -



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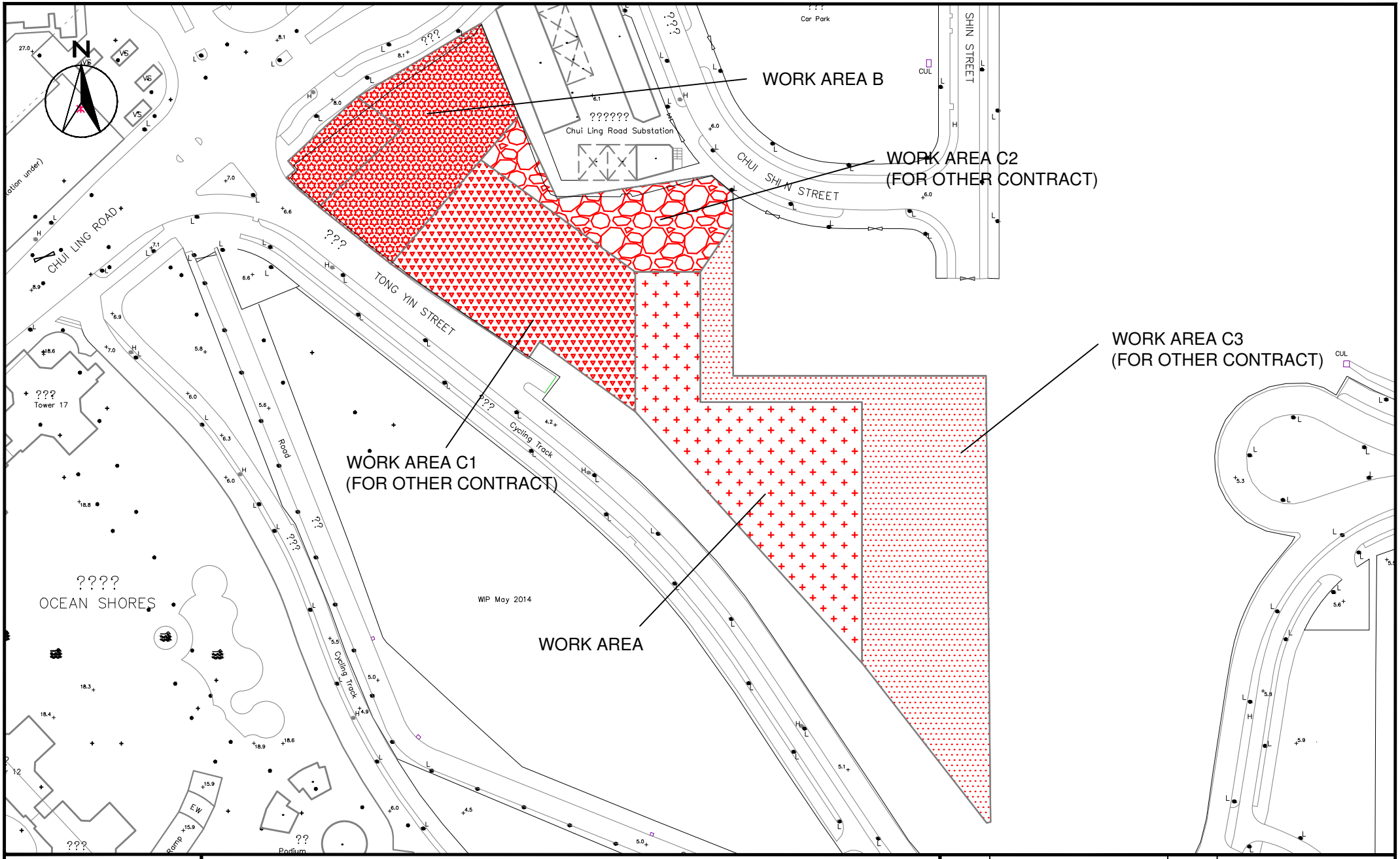
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/02

SCALE	1:2500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1g	REV -



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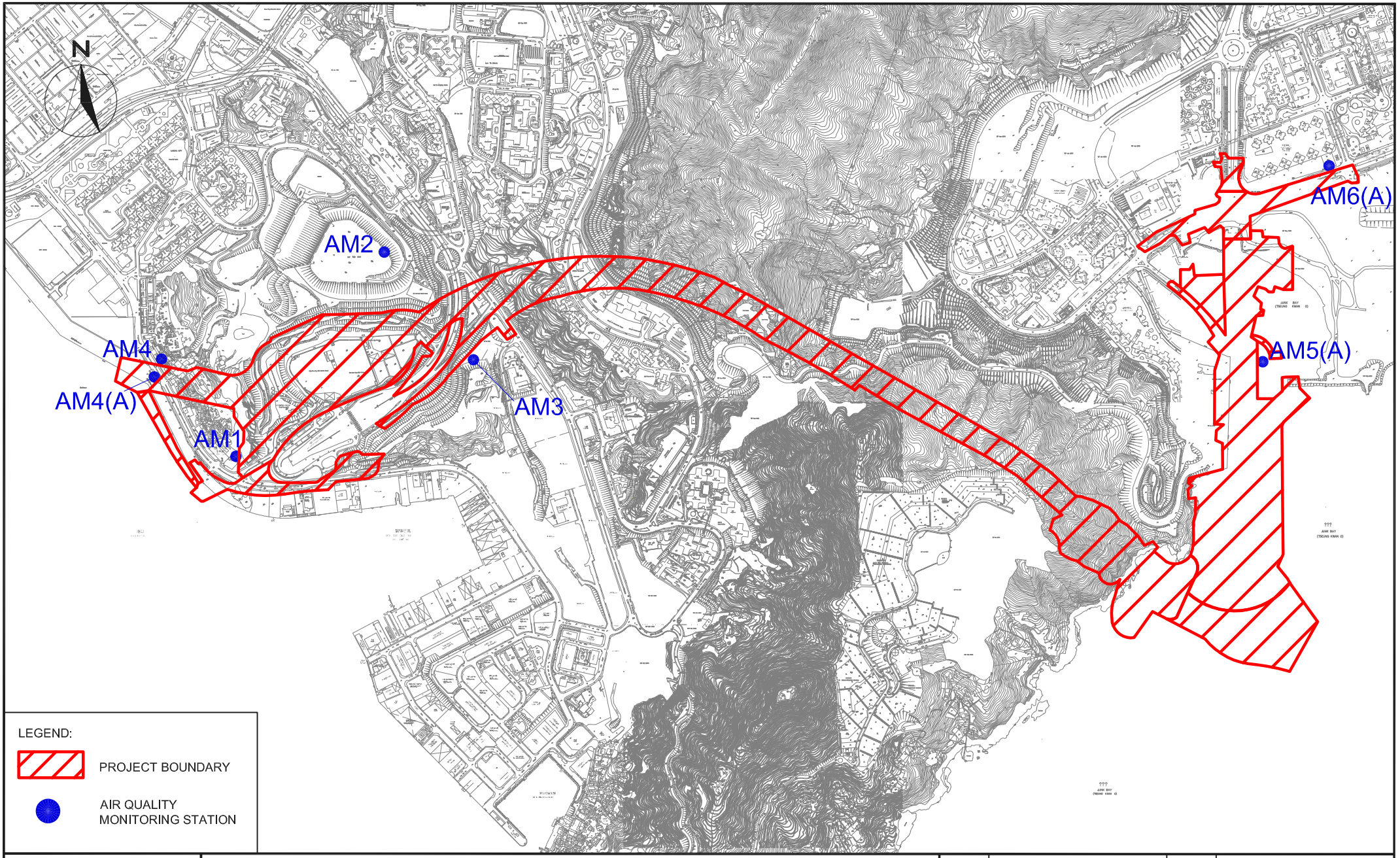
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Portions under Work Contract No. NE/2017/02

SCALE	1:1500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1h	REV -



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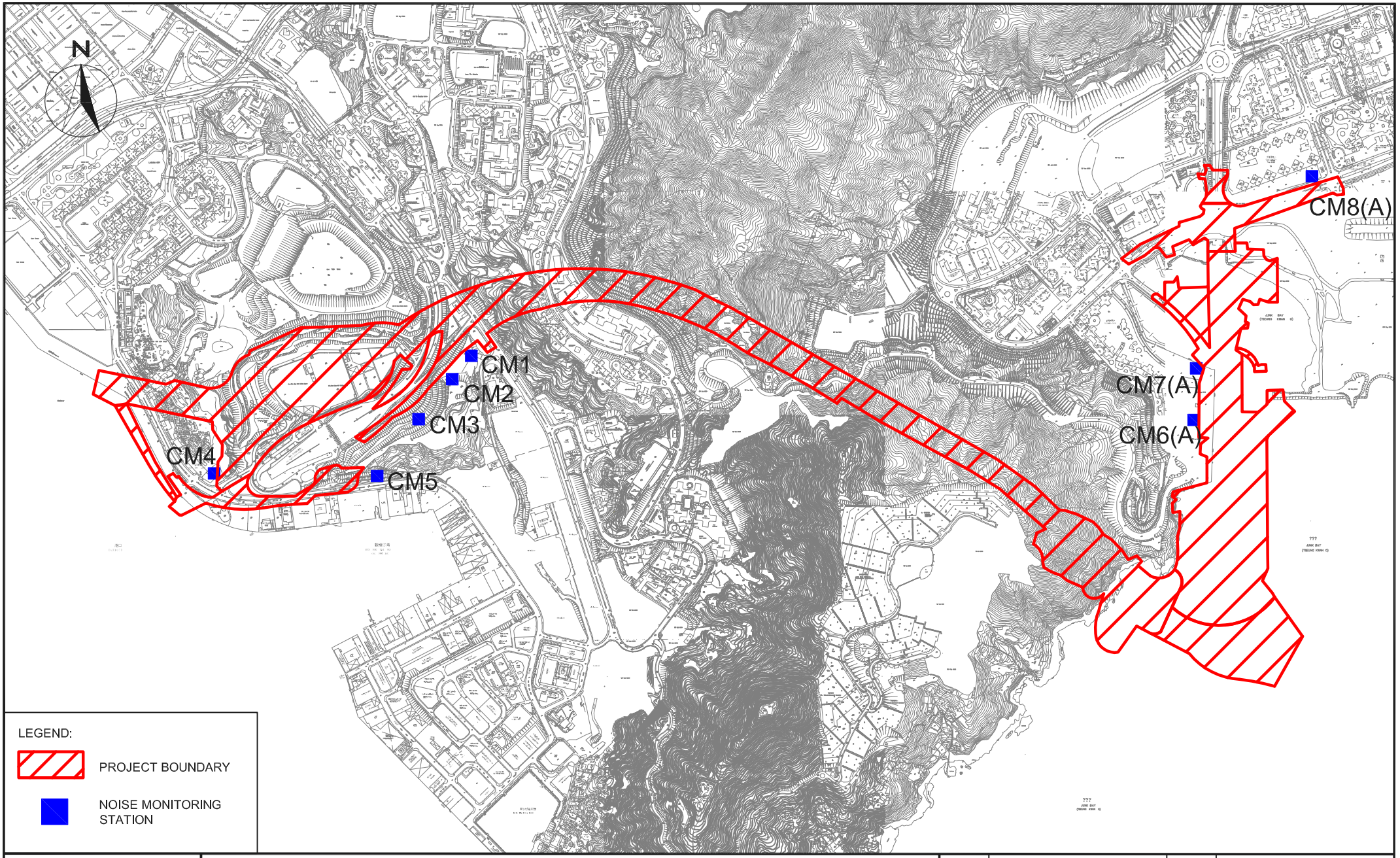
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Air Quality Monitoring Stations

SCALE	1:15000 @ A4	DATE	JAN 2018
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 2	REV -



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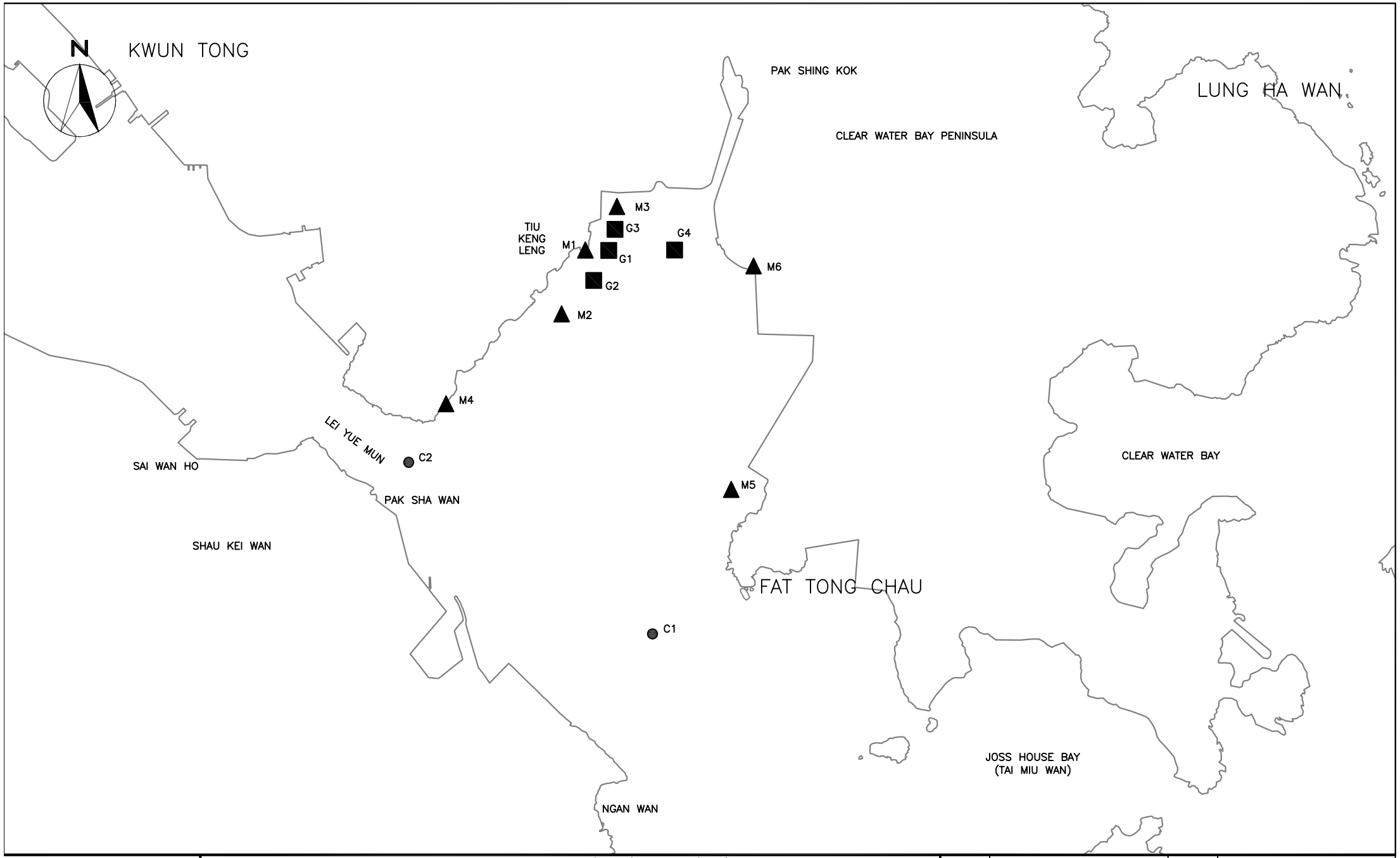
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Noise Monitoring Stations

SCALE	1:15000 @ A4	DATE	JAN 2018
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 3	REV -



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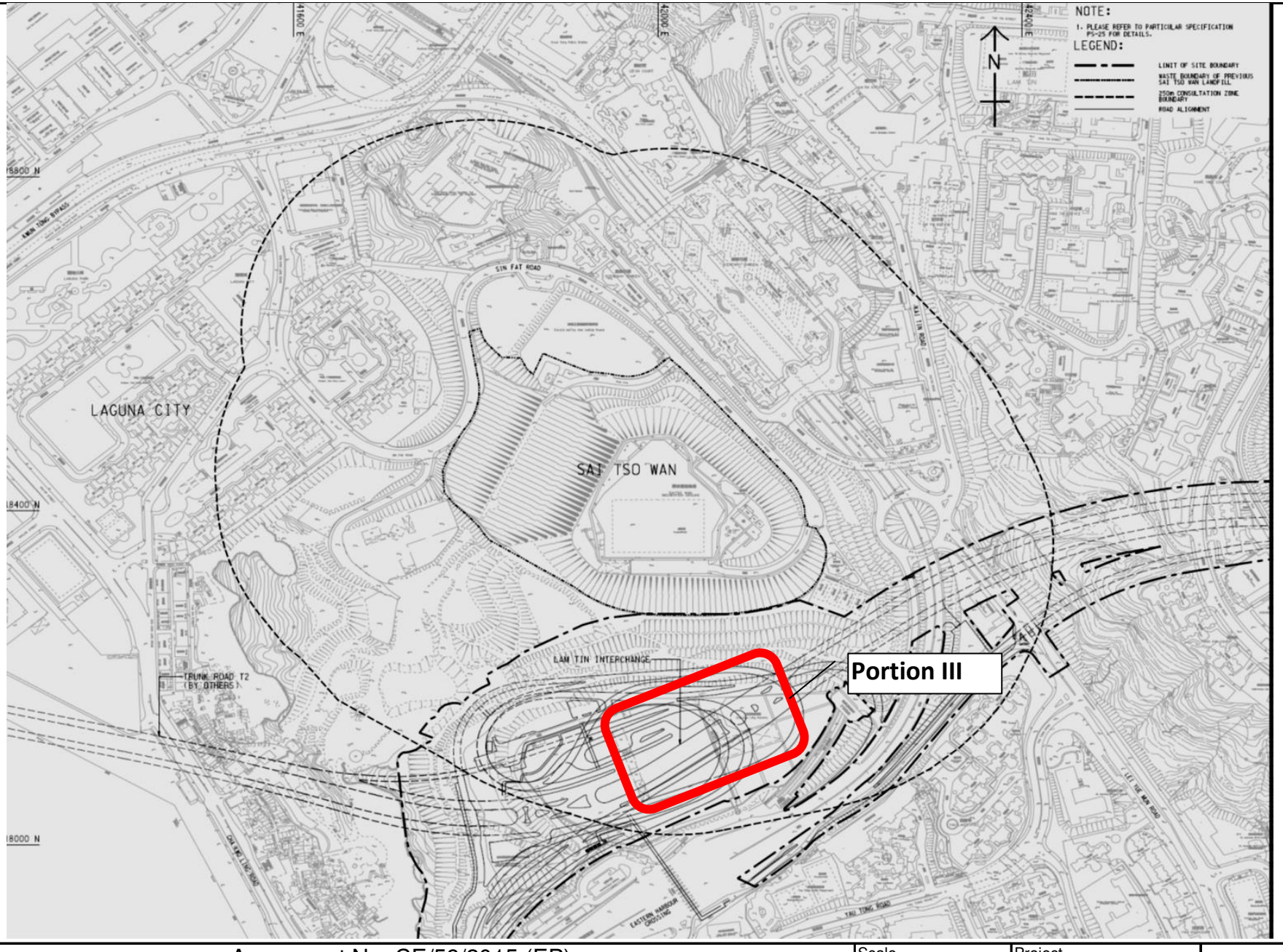
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction

Locations of Water Quality Monitoring Stations

SCALE	N.T.S	DATE	AUG 2016
CHECK	JF	DRAWN	JW
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 Landfill Gas Monitoring	Scale: N.T.S Date: Dec-16	Project No.: MA16034 Figure: 6

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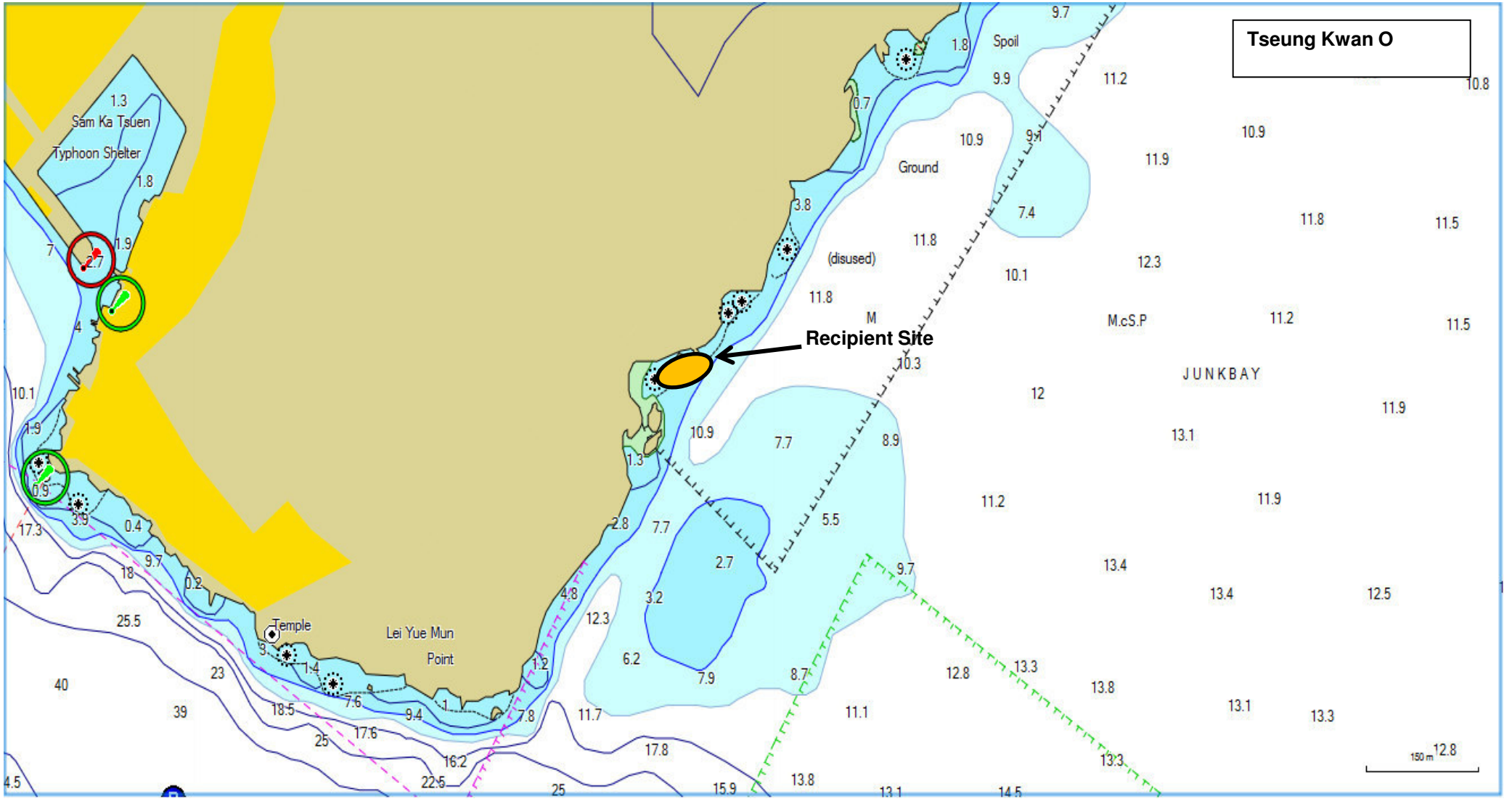
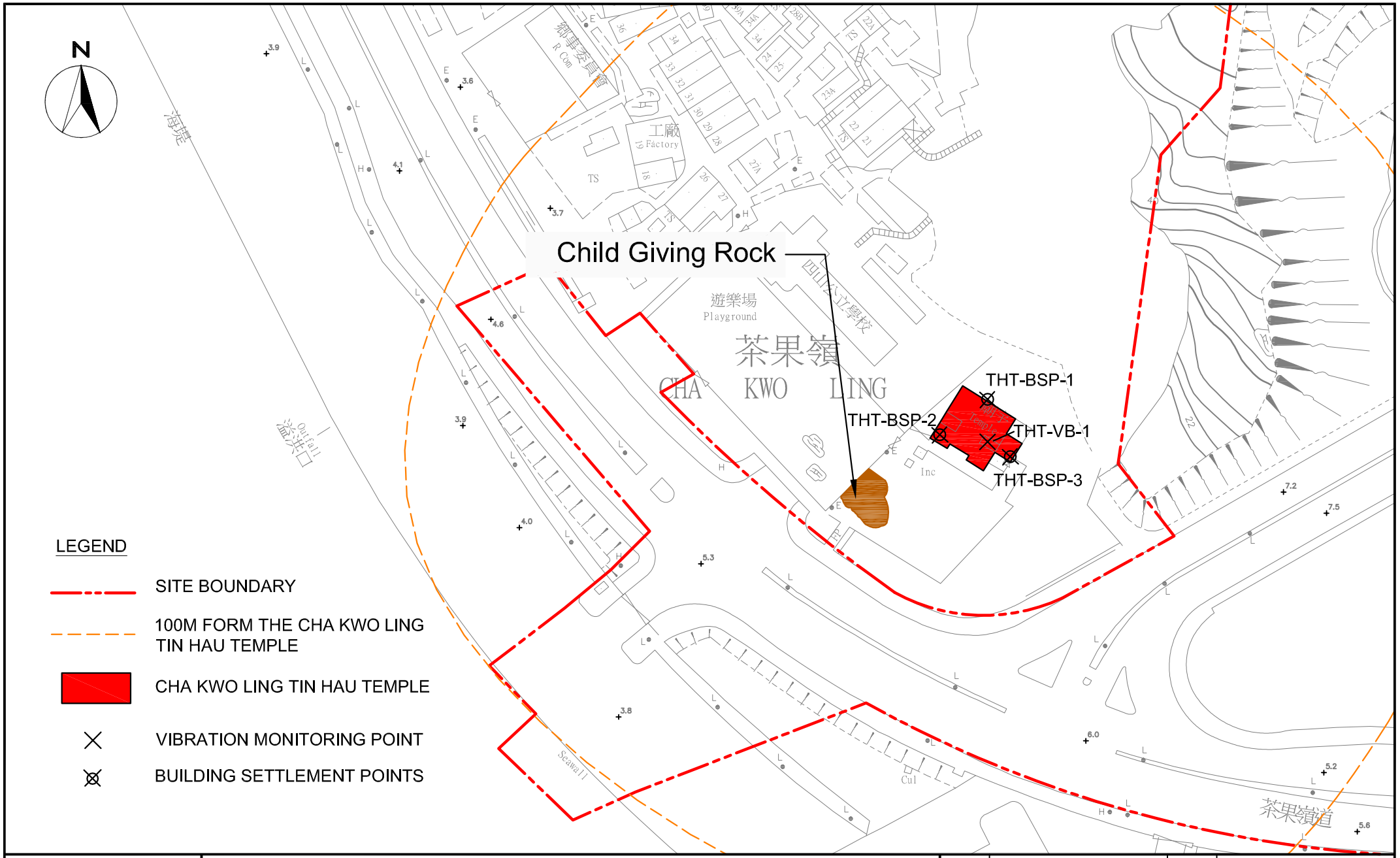


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Location of Post-translocation Coral Monitoring	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Mar-17	Figure: 7	



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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 -

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Air Quality

1-hr TSP

Monitoring Stations	Location	Action Level, µg/m^3	Limit Level, µg/m^3
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/m^3	Limit Level, µg/m^3
AM1	Tin Hau Temple	173	260
AM2	Sai Tso Wan Recreation Ground	192	
AM3	Yau Lai Estate Bik Lai House	167	
AM4(A)	Cha Kwo Ling Public Cargo Working Area Administrative Office	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

Cerificate 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 5-Oct-20

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 5-Dec-20

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.: 3607

After Sensitivity Adjustment 578

Calibration of 1 hr TSP			
Calibration Point	Laser Dust Monitor		HVS
	Total Count	Count / Minute **X-axis**	Mass concentration (μg/m^3) **Y-axis**
1	3024	50.4	78.9
2	2574	42.9	75.2
3	2100	35.0	70.8
Average		**42.8**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.5262**

Intercept, bw = **52.4607**

Correlation coefficient* = **0.9994**

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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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 5-Dec-20

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 5-Feb-21

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.: 3607

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	3499	58.3	88.4
2	2950	49.2	84.2
3	2105	35.1	79.3
Average		**47.5**	**84.0**

By Linear Regression of Y on X

Slope , mw = **0.3880**

Intercept, bw = **65.5290**

Correlation coefficient* = **0.9970**

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μ g/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: Wong Shing Kwai

Approved by: Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
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.: 3607
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	48.0	78.9
2	44.0	75.2
3	40.0	70.8
Average	**44.0**	**75.0**

By Linear Regression of Y on X

Slope , mw = **1.0125** **Intercept, bw =** **30.4167**

Correlation coefficient* = **0.9988**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	44.0
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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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	5-Dec-20
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	5-Feb-21
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.:	3607	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	50.0	88.4
2	46.0	84.2
3	42.0	79.3
Average	**46.0**	**84.0**

By Linear Regression of Y on X

Slope , mw = **1.1375** **Intercept, bw =** **31.6417**

Correlation coefficient* = **0.9990**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	46.0
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: _____ Approved by: _____

. Wong Shing Kwai Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
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.: 3607
After Sensitivity Adjustment 657

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	35.0	78.9
2	32.0	75.2
3	29.0	70.8
Average	**32.0**	**75.0**

By Linear Regression of Y on X

Slope , mw = **1.3500** **Intercept, bw =** **31.7667**

Correlation coefficient* = **0.9988**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	32.0
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.3**

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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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	5-Dec-20
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	5-Feb-21
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.:	3607	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	38.0	88.4
2	33.0	84.2
3	29.0	79.3
Average	**33.3**	**84.0**

By Linear Regression of Y on X

Slope , mw = **1.0041** **Intercept, bw =** **50.4967**

Correlation coefficient* = **0.9941**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	33.3
Measureing time, (min)	60.0
Set Correlation Factor , SCF **SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]**	**2.5**

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: _____
Wong Shing Kwai

Approved by: _____
Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
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.: 3607
After Sensitivity Adjustment 645

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	43.0	78.9
2	36.0	75.2
3	29.0	70.8
Average	**36.0**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.5786** **Intercept, bw =** **54.1381**

Correlation coefficient* = **0.9988**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	36.0
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.1**

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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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	5-Dec-20
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	5-Feb-21
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.:	3607	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	47.0	88.4
2	42.0	84.2
3	38.0	79.3
Average	**42.3**	**84.0**

By Linear Regression of Y on X

Slope , mw = **1.0041** **Intercept, bw =** **41.4598**

Correlation coefficient* = **0.9941**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	42.3
Measureing time, (min)	60.0
Set Correlation Factor , SCF **SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]**	**2.0**

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: _____
Wong Shing Kwai

Approved by: _____
Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
Model No.: LD-5R
Serial No.: 972778
Equipment No.: SA-01-07
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 735 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 735 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	45.0	78.9
2	34.0	75.2
3	23.0	70.8
Average	**34.0**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.3682** **Intercept, bw =** **62.4485**

Correlation coefficient* = **0.9988**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	34.0
Measureing time, (min)	60.0
Set Correlation Factor , SCF	
SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]	**2.2**

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 (Wellab Litimed)

Calibrated by: _____
Wong Shing Kwai

Approved by: _____
Henry Leung

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 5-Dec-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Feb-21
Model No.: LD-5R
Serial No.: 972778
Equipment No.: SA-01-07
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 735 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 735 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	48.0	88.4
2	43.0	84.2
3	38.0	79.3
Average	**43.0**	**84.0**

By Linear Regression of Y on X

Slope , mw = **0.9100** **Intercept, bw =** **44.8367**

Correlation coefficient* = **0.9990**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	43.0
Measureing time, (min)	60.0
Set Correlation Factor , SCF **SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)]**	**2.0**

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: Wong Shing Kwai

Approved by: Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
Model No.: LD-5R
Serial No.: 972779
Equipment No.: SA-01-08
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 744 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 744 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	49.0	78.9
2	38.0	75.2
3	28.0	70.8
Average	**38.3**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.3849** **Intercept, bw =** **60.2124**

Correlation coefficient* = **0.9970**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	38.3
Measureing time, (min)	60.0

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.0**

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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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	5-Dec-20
Manufacturer:	Sibata Scientific Technology LTD.	Validity of Calibration Record	5-Feb-21
Model No.:	LD-5R		
Serial No.:	972779		
Equipment No.:	SA-01-08	Sensitivity	0.001 mg/m3
High Volume Sampler No.:	A-01-01A	Before Sensitivity Adjustment	744 CPM
Tisch Calibration Orifice No.:	3607	After Sensitivity Adjustment	744 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	51.0	88.4
2	47.0	84.2
3	41.0	79.3
Average	**46.3**	**84.0**

By Linear Regression of Y on X

Slope , mw = **0.9026** **Intercept, bw =** **42.1447**

Correlation coefficient* = **0.9975**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	46.3
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: _____ Wong Shing Kwai

Approved by: _____ Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
Model No.: LD-5R
Serial No.: 972780
Equipment No.: SA-01-09
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 739 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 739 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	48.0	78.9
2	41.0	75.2
3	30.0	70.8
Average	**39.7**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.4455** **Intercept, bw =** **57.2933**

Correlation coefficient* = **0.9970**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	39.7
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 (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

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 5-Dec-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Feb-21
Model No.: LD-5R
Serial No.: 972780
Equipment No.: SA-01-09
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 739 CPM
Tisch Calibration Orifice No.: 3607
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	50.0	88.4
2	45.0	84.2
3	40.0	79.3
Average	**45.0**	**84.0**

By Linear Regression of Y on X

Slope , mw = **0.9100** **Intercept, bw =** **43.0167**

Correlation coefficient* = **0.9990**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	45.0
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: Wong Shing Kwai

Approved by: Henry Leung

Cerificate 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 5-Oct-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Dec-20
Model No.: LD-5R
Serial No.: 972781
Equipment No.: SA-01-10
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 734 CPM
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 734 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	48.0	78.9
2	39.0	75.2
3	30.0	70.8
Average	**39.0**	**75.0**

By Linear Regression of Y on X

Slope , mw = **0.4500** **Intercept, bw =** **57.4167**

Correlation coefficient* = **0.9988**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	75.0
Particaulate Concentration by Dust Meter (µg/m^3)	39.0
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 (Wellab Litimed)

Calibrated by: _____
Wong Shing Kwai

Approved by: _____
Henry Leung

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 5-Dec-20
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 5-Feb-21
Model No.: LD-5R
Serial No.: 972781
Equipment No.: SA-01-10
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-01A
Before Sensitivity Adjustment 734 CPM
Tisch Calibration Orifice No.: 3607
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	53.0	88.4
2	46.0	84.2
3	36.0	79.3
Average	**45.0**	**84.0**

By Linear Regression of Y on X

Slope , mw = **0.5322** **Intercept, bw =** **60.0180**

Correlation coefficient* = **0.9984**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	84.0
Particaulate Concentration by Dust Meter (µg/m^3)	45.0
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: Wong Shing Kwai

Approved by: Henry Leung

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/05/0026

Project No. AM1 - Tin Hau Temple

Date: 10-Oct-20 Next Due Date: 10-Dec-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	759.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.60	61.19	8.6	2.92
2	9.5	3.07	52.38	6.4	2.52
3	7.6	2.75	46.90	4.8	2.18
4	4.8	2.18	37.37	3.2	1.78
5	2.6	1.61	27.62	1.8	1.34

By Linear Regression of Y on X

Slope , mw = **0.0474** **Intercept, bw =** **0.0129**

Correlation coefficient* = **0.9988**

*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) = **4.23**

Remarks:

Conducted by: SK Wong Signature: Date: 10 October 2020

Checked by: Henry Leung Signature: Date: 10 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/08/0026

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 10-Oct-20 Next Due Date: 10-Dec-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	759.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.60	61.19	8.6	2.92
2	9.9	3.14	53.46	6.2	2.48
3	7.9	2.80	47.81	4.8	2.18
4	4.8	2.18	37.37	3.0	1.73
5	2.8	1.67	28.65	1.9	1.37

By Linear Regression of Y on X

Slope , mw = **0.0472** **Intercept, bw =** **-0.0191**

Correlation coefficient* = **0.9972**

*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) = **4.07**

Remarks:

Conducted by: SK Wong Signature: Date: 10 October 2020

Checked by: Henry Leung Signature: Date: 10 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0026

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

Date: 10-Oct-20 Next Due Date: 10-Dec-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	759.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.61	61.43	8.7	2.94
2	9.5	3.07	52.38	6.5	2.54
3	7.7	2.77	47.20	5.2	2.27
4	5.2	2.27	38.87	3.4	1.84
5	2.6	1.61	27.62	2.0	1.40

By Linear Regression of Y on X

Slope , mw = **0.0463** **Intercept, bw =** **0.0915**

Correlation coefficient* = **0.9984**

*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) = **4.37**

Remarks:

Conducted by: SK Wong Signature: Date: 10 October 2020

Checked by: Henry Leung Signature: Date: 10 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/54/0026

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date: 10-Oct-20 Next Due Date: 10-Dec-20 Operator: SK

Equipment No.: A-01-54 Model No.: TE-5170 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	759.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	12.9	3.58	60.96	8.7	2.94
2	9.9	3.14	53.46	6.4	2.52
3	7.5	2.73	46.59	5.1	2.25
4	5.4	2.32	39.60	3.3	1.81
5	3.0	1.73	29.64	1.9	1.37

By Linear Regression of Y on X

Slope , mw = **0.0502** **Intercept, bw =** **-0.1302**

Correlation coefficient* = **0.9982**

*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) = **4.13**

Remarks:

Conducted by: SK Wong Signature: Date: 10 October 2020

Checked by: Henry Leung Signature: Date: 10 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/37/0026

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

Date: 10-Oct-20 Next Due Date: 10-Dec-20 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	299.5	Pressure, Pa (mmHg)	759.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	13.2	3.62	61.66	8.8	2.96
2	9.7	3.11	52.92	6.4	2.52
3	8.1	2.84	48.40	5.4	2.32
4	5.3	2.30	39.24	3.3	1.81
5	3.0	1.73	29.64	2.0	1.41

By Linear Regression of Y on X

Slope , mw = **0.0489** **Intercept, bw =** **-0.0651**

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) = **4.18**

Remarks:

Conducted by: SK Wong Signature: Date: 10 October 2020

Checked by: Henry Leung Signature: Date: 10 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/07/0026

Project No. AM6 - Park Central

Date: 5-Nov-20 Next Due Date: 5-Jan-21 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	297.7	Pressure, Pa (mmHg)	761.9

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	17-Jan-21	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	12.7	3.57	60.77	7.7	2.78
2	8.9	2.99	50.94	5.7	2.39
3	7.2	2.69	45.87	4.5	2.13
4	4.6	2.15	36.76	3.0	1.74
5	3.0	1.74	29.77	1.9	1.38

By Linear Regression of Y on X

Slope , mw = **0.0452** **Intercept, bw =** **0.0563**

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: SK Wong Signature: Date: 05 November 2020

Checked by: Henry Leung Signature: Date: 05 November 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/05/0027

Project No. AM1 - Tin Hau Temple

Date: 10-Dec-20 Next Due Date: 10-Feb-21 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	293.9	Pressure, Pa (mmHg)	762.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.65	62.13	8.7	2.97
2	9.5	3.11	52.98	6.4	2.55
3	7.6	2.78	47.43	4.8	2.21
4	4.9	2.23	38.18	3.1	1.78
5	2.6	1.63	27.93	1.9	1.39

By Linear Regression of Y on X

Slope , mw = **0.0471** **Intercept, bw =** **0.0260**

Correlation coefficient* = **0.9972**

*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) = **4.14**

Remarks:

Conducted by: SK Wong Signature: Date: 10 December 2020

Checked by: Henry Leung Signature: Date: 10 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/08/0027

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 10-Dec-20 Next Due Date: 10-Feb-21 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	293.9	Pressure, Pa (mmHg)	762.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.65	62.13	8.7	2.97
2	9.9	3.17	54.07	6.2	2.51
3	7.8	2.82	48.05	4.7	2.19
4	4.9	2.23	38.18	3.1	1.78
5	2.8	1.69	28.97	1.9	1.39

By Linear Regression of Y on X

Slope , mw = **0.0472** **Intercept, bw =** **-0.0186**

Correlation coefficient* = **0.9968**

*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) = **3.98**

Remarks:

Conducted by: SK Wong Signature: Date: 10 December 2020

Checked by: Henry Leung Signature: Date: 10 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0027

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

Date: 10-Dec-20 Next Due Date: 10-Feb-21 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	293.9	Pressure, Pa (mmHg)	762.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.64	61.89	8.6	2.96
2	9.6	3.13	53.25	6.5	2.57
3	7.7	2.80	47.74	5.3	2.32
4	5.1	2.28	38.94	3.3	1.83
5	2.6	1.63	27.93	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0463 **Intercept, bw = 0.0950**

Correlation coefficient* = 0.9981

*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) = **4.27**

Remarks:

Conducted by: SK Wong Signature: Date: 10 December 2020

Checked by: Henry Leung Signature: Date: 10 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/54/0027

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Date: 10-Dec-20 Next Due Date: 10-Feb-21 Operator: SK

Equipment No.: A-01-54 Model No.: TE-5170 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	293.9	Pressure, Pa (mmHg)	762.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	3.64	61.89	8.8	2.99
2	9.9	3.17	54.07	6.4	2.55
3	7.5	2.76	47.12	5.0	2.26
4	5.3	2.32	39.69	3.3	1.83
5	3.0	1.75	29.97	1.9	1.39

By Linear Regression of Y on X

Slope , mw = **0.0501** **Intercept, bw =** **-0.1281**

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) = **4.04**

Remarks:

Conducted by: SK Wong Signature: Date: 10 December 2020

Checked by: Henry Leung Signature: Date: 10 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/37/0027

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

Date: 10-Dec-20 Next Due Date: 10-Feb-21 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	293.9	Pressure, Pa (mmHg)	762.5

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	17-Jan-21	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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	13.2	3.66	62.36	8.9	3.01
2	9.8	3.16	53.80	6.5	2.57
3	8.2	2.89	49.25	5.4	2.34
4	5.3	2.32	39.69	3.3	1.83
5	3.0	1.75	29.97	2.0	1.43

By Linear Regression of Y on X

Slope , mw = **0.0494** **Intercept, bw =** **-0.0844**

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 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) = **4.08**

Remarks:

Conducted by: SK Wong Signature: Date: 10 December 2020

Checked by: Henry Leung Signature: Date: 10 December 2020

Equipment no.: N-12-03

Calibration Certificate

0024996

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024996 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician Mr. K.L. Ng

Approved by

Mr. K.S. Ng

Quality Manager

Equipment no.:N-13-01

Calibration Certificate

0025247

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. : Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025247 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician Mr. K.L. Ng

Approved by

Quality Manager

Equipment no.:N-13-02

Calibration Certificate

0025249

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001636 Object 2 : Serial No. /Ref. No. : Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025249 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician Mr. K.L. Ng

Approved by

Quality Manager

Calibration Certificate

0023155

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : SVAN979 SLM Serial No. /Ref. No. : 27189 / SN-01-01 Object 2 : Microphone Serial No. /Ref. No. : 25204 Manufacturer : BSWAtech
Date of calibration: 08/01/2020 Date of the recommended re-calibration: 08/01/2021	Certificate No.: 0023155 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 1.5dB	1
114.0dB	113.6dB	-0.4dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR Tel: +852 2370 4437 Fax: +852 2114 0393

Calibration Certificate

0023156

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : SVAN979 SLM Serial No. /Ref. No. : 27190 / SN-01-02 Object 2 : Microphone Serial No. /Ref. No. : 25202 Manufacturer : BSWAtech
Date of calibration: 08/01/2020 Date of the recommended re-calibration: 08/01/2021	Certificate No.: 0023156 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 1.5dB	1
114.0dB	113.9dB	-0.1dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5.The calibrations certificate may not be reproduced.

Measured value(s) within **the allowable deviation.**

Performed by

Calibration Technician

Approved by

Quality Manager

Appleone Calibration Laboratory Ltd. Rm1309, 13/F, No.77 Wing Hong St, Kln, HKSAR Tel: +852 2370 4437 Fax: +852 2114 0393

SET 4

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG14852)
Model No.:	716A0403
Serial No.:	BE15890
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15890)
Part Number:	714A9701
Serial No.:	BG14852
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

CALIBRATION CERTIFICATE

Calibration Item:	Linear Microphone (Calibration with main unit BE15890)
Model No.:	714A9801
Serial No.:	BH11455
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method MM-002
In-house Testing Procedure No.:	MM-002

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

SET 5

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16955)
Model No.:	716A0403
Serial No.:	BE16223
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE16223)
Part Number:	714A9701
Serial No.:	BG16955
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

CALIBRATION CERTIFICATE

Calibration Item:	Linear Microphone (Calibration with main unit BE16223)
Model No.:	714A9801
Serial No.:	BH11458
Calibration Date:	12 March 2020
Next Calibration Date:	12 March 2021
Method Used:	In-house Method MM-002
In-house Testing Procedure No.:	MM-002

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 12 March 2020

SET 9.

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG15353)
Model No.:	716A0403
Serial No.:	BE15891
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15891)
Part Number:	714A9701
Serial No.:	BG15353
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

SET 1

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG15180)
Model No.:	716A0403
Serial No.:	BE15894
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 24 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15894)
Part Number:	714A9701
Serial No.:	BG15180
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 24 February 2020

SET 15

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG20673)
Model No.:	716A0403
Serial No.:	BE13849
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	Linear Microphone (Calibration with main unit BE13849)
Model No.:	714A9801
Serial No.:	BH13154
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method MM-002
In-house Testing Procedure No.:	MM-002

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE13849)
Part Number:	714A9701
Serial No.:	BG20673
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

SET 16

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16512)
Model No.:	716A0403
Serial No.:	BE13853
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 24 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE13853)
Part Number:	714A9701
Serial No.:	BG16512
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 24 February 2020

SET 21

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG17240)
Model No.:	716A0403
Serial No.:	BE20015
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE20015)
Part Number:	714A9701
Serial No.:	BG17240
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method B3-001
In-house Testing Procedure No.:	B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	Linear Microphone (Calibration with main unit BE20015)
Model No.:	714A9801
Serial No.:	BH12658
Calibration Date:	26 February 2020
Next Calibration Date:	26 February 2021
Method Used:	In-house Method MM-002
In-house Testing Procedure No.:	MM-002

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 26 February 2020

SET26

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12907)
Part Number:	721A2901
Serial No.:	UM12907
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method MM-001
In-house Testing Procedure No.:	MM-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Leung Man Hin, Eric)

Date: 24 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Linear Microphone (Calibration with main unit UM12907)
Model No.:	721A0201
Serial No.:	UL3398
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method MM-002
In-house Testing Procedure No.:	MM-002

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Leung Man Hin, Eric)

Date: 24 February 2020

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12907)
Model No.:	721A2501
Serial No.:	UM12907
Calibration Date:	24 February 2020
Next Calibration Date:	24 February 2021
Method Used:	In-house Method MM-001
In-house Testing Procedure No.:	MM-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
GLOBAL SPECIALISTS 3MHz*	2030	256812
Stanford Spectrum Analyzer	SR760	41550
Aglient Multimeter*	34410A	MY47011119
HP Distortion Meter*	339A	810699
Bruel & Kjaer Accelerometer*	4370	30323
Bruel & Kjaer Charge Amplifier*	2647	2518810
Bruel & Kjaer Conditional Amplifier*	269	2152173
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 24 February 2020

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK2045540

SUB- BATCH: 0
DATE OF ISSUE: 03-Dec-2020
CLIENT: CINOTECH CONSULTANTS LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI EXO1 Multiparamenter Sondes
Serial No./ Equipment No.: 16J100680 (SW-08-06)
Date of Calibration: 01-December-2020 Date of Next Calibration: 01-March-2021

PARAMETERS:

Conductivity **Method Ref: APHA (21st edition), 2510B**

Expected Reading (µS/ cm)	Displayed Reading (µS/ cm)	Tolerance (%)
146.9	146.2	-0.5
6667	6207	-6.9
12890	11852	-8.1
58670	54608	-6.9
	Tolerance Limit (%)	±10.0

Dissolved Oxygen **Method Ref: APHA (21st edition), 4500O: G**

Expected Reading (mg/ L)	Displayed Reading (mg/ L)	Tolerance (mg/ L)
0.00	0.20	--
2.83	2.71	-0.12
5.71	5.63	-0.08
8.15	8.17	+0.02
	Tolerance Limit (mg/L)	±0.20

pH Value **Method Ref: APHA (21st edition), 4500H: B**

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.15	+0.15
7.0	7.18	+0.18
10.0	9.96	-0.04
	Tolerance Limit (pH unit)	±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

WORK ORDER: HK2045540

SUB- BATCH: 0
DATE OF ISSUE: 03-Dec-2020
CLIENT: CINOTECH CONSULTANTS LIMITED

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: YSI EXO1 Multiparamenter Sondes
Serial No./ Equipment No.: 16J100680 (SW-08-06)
Date of Calibration: 01-December-2020 Date of Next Calibration: 01-March-2021

PARAMETERS:

Turbidity **Method Ref: APHA (21st edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.42	--
4	3.98	-0.5
40	41.32	+3.3
80	84.72	+5.9
	Tolerance Limit (%)	±10.0

Temperature **Method Ref: Section 6 of International Accreditation New Zealand Technical**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.5	9.265	-0.2
24.0	23.485	-0.5
43.5	42.716	-0.8
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganic

TISCH Environmental

RECALIBRATION DUE DATE:
January 17, 2021

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 17, 2020	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 744.2	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3746**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0180	6.4	4.00
3	5	6	1	0.9080	7.9	5.00
4	7	8	1	0.8700	8.7	5.50
5	9	10	1	0.7150	12.6	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)
0.9849	0.6868	1.4066	0.9957	0.6944	0.8904
0.9807	0.9633	1.9892	0.9914	0.9739	1.2592
0.9787	1.0779	2.2240	0.9894	1.0896	1.4078
0.9776	1.1237	2.3325	0.9883	1.1360	1.4765
0.9724	1.3601	2.8131	0.9831	1.3749	1.7808
QSTD	**m=**	**2.09221**	**QA**	**m=**	**1.31010**
	b=	**-0.02779**		**b=**	**-0.01759**
	r=	**0.99994**		**r=**	**0.99994**

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

Cerificate 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	21-Aug-2020
Next Due Date	21-Feb-2021

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	1.5	0.0
2.2	2.3	-0.1
3.5	3.4	0.1

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

APPENDIX C
WEATHER INFORMATION

Appendix C - Weather Conditions During Monitoring Period

December 2020				
Table I				
Day	Mean Pressure (hPa)	Air Temperature Mean (°C)	Mean Relative Humidity (%)	Total Rainfall (mm)
1	1022.3	19.7	66.0	0.0
2	1020.5	19.9	65.0	0.0
3	1021.0	17.4	64.0	0.0
4	1021.4	15.9	63.0	0.0
5	1021.5	16.8	63.0	0.0
6	1020.4	18.2	69.0	0.0
7	1020.4	20.7	63.0	0.0
8	1019.7	19.9	64.0	0.0
9	1017.7	19.8	71.0	Trace
10	1016.8	20.9	78.0	0.3
11	1015.9	21.6	82.0	Trace
12	1015.3	20.9	84.0	Trace
13	1014.7	20.9	78.0	0.0
14	1018.1	19.5	80.0	Trace
15	1022.2	15.4	72.0	Trace
16	1023.5	14.8	71.0	0.0
17	1022.1	14.9	71.0	0.0
18	1021.6	16.4	68.0	0.0
19	1023.4	15.0	63.0	0.0
20	1024.1	14.9	59.0	0.0
21	1022.1	16.5	58.0	0.0
22	1019.6	17.4	66.0	0.0
23	1016.9	18.4	83.0	1.2
24	1016.3	20.0	76.0	0.0
25	1018.7	18.9	77.0	0.0
26	1018.1	18.7	79.0	0.0
27	1015.8	20.4	71.0	0.0
28	1014.8	20.6	69.0	0.0
29	1014.8	21.0	75.0	0.0
30	1022.8	15.1	50.0	0.0
31	1027.0	10.9	37.0	0.0

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
1/12/2020	12:00 AM	0.4	NNW
1/12/2020	1:00 AM	0.4	ESE
1/12/2020	2:00 AM	0.4	SE
1/12/2020	3:00 AM	0.4	SE
1/12/2020	4:00 AM	0.4	SE
1/12/2020	5:00 AM	0.4	SE
1/12/2020	6:00 AM	0.4	ESE
1/12/2020	7:00 AM	0.4	SE
1/12/2020	8:00 AM	0.4	NW
1/12/2020	9:00 AM	0.4	NW
1/12/2020	10:00 AM	1.3	NNW
1/12/2020	11:00 AM	1.3	NNW
1/12/2020	12:00 PM	1.3	NNW
1/12/2020	1:00 PM	1.8	NNW
1/12/2020	2:00 PM	0.9	NNE
1/12/2020	3:00 PM	0.9	NNE
1/12/2020	4:00 PM	0.4	ENE
1/12/2020	5:00 PM	1.3	SE
1/12/2020	6:00 PM	0.4	NE
1/12/2020	7:00 PM	0.4	NE
1/12/2020	8:00 PM	0.4	SE
1/12/2020	9:00 PM	1.3	SE
1/12/2020	10:00 PM	0.9	N
1/12/2020	11:00 PM	1.3	E
2/12/2020	12:00 AM	1.3	ESE
2/12/2020	1:00 AM	1.3	E
2/12/2020	2:00 AM	1.3	E
2/12/2020	3:00 AM	1.8	E
2/12/2020	4:00 AM	1.3	E
2/12/2020	5:00 AM	1.3	E
2/12/2020	6:00 AM	1.8	ESE
2/12/2020	7:00 AM	1.8	E
2/12/2020	8:00 AM	2.2	E
2/12/2020	9:00 AM	1.3	SE
2/12/2020	10:00 AM	3.1	SE
2/12/2020	11:00 AM	3.1	E
2/12/2020	12:00 PM	3.6	ESE
2/12/2020	1:00 PM	2.2	E
2/12/2020	2:00 PM	1.8	E
2/12/2020	3:00 PM	1.8	ESE
2/12/2020	4:00 PM	1.8	ESE
2/12/2020	5:00 PM	1.8	E
2/12/2020	6:00 PM	1.8	ESE
2/12/2020	7:00 PM	1.8	E
2/12/2020	8:00 PM	2.2	E

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
2/12/2020	9:00 PM	1.8	E
2/12/2020	10:00 PM	2.2	E
2/12/2020	11:00 PM	2.2	E
3/12/2020	12:00 AM	1.8	ESE
3/12/2020	1:00 AM	0.9	E
3/12/2020	2:00 AM	0.9	E
3/12/2020	3:00 AM	0.9	ENE
3/12/2020	4:00 AM	1.3	E
3/12/2020	5:00 AM	1.8	E
3/12/2020	6:00 AM	1.3	E
3/12/2020	7:00 AM	1.3	ESE
3/12/2020	8:00 AM	1.8	ESE
3/12/2020	9:00 AM	1.3	ESE
3/12/2020	10:00 AM	1.8	ESE
3/12/2020	11:00 AM	1.3	ESE
3/12/2020	12:00 PM	0.9	ESE
3/12/2020	1:00 PM	1.3	ESE
3/12/2020	2:00 PM	1.3	ESE
3/12/2020	3:00 PM	2.2	ESE
3/12/2020	4:00 PM	1.8	ESE
3/12/2020	5:00 PM	0.4	WNW
3/12/2020	6:00 PM	0.9	SE
3/12/2020	7:00 PM	1.3	ESE
3/12/2020	8:00 PM	1.3	ESE
3/12/2020	9:00 PM	1.3	SE
3/12/2020	10:00 PM	0.9	SE
3/12/2020	11:00 PM	0.9	SE
4/12/2020	12:00 AM	0.9	E
4/12/2020	1:00 AM	0.9	ESE
4/12/2020	2:00 AM	0.9	ESE
4/12/2020	3:00 AM	1.8	E
4/12/2020	4:00 AM	1.3	ESE
4/12/2020	5:00 AM	1.3	E
4/12/2020	6:00 AM	1.3	E
4/12/2020	7:00 AM	1.3	NNW
4/12/2020	8:00 AM	1.3	E
4/12/2020	9:00 AM	1.8	E
4/12/2020	10:00 AM	1.8	SE
4/12/2020	11:00 AM	2.7	ESE
4/12/2020	12:00 PM	1.8	ESE
4/12/2020	1:00 PM	1.8	ESE
4/12/2020	2:00 PM	1.8	ESE
4/12/2020	3:00 PM	1.8	ESE
4/12/2020	4:00 PM	1.8	ESE
4/12/2020	5:00 PM	1.3	SE

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
4/12/2020	6:00 PM	1.3	ESE
4/12/2020	7:00 PM	1.3	ESE
4/12/2020	8:00 PM	1.3	E
4/12/2020	9:00 PM	1.8	E
4/12/2020	10:00 PM	1.8	E
4/12/2020	11:00 PM	1.3	ESE
5/12/2020	12:00 AM	0.9	E
5/12/2020	1:00 AM	1.3	ESE
5/12/2020	2:00 AM	1.3	SE
5/12/2020	3:00 AM	0.9	ESE
5/12/2020	4:00 AM	1.3	SE
5/12/2020	5:00 AM	0.9	E
5/12/2020	6:00 AM	1.3	ESE
5/12/2020	7:00 AM	0.9	SE
5/12/2020	8:00 AM	1.3	E
5/12/2020	9:00 AM	0.9	E
5/12/2020	10:00 AM	0.9	NNW
5/12/2020	11:00 AM	0.9	WNW
5/12/2020	12:00 PM	0.4	WNW
5/12/2020	1:00 PM	0.9	E
5/12/2020	2:00 PM	0.9	N
5/12/2020	3:00 PM	0.4	W
5/12/2020	4:00 PM	0.4	WNW
5/12/2020	5:00 PM	0.4	WNW
5/12/2020	6:00 PM	0.9	WNW
5/12/2020	7:00 PM	0.9	N
5/12/2020	8:00 PM	1.3	E
5/12/2020	9:00 PM	1.8	ESE
5/12/2020	10:00 PM	1.8	E
5/12/2020	11:00 PM	1.3	ESE
6/12/2020	12:00 AM	1.8	E
6/12/2020	1:00 AM	3.1	ESE
6/12/2020	2:00 AM	3.6	E
6/12/2020	3:00 AM	2.2	ESE
6/12/2020	4:00 AM	3.1	E
6/12/2020	5:00 AM	2.2	E
6/12/2020	6:00 AM	1.8	ESE
6/12/2020	7:00 AM	2.2	E
6/12/2020	8:00 AM	2.7	ESE
6/12/2020	9:00 AM	1.8	E
6/12/2020	10:00 AM	1.8	E
6/12/2020	11:00 AM	2.2	ESE
6/12/2020	12:00 PM	1.8	ESE
6/12/2020	1:00 PM	1.3	ESE
6/12/2020	2:00 PM	0.9	ESE

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
6/12/2020	3:00 PM	0.9	ESE
6/12/2020	4:00 PM	1.3	ESE
6/12/2020	5:00 PM	0.9	SE
6/12/2020	6:00 PM	0.9	NNW
6/12/2020	7:00 PM	0.9	NNW
6/12/2020	8:00 PM	0.4	WNW
6/12/2020	9:00 PM	0.4	WNW
6/12/2020	10:00 PM	0.4	NNW
6/12/2020	11:00 PM	0.4	ESE
7/12/2020	12:00 AM	0.9	ESE
7/12/2020	1:00 AM	0.4	ESE
7/12/2020	2:00 AM	0.9	ESE
7/12/2020	3:00 AM	0.9	SE
7/12/2020	4:00 AM	0.9	ESE
7/12/2020	5:00 AM	1.3	ESE
7/12/2020	6:00 AM	0.9	SE
7/12/2020	7:00 AM	0.9	ESE
7/12/2020	8:00 AM	1.3	ESE
7/12/2020	9:00 AM	1.8	E
7/12/2020	10:00 AM	1.8	ESE
7/12/2020	11:00 AM	1.3	E
7/12/2020	12:00 PM	1.3	WNW
7/12/2020	1:00 PM	0.9	NW
7/12/2020	2:00 PM	0.9	SE
7/12/2020	3:00 PM	0.9	WNW
7/12/2020	4:00 PM	0.9	W
7/12/2020	5:00 PM	0.9	WNW
7/12/2020	6:00 PM	0.9	NNW
7/12/2020	7:00 PM	0.4	WNW
7/12/2020	8:00 PM	0.4	NW
7/12/2020	9:00 PM	0.4	WNW
7/12/2020	10:00 PM	0.0	SE
7/12/2020	11:00 PM	0.4	WNW
8/12/2020	12:00 AM	0.9	WNW
8/12/2020	1:00 AM	0.9	NW
8/12/2020	2:00 AM	0.9	W
8/12/2020	3:00 AM	0.4	WNW
8/12/2020	4:00 AM	0.9	WNW
8/12/2020	5:00 AM	0.9	WNW
8/12/2020	6:00 AM	0.4	WNW
8/12/2020	7:00 AM	0.4	WNW
8/12/2020	8:00 AM	0.4	W
8/12/2020	9:00 AM	0.9	W
8/12/2020	10:00 AM	1.3	NNW
8/12/2020	11:00 AM	0.9	NNW

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
8/12/2020	12:00 PM	1.8	NNW
8/12/2020	1:00 PM	3.1	NNW
8/12/2020	2:00 PM	3.1	NNW
8/12/2020	3:00 PM	1.8	NNW
8/12/2020	4:00 PM	1.3	WNW
8/12/2020	5:00 PM	1.3	NNW
8/12/2020	6:00 PM	0.9	NNW
8/12/2020	7:00 PM	0.9	W
8/12/2020	8:00 PM	0.4	WNW
8/12/2020	9:00 PM	0.4	WNW
8/12/2020	10:00 PM	0.4	NW
8/12/2020	11:00 PM	0.4	W
9/12/2020	12:00 AM	0.0	SE
9/12/2020	1:00 AM	0.4	SSE
9/12/2020	2:00 AM	0.4	SSE
9/12/2020	3:00 AM	0.0	SSE
9/12/2020	4:00 AM	0.4	SE
9/12/2020	5:00 AM	0.9	ESE
9/12/2020	6:00 AM	0.4	E
9/12/2020	7:00 AM	0.9	ESE
9/12/2020	8:00 AM	1.8	ESE
9/12/2020	9:00 AM	2.2	E
9/12/2020	10:00 AM	1.8	ESE
9/12/2020	11:00 AM	1.8	SE
9/12/2020	12:00 PM	1.8	E
9/12/2020	1:00 PM	1.3	ESE
9/12/2020	2:00 PM	1.0	E
9/12/2020	3:00 PM	0.1	SE
9/12/2020	4:00 PM	2.6	ESE
9/12/2020	5:00 PM	1.9	E
9/12/2020	6:00 PM	1.6	E
9/12/2020	7:00 PM	0.5	E
9/12/2020	8:00 PM	0.1	E
9/12/2020	9:00 PM	1.9	ESE
9/12/2020	10:00 PM	2.5	SE
9/12/2020	11:00 PM	2.2	SSE
10/12/2020	12:00 AM	0.4	SE
10/12/2020	1:00 AM	0.4	E
10/12/2020	2:00 AM	1.1	SE
10/12/2020	3:00 AM	0.7	SE
10/12/2020	4:00 AM	0.6	SSE
10/12/2020	5:00 AM	0.2	SE
10/12/2020	6:00 AM	0.4	ESE
10/12/2020	7:00 AM	1.0	ESE
10/12/2020	8:00 AM	0.5	E

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
10/12/2020	9:00 AM	1.4	ESE
10/12/2020	10:00 AM	0.7	E
10/12/2020	11:00 AM	0.7	E
10/12/2020	12:00 PM	1.2	ESE
10/12/2020	1:00 PM	1.2	ESE
10/12/2020	2:00 PM	0.4	SE
10/12/2020	3:00 PM	1.3	SSE
10/12/2020	4:00 PM	0.9	SE
10/12/2020	5:00 PM	0.9	ESE
10/12/2020	6:00 PM	0.4	WNW
10/12/2020	7:00 PM	0.9	ESE
10/12/2020	8:00 PM	1.3	ESE
10/12/2020	9:00 PM	1.3	ESE
10/12/2020	10:00 PM	1.8	E
10/12/2020	11:00 PM	1.3	ESE
11/12/2020	12:00 AM	1.8	ESE
11/12/2020	1:00 AM	1.8	ESE
11/12/2020	2:00 AM	1.8	ESE
11/12/2020	3:00 AM	2.2	ESE
11/12/2020	4:00 AM	1.8	ESE
11/12/2020	5:00 AM	1.8	E
11/12/2020	6:00 AM	1.3	E
11/12/2020	7:00 AM	1.8	ESE
11/12/2020	8:00 AM	1.8	SE
11/12/2020	9:00 AM	1.8	SE
11/12/2020	10:00 AM	1.8	ESE
11/12/2020	11:00 AM	1.8	ESE
11/12/2020	12:00 PM	1.8	NW
11/12/2020	1:00 PM	3.6	NW
11/12/2020	2:00 PM	4.0	NW
11/12/2020	3:00 PM	4.5	NW
11/12/2020	4:00 PM	3.1	NW
11/12/2020	5:00 PM	4.0	NW
11/12/2020	6:00 PM	1.8	NW
11/12/2020	7:00 PM	0.9	NW
11/12/2020	8:00 PM	0.9	W
11/12/2020	9:00 PM	0.4	N
11/12/2020	10:00 PM	0.4	NW
11/12/2020	11:00 PM	0.4	WNW
12/12/2020	12:00 AM	0.9	W
12/12/2020	1:00 AM	0.9	W
12/12/2020	2:00 AM	0.9	W
12/12/2020	3:00 AM	1.3	W
12/12/2020	4:00 AM	0.9	W
12/12/2020	5:00 AM	0.9	W

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
12/12/2020	6:00 AM	0.9	W
12/12/2020	7:00 AM	1.8	W
12/12/2020	8:00 AM	0.9	W
12/12/2020	9:00 AM	0.9	NNW
12/12/2020	10:00 AM	1.3	ENE
12/12/2020	11:00 AM	1.8	NW
12/12/2020	12:00 PM	1.3	W
12/12/2020	1:00 PM	1.8	W
12/12/2020	2:00 PM	1.3	W
12/12/2020	3:00 PM	0.9	NNW
12/12/2020	4:00 PM	1.3	NW
12/12/2020	5:00 PM	0.9	W
12/12/2020	6:00 PM	0.9	NW
12/12/2020	7:00 PM	1.3	NW
12/12/2020	8:00 PM	1.3	W
12/12/2020	9:00 PM	0.9	NW
12/12/2020	10:00 PM	1.3	WNW
12/12/2020	11:00 PM	1.8	NW
13/12/2020	12:00 AM	1.8	WNW
13/12/2020	1:00 AM	1.8	NW
13/12/2020	2:00 AM	1.8	NW
13/12/2020	3:00 AM	1.3	W
13/12/2020	4:00 AM	0.9	W
13/12/2020	5:00 AM	0.9	WNW
13/12/2020	6:00 AM	0.9	ENE
13/12/2020	7:00 AM	0.4	NW
13/12/2020	8:00 AM	0.9	W
13/12/2020	9:00 AM	1.3	W
13/12/2020	10:00 AM	1.3	W
13/12/2020	11:00 AM	1.3	W
13/12/2020	12:00 PM	1.8	W
13/12/2020	1:00 PM	1.3	WNW
13/12/2020	2:00 PM	1.8	NW
13/12/2020	3:00 PM	2.2	NW
13/12/2020	4:00 PM	3.6	NW
13/12/2020	5:00 PM	3.6	NW
13/12/2020	6:00 PM	1.3	NW
13/12/2020	7:00 PM	1.3	NW
13/12/2020	8:00 PM	0.9	NW
13/12/2020	9:00 PM	0.4	WNW
13/12/2020	10:00 PM	0.4	WNW
13/12/2020	11:00 PM	0.4	W
14/12/2020	12:00 AM	0.4	WNW
14/12/2020	1:00 AM	1.3	NW
14/12/2020	2:00 AM	1.8	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
14/12/2020	3:00 AM	1.3	NW
14/12/2020	4:00 AM	1.3	NW
14/12/2020	5:00 AM	1.8	NW
14/12/2020	6:00 AM	1.3	NW
14/12/2020	7:00 AM	0.9	NW
14/12/2020	8:00 AM	0.9	NW
14/12/2020	9:00 AM	1.8	NW
14/12/2020	10:00 AM	1.3	NW
14/12/2020	11:00 AM	1.8	NW
14/12/2020	12:00 PM	1.3	W
14/12/2020	1:00 PM	1.8	W
14/12/2020	2:00 PM	1.3	W
14/12/2020	3:00 PM	1.8	NW
14/12/2020	4:00 PM	4.0	NW
14/12/2020	5:00 PM	3.6	NW
14/12/2020	6:00 PM	3.6	NW
14/12/2020	7:00 PM	1.3	NW
14/12/2020	8:00 PM	1.3	NW
14/12/2020	9:00 PM	1.3	NW
14/12/2020	10:00 PM	0.9	W
14/12/2020	11:00 PM	1.3	W
15/12/2020	12:00 AM	1.8	W
15/12/2020	1:00 AM	1.3	W
15/12/2020	2:00 AM	1.3	W
15/12/2020	3:00 AM	0.9	W
15/12/2020	4:00 AM	0.9	WNW
15/12/2020	5:00 AM	0.9	W
15/12/2020	6:00 AM	0.9	NW
15/12/2020	7:00 AM	1.3	WNW
15/12/2020	8:00 AM	1.3	W
15/12/2020	9:00 AM	1.3	W
15/12/2020	10:00 AM	1.3	NW
15/12/2020	11:00 AM	1.3	NW
15/12/2020	12:00 PM	1.3	NW
15/12/2020	1:00 PM	0.9	NW
15/12/2020	2:00 PM	0.9	NW
15/12/2020	3:00 PM	1.3	W
15/12/2020	4:00 PM	1.3	NW
15/12/2020	5:00 PM	1.3	W
15/12/2020	6:00 PM	2.2	NW
15/12/2020	7:00 PM	1.8	NW
15/12/2020	8:00 PM	1.3	NW
15/12/2020	9:00 PM	2.2	NW
15/12/2020	10:00 PM	2.2	NW
15/12/2020	11:00 PM	1.3	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
16/12/2020	12:00 AM	1.8	NW
16/12/2020	1:00 AM	1.8	NW
16/12/2020	2:00 AM	1.3	NW
16/12/2020	3:00 AM	0.9	WNW
16/12/2020	4:00 AM	1.3	NW
16/12/2020	5:00 AM	0.9	W
16/12/2020	6:00 AM	1.3	W
16/12/2020	7:00 AM	1.3	NW
16/12/2020	8:00 AM	2.2	NW
16/12/2020	9:00 AM	1.8	NW
16/12/2020	10:00 AM	1.8	NW
16/12/2020	11:00 AM	1.8	E
16/12/2020	12:00 PM	1.3	NW
16/12/2020	1:00 PM	2.7	NW
16/12/2020	2:00 PM	1.8	NW
16/12/2020	3:00 PM	1.8	NW
16/12/2020	4:00 PM	2.7	NW
16/12/2020	5:00 PM	1.8	NW
16/12/2020	6:00 PM	1.8	NW
16/12/2020	7:00 PM	1.8	NW
16/12/2020	8:00 PM	1.8	NW
16/12/2020	9:00 PM	2.2	NW
16/12/2020	10:00 PM	1.8	NW
16/12/2020	11:00 PM	0.9	NW
17/12/2020	12:00 AM	1.3	NW
17/12/2020	1:00 AM	0.9	NE
17/12/2020	2:00 AM	0.4	NNE
17/12/2020	3:00 AM	0.4	NE
17/12/2020	4:00 AM	0.4	NW
17/12/2020	5:00 AM	0.4	N
17/12/2020	6:00 AM	0.9	NE
17/12/2020	7:00 AM	0.9	NE
17/12/2020	8:00 AM	0.9	NE
17/12/2020	9:00 AM	0.9	NW
17/12/2020	10:00 AM	0.9	NW
17/12/2020	11:00 AM	0.9	NW
17/12/2020	12:00 PM	1.3	NW
17/12/2020	1:00 PM	2.2	NW
17/12/2020	2:00 PM	2.2	NW
17/12/2020	3:00 PM	2.7	NW
17/12/2020	4:00 PM	4.5	NW
17/12/2020	5:00 PM	3.1	NW
17/12/2020	6:00 PM	2.7	NW
17/12/2020	7:00 PM	2.2	NW
17/12/2020	8:00 PM	1.8	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
17/12/2020	9:00 PM	0.9	NW
17/12/2020	10:00 PM	0.4	NE
17/12/2020	11:00 PM	0.0	N
18/12/2020	12:00 AM	0.0	N
18/12/2020	1:00 AM	0.0	N
18/12/2020	2:00 AM	0.0	N
18/12/2020	3:00 AM	0.0	N
18/12/2020	4:00 AM	0.0	N
18/12/2020	5:00 AM	0.0	---
18/12/2020	6:00 AM	0.0	---
18/12/2020	7:00 AM	0.0	---
18/12/2020	8:00 AM	0.0	NNW
18/12/2020	9:00 AM	0.4	NNW
18/12/2020	10:00 AM	0.4	NE
18/12/2020	11:00 AM	0.9	NE
18/12/2020	12:00 PM	2.2	NW
18/12/2020	1:00 PM	1.8	NW
18/12/2020	2:00 PM	2.7	NW
18/12/2020	3:00 PM	3.1	NW
18/12/2020	4:00 PM	2.2	NW
18/12/2020	5:00 PM	1.3	W
18/12/2020	6:00 PM	1.3	W
18/12/2020	7:00 PM	1.8	NW
18/12/2020	8:00 PM	1.3	W
18/12/2020	9:00 PM	1.3	W
18/12/2020	10:00 PM	1.3	W
18/12/2020	11:00 PM	1.3	WNW
19/12/2020	12:00 AM	1.3	W
19/12/2020	1:00 AM	1.3	W
19/12/2020	2:00 AM	1.3	WNW
19/12/2020	3:00 AM	0.9	W
19/12/2020	4:00 AM	0.9	W
19/12/2020	5:00 AM	0.9	W
19/12/2020	6:00 AM	0.9	W
19/12/2020	7:00 AM	0.9	NW
19/12/2020	8:00 AM	0.9	NW
19/12/2020	9:00 AM	0.4	W
19/12/2020	10:00 AM	0.4	W
19/12/2020	11:00 AM	0.9	NW
19/12/2020	12:00 PM	1.3	NW
19/12/2020	1:00 PM	0.9	W
19/12/2020	2:00 PM	0.9	WSW
19/12/2020	3:00 PM	0.9	W
19/12/2020	4:00 PM	0.9	NW
19/12/2020	5:00 PM	0.9	W

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
19/12/2020	6:00 PM	1.8	ESE
19/12/2020	7:00 PM	1.8	ESE
19/12/2020	8:00 PM	2.2	E
19/12/2020	9:00 PM	2.2	E
19/12/2020	10:00 PM	1.3	ESE
19/12/2020	11:00 PM	0.9	SE
20/12/2020	12:00 AM	0.4	SE
20/12/2020	1:00 AM	1.3	ESE
20/12/2020	2:00 AM	0.9	ENE
20/12/2020	3:00 AM	0.9	ESE
20/12/2020	4:00 AM	1.3	E
20/12/2020	5:00 AM	0.9	ESE
20/12/2020	6:00 AM	0.9	ESE
20/12/2020	7:00 AM	0.9	E
20/12/2020	8:00 AM	1.3	E
20/12/2020	9:00 AM	0.9	E
20/12/2020	10:00 AM	1.8	ESE
20/12/2020	11:00 AM	1.8	NW
20/12/2020	12:00 PM	1.8	NW
20/12/2020	1:00 PM	2.7	NW
20/12/2020	2:00 PM	3.6	NW
20/12/2020	3:00 PM	2.7	NW
20/12/2020	4:00 PM	4.0	NW
20/12/2020	5:00 PM	2.7	NW
20/12/2020	6:00 PM	2.2	NW
20/12/2020	7:00 PM	0.9	W
20/12/2020	8:00 PM	0.9	W
20/12/2020	9:00 PM	0.4	W
20/12/2020	10:00 PM	0.4	WNW
20/12/2020	11:00 PM	0.4	SE
21/12/2020	12:00 AM	0.4	ESE
21/12/2020	1:00 AM	0.0	ESE
21/12/2020	2:00 AM	0.4	SE
21/12/2020	3:00 AM	0.9	E
21/12/2020	4:00 AM	1.3	ESE
21/12/2020	5:00 AM	1.3	ESE
21/12/2020	6:00 AM	0.9	ESE
21/12/2020	7:00 AM	0.9	ESE
21/12/2020	8:00 AM	0.9	E
21/12/2020	9:00 AM	0.4	ESE
21/12/2020	10:00 AM	1.8	NW
21/12/2020	11:00 AM	1.8	NW
21/12/2020	12:00 PM	2.2	NW
21/12/2020	1:00 PM	1.8	NW
21/12/2020	2:00 PM	2.7	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
21/12/2020	3:00 PM	1.8	NW
21/12/2020	4:00 PM	2.7	NW
21/12/2020	5:00 PM	0.9	NE
21/12/2020	6:00 PM	1.8	NW
21/12/2020	7:00 PM	1.8	NW
21/12/2020	8:00 PM	0.9	NW
21/12/2020	9:00 PM	1.8	NW
21/12/2020	10:00 PM	2.2	NW
21/12/2020	11:00 PM	1.8	NW
22/12/2020	12:00 AM	1.3	NW
22/12/2020	1:00 AM	0.4	NW
22/12/2020	2:00 AM	0.4	NW
22/12/2020	3:00 AM	0.9	NW
22/12/2020	4:00 AM	0.4	WNW
22/12/2020	5:00 AM	0.4	WNW
22/12/2020	6:00 AM	0.9	NW
22/12/2020	7:00 AM	0.4	NW
22/12/2020	8:00 AM	1.3	NW
22/12/2020	9:00 AM	0.9	NW
22/12/2020	10:00 AM	1.8	NW
22/12/2020	11:00 AM	1.8	NW
22/12/2020	12:00 PM	1.3	NW
22/12/2020	1:00 PM	0.9	ESE
22/12/2020	2:00 PM	0.9	NW
22/12/2020	3:00 PM	0.9	NW
22/12/2020	4:00 PM	2.2	NW
22/12/2020	5:00 PM	1.8	NW
22/12/2020	6:00 PM	1.3	NW
22/12/2020	7:00 PM	0.4	NW
22/12/2020	8:00 PM	0.9	NW
22/12/2020	9:00 PM	0.4	NNW
22/12/2020	10:00 PM	0.0	NW
22/12/2020	11:00 PM	0.4	ESE
23/12/2020	12:00 AM	0.9	ESE
23/12/2020	1:00 AM	0.9	ESE
23/12/2020	2:00 AM	0.0	ESE
23/12/2020	3:00 AM	0.0	---
23/12/2020	4:00 AM	0.0	---
23/12/2020	5:00 AM	0.0	NNW
23/12/2020	6:00 AM	0.0	W
23/12/2020	7:00 AM	0.4	NW
23/12/2020	8:00 AM	1.3	NW
23/12/2020	9:00 AM	1.3	W
23/12/2020	10:00 AM	1.3	NW
23/12/2020	11:00 AM	0.9	W

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
23/12/2020	12:00 PM	1.3	NW
23/12/2020	1:00 PM	1.8	NW
23/12/2020	2:00 PM	1.3	NW
23/12/2020	3:00 PM	1.3	W
23/12/2020	4:00 PM	1.3	W
23/12/2020	5:00 PM	1.3	W
23/12/2020	6:00 PM	1.3	NW
23/12/2020	7:00 PM	1.3	W
23/12/2020	8:00 PM	1.3	NW
23/12/2020	9:00 PM	0.9	W
23/12/2020	10:00 PM	0.9	W
23/12/2020	11:00 PM	1.3	W
24/12/2020	12:00 AM	1.3	W
24/12/2020	1:00 AM	0.9	W
24/12/2020	2:00 AM	0.9	W
24/12/2020	3:00 AM	0.9	W
24/12/2020	4:00 AM	1.3	WNW
24/12/2020	5:00 AM	0.4	W
24/12/2020	6:00 AM	0.4	W
24/12/2020	7:00 AM	0.4	W
24/12/2020	8:00 AM	0.9	WNW
24/12/2020	9:00 AM	1.3	NW
24/12/2020	10:00 AM	0.9	W
24/12/2020	11:00 AM	1.3	W
24/12/2020	12:00 PM	1.8	NW
24/12/2020	1:00 PM	3.1	NW
24/12/2020	2:00 PM	4.9	NW
24/12/2020	3:00 PM	3.1	NW
24/12/2020	4:00 PM	3.1	NW
24/12/2020	5:00 PM	1.8	NW
24/12/2020	6:00 PM	1.3	NW
24/12/2020	7:00 PM	1.8	NW
24/12/2020	8:00 PM	0.9	NE
24/12/2020	9:00 PM	0.9	NW
24/12/2020	10:00 PM	1.3	NW
24/12/2020	11:00 PM	1.3	NW
25/12/2020	1:00 AM	1.3	NW
25/12/2020	2:00 AM	1.3	NW
25/12/2020	3:00 AM	1.3	E
25/12/2020	4:00 AM	1.8	E
25/12/2020	5:00 AM	1.8	E
25/12/2020	6:00 AM	1.3	E
25/12/2020	7:00 AM	1.3	ESE
25/12/2020	8:00 AM	1.3	ESE
25/12/2020	9:00 AM	1.3	ENE

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
25/12/2020	10:00 AM	0.9	ENE
25/12/2020	11:00 AM	1.3	NW
25/12/2020	12:00 PM	1.3	NW
25/12/2020	1:00 PM	1.3	NW
25/12/2020	2:00 PM	1.8	NW
25/12/2020	3:00 PM	0.9	ESE
25/12/2020	4:00 PM	1.3	NW
25/12/2020	5:00 PM	1.3	NNW
25/12/2020	6:00 PM	1.3	ENE
25/12/2020	7:00 PM	1.3	ESE
25/12/2020	8:00 PM	1.8	E
25/12/2020	9:00 PM	1.8	ESE
25/12/2020	10:00 PM	2.7	SE
25/12/2020	11:00 PM	2.2	E
25 Dec 2020	12:00 PM	1.3	NW
26/12/2020	12:00 AM	2.2	E
26/12/2020	1:00 AM	1.8	E
26/12/2020	2:00 AM	1.3	E
26/12/2020	3:00 AM	1.3	E
26/12/2020	4:00 AM	0.9	NW
26/12/2020	5:00 AM	0.4	WNW
26/12/2020	6:00 AM	0.9	WNW
26/12/2020	7:00 AM	0.9	W
26/12/2020	8:00 AM	0.9	W
26/12/2020	9:00 AM	0.9	WNW
26/12/2020	10:00 AM	0.4	ESE
26/12/2020	11:00 AM	0.4	WNW
26/12/2020	12:00 PM	0.9	W
26/12/2020	1:00 PM	0.9	W
26/12/2020	2:00 PM	0.9	W
26/12/2020	3:00 PM	1.3	W
26/12/2020	4:00 PM	0.9	W
26/12/2020	5:00 PM	0.4	W
26/12/2020	6:00 PM	0.4	ESE
26/12/2020	7:00 PM	0.4	ENE
26/12/2020	8:00 PM	0.9	W
26/12/2020	9:00 PM	1.3	W
26/12/2020	10:00 PM	1.3	W
26/12/2020	11:00 PM	1.3	W
27/12/2020	12:00 AM	0.9	NW
27/12/2020	1:00 AM	1.3	E
27/12/2020	2:00 AM	1.3	NW
27/12/2020	3:00 AM	4.9	NW
27/12/2020	4:00 AM	3.1	NW
27/12/2020	5:00 AM	3.1	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
27/12/2020	6:00 AM	1.3	NW
27/12/2020	7:00 AM	0.4	W
27/12/2020	8:00 AM	1.3	NW
27/12/2020	9:00 AM	0.9	NE
27/12/2020	10:00 AM	0.9	NW
27/12/2020	11:00 AM	0.4	NW
27/12/2020	12:00 PM	0.9	W
27/12/2020	1:00 PM	0.4	W
27/12/2020	2:00 PM	0.4	NW
27/12/2020	3:00 PM	0.4	ENE
27/12/2020	4:00 PM	0.4	ESE
27/12/2020	5:00 PM	0.4	NNW
27/12/2020	6:00 PM	0.4	ESE
27/12/2020	7:00 PM	0.4	NW
27/12/2020	8:00 PM	0.4	WNW
27/12/2020	9:00 PM	0.4	NE
27/12/2020	10:00 PM	0.4	NW
27/12/2020	11:00 PM	0.9	NW
28/12/2020	12:00 AM	0.9	WNW
28/12/2020	1:00 AM	0.4	NW
28/12/2020	2:00 AM	0.9	NW
28/12/2020	3:00 AM	0.9	NW
28/12/2020	4:00 AM	0.4	NW
28/12/2020	5:00 AM	0.4	NW
28/12/2020	6:00 AM	0.0	NW
28/12/2020	7:00 AM	0.4	WNW
28/12/2020	8:00 AM	0.9	NE
28/12/2020	9:00 AM	0.9	NE
28/12/2020	10:00 AM	0.4	NW
28/12/2020	11:00 AM	0.9	NW
28/12/2020	12:00 PM	1.3	NW
28/12/2020	1:00 PM	0.9	NW
28/12/2020	2:00 PM	0.4	NW
28/12/2020	3:00 PM	0.4	NE
28/12/2020	4:00 PM	0.4	NE
28/12/2020	5:00 PM	0.4	NW
28/12/2020	6:00 PM	0.0	NW
28/12/2020	7:00 PM	0.4	ESE
28/12/2020	8:00 PM	0.0	WSW
28/12/2020	9:00 PM	0.0	ESE
28/12/2020	10:00 PM	0.4	ESE
28/12/2020	11:00 PM	0.4	SE
29/12/2020	12:00 AM	1.3	ESE
29/12/2020	1:00 AM	1.3	WNW
29/12/2020	2:00 AM	0.9	NW

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December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
29/12/2020	3:00 AM	0.9	NW
29/12/2020	4:00 AM	0.9	W
29/12/2020	5:00 AM	1.3	NW
29/12/2020	6:00 AM	1.3	W
29/12/2020	7:00 AM	0.4	WNW
29/12/2020	8:00 AM	1.3	NW
29/12/2020	9:00 AM	0.9	W
29/12/2020	10:00 AM	1.8	W
29/12/2020	11:00 AM	1.3	W
29/12/2020	12:00 PM	0.9	W
29/12/2020	1:00 PM	0.9	W
29/12/2020	2:00 PM	0.4	NW
29/12/2020	3:00 PM	0.9	NW
29/12/2020	4:00 PM	1.3	NW
29/12/2020	5:00 PM	1.3	NW
29/12/2020	6:00 PM	1.3	NW
29/12/2020	7:00 PM	0.9	NW
29/12/2020	8:00 PM	0.0	---
29/12/2020	9:00 PM	0.0	---
29/12/2020	10:00 PM	0.0	NNW
29/12/2020	11:00 PM	0.0	NNW
30/12/2020	12:00 AM	0.4	NW
30/12/2020	1:00 AM	1.3	NW
30/12/2020	2:00 AM	2.2	NW
30/12/2020	3:00 AM	4.0	NW
30/12/2020	4:00 AM	4.9	NW
30/12/2020	5:00 AM	4.0	NW
30/12/2020	6:00 AM	3.1	NW
30/12/2020	7:00 AM	4.0	NW
30/12/2020	8:00 AM	4.0	NW
30/12/2020	9:00 AM	1.3	NW
30/12/2020	10:00 AM	1.8	NW
30/12/2020	11:00 AM	1.8	NW
30/12/2020	12:00 PM	0.9	NW
30/12/2020	1:00 PM	0.9	NW
30/12/2020	2:00 PM	1.3	NW
30/12/2020	3:00 PM	1.3	NW
30/12/2020	4:00 PM	0.9	WNW
30/12/2020	5:00 PM	0.9	W
30/12/2020	6:00 PM	0.9	W
30/12/2020	7:00 PM	0.9	W
30/12/2020	8:00 PM	0.9	WNW
30/12/2020	9:00 PM	1.3	W
30/12/2020	10:00 PM	1.8	WNW
30/12/2020	11:00 PM	1.8	WNW

Appendix C - Weather Conditions during Monitoring Period

December 2020			
Table II: Wind Speed and Directions			
Date	**Time**	**Wind Speed m-s**	**Direction**
31/12/2020	12:00 AM	0.9	WNW
31/12/2020	1:00 AM	1.3	WNW
31/12/2020	2:00 AM	2.2	WNW
31/12/2020	3:00 AM	1.3	WNW
31/12/2020	4:00 AM	1.8	NW
31/12/2020	5:00 AM	1.3	WNW
31/12/2020	6:00 AM	1.3	WNW
31/12/2020	7:00 AM	0.9	WNW
31/12/2020	8:00 AM	0.4	WNW
31/12/2020	9:00 AM	0.4	WNW
31/12/2020	10:00 AM	0.4	N
31/12/2020	11:00 AM	0.9	N
31/12/2020	12:00 PM	0.4	WNW
31/12/2020	1:00 PM	0.9	WNW
31/12/2020	2:00 PM	1.3	WNW
31/12/2020	3:00 PM	0.9	WNW
31/12/2020	4:00 PM	0.9	WNW
31/12/2020	5:00 PM	1.3	WNW
31/12/2020	6:00 PM	0.9	WNW
31/12/2020	7:00 PM	1.3	WNW
31/12/2020	8:00 PM	1.3	WNW
31/12/2020	9:00 PM	1.3	WNW
31/12/2020	10:00 PM	0.9	NNE
31/12/2020	11:00 PM	0.9	E

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Water Quality Monitoring Schedule (December 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Dec	2-Dec	3-Dec	4-Dec	5-Dec
			Mid-Ebb 13:04 Mid-Flood 08:02		Mid-Ebb 14:20 Mid-Flood 09:34	
6-Dec	7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec
	Mid-Ebb N/A Mid-Flood 15:37		Mid-Ebb 8:00 Mid-Flood 14:14		Mid-Ebb 09:19 Mid-Flood 15:32	
13-Dec	14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
	Mid-Ebb 12:05 Mid-Flood 17:26		Mid-Ebb 13:39 Mid-Flood 08:17		Mid-Ebb 15:06 Mid-Flood 10:00	
20-Dec	21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec
	Mid-Ebb 18:02 Mid-Flood 12:41		Mid-Ebb 8:00 Mid-Flood 14:05			
27-Dec	28-Dec	29-Dec	30-Dec	31-Dec		
		Mid-Ebb 11:42 Mid-Flood 16:52		Mid-Ebb 12:51 Mid-Flood 07:59		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Monitoring Station:

C1, C2, G1, G2, G3, G4, M1, M2, M3, M4, M5, M6

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 (December 2020)

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

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(A)[(2)] - Cha Kwo Ling Public Cargo Working Area Administrative Office
AM5(A) - Tseung Kwan O DSD Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area

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

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
CM9(A) - Rooftop of Capri Tower 10

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)
3-Dec-20	13:00	Sunny	77.0
3-Dec-20	14:00	Sunny	85.8
3-Dec-20	15:00	Sunny	79.2
9-Dec-20	15:41	Sunny	93.1
9-Dec-20	16:41	Sunny	108.3
9-Dec-20	17:41	Sunny	123.5
24-Dec-20	9:00	Sunny	24.7
24-Dec-20	10:00	Sunny	26.6
24-Dec-20	11:00	Sunny	39.9
30-Dec-20	9:00	Sunny	80.0
30-Dec-20	10:00	Sunny	90.0
30-Dec-20	11:00	Sunny	95.0
		Average	76.9
		Maximum	123.5
		Minimum	24.7

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
3-Dec-20	10:24	Sunny	43.7
3-Dec-20	11:24	Sunny	34.2
3-Dec-20	12:24	Sunny	39.9
9-Dec-20	9:00	Sunny	50.4
9-Dec-20	10:00	Sunny	46.8
9-Dec-20	11:00	Sunny	43.2
24-Dec-20	16:00	Sunny	57.6
24-Dec-20	17:00	Sunny	63.0
24-Dec-20	18:00	Sunny	54.0
30-Dec-20	13:00	Fine	44.0
30-Dec-20	14:00	Fine	50.0
30-Dec-20	15:00	Fine	46.0
		Average	47.7
		Maximum	63.0
		Minimum	34.2

Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
3-Dec-20	9:00	Sunny	83.6
3-Dec-20	10:00	Sunny	85.8
3-Dec-20	11:00	Sunny	85.8
9-Dec-20	13:00	Sunny	74.1
9-Dec-20	14:00	Sunny	89.3
9-Dec-20	15:00	Sunny	96.9
24-Dec-20	15:20	Cloudy	98.8
24-Dec-20	16:20	Cloudy	131.1
24-Dec-20	17:20	Cloudy	77.9
30-Dec-20	16:00	Sunny	52.5
30-Dec-20	17:00	Sunny	60.0
30-Dec-20	18:00	Sunny	62.5
		Average	83.2
		Maximum	131.1
		Minimum	52.5

Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
3-Dec-20	16:00	Sunny	66.0
3-Dec-20	17:00	Sunny	57.2
3-Dec-20	18:00	Sunny	55.0
9-Dec-20	15:42	Sunny	91.8
9-Dec-20	16:42	Sunny	104.4
9-Dec-20	17:42	Sunny	99.0
24-Dec-20	9:00	Sunny	87.5
24-Dec-20	10:00	Sunny	117.5
24-Dec-20	11:00	Sunny	110.0
30-Dec-20	9:00	Sunny	45.0
30-Dec-20	10:00	Sunny	50.4
30-Dec-20	11:00	Sunny	48.6
		Average	77.7
		Maximum	117.5
		Minimum	45.0

Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

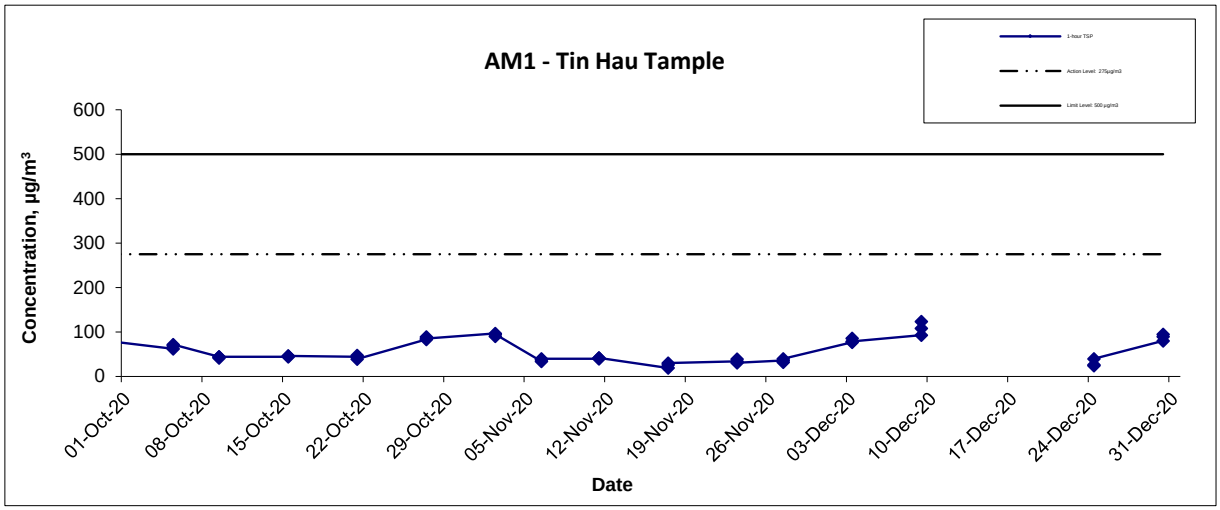
APPENDIX E - 1-HOUR TSP MONITORING RESULTS

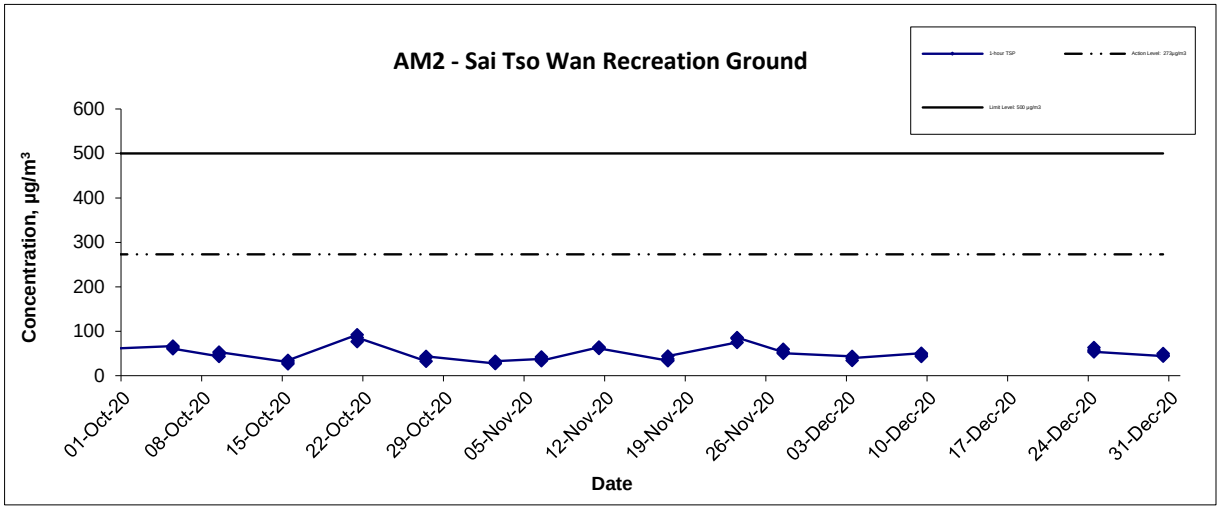
Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	***Particulate Concentration (µg/m^3)***
3-Dec-20	13:04	Sunny	45.6
3-Dec-20	14:04	Sunny	51.3
3-Dec-20	15:04	Sunny	43.7
9-Dec-20	16:00	Sunny	54.0
9-Dec-20	17:00	Sunny	63.0
9-Dec-20	18:00	Sunny	57.6
15-Dec-20	9:00	Sunny	42.0
15-Dec-20	10:00	Sunny	30.0
15-Dec-20	11:00	Sunny	38.0
21-Dec-20	16:00	Sunny	70.3
21-Dec-20	17:00	Sunny	76.0
21-Dec-20	18:00	Sunny	72.2
24-Dec-20	13:00	Sunny	72.0
24-Dec-20	14:00	Sunny	68.4
24-Dec-20	15:00	Sunny	77.4
30-Dec-20	9:00	Fine	26.0
30-Dec-20	10:00	Fine	30.0
30-Dec-20	11:00	Fine	24.0
		Average	52.3
		Maximum	77.4
		Minimum	24.0

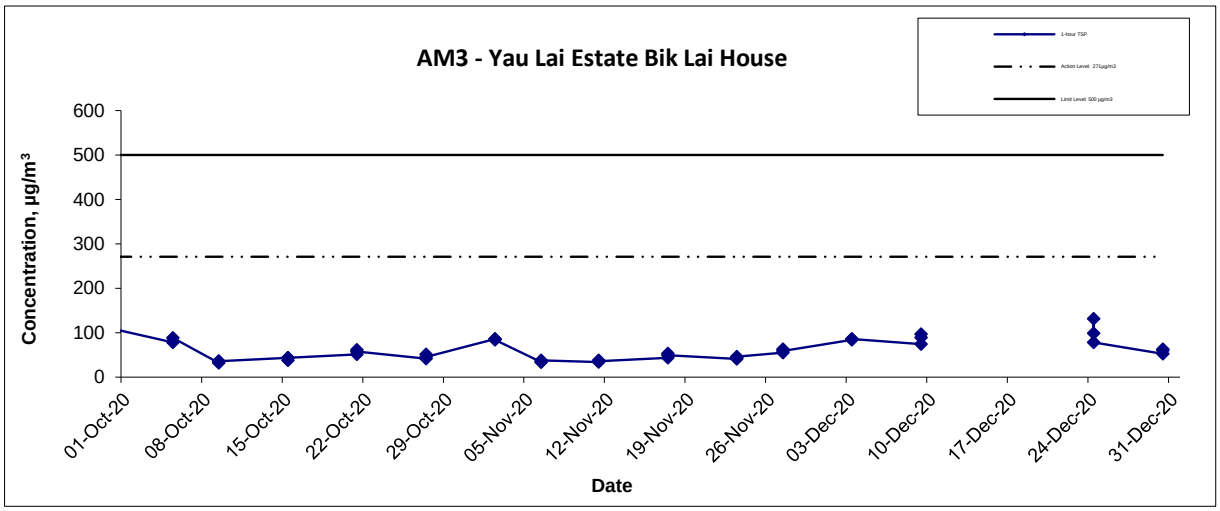
Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration (µg/m^3)
3-Dec-20	9:33	Sunny	41.8
3-Dec-20	10:33	Sunny	55.1
3-Dec-20	11:33	Sunny	58.9
9-Dec-20	13:00	Sunny	46.8
9-Dec-20	14:00	Sunny	52.2
9-Dec-20	15:00	Sunny	48.6
15-Dec-20	13:00	Sunny	36.0
15-Dec-20	14:00	Sunny	38.0
15-Dec-20	15:00	Sunny	42.0
21-Dec-20	14:31	Sunny	68.4
21-Dec-20	15:31	Sunny	68.4
21-Dec-20	16:31	Sunny	81.7
24-Dec-20	9:00	Sunny	61.2
24-Dec-20	10:00	Sunny	54.0
24-Dec-20	11:00	Sunny	64.8
30-Dec-20	9:00	Fine	30.6
30-Dec-20	10:00	Fine	32.4
30-Dec-20	11:00	Fine	36.0
		Average	50.9
		Maximum	81.7
		Minimum	30.6

Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

1-hr TSP Concentration Levels



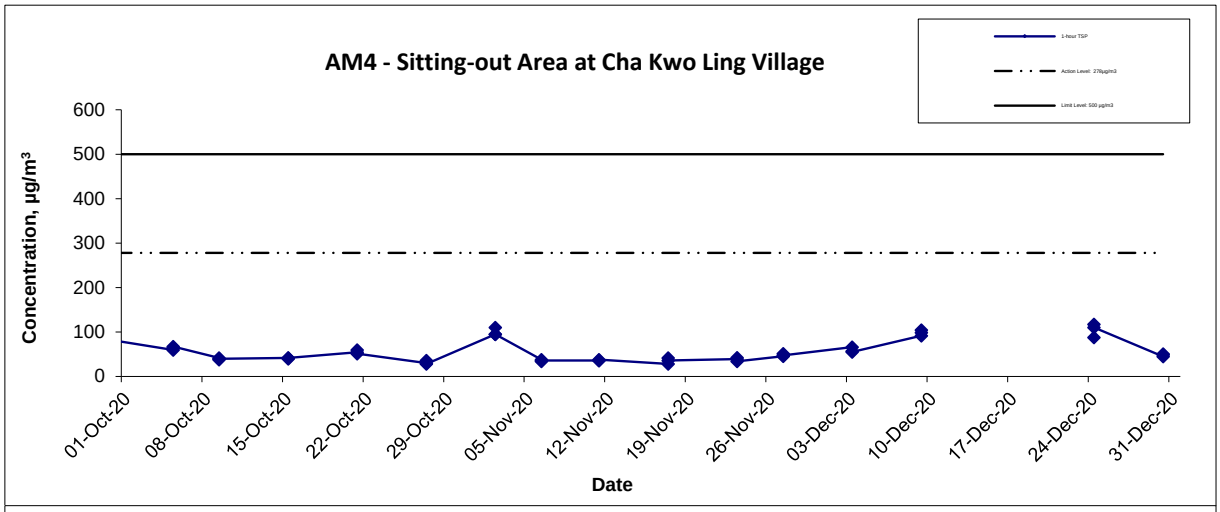


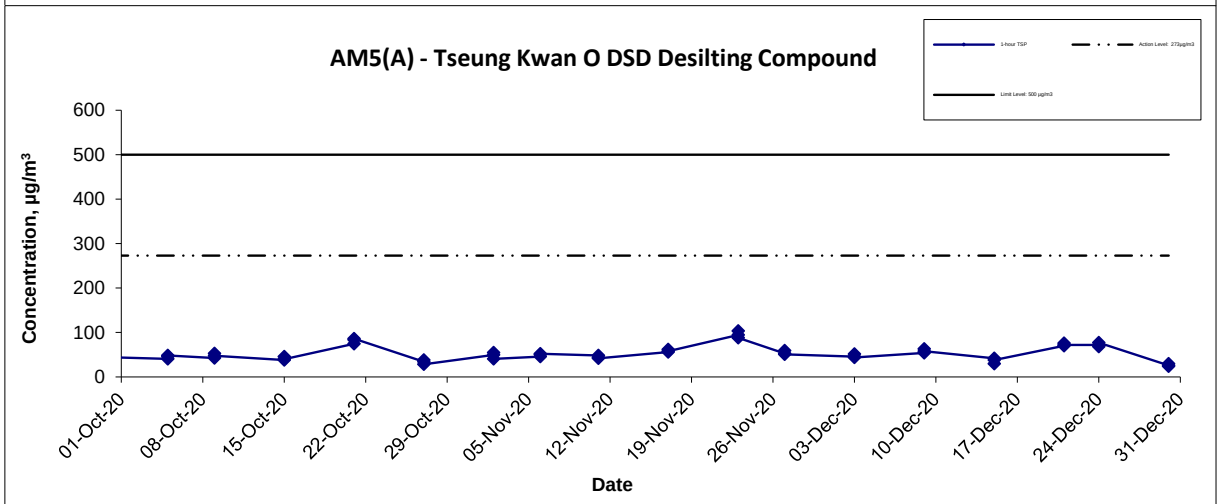


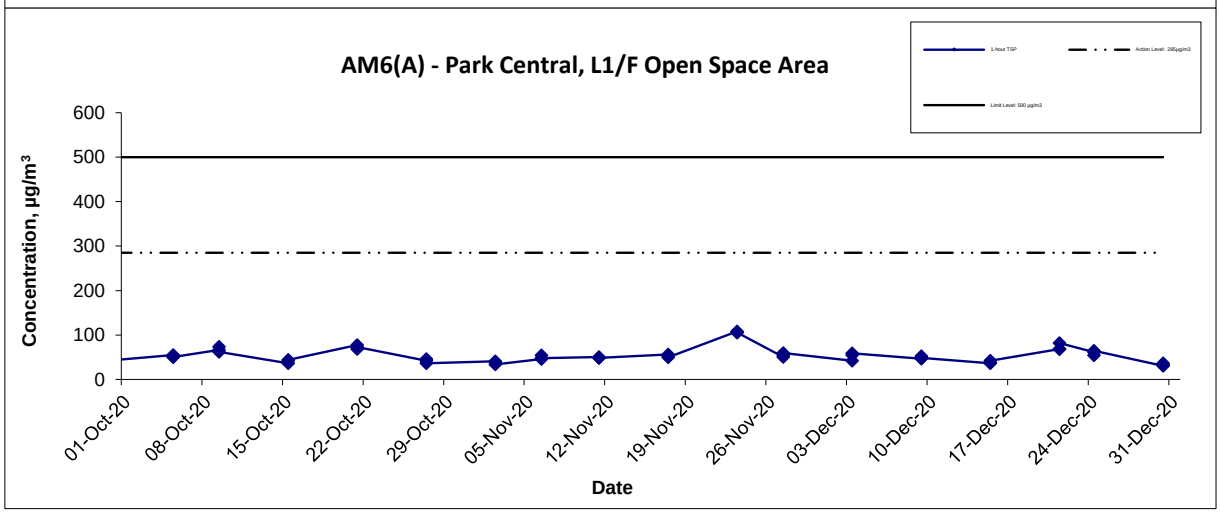
Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

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 Dec-20	Project No. MA16034 Appendix E	CINOTECH

1-hr TSP Concentration Levels







Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

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 Dec-20	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)
2-Dec-20	Sunny	3.5074	3.7194	0.2120	7570.7	7594.7	24.0	1.25	1.25	1.25	1797.7	117.9
8-Dec-20	Sunny	3.4873	3.6740	0.1867	7594.7	7618.7	24.0	1.24	1.23	1.24	1778.5	105.0
29-Dec-20	Sunny	2.6593	2.8906	0.2313	7666.7	7690.7	24.0	1.24	1.26	1.25	1797.9	128.7
											Min	105.0
											Max	128.7
											Average	117.2

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)
2-Dec-20	Sunny	3.4932	3.5838	0.0906	28720.8	28744.8	24.0	1.24	1.25	1.25	1794.8	50.5
8-Dec-20	Sunny	3.2731	3.3797	0.1066	28744.8	28768.8	24.0	1.24	1.24	1.24	1789.3	59.6
29-Dec-20	Sunny	2.6707	2.9260	0.2553	28756.81	28780.8	24.0	1.23	1.25	1.24	1785.0	143.0
						.					Min	50.5
											Max	143.0
											Average	84.4

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)
2-Dec-20	Sunny	3.5193	3.6475	0.1282	3053.0	3077.0	24.0	1.25	1.25	1.25	1800.5	71.2
8-Dec-20	Sunny	3.4778	3.6779	0.2001	3077.0	3101.0	24.0	1.24	1.24	1.24	1781.7	112.3
29-Dec-20	Sunny	2.6807	2.8971	0.2164	3101.0	3125.0	24.0	1.23	1.25	1.24	1787.6	121.1
											Min	71.2
											Max	121.1
											Average	101.5

Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

Appendix F - 24-hour TSP Monitoring Results

Location AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

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)
2-Dec-20	Sunny	3.5074	3.6684	0.1610	13939.4	13963.4	24.0	1.24	1.25	2.43	3503.2	46.0
8-Dec-20	Sunny	3.4944	3.6317	0.1373	13963.4	13987.4	24.0	1.23	1.23	2.40	3458.4	39.7
29-Dec-20	Sunny	2.6547	2.9558	0.3011	13986.4	14010.4	24.0	1.23	1.24	2.40	3458.4	87.1
											Min	39.7
											Max	87.1
											Average	57.6

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

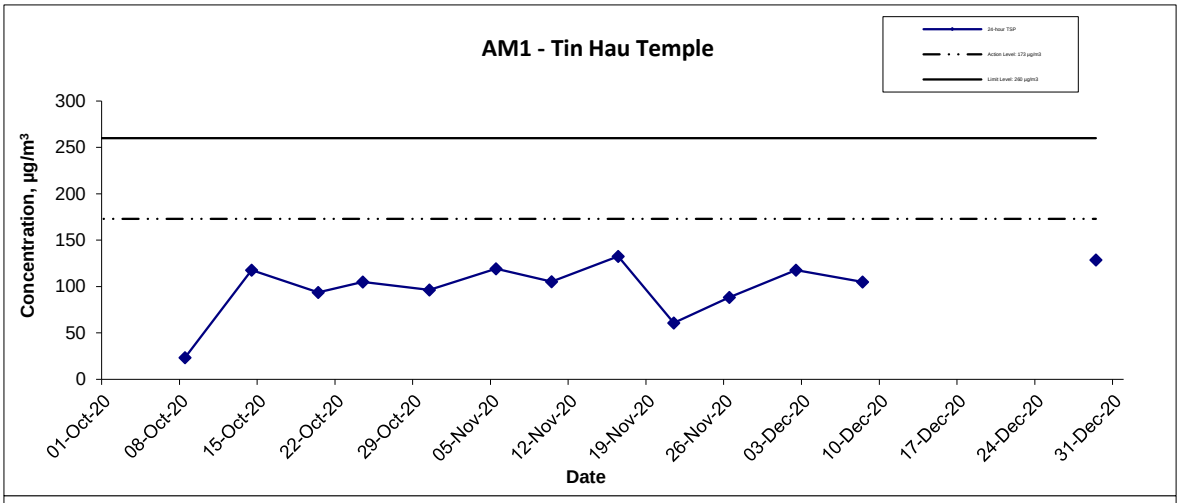
Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
2-Dec-20	Sunny	3.4929	3.6127	0.1198	30402.5	30426.5	24.0	1.25	1.25	1.25	1797.0	66.7
8-Dec-20	Sunny	3.2824	3.4444	0.1620	30426.5	30450.5	24.0	1.24	1.23	1.24	1778.7	91.1
14-Dec-20	Sunny	3.5261	3.6650	0.1389	30450.5	30474.5	24.0	1.24	1.25	1.24	1787.1	77.7
19-Dec-20	Sunny	3.3543	3.4247	0.0704	30474.5	30498.5	24.0	1.25	1.25	1.25	1797.6	39.2
23-Dec-20	Sunny	3.2877	3.3848	0.0971	30498.5	30522.5	24.0	1.24	1.23	1.24	1778.8	54.6
29-Dec-20	Sunny	3.4563	3.6192	0.1629	30522.5	30546.5	24.0	1.19	1.21	1.20	1723.4	94.5
											Min	39.2
											Max	91.1
											Average	65.8

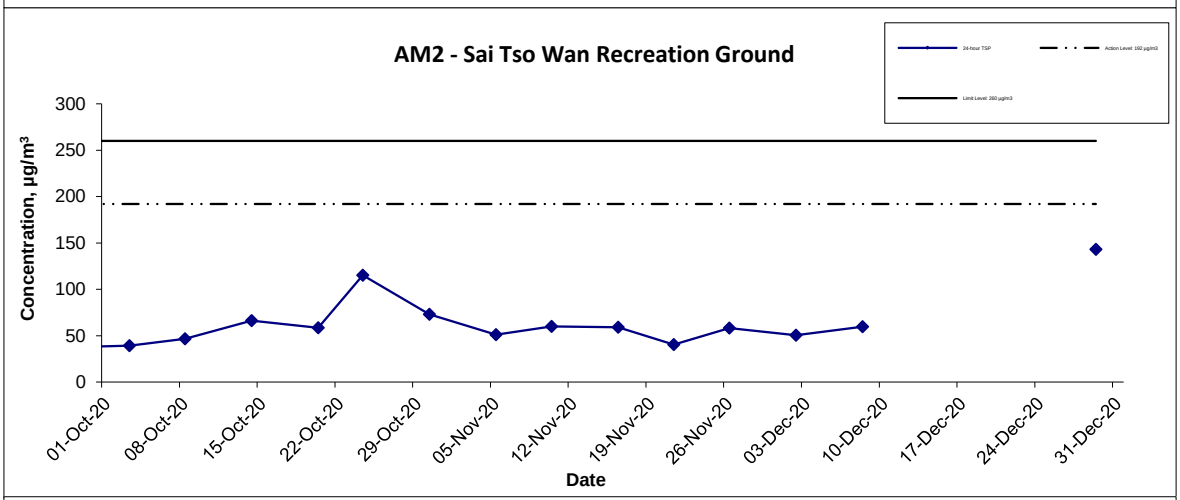
Location AM6(A) - Park Central, L1/F Open Space Area

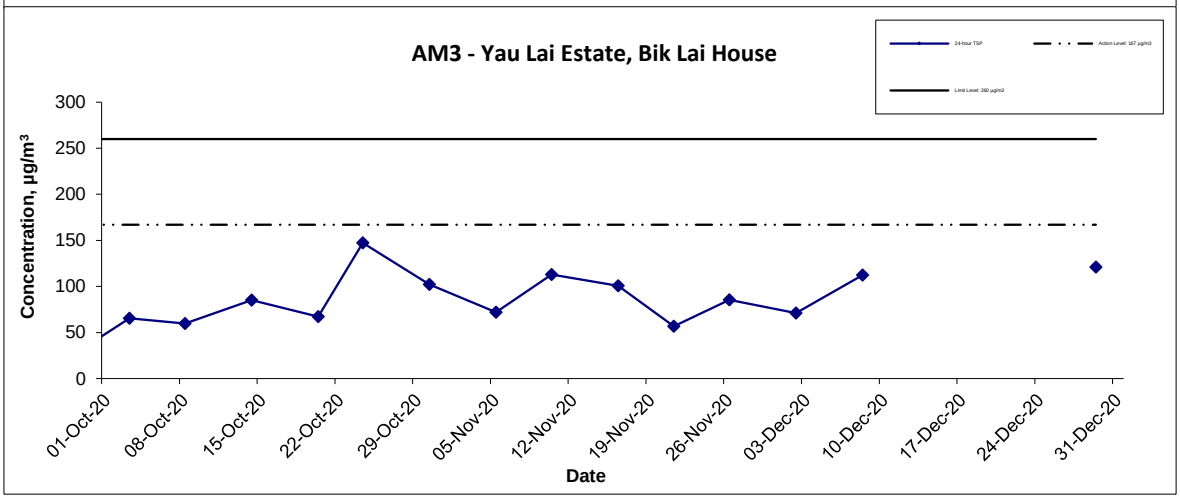
Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m^3/min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m^3/min)	(m^3)	(μg/m^3)
2-Dec-20	Sunny	3.5145	3.5640	0.0495	2292.8	2316.8	24.0	1.24	1.25	2.49	3582.1	13.8
8-Dec-20	Sunny	3.3434	3.4184	0.0750	2316.8	2340.8	24.0	1.24	1.24	2.49	3582.1	20.9
14-Dec-20	Sunny	3.5148	3.5575	0.0427	2340.8	2364.8	24.0	1.24	1.24	1.24	1790.0	23.9
19-Dec-20	Sunny	3.3283	3.3582	0.0299	2364.8	2388.8	24.0	1.24	1.26	1.25	1798.9	16.6
23-Dec-20	Sunny	3.3274	3.3796	0.0522	2388.8	2412.8	24.0	1.26	1.26	1.26	1810.1	28.8
29-Dec-20	Sunny	2.6767	2.7618	0.0851	2412.8	2436.8	24.0	1.25	1.24	1.24	1790.2	47.5
											Min	13.8
											Max	28.8
											Average	20.8

Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

24-hr TSP Concentration Levels





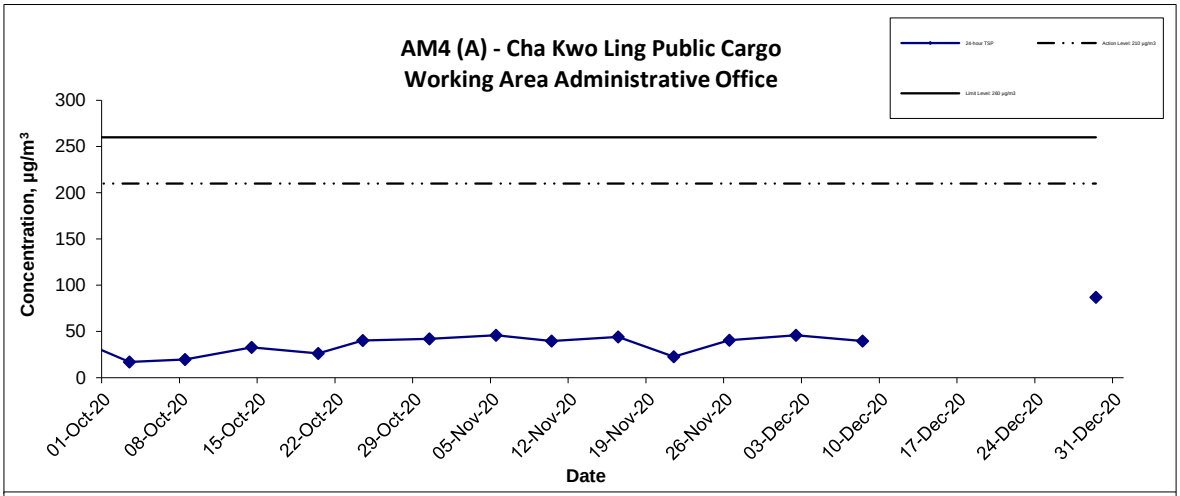


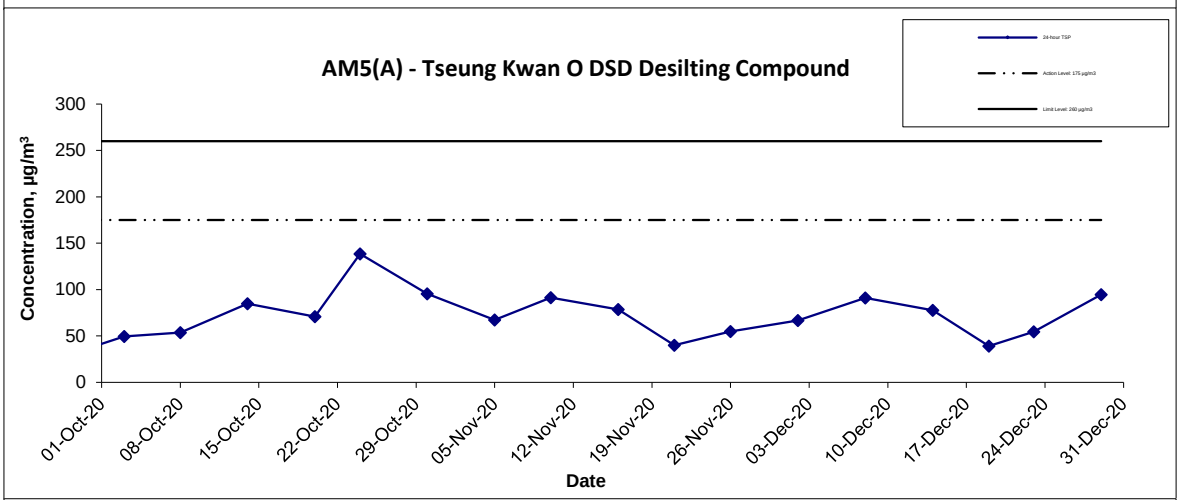
*Measurement cannot be carried out for AM1 between 12 Sep 2020 - 7 Oct 2020 as no power supply due to technical problems in the system of the Temple.

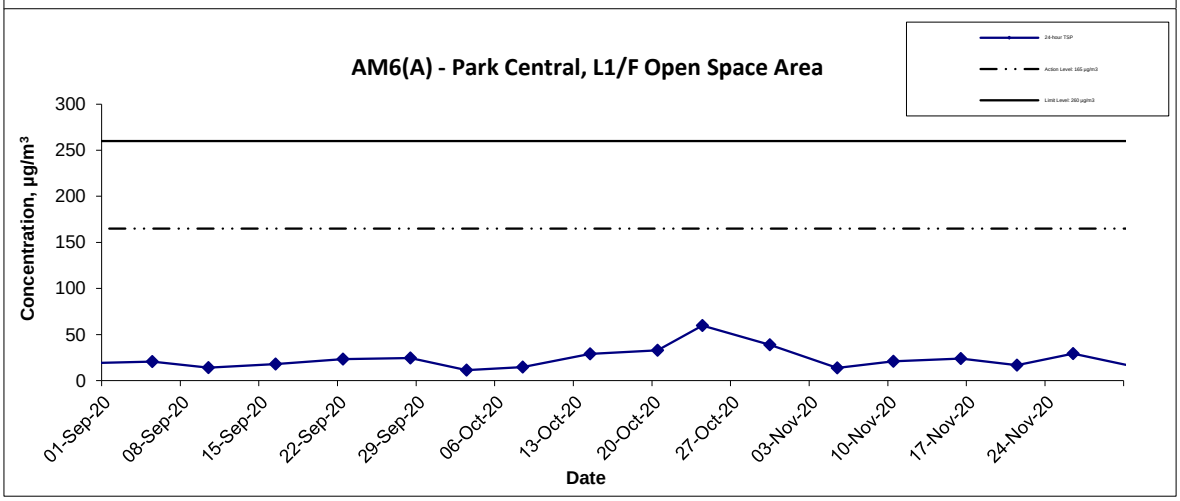
Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

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 Dec-20	Project No. MA16034 Appendix F	CINOTECH

24-hr TSP Concentration Levels







Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

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 Dec-20	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}
03-Dec-20	13:45	Sunny	74.9	76.8	71.7	65.5	74
09-Dec-20	14:00	Sunny	71.5	73.9	69.5	65.5	70
24-Dec-20	16:45	Fine	73.2	76.1	68.6	65.5	72
30-Dec-20	11:00	Sunny	71.9	75.4	68.1	65.5	71

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}
03-Dec-20	11:10	Sunny	75.2	77.7	70.2	63.6	75
09-Dec-20	11:23	Sunny	72.0	74.3	70.3	63.6	71
24-Dec-20	15:00	Fine	72.2	75.3	68.6	63.6	72
30-Dec-20	13:00	Sunny	72.6	76.2	68.3	63.6	72

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}
03-Dec-20	14:40	Sunny	71.4	73.3	68.8	65.6	70
09-Dec-20	14:45	Sunny	71.1	74.2	68.4	65.6	70
24-Dec-20	17:20	Cloudy	71.5	73.8	67.7	65.6	70
30-Dec-20	14:00	Sunny	71.3	75.9	67.6	65.6	70

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}
03-Dec-20	15:30	Sunny	60.0	62.6	55.3	62.0	60 Measured ≦ Baseline
09-Dec-20	15:40	Fine	60.9	64.2	54.2	62.0	61 Measured ≦ Baseline
24-Dec-20	10:30	Fine	60.8	63.4	56.2	62.0	61 Measured ≦ Baseline
30-Dec-20	9:00	Sunny	61.2	65.3	57.6	62.0	61 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}
03-Dec-20	10:00	Sunny	69.6	70.9	66.1	68.2	64
09-Dec-20	13:04	Sunny	69.4	72.3	68.1	68.2	63
24-Dec-20	11:30	Sunny	66.8	69.2	62.3	68.2	67 Measured ≦ Baseline
30-Dec-20	10:00	Sunny	67.5	70.1	64.2	68.2	68 Measured ≦ Baseline

Appendix G - Noise Monitoring Results

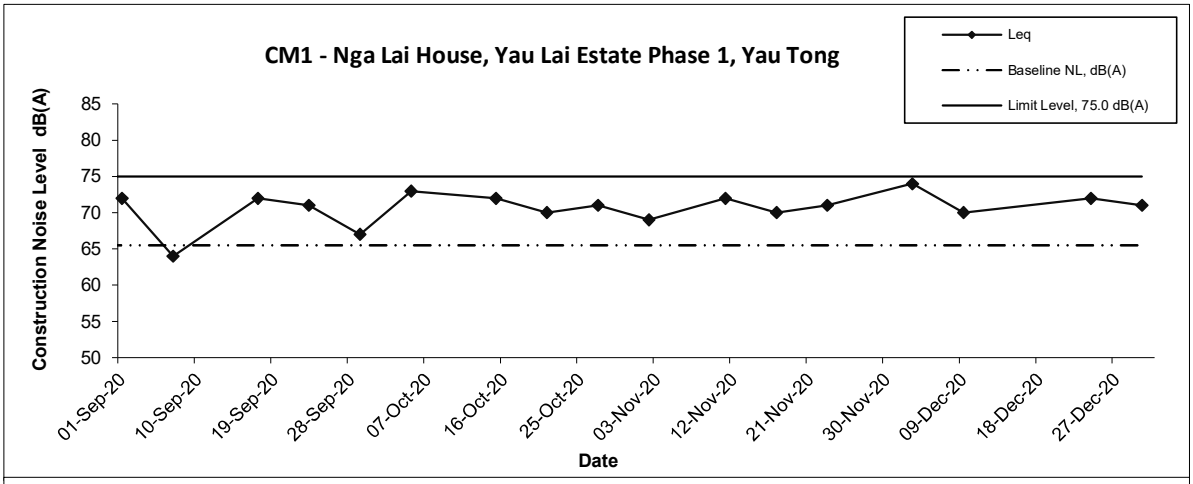
(0700-1900 hrs on Normal Weekdays)

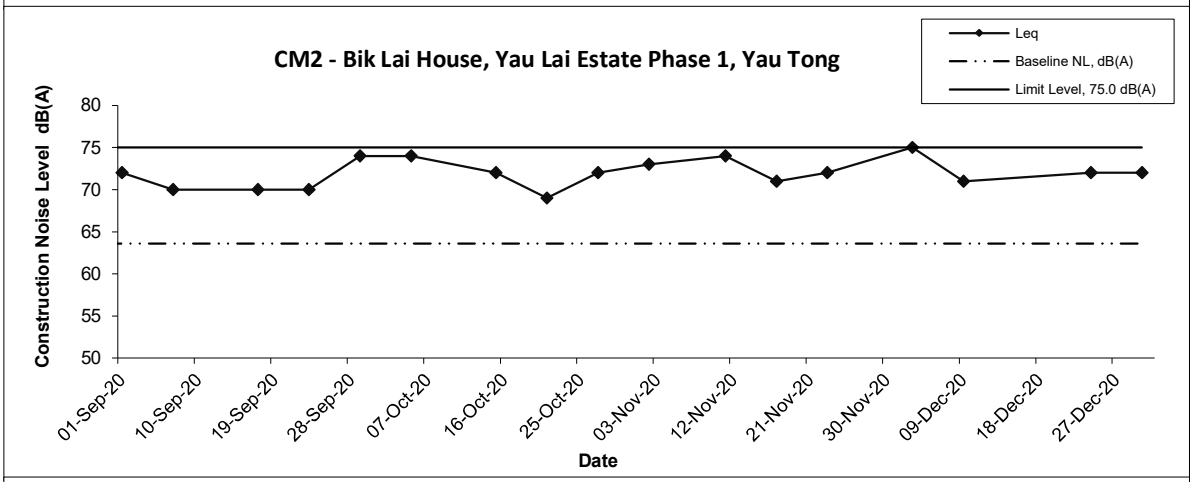
Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
03-Dec-20	14:44	Sunny	65.2	67.4	62.1	61.9	62
09-Dec-20	17:30	Sunny	66.8	68.9	64.2	61.9	65
15-Dec-20	11:00	Fine	67.1	70.4	61.3	61.9	66
21-Dec-20	9:00	Sunny	58.3	60.9	52.1	61.9	58 Measured ≦ Baseline
24-Dec-20	22:45	Sunny	66.6	70.8	63.3	61.9	65
30-Dec-20	9:00	Fine	68.3	69.4	65.1	61.9	67

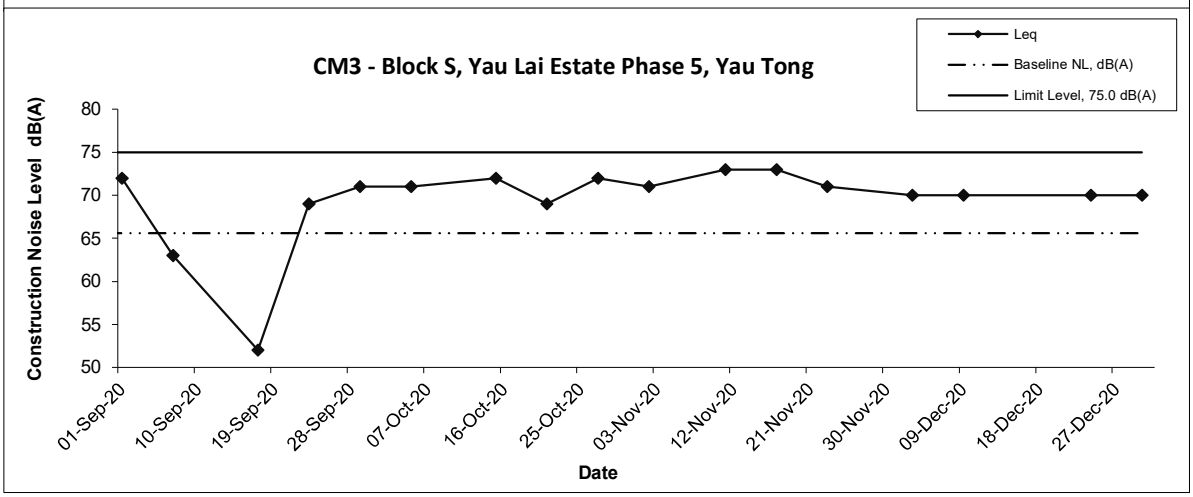
Location CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
03-Dec-20	14:08	Sunny	61.0	62.8	58.9	58.3	58
09-Dec-20	17:00	Sunny	65.8	66.8	64.6	58.3	65
15-Dec-20	10:20	Fine	71.9	73.6	69.4	58.3	72
21-Dec-20	11:30	Sunny	59.6	59.5	53.2	58.3	54
24-Dec-20	11:30	Sunny	65.4	69.3	62.3	58.3	64
30-Dec-20	10:21	Fine	69.2	72.7	66.1	58.3	69

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}
03-Dec-20	9:33	Sunny	67.3	69.4	63.7	69.1	67 Measured ≦ Baseline
09-Dec-20	13:30	Sunny	63.6	67.8	60.3	69.1	64 Measured ≦ Baseline
15-Dec-20	13:00	Fine	67.4	70.5	61.6	69.1	67 Measured ≦ Baseline
21-Dec-20	15:45	Sunny	66.5	69.3	60.8	69.1	67 Measured ≦ Baseline
24-Dec-20	10:00	Sunny	67.8	70.2	63.5	69.1	68 Measured ≦ Baseline
30-Dec-20	11:00	Fine	64.2	66.3	62.8	69.1	64 Measured ≦ Baseline

Noise Levels

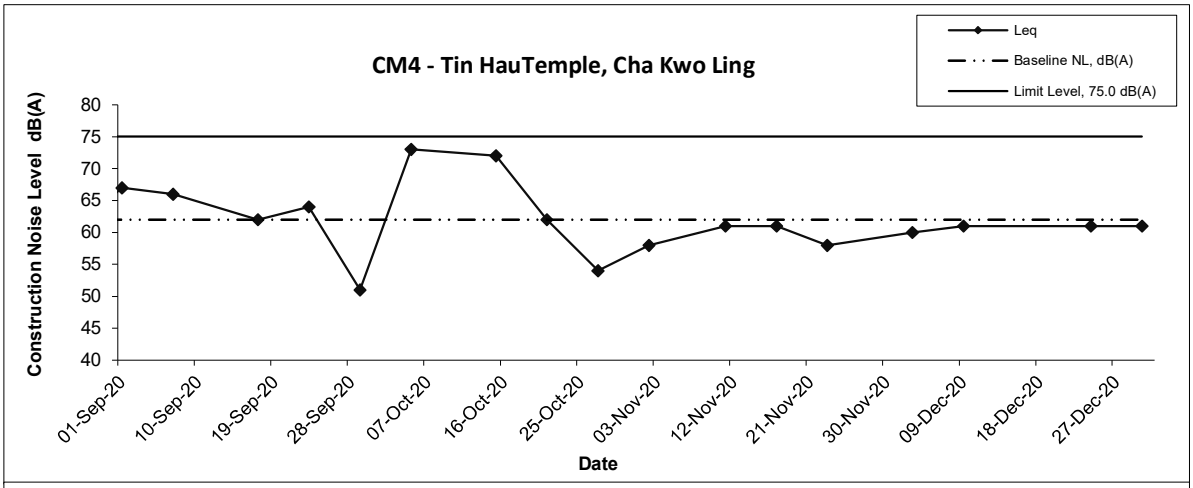


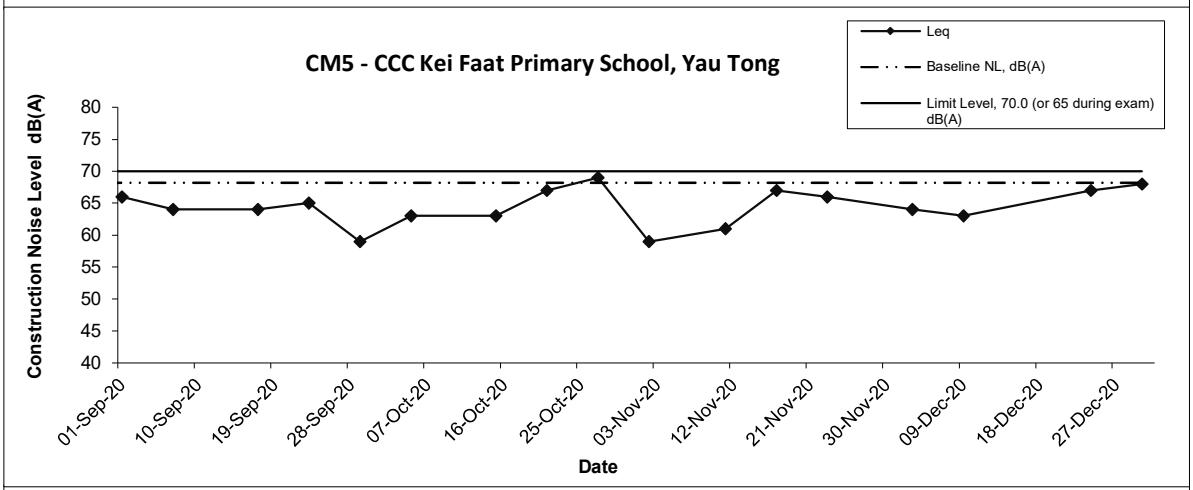


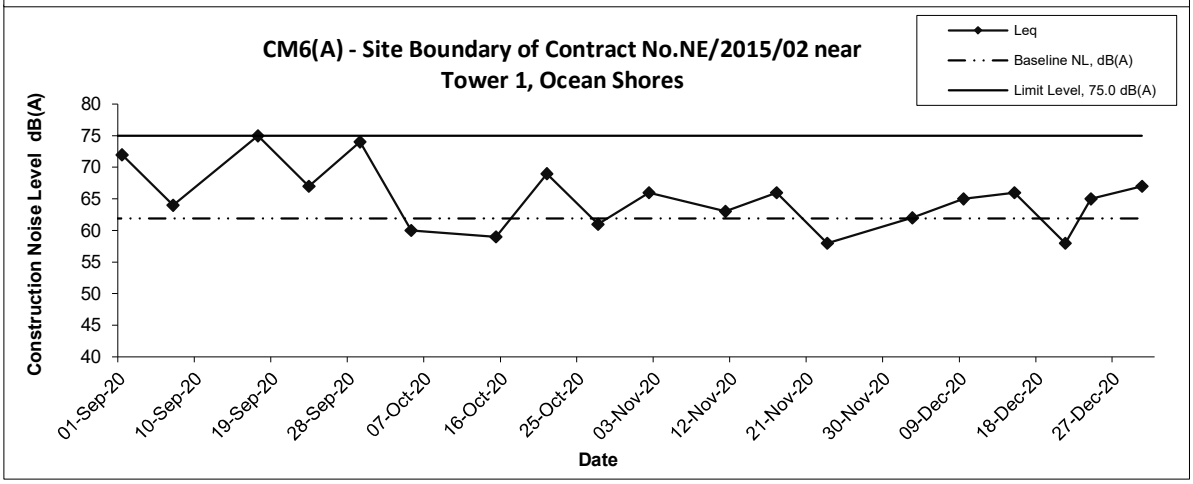


Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
		Date Dec 20	Appendix G	

Noise Levels

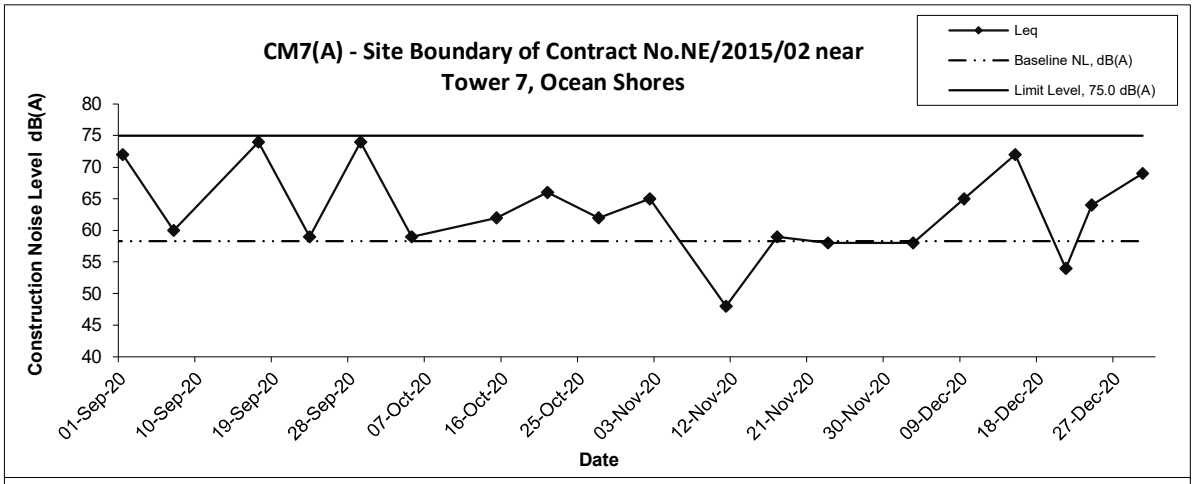


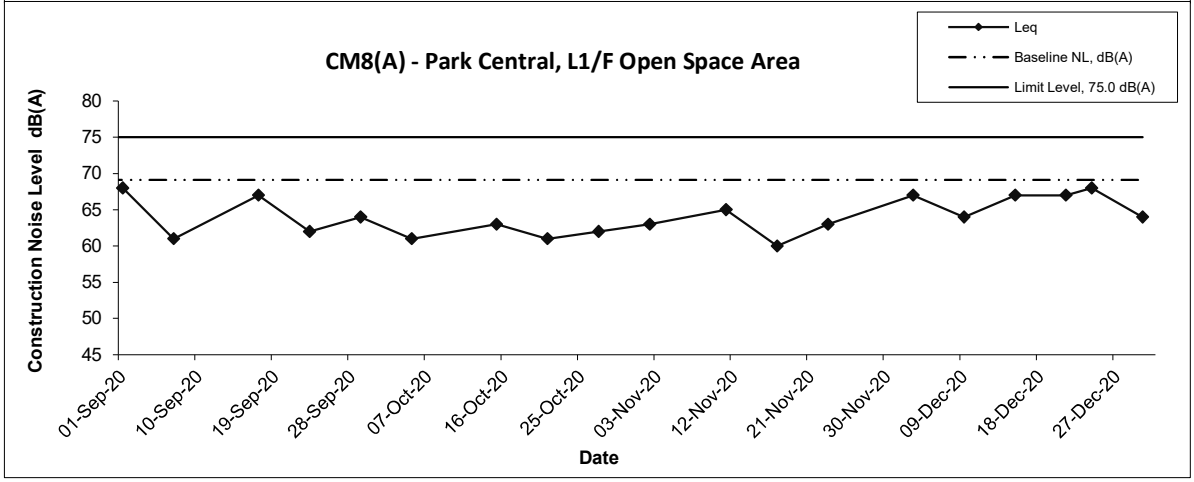




Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Dec 20	Project No.: MA16034 Appendix: G	CINOTECH

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	Project No. MA16034	CINOTECH
		Date Dec 20	Appendix G	

Appendix G - Noise Monitoring Results

(Restricted Hours - 19:00 to 23:00 on all other days & 07:00 to 23:00 holidays)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	22:30	Fine	61.8	63.4	58.4	61.8	64.4	62Measured ≦ Baseline
	22:35		61.9	63.6	58.4			
	22:40		61.7	63.5	58.3			
24-Dec-20	19:00	Fine	62.8	65.9	59.2	62.6		63Measured ≦ Baseline
	19:05		62.6	65.7	59.1			
	19:10		62.5	65.6	58.3			
31-Dec-20	20:00	Fine	61.9	63.2	58.2	61.8		62Measured ≦ Baseline
	20:05		61.7	63.1	58.0			
	20:10		61.8	63.4	58.1			

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	21:00	Fine	62.2	64.3	58.9	62.2	62.2	62Measured ≦ Baseline
	21:05		62.3	64.4	58.9			
	21:10		62.1	64.2	58.6			
24-Dec-20	20:00	Fine	62.9	65.8	58.9	62.7		53
	20:05		62.4	65.1	58.3			
	20:10		62.7	65.5	58.5			
31-Dec-20	20:25	Fine	62.3	64.1	59.2	62.1		62Measured ≦ Baseline
	20:30		62.2	64.0	59.1			
	20:35		61.9	64.0	59.2			

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	22:00	Fine	61.9	64.4	58.7	62.1	64.7	62Measured ≦ Baseline
	22:05		62.2	64.6	58.8			
	22:10		62.1	64.5	58.8			
24-Dec-20	21:00	Fine	62.2	65.2	58.5	62.2		62Measured ≦ Baseline
	21:05		62.3	65.4	58.8			
	21:10		62.1	65.6	58.5			
31-Dec-20	20:45	Fine	60.9	63.0	57.1	60.7		61Measured ≦ Baseline
	20:50		60.8	63.1	57.0			
	20:55		60.5	62.9	56.8			

Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores

Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
3-Dec-20	19:11	Sunny	63.9	65.4	61.3	63.3	60.2	60
	19:16		63.1	65.7	62.2			
	19:21		62.8	64.8	61.1			
9-Dec-20	19:00	Sunny	63.6	66.5	60.2	63.6		61
	19:05		63.8	66.6	60.1			
	19:10		63.5	66.5	59.9			
15-Dec-20	19:00	Fine	64.2	68.4	61.7	64.2		62
	19:05		64.3	68.3	61.5			
	19:10		64.2	68.1	61.3			
21-Dec-20	19:00	Sunny	60.3	62.7	55.0	59.3		59Measured ≦ Baseline
	19:05		53.9	55.7	51.1			
	19:10		60.9	58.8	50.5			
30-Dec-20	19:00	Sunny	63.3	65.1	61.4	63.1		60
	19:05		63.2	65.3	61.4			
	19:10		62.9	64.9	61.3			

Appendix G - Noise Monitoring Results

(Restricted Hours - 2300-0700 on all days)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	23:00	Fine	55.8	58.3	53.2	55.7	63.7	56Measured ≦ Baseline
	23:05		55.9	58.4	53.3			
	23:10		55.4	58.1	52.9			
24-Dec-20	23:00	Fine	57.5	61.2	55.3	57.4	63.7	57Measured ≦ Baseline
	23:05		57.4	61.0	55.1			
	23:10		57.4	61.2	55.3			
31-Dec-20	23:00	Fine	55.9	58.1	53.0	55.8	63.7	56Measured ≦ Baseline
	23:05		55.8	58.0	52.8			
	23:10		55.6	57.8	52.6			

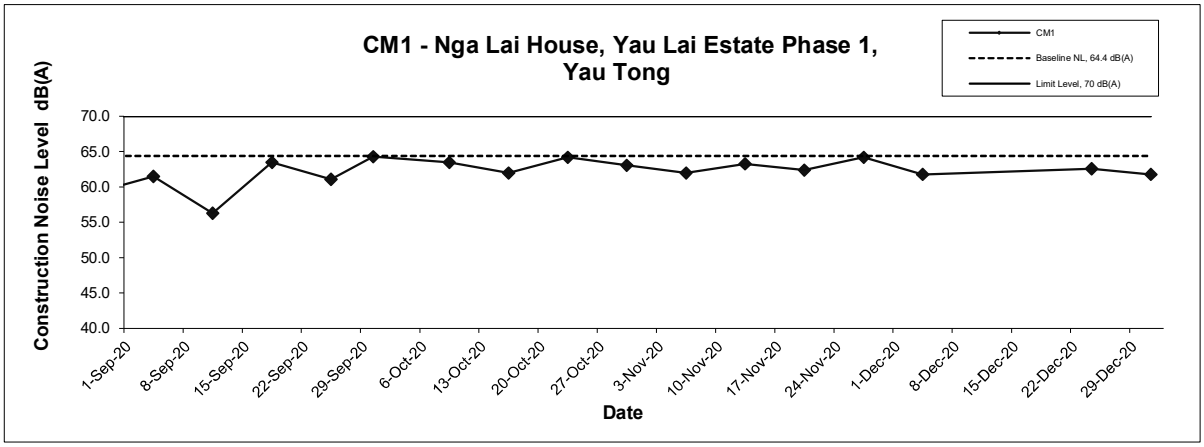
Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	23:20	Fine	54.8	57.5	51.5	54.7	61.6	55Measured ≦ Baseline
	23:25		54.3	57.2	51.6			
	23:30		54.9	57.5	51.8			
24-Dec-20	23:20	Fine	56.8	59.7	54.1	56.8	61.6	57Measured ≦ Baseline
	23:25		56.7	59.8	54.1			
	23:30		56.9	59.9	54.2			
31-Dec-20	23:25	Fine	54.3	57.3	51.2	54.4	61.6	54Measured ≦ Baseline
	23:30		54.4	57.2	51.1			
	23:35		54.5	57.2	51.2			

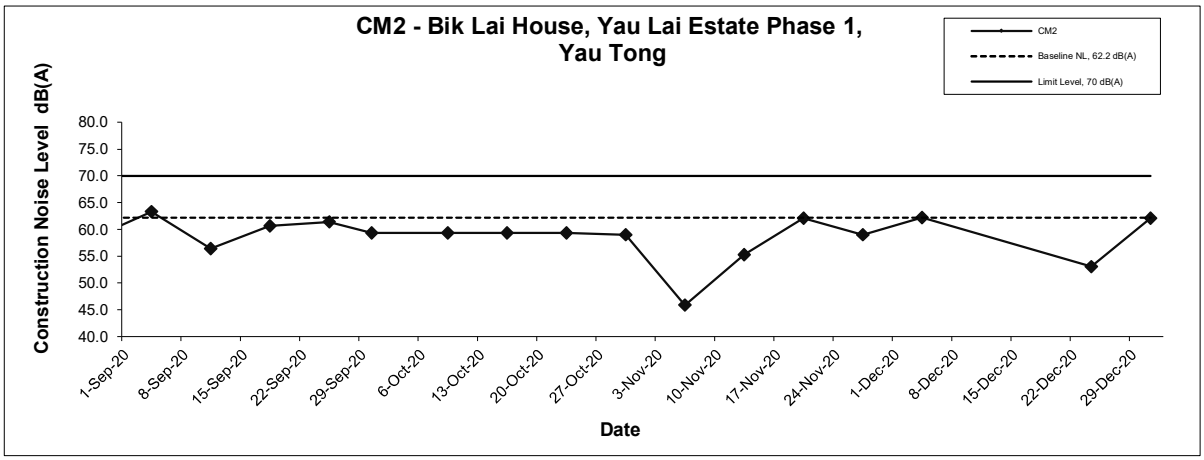
Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong								
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
4-Dec-20	23:40	Fine	56.8	58.3	53.2	56.1	62.9	56Measured ≦ Baseline
	23:45		55.9	58.1	53.1			
	23:50		55.5	58.0	53.0			
24-Dec-20	23:40	Fine	56.9	59.9	54.8	57.1	62.9	57Measured ≦ Baseline
	23:45		57.2	60.3	54.9			
	23:50		57.1	60.1	55.2			
31-Dec-20	23:45	Sunny	56.5	58.1	53.0	56.4	62.9	56Measured ≦ Baseline
	23:50		56.4	58.0	52.9			
	23:55		56.3	58.0	52.7			

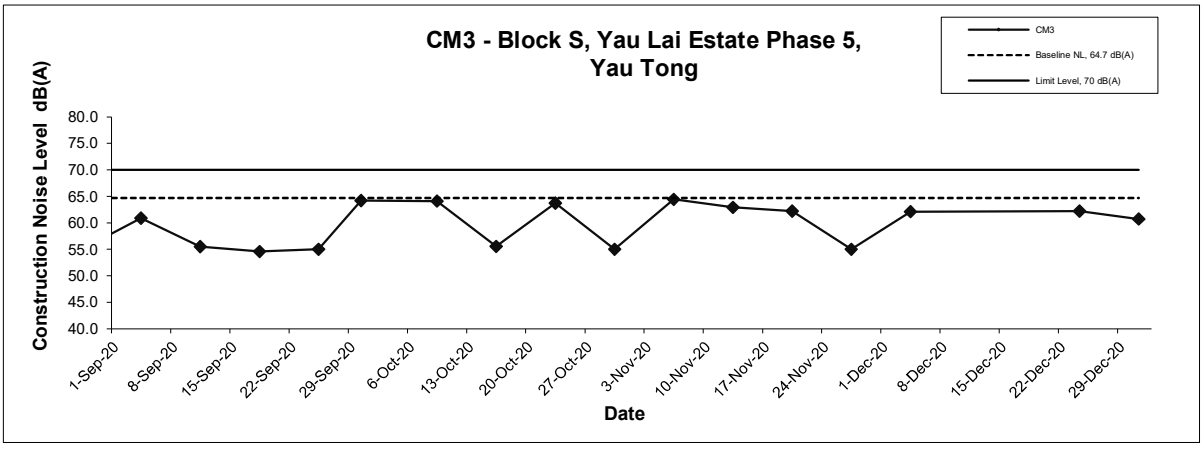
Remark:

"Measured ≦ Baseline" means that the averaged measured Leq is smaller than the baseline Leq, and therefore the measured levels are not valid exceedances.

Noise Levels
(Restricted Hours - 19:00 - 23:00 on normal weekdays)

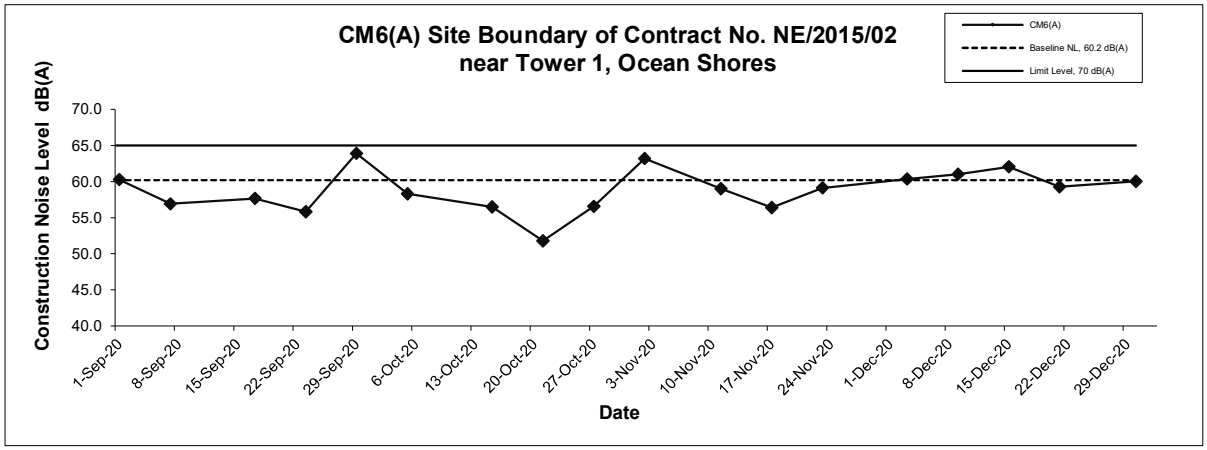






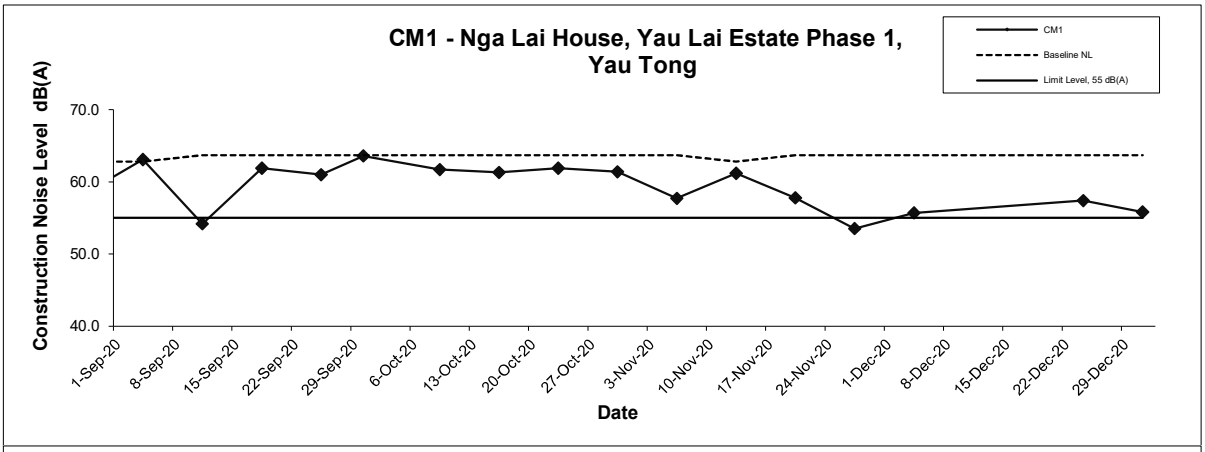
Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec-20	Appendix: G	

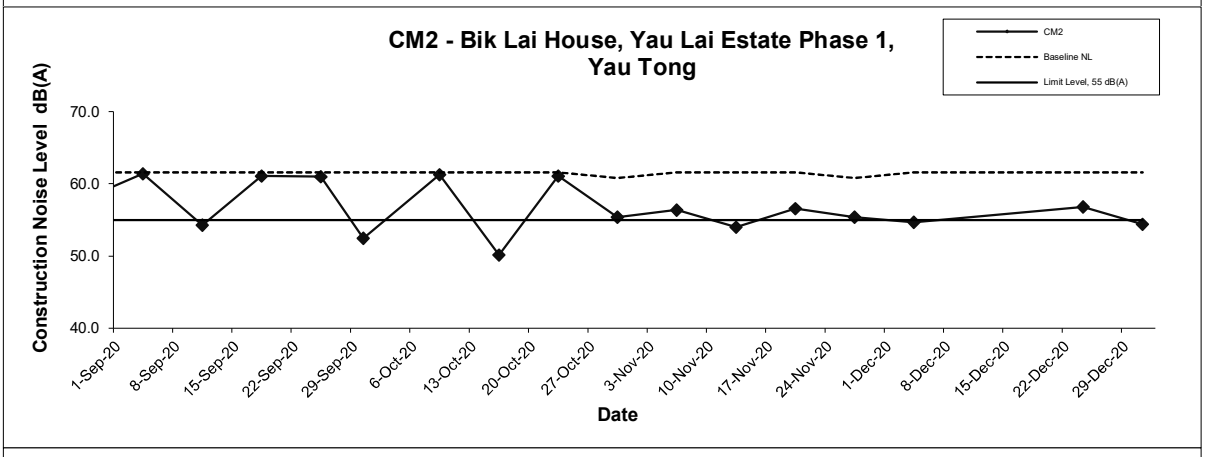
Noise Levels
(Restricted Hours - 19:00 - 23:00 on normal weekdays)

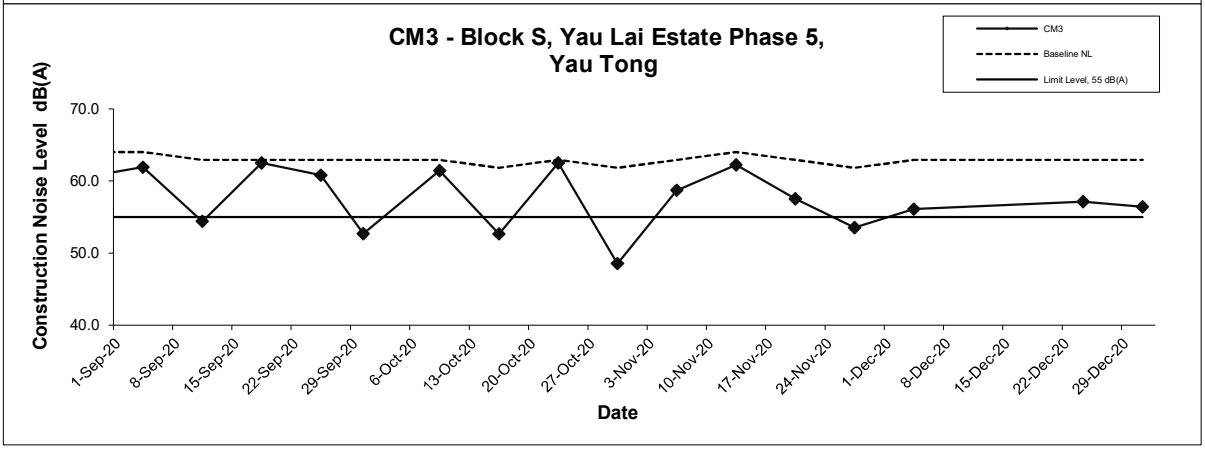


Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S Date: Dec-20	Project No.: MA16034 Appendix: G	CINOTECH

Noise Levels
(Restricted Hours - 2300-0700 on normal weekdays)







Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S Date: Dec-20	Project No.: MA16034 Appendix: G	CINOTECH

APPENDIX I
MARINE WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 02 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Fine	Calm	13:29	Surface	1.0	21.2 21.1	21.1	8.5 8.5	8.5	33.3 33.3	33.3	111.7 111.9	111.8	8.0 8.0	8.0	7.9	2.3 2.3	2.3	2.7	2.9 3.2	3.1	3.3
				Middle	9.1	20.9 21.1	21.0	8.5 8.5	8.5	33.3 33.3	33.3	109.4 109.6	109.5	7.8 7.8	7.8		2.5 2.5	2.5		2.9 3.4	3.2	
				Bottom	17.0	20.9 20.9	20.9	8.5 8.5	8.5	33.4 33.4	33.4	108.0 107.8	107.9	7.7 7.7	7.7	7.7	3.3 3.3	3.3		3.7 3.6	3.7	
C2	Fine	Calm	11:45	Surface	1.0	21.8 20.9	21.3	8.1 8.2	8.1	33.3 33.3	33.3	112.1 112.1	112.1	8.0 8.0	8.0	8.0	2.3 2.3	2.3	2.4	2.8 3.0	2.9	3.1
				Middle	16.6	20.9 20.9	20.9	8.3 8.3	8.3	33.3 33.3	33.3	111.1 111.4	111.3	7.9 7.9	7.9		2.4 2.5	2.4		3.1 3.2	3.2	
				Bottom	32.0	20.9 20.9	20.9	8.4 8.4	8.4	33.3 33.3	33.3	108.3 108.2	108.3	7.7 7.7	7.7	7.7	2.4 2.4	2.4		3.7 2.7	3.2	
G1	Fine	Calm	12:24	Surface	1.0	21.8 20.9	21.3	8.5 8.5	8.5	33.3 33.3	33.3	109.1 109.1	109.1	7.8 7.8	7.8	7.8	2.2 2.1	2.1	2.1	3.0 2.7	2.9	3.4
				Middle	4.1	20.9 20.8	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.6 108.6	108.6	7.7 7.7	7.7		2.1 2.1	2.1		2.9 3.3	3.1	
				Bottom	7.0	20.8 20.8	20.8	8.5 8.5	8.5	33.3 33.3	33.3	108.3 108.2	108.3	7.7 7.7	7.7	7.7	2.2 2.3	2.2		4.6 3.8	4.2	
G2	Fine	Calm	12:07	Surface	1.1	21.4 20.9	21.2	8.5 8.5	8.5	33.3 33.3	33.3	108.9 108.8	108.9	7.8 7.7	7.7	7.7	2.2 2.2	2.2	2.4	3.4 3.3	3.4	3.4
				Middle	5.0	20.9 20.9	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.0 108.0	108.0	7.7 7.7	7.7		2.5 2.5	2.5		3.6 2.8	3.2	
				Bottom	9.0	20.8 20.9	20.9	8.5 8.5	8.5	33.3 33.4	33.3	107.7 107.7	107.7	7.7 7.7	7.7	7.7	2.5 2.5	2.5		3.5 4.0	3.8	
G3	Fine	Calm	12:30	Surface	1.0	21.0 20.9	21.0	8.5 8.5	8.5	33.3 33.3	33.3	109.2 109.4	109.3	7.8 7.8	7.8	7.8	2.2 2.3	2.2	2.4	2.3 3.7	3.0	3.0
				Middle	4.1	20.9 20.9	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.8	108.7	7.7 7.8	7.8		2.3 2.4	2.3		3.5 2.7	3.1	
				Bottom	7.1	20.7 20.8	20.8	8.5 8.5	8.5	33.3 33.3	33.3	108.1 108.2	108.2	7.7 7.7	7.7	7.7	2.5 2.5	2.5		2.3 3.4	2.9	
G4	Fine	Calm	12:45	Surface	1.0	21.7 21.0	21.4	8.5 8.5	8.5	33.3 33.3	33.3	109.7 109.8	109.8	7.8 7.8	7.8	7.8	2.2 2.3	2.3	2.4	2.9 3.8	3.4	4.9
				Middle	4.0	21.0 21.0	21.0	8.5 8.5	8.5	33.3 33.3	33.3	109.2 109.4	109.3	7.8 7.8	7.8		2.5 2.5	2.5		4.6 5.7	5.2	
				Bottom	7.0	20.9 20.9	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.7 108.7	108.7	7.8 7.8	7.8	7.8	2.5 2.5	2.5		5.6 6.5	6.1	
M1	Fine	Calm	12:12	Surface	1.1	21.2 21.1	21.1	8.5 8.5	8.5	33.3 33.3	33.3	108.9 108.9	108.9	7.8 7.8	7.8	7.7	2.2 2.2	2.2	2.3	11.1 10.9	11.0	8.3
				Middle	3.1	20.8 21.0	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.6	108.6	7.7 7.7	7.7		2.3 2.1	2.2		6.9 7.7	7.3	
				Bottom	5.1	20.8 20.8	20.8	8.5 8.5	8.5	33.3 33.3	33.3	108.3 108.3	108.3	7.7 7.7	7.7	7.7	2.5 2.4	2.4		6.0 6.9	6.5	
M2	Fine	Calm	12:00	Surface	1.1	21.4 20.9	21.2	8.5 8.5	8.5	33.3 33.3	33.3	108.4 108.3	108.4	7.7 7.7	7.7	7.7	2.0 2.1	2.1	2.3	6.8 6.3	6.6	5.9
				Middle	5.5	20.9 20.9	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.1 108.1	108.1	7.7 7.7	7.7		2.3 2.2	2.3		5.6 6.1	5.9	
				Bottom	10.0	20.8 20.8	20.8	8.5 8.5	8.5	33.3 33.3	33.3	108.4 108.5	108.5	7.7 7.7	7.7	7.7	2.6 2.6	2.6		5.7 5.1	5.4	
M3	Fine	Calm	12:38	Surface	1.1	21.8 21.0	21.4	8.5 8.5	8.5	33.3 33.3	33.3	109.5 109.7	109.6	7.8 7.8	7.8	7.8	2.3 2.3	2.3	2.4	6.2 5.6	5.9	6.4
				Middle	4.0	20.9 20.9	20.9	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.5	108.5	7.7 7.7	7.7		2.3 2.3	2.3		5.8 6.6	6.2	
				Bottom	7.0	20.7 20.8	20.7	8.5 8.5	8.5	33.3 33.3	33.3	108.4 108.4	108.4	7.7 7.7	7.7	7.7	2.6 2.5	2.6		7.5 6.6	7.1	
M4	Fine	Calm	11:53	Surface	1.0	21.5 21.0	21.2	8.4 8.4	8.4	33.3 33.3	33.3	110.1 110.1	110.1	7.8 7.8	7.8	7.8	2.1 2.1	2.1	2.3	5.9 5.7	5.8	6.3
				Middle	5.0	20.9 20.8	20.9	8.4 8.4	8.4	33.3 33.3	33.3	108.9 109.0	109.0	7.8 7.8	7.8		2.3 2.4	2.3		6.4 5.5	6.0	
				Bottom	9.0	20.8 20.9	20.8	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.4	108.5	7.7 7.7	7.7	7.7	2.5 2.5	2.5		7.5 6.6	7.1	
M5	Fine	Calm	13:19	Surface	1.0	21.0 21.0	21.0	8.5 8.5	8.5	33.3 33.3	33.3	110.5 110.5	110.5	7.9 7.9	7.9	7.9	2.5 2.6	2.6	2.5	6.4 6.0	6.2	6.2
				Middle	6.1	20.9 21.6	21.2	8.5 8.5	8.5	33.3 33.3	33.3	110.8 110.9	110.9	7.9 7.9	7.9		2.4 2.4	2.4		6.3 6.2	6.3	
				Bottom	11.0	20.9 20.9	20.9	8.5 8.5	8.5	33.4 33.3	33.3	108.6 108.5	108.6	7.8 7.8	7.8	7.8	2.4 2.4	2.4		5.6 6.6	6.1	
M6	Fine	Calm	13:00	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.9	- -	-	2.3	- -	-	2.5
				Middle	2.2	21.1 20.9	21.0	8.5 8.5	8.5	33.3 33.3	33.3	110.4 110.3	110.4	7.9 7.9	7.9		2.3 2.2	2.3		2.9 2.0	2.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 2 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 2.9 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.1 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.5 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.8 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.5 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.8 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.8 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.2 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 02 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Fine	Calm	9:46	Surface	1.0	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	111.9 112.0	112.0	8.0 8.0	8.0	7.9	2.2 2.2	2.2	2.6	3.0 2.8	2.9	2.8
				Middle	8.5	22.5 22.6	22.5	8.5 8.5	8.5	33.3 33.3	33.3	109.9 110.3	110.1	7.9 7.9	7.9		2.4 2.4	2.4		3.0 2.9	3.0	
				Bottom	16.0	22.4 22.4	22.4	8.5 8.5	8.5	33.4 33.4	33.4	107.7 107.7	107.7	7.7 7.7	7.7	7.7	3.3 3.3	3.3		2.5 2.4	2.5	
C2	Fine	Calm	8:10	Surface	1.1	22.7 22.7	22.7	8.1 8.1	8.1	33.3 33.3	33.3	112.1 112.1	112.1	8.0 8.0	8.0	7.9	2.3 2.3	2.3	2.4	3.1 3.1	3.1	3.3
				Middle	16.1	22.6 22.6	22.6	8.3 8.3	8.3	33.3 33.3	33.3	110.8 110.9	110.9	7.9 7.9	7.9		2.4 2.4	2.4		3.5 3.0	3.3	
				Bottom	31.1	22.5 22.5	22.5	8.4 8.4	8.4	33.3 33.3	33.3	108.9 108.5	108.7	7.8 7.8	7.8	7.8	2.4 2.4	2.4		3.1 3.9	3.5	
G1	Fine	Calm	8:49	Surface	1.1	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	109.1 109.1	109.1	7.8 7.8	7.8	7.8	2.2 2.1	2.1	2.2	3.0 3.4	3.2	3.5
				Middle	3.7	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.7 108.8	108.8	7.7 7.8	7.7		2.2 2.2	2.2		3.4 3.8	3.6	
				Bottom	6.5	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.1 108.1	108.1	7.7 7.7	7.7	7.7	2.2 2.2	2.2		3.3 4.0	3.7	
G2	Fine	Calm	8:30	Surface	1.0	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	108.7 108.7	108.7	7.7 7.7	7.7	7.7	2.2 2.1	2.2	2.4	2.7 2.9	2.8	3.1
				Middle	5.1	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.1 108.1	108.1	7.7 7.7	7.7		2.4 2.5	2.5		3.1 3.0	3.1	
				Bottom	9.0	22.5 22.5	22.5	8.5 8.5	8.5	33.4 33.4	33.4	107.6 107.6	107.6	7.7 7.7	7.7	7.7	2.6 2.6	2.6		3.5 3.3	3.4	
G3	Fine	Calm	8:57	Surface	1.0	22.6 22.7	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.7 109.0	108.9	7.8 7.8	7.8	7.7	2.3 2.2	2.2	2.4	2.2 2.2	2.2	2.8
				Middle	3.7	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.3 108.4	108.4	7.7 7.7	7.7		2.3 2.3	2.3		2.7 3.3	3.0	
				Bottom	6.6	22.6 22.5	22.5	8.5 8.5	8.5	33.3 33.3	33.3	108.1 108.1	108.1	7.7 7.7	7.7	7.7	2.5 2.5	2.5		3.4 3.0	3.2	
G4	Fine	Calm	9:13	Surface	1.1	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	109.6 109.6	109.6	7.8 7.8	7.8	7.8	2.3 2.2	2.2	2.4	3.2 3.4	3.3	4.7
				Middle	3.8	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	109.0 109.1	109.1	7.8 7.8	7.8		2.4 2.5	2.4		4.9 4.8	4.9	
				Bottom	6.5	22.6 22.5	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.7 108.7	108.7	7.8 7.8	7.8	7.8	2.4 2.4	2.4		5.3 6.3	5.8	
M1	Fine	Calm	8:37	Surface	1.1	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	109.0 108.9	109.0	7.8 7.8	7.8	7.7	2.2 2.2	2.2	2.3	4.6 4.3	4.5	5.1
				Middle	3.1	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.4 108.5	108.5	7.7 7.7	7.7		2.2 2.2	2.2		4.8 5.2	5.0	
				Bottom	5.1	22.6 22.5	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.2 108.2	108.2	7.7 7.7	7.7	7.7	2.4 2.5	2.4		6.3 5.6	6.0	
M2	Fine	Calm	8:23	Surface	1.0	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	108.7 108.5	108.6	7.7 7.7	7.7	7.7	2.1 2.0	2.0	2.3	5.0 5.0	5.0	5.4
				Middle	5.2	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.4 108.2	108.3	7.7 7.7	7.7		2.3 2.3	2.3		4.6 5.6	5.1	
				Bottom	9.5	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.3 108.3	108.3	7.7 7.7	7.7	7.7	2.5 2.6	2.5		6.2 5.7	6.0	
M3	Fine	Calm	9:07	Surface	1.1	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	109.7 109.6	109.7	7.8 7.8	7.8	7.8	2.2 2.2	2.2	2.3	4.2 4.2	4.2	5.4
				Middle	3.8	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.5	108.5	7.7 7.7	7.7		2.2 2.3	2.2		5.8 6.1	6.0	
				Bottom	6.5	22.5 22.5	22.5	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.5	108.5	7.7 7.8	7.7	7.7	2.5 2.5	2.5		6.3 5.9	6.1	
M4	Fine	Calm	8:16	Surface	1.1	22.7 22.7	22.7	8.4 8.4	8.4	33.3 33.3	33.3	110.1 110.0	110.1	7.8 7.8	7.8	7.8	2.2 2.3	2.2	2.3	4.4 3.5	4.0	4.5
				Middle	5.1	22.6 22.7	22.6	8.4 8.4	8.4	33.3 33.3	33.3	109.1 109.4	109.3	7.8 7.8	7.8		2.4 2.4	2.4		3.6 4.7	4.2	
				Bottom	9.0	22.6 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	108.5 108.6	108.6	7.7 7.7	7.7	7.7	2.5 2.4	2.4		5.8 4.9	5.4	
M5	Fine	Calm	9:34	Surface	1.1	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	111.0 110.7	110.9	7.9 7.9	7.9	7.9	2.6 2.6	2.6	2.5	4.8 4.3	4.6	5.4
				Middle	5.6	22.5 22.6	22.6	8.5 8.5	8.5	33.3 33.3	33.3	110.6 110.7	110.7	7.9 7.9	7.9		2.4 2.4	2.4		5.2 6.2	5.7	
				Bottom	10.1	22.5 22.5	22.5	8.5 8.5	8.5	33.3 33.4	33.3	109.2 108.8	109.0	7.8 7.8	7.8	7.8	2.5 2.5	2.5		5.4 6.3	5.9	
M6	Fine	Calm	9:23	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.9	- -	-	2.3	- -	-	3.2
				Middle	2.0	22.7 22.7	22.7	8.5 8.5	8.5	33.3 33.3	33.3	110.4 110.6	110.5	7.9 7.9	7.9		2.3 2.3	2.3		3.6 2.8	3.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 2 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 4.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 4.3 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.5 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.8 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.5 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.8 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.9 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.2 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 04 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	9:37	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.4 32.4	32.4	95.3 95.5	95.4	7.1 7.1	7.1	7.1	2.2 2.2	2.2	2.3	5.2 4.4	4.8	4.0
				Middle	9.1	20.6 20.6	20.6	8.5 8.5	8.5	32.5 32.5	32.5	93.6 93.6	93.6	7.0 7.0	7.0		2.3 2.3	2.3		3.2 4.2	3.7	
				Bottom	17.1	20.6 20.5	20.6	8.5 8.5	8.5	32.5 32.5	32.5	92.2 92.1	92.2	6.9 6.9	6.9	6.9	2.3 2.3	2.3		4.0 3.1	3.6	
C2	Sunny	Moderate	8:41	Surface	1.1	20.7 20.7	20.7	8.4 8.4	8.4	32.1 30.2	31.1	95.8 95.7	95.8	7.3 7.2	7.2	7.1	2.2 2.2	2.2	2.3	4.4 3.5	4.0	4.5
				Middle	16.1	20.6 20.6	20.6	8.5 8.5	8.5	32.0 32.0	32.0	92.7 92.7	92.7	7.0 7.0	7.0		2.3 2.3	2.3		3.6 4.5	4.1	
				Bottom	31.1	20.6 20.6	20.6	8.5 8.5	8.5	32.1 32.1	32.1	91.9 91.9	91.9	6.9 6.9	6.9	6.9	2.3 2.3	2.3		5.8 4.9	5.4	
G1	Sunny	Moderate	9:07	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	95.2 95.1	95.2	7.1 7.1	7.1	7.1	3.3 3.3	3.3	3.3	5.8 5.0	5.4	6.3
				Middle	4.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.8 93.9	93.9	7.0 7.0	7.0		3.2 3.3	3.3		6.2 7.0	6.6	
				Bottom	7.1	20.6 20.6	20.6	8.5 8.5	8.5	32.8 32.8	32.8	93.5 93.5	93.5	7.0 7.0	7.0	7.0	3.3 3.2	3.2		6.3 7.3	6.8	
G2	Sunny	Moderate	8:57	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	96.9 96.6	96.8	7.2 7.2	7.2	7.2	2.4 2.4	2.4	2.9	5.6 6.7	6.2	5.6
				Middle	5.1	20.5 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	95.1 95.3	95.2	7.1 7.1	7.1		2.8 2.7	2.7		5.3 6.0	5.7	
				Bottom	9.1	20.4 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	92.4 92.5	92.5	6.9 6.9	6.9	6.9	3.7 3.6	3.7		5.2 5.0	5.1	
G3	Sunny	Moderate	9:10	Surface	1.1	20.5 20.5	20.5	8.5 8.5	8.5	32.6 32.6	32.6	94.1 93.9	94.0	7.0 7.0	7.0	7.0	2.8 2.8	2.8	2.9	5.6 5.1	5.4	6.1
				Middle	4.0	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	92.7 92.9	92.8	6.9 6.9	6.9		2.5 2.4	2.4		5.7 6.0	5.9	
				Bottom	7.1	20.4 20.4	20.4	8.5 8.5	8.5	32.8 32.8	32.8	92.2 92.1	92.2	6.9 6.9	6.9	6.9	3.5 3.5	3.5		7.4 6.6	7.0	
G4	Sunny	Moderate	9:21	Surface	1.1	20.7 20.7	20.7	8.6 8.6	8.6	32.8 32.8	32.8	95.1 95.0	95.1	7.1 7.1	7.1	7.1	2.6 2.6	2.6	2.8	4.7 4.5	4.6	5.9
				Middle	4.2	20.6 20.6	20.6	8.6 8.6	8.6	32.8 32.8	32.8	94.0 94.3	94.2	7.0 7.0	7.0		2.7 2.6	2.6		6.7 5.9	6.3	
				Bottom	7.2	20.4 20.4	20.4	8.5 8.5	8.5	32.8 32.8	32.8	92.3 92.2	92.3	6.9 6.9	6.9	6.9	3.1 3.2	3.1		6.4 7.4	6.9	
M1	Sunny	Moderate	9:01	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	94.7 94.5	94.6	7.1 7.1	7.1	7.0	3.1 3.1	3.1	3.3	6.8 7.6	7.2	6.5
				Middle	3.0	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.1 92.9	93.0	7.0 6.9	6.9		3.5 3.6	3.5		7.5 6.4	7.0	
				Bottom	5.0	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.5 93.3	93.4	7.0 7.0	7.0	7.0	3.3 3.3	3.3		5.9 5.0	5.5	
M2	Sunny	Moderate	8:53	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.7 32.7	32.7	98.7 98.6	98.7	7.4 7.3	7.3	7.3	2.0 2.0	2.0	2.6	6.8 6.8	6.8	5.9
				Middle	6.1	20.7 20.7	20.7	8.5 8.5	8.5	32.7 32.7	32.7	96.9 96.9	96.9	7.2 7.2	7.2		2.2 2.2	2.2		5.6 5.7	5.7	
				Bottom	11.0	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	94.7 94.5	94.6	7.1 7.1	7.1	7.1	3.4 3.5	3.4		5.4 5.2	5.3	
M3	Sunny	Moderate	9:17	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.5 32.6	32.5	92.5 92.5	92.5	6.9 6.9	6.9	6.9	2.9 2.9	2.9	3.3	4.9 4.6	4.8	5.4
				Middle	4.1	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	92.1 92.0	92.1	6.9 6.9	6.9		3.1 3.1	3.1		5.4 5.7	5.6	
				Bottom	7.1	20.5 20.5	20.5	8.5 8.5	8.5	32.8 32.8	32.8	91.4 91.2	91.3	6.8 6.8	6.8	6.8	3.8 3.9	3.8		5.5 6.2	5.9	
M4	Sunny	Moderate	8:48	Surface	1.0	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	96.9 96.9	96.9	7.2 7.2	7.2	7.2	2.2 2.2	2.2	2.5	5.1 5.6	5.4	5.2
				Middle	4.9	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	95.6 95.6	95.6	7.1 7.1	7.1		2.5 2.5	2.5		5.1 5.3	5.2	
				Bottom	9.1	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	95.3 95.3	95.3	7.1 7.1	7.1	7.1	2.7 2.7	2.7		5.0 4.9	5.0	
M5	Sunny	Moderate	9:32	Surface	1.0	20.7 20.7	20.7	8.5 8.5	8.5	32.3 32.3	32.3	95.7 95.6	95.7	7.1 7.1	7.1	7.1	2.2 2.1	2.2	2.2	7.1 6.8	7.0	7.2
				Middle	6.1	20.6 20.6	20.6	8.5 8.5	8.5	32.3 32.3	32.3	94.6 94.8	94.7	7.1 7.1	7.1		2.2 2.3	2.2		7.3 7.0	7.2	
				Bottom	11.1	20.6 20.6	20.6	8.5 8.5	8.5	32.4 32.4	32.4	93.9 92.9	93.4	7.0 7.0	7.0	7.0	2.2 2.2	2.2		8.0 7.2	7.6	
M6	Sunny	Moderate	9:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.2	- -	-	2.3	- -	-	6.9
				Middle	2.2	20.6 20.6	20.6	8.5 8.5	8.5	32.8 32.8	32.8	96.9 96.8	96.9	7.2 7.2	7.2		2.3 2.3	2.3		7.3 6.4	6.9	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 4 December 2020 (Mid-Ebb Tide)

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 and 4)	**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 ***C2: 2.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.7 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.7 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.1 mg/L***
	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 ***C2: 6.4 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 7.0 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 04 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	15:12	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.4 32.4	32.4	95.1 95.8	95.5	7.1 7.1	7.1	7.0	2.1 2.1	2.1	2.2	5.2 4.2	4.7	5.9
				Middle	9.1	20.6 20.6	20.6	8.5 8.5	8.5	32.5 32.5	32.5	93.3 93.4	93.4	7.0 7.0	7.0		2.2 2.2	2.2		4.6 5.9	5.3	
				Bottom	17.0	20.5 20.5	20.5	8.5 8.5	8.5	32.5 32.5	32.5	91.5 91.6	91.6	6.8 6.8	6.8	6.8	2.2 2.2	2.2		7.4 8.2	7.8	
C2	Sunny	Moderate	14:10	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.3 32.3	32.3	94.8 95.0	94.9	7.1 7.1	7.1	7.0	2.2 2.2	2.2	2.3	5.8 6.0	5.9	6.3
				Middle	16.1	20.6 20.6	20.6	8.5 8.5	8.5	32.2 32.2	32.2	91.9 91.8	91.9	6.9 6.9	6.9		2.3 2.4	2.3		6.6 6.1	6.4	
				Bottom	31.0	20.6 20.6	20.6	8.5 8.5	8.5	32.1 32.2	32.1	91.4 91.5	91.5	6.8 6.9	6.8	6.8	2.2 2.3	2.3		6.7 6.6	6.7	
G1	Sunny	Moderate	14:36	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	94.5 94.3	94.4	7.1 7.0	7.0	7.0	3.2 3.3	3.3	3.5	5.7 6.0	5.9	6.4
				Middle	4.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.4 93.4	93.4	7.0 7.0	7.0		3.4 3.4	3.4		5.8 6.6	6.2	
				Bottom	7.2	20.6 20.5	20.6	8.5 8.5	8.5	32.8 32.8	32.8	92.9 92.8	92.9	6.9 6.9	6.9	6.9	3.8 3.7	3.7		7.6 6.9	7.3	
G2	Sunny	Moderate	14:26	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	96.2 96.1	96.2	7.2 7.2	7.2	7.1	2.4 2.4	2.4	2.8	7.8 6.9	7.4	6.5
				Middle	5.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	95.0 95.3	95.2	7.1 7.1	7.1		2.6 2.5	2.6		7.3 6.5	6.9	
				Bottom	9.1	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	92.6 93.0	92.8	6.9 7.0	6.9	6.9	3.3 3.3	3.3		5.7 4.9	5.3	
G3	Sunny	Moderate	14:42	Surface	1.0	20.5 20.5	20.5	8.5 8.5	8.5	32.6 32.6	32.6	93.8 93.7	93.8	7.0 7.0	7.0	6.9	3.4 3.5	3.5	3.7	5.5 5.1	5.3	6.1
				Middle	4.1	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	91.9 92.0	92.0	6.9 6.9	6.9		3.7 3.6	3.6		5.2 5.9	5.6	
				Bottom	7.1	20.5 20.5	20.5	8.5 8.5	8.5	32.8 32.8	32.8	91.9 91.8	91.9	6.9 6.9	6.9	6.9	4.1 4.0	4.0		7.2 7.4	7.3	
G4	Sunny	Moderate	14:53	Surface	1.0	20.7 20.7	20.7	8.5 8.6	8.6	32.8 32.8	32.8	94.9 94.7	94.8	7.1 7.1	7.1	7.0	2.7 2.6	2.6	2.7	6.7 5.8	6.3	4.7
				Middle	4.2	20.5 20.5	20.5	8.6 8.6	8.6	32.8 32.8	32.8	93.2 93.3	93.3	7.0 7.0	7.0		2.7 2.6	2.7		3.7 4.6	4.2	
				Bottom	7.1	20.4 20.4	20.4	8.6 8.5	8.6	32.8 32.8	32.8	92.1 92.0	92.1	6.9 6.9	6.9	6.9	2.8 2.8	2.8		3.3 4.3	3.8	
M1	Sunny	Moderate	14:31	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	94.5 94.3	94.4	7.1 7.0	7.0	7.0	3.2 3.2	3.2	3.1	3.7 4.4	4.1	5.9
				Middle	3.0	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.2 92.9	93.1	7.0 6.9	6.9		3.0 3.0	3.0		6.1 6.9	6.5	
				Bottom	5.0	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	93.2 93.2	93.2	7.0 7.0	7.0	7.0	3.1 3.2	3.2		7.7 6.7	7.2	
M2	Sunny	Moderate	14:21	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.7 32.7	32.7	98.4 98.3	98.4	7.3 7.3	7.3	7.2	2.0 2.0	2.0	2.4	4.9 4.1	4.5	6.1
				Middle	6.1	20.7 20.7	20.7	8.5 8.5	8.5	32.7 32.7	32.7	96.3 96.4	96.4	7.2 7.2	7.2		2.2 2.2	2.2		6.2 7.0	6.6	
				Bottom	11.0	20.6 20.6	20.6	8.5 8.5	8.5	32.7 32.7	32.7	94.4 94.2	94.3	7.0 7.0	7.0	7.0	3.0 3.1	3.0		7.4 7.2	7.3	
M3	Sunny	Moderate	14:49	Surface	1.1	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	90.6 92.1	91.4	6.8 6.9	6.8	6.8	3.1 3.0	3.1	3.6	4.8 5.0	4.9	4.6
				Middle	4.1	20.5 20.5	20.5	8.5 8.5	8.5	32.7 32.7	32.7	91.4 91.4	91.4	6.8 6.8	6.8		3.4 3.4	3.4		4.5 4.6	4.6	
				Bottom	7.0	20.5 20.5	20.5	8.5 8.5	8.5	32.8 32.8	32.8	90.7 90.7	90.7	6.8 6.8	6.8	6.8	4.3 4.3	4.3		4.5 4.1	4.3	
M4	Sunny	Moderate	14:16	Surface	1.0	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	96.2 96.2	96.2	7.2 7.2	7.2	7.1	2.2 2.2	2.2	2.4	4.7 5.2	5.0	5.9
				Middle	5.0	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	95.1 95.1	95.1	7.1 7.1	7.1		2.5 2.6	2.5		6.6 5.8	6.2	
				Bottom	9.1	20.6 20.6	20.6	8.5 8.5	8.5	32.6 32.6	32.6	94.8 94.9	94.9	7.1 7.1	7.1	7.1	2.5 2.5	2.5		7.0 6.0	6.5	
M5	Sunny	Moderate	15:06	Surface	1.1	20.7 20.7	20.7	8.5 8.5	8.5	32.3 32.3	32.3	96.6 95.0	95.8	7.2 7.1	7.2	7.1	2.2 2.1	2.1	2.2	5.4 5.7	5.6	6.2
				Middle	6.1	20.6 20.6	20.6	8.5 8.5	8.5	32.4 32.4	32.4	93.7 93.9	93.8	7.0 7.0	7.0		2.2 2.3	2.2		5.2 6.0	5.6	
				Bottom	11.1	20.6 20.6	20.6	8.5 8.5	8.5	32.4 32.4	32.4	92.8 92.6	92.7	6.9 6.9	6.9	6.9	2.3 2.3	2.3		6.9 7.9	7.4	
M6	Sunny	Moderate	14:59	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.2	- -	-	2.4	- -	-	8.6
				Middle	2.2	20.6 20.7	20.6	8.5 8.5	8.5	32.8 32.8	32.8	96.2 96.2	96.2	7.2 7.2	7.2		2.4 2.4	2.4		9.0 8.2	8.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 4 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.7 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 5.6 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 5.6 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.1 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 9.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 10.1 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 07 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Fine	Moderate	15:53	Surface	1.1	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	105.9 105.9	105.9	7.7 7.7	7.7	7.7	1.7 1.6	1.6	1.7	3.4 3.9	3.7	3.5
				Middle	8.6	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.8 105.9	105.9	7.7 7.7	7.7		1.6 1.7	1.7		3.8 3.2	3.5	
				Bottom	16.1	21.6 21.5	21.5	8.6 8.6	8.6	33.4 33.4	33.4	105.2 105.1	105.2	7.6 7.6	7.6	7.6	1.9 1.9	1.9		3.0 3.8	3.4	
C2	Fine	Moderate	14:21	Surface	1.0	21.7 21.7	21.7	9.2 9.2	9.2	33.4 33.4	33.4	106.3 106.4	106.4	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.5	2.9 3.6	3.3	3.6
				Middle	16.0	21.7 21.7	21.7	9.1 9.1	9.1	33.4 33.4	33.4	106.3 106.3	106.3	7.7 7.7	7.7		1.4 1.5	1.4		3.5 4.0	3.8	
				Bottom	31.1	21.7 21.7	21.7	9.1 9.1	9.1	33.4 33.4	33.4	106.1 106.0	106.1	7.7 7.7	7.7	7.7	1.5 1.5	1.5		3.4 4.1	3.8	
G1	Fine	Moderate	14:59	Surface	1.1	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.2 106.2	106.2	7.7 7.7	7.7	7.7	1.6 1.7	1.6	1.6	3.5 2.7	3.1	3.8
				Middle	3.8	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.0 106.0	106.0	7.7 7.7	7.7		1.6 1.6	1.6		3.7 4.2	4.0	
				Bottom	6.5	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.6 105.6	105.6	7.7 7.7	7.7	7.7	1.7 1.7	1.7		4.0 4.7	4.4	
G2	Fine	Moderate	14:40	Surface	1.1	21.7 21.7	21.7	8.7 8.7	8.7	33.4 33.4	33.4	106.4 106.5	106.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.7	3.2 3.5	3.4	3.6
				Middle	5.1	21.7 21.7	21.7	8.7 8.7	8.7	33.4 33.4	33.4	106.3 106.3	106.3	7.7 7.7	7.7		1.6 1.6	1.6		3.2 3.6	3.4	
				Bottom	9.0	21.6 21.6	21.6	8.7 8.7	8.7	33.4 33.4	33.4	104.8 104.8	104.8	7.6 7.6	7.6	7.6	1.9 1.8	1.8		4.2 4.0	4.1	
G3	Fine	Moderate	15:05	Surface	1.0	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.4 106.5	106.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.7	3.8 3.5	3.7	3.4
				Middle	3.7	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	106.0 106.1	106.1	7.7 7.7	7.7		1.7 1.7	1.7		3.2 3.6	3.4	
				Bottom	6.6	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.7 105.6	105.7	7.7 7.7	7.7	7.7	1.8 1.8	1.8		2.8 3.4	3.1	
G4	Fine	Moderate	15:22	Surface	1.1	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	106.0 106.2	106.1	7.7 7.7	7.7	7.7	1.7 1.7	1.7	1.7	3.9 3.0	3.5	4.1
				Middle	3.7	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	106.1 106.1	106.1	7.7 7.7	7.7		1.7 1.7	1.7		4.0 4.7	4.4	
				Bottom	6.6	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.8 105.7	105.8	7.7 7.7	7.7	7.7	1.7 1.8	1.8		4.1 4.9	4.5	
M1	Fine	Moderate	14:47	Surface	1.0	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.4 106.5	106.5	7.7 7.7	7.7	7.7	1.4 1.4	1.4	1.6	3.0 3.3	3.2	3.4
				Middle	3.1	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.1 106.1	106.1	7.7 7.7	7.7		1.6 1.6	1.6		3.0 3.6	3.3	
				Bottom	5.1	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.6 105.6	105.6	7.7 7.7	7.7	7.7	1.8 1.7	1.8		3.8 3.8	3.8	
M2	Fine	Moderate	14:33	Surface	1.0	21.7 21.7	21.7	8.8 8.8	8.8	33.4 33.4	33.4	106.2 106.4	106.3	7.7 7.7	7.7	7.7	1.6 1.5	1.5	1.6	3.8 4.2	4.0	3.6
				Middle	5.2	21.6 21.6	21.6	8.8 8.8	8.8	33.4 33.4	33.4	105.9 105.9	105.9	7.7 7.7	7.7		1.6 1.6	1.6		3.7 3.2	3.5	
				Bottom	9.5	21.6 21.6	21.6	8.8 8.8	8.8	33.4 33.4	33.4	105.5 105.3	105.4	7.7 7.6	7.6	7.6	1.7 1.8	1.7		3.0 3.7	3.4	
M3	Fine	Moderate	15:15	Surface	1.0	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	106.4 106.4	106.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.7	3.8 3.1	3.5	3.2
				Middle	3.8	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.9 106.1	106.0	7.7 7.7	7.7		1.8 1.7	1.8		3.2 3.0	3.1	
				Bottom	6.6	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.6 105.5	105.6	7.7 7.7	7.7	7.7	1.8 1.9	1.8		2.9 3.2	3.1	
M4	Fine	Moderate	14:27	Surface	1.0	21.7 21.7	21.7	8.9 8.9	8.9	33.4 33.4	33.4	106.6 106.6	106.6	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	2.7 3.6	3.2	3.8
				Middle	5.1	21.7 21.7	21.7	8.9 8.9	8.9	33.4 33.4	33.4	106.2 106.3	106.3	7.7 7.7	7.7		1.5 1.5	1.5		4.3 3.6	4.0	
				Bottom	9.1	21.6 21.6	21.6	8.8 8.8	8.8	33.4 33.4	33.4	105.3 105.3	105.3	7.6 7.6	7.6	7.6	1.7 1.7	1.7		4.7 3.7	4.2	
M5	Fine	Moderate	15:41	Surface	1.0	21.7 21.7	21.7	8.6 8.6	8.6	33.4 33.4	33.4	106.3 106.3	106.3	7.7 7.7	7.7	7.7	1.7 1.8	1.8	1.9	4.8 3.9	4.4	4.0
				Middle	5.5	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	105.5 105.5	105.5	7.7 7.7	7.7		1.9 1.9	1.9		4.7 3.8	4.3	
				Bottom	10.0	21.5 21.5	21.5	8.6 8.6	8.6	33.4 33.4	33.4	105.2 105.1	105.2	7.6 7.6	7.6	7.6	2.0 2.0	2.0		3.4 3.2	3.3	
M6	Fine	Moderate	15:32	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.7	- -	-	1.6	- -	-	5.4
				Middle	2.1	21.6 21.6	21.6	8.6 8.6	8.6	33.4 33.4	33.4	106.2 106.3	106.3	7.7 7.7	7.7		1.6 1.6	1.6		4.9 5.8	5.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
***MWQ Monitoring was only conducted on flood tide

Appendix I - Action and Limit Levels for Marine Water Quality on 7 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.2 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.4 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.7 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.7 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.4 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 09 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	9:32	Surface	1.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.5	32.5	101.1 101.4	101.3	7.0 7.0	7.0	6.9	1.6 1.7	1.6	1.5	1.3 1.9	1.6	1.8
				Middle	9.1	21.1 21.2	21.2	8.5 8.5	8.5	32.6 32.6	32.6	100.3 100.4	100.4	6.9 6.9	6.9		1.2 1.2	1.2		2.0 1.3	1.7	
				Bottom	17.1	20.9 20.9	20.9	8.5 8.5	8.5	32.9 32.9	32.9	96.3 96.3	96.3	6.7 6.7	6.7	6.7	1.7 1.7	1.7		2.2 1.8	2.0	
C2	Cloudy	Moderate	8:00	Surface	1.1	21.4 21.4	21.4	8.4 8.4	8.4	32.5 32.5	32.5	103.0 103.0	103.0	7.1 7.1	7.1	6.9	0.6 0.6	0.6	1.5	2.0 1.5	1.8	1.9
				Middle	16.0	20.9 20.9	20.9	8.4 8.4	8.4	32.8 32.8	32.8	97.5 97.7	97.6	6.7 6.8	6.7		1.2 1.2	1.2		1.6 2.0	1.8	
				Bottom	31.1	20.9 20.9	20.9	8.5 8.5	8.5	32.8 32.8	32.8	95.9 96.0	96.0	6.6 6.6	6.6	6.6	3.0 2.5	2.7		2.4 2.1	2.3	
G1	Cloudy	Moderate	8:41	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	101.8 102.0	101.9	7.0 7.0	7.0	7.0	1.4 1.4	1.4	1.1	2.8 2.0	2.4	2.2
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.9 101.9	101.9	7.0 7.0	7.0		0.9 1.0	1.0		2.4 1.9	2.2	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.7 101.7	101.7	7.0 7.0	7.0	7.0	0.9 0.9	0.9		2.2 1.6	1.9	
G2	Cloudy	Moderate	8:21	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.4 102.4	102.4	7.0 7.0	7.0	7.0	1.8 1.8	1.8	1.2	2.0 2.6	2.3	2.0
				Middle	5.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	100.9 100.9	100.9	6.9 6.9	6.9		1.1 1.1	1.1		2.0 1.9	2.0	
				Bottom	9.2	21.1 21.1	21.1	8.5 8.5	8.5	32.7 32.7	32.7	100.0 99.7	99.9	6.9 6.9	6.9	6.9	0.7 0.8	0.8		1.8 1.9	1.9	
G3	Cloudy	Moderate	8:48	Surface	1.0	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.1	102.1	7.0 7.0	7.0	7.0	1.1 1.2	1.1	1.1	2.8 2.0	2.4	2.1
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.8 101.9	101.9	7.0 7.0	7.0		0.9 0.9	0.9		1.9 2.4	2.2	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.5 101.5	101.5	7.0 7.0	7.0	7.0	1.2 1.2	1.2		1.6 1.6	1.6	
G4	Cloudy	Moderate	9:03	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.3 102.3	102.3	7.0 7.0	7.0	7.0	1.3 1.3	1.3	1.0	1.9 1.8	1.9	2.3
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.2	102.2	7.0 7.0	7.0		0.9 1.0	1.0		2.0 2.8	2.4	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.5	101.6	7.0 7.0	7.0	7.0	0.8 0.8	0.8		2.2 2.8	2.5	
M1	Cloudy	Moderate	8:28	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.6 102.6	102.6	7.0 7.0	7.0	7.0	1.6 1.6	1.6	1.2	2.0 2.1	2.1	2.5
				Middle	3.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.5 102.5	102.5	7.0 7.0	7.0		1.5 1.5	1.5		2.2 2.5	2.4	
				Bottom	5.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.9 101.9	101.9	7.0 7.0	7.0	7.0	0.7 0.6	0.6		2.7 3.4	3.1	
M2	Cloudy	Moderate	8:13	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.5 102.5	102.5	7.0 7.0	7.0	7.0	1.6 1.5	1.5	1.6	2.3 2.3	2.3	2.5
				Middle	6.2	21.2 21.2	21.2	8.5 8.5	8.5	32.6 32.6	32.6	101.1 101.2	101.2	7.0 7.0	7.0		1.6 1.6	1.6		2.4 2.2	2.3	
				Bottom	11.1	21.0 21.0	21.0	8.5 8.5	8.5	32.8 32.8	32.8	98.3 98.2	98.3	6.8 6.8	6.8	6.8	1.8 1.9	1.8		3.2 2.8	3.0	
M3	Cloudy	Moderate	8:57	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.2	102.2	7.0 7.0	7.0	7.0	1.6 1.6	1.6	1.3	1.9 1.7	1.8	2.1
				Middle	4.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.3	102.3	7.0 7.0	7.0		1.4 1.4	1.4		1.9 2.5	2.2	
				Bottom	7.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.5 101.5	101.5	7.0 7.0	7.0	7.0	1.0 1.0	1.0		2.0 2.8	2.4	
M4	Cloudy	Moderate	8:07	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.4 102.4	102.4	7.0 7.0	7.0	7.0	1.6 1.6	1.6	1.5	3.6 3.3	3.5	2.7
				Middle	5.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.7 101.8	101.8	7.0 7.0	7.0		1.7 1.7	1.7		2.6 2.2	2.4	
				Bottom	9.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.7	32.6	99.9 99.8	99.9	6.9 6.9	6.9	6.9	1.1 1.1	1.1		2.2 2.0	2.1	
M5	Cloudy	Moderate	9:22	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.1	102.1	7.0 7.0	7.0	7.0	1.5 1.5	1.5	1.2	3.0 4.0	3.5	2.6
				Middle	6.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.6	101.6	7.0 7.0	7.0		1.0 1.0	1.0		2.1 2.8	2.5	
				Bottom	11.0	21.1 21.1	21.1	8.5 8.5	8.5	32.7 32.7	32.7	99.1 99.0	99.1	6.8 6.8	6.8	6.8	1.1 1.1	1.1		2.3 1.4	1.9	
M6	Cloudy	Moderate	9:11	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.0	- -	-	1.5	- -	-	4.0
				Middle	2.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.2	102.2	7.0 7.0	7.0		1.4 1.5	1.5		4.0 3.9	4.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 9 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.3 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.3 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.3 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.7 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.9 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 09 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	14:36	Surface	1.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	102.8 102.9	102.9	7.1 7.1	7.1	7.0	1.5 1.6	1.6	1.4	2.0 1.8	1.9	2.3
				Middle	9.1	20.9 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.8	101.7	7.0 7.0	7.0		1.1 1.1	1.1		2.5 2.3	2.4	
				Bottom	17.1	20.7 20.7	20.7	8.5 8.5	8.5	32.9 32.9	32.9	97.2 97.2	97.2	6.7 6.7	6.7	6.7	1.7 1.7	1.7		2.2 2.8	2.5	
C2	Cloudy	Moderate	13:03	Surface	1.1	21.2 21.2	21.2	8.4 8.4	8.4	32.5 32.5	32.5	104.0 104.0	104.0	7.1 7.1	7.1	7.0	0.5 0.5	0.5	1.5	2.8 2.4	2.6	2.3
				Middle	16.0	20.7 20.7	20.7	8.4 8.4	8.4	32.8 32.8	32.8	99.0 99.1	99.1	6.8 6.8	6.8		1.0 1.0	1.0		2.5 2.7	2.6	
				Bottom	31.1	20.7 20.7	20.7	8.5 8.5	8.5	32.8 32.8	32.8	97.0 97.1	97.1	6.7 6.7	6.7	6.7	3.0 2.9	3.0		1.4 2.0	1.7	
G1	Cloudy	Moderate	13:44	Surface	1.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.2	103.2	7.1 7.1	7.1	7.1	1.3 1.2	1.3	1.0	2.7 2.9	2.8	3.4
				Middle	4.0	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1		0.9 1.0	1.0		3.0 4.0	3.5	
				Bottom	7.0	21.1 21.0	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.6 102.6	102.6	7.1 7.0	7.0	7.0	0.8 0.9	0.9		3.8 4.2	4.0	
G2	Cloudy	Moderate	13:24	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.3 103.3	103.3	7.1 7.1	7.1	7.1	1.7 1.7	1.7	1.1	3.4 2.9	3.2	2.4
				Middle	5.0	21.1 21.0	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.2 102.1	102.2	7.0 7.0	7.0		0.9 0.9	0.9		2.2 2.0	2.1	
				Bottom	9.1	20.9 20.9	20.9	8.5 8.5	8.5	32.6 32.7	32.7	101.5 101.3	101.4	7.0 7.0	7.0	7.0	0.6 0.6	0.6		2.1 1.9	2.0	
G3	Cloudy	Moderate	13:51	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.2 103.3	103.3	7.1 7.1	7.1	7.1	1.2 1.2	1.2	1.1	2.6 1.8	2.2	1.8
				Middle	4.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1		0.9 0.9	0.9		2.0 1.3	1.7	
				Bottom	7.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.5 102.5	102.5	7.0 7.0	7.0	7.0	1.1 1.2	1.2		1.8 1.3	1.6	
G4	Cloudy	Moderate	14:06	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.4 103.5	103.5	7.1 7.1	7.1	7.1	1.2 1.2	1.2	1.0	2.2 1.9	2.1	2.3
				Middle	4.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.3 103.3	103.3	7.1 7.1	7.1		0.9 1.0	1.0		2.2 2.5	2.4	
				Bottom	7.0	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.5 102.5	102.5	7.0 7.0	7.0	7.0	0.8 0.8	0.8		2.3 2.8	2.6	
M1	Cloudy	Moderate	13:31	Surface	1.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.6 103.6	103.6	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.1	2.5 2.2	2.4	2.6
				Middle	3.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.5 103.5	103.5	7.1 7.1	7.1		1.3 1.3	1.3		2.4 2.8	2.6	
				Bottom	5.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1	7.1	0.7 0.6	0.7		2.3 3.2	2.8	
M2	Cloudy	Moderate	13:17	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.5 103.6	103.6	7.1 7.1	7.1	7.1	1.4 1.4	1.4	1.5	3.6 4.0	3.8	2.5
				Middle	6.1	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.4 102.5	102.5	7.0 7.0	7.0		1.5 1.5	1.5		1.6 2.1	1.9	
				Bottom	11.1	20.8 20.7	20.7	8.5 8.5	8.5	32.8 32.8	32.8	98.9 98.8	98.9	6.8 6.8	6.8	6.8	1.8 1.8	1.8		1.6 1.9	1.8	
M3	Cloudy	Moderate	14:00	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.0 103.0	103.0	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.2	2.8 2.7	2.8	2.3
				Middle	4.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.2	103.2	7.1 7.1	7.1		1.2 1.3	1.3		2.4 2.1	2.3	
				Bottom	7.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.6 102.6	102.6	7.1 7.0	7.0	7.0	1.0 0.9	1.0		1.6 2.0	1.8	
M4	Cloudy	Moderate	13:10	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.4 103.4	103.4	7.1 7.1	7.1	7.1	1.6 1.6	1.6	1.4	1.7 2.5	2.1	2.3
				Middle	5.1	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.4 102.5	102.5	7.0 7.0	7.0		1.4 1.5	1.5		1.9 2.6	2.3	
				Bottom	9.2	20.9 20.9	20.9	8.5 8.5	8.5	32.6 32.6	32.6	101.2 101.0	101.1	7.0 7.0	7.0	7.0	1.0 1.0	1.0		2.0 3.0	2.5	
M5	Cloudy	Moderate	14:25	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.2 103.3	103.3	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.1	2.2 1.8	2.0	2.7
				Middle	6.0	21.0 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.7 102.9	102.8	7.1 7.1	7.1		0.9 1.0	1.0		3.2 2.6	2.9	
				Bottom	11.0	20.8 20.8	20.8	8.5 8.5	8.5	32.7 32.7	32.7	99.8 99.6	99.7	6.9 6.9	6.9	6.9	1.0 1.0	1.0		2.7 3.8	3.3	
M6	Cloudy	Moderate	14:14	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.1	- -	-	1.3	- -	-	2.6
				Middle	2.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.1	103.1	7.1 7.1	7.1		1.3 1.4	1.3		2.1 3.0	2.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 9 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.3 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 2.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.3 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 2.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.3 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 11 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	9:07	Surface	1.1	25.1 25.1	25.1	8.7 8.7	8.7	34.2 34.1	34.1	97.6 97.6	97.6	6.6 6.6	6.6	6.6	1.6 1.6	1.6	2.4	2.3 2.6	2.5	2.5
				Middle	9.1	24.7 24.7	24.7	8.7 8.7	8.7	34.7 34.7	34.7	95.2 95.2	95.2	6.5 6.5	6.5		2.2 2.2	2.2		2.2 2.8	2.5	
				Bottom	17.1	24.2 24.2	24.2	8.7 8.7	8.7	35.4 35.4	35.4	90.6 90.6	90.6	6.2 6.2	6.2	6.2	3.3 3.4	3.3		2.9 2.2	2.6	
C2	Sunny	Calm	7:48	Surface	1.1	25.2 25.2	25.2	8.5 8.5	8.5	33.9 33.9	33.9	96.4 96.4	96.4	6.6 6.6	6.6	6.4	1.1 1.1	1.1	2.0	3.9 4.8	4.4	3.6
				Middle	16.0	24.5 24.5	24.5	8.7 8.7	8.7	34.9 34.9	34.9	92.2 92.1	92.2	6.3 6.3	6.3		2.3 2.3	2.3		2.8 3.6	3.2	
				Bottom	31.0	24.4 24.4	24.4	8.7 8.7	8.7	35.1 35.1	35.1	91.6 91.5	91.6	6.3 6.3	6.3	6.3	2.6 2.6	2.6		3.4 2.8	3.1	
G1	Sunny	Calm	8:19	Surface	1.1	25.4 25.3	25.3	8.4 8.4	8.4	34.1 34.1	34.1	99.9 100.1	100.0	6.8 6.8	6.8	6.8	0.8 0.8	0.8	0.7	3.8 3.0	3.4	3.0
				Middle	4.1	25.3 25.3	25.3	8.4 8.4	8.4	34.3 34.3	34.3	100.0 100.1	100.1	6.8 6.8	6.8		0.2 0.2	0.2		3.8 2.8	3.3	
				Bottom	7.0	24.8 24.8	24.8	8.4 8.4	8.4	34.6 34.7	34.6	98.2 98.0	98.1	6.7 6.7	6.7	6.7	1.0 1.0	1.0		2.5 2.2	2.4	
G2	Sunny	Calm	8:05	Surface	1.1	25.1 25.1	25.1	8.2 8.2	8.2	34.3 34.3	34.3	98.7 98.8	98.8	6.7 6.7	6.7	6.7	1.6 1.7	1.6	1.8	2.9 2.7	2.8	2.6
				Middle	5.1	25.0 25.0	25.0	8.2 8.2	8.2	34.3 34.3	34.3	99.0 99.0	99.0	6.7 6.7	6.7		1.6 1.6	1.6		2.8 2.2	2.5	
				Bottom	9.0	24.4 24.4	24.4	8.3 8.3	8.3	35.2 35.2	35.2	95.3 95.3	95.3	6.5 6.5	6.5	6.5	2.1 2.1	2.1		2.5 2.2	2.4	
G3	Sunny	Calm	8:25	Surface	1.1	25.6 25.6	25.6	8.0 8.0	8.0	34.0 34.0	34.0	100.5 100.6	100.6	6.8 6.8	6.8	6.8	1.6 1.5	1.6	1.6	2.9 3.4	3.2	2.8
				Middle	4.1	25.0 25.0	25.0	8.1 8.1	8.1	34.5 34.6	34.5	99.1 98.9	99.0	6.7 6.7	6.7		1.5 1.5	1.5		3.0 2.3	2.7	
				Bottom	7.1	24.6 24.5	24.6	8.1 8.1	8.1	34.9 35.0	35.0	96.5 95.9	96.2	6.6 6.6	6.6	6.6	1.8 1.8	1.8		2.7 2.4	2.6	
G4	Sunny	Calm	8:40	Surface	1.1	25.6 25.6	25.6	8.8 8.8	8.8	34.0 34.0	34.0	102.1 102.2	102.2	6.9 6.9	6.9	6.8	0.9 0.9	0.9	1.3	2.5 2.0	2.3	2.6
				Middle	4.0	24.9 24.9	24.9	8.8 8.8	8.8	34.5 34.5	34.5	99.8 99.9	99.9	6.8 6.8	6.8		1.8 1.9	1.9		2.7 2.4	2.6	
				Bottom	7.0	24.4 24.4	24.4	8.8 8.8	8.8	35.1 35.2	35.1	95.8 95.7	95.8	6.6 6.5	6.5	6.5	1.2 1.2	1.2		3.5 2.6	3.1	
M1	Sunny	Calm	8:11	Surface	1.0	26.0 25.9	25.9	8.1 8.1	8.1	33.9 33.9	33.9	99.0 98.9	99.0	6.6 6.6	6.6	6.7	1.4 1.4	1.4	1.5	1.9 2.2	2.1	2.5
				Middle	3.1	25.5 25.5	25.5	8.1 8.1	8.1	34.1 34.1	34.1	98.8 98.9	98.9	6.7 6.7	6.7		1.4 1.4	1.4		2.6 2.5	2.6	
				Bottom	5.1	25.2 25.3	25.2	8.1 8.1	8.1	34.3 34.3	34.3	98.8 98.9	98.9	6.7 6.7	6.7	6.7	1.6 1.6	1.6		3.0 2.5	2.8	
M2	Sunny	Calm	7:57	Surface	1.1	24.9 24.9	24.9	8.2 8.2	8.2	34.5 34.5	34.5	97.2 97.1	97.2	6.6 6.6	6.6	6.6	1.6 1.6	1.6	1.7	2.3 1.5	1.9	2.1
				Middle	6.1	24.8 24.8	24.8	8.2 8.2	8.2	34.5 34.5	34.5	96.8 96.9	96.9	6.6 6.6	6.6		2.0 1.9	1.9		2.5 1.6	2.1	
				Bottom	11.0	24.6 24.6	24.6	8.2 8.2	8.2	34.8 34.8	34.8	96.4 96.4	96.4	6.6 6.6	6.6	6.6	1.6 1.6	1.6		2.6 2.1	2.4	
M3	Sunny	Calm	8:32	Surface	1.0	25.6 25.4	25.5	8.8 8.8	8.8	34.1 34.2	34.2	99.2 99.3	99.3	6.7 6.7	6.7	6.6	1.9 1.9	1.9	1.7	3.3 2.4	2.9	3.2
				Middle	4.1	24.7 24.7	24.7	8.9 8.9	8.9	34.8 34.8	34.8	96.0 95.9	96.0	6.5 6.5	6.5		1.7 1.8	1.7		3.2 3.0	3.1	
				Bottom	7.1	24.4 24.4	24.4	8.9 8.9	8.9	35.1 35.1	35.1	94.0 93.8	93.9	6.4 6.4	6.4	6.4	1.3 1.3	1.3		4.0 3.5	3.8	
M4	Sunny	Calm	7:55	Surface	1.1	24.7 24.7	24.7	8.3 8.3	8.3	34.7 34.6	34.7	93.5 93.7	93.6	6.4 6.4	6.4	6.3	2.2 2.2	2.2	2.8	2.4 2.2	2.3	2.6
				Middle	5.0	24.3 24.3	24.3	8.2 8.2	8.2	35.2 35.2	35.2	91.6 91.6	91.6	6.3 6.3	6.3		3.0 3.0	3.0		2.8 2.2	2.5	
				Bottom	9.0	24.3 24.3	24.3	8.2 8.2	8.2	35.3 35.3	35.3	91.3 91.3	91.3	6.3 6.3	6.3	6.3	3.3 3.3	3.3		2.6 3.2	2.9	
M5	Sunny	Calm	8:58	Surface	1.1	26.3 26.3	26.3	8.7 8.7	8.7	33.4 33.4	33.4	108.7 109.0	108.9	7.3 7.3	7.3	7.1	1.2 1.2	1.2	1.0	2.3 2.7	2.5	2.4
				Middle	6.1	25.2 25.2	25.2	8.7 8.7	8.7	34.0 34.0	34.0	100.7 100.6	100.7	6.8 6.8	6.8		1.2 1.2	1.2		2.7 2.4	2.6	
				Bottom	11.1	24.9 24.9	24.9	8.7 8.7	8.7	34.3 34.3	34.3	98.4 98.4	98.4	6.7 6.7	6.7	6.7	0.7 0.7	0.7		2.3 2.0	2.2	
M6	Sunny	Calm	8:50	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.9	- -	-	1.3	- -	-	2.2
				Middle	2.1	25.3 25.3	25.3	8.7 8.7	8.7	33.7 33.8	33.8	101.8 101.6	101.7	6.9 6.9	6.9		1.3 1.3	1.3		2.1 2.2	2.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 11 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.1 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.3 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 5.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.7 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 5.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.7 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.7 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.0 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 11 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	15:26	Surface	1.1	25.1 25.1	25.1	8.7 8.7	8.7	34.1 34.1	34.1	97.6 97.7	97.7	6.6 6.6	6.6	6.6	1.6 1.6	1.6	2.4	3.1 2.3	2.7	3.0
				Middle	9.0	24.7 24.7	24.7	8.7 8.7	8.7	34.7 34.7	34.7	95.2 95.2	95.2	6.5 6.5	6.5		2.2 2.2	2.2		3.2 2.6	2.9	
				Bottom	17.1	24.2 24.2	24.2	8.8 8.8	8.8	35.4 35.5	35.4	90.5 90.5	90.5	6.2 6.2	6.2	6.2	3.4 3.5	3.5		3.1 3.5	3.3	
C2	Sunny	Calm	14:02	Surface	1.0	25.2 25.2	25.2	8.5 8.5	8.5	33.9 33.8	33.8	96.5 96.5	96.5	6.6 6.6	6.6	6.4	1.1 1.1	1.1	2.1	3.2 2.9	3.1	2.6
				Middle	16.0	24.5 24.5	24.5	8.7 8.7	8.7	34.9 35.0	35.0	92.0 92.0	92.0	6.3 6.3	6.3		2.4 2.3	2.3		2.7 2.3	2.5	
				Bottom	31.1	24.4 24.4	24.4	8.7 8.7	8.7	35.2 35.2	35.2	91.4 91.4	91.4	6.3 6.3	6.3	6.3	2.7 2.8	2.8		2.6 2.1	2.4	
G1	Sunny	Calm	14:35	Surface	1.1	25.3 25.3	25.3	8.4 8.4	8.4	34.1 34.1	34.1	100.4 100.4	100.4	6.8 6.8	6.8	6.8	0.8 0.8	0.8	0.8	2.8 2.7	2.8	2.8
				Middle	4.1	25.3 25.3	25.3	8.4 8.4	8.4	34.3 34.3	34.3	100.1 100.1	100.1	6.8 6.8	6.8		0.2 0.2	0.2		2.8 2.8	2.8	
				Bottom	7.0	24.8 24.8	24.8	8.4 8.4	8.4	34.7 34.7	34.7	97.9 97.9	97.9	6.7 6.7	6.7	6.7	1.3 1.4	1.4		2.9 2.9	2.9	
G2	Sunny	Calm	14:20	Surface	1.0	25.1 25.1	25.1	8.2 8.2	8.2	34.3 34.3	34.3	98.9 98.9	98.9	6.7 6.7	6.7	6.7	1.7 1.8	1.8	1.8	3.1 2.3	2.7	3.0
				Middle	5.0	25.0 25.0	25.0	8.3 8.3	8.3	34.3 34.3	34.3	99.1 99.1	99.1	6.7 6.7	6.7		1.6 1.6	1.6		2.9 3.2	3.1	
				Bottom	9.0	24.4 24.4	24.4	8.3 8.3	8.3	35.2 35.2	35.2	95.2 95.2	95.2	6.5 6.5	6.5	6.5	2.1 2.1	2.1		2.9 3.4	3.2	
G3	Sunny	Calm	14:43	Surface	1.1	25.6 25.6	25.6	8.0 8.0	8.0	34.0 34.0	34.0	100.7 100.9	100.8	6.8 6.8	6.8	6.8	1.5 1.5	1.5	1.4	2.7 3.0	2.9	3.3
				Middle	4.1	24.9 24.9	24.9	8.1 8.1	8.1	34.6 34.6	34.6	98.7 98.6	98.7	6.7 6.7	6.7		1.5 1.5	1.5		2.7 3.5	3.1	
				Bottom	7.1	24.5 24.5	24.5	8.1 8.1	8.1	35.1 35.1	35.1	95.5 95.2	95.4	6.5 6.5	6.5	6.5	1.0 1.1	1.1		3.6 4.4	4.0	
G4	Sunny	Calm	15:03	Surface	1.0	25.6 25.6	25.6	8.8 8.8	8.8	34.0 34.0	34.0	102.2 102.2	102.2	6.9 6.9	6.9	6.8	0.9 0.9	0.9	1.3	3.2 2.6	2.9	3.1
				Middle	4.0	24.9 24.9	24.9	8.8 8.8	8.8	34.5 34.5	34.5	99.9 99.9	99.9	6.8 6.8	6.8		1.9 1.9	1.9		3.1 3.3	3.2	
				Bottom	7.1	24.4 24.4	24.4	8.8 8.8	8.8	35.1 35.1	35.1	95.6 95.6	95.6	6.5 6.5	6.5	6.5	1.0 1.0	1.0		3.0 3.6	3.3	
M1	Sunny	Calm	14:28	Surface	1.0	25.9 25.9	25.9	8.1 8.1	8.1	33.9 33.9	33.9	98.9 98.9	98.9	6.6 6.6	6.6	6.7	1.4 1.4	1.4	1.5	4.4 3.5	4.0	3.5
				Middle	3.0	25.5 25.5	25.5	8.1 8.1	8.1	34.1 34.1	34.1	98.9 98.9	98.9	6.7 6.7	6.7		1.4 1.4	1.4		4.0 3.4	3.7	
				Bottom	5.1	25.3 25.3	25.3	8.1 8.1	8.1	34.3 34.3	34.3	98.9 98.8	98.9	6.7 6.7	6.7	6.7	1.6 1.6	1.6		2.8 3.0	2.9	
M2	Sunny	Calm	14:13	Surface	1.1	24.9 24.9	24.9	8.2 8.2	8.2	34.5 34.5	34.5	97.0 96.9	97.0	6.6 6.6	6.6	6.6	1.5 1.5	1.5	1.7	2.5 2.1	2.3	2.8
				Middle	6.1	24.8 24.8	24.8	8.2 8.2	8.2	34.5 34.5	34.5	96.9 96.9	96.9	6.6 6.6	6.6		2.0 2.1	2.0		2.8 3.3	3.1	
				Bottom	11.0	24.6 24.6	24.6	8.2 8.2	8.2	34.8 34.8	34.8	96.3 96.3	96.3	6.6 6.6	6.6	6.6	1.6 1.6	1.6		3.4 2.6	3.0	
M3	Sunny	Calm	14:56	Surface	1.0	25.4 25.4	25.4	8.8 8.8	8.8	34.3 34.3	34.3	99.4 99.5	99.5	6.7 6.7	6.7	6.6	2.0 1.9	1.9	1.7	2.3 3.1	2.7	3.2
				Middle	4.0	24.7 24.7	24.7	8.9 8.9	8.9	34.8 34.8	34.8	95.9 95.9	95.9	6.5 6.5	6.5		1.8 1.8	1.8		2.9 3.8	3.4	
				Bottom	7.0	24.4 24.4	24.4	8.9 8.9	8.9	35.1 35.1	35.1	93.4 93.4	93.4	6.4 6.4	6.4	6.4	1.2 1.2	1.2		3.9 3.0	3.5	
M4	Sunny	Calm	14:08	Surface	1.0	24.7 24.8	24.7	8.3 8.2	8.2	34.6 34.6	34.6	93.8 93.9	93.9	6.4 6.4	6.4	6.3	2.1 2.1	2.1	2.7	3.3 2.6	3.0	2.7
				Middle	5.0	24.3 24.3	24.3	8.2 8.2	8.2	35.2 35.2	35.2	91.6 91.6	91.6	6.3 6.3	6.3		2.9 2.9	2.9		2.8 2.5	2.7	
				Bottom	9.0	24.3 24.3	24.3	8.2 8.2	8.2	35.3 35.3	35.3	91.3 91.3	91.3	6.3 6.3	6.3	6.3	3.2 3.2	3.2		2.7 2.5	2.6	
M5	Sunny	Calm	15:16	Surface	1.0	26.2 26.2	26.2	8.7 8.7	8.7	33.4 33.4	33.4	109.4 110.3	109.9	7.3 7.4	7.4	7.1	1.2 1.2	1.2	1.0	3.3 2.8	3.1	2.9
				Middle	6.1	25.2 25.2	25.2	8.7 8.7	8.7	34.0 34.1	34.0	100.4 100.2	100.3	6.8 6.8	6.8		1.2 1.3	1.3		3.1 2.5	2.8	
				Bottom	11.0	24.9 24.9	24.9	8.7 8.7	8.7	34.3 34.3	34.3	98.4 98.4	98.4	6.7 6.7	6.7	6.7	0.7 0.7	0.7		3.0 2.5	2.8	
M6	Sunny	Calm	15:09	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.8	- -	-	1.5	- -	-	3.4
				Middle	2.1	25.3 25.3	25.3	8.7 8.7	8.7	34.1 34.1	34.1	100.2 100.0	100.1	6.8 6.8	6.8		1.5 1.5	1.5		2.9 3.8	3.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 11 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 4.1 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 4.5 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.5 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.3 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 14 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	12:31	Surface	1.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.6	97.6	7.2 7.2	7.2	7.2	2.1 2.0	2.0	2.1	2.7 2.6	2.7	2.3
				Middle	8.5	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.4	97.4	7.2 7.2	7.2		2.1 2.1	2.1		2.5 2.0	2.3	
				Bottom	16.1	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	96.9 96.9	96.9	7.1 7.1	7.1	7.1	2.3 2.2	2.2		1.6 2.3	2.0	
C2	Sunny	Calm	11:03	Surface	1.1	21.0 21.0	21.0	8.3 8.3	8.3	33.0 33.0	33.0	98.1 98.1	98.1	7.2 7.2	7.2	7.2	2.3 2.4	2.3	2.4	2.2 1.6	1.9	2.3
				Middle	16.0	21.0 21.0	21.0	8.6 8.6	8.6	33.0 33.0	33.0	97.0 97.1	97.1	7.1 7.1	7.1		2.5 2.5	2.5		2.7 2.2	2.5	
				Bottom	31.0	21.0 21.0	21.0	8.7 8.7	8.7	33.0 33.0	33.0	96.7 96.7	96.7	7.1 7.1	7.1	7.1	2.5 2.4	2.5		2.2 2.9	2.6	
G1	Sunny	Calm	11:41	Surface	1.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.7 97.7	97.7	7.2 7.2	7.2	7.2	2.3 2.3	2.3	2.2	2.7 2.6	2.7	2.4
				Middle	3.7	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.6	97.6	7.2 7.2	7.2		2.2 2.2	2.2		2.5 2.7	2.6	
				Bottom	6.6	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.2 97.1	97.2	7.1 7.1	7.1	7.1	2.1 2.1	2.1		1.8 2.2	2.0	
G2	Sunny	Calm	11:24	Surface	1.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.3 2.3	2.3	2.3	2.8 2.2	2.5	2.6
				Middle	5.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.4	97.4	7.2 7.2	7.2		2.3 2.3	2.3		3.0 2.2	2.6	
				Bottom	9.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.1	97.1	7.1 7.1	7.1	7.1	2.3 2.2	2.2		2.2 3.1	2.7	
G3	Sunny	Calm	11:47	Surface	1.1	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.7	97.7	7.2 7.2	7.2	7.2	2.3 2.3	2.3	2.2	2.0 2.4	2.2	2.5
				Middle	3.7	21.1 21.0	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2		2.2 2.2	2.2		2.3 2.5	2.4	
				Bottom	6.6	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.2 97.2	97.2	7.1 7.1	7.1	7.1	2.1 2.1	2.1		2.8 2.9	2.9	
G4	Sunny	Calm	12:01	Surface	1.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.4 97.4	97.4	7.2 7.2	7.2	7.1	2.1 2.1	2.1	2.1	2.2 3.0	2.6	2.1
				Middle	3.7	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.1	97.1	7.1 7.1	7.1		2.1 2.1	2.1		1.9 2.0	2.0	
				Bottom	6.5	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	96.8 96.8	96.8	7.1 7.1	7.1	7.1	2.2 2.2	2.2		1.8 1.4	1.6	
M1	Sunny	Calm	11:30	Surface	1.1	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.7 97.8	97.8	7.2 7.2	7.2	7.2	2.2 2.2	2.2	2.2	2.4 1.6	2.0	2.8
				Middle	3.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.6	97.6	7.2 7.2	7.2		2.1 2.1	2.1		2.6 3.0	2.8	
				Bottom	5.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.4 97.4	97.4	7.2 7.2	7.2	7.2	2.3 2.3	2.3		3.9 3.2	3.6	
M2	Sunny	Calm	11:17	Surface	1.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.4 2.3	2.3	2.4	2.2 1.8	2.0	2.6
				Middle	5.3	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.1 7.1	7.1		2.5 2.5	2.5		2.5 3.0	2.8	
				Bottom	9.5	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.0	97.1	7.1 7.1	7.1	7.1	2.3 2.3	2.3		2.7 3.2	3.0	
M3	Sunny	Calm	11:55	Surface	1.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.9 97.8	97.9	7.2 7.2	7.2	7.2	2.1 2.0	2.0	2.2	2.3 1.8	2.1	1.7
				Middle	3.7	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.6	97.6	7.2 7.2	7.2		2.2 2.2	2.2		1.5 1.6	1.6	
				Bottom	6.5	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.0 97.0	97.0	7.1 7.1	7.1	7.1	2.2 2.2	2.2		1.5 1.6	1.6	
M4	Sunny	Calm	11:11	Surface	1.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.5 2.4	2.4	2.4	1.9 2.2	2.1	2.3
				Middle	5.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.1 7.1	7.1		2.4 2.4	2.4		1.9 2.3	2.1	
				Bottom	9.1	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.0 97.0	97.0	7.1 7.1	7.1	7.1	2.5 2.5	2.5		2.4 3.1	2.8	
M5	Sunny	Calm	12:19	Surface	1.0	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.4 97.5	97.5	7.2 7.2	7.2	7.1	2.1 2.2	2.1	2.2	2.4 2.4	2.4	2.2
				Middle	5.5	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.0 97.0	97.0	7.1 7.1	7.1		2.3 2.3	2.3		1.9 2.4	2.2	
				Bottom	10.0	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	96.8 96.8	96.8	7.1 7.1	7.1	7.1	2.2 2.2	2.2		2.3 1.7	2.0	
M6	Sunny	Calm	12:06	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.1	- -	-	2.1	- -	-	3.2
				Middle	2.1	21.1 21.1	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.2 97.2	97.2	7.1 7.1	7.1		2.1 2.1	2.1		2.8 3.5	3.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 14 December 2020 (Mid-Ebb Tide)

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 and 4)	**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 ***C2: 3.0 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.5 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.3 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.5 mg/L***
	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 ***C2: 3.1 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.3 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 14 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	17:57	Surface	1.1	21.1 21.0	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.0 2.0	2.0	2.2	2.0 2.3	2.2	2.3
				Middle	9.0	20.9 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.1 7.1	7.1		2.1 2.1	2.1		2.2 2.4	2.3	
				Bottom	17.0	20.9 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.0 96.9	97.0	7.1 7.1	7.1	7.1	2.3 2.3	2.3		2.3 2.7	2.5	
C2	Sunny	Calm	16:12	Surface	1.1	21.1 20.9	21.0	8.3 8.3	8.3	33.0 33.0	33.0	98.0 98.0	98.0	7.2 7.2	7.2	7.2	2.4 2.4	2.4	2.4	2.2 2.6	2.4	2.3
				Middle	16.6	20.9 20.9	20.9	8.6 8.5	8.6	33.0 33.0	33.0	97.1 97.2	97.2	7.1 7.1	7.1		2.6 2.6	2.6		2.1 2.4	2.3	
				Bottom	32.0	20.9 20.9	20.9	8.7 8.7	8.7	33.0 33.0	33.0	96.6 96.6	96.6	7.1 7.1	7.1	7.1	2.3 2.3	2.3		2.2 2.2	2.2	
G1	Sunny	Calm	16:51	Surface	1.1	21.5 20.9	21.2	8.8 8.8	8.8	33.0 33.0	33.0	97.7 97.7	97.7	7.2 7.2	7.2	7.2	2.4 2.3	2.3	2.3	2.1 2.8	2.5	2.6
				Middle	4.0	20.9 20.8	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.6	97.6	7.2 7.2	7.2		2.3 2.3	2.3		2.9 2.2	2.6	
				Bottom	7.0	20.8 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.2	97.3	7.1 7.1	7.1	7.1	2.2 2.2	2.2		2.5 3.2	2.9	
G2	Sunny	Calm	16:33	Surface	1.0	21.5 20.9	21.2	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.3 2.3	2.3	2.3	2.8 3.6	3.2	3.0
				Middle	5.1	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.2 7.2	7.2		2.2 2.3	2.2		2.6 3.3	3.0	
				Bottom	9.1	20.8 20.9	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.1	97.1	7.1 7.1	7.1	7.1	2.2 2.2	2.2		2.4 3.1	2.8	
G3	Sunny	Calm	16:57	Surface	1.1	21.9 20.9	21.4	8.8 8.8	8.8	33.0 33.0	33.0	97.7 97.8	97.8	7.2 7.2	7.2	7.2	2.2 2.3	2.2	2.2	2.4 3.0	2.7	2.2
				Middle	4.1	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.6	97.6	7.2 7.2	7.2		2.2 2.2	2.2		1.8 2.2	2.0	
				Bottom	7.0	20.7 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.2 97.2	97.2	7.1 7.1	7.1	7.1	2.1 2.1	2.1		1.8 2.2	2.0	
G4	Sunny	Calm	17:10	Surface	1.1	21.9 21.0	21.5	8.8 8.8	8.8	33.0 33.0	33.0	97.4 97.4	97.4	7.2 7.2	7.2	7.1	2.1 2.1	2.1	2.1	3.6 2.7	3.2	2.9
				Middle	4.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.1	97.1	7.1 7.1	7.1		2.1 2.2	2.2		2.8 3.4	3.1	
				Bottom	7.0	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	96.8 96.8	96.8	7.1 7.1	7.1	7.1	2.1 2.2	2.1		2.1 2.6	2.4	
M1	Sunny	Calm	16:39	Surface	1.1	21.7 21.1	21.4	8.8 8.8	8.8	33.0 33.0	33.0	97.9 97.9	97.9	7.2 7.2	7.2	7.2	2.2 2.2	2.2	2.2	3.1 2.3	2.7	2.3
				Middle	3.1	20.9 21.0	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.6 97.6	97.6	7.2 7.2	7.2		2.2 2.2	2.2		2.2 2.2	2.2	
				Bottom	5.0	20.8 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.2 7.2	7.2	7.2	2.3 2.3	2.3		1.9 2.2	2.1	
M2	Sunny	Calm	16:26	Surface	1.0	21.2 20.9	21.1	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.3 2.4	2.4	2.4	2.1 2.4	2.3	2.4
				Middle	5.5	20.8 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.2 7.2	7.2		2.6 2.7	2.6		2.6 2.2	2.4	
				Bottom	10.0	20.8 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.0 97.0	97.0	7.1 7.1	7.1	7.1	2.3 2.3	2.3		2.4 2.6	2.5	
M3	Sunny	Calm	17:04	Surface	1.1	21.4 21.0	21.2	8.8 8.8	8.8	33.0 33.0	33.0	97.9 97.9	97.9	7.2 7.2	7.2	7.2	2.1 2.1	2.1	2.2	2.6 2.9	2.8	2.5
				Middle	4.1	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2		2.2 2.2	2.2		2.9 2.4	2.7	
				Bottom	7.0	20.7 20.8	20.7	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.0	97.1	7.1 7.1	7.1	7.1	2.2 2.2	2.2		1.9 2.2	2.1	
M4	Sunny	Calm	16:20	Surface	1.1	21.8 21.0	21.4	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.2	2.5 2.5	2.5	2.4	2.2 2.6	2.4	2.9
				Middle	5.0	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	97.3 97.3	97.3	7.1 7.1	7.1		2.3 2.3	2.3		2.6 3.4	3.0	
				Bottom	9.1	20.8 20.8	20.8	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.0	97.1	7.1 7.1	7.1	7.1	2.4 2.5	2.4		3.8 2.9	3.4	
M5	Sunny	Calm	17:45	Surface	1.0	21.0 21.0	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.5 97.5	97.5	7.2 7.2	7.2	7.1	2.1 2.1	2.1	2.2	2.2 2.0	2.1	2.8
				Middle	6.1	20.9 21.2	21.0	8.8 8.8	8.8	33.0 33.0	33.0	97.1 97.2	97.2	7.1 7.1	7.1		2.3 2.2	2.3		2.5 2.9	2.7	
				Bottom	11.1	20.9 20.9	20.9	8.8 8.8	8.8	33.0 33.0	33.0	96.8 96.8	96.8	7.1 7.1	7.1	7.1	2.2 2.2	2.2		3.2 4.0	3.6	
M6	Sunny	Calm	17:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.1	- -	-	2.2	- -	-	2.2
				Middle	2.2	21.8 20.9	21.4	8.8 8.8	8.8	33.0 33.0	33.0	97.2 97.2	97.2	7.1 7.1	7.1		2.2 2.2	2.2		2.0 2.3	2.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 14 December 2020 (Mid-Flood Tide)

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 and 4)	**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 ***C1: 2.8 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 3.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.6 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 2.8 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.6 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 2.8 mg/L***
	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 ***C1: 3.0 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.3 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 16 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	15:24	Surface	1.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	102.8 102.9	102.9	7.1 7.1	7.1	7.0	1.5 1.6	1.6	1.4	3.6 3.2	3.4	3.0
				Middle	9.1	20.9 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.8	101.7	7.0 7.0	7.0		1.1 1.1	1.1		3.1 2.6	2.9	
				Bottom	17.1	20.7 20.7	20.7	8.5 8.5	8.5	32.9 32.9	32.9	97.2 97.2	97.2	6.7 6.7	6.7	6.7	1.7 1.7	1.7		2.5 2.8	2.7	
C2	Cloudy	Moderate	13:52	Surface	1.1	21.2 21.2	21.2	8.4 8.4	8.4	32.5 32.5	32.5	104.0 104.0	104.0	7.1 7.1	7.1	7.0	0.5 0.5	0.5	1.5	3.9 3.1	3.5	4.0
				Middle	16.0	20.7 20.7	20.7	8.4 8.4	8.4	32.8 32.8	32.8	99.0 99.1	99.1	6.8 6.8	6.8		1.0 1.0	1.0		4.5 3.8	4.2	
				Bottom	31.0	20.7 20.7	20.7	8.5 8.5	8.5	32.8 32.8	32.8	97.0 97.1	97.1	6.7 6.7	6.7	6.7	3.0 2.9	3.0		4.9 4.0	4.5	
G1	Cloudy	Moderate	14:33	Surface	1.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.2	103.2	7.1 7.1	7.1	7.1	1.3 1.2	1.3	1.0	3.8 2.8	3.3	2.7
				Middle	4.0	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1		0.9 1.0	1.0		2.8 2.2	2.5	
				Bottom	7.0	21.1 21.0	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.6 102.6	102.6	7.1 7.0	7.0	7.0	0.8 0.9	0.9		2.4 2.0	2.2	
G2	Cloudy	Moderate	14:13	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.3 103.3	103.3	7.1 7.1	7.1	7.1	1.7 1.7	1.7	1.1	2.3 2.2	2.3	2.6
				Middle	5.0	21.1 21.0	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.2 102.1	102.2	7.0 7.0	7.0		0.9 0.9	0.9		2.5 2.6	2.6	
				Bottom	9.0	20.9 20.9	20.9	8.5 8.5	8.5	32.6 32.7	32.7	101.5 101.3	101.4	7.0 7.0	7.0	7.0	0.6 0.6	0.6		2.6 3.1	2.9	
G3	Cloudy	Moderate	14:40	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.2 103.3	103.3	7.1 7.1	7.1	7.1	1.2 1.2	1.2	1.1	3.1 3.2	3.2	2.9
				Middle	4.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1		0.9 0.9	0.9		2.6 3.1	2.9	
				Bottom	7.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.5 102.5	102.5	7.0 7.0	7.0	7.0	1.1 1.2	1.2		3.0 2.6	2.8	
G4	Cloudy	Moderate	14:55	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.4 103.5	103.5	7.1 7.1	7.1	7.1	1.2 1.2	1.2	1.0	3.2 3.9	3.6	3.0
				Middle	4.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.3 103.3	103.3	7.1 7.1	7.1		0.9 1.0	1.0		3.6 2.8	3.2	
				Bottom	7.0	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.5 102.5	102.5	7.0 7.0	7.0	7.0	0.8 0.8	0.8		2.5 2.2	2.4	
M1	Cloudy	Moderate	14:20	Surface	1.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.6 103.6	103.6	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.1	2.7 1.8	2.3	2.9
				Middle	2.9	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.5 103.5	103.5	7.1 7.1	7.1		1.3 1.3	1.3		2.9 3.5	3.2	
				Bottom	5.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	103.0 103.0	103.0	7.1 7.1	7.1	7.1	0.7 0.6	0.7		3.0 3.5	3.3	
M2	Cloudy	Moderate	14:05	Surface	1.1	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.5 103.6	103.6	7.1 7.1	7.1	7.1	1.4 1.4	1.4	1.5	2.8 2.5	2.7	3.0
				Middle	6.1	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.4 102.5	102.5	7.0 7.0	7.0		1.5 1.5	1.5		2.9 3.0	3.0	
				Bottom	11.0	20.8 20.7	20.7	8.5 8.5	8.5	32.8 32.8	32.8	98.9 98.8	98.9	6.8 6.8	6.8	6.8	1.8 1.8	1.8		3.6 3.0	3.3	
M3	Cloudy	Moderate	14:49	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.0 103.0	103.0	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.2	3.4 2.4	2.9	2.4
				Middle	4.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.2	103.2	7.1 7.1	7.1		1.2 1.3	1.3		2.3 2.8	2.6	
				Bottom	7.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.6 102.6	102.6	7.1 7.0	7.0	7.0	1.0 0.9	1.0		2.1 1.5	1.8	
M4	Cloudy	Moderate	13:59	Surface	1.0	21.2 21.2	21.2	8.5 8.5	8.5	32.5 32.5	32.5	103.4 103.4	103.4	7.1 7.1	7.1	7.1	1.6 1.6	1.6	1.4	2.3 2.7	2.5	2.4
				Middle	5.0	21.0 21.0	21.0	8.5 8.5	8.5	32.6 32.6	32.6	102.4 102.5	102.5	7.0 7.0	7.0		1.4 1.5	1.5		2.4 2.2	2.3	
				Bottom	9.2	20.9 20.9	20.9	8.5 8.5	8.5	32.6 32.6	32.6	101.2 101.0	101.1	7.0 7.0	7.0	7.0	1.0 1.0	1.0		2.3 2.3	2.3	
M5	Cloudy	Moderate	15:14	Surface	1.0	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.2 103.3	103.3	7.1 7.1	7.1	7.1	1.5 1.5	1.5	1.1	2.5 2.9	2.7	2.4
				Middle	6.0	21.0 21.1	21.1	8.5 8.5	8.5	32.6 32.6	32.6	102.7 102.9	102.8	7.1 7.1	7.1		0.9 1.0	1.0		2.4 2.1	2.3	
				Bottom	11.0	20.8 20.8	20.8	8.5 8.5	8.5	32.7 32.7	32.7	99.8 99.6	99.7	6.9 6.9	6.9	6.9	1.0 1.0	1.0		2.1 2.4	2.3	
M6	Cloudy	Moderate	15:03	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.1	- -	-	1.3	- -	-	2.4
				Middle	2.1	21.1 21.1	21.1	8.5 8.5	8.5	32.5 32.5	32.5	103.1 103.1	103.1	7.1 7.1	7.1		1.3 1.4	1.3		2.7 2.1	2.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 16 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.6 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.6 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 5.3 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.8 mg/L***
	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.

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Water Quality Monitoring Results on 16 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	9:27	Surface	1.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.5	32.5	101.1 101.4	101.3	7.0 7.0	7.0	6.9	1.5 1.5	1.5	1.4	2.7 2.5	2.6	2.5
				Middle	9.1	21.1 21.2	21.2	8.5 8.5	8.5	32.6 32.6	32.6	100.3 100.4	100.4	6.9 6.9	6.9		1.0 1.0	1.0		2.5 2.6	2.6	
				Bottom	17.0	20.9 20.9	20.9	8.5 8.5	8.5	32.9 32.9	32.9	96.3 96.3	96.3	6.7 6.7	6.7	6.7	1.6 1.6	1.6		2.4 2.2	2.3	
C2	Cloudy	Moderate	7:54	Surface	1.1	21.4 21.4	21.4	8.4 8.4	8.4	32.5 32.5	32.5	103.0 103.0	103.0	7.1 7.1	7.1	6.9	0.4 0.4	0.4	1.4	2.6 2.2	2.4	2.9
				Middle	16.0	20.9 20.9	20.9	8.4 8.4	8.4	32.8 32.8	32.8	97.5 97.7	97.6	6.7 6.8	6.7		1.0 1.0	1.0		3.0 2.6	2.8	
				Bottom	31.0	20.9 20.9	20.9	8.5 8.5	8.5	32.8 32.8	32.8	95.9 96.0	96.0	6.6 6.6	6.6	6.6	2.8 2.4	2.6		3.9 3.1	3.5	
G1	Cloudy	Moderate	8:36	Surface	1.0	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	101.8 102.0	101.9	7.0 7.0	7.0	7.0	1.3 1.3	1.3	1.0	3.2 3.3	3.3	3.9
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.9 101.9	101.9	7.0 7.0	7.0		0.8 0.8	0.8		4.0 4.3	4.2	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.7 101.7	101.7	7.0 7.0	7.0	7.0	0.8 0.8	0.8		4.4 4.0	4.2	
G2	Cloudy	Moderate	8:15	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.4 102.4	102.4	7.0 7.0	7.0	7.0	1.7 1.7	1.7	1.1	2.3 2.7	2.5	2.8
				Middle	5.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	100.9 100.9	100.9	6.9 6.9	6.9		0.9 1.0	1.0		2.8 3.0	2.9	
				Bottom	9.1	21.1 21.1	21.1	8.5 8.5	8.5	32.7 32.7	32.7	100.0 99.7	99.9	6.9 6.9	6.9	6.9	0.6 0.7	0.6		2.8 3.3	3.1	
G3	Cloudy	Moderate	8:43	Surface	1.0	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.1	102.1	7.0 7.0	7.0	7.0	1.0 1.0	1.0	1.0	3.0 2.4	2.7	2.9
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.8 101.9	101.9	7.0 7.0	7.0		0.8 0.8	0.8		3.1 2.4	2.8	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.5 101.5	101.5	7.0 7.0	7.0	7.0	1.0 1.1	1.1		3.6 2.8	3.2	
G4	Cloudy	Moderate	8:58	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.3 102.3	102.3	7.0 7.0	7.0	7.0	1.1 1.2	1.1	0.9	1.9 2.5	2.2	2.6
				Middle	4.1	21.3 21.3	21.3	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.2	102.2	7.0 7.0	7.0		0.8 0.9	0.8		2.7 2.3	2.5	
				Bottom	7.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.5	101.6	7.0 7.0	7.0	7.0	0.7 0.7	0.7		3.2 3.2	3.2	
M1	Cloudy	Moderate	8:23	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.6 102.6	102.6	7.0 7.0	7.0	7.0	1.4 1.4	1.4	1.1	2.9 2.6	2.8	3.1
				Middle	3.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.5 102.5	102.5	7.0 7.0	7.0		1.3 1.4	1.4		3.5 2.6	3.1	
				Bottom	5.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.9 101.9	101.9	7.0 7.0	7.0	7.0	0.5 0.5	0.5		3.4 3.8	3.6	
M2	Cloudy	Moderate	8:08	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.5 102.5	102.5	7.0 7.0	7.0	7.0	1.4 1.4	1.4	1.5	3.0 2.6	2.8	3.1
				Middle	6.2	21.2 21.2	21.2	8.5 8.5	8.5	32.6 32.6	32.6	101.1 101.2	101.2	7.0 7.0	7.0		1.4 1.4	1.4		3.0 2.9	3.0	
				Bottom	11.1	21.0 21.0	21.0	8.5 8.5	8.5	32.8 32.8	32.8	98.3 98.2	98.3	6.8 6.8	6.8	6.8	1.7 1.7	1.7		4.0 3.2	3.6	
M3	Cloudy	Moderate	8:52	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.2	102.2	7.0 7.0	7.0	7.0	1.5 1.5	1.5	1.2	3.1 2.6	2.9	3.1
				Middle	4.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.3	102.3	7.0 7.0	7.0		1.3 1.3	1.3		2.8 3.4	3.1	
				Bottom	7.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.5 101.5	101.5	7.0 7.0	7.0	7.0	0.9 0.8	0.9		3.6 3.3	3.5	
M4	Cloudy	Moderate	8:02	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.4 102.4	102.4	7.0 7.0	7.0	7.0	1.5 1.5	1.5	1.3	4.4 4.1	4.3	3.9
				Middle	5.0	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.7 101.8	101.8	7.0 7.0	7.0		1.6 1.6	1.6		4.0 3.6	3.8	
				Bottom	9.1	21.1 21.1	21.1	8.5 8.5	8.5	32.6 32.7	32.6	99.9 99.8	99.9	6.9 6.9	6.9	6.9	1.0 1.0	1.0		3.8 3.5	3.7	
M5	Cloudy	Moderate	9:17	Surface	1.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.1 102.1	102.1	7.0 7.0	7.0	7.0	1.3 1.4	1.4	1.1	4.2 3.5	3.9	3.8
				Middle	6.1	21.3 21.3	21.3	8.5 8.5	8.5	32.6 32.6	32.6	101.6 101.6	101.6	7.0 7.0	7.0		0.8 0.8	0.8		3.9 3.7	3.8	
				Bottom	11.0	21.1 21.1	21.1	8.5 8.5	8.5	32.7 32.7	32.7	99.1 99.0	99.1	6.8 6.8	6.8	6.8	1.0 1.0	1.0		3.7 3.6	3.7	
M6	Cloudy	Moderate	9:06	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.0	- -	-	1.3	- -	-	3.5
				Middle	2.1	21.4 21.4	21.4	8.5 8.5	8.5	32.5 32.5	32.5	102.2 102.2	102.2	7.0 7.0	7.0		1.3 1.3	1.3		3.5 3.4	3.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 16 December 2020 (Mid-Flood Tide)

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 and 4)	**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 ***C1: 1.9 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.1 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.1 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.1 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***
	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 ***C1: 2.8 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.0 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 18 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	15:34	Surface	1.1	21.1 21.0	21.1	8.9 8.9	8.9	32.5 32.5	32.5	102.0 102.0	102.0	7.8 7.8	7.8	7.8	1.4 1.4	1.4	2.0	3.2 3.5	3.4	3.1
				Middle	9.0	20.9 21.3	21.1	8.9 8.9	8.9	32.5 32.5	32.5	101.5 101.5	101.5	7.8 7.8	7.8		1.6 1.6	1.6		3.0 3.0	3.0	
				Bottom	17.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.1 100.9	101.0	7.7 7.7	7.7	7.7	2.7 3.1	2.9		2.8 3.1	3.0	
C2	Sunny	Calm	13:47	Surface	1.1	21.4 20.9	21.2	8.6 8.6	8.6	32.5 32.5	32.5	102.6 102.5	102.6	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.8	2.8 2.9	2.9	3.3
				Middle	16.5	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.4	1.4		3.1 2.9	3.0	
				Bottom	32.0	20.9 20.9	20.9	9.0 9.0	9.0	32.5 32.5	32.5	100.6 100.6	100.6	7.7 7.7	7.7	7.7	2.6 2.6	2.6		3.6 4.2	3.9	
G1	Sunny	Calm	14:28	Surface	1.0	21.5 20.9	21.2	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.1	102.2	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.4	3.4 3.0	3.2	4.0
				Middle	4.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.8	101.8	7.8 7.8	7.8		1.4 1.4	1.4		3.8 4.2	4.0	
				Bottom	7.1	20.8 20.7	20.8	8.9 8.9	8.9	32.5 32.5	32.5	101.5 101.4	101.5	7.8 7.7	7.7	7.7	1.6 1.5	1.5		4.8 4.5	4.7	
G2	Sunny	Calm	14:09	Surface	1.1	21.1 20.9	21.0	9.0 9.0	9.0	32.5 32.5	32.5	102.0 102.1	102.1	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	3.4 3.4	3.4	3.5
				Middle	5.0	20.9 20.9	20.9	9.0 9.0	9.0	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		3.5 3.5	3.5	
				Bottom	9.1	20.8 20.9	20.9	9.0 9.0	9.0	32.5 32.5	32.5	101.6 101.4	101.5	7.8 7.7	7.7	7.7	1.5 1.6	1.6		3.5 3.5	3.5	
G3	Sunny	Calm	14:36	Surface	1.0	21.2 20.9	21.1	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.4	3.7 3.6	3.7	3.2
				Middle	4.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.4	1.4		3.4 2.9	3.2	
				Bottom	7.1	20.7 20.8	20.8	8.9 8.9	8.9	32.5 32.5	32.5	101.4 101.4	101.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6		3.0 2.7	2.9	
G4	Sunny	Calm	14:48	Surface	1.0	21.8 21.0	21.4	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.5	3.1 3.2	3.2	2.9
				Middle	4.0	21.0 20.9	21.0	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.5	1.5		3.2 3.1	3.2	
				Bottom	7.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.3 101.3	101.3	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.2 2.6	2.4	
M1	Sunny	Calm	14:16	Surface	1.1	21.6 21.1	21.3	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.4 1.3	1.4	1.4	3.7 3.8	3.8	3.4
				Middle	3.1	20.9 21.0	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.3 1.3	1.3		3.6 3.6	3.6	
				Bottom	5.1	20.8 20.8	20.8	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8	7.8	1.4 1.4	1.4		2.9 2.9	2.9	
M2	Sunny	Calm	14:01	Surface	1.1	21.1 20.9	21.0	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.5 1.5	1.5	1.5	3.1 3.2	3.2	3.0
				Middle	5.5	20.8 20.8	20.8	9.0 8.9	8.9	32.5 32.5	32.5	101.9 102.0	102.0	7.8 7.8	7.8		1.4 1.4	1.4		3.0 3.0	3.0	
				Bottom	10.0	20.8 20.8	20.8	9.0 9.0	9.0	32.5 32.5	32.5	101.1 101.1	101.1	7.7 7.7	7.7	7.7	1.7 1.7	1.7		3.0 2.9	3.0	
M3	Sunny	Calm	14:42	Surface	1.1	21.1 21.0	21.0	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.1	102.1	7.8 7.8	7.8	7.8	1.3 1.4	1.3	1.4	3.0 3.1	3.1	2.7
				Middle	4.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.8	101.8	7.8 7.8	7.8		1.4 1.5	1.4		2.7 2.5	2.6	
				Bottom	7.1	20.7 20.8	20.7	8.9 8.9	8.9	32.5 32.5	32.5	101.5 101.4	101.5	7.8 7.7	7.7	7.7	1.5 1.5	1.5		2.5 2.6	2.6	
M4	Sunny	Calm	13:54	Surface	1.0	21.4 21.0	21.2	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	2.8 2.7	2.8	3.4
				Middle	5.1	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.3 1.3	1.3		3.3 3.2	3.3	
				Bottom	9.0	20.8 20.8	20.8	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.7	101.8	7.8 7.8	7.8	7.8	1.4 1.4	1.4		4.1 4.4	4.3	
M5	Sunny	Calm	15:22	Surface	1.0	21.0 21.0	21.0	8.9 8.9	8.9	32.5 32.5	32.5	102.0 102.0	102.0	7.8 7.8	7.8	7.8	1.4 1.3	1.4	2.5	3.1 2.9	3.0	2.8
				Middle	6.0	20.9 21.1	21.0	8.9 8.9	8.9	32.5 32.5	32.5	101.3 101.3	101.3	7.7 7.7	7.7		1.5 1.5	1.5		2.8 2.8	2.8	
				Bottom	11.0	20.9 20.9	20.9	9.0 9.0	9.0	32.5 32.5	32.5	100.5 100.5	100.5	7.7 7.7	7.7	7.7	4.5 4.6	4.6		2.3 2.6	2.5	
M6	Sunny	Calm	15:02	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.8	- -	-	1.4	- -	-	2.8
				Middle	2.2	21.6 20.9	21.3	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.9	101.9	7.8 7.8	7.8		1.5 1.4	1.4		2.8 2.8	2.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 18 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.1 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 3.4 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.7 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.7 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.7 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.1 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 18 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	11:10	Surface	1.1	19.3 19.3	19.3	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.1	102.1	7.8 7.8	7.8	7.8	1.4 1.4	1.4	2.2	2.9 2.8	2.9	3.3
				Middle	8.5	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.6 101.7	101.7	7.8 7.8	7.8		1.6 1.5	1.5		2.9 3.2	3.1	
				Bottom	16.0	19.0 19.0	19.0	8.9 8.9	8.9	32.5 32.5	32.5	100.7 100.7	100.7	7.7 7.7	7.7	7.7	3.5 3.7	3.6		4.1 3.8	4.0	
C2	Sunny	Calm	9:33	Surface	1.0	19.3 19.3	19.3	8.5 8.5	8.5	32.5 32.5	32.5	102.8 102.7	102.8	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.7	2.6 2.8	2.7	2.9
				Middle	16.1	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.4	1.4		2.6 2.8	2.7	
				Bottom	31.1	19.0 19.0	19.0	8.9 9.0	8.9	32.5 32.5	32.5	100.7 100.6	100.7	7.7 7.7	7.7	7.7	2.4 2.4	2.4		3.3 3.5	3.4	
G1	Sunny	Calm	10:11	Surface	1.0	19.3 19.3	19.3	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.1	102.1	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	4.1 4.2	4.2	4.0
				Middle	3.8	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.4	1.4		4.2 4.1	4.2	
				Bottom	6.6	19.1 19.1	19.1	8.9 9.0	8.9	32.5 32.5	32.5	101.4 101.3	101.4	7.7 7.7	7.7	7.7	1.6 1.5	1.6		3.8 3.6	3.7	
G2	Sunny	Calm	9:52	Surface	1.0	19.2 19.2	19.2	9.0 9.0	9.0	32.5 32.5	32.5	102.1 102.1	102.1	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.5	3.3 3.0	3.2	3.0
				Middle	5.0	19.2 19.2	19.2	9.0 9.0	9.0	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		2.9 3.1	3.0	
				Bottom	9.0	19.0 19.0	19.0	9.0 9.0	9.0	32.5 32.5	32.5	101.2 101.1	101.2	7.7 7.7	7.7	7.7	1.6 1.7	1.7		3.0 2.9	3.0	
G3	Sunny	Calm	10:19	Surface	1.0	19.2 19.3	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.2	102.2	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.4	3.5 3.3	3.4	4.3
				Middle	3.7	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.5 1.5	1.5		3.7 4.1	3.9	
				Bottom	6.5	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.5 101.5	101.5	7.8 7.7	7.7	7.7	1.6 1.6	1.6		5.5 5.9	5.7	
G4	Sunny	Calm	10:37	Surface	1.1	19.2 19.3	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.3 1.3	1.3	1.4	4.8 4.4	4.6	3.6
				Middle	3.8	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8		1.4 1.4	1.4		3.0 3.1	3.1	
				Bottom	6.6	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.4 101.3	101.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6		3.0 3.0	3.0	
M1	Sunny	Calm	10:00	Surface	1.0	19.2 19.3	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	2.5 2.8	2.7	3.1
				Middle	3.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		2.8 3.2	3.0	
				Bottom	5.1	19.2 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.8	101.8	7.8 7.8	7.8	7.8	1.4 1.4	1.4		3.8 3.5	3.7	
M2	Sunny	Calm	9:47	Surface	1.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.2	102.2	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.5	2.8 2.5	2.7	3.1
				Middle	5.2	19.2 19.2	19.2	9.0 9.0	9.0	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		3.0 3.4	3.2	
				Bottom	9.5	19.0 19.0	19.0	9.0 9.0	9.0	32.5 32.5	32.5	101.2 101.2	101.2	7.7 7.7	7.7	7.7	1.6 1.7	1.7		3.4 3.3	3.4	
M3	Sunny	Calm	10:29	Surface	1.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.0	102.1	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	3.7 3.5	3.6	3.2
				Middle	3.7	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.8 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		3.3 3.0	3.2	
				Bottom	6.5	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.4 101.4	101.4	7.7 7.7	7.7	7.7	1.5 1.6	1.5		2.7 3.0	2.9	
M4	Sunny	Calm	9:39	Surface	1.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.2	102.2	7.8 7.8	7.8	7.8	1.4 1.4	1.4	1.4	2.4 2.2	2.3	2.8
				Middle	5.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		1.4 1.4	1.4		2.5 2.8	2.7	
				Bottom	9.1	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.7 101.7	101.7	7.8 7.8	7.8	7.8	1.3 1.3	1.3		3.3 3.8	3.6	
M5	Sunny	Calm	10:58	Surface	1.1	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	102.1 102.0	102.1	7.8 7.8	7.8	7.8	1.3 1.4	1.4	2.3	3.0 2.7	2.9	2.6
				Middle	5.5	19.1 19.1	19.1	8.9 8.9	8.9	32.5 32.5	32.5	101.3 101.3	101.3	7.7 7.7	7.7		1.5 1.5	1.5		2.7 2.7	2.7	
				Bottom	10.0	19.0 19.0	19.0	8.9 8.9	8.9	32.5 32.5	32.5	100.6 100.5	100.6	7.7 7.7	7.7	7.7	3.7 4.3	4.0		2.1 2.4	2.3	
M6	Sunny	Calm	10:46	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.8	- -	-	1.4	- -	-	3.1
				Middle	2.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.9 101.9	101.9	7.8 7.8	7.8		8.0 8.0	8.0		3.1 3.0	3.1	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 18 December 2020 (Mid-Flood Tide)

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 and 4)	**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 ***C1: 4.4 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 4.7 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.7 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.7 mg/L***
	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 ***C1: 4.7 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.1 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 21 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	18:09	Surface	1.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	102.7 102.8	102.8	7.7 7.7	7.7	7.6	1.3 1.3	1.3	1.5	3.0 2.8	2.9	3.4
				Middle	9.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	100.9 101.0	101.0	7.6 7.6	7.6		1.4 1.4	1.4		3.5 3.4	3.5	
				Bottom	17.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.3 99.3	99.3	7.4 7.4	7.4	7.4	1.9 1.9	1.9		3.9 3.7	3.8	
C2	Cloudy	Moderate	17:16	Surface	1.1	19.9 19.9	19.9	8.4 8.4	8.4	33.6 33.6	33.6	103.1 103.1	103.1	7.7 7.7	7.7	7.6	1.2 1.2	1.2	1.4	3.7 3.9	3.8	4.4
				Middle	16.0	19.8 19.8	19.8	8.4 8.4	8.4	33.6 33.6	33.6	100.7 100.9	100.8	7.5 7.6	7.5		1.5 1.5	1.5		4.1 4.5	4.3	
				Bottom	30.7	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.0 100.0	100.0	7.5 7.5	7.5	7.5	1.5 1.5	1.5		4.9 5.5	5.2	
G1	Cloudy	Moderate	17:43	Surface	1.0	20.1 20.1	20.1	8.5 8.5	8.5	33.5 33.5	33.5	98.3 98.3	98.3	7.3 7.3	7.3	7.3	1.8 1.8	1.8	2.0	4.0 4.3	4.2	4.7
				Middle	4.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.8 97.8	97.8	7.3 7.3	7.3		1.8 1.8	1.8		4.7 4.6	4.7	
				Bottom	7.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.2 97.1	97.2	7.3 7.3	7.3	7.3	2.3 2.4	2.4		5.1 5.7	5.4	
G2	Cloudy	Moderate	17:33	Surface	1.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	100.7 100.7	100.7	7.5 7.5	7.5	7.5	1.8 1.7	1.7	1.9	4.8 4.6	4.7	4.0
				Middle	5.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.6 100.6	100.6	7.5 7.5	7.5		1.8 1.8	1.8		3.9 3.8	3.9	
				Bottom	9.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.4 99.4	99.4	7.4 7.4	7.4	7.4	2.1 2.1	2.1		3.4 3.2	3.3	
G3	Cloudy	Moderate	17:48	Surface	1.0	20.0 20.0	20.0	8.5 8.5	8.5	33.5 33.5	33.5	98.2 98.2	98.2	7.3 7.3	7.3	7.3	1.7 1.7	1.7	1.9	4.7 4.8	4.8	4.0
				Middle	4.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3		1.9 1.9	1.9		4.1 3.7	3.9	
				Bottom	6.8	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.9 97.9	97.9	7.3 7.3	7.3	7.3	2.0 2.0	2.0		3.6 3.3	3.5	
G4	Cloudy	Moderate	17:56	Surface	1.1	20.1 20.1	20.1	8.5 8.5	8.5	33.5 33.5	33.5	98.3 98.3	98.3	7.3 7.3	7.3	7.3	1.7 1.8	1.7	1.9	4.2 4.5	4.4	3.5
				Middle	4.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3		1.8 1.8	1.8		3.5 3.9	3.7	
				Bottom	6.8	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.9 97.9	97.9	7.3 7.3	7.3	7.3	2.1 2.1	2.1		2.5 2.5	2.5	
M1	Cloudy	Moderate	17:38	Surface	1.0	20.1 20.1	20.1	8.5 8.5	8.5	33.5 33.5	33.5	98.2 98.3	98.3	7.3 7.3	7.3	7.3	2.2 2.1	2.1	2.0	3.5 3.8	3.7	4.2
				Middle	3.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.5	33.5	97.8 97.8	97.8	7.3 7.3	7.3		2.0 2.0	2.0		4.0 4.2	4.1	
				Bottom	5.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.6 97.6	97.6	7.3 7.3	7.3	7.3	1.8 1.8	1.8		4.6 4.9	4.8	
M2	Cloudy	Moderate	17:26	Surface	1.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.3 100.4	100.4	7.5 7.5	7.5	7.5	1.8 1.8	1.8	2.0	3.3 3.3	3.3	3.9
				Middle	6.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.4 100.4	100.4	7.5 7.5	7.5		2.0 2.0	2.0		3.8 4.0	3.9	
				Bottom	11.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.4 99.3	99.4	7.4 7.4	7.4	7.4	2.3 2.3	2.3		4.3 4.4	4.4	
M3	Cloudy	Moderate	17:51	Surface	1.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.7 97.7	97.7	7.3 7.3	7.3	7.3	2.0 2.0	2.0	1.9	2.8 3.1	3.0	3.5
				Middle	4.1	20.0 20.0	20.0	8.5 8.5	8.5	33.6 33.6	33.6	98.1 98.1	98.1	7.3 7.3	7.3		1.8 1.8	1.8		3.6 3.3	3.5	
				Bottom	7.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.6 97.5	97.6	7.3 7.3	7.3	7.3	2.0 2.0	2.0		4.0 4.2	4.1	
M4	Cloudy	Moderate	17:21	Surface	1.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.1 100.2	100.2	7.5 7.5	7.5	7.5	2.0 1.9	1.9	2.2	2.7 2.6	2.7	2.9
				Middle	5.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.9 99.9	99.9	7.5 7.5	7.5		2.1 2.1	2.1		3.0 3.0	3.0	
				Bottom	9.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.2 99.2	99.2	7.4 7.4	7.4	7.4	2.6 2.5	2.5		3.1 3.1	3.1	
M5	Cloudy	Moderate	18:04	Surface	1.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.9 100.9	100.9	7.6 7.6	7.6	7.5	2.9 2.9	2.9	2.5	3.3 3.4	3.4	4.0
				Middle	6.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.1 100.1	100.1	7.5 7.5	7.5		2.1 2.1	2.1		3.6 3.9	3.8	
				Bottom	11.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.3 99.2	99.3	7.4 7.4	7.4	7.4	2.5 2.6	2.5		4.7 5.0	4.9	
M6	Cloudy	Moderate	18:00	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.4	- -	-	2.3	- -	-	3.4
				Middle	2.1	19.8 19.8	19.8	8.5 8.5	8.5	33.4 33.4	33.4	99.3 99.3	99.3	7.4 7.4	7.4		2.3 2.3	2.3		3.2 3.6	3.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 21 December 2020 (Mid-Ebb Tide)

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 and 4)	**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 ***C2: 1.8 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.6 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.9 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 4.6 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.9 mg/L***
	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 ***C2: 6.2 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 6.8 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 21 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Moderate	12:15	Surface	1.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	102.8 102.8	102.8	7.7 7.7	7.7	7.7	1.3 1.3	1.3	1.5	3.9 3.7	3.8	3.8
				Middle	9.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	102.2 102.3	102.3	7.6 7.7	7.6		1.3 1.3	1.3		3.8 3.9	3.9	
				Bottom	17.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.4 99.4	99.4	7.4 7.4	7.4	7.4	1.8 1.8	1.8		3.8 3.9	3.9	
C2	Cloudy	Moderate	11:22	Surface	1.1	19.9 19.9	19.9	8.4 8.4	8.4	33.6 33.6	33.6	103.1 103.1	103.1	7.7 7.7	7.7	7.6	1.2 1.3	1.2	1.4	4.2 4.3	4.3	5.2
				Middle	16.0	19.8 19.8	19.8	8.4 8.4	8.4	33.6 33.6	33.6	100.9 101.0	101.0	7.6 7.6	7.6		1.5 1.6	1.6		5.4 5.3	5.4	
				Bottom	30.7	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.0 100.0	100.0	7.5 7.5	7.5	7.5	1.4 1.4	1.4		5.7 6.1	5.9	
G1	Cloudy	Moderate	11:49	Surface	1.0	20.1 20.1	20.1	8.5 8.5	8.5	33.5 33.5	33.5	98.3 98.3	98.3	7.3 7.3	7.3	7.3	1.8 1.8	1.8	2.0	3.5 3.4	3.5	3.4
				Middle	4.0	19.9 20.0	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.9 97.9	97.9	7.3 7.3	7.3		1.8 1.8	1.8		3.2 3.4	3.3	
				Bottom	7.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.1 97.1	97.1	7.3 7.3	7.3	7.3	2.5 2.5	2.5		3.2 3.4	3.3	
G2	Cloudy	Moderate	11:39	Surface	1.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	100.7 100.7	100.7	7.5 7.5	7.5	7.5	1.8 1.8	1.8	1.9	3.7 3.5	3.6	4.8
				Middle	5.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.6 100.6	100.6	7.5 7.5	7.5		1.8 1.8	1.8		4.3 4.2	4.3	
				Bottom	9.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.4 99.4	99.4	7.4 7.4	7.4	7.4	2.1 2.1	2.1		6.4 6.7	6.6	
G3	Cloudy	Moderate	11:53	Surface	1.1	20.0 20.0	20.0	8.5 8.5	8.5	33.5 33.5	33.5	98.1 98.2	98.2	7.3 7.3	7.3	7.3	1.7 1.7	1.7	1.9	5.1 4.7	4.9	4.4
				Middle	4.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3		1.9 1.9	1.9		4.4 4.2	4.3	
				Bottom	6.9	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3	7.3	2.0 2.0	2.0		4.1 3.6	3.9	
G4	Cloudy	Moderate	12:02	Surface	1.1	20.0 20.1	20.0	8.5 8.5	8.5	33.6 33.5	33.5	98.2 98.3	98.3	7.3 7.3	7.3	7.3	1.8 1.7	1.8	1.9	3.2 3.5	3.4	2.9
				Middle	4.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3		1.8 1.8	1.8		2.6 2.8	2.7	
				Bottom	6.9	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	98.0 98.0	98.0	7.3 7.3	7.3	7.3	2.0 2.0	2.0		2.4 2.6	2.5	
M1	Cloudy	Moderate	11:44	Surface	1.0	20.1 20.1	20.1	8.5 8.5	8.5	33.5 33.5	33.5	98.2 98.2	98.2	7.3 7.3	7.3	7.3	2.1 2.2	2.1	1.9	2.3 2.3	2.3	2.2
				Middle	3.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.7 97.8	97.8	7.3 7.3	7.3		1.9 2.0	1.9		2.2 2.2	2.2	
				Bottom	5.1	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.6 97.6	97.6	7.3 7.3	7.3	7.3	1.7 1.7	1.7		2.2 2.0	2.1	
M2	Cloudy	Moderate	11:32	Surface	1.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.4 100.5	100.5	7.5 7.5	7.5	7.5	1.8 1.8	1.8	2.0	3.6 3.7	3.7	3.0
				Middle	6.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.4 100.4	100.4	7.5 7.5	7.5		2.0 2.0	2.0		2.9 3.1	3.0	
				Bottom	11.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.3 99.2	99.3	7.4 7.4	7.4	7.4	2.3 2.4	2.3		2.2 2.4	2.3	
M3	Cloudy	Moderate	11:57	Surface	1.0	19.9 19.9	19.9	8.5 8.5	8.5	33.6 33.6	33.6	97.8 97.8	97.8	7.3 7.3	7.3	7.3	1.9 1.9	1.9	1.9	2.9 3.1	3.0	3.6
				Middle	4.1	20.0 20.0	20.0	8.5 8.5	8.5	33.6 33.6	33.6	98.1 98.1	98.1	7.3 7.3	7.3		1.8 1.8	1.8		3.4 3.6	3.5	
				Bottom	7.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	97.5 97.4	97.5	7.3 7.3	7.3	7.3	2.1 2.1	2.1		4.0 4.4	4.2	
M4	Cloudy	Moderate	11:27	Surface	1.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.0 100.1	100.1	7.5 7.5	7.5	7.5	2.0 2.0	2.0	2.2	3.5 3.5	3.5	3.7
				Middle	5.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.8 99.8	99.8	7.5 7.5	7.5		2.1 2.1	2.1		3.7 3.6	3.7	
				Bottom	9.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.3 99.3	99.3	7.4 7.4	7.4	7.4	2.5 2.5	2.5		3.8 3.9	3.9	
M5	Cloudy	Moderate	12:10	Surface	1.1	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.9 100.9	100.9	7.6 7.6	7.6	7.5	2.8 2.8	2.8	2.5	3.2 3.5	3.4	3.0
				Middle	6.0	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	100.2 100.2	100.2	7.5 7.5	7.5		2.0 2.0	2.0		3.1 3.2	3.2	
				Bottom	11.2	19.8 19.8	19.8	8.5 8.5	8.5	33.6 33.6	33.6	99.2 99.2	99.2	7.4 7.4	7.4	7.4	2.6 2.6	2.6		2.2 2.7	2.5	
M6	Cloudy	Moderate	12:05	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.4	- -	-	2.3	- -	-	2.8
				Middle	2.0	19.8 19.8	19.8	8.5 8.5	8.5	33.4 33.4	33.4	99.3 99.3	99.3	7.4 7.4	7.4		8.0 8.0	8.0		2.9 2.7	2.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 21 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.2 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.4 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.6 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.9 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.6 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.9 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.6 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.0 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 23 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	9:16	Surface	1.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.3	101.3	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	1.5 1.6	1.6	1.8
				Middle	8.5	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.6 100.8	100.7	7.7 7.7	7.7		1.7 1.7	1.7		1.7 1.5	1.6	
				Bottom	16.1	19.1 19.1	19.1	8.8 8.8	8.8	32.5 32.5	32.5	100.0 100.0	100.0	7.6 7.6	7.6	7.6	1.7 1.7	1.7		2.5 2.2	2.4	
C2	Sunny	Calm	7:45	Surface	1.1	19.3 19.3	19.3	8.9 8.9	8.9	32.5 32.5	32.5	102.2 102.1	102.2	7.8 7.8	7.8	7.7	1.6 1.5	1.5	1.6	1.4 1.9	1.7	2.4
				Middle	16.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	101.1 101.2	101.2	7.7 7.7	7.7		1.6 1.6	1.6		2.3 3.1	2.7	
				Bottom	31.0	19.2 19.2	19.2	8.9 8.9	8.9	32.5 32.5	32.5	100.8 100.7	100.8	7.7 7.7	7.7	7.7	1.7 1.7	1.7		3.3 2.5	2.9	
G1	Sunny	Calm	8:22	Surface	1.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.4 101.4	101.4	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	2.3 2.7	2.5	2.2
				Middle	3.7	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.2	101.2	7.7 7.7	7.7		1.6 1.7	1.7		2.3 2.0	2.2	
				Bottom	6.6	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.7 1.7	1.7		2.1 2.0	2.1	
G2	Sunny	Calm	8:04	Surface	1.0	19.3 19.3	19.3	8.8 8.8	8.8	32.5 32.5	32.5	101.5 101.5	101.5	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	1.4 1.8	1.6	2.0
				Middle	5.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.2	101.2	7.7 7.7	7.7		1.6 1.5	1.5		1.8 1.8	1.8	
				Bottom	9.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.3 2.9	2.6	
G3	Sunny	Calm	8:29	Surface	1.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.3 101.4	101.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	1.4 1.4	1.4	1.7
				Middle	3.7	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.2	101.2	7.7 7.7	7.7		1.6 1.6	1.6		1.5 2.0	1.8	
				Bottom	6.6	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.9 100.8	100.9	7.7 7.7	7.7	7.7	1.6 1.6	1.6		1.8 2.0	1.9	
G4	Sunny	Calm	8:46	Surface	1.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.2	101.2	7.7 7.7	7.7	7.7	1.5 1.6	1.5	1.6	1.5 2.2	1.9	2.3
				Middle	3.7	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.0	101.0	7.7 7.7	7.7		1.6 1.5	1.6		1.8 2.4	2.1	
				Bottom	6.5	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.6 3.3	3.0	
M1	Sunny	Calm	8:11	Surface	1.1	19.3 19.3	19.3	8.8 8.8	8.8	32.5 32.5	32.5	101.5 101.5	101.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	2.3 2.7	2.5	1.9
				Middle	3.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.3	101.3	7.7 7.7	7.7		1.6 1.6	1.6		1.7 1.8	1.8	
				Bottom	5.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.0	101.1	7.7 7.7	7.7	7.7	1.7 1.7	1.7		1.3 1.8	1.6	
M2	Sunny	Calm	7:57	Surface	1.1	19.3 19.3	19.3	8.8 8.8	8.8	32.5 32.5	32.5	101.5 101.5	101.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	2.2 2.4	2.3	2.2
				Middle	5.3	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.0	101.0	7.7 7.7	7.7		1.7 1.6	1.7		2.3 2.3	2.3	
				Bottom	9.5	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.7 100.6	100.7	7.7 7.7	7.7	7.7	1.7 1.6	1.7		1.8 2.0	1.9	
M3	Sunny	Calm	8:39	Surface	1.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.4 101.4	101.4	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	1.3 1.4	1.4	1.4
				Middle	3.8	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.3	101.3	7.7 7.7	7.7		1.6 1.5	1.6		1.5 1.3	1.4	
				Bottom	6.6	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.4 100.3	100.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6		1.3 1.7	1.5	
M4	Sunny	Calm	7:52	Surface	1.0	19.3 19.3	19.3	8.8 8.8	8.8	32.5 32.5	32.5	101.7 101.7	101.7	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	2.1 2.3	2.2	2.0
				Middle	5.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.1	101.1	7.7 7.7	7.7		1.6 1.6	1.6		2.0 1.9	2.0	
				Bottom	9.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.0 1.7	1.9	
M5	Sunny	Calm	9:04	Surface	1.1	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.1	101.1	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	1.5 1.4	1.5	2.0
				Middle	5.6	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.9 101.0	101.0	7.7 7.7	7.7		1.6 1.6	1.6		1.6 2.1	1.9	
				Bottom	10.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.7 100.5	100.6	7.7 7.7	7.7	7.7	1.6 1.7	1.6		3.0 2.3	2.7	
M6	Sunny	Calm	8:53	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.7	- -	-	1.6	- -	-	2.9
				Middle	2.0	19.2 19.2	19.2	8.8 8.8	8.8	32.5 32.5	32.5	100.9 100.9	100.9	7.7 7.7	7.7		1.6 1.6	1.6		3.2 2.5	2.9	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 23 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 2.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 2.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.1 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.1 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.5 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.8 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 23 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	14:45	Surface	1.0	21.1 21.0	21.1	8.8 8.8	8.8	32.5 32.5	32.5	100.9 101.1	101.0	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	2.4 2.2	2.3	3.0
				Middle	9.1	20.9 21.7	21.3	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.5	100.5	7.7 7.7	7.7		1.6 1.7	1.7		2.5 2.6	2.6	
				Bottom	17.0	20.9 21.0	21.0	8.8 8.8	8.8	32.5 32.5	32.5	100.0 100.0	100.0	7.6 7.6	7.6	7.6	1.6 1.6	1.6		3.9 4.6	4.3	
C2	Sunny	Calm	13:00	Surface	1.1	21.5 20.9	21.2	8.9 8.9	8.9	32.5 32.5	32.5	102.0 102.0	102.0	7.8 7.8	7.8	7.7	1.5 1.5	1.5	1.6	2.8 2.5	2.7	2.3
				Middle	16.6	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	101.1 101.1	101.1	7.7 7.7	7.7		1.6 1.6	1.6		2.2 2.4	2.3	
				Bottom	32.0	20.9 20.9	20.9	8.9 8.9	8.9	32.5 32.5	32.5	100.6 100.5	100.6	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.0 1.9	2.0	
G1	Sunny	Calm	13:38	Surface	1.1	21.4 20.9	21.1	8.8 8.8	8.8	32.5 32.5	32.5	101.3 101.4	101.4	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	1.7 1.9	1.8	2.3
				Middle	4.0	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.2	101.2	7.7 7.7	7.7		1.6 1.6	1.6		2.6 2.4	2.5	
				Bottom	7.1	20.8 20.7	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.7 100.6	100.7	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.2 2.8	2.5	
G2	Sunny	Calm	13:18	Surface	1.0	21.0 20.9	21.0	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.3	101.2	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	2.5 2.2	2.4	2.6
				Middle	5.0	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.1	101.1	7.7 7.7	7.7		1.6 1.6	1.6		2.5 2.7	2.6	
				Bottom	9.1	20.8 20.9	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.7 100.5	100.6	7.7 7.7	7.7	7.7	1.7 1.6	1.6		3.1 2.8	3.0	
G3	Sunny	Calm	13:45	Surface	1.1	21.2 20.9	21.1	8.8 8.8	8.8	32.5 32.5	32.5	101.4 101.4	101.4	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	2.8 2.7	2.8	2.8
				Middle	4.1	20.8 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.2	101.2	7.7 7.7	7.7		1.6 1.6	1.6		2.7 2.9	2.8	
				Bottom	7.1	20.7 20.8	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.7 100.7	100.7	7.7 7.7	7.7	7.7	1.6 1.6	1.6		3.0 2.9	3.0	
G4	Sunny	Calm	14:00	Surface	1.1	22.0 21.0	21.5	8.8 8.8	8.8	32.5 32.5	32.5	101.3 101.4	101.4	7.7 7.7	7.7	7.7	1.5 1.6	1.6	1.6	1.6 2.2	1.9	2.2
				Middle	4.1	21.0 21.0	21.0	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.2	101.2	7.7 7.7	7.7		1.5 1.5	1.5		1.8 2.4	2.1	
				Bottom	7.0	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	100.3 100.3	100.3	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.6 2.6	2.6	
M1	Sunny	Calm	13:24	Surface	1.1	22.0 21.1	21.5	8.8 8.8	8.8	32.5 32.5	32.5	101.5 101.5	101.5	7.7 7.7	7.7	7.7	1.6 1.5	1.5	1.6	2.2 1.9	2.1	2.4
				Middle	3.1	20.9 21.0	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.3 101.4	101.4	7.7 7.7	7.7		1.6 1.6	1.6		2.4 2.5	2.5	
				Bottom	5.1	20.8 20.8	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.9 100.8	100.9	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.5 3.0	2.8	
M2	Sunny	Calm	13:12	Surface	1.1	21.2 20.9	21.1	8.8 8.8	8.8	32.5 32.5	32.5	101.6 101.6	101.6	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	2.3 1.8	2.1	2.5
				Middle	5.5	20.8 20.9	20.8	8.8 8.8	8.8	32.5 32.5	32.5	101.1 101.1	101.1	7.7 7.7	7.7		1.6 1.6	1.6		3.0 2.4	2.7	
				Bottom	10.0	20.8 20.8	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.7 1.6	1.6		2.3 3.2	2.8	
M3	Sunny	Calm	13:53	Surface	1.1	21.1 21.0	21.0	8.8 8.8	8.8	32.5 32.5	32.5	101.3 101.3	101.3	7.7 7.7	7.7	7.7	1.6 1.6	1.6	1.6	3.0 2.9	3.0	2.6
				Middle	4.1	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.1	101.1	7.7 7.7	7.7		1.5 1.6	1.6		2.2 2.9	2.6	
				Bottom	7.0	20.7 20.8	20.7	8.8 8.8	8.8	32.5 32.5	32.5	100.5 100.4	100.5	7.7 7.7	7.7	7.7	1.6 1.6	1.6		2.2 2.5	2.4	
M4	Sunny	Calm	13:06	Surface	1.0	21.7 21.0	21.3	8.8 8.8	8.8	32.5 32.5	32.5	101.6 101.7	101.7	7.7 7.7	7.7	7.7	1.5 1.5	1.5	1.6	2.4 2.2	2.3	2.6
				Middle	5.0	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.0	101.0	7.7 7.7	7.7		1.6 1.6	1.6		2.6 2.5	2.6	
				Bottom	9.1	20.8 20.8	20.8	8.8 8.8	8.8	32.5 32.5	32.5	100.6 100.5	100.6	7.7 7.7	7.7	7.7	1.7 1.6	1.6		2.5 3.2	2.9	
M5	Sunny	Calm	14:35	Surface	1.1	21.0 21.0	21.0	8.8 8.8	8.8	32.5 32.5	32.5	101.2 101.2	101.2	7.7 7.7	7.7	7.7	1.6 1.7	1.6	1.7	2.5 3.2	2.9	2.6
				Middle	6.1	20.9 21.6	21.2	8.8 8.8	8.8	32.5 32.5	32.5	101.0 101.1	101.1	7.7 7.7	7.7		1.6 1.6	1.6		3.0 2.4	2.7	
				Bottom	11.0	20.9 20.9	20.9	8.8 8.8	8.8	32.5 32.5	32.5	100.4 100.4	100.4	7.7 7.7	7.7	7.7	1.7 1.7	1.7		2.5 2.0	2.3	
M6	Sunny	Calm	14:16	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.7	- -	-	1.6	- -	-	2.5
				Middle	2.2	21.0 20.9	21.0	8.8 8.8	8.8	32.5 32.5	32.5	100.8 100.9	100.9	7.7 7.7	7.7		1.6 1.6	1.6		2.8 2.1	2.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 23 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.1 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.8 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 2.8 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 5.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.5 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 29 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	11:52	Surface	1.1	19.5 19.5	19.5	12.4 12.3	12.4	32.4 32.4	32.4	105.1 105.1	105.1	8.0 8.0	8.0	7.9	1.1 1.3	1.2	1.6	2.7 3.2	3.0	2.5
				Middle	9.1	19.3 19.2	19.2	12.5 12.4	12.4	32.4 32.4	32.4	103.8 103.3	103.6	7.9 7.9	7.9		1.7 1.9	1.8		2.2 2.6	2.4	
				Bottom	17.1	19.2 19.2	19.2	12.5 12.4	12.4	32.4 32.4	32.4	102.6 102.7	102.7	7.8 7.8	7.8	7.8	2.0 1.9	1.9		1.8 2.2	2.0	
C2	Sunny	Calm	10:51	Surface	1.0	19.5 19.5	19.5	12.0 12.3	12.1	32.4 32.4	32.4	103.7 103.3	103.5	7.9 7.8	7.9	7.8	1.6 1.7	1.6	1.7	2.2 2.4	2.3	2.5
				Middle	16.1	19.4 19.5	19.4	12.1 12.3	12.2	32.4 32.4	32.4	102.5 103.6	103.1	7.8 7.9	7.8		1.7 1.7	1.7		2.2 2.6	2.4	
				Bottom	31.0	19.4 19.5	19.4	12.2 12.3	12.2	32.4 32.4	32.4	102.0 103.6	102.8	7.8 7.9	7.8	7.8	1.8 1.6	1.7		2.4 2.9	2.7	
G1	Sunny	Calm	11:23	Surface	1.0	19.5 19.6	19.6	12.4 12.3	12.3	32.3 32.3	32.3	103.8 103.2	103.5	7.9 7.8	7.8	7.8	1.7 1.6	1.7	2.1	1.9 2.3	2.1	2.7
				Middle	4.2	19.4 19.4	19.4	12.4 12.3	12.4	32.3 32.3	32.3	102.7 102.6	102.7	7.8 7.8	7.8		2.0 1.9	2.0		2.4 2.8	2.6	
				Bottom	7.2	19.4 19.4	19.4	12.4 12.4	12.4	32.4 32.4	32.4	102.6 102.3	102.5	7.8 7.8	7.8	7.8	2.4 2.9	2.7		2.9 3.8	3.4	
G2	Sunny	Calm	11:12	Surface	1.0	19.5 19.5	19.5	12.3 12.3	12.3	32.4 32.4	32.4	103.7 103.3	103.5	7.9 7.8	7.9	7.8	1.6 1.5	1.5	1.6	3.1 4.0	3.6	2.7
				Middle	5.1	19.4 19.4	19.4	12.4 12.3	12.4	32.4 32.4	32.4	103.3 103.2	103.3	7.9 7.8	7.8		1.4 1.4	1.4		2.3 2.5	2.4	
				Bottom	9.1	19.3 19.3	19.3	12.4 12.4	12.4	32.4 32.4	32.4	101.8 102.3	102.1	7.7 7.8	7.8	7.8	1.8 1.9	1.8		2.0 2.4	2.2	
G3	Sunny	Calm	11:27	Surface	1.2	19.7 19.6	19.7	12.3 12.4	12.4	32.2 32.3	32.3	102.6 102.7	102.7	7.8 7.8	7.8	7.8	1.6 1.6	1.6	1.9	2.6 2.0	2.3	2.0
				Middle	4.2	19.5 19.5	19.5	12.4 12.3	12.4	32.4 32.4	32.4	102.2 102.1	102.2	7.8 7.7	7.7		1.9 1.8	1.9		1.5 2.2	1.9	
				Bottom	7.2	19.4 19.5	19.4	12.4 12.4	12.4	32.4 32.4	32.4	100.4 101.1	100.8	7.6 7.7	7.6	7.6	2.1 2.1	2.1		1.4 2.2	1.8	
G4	Sunny	Calm	11:35	Surface	1.0	19.6 19.5	19.5	12.4 12.4	12.4	32.3 32.4	32.4	103.6 102.1	102.9	7.9 7.8	7.8	7.8	2.1 2.1	2.1	2.1	2.2 2.9	2.6	2.3
				Middle	4.1	19.4 19.5	19.5	12.3 12.3	12.3	32.4 32.4	32.4	102.0 102.0	102.0	7.7 7.7	7.7		2.1 2.0	2.0		2.0 2.9	2.5	
				Bottom	7.1	19.3 19.4	19.4	12.4 12.3	12.3	32.4 32.4	32.4	101.5 101.9	101.7	7.7 7.7	7.7	7.7	2.4 2.0	2.2		2.0 1.6	1.8	
M1	Sunny	Calm	11:18	Surface	1.0	19.6 19.6	19.6	12.4 12.3	12.3	32.4 32.4	32.4	102.4 101.9	102.2	7.8 7.7	7.7	7.7	2.8 2.8	2.8	2.8	3.5 3.0	3.3	2.8
				Middle	3.0	19.5 19.5	19.5	12.3 12.3	12.3	32.4 32.4	32.4	101.7 101.5	101.6	7.7 7.7	7.7		2.9 2.9	2.9		2.9 3.2	3.1	
				Bottom	5.0	19.5 19.5	19.5	12.3 12.3	12.3	32.4 32.4	32.4	101.5 101.4	101.5	7.7 7.7	7.7	7.7	2.6 2.9	2.8		2.4 1.8	2.1	
M2	Sunny	Calm	11:07	Surface	1.1	19.6 19.5	19.5	12.4 12.3	12.4	32.3 32.4	32.3	104.3 103.8	104.1	7.9 7.9	7.9	7.9	1.5 1.4	1.4	1.7	3.0 3.6	3.3	2.5
				Middle	6.1	19.4 19.4	19.4	12.4 12.4	12.4	32.4 32.4	32.4	103.1 102.8	103.0	7.8 7.8	7.8		1.6 1.8	1.7		2.2 2.4	2.3	
				Bottom	11.1	19.3 19.3	19.3	12.4 12.4	12.4	32.4 32.4	32.4	101.6 101.4	101.5	7.7 7.7	7.7	7.7	1.9 1.9	1.9		2.1 1.8	2.0	
M3	Sunny	Calm	11:31	Surface	1.1	19.8 19.6	19.7	12.3 12.4	12.3	32.1 32.4	32.3	101.1 101.3	101.2	7.6 7.7	7.7	7.7	1.4 2.2	1.8	2.4	3.6 3.0	3.3	2.6
				Middle	4.2	19.6 19.6	19.6	12.4 12.4	12.4	32.4 32.4	32.4	101.3 102.3	101.8	7.7 7.7	7.7		2.3 1.8	2.1		2.0 2.7	2.4	
				Bottom	7.1	19.4 19.5	19.4	12.4 12.4	12.4	32.4 32.4	32.4	99.9 101.0	100.5	7.6 7.7	7.6	7.6	3.5 3.0	3.3		1.7 2.5	2.1	
M4	Sunny	Calm	10:52	Surface	1.1	19.5 19.6	19.5	12.3 12.4	12.3	32.4 32.3	32.3	103.6 104.0	103.8	7.9 7.9	7.9	7.8	1.7 1.4	1.5	1.6	2.2 1.9	2.1	2.7
				Middle	5.1	19.4 19.4	19.4	12.4 12.4	12.4	32.4 32.4	32.4	102.5 103.0	102.8	7.8 7.8	7.8		1.6 1.8	1.7		2.5 2.4	2.5	
				Bottom	8.9	19.3 19.4	19.4	12.4 12.4	12.4	32.4 32.4	32.4	101.8 103.0	102.4	7.7 7.8	7.8	7.8	1.6 1.6	1.6		3.0 3.9	3.5	
M5	Sunny	Calm	11:46	Surface	1.1	19.6 19.6	19.6	12.2 12.3	12.3	32.4 32.4	32.4	103.6 103.2	103.4	7.9 7.8	7.8	7.8	1.3 1.4	1.4	1.7	2.8 2.6	2.7	2.4
				Middle	6.1	19.3 19.3	19.3	12.3 12.3	12.3	32.4 32.4	32.4	102.4 102.4	102.4	7.8 7.8	7.8		1.7 1.9	1.8		2.5 2.3	2.4	
				Bottom	11.1	19.3 19.2	19.3	12.3 12.3	12.3	32.4 32.4	32.4	101.8 103.0	102.4	7.8 7.9	7.8	7.8	1.9 1.8	1.8		1.9 2.2	2.1	
M6	Sunny	Calm	11:41	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.8	- -	-	3.3	- -	-	3.0
				Middle	2.1	19.5 19.5	19.5	12.3 12.3	12.3	32.3 32.4	32.3	103.2 103.2	103.2	7.8 7.8	7.8		4.3 2.3	3.3		2.7 3.3	3.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 29 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 2.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 2.2 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.8 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.8 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.4 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 29 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	16:11	Surface	1.0	19.7 19.7	19.7	12.4 12.2	12.3	32.4 32.4	32.4	105.9 105.4	105.7	8.0 8.0	8.0	7.9	1.7 1.1	1.4	1.5	2.5 2.7	2.6	3.0
				Middle	9.0	19.5 19.4	19.5	12.4 12.3	12.4	32.4 32.4	32.4	103.0 102.6	102.8	7.8 7.8	7.8		1.4 1.4	1.4		2.6 3.0	2.8	
				Bottom	17.1	19.2 19.2	19.2	12.3 12.3	12.3	32.4 32.4	32.4	101.8 101.7	101.8	7.8 7.8	7.8	7.8	1.5 1.6	1.5		3.9 3.5	3.7	
C2	Sunny	Calm	15:22	Surface	1.0	19.7 19.7	19.7	13.3 12.8	13.0	32.4 32.3	32.3	103.0 103.0	103.0	7.8 7.8	7.8	7.7	1.3 1.4	1.4	1.6	5.0 4.6	4.8	3.1
				Middle	16.1	19.4 19.4	19.4	13.4 12.8	13.1	32.3 32.3	32.3	100.8 100.3	100.6	7.7 7.6	7.6		1.8 1.6	1.7		2.1 2.5	2.3	
				Bottom	31.0	19.4 19.4	19.4	13.2 12.7	13.0	32.3 32.3	32.3	99.3 98.9	99.1	7.6 7.5	7.5	7.5	1.7 1.6	1.7		2.5 1.9	2.2	
G1	Sunny	Calm	15:47	Surface	1.0	19.8 19.8	19.8	12.5 12.5	12.5	32.3 32.3	32.3	104.4 103.9	104.2	7.9 7.8	7.9	7.8	1.5 1.3	1.4	1.7	2.1 1.9	2.0	2.4
				Middle	4.0	19.7 19.6	19.6	12.5 12.5	12.5	32.3 32.3	32.3	103.7 103.2	103.5	7.8 7.8	7.8		1.7 1.9	1.8		2.3 2.0	2.2	
				Bottom	7.1	19.5 19.5	19.5	12.5 12.5	12.5	32.3 32.3	32.3	102.7 102.8	102.8	7.8 7.8	7.8	7.8	1.7 2.0	1.8		3.6 2.6	3.1	
G2	Sunny	Calm	15:39	Surface	1.0	20.3 20.3	20.3	12.3 12.4	12.3	32.3 32.3	32.3	105.8 105.6	105.7	7.9 7.9	7.9	7.9	1.2 1.3	1.2	1.8	1.8 2.2	2.0	2.8
				Middle	5.1	19.7 19.5	19.6	12.4 12.4	12.4	32.3 32.3	32.3	103.7 102.7	103.2	7.8 7.8	7.8		1.8 2.3	2.0		2.5 2.4	2.5	
				Bottom	9.1	19.4 19.4	19.4	12.5 12.5	12.5	32.3 32.3	32.3	102.2 101.4	101.8	7.8 7.7	7.7	7.7	1.6 2.4	2.0		3.5 4.2	3.9	
G3	Sunny	Calm	15:51	Surface	1.0	19.8 20.0	19.9	12.4 12.4	12.4	32.3 32.2	32.3	104.0 104.1	104.1	7.8 7.8	7.8	7.8	1.5 2.9	2.2	2.2	1.2 1.7	1.5	1.9
				Middle	4.0	19.6 19.7	19.7	12.5 12.4	12.4	32.4 32.3	32.3	102.5 103.2	102.9	7.8 7.8	7.8		2.8 2.0	2.4		1.6 2.2	1.9	
				Bottom	7.1	19.5 19.5	19.5	12.5 12.5	12.5	32.4 32.4	32.4	102.1 102.3	102.2	7.7 7.8	7.7	7.7	2.1 2.0	2.0		2.0 2.7	2.4	
G4	Sunny	Calm	15:58	Surface	1.0	20.0 20.0	20.0	12.4 12.4	12.4	32.4 32.4	32.4	104.8 104.7	104.8	7.9 7.9	7.9	7.9	2.0 2.0	2.0	1.9	2.6 2.8	2.7	2.3
				Middle	4.0	19.6 19.8	19.7	12.4 12.4	12.4	32.4 32.4	32.4	103.7 104.3	104.0	7.9 7.9	7.9		1.8 1.4	1.6		2.5 2.2	2.4	
				Bottom	7.1	19.4 19.5	19.5	12.5 12.4	12.4	32.4 32.4	32.4	102.5 103.2	102.9	7.8 7.8	7.8	7.8	2.3 2.0	2.1		1.5 2.2	1.9	
M1	Sunny	Calm	15:43	Surface	1.1	20.4 20.3	20.3	12.4 12.4	12.4	32.3 32.3	32.3	105.6 104.5	105.1	7.9 7.8	7.9	7.8	1.9 4.6	3.2	2.9	3.7 3.4	3.6	3.1
				Middle	3.1	20.0 20.0	20.0	12.4 12.4	12.4	32.3 32.3	32.3	103.9 103.8	103.9	7.8 7.8	7.8		2.3 2.3	2.3		3.2 2.4	2.8	
				Bottom	5.1	19.6 19.6	19.6	12.5 12.5	12.5	32.3 32.3	32.3	102.5 102.4	102.5	7.8 7.8	7.8	7.8	3.4 3.3	3.3		3.0 2.8	2.9	
M2	Sunny	Calm	15:35	Surface	1.0	20.0 20.0	20.0	12.4 12.4	12.4	32.3 32.3	32.3	105.2 104.9	105.1	7.9 7.9	7.9	7.9	1.3 1.3	1.3	1.7	3.0 2.3	2.7	3.7
				Middle	6.1	19.4 19.6	19.5	12.5 12.4	12.4	32.3 32.3	32.3	102.9 103.8	103.4	7.8 7.9	7.8		1.4 1.4	1.4		3.4 4.1	3.8	
				Bottom	11.0	19.4 19.3	19.3	12.5 12.5	12.5	32.3 32.4	32.3	101.7 100.5	101.1	7.7 7.6	7.7	7.7	2.0 2.6	2.3		5.0 4.1	4.6	
M3	Sunny	Calm	15:54	Surface	1.1	20.1 20.0	20.0	12.4 12.4	12.4	32.3 32.3	32.3	104.4 104.2	104.3	7.8 7.8	7.8	7.8	1.3 1.4	1.4	1.7	2.0 2.6	2.3	2.8
				Middle	4.1	19.7 19.7	19.7	12.5 12.4	12.4	32.4 32.4	32.4	103.8 103.3	103.6	7.9 7.8	7.8		1.6 1.8	1.7		2.7 3.0	2.9	
				Bottom	7.0	19.5 19.6	19.5	12.5 12.5	12.5	32.4 32.4	32.4	102.4 102.6	102.5	7.8 7.8	7.8	7.8	2.2 1.9	2.1		3.0 3.5	3.3	
M4	Sunny	Calm	15:28	Surface	1.0	19.7 19.8	19.8	12.6 12.5	12.5	32.3 32.3	32.3	104.6 104.9	104.8	7.9 7.9	7.9	7.9	1.3 1.3	1.3	3.8	3.5 3.9	3.7	3.2
				Middle	5.0	19.4 19.5	19.5	12.6 12.5	12.5	32.3 32.3	32.3	103.0 103.6	103.3	7.8 7.9	7.8		1.5 1.6	1.6		3.6 3.2	3.4	
				Bottom	8.9	19.4 19.4	19.4	12.6 12.6	12.6	32.3 32.3	32.3	102.6 102.3	102.5	7.8 7.8	7.8	7.8	9.7 7.2	8.5		2.4 2.8	2.6	
M5	Sunny	Calm	16:06	Surface	1.0	19.6 19.6	19.6	12.4 12.4	12.4	32.4 32.4	32.4	105.2 105.2	105.2	8.0 8.0	8.0	7.9	1.6 1.8	1.7	1.3	3.3 4.2	3.8	3.0
				Middle	6.1	19.4 19.4	19.4	12.5 12.4	12.5	32.4 32.4	32.4	104.1 104.4	104.3	7.9 7.9	7.9		1.3 1.1	1.2		2.3 3.2	2.8	
				Bottom	11.1	19.3 19.3	19.3	12.5 12.5	12.5	32.4 32.4	32.4	103.6 103.8	103.7	7.9 7.9	7.9	7.9	1.2 1.2	1.2		3.0 2.2	2.6	
M6	Sunny	Calm	16:02	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.9	- -	-	1.5	- -	-	2.5
				Middle	1.9	20.3 20.3	20.3	12.3 12.3	12.3	32.4 32.4	32.4	105.0 105.2	105.1	7.9 7.9	7.9		1.6 1.5	1.5		2.8 2.2	2.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 29 December 2020 (Mid-Flood Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 1.9 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C1: 4.4 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.8 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 December 2020

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	14:33	Surface	1.1	21.1 21.0	21.1	9.3 9.2	9.2	32.3 32.3	32.3	103.7 108.9	106.3	8.0 8.4	8.2	8.1	2.4 1.5	2.0	1.8	1.8 2.6	2.2	1.9
				Middle	9.1	20.9 21.4	21.2	9.2 8.9	9.1	32.3 32.3	32.3	105.4 102.8	104.1	8.2 8.0	8.1		1.4 2.1	1.7		1.6 2.5	2.1	
				Bottom	17.0	20.9 20.9	20.9	9.0 9.1	9.0	32.3 32.3	32.3	103.8 103.4	103.6	8.1 8.0	8.0	8.0	1.8 1.5	1.7		1.6 1.4	1.5	
C2	Sunny	Calm	12:46	Surface	1.0	21.1 20.9	21.0	7.9 7.9	7.9	32.3 32.3	32.3	104.1 103.8	104.0	8.0 8.0	8.0	8.0	1.8 1.7	1.8	1.6	2.0 1.7	1.9	2.2
				Middle	16.5	20.9 20.9	20.9	8.0 8.0	8.0	32.3 32.3	32.3	102.7 102.7	102.7	7.9 7.9	7.9		1.4 1.5	1.4		2.0 2.2	2.1	
				Bottom	32.0	20.9 20.9	20.9	8.6 8.7	8.6	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.4 1.5	1.5		2.2 3.0	2.6	
G1	Sunny	Calm	13:26	Surface	1.0	21.9 20.9	21.4	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.6	2.2 1.8	2.0	1.9
				Middle	4.1	20.9 20.9	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.7	102.7	7.9 7.9	7.9		1.6 1.6	1.6		2.2 1.5	1.9	
				Bottom	7.1	20.8 20.7	20.8	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.6 1.5	1.5		1.3 2.1	1.7	
G2	Sunny	Calm	13:07	Surface	1.0	21.8 20.9	21.4	9.4 9.4	9.4	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.6	1.5 2.0	1.8	2.0
				Middle	5.1	20.9 20.9	20.9	9.5 9.4	9.4	32.3 32.3	32.3	102.7 102.6	102.7	7.9 7.9	7.9		1.5 1.5	1.5		1.5 2.1	1.8	
				Bottom	9.0	20.8 20.9	20.8	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.6 1.5	1.6		1.9 2.7	2.3	
G3	Sunny	Calm	13:34	Surface	1.0	21.3 20.9	21.1	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.4 1.4	1.4	1.6	1.7 2.0	1.9	2.1
				Middle	4.0	20.9 20.9	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.8	102.8	7.9 7.9	7.9		1.6 1.6	1.6		1.8 2.3	2.1	
				Bottom	7.1	20.7 20.8	20.8	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.4	102.5	7.9 7.9	7.9	7.9	1.7 1.7	1.7		2.4 2.4	2.4	
G4	Sunny	Calm	13:48	Surface	1.1	21.3 21.0	21.2	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.5	2.2 2.8	2.5	2.2
				Middle	4.1	21.0 20.9	21.0	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.7	102.7	7.9 7.9	7.9		1.5 1.5	1.5		1.9 2.7	2.3	
				Bottom	7.1	20.9 20.9	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.3 102.3	102.3	7.9 7.9	7.9	7.9	1.5 1.5	1.5		1.5 2.1	1.8	
M1	Sunny	Calm	13:13	Surface	1.1	21.3 21.1	21.2	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.6	2.2 3.0	2.6	2.1
				Middle	3.0	20.9 21.0	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.8 102.9	102.9	7.9 7.9	7.9		1.6 1.5	1.6		2.2 1.6	1.9	
				Bottom	5.0	20.8 20.8	20.8	9.5 9.5	9.5	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9	7.9	1.6 1.6	1.6		1.3 2.1	1.7	
M2	Sunny	Calm	13:00	Surface	1.0	21.3 20.9	21.1	9.3 9.3	9.3	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.6 1.5	1.6	1.6	2.4 3.0	2.7	2.3
				Middle	5.6	20.9 20.9	20.9	9.3 9.3	9.3	32.3 32.3	32.3	102.6 102.5	102.6	7.9 7.9	7.9		1.6 1.7	1.6		2.5 2.3	2.4	
				Bottom	10.0	20.8 20.8	20.8	9.4 9.4	9.4	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.6 1.6	1.6		1.6 2.1	1.9	
M3	Sunny	Calm	13:42	Surface	1.1	21.4 21.0	21.2	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.6	1.5 2.3	1.9	2.5
				Middle	4.0	20.9 20.9	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9		1.5 1.5	1.5		2.7 2.6	2.7	
				Bottom	7.1	20.7 20.8	20.7	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.6 1.6	1.6		2.6 3.0	2.8	
M4	Sunny	Calm	12:54	Surface	1.0	21.8 21.0	21.4	8.9 9.0	8.9	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.6	3.3 4.1	3.7	3.1
				Middle	5.0	20.9 20.8	20.9	9.1 9.1	9.1	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9		1.6 1.6	1.6		2.8 2.9	2.9	
				Bottom	9.1	20.8 20.9	20.8	9.2 9.2	9.2	32.3 32.3	32.3	102.4 102.3	102.4	7.9 7.9	7.9	7.9	1.6 1.5	1.5		2.8 2.6	2.7	
M5	Sunny	Calm	14:22	Surface	1.0	21.0 21.0	21.0	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.7 1.7	1.7	1.6	2.0 2.5	2.3	2.5
				Middle	6.0	20.9 21.1	21.0	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9		1.6 1.5	1.6		2.1 2.9	2.5	
				Bottom	11.0	20.9 20.9	20.9	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.5 1.4	1.4		2.4 3.2	2.8	
M6	Sunny	Calm	14:02	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.2	- -	-	2.2	- -	-	1.6
				Middle	2.2	21.9 20.9	21.4	9.6 9.3	9.5	32.3 32.3	32.3	106.9 104.2	105.6	8.3 8.1	8.2		2.0 2.4	2.2		1.6 1.5	1.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 31 December 2020 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.8 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.9 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.4 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 2.2 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 2.4 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 3.1 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.4 mg/L***
	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.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 December 2020

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	8:35	Surface	1.0	18.5 18.5	18.5	8.8 8.7	8.7	32.3 32.3	32.3	104.8 103.9	104.4	8.1 8.0	8.1	8.0	1.5 1.7	1.6	1.8	2.6 3.0	2.8	2.2
				Middle	8.6	18.5 18.6	18.6	8.8 8.7	8.8	32.3 32.3	32.3	103.9 104.3	104.1	8.0 8.0	8.0		1.5 2.5	2.0		2.4 2.8	2.6	
				Bottom	16.1	18.4 18.3	18.4	9.1 9.1	9.1	32.4 32.3	32.3	104.7 104.0	104.4	8.1 8.1	8.1	8.1	1.8 1.8	1.8		1.0 1.2	1.1	
C2	Sunny	Calm	7:03	Surface	1.0	18.6 18.6	18.6	8.0 7.9	8.0	32.3 32.3	32.3	105.2 104.5	104.9	8.1 8.1	8.1	8.0	1.7 1.7	1.7	1.5	3.7 2.9	3.3	2.6
				Middle	16.0	18.5 18.5	18.5	8.1 8.0	8.1	32.3 32.3	32.3	102.8 102.8	102.8	7.9 7.9	7.9		1.5 1.5	1.5		3.2 2.4	2.8	
				Bottom	31.0	18.5 18.5	18.5	8.6 8.6	8.6	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.4 1.4	1.4		2.0 1.6	1.8	
G1	Sunny	Calm	7:45	Surface	1.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.6	1.9 2.0	2.0	2.3
				Middle	3.7	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.8	102.8	7.9 7.9	7.9		1.7 1.7	1.7		2.3 2.4	2.4	
				Bottom	6.5	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.5 1.5	1.5		2.1 2.9	2.5	
G2	Sunny	Calm	7:24	Surface	1.1	18.7 18.7	18.7	9.4 9.4	9.4	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.5	3.0 2.0	2.5	1.8
				Middle	5.0	18.6 18.6	18.6	9.4 9.4	9.4	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9		1.5 1.5	1.5		1.6 1.5	1.6	
				Bottom	9.1	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.5 1.4	1.5		1.5 1.3	1.4	
G3	Sunny	Calm	7:53	Surface	1.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.5	2.2 1.4	1.8	1.5
				Middle	3.7	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.7	102.7	7.9 7.9	7.9		1.5 1.6	1.5		1.3 2.1	1.7	
				Bottom	6.5	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.5 1.6	1.6		1.0 1.2	1.1	
G4	Sunny	Calm	8:07	Surface	1.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.5	1.2 1.3	1.3	1.6
				Middle	3.8	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.7 102.7	102.7	7.9 7.9	7.9		1.5 1.5	1.5		1.8 1.2	1.5	
				Bottom	6.6	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.3	102.4	7.9 7.9	7.9	7.9	1.6 1.6	1.6		1.6 2.5	2.1	
M1	Sunny	Calm	7:32	Surface	1.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	103.0 103.0	103.0	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.6	1.2 1.6	1.4	1.9
				Middle	3.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.8 102.8	102.8	7.9 7.9	7.9		1.5 1.6	1.5		1.8 2.0	1.9	
				Bottom	5.1	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9	7.9	1.7 1.7	1.7		2.1 2.5	2.3	
M2	Sunny	Calm	7:17	Surface	1.0	18.7 18.7	18.7	9.3 9.3	9.3	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.7 1.7	1.7	1.6	2.1 2.7	2.4	2.2
				Middle	5.3	18.6 18.6	18.6	9.3 9.3	9.3	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9		1.5 1.5	1.5		2.2 2.3	2.3	
				Bottom	9.5	18.6 18.6	18.6	9.4 9.4	9.4	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9	7.9	1.6 1.6	1.6		1.9 2.1	2.0	
M3	Sunny	Calm	8:01	Surface	1.0	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.5 1.5	1.5	1.5	2.5 2.0	2.3	1.8
				Middle	3.7	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.6 102.6	102.6	7.9 7.9	7.9		1.5 1.5	1.5		1.8 1.6	1.7	
				Bottom	6.6	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.6 1.6	1.6		1.6 1.5	1.6	
M4	Sunny	Calm	7:09	Surface	1.1	18.7 18.7	18.7	9.0 9.0	9.0	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.6 1.6	1.6	1.5	2.0 1.8	1.9	1.9
				Middle	5.0	18.6 18.6	18.6	9.1 9.1	9.1	32.3 32.3	32.3	102.5 102.4	102.5	7.9 7.9	7.9		1.5 1.5	1.5		2.0 1.5	1.8	
				Bottom	9.0	18.6 18.6	18.6	9.2 9.2	9.2	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.4 1.4	1.4		2.2 1.6	1.9	
M5	Sunny	Calm	8:24	Surface	1.1	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.9 102.9	102.9	7.9 7.9	7.9	7.9	1.6 1.7	1.6	1.6	2.5 2.8	2.7	2.3
				Middle	5.6	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.5 102.5	102.5	7.9 7.9	7.9		1.6 1.6	1.6		2.5 2.3	2.4	
				Bottom	10.1	18.6 18.6	18.6	9.5 9.5	9.5	32.3 32.3	32.3	102.4 102.4	102.4	7.9 7.9	7.9	7.9	1.6 1.5	1.6		2.0 1.8	1.9	
M6	Sunny	Calm	8:15	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.2	- -	-	2.5	- -	-	3.4
				Middle	2.1	18.5 18.6	18.5	9.3 9.2	9.2	32.3 32.3	32.3	103.7 108.9	106.3	8.0 8.4	8.2		2.4 2.5	2.5		3.2 3.6	3.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 31 December 2020 (Mid-Flood Tide)

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 and 4)	**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 ***C1: 2.1 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 2.3 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.6 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.4 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.6 mg/L***
	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 ***C1: 1.3 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 1.4 mg/L***
	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.

Appendix I - Action and Limit Levels for Marine Water Quality on 0 January 1900 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	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.

Appendix I - Action and Limit Levels for Marine Water Quality on 0 January 1900 (Mid-Flood Tide)

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 and 4)	**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 ***C1: 0.0 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	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 ***C1: 0.0 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	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.

Appendix I - Action and Limit Levels for Marine Water Quality on 0 January 1900 (Mid-Ebb Tide)

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 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU***	***22.2 NTU***
		or 120% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.0 NTU***	or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L***	***6.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L***	***7.4 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	Stations G1-G4, M1-M5		
	Bottom	***6.9 mg/L***	***7.9 mg/L***
		or 120% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***	or 130% of upstream control station's SS at the same tide of the same day ***C2: 0.0 mg/L***
	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.

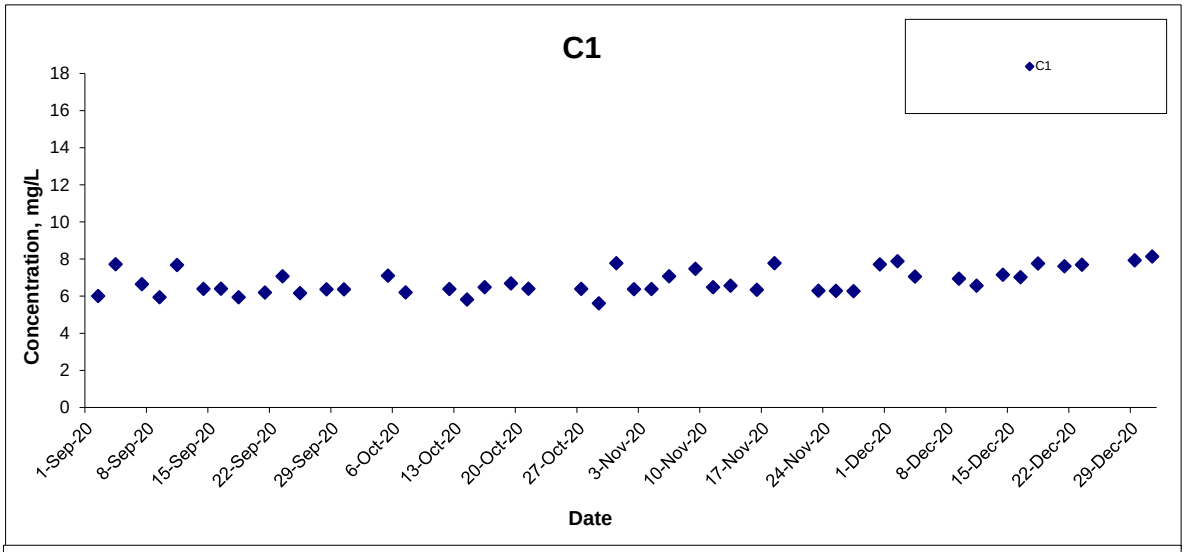
Appendix I - Action and Limit Levels for Marine Water Quality on 0 January 1900 (Mid-Flood Tide)

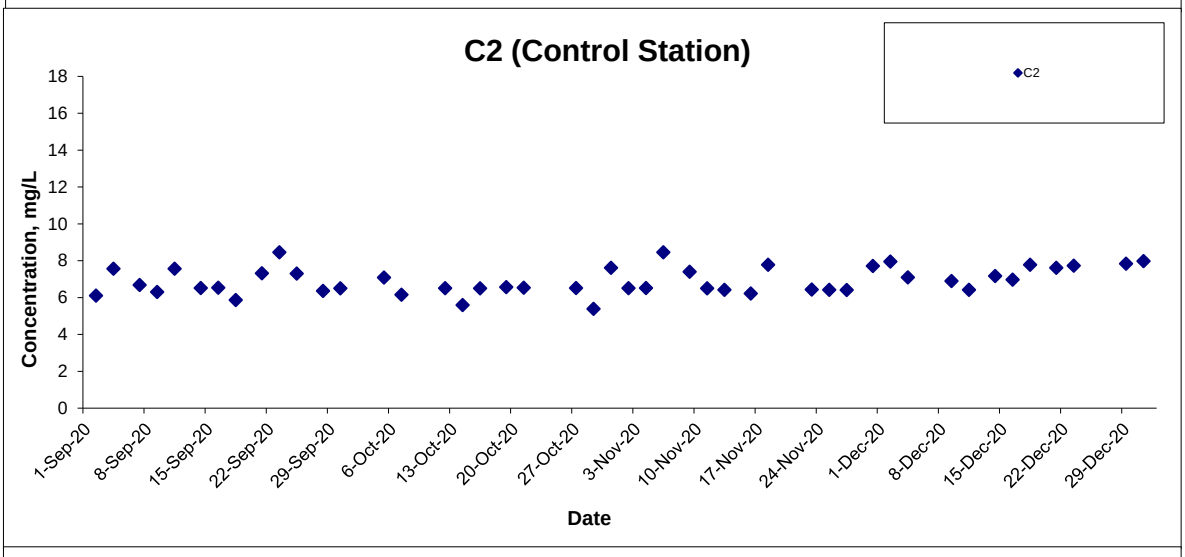
Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
DO in mg/L (See Note 1 and 4)	**Stations G1-G4, M1-M5**		
	Depth Average	***4.9 mg/L***	***4.6 mg/L***
	Bottom	***4.2 mg/L***	***3.6 mg/L***
	Station M6		
	Intake Level	***5.0 mg/L***	***4.7 mg/L***
Turbidity in NTU (See Note 2 and 4)	**Stations G1-G4, M1-M5**		
	Bottom	***19.3 NTU*** or 120% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.0 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.0 NTU***
	Station M6		
	Intake Level	***19.0 NTU***	***19.4 NTU***
SS in mg/L (See Note 2 and 4)	**Stations G1-G4**		
	Surface	***6.0 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	Stations M1-M5		
	Surface	***6.2 mg/L*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	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 ***C1: 0.0 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 0.0 mg/L***
	Station M6		
	Intake Level	***8.3 mg/L***	***8.6 mg/L***

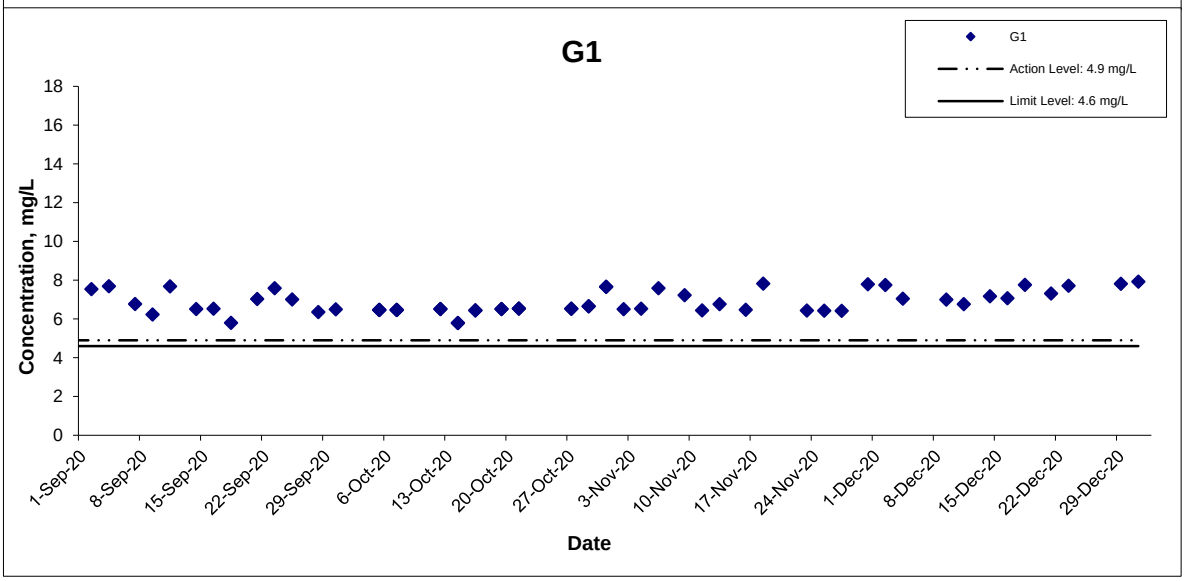
Notes:

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.

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide

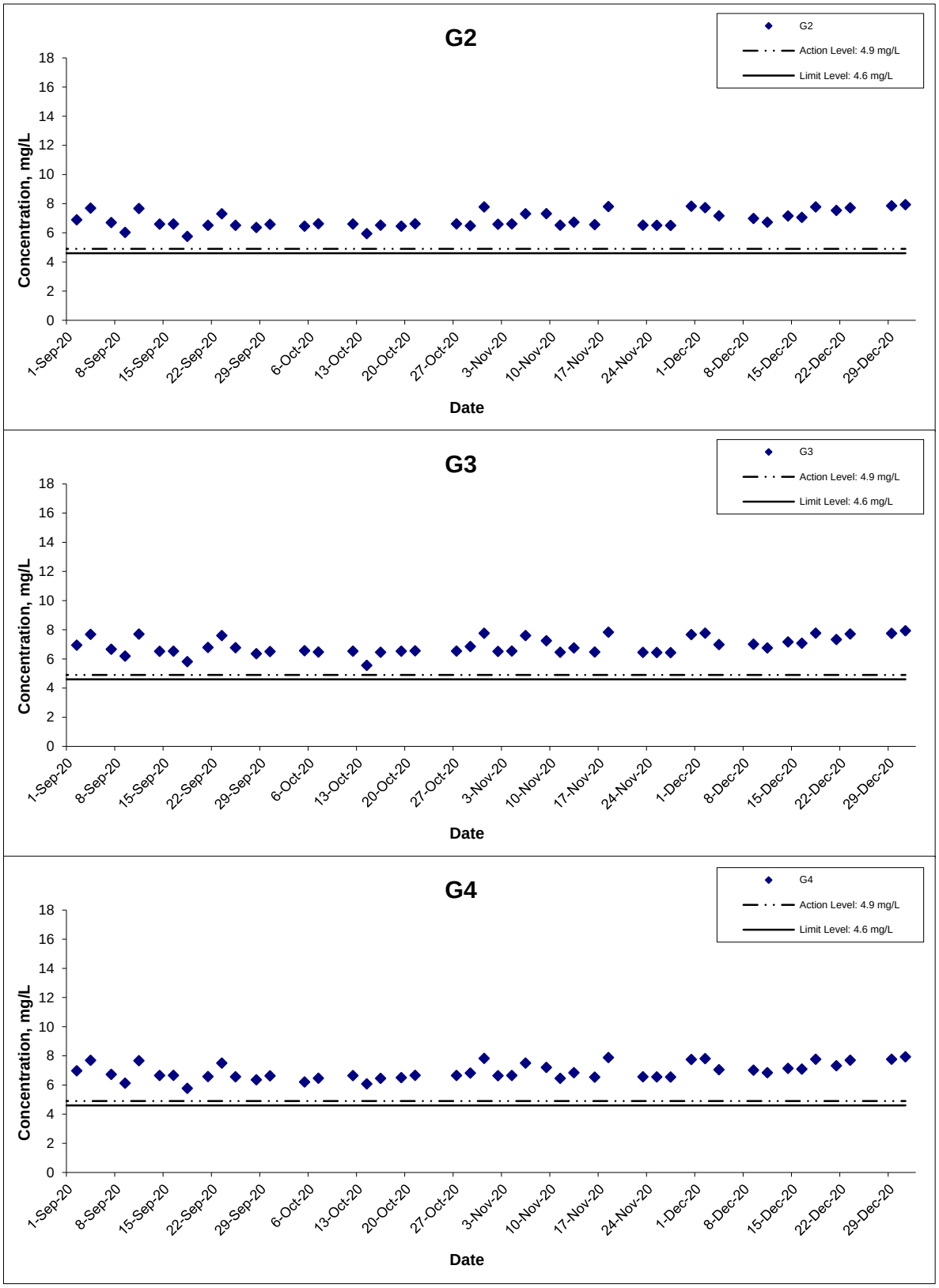






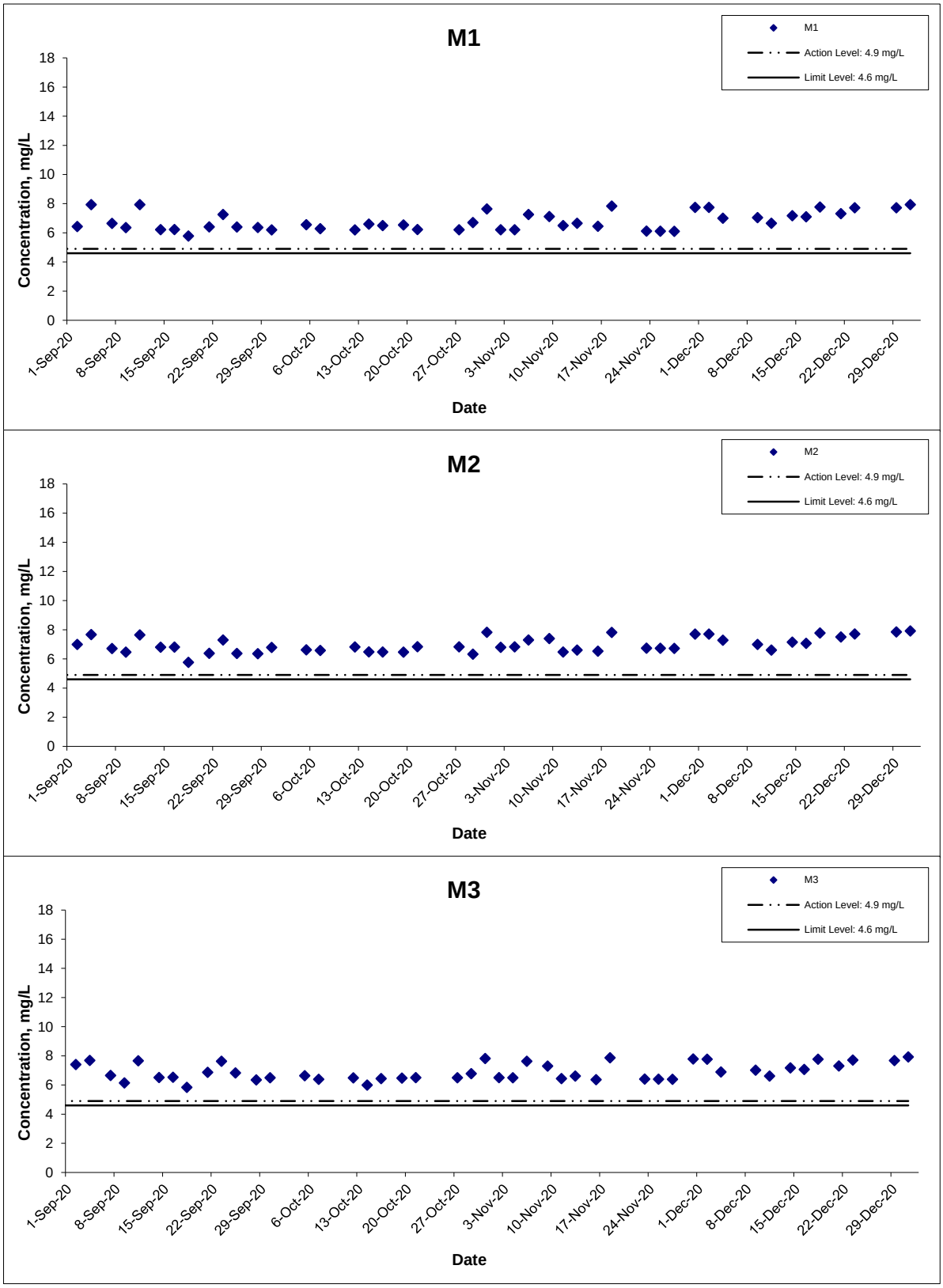
Title	Scale	Project No.	
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	N.T.S	MA16034	CINOTECH
	Date: Dec20	Appendix: I	

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



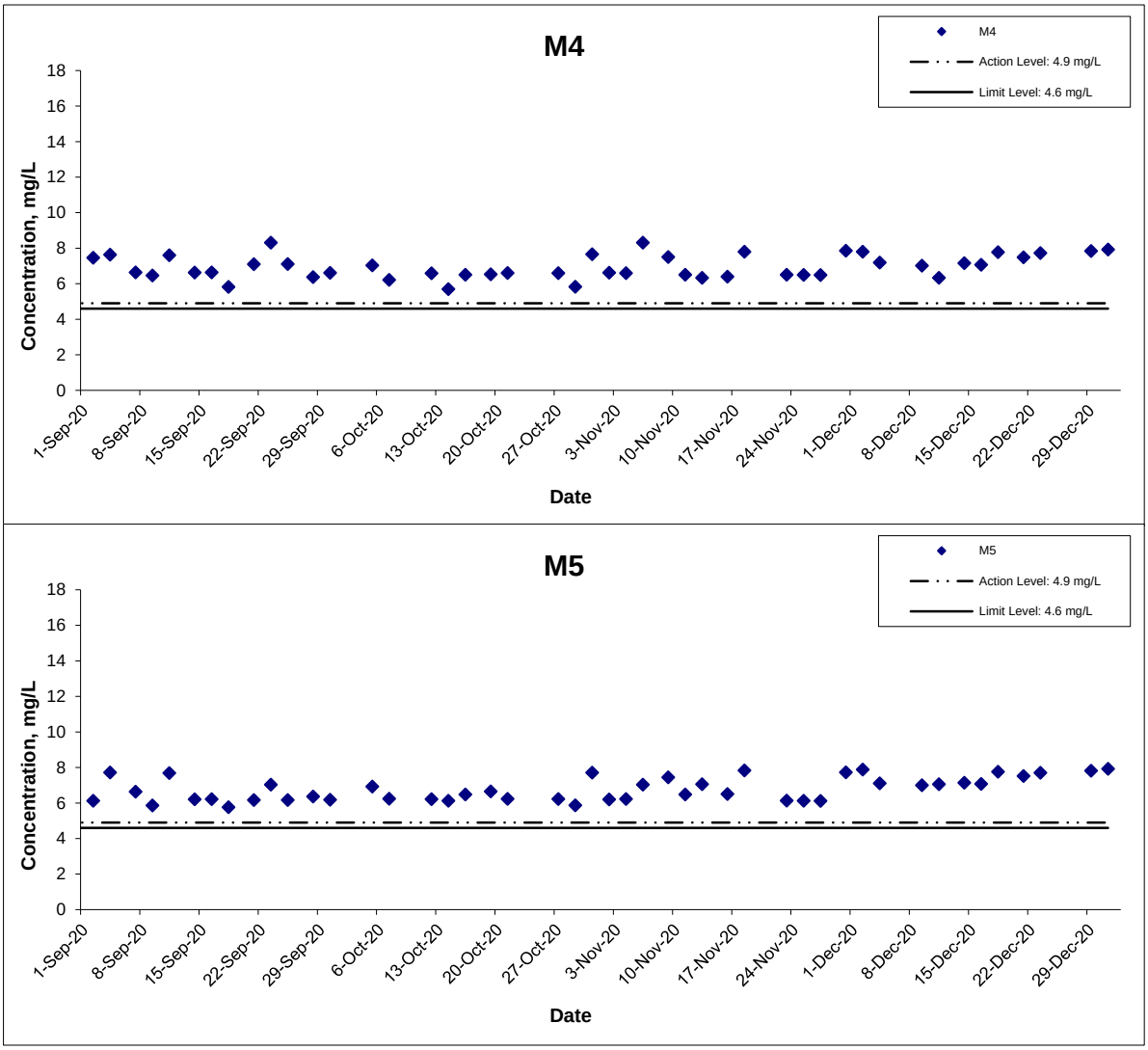
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec20	Appendix: I	

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



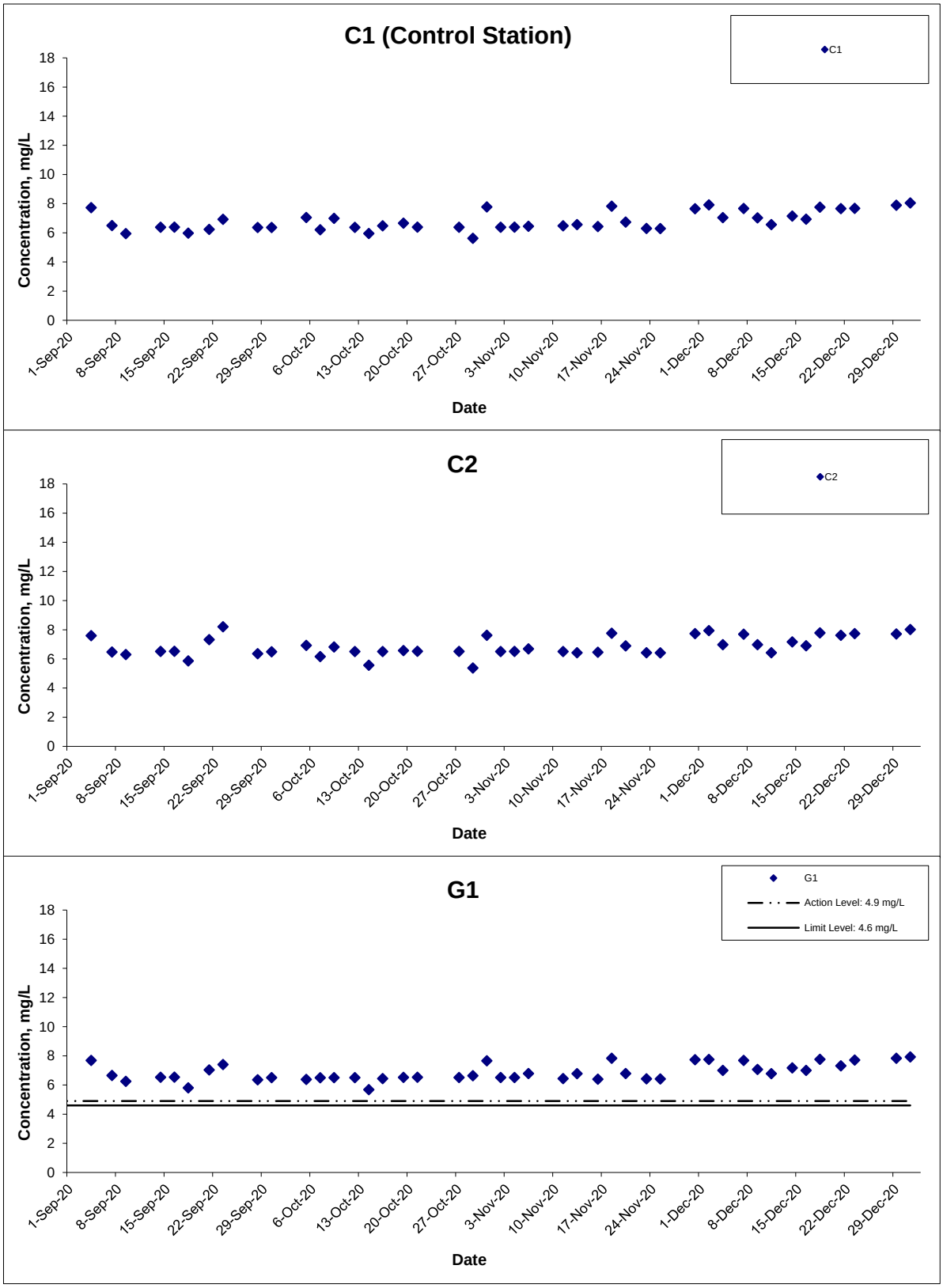
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
		Date Dec20	Appendix I	

Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



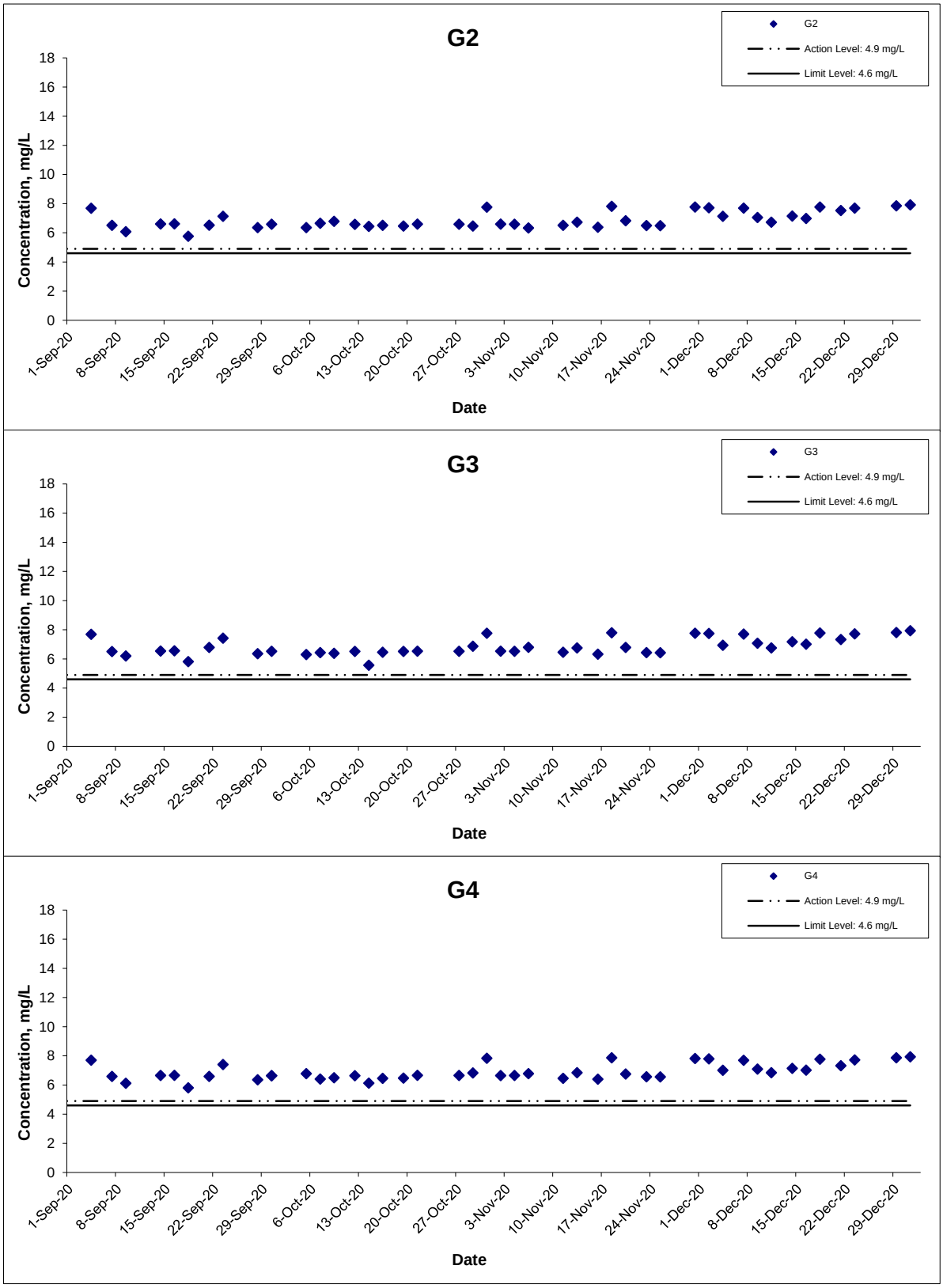
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec20	Appendix: I	

Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec20	Appendix: I	

Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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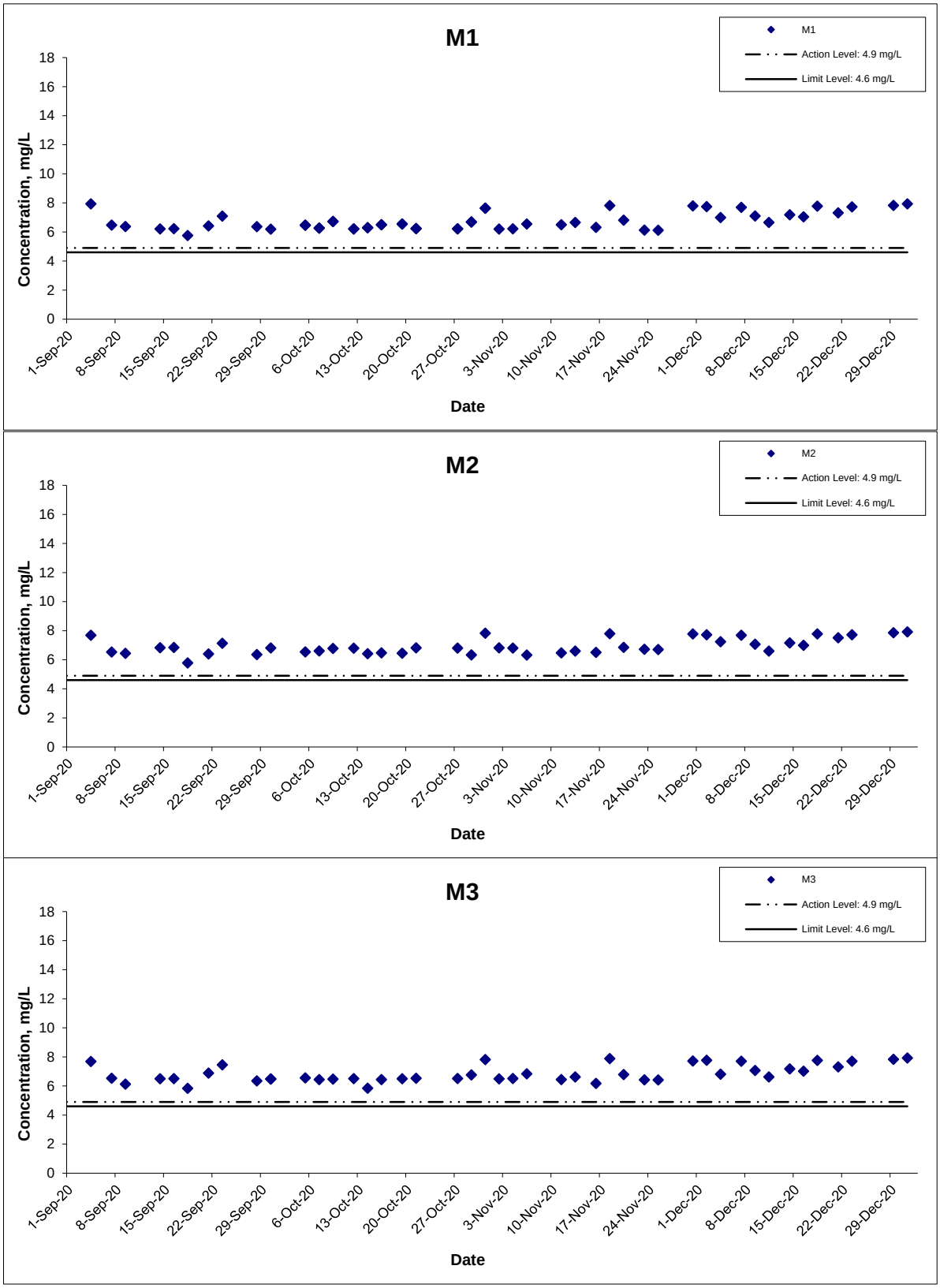
		Date Dec20	Appendix I	

Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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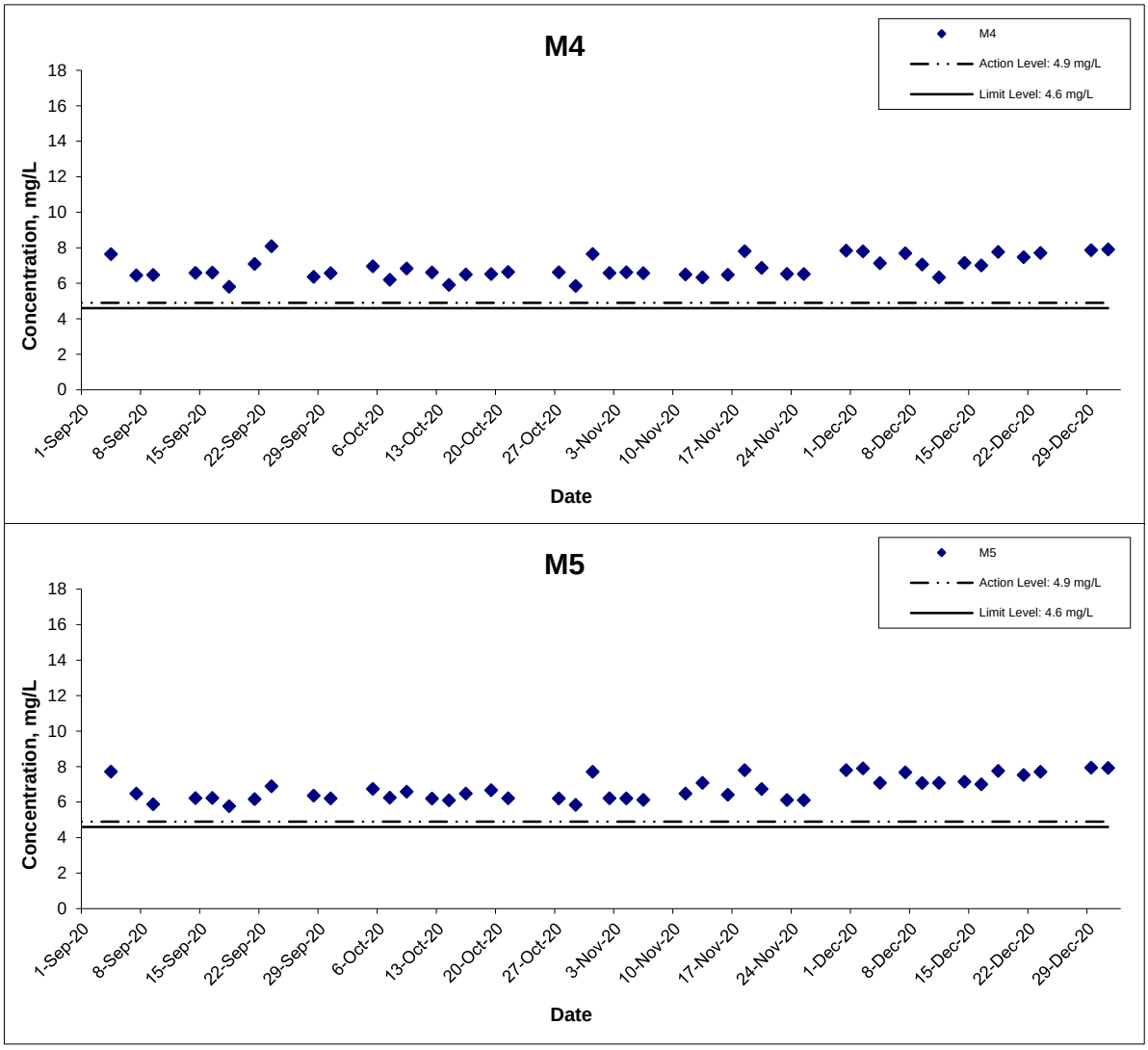
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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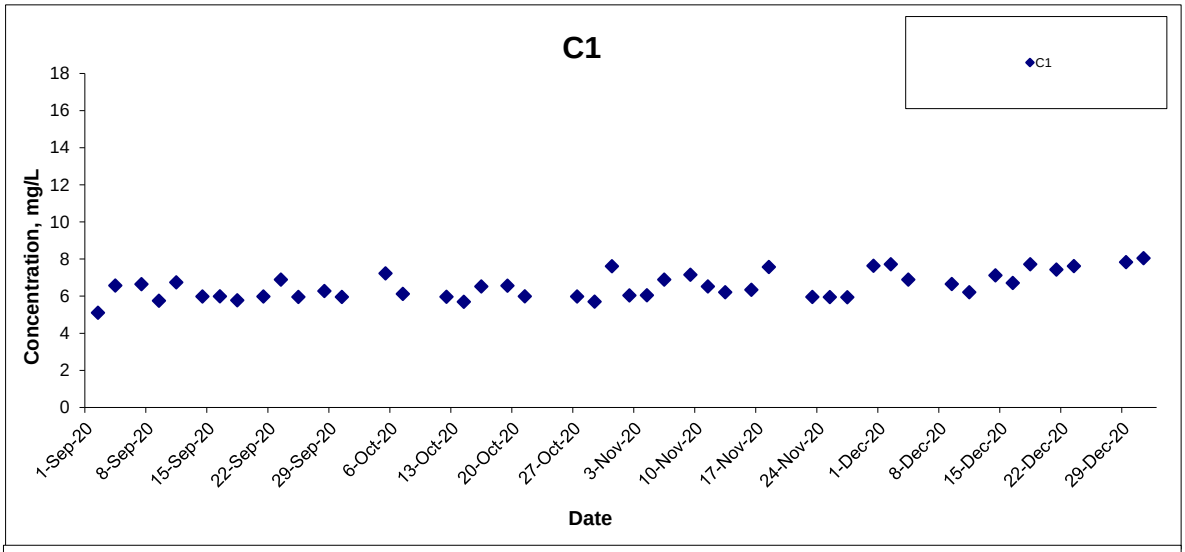
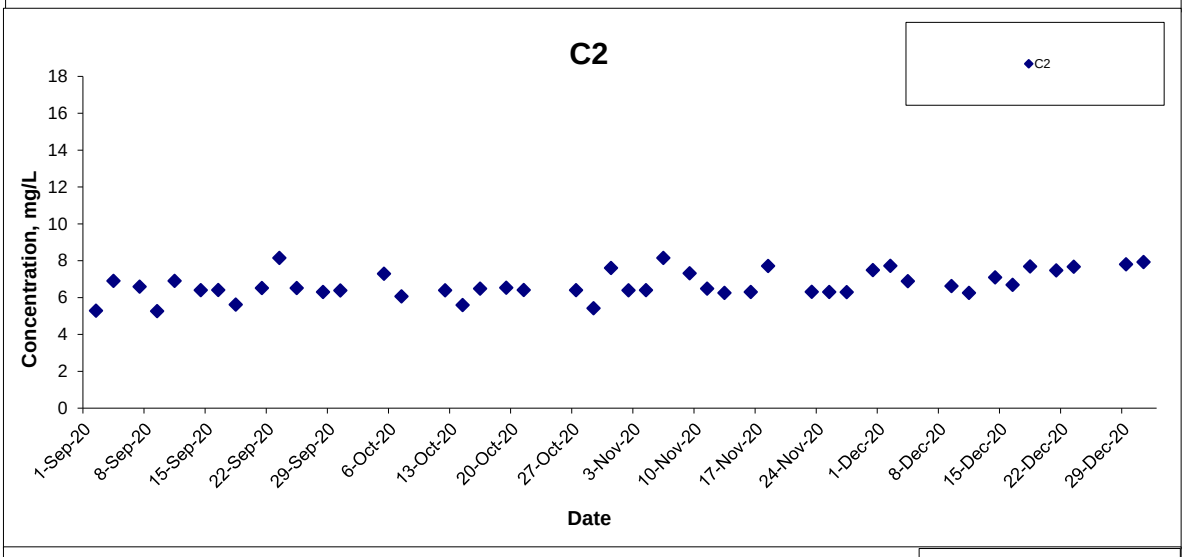
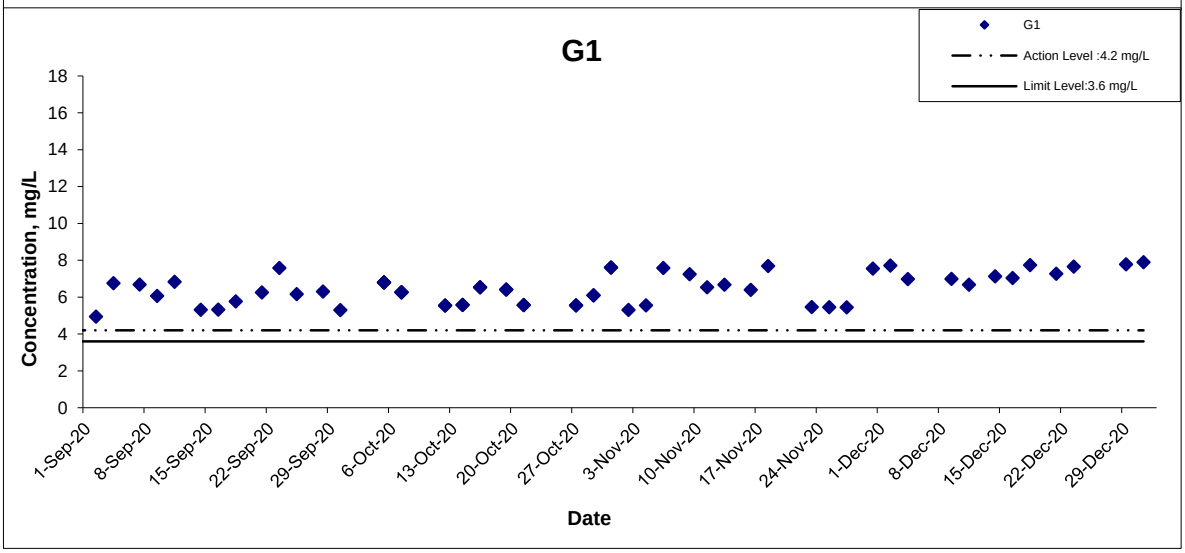
Dissolved Oxygen (Bottom) at Mid-Ebb Tide







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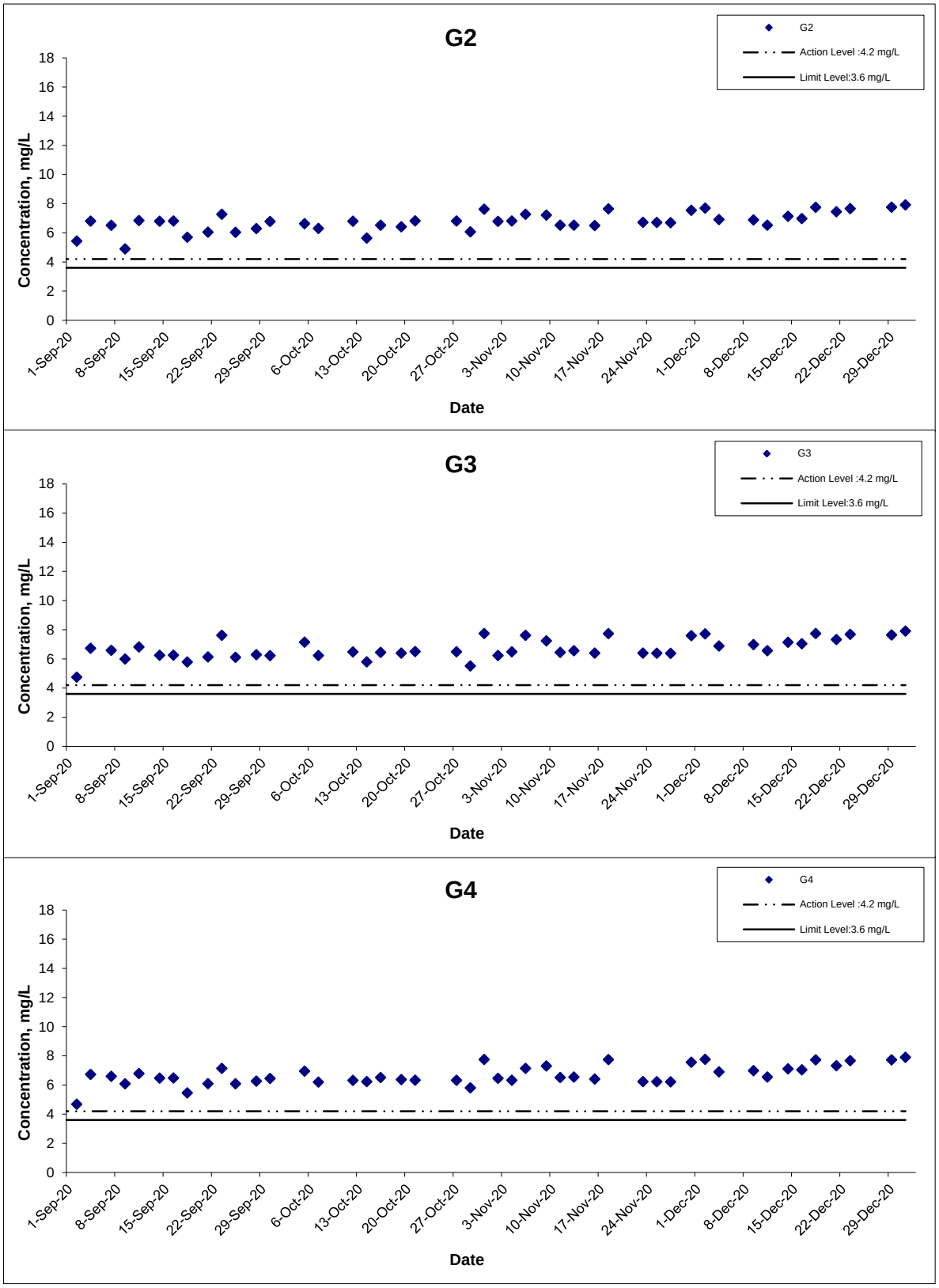
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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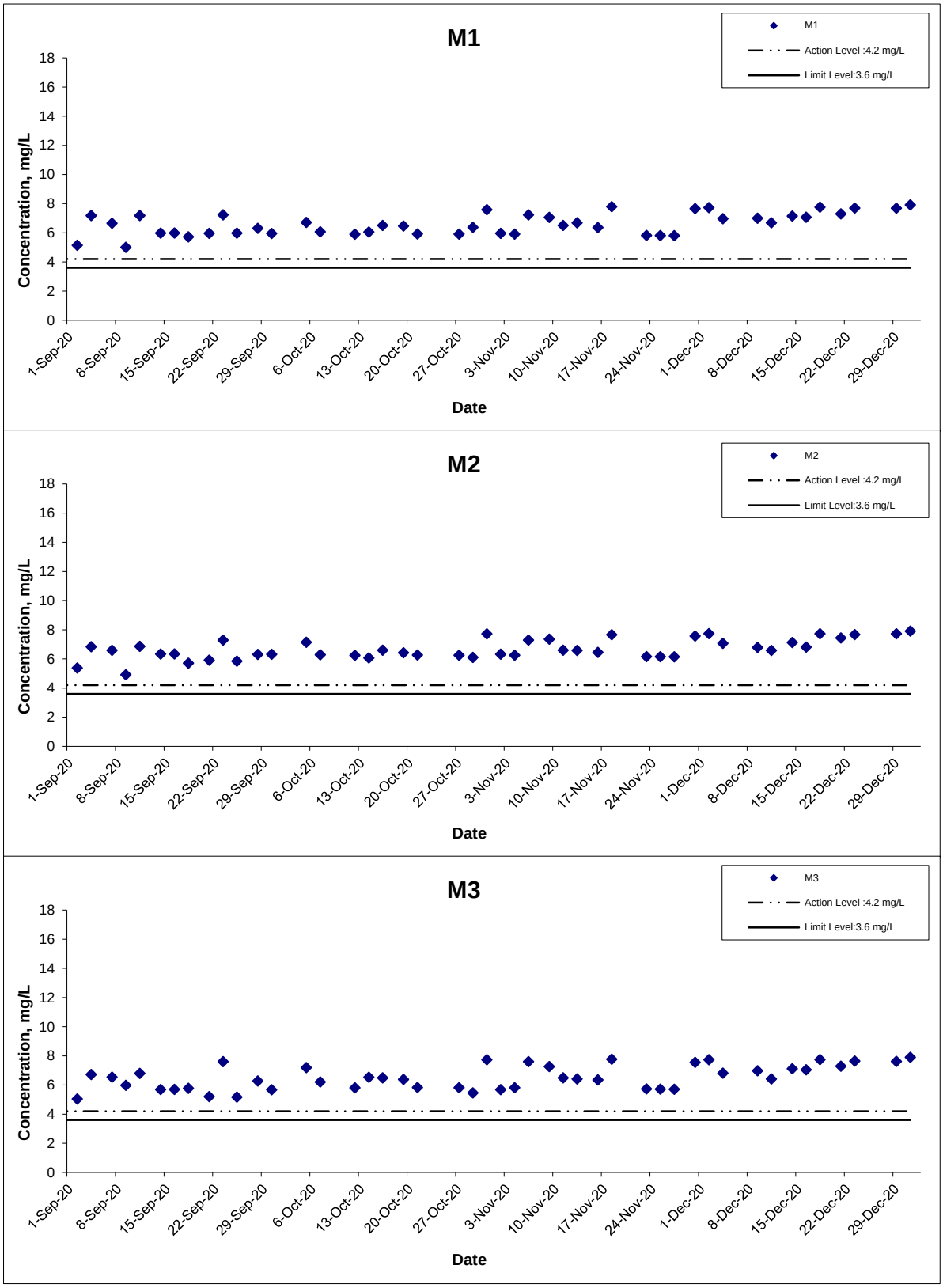
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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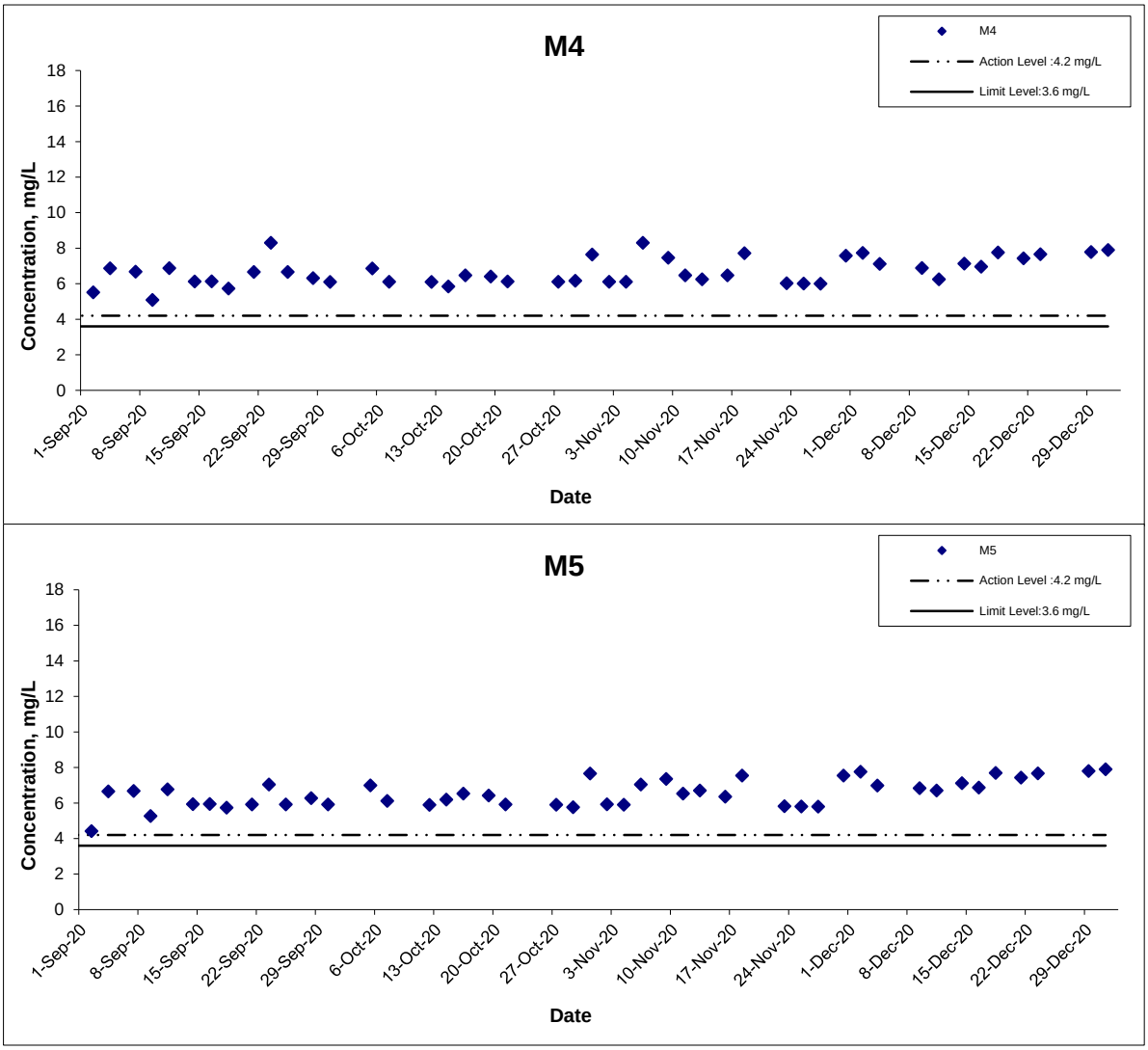
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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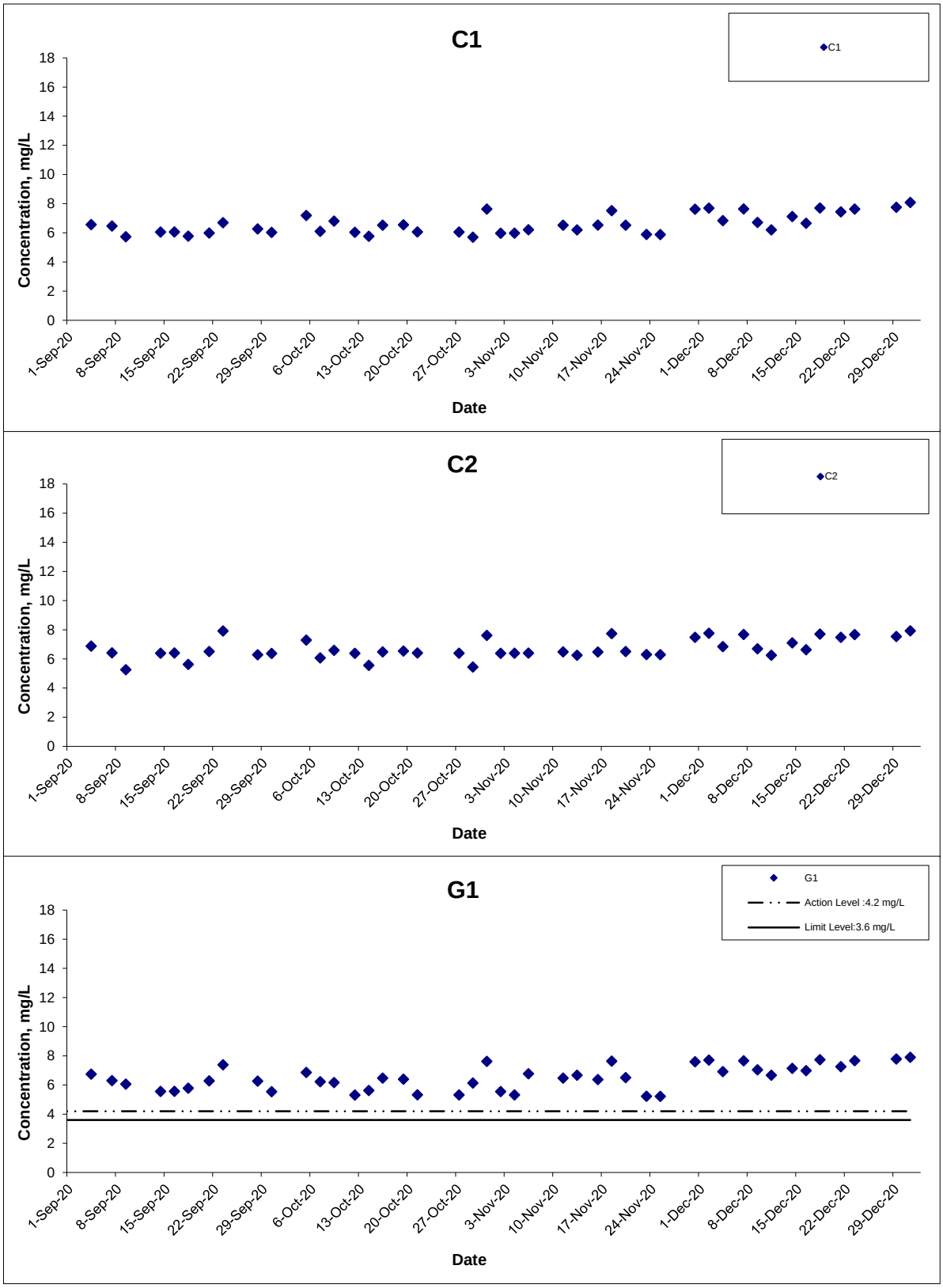
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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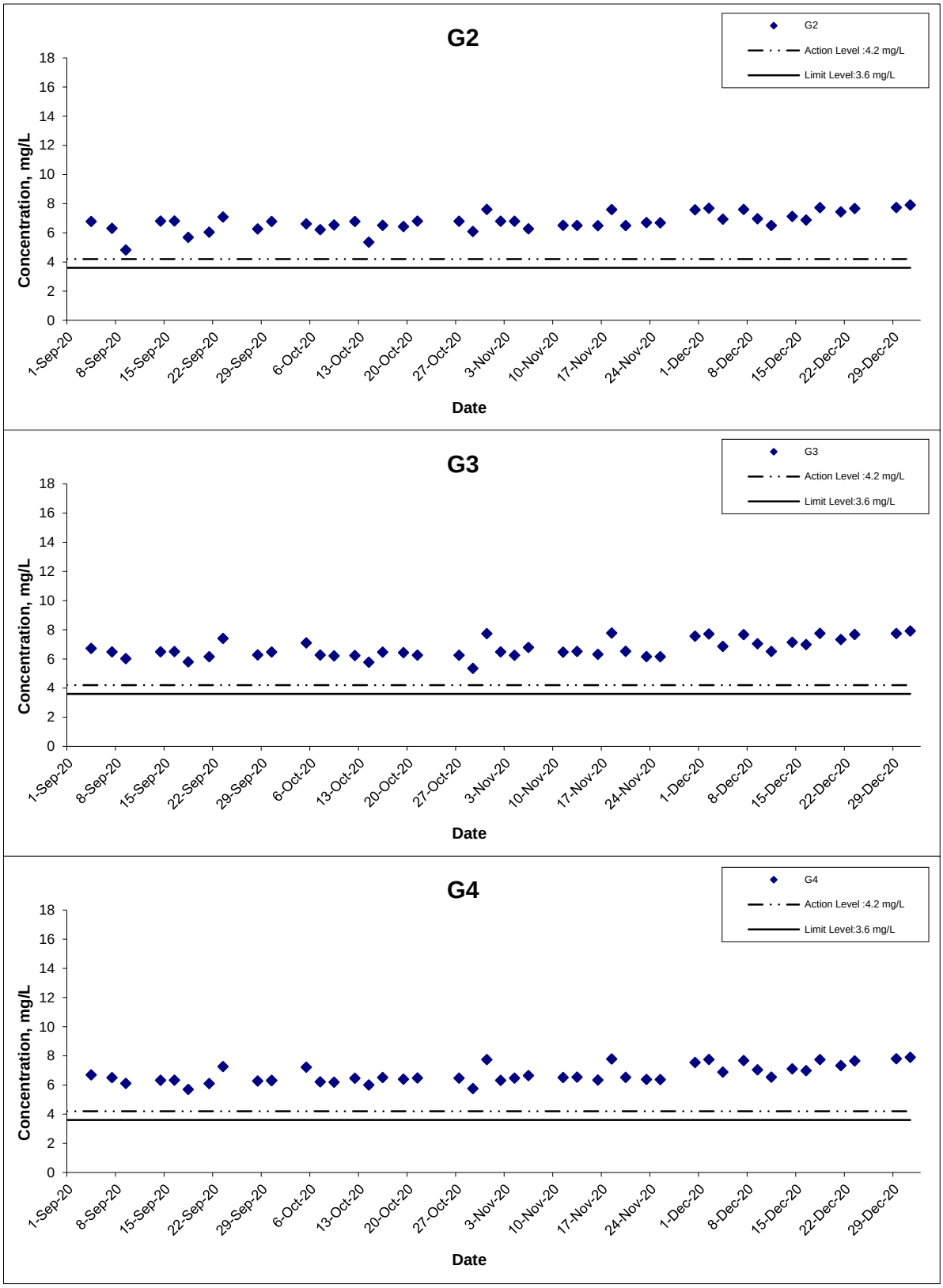
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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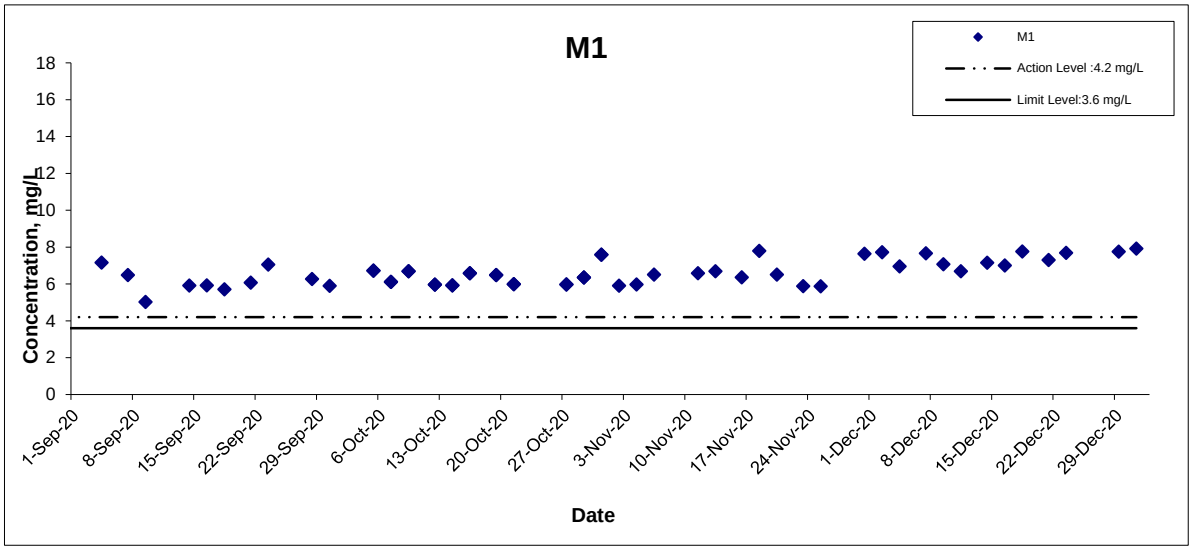
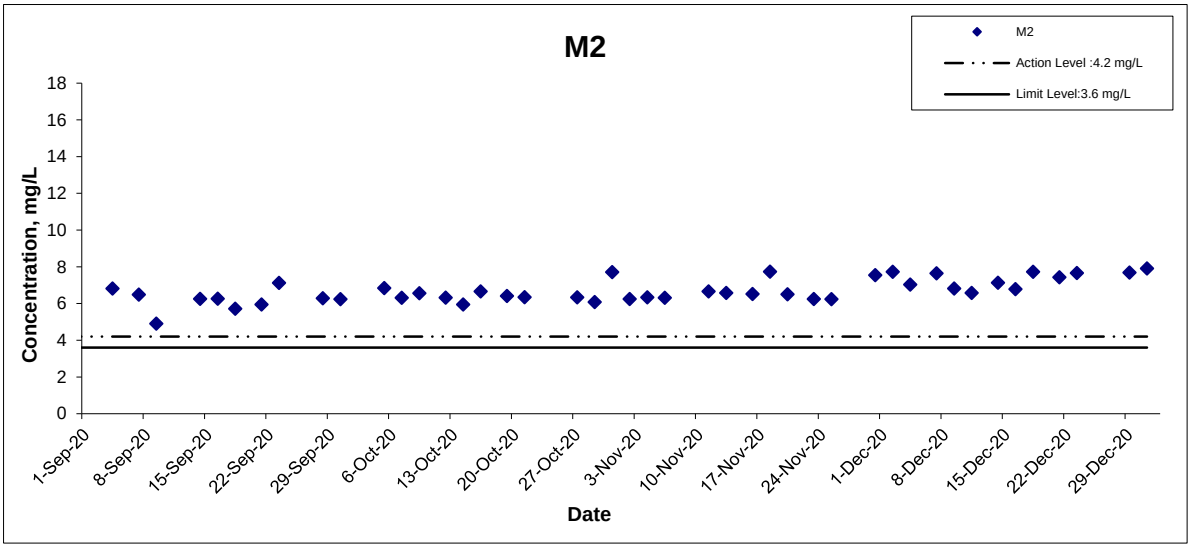
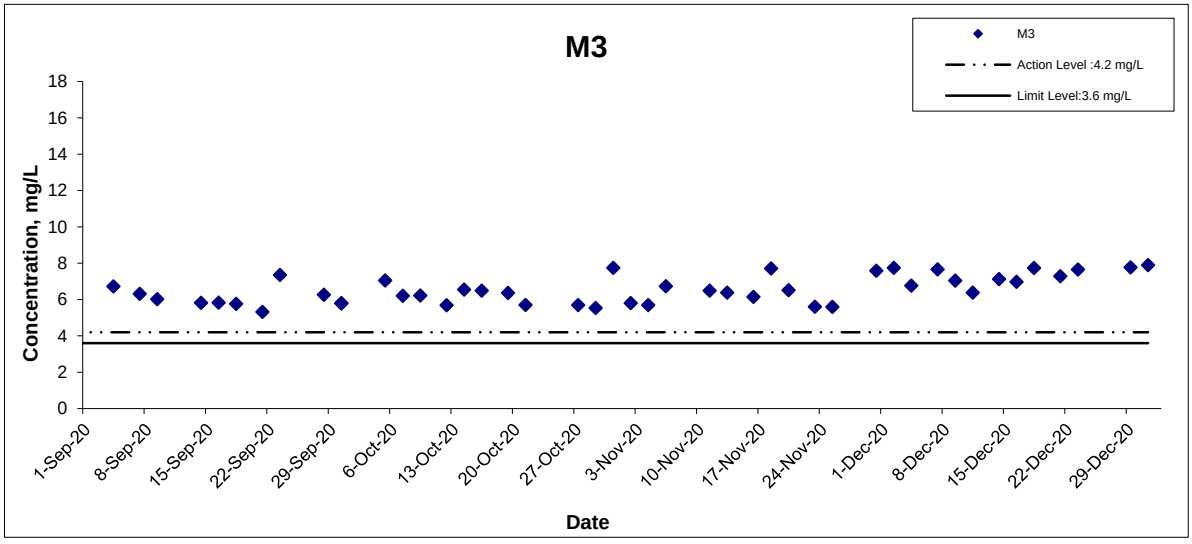
Dissolved Oxygen (Bottom) at Mid-Flood Tide







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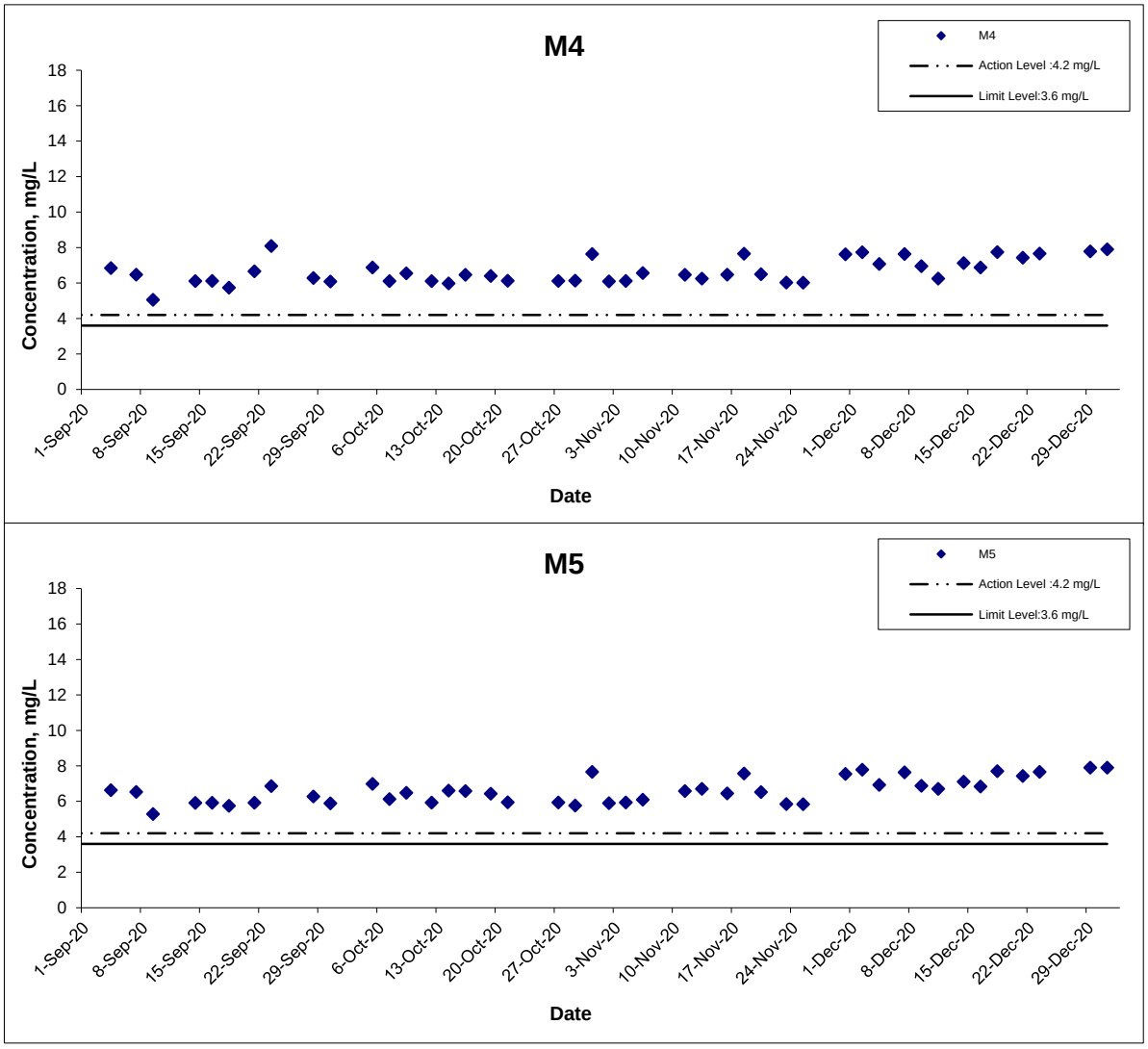
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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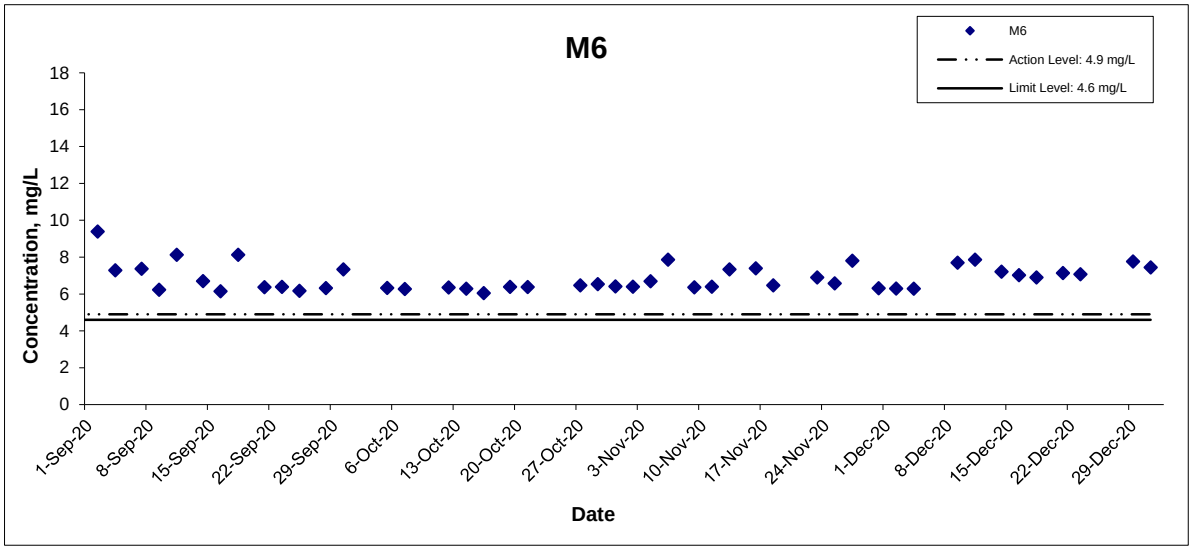
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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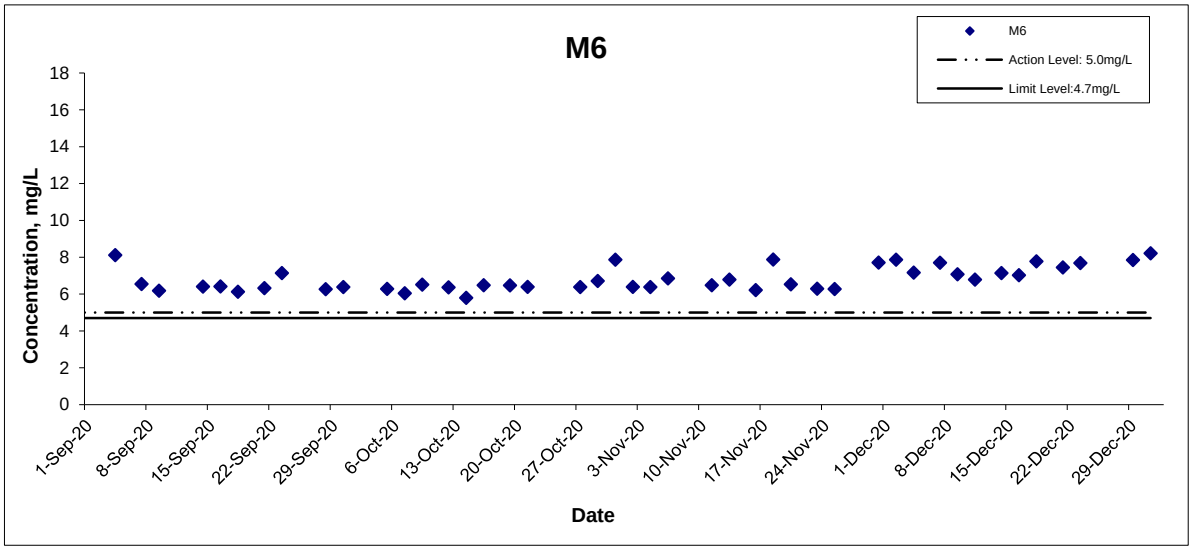
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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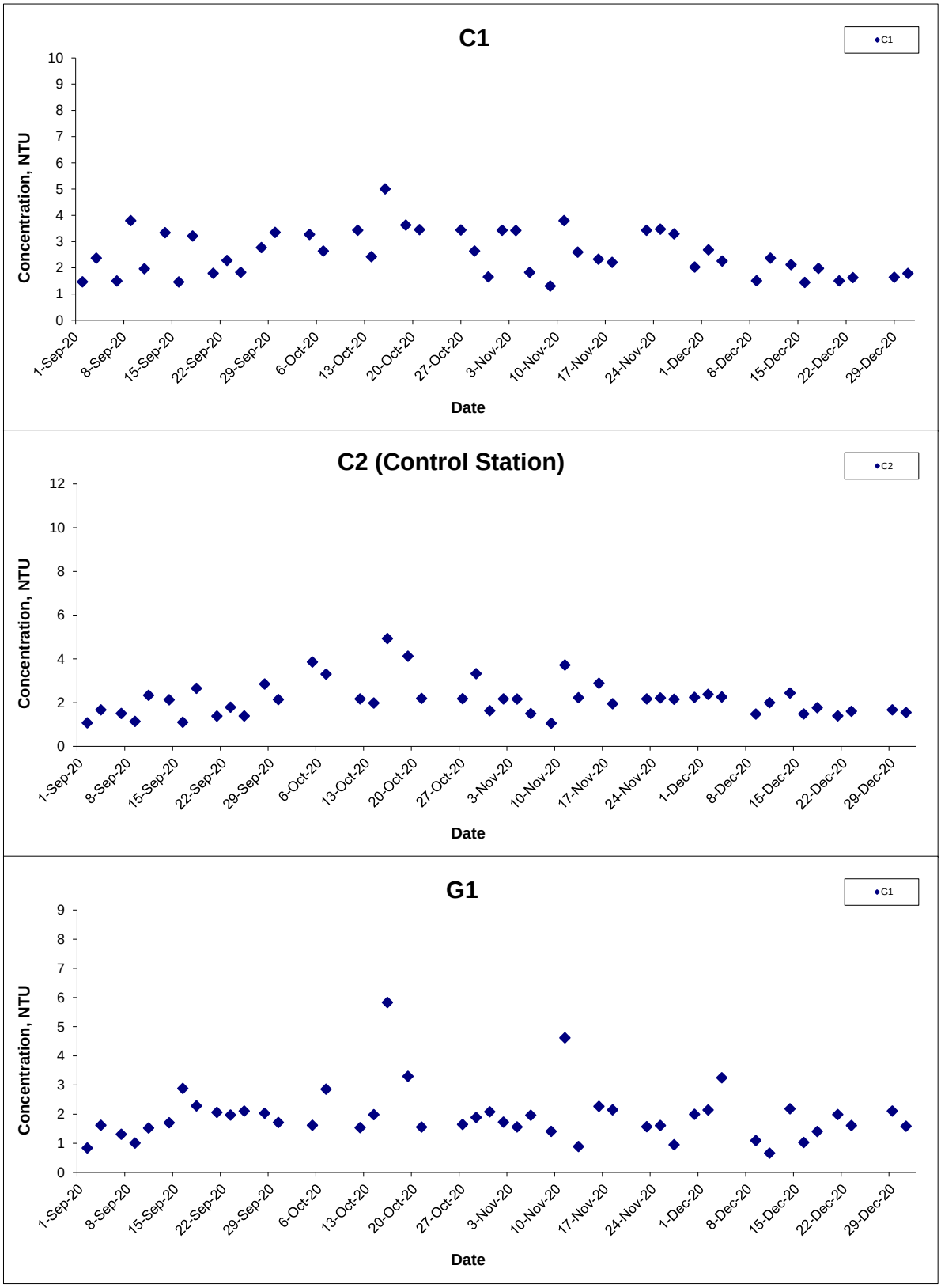
Turbidity (Depth-averaged) at Mid-Ebb Tide



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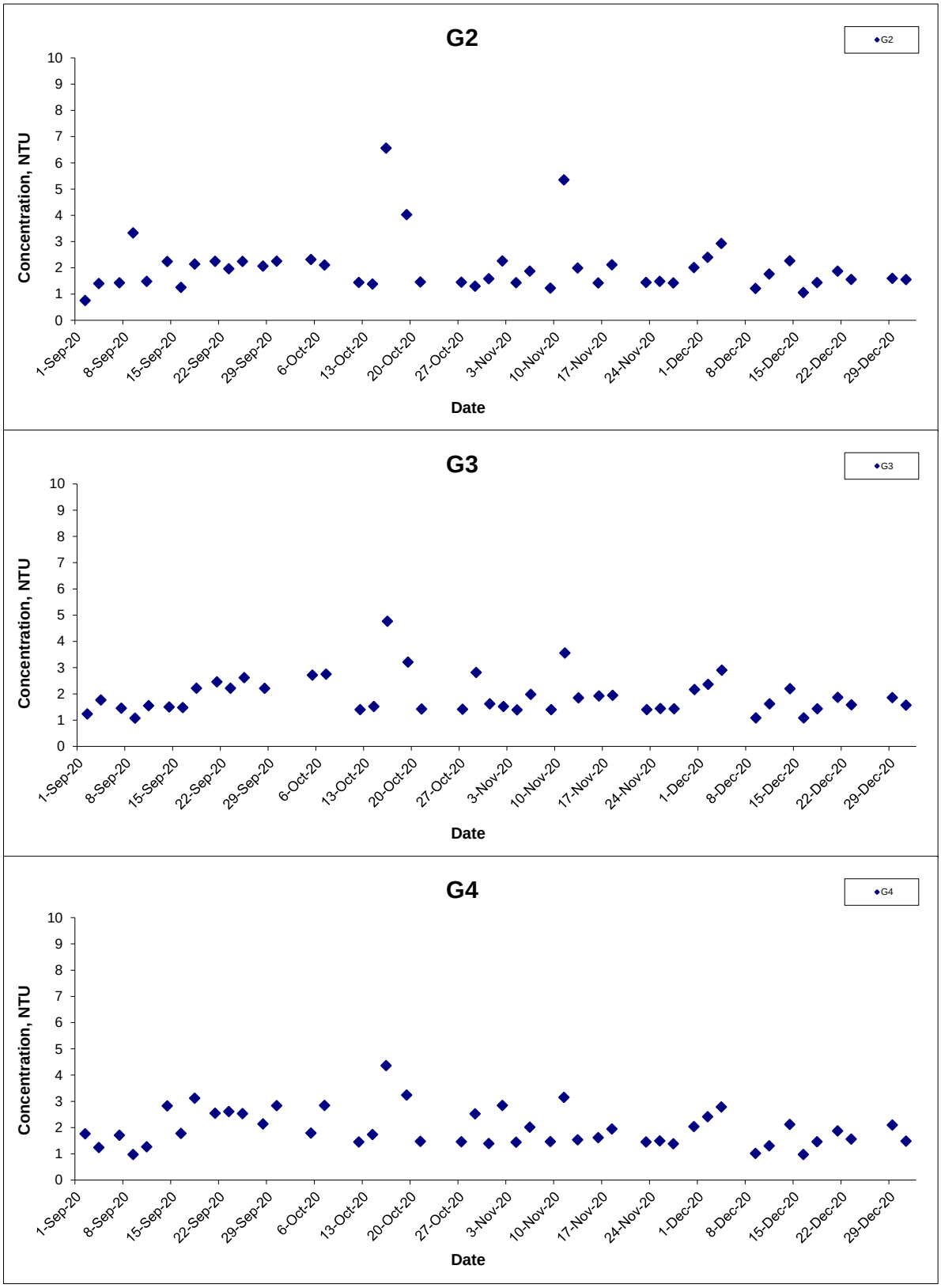
Turbidity (Depth-averaged) at Mid-Ebb Tide



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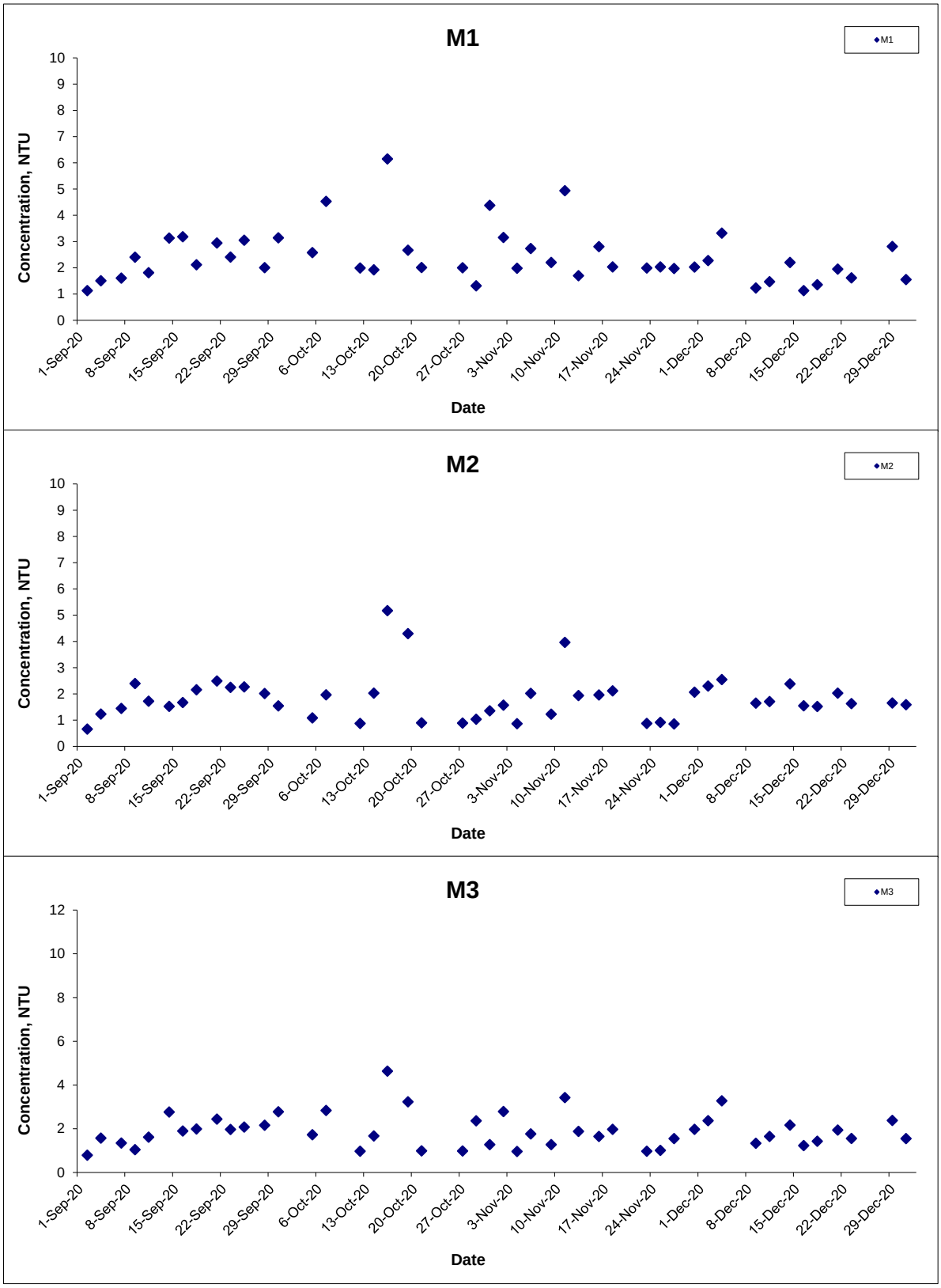
Turbidity (Depth-averaged) at Mid-Ebb Tide



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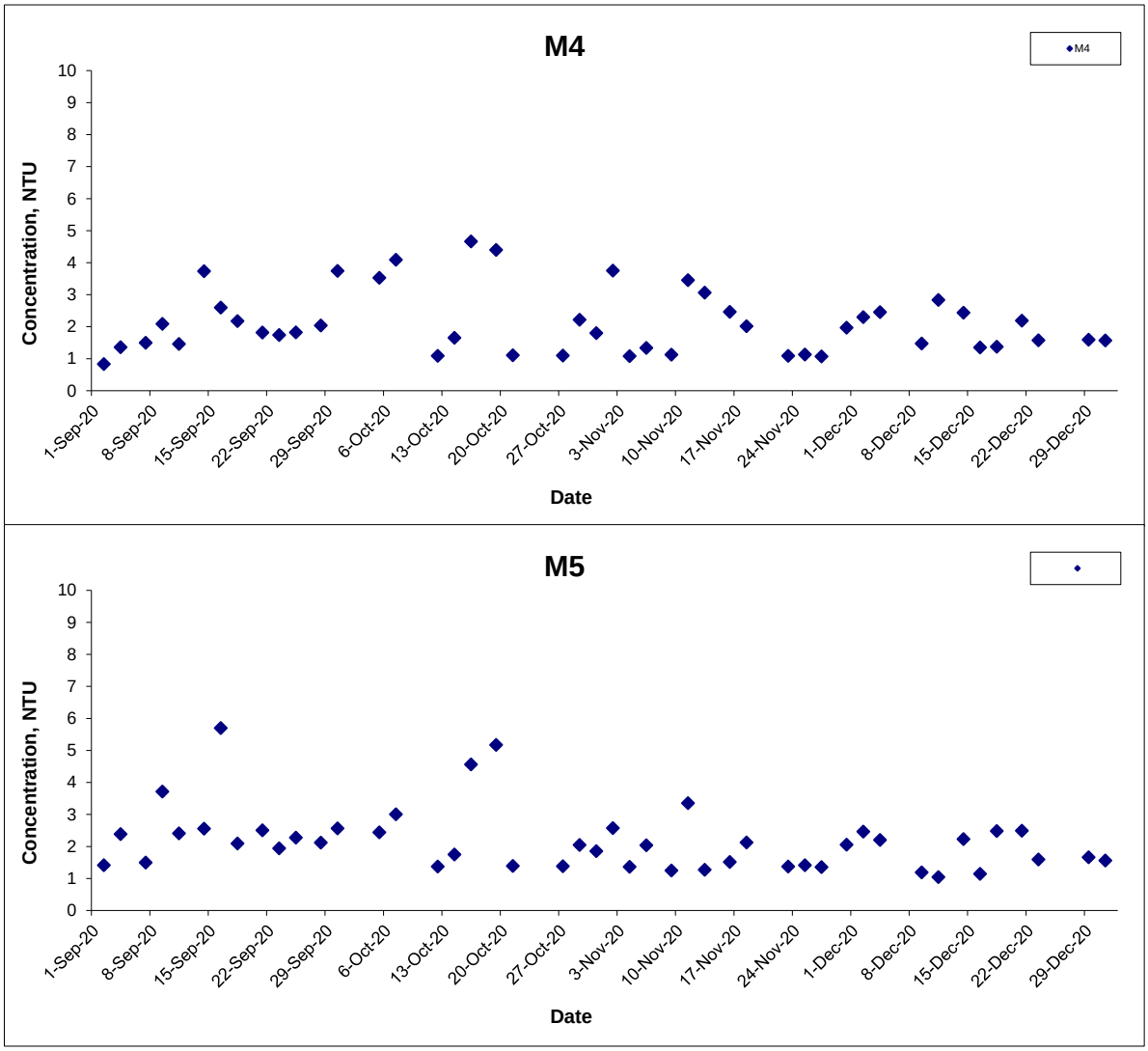
Turbidity (Depth-averaged) at Mid-Ebb Tide



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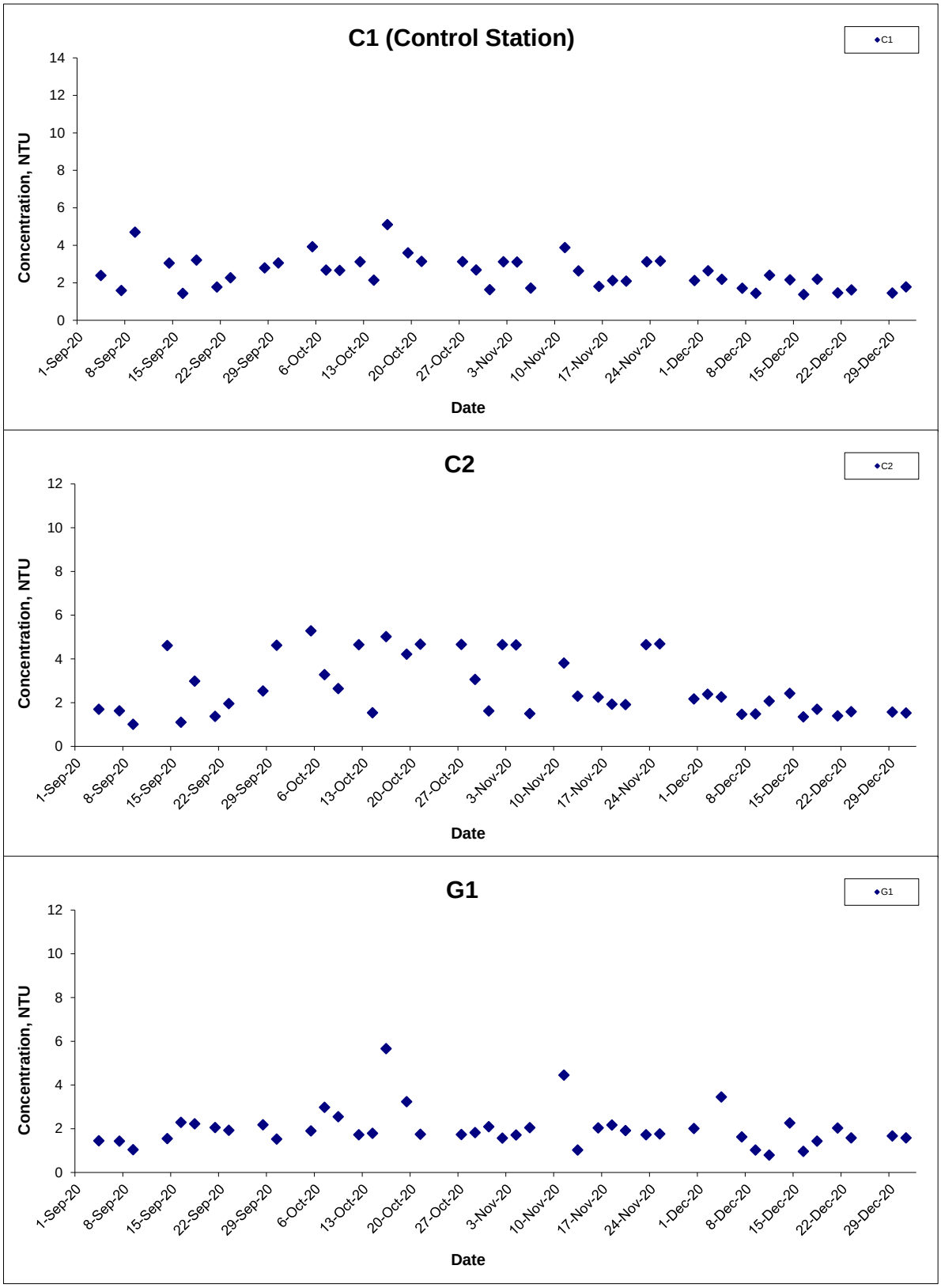
Turbidity (Depth-averaged) at Mid-Flood Tide



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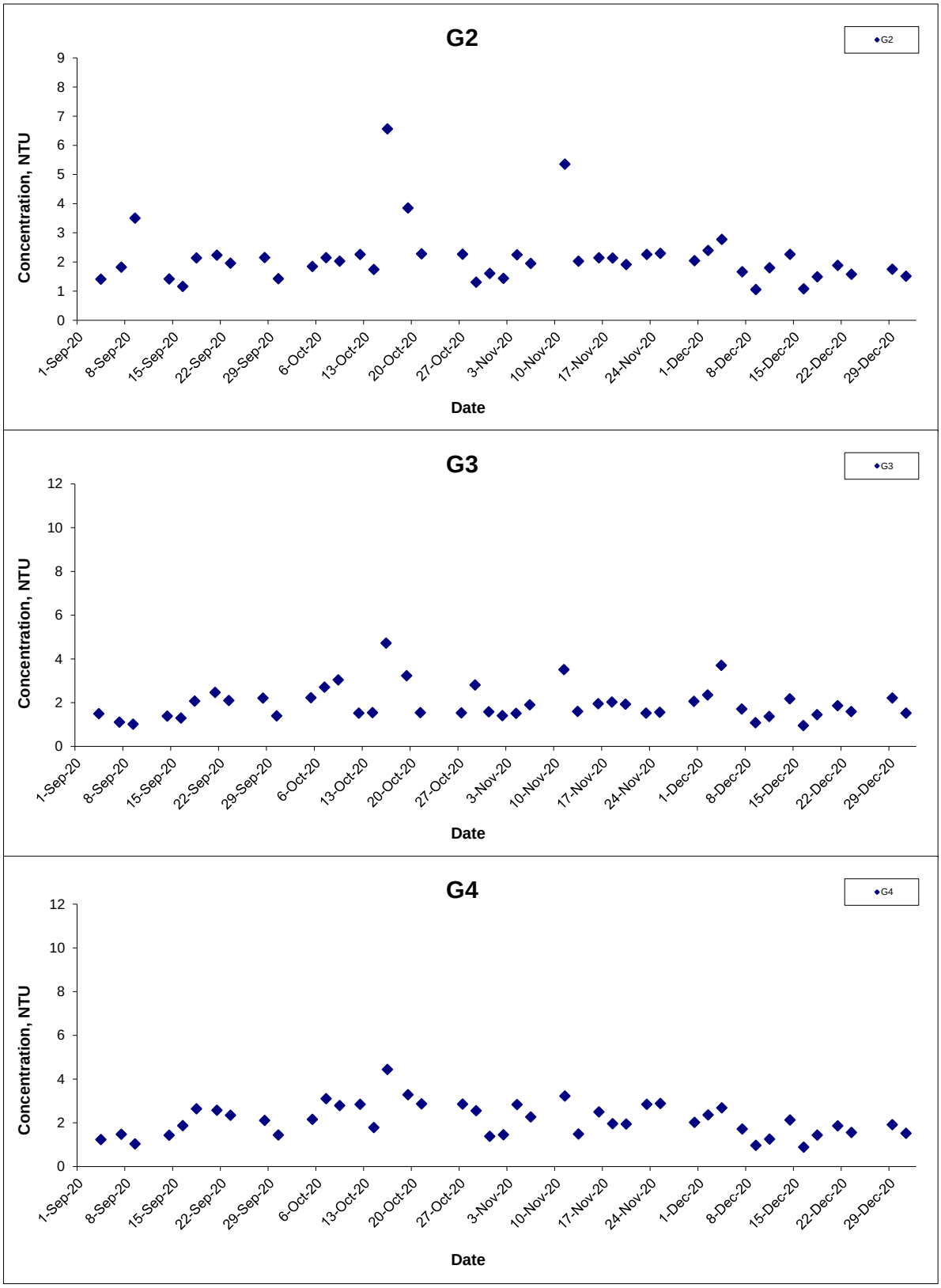
Turbidity (Depth-averaged) at Mid-Flood Tide



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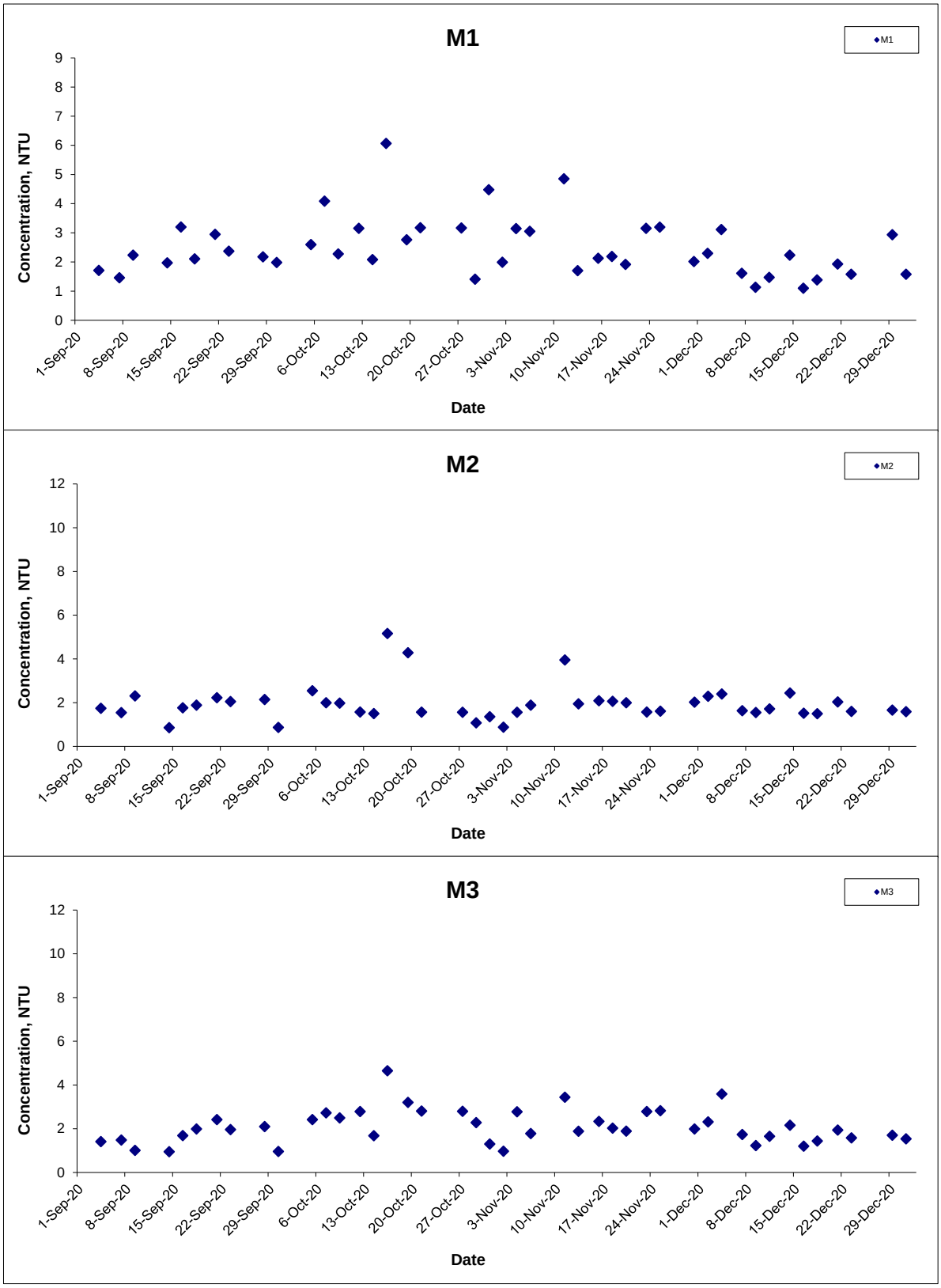
Turbidity (Depth-averaged) at Mid-Flood Tide



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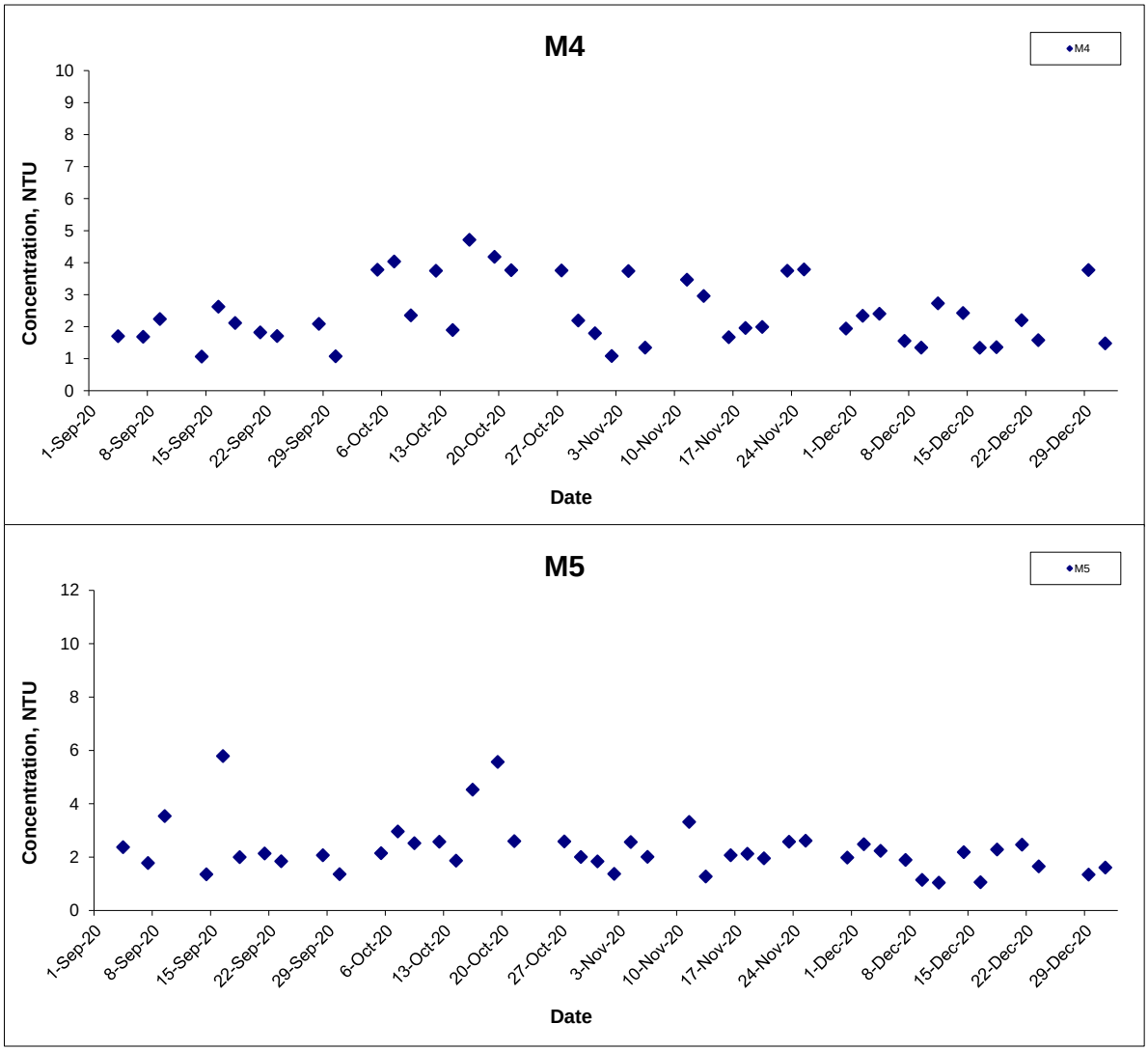
Turbidity (Depth-averaged) at Mid-Flood Tide



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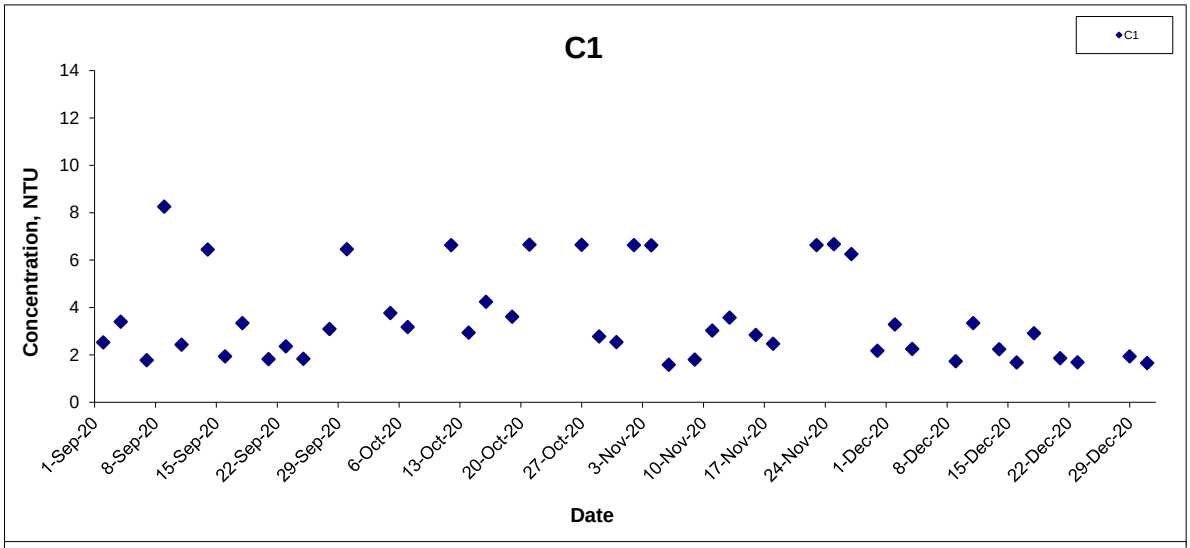
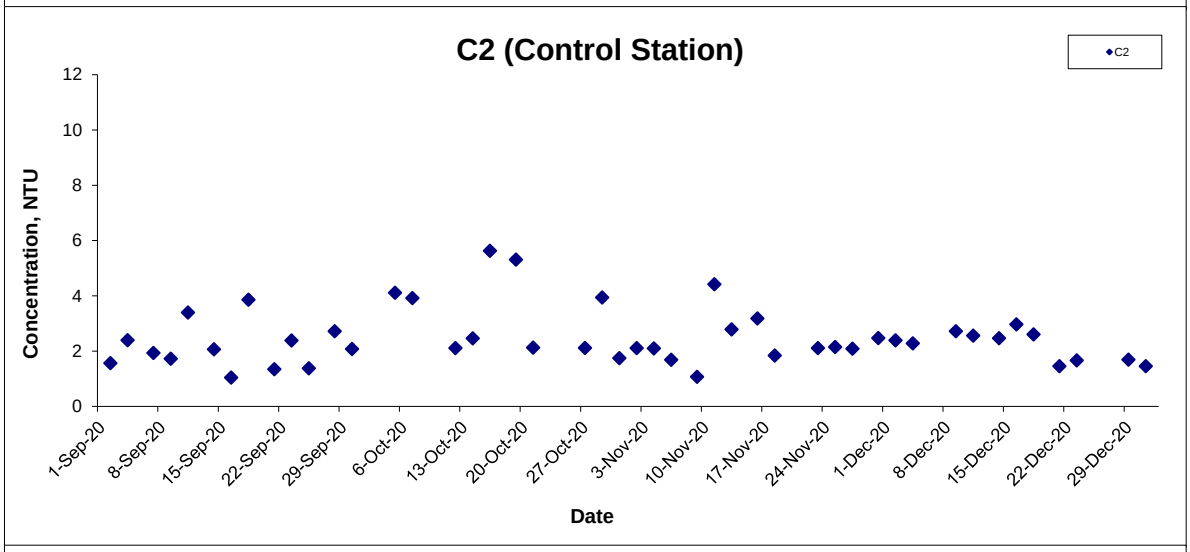
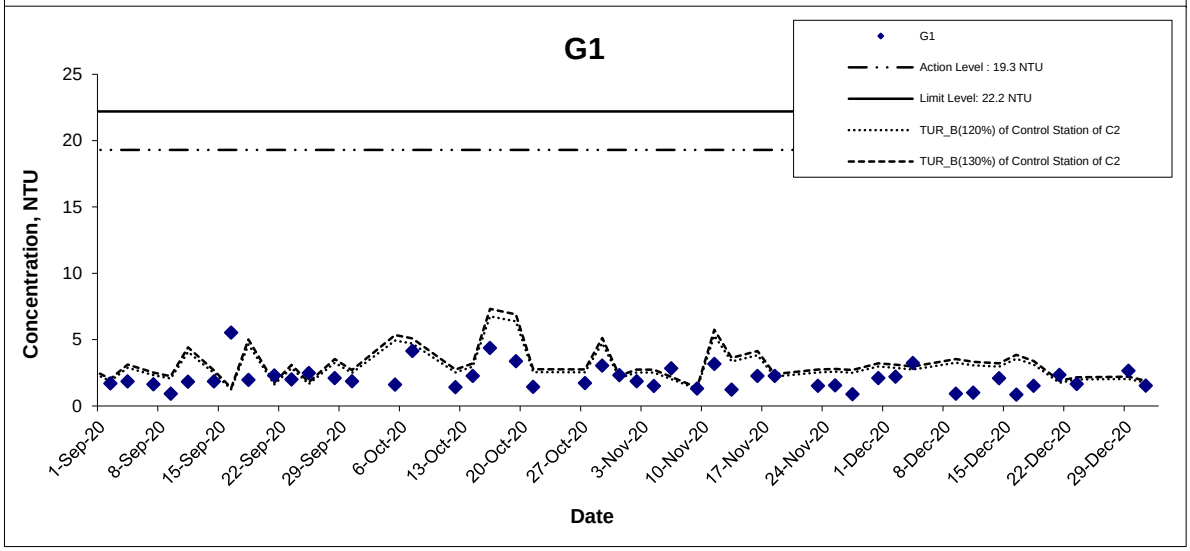
Turbidity (Bottom) at Mid-Ebb Tide







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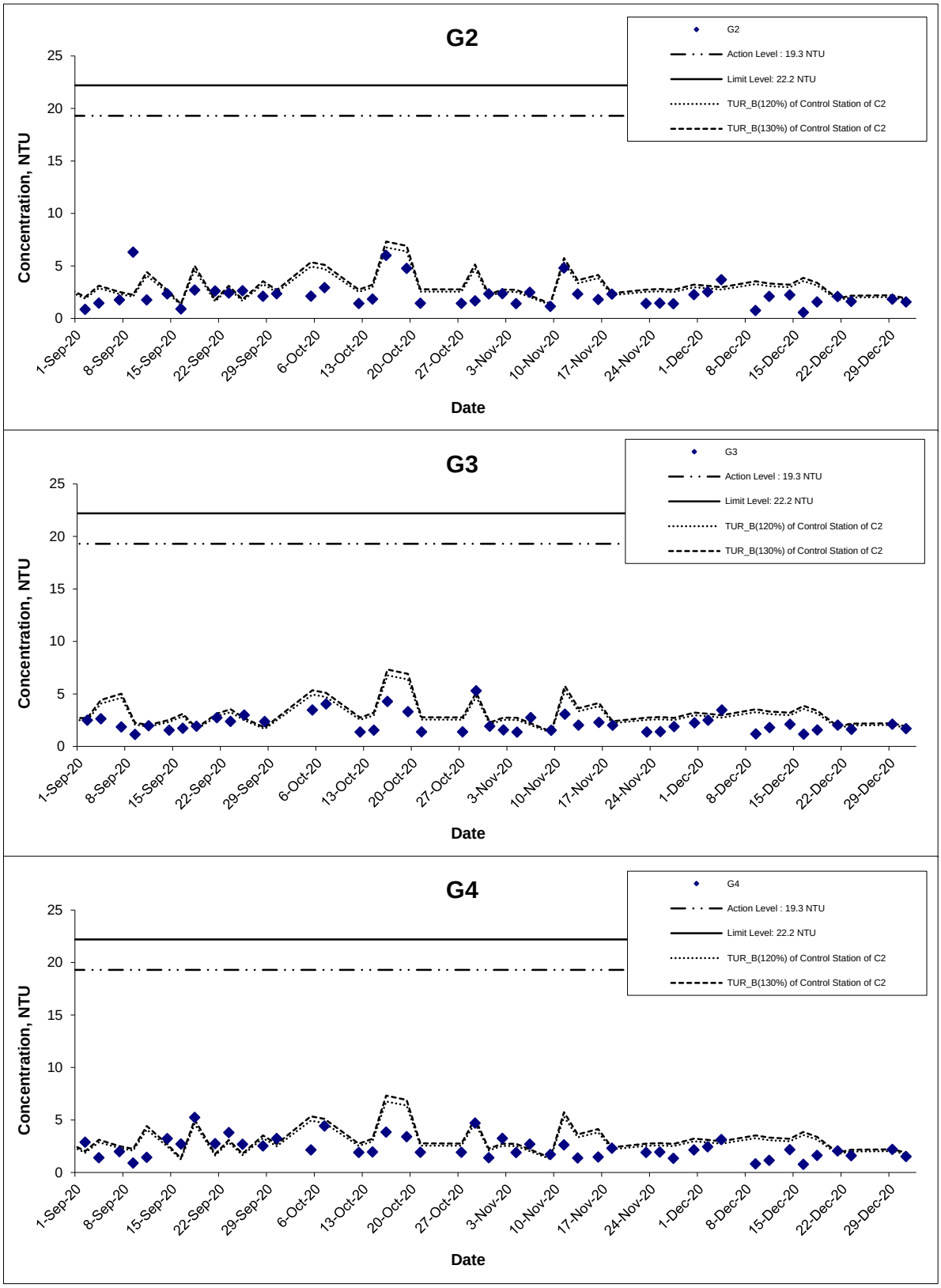
Turbidity (Bottom) at Mid-Ebb Tide



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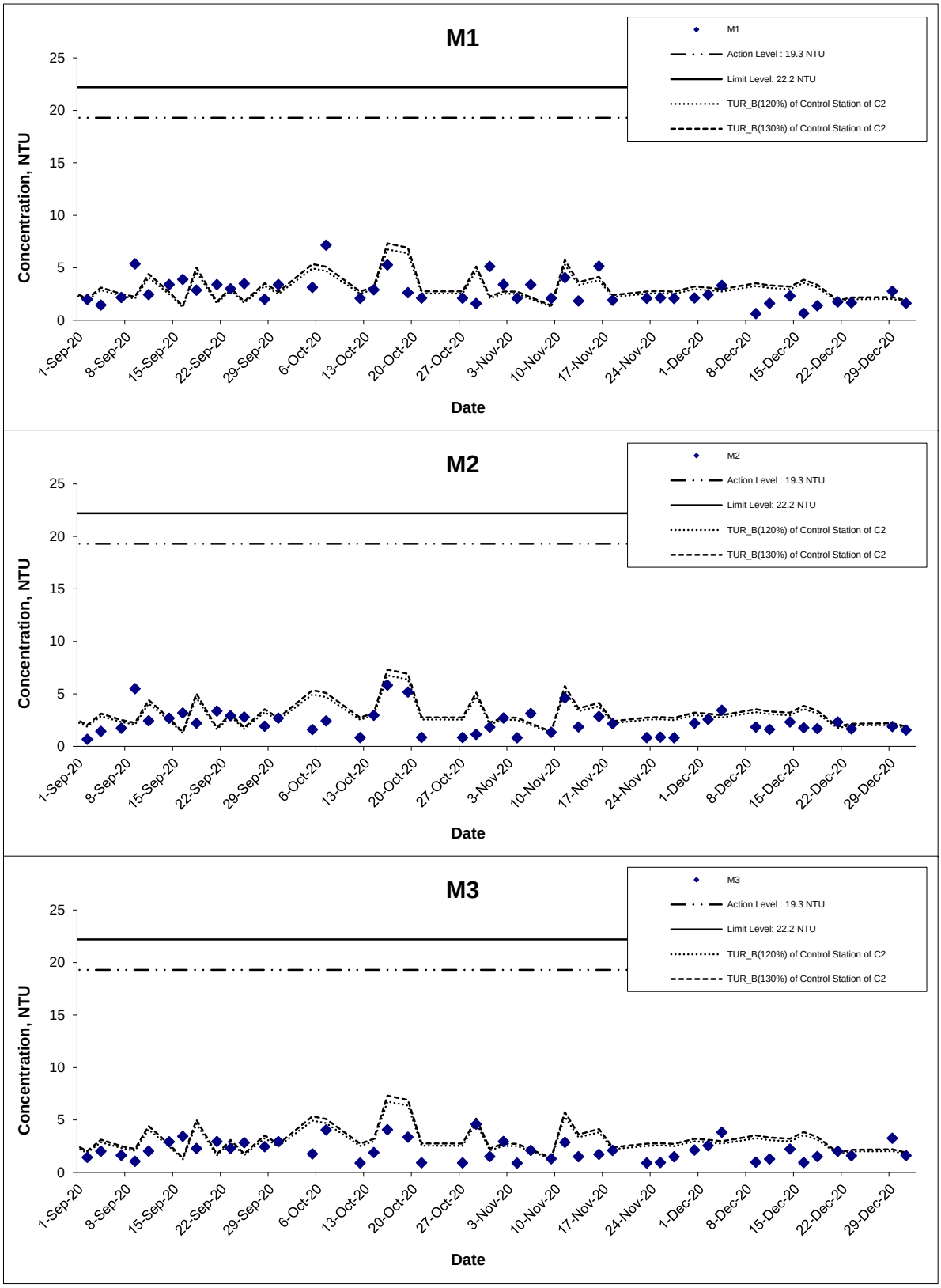
Turbidity (Bottom) at Mid-Ebb Tide



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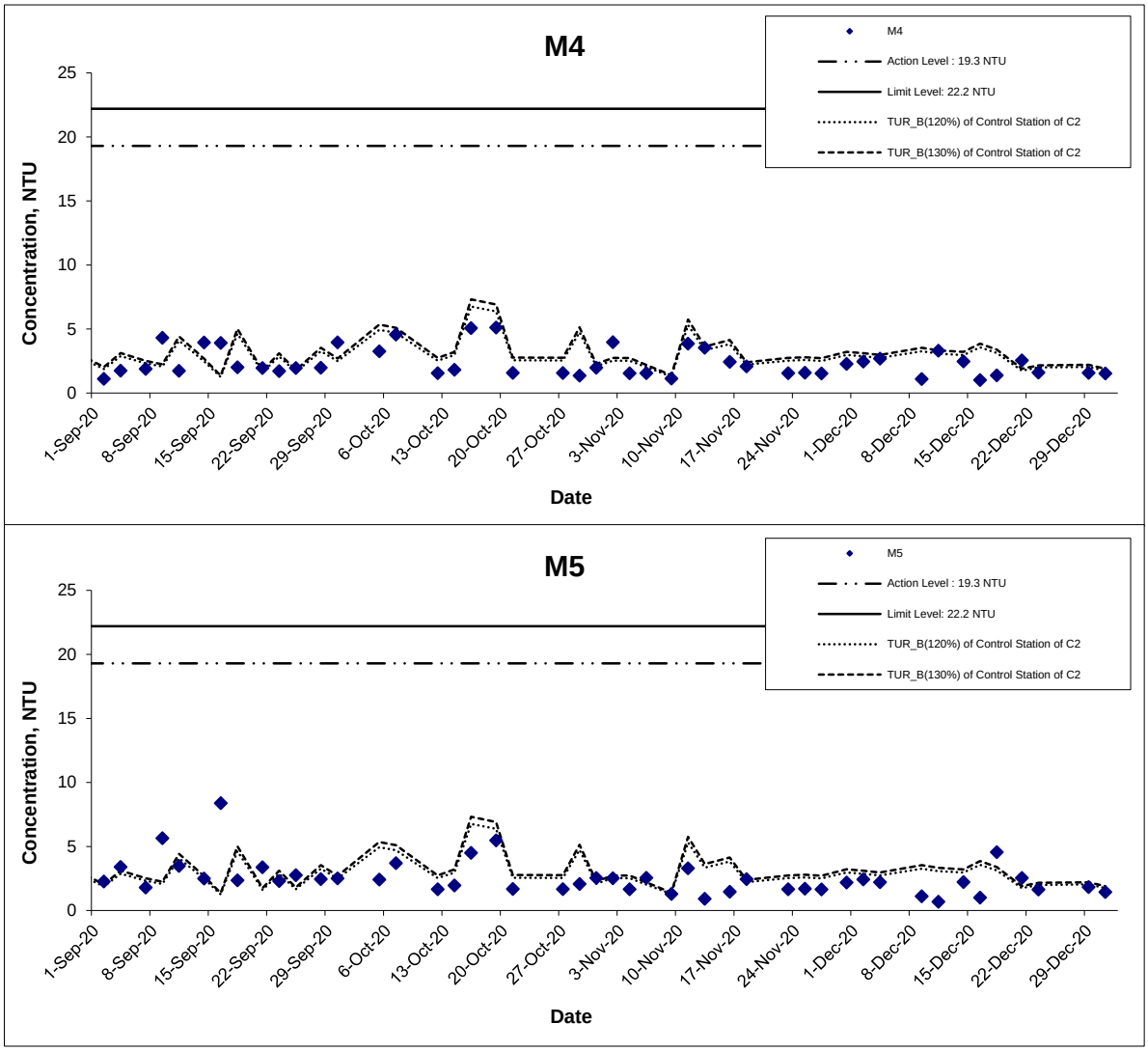
Turbidity (Bottom) at Mid-Ebb Tide



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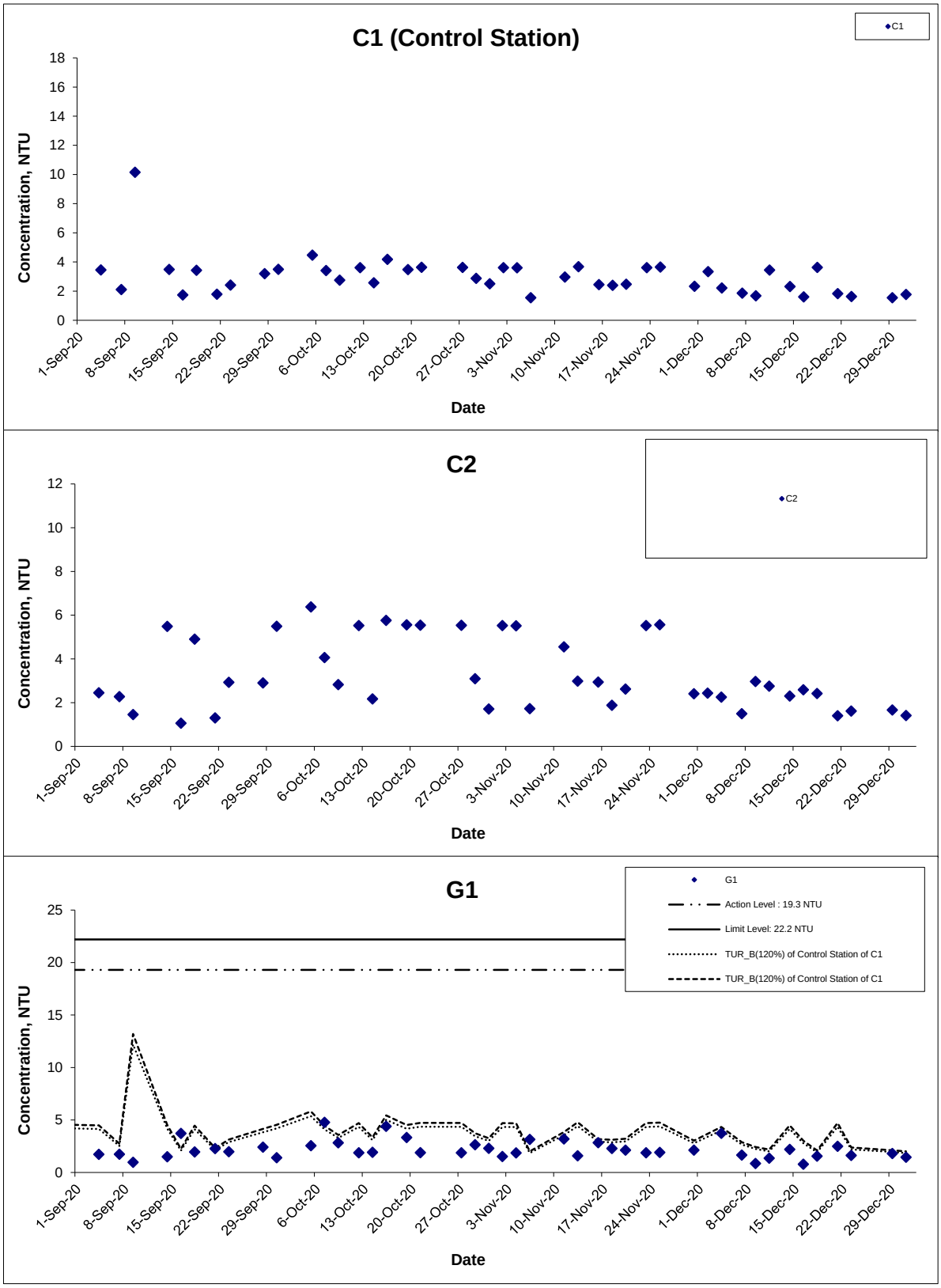
Turbidity (Bottom) at Mid-Flood Tide



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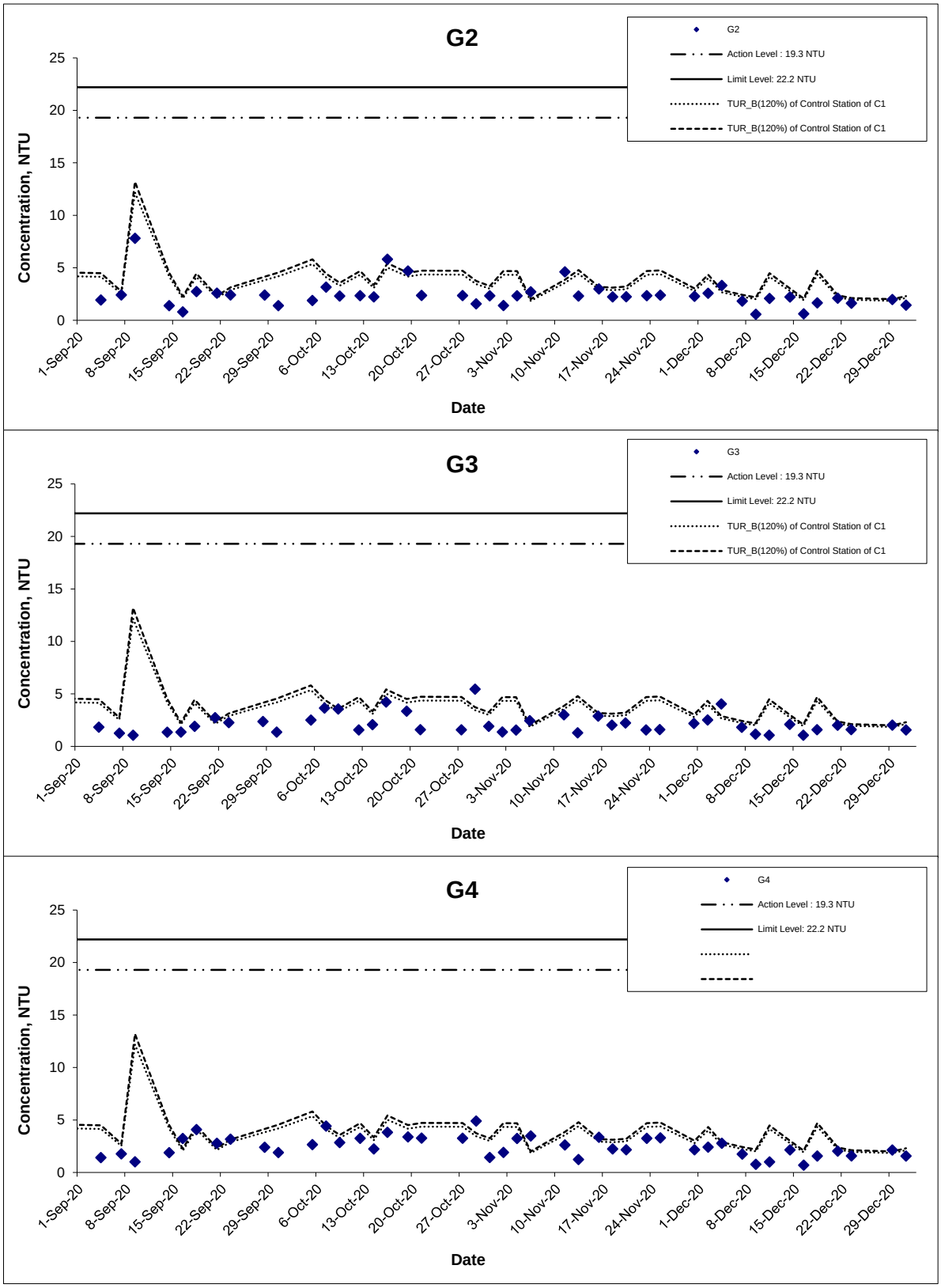
Turbidity (Bottom) at Mid-Flood Tide



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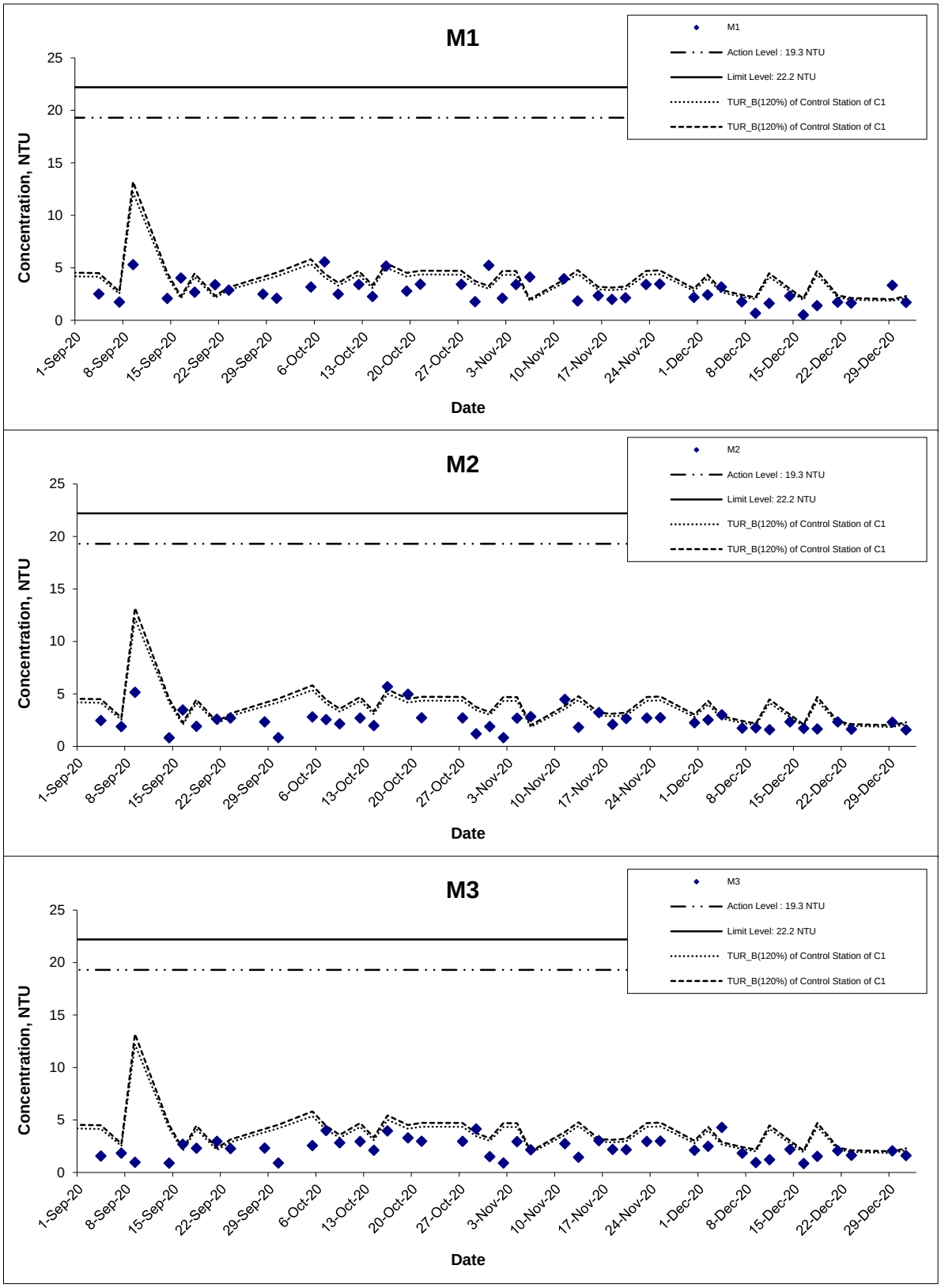
Turbidity (Bottom) at Mid-Flood Tide



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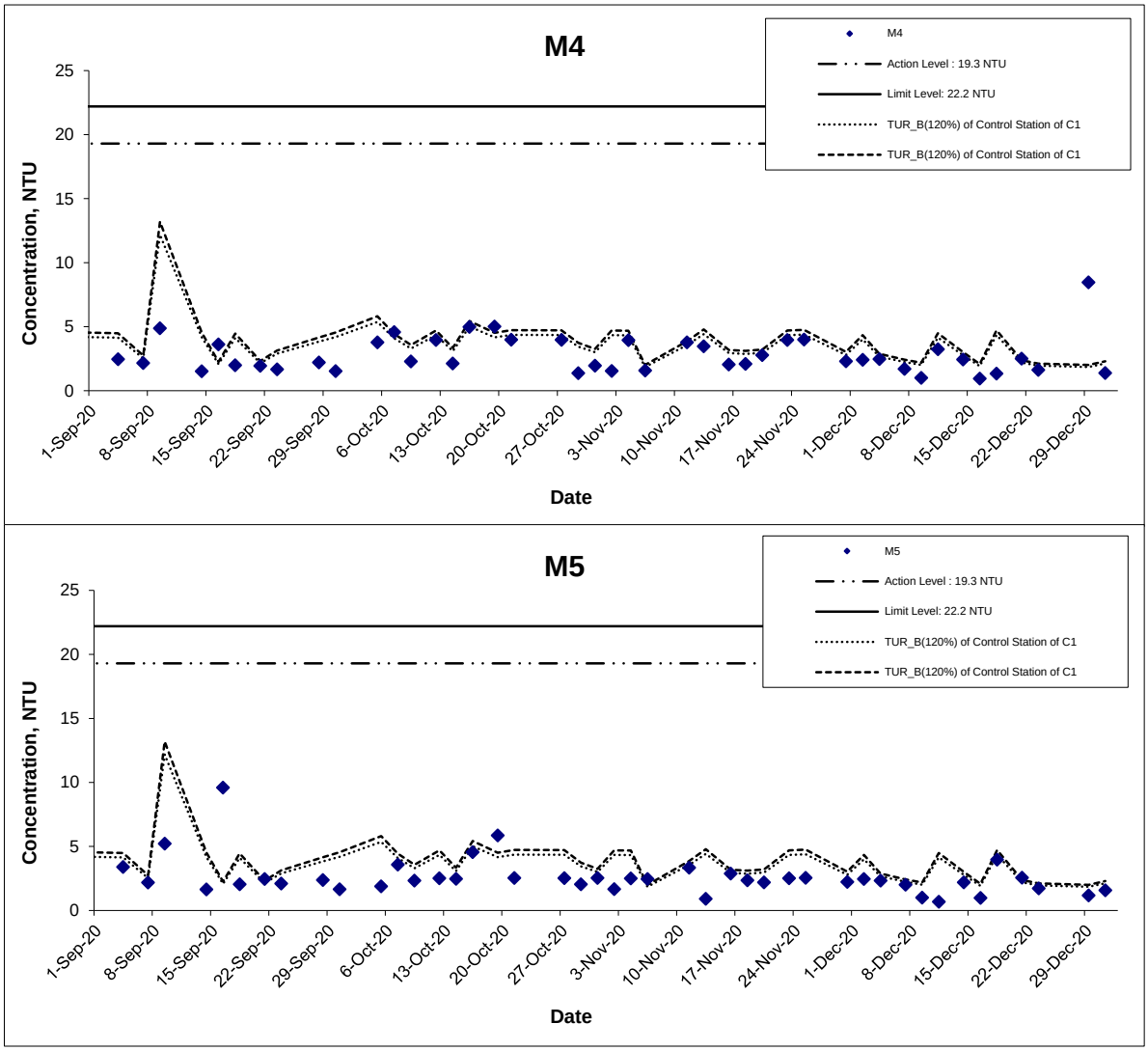
Turbidity (Bottom) at Mid-Flood Tide



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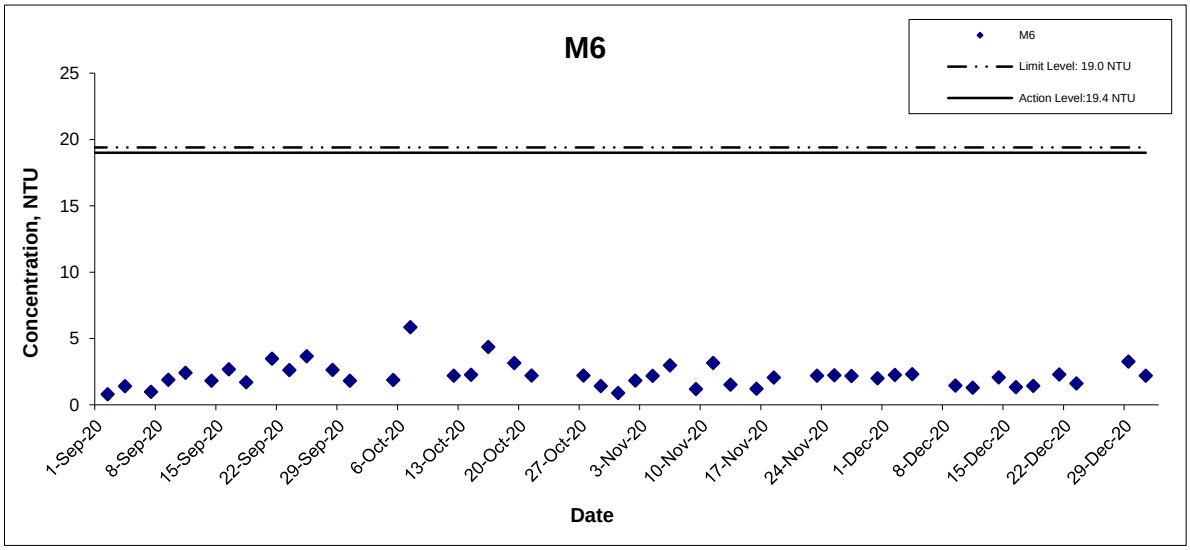
Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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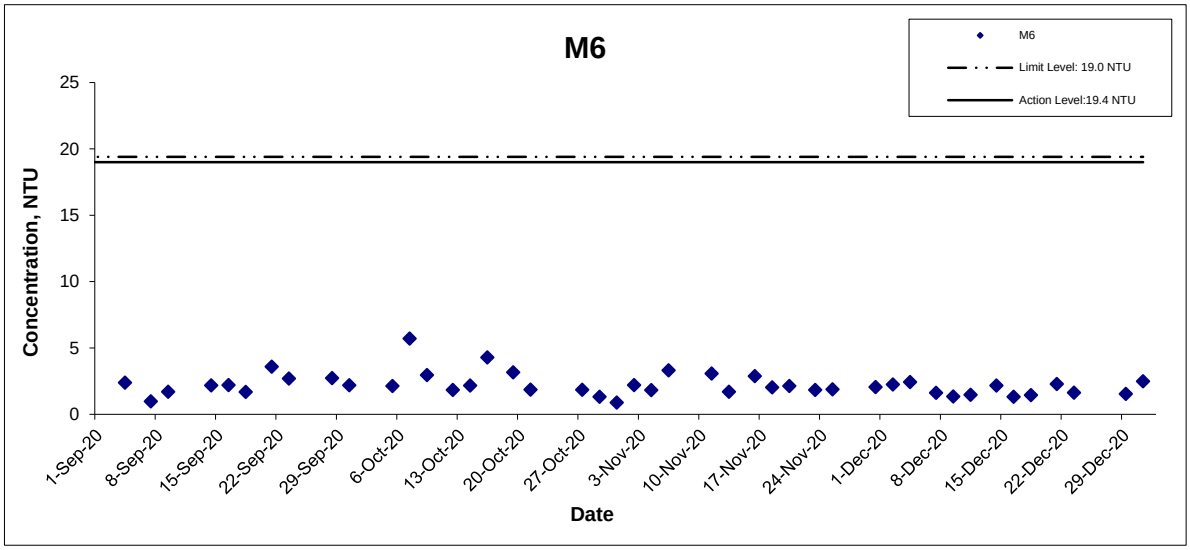
Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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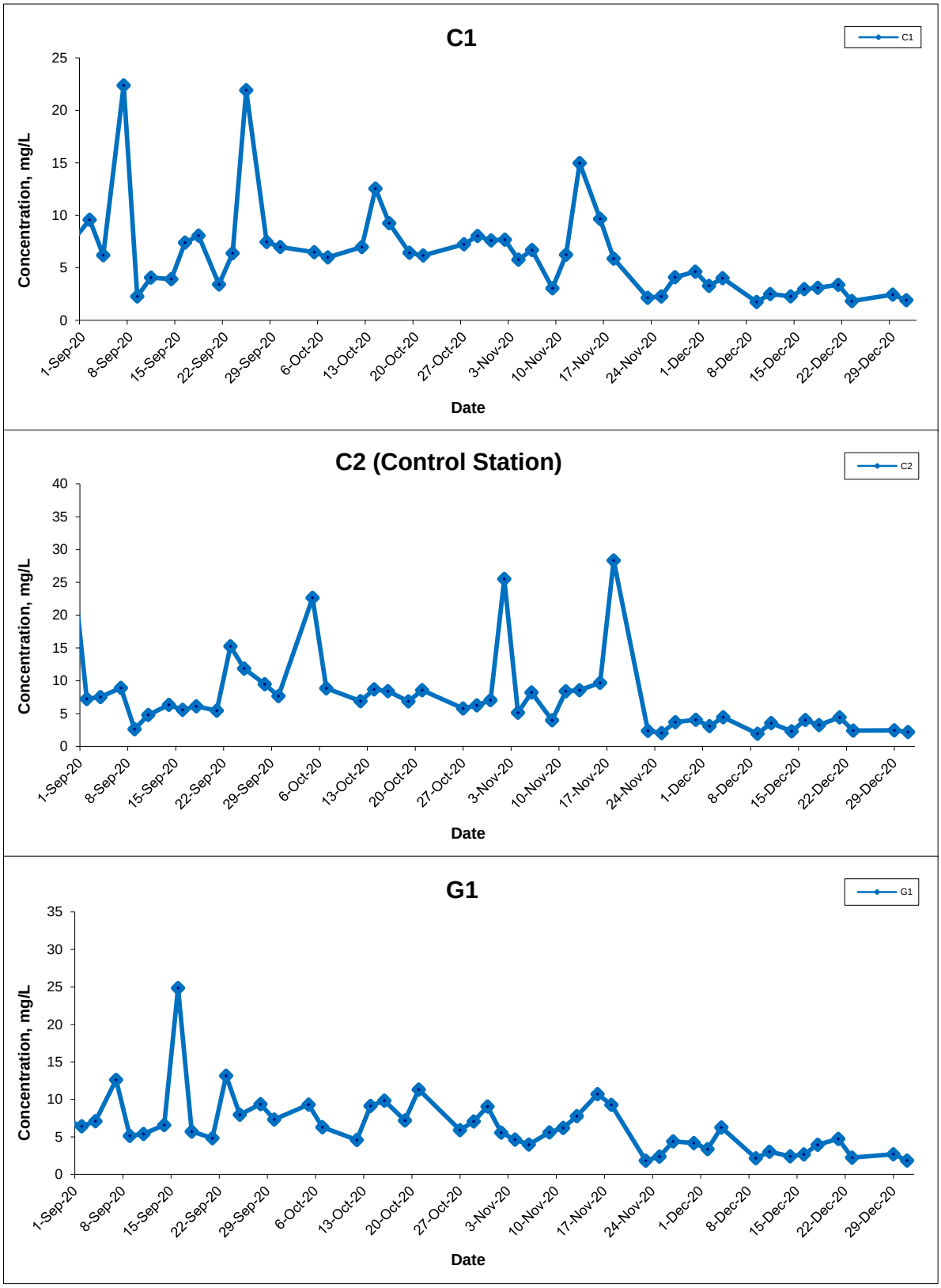
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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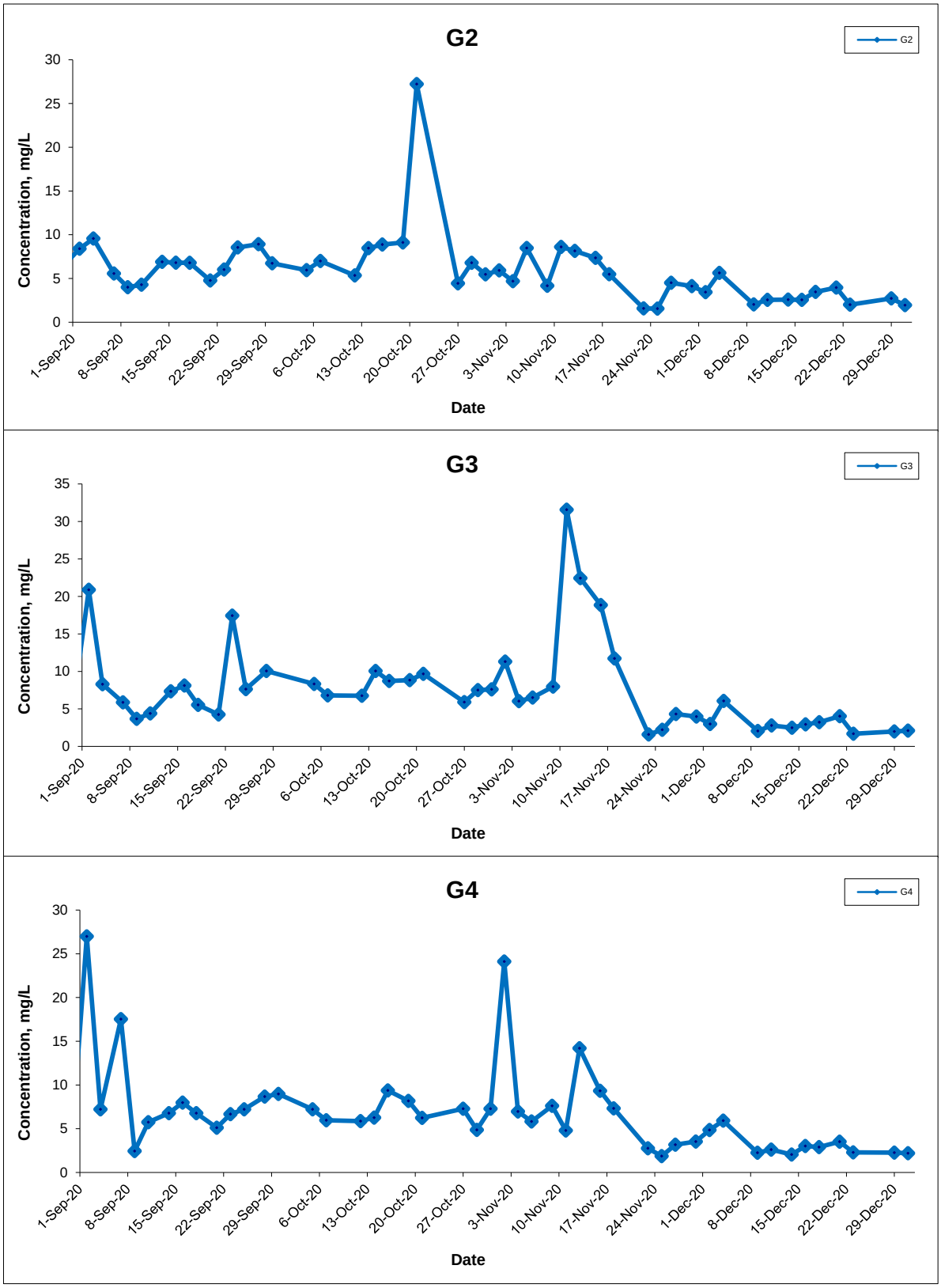

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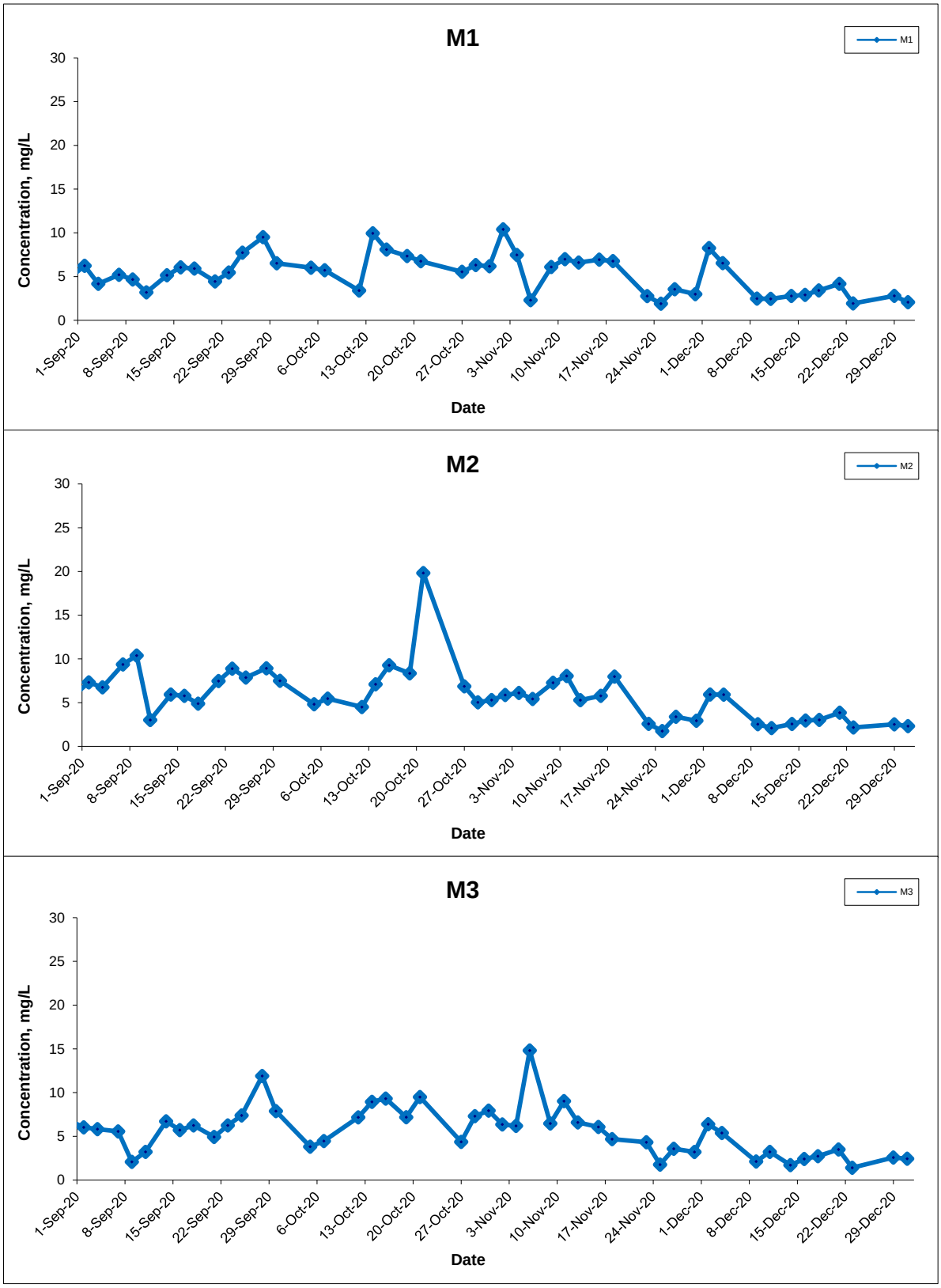

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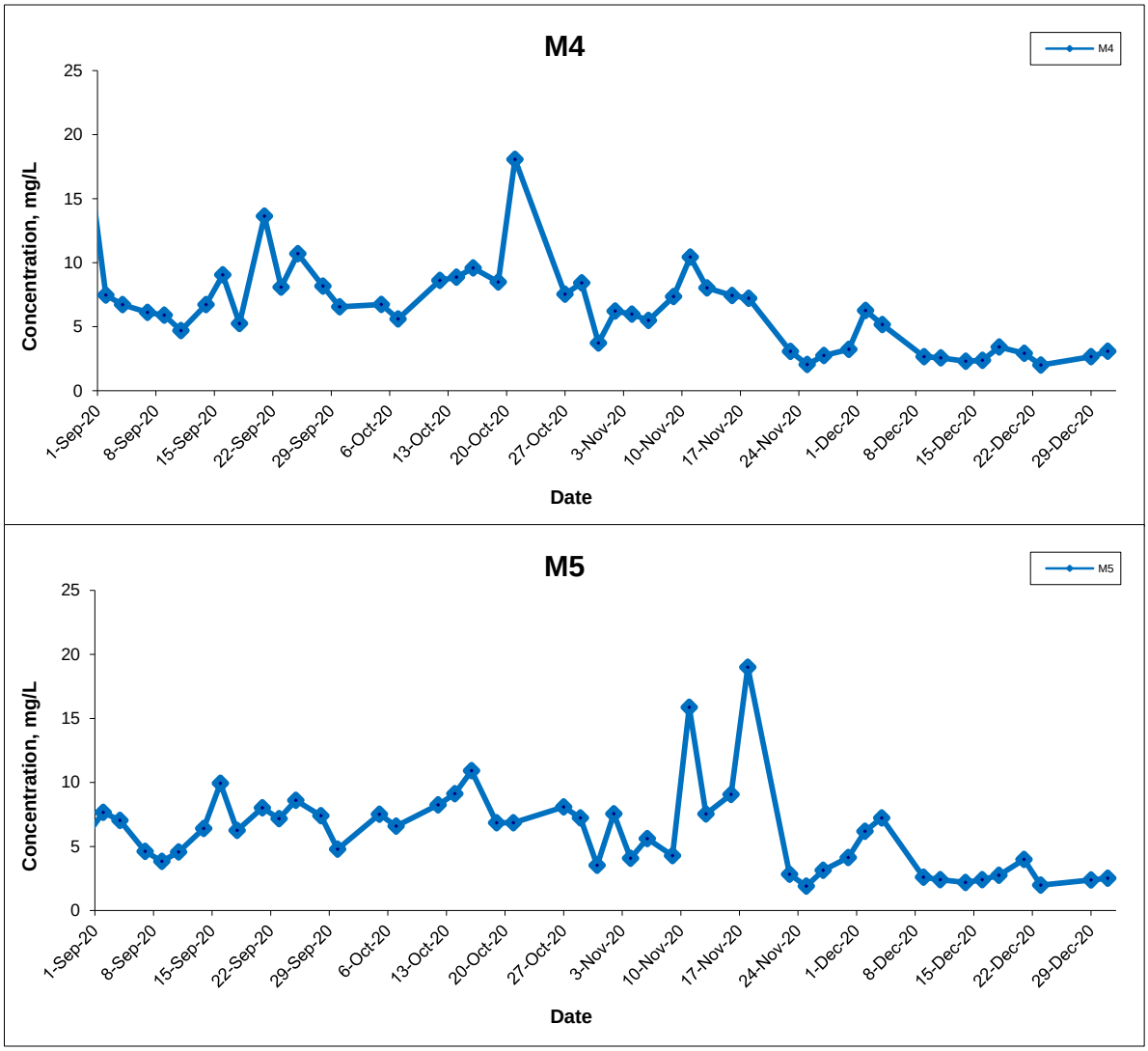
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Title	Scale	Project No.	
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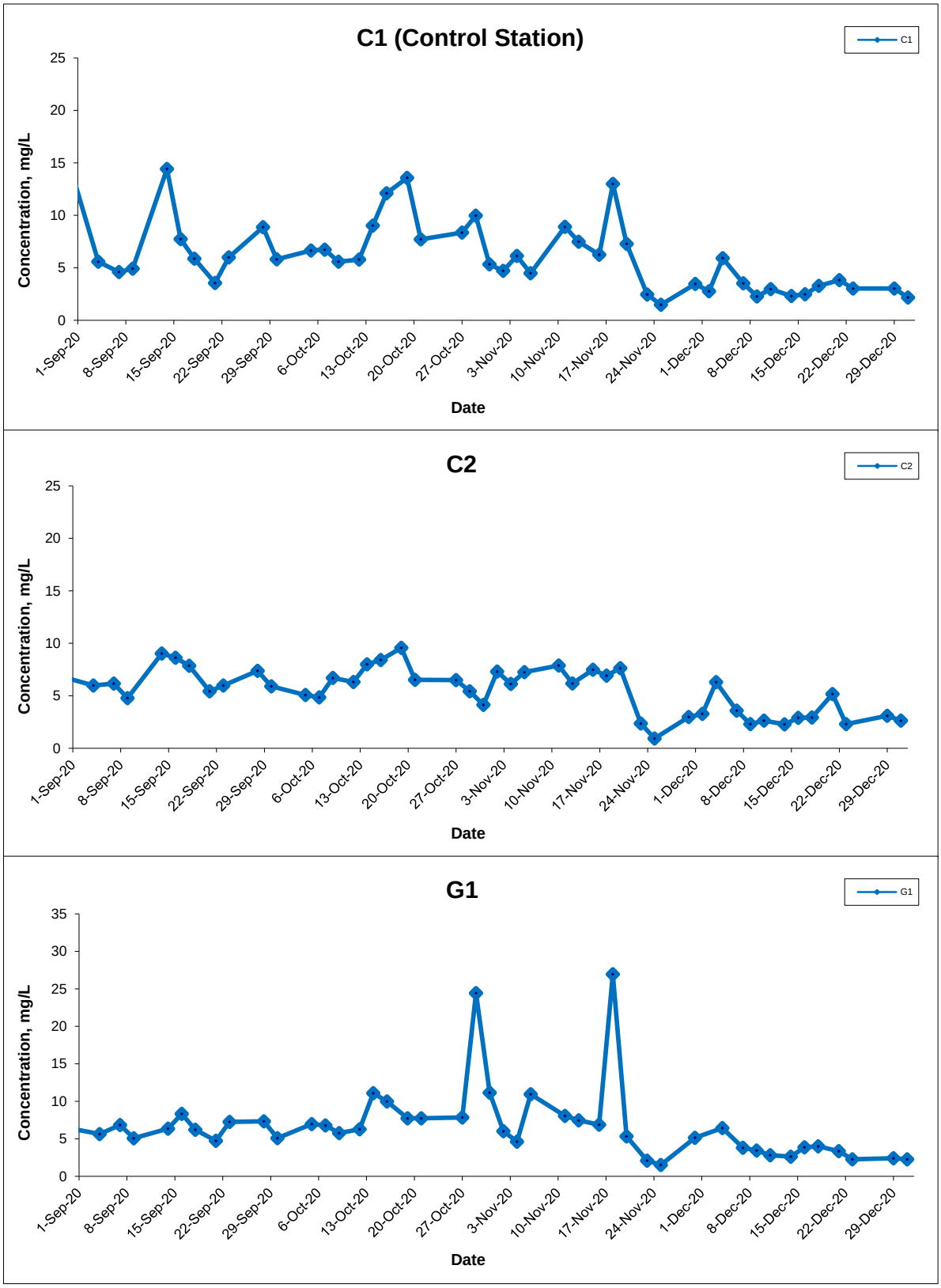
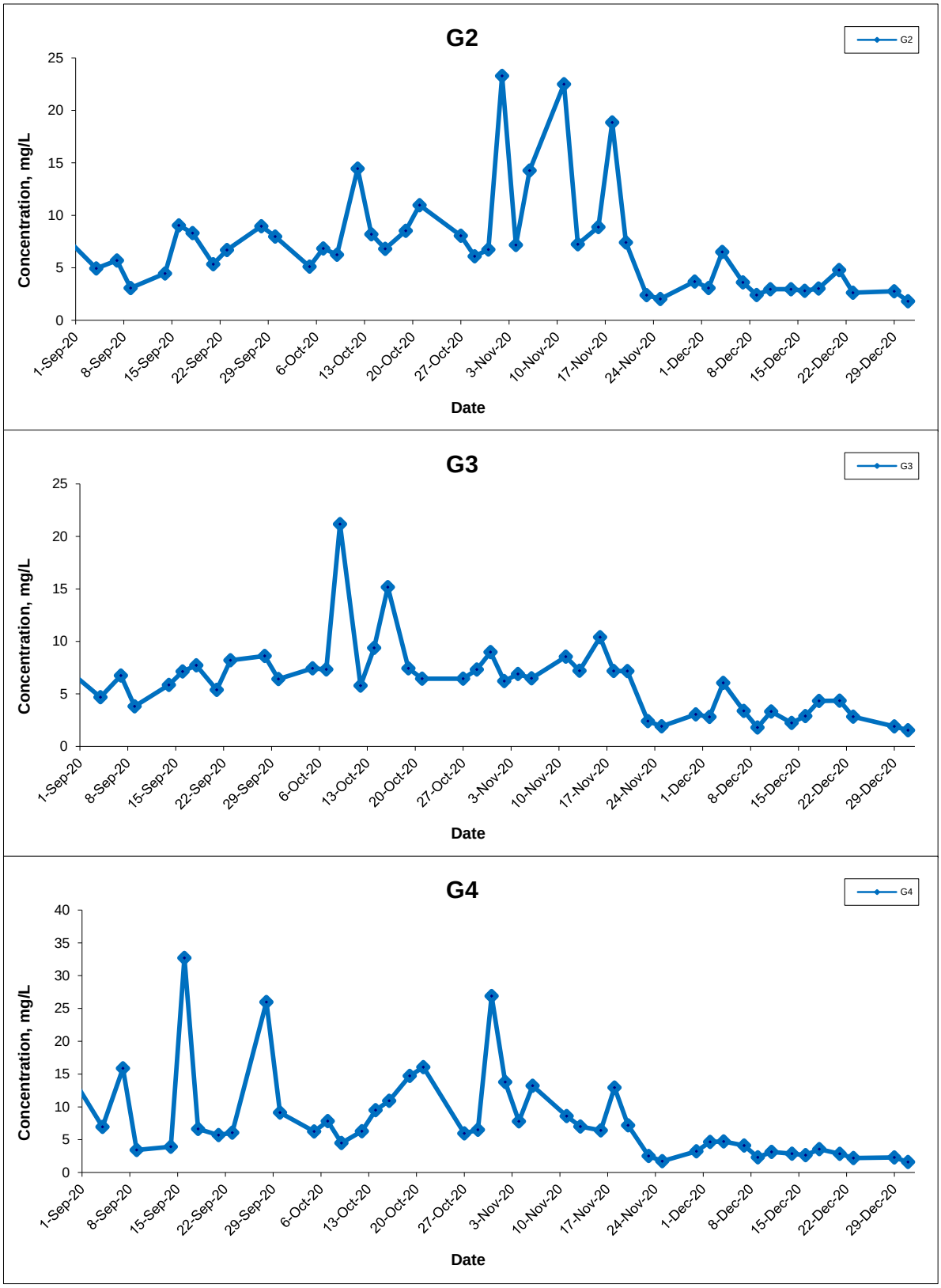
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Dec 20	Appendix: I	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Title	Scale	Project No.
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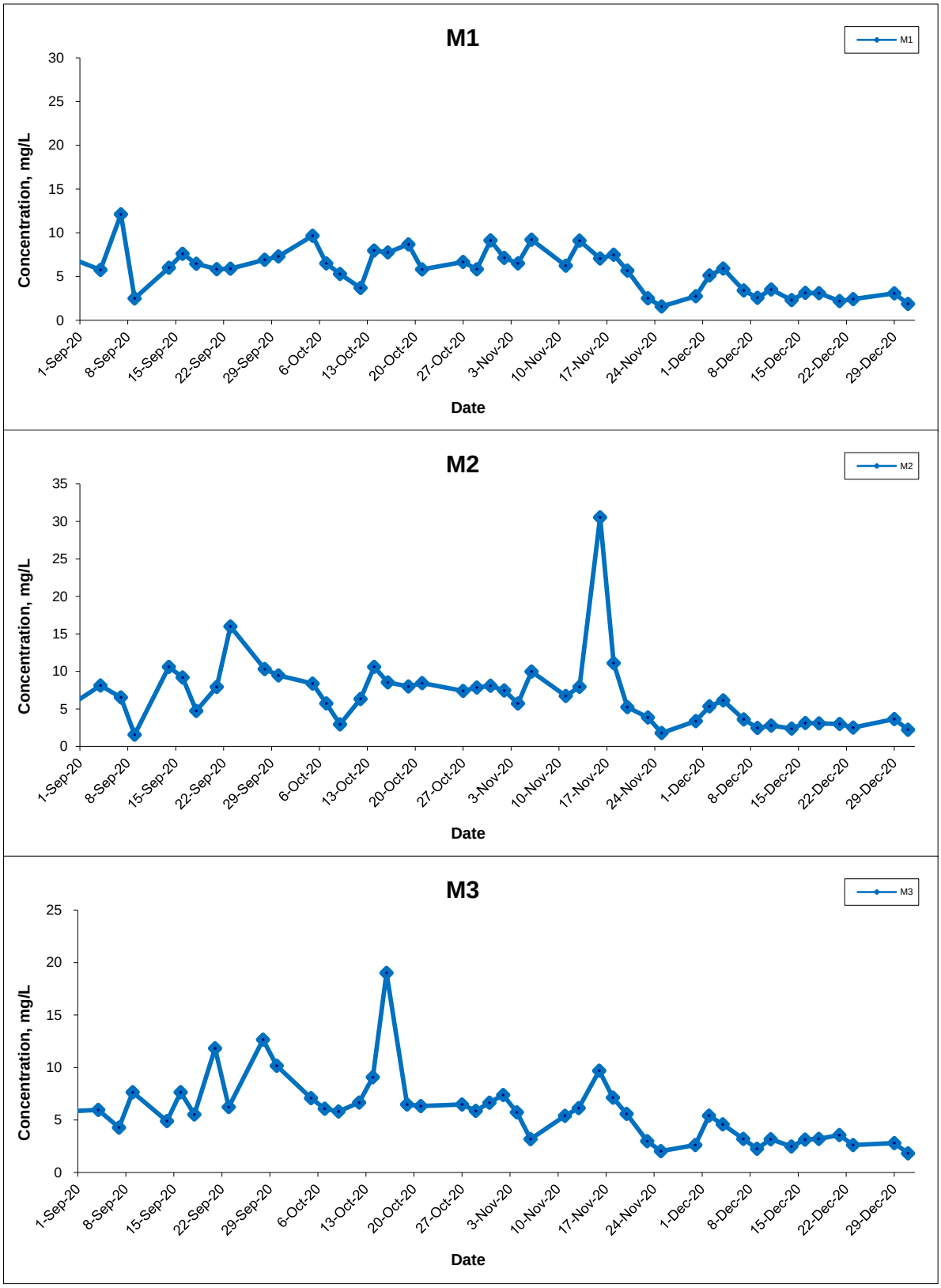
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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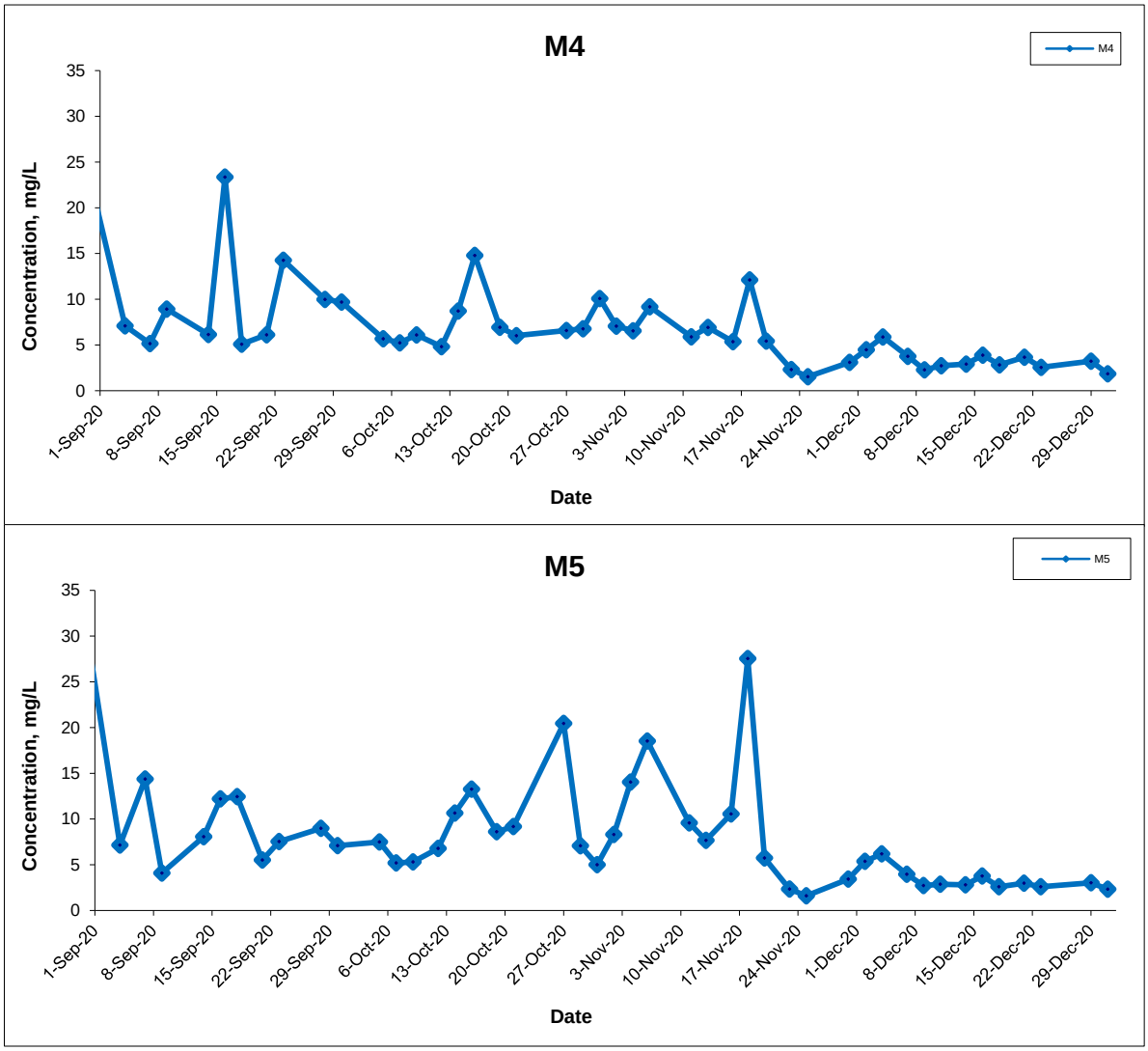
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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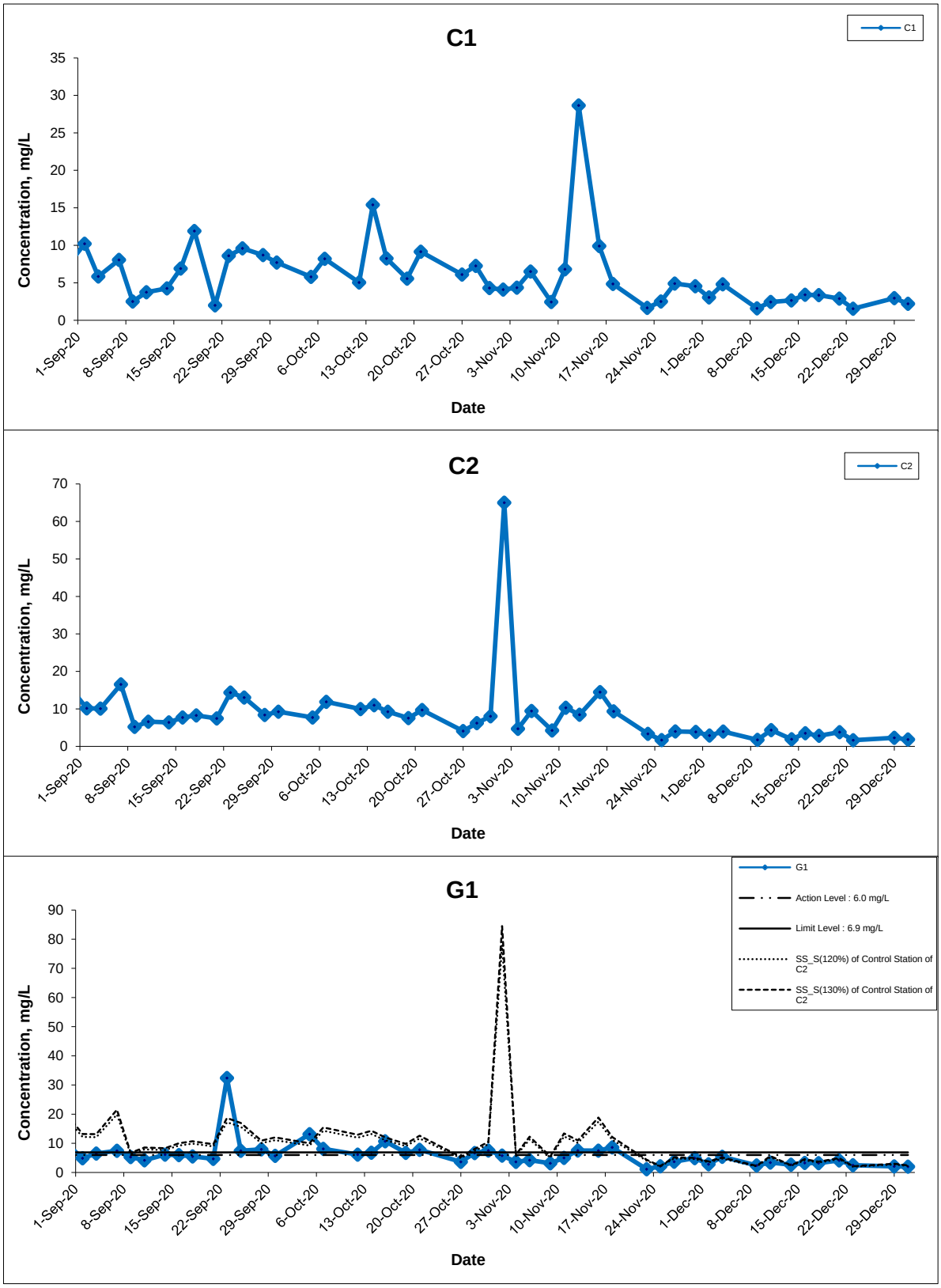
Suspended Solids (Surface) at Mid-Ebb Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
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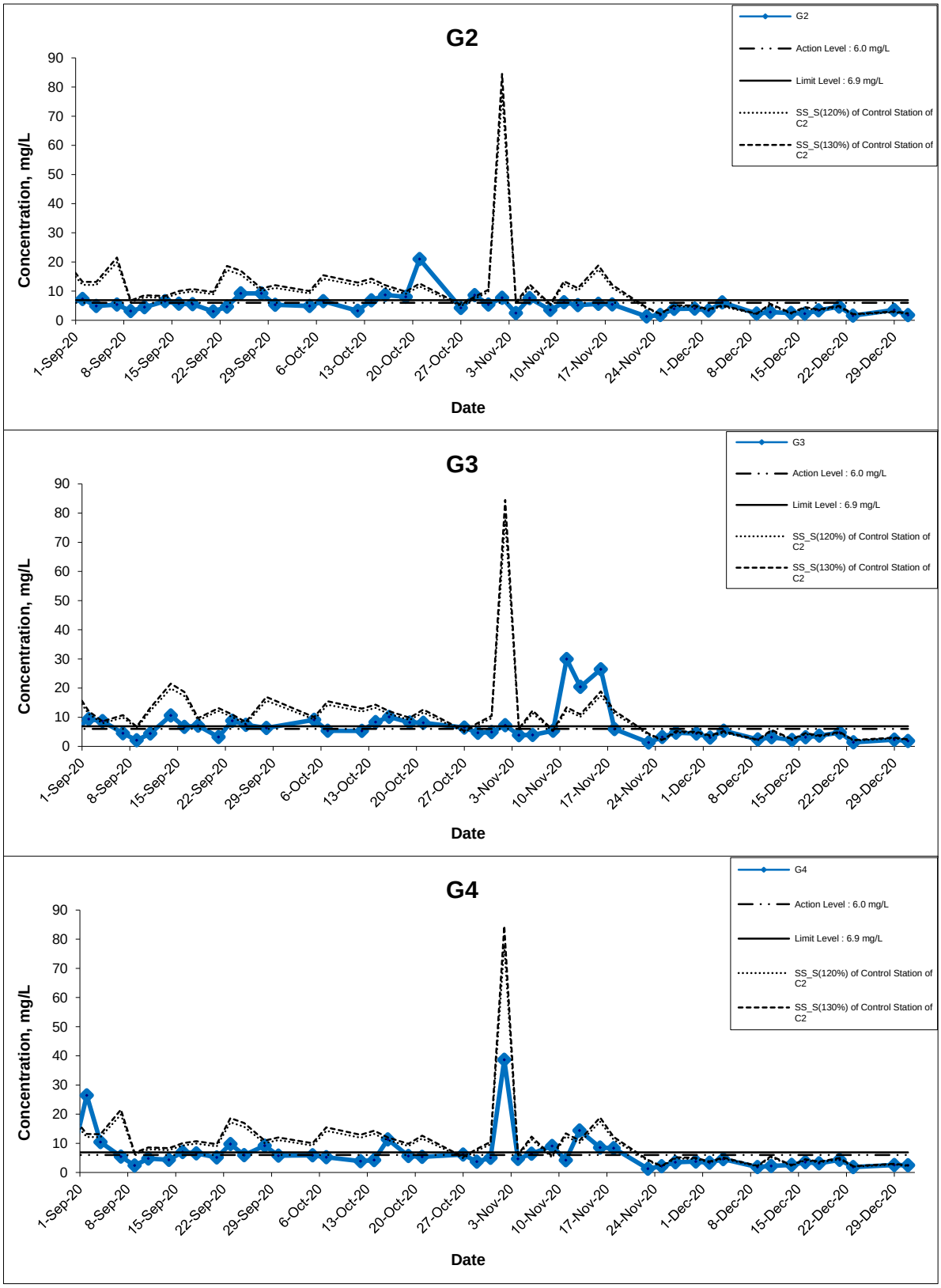
Suspended Solids (Surface) at Mid-Ebb Tide



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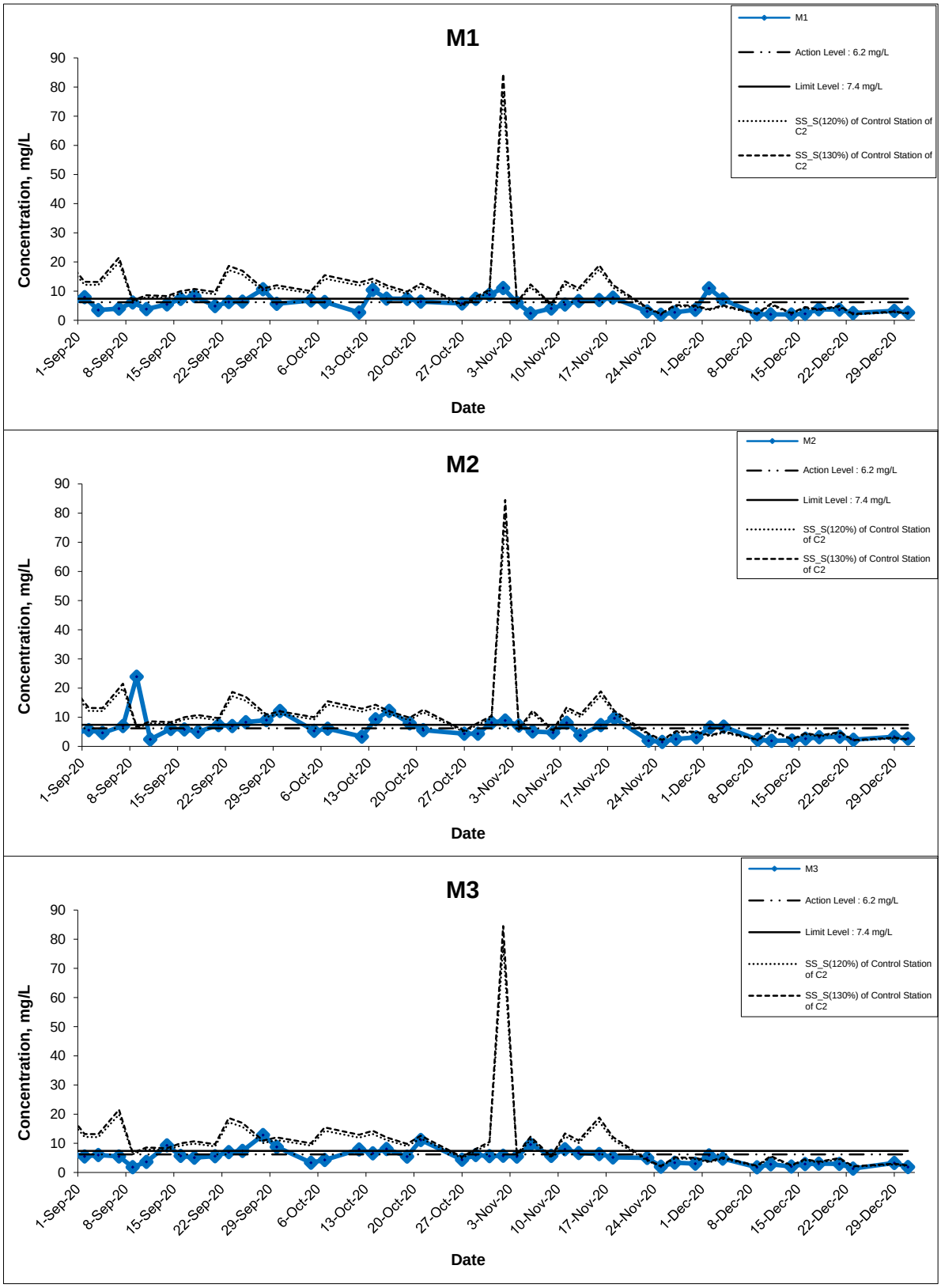
Suspended Solids (Surface) at Mid-Ebb Tide



Title	Scale	Project No.	
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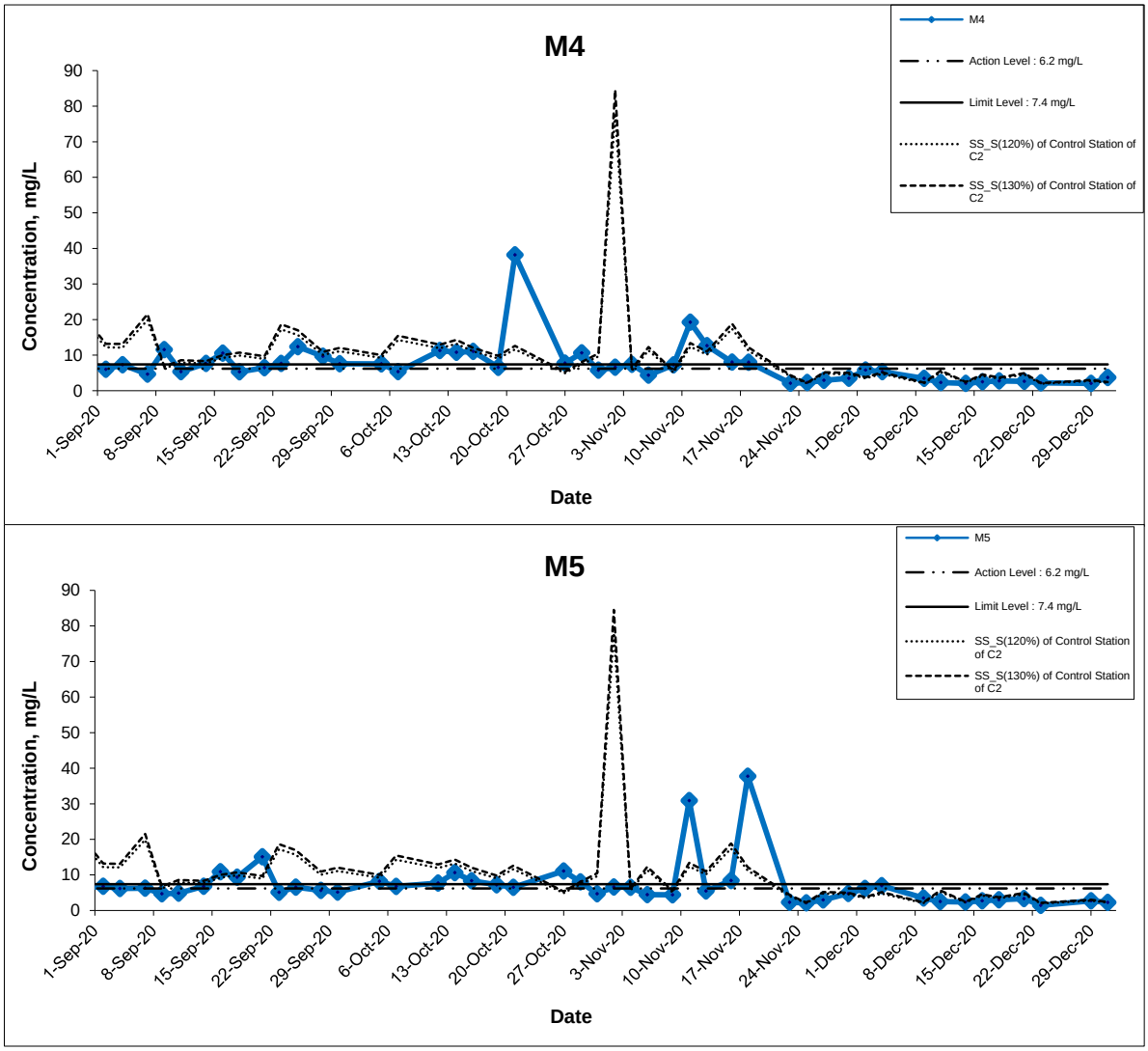
Suspended Solids (Surface) at Mid-Ebb Tide



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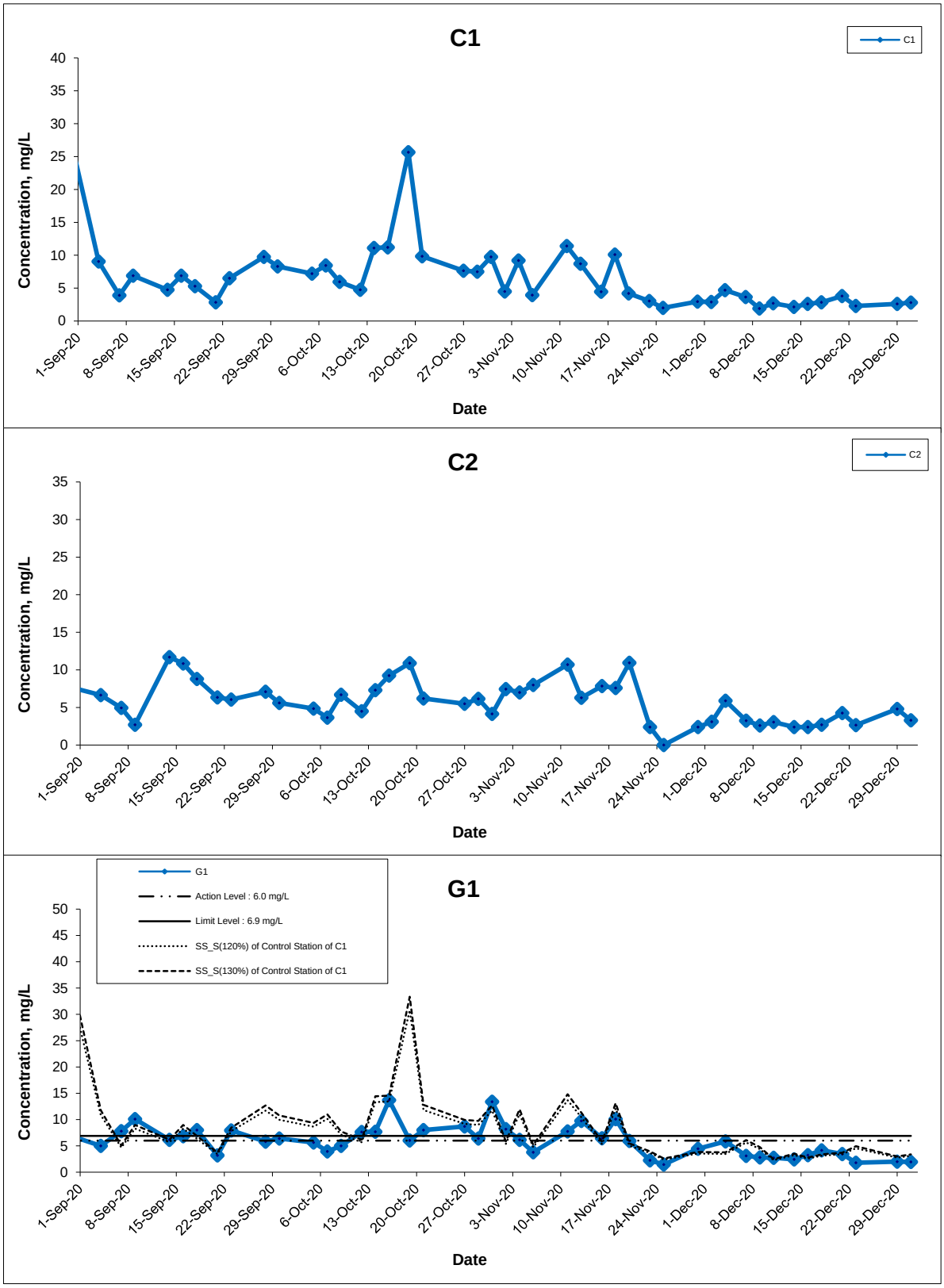
Suspended Solids (Surface) at Mid-Flood Tide



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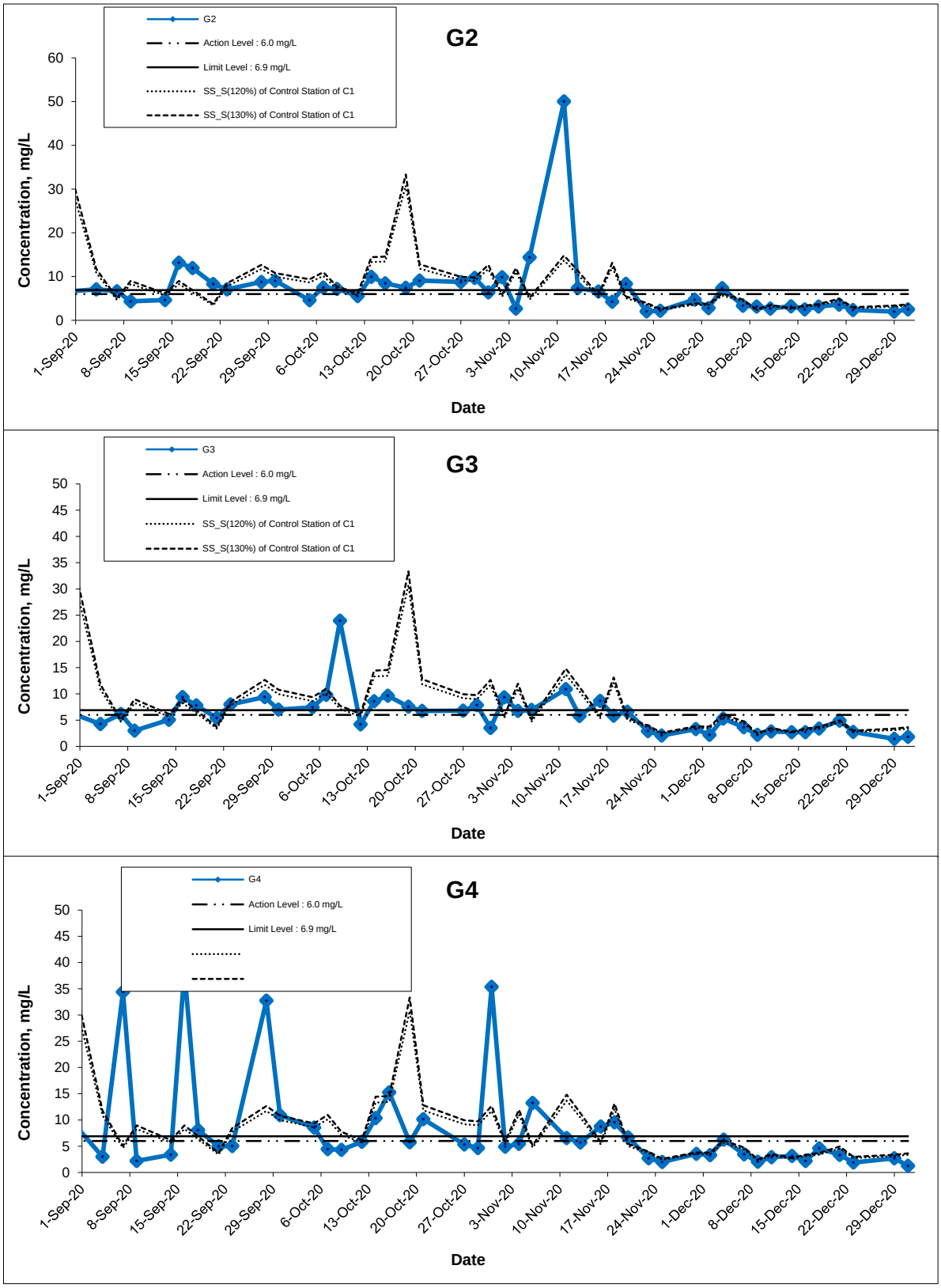
Suspended Solids (Surface) at Mid-Flood Tide



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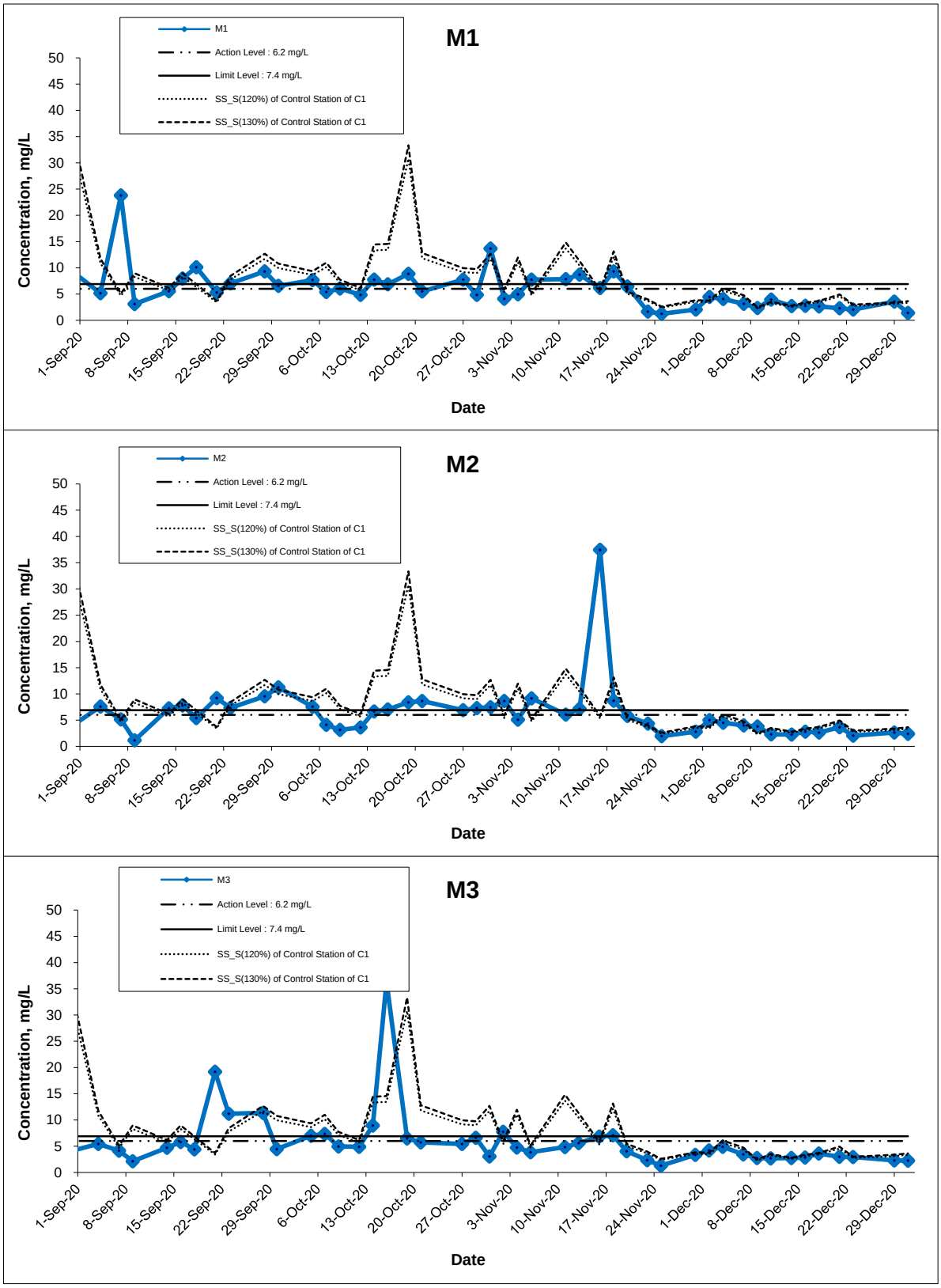
		Date Dec 20	Appendix I	

Suspended Solids (Surface) at Mid-Flood Tide



Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
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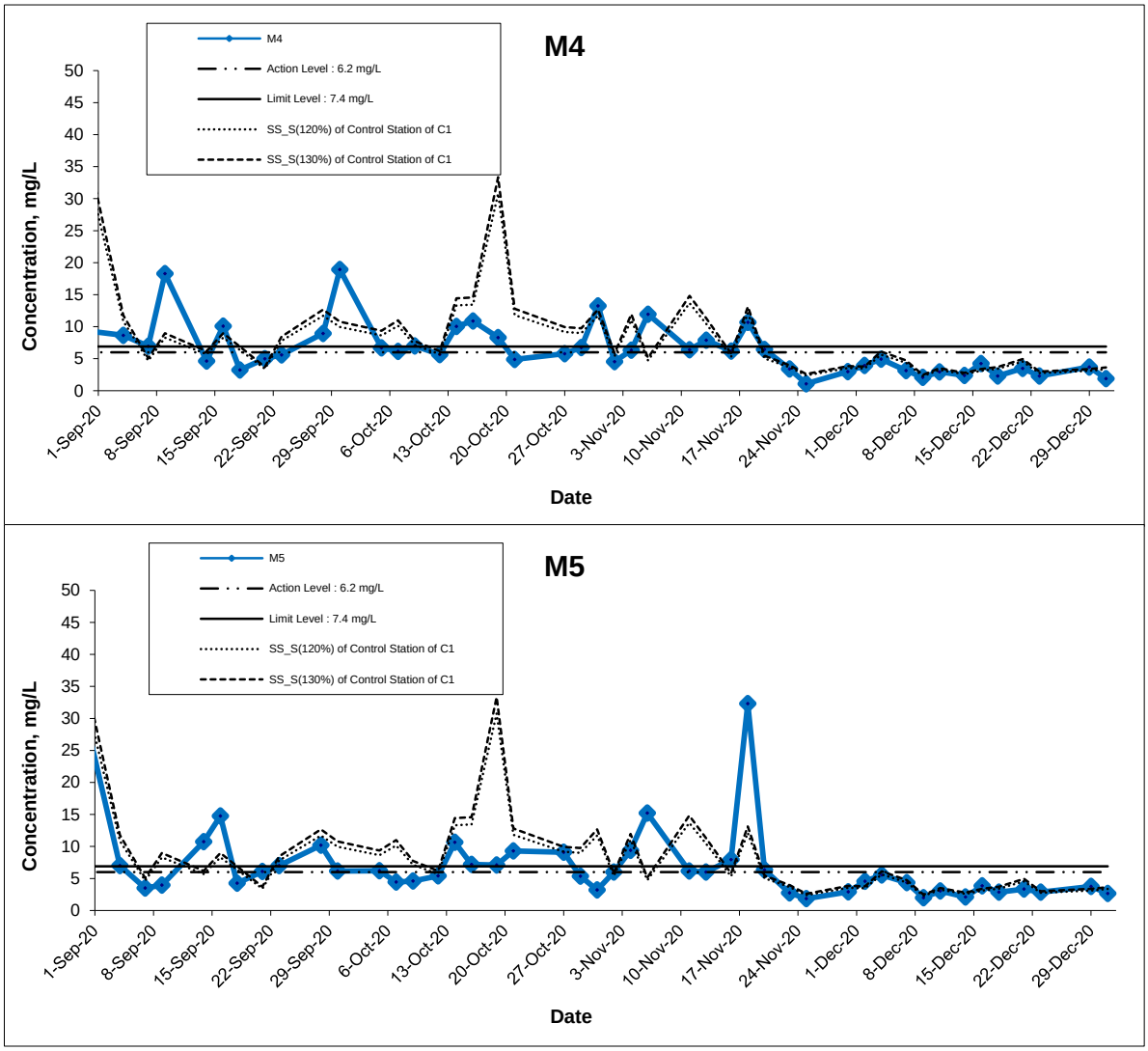
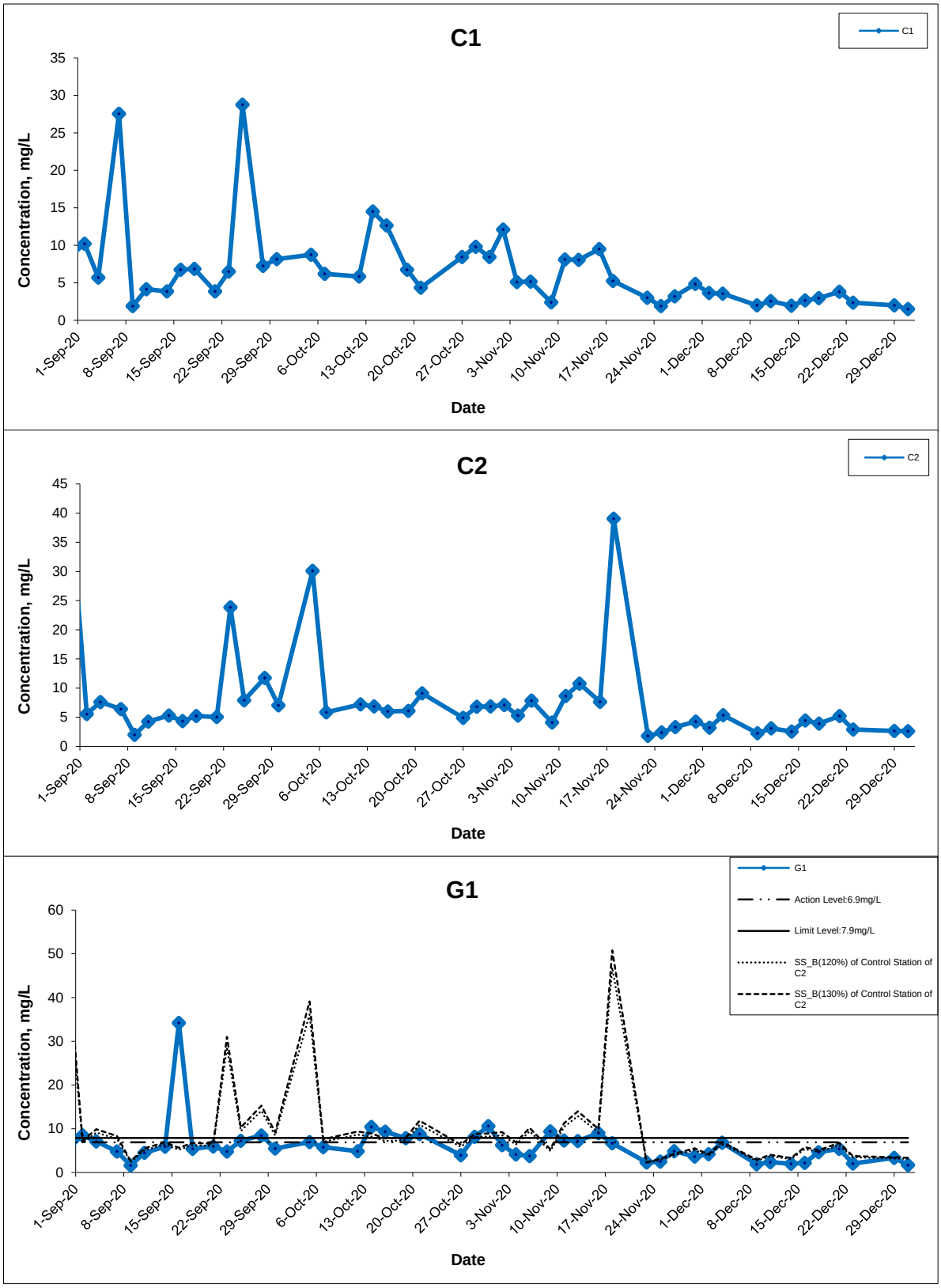
Suspended Solids (Surface) at Mid-Flood Tide



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Dec 20	Project No. MA16034 Appendix I	CINOTECH

Suspended Solids (Bottom) at Mid-Ebb Tide



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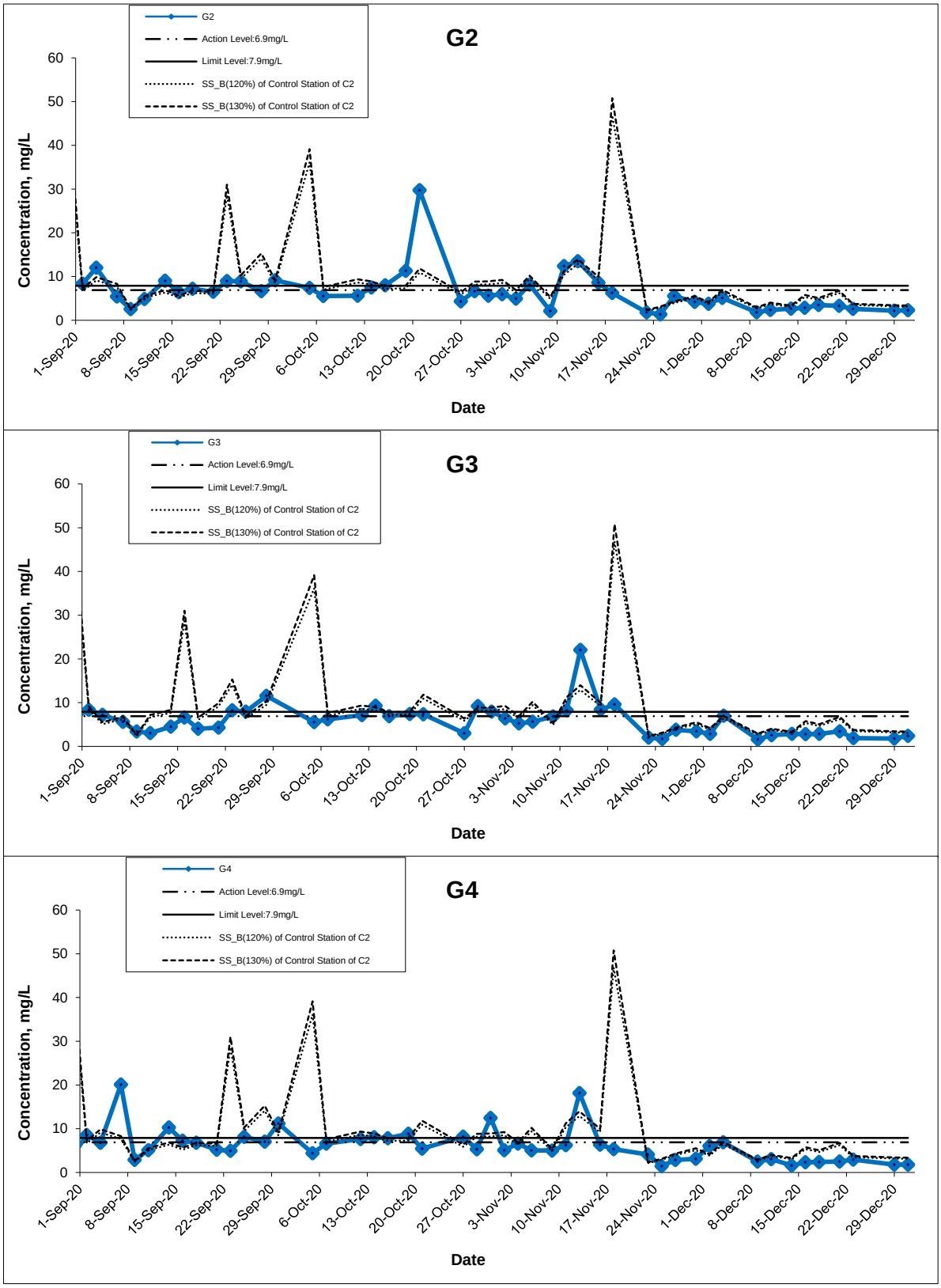
Suspended Solids (Bottom) at Mid-Ebb Tide



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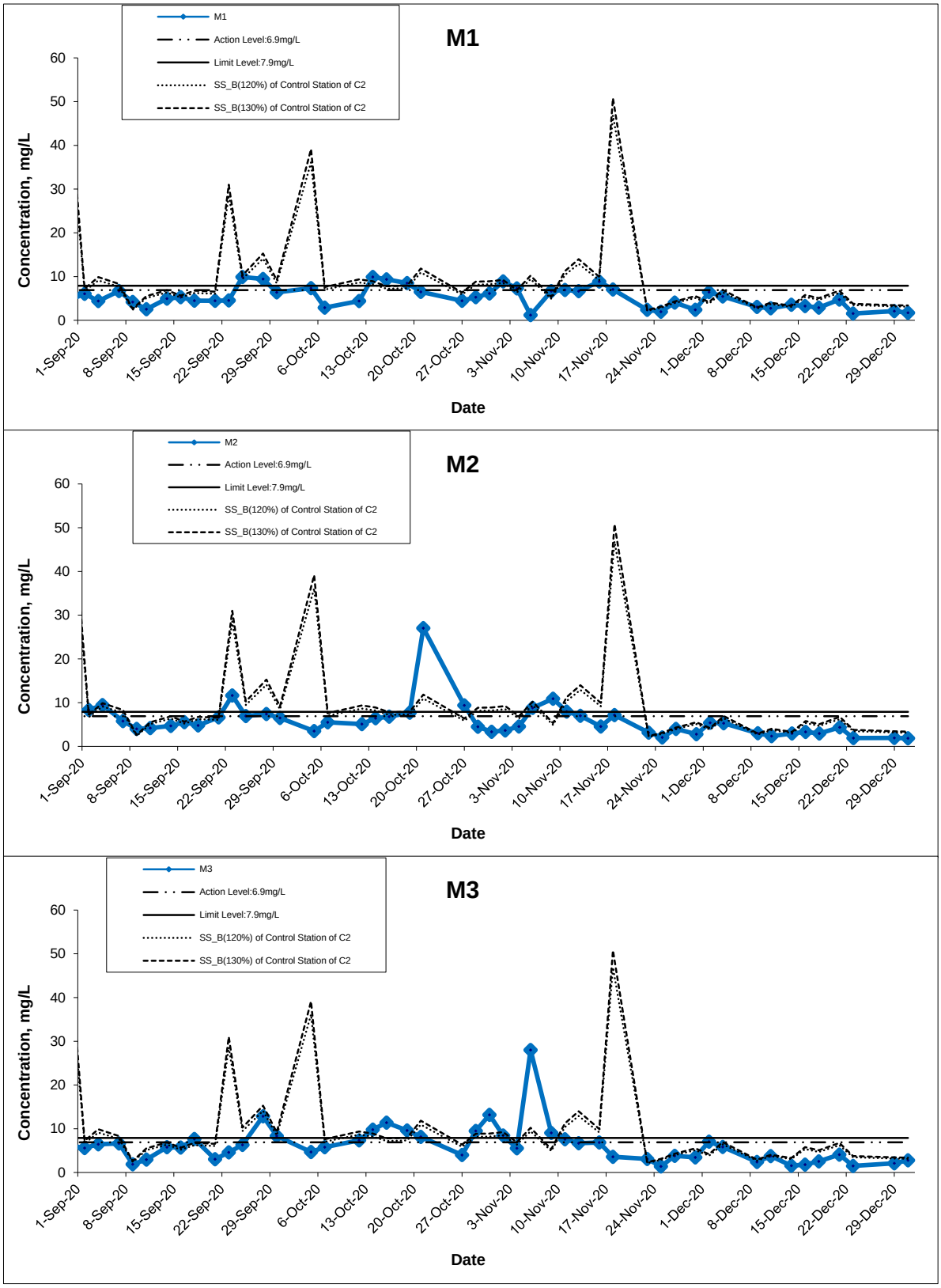
Suspended Solids (Bottom) at Mid-Ebb Tide



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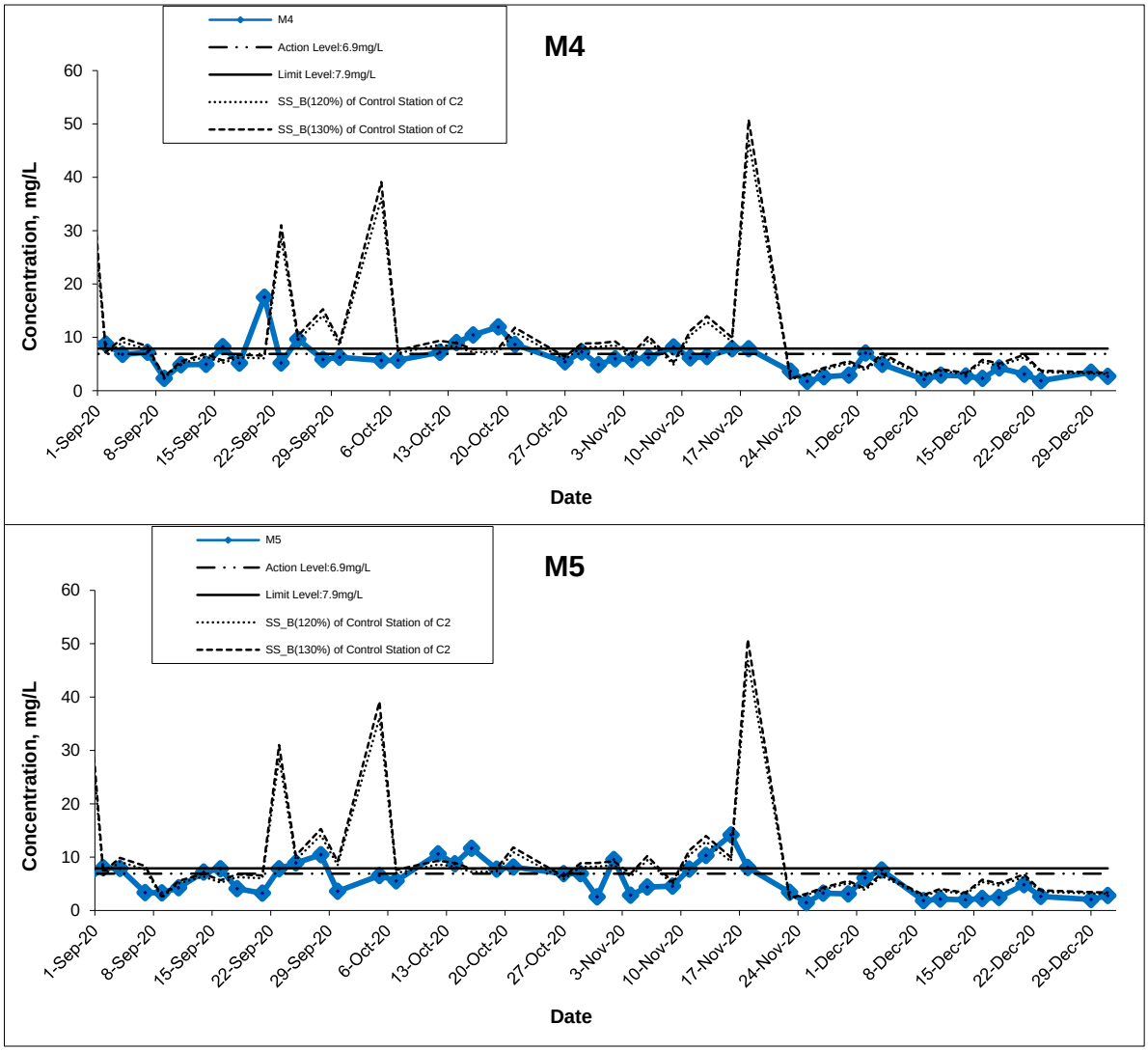
Suspended Solids (Bottom) at Mid-Ebb Tide



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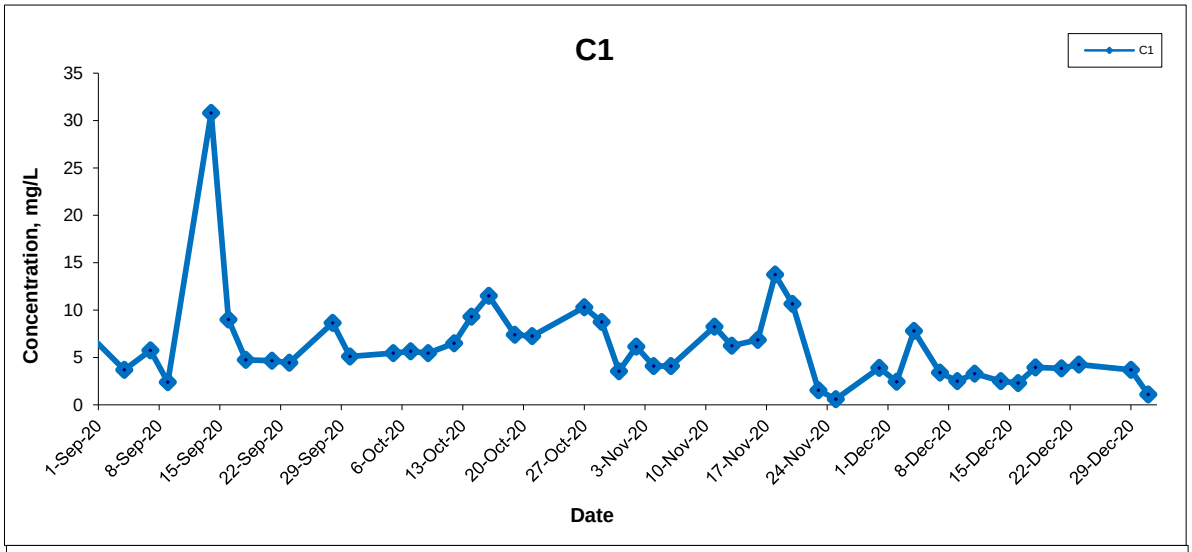
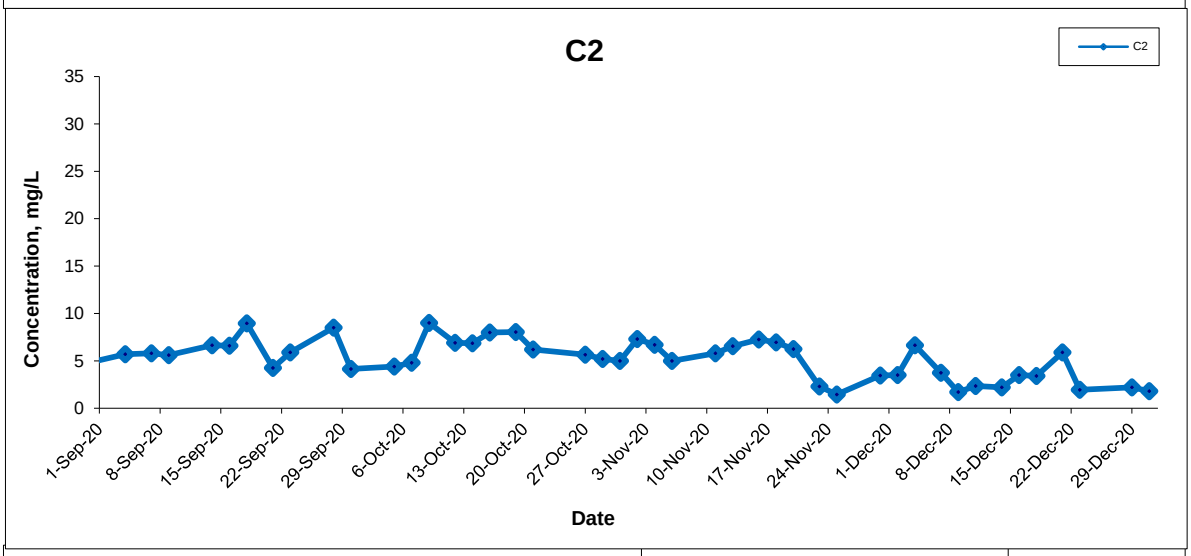
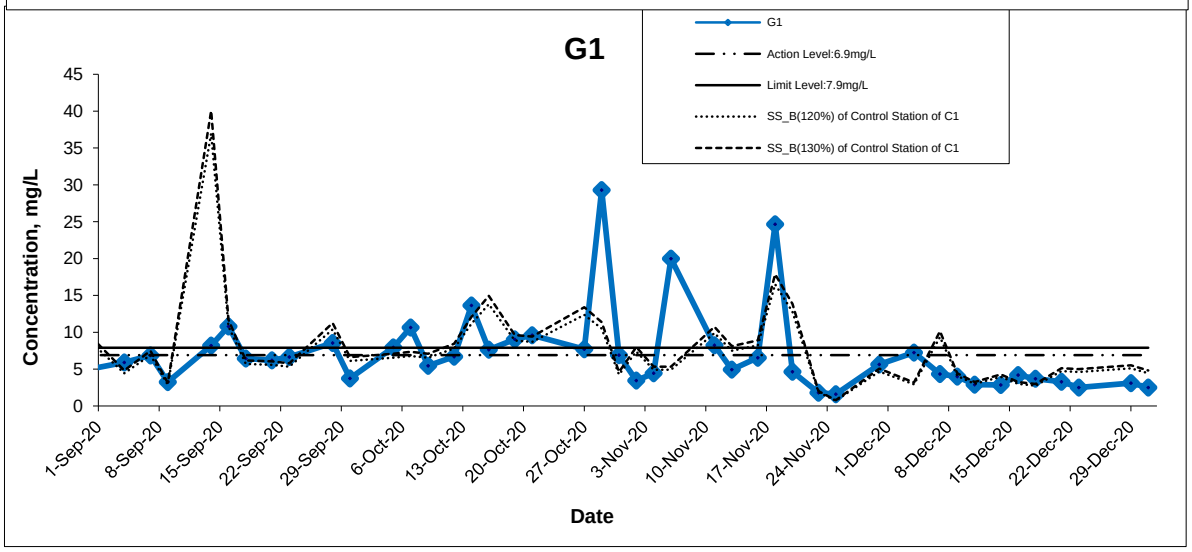
Suspended Solids (Bottom) at Mid-Flood Tide







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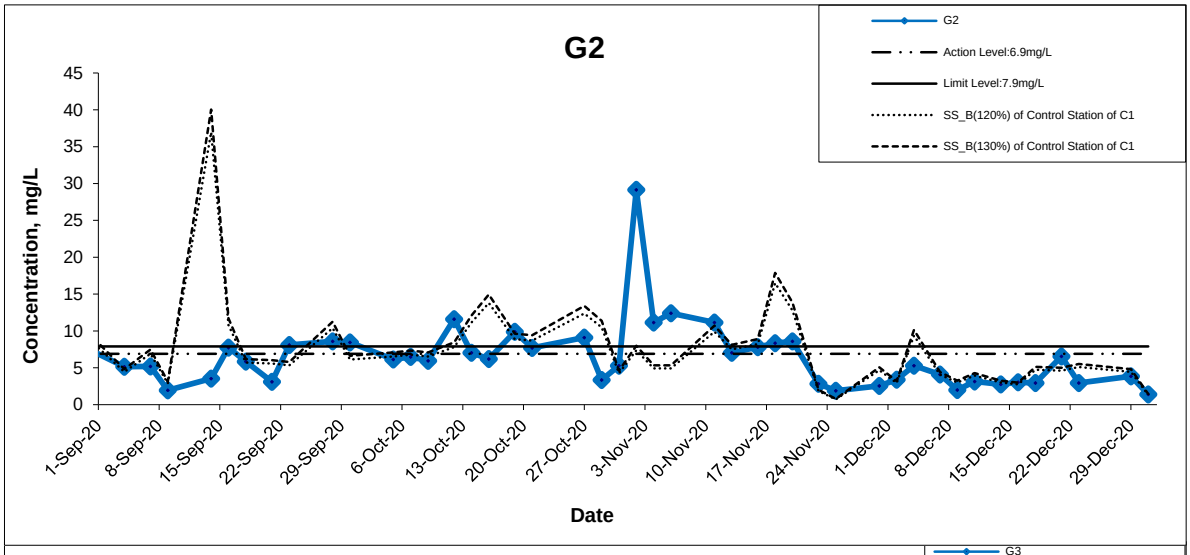
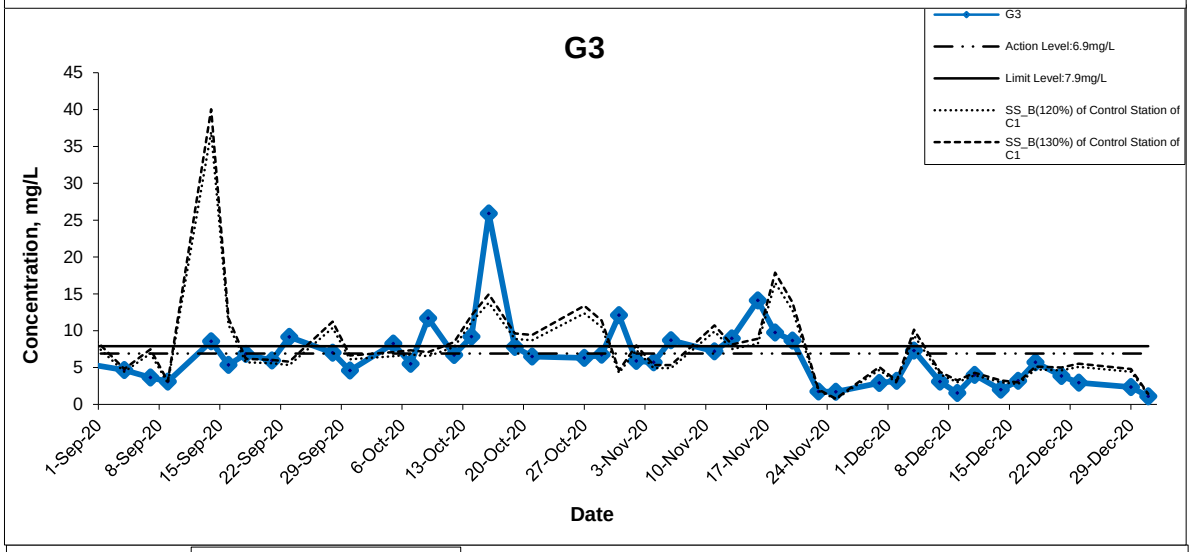
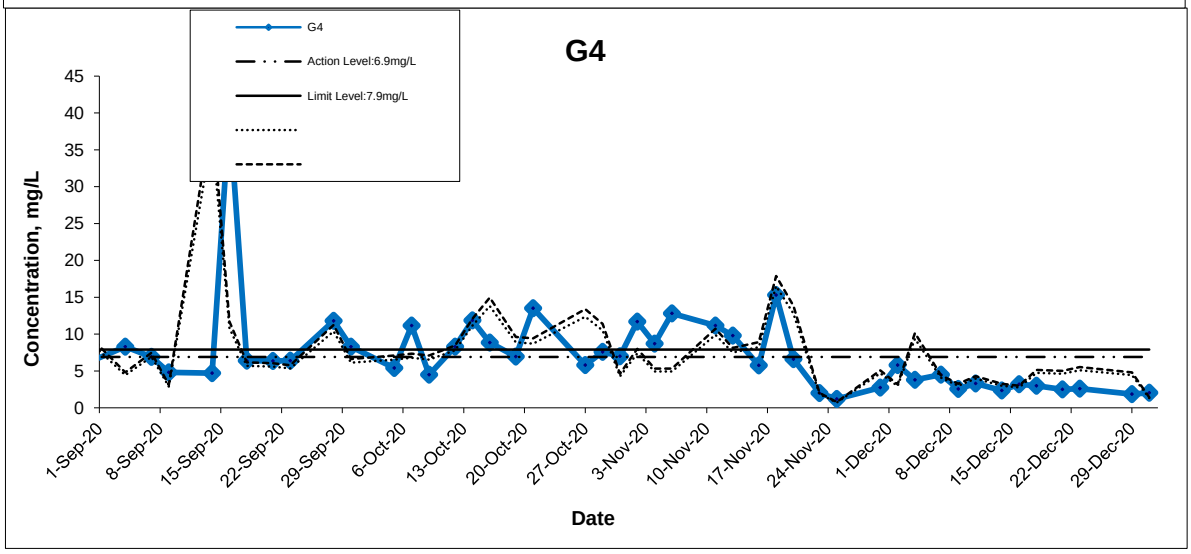
Suspended Solids (Bottom) at Mid-Flood Tide







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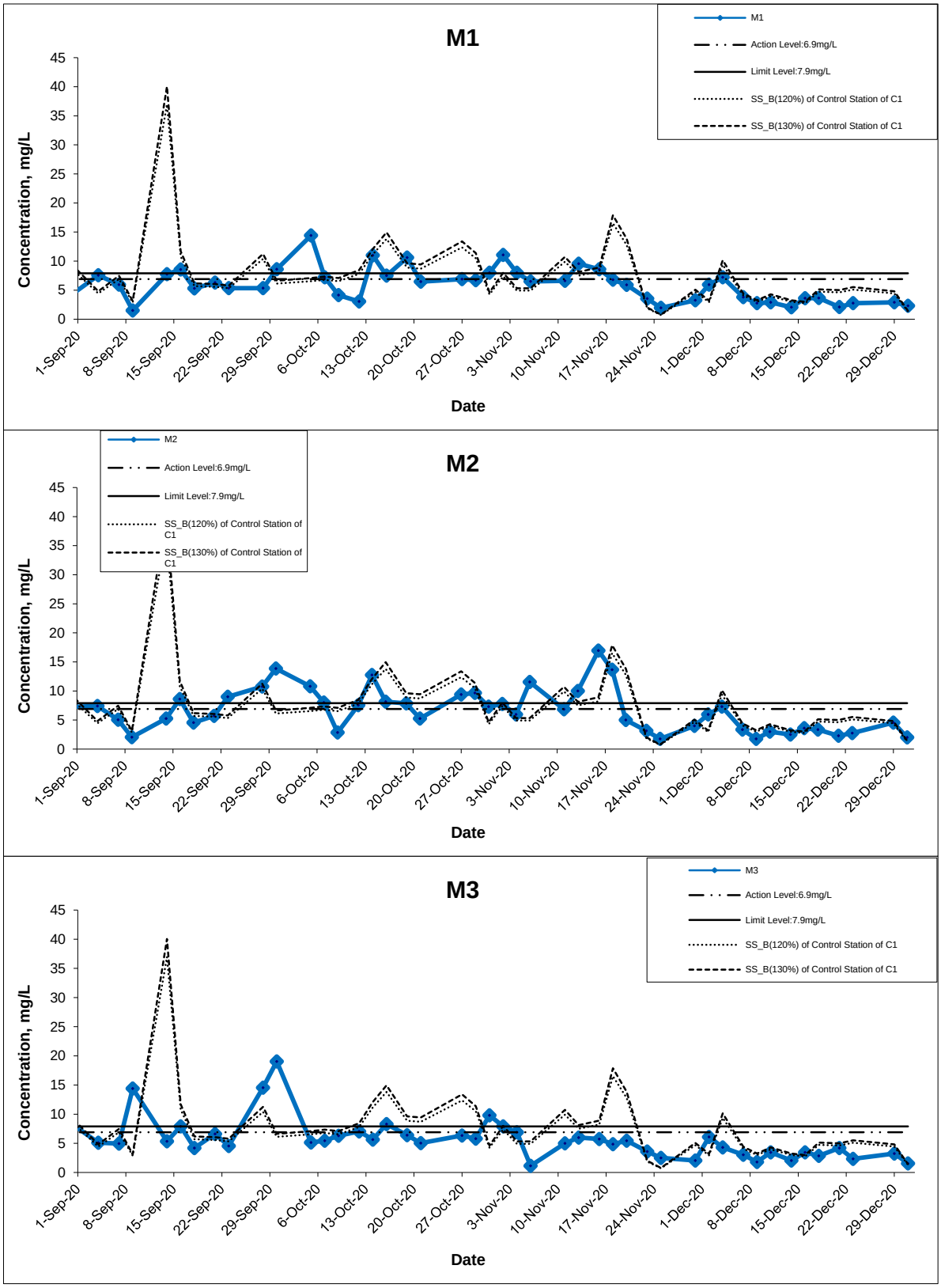
Suspended Solids (Bottom) at Mid-Flood Tide



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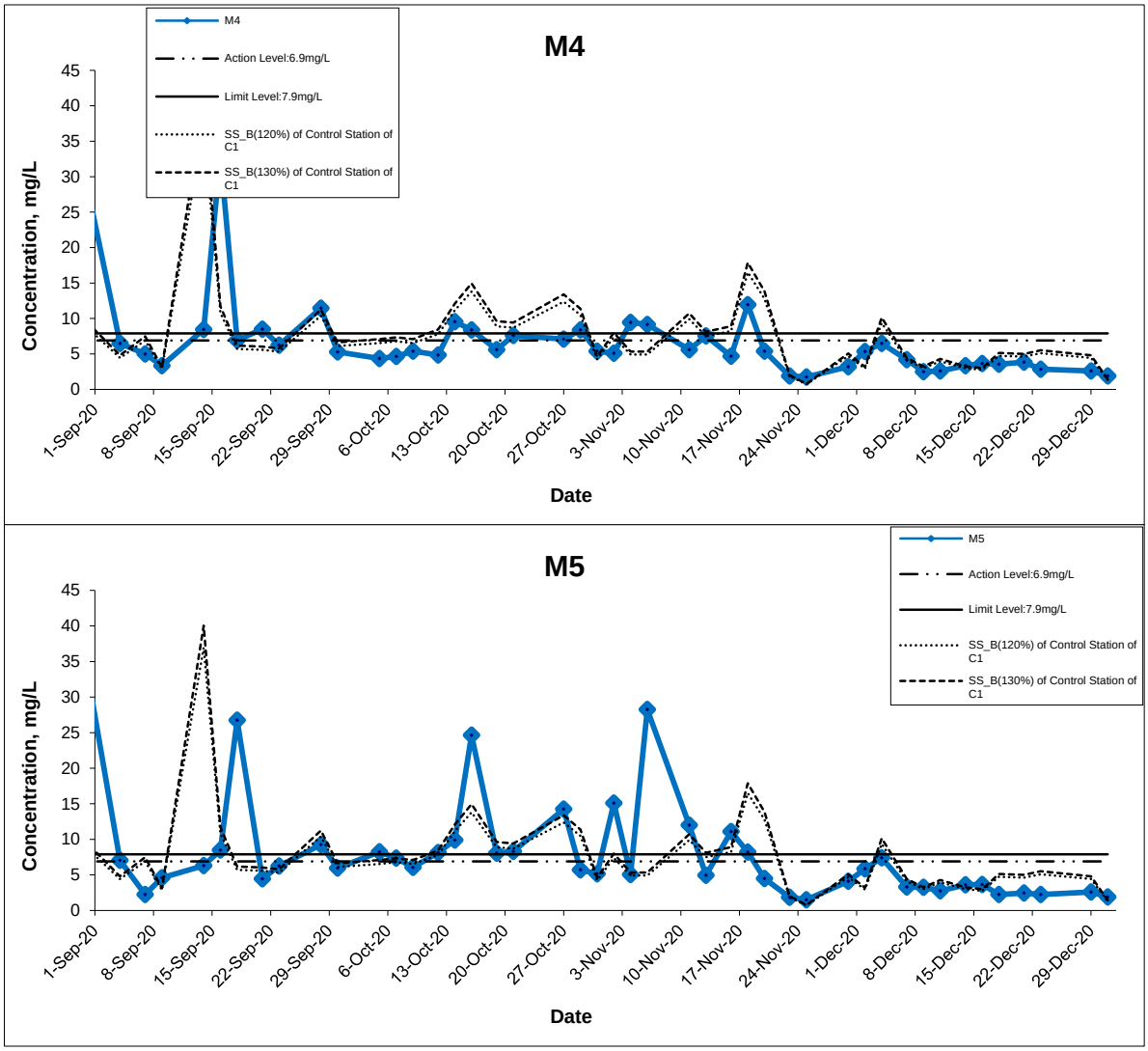
Suspended Solids (Bottom) at Mid-Flood Tide



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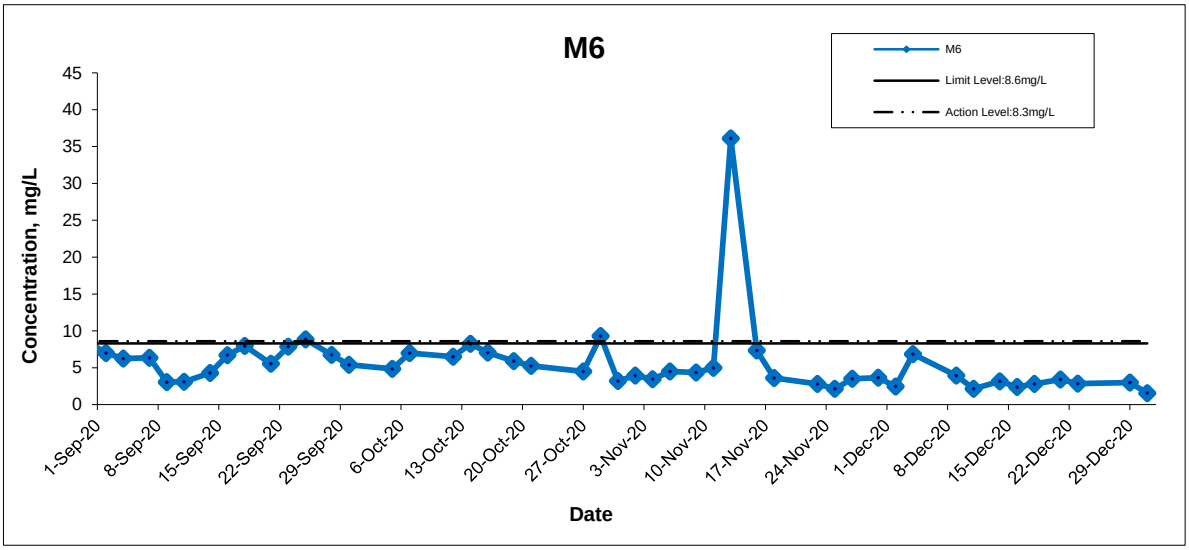
Suspended Solids (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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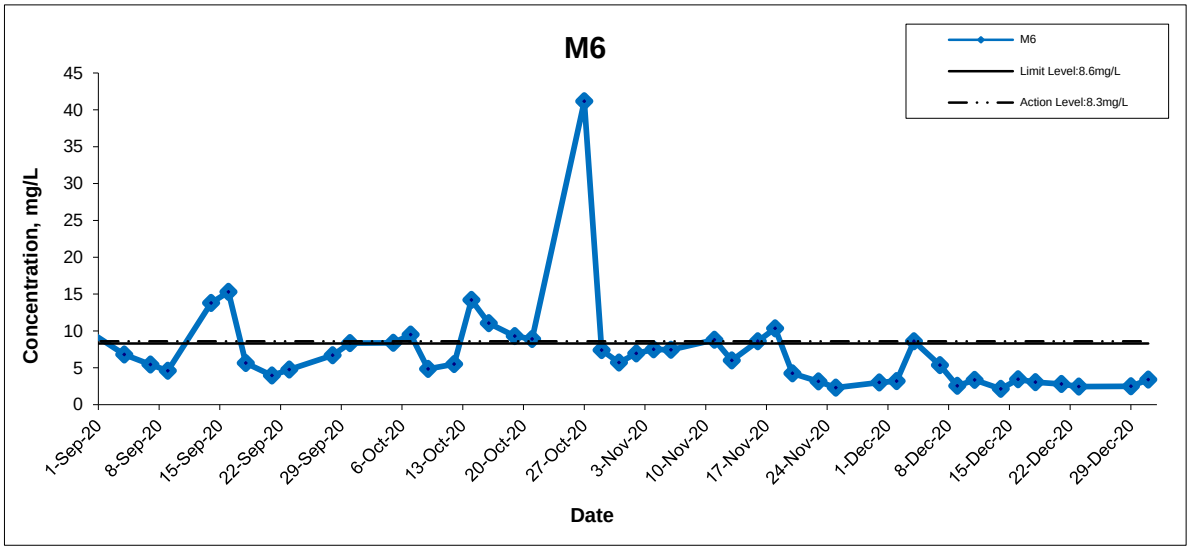
Suspended Solids (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Dec 20	Project No. MA16034 Appendix I	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: December 2020

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise
Ten (10) Action Level exceedances were recorded due to the documented complaints received in this reporting month.

Limit Level for Construction Noise
No exceedance for daytime and evening-time construction noise monitoring was recorded in the reporting month.

No limit level exceedances for nighttime construction noise monitoring was recorded in the reporting month.

Exceedance recorded during daytime
(NIL in the reporting month)

Exceedance recorded during night-time
(NIL in the reporting month)

(C) Exceedance Report for Water Quality
Forty-one (41) Action Level and one hundred and twemty-three (123) Limit Level exceedances in Monitoring Stations (M) of marine water quality monitoring. Refer to the attached notifications and investigation report for details.

Since October 2019, groundwater monitoring had been suspended.

(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)

Contract No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel
Design and Construction
- Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: **02 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.9	M1	12:12	6.2	7.4	3.5	3.8	***11.0***
Mid-Ebb	C2	surface	2.9	M2	12:00	6.2	7.4	3.5	3.8	***6.6***
Mid-Ebb	C2	surface	2.9	M3	12:38	6.2	7.4	3.5	3.8	***5.9***
Mid-Ebb	C2	surface	2.9	M4	11:53	6.2	7.4	3.5	3.8	***5.8***
Mid-Ebb	C2	surface	2.9	M5	13:19	6.2	7.4	3.5	3.8	***6.2***
Mid-Ebb	C2	bottom	3.2	M1	12:12	6.9	7.9	3.8	4.2	***6.5***
Mid-Ebb	C2	bottom	3.2	M2	12:00	6.9	7.9	3.8	4.2	***5.4***
Mid-Ebb	C2	bottom	3.2	M3	12:38	6.9	7.9	3.8	4.2	***7.1***
Mid-Ebb	C2	bottom	3.2	M4	11:53	6.9	7.9	3.8	4.2	***7.1***
Mid-Ebb	C2	bottom	3.2	M5	13:19	6.9	7.9	3.8	4.2	***6.1***
Mid-Flood	C1	surface	2.9	M1	8:37	6.2	7.4	3.5	3.8	***4.5***
Mid-Flood	C1	surface	2.9	M2	8:23	6.2	7.4	3.5	3.8	***5.0***
Mid-Flood	C1	surface	2.9	M3	9:07	6.2	7.4	3.5	3.8	***4.2***
Mid-Flood	C1	surface	2.9	M4	11:53	6.2	7.4	3.5	3.8	***5.8***
Mid-Flood	C1	surface	2.9	M5	9:34	6.2	7.4	3.5	3.8	***4.6***
Mid-Flood	C1	bottom	2.5	M1	8:37	6.9	7.9	2.9	3.2	***6.0***
Mid-Flood	C1	bottom	2.5	M2	8:23	6.9	7.9	2.9	3.2	***6.0***
Mid-Flood	C1	bottom	2.5	M3	9:07	6.9	7.9	2.9	3.2	***6.1***
Mid-Flood	C1	bottom	2.5	M4	11:53	6.9	7.9	2.9	3.2	***7.1***

Date of Water Quality Monitoring: **02 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	bottom	2.5	M5	9:34	6.9	7.9	2.9	3.2	***5.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **04 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	4.0	M1	9:01	6.2	7.4	4.7	5.1	***7.2***
Mid-Ebb	C2	surface	4.0	M2	8:53	6.2	7.4	4.7	5.1	***6.8***
Mid-Ebb	C2	surface	4.0	M3	9:17	6.2	7.4	4.7	5.1	***4.8***
Mid-Ebb	C2	surface	4.0	M4	8:48	6.2	7.4	4.7	5.1	***5.4***
Mid-Ebb	C2	surface	4.0	M5	9:32	6.2	7.4	4.7	5.1	***7.0***
Mid-Ebb	C2	bottom	5.4	M5	9:32	6.9	7.9	6.4	7.0	***7.6***
Mid-Flood	C1	bottom	7.8	M1	14:31	6.9	7.9	9.4	10.1	***7.2***
Mid-Flood	C1	bottom	7.8	M2	14:21	6.9	7.9	9.4	10.1	***7.3***
Mid-Flood	C1	bottom	7.8	M5	15:06	6.9	7.9	9.4	10.1	***7.4***
Mid-Flood	C1	intake	n.a.	M6	14:59	8.3	8.6	n.a.	n.a.	***8.6***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **04 December 2020**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	2.3	M1	9:01	2.7	3.0	***3.3***
Bottom	19.3	22.2	Mid-Ebb	C2	2.3	M2	8:53	2.7	n.a.	***3.4***
Bottom	19.3	22.2	Mid-Ebb	C2	2.3	M3	9:17	2.7	3.0	***3.8***
Bottom	19.3	22.2	Mid-flood	C1	2.2	M1	14:31	2.7	2.9	***3.2***
Bottom	19.3	22.2	Mid-flood	C1	2.2	M2	14:21	2.7	2.9	***3.0***
Bottom	19.3	22.2	Mid-flood	C1	2.2	M3	14:49	2.7	2.9	***4.3***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **09 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	1.8	M2	8:13	6.2	7.4	2.1	2.3	***2.3***
Mid-Ebb	C2	surface	1.8	M4	8:07	6.2	7.4	2.1	2.3	***3.5***
Mid-Ebb	C2	surface	1.8	M5	9:22	6.2	7.4	2.1	2.3	***3.5***
Mid-Ebb	C2	bottom	2.3	M1	8:28	6.9	7.9	2.7	2.9	***3.1***
Mid-Ebb	C2	bottom	2.3	M2	8:13	6.9	7.9	2.7	2.9	***3.0***
Mid-Flood	C1	surface	1.9	M1	13:31	6.2	7.4	2.3	2.5	***2.4***
Mid-Flood	C1	surface	1.9	M2	13:17	6.2	7.4	2.3	2.5	***3.8***
Mid-Flood	C1	surface	1.9	M3	14:00	6.2	7.4	2.3	2.5	***2.8***
Mid-Flood	C1	surface	1.9	M4	8:07	6.2	7.4	2.3	2.5	***3.5***
Mid-Flood	C1	bottom	2.5	M5	14:25	6.9	7.9	3.0	3.3	***3.3***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **11 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	bottom	3.1	M3	8:32	6.9	7.9	3.7	4.0	***3.8***
Mid-Flood	C1	surface	2.7	M1	14:28	6.2	7.4	3.2	3.5	***4.0***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **11 December 2020**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	2.6	M4	7:55	3.1	3.3	***3.3***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **14 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	1.9	M5	12:19	6.2	7.4	2.3	2.5	***2.4***
Mid-Ebb	C2	bottom	2.6	M1	11:30	6.9	7.9	3.1	3.3	***3.6***
Mid-Flood	C1	surface	2.2	M1	16:39	6.2	7.4	2.6	2.8	***2.7***
Mid-Flood	C1	surface	2.2	M3	17:04	6.2	7.4	2.6	2.8	***2.8***
Mid-Flood	C1	bottom	2.5	M5	17:45	6.9	7.9	3.0	3.3	***3.6***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **16 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	surface	2.6	M5	9:17	6.2	7.4	3.1	3.4	***3.9***
Mid-Flood	C1	bottom	2.3	M1	8:23	6.9	7.9	2.8	3.0	***3.6***
Mid-Flood	C1	bottom	2.3	M2	8:08	6.9	7.9	2.8	3.0	***3.6***
Mid-Flood	C1	bottom	2.3	M3	8:52	6.9	7.9	2.8	3.0	***3.5***
Mid-Flood	C1	bottom	2.3	M5	9:17	6.9	7.9	2.8	3.0	***3.7***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **18 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.9	M1	14:16	6.2	7.4	3.4	3.7	***3.8***
Mid-Flood	C1	surface	2.9	M3	10:29	6.2	7.4	3.4	3.7	***3.6***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **18 December 2020**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	2.6	M5	15:22	3.1	3.4	***4.6***
Intake	N/A	N/A	Mid-flood	C1	3.6	M6	10:46	4.4	4.7	***8.0***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **21 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **23 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	1.7	M1	8:11	6.2	7.4	2.0	2.1	***2.5***
Mid-Ebb	C2	surface	1.7	M2	7:57	6.2	7.4	2.0	2.1	***2.3***
Mid-Ebb	C2	surface	1.7	M4	7:52	6.2	7.4	2.0	2.1	***2.2***
Mid-Flood	C1	surface	2.3	M3	13:53	6.2	7.4	2.8	3.0	***3.0***
Mid-Flood	C1	surface	2.3	M5	14:35	6.2	7.4	2.8	3.0	***2.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **29 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.3	M1	11:18	6.2	7.4	2.8	3.0	***3.3***
Mid-Ebb	C2	surface	2.3	M2	11:07	6.2	7.4	2.8	3.0	***3.3***
Mid-Ebb	C2	surface	2.3	M3	11:31	6.2	7.4	2.8	3.0	***3.3***
Mid-Ebb	C2	bottom	2.7	M4	10:52	6.9	7.9	3.2	3.4	***3.5***
Mid-Flood	C1	surface	2.6	M1	15:43	6.2	7.4	3.1	3.4	***3.6***
Mid-Flood	C1	surface	2.6	M5	16:06	6.2	7.4	3.1	3.4	***3.8***
Mid-Flood	C1	bottom	3.7	M2	15:35	6.9	7.9	4.4	4.8	***4.6***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **29 December 2020**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	1.7	M1	11:18	2.0	2.2	***2.8***
Bottom	19.3	22.2	Mid-Ebb	C2	1.7	M3	11:31	2.0	2.2	***3.3***
Intake	N/A	N/A	Mid-Ebb	C2	1.7	M6	11:41	2.0	2.2	***3.3***
Bottom	19.3	22.2	Mid-flood	C1	1.5	M1	15:43	1.9	2.0	***3.3***
Bottom	19.3	22.2	Mid-flood	C1	1.5	M2	15:35	1.9	2.0	***2.3***
Bottom	19.3	22.2	Mid-flood	C1	1.5	M3	15:54	1.9	2.0	***2.1***
Bottom	19.3	22.2	Mid-flood	C1	1.5	M4	15:28	1.9	2.0	***8.5***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **31 December 2020**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB) /~~ Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	1.9	M1	13:13	6.2	7.4	2.2	2.4	***2.6***
Mid-Ebb	C2	surface	1.9	M2	13:00	6.2	7.4	2.2	2.4	***2.7***
Mid-Ebb	C2	surface	1.9	M4	12:54	6.2	7.4	2.2	2.4	***3.7***
Mid-Ebb	C2	surface	1.9	M5	14:22	6.2	7.4	2.2	2.4	***2.3***
Mid-Flood	C1	surface	2.8	M4	12:54	6.2	7.4	3.4	3.6	***3.7***
Mid-Flood	C1	bottom	1.1	M1	7:32	6.9	7.9	1.3	1.4	***2.3***
Mid-Flood	C1	bottom	1.1	M2	7:17	6.9	7.9	1.3	1.4	***2.0***
Mid-Flood	C1	bottom	1.1	M3	8:01	6.9	7.9	1.3	1.4	***1.6***
Mid-Flood	C1	bottom	1.1	M4	12:54	6.9	7.9	1.3	1.4	***2.7***
Mid-Flood	C1	bottom	1.1	M5	8:24	6.9	7.9	1.3	1.4	***1.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Date of Water Quality Monitoring: **31 December 2020**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Intake	N/A	N/A	Mid-Ebb	C2	1.5	M6	14:02	1.8	1.9	***2.2***
Intake	N/A	N/A	Mid-flood	C1	1.8	M6	8:15	2.1	2.3	***2.5***

Note: ***Bold Italic*** means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

APPENDIX L
SITE AUDIT SUMMARY

Appendix L - Site Audit Summary

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

Items	Date	Status*	Follow up Action
Water Quality			
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Ecology			
--	--	--	--
Noise			
The Contractor is reminded to repair the noise barrier before the construction works in that location begins in order to ensure proper implementation of the noise mitigation plan.	9-Dec-20	✓	9-Dec-20: The noise barrier was repaired.
The Contractor is reminded to close the gaps between acoustic sheets to ensure proper functioning of the noise barrier.	9-Dec-20	✓	
Landscape and Visual			
--	--	--	--
Air Quality			
3-sided shield shall be provided to the grout pump to suppress dust nuisance generated by related construction activities.	25-Nov-20	✓	2-Dec-20: The Contractor had provided 3-sided shield.
The Contractor is reminded to cover the open stockpile.	9-Dec-20	✓	9-Dec-20: The stockpile was removed.
Waste/Chemical Management			
Drip tray shall be provided to the chemical at Portion VII.	3-Dec-20	✓	3-Dec-20: The chemical is rmoved.
Accumulated general refuse shall be clean up at Portion III.	3-Dec-20	✓	9-Dec-20: The general refuse is rmoved.
The Contractor is reminded to clean up the general refuse at Slope H	9-Dec-20	✓	9-Dec-20: The general refuse is rmoved.
Drip tray shall be provided to the chemicals in Portion IVC.	9-Dec-20	✓	30-Dec-20: The chemicals were removed.
The Contractor is reminded to remove the accumulated refuse at a timely refuse at a timely manner	30-Dec-20	#	---
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

Items	Date	Status*	Follow up Action
Water Quality			
Water ponding near drainage should be avoided.	17-Dec-2020	✓	No water ponding was observed during the site inspection on 24 December 2020
Ecology			
--	--	--	--
Noise			
The Contractor is reminded to close the gaps between noise barriers to ensure proper implementation of approved CNMP.	3-Dec-2020	✓	No significant gap was discovered on the noise barrier during the site inspection section on 10 December 2020
Landscape and Visual			
--	--	--	--
Air Quality			
The Contractor is reminded to water regularly to suppress dust emission	31-Dec-2020	#	--
Waste/Chemical Management			
A drip tray should be placed under oil barrels.	17-Dec-2020	✓	24 Dec 2020: The chemical was removed.
The Contractor is reminded to remove accumulated general refuse	31-Dec-2020	✓	31 Dec 2020: The Contractor had removed the refuse immediately.
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. — NE2017/02
Tseung Kwan O - Lam Tin Tunnel — Road P2/D4 and Associated Works

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

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

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	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
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						
/	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	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
Silt Curtain Deployment Plan	• Silt curtains should be deployed properly to surround the works area. • Maintenance of silt curtain should be provided. • Sufficient stock of silt curtain should be provided on site.	Control potential impacts from marine woroks	Contractor	NE/2015/01	Construction stage	EIAO

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?
S5.8.3	Other good site practices should be undertaken during filling operations include: • 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; • floating single silt curtain shall be employed for all marine works; • 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; • all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; • adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; • 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; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • 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 • 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.	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)
S5.8.4	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
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
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

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?
S5.8.7	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 S5.8.8 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
S5.8.9	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
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

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?
S5.8.16	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
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

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?
S5.8.25 - 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
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

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?
S5.8.38	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
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	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,
Ecological Impact						

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?
S6.8.4	**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
S6.8.5	**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
S6.8.6	**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
S6.8.8	**Measure to Minimize Impact on Corals** <u>Coral translocation</u> • 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. • 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). • 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. • 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. <u>Post translocation Monitoring</u> • A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A

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?
	• 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

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?
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

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?
S8.6.7	**Storage, Collection and Transportation of Waste** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations should be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan S8.6.8/ Waste Management Plan	**Storage, Collection and Transportation of Waste (con't)** • Remove waste in timely manner; • Waste collectors should only collect wastes prescribed by their permits; • Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; • 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); • Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and • Maintain records of quantities of waste generated, recycled and disposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.9/ 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** • Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. • Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. • 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	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005
	Sediments (con't) • 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. • 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).					

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	• 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. • 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.	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TCW No. 19/2005
S8.6.24 - S8.6.28/ Waste Management Plan	**Sediments (con't)** • 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. • 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). • 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. • 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. • 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

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?
S8.6.26/ 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
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.

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?
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
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)						

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?
S11.5.9	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** • 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. • An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out. • 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. • 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. • Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation. • 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). • 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. • 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. • 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. • During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site.	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

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?
	• Fire drills should be organized at not less than six monthly intervals. • The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow. • 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. • 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). • 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.					
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. ● For excavations **deeper than 1m**, measurements should be carried out: • at the ground surface before excavation commences;- • immediately before any worker enters the excavation; • at the beginning of each working day for the entire period the excavation remains open; and • periodically throughout the working day whilst workers are in the excavation. ● For excavations **between 300mm and 1m deep**, measurements should be carried out: • directly after the excavation has been completed; and • periodically whilst the excavation remains open. ● For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person. ● 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. ● 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.	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

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?
S11.5.32	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						
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.	NE2015/02	Portion IX	Water ponding near drainage should be avoided.	17-Dec-2020	✓
Ecological Impact						
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Construction Noise Impact						
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	NE2015/01	Portion IVC	The Contractor is reminded to repair the noise barrier before the construction works in that location begins in order to ensure proper implementation of the noise mitigation plan.	9 Dec 2020	✓
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	NE2015/01	Portion IVC	The Contractor is reminded to close the gaps between acoustic sheets to ensure proper functioning of the noise barrier.	9 Dec 2020	✓
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	NE2015/02	Portion IX	The Contractor is reminded to close the gaps between noise barriers to ensure proper implementation of approved CNMP.	10 Dec 2020	✓
Landscape and Visual Impact						
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Air Quality Impact						
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	NE2015/01	Portion IVC	3-sided shield shall be provided to the grout pump to suppress dust nuisance generated by related construction activities.	3 Dec 2020	✓
S3.8.7	· Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.	NE2015/01	Portion IVC	The Contractor is reminded to cover the open stockpile.	9 Dec 2020	✓
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	NE2015/02	General Site Condition	The Contractor is reminded to water regularly to suppress dust emission	31 Dec 2020	#
Fisheries Impact						
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Waste Management						
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	NE2015/01	Portion VII	Drip tray shall be provided to the chemical at Portion VII.	3 Dec 2020	✓
S8.6.8/ Waste Management Plan	· Remove waste in timely manner;	NE2015/01	Portion III	Accumulated general refuse shall be clean up at Portion III.	3 Dec 2020	✓
S8.6.8/ Waste Management Plan	· Remove waste in timely manner;	NE2015/01	Slope H	The Contractor is reminded to clean up the general refuse at Slope H	9 Dec 2020	✓
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	NE2015/01	Portion IVC	Drip tray shall be provided to the chemicals in Portion IVC.	9 Dec 2020	✓
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	NE2015/02	Portion IX	A drip tray should be placed under oil barrels.	17 Dec 2020	✓
S8.6.8/ Waste Management Plan	· Remove waste in timely manner;	NE2015/02	Portion IX	The Contractor is reminded to remove accumulated general refuse	17 Dec 2020	✓
S8.6.8/ Waste Management Plan	· Remove waste in timely manner;	NE2015/01	Tunnel S02	The Contractor is reminded to remove accumulated general refuse	30 Dec 2020	#
Landfill Gas Hazards						
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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 O1 - Cumulative Complaint Log for Tseung Kwan O - Lam Tin Tunnel

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
503	30-Dec-20	21-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise	Noise nuisance at nighttime on a weekday	Y	See complaint #500	Draft CIR submitted
502	28-Dec-20	22&23-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Draft CIR submitted
501B	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Draft CIR submitted
501A	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		N	No direct evidence show that the Contractor operated barges at the time of complaint. Therefore the complaint was considered as non-project-related. The details shall be referred to CIR-N126.	Draft CIR submitted
501	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y	The Contractor operated PME(s) at evening-/night- time without an approved valid CNP. The complaint is considered as project-related.The details shall be referred to CIR-N126.	Draft CIR submitted
500	22-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Draft CIR submitted
499	21-Dec-20	20/12/2020 / marine works area	Resident of Ocean Shores	Operating hours / Noise	Horning noise nuisance on Sunday	N	The complaint is considered as non-project-related as no barge was working under the TKOLTT project at the time of complaint. The details shall be referred to CIR-O6.	Draft CIR submitted
498	18-Dec-20	17-Dec-2020 / Marine Works Area	Resident of Ocean Shores	Noise	Low frequency noise & occasional piling noise nuisance during night-time	Y	The complaint is considered as project-related as the noise nuisance was coming from water pumps that working 24/7. Details shall be referring to CIR-N125.	Draft CIR submitted
497	9-Dec-20	Days on/before 9/12/2020 / Portion IVC	Resident of Yau Lai Estate	Air & Noise	Dust & Noise Nuisance near Lam Tin Interchange (December)	Y	Investigation undergoing	On-going
496	3-Dec-20	Days before 3-Dec-20 / Lam Tin Tunnel	Resident of Hong Pak Court	Noise	Noise Nuisance near Lam Tin Interchange (Restricted Hour)	Y	Investigation undergoing	On-going
495	16-Dec-20	12-Dec-2020 / Po Yap Road	Resident of Park Central	Noise	Night time machenical noise nuisance	Y	The complaint is considered as project-related as the noise nuisance was coming from water pumps that working 24/7. Details shall be referring to N124.	On-going
494	5-Dec-20	Early Dec 2020 / Portion III	Resident of Lung Pak House / Staff from Elderly Hoouse nearby	Noise	Noise Nuisance near Lam Tin Interchange (December)	Y	Investigation undergoing	On-going
493	8-Dec-20	25-Nov-2020 & 2-Dec-2020 / Works area nearby Park Central	Resident of Park Central	Noise	Percussive noise nuisance from at early morning	N	The complaint is considered as non-project-related. No operating PME(s) under TKO-LTT project at the time of complaint was known to emit percussive noise at the time of complaint. The details shall be referred to CIR-N123.	Draft CIR submitted
492	18-Nov-20	18-Nov-2020 / Portion VIII (C2)	Resident of Ocean Shores	Noise	Construction Noise nuisance at Morning	Y	Prelimary result reveals that pre-boring and breaking works had been conducted at the time of complaint. The details shall be referred to CIR-N122.	Draft CIR submitted

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
491	18-Nov-20	16-Nov-2020 / C1	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Restricted Hour)	Y	Investigation on-going	On-going
490	13 & 16 Nov 20	5-12 & 14-Nov-2020 / C1	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Restricted Hour)	Y	Investigation on-going	On-going
489	13-Nov-20	13-Nov-2020 / C1	Resident of Yau Lai Estate	Air & Noise	Dust and Noise Nuisance in Portion IVC	Y	Investigation on-going	On-going
488	13-Nov-20	10-Nov-2020 / C2	Resident of Ocean Shores	Air	Dust emission from construction works	N	The complaint was found project-related. The Contractor is recommended to spray water more requently to suppress the dust nuisance. The details shall be referred to CIR-A19.	Draft CIR submitted
487	11-Nov-20	5-Nov-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	Investigation on-going	On-going
486	11-Nov-20	6-Nov-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	Investigation on-going	On-going
485	7-Nov-20	7-Nov-20	Resident of Park Central	Noise	Precussive noise nearby Park Central	Y	The complaint is considered non-project-related as no PME that know to emit percussive noise was operating during the time of complaint. The details shall be referred to CIR-N120.	Draft CIR submitted
484	7-Nov-20	7-Nov-20 / Portion IV	Resident of Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	See complaint #481	Draft CIR submitted
483	6-Nov-20	6-Nov-20	Resident of Ocean Shores	Noise	Low-frequency noise at night (Oct&Nov 2020)	Y	The low-frequency noise was found coming from the water pumps that works 24/7. The Contractor had followed the approved CNP. The complaint is considered project-related and shall be referred to CIR-N119	Draft CIR submitted
482	30-Oct-20	29-Oct-2020 / C2	Non-specific	Air	Dust emission from construction works	N	Despite the contractor had sprinkle water regularly, the haul road was found dry during site audit session. The Contractor is reminded to sprinkle water more frequently and cover stockpiles of dusty material to reduce dust emission. The details shall be referred to CIR-A19	Draft CIR submitted
481	3-Nov-20	2-Nov-2020 /Portion IV	Resident of Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	The complaint is considered project-related as no other possible noise origin is know to emit such kind of noise at the surrounding. The Contractor had been reminded to applied lubricants and tighten the screws to reduce noise level. The details shall be referred to CIR-N118	Draft CIR submitted
480	3-Nov-20	3-Nov-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	Investigation on-going	On-going
479	3-Nov-20	2-Nov-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	Investigation on-going	On-going
478	3-Nov-20	30-Oct-2020 / Portion IVC	Mr. Wong from District Councilers	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	Investigation on-going	On-going
477	30-Oct-20	15-Oct-2020 / Portion IVC	Non-specific	Air	Air & Noise Nuisance near Lam Tin Interchange (October)	N	Investigation on-going	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
476	29-Oct-20	29-Oct-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	Investigation on-going	On-going
475	28-Oct-20	Not specific / Lam Tin interchange	Non-specified (near Yau Lai Estate)	Noise	Air & Noise Nuisance near Lam Tin Interchange (October)	Y	Investigation on-going	On-going
474	23-Oct-20	23-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Low-frequency noise at night (Oct-Nov 2020)	Y	Preliminary results show the noise source was originated from the dewatering pumps. Both ER and the Contractor confirms that there was no malfuctioning pumps during the time of incident. Details shall be referred to CIR-N119	Draft CIR submitted
473	21-Oct-20	19-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Noise Nuisance near Portion IX	Y	See complaint #459	On-going
472	20-Oct-20	20-Oct-20 / Portion IV	Resident from Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	Preliminary results show the noise source was from the backhoe at Portion IV. The Contractor had applied mitigation measures such as adding lubricant to mounting parts to alleviate the problem. The details shall be referred to CIR-N118	Draft CIR submitted
471	6-Oct-20	6-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Noise nuisance at morning (Oct 2020)	Y	See complaint #459	On-going
470	10-Oct-20	3-10 Oct 20 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	Investigation on-going	On-going
469	10-Oct-20	9-10 Oct 20 / Lam Tin Interchange	DC Member (Mr. Wang)	Noise	Air & Noise Nuisance near Lam Tin Interchange (October)	Y	Investigation on-going	On-going
468	5-Oct-20	Mondays - Saturdays / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	Investigation on-going	On-going
467	23-Sep-20	19-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise	Daytime noise nuisance (mid-September)	Y	See complaint #459	On-going
466	22-Sep-20	20-Sep-2020 / Portion IX		Noise / Working Hours	Noise nuisance on Sunday	Y	Investigation result shows none of the contract under TKOLTT conducted works on Sunday. The details shall be referred to CIR-O5	Draft CIR submitted
465	20-Sep-20	20-Sep-.2020 / Portion IX				Y		Draft CIR submitted
464	17-Sep-20	August 2020 / Portion IX	Resident of Ocean Shores	Noise	Continuous Noise Nuisance over Aug 2020	Y	The investigation shows no non-compliance and action level for noise is triggered. The details shall be referred to CIR-N113	Draft CIR submitted
463	15-Sep-20	15-Sep-2020 / Non-specific	Anonymous	Noise	Percussive noise nuisance at early morning	Y	The complaint is considered non-project-related. The investigation pointed out the Contractor had maintain wastewater treatment facilities properly and no action or limit level of surface SS was triggerred after the incident. The muddy water was coming from DSD desilting compound. Details shall be referred to CIR-W16	Draft CIR submitted
462	8-Sep-20	10-Sep-2020 / Potion IX	Anonymous	Noise	Suspected muddy water discharge	N		Draft CIR submitted
461	5-Sep-20	5-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise	Squeaky noise on a Saturnday Morning	Y	The squeaky noise believed was coming from operating barges at C6. No non compliance was found. Details shall be referred to CIR-N115	Draft CIR submitted

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
460	8-Sep-20	8-Sep-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise nuisance near East Habour Cross Tunnel	Y	See complaint #456 - #458	Draft CIR submitted
459	4-Sep-20	1-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise	Noise nuisance at morning (Early Sep 2020)	Y	The complainant had repeatedly complaint about the continuous noise nuisace from September to October 2020. The CIR will be prepared in one-go. Meanwhile, no action level of construction noise was recorded during noise monitoring; no non-compliance was identified during site inspection.	On-going
458	28-Aug-20	Early August 20 / Lam Tin Tunnel	Resident from Yau Lai Estate	Noise	Long-term noise nuisance since early August	Y	Investigation showed the nuisance was generated by breaking works. The contractor had promised to complete the semi-enclosure by October 2020. The details shall be referred to CIR-N112	Draft CIR submitted
457	27-Aug-20	24&25-Aug-20 / Portion IX	Rersident from Ocean Shores	Noise	Noise nuisance at morning (Late August 2020)	Y		Draft CIR submitted
456	18-Aug-20	18-Aug-20 / Portion IVC	Resident from Yau Lai Estate	Noise	Noise nuisance near East Habour Cross Tunnel	Y		Draft CIR submitted
455	18-Aug-20	Dates on/before 1-Aug-20 / Lam Tin Tunnel	Resident from Yau Lai Estate	Noise	Noise nuisance from tunnel works	Y	Breaking had been conducted during the time of complaint. The details shall be referred to CIR-N111	Draft CIR submitted

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
454	11-Aug-20	2-Aug-20 / Sea outside Ocean Shores	Resident from Ocean Shores	Operation Hours	Working on restricted hours and public holiday	N	The working barge was believed to be working under the Cross Bay Link project. None of the barges working on the time of complaint belongs to TKOLTT project. Despite works had been conducted, no PME was turned on during the time of complaint. The details shall be referred to CIR-O4.	Closed
453	3-Aug-20	3-Aug-20 / Western Marine Works Area	Resident from Ocean Shores	Water	Suspected muddy water and worn out silt curtain	N	The suspected muddy water was due to the strong tidal movement under typhoon influence. The silt curtain was not deployed properly when the typhoon was landed. Details shall be referred to CIR-W15	Draft CIR submitted
452	1-Aug-20	31-Jul-20 / Marine Works Area	Resident from Ocean Shores	Noise	Squeaky noise during nighttime	Y	The noise was originated from the wires that used for tightening the barge. The Contractor had not fasten the wire completely as strong wave and wind actionmay tear up the wire and made the barge stranded. The details shall be referred to CIR-N110.	Draft CIR submitted
451	28-Jul-20	28-Jul-20 / Portion IX	Resident from Ocean Shores	Noise	Breaking noise on the morning	Y	Breaking had been conducted during the time of complaint. The details shall be referred to CIR-N109	Draft CIR submitted
450	23-Jul-20 24-Jul-20	23&24-Jul-20 / Works area nearby Ocean Shores	Residents from Ocean Shores	Noise	Noise nuisance on weekdays	Y	The noise nuisance was originated from high-noise level works such as breaking and drilling. The details shall be referred to CIR-N108	Draft CIR submitted
449	16-Jul-20	12-Jul-20 / Lam Tin Tunnel	Resident of Hong Pak Court	Noise	Noise Nuisance Suspected from Tunnel (C1)	Y	Breaking work was conducted near the underground of Hong Pak Court. No non-conformance of CNP was identified, contractor is reminded to strictly follow the conditions of CNP and the time period of CNP. The details shall be referred to CIR-N110.	Draft CIR submitted
448	4-Jul-20	4-Jul-20 noon / Marine works area nearby Ocean Shores	Resident of Ocean Shores	Air	Dark Smoke Emission from Barge	N	The dark smoke was originated from the barge. It is common that dark smoke will be released when the barge's engine was starting. The details shall be referred to CIR-A18.	Draft CIR submitted
447C	10-Jul-20	28-Jun-2020 / TKO South open sea	Anonymous	Water	Suspected oil leakage at the TKO south open sea	N	The suspected oil leakage was believed to be an algae bloom over the whole bay area. The noise nuisance from speeding was considered not project related. The details shall be referred to CIR-C37	Draft CIR submitted
447B	10-Jul-20	29-Jun-2020 / TKO south open sea & flyover towards TKO Chinese Permanent Cemetery		Water / Noise	Suspected muddy water spillage and noise nuisance due to speeding	N		
447A	10-Jul-20	24-Jun-2020 / Non-specific		Noise	Long-term noise nuisance and insufficient noise mitigation measures	Y		
446	12-Jun-20	31-May-2020 / Area nearby Yau Lai Est	Resident of Yau Lai Estate	Noise	Noise nuisance at Morning nearby East Habour Crossing	Y	See complaint 442.	Draft CIR submitted

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
445	11-Jun-20	11-Jun-20 / Park Central	Resident of Park Central	Air	Pungent smell suspected coming from the work sites	N	See complaint 443B.	Draft CIR submitted
444	6-Jun-20	6-Jun-20 / Portion IX	Residents of Ocean Shores	Water	Flooding within work site and suspected muddy water spillage after downpour	N	The flooding is a normal phenonmenon as the site boundary have been embarked. The suspected muddy water is wide-spread among the open sea at TKO south and no exceedance of SS were recordede after the incident. The complaint is considered non-project-related and details shall be referred to CIR-W14.	Draft CIR submitted
443B	6-May-20	Non-specific	Anonymous	Air/Noise	Odour nuisance nearby TKO MTR Station	N	The preliminary result showed no direct relationship between the nuisance and the construction works. The details shall be referred to CIR-A17.	Draft CIR submitted
443A					Noise nuisance at Night and Air Quality Impact from Works	Y	The complaint is considered non-project-related. There is no direct evidence showing the project site is the origin of the nuisance. The details shall be refered to CIR-C36	Closed
442	22-May-20	22-May-20 / LT Tunnel	Resident from Hong Pak Court	Noise	Noise nuisance from Tunnel Works	Y	The noise is believed to be breakin inside the tunnel. The CNP was compiled with and contractor is reminded to review breaking schedule to less sensitive hour. The details shall refer to CIR-N105.	Draft CIR submitted
441	8&9-Apr-20	9-Apr-20 / TKO surcharge area	Residents of Ocean Shores	Air/Noise	Noise Nuisance on early morning and Air Quality Works from Excavation Works	Y	The work schedule of C2 had been reviewed. The"beeping" noise is originated from C2 due to safety issue (for mobilization of materials with crane). The noise nuisance is believed to be coming from the vibration hammer. The Contractor had water the exposed area regular to reduce dust impact to the surrounding. The details shall be referred to CIR-C35	Closed
440	13&17-May-20	13-May-2020/Surcharge Area of TKO	Residents of Ocean Shores	Noise	Noise generation in early mornings of early May	Y	The work schedule of C2. C3 & C6 had been reviewed. The noise source is believed to be generated from C2 due to sheet-piling. The details shall be referred to CIR-N104.	Draft CIR submitted
439	7-Apr-20 & 24-Apr-20	April 2020 / Works area near Park Central (non-specific)	Residents of Park Central	Odour	Continuous diesel fuel odour nuisance near Park Central	N	No direct evidence proved that the odour source was originated from the work sites of TKOLTT. The details shall be referred to CIR-A16.	Draft CIR submitted
438	18-Apr-20	18-Apr-20 / Marine Works Area at TKO	Residents of Ocean Shores	Noise/ Light	Blasting, High Frequency Noise and Light in Tseung Kwan O	Y	The complaint was valid in regard of noise. Blasting had been carried out during the midnight and the Contractor is reminded to strictl follow requirements of CNP. The light source was originated from the construction vessels due to safety reason and guard watching. Details shall be referred to CIR-C34.	Closed
437	27-Mar-20	27-Mar-2020 / Surcharge Area (C2)	Resident of Ocean Shores	Noise	Low Frequency Noise during Midnight	Y	The noise source was the malfunctioned dewatering pumps. The details shall be referred to CIR-N103	Closed
436	26-Mar-20	26-Mar-20/ Portion IVC	District Council Member (Mr. Wong)	Noise	Noise nuisance, vibration and spectedly insufficient mitigation measures in Lam Tin	Y	See complaint #431-433.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
435	23-Mar-20	23-Mar-20/ Lam Tin Tunnel	Resident of Cha Kwo Ling Village	Noise	Groundborne Noise from Blasting in the Evening	Y	Blasting was conducted at the time of complaint. The vibration monitoring conducted near Tin Hau Temple was considered the vibration level was acceptable. The details shall be referred to CIR-N102.	Closed
434	23-Mar-20	20-Mar-20/ Lam Tin	District Council Member (Mr. Wong)	Noise	Noise nuisance from Construction Works during Holiday	Y	See compliant #427.	Closed
433	20-Mar-20	20-Mar-20/ Lam Tin	Resident of Hong Pak Court	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y	The time period and PMEs of major works conducted during daytime of the complaints, no non-compliance in CNMP and during site audits has been recorded. The Contractor is recommended to provide alternative noise mitigation measures such as acoustic box for noisy PMEs and regularly repair materials of the noise mitigation measures. Details shall be referred to CIR-N101.	Closed
432	18-Mar-20	18-Mar-20 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y		
431	14-Mar-20	14-Mar-20 / Portion IVC	Residents of Yau Lai Estate	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y		
430	17-Mar-20	17-Mar-20 / Surcharge Area / C2	Anonymous	Water	Muddy Water at the Surcharge Area	N	The "muddy water" was created by the tug boat's screw propeller. The Contractor claimed the propeller stirred up seedbed sediment and generated "muddy water". The details shall be referred to CIR-W13.	Closed
429	10-Mar-20	10-Mar-20 / Site Nearby Park Central	Resident of Park Central	Noise	Noise nuisance in early morning (Mar 2020)	Y	No construction works had been conducted at the time of complaint for C3 and the major works area in C2 was at least 300m away from the complainant. It is believed that the major noise source was coming from ASD's work site. The details shall be referred to CIR-N100	Closed
428	4-Mar-20	Not Specified / Tseung Kwan O	Mr. Lui, Sai Kung District Council	Odour / Noise	Odour and low frequency noise nuisance from construction site	Y	Only minor works had been conducted at the time of complaint. No direct evidence showed that the odour source was originated from C3. The suspected nuisance source is believed to be ASD's works area. The details shall be referred to CIR-C33	Closed
427	1-Mar-20	1-Mar-20 / Portion IVC	Resident of Yung Kai House	Noise	Noise nuisance from Construction Works during Holiday	Y	No construction works were conducted at the concerned locations and no direct evidence showing the complaint is project-related. The details shall be referred to CIR-N99	Closed
426	19-Feb-20	11-Feb-20 / Works area outside TKL Sports Centre	Anonymous		Noise nuisance from breaking works	Y	Refer to complaint #423 and #424.	Closed
425	18-Feb-20	29-Jan-2020 / Marine works Area	Mr. Chan from Ocean Shore		Noise nuisance from barge in morning	Y	No works had been conducted in the time period of complaint. The noise is believed to be non-project-related. The details shall be referred to CIR-N95.	Closed
424	11-Feb-20	8 and 11-Feb-2020 / Site near TKL Station				Y	The complaint was valid and the contractor had been operating only 1	

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423	3-Feb-20	03-Feb-2020 / Site Near TKL Station	Resident of Park Central	Noise	Noise nuisance from breaking works	Y	breaker at a time. The contractor is suggested to further increase the mitigation measures to reduce impact to the surrounding neighborhood. The details shall be referred to CIR-N97	Closed
422	3-Feb-20	2-Feb-20 / Lam Tin Interchange	Resident of Cheuk Lai House, Yau Lai Estate		Noise nuisance suspected to be related to works involving metal hammering on Site near EHC	Y	No construction activities were conducted at the concerned locations during the period of complaint. The Contractor is reminded to keep conducting good site practice and strictly follows the requirements of approved CNP. The details shall be referred to CIR-N98	Closed
421	21-Jan-20	21-Jan-20 / Portion IX	Ocean Shores Residents		Noise nuisance due to Blasting at midnight	Y	Blasting was conducted around 1:30am due to the vicinity of the Railway protection zone of MTR. The Contractor is reminded to keep the blast door closed during blasting to minimize noise impacts and re-schedule blasting to less sensitive hours as far as practicable. The details shall be referred to CIR-N96.	Closed
420	7-Jan-20	7-Jan-20 / Portion IX	Ocean Shores Residents		Irritating loud noise nuisance from Portion IX (C2)	Y	See complaint #417	Closed
419	7-Jan-20	Sundays before 7-Jan-20 / Tunnel Works	Resident of Hong Pak Court		Noise nuisance from Tunnel Works	Y	See Complaint #416.	Closed
418	7-Jan-20	5-6-Jan-20 / C1 Marine Works Area	Ocean Shores Residents		High-frequency noise during night-time	Y	The high frequency noise was believe to be noise emitted from the marine works area of C1. The details shall be referred to CIR-N94.	Closed
417	3-Jan-20	2-Jan-20 / Portion IX	Former District Member (Mr. Chan)		Annoying noise emission and inefficient noise mitigation measures	Y	The noise source is believed to come from a breaker and mitigation was insufficient. The Contractor was requested to strictly follow the Noise Mitigation Plan. The details shall be referred to CIR-N93.	Closed
416	29-Dec-19	29-Dec-19 / Non-specific	Resident of Hong Pak Court	Noise	Groundborne Noise from Works area	Y	Project-related with valid CNP. Contractor is reminded to reduce noise emission and prevent breaking and noisy activities during restricted hours. The details shall be referred to CIR-N92.	Closed
415	27-Dec-19	25-Dec-19 / Lam Tin Interchange (Portion IVC)	Resident of Yau Estate	Noise	Noise nuisance from Portion IVC	Y	Non project-related due to maintenance works of East Cross-harbor Tunnel. The details shall be referred to CIR-N91.	Closed

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414	24-Dec-19	22-Dec-19 / Lam Tin Interchange (Portion IVC)	Resident of Yau Estate	Noise	Piling noise nuisance near Lam Tin Interchange	Y	Project-related with valid CNP. Contractor is reminded to reduce noise emission and prevent breaking and noisy activities during restricted hours. The details shall be referred to CIR-N91.	Closed
413	24-Dec-19	24-Dec-19 / Portion IX of Contract 2	Resident of Capri & Ocean Shores	Noise	Loud and continuous noise emission from Portion IX	Y	No breaking activity was conducted by the C3. It was believed that C2 was the major noise source and the mitigation measures were insufficient. The details shall be referred to CIR-C32.	Closed
412	19-Dec-19	14-Dec-19 / marine works area	Resident of Ocean Shores	Noise	Noise nuisance from the marine works area	Y	The major construction work was driven by pin piles. The noise emitted due to the construction activities is considered to be reduced to an acceptable level as no NSR falls under the ambit of 300m study area of the work site. Details should be referred to CIR-N90.	Closed
411	2-Dec-19	30-Nov-19 / Construction Sites Outside TKL Sports Center	Resident of Park Central	Air / Noise	Non-effective noise mitigation measures and related dust and noise nuisance	Y	The construction noise created by breaking works are considered non-project related due to the large separation distance between noise source and the Complainant's Location. Major dust emission from the works area next to C3 was recorded. The Contractor is reminded to provide regular watering to dusty works. Details should be referred to CIR-C31.	Closed
410	28-Nov-19	25-Nov-19 / Portion 4C	Anonymous	Noise	Noise nuisance from Lam Tin Works Area and operation hours	Y	Refer to Complaint #408	Closed
409	27-Nov-19	20&27-Nov-19 / Construction Sites near Po Yap Road & Chui Ling Road	Resident of Park Central	Air / Noise	Dust emission due to excavation works and noise nuisance from Piling works	Y	Although noise barrier had been erected and around the breakers, the direct line of sight to the NSRs at Park Central could not be totally blocked. The Contractor is recommended to provide cantilevered noise barrier with noise absorbing materials to minimise noise impact as far as practicable. Details should be referred to CIR-C31.	Closed
408	25-Nov-19	Non-specific (Nov-19) / Portion 4C	Resident of Yau Lai Estate	Noise	Serious Noise Nuisance from Lam Tin Works Area	Y	Despite the Contractor had applied different noise mitigation measures (e.g. semi enclosure and noise barrier). Environmental deficiency was observed during site audit session. The Contractor is recommended to apply alternative noise mitigation measures to improve the situation. The details shall be refer to CIR-N89.	Closed
407	12-Nov-19	Non-specific (Nov-19) / LT Construction Site	Non-specified(Complainant has previously made complaints on LTI)	Operation Hours	Inquiries on operating hours & Noise Nuisance	N	The time of complaint falls under day-time. According to the Contractor and RE, the general starting time of construction works are 08:15 on normal week days. The Contractor had avoid conduct noisy works on morning to minimize noise impacts for the nearby residents. The details shall be refer to CIR-O3	Closed

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406	5-Nov-19	5-Nov-19 / Tunnel near TKO	District Council Member (Mr. Chan)	Noise	Noise nuisance from Blasting activities during night-time	Y	No blasting was carried out on that night. The construction activities were conducted inside the tunnel with the blast door closed. The CNP that the Contractor held remained valid during the time of complaint. The details shall be refer to CIR-N88	Closed
405	29-Oct-19	17-Oct-2019 / Marine Works area near Ocean Shore	District Council Member (Mr. Chan)	Noise	Daytime times noise nuisance	Y	The complaint details does not tally up with the information provided with the Contractor and RE. Referring to the Contractor, there was construction works was starting at 09:00. Noise mitigation measures, such as acoustic mats, were applied to minimize noise impact. The details shall be refer to CIR-N87	Closed
404	15-Oct-19	12-Oct-19 / Marine Works area near Ocean Shore	Residents of Ocean Shores	Noise / Working Hours	Noise nuisance due to operation of barge on Saturday early morning	Y	The time of complaint falls within daytime and the major works conducted are dredging and reclamation. The contractor did not require any extra mitigation measures. The contractor had applied sound-proofing mat on the engine floor of the barges and is recommended to strictly follow the requirements of noise mitigation plan. The details shall be refer to CIR-N86	Closed
403	15-Oct-19	Oct-19 (Not Specified) / C2 Construction Site	Residents of Ocean Shores	Noise / Working Hours	Operation of marine construction works during late hours	Y	The major construction works is trimming works for the rock mount during the time period of complaint. Mitigation measures provided by the Contractor included provision of noise insulating mats to the engine floor of the barges and shorten the work hours by ending construction works on or before 21:00 since early Oct 2019. Details shall be referred to CIR-N85.	Closed
402	10-Oct-19	09-Oct-2019/ Site near TKO CPC	Residents of Ocean Shores	Noise	Noise nuisance of construction works at marine work area during early morning	Y	No construction activity at both the Cavern near the BCMCP Bridge and Platform 1B, including the barge, in particular during the complaint period between 2am and 3am on 9 Oct 2019. Since no works had conducted during the time of complaint, no mitigation measures are required. The details shall be referred to CIR-N84.	Closed
401	5-Oct-19	05-Oct-2019 / C2 Portion IX	District Council Member (Mr. Chan)	Noise	High noise level from works area during daytime	Y	The time period of complaint falls under day-time and therefore the Contractor is required to carry out mitigation measures according to the latest CNMP only. The construction activities had been reviewed and no non-compliance was identified. No Limit Level of Exceedance at daytime was recorded during October 2019. For mitigation measures, the Contractor had set up sound-proofing mats and SlientUp to reduce noise impact. The details shall be refer to CIR-N83.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
400	16-Sep-19	10-Sep-19 / TKO Marine Works Area	District Council Member (Mr. Chan)	Water	Muddy water discharge and deficiency in water quality mitigation measures	N	With accordance to the Contractor and RE, the silt curtains were deployed regarding to SCDP ver. 8 since 10-Sep-19, site inspection on 12-Sep-19 also showed the silt curtains were deployed properly. Despite there are chances of accidental muddy water discharge due to the removal of cofferdam on 13-Sep-19, local silt curtain had been place in order to minimize the unavoidable impact by related loading and unloading of fill materials. No muddy water had been observed outside the silt curtain area. Nevertheless, the Contractor is recommend to expand the coverage of the local silt curtain in order to well-confine the muddy water released from the grab. On top of that, the Contractor	Closed
399	16-Sep-19	16-Sep-19 (Not Specified) / LT Interchange Potion III	Resident of Bik Lai House, Yau Lai Estate	Noise	Noise emission from the tunnel entrance (Potion III)	Y	No construction works was carried out during the time of complaint. Details should be referred to CIR-N82.	Closed
398	16-Sep-19	13-Sep-19 / Works Area of LT-TKO Tunnel outside Tiu King Leng MTR Station	Anonymous	Air / Water	Dark smoke emission and muddy water discharge from the marine work vessels near shore	N	No dark smoke emission was observed during the site inspection conducted in the week of the complaint. The Contractor has applied an air filtering tank to clean the exhaust from the barge before emission. Details should be referred to CIR-C30.	Closed
397	6-Sep-19	30 Aug-19 / Works area near Ocean Shores	Resident of Ocean Shores	Noise / Working hours	Noise emitted from Barge during Evening times	Y	The unloading works had been reviewed and no limit level of exceedance were recorded during August to early September. Since the period of complaint falls under evening times, no mitigation measures were required by the CNP. Details should be referred to CIR-N81.	Closed
396	6-Sep-19	30 Aug-19 / Works area near Ocean Shores	Resident	Noise	Noise nuisance from LT-TKO Tunnel	Y	The major works conducted were shortcreting, mucking out, maintaining, drilling and unloading. No limit level of exceedance in the restricted hours (19:00-23:00) between late August and early September were recorded. The Contractor is recommended to keep following noise mitigation plan to minimize noise nuisance. Details should be referred to CIR-N80.	Closed
395	6-Sep-19	31 Aug-19 / Works area near Ocean Shores	District Council Member (Mr. Chan)	Noise	Noise Nuisance during evening and night times	Y		Closed
394	6-Sep-19	Not specified (Sep-19) / Works area near Ocean Shores	Anonymous	Noise / Operating Hours	Noise nuisance during Evening & occasionally in Night time	Y		Closed
393	30-Aug-19	30 Aug-19 / Marine works Area	District Council Member (Mr. Chan)	Water	Alleged muddy water discharge	N	High rainfall was recorded during period of complaint, therefore muddy water discharge at outfall from upstream and some surface runoff within the site is expected. However, no major silt curtain deficiency was observed during on-site observation and no leakage of muddy water from the marine works area was observed. Details should be referred to CIR-W12.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
392	29-Aug-19	20-27 Aug-19/ Portion 4C	Resident of Bik Lai House, Yau Lai Estate	Noise	Noise nuisance from the operation of heavy machineries and missing of noise mitigation measures at Portion 4C	Y	A noise insulating cover was erected before the period of complaint, however, due to restricted site condition in the relocated breaking works area, the erection of the cover could not be carried out. Nevertheless, movable noise barriers and local semi-enclosure was adopted for breaking works. Details should be referred to CIR-N79.	Closed
391	26-Aug-19	10-Jul-19 / Construction site near Ocean shore	District Council Member (Mr. Chan)	Noise	Operation of construction works during late hours	Y	1 derrick barge was operated during the period of complaint with valid CNP. Regular maintenance and checking should be conducted for all operating barges. Details should be referred to CIR-N78.	Closed
390	26-Aug-19	31-Jul-19 / Construction site near Ocean shore	District Council Member (Mr. Chan)	Noise	Intermittent noise emitted from collision during night-time	Y	The noise source is suspected to be the collision between cofferdam and its broken part as the cofferdam was found damaged next morning. No construction was conducted at night time of 31 July. The contractor is recommended to maintain and check cofferdam regularly. Details should be referred to CIR-N77.	Closed
389	29-Jul-19	17 to 24-Jul-19 / Marine Construction Site near O King Road	Resident of Ocean Shore	Noise	Noise nuisance from the barge operating in reclamation works area near O King Road during evening times.	Y	1 derrick barge was operated during the period of complaint with valid CNP. Regular maintenance should be provided for all operating barges. Details shall refer to CIR-N76.	Closed
388	12-Jul-19	8-Jul-19 / Construction Site near Ocean Shores	District Council Member (Mr. Chan)	Noise	Noise nuisance and inadequate noise barrier at the construction site near Ocean shore	Y	Although Contractor has adopted a noise mitigation measure of drill rigs at Portion IV near Ocean Shore such as noise barrier with sound insulating fabric, the existing noise barrier in Portion IX and some in Portion IV are not adequate in screening the direct line of sight to Ocean Shore. Details should be referred to CIR-N75.	Closed
387	12-Jul-19	8 to 12-Jul-19 / Portion 4C of C1 Construction Site	Resident of Bik Lai House	Noise	Breaking noise emitted from the operation of 2 PMEs at Portion 4C during weekday daytime.	Y	Two breakers were operated intermittently at the Portion 4C of C1 construction site during the period of complaint between 07:00 to 19:00. As observed during the site inspection/noise monitoring, movable noise barrier could not completely screen off the direct line-of-sight from PMEs to Yau Lai Estate. Contractor has adopted mitigation measure to minimize the noise impact from breakers including using a noise barrier with noise insulating fabric, adopted a less noisy hydraulic spiting method for breaking works and has been developing a semi-enclosure noise barrier to replace the existing movable noise barrier. Details should be referred to CIR-N74.	Closed
386	10-Jul-19	9 to 10-Jul-19 / Not Specific	District Council Member (Mr. Chan)	Noise	Noise nuisance and disturbance from the TKOLT tunnel construction site involves intermittent noise emitted from collision during night-time.	Y	No construction works was carried out during the time of complaint. Details should be referred to CIR-N73.	Closed

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385	4-Jul-19	Late Jun-19 to 4-Jul-19 / Reclamation Area	Resident of Ocean Shore	Noise	The reclamation works continued into the evening during weekdays and works were also operated on Sunday.	Y	See Complaint no 384.	Closed
384	3-Jul-19	3-Jul-19 / Near Ocean Shore	District Council	Noise	The construction site was constantly emitting metallic percussion noise in the early morning.	Y	The concerned metallic percussion noise source was suspected from the collision between the detached sheet pile and the adjacent sheet pile of the broken cofferdam. The detached sheet pile was fixed by re-sealing it to the adjacent sheet pile. Details should be referred to CIR-N72.	Closed
383	29-Jun-19	Jun-19 / Lam Tin Interchange	Resident of Yau Lai Estate, Yung Lai House	Noise	Noise nuisance from construction works during weekday daytime and evening times. Noise barriers was found missing in certain parts of the construction areas.	Y	Some noise mitigation measures were observed during the site inspection including idle equipment were turned off and noise barrier has been erected close to noisy PMEs in the right direction facing Yau Lai Estate. However, the above mitigation measures were not applied to whole construction site such as noise barriers were not placed close enough to the noisy PMEs due to the uneven surface and other inconvenience. Details should be referred to CIR-N71.	Closed
382 (N08/RE/00011 019-19)	17-Jun-19	6-Jun-19 / Cofferdam area	District Council	Air	Dark smoke nuisance from the tug boat inside the cofferdam area.	N	During site audit, no violation of the Air Pollution Control (Smoke) Regulation from the construction site was observed by the ET. Air filter has been replaced on derrick barge to reduce the dark smoke emission upon the receipt of the complaint. The Contractor is recommended to replace the air filters regularly. Details should be referred to CIR-A15.	Closed
381 (N08/RE/00015 098-19)	11-Jun-19	1-Jun-19 / Near confferdam	District Council	Water	Muddy water discharge from construction site near the cofferdam area on 4 June 19	N	High volume of upstream muddy water was collected due high rainfall according to reports and observation. As a result, the muddy water from upstream was discharged into the Junk Bay via various outfalls in Junk Bay, as observed during the rainstorm events. No sand plume within the cofferdam area and no muddy water discharge at the designated discharge point within the Site was identified during the site inspection and water quality monitoring. Details should be referred to CIR-W11.	Closed

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380	11-Jun-19	6-Jun-19 / Near Tong Yin Street	Resident of Ocean Shore	Air	Odour nuisance from construction site near Tong Yin Street	N	No oil leakage from mobile crane was observed during the site inspection in June 2019. According to the testing reports, all ULSD fuel applied in the PMEs during the construction period contains sulphur content lower than 0.005% by weight, which complied with the Air Pollution Control (Fuel Restriction) Regulations. Details should be referred to CIR-A14.	Closed
379	11-Jun-19	4-Jun-19 / Near cofferdam area	General Public	Water	Discharge of mud water into Junk Bay from TKOLT construction site	N	See Complaint no 381.	Closed
378	11-Jun-19	13-Apr-19 / Near cofferdam area	General Public	Air	Dark smoke nuisance from construction site involves derrick barge operation near cofferdam area (daytime)	N	No violation of the Air Pollution Control (Smoke) Regulation was recorded from the construction site was observed. The contractor was recommended to install carbon filter at smoke exhaust of the barge as a more effective mitigation measures. Details should be referred to CIR-C27.	Closed
377	11-Jun-19	2-Jun-19 / Lam Tin Interchange	General Public	Noise	Complaint about the noise nuisance from Lam Tin Interchange construction site in daytime holiday.	Y	Only drilling works inside the tunnel was conducted during daytime under valid CNP. Groundborne noise is considered as the major factor contributing to the noise nuisance, the Contractor are recommended to re-schedule the drilling works inside the tunnel to less sensitive hours. Details should be referred to CIR-N70.	Closed
376	11-Jun-19	9-Jun-19 / Near Yau Lai Estate	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance near Yau Lai Estate involves vehicle movement (roller) during morning to 15:00 in holiday.	Y	No works involving roller was involved. Only drilling works inside the tunnel and ddismantling of crusher shelter was conducted during Sunday daytime under valid CNP. Groundborne noise is considered as the major factor contributing to the noise nuisance, the Contractor are recommended to re-schedule the drilling works inside the tunnel to less sensitive hours. Details should be referred to CIR-N70.	Closed
375	11-Jun-19	9-Jun-19 / Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance from Lam Tin Interchange construction site in daytime holiday.	Y	See Complaint no. 376.	Closed
374	4-Jun-19	3-Jun-19 / Near Ping Tin Estate	Resident of Ping Sin House in Ping Tin Estate	Noise	Vibration from the construction of Lam Tin Interchange in evening time at around 20:00	Y	Groundborne noise is considered as the major factor contributing to the noise nuisance. The reverse circulation drilling works may have emitted groundborne noise, however, only 1 unit was used in Portion II. Therefore, blasting is considered as the major cause for the vibration. Details should be referred to CIR-N69.	Closed
373	4-Jun-19	2-Jun-19 / Near ocean Shore	Resident of Ocean Shore	Noise	Complaint about the noise nuisance from the construction site near Ocean Shore and the construction site operation in day time holiday.	Y	No construction activity was conducted at the time of complaint as confirmed by Engineer. Therefore, the noise nuisance was not due to the construction site. Details should be referred to CIR-N68.	Closed

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372	4-Jun-19	1-Jun-19 / Near ocean Shore	Resident of Ocean Shore	Others	Complaint about the construction site operation in the early morning on Saturday.	N	See Complaint no. 373.	Closed
371	30-May-19	30-May-19 / Near Ocean Shore	Resident of Ocean Shore	Noise	Noise nuisance from construction site near Ocean Shore during night time.	Y	See Complaint no. 373.	Closed
370 (N08/RE/00015 098-19)	29-May-19	19 & 26-May-19 / Near Ocean Shore	Resident of Ocean Shore	Noise	Noise nuisance about dredging mud and loudspeaker in the construction site near Ocean Shore during daytime holiday.	Y	Noise barriers/ Noise absorptive materials have been used to mitigate the noise generated from the construction works. Only walkie-talkies were used for communication in the construction site. Details should be referred to CIR-N67.	Closed
369	13-May-19	Not specific / Lam Tin interchange	Resident of Yau Lai Estate	Noise	Noise nuisance from the blasting work inside tunnel which involves explosion noise impact during midnight	Y	Contractor has adopted a mitigation measure for reduce the blasting noise impact from the tunnel such as blasting doors and did not conduct blasting works during mid-night blasting since mid-May 2019. Details should be referred to CIR-N66.	Closed
368	19-May-19	19-May-19 / Near cofferdam area	General Public	Noise	Noise nuisance from barge with in cofferdam area in daytime holiday	Y	See Investigation / Mitigation Action for complaint no. 361.	Closed
367	5-May-19	5-May-19 / Lam Tin Tunnel - TKO entrance	Resident near Lam Tin Tunnel - TKO entrance	Noise & Air	Noise and air nuisance from construction near Lam Tin Tunnel - TKO entrance	Y	The major works during the period of complaint is scaling by breaker on day time holiday (Sunday). The works is compiled with CNP and no air quality action and noise limit level exceedance during the monitoring. Regarding the existing air quality mitigation measures, the water spray for the breaker was insufficient and the dust emission during unloading of dusty materials was observed. As the review of exiting noise mitigation measure, a broken noise SilentMat was found on the hammer of breaker. According to the above observation, Contractor has adopted serval improvement such as conduct a sufficient water spray during breaking and unloading materials, replaced the noise SilentMat of the breaker and placed the noise barrier between PME and NSRs. Details should be referred to CIR-C29.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
366	4-May-19	4-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime.	Y	Regarding the observation during site inspection, the hammer of the breaker was surrounded by a broken noise absorption material and a noise barrier of a driller was placed in the incorrect direction of NSRs. Contractor has improved the above mitigation measures including replaced the noise absorption materials and relocated the noise barrier to facing the NSRs. Details should be referred to CIR-N65.	Closed
365	1-May-19	1-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime.	Y	See investigation / mitigation actions for Complaint No.366	Closed
364	1-May-19	1-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime	Y	See investigation / mitigation actions for Complaint No.366	Closed
363	30-Apr-19	6th – 22th April -19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime and evening time	Y	See investigation / mitigation actions for Complaint No.366	Closed
362 (N08/RE/00013 396-19)	8-May-19	7-May-2019 / Junk Bay	District Council	Noise	Noise nuisance from marine works in the Junk Bay in the night-time (06:45)	Y	No marine works in the Junk Bay was conducted as confirmed by RE. No CCTV footage was recorded during the time of complaint. It was suggested that Contractor should conduct 24 hours CCTV monitoring. Details should be referred to CIR-N64.	Closed
361	7-May-19	28 Apr 2019 / Cofferdam Area	General Public	Noise	Noise nuisance from construction site at cofferdam area in holiday	Y	The reclamation works involves barges during the time of complaints has been compiled with the CNP. As review of existing mitigation measure, the sound proofing canvases for the barges were hanged up. Details should be referred to CIR-N63.	Closed
360	2-May-19	27-04-2019/ Construction in Tong Tin Street	General Public	Noise	The complaint about the noise nuisance from cofferdam area during daytime and evening-time.	Y	The light source was found from the lighting of derrick barge within the cofferdam area and the noise source was found from the barge during filling works. Contractor has adopted The sound proofing canvases for the derrick barge was hanged up but no light mitigation measure. Details should be referred to CIR-C28.	Closed
359	30-Apr-19	30-04-2019/ Near Ocean Shore	Resident of Ocean Shore	Noise	The complaint about the noise nuisance involve percussion noise near Ocean Shore during daytime.	Y		Closed
358	30-Apr-19	27-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance during evening time.	Y		Closed
357	23-Apr-19	20-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance near cofferdam area during daytime.	Y		Closed
356	23-Apr-19	19-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance near cofferdam area during holiday.	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
355	17-Apr-19	17-04-2019/ Near cofferdam area	General Public	Noise & light	The complaint about the noise nuisance and light pollution near cofferdam area during evening-time.	Y		Closed
354	30-Apr-19	20 Apr 2019 / Cofferdam Area 19 Apr 2019 / Cofferdam Area 15 Apr 2019 / Cofferdam Area 07 Apr 2019 / Cofferdam Area 31 Mar 2019 / Cofferdam Area	Resident of Ocean Shore (Mr. Chan)	Others	The construction site near O King Road is operated in holiday during day-time and weekday during night-time.	N	The marine reclamation works at the Portion IX in C2 construction site was the major construction activity during the period of complaints. The concerned reclamation works is compiled with the relevant CNP. Details should be referred to CIR-O2.	Closed
353	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore (Mr. Chan)	Air	According to the complainant, large amount of smoke and exhaust was seen emitting from barges working within the cofferdam	N	See Investigation / Mitigation Action for complaint no. 329.	Closed
352	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore	Noise	The complainant complained about the noise nuisance from the cofferdam area in Tiu Keng Leng during day-time.	Y	The major works during the time of complaints was a crawler crane unloading H piles to the Portion V of C2 construction site. Noise barriers were erected between the crane and NSRs to reduce noise impact. Details should be referred to CIR-N62.	Closed
351	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore	Noise	The complainant complained the noise nuisance from the cofferdam area in Tiu Keng Leng during day-time.	Y		
350	8-Apr-19	07 Apr 2019 / Cofferdam Area in TKO	-	Air & Others	The complainant complained the dark smoke generation and the construction works from the cofferdam area in Tiu Keng Leng during holiday.	N	See Investigation / Mitigation Action for complaint no. 329.	Closed
349	7-Apr-19	07-04-2019/Cofferdam Area	Resident of Ocean Shore	Air	Dark smoke generation from the cofferdam area in Tiu Keng Leng during day-time.	N		Closed
348	2-Apr-19	02 Apr 2019 / LTT-TKO	-	Others	The complainant complained the LTT construction site was working during holiday.	N		Closed
347	1-Apr-19	01 Apr 2019 / Cofferdam Area	Resident of Ocean Shore	Noise	Percussive noise from the cofferdam area in Tiu Keng Leng during day-time.	Y		Closed
346	31-Mar-19	31st March 2019 / Construction of Road P2	District Council	Others	Complaint about the construction site operation of Road P2 in day time holiday	N	A tug boat and a derrick barge were operated for the marine reclamation work within the cofferdam area during the time of complaint. As the review of relevant CNP, no violation was observed. Details should be referred to CIR-O1.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
345	26-Mar-19	26th March 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the noise nuisance in day time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
344	28-Mar-19	26th March 2019 / Construction of Road P2	District Council	Noise	Complaint letter received regarding noise nuisance and dark smoke generation from the marine barges	Y	See Investigation / Mitigation Action for complaint no. 378.	Closed
343	25-Mar-19	25th March 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the noise nuisance sound like a breaking works in day time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
342	25-Mar-19	24th March 2019 / Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance from the construction of Lam Tin Interchange in day time hoilday (Sunday). The noise monitoring was conducted in Hong Nga Court by staff after the complaint and the noise level is result in acceptable level, but the complainant replied that the noise monitoring is meaningless and the noise nuisance is not acceptable for her.	Y	See Investigation / Mitigation Action for complaint no. 330.	Closed
341	24-Mar-19	24th March 2019 / Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complaint about the noise nuisance from Lam Tin Tunnel construction works in day time.	Y		Closed
340	24-Mar-19	24th March 2019 / Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance from the construction site day time holiday (Sunday).	Y		Closed
339	21-Mar-19	21st March 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the construction noise nuisance involving percussive noise in early morning (07:00)	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
338	21-Mar-19	21st March 2019 / Construction of Lam Tin Interchange	Resident of Ocean Shore	Noise	Construction noise	Y	See Investigation / Mitigation Action for complaint no. 323.	Closed
337	20-Mar-19	19th March 2019 / Construction of Road D4 and Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Complaint about the noise nuisance from the construction vehicle near Park Central in night time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
336	20-Mar-19	20th March 2019 / Construction of Road P2	Resident of Park Central	Noise & Pest	Complaint about the noise and pest nuisance from the construction site near Park Central in evening time.	Y		Closed
335	19-Mar-19	19th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Construction noise nuisance from reclamation works near the TKO-LTT reclamation site during the evening time (19:00-23:00).	Y	See Investigation / Mitigation Action for complaint no. 323.	Closed
334	19-Mar-19	19th March 2019 / Construction of Road P2	District Council	Noise	Construction noise nuisance from the TKO-LTT reclamation site during evening time (after 19:00).	Y		Closed
333	19-Mar-19	18th - 19th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Construction noise nuisance from construction noise in evening time (around 20:30).	Y		Closed
332	18-Mar-19	18th March 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance during day time, evening time and night time.	Y	The construction activities in the complaint dates are complied with CNP. No noise limited level exceedance was recorded. During the site inspection, no noise barriers were erected between noisy PMEs and NSRs at LTI. Regarding the observation in the inspection, Contractor has adopted an improvement such as placed the noise barriers between the PMEs and NSPs to reduce noise nuisance. Details should be referred to CIR-N61.	Closed
331	18-Mar-19	18th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance in night time and the past few days. (Before 07:00)	Y		Closed
330	17-Mar-19	17th March 2019 / Construction of Lam Tin Interchange	General Public	Noise	Complaint about the noise nuisance from in night time holiday.	Y		Closed
329	15-Mar-19	15th March 2019 / Construction of Road D4	Resident of Park Central	Noise & Air	Complaint about the noise from the construction works and the odour nuisance involves engine oil from construction machine	Y	The construction activities in the complaint dates are compiled with the CNMP. No noise and air quality limit level exceedance were recorded. Contractor had implemented the mitigation measures for the noise and odour nuisances including acoustic mat was erected between the PME and NSR, ultra-low sulphur diesel was applied as fuel oil in PME and general refuses were disposed properly. Details should be referred to CIR-C26.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
328	14-Mar-19	9th March 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Complaint about the noise nuisance involve drilling work in the day time (08:00).	Y	A formation works was conducted in 7 am to 7pm on 9 Mar 2019. No noise limit level exceedance was recorded in the nearest noise monitoring result. However, there was no any adoption of mitigation measure to minimize the noise nuisance from the site. As response the received complaint, the contractor should place the noise barrier between the PMEs and NSR. Details should be referred to CIR-N58.	Closed
327	13-Mar-19	13th March 2019 / Construction of Lam Tin Interchange	Resident of Bik Lai House	Noise	Noise nuisance suspected from the construction works involving chiseling during evening time (22:07).	Y	A handing processed rock at Lam Tin Interchange was conducted on the complaint date in 7 pm to 11 pm involving dump truck and excavator which construction activities was compiled with the CNP. No noise limit level exceedance was record in the evening time monitoring. However, the noise barrier was not placed in the direction of the Yau Lai Estate during breaking works, the contractor had implemented a mitigation measure such as placed the noise barrier to reduce noise level from the breaker but the noise barrier was far from the concerned breaker. Details should be referred to CIR-N59.	Closed
326	13-Mar-19	13th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Noise nuisance suspected from marine works near Ocean Shores in the day time (16:30)	Y	See Investigation / Mitigation Action for complaint no. 322.	Closed
325	9-Mar-19	9th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involve machine and percussive noise in night time (02:00 -03:00).	Y	Only drilling works were conducted inside the tunnel in early morning under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N56.	Closed
324	7-Mar-19	7th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance involving chiseling noise from the construction site near Hong Pak Court during day time and evening time in the past few months.	Y	Only drilling works were conducted inside the tunnel in early morning and daytime under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N56.	Closed
323 (EPD-N08/RE/00006523-19)	4-Mar-19	4th March 2019/ Cofferdam Area	Resident of Ocean Shore	Noise	Construction noise (Evening time)	Y	Only 1 derrick barge and a tug boat was used in the evening time under valid CNP. No Limit Level Exceedances were recorded at Station CM6(A) during evening time. Acoustic mat should be used to screen the engine of the barge to reduce the noise nuisance from the reclamation works. Lubricants should be applied to the barge to reduce the noise emission during barge movement.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
322	13-Mar-19	1st March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Noise nuisance suspected from a yellow excavator near Ocean Shores in day time (15:44).	Y	No noise limit level exceedance was recorded and the number of operating PMEs complied with the CNMP. The sound proofing canvases were not always adopted as a mitigation measure to screen the noise emitted from the engine of the barge. Contractor should adopt the aforementioned mitigation measures as far as practicable. The contractor was also be recommended to enhance the mitigation measure including frequently checking the noise barriers/sound proofing canvases, frequent checking and repair the gaps or broken acoustic sheets and continue to strictly follow the requirements in the approved CNMP.	Closed
321	28-Feb-19	28th February 2019 / Construction of Lam Tin Interchange	Management Section of Yau Lai Estate	Noise	Construction noise (Night time)	Y	Only drilling works were conducted inside the tunnel in early morning under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N55.	Closed
320	22-Feb-19	22nd February 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance involving percussive noise in early morning (Day time). Complainant said the construction should be operated after 08:00.	Y	See Investigation / Mitigation Action for complaint no. 313.	Closed
319	21-Feb-19	21st February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involving percussive noise in night time	Y		Closed
318	21-Feb-19	21st February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involving percussive noise from the construction in night time	Y		Closed
317	25-Feb-19	23th February 2019 / Construction of Road P2	Resident in O King Road	Air	Complained about the odour nuisance of petroleum smell	N	See Investigation/ Mitigation Action on Complaint no.294. Details	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
316	18-Feb-19	18th February 2019 / Construction of Road P2	Resident in O King Road	Air	Complaint about the dark smoke and odour nuisances	N	should be referred to CIR-A12.	Closed
315	17-Feb-19	15th February 2019 / Construction of Lam Tin Interchange, Road P2 and Tseung Kwan O Interchange	General Public	Noise	Complained about construction noise (Daytime)	Y	The metal wire used for anchoring the barge inside the cofferdam area are the source for the noise nuisance. Ropes were used to replace metal wire to reduce noise nuisance from metal collision while mooring boats. Details should be referred to CIR-N54.	Closed
314	17-Feb-19	16th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Air	Dust nuisance suspected from the construction works and absence of water spraying near Lam Tin Interchange in daytime.	N	No Air Quality action level or limit level exceedance during the monitoring conducted by ETL. Contractor had implemented mitigation measure to reduce and prevent dust emission including conducted water sprays and covered the cement bags. Details should be referred to CIR-A13.	Closed
313	17-Feb-19	17th February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Construction noise nuisance from the drilling and breaking works at Branch Tunnel in the morning (Day time)	Y	Breaking and drilling works were conducted during the time of complaint. The breakers were often seen wrapped with acoustic mat, however, they are easily damaged during the breaking works. Noise barrier are more effective in reducing the noise nuisance than the acoustic mat, but the erection of noise barrier are not often adopted properly to screen the noise from the NSR due to the additional works involved and the landform on site. Groundborne noise could also be a factor contributing to noise nuisance. Details should be referred to CIR-N53.	Closed
312	16-Feb-19	16th February 2019 / Construction of Lam Tin Interchange	District Council	Noise	Complained about the explosion noise (Daytime)	Y	No exceedances were recorded and recommendation were made to further enhance the mitigation measures, such as regularly and reviewing the noise control activities that are being carried out on site regularly to ensure compliance with statutory requirement, provide training for the workers to prevent unnecessary noise disturbance and frequently check and maintain the absorptive lining adhered on blasting doors on a regular basis.	Closed
311	15-Feb-19	15th February 2019 / Construction of Lam Tin Interchange	Public	Noise	Complained about the explosion noise (Daytime)	Y	See Investigation / Mitigation Action for complaint no. 312.	Closed
310	14-Feb-19	14th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Construction noise nuisance about the rock handling work at LTI (Daytime)	Y	Dump truck and excavator was used to transfer crushed rocks from the crusher with valid CNP. Additional noise barrier was added at the site boundary near Shun Lai house, Yau Lai Estate to reduce the direct-line of sight from the NSRs to the site. Details should be referred to the CIR-N51.	Closed
309	13-Feb-19	13th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Construction noise nuisance about the rock handling work at LTI (evening time)	Y		Closed
308	13-Feb-19	1th - 13th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Management Section of Kwong Tin Estate	Noise	Complaint about construction noise (Night time)	Y	See Investigation/ Mitigation Action on Complaint no.302. Details should be referred to CIR-N48.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
307	13-Feb-19	13th February 2019 / Construction at Tsueng Kwan O (C1)	Resident of Ocean Shore	Noise	The complaint about the noise nuisance in day time	Y	Noise nuisance was originated from the beeping noise emitted during vehicle reversing of the loader. The total length of beeping noise should be less than 5 mins. The reverse alarm system is a necessary safety measure that cannot be revoked. Details should be referred to CIR-N50.	Closed
306	13-Feb-19	13th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise in night time	Y	See Investigation/ Mitigation Action on Complaint no.302. Details should be referred to CIR-N48.	Closed
305	12-Feb-19	12th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise in night time.	Y		Closed
304	8-Feb-19	8th February 2019 / Construction of Road P2 and Associated Works	Resident of Ocean Shore	Noise	Noise nuisance suspected from marine works near Ocean Shores in the day time	Y	There were two construction activities in the site including dredging and trimming in day time on 8 Feb 2019. Details should be referred to CIR-N49.	Closed
303	2-Feb-19	27th January - 2nd February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Ping Tin Estate	Noise	Noise nuisance suspected from the construction works involving chiseling noise during day time, evening time and night time.	Y	Project-related. The following recommendations were made to further enhance the mitigation measures: □ Frequent checking and repair the gaps or broken acoustic sheets; □ Replace any broken SilentMat for wrapping the breaker head; □ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; □ The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers; □ To continue to strictly follow the requirements in the approved CNMP; □ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and □ Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed
302	2-Feb-19	27th January - 2nd February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Pak Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise during day time	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
301	31th January 2019	27th - 31th January 2019 / Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Noise nuisance suspected from the	Y	See Investigation/ Mitigation Action on Complaint no.290. Details should be referred to CIR-N45.	Closed
300	30th January 2019	30th January 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the construction works involving mobile crane	Y	See investigation / Mitigation Action for complaint no. 296. Details should be referred to CIR-N47.	Closed
299	30th January 2019	27th - 29th January 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the construction works involving mobile crane and also suspected from elevation platform	Y	See investigation / Mitigation Action for complaint no. 296. Details should be referred to CIR-N47.	Closed
298	30th January 2019	Not specific / Near Po Shun Road	Resident of Park Central	Noise & Air Quality	The dust generation and noise nuisance from the construction site near Po Shun Road	Y	There were several construction activities in the site including the removal of steel mould & scaffolding of bridge deck, erection of scaffolding for staircase and construction of Pour 1 of main deck (GL4-5) during time of complaint. Details should be referred to CIR-C25.	Closed
297	30th January 2019	27th - 30th January 2019 / Construction works at TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction involving chiselling works	Y	See Investigation/ Mitigation Action on Complaint no.290. Details should be referred to CIR-N45.	Closed
296	29th January 2019	27th - 29th January 2019 / Construction Site of Footbridge near Tiu Keng Leng Sport Centre.	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the mobile crane at the Footbridge near Park Central Block 6	Y	Project-related. The following recommendations were made to further enhance the mitigation measures: □ To arrange a signalman instead of mobile crane reversing signal for minimize the beeping noise disturbance; □ Frequent checking and repair the operating PME; □ The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers; □ To continue to strictly follow the requirements in the approved CNMP; □ To ensure noise barrier and sound proofing canvases wrapped on PME are intact and in good condition.	Closed
295	29th January 2019	29th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complaint about the noise nuisance from the steel cable wire for anchoring between barge and pier	Y	There was a salvage works for the sunken barge (CS306) in a whole day on 27 Jan, 12 am to 3 pm on 28 Jan and 11:40 am on 29 Jan 2019. Details should be referred to CIR-N46.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
294	29th January 2019	29th January 2019 / Construction of Road P2	Resident in O King Road	Air Quality	Complaint about the dark smoke and odour nuisances from barge.	Y	The sulphur content percentage of the adopted diesel fuel was lower than 0.05% which is compiled with the Hong Kong Air Pollution Control (Marine Light Diesel) Regulation, therefore the odour problem should be minimised. Smoke filtering tanks were adopted on deck level of derrick barges to reduce emission of dark smoke and exhaust smell. The situation has improved after the filter has been replaced. Details should be referred to CIR-A12.	Closed
293 (EPD-K15/RE/00003291-19)	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Night time)	Y	See investigation / Mitigation Action for complaint no. 270. Details should be referred to CIR-C29.	Closed
292	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from breaking work.	Y	Project-related. The following recommendations were made to further enhance the mitigation measures: □ To arrange a signalman instead of mobile crane reversing signal for minimize the beeping noise disturbance; □ Frequent checking and repair the operating PME; □ The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers; □ To continue to strictly follow the requirements in the approved CNMP; □ To ensure noise barrier and sound proofing canvases wrapped on PME are intact and in good condition.	Closed
291	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about the construction noise from breaking work.	Y		Closed
290	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	District Council	Noise	Complained about the construction noise from Tunnel Works	Y		Closed
289 (EPD-N08/RE/00000859-19)	24th January 2019	Early December 2018 -24-Jan-2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from Tunnel Works	Y	See Investigation/ Mitigation Action on Complaint no.288. Details should be referred to CIR-N44.	Closed
288	18th January 2019	18th January 2019 (Non-specific)/ Construction of Road P2	Public	Noise	Complained about the construction noise from Tunnel Works	Y	No major construction works at the concerned night time. There was only salvage operation carried out in 11 pm to 12 pm on 17 Jan 2019. No violation of CNP nor Noise Control Ordinance is found in this regard. Details should be referred to CIR-N44.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
287	17th January 2019	17th January 2019 / Construction of Lam Tin Interchange	Resident of Yung Lai House	Noise	Complained about the construction noise from Kam Tin Interchange.	Y	Project-related. The following recommendations are made to further enhance the mitigation measures: □ To regularly check and review the noise control activities that are being carried out on site to ensure compliance with statutory requirement. □ Machines may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. □ To provide training for the workers to prevent unnecessary noise disturbance. □ To provide cantilever barrier to screen the construction noise from the NSRs	Closed
286	17th January 2019	17th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near the Park Central in day time	N	See Investigation/ Mitigation Action on Complaint no. 285. The concerned air compressor has been removed on 16th Jan 2019. Details should be referred to CIR-N41.	Closed
285	17th January 2019	17th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan with generator near Tiu Keng Leng Sport Centre and Park Central.	N	The concerned air compressor was removed from the construction site since 16 January 2019 afternoon, but the high frequency noise nuisance complaints were received on 17 January 2019. According to the CM8(A) noise monitoring record by environmental team, the other noise source from construction site are beeping noise of the reverse alarm system of the plant. Therefore, the high frequency noise nuisance is considered project related after 16 January 2019. Details should be referred to CIR-N41.	Closed
284	16th January 2019	16th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
283	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
282	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
281	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Chui Ling Road roundabout and Tiu Keng Leng Sport Centre in day time.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
280	14th January 2019	14th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Chui Ling Road roundabout and Tiu Keng Leng Sport Centre in day time.	N	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed
279	14th January 2019	14th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Tiu Keng Leng Sport Centre in day time Saturday and Holiday (Sunday).	N	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed
278	12th January 2019	12th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site between Tiu Keng Leng Sport Centre and Park Central in day time	Y	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed
277	12th January 2019	12th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the noise from breaking activities.	N	See investigation/ Mitigation Action on Complaint no. 264. Details should be referred to N39.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
276	11th - 12th January 2019	11th - 12th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	The complaints are considered as project-related. The following recommendations were made to further enhance the mitigation measures: □ Frequent checking and repair the gaps or broken acoustic sheets; □ Replace any broken SilentMat for wrapping the breaker head; □ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; □ The deployment of Cantilever noise barrier □ To continue to strictly follow the requirements in the relevant CNP. □ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer □ Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP. Details can be referred to CIR-N40.	Closed
275	11th January 2019	11th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from a crane near footbridge between Tiu Keng Leng Sport Centre and Park Central	Y	See Investigation/ Mitigation Action on Complaint no. 272.	Closed
274 (EPD-N08/RE/00001234-19)	11th January 2019	11th January 2019 / Construction of Road D4	Public	Noise	Complaint about the high frequency machine noise nuisance from the construction site of footbridge between Tiu Keng Leng Sport Centre and park Central.	Y	No high-frequency noise was detected near the complaint location, however, the noise similar to description was detected within the renovation works inside Park Central. Details should be referred to complaint no. 272 and CIR-N41.	Closed
273	10th January 2019	10th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	The complaints are considered as project-related. The following recommendations were made to further enhance the mitigation measures: □ Frequent checking and repair the gaps or broken acoustic sheets; □ Replace any broken SilentMat for wrapping the breaker head; □ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; □ The deployment of Cantilever noise barrier □ To continue to strictly follow the requirements in the relevant CNP. □ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer □ Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
272	8th January 2019	8th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the high frequency machine noise nuisance from the construction site near Park Central in day time.	Y	High frequency noise emitted from an air compressor was suspected. Noise barrier was seen erected. Noise barrier using material with higher absorption coefficient such as mineral wool is recommended. Details should be referred to CIR-N41.	Closed
271	8th January 2019	8th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	The complaints are considered as project-related. The following recommendations were made to further enhance the mitigation measures: □ Frequent checking and repair the gaps or broken acoustic sheets; □ Replace any broken SilentMat for wrapping the breaker head; □ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; □ The deployment of Cantilever noise barrier □ To continue to strictly follow the requirements in the relevant CNP. □ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer □ Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
270 (EPD-K15/RE/000006 91-19)	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Night-time)	Y	Regular noise monitoring results for day time and night time show full compliance of the noise criteria. Air quality monitoring result in all stations show that no adverse air quality impact has been brought about to the nearby sensitive receivers during the time of complain. During Site audit, damaged acoustic material on the breaker was observed. Watering was provided at during rock breaking to avoid dust generation. The Contractor was reminded to deploy noise barrier to screen the line-of-sight from sensitive receiver.	Closed
269	7th January 2019	7th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the night time construction noise near Park Central.	Y	No noticeable high frequency noise was detected from the air compressor and noise barrier was seen erected in the line-of-sight from the NSR to the Air compressor. Refer to CIR-41 for details.	Closed
268	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the construction noise at Lam Tin Interchange.	Y	No exceedances were record at the nearest monitoring station. The following recommendation were made to further enhance the mitigation measure: Ÿ Frequent checking and repair the gaps or broken acoustic sheets; Ÿ Replace any broken Silent Mat for wrapping the breaker head; Ÿ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; Ÿ The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receiver; Ÿ To continue to strictly follow the requirements in the relevant CNP; Ÿ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and Ÿ Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
267	7th January 2019	7th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Refer to Investigation/ Mitigation Action on Complaint no. 264. Details should be referred to N39.	Closed
266	7th January 2019	7th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	No exceedances were recorded at the nearest monitoring station, however, the approved location for noise monitoring was located at the podium of Ocean Shores. Due to inaccessibility to private unit, it is not possible to perform monitoring at higher floor. ET will keep approaching Ocean Shore Management Office for impact noise monitoring at higher floor. The recommendations for Contractor is as follows: · only well-maintained plant on-site and plant should be serviced regularly during the construction program; · Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receivers; Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to minimum.	Closed
265	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	No exceedances were record at the nearest monitoring station. The following recommendation were made to further enhance the mitigation measure: Ÿ Frequent checking and repair the gaps or broken acoustic sheets; Ÿ Replace any broken Silent Mat for wrapping the breaker head; Ÿ To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; Ÿ The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receiver; Ÿ To continue to strictly follow the requirements in the relevant CNP; Ÿ To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and Ÿ Engineer should monitor the plant and machine to ensure construction activities are in	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
							compliance of CNP.	
264	2nd January 2019	2nd January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	No noise limit level exceedance was recorded at the noise monitoring stations near ocean shores. The contractor has applied lubricants to the joint of the excavators to dampen the noise emitted from the PMEs. The contractor is recommended to use noise barriers to screen the PMEs from the NSRs as per the Noise mitigation plan.	Closed
263 (EPD-)	1st January 2019	31st December 2018 / Coastal near TKO cemetery	General Public	Water	Complained concerning oil leakage/ on the sea surface near the sunken barge at C2 site.	N	Oil leakage happened due to the derrick lighter was submerged to the sea within the cofferdam. As the oil leakage was found outside the cofferdam during site inspection, there was a gap in the cofferdam. The oil leakage was cleaned up and the floating oil absorber has been used to surround the cofferdam by Contractor. The Contractor are reminded to1) regular check if the site vessels and cofferdam are in good-condition; 2) To regular monitor the operation of any activities in the cofferdam area; 3) To implement the proposed site vessels safety and the emergency responses including clearance measures. Details of the investigation should be referred to CIR-W10.	Closed
262	30th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
261	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
260	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
259	26th December 2018	26th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
							There was no major construction works at the concerned area during the time of complaint and confirmed by the Resident Engineer. Steel cable wire for anchoring between barge and pier is considered as a possible noise source. The complaint is considered project related. Mitigation measures:	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
258	18th December 2018	18th December 2018/ Construction of Lam Tin Interchange	Engineering Section of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	Cable wire for anchoring between barge and pier has been replaced by rope between 27 Dec and 2 Jan to reduce noise impact. In addition, other good site practices recommended in the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual and the approved CNMP of this Contract had been implemented by the Contractor, including the following: Ÿ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; Ÿ Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receivers; Ÿ Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to minimum.	Closed
257	18th December 2018	18th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	There was no major construction works at the concerned area during the time of complaint and confirmed by the Resident Engineer. Steel cable wire for anchoring between barge and pier is considered as a possible noise source. The Contractor has replaced the cable wire for anchoring between barge and pier with ropes between 27 Dec and 2 Jan to reduce noise impact.	Closed
256	17th December 2018	15th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking and piling activities	N	No exceedance was recorded in the noise monitoring result. The number of PME operated in LTI was consistent with the proposed Construction Noise mitigation Plan (CNMP) The following recommendations were made for the Contractor to enhance the mitigation measures: Ÿ To frequently check and repair operating PME if any loosen or worn parts of the equipment to reduce excessive noise disturbance; Ÿ Noise barriers should be designed and erected around the noise sources to block the direct line-of-sight from the NSR as per the CNMP; To ensure all erected noise barriers and sound proofing canvases wrapped on PME are intact and in good condition.	Closed
254	16th December 2018	16th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	Ÿ The night-time works were only conducted inside the tunnels with valid CNP. The noise nuisances are not considered as air-borne in nature, but ground-borne noise. 2.17 In order to confirm the possible ground-borne nature of the noise nuisances for complaints summarized in this report, CEDD has engaged the environmental team to conduct ad hoc ground-borne noise monitoring with the coordination of the Engineer. The findings will be provided in a separate report for the ad hoc monitoring.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
253	15th December 2018	15th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	Refer to the investigation for complaint no. 254	Closed
252	30th November 2018	30th November 2018/ Construction of Road D4	Resident of Park Central	Noise & Air	Complained about the construction noise and dust resuspension in Road D4.	Y	The number of PMEs operated on site and on-time percentage from 19 to 30 November complied with the CNMP, thus, no violation was identified. Based on the noise and air monitoring results in November 2018, no Limit Level Exceedance was recorded. **Mitigation Measures** Ÿ A more effective acoustic barrier was erected between the drill rig and Park Central. Ÿ Frequent water spraying along the Po Yap Road for eight times a day, Stockpile are covered with impervious material to avoid dust resuspension	Closed
251	28th November 2018	27th November 2018/ Construction of TKO portal	Public	Noise	Complained about the construction noise from the marine works.	Y	The complaint lodged on 25th November 2018 is considered as non-project related, as no works was conducted on that day. The complaint on 27th November 2018 is considered project related. The contractor is reminded to 1) frequently check and repair operating PME if any loosen or worn parts of the equipment to reduce excessive noise disturbance; 2) Ensure no further use of PA system for marine works.	Closed
250	26th November 2018	26th November 2018/ Public sea in TKO	Resident of Ocean Shore	Noise	Complained about the noise nuisance from the operation of derrick barge on Sunday.	Y	Refer to the investigation for complaint no. 251	Closed
249	25th November 2018	20th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from the Excavators in LTI on Sunday morning.	Y	Refer to the investigation for complaint no. 251	Closed
248	20th November 2018	20th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance during transfer of material in evening time at LTI	Y	Regular noise monitoring results for restricted and non-restricted hours show full compliance of the noise criteria (night-time noise exceedance is considered non-project related). The contractor is reminded to adopt cantilever noise barriers at Lam Tin Interchange to screen noise effectively by screening the line-of-sight from sensitive receivers	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
247	20th November 2018	19th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the noise nuisance from rock dropping during evening time	Y	Refer to the investigation for complaint no. 248	Closed
246	19th November 2018	19th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from dump truck in evening time	Y	Refer to the investigation for complaint no. 248	Closed
245	8th November 2018	8th November 2018/ Lam Tin Interchange	Public	Noise	Complained about construction noise during night time from LTI	Y	Refer to the investigation for complaint no. 248	Closed
243	8th November 2018	8th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the construction noise during evening time from LTI.	Y	Refer to the investigation for complaint no. 248	Closed
242	7th November 2018	7th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the construction noise and dust nuisance.	Y	Refer to the investigation for complaint no. 248	Closed
241	6th November 2018	6th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Refer to the investigation for complaint no. 248	Closed
240	6th November 2018	6th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Refer to the investigation for complaint no. 248	Closed

APPENDIX P
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: Civil Engineering Development Department

Contract No.: NE/2015/01

Leighton - China State Joint Venture

Monthly Summary Waste Flow Table for Nov 2020

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	131.325	42.581	0.000	42.581	88.744	0.000	0.000	0.000	0.000	3.040	0.360
February	124.053	43.467	0.000	43.467	80.586	0.000	0.000	0.000	0.000	0.000	0.336
March	159.135	35.849	0.000	35.849	123.286	0.000	0.000	0.000	0.000	0.000	0.489
April	100.501	15.158	0.000	15.158	85.343	0.000	0.000	0.000	0.000	1.920	0.304
May	77.137	26.871	0.000	26.871	50.266	0.000	0.000	0.000	0.000	1.760	0.436
June	45.856	12.279	0.000	12.279	33.577	0.000	0.000	0.000	0.000	2.800	0.629
Sub-total	638.007	176.205	0.000	176.205	461.802	0.000	0.000	0.000	0.000	9.520	2.554
July	29.834	7.666	0.000	7.666	22.168	0.000	0.000	0.000	0.000	0.000	0.761
August	51.816	5.688	0.000	5.688	46.128	0.000	0.000	0.000	0.000	0.000	0.783
September	58.150	21.280	0.000	21.280	36.870	0.000	0.000	0.000	0.000	2.000	0.780
October	34.544	13.414	0.000	13.414	21.130	0.000	0.000	0.000	0.000	0.000	0.665
November	42.765	13.695	0.000	13.695	29.070	0.000	0.000	0.000	0.000	0.000	0.861
December	18.931	8.829	0.000	8.829	10.102	0.000	0.000	0.000	0.000	0.000	0.335
Total	874.047	246.777	0.000	246.777	627.270	0.000	0.000	0.000	0.000	11.520	6.739

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

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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"

Monthly Summary Waste Flow Table for 2020 Year

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, 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	30.64412	0.00000	0.00000	0.00000	24.22533	6.41880	5.41000	0.00000	0.00000	0.00000	0.04746
Feb	39.14024	0.00000	0.00000	0.00000	32.17651	6.96373	370.20000	0.00000	0.00000	0.00000	0.07116
Mar	27.14772	0.00000	0.00000	0.00000	15.34531	11.80241	29.85000	0.00000	0.00000	0.00000	0.06906
Apr	5.83584	0.00000	0.00000	0.00000	3.63701	2.19883	102.92000	0.00000	0.00000	0.00000	0.05324
May	8.55271	0.00000	0.00000	0.00000	5.15006	3.40265	0.00000	0.00000	0.00000	0.00000	0.07372
June	10.30986	0.00000	0.00000	0.00000	6.30591	4.00395	52.86200	0.00000	0.00000	0.16300	0.06674
SUB-TOTAL	121.63048	0.00000	0.00000	0.00000	86.84011	34.79037	561.24200	0.00000	0.00000	0.16300	0.38138
Jul	14.08386	0.00000	0.00000	0.00000	12.28541	1.79845	449.89000	0.00000	0.00000	0.00000	0.14692
Aug	13.43334	0.00000	0.00000	0.00000	13.40894	0.02441	112.72300	0.00000	0.00000	0.00000	0.16514
Sep	14.04413	0.00000	0.00000	0.00000	14.03449	0.00964	34.24000	0.00000	0.00000	0.00000	0.04288
Oct	12.05179	0.00000	0.00000	0.00000	11.88895	0.16285	0.00000	0.00000	0.00000	0.00000	0.05810
Nov	16.18900	0.00000	0.00000	0.00000	16.15917	0.02983	53.08000	0.00000	0.00000	0.00000	0.09346
Dec	9.78793	0.00000	0.00000	0.4366	9.35136	0.00000	0.00000	0.00000	0.00000	0.00000	0.07650
TOTAL	201.22052	0.00000	0.00000	0.43657	163.96841	36.81554	1211.17500	0.00000	0.00000	0.16300	0.96438

Note: Conversion to 1000m^3 for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m^3 for Inert C&D is weight in 1000kg multiply by 0.0005

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

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

Monthly Summary of Waste Flow Table for 2020

Name of Person completing the Record: Joshua Tam

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete *(see Note 1)*	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics *(see Note 2)*	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m^3)
Jan	0.4469	0	0	0	0.4469	0	0	0	0	0.00338
Feb	0.5532	0	0	0	0.5532	0	0	0	0	0.0123
Mar	0.6280	0	0	0	0.6280	0	0	0	0	0.00218
Apr	0.3370	0	0	0	0.3370	0	0	0	0	0.00294
May	0.3530	0	0	0	0.3530	0	0	0	0	0.00043
Jun	0.1670	0	0	0	0.1670	0	0	0	0	0.00199
Sub-total	2.4851	0	0	0	2.4851	0	0	0	0	0.0198
Jul	0.5560	0	0	0	0.5560	0	0	0	0	0.00262
Aug	0.3621	0	0	0	0.3621	0	0	0	0	0.00628
Sep	0.1780	0	0	0	0.1780	0	0	0	0	0.00218
Oct	0.3472	0	0	0	0.3472	0	0	0	0	0.00653
Nov	0.8082	0	0	0	0.8082	0	0	0	0	0.00965
Dec	0.3013	0	0	0	0.3013	0	0	0	0	0.00501
Total	5.0379	0	0	0	5.0379	0	0	0	0	0.0521

Notes:

(1) Broken concrete for recycling into aggregates.

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

(3) Use the conversion factor: 1 full load of 24t / 30t dumping truck being equivalent to 6.5m3 / 8.125 m3 by volume.

GTECH Services (Hong Kong) Limited

Name of Department: Civil Engineering & Development Department

Contract No.: NE/2017/06

Monthly Summary Waste Flow Table For 2020

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
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0	0	0.0015
Oct	0	0	0	0	0	0	0	0	0	0	0.0045
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
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.

(4) The commencement date of the Contract is 9 November 2018. The current reporting period is from 1 December 2020 to 31 December 2020.

GTECH Services (Hong Kong) Limited

Name of Department: Civil Engineering & Development Department

Contract No.: NE/2017/06

Monthly Summary Waste Flow Table For 2020

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
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0	0	0.0015
Oct	0	0	0	0	0	0	0	0	0	0	0.0045
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
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.

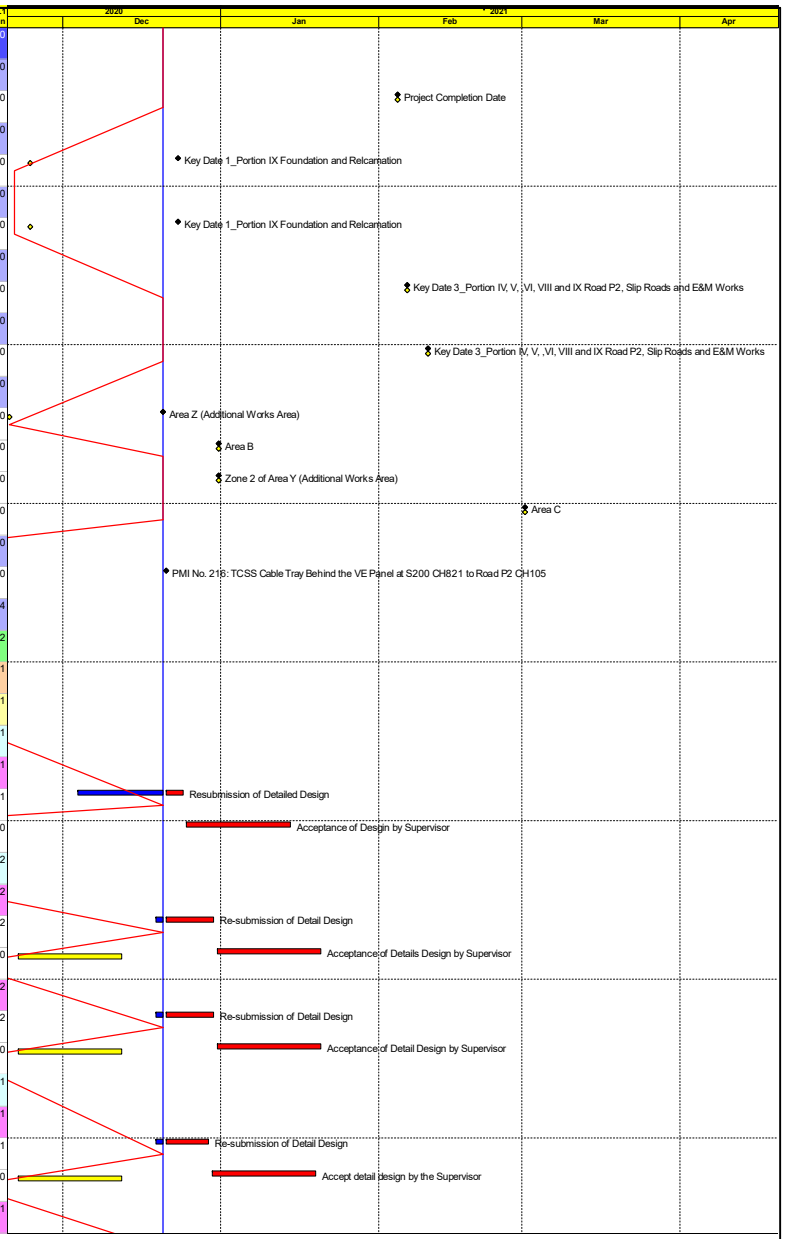
(4) The commencement date of the Contract is 9 November 2018. The current reporting period is from 1 December 2020 to 31 December 2020.

APPENDIX Q
TENTATIVE CONSTRUCTION PROGRAMME

High Level 3 Months Look Ahead Programme

Activities	Dec-20	Jan-21	Feb-21
Lam Tin Interchange			
EHC2 U-Trough			
Site Formation - Area 1G1 & 1G2 &5			
Site Formation - Area 2			
Site Formation - Slope Stabilisation			
Site Formation - Retaining Wall			
Administration Building			
West Ventilation Building			
Bridge Construction			
Stormwater Tank Construction			
S01_2, EHC1 & 4 Construction			
CKLR Underground Utilities			
Landscape Deck			
Tunnel			
Main Tunnel Lining Works			
S02_2 Excavation & Lining			
TKO Interchange			
Bridge Construction			
East Ventilation Building			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-20)			1415	383	12-Jan-17 A	08-Apr-22	301		-160
Project Commencement and Completion		P2-Cal.A	0	0	04-Feb-21	04-Feb-21	0		0
K10020	Project Completion Date	P2-Cal.A	0	0		04-Feb-21*	0	0%	0
Target Key Date and Section Completion of the Works (Revised Contract Key Date)		P2-Cal.A	0	0	23-Dec-20	23-Dec-20	-478		0
A10420	Key Date 1_Portion IX Foundation and Relcamation	P2-Cal.A	0	0		23-Dec-20*	-478	0%	0
Target Key Date and Section Completion of the Works (Possible Contract Key Date)		P2-Cal.A	0	0	23-Dec-20	23-Dec-20	-468		0
A10770	Key Date 1_Portion IX Foundation and Relcamation	P2-Cal.A	0	0		23-Dec-20*	-468	0%	0
Revised Contract Key Date and Section Completion of Works under CE57,124,135,13		P2-Cal.A	0	0	06-Feb-21	06-Feb-21	0		0
K10406	Key Date 3_Portion IV, V, ,VI, VIII and IX Road P2, Slip Roads and E&M Works	P2-Cal.A	0	0		06-Feb-21*	0	0%	0
Possible Contract Key Date & Section Completion of the Works under CE154, 159, 17		P2-Cal.A	0	0	10-Feb-21	10-Feb-21	0		0
K10419-13	Key Date 3_Portion IV, V, ,VI, VIII and IX Road P2, Slip Roads and E&M Works	P2-Cal.A	0	0		10-Feb-21*	0	0%	0
Area Handover Date		P2-Cal.A	71	71	20-Dec-20	01-Mar-21	0		30
A10740	Area Z (Additional Works Area)	P2-Cal.A	0	0		20-Dec-20*	-84	0%	0
A10640	Area B	P2-Cal.A	0	0		31-Dec-20*	0	0%	0
A10730	Zone 2 of Area Y (Additional Works Area)	P2-Cal.A	0	0		31-Dec-20*	0	0%	0
A10660	Area C	P2-Cal.A	0	0		01-Mar-21*	0	0%	0
PMI		P2-Cal.C	0	0	21-Dec-20	21-Dec-20	684		0
B42450	PMI No. 216: TCSS Cable Tray Behind the VE Panel at S200 CH821 to Road P2 CH105	P2-Cal.C	0	0	21-Dec-20		684	0%	0
Preliminaries, Submission, Contractor's Design Submission and Approval			1408	247	20-Jan-17 A	23-Oct-21	-193		-24
Contractor's Design Submission and Acceptance			173	60	07-Aug-20 A	07-Mar-21	-106		-2
E&M Design			83	58	18-Nov-20 A	04-Mar-21	-104		31
Detail Design for E&M Works (Tunnel and associated)			83	58	18-Nov-20 A	04-Mar-21	-104		31
MVAC Detail Design		P2-Cal.A	55	25	04-Dec-20 A	14-Jan-21	-89		-21
Underpass		P2-Cal.A	55	25	04-Dec-20 A	14-Jan-21	-89		-21
S11640-20	Resubmission of Detailed Design	P2-Cal.A	21	4	04-Dec-20 A	24-Dec-20	-89	80.95%	-21
S11640-23	Acceptance of Desgin by Supervisor	P2-Cal.A	21	21	25-Dec-20	14-Jan-21	-89	0%	0
FS Detail Design		P2-Cal.A	33	31	19-Dec-20 A	20-Jan-21	-142		-12
Underpass		P2-Cal.A	33	31	19-Dec-20 A	20-Jan-21	-142		-12
S11651-50	Re-submission of Detail Design	P2-Cal.A	21	10	19-Dec-20 A	30-Dec-20	-142	52.38%	-12
S11651-51	Acceptance of Details Design by Supervisor	P2-Cal.A	21	21	31-Dec-20	20-Jan-21	-142	0%	0
Plantroom		P2-Cal.A	33	31	19-Dec-20 A	20-Jan-21	-142		-12
S11652-67	Re-submission of Detail Design	P2-Cal.A	21	10	19-Dec-20 A	30-Dec-20	-142	52.38%	-12
S11652-73	Acceptance of Detail Design by Supervisor	P2-Cal.A	21	21	31-Dec-20	20-Jan-21	-142	0%	0
Plumbing and Drainage Detail Design		P2-Cal.A	32	30	19-Dec-20 A	19-Jan-21	-84		-11
Underpass		P2-Cal.A	32	30	19-Dec-20 A	19-Jan-21	-84		-11
S11658-08	Re-submission of Detail Design	P2-Cal.A	21	9	19-Dec-20 A	29-Dec-20	-84	57.14%	-11
S11659	Accept detail design by the Supervisor	P2-Cal.A	21	21	30-Dec-20	19-Jan-21	-84	0%	0
Plantroom		P2-Cal.A	32	30	19-Dec-20 A	19-Jan-21	-84		-11



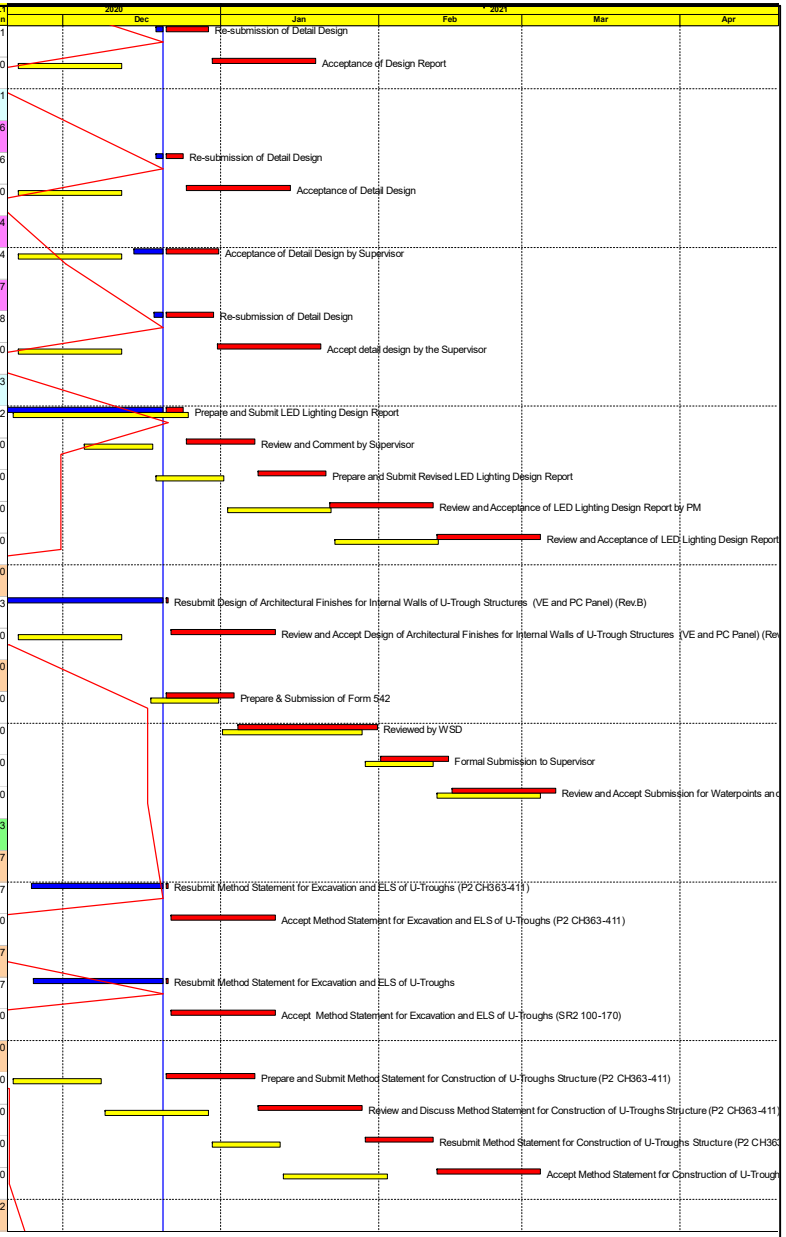
Primary Baseline
Actual Work
Remaining Work
Critical ...
Baselin...
Milesto...

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-20)

3 Monthly Rolling Programme Update
(Data Date : 20 Dec 2020)

Date	Revision	Checked	Approved
20-Dec-20			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
S11660-85	Re-submission of Detail Design	P2-Cal.A	21	9	19-Dec-20 A	29-Dec-20	-84	57.14%	-11
S11660-87	Acceptance of Design Report	P2-Cal.A	21	21	30-Dec-20	19-Jan-21	-84	0%	0
Electrical Detail Design			25	24	15-Dec-20 A	20-Jan-21	-202		-11
Underpass Lighting		P2-Cal.A	27	25	19-Dec-20 A	14-Jan-21	-239		-6
S11660-78	Re-submission of Detail Design	P2-Cal.A	21	4	19-Dec-20 A	24-Dec-20	-239	80.95%	-6
S11660-80	Acceptance of Detail Design	P2-Cal.A	21	21	25-Dec-20	14-Jan-21	-239	0%	0
External Road Lighting		P2-Cal.A	21	11	15-Dec-20 A	31-Dec-20	-225		4
S11660-79	Acceptance of Detail Design by Supervisor	P2-Cal.A	21	11	15-Dec-20 A	31-Dec-20	-225	47.62%	4
Plantroom			24	24	19-Dec-20 A	20-Jan-21	-202		-7
S11667-03	Re-submission of Detail Design	P2-Cal.C	7	7	19-Dec-20 A	30-Dec-20	-201	0%	-8
S11668	Accept detail design by the Supervisor	P2-Cal.A	21	21	31-Dec-20	20-Jan-21	-245	0%	0
LED Design		P2-Cal.A	104	74	18-Nov-20 A	04-Mar-21	-261		-23
S11683	Prepare and Submit LED Lighting Design Report	P2-Cal.A	35	4	18-Nov-20 A	24-Dec-20	-261	88.57%	-2
S11693	Review and Comment by Supervisor	P2-Cal.A	14	14	25-Dec-20	07-Jan-21	-261	0%	0
S11703	Prepare and Submit Revised LED Lighting Design Report	P2-Cal.A	14	14	08-Jan-21	21-Jan-21	-261	0%	0
S11713	Review and Acceptance of LED Lighting Design Report by PM	P2-Cal.A	21	21	22-Jan-21	11-Feb-21	-261	0%	0
S11723	Review and Acceptance of LED Lighting Design Report by EMSD	P2-Cal.A	21	21	12-Feb-21	04-Mar-21	-261	0%	0
Design of Architectural Finishes for Internal Walls of U-Trough Structures		P2-Cal.A	158	22	07-Aug-20 A	11-Jan-21	-238		-30
S11730	Resubmit Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel) (Rev.B)	P2-Cal.A	14	1	07-Aug-20 A	21-Dec-20	-238	92.86%	-123
S11750	Review and Accept Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel) (Rev.B)	P2-Cal.A	21	21	22-Dec-20	11-Jan-21	-238	0%	0
FS System & Cleansing System		P2-Cal.A	77	77	21-Dec-20	07-Mar-21	-153		0
S11788	Prepare & Submission of Form 542	P2-Cal.A	14	14	21-Dec-20	03-Jan-21	-153	0%	0
S11789	Reviewed by WSD	P2-Cal.A	28	28	04-Jan-21	31-Jan-21	-153	0%	0
S11790	Formal Submission to Supervisor	P2-Cal.A	14	14	01-Feb-21	14-Feb-21	-153	0%	0
S11800	Review and Accept Submission for Waterpoints and associated elements	P2-Cal.A	21	21	15-Feb-21	07-Mar-21	-153	0%	0
Major Construction Works Method Statement		P2-Cal.A	100	74	25-Nov-20 A	04-Mar-21	-221		3
ELS of U-Troughs (P2 CH363-411)		P2-Cal.A	22	22	25-Nov-20 A	11-Jan-21	-258		-27
S14120-09	Resubmit Method Statement for Excavation and ELS of U-Troughs (P2 CH363-411)	P2-Cal.A	21	1	25-Nov-20 A	21-Dec-20	-258	95.24%	-27
S14120-10	Accept Method Statement for Excavation and ELS of U-Troughs (P2 CH363-411)	P2-Cal.A	21	21	22-Dec-20	11-Jan-21	-258	0%	0
ELS of U-Troughs (SR2 100-170)		P2-Cal.A	48	22	25-Nov-20 A	11-Jan-21	-244		-27
S14120-29	Resubmit Method Statement for Excavation and ELS of U-Troughs	P2-Cal.A	21	1	25-Nov-20 A	21-Dec-20	-244	95.24%	-27
S14120-30	Accept Method Statement for Excavation and ELS of U-Troughs (SR2 100-170)	P2-Cal.A	21	21	22-Dec-20	11-Jan-21	-244	0%	0
Construction of U-Troughs structure (P2 CH363-411)		P2-Cal.A	74	74	21-Dec-20	04-Mar-21	-221		0
S14130	Prepare and Submit Method Statement for Construction of U-Troughs Structure (P2 CH363-411)	P2-Cal.A	18	18	21-Dec-20	07-Jan-21	-221	0%	0
S14132	Review and Discuss Method Statement for Construction of U-Troughs Structure (P2 CH363-411)	P2-Cal.A	21	21	08-Jan-21	28-Jan-21	-221	0%	0
S14134	Resubmit Method Statement for Construction of U-Troughs Structure (P2 CH363-411)	P2-Cal.A	14	14	29-Jan-21	11-Feb-21	-221	0%	0
S14136	Accept Method Statement for Construction of U-Troughs Structure (P2 CH363-411)	P2-Cal.A	21	21	12-Feb-21	04-Mar-21	-221	0%	0
Construction of U-Trough C Structures CT01 CH201 - CH366 & CT01 CH117 - CH201		P2-Cal.A	32	32	16-Dec-20 A	21-Jan-21	-244		-2



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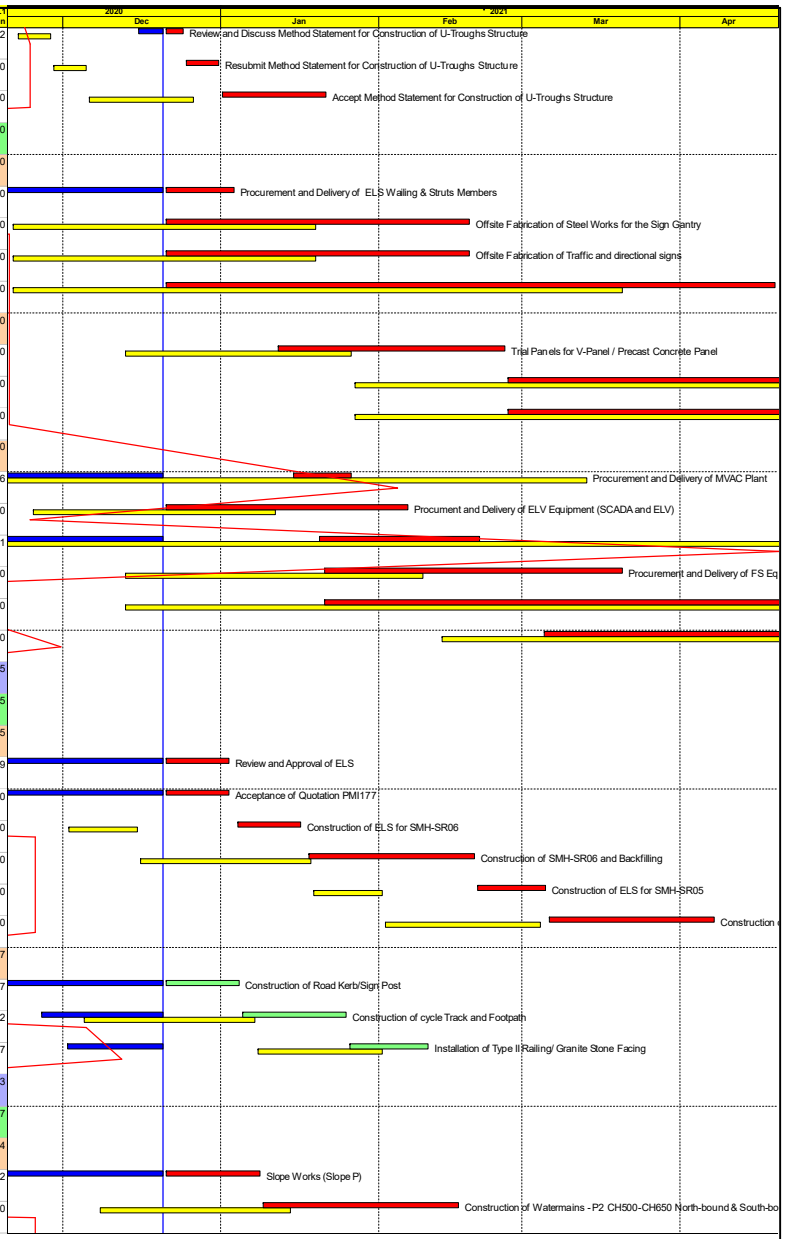
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-20)

3 Monthly Rolling Programme Update
(Data Date : 20 Dec 2020)

Date	Revision	Checked	Approved
20-Dec-20			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
S14218	Review and Discuss Method Statement for Construction of U-Troughs Structure	P2-Cal.A	7	4	16-Dec-20 A	24-Dec-20	-244	42.86%	-2
S14219	Resubmit Method Statement for Construction of U-Troughs Structure	P2-Cal.A	7	7	25-Dec-20	31-Dec-20	-244	0%	0
S14219-1	Accept Method Statement for Construction of U-Troughs Structure	P2-Cal.A	21	21	01-Jan-21	21-Jan-21	-244	0%	0
Procurement of Major Material		P2-Cal.A	1738	307	20-Jan-17 A	23-Oct-21	-238		-30
Civil/Structural		P2-Cal.A	1551	120	20-Jan-17 A	19-Apr-21	-182		-30
S14983	Procurement and Delivery of ELS Walling & Struts Members	P2-Cal.A	1015	14	20-Jan-17 A	03-Jan-21	-342	98.62%	-430
S14997	Offsite Fabrication of Steel Works for the Sign Gantry	P2-Cal.A	60	60	21-Dec-20	18-Feb-21	-156	0%	0
S14999	Offsite Fabrication of Traffic and directional signs	P2-Cal.A	60	60	21-Dec-20	18-Feb-21	-122	0%	0
S14987	Cast-in for sign gantry and Road Works	P2-Cal.A	120	120	21-Dec-20	19-Apr-21	-216	0%	0
Architectural		P2-Cal.A	285	285	12-Jan-21	23-Oct-21	-238		0
S15142	Trial Panels for V-Panel / Precast Concrete Panel	P2-Cal.A	45	45	12-Jan-21	25-Feb-21	-238	0%	0
S15142-01	Manufacturing of VE Panel	P2-Cal.A	180	180	26-Feb-21	24-Aug-21	-198	0%	0
S15142-02	Manufacturing of Precast Concrete Panel	P2-Cal.A	240	240	26-Feb-21	23-Oct-21	-238	0%	0
E&M		P2-Cal.A	306	209	15-Sep-20 A	17-Jul-21	-231		-20
S15144	Procurement and Delivery of MVAC Plant	P2-Cal.A	180	12	15-Sep-20 A	26-Jan-21	-89	93.33%	46
S15180	Procument and Delivery of ELV Equipment (SCADA and ELV)	P2-Cal.A	48	48	21-Dec-20	06-Feb-21	-90	0%	0
S15148	Procurement and Delivery of P/D Equipment	P2-Cal.A	280	32	15-Sep-20 A	20-Feb-21	-84	88.57%	121
S15146	Procurement and Delivery of FS Equipment	P2-Cal.A	59	59	21-Jan-21	20-Mar-21	-142	0%	0
S15150	Procurement and Delivery of EL Equipment	P2-Cal.A	152	152	21-Jan-21	21-Jun-21	-245	0%	0
S15190	Procurement and Delivery of LED Lighting	P2-Cal.A	135	135	05-Mar-21	17-Jul-21	-261	0%	0
Section 2 of the Works (All Works Within Portion II)		P2-Cal.C	344	83	07-Feb-20 A	07-Apr-21	43		-25
Roadworks		P2-Cal.C	344	83	07-Feb-20 A	07-Apr-21	43		-25
Adjacent to site office (SMH SR05 & SR06)		P2-Cal.C	344	83	07-Feb-20 A	07-Apr-21	-33		-25
LC12134	Review and Approval of ELS	P2-Cal.C	16	9	13-Feb-20 A	02-Jan-21	-33	43.75%	-249
LC12132	Acceptance of Quotation PMI177	P2-Cal.C	60	9	07-Feb-20 A	02-Jan-21	-33	85%	-210
LC12144	Construction of ELS for SMH-SR06	P2-Cal.C	12	12	04-Jan-21	16-Jan-21	-33	0%	0
LC12154	Construction of SMH-SR06 and Backfilling	P2-Cal.C	26	26	18-Jan-21	19-Feb-21	-33	0%	0
LC12164	Construction of ELS for SMH-SR05	P2-Cal.C	12	12	20-Feb-21	05-Mar-21	-33	0%	0
LC12174	Construction of SMH-SR05 and Backfilling	P2-Cal.C	24	24	06-Mar-21	07-Apr-21	-33	0%	0
SR1 CH0.00 to P2 CH650		P2-Cal.C	211	42	10-Jun-20 A	10-Feb-21	84		-17
LC12104	Construction of Road Kerb/Sign Post	P2-Cal.C	14	10	10-Jun-20 A	04-Jan-21	84	28.57%	-157
LC12114	Construction of cycle Track and Footpath	P2-Cal.C	26	18	27-Nov-20 A	25-Jan-21	84	30.77%	-22
LC12124	Installation of Type II Railing/ Granite Stone Facing	P2-Cal.C	21	14	02-Dec-20 A	10-Feb-21	84	33.33%	-37
Section 3 of the Works All Works within Portion IV, V, VI, VII,VIII, and IX		P2-Cal.C	941	357	06-Apr-18 A	08-Mar-22	-232		-223
Existing Land Section		P2-Cal.C	897	357	06-Apr-18 A	08-Mar-22	-232		-267
Retaining Wall P2-A CH 500- 650		P2-Cal.C	448	74	20-Sep-19 A	23-Mar-21	-66		-24
LC11933	Slope Works (Slope P)	P2-Cal.C	45	14	20-Sep-19 A	08-Jan-21	-66	68.89%	-342
LC11993	Construction of Watermains - P2 CH500-CH650 North-bound & South-bound in the slope P area	P2-Cal.C	30	30	09-Jan-21	16-Feb-21	-66	0%	0



Primary Baseline
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Remaining Work
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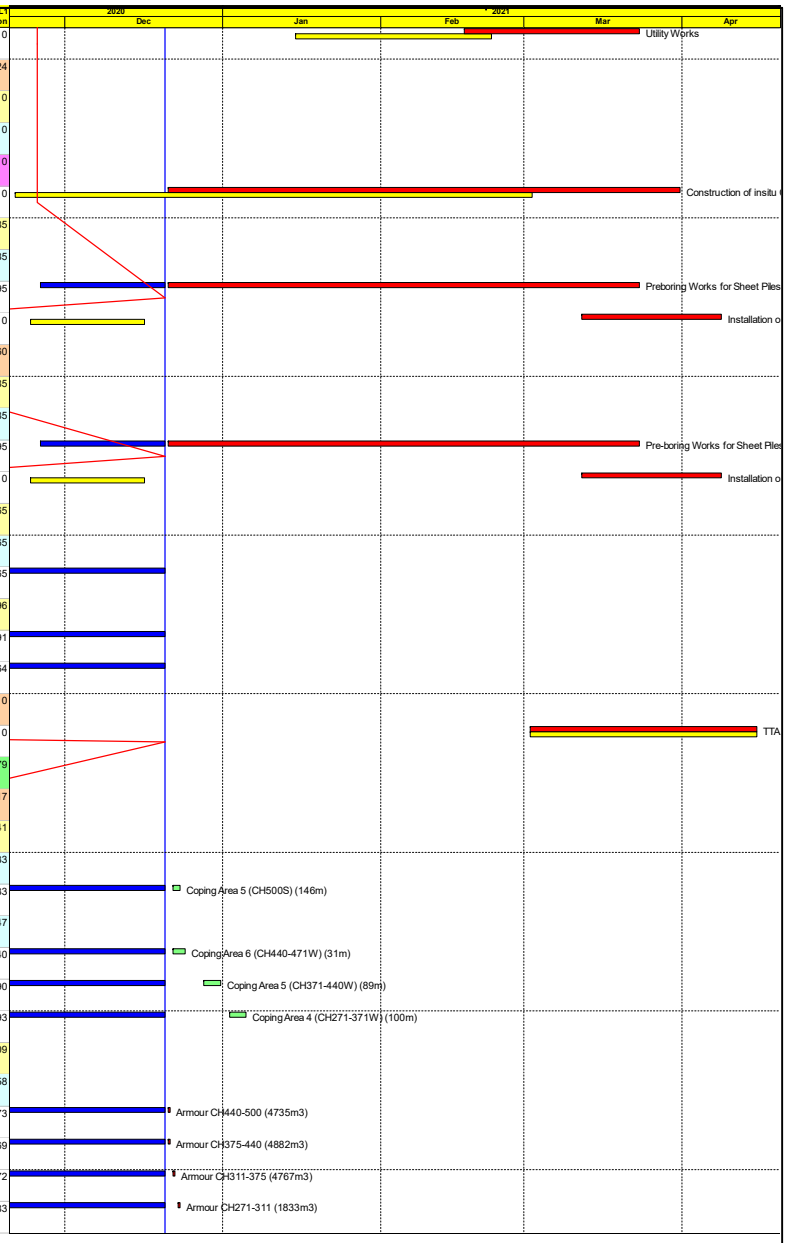
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-20)

3 Monthly Rolling Programme Update
(Data Date : 20 Dec 2020)

Date	Revision	Checked	Approved
20-Dec-20			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
LC12003	Utility Works	P2-Cal.C	30	30	17-Feb-21	23-Mar-21	-66	0%	0
P2 Road		P2-Cal.C	105	84	26-Nov-20 A	08-Apr-21	-46		-24
P2 CH 318 - 363		P2-Cal.C	81	81	21-Dec-20	31-Mar-21	-43		0
Structure P2 CH 318 - 363 & SR2 CH100-110 (U Trough B)		P2-Cal.C	81	81	21-Dec-20	31-Mar-21	-43		0
Bay 1		P2-Cal.C	81	81	21-Dec-20	31-Mar-21	-43		0
LC13410	Construction of insitu Concrete Profile Barrier (2moulds) (NCE193 & NCE219)	P2-Cal.C	81	81	21-Dec-20	31-Mar-21	-43	0%	0
P2 CH 363 - 411		P2-Cal.C	105	84	26-Nov-20 A	08-Apr-21	-279		-85
ELS P2 CH 363 - 411		P2-Cal.C	105	84	26-Nov-20 A	08-Apr-21	-279		-85
LC13970	Preboring Works for Sheet Piles	P2-Cal.C	95	74	26-Nov-20 A	23-Mar-21	-279	22.11%	-95
LC15020	Installation of Sheet Pile Wall	P2-Cal.C	20	20	12-Mar-21	08-Apr-21	-279	0%	0
SR2		P2-Cal.C	891	357	06-Apr-18 A	08-Mar-22	-232		-360
SR2 CH110 - 170		P2-Cal.C	105	84	26-Nov-20 A	08-Apr-21	-269		-85
ELS		P2-Cal.C	105	84	26-Nov-20 A	08-Apr-21	-269		-85
LC16010	Pre-boring Works for Sheet Piles	P2-Cal.C	95	74	26-Nov-20 A	23-Mar-21	-269	22.11%	-95
LC16130	Installation of Sheetpile Wall	P2-Cal.C	20	20	12-Mar-21	08-Apr-21	-269	0%	0
SR2 CH170 - 250		P2-Cal.C	40	5	28-Feb-19 A	17-Jul-21	-141		-665
Structure SR2 CH 170 - 250 (U Trough A)		P2-Cal.C	40	5	28-Feb-19 A	17-Jul-21	-141		-665
LC17510	Waterproofing, Backfilling and Remove sheetpile	P2-Cal.C	40	5	28-Feb-19 A	17-Jul-21	-141	87.5%	-665
Road and Drainage & Utilities Works (P2 CH318 - 650 & SR2 CH100 - 310)		P2-Cal.C	368	205	06-Apr-18 A	08-Mar-22	-232		-796
LC17590	Road and Drainage & Utilities Works (SR2 CH100 - 250)	P2-Cal.C	300	200	28-Jun-18 A	02-Mar-22	-227	33.33%	-791
LC17560	Road and Drainage & Utilities Works (P2 CH318 - 500)	P2-Cal.C	300	200	06-Apr-18 A	08-Mar-22	-232	33.33%	-864
TKO Town Centre South Reinstatement (PS Cl. 1.45)		P2-Cal.C	35	35	02-Mar-21	15-Apr-21	-150		0
LC17720	TTA application of road works (After handover of Area C)	P2-Cal.C	35	35	02-Mar-21	15-Apr-21	-150	0%	0
New Reclaimed Section		P2-Cal.C	460	313	16-Nov-19 A	12-Jan-22	-188		-179
Marine Works		P2-Cal.C	182	11	03-Jan-20 A	05-Jan-21	115		-117
Concrete Coping		P2-Cal.C	67	10	27-Apr-20 A	05-Jan-21	115		-141
Eastern Seawall		P2-Cal.C	32	2	09-Jun-20 A	23-Dec-20	123		-133
MC13495	Coping Area 5 (CH500S) (146m)	P2-Cal.C	32	2	09-Jun-20 A	23-Dec-20	123	93.75%	-133
Western Seawall		P2-Cal.C	61	10	27-Apr-20 A	05-Jan-21	28		-147
MC13595	Coping Area 6 (CH440-471W) (31m)	P2-Cal.C	4	3	06-Jul-20 A	24-Dec-20	28	25%	-140
MC13575	Coping Area 5 (CH371-440W) (89m)	P2-Cal.C	12	4	02-May-20 A	31-Dec-20	28	66.67%	-190
MC13555	Coping Area 4 (CH271-371W) (100m)	P2-Cal.C	15	3	27-Apr-20 A	05-Jan-21	28	80%	-193
Armour Protection		P2-Cal.C	182	3	03-Jan-20 A	23-Dec-20	65		-109
Laying of Armour Rock (West)		P2-Cal.C	133	3	03-Jan-20 A	23-Dec-20	-385		-158
MC13755	Armour CH440-500 (4735m3)	P2-Cal.C	15	1	11-May-20 A	21-Dec-20	-383	93.33%	-173
MC13735	Armour CH375-440 (4882m3)	P2-Cal.C	15	1	15-May-20 A	21-Dec-20	-390	93.33%	-169
MC13715	Armour CH311-375 (4767m3)	P2-Cal.C	7	1	22-May-20 A	22-Dec-20	-390	85.71%	-172
MC13695	Armour CH271-311 (1833m3)	P2-Cal.C	8	1	03-Jan-20 A	23-Dec-20	-390	87.5%	-283



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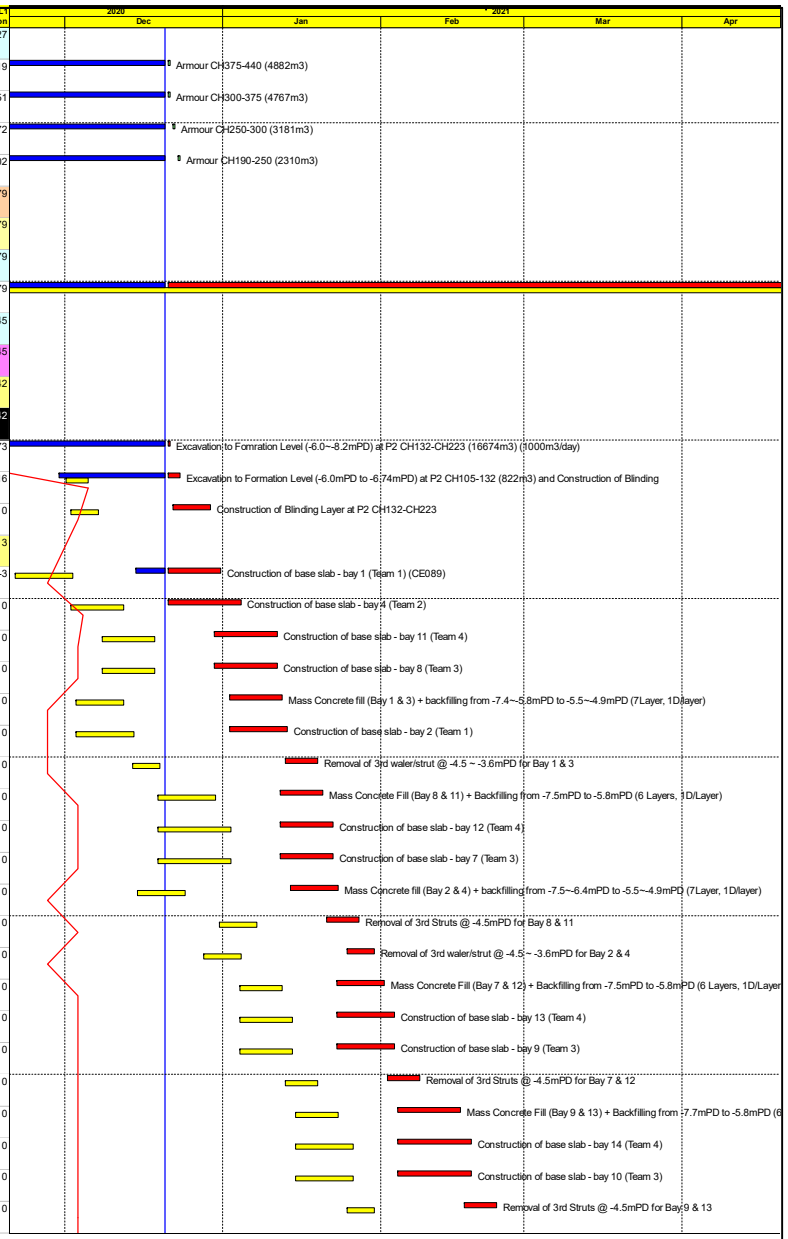
Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
Laying of Armour Rock (East)		P2-Cal.C	156	3	13-Jan-20 A	23-Dec-20	65		-127
MC13955	Armour CH375-440 (4882m3)	P2-Cal.C	12	1	14-Mar-20 A	21-Dec-20	67	91.67%	-219
MC13935	Armour CH300-375 (4767m3)	P2-Cal.C	12	1	06-Feb-20 A	21-Dec-20	60	91.67%	-251
MC13915	Armour CH250-300 (3181m3)	P2-Cal.C	10	1	13-Jan-20 A	22-Dec-20	60	90%	-272
MC13895	Armour CH190-250 (2310m3)	P2-Cal.C	9	1	13-Aug-20 A	23-Dec-20	60	88.89%	-102
Land Works		P2-Cal.C	460	313	16-Nov-19 A	12-Jan-22	-188		-179
Road P2 Underpass (CH105-CH318)		P2-Cal.C	460	313	16-Nov-19 A	12-Jan-22	-188		-179
Instrumentation and Monitoring for Road P2 Structure Construction		P2-Cal.C	460	313	16-Nov-19 A	12-Jan-22	-188		-179
LC17760	Monitoring of Instrumentation	P2-Cal.C	460	313	16-Nov-19 A	12-Jan-22	-188	31.96%	-179
Underpass		P2-Cal.C	150	84	02-Sep-20 A	08-Apr-21	-182		-45
Underpass P2 CH 105 - 318		P2-Cal.C	150	84	02-Sep-20 A	08-Apr-21	-182		-45
ELS		P2-Cal.C	72	6	02-Sep-20 A	29-Dec-20	-189		-42
P2 CH105-223		P2-Cal.C	72	6	02-Sep-20 A	29-Dec-20	-189		-42
LC30080	Excavation to Formation Level (-6.0~-8.2mPD) at P2 CH132-CH223 (16674m3) (1000m3/day)	P2-Cal.C	19	1	02-Sep-20 A	21-Dec-20	-209	94.74%	-73
LC30095	Excavation to Formation Level (-6.0mPD to -6.74mPD) at P2 CH105-132 (822m3) and Construction of Blinding	P2-Cal.C	5	3	30-Nov-20 A	23-Dec-20	-186	40%	-16
LC30090	Construction of Blinding Layer at P2 CH132-CH223	P2-Cal.C	5	5	22-Dec-20	29-Dec-20	-209	0%	0
Base Slab (Team 1 to 4)		P2-Cal.C	60	60	15-Dec-20 A	06-Mar-21	-209		3
LC18112	Construction of base slab - bay 1 (Team 1) (CE089)	P2-Cal.C	10	8	15-Dec-20 A	31-Dec-20	-215	20%	-3
LC18100	Construction of base slab - bay 4 (Team 2)	P2-Cal.C	10	10	21-Dec-20	04-Jan-21	-207	0%	0
LC18070	Construction of base slab - bay 11 (Team 4)	P2-Cal.C	10	10	30-Dec-20	11-Jan-21	-209	0%	0
LC18085	Construction of base slab - bay 8 (Team 3)	P2-Cal.C	10	10	30-Dec-20	11-Jan-21	-209	0%	0
LC18115-01	Mass Concrete fill (Bay 1 & 3) + backfilling from -7.4~-5.8mPD to -5.5~-4.9mPD (7Layer, 1D/layer)	P2-Cal.C	9	9	02-Jan-21	12-Jan-21	-215	0%	0
LC18110	Construction of base slab - bay 2 (Team 1)	P2-Cal.C	10	10	02-Jan-21	13-Jan-21	-215	0%	0
LC18115-06	Removal of 3rd waler/strut @ -4.5 ~ -3.6mPD for Bay 1 & 3	P2-Cal.C	6	6	13-Jan-21	19-Jan-21	-215	0%	0
LC18120-01	Mass Concrete Fill (Bay 8 & 11) + Backfilling from -7.5mPD to -5.8mPD (6 Layers, 1D/Layer)	P2-Cal.C	8	8	12-Jan-21	20-Jan-21	-205	0%	0
LC18065	Construction of base slab - bay 12 (Team 4)	P2-Cal.C	10	10	12-Jan-21	22-Jan-21	-209	0%	0
LC18090	Construction of base slab - bay 7 (Team 3)	P2-Cal.C	10	10	12-Jan-21	22-Jan-21	-209	0%	0
LC18115-11	Mass Concrete fill (Bay 2 & 4) + backfilling from -7.5~-6.4mPD to -5.5~-4.9mPD (7Layer, 1D/layer)	P2-Cal.C	9	9	14-Jan-21	23-Jan-21	-215	0%	0
LC18120-06	Removal of 3rd Struts @ -4.5mPD for Bay 8 & 11	P2-Cal.C	6	6	21-Jan-21	27-Jan-21	-201	0%	0
LC18115-16	Removal of 3rd waler/strut @ -4.5 ~ -3.6mPD for Bay 2 & 4	P2-Cal.C	6	6	25-Jan-21	30-Jan-21	-215	0%	0
LC18120-11	Mass Concrete Fill (Bay 7 & 12) + Backfilling from -7.5mPD to -5.8mPD (6 Layers, 1D/Layer)	P2-Cal.C	8	8	23-Jan-21	01-Feb-21	-207	0%	0
LC18060	Construction of base slab - bay 13 (Team 4)	P2-Cal.C	10	10	23-Jan-21	03-Feb-21	-209	0%	0
LC18080	Construction of base slab - bay 9 (Team 3)	P2-Cal.C	10	10	23-Jan-21	03-Feb-21	-209	0%	0
LC18120-16	Removal of 3rd Struts @ -4.5mPD for Bay 7 & 12	P2-Cal.C	6	6	02-Feb-21	08-Feb-21	-205	0%	0
LC18120-21	Mass Concrete Fill (Bay 9 & 13) + Backfilling from -7.7mPD to -5.8mPD (6 Layers, 1D/Layer)	P2-Cal.C	8	8	04-Feb-21	16-Feb-21	-209	0%	0
LC18055	Construction of base slab - bay 14 (Team 4)	P2-Cal.C	10	10	04-Feb-21	18-Feb-21	-209	0%	0
LC18075	Construction of base slab - bay 10 (Team 3)	P2-Cal.C	10	10	04-Feb-21	18-Feb-21	-209	0%	0
LC18120-26	Removal of 3rd Struts @ -4.5mPD for Bay 9 & 13	P2-Cal.C	6	6	17-Feb-21	23-Feb-21	-209	0%	0



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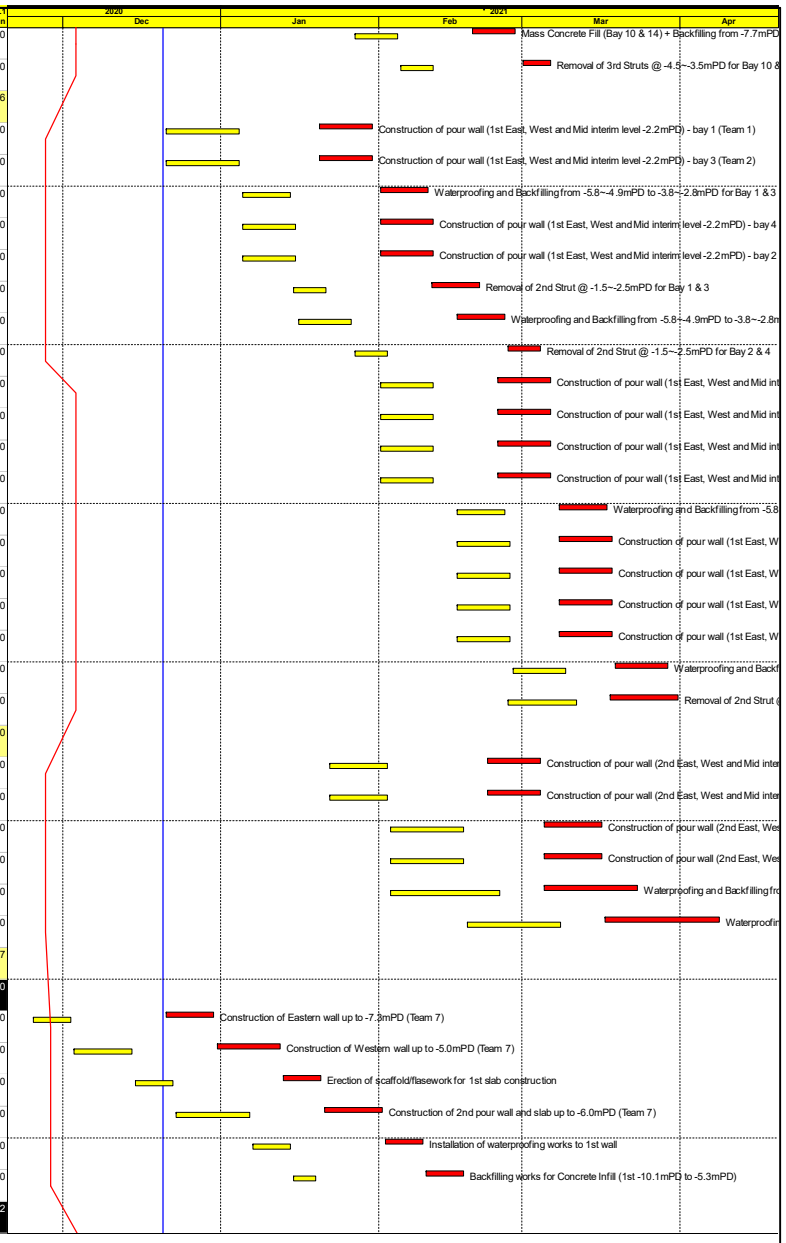
LC18120-31	Mass Concrete Fill (Bay 10 & 14) + Backfilling from -7.7mPD to -5.8mPD (6 Layers, 1D/Layer)	P2-Cal.C	8	8	19-Feb-21	27-Feb-21	-209	0%	0
LC18120-36	Removal of 3rd Struts @ -4.5~-3.5mPD for Bay 10 & 14	P2-Cal.C	6	6	01-Mar-21	06-Mar-21	-209	0%	0
1st Wall (Team 1 to 6)		P2-Cal.C	58	58	20-Jan-21	31-Mar-21	-179		6
LC18192	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 1 (Team 1)	P2-Cal.C	10	10	20-Jan-21	30-Jan-21	-215	0%	0
LC18185	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 3 (Team 2)	P2-Cal.C	10	10	20-Jan-21	30-Jan-21	-215	0%	0
LC18198-01	Waterproofing and Backfilling from -5.8~-4.9mPD to -3.8~-2.8mPD for Bay 1 & 3 (7 layers, 1D/layer)	P2-Cal.C	9	9	01-Feb-21	10-Feb-21	-215	0%	0
LC18180	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 4 (Team 2)	P2-Cal.C	10	10	01-Feb-21	11-Feb-21	-215	0%	0
LC18190	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 2 (Team 1)	P2-Cal.C	10	10	01-Feb-21	11-Feb-21	-215	0%	0
LC18198-06	Removal of 2nd Strut @ -1.5~-2.5mPD for Bay 1 & 3	P2-Cal.C	6	6	11-Feb-21	20-Feb-21	-215	0%	0
LC18198-11	Waterproofing and Backfilling from -5.8~-4.9mPD to -3.8~-2.8mPD for Bay 2 & 4 (7 layers, 1D/layer)	P2-Cal.C	9	9	16-Feb-21	25-Feb-21	-215	0%	0
LC18198-16	Removal of 2nd Strut @ -1.5~-2.5mPD for Bay 2 & 4	P2-Cal.C	6	6	26-Feb-21	04-Mar-21	-215	0%	0
LC18135	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 14 (Team 6)	P2-Cal.C	10	10	24-Feb-21	06-Mar-21	-209	0%	0
LC18145	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 12 (Team 5)	P2-Cal.C	10	10	24-Feb-21	06-Mar-21	-209	0%	0
LC18155	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 10 (Team 4)	P2-Cal.C	10	10	24-Feb-21	06-Mar-21	-209	0%	0
LC18165	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 8 (Team 3)	P2-Cal.C	10	10	24-Feb-21	06-Mar-21	-209	0%	0
LC18200-11	Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 8, 10, 12, 14 (7 layers, 1D/layer)	P2-Cal.C	9	9	08-Mar-21	17-Mar-21	-179	0%	0
LC18140	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 13 (Team 6)	P2-Cal.C	10	10	08-Mar-21	18-Mar-21	-209	0%	0
LC18150	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 11 (Team 5)	P2-Cal.C	10	10	08-Mar-21	18-Mar-21	-209	0%	0
LC18160	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 9 (Team 4)	P2-Cal.C	10	10	08-Mar-21	18-Mar-21	-209	0%	0
LC18170	Construction of pour wall (1st East, West and Mid interim level -2.2mPD) - bay 7 (Team 3)	P2-Cal.C	10	10	08-Mar-21	18-Mar-21	-209	0%	0
LC18200-01	Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 7, 9, 11, 13 (7 layers, 1D/layer)	P2-Cal.C	9	9	19-Mar-21	29-Mar-21	-209	0%	0
LC18200-16	Removal of 2nd Strut @ -2.5mPD for Bay 8, 10, 12, 14	P2-Cal.C	12	12	18-Mar-21	31-Mar-21	-179	0%	0
2nd Wall (Team 1 to 6)		P2-Cal.C	36	36	22-Feb-21	08-Apr-21	-215		0
LC18260	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 3 (Team 2)	P2-Cal.C	10	10	22-Feb-21	04-Mar-21	-215	0%	0
LC18267	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 1 (Team 1)	P2-Cal.C	10	10	22-Feb-21	04-Mar-21	-215	0%	0
LC18255	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 4 (Team 2)	P2-Cal.C	10	10	05-Mar-21	16-Mar-21	-215	0%	0
LC18265	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 2 (Team 1)	P2-Cal.C	10	10	05-Mar-21	16-Mar-21	-215	0%	0
LC18274-01	Waterproofing and Backfilling from -3.8~-2.8mPD to +0.2mPD for Bay 1 & 3 (14 Layers, 1D/layer)	P2-Cal.C	16	16	05-Mar-21	23-Mar-21	-215	0%	0
LC18274-11	Waterproofing and Backfilling from -3.8~-2.8mPD to +0.2mPD for Bay 2 & 4 (14 Layers, 1D/layer)	P2-Cal.C	16	16	17-Mar-21	08-Apr-21	-215	0%	0
Fixed Foam Room/Sump Pit Room/Stormwater Plant Room		P2-Cal.C	75	75	16-Dec-20 A	24-Mar-21	-208		-7
Fixed Foam Room/Sump Pit Room (Team 7)		P2-Cal.C	45	45	21-Dec-20	17-Feb-21	-178		0
LC18385	Construction of Eastern wall up to -7.3mPD (Team 7)	P2-Cal.C	7	7	21-Dec-20	30-Dec-20	-201	0%	0
LC18390	Construction of Western wall up to -5.0mPD (Team 7)	P2-Cal.C	10	10	31-Dec-20	12-Jan-21	-201	0%	0
LC18405	Erection of scaffold/flasework for 1st slab construction	P2-Cal.C	7	7	13-Jan-21	20-Jan-21	-201	0%	0
LC18410	Construction of 2nd pour wall and slab up to -6.0mPD (Team 7)	P2-Cal.C	10	10	21-Jan-21	01-Feb-21	-201	0%	0
LC18395	Installation of waterproofing works to 1st wall	P2-Cal.C	7	7	02-Feb-21	09-Feb-21	-178	0%	0
LC18400	Backfilling works for Concrete Infill (1st -10.1mPD to -5.3mPD)	P2-Cal.C	4	4	10-Feb-21	17-Feb-21	-178	0%	0
Stormwater Plant Room (Team 7 & 8)		P2-Cal.C	75	75	16-Dec-20 A	24-Mar-21	-208		-12



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LC18415-01	Excavation to -16.4mPD (723m3) (NCE309)	P2-Cal.C	7	5	16-Dec-20 A	28-Dec-20	-225	28.57%	-2
LC18415-02	Construction of Mass Concrete and Waterproofing for Base Slab (NCE309)	P2-Cal.C	8	8	29-Dec-20	07-Jan-21	-225	0%	0
LC18416	Construction of part of base slab (Team 8)	P2-Cal.C	8	8	08-Jan-21	16-Jan-21	-225	0%	0
LC18417	Construction of wall up to -7.3mPD (Team 8)	P2-Cal.C	8	8	18-Jan-21	26-Jan-21	-225	0%	0
LC18418	Cast mass concrete fill / vertical blinding	P2-Cal.C	6	6	27-Jan-21	02-Feb-21	-225	0%	-6
LC18417-01	Installation of 3rd layer strut/waler @-10.0mPD	P2-Cal.C	6	6	27-Jan-21	02-Feb-21	-205	0%	-6
LC18420	Construction of main tunnel base slab - bay 5 (Team 8)	P2-Cal.C	10	10	03-Feb-21	17-Feb-21	-225	0%	0
LC18425	Construction of main tunnel base slab - bay 6 (Team 8)	P2-Cal.C	10	10	18-Feb-21	01-Mar-21	-225	0%	0
LC18465	Excavation to formation -13.8 ~ 14.5mPD	P2-Cal.C	3	3	02-Mar-21	04-Mar-21	-225	0%	0
LC18430	Construction of Mid wall up to -5.0mPD for Bay 5 (Team 8)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-208	0%	0
LC18470	Construction of 2nd half base slab for Well Set (Team 7)	P2-Cal.C	9	9	05-Mar-21	15-Mar-21	-225	0%	0
LC18430-01	Construction of Mid wall up to -5.0mPD for Bay 6 (Team 8)	P2-Cal.C	10	10	13-Mar-21	24-Mar-21	-208	0%	0
LC18475	Concrete Infill and Removal of 3rd waler/strut @ -10.0mPD	P2-Cal.C	8	8	16-Mar-21	24-Mar-21	-225	0%	0
U-Trough A and B		P2-Cal.C	128	128	23-Nov-20 A	01-Jun-21	-180		-12
"U-Trough A Type 3 and U-Trough B Type 4" from S200 CH821 to P2 CH105		P2-Cal.C	128	128	28-Nov-20 A	01-Jun-21	-180		-7
ELS		P2-Cal.C	10	5	03-Dec-20 A	28-Dec-20	-151		-10
LC21055	Excavation to formation -6.475 ~ -0.66mPD (390m3)	P2-Cal.C	10	5	03-Dec-20 A	28-Dec-20	-151	50%	-10
Structure S200 CH821 - CH845 (No Waler/Strut) (team 14)		P2-Cal.C	52	52	21-Dec-20	25-Feb-21	-188		0
LC21080	Construction of base slab - bay 2 (Team 14)	P2-Cal.C	10	10	21-Dec-20	04-Jan-21	-188	0%	0
LC21085	Construction of wall (East and West) - bay 1 (Team 14)	P2-Cal.C	10	10	05-Jan-21	15-Jan-21	-188	0%	0
LC21090	Construction of wall (East and West) - bay 2 (Team 14)	P2-Cal.C	10	10	16-Jan-21	27-Jan-21	-188	0%	0
LC21200	Backfilling from -0.96 to +5.5mPD (22 layers, 1D/layer)	P2-Cal.C	22	22	28-Jan-21	25-Feb-21	-188	0%	0
Structure S200 CH845 - CH926 (1 Layer Waler/Strut) (team 15)		P2-Cal.C	76	76	15-Dec-20 A	25-Mar-21	-180		-1
LC21105	Construction of base slab - bay 4 (Team 15)	P2-Cal.C	10	10	21-Dec-20	04-Jan-21	-180	0%	0
LC21130	Mass concrete fill between base slab and sheet pile (bay 3 - 4)	P2-Cal.C	4	4	05-Jan-21	08-Jan-21	-163	0%	0
LC21110	Construction of base slab - bay 5 (Team 15) (CE089)	P2-Cal.C	10	6	15-Dec-20 A	11-Jan-21	-180	40%	-11
LC21130-05	Removal of 1st Strut/waling for Bay 3-4 @ +4.0mPD	P2-Cal.C	5	5	09-Jan-21	14-Jan-21	-163	0%	0
LC21115	Construction of base slab - bay 6 (Team 15)	P2-Cal.C	10	10	12-Jan-21	22-Jan-21	-180	0%	0
LC21140	Construction of wall (East and West) - bay 3 (Team 15)	P2-Cal.C	10	10	15-Jan-21	26-Jan-21	-163	0%	0
LC21120	Construction of base slab - bay 7 (Team 15)	P2-Cal.C	10	10	23-Jan-21	03-Feb-21	-180	0%	0
LC21145	Construction of wall (East and West) - bay 4 (Team 15)	P2-Cal.C	10	10	27-Jan-21	06-Feb-21	-163	0%	0
LC21130-10	Mass concrete fill and backfilling from -2.7mPD to +1.0mPD (13 Layers, 1D/layer) (bay 5 -7)	P2-Cal.C	15	15	04-Feb-21	24-Feb-21	-180	0%	0
LC21135	Removal of 1st layer strut/waling @ +2.5 for Bay 5-7	P2-Cal.C	5	5	25-Feb-21	02-Mar-21	-180	0%	0
LC21150	Construction of wall (East and West) - bay 5 (Team 15)	P2-Cal.C	10	10	03-Mar-21	13-Mar-21	-180	0%	0
LC21155	Construction of wall (East and West) - bay 6 (Team 15)	P2-Cal.C	10	10	15-Mar-21	25-Mar-21	-180	0%	0
Structure S200 CH926 - CH969 (2 Layer Waler/Strut) (team 16)		P2-Cal.C	75	75	28-Nov-20 A	24-Mar-21	-180		-17
LC21165	Laying of Blinding and Waterproofing (CE089)	P2-Cal.C	7	5	28-Nov-20 A	28-Dec-20	-180	28.57%	-17
LC21170	Construction of base slab - bay 8 (Team 16)	P2-Cal.C	10	10	29-Dec-20	09-Jan-21	-180	0%	0

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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Dec-20)

3 Monthly Rolling Programme Update
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Date	Revision	Checked	Approved
20-Dec-20			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
LC21175	Construction of base slab - bay 9 (Team 16)	P2-Cal.C	10	10	11-Jan-21	21-Jan-21	-180	0%	0
LC21180	Construction of base slab - bay 10 (Team 16)	P2-Cal.C	10	10	22-Jan-21	02-Feb-21	-180	0%	0
LC25640	Installation of waterproofing works to 1st wall	P2-Cal.C	7	7	03-Feb-21	10-Feb-21	-180	0%	0
LC25660	Mass concrete fill (20 layers, 1D/layer)	P2-Cal.C	6	6	11-Feb-21	20-Feb-21	-180	0%	0
LC25680	Removal of 2nd layer strut/waling @ +0.0 ~ -1.0mPD	P2-Cal.C	7	7	22-Feb-21	01-Mar-21	-180	0%	0
LC25700	Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 8 (Team 16)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-180	0%	0
LC25720	Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 9 (Team 16)	P2-Cal.C	10	10	13-Mar-21	24-Mar-21	-180	0%	0
Structure S200 CH965 - P2 CH105 (3 Layer Waler/Strut) (team 14)		P2-Cal.C	67	67	29-Dec-20	20-Mar-21	-164		-13
LC21060	Laying blinding and waterproofing	P2-Cal.C	7	7	29-Dec-20	06-Jan-21	-151	0%	0
LC26000	Construction of base slab - bay 11 (Team 14)	P2-Cal.C	10	10	03-Feb-21	17-Feb-21	-164	0%	0
LC26040	Mass concrete fill between base slab and sheet pile (Bay 11)	P2-Cal.C	4	4	18-Feb-21	22-Feb-21	-164	0%	0
LC26060	Removal of 3rd layer strut/waling @ -2.5mPD	P2-Cal.C	6	6	23-Feb-21	01-Mar-21	-164	0%	0
LC26080	Construction of 1st wall (East, West and Mid interim level@ -1.0mPD) - bay 11 (Team 14)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-164	0%	0
LC26120	Installation of waterproofing works to 1st wall	P2-Cal.C	7	7	13-Mar-21	20-Mar-21	-164	0%	0
Remaning Works		P2-Cal.C	72	72	03-Mar-21	01-Jun-21	-180		0
LC26390	Construction of insitu Concrete Profile Barrier and Sign Gantry (S200 CH821 to P2 CH941) (6 moulds) (NCE193 & NCE219)	P2-Cal.C	72	72	03-Mar-21	01-Jun-21	-180	0%	0
Retaining Wall Type W1 S200 CH755 - CH821/ S300 CH326 - CH261		P2-Cal.C	35	35	10-Feb-21	25-Mar-21	-177		14
Construction of Base Slab (team 17-22)		P2-Cal.C	35	35	10-Feb-21	25-Mar-21	-177		14
LC21440-01	Excavation, Recompaction and Blinding	P2-Cal.C	15	15	10-Feb-21	02-Mar-21	-192	0%	0
LC21440-0630	Cutting of Sheet Pile at S200 CH821 for Construction of Bay 10	P2-Cal.C	5	5	03-Mar-21	08-Mar-21	-192	0%	0
LC21440-03	Construction of Retaining Wall Type W1 (S200 CH768 to CH781) (Base Slab Bay 2) (Team 17)	P2-Cal.C	10	10	03-Mar-21	13-Mar-21	-177	0%	0
LC21440-05	Construction of Retaining Wall Type W1 (S200 CH795 to CH809) (Base Slab Bay 4) (Team 18)	P2-Cal.C	10	10	03-Mar-21	13-Mar-21	-177	0%	0
LC21440-065	Construction of Retaining Wall Type W1 (S300 CH287 to CH274 East) (Base Slab Bay 11) (Team 20)	P2-Cal.C	10	10	03-Mar-21	13-Mar-21	-177	0%	0
LC21440-064	Construction of Retaining Wall Type W1 (S300 CH274 to CH261 West) (Base Slab Bay 10) (Team 21)	P2-Cal.C	10	10	09-Mar-21	19-Mar-21	-192	0%	0
LC21440-02	Construction of Retaining Wall Type W1 (S200 CH755 to CH768) (Base Slab Bay 1) (Team 17)	P2-Cal.C	10	10	15-Mar-21	25-Mar-21	-177	0%	0
LC21440-04	Construction of Retaining Wall Type W1 (S200 CH781 to CH795) (Base Slab Bay 3) (Team 18)	P2-Cal.C	10	10	15-Mar-21	25-Mar-21	-177	0%	0
LC21440-06	Construction of Retaining Wall Type W1 (S200 CH809 to CH821) (Base Slab Bay 5) (Team 19)	P2-Cal.C	10	10	15-Mar-21	25-Mar-21	-177	0%	0
LC21440-066	Construction of Retaining Wall Type W1 (S300 CH274 to CH261 East) (Base Slab Bay 12) (Team 20)	P2-Cal.C	10	10	15-Mar-21	25-Mar-21	-177	0%	0
"U-Trough A Type 1 & 2" from S200 CH674 - CH821, S100/CH280, S300/CH403.5 & S400/CH158.1		P2-Cal.C	109	110	23-Nov-20 A	10-May-21	-174		-22
ELS (S200 CH674 - CH755 & S100/CH280)		P2-Cal.C	3	1	23-Nov-20 A	21-Dec-20	-192		-22
LC22230	Construction of Blinding and Waterproofing	P2-Cal.C	3	1	23-Nov-20 A	21-Dec-20	-192	66.67%	-22
ELS (S300/CH403.5 & S400/CH158.1)		P2-Cal.C	3	2	07-Dec-20 A	22-Dec-20	-201		-11
LC22830	Construction of Blinding and Waterproofing	P2-Cal.C	3	2	07-Dec-20 A	22-Dec-20	-201	33.33%	-11
Structure "U-Trough A Type 1" from S200 CH674 - CH755 & S100/CH280		P2-Cal.C	60	60	23-Nov-20 A	08-Mar-21	-174		-25
Base Slab (team 23-26)		P2-Cal.C	20	20	23-Nov-20 A	16-Jan-21	-192		-25
LC22870	Construction of U-trough A Structure Bay 3 (S200 CH683 - S200 CH695) (Base Slab) (Team 24)	P2-Cal.C	10	5	23-Nov-20 A	29-Dec-20	-187	50%	-20
LC22890	Construction of U-trough A Structure Bay 5 (S200 CH707 - S200 CH719) (Base Slab) (Team 25)	P2-Cal.C	10	6	07-Dec-20 A	30-Dec-20	-188	40%	-9
LC22910	Construction of U-trough A Structure Bay 7 (S200 CH731 - S200 CH743) (Base Slab) (Team 26)	P2-Cal.C	10	10	22-Dec-20	05-Jan-21	-192	0%	0

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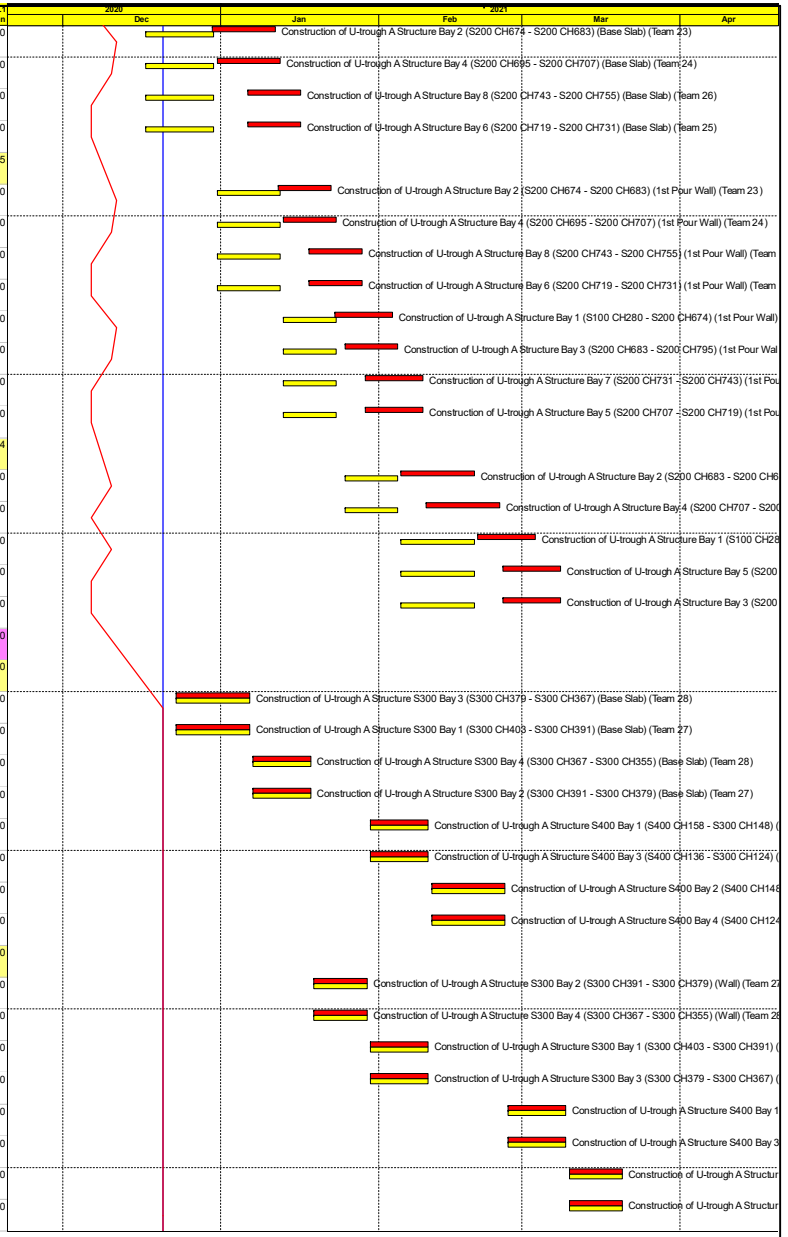
Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
LC22860	Construction of U-trough A Structure Bay 2 (S200 CH674 - S200 CH683) (Base Slab) (Team 23)	P2-Cal.C	10	10	30-Dec-20	11-Jan-21	-187	0%	0
LC22880	Construction of U-trough A Structure Bay 4 (S200 CH695 - S200 CH707) (Base Slab) (Team 24)	P2-Cal.C	10	10	31-Dec-20	12-Jan-21	-188	0%	0
LC22920	Construction of U-trough A Structure Bay 8 (S200 CH743 - S200 CH755) (Base Slab) (Team 26)	P2-Cal.C	10	10	06-Jan-21	16-Jan-21	-192	0%	0
LC22900	Construction of U-trough A Structure Bay 6 (S200 CH719 - S200 CH731) (Base Slab) (Team 25)	P2-Cal.C	10	10	06-Jan-21	16-Jan-21	-192	0%	0
1st Pour Wall (Team 23-26)		P2-Cal.C	25	25	12-Jan-21	09-Feb-21	-192		-5
LC22940	Construction of U-trough A Structure Bay 2 (S200 CH674 - S200 CH683) (1st Pour Wall) (Team 23)	P2-Cal.C	10	10	12-Jan-21	22-Jan-21	-187	0%	0
LC22960	Construction of U-trough A Structure Bay 4 (S200 CH695 - S200 CH707) (1st Pour Wall) (Team 24)	P2-Cal.C	10	10	13-Jan-21	23-Jan-21	-188	0%	0
LC23000	Construction of U-trough A Structure Bay 8 (S200 CH743 - S200 CH755) (1st Pour Wall) (Team 26)	P2-Cal.C	10	10	18-Jan-21	28-Jan-21	-192	0%	0
LC22980	Construction of U-trough A Structure Bay 6 (S200 CH719 - S200 CH731) (1st Pour Wall) (Team 25)	P2-Cal.C	10	10	18-Jan-21	28-Jan-21	-192	0%	0
LC22930	Construction of U-trough A Structure Bay 1 (S100 CH280 - S200 CH674) (1st Pour Wall) (Team 23)	P2-Cal.C	10	10	23-Jan-21	03-Feb-21	-187	0%	0
LC22950	Construction of U-trough A Structure Bay 3 (S200 CH683 - S200 CH795) (1st Pour Wall) (Team 24)	P2-Cal.C	10	10	25-Jan-21	04-Feb-21	-188	0%	0
LC22990	Construction of U-trough A Structure Bay 7 (S200 CH731 - S200 CH743) (1st Pour Wall) (Team 26)	P2-Cal.C	10	10	29-Jan-21	09-Feb-21	-192	0%	0
LC22970	Construction of U-trough A Structure Bay 5 (S200 CH707 - S200 CH719) (1st Pour Wall) (Team 25)	P2-Cal.C	10	10	29-Jan-21	09-Feb-21	-192	0%	0
2nd Pour Wall (team 23-25)		P2-Cal.C	24	24	05-Feb-21	08-Mar-21	-174		-4
LC23020	Construction of U-trough A Structure Bay 2 (S200 CH683 - S200 CH695) (2nd Pour Wall) (Team 23)	P2-Cal.C	10	10	05-Feb-21	19-Feb-21	-170	0%	0
LC23040	Construction of U-trough A Structure Bay 4 (S200 CH707 - S200 CH719) (2nd Pour Wall) (Team 24)	P2-Cal.C	10	10	10-Feb-21	24-Feb-21	-174	0%	0
LC23010	Construction of U-trough A Structure Bay 1 (S100 CH280 - S200 CH683) (2nd Pour Wall) (Team 23)	P2-Cal.C	10	10	20-Feb-21	03-Mar-21	-170	0%	0
LC23050	Construction of U-trough A Structure Bay 5 (S200 CH719 - S200 CH731) (2nd Pour Wall) (Team 25)	P2-Cal.C	10	10	25-Feb-21	08-Mar-21	-174	0%	0
LC23030	Construction of U-trough A Structure Bay 3 (S200 CH695 - S200 CH707) (2nd Pour Wall) (Team 24)	P2-Cal.C	10	10	25-Feb-21	08-Mar-21	-174	0%	0
Structure "U-Trough A Type 1 & 2" from S300/CH403.5 & S400/CH158.1		P2-Cal.C	70	70	23-Dec-20	20-Mar-21	-201		0
Base Slab (Team 27-28)		P2-Cal.C	50	50	23-Dec-20	25-Feb-21	-201		0
LC23100	Construction of U-trough A Structure S300 Bay 3 (S300 CH379 - S300 CH367) (Base Slab) (Team 28)	P2-Cal.C	10	10	23-Dec-20	06-Jan-21	-201	0%	0
LC23080	Construction of U-trough A Structure S300 Bay 1 (S300 CH403 - S300 CH391) (Base Slab) (Team 27)	P2-Cal.C	10	10	23-Dec-20	06-Jan-21	-201	0%	0
LC23110	Construction of U-trough A Structure S300 Bay 4 (S300 CH367 - S300 CH355) (Base Slab) (Team 28)	P2-Cal.C	10	10	07-Jan-21	18-Jan-21	-201	0%	0
LC23090	Construction of U-trough A Structure S300 Bay 2 (S300 CH391 - S300 CH379) (Base Slab) (Team 27)	P2-Cal.C	10	10	07-Jan-21	18-Jan-21	-201	0%	0
LC23120	Construction of U-trough A Structure S400 Bay 1 (S400 CH158 - S300 CH148) (Base Slab) (Team 27)	P2-Cal.C	10	10	30-Jan-21	10-Feb-21	-201	0%	0
LC23140	Construction of U-trough A Structure S400 Bay 3 (S400 CH136 - S300 CH124) (Base Slab) (Team 28)	P2-Cal.C	10	10	30-Jan-21	10-Feb-21	-201	0%	0
LC23130	Construction of U-trough A Structure S400 Bay 2 (S400 CH148 - S300 CH136) (Base Slab) (Team 27)	P2-Cal.C	10	10	11-Feb-21	25-Feb-21	-201	0%	0
LC23150	Construction of U-trough A Structure S400 Bay 4 (S400 CH124 - S300 CH111) (Base Slab) (Team 28)	P2-Cal.C	10	10	11-Feb-21	25-Feb-21	-201	0%	0
Wall (Team 27-28)		P2-Cal.C	50	50	19-Jan-21	20-Mar-21	-201		0
LC23190	Construction of U-trough A Structure S300 Bay 2 (S300 CH391 - S300 CH379) (Wall) (Team 27)	P2-Cal.C	10	10	19-Jan-21	29-Jan-21	-201	0%	0
LC23210	Construction of U-trough A Structure S300 Bay 4 (S300 CH367 - S300 CH355) (Wall) (Team 28)	P2-Cal.C	10	10	19-Jan-21	29-Jan-21	-201	0%	0
LC23180	Construction of U-trough A Structure S300 Bay 1 (S300 CH403 - S300 CH391) (Wall) (Team 27)	P2-Cal.C	10	10	30-Jan-21	10-Feb-21	-201	0%	0
LC23200	Construction of U-trough A Structure S300 Bay 3 (S300 CH379 - S300 CH367) (Wall) (Team 28)	P2-Cal.C	10	10	30-Jan-21	10-Feb-21	-201	0%	0
LC23220	Construction of U-trough A Structure S400 Bay 1 (S400 CH158 - S300 CH148) (Wall) (Team 27)	P2-Cal.C	10	10	26-Feb-21	09-Mar-21	-201	0%	0
LC23240	Construction of U-trough A Structure S400 Bay 3 (S400 CH136 - S300 CH124) (Wall) (Team 28)	P2-Cal.C	10	10	26-Feb-21	09-Mar-21	-201	0%	0
LC23230	Construction of U-trough A Structure S400 Bay 2 (S400 CH148 - S300 CH136) (Wall) (Team 27)	P2-Cal.C	10	10	10-Mar-21	20-Mar-21	-201	0%	0
LC23250	Construction of U-trough A Structure S400 Bay 4 (S400 CH124 - S300 CH111) (Wall) (Team 28)	P2-Cal.C	10	10	10-Mar-21	20-Mar-21	-201	0%	0



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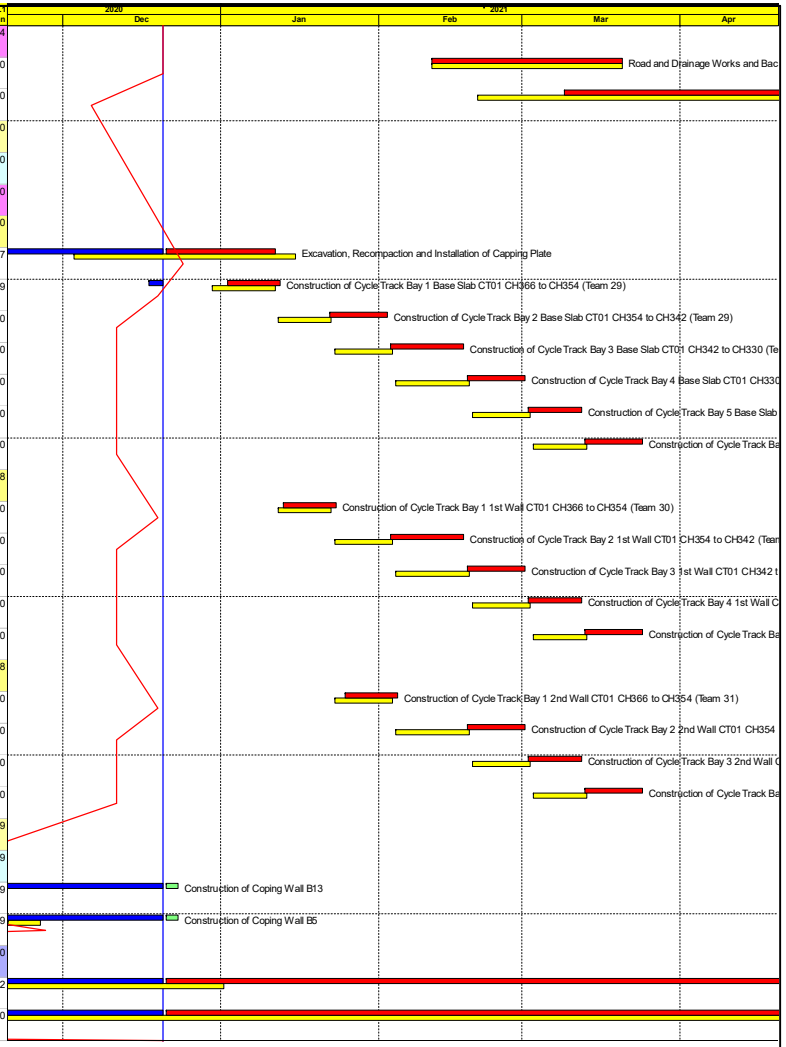
Activity ID	Activity Name	Calendar	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Duration
Remaining Works		P2-Cal.C	68	68	11-Feb-21	10-May-21	-174		-14
LC23350-000	Road and Drainage Works and Backfilling to Formation (S300 CH403 - S300 CH355)	P2-Cal.C	30	30	11-Feb-21	20-Mar-21	-140	0%	0
LC23350-00	Road and Drainage Works and Backfilling to Formation (S200 CH821 - S200 CH674/S100 CH280)	P2-Cal.C	49	49	09-Mar-21	10-May-21	-174	0%	0
U-Trough C Structures		P2-Cal.C	90	75	09-Nov-20 A	24-Mar-21	-121		-30
"U-Trough C Type 1, 2, 3 & 4" from CT01 CH117.156 - CH366		P2-Cal.C	90	75	09-Nov-20 A	24-Mar-21	-121		-30
ELS & Structure "U-Trough C Type 1, 2, 3 & 4" from CT01 CH117.156 - CH366		P2-Cal.C	90	75	09-Nov-20 A	24-Mar-21	-121		-30
Base Slab (Team 29)		P2-Cal.C	90	75	09-Nov-20 A	24-Mar-21	-201		-30
LC23470	Excavation, Recompaction and Installation of Capping Plate	P2-Cal.C	35	16	09-Nov-20 A	11-Jan-21	-185	54.29%	-17
LC23480	Construction of Cycle Track Bay 1 Base Slab CT01 CH366 to CH354 (Team 29)	P2-Cal.C	10	9	18-Dec-20 A	12-Jan-21	-193	10%	-9
LC23490	Construction of Cycle Track Bay 2 Base Slab CT01 CH354 to CH342 (Team 29)	P2-Cal.C	10	10	22-Jan-21	02-Feb-21	-201	0%	0
LC23500	Construction of Cycle Track Bay 3 Base Slab CT01 CH342 to CH330 (Team 29)	P2-Cal.C	10	10	03-Feb-21	17-Feb-21	-201	0%	0
LC23510	Construction of Cycle Track Bay 4 Base Slab CT01 CH330 to CH318 (Team 29)	P2-Cal.C	10	10	18-Feb-21	01-Mar-21	-201	0%	0
LC23520	Construction of Cycle Track Bay 5 Base Slab CT01 CH318 to CH306 (Team 29)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-201	0%	0
LC23530	Construction of Cycle Track Bay 6 Base Slab CT01 CH306 to CH294 (Team 29)	P2-Cal.C	10	10	13-Mar-21	24-Mar-21	-201	0%	0
1st Wall (Team 30)		P2-Cal.C	58	58	13-Jan-21	24-Mar-21	-201		-8
LC23690	Construction of Cycle Track Bay 1 1st Wall CT01 CH366 to CH354 (Team 30)	P2-Cal.C	10	10	13-Jan-21	23-Jan-21	-193	0%	0
LC23700	Construction of Cycle Track Bay 2 1st Wall CT01 CH354 to CH342 (Team 30)	P2-Cal.C	10	10	03-Feb-21	17-Feb-21	-201	0%	0
LC23710	Construction of Cycle Track Bay 3 1st Wall CT01 CH342 to CH330 (Team 30)	P2-Cal.C	10	10	18-Feb-21	01-Mar-21	-201	0%	0
LC23720	Construction of Cycle Track Bay 4 1st Wall CT01 CH330 to CH318 (Team 30)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-201	0%	0
LC23730	Construction of Cycle Track Bay 5 1st Wall CT01 CH318 to CH306 (Team 30)	P2-Cal.C	10	10	13-Mar-21	24-Mar-21	-201	0%	0
2nd Wall (Team 31)		P2-Cal.C	48	48	25-Jan-21	24-Mar-21	-121		-8
LC90550	Construction of Cycle Track Bay 1 2nd Wall CT01 CH366 to CH354 (Team 31)	P2-Cal.C	10	10	25-Jan-21	04-Feb-21	-113	0%	0
LC90560	Construction of Cycle Track Bay 2 2nd Wall CT01 CH354 to CH342 (Team 31)	P2-Cal.C	10	10	18-Feb-21	01-Mar-21	-121	0%	0
LC90570	Construction of Cycle Track Bay 3 2nd Wall CT01 CH342 to CH330 (Team 31)	P2-Cal.C	10	10	02-Mar-21	12-Mar-21	-121	0%	0
LC90580	Construction of Cycle Track Bay 4 2nd Wall CT01 CH330 to CH318 (Team 31)	P2-Cal.C	10	10	13-Mar-21	24-Mar-21	-121	0%	0
TKO Bridge Abutment		P2-Cal.C	46	3	01-Sep-20 A	23-Dec-20	123		-49
Coping B5 to B15		P2-Cal.C	46	3	01-Sep-20 A	23-Dec-20	123		-49
LC27210	Construction of Coping Wall B13	P2-Cal.C	6	3	01-Sep-20 A	23-Dec-20	123	50%	-89
LC27260	Construction of Coping Wall B5	P2-Cal.C	6	3	13-Nov-20 A	23-Dec-20	123	50%	-29
Section 4 of the Works - Preservation and Protection of Existing Trees		P2-Cal.A	1563	474	12-Jan-17 A	08-Apr-22	-315		-350
LC25260	Preservation and Protection of Existing Trees	P2-Cal.A	1451	474	12-Jan-17 A	08-Apr-22	-315	67.33%	-462
LC25280	Nursery Transplanted Trees at the Contractor's holding nursery	P2-Cal.A	1177	474	28-Apr-17 A	08-Apr-22	-315	59.73%	-630



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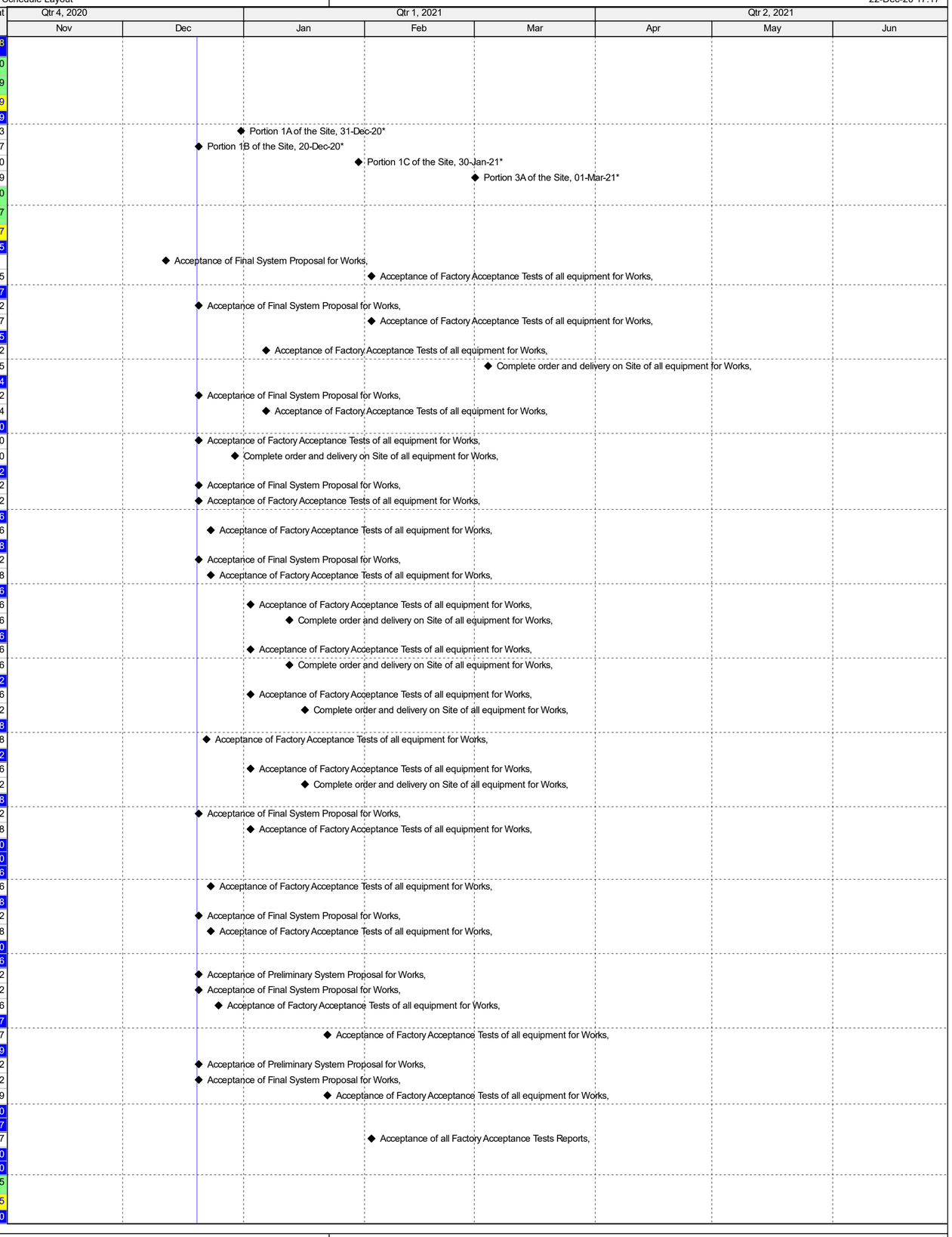
Contract No.: NE/207/02

High Level 3 Months Look Ahead Programme			
Activities	Feb-21	Mar-21	Apr-21
Trial pit			
Underground utilities detection			
Temporary traffic arrangement Setup			
Construction of drainage and watermain			
Pile Cap construction			
Asphalt Paving			
Pier, Staircase and lift shaft construction			

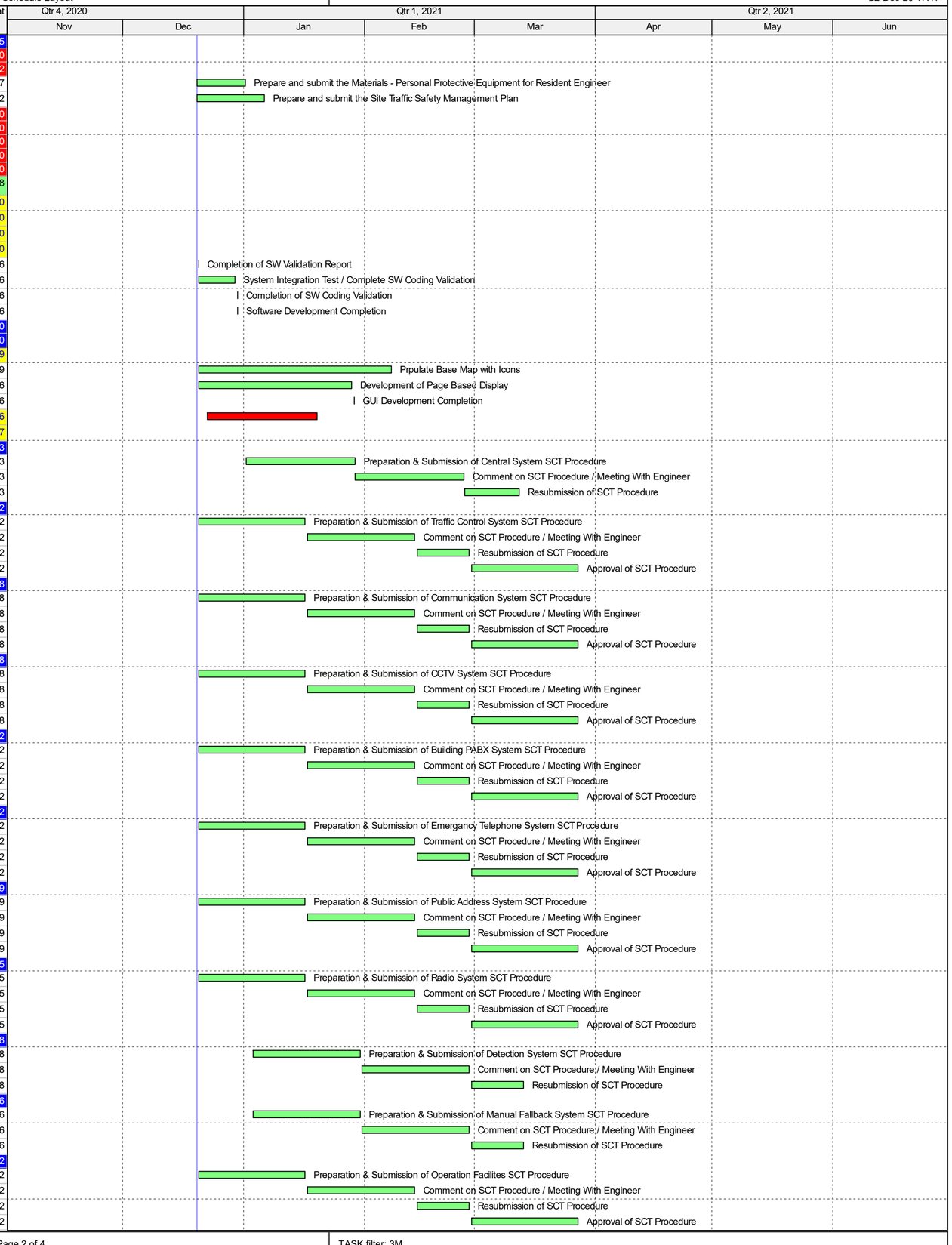
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06	NE/2017/06 TKO-LTT TCSS_3MRP	104	78	0%	04-Dec-20 A	27-Mar-21	828
NE/2017/06.CW	Contract Award / Commencement of Works	0	0	0%			0
NE/2017/06.AD	Access Date	71	71	0%	20-Dec-20	01-Mar-21	19
NE/2017/06.AD.000	General	71	71	0%	20-Dec-20	01-Mar-21	19
NE/2017/06.AD.000.AD	Access Date	71	71	0%	20-Dec-20	01-Mar-21	19
DWP10670	Portion 1A of the Site	0	0	0%	31-Dec-20*		-23
DWP10672	Portion 1B of the Site	0	0	0%	20-Dec-20*		-17
DWP10674	Portion 1C of the Site	0	0	0%	30-Jan-21*		20
DWP10680	Portion 3A of the Site	0	0	0%	01-Mar-21*		19
NE/2017/06.KD	Key Date and Stages / Sections of the Achievement	0	0	0%			0
NE/2017/06.MD	Cost Centre Milestone Dates	84	58	0%	12-Dec-20 A	04-Mar-21	457
NE/2017/06.MD.1	General	84	58	0%	12-Dec-20 A	04-Mar-21	457
NE/2017/06.MD.1.1	CC B - Central System - TKOLTT	75	0	0%	12-Dec-20 A	02-Feb-21	145
DWP8840	Acceptance of Final System Proposal for Works	0	0	100%		12-Dec-20 A	
DWP8850	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Feb-21	145
NE/2017/06.MD.1.2	CC B1 - Central System - CBL	45	45	0%	20-Dec-20	02-Feb-21	577
DWP8900	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP8910	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Feb-21	577
NE/2017/06.MD.1.3	CC C - Traffic Control Devices - TKOLTT	57	57	0%	06-Jan-21	04-Mar-21	115
DWP8970	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		06-Jan-21	172
DWP8980	Complete order and delivery on Site of all equipment for Works	0	0	0%		04-Mar-21	115
NE/2017/06.MD.1.4	CC C1 - Traffic Control Devices - CBL	18	18	0%	20-Dec-20	06-Jan-21	604
DWP9020	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9030	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		06-Jan-21	604
NE/2017/06.MD.1.5	CC D - Communication System - TKOLTT	10	10	0%	20-Dec-20	29-Dec-20	180
DWP9150	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		20-Dec-20	190
DWP9160	Complete order and delivery on Site of all equipment for Works	0	0	0%		29-Dec-20	180
NE/2017/06.MD.1.6	CC D1 - Communication System - CBL	0	0	0%	20-Dec-20	20-Dec-20	622
DWP9080	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9090	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		20-Dec-20	622
NE/2017/06.MD.1.7	CC E - CCTV System - TKOLTT	0	0	0%	23-Dec-20	23-Dec-20	186
DWP9210	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	186
NE/2017/06.MD.1.8	CC E1 - CCTV System - CBL	4	4	0%	20-Dec-20	23-Dec-20	618
DWP9260	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9270	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	618
NE/2017/06.MD.1.9	CC F - Building PABX System - TKOLTT	10	10	0%	02-Jan-21	12-Jan-21	166
DWP9330	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9340	Complete order and delivery on Site of all equipment for Works	0	0	0%		12-Jan-21	166
NE/2017/06.MD.1.11	CC G - ET System - TKOLTT	10	10	0%	02-Jan-21	12-Jan-21	166
DWP9450	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9460	Complete order and delivery on Site of all equipment for Works	0	0	0%		12-Jan-21	166
NE/2017/06.MD.1.10	CC H - PA System - TKOLTT	14	14	0%	02-Jan-21	16-Jan-21	162
DWP9390	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9400	Complete order and delivery on Site of all equipment for Works	0	0	0%		16-Jan-21	162
NE/2017/06.MD.1.12	CC I - Radio System - TKOLTT	0	0	0%	22-Dec-20	22-Dec-20	188
DWP9510	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Dec-20	188
NE/2017/06.MD.1.13	CC J - Detection System - TKOLTT	14	14	0%	02-Jan-21	16-Jan-21	162
DWP9570	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9580	Complete order and delivery on Site of all equipment for Works	0	0	0%		16-Jan-21	162
NE/2017/06.MD.1.15	CC J1 - Detection System - CBL	14	14	0%	20-Dec-20	02-Jan-21	608
DWP9680	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9690	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	608
NE/2017/06.MD.1.14	CC K - Manual Fallback System - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.16	CC L - Operation Facilities - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.17	CC M - Power Distribution System - TKOLTT	0	0	0%	23-Dec-20	23-Dec-20	186
DWP9810	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	186
NE/2017/06.MD.1.18	CC M1 - Power Distribution System - CBL	4	4	0%	20-Dec-20	23-Dec-20	618
DWP9860	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9870	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	618
NE/2017/06.MD.1.19	CC N - Speed Enforcement System - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.20	CC N1 - Speed Enforcement System - CBL	6	6	0%	20-Dec-20	25-Dec-20	616
DWP10390	Acceptance of Preliminary System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10400	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10410	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		25-Dec-20	616
NE/2017/06.MD.1.21	CC O - Government Optical Fibre System - TKOLTT	0	0	0%	22-Jan-21	22-Jan-21	157
DWP10050	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Jan-21	157
NE/2017/06.MD.1.22	CC O1 - Government Optical Fibre System - CBL	33	33	0%	20-Dec-20	22-Jan-21	589
DWP10090	Acceptance of Preliminary System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10100	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10110	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Jan-21	589
NE/2017/06.MD.1.23	CC P - Training and Documentation - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.24	CC P1 - Training and Documentation - CBL	0	0	0%	02-Feb-21	02-Feb-21	577
DWP10150	Acceptance of all Factory Acceptance Tests Reports	0	0	0%		02-Feb-21	577
NE/2017/06.MD.1.25	CC Q - Comprehensive Maintenance Services and DLP - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.26	CC Q1 - Comprehensive Maintenance Services and DLP - CBL	0	0	0%			0
NE/2017/06.1	Preliminary	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0	Preliminary and General	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0.GEN	General	0	0	0%			0



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

TASK filter: 3M.

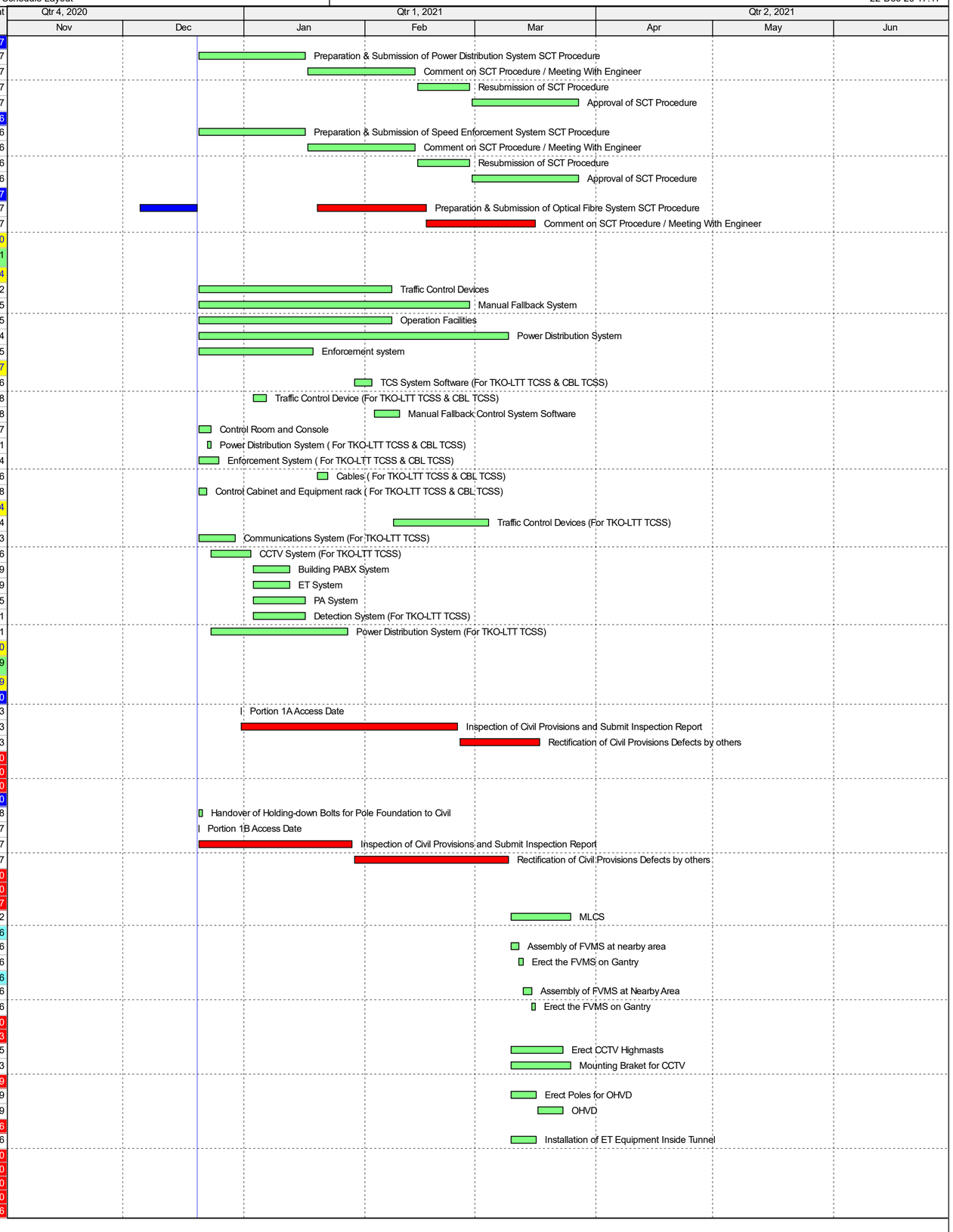
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06.1.A0.3	Management System	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0.3.0QP	Quality Management Plan	0	0	0%			0
NE/2017/06.1.A0.3.2	Safety Management	17	17	0%	20-Dec-20	06-Jan-21	1062
GEN.0.05C	Prepare and submit the Materials - Personal Protective Equipment for Resident Engineer	12	12	0%	20-Dec-20	01-Jan-21	1067
GEN.0.05D	Prepare and submit the Site Traffic Safety Management Plan	17	17	0%	20-Dec-20	06-Jan-21	1062
NE/2017/06.1.A0.3.1	Environmenta; Management Plan	0	0	0%			0
NE/2017/06.1.A0.3.3	Sub-Contract Management	0	0	0%			0
NE/2017/06.1.A0.3.4	Risk Management	0	0	0%			0
NE/2017/06.1.A0.3.5	Software Management	0	0	0%			0
NE/2017/06.1.A0.3.6	Interface Management	0	0	0%			0
NE/2017/06.DS	Design Stage	92	78	0%	04-Dec-20 A	27-Mar-21	828
NE/2017/06.DS.PSP	Prepare / Submission of PSP for TKO-LTT TCSS and CBL TCSS	0	0	0%			0
NE/2017/06.DS.FSP	Prepare / Submission of FSP For TKO-LTT TCSS and CBL TCSS	0	0	0%			0
NE/2017/06.DS.FDS	Preparation of Functional Design Specification (FDS)	0	0	0%			0
NE/2017/06.DS.SWD	Software Development (except GUI) for TKO-LTT TCSS and CBL TCSS	6	6	0%	20-Dec-20	30-Dec-20	30
DWP7690	Completion of SW Validation Report	0	0	0%	20-Dec-20	20-Dec-20	36
DWP7700	System Integration Test / Complete SW Coding Validation	10	10	0%	20-Dec-20	29-Dec-20	36
DWP7810	Completion of SW Coding Validation	0	0	0%	30-Dec-20	30-Dec-20	36
DWP7820	Software Development Completion	0	0	0%	30-Dec-20	30-Dec-20	36
NE/2017/06.DS.SWD.2	Allocation of New Functionality to Existing or New Modules	0	0	0%			0
NE/2017/06.DS.SWD.6	Traffic Plan Coding	0	0	0%			0
NE/2017/06.DS.GUI	GUI Development for TKO-LTT TCSS and CBL TCSS	50	50	0%	20-Dec-20	07-Feb-21	1029
DWP2520	Prpulate Base Map with Icons	50	50	0%	20-Dec-20	07-Feb-21	1029
DWP2530	Development of Page Based Display	40	40	0%	20-Dec-20	28-Jan-21	6
DWP2540	GUI Development Completion	0	0	0%	29-Jan-21	29-Jan-21	6
NE/2017/06.DS.FAT	Preparation / Submission of FAT Procedures	37	21	0%	04-Dec-20 A	19-Jan-21	-6
NE/2017/06.DS.SCT	Preparation / Submission of SCT Procedures	113	98	0%	05-Dec-20 A	27-Mar-21	487
NE/2017/06.DS.SCT.1	Central System	70	70	0%	01-Jan-21	12-Mar-21	503
DWP8260	Preparation & Submission of Central System SCT Procedure	28	28	0%	01-Jan-21	29-Jan-21	503
DWP8270	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	29-Jan-21	26-Feb-21	503
DWP8280	Resubmission of SCT Procedure	14	14	0%	26-Feb-21	12-Mar-21	503
NE/2017/06.DS.SCT.2	Traffic Control Devices	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8300	Preparation & Submission of Traffic Control System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8310	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8320	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8330	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.3	Communication System	98	98	0%	20-Dec-20	27-Mar-21	38
DWP8340	Preparation & Submission of Communication System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	38
DWP8350	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	38
DWP8360	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	38
DWP8370	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	38
NE/2017/06.DS.SCT.4	CCTV System	98	98	0%	20-Dec-20	27-Mar-21	38
DWP8380	Preparation & Submission of CCTV System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	38
DWP8390	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	38
DWP8400	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	38
DWP8410	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	38
NE/2017/06.DS.SCT.5	Building PABX System	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8420	Preparation & Submission of Building PABX System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8430	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8440	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8450	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.6	Emergancy Telephone System	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8460	Preparation & Submission of Emergancy Telephone System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8470	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8480	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8490	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.7	Public Address System	98	98	0%	20-Dec-20	27-Mar-21	59
DWP8500	Preparation & Submission of Public Address System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	59
DWP8510	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	59
DWP8520	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	59
DWP8530	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	59
NE/2017/06.DS.SCT.8	Radio System	98	98	0%	20-Dec-20	27-Mar-21	75
DWP8540	Preparation & Submission of Radio System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	75
DWP8550	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	75
DWP8560	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	75
DWP8570	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	75
NE/2017/06.DS.SCT.9	Detection System	70	70	0%	03-Jan-21	13-Mar-21	38
DWP8580	Preparation & Submission of Detection System SCT Procedure	28	28	0%	03-Jan-21	30-Jan-21	38
DWP8590	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	31-Jan-21	27-Feb-21	38
DWP8600	Resubmission of SCT Procedure	14	14	0%	28-Feb-21	13-Mar-21	38
NE/2017/06.DS.SCT.10	Manual Fallback System	70	70	0%	03-Jan-21	13-Mar-21	66
DWP8620	Preparation & Submission of Manual Fallback System SCT Procedure	28	28	0%	03-Jan-21	30-Jan-21	66
DWP8630	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	31-Jan-21	27-Feb-21	66
DWP8640	Resubmission of SCT Procedure	14	14	0%	28-Feb-21	13-Mar-21	66
NE/2017/06.DS.SCT.11	Operation Facilities	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8660	Preparation & Submission of Operation Facilites SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8670	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8680	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8690	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52



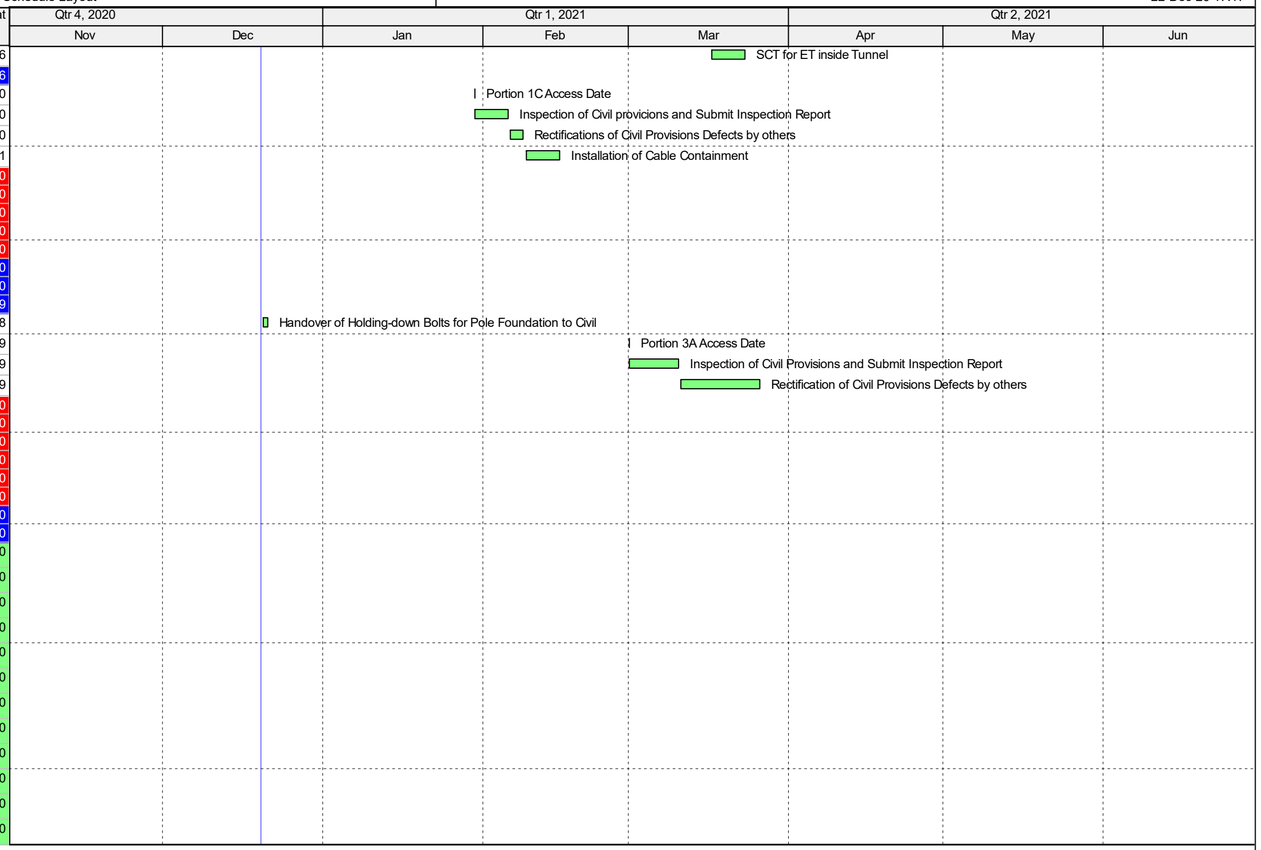
Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work

TASK filter: 3M.

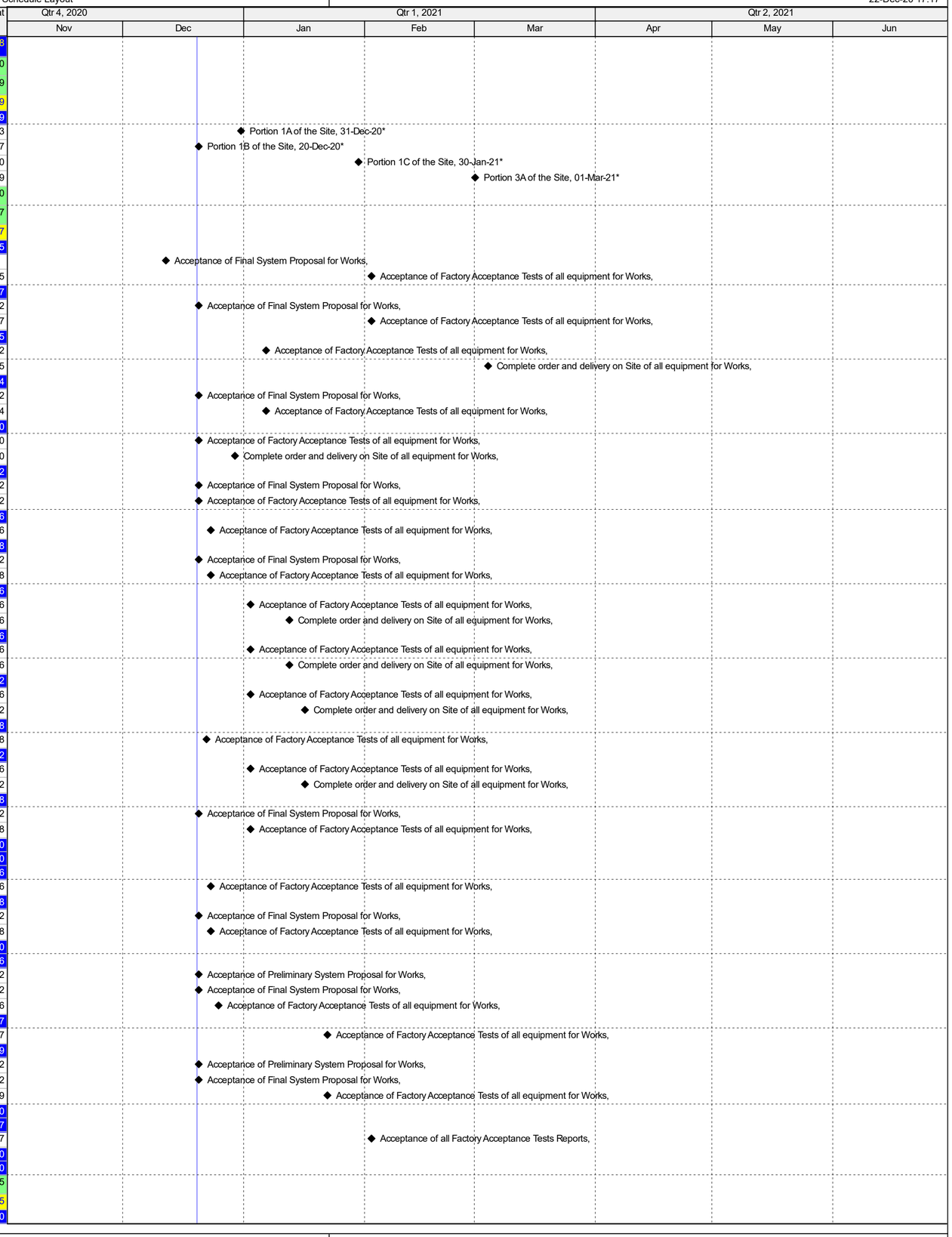
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06.DS.SCT.12	Power Distribution System	98	98	0%	20-Dec-20	27-Mar-21	17
DWP8700	Preparation & Submission of Power Distribution System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	17
DWP8710	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	17
DWP8720	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	17
DWP8730	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	17
NE/2017/06.DS.SCT.13	Speed Enforcement System	98	98	0%	20-Dec-20	27-Mar-21	96
DWP8740	Preparation & Submission of Speed Enforcement System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	96
DWP8750	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	96
DWP8760	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	96
DWP8770	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	96
NE/2017/06.DS.SCT.14	Optical Fibre system	102	56	0%	05-Dec-20 A	16-Mar-21	-7
DWP8780	Preparation & Submission of Optical Fibre System SCT Procedure	28	28	53.57%	05-Dec-20 A	16-Feb-21	-7
DWP8790	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	16-Feb-21	16-Mar-21	-7
NE/2017/06.DS.SAT	Preparation / Submission of SAT Procedures	0	0	0%			0
NE/2017/06.EMT	**Equipment Manufacturing and FAT Stage for TKO-LTT TCSS and**	62	62	0%	20-Dec-20	09-Mar-21	71
NE/2017/06.EMT.1	Sub-systems Equipment Manufacturing (Including FAT Test Module)	80	80	0%	20-Dec-20	09-Mar-21	34
DWP3670	Traffic Control Devices	50	50	0%	20-Dec-20	07-Feb-21	42
DWP3750	Manual Fallback System	70	70	0%	20-Dec-20	27-Feb-21	15
DWP3760	Operation Facilities	50	50	0%	20-Dec-20	07-Feb-21	15
DWP3770	Power Distribution System	80	80	0%	20-Dec-20	09-Mar-21	34
DWP3780	Enforcement system	30	30	0%	20-Dec-20	18-Jan-21	15
NE/2017/06.EMT.2	System and Equipment FAT	52	52	0%	20-Dec-20	09-Feb-21	77
DWP3810	TCS System Software (For TKO-LTT TCSS & CBL TCSS)	5	5	0%	29-Jan-21	02-Feb-21	6
DWP3820	Traffic Control Device (For TKO-LTT TCSS & CBL TCSS)	4	4	0%	03-Jan-21	06-Jan-21	28
DWP3900	Manual Fallback Control System Software	7	7	0%	03-Feb-21	09-Feb-21	38
DWP3910	Control Room and Console	3	3	0%	20-Dec-20	23-Dec-20	37
DWP3920	Power Distribution System (For TKO-LTT TCSS & CBL TCSS)	1	1	0%	22-Dec-20	23-Dec-20	31
DWP3930	Enforcement System (For TKO-LTT TCSS & CBL TCSS)	6	6	0%	20-Dec-20	25-Dec-20	34
DWP3940	Cables (For TKO-LTT TCSS & CBL TCSS)	2	2	0%	19-Jan-21	22-Jan-21	96
DWP3950	Control Cabinet and Equipment rack (For TKO-LTT TCSS & CBL TCSS)	2	2	0%	20-Dec-20	22-Dec-20	38
NE/2017/06.EMT.3	Sub-systems Equipment delivery (Main Batch)	75	75	0%	20-Dec-20	04-Mar-21	94
DWP3960	Traffic Control Devices (For TKO-LTT TCSS)	25	25	0%	08-Feb-21	04-Mar-21	94
DWP3970	Communications System (For TKO-LTT TCSS)	10	10	0%	20-Dec-20	29-Dec-20	23
DWP3980	CCTV System (For TKO-LTT TCSS)	10	10	0%	23-Dec-20	02-Jan-21	36
DWP3990	Building PABX System	10	10	0%	03-Jan-21	12-Jan-21	29
DWP4000	ET System	10	10	0%	03-Jan-21	12-Jan-21	49
DWP4010	PA System	14	14	0%	03-Jan-21	16-Jan-21	25
DWP4030	Detection System (For TKO-LTT TCSS)	14	14	0%	03-Jan-21	16-Jan-21	21
DWP4060	Power Distribution System (For TKO-LTT TCSS)	35	35	0%	23-Dec-20	27-Jan-21	31
NE/2017/06.EMT.4	Assembly of Equipment in Control Cabinet	0	0	0%			0
NE/2017/06.CST	**Construction Stage for TKO-LTT TCSS**	77	77	0%	20-Dec-20	26-Mar-21	829
NE/2017/06.CST.S1A1B	Works For Section 1A and Section 1B	77	77	0%	20-Dec-20	26-Mar-21	829
NE/2017/06.CST.S1A1B.1A	Stage 1A Works (ADB within Portion 1A)	62	62	0%	31-Dec-20	17-Mar-21	-20
DWP1150	Portion 1A Access Date	0	0	0%	31-Dec-20	31-Dec-20	-23
DWP4110	Inspection of Civil Provisions and Submit Inspection Report	56	56	0%	31-Dec-20	24-Feb-21	-23
DWP4120	Rectification of Civil Provisions Defects by others	21	21	0%	25-Feb-21	17-Mar-21	-23
NE/2017/06.CST.S1A1B.1A.3	Administration Building	0	0	0%			0
NE/2017/06.CST.S1A1B.1A.1	Site Commissioning Test of Fibre Cable	0	0	0%			0
NE/2017/06.CST.S1A1B.1A.2	Sub-system Site Comissioning Test	0	0	0%			0
NE/2017/06.CST.S1A1B.1B	Stage 1B Works (Tunnel, Underpass and Open Roads within Portion 1B)	76	76	0%	20-Dec-20	25-Mar-21	830
DWP4360	Handover of Holding-down Bolts for Pole Foundation to Civil	1	1	0%	20-Dec-20	21-Dec-20	1078
DWP4370	Portion 1B Access Date	0	0	0%	20-Dec-20	20-Dec-20	-17
DWP4380	Inspection of Civil Provisions and Submit Inspection Report	40	40	0%	20-Dec-20	28-Jan-21	-17
DWP4390	Rectification of Civil Provisions Defects by others	40	40	0%	29-Jan-21	09-Mar-21	-17
NE/2017/06.CST.S1A1B.1B.1	Installation of Cable Containment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.2	Laying Cables	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.3	Installation of Traffic Control Field Equipment	16	16	0%	10-Mar-21	25-Mar-21	87
DWP4510	MLCS	16	16	0%	10-Mar-21	25-Mar-21	32
NE/2017/06.CST.S1A1B.1B.3.2	FVMS- FVMS/101/A	3	3	0%	10-Mar-21	13-Mar-21	96
DWP4440	Assembly of FVMS at nearby area	2	2	0%	10-Mar-21	12-Mar-21	96
DWP4450	Erect the FVMS on Gantry	1	1	0%	12-Mar-21	13-Mar-21	96
NE/2017/06.CST.S1A1B.1B.3.1	FVMS- FVMS/102/A	3	3	0%	13-Mar-21	16-Mar-21	96
DWP4460	Assembly of FVMS at Nearby Area	2	2	0%	13-Mar-21	15-Mar-21	96
DWP4470	Erect the FVMS on Gantry	1	1	0%	15-Mar-21	16-Mar-21	96
NE/2017/06.CST.S1A1B.1B.4	Installation of Leaky Cable and Radio Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.5	Installation of CCTV	16	16	0%	10-Mar-21	25-Mar-21	73
DWP4600	Erect CCTV Highmasts	14	14	0%	10-Mar-21	23-Mar-21	75
DWP4610	Mounting Braket for CCTV	16	16	0%	10-Mar-21	25-Mar-21	73
NE/2017/06.CST.S1A1B.1B.6	Installation of Vehicle Detectors	14	14	0%	10-Mar-21	23-Mar-21	89
DWP4650	Erect Poles for OHVD	7	7	0%	10-Mar-21	16-Mar-21	89
DWP4660	OHVD	7	7	0%	17-Mar-21	23-Mar-21	89
NE/2017/06.CST.S1A1B.1B.7	Installation of ET Equipment insideTunnel	7	7	0%	10-Mar-21	16-Mar-21	96
DWP7800	Installation of ET Equipment Inside Tunnel	7	7	0%	10-Mar-21	16-Mar-21	96
NE/2017/06.CST.S1A1B.1B.8	Installation of PA Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.9	Installation of Enforcement Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.10	Installation of Control Cabinet	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.11	Local Cables Installation, Testing and Termination	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.12	Site Commissioning Test of TCD and fibre Cable	7	7	0%	17-Mar-21	23-Mar-21	96



Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
DWP4760	SCT for ET inside Tunnel	7	7	0%	17-Mar-21	23-Mar-21	96
NE/2017/06.CST.S1A1B.1C Stage 1C Works (EVB and WVB within Portion 1C)		11	11	0%	30-Jan-21	15-Feb-21	66
DWP4840	Portion 1C Access Date	0	0	0%	30-Jan-21	30-Jan-21	20
DWP4850	Inspection of Civil provicions and Submit Inspection Report	7	7	0%	30-Jan-21	05-Feb-21	20
DWP4860	Rectifications of Civil Provisions Defects by others	3	3	0%	06-Feb-21	08-Feb-21	20
DWP4870	Installation of Cable Containment	7	7	0%	09-Feb-21	15-Feb-21	81
NE/2017/06.CST.S1A1B.1C.5 Site Commissioning Test of Fibre Cable		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.2 West Ventilation Building		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.1 Sub-systems Site Commissioning Test		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.3 East Ventilation Building		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.4 Sub-systems Site Commissioning Test-1		0	0	0%			0
NE/2017/06.CST.S1A1B.2A Stage 2A Works (Within Portion 2A)		0	0	0%			0
NE/2017/06.CST.S1A1B.2B Stage 2B Works (Within Portion 2B)		0	0	0%			0
NE/2017/06.CST.S1A1B.3 Stage 3 Works (Within Portion 3A)		77	77	0%	20-Dec-20	26-Mar-21	829
DWP5440	Handover of Holding-down Bolts for Pole Foundation to Civil	1	1	0%	20-Dec-20	21-Dec-20	1078
DWP5450	Portion 3A Access Date	0	0	0%	01-Mar-21	01-Mar-21	19
DWP5460	Inspection of Civil Provisions and Submit Inspection Report	10	10	0%	01-Mar-21	10-Mar-21	19
DWP5470	Rectification of Civil Provisions Defects by others	16	16	0%	11-Mar-21	26-Mar-21	19
NE/2017/06.CST.S1A1B.3.1 Laying Cables (fibre , signal and power)		0	0	0%			0
NE/2017/06.CST.S1A1B.3.2 Installation of Traffic Control Field Equipment		0	0	0%			0
NE/2017/06.CST.S1A1B.3.3 Installation of CCTV		0	0	0%			0
NE/2017/06.CST.S1A1B.3.5 Installation of Control Cabinet		0	0	0%			0
NE/2017/06.CST.S1A1B.3.6 Local Cables Installation , Testing and Termination		0	0	0%			0
NE/2017/06.CST.S1A1B.3.7 Site Comissioning Test of TCD and Fibre Cable		0	0	0%			0
NE/2017/06.CST.S1A1B.4A Stage 4A Works (Bridges within Portion 4A)		0	0	0%			0
NE/2017/06.CST.S1A1B.4B Stage 4B Works (Bridges within Portion 4B)		0	0	0%			0
NE/2017/06.SATT SAT for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.OPTT Operability Period Test for the TKO-LTT TCSS		0	0	0%			0
NE/2017/06.DLPT DLP for the TKO-LTT TCSS		0	0	0%			0
NE/2017/06.DOC1 Documentation Submission for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.TRT Training for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.EMC Equipment Manufacturing and Delivery for CBL TCSS		0	0	0%			0
NE/2017/06.CSC1 Construction Stage for CBL TCSS		0	0	0%			0
NE/2017/06.SATC SAT for CBL TCSS		0	0	0%			0
NE/2017/06.OPTC Operability Period Test For the CBL TCSS		0	0	0%			0
NE/2017/06.DLPC DLP for the CBL TCSS		0	0	0%			0
NE/2017/06.DOC Documentation Submission for CBL TCSS		0	0	0%			0
NE/2017/06.TRC Training for CBL TCSS		0	0	0%			0



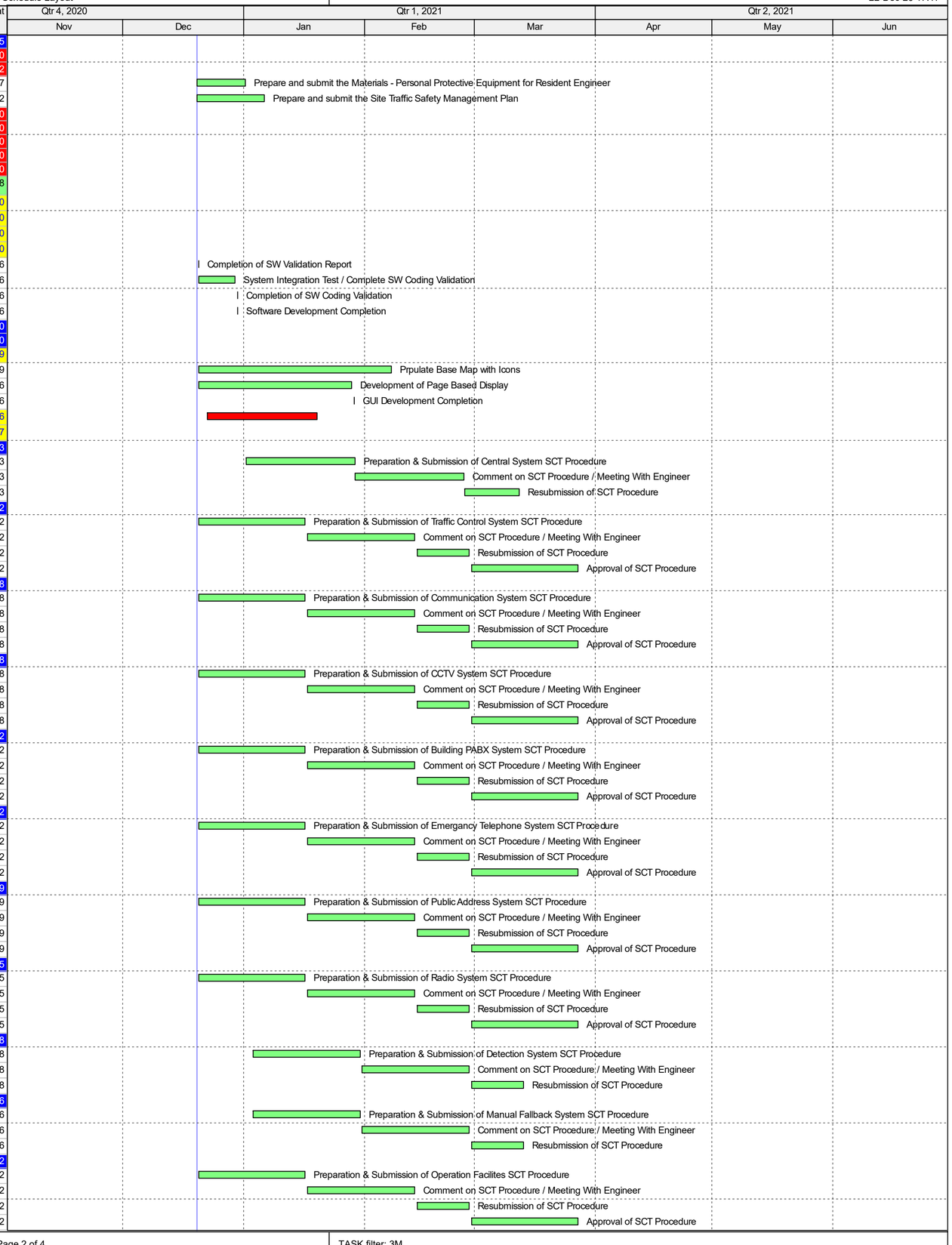
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06	NE/2017/06 TKO-LTT TCSS_3MRP	104	78	0%	04-Dec-20 A	27-Mar-21	828
NE/2017/06.CW	Contract Award / Commencement of Works	0	0	0%			0
NE/2017/06.AD	Access Date	71	71	0%	20-Dec-20	01-Mar-21	19
NE/2017/06.AD.000	General	71	71	0%	20-Dec-20	01-Mar-21	19
NE/2017/06.AD.000.AD	Access Date	71	71	0%	20-Dec-20	01-Mar-21	19
DWP10670	Portion 1A of the Site	0	0	0%	31-Dec-20*		-23
DWP10672	Portion 1B of the Site	0	0	0%	20-Dec-20*		-17
DWP10674	Portion 1C of the Site	0	0	0%	30-Jan-21*		20
DWP10680	Portion 3A of the Site	0	0	0%	01-Mar-21*		19
NE/2017/06.KD	Key Date and Stages / Sections of the Achievement	0	0	0%			0
NE/2017/06.MD	Cost Centre Milestone Dates	84	58	0%	12-Dec-20 A	04-Mar-21	457
NE/2017/06.MD.1	General	84	58	0%	12-Dec-20 A	04-Mar-21	457
NE/2017/06.MD.1.1	CC B - Central System - TKOLTT	75	0	0%	12-Dec-20 A	02-Feb-21	145
DWP8840	Acceptance of Final System Proposal for Works	0	0	100%		12-Dec-20 A	
DWP8850	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Feb-21	145
NE/2017/06.MD.1.2	CC B1 - Central System - CBL	45	45	0%	20-Dec-20	02-Feb-21	577
DWP8900	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP8910	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Feb-21	577
NE/2017/06.MD.1.3	CC C - Traffic Control Devices - TKOLTT	57	57	0%	06-Jan-21	04-Mar-21	115
DWP8970	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		06-Jan-21	172
DWP8980	Complete order and delivery on Site of all equipment for Works	0	0	0%		04-Mar-21	115
NE/2017/06.MD.1.4	CC C1 - Traffic Control Devices - CBL	18	18	0%	20-Dec-20	06-Jan-21	604
DWP9020	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9030	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		06-Jan-21	604
NE/2017/06.MD.1.5	CC D - Communication System - TKOLTT	10	10	0%	20-Dec-20	29-Dec-20	180
DWP9150	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		20-Dec-20	190
DWP9160	Complete order and delivery on Site of all equipment for Works	0	0	0%		29-Dec-20	180
NE/2017/06.MD.1.6	CC D1 - Communication System - CBL	0	0	0%	20-Dec-20	20-Dec-20	622
DWP9080	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9090	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		20-Dec-20	622
NE/2017/06.MD.1.7	CC E - CCTV System - TKOLTT	0	0	0%	23-Dec-20	23-Dec-20	186
DWP9210	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	186
NE/2017/06.MD.1.8	CC E1 - CCTV System - CBL	4	4	0%	20-Dec-20	23-Dec-20	618
DWP9260	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9270	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	618
NE/2017/06.MD.1.9	CC F - Building PABX System - TKOLTT	10	10	0%	02-Jan-21	12-Jan-21	166
DWP9330	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9340	Complete order and delivery on Site of all equipment for Works	0	0	0%		12-Jan-21	166
NE/2017/06.MD.1.11	CC G - ET System - TKOLTT	10	10	0%	02-Jan-21	12-Jan-21	166
DWP9450	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9460	Complete order and delivery on Site of all equipment for Works	0	0	0%		12-Jan-21	166
NE/2017/06.MD.1.10	CC H - PA System - TKOLTT	14	14	0%	02-Jan-21	16-Jan-21	162
DWP9390	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9400	Complete order and delivery on Site of all equipment for Works	0	0	0%		16-Jan-21	162
NE/2017/06.MD.1.12	CC I - Radio System - TKOLTT	0	0	0%	22-Dec-20	22-Dec-20	188
DWP9510	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Dec-20	188
NE/2017/06.MD.1.13	CC J - Detection System - TKOLTT	14	14	0%	02-Jan-21	16-Jan-21	162
DWP9570	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	176
DWP9580	Complete order and delivery on Site of all equipment for Works	0	0	0%		16-Jan-21	162
NE/2017/06.MD.1.15	CC J1 - Detection System - CBL	14	14	0%	20-Dec-20	02-Jan-21	608
DWP9680	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9690	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		02-Jan-21	608
NE/2017/06.MD.1.14	CC K - Manual Fallback System - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.16	CC L - Operation Facilities - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.17	CC M - Power Distribution System - TKOLTT	0	0	0%	23-Dec-20	23-Dec-20	186
DWP9810	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	186
NE/2017/06.MD.1.18	CC M1 - Power Distribution System - CBL	4	4	0%	20-Dec-20	23-Dec-20	618
DWP9860	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP9870	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		23-Dec-20	618
NE/2017/06.MD.1.19	CC N - Speed Enforcement System - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.20	CC N1 - Speed Enforcement System - CBL	6	6	0%	20-Dec-20	25-Dec-20	616
DWP10390	Acceptance of Preliminary System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10400	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10410	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		25-Dec-20	616
NE/2017/06.MD.1.21	CC O - Government Optical Fibre System - TKOLTT	0	0	0%	22-Jan-21	22-Jan-21	157
DWP10050	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Jan-21	157
NE/2017/06.MD.1.22	CC O1 - Government Optical Fibre System - CBL	33	33	0%	20-Dec-20	22-Jan-21	589
DWP10090	Acceptance of Preliminary System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10100	Acceptance of Final System Proposal for Works	0	0	0%		20-Dec-20	622
DWP10110	Acceptance of Factory Acceptance Tests of all equipment for Works	0	0	0%		22-Jan-21	589
NE/2017/06.MD.1.23	CC P - Training and Documentation - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.24	CC P1 - Training and Documentation - CBL	0	0	0%	02-Feb-21	02-Feb-21	577
DWP10150	Acceptance of all Factory Acceptance Tests Reports	0	0	0%		02-Feb-21	577
NE/2017/06.MD.1.25	CC Q - Comprehensive Maintenance Services and DLP - TKOLTT	0	0	0%			0
NE/2017/06.MD.1.26	CC Q1 - Comprehensive Maintenance Services and DLP - CBL	0	0	0%			0
NE/2017/06.1	Preliminary	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0	Preliminary and General	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0.GEN	General	0	0	0%			0



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
◆ Milestone

TASK filter: 3M.

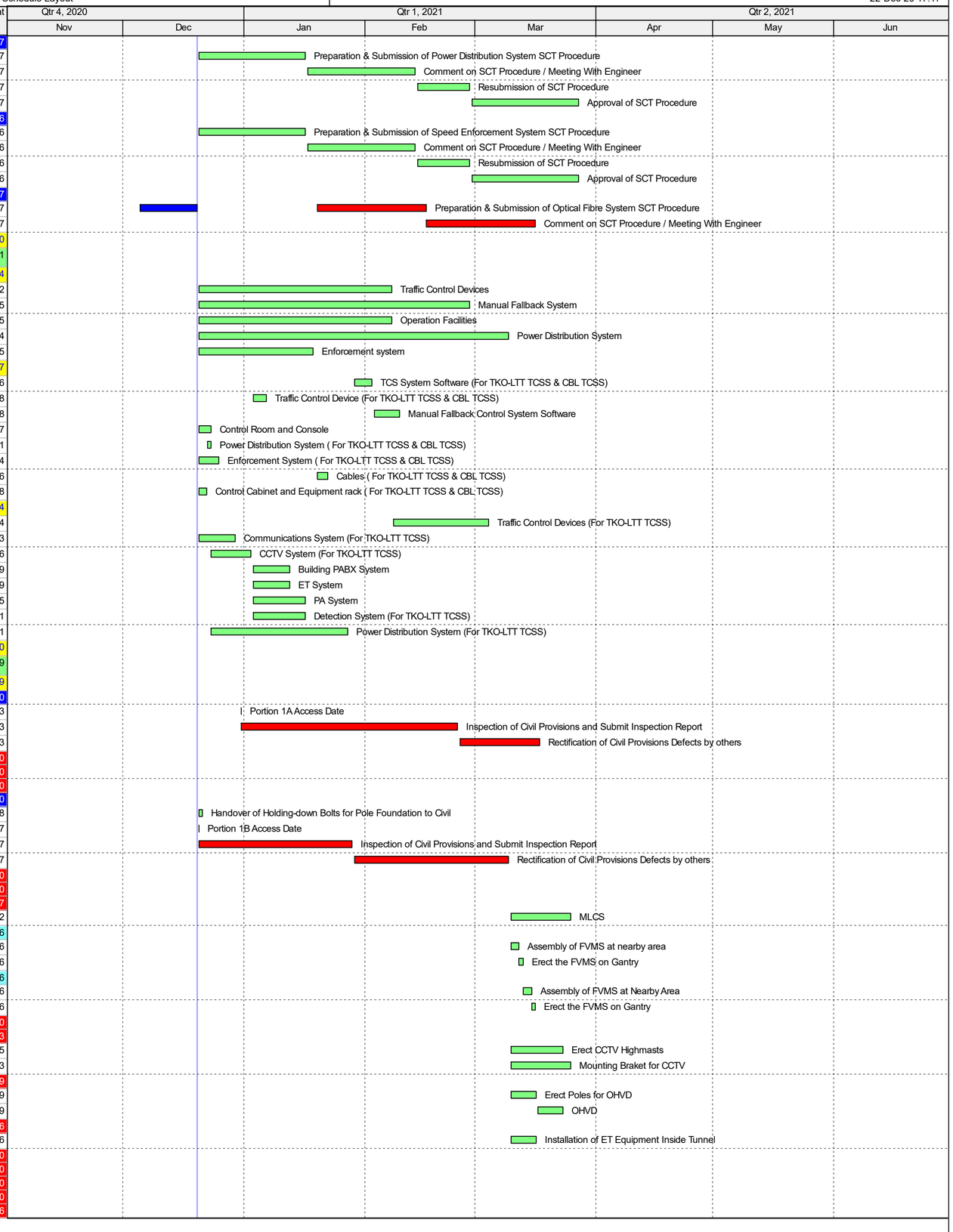
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06.1.A0.3	Management System	11	11	0%	20-Dec-20	06-Jan-21	895
NE/2017/06.1.A0.3.0QP	Quality Management Plan	0	0	0%			0
NE/2017/06.1.A0.3.2	Safety Management	17	17	0%	20-Dec-20	06-Jan-21	1062
GEN.0.05C	Prepare and submit the Materials - Personal Protective Equipment for Resident Engineer	12	12	0%	20-Dec-20	01-Jan-21	1067
GEN.0.05D	Prepare and submit the Site Traffic Safety Management Plan	17	17	0%	20-Dec-20	06-Jan-21	1062
NE/2017/06.1.A0.3.1	Environmenta; Management Plan	0	0	0%			0
NE/2017/06.1.A0.3.3	Sub-Contract Management	0	0	0%			0
NE/2017/06.1.A0.3.4	Risk Management	0	0	0%			0
NE/2017/06.1.A0.3.5	Software Management	0	0	0%			0
NE/2017/06.1.A0.3.6	Interface Management	0	0	0%			0
NE/2017/06.DS	Design Stage	92	78	0%	04-Dec-20 A	27-Mar-21	828
NE/2017/06.DS.PSP	Prepare / Submission of PSP for TKO-LTT TCSS and CBL TCSS	0	0	0%			0
NE/2017/06.DS.FSP	Prepare / Submission of FSP For TKO-LTT TCSS and CBL TCSS	0	0	0%			0
NE/2017/06.DS.FDS	Preparation of Functional Design Specification (FDS)	0	0	0%			0
NE/2017/06.DS.SWD	Software Development (except GUI) for TKO-LTT TCSS and CBL TCSS	6	6	0%	20-Dec-20	30-Dec-20	30
DWP7690	Completion of SW Validation Report	0	0	0%	20-Dec-20	20-Dec-20	36
DWP7700	System Integration Test / Complete SW Coding Validation	10	10	0%	20-Dec-20	29-Dec-20	36
DWP7810	Completion of SW Coding Validation	0	0	0%	30-Dec-20	30-Dec-20	36
DWP7820	Software Development Completion	0	0	0%	30-Dec-20	30-Dec-20	36
NE/2017/06.DS.SWD.2	Allocation of New Functionality to Existing or New Modules	0	0	0%			0
NE/2017/06.DS.SWD.6	Traffic Plan Coding	0	0	0%			0
NE/2017/06.DS.GUI	GUI Development for TKO-LTT TCSS and CBL TCSS	50	50	0%	20-Dec-20	07-Feb-21	1029
DWP2520	Prpulate Base Map with Icons	50	50	0%	20-Dec-20	07-Feb-21	1029
DWP2530	Development of Page Based Display	40	40	0%	20-Dec-20	28-Jan-21	6
DWP2540	GUI Development Completion	0	0	0%	29-Jan-21	29-Jan-21	6
NE/2017/06.DS.FAT	Preparation / Submission of FAT Procedures	37	21	0%	04-Dec-20 A	19-Jan-21	-6
NE/2017/06.DS.SCT	Preparation / Submission of SCT Procedures	113	98	0%	05-Dec-20 A	27-Mar-21	487
NE/2017/06.DS.SCT.1	Central System	70	70	0%	01-Jan-21	12-Mar-21	503
DWP8260	Preparation & Submission of Central System SCT Procedure	28	28	0%	01-Jan-21	29-Jan-21	503
DWP8270	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	29-Jan-21	26-Feb-21	503
DWP8280	Resubmission of SCT Procedure	14	14	0%	26-Feb-21	12-Mar-21	503
NE/2017/06.DS.SCT.2	Traffic Control Devices	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8300	Preparation & Submission of Traffic Control System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8310	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8320	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8330	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.3	Communication System	98	98	0%	20-Dec-20	27-Mar-21	38
DWP8340	Preparation & Submission of Communication System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	38
DWP8350	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	38
DWP8360	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	38
DWP8370	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	38
NE/2017/06.DS.SCT.4	CCTV System	98	98	0%	20-Dec-20	27-Mar-21	38
DWP8380	Preparation & Submission of CCTV System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	38
DWP8390	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	38
DWP8400	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	38
DWP8410	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	38
NE/2017/06.DS.SCT.5	Building PABX System	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8420	Preparation & Submission of Building PABX System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8430	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8440	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8450	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.6	Emergancy Telephone System	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8460	Preparation & Submission of Emergancy Telephone System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8470	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8480	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8490	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52
NE/2017/06.DS.SCT.7	Public Address System	98	98	0%	20-Dec-20	27-Mar-21	59
DWP8500	Preparation & Submission of Public Address System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	59
DWP8510	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	59
DWP8520	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	59
DWP8530	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	59
NE/2017/06.DS.SCT.8	Radio System	98	98	0%	20-Dec-20	27-Mar-21	75
DWP8540	Preparation & Submission of Radio System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	75
DWP8550	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	75
DWP8560	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	75
DWP8570	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	75
NE/2017/06.DS.SCT.9	Detection System	70	70	0%	03-Jan-21	13-Mar-21	38
DWP8580	Preparation & Submission of Detection System SCT Procedure	28	28	0%	03-Jan-21	30-Jan-21	38
DWP8590	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	31-Jan-21	27-Feb-21	38
DWP8600	Resubmission of SCT Procedure	14	14	0%	28-Feb-21	13-Mar-21	38
NE/2017/06.DS.SCT.10	Manual Fallback System	70	70	0%	03-Jan-21	13-Mar-21	66
DWP8620	Preparation & Submission of Manual Fallback System SCT Procedure	28	28	0%	03-Jan-21	30-Jan-21	66
DWP8630	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	31-Jan-21	27-Feb-21	66
DWP8640	Resubmission of SCT Procedure	14	14	0%	28-Feb-21	13-Mar-21	66
NE/2017/06.DS.SCT.11	Operation Facilities	98	98	0%	20-Dec-20	27-Mar-21	52
DWP8660	Preparation & Submission of Operation Facilites SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	52
DWP8670	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	52
DWP8680	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	52
DWP8690	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	52



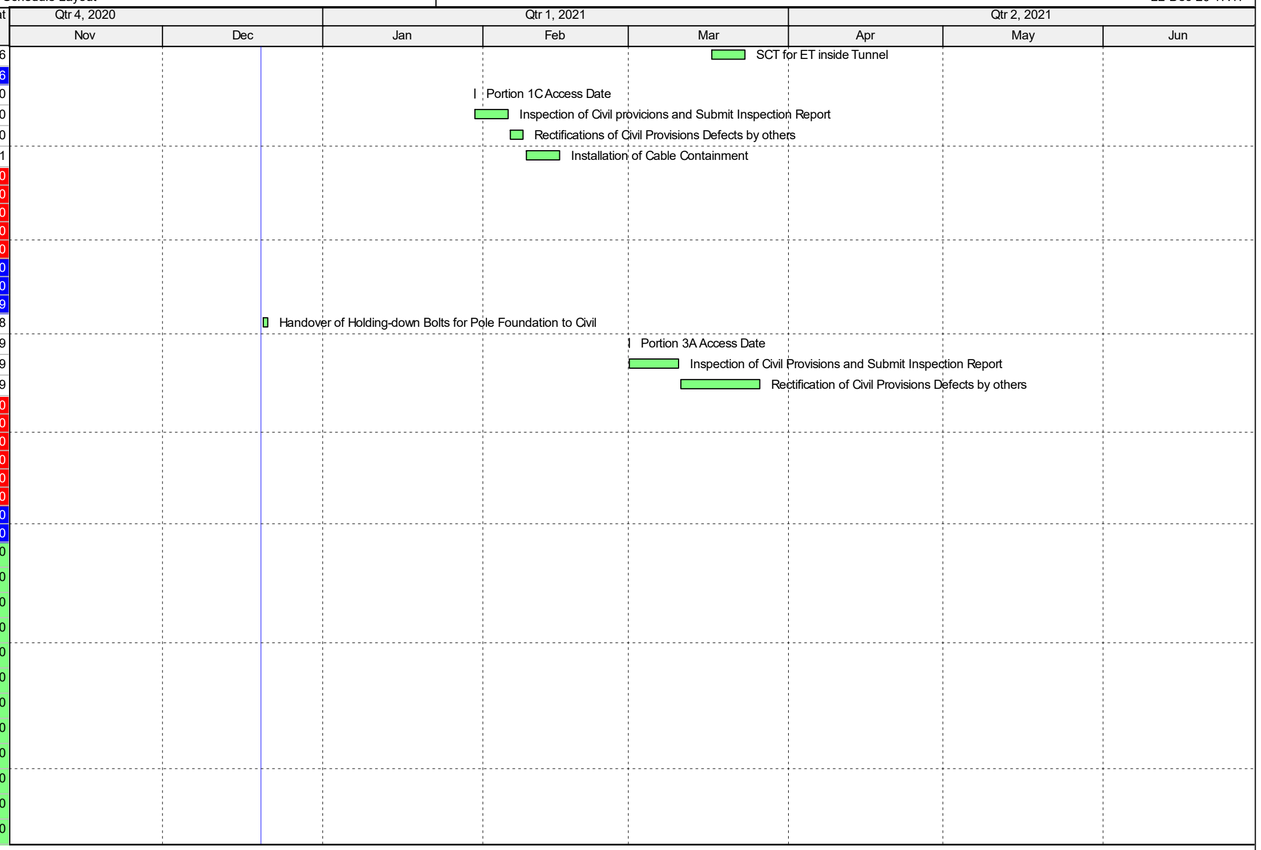
Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work

TASK filter: 3M.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
NE/2017/06.DS.SCT.12	Power Distribution System	98	98	0%	20-Dec-20	27-Mar-21	17
DWP8700	Preparation & Submission of Power Distribution System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	17
DWP8710	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	17
DWP8720	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	17
DWP8730	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	17
NE/2017/06.DS.SCT.13	Speed Enforcement System	98	98	0%	20-Dec-20	27-Mar-21	96
DWP8740	Preparation & Submission of Speed Enforcement System SCT Procedure	28	28	0%	20-Dec-20	16-Jan-21	96
DWP8750	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	17-Jan-21	13-Feb-21	96
DWP8760	Resubmission of SCT Procedure	14	14	0%	14-Feb-21	27-Feb-21	96
DWP8770	Approval of SCT Procedure	28	28	0%	28-Feb-21	27-Mar-21	96
NE/2017/06.DS.SCT.14	Optical Fibre system	102	56	0%	05-Dec-20 A	16-Mar-21	-7
DWP8780	Preparation & Submission of Optical Fibre System SCT Procedure	28	28	53.57%	05-Dec-20 A	16-Feb-21	-7
DWP8790	Comment on SCT Procedure / Meeting With Engineer	28	28	0%	16-Feb-21	16-Mar-21	-7
NE/2017/06.DS.SAT	Preparation / Submission of SAT Procedures	0	0	0%			0
NE/2017/06.EMT	**Equipment Manufacturing and FAT Stage for TKO-LTT TCSS and**	62	62	0%	20-Dec-20	09-Mar-21	71
NE/2017/06.EMT.1	Sub-systems Equipment Manufacturing (Including FAT Test Module)	80	80	0%	20-Dec-20	09-Mar-21	34
DWP3670	Traffic Control Devices	50	50	0%	20-Dec-20	07-Feb-21	42
DWP3750	Manual Fallback System	70	70	0%	20-Dec-20	27-Feb-21	15
DWP3760	Operation Facilities	50	50	0%	20-Dec-20	07-Feb-21	15
DWP3770	Power Distribution System	80	80	0%	20-Dec-20	09-Mar-21	34
DWP3780	Enforcement system	30	30	0%	20-Dec-20	18-Jan-21	15
NE/2017/06.EMT.2	System and Equipment FAT	52	52	0%	20-Dec-20	09-Feb-21	77
DWP3810	TCS System Software (For TKO-LTT TCSS & CBL TCSS)	5	5	0%	29-Jan-21	02-Feb-21	6
DWP3820	Traffic Control Device (For TKO-LTT TCSS & CBL TCSS)	4	4	0%	03-Jan-21	06-Jan-21	28
DWP3900	Manual Fallback Control System Software	7	7	0%	03-Feb-21	09-Feb-21	38
DWP3910	Control Room and Console	3	3	0%	20-Dec-20	23-Dec-20	37
DWP3920	Power Distribution System (For TKO-LTT TCSS & CBL TCSS)	1	1	0%	22-Dec-20	23-Dec-20	31
DWP3930	Enforcement System (For TKO-LTT TCSS & CBL TCSS)	6	6	0%	20-Dec-20	25-Dec-20	34
DWP3940	Cables (For TKO-LTT TCSS & CBL TCSS)	2	2	0%	19-Jan-21	22-Jan-21	96
DWP3950	Control Cabinet and Equipment rack (For TKO-LTT TCSS & CBL TCSS)	2	2	0%	20-Dec-20	22-Dec-20	38
NE/2017/06.EMT.3	Sub-systems Equipment delivery (Main Batch)	75	75	0%	20-Dec-20	04-Mar-21	94
DWP3960	Traffic Control Devices (For TKO-LTT TCSS)	25	25	0%	08-Feb-21	04-Mar-21	94
DWP3970	Communications System (For TKO-LTT TCSS)	10	10	0%	20-Dec-20	29-Dec-20	23
DWP3980	CCTV System (For TKO-LTT TCSS)	10	10	0%	23-Dec-20	02-Jan-21	36
DWP3990	Building PABX System	10	10	0%	03-Jan-21	12-Jan-21	29
DWP4000	ET System	10	10	0%	03-Jan-21	12-Jan-21	49
DWP4010	PA System	14	14	0%	03-Jan-21	16-Jan-21	25
DWP4030	Detection System (For TKO-LTT TCSS)	14	14	0%	03-Jan-21	16-Jan-21	21
DWP4060	Power Distribution System (For TKO-LTT TCSS)	35	35	0%	23-Dec-20	27-Jan-21	31
NE/2017/06.EMT.4	Assembly of Equipment in Control Cabinet	0	0	0%			0
NE/2017/06.CST	**Construction Stage for TKO-LTT TCSS**	77	77	0%	20-Dec-20	26-Mar-21	829
NE/2017/06.CST.S1A1B	Works For Section 1A and Section 1B	77	77	0%	20-Dec-20	26-Mar-21	829
NE/2017/06.CST.S1A1B.1A	Stage 1A Works (ADB within Portion 1A)	62	62	0%	31-Dec-20	17-Mar-21	-20
DWP1150	Portion 1A Access Date	0	0	0%	31-Dec-20	31-Dec-20	-23
DWP4110	Inspection of Civil Provisions and Submit Inspection Report	56	56	0%	31-Dec-20	24-Feb-21	-23
DWP4120	Rectification of Civil Provisions Defects by others	21	21	0%	25-Feb-21	17-Mar-21	-23
NE/2017/06.CST.S1A1B.1A.3	Administration Building	0	0	0%			0
NE/2017/06.CST.S1A1B.1A.1	Site Commissioning Test of Fibre Cable	0	0	0%			0
NE/2017/06.CST.S1A1B.1A.2	Sub-system Site Comissioning Test	0	0	0%			0
NE/2017/06.CST.S1A1B.1B	Stage 1B Works (Tunnel, Underpass and Open Roads within Portion 1B)	76	76	0%	20-Dec-20	25-Mar-21	830
DWP4360	Handover of Holding-down Bolts for Pole Foundation to Civil	1	1	0%	20-Dec-20	21-Dec-20	1078
DWP4370	Portion 1B Access Date	0	0	0%	20-Dec-20	20-Dec-20	-17
DWP4380	Inspection of Civil Provisions and Submit Inspection Report	40	40	0%	20-Dec-20	28-Jan-21	-17
DWP4390	Rectification of Civil Provisions Defects by others	40	40	0%	29-Jan-21	09-Mar-21	-17
NE/2017/06.CST.S1A1B.1B.1	Installation of Cable Containment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.2	Laying Cables	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.3	Installation of Traffic Control Field Equipment	16	16	0%	10-Mar-21	25-Mar-21	87
DWP4510	MLCS	16	16	0%	10-Mar-21	25-Mar-21	32
NE/2017/06.CST.S1A1B.1B.3.2	FVMS- FVMS/101/A	3	3	0%	10-Mar-21	13-Mar-21	96
DWP4440	Assembly of FVMS at nearby area	2	2	0%	10-Mar-21	12-Mar-21	96
DWP4450	Erect the FVMS on Gantry	1	1	0%	12-Mar-21	13-Mar-21	96
NE/2017/06.CST.S1A1B.1B.3.1	FVMS- FVMS/102/A	3	3	0%	13-Mar-21	16-Mar-21	96
DWP4460	Assembly of FVMS at Nearby Area	2	2	0%	13-Mar-21	15-Mar-21	96
DWP4470	Erect the FVMS on Gantry	1	1	0%	15-Mar-21	16-Mar-21	96
NE/2017/06.CST.S1A1B.1B.4	Installation of Leaky Cable and Radio Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.5	Installation of CCTV	16	16	0%	10-Mar-21	25-Mar-21	73
DWP4600	Erect CCTV Highmasts	14	14	0%	10-Mar-21	23-Mar-21	75
DWP4610	Mounting Braket for CCTV	16	16	0%	10-Mar-21	25-Mar-21	73
NE/2017/06.CST.S1A1B.1B.6	Installation of Vehicle Detectors	14	14	0%	10-Mar-21	23-Mar-21	89
DWP4650	Erect Poles for OHVD	7	7	0%	10-Mar-21	16-Mar-21	89
DWP4660	OHVD	7	7	0%	17-Mar-21	23-Mar-21	89
NE/2017/06.CST.S1A1B.1B.7	Installation of ET Equipment insideTunnel	7	7	0%	10-Mar-21	16-Mar-21	96
DWP7800	Installation of ET Equipment Inside Tunnel	7	7	0%	10-Mar-21	16-Mar-21	96
NE/2017/06.CST.S1A1B.1B.8	Installation of PA Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.9	Installation of Enforcement Equipment	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.10	Installation of Control Cabinet	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.11	Local Cables Installation, Testing and Termination	0	0	0%			0
NE/2017/06.CST.S1A1B.1B.12	Site Commissioning Test of TCD and fibre Cable	7	7	0%	17-Mar-21	23-Mar-21	96



Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
DWP4760	SCT for ET inside Tunnel	7	7	0%	17-Mar-21	23-Mar-21	96
NE/2017/06.CST.S1A1B.1C Stage 1C Works (EVB and WVB within Portion 1C)		11	11	0%	30-Jan-21	15-Feb-21	66
DWP4840	Portion 1C Access Date	0	0	0%	30-Jan-21	30-Jan-21	20
DWP4850	Inspection of Civil provicions and Submit Inspection Report	7	7	0%	30-Jan-21	05-Feb-21	20
DWP4860	Rectifications of Civil Provisions Defects by others	3	3	0%	06-Feb-21	08-Feb-21	20
DWP4870	Installation of Cable Containment	7	7	0%	09-Feb-21	15-Feb-21	81
NE/2017/06.CST.S1A1B.1C.5 Site Commissioning Test of Fibre Cable		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.2 West Ventilation Building		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.1 Sub-systems Site Commissioning Test		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.3 East Ventilation Building		0	0	0%			0
NE/2017/06.CST.S1A1B.1C.4 Sub-systems Site Commissioning Test-1		0	0	0%			0
NE/2017/06.CST.S1A1B.2A Stage 2A Works (Within Portion 2A)		0	0	0%			0
NE/2017/06.CST.S1A1B.2B Stage 2B Works (Within Portion 2B)		0	0	0%			0
NE/2017/06.CST.S1A1B.3 Stage 3 Works (Within Portion 3A)		77	77	0%	20-Dec-20	26-Mar-21	829
DWP5440	Handover of Holding-down Bolts for Pole Foundation to Civil	1	1	0%	20-Dec-20	21-Dec-20	1078
DWP5450	Portion 3A Access Date	0	0	0%	01-Mar-21	01-Mar-21	19
DWP5460	Inspection of Civil Provisions and Submit Inspection Report	10	10	0%	01-Mar-21	10-Mar-21	19
DWP5470	Rectification of Civil Provisions Defects by others	16	16	0%	11-Mar-21	26-Mar-21	19
NE/2017/06.CST.S1A1B.3.1 Laying Cables (fibre , signal and power)		0	0	0%			0
NE/2017/06.CST.S1A1B.3.2 Installation of Traffic Control Field Equipment		0	0	0%			0
NE/2017/06.CST.S1A1B.3.3 Installation of CCTV		0	0	0%			0
NE/2017/06.CST.S1A1B.3.5 Installation of Control Cabinet		0	0	0%			0
NE/2017/06.CST.S1A1B.3.6 Local Cables Installation , Testing and Termination		0	0	0%			0
NE/2017/06.CST.S1A1B.3.7 Site Comissioning Test of TCD and Fibre Cable		0	0	0%			0
NE/2017/06.CST.S1A1B.4A Stage 4A Works (Bridges within Portion 4A)		0	0	0%			0
NE/2017/06.CST.S1A1B.4B Stage 4B Works (Bridges within Portion 4B)		0	0	0%			0
NE/2017/06.SATT SAT for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.OPTT Operability Period Test for the TKO-LTT TCSS		0	0	0%			0
NE/2017/06.DLPT DLP for the TKO-LTT TCSS		0	0	0%			0
NE/2017/06.DOC1 Documentation Submission for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.TRT Training for TKO-LTT TCSS		0	0	0%			0
NE/2017/06.EMC Equipment Manufacturing and Delivery for CBL TCSS		0	0	0%			0
NE/2017/06.CSC1 Construction Stage for CBL TCSS		0	0	0%			0
NE/2017/06.SATC SAT for CBL TCSS		0	0	0%			0
NE/2017/06.OPTC Operability Period Test For the CBL TCSS		0	0	0%			0
NE/2017/06.DLPC DLP for the CBL TCSS		0	0	0%			0
NE/2017/06.DOC Documentation Submission for CBL TCSS		0	0	0%			0
NE/2017/06.TRC Training for CBL TCSS		0	0	0%			0

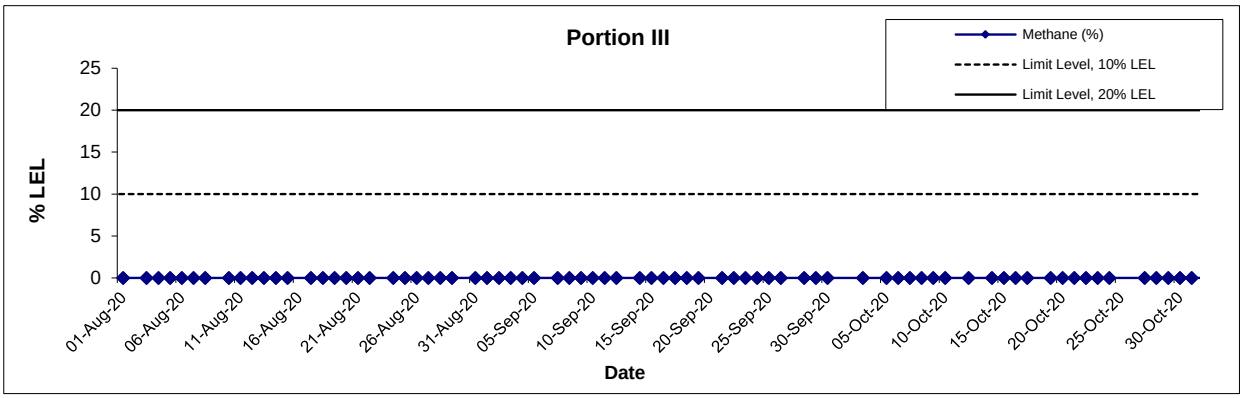


APPENDIX R
RECORD OF LANDFILL GAS MONITORING BY CONTRACTOR

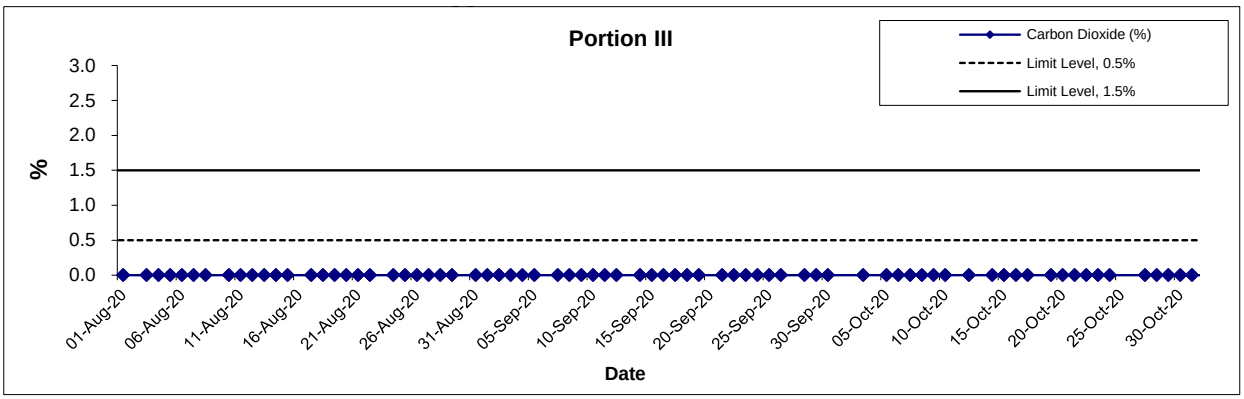
APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
Portion III	1-Dec-20	8:28	Sunny	17	0	0	20.9
Portion III	1-Dec-20	13:00	Sunny	21	0	0	20.9
Portion III	2-Dec-20	8:30	Sunny	17	0	0	20.9
Portion III	2-Dec-20	13:05	Sunny	21	0	0	20.9
Portion III	3-Dec-20	8:32	Sunny	16	0	0	20.9
Portion III	3-Dec-20	13:08	Sunny	19	0	0	20.9
Portion III	4-Dec-20	8:31	Cloudy	14	0	0	20.9
Portion III	4-Dec-20	13:02	Sunny	17	0	0	20.9
Portion III	5-Dec-20	8:30	Cloudy	13	0	0	20.9
Portion III	5-Dec-20	13:03	Cloudy	18	0	0	20.9
Portion III	7-Dec-20	8:30	Cloudy	18	0	0	20.9
Portion III	7-Dec-20	13:08	Sunny	22	0	0	20.9
Portion III	8-Dec-20	8:36	Cloudy	18	0	0	20.9
Portion III	8-Dec-20	13:10	Cloudy	20	0	0	20.9
Portion III	9-Dec-20	8:30	Cloudy	19	0	0	20.9
Portion III	9-Dec-20	13:08	Cloudy	20	0	0	20.9
Portion III	24-Dec-20	8:35	Sunny	18	0	0	20.9
Portion III	24-Dec-20	13:05	Sunny	21	0	0	20.9
Portion III	28-Dec-20	8:31	Cloudy	19	0	0	20.9
Portion III	28-Dec-20	13:03	Sunny	22	0	0	20.9
Portion III	29-Dec-20	8:30	Sunny	19	0	0	20.9
Portion III	29-Dec-20	13:10	Sunny	23	0	0	20.9
Portion III	30-Dec-20	8:30	Cloudy	11	0	0	20.9
Portion III	30-Dec-20	13:06	Sunny	20	0	0	20.9
Portion III	31-Dec-20	8:35	Sunny	8	0	0	20.9
Portion III	31-Dec-20	13:10	Sunny	13	0	0	20.9

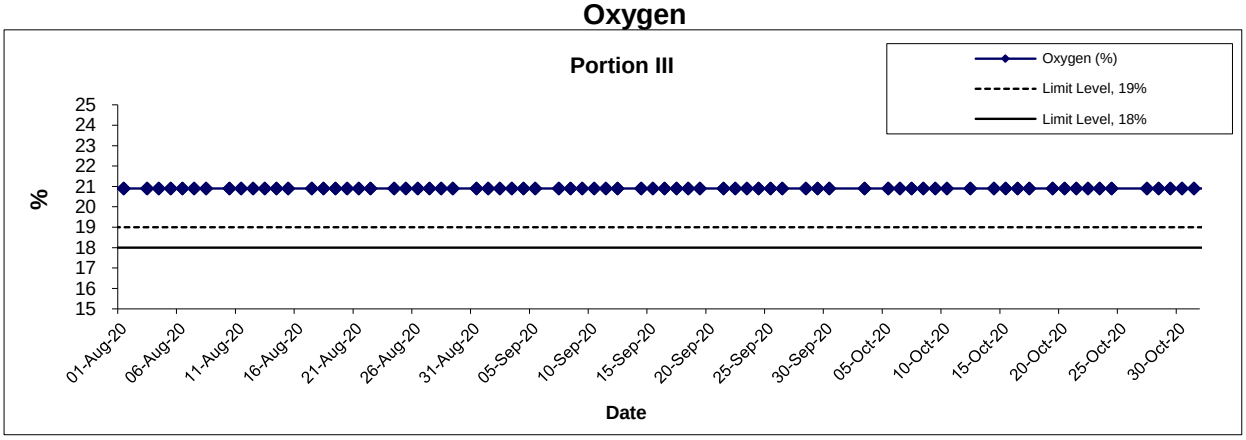
Methane



Carbon Dioxide



Oxygen



Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction	Scale N.T.S Date Dec-20	Project No. MA16034 Appendix R	CINOTECH

APPENDIX S
UPDATED CONSTRUCTION NOISE ASSESSMENT

Contract No.: NE/2015/02

Project Title:

Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works

Noise Mitigation Plan

Document No: CSF/0/0008E
Revision: 22
Date: 30 December 2020

Noise Mitigation Plan

Document No: CSF/0/0008E
Revision: 22
Date: 30 December 2020

Revision History

Revision No.	Description	Revised By	Date
00	First Release	Wendy NG	13 September 2016
01	Addressed EPD's comments dated on 12 October 2016	Wendy NG	09 November 2016
02	Addressed EPD's commented dated on 18 November 2016	Wendy NG	12 December 2016
03	Addressed EPD's commented dated on 27 February 2017	Gary Fung	20 March 2017
04	Addressed EPD's commented dated on 13 June 2017	Gary Fung	30 June 2017
05	Addressed EPD's commented dated on 7 September 2017	Gary Fung	2 November 2017
06	Revise PME list	Gary Fung	5 February 2018
07	Revise PME list	Gary Fung	4 April 2018
08	Revise PME list	Gary Fung	4 June 2018
09	Revise PME list	Gary Fung	28 July 2018
10	Update Construction Programme	Gary Fung	8 October 2018
11	Update Construction Programme	Gary Fung	6 April 2019
12	Update Construction Programme	Gary Fung	10 May 2019
13	Update Construction Programme and PME list	Gary Fung	9 August 2019

Revision No.	Description	Revised By	Date
14	Update Construction Programme and PME list	Gary Fung	4 September 2019
15	Update Construction Programme and PME list	Gary Fung	17 December 2019
16	Update Construction Programme and PME list	Gary Fung	7 March 2020
17	Update Construction Programme and PME list	Gary Fung	23 March 2020
18	Update Construction Programme and PME list	Gary Fung	11 June 2020
19	Update Construction Programme and PME list	Daniel Sin	17 August 2020
20	Update Construction Programme and PME list	Daniel Sin	11 September 2020
21	Update Construction Programme and PME list and Appendix A	Daniel Sin	7 October 2020
22	Update Construction Programme and PME list and Appendix A	Kevin Cheung	30 December 2020

Noise Mitigation Plan

Document No: CSF/0/0008E
Revision: 22
Date: 30 December 2020

Prepared by:	Checked by:	Endorsed by:
Kevin CHEUNG	Wyman WONG	Andy YU
Environmental Officer	Deputy Site Agent	Site Agent
30 December 2020	30 December 2020	30 December 2020

Contents

List of Appendices

PART A GENERAL

1.0 Introduction

Due to the recent update of the construction programme, the PME list is revised accordingly in this Noise Mitigation Plan Revision 22 to suit with the on-site construction activities.

2.0 Background

2.1 Project Description

To cope with the anticipated transport need, "Further Development of Tseung Kwan O – Feasibility Study" (the "TKO Study") recommended the provision of Tseung Kwan O – Lam Tin Tunnel (TKO – LT Tunnel) and Cross Bay Link (CBL) to meet the long-term traffic demand between TKO and the external areas.

The TKO-LT Tunnel, together with the proposed Trunk Road T2 in Kai Tak Development (KTD) and Central Kowloon (CKR), will form Route 6 in the strategic road network. Route 6 will provide an east-west express link between Kowloon and TKO areas. Upon completion, this strategic route will also provide the necessary relief to the existing heavily trafficked road network in the central and eastern Kowloon areas, and reduce the related environmental impacts on these areas.

CRBC - Build King Joint Venture (JV) was commissioned by Civil Engineering and Development Department (CEDD) as the appointed contractor for one of the contracts.

The Works to be executed under this Contract included, but not exclusively, the following items:

i. Construction of about 500m long seawall structure and reclamation about 3 hectares at Tseung Kwan O;
ii. Construction of about 200m long Road P2 Underpass including landscape deck, Road P2 Electrical Plant Room, Road P2 Underground Fixed Foam Tank Room, Road P2 Underground Sump Pit Room and Road P2 Stormwater Plant Room;
iii. Construction of U troughs A and B of about 300m long, within the reclamation, from the abutments of the proposed viaducts to the southern end of Road P2 Underpass;
iv. Construction of U troughs A and B of about 200m long from the northern end of Road P2 Underpass structure to CH550 of setting out line P2 including the box structure supporting existing Tong Yin Street; and U trough C with associated cycle track, footpath and amenity area;
v. Construction of Slip Road 2 of about 156m long;
vi. Reprovisioning of Drainage Services Department (DSD) Transformer Room and
vii. Associated roads, retaining wall, drainages, traffic aids, lighting, utilities, landscaping and electrical and mechanical work

A Site Layout showing the site boundary is shown in Appendix A.

2.2 Requirements for Noise Mitigation Plan (NMP)

According to the condition 2.5 of the EP-458/2013/C, the Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director of Environmental Protection (DEP) for approval three hard copies and two electronic copies of Noise Mitigation Plan (NMP) detailing the temporary and permanent mitigation measures for the construction and operation phases traffic noise impacts arising from the Project. All noise mitigation measures implemented shall be properly maintained during construction and operation phases of the Project.
The NMP shall include:

- A layout plan to show the location of major construction activities
- A layout plan to show the location of Noise Sensitive Receivers (NSRs)
- A schedule of construction works to be carried out at the works areas of the Project within 300m from the NSRs
- An updated construction methodology of the proposed construction works
- An updated powered mechanical equipment (PME) list for the proposed construction works
- An updated proposal of air-borne noise and operation traffic noise mitigation measures for the NSRs including the provision of noise barriers, enclosures and other measures
- An updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place

All measures recommended in the approved NMP will be fully and properly implemented during the construction and operation phases of the Project.

The Project Manager will review the construction program and list of PMEs from time to time, which formed the basis of construction noise assessments, to be practicable and reasonable.

3.0 Description of Construction Works in the Study Area

3.1 Noise Sensitive Receivers NSRs

The 300m study areas of the identified 4 NSRs with predicted residual construction noise impacts are shown in Table 2.1. The location of NSRs and its Assessment Point (AP), works area and the notional distance between NSRs and works area are depicted in Appendix A. Refer to EIA Report Section 4.7.1, the predicted unmitigated construction noise levels of NSR ID 9 (AP ID N6101) are below 75 dB(A) and the distance between N6101 and notional sources positions of all portions are more than 300m. In addition, noise mitigation measures would therefore be required to reduce noise levels at the NSRs for compliance with the noise standard. In addition, CM6(A), CM7(A) and CM8(A) will be the noise impact monitoring station during the construction period. However, CM6, CM7 and CM8 will be still the noise sensitive receiver for the prediction of construction noise impacts.

Table 2.1 NSRs with Predicted Unmitigated Construction Noise Impacts during Normal Daytime Working Hours (Extracted from Table 4.10 of EIA Report)

NSR ID EIA	AP ID	NSR ID EM&A Manual	Name of NSR	Noise Criteria, dB(A)	Predicted Unmitigated Construction Noise Levels during Normal Daytime Working Hour (Leq_{30min}), dB(A)	Exceedance, dB(A)
8	N5012	CM6	Block 1, Ocean Shores	75	60-84	9
8	N5012	CM7	Block 7, Ocean Shores	75	59-77	2
9	N6101	N/A	Tower 1, Metro Town	75	56-73	0
10	N7603	CM8	Tower 6, Park Central	75	54-81	6

Traffic noise levels have been predicted at NSR Assessment Point (AP) including existing residential, institutional uses, and future uses on planned receivers for the scenarios of “with” and “without” Project at the assessment year. Without the noise mitigation measures in place, the predicted noise levels at the identified NSRs and its APs have been fulfilled any of the three sensitivity tests, direct mitigation measures would be required.

3.2 Construction Activities

As mentioned in Section 1.1, the construction of Road P2 and associated works is covered by this Contract. The potential construction noise impacts of the Project may arise from the following major construction activities:

- Seawall construction at TKO side
- Filling activities at TKO side
- Road and road pavement formation and associated earthworks
- Drainage culvert construction
- Reprovisioning of infrastructure, services and utilities

These construction activities will involve the use of PME including breakers, excavators, lorries, mobile cranes, concrete truck mixers, pokers, rollers, derrick barge, bulldozer, dump truck, compressor, vibratory poker, generator, piling, vibrator hammer, etc. A breakdown of the major construction activities in sequence to be carried out within the Project are provided in Appendix B.

3.3 Updated Preliminary Construction Programme

The updated preliminary construction programme prepared by CRBC – Build King Joint Venture (JV) has been used in this NMP and has been presented on a monthly basis for the duration of the construction works in corresponding worksites.

The construction schedule has been adjusted such that to minimize concurrent construction works to be carried out in the vicinity as far as practicable. The updated preliminary construction programme is provided in Appendix B.

3.4 Updated Powered Mechanical Equipment List

The updated Powered Mechanical Equipment (PME) list for the construction works is provided in Table 3.1. The Sound Power Levels (SWL) for the PMEs have been adopted from EPD's Technical Memorandum on Noise from Construction Work Other than Percussive Piling (GW-TM), list of SWLs of other commonly used PME or British Standard BS 5228-1:2009. It should be noted that the PMEs to be adopted for individual construction activities are provided in Appendix C.

3.5 Operation Phase Fixed Plant Noise

The maximum allowable sound power levels for the proposed pumping station to meet the relevant noise criteria are determined. Table 2.2 shows the required sound power level for the nearest affected NSRs to achieve noise compliance and Table 2.3 shows the predicted noise levels at representative NSR AP.

Table 2.2 Predicted Maximum Allowable Sound Power Levels for Fixed Noise Sources

Fixed Plant Noise Source	Sound Power Level (SWL, dB(A)) required at source in order to meet the criteria	
	Daytime / Evening Time	Night Time
P2 Pumping Station	106	96

Table 2.3 Summary of Predicted Operation Noise Levels

NSR AP	NSR Description	Predicted Noise Level, dB(A) / Criteria, dB(A)		
		Day time	Evening time	Night time
N5012	Block 1, Ocean Shores	60/60	60/60	50/50
N5031	Block 3, Ocean Shores	60/60	60/60	50/50

All representative NSR APs are predicted to meet their own respective daytime, evening time and night time noise criterion.

4.0 Noise Assessment and Assumptions

4.1 Assessment Methodology and Assumptions

The construction noise assessment has been carried out in accordance with the methodology used in the approved EIA Report (Register No. AEIAR-173/2013). The individual work sites and relative distance from the NSRs are the same as that adopted in the EIA Report.

The methodology outlined in the GW-TM was used for the assessment of construction noise (excluding percussive piling) and the Sound Power Levels (SWLs) of the equipment were taken from Table 3 of GW-TM. Where no SWL is provided in the GW-TM, reference was made to BS 5228 or other previous similar studies or from measurements taken at other sites in Hong Kong. In determine the distance from the source position to the NSR and in cases where the NSR is a building, a positive 3 dB(A) shall be applied to the predicted noise level (PNL). The percentage on-time for each PME has been estimated individually for each construction activity to ensure practicality and is consistent with the assumptions made in the EIA Report.

For the TKO side, the separation distance between the CBL and the nearest NSR (Ocean Shores) would be more than 600m. In addition, the distance of the nearest NSR (Ocean Shores) to Area 68, and from the nearest NSR (Ocean Shores) to Area GIC (4) would be more than 300m. No cumulative impacts would be expected during the construction phase.

All mitigation measures and their effectiveness proposed in the EIA Report including the use of temporary movable noise barrier, acoustic mat and quiet plant have been considered as shown in Table 3.1. The use of quiet plant associated with construction work is prescribed in British Standard "Code of practice for noise and vibration control on construction and open sites, BS5228" which contains the SWLs for specific quiet PME.

Movable temporary noise barriers that can be located close to noisy plant and be moved iteratively with the plant along a worksite can be very effective for screening noise from NSRs. A typical design which has been used locally is a wooden/steel framed barrier with a small cantilevered upper portion of superficial density no less than 14 kg/m^2 on a skid footing. A cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs and it could achieve at least 5-10 dB(A) reduction. In addition, use of full enclosure can provide about 10 dB(A) noise reduction.

<u>SilentUp barrier at Portion IV and Portion V and Portion IX</u>

According to Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig, the noise insertion loss of the SilentUp barrier demonstrated that when a drilling rig is located 1.5m away

from the sound barrier, noise level at the NSR (CM6) can be reduced by 11.7 dB(A) up to a height of 39m. For use of SilentUp barrier in Portion IV, the drill rig will be located at an angle of 45 degrees so that the distance from sound barrier will be approx. 5.1m (refer to schematic diagram in Appendix D).

For Portion V, when the drill rig is located 1.5m away from the sound barrier, noise reduction of 11.7 dB(A) can be covered up to a height of 102m of the NSR (CM6) (refer to schematic diagram in Appendix D).

Table 3.1 PME List with Proposed Mitigation Measures

Location	**PME Type**	**TM Ref. / Other Ref / BS5228 Ref**	**Type of Noise Mitigation Measures**	**Noise Level Reduction dB(A)**
Portion III (Demolition of DSD Transformer room)	Breaker, excavator mounted (hydraulic)	CNP 028	Noise Barrier	-5
Portion IV DN2100 SMH9101-9108 (Pre-boring) (Scenario 1-2)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier (SilentUp)	-11.7
	Air Compressor	CNP 002	Noise Barrier	-5
	Concrete Lorry Mixer (6 m^3)	BS D6/33	Noise Barrier	-5
	Water pump, submersible (electric)	CNP 283	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
Portion IV DN2100 SMH9101-9108 (Sheet Piling)	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
	Power pack (diesel)	CNP 174	Noise Barrier	-5
	Water pump, subersible (electric)	CNP 283	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Generator, Silenced,<=75 dB(A) at 7m	CNP 102	Noise Barrier	-5
	Welding Machine	CNP 107	Noise Barrier	-5
Portion IV DN2100 SMH9101-9108 (ELS)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Water pump, subersible (electric)	CNP 283	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Dump Truck	CNP 068	Noise Barrier	-5
	Generator, Silenced,<=75 dB(A) at 7m	CNP 102	Noise Barrier	-5
	Welding Machine	CNP 107	Noise Barrier	-5
Portion IV Installation of DN2100 and Manhole Construction (Scenario 1)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Dump Truck	CNP 068	Noise Barrier	-5
	Generator, Silenced,<=75 dB(A) at 7m	CNP 102	Noise Barrier	-5
Portion IV Installation of DN2100 and Manhole Construction (Scenario 2)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Roller, Vibratory (51 kw)	BS D8/30	Noise Barrier	-5
	Concrete Lorry Mixer (6 m^3)	BS D6/33	Noise Barrier	-5
	Light goods vehicle, gross vehicle weight < 5.5 tonne	CNP 143	Noise Barrier	-5
	Water pump, submersible (electric)	CNP 283	Noise Barrier	-5
	Dump Truck	CNP 068	Noise Barrier	-5
	Road Roller	CNP 185	Noise Barrier	-5
Portion IV DN2100 SMH9101 -9103(Pre Drill & Sheet piling works)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Generator, Silenced,<=75 dB(A) at 7m	CNP 102	Noise Barrier	-5

	Air Compressor	CNP 002	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
	Power pack (diesel)	CNP 173	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
Portion V Road P2 U-Trough B CH318-363 (Pre-boring) (Scenario 1 & 2)	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
	Air Compressor	CNP 002	Noise Barrier	-5
Portion V Road P2 U-Trough B CH318-363 (Sheet Piling)	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
	Power pack (diesel)	CNP 174	Noise Barrier	-5
Portion VI Installation of Dewatering System	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
Portion VI Road P2 U-Trough B CH318-363 (Sheet Piling)	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
	Power pack (diesel)	CNP 174	Noise Barrier	-5
Portion VIII Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (Pre-boring)	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
	Piling, large diameter bored, grab and chisel	CNP 164	Noise Barrier	-5
	Piling, large diameter bored, oscillator	CNP 165	Noise Barrier	-5
Portion VIII Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (ELS)	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
Portion VIII Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170(Backfilling)	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
Portion VIII Road P2 U-Trough B CH363-411 (Installation of Dewatering System)	Air Compressor	CNP 002	Noise Barrier	-5
	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
Face Towards Ocean Shore				
Portion IV Road P2 Underpass CH105-318, (Non Surcharge & On Top Surcharge)(Pre Drill) (Scenario 1-2)	G.I. Drilling Rig	BS C2/43	Noise Barrier	-5
	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Air Compressor	CNP 002	Noise Barrier	-5
Portion IV Road P2 Underpass CH105-318, (Non Surcharge & On Top Surcharge)(Piling) (Scenario 1-2)	Crane (240 kw) (105T)	BS C4/52	Noise Barrier	-5
	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier (SilentUp)	-11.7
	Generator, Silenced,<=75 dB(A) at 7m	CNP 102	Noise Barrier	-5
	Air Compressor	CNP 002	Noise Barrier	-5
	Excavator (223 kw) (40T)	BS C4/63	Noise Barrier	-5
	Concrete Lorry Mixer	BS D6/33	Noise Barrier	-5
	Water pump, submersible (electric)	CNP 283	Noise Barrier	-5
Portion IV Road P2 Underpass CH103.5 (Sheet Piling)	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
Portion VII U Trough A&B S200 CH890 - CH980 (Piling)	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
Portion VII U Trough A&B S200 CH890 - CH980 (Sheet Piling)	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
Portion IX Seawall Construction	Winch (Electric)	CNP 262	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
Portion IX (Marine Ground Treatment)	Band Drain Machine (hydraulic Vibratory lance starting up)	BS D4/107a	Noise Barrier	-5

Portion IX Road P2 Underpass CH105-318, U Trough A&B P2 CH105-S200 CH821(Pilling)(Scenario 1-7)	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
Portion IX Road P2 Underpass CH105-318, U Trough A&B P2 CH105-S200 CH821(Installation of Dewatering System)	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5

4.2 Proposed Mitigation Strategy and Noise Assessment Results

The air-borne construction noise impacts for the construction activities under Contract NE/2015/02 have been assessed and summarised in Table 3.2.

The detail assessment result for NE/2015/02 is presented in Appendix C. The proposed mitigation measures described above are included in the assessment and, as such only the mitigation scenario has been presented.

The predicted cumulative noise levels and the exceedances of the daytime construction noise criteria are summarised in the following Table 3.2.

From the calculation of construction noise assessment of using the SilentUp barrier at Portion IV shown that there will be no exceedance of 75 dB(A) up to 39m of the NSR (CM6). For the level of above 39m of the NSR (CM6), the calculation of construction noise assessment without using the SilentUp barrier shown that there is also no exceedance of 75 dB(A) of the NSR(CM6).

Contractor will consider the mini – excavator for the future noise enhancement work when it is possible.

Given that the recent / upcoming population intake for the new development in the surrounding area, contractor will consider the nearest NSR in the noise assessment when it is necessary.

The predicted cumulative noise level at above 39m without SilentUp barrier at Portion IV demonstrated that there is the same result of the schematic diagram of Portion V (refer to Appendix D).

Table 3.2 Predicted mitigated cumulative noise levels summary

NSR ID EIA Report	NSR ID EM&A Report	Name of NSR	Noise Criteria, dB(A)	Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour (Leq_{30min}), dB(A))	Exceedance, dB(A)
N5012	CM6	Block 1, Ocean Shores	75	69.8 -74.9	No
N5072	CM7	Block 7, Ocean Shores	75	71.6 -73.7	No

A summary of the range of noise levels for both mitigated and unmitigated scenarios are presented Table 3.3.

Table 3.3 Summary table of noise levels during operation phase

Scenario	Operation Phase Traffic Noise Level Range dB(A)
Unmitigated	31 - 79
Mitigated	31 - 78

Direct mitigation measures should be considered or proposed on road project under the subject Designated Project (DP) such that the noise from the "new" road would be reduced to a level that fulfil the EIAO requirements. The proposed direct mitigation measures are summarized below with total length of the mitigation measures rounded off to the nearest 10m and show in Appendix C:

- Fully Enclosure 4 (FE4) about 200m of Landscape Deck provided on Road P2
- Low Noise Surfacing 1 about 190m of Low Noise Surfacing on North and South Bound P2 Road

Regarding the fixed plant noise sources, sound attenuators, noise barriers and acoustic enclosures can be installed to ensure the specified maximum SWLs in Table 2.2 are achieved.

4.3 Concurrent Project Assessment

Construction noise impacts from the NE/2015/03 Tseung Kwan O – Lam Tin Tunnel Northern Footbridge project has been incorporated in the noise assessment refer to the Appendix C. NMP will be regularly revised to assess the concurrent project's construction noise impacts on NSRs.

5.0 Conclusion

The noise mitigation plan summarized different construction work activities in different stage during the whole construction period. The potential construction noise impacted of various noise mitigation measures from the selected PME will be minimized the cumulative noise level to the NSRs practically. With the implementation of the proposed noise mitigation measures, updated construction programme and PME list Table 3.1, construction noise impacts at all identified NSRs would comply with the noise criteria of 75 dB(A) for residential premises.

With the proposed noise mitigation measures in PME list Table 3.1, the type of PME should be adopted with the noise enclosure or barrier for the relatively direct noise mitigation to minimize the construction noise to the NSRs.

Where necessary, further review and updated will be performed during the construction and operation phases and liaison with affected parties is recommended to minimize the construction and operation phases traffic noise impacts as far as practicable.

The proposed noise mitigation measures of the PME list in Table 3.1 will also apply to the other NSRs with the affected area. Since the NSR CM6, CM7 & CM8 have been represented the closest noise sensitive receiver of the construction site, the cumulative noise level of other NSRs would also comply with the noise criteria of 75 dB(A).

The traffic noise impact assessment is the same as that presented in the latest environmental permit (i.e. EP-458/2013/C) and there is no update/revision.

Appendix A

Site Layout and NSR Locations

HORIZONTAL DISTANCE FROM NSR (CM6, CM7 & CM8)

CM8

116

257

217

CM7

180

224

157

163

213

CM6

47

146

119

225

LEGEND

Prediction Area
CM6 - Location of Station CM6
CM7 - Location of Station CM7
CM8 - Location of Station CM8

Portion I
Access Date 29-Jul-16
Compietion Date 25-Mar-17

Portion II
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion III
Access Date 29-Jul-16
Compietion Date 25-Mar-17

Portion IV
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion V
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion VI
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion VII
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion VII
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion IX
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Area A
Access Date 27-Aug-16
Compietion Date 31-Jul-18

Area Y
Access Date 10-Dec-16
Compietion Date 30-Nov-17

SLANT DISTANCE ABOVE 39M FROM NSR (CM6)

CM8

CM7

CM6

167

217

150

60

124

228

TSEUNG KWAN O

PO SHUN ROAD

PO YAP ROAD

TONG YIN STREET

CHI SHIN STREET

CHUI LING ROAD

KING LING ROAD

Proposed Sports Centre and Library in Area 74 in Tseung Kwan O

擬建將軍澳第74區體育館及圖書館

Hong Kong Institute of Vocational Education (Lee Wai Lee)

香港專業教育學院（李惠利）

Hong Kong Design Institute

香港設計學院

Chui Ling Road Substation

維景灣畔
OCEAN SHORES

調景灣
TIU KENG WAN

將軍澳
JUNK BAY
(TSEUNG KWAN O)

Tseung Kwan O Waterfront Park 將軍澳海濱公園

WIP Aug 2012

WIP May 2014

Cycling Track

Road

Ramp

Podium

Tennis Court

Jetty

Stream

HWM

CUL

Tai Mo Shan Tsuen Wan Tai Po Sha Tin Kowloon Hong Kong Island

LEGEND

Prediction Area (ABOVE 39m for CM6)
CM6 - Location of Station CM6
CM7 - Location of Station CM7
CM8 - Location of Station CM8

Portion I
Access Date 29-Jul-16
Compietion Date 25-Mar-17

Portion II
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion III
Access Date 29-Jul-16
Compietion Date 25-Mar-17

Portion IV
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion V
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion VI
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Portion VII
Access Date 29-Jul-16
Compietion Date 26-Sep-20

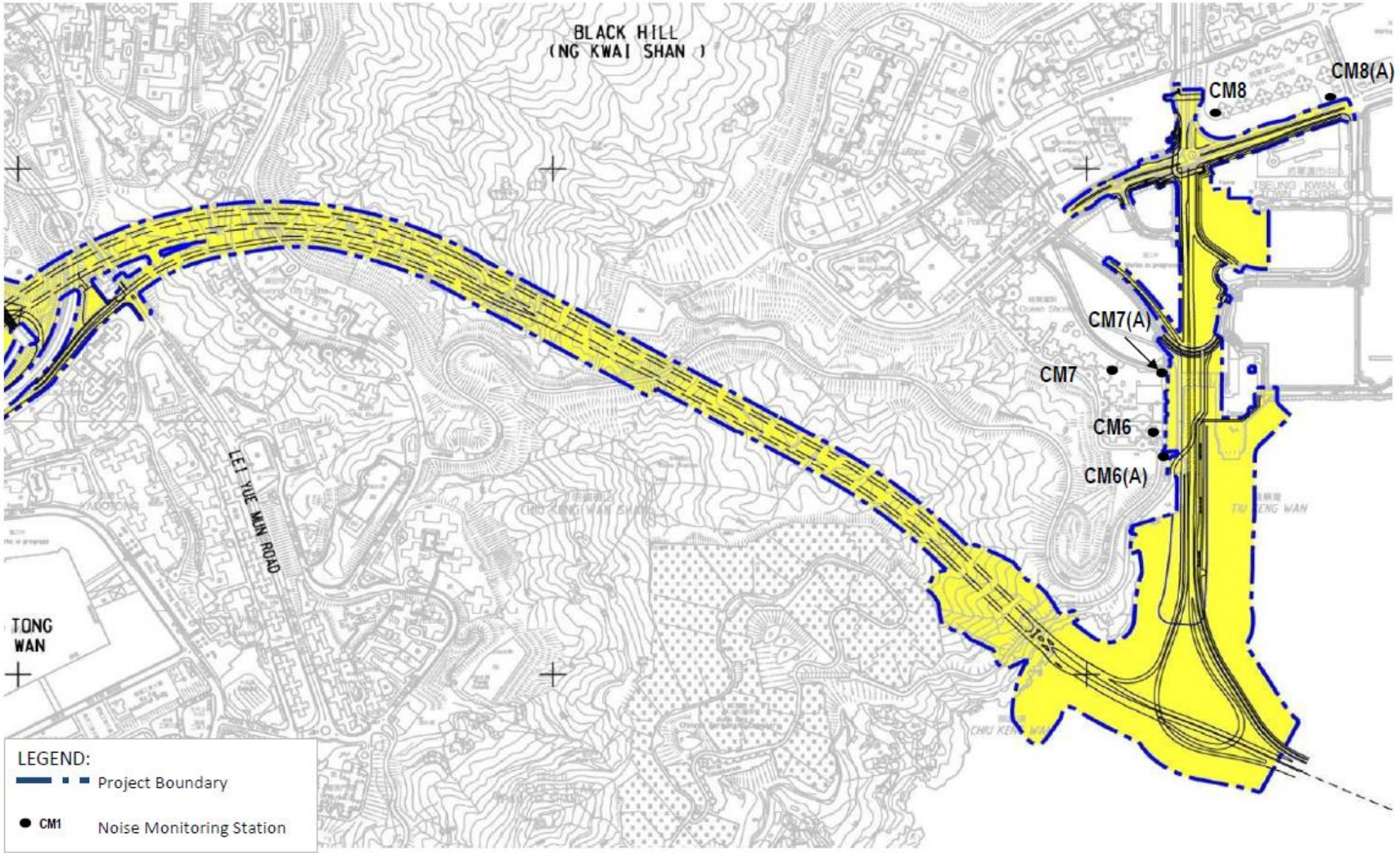
Portion VII
Access Date 29-Jul-16
Compietion Date 26-Sep-20

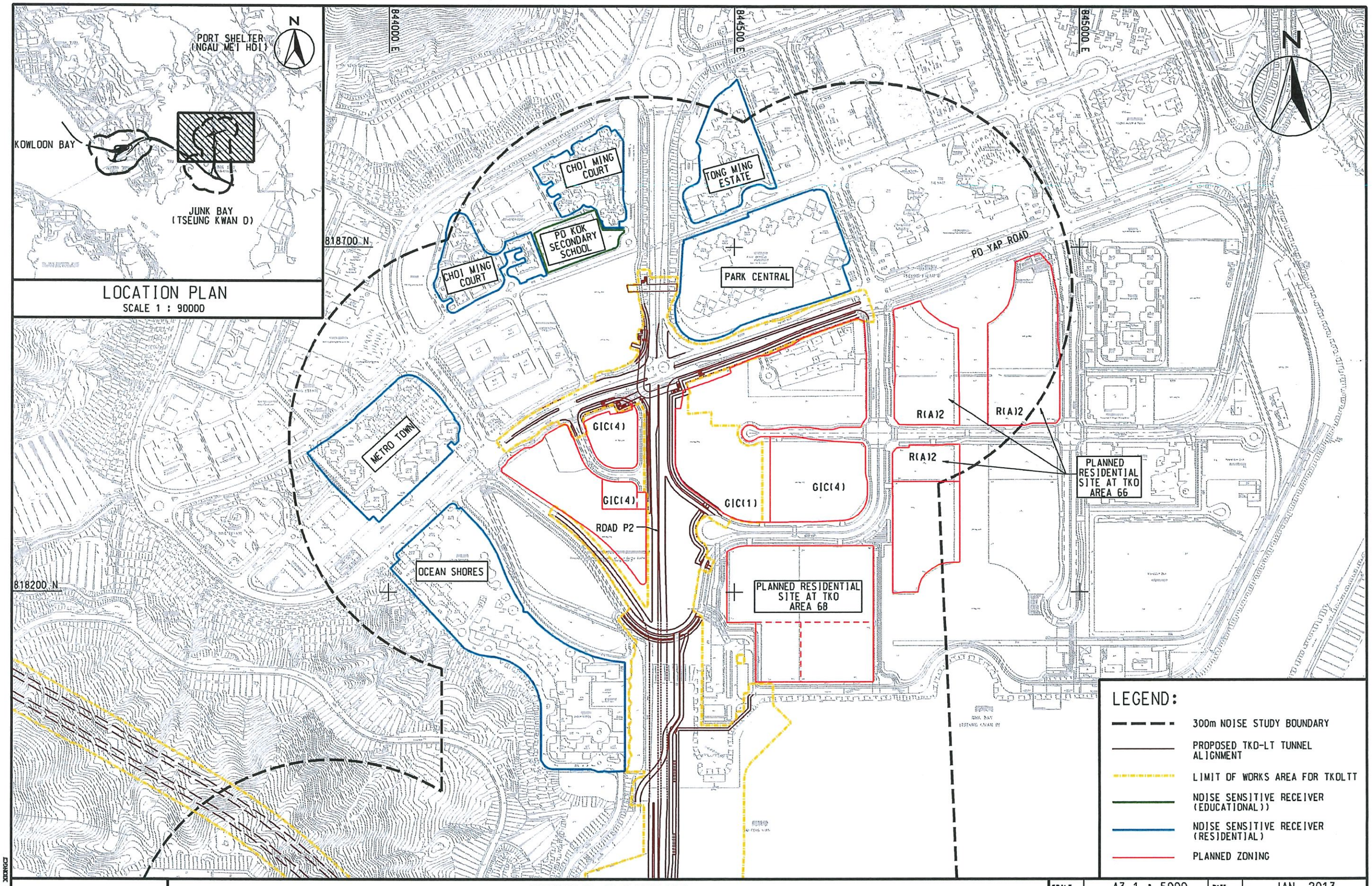
Portion IX
Access Date 29-Jul-16
Compietion Date 26-Sep-20

Area A
Access Date 27-Aug-16
Compietion Date 31-Jul-18

Area Y
Access Date 10-Dec-16
Compietion Date 30-Nov-17

Impact Monitoring Location





AECOM

AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION

LOCATIONS OF NOISE SENSITIVE RECEIVERS

SHEET 4 OF 4

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 4.1
		REV	--

Plot File by: 24/01/2013 XXXNGCI

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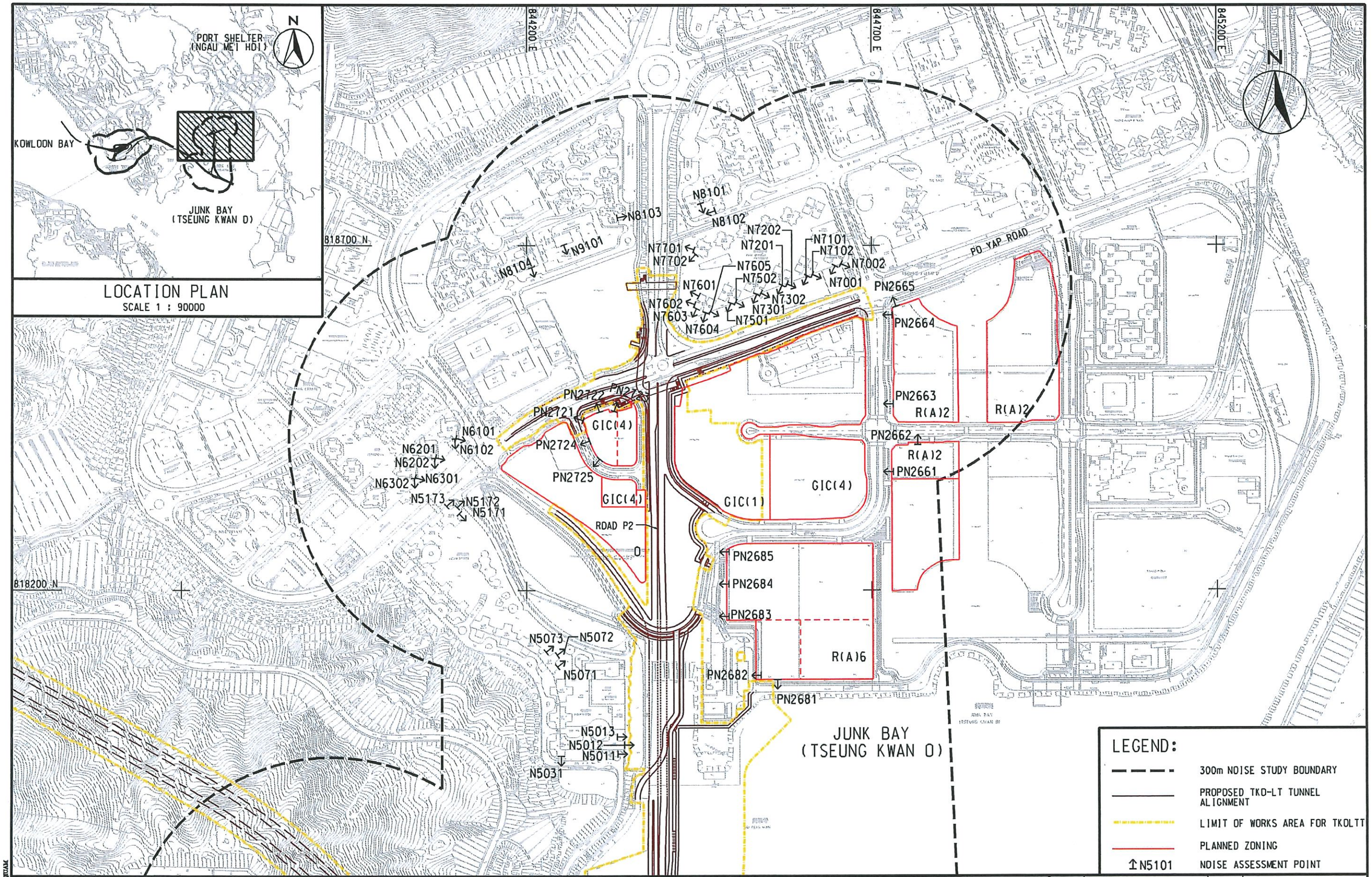

AECOM

AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION

LOCATIONS OF NOISE ASSESSMENT POINTS

SHEET 4 OF 4

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLLS
JOB No.	60097677	DRAWING No.	FIGURE 4.2
		REV	--

Plot Date by: 1/28/2015 QUIAM

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Appendix B

Updated Preliminary Construction Programme

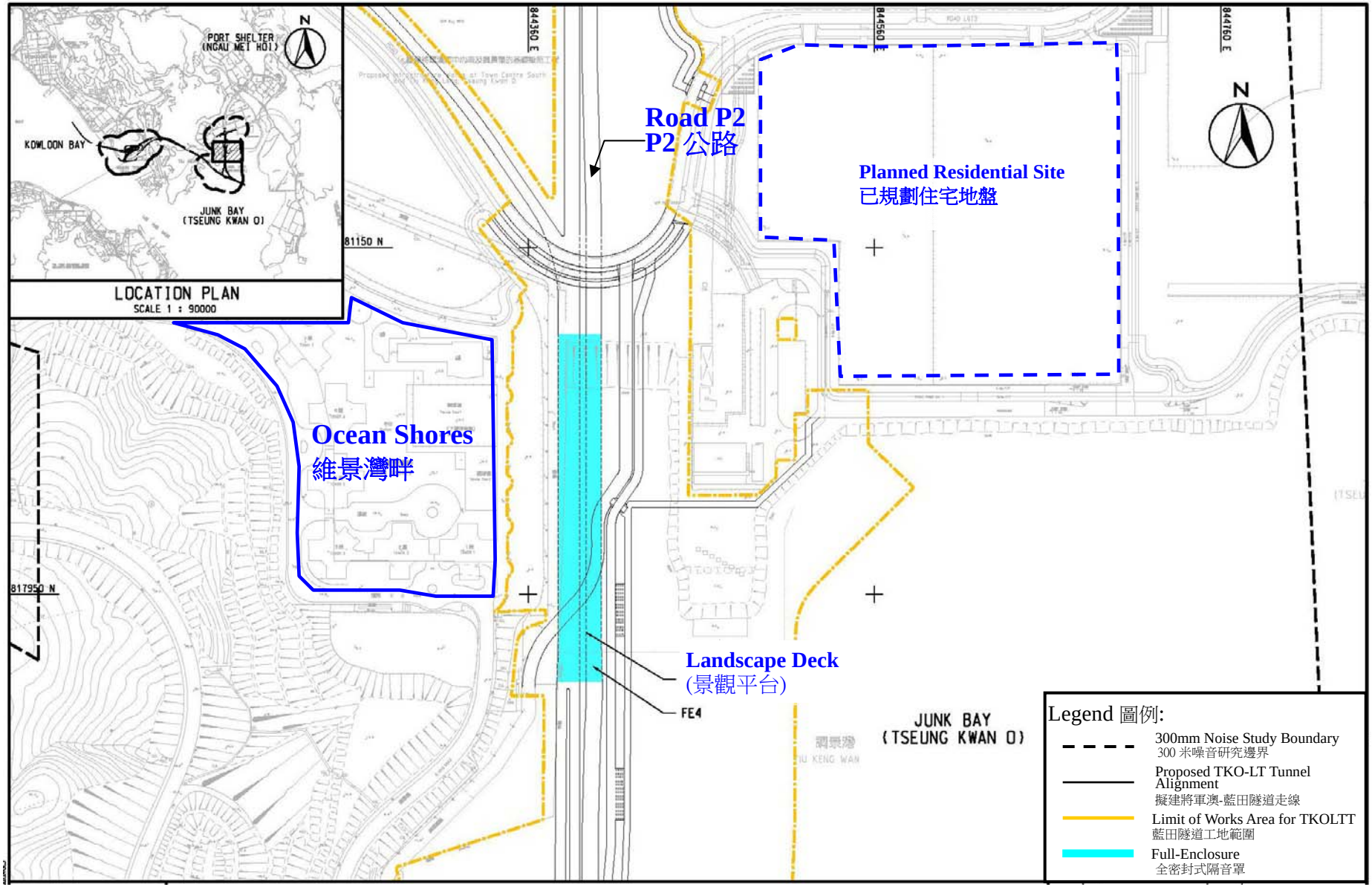
Section	Activity Name	Start	Finish
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works		07-11-16	20-12-21
Existing Land Section			
Portion VIII	Road P2 U-Trough A CH411-500 (Structural)	18-03-21	22-05-21
Portion VIII	Road P2 U-Trough A CH170-250 (Structural)	13-03-21	08-04-21
Portion VIII	Road P2 CH318-650 & SR2 CH100-310 (Road and Drainage Works)	06-04-18	19-11-21
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (ELS Welding Excavation)	01-11-20	30-04-21
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (Structural)	18-03-21	30-10-21
Reclaimed Land Section			
Portion IX	Concrete Coping (Structural)	27-04-20	11-12-21
Portion IX	Road P2 Underpass CH105-318 (Foundation)	24-08-20	15-12-21
Portion IX	Road P2 Footpath & Cycle Track CH105-318 (Road & Drainage Works)	30-08-20	15-12-21
Portion IX	Road P2 U-Trough A&B S200 CH821 - P2 CH105 (Structural)	25-08-20	10-09-21
Portion IX	Retaining Wall S200 CH755-821 & S300 CH326-261 (Structural)	29-12-20	30-08-21
Portion IX	Road P2 U-Trough A S200 CH674-821, S100 CH280, S300 CH403 & S400 CH158 (Structural)	04-02-20	02-09-21
Portion IX	Road P2 U-Trough C CT01 CH117-366 (Structural)	03-03-20	20-12-21

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Executive Summary Programme (Forecast)

Appendix C

Proposed Mitigation Measures and Detailed Noise Assessment



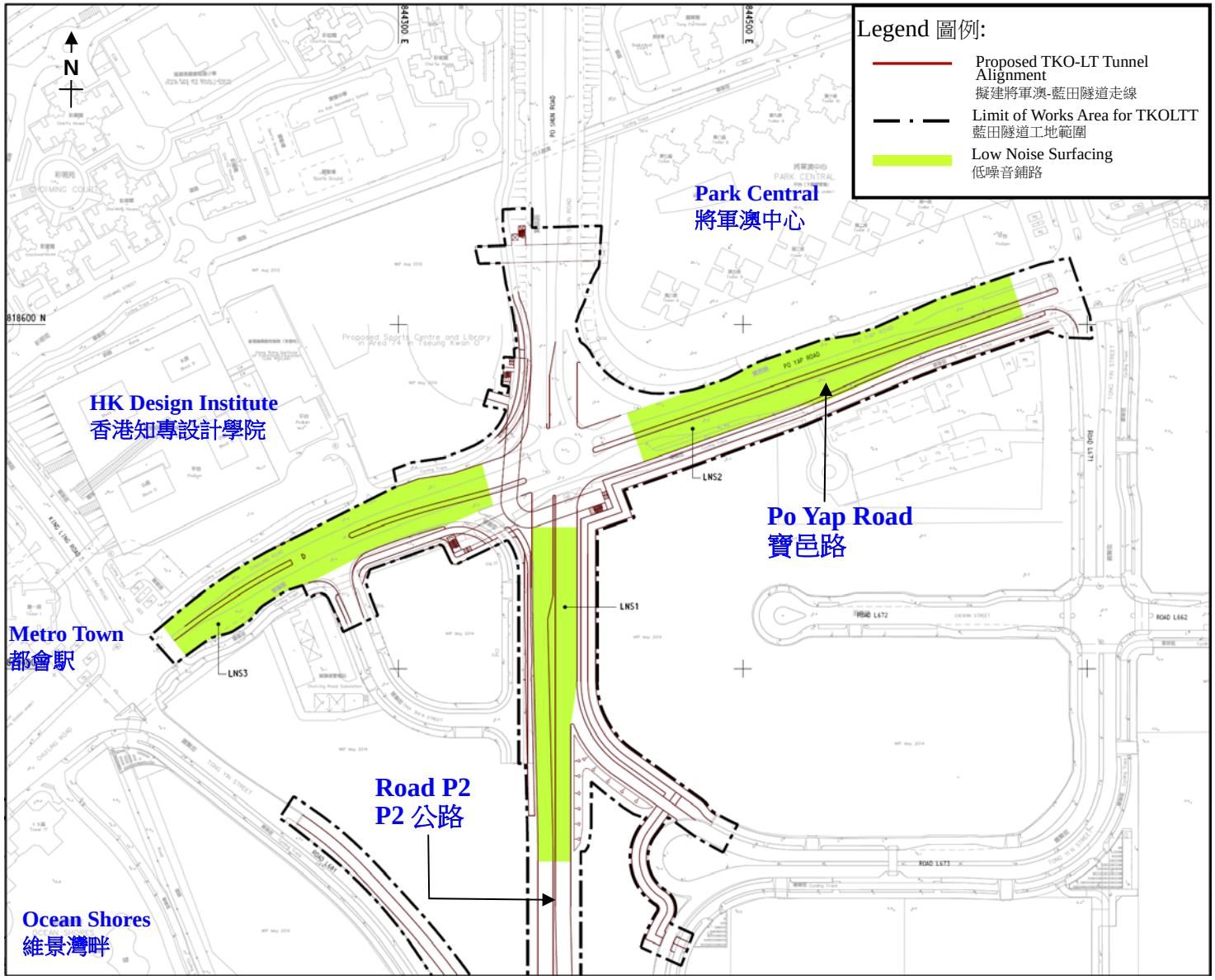
Project Title: Tseung Kwan O – Lam Tin Tunnel and Associated Works
工程項目名稱: 將 軍 澳 – 藍 田 隧 道 及 相 關 工 程
Noise Mitigation Measure at Road P2
P2公路的噪音緩解措施

(to be read in conjunction with the Noise Mitigation Plan for Road P2 and Associated Works submitted under Condition 2.5)
(要與根據條件 2.5 提交的 P2 路及相關工程的噪音影響緩解計劃一併閱讀)
(Plan originated from the Figure 4.6 (sheet 4 of 4) of approved EIA Report: AEIAR-173/2013)
(圖則源自已批准環評報告–AEIAR-173/2013 內的圖 4.6(版 4 of 4))

Environmental Protection Department
環境保護署

Environmental Permit No. EP-458/2013/C
環境許可證編號: EP-458/2013/C

Figure 3
圖三



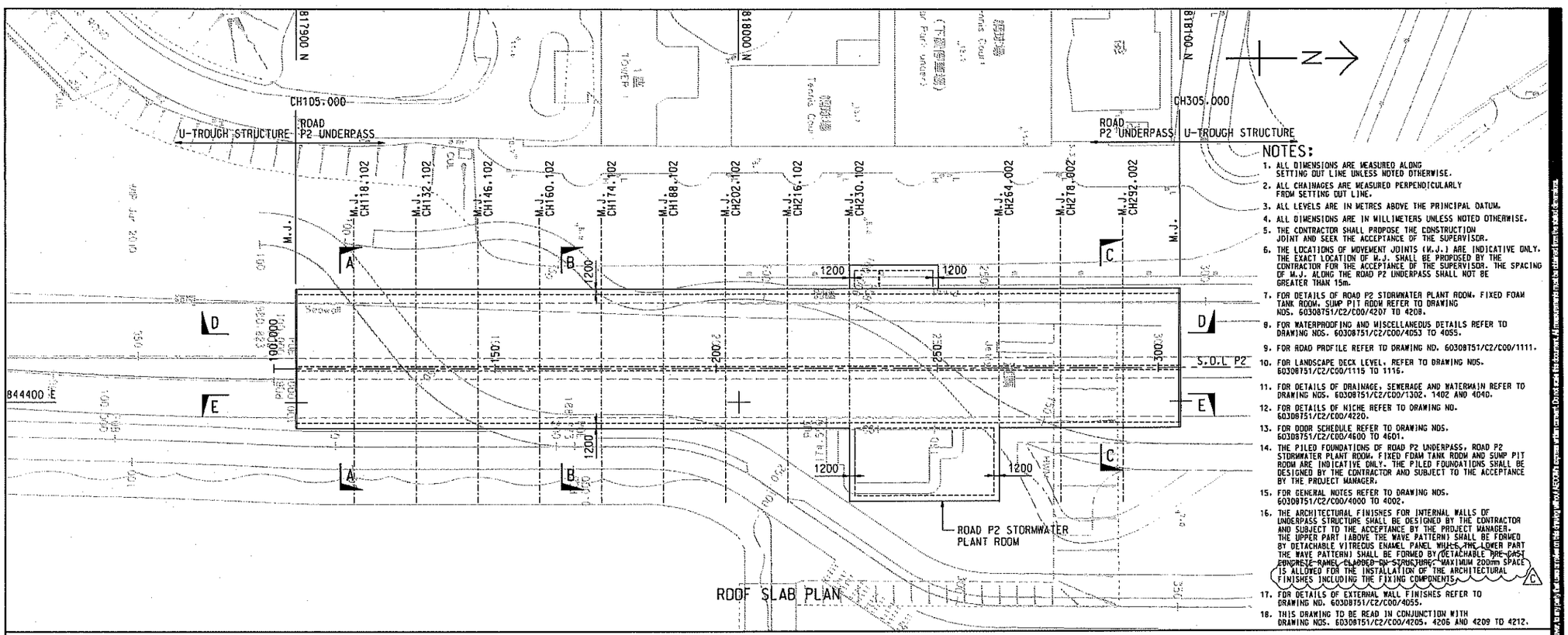
Project Title: Tseung Kwan O – Lam Tin Tunnel and Associated Works
工程項目名稱: 將 軍 澳 – 藍 田 隧 道 及 相 關 工 程
Noise Mitigation Measure at Road P2 and Po Yap Road
P2公路及寶邑路的噪音緩解措施

(to be read in conjunction with the Noise Mitigation Plan for Road P2/D4 and Associated Works and the Noise Mitigation Plan for Road P2 and Associated Works submitted under Condition 2.5)
(要與根據條件 2.5 提交的 P2/D4 路及相關工程的噪音影響緩解計劃及 P2 路及相關工程的噪音影響緩解計劃一併閱讀)
(This figure was prepared based on Figure 4 of the ER Report submitted under VEP Application (VEP-472/2015)
(本圖是根據更改環境許可証申請文件 – 申請書編號: VEP-472/2015 所提交的環境檢討報告圖 4 編制)

Environmental Protection Department
環境保護署

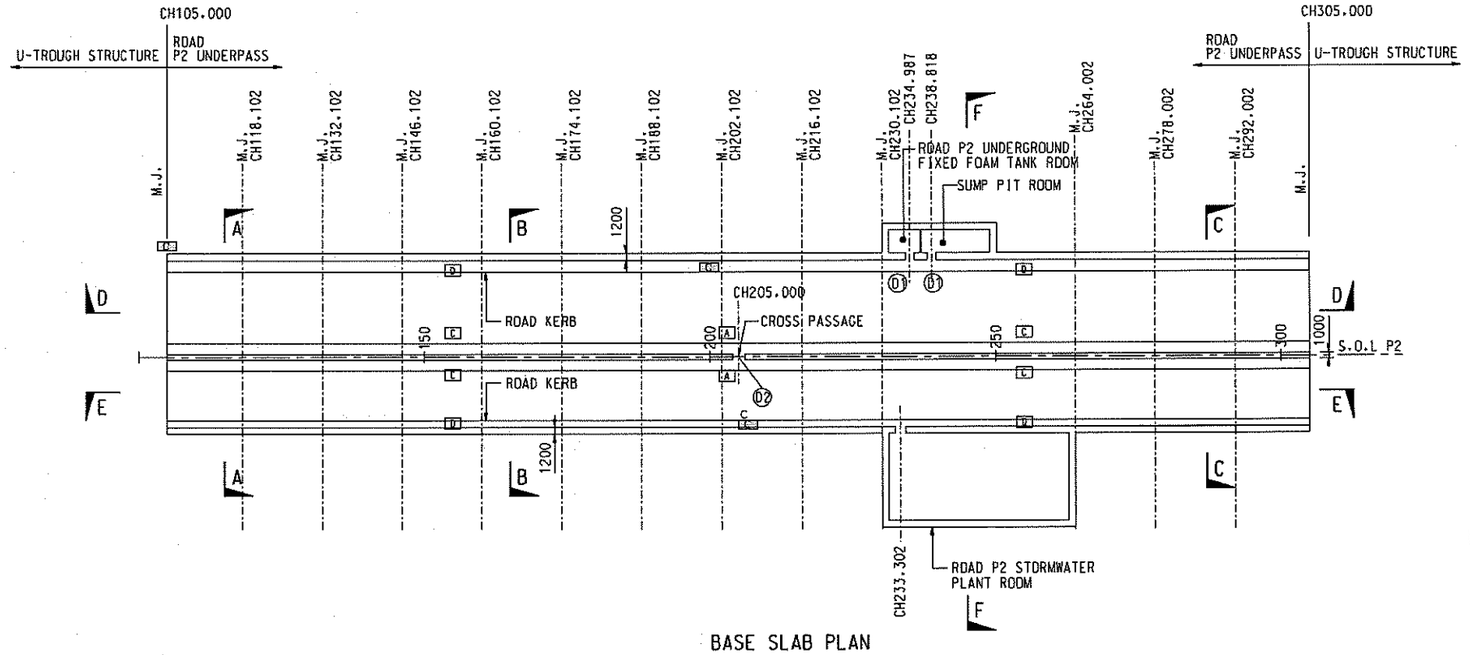
Environmental Permit No. EP-458/2013/C
環境許可證編號: EP-458/2013/C

Figure 4
圖四



NOTES:

1. ALL DIMENSIONS ARE MEASURED ALONG SETTING OUT LINE UNLESS NOTED OTHERWISE.
2. ALL CHAINAGES ARE MEASURED PERPENDICULARLY FROM SETTING OUT LINE.
3. ALL LEVELS ARE IN METRES ABOVE THE PRINCIPAL DATUM.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
5. THE CONTRACTOR SHALL PROPOSE THE CONSTRUCTION JOINT AND SEEK THE ACCEPTANCE OF THE SUPERVISOR.
6. THE LOCATIONS OF MOVEMENT JOINTS (M.J.) ARE INDICATIVE ONLY. THE EXACT LOCATION OF M.J. SHALL BE PROPOSED BY THE CONTRACTOR FOR THE ACCEPTANCE OF THE SUPERVISOR. THE SPACING OF M.J. ALONG THE ROAD P2 UNDERPASS SHALL NOT BE GREATER THAN 15m.
7. FOR DETAILS OF ROAD P2 STORMWATER PLANT ROOM, FIXED FOAM TANK ROOM, SUMP PIT ROOM REFER TO DRAWING NOS. 60308751/C2/C00/4207 TO 4208.
8. FOR WATERPROOFING AND MISCELLANEOUS DETAILS REFER TO DRAWING NOS. 60308751/C2/C00/4053 TO 4055.
9. FOR ROAD PROFILE REFER TO DRAWING NO. 60308751/C2/C00/1111.
10. FOR LANDSCAPE DECK LEVEL, REFER TO DRAWING NOS. 60308751/C2/C00/1115 TO 1116.
11. FOR DETAILS OF DRAINAGE, SEWERAGE AND WATERMAIN REFER TO DRAWING NOS. 60308751/C2/C00/1302, 1402 AND 4040.
12. FOR DETAILS OF NICHE REFER TO DRAWING NO. 60308751/C2/C00/4220.
13. FOR DOOR SCHEDULE REFER TO DRAWING NOS. 60308751/C2/C00/4600 TO 4601.
14. THE PILED FOUNDATIONS OF ROAD P2 UNDERPASS, ROAD P2 STORMWATER PLANT ROOM, FIXED FOAM TANK ROOM AND SUMP PIT ROOM ARE INDICATIVE ONLY. THE PILED FOUNDATIONS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBJECT TO THE ACCEPTANCE BY THE PROJECT MANAGER.
15. FOR GENERAL NOTES REFER TO DRAWING NOS. 60308751/C2/C00/4000 TO 4002.
16. THE ARCHITECTURAL FINISHES FOR INTERNAL WALLS OF UNDERPASS STRUCTURE SHALL BE DESIGNED BY THE CONTRACTOR AND SUBJECT TO THE ACCEPTANCE BY THE PROJECT MANAGER. THE UPPER PART (ABOVE THE WAVE PATTERN) SHALL BE FORMED BY DETACHABLE VITREOUS ENAMEL PANEL WHILE THE LOWER PART THE WAVE PATTERN) SHALL BE FORMED BY (DETACHABLE PRE-CAST CONCRETE PANEL CLADDED ON STRUCTURE. MAXIMUM 200mm SPACE IS ALLOWED FOR THE INSTALLATION OF THE ARCHITECTURAL FINISHES INCLUDING THE FIXING COMPONENTS. C
17. FOR DETAILS OF EXTERNAL WALL FINISHES REFER TO DRAWING NO. 60308751/C2/C00/4055.
18. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4205, 4206 AND 4209 TO 4212.



LEGEND:

A	TYPE A FS NICHE
B	TYPE B FS NICHE
C	TYPE C FS NICHE
D	TYPE D FS NICHE
D1	DOOR TYPE
TCSS	TCSS CABINETS

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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Civil Engineering and Development Department

CONSULTANT
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B	APR.18	TENDER ADDENDUM NO. 3	RPCM
A	FEB.18	TENDER ADDENDUM NO. 1	RPCM
-	JAN.18	TENDER DRAWING	RPCM

STATUS

SCALE	DIMENSION UNIT
A1 1:500	MILLIMETRES

KEY PLAN

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

SHEET TITLE
ROAD P2 UNDERPASS - ROOF AND BASE SLAB PLAN

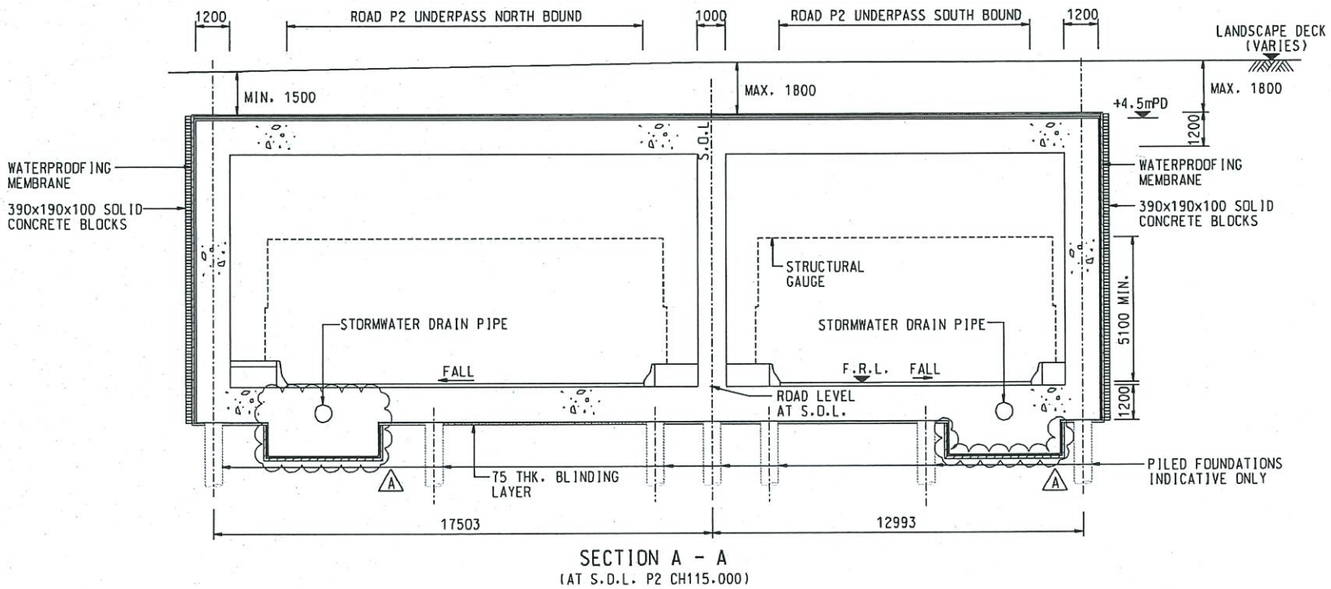
SHEET NUMBER
60308751/C2/C00/4201C

BSI A1 594mm x 841mm
CAD Approved: CWN
Checked: RPCM
Designed: ATPH
Project Management Initials:
Plot File by: HEDD 2018/4/18
PATH: P:\Projects\60308751\DRAWINGS\Contract\C2\4000\C2_C00_4201.dgn

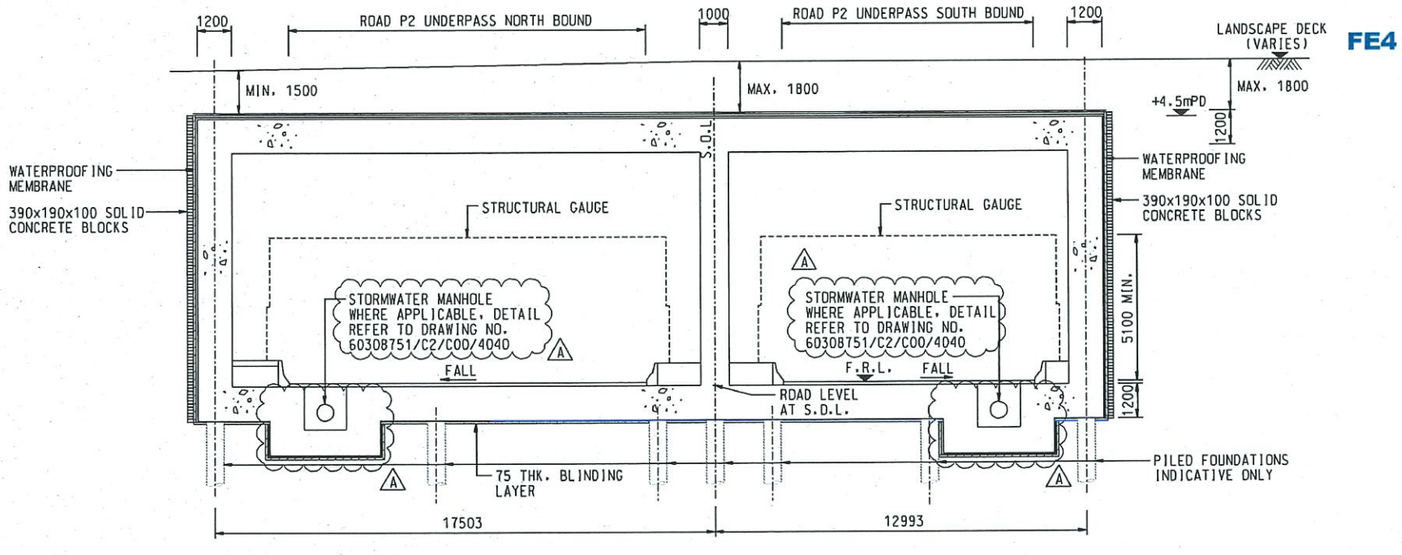
Project Management Initials: | Designer: ATHH | Checked: RPCM | Approved: CWN | ISO A1 594mm x 841mm

NOTES:

1. FOR NOTES, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C2/C00/4201.



SECTION A - A
(AT S.O.L. P2 CH115.000)



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(AT S.O.L. P2 CH165.000)

Plot File by: WANGPY2 2016/2/28
PATH: P:\Projects\60308751\Drawing\Contract\C2\4000\C2_C00_4205.dgn

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PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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-	JAN.16	TENDER DRAWING	RPCM
ITR	DATE	DESCRIPTION	CHK.

STATUS

SCALE: A1 1 : 100
DIMENSION UNIT: MILLIMETRES

KEY PLAN

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

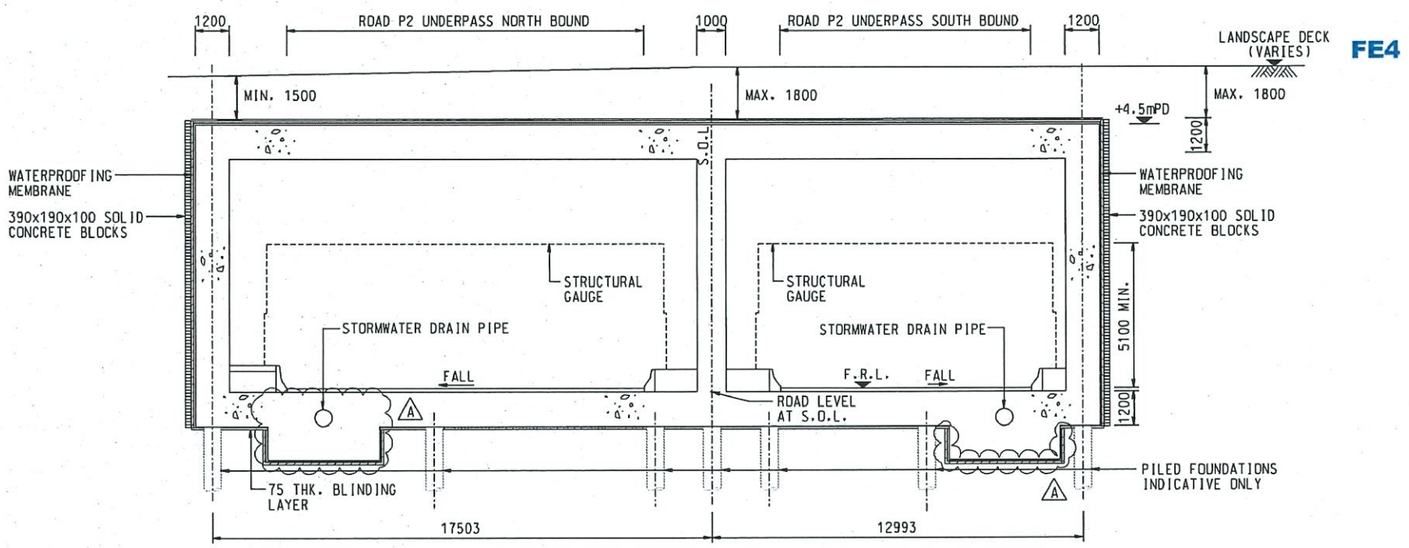
SHEET TITLE
ROAD P2 UNDERPASS - SECTION

SHEET 1 OF 2

SHEET NUMBER
60308751/C2/C00/4205A

NOTES:

1. FOR NOTES, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60308751/C2/C00/4201.



SECTION C - C
(AT S.O.L. P2 CH287.000)

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TSEUNG KWAN O - LAM TIN TUNNEL

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

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STATUS

SCALE A1 1 : 100
DIMENSION UNIT MILLIMETRES

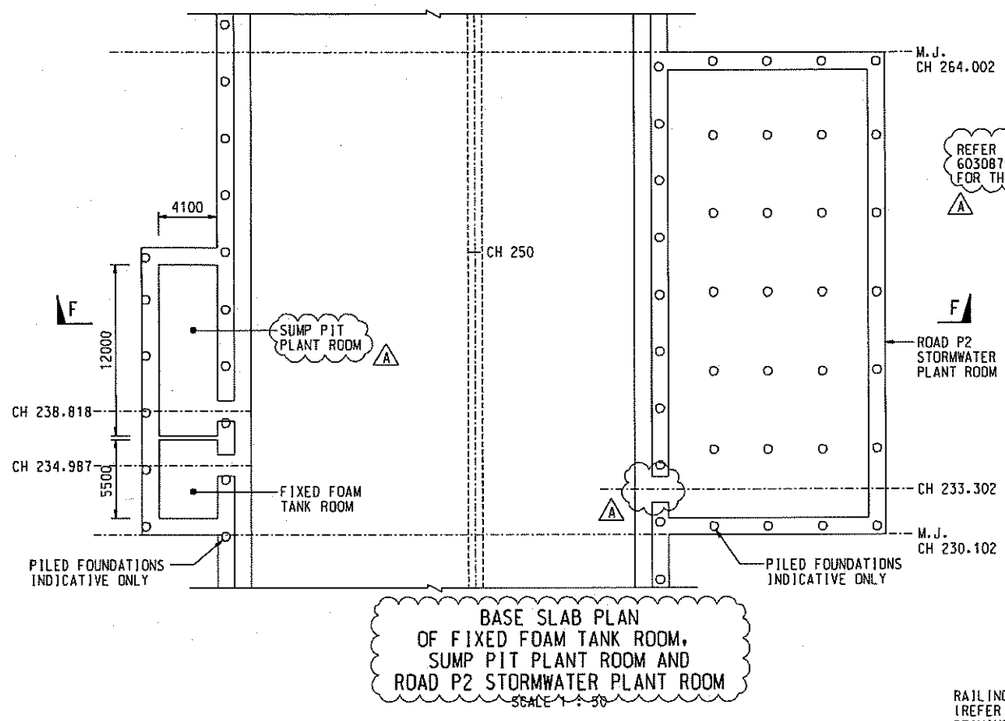
KEY PLAN

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

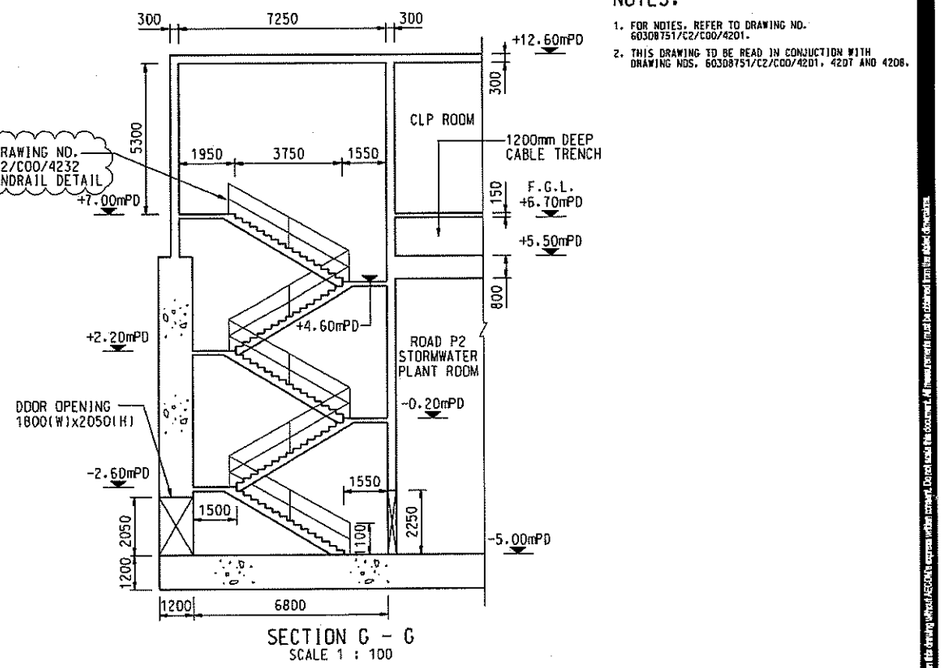
SHEET TITLE
ROAD P2 UNDERPASS - SECTION

SHEET 2 OF 2

SHEET NUMBER
60308751/C2/C00/4206A



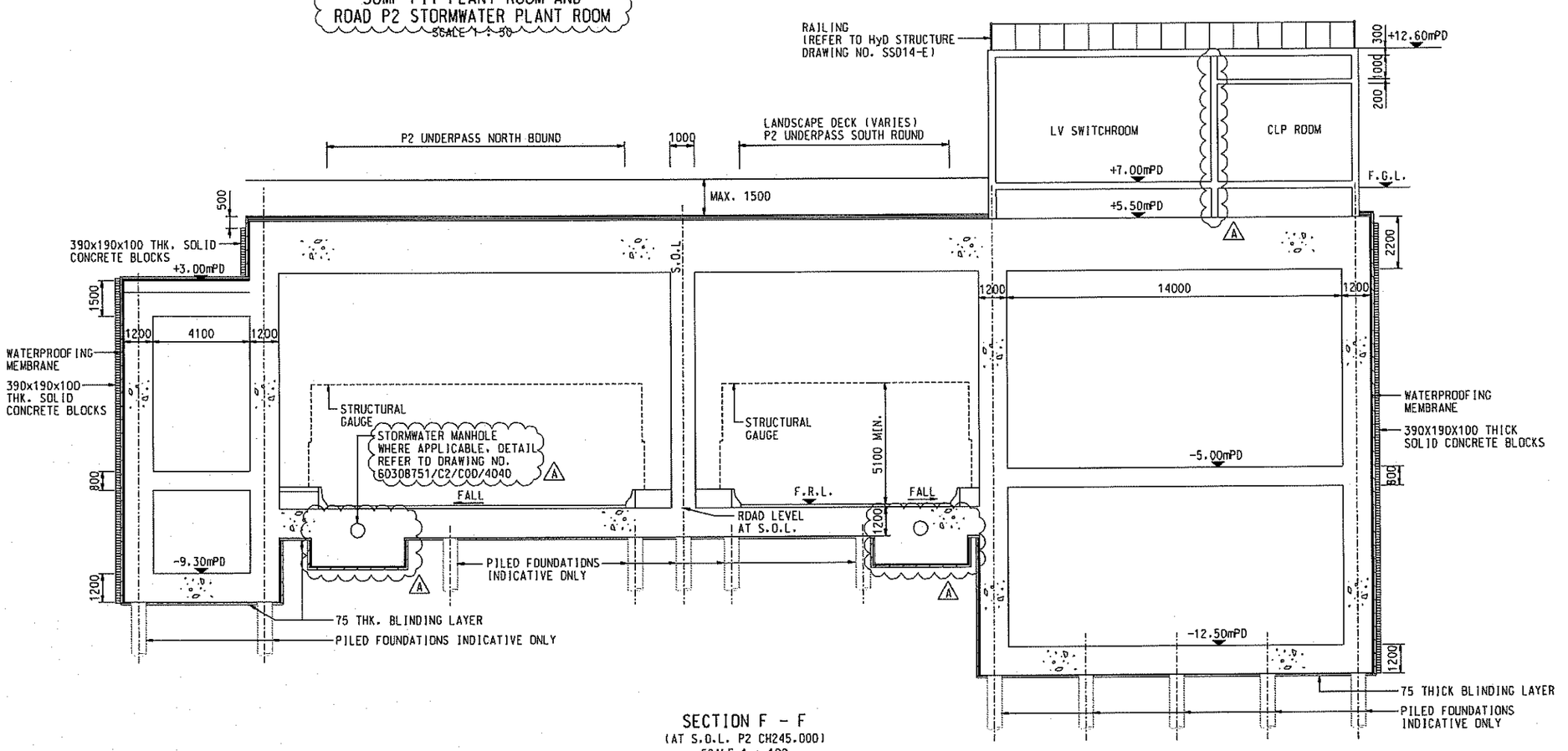
BASE SLAB PLAN
OF FIXED FOAM TANK ROOM,
SUMP PIT PLANT ROOM AND
ROAD P2 STORMWATER PLANT ROOM
SCALE 1 : 50



SECTION G - G
SCALE 1 : 100

NOTES:

1. FOR NOTES, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUCTION WITH DRAWING NOS. 60308751/C2/C00/4201, 4207 AND 4208.



SECTION F - F
(AT S.O.L. P2 CH245.000)
SCALE 1 : 100

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

Plot File by: WANGFY2 2018/2/28
PATH: P:\Projects\60308751\Drawing\Contract\C2\4000\C2_C00_4208.dgn

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TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
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STATUS

SCALE: A1 AS SHOWN
DIMENSION UNIT: MILLIMETRES

KEY PLAN

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

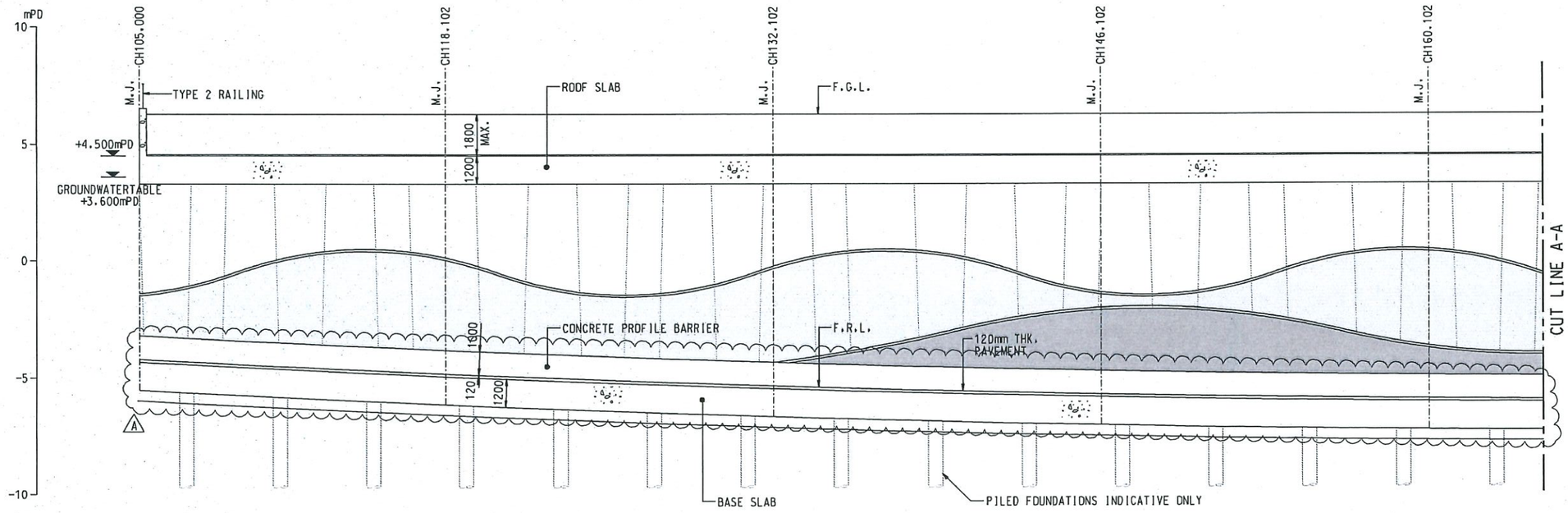
SHEET TITLE
ROAD P2 STORMWATER PLANTROOM - SECTIONS

SHEET NUMBER
60308751/C2/C00/4208A

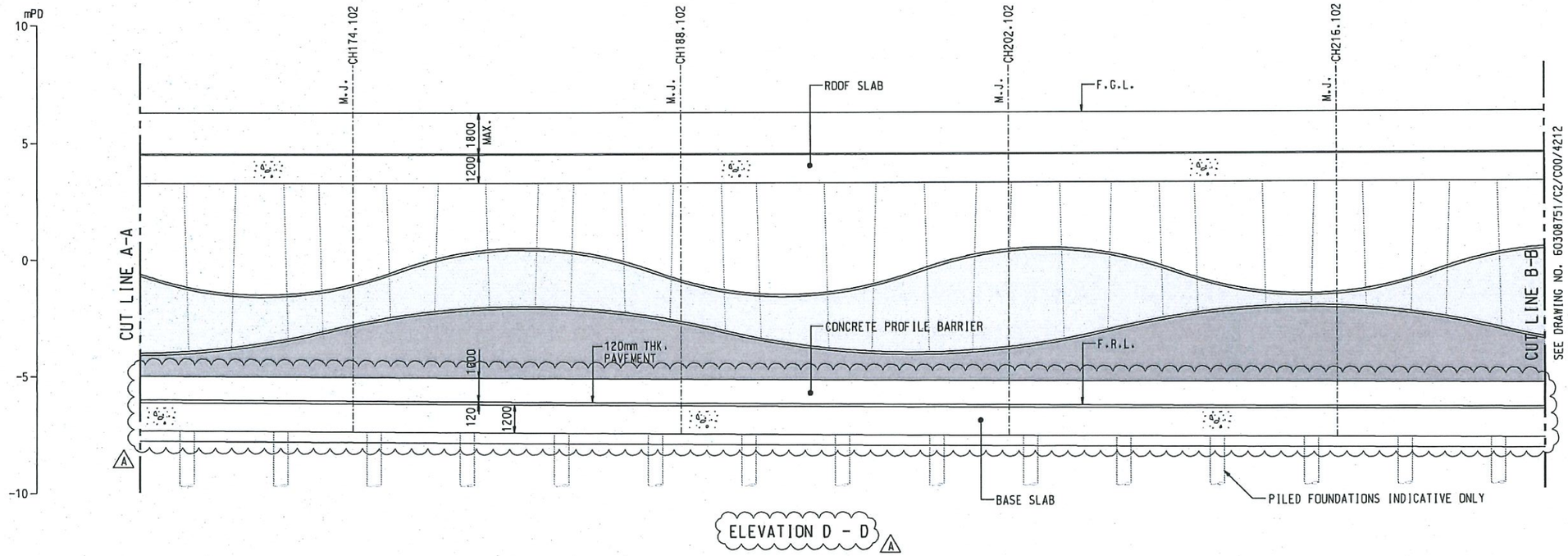
Project Management Initials: | Designer: ATHH | Checked: RPCM | Approved: CWN | ISO A1 594mm x 841mm

NOTES:

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4201 AND 4210.



ELEVATION D - D (A)



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Plot File by: WANGGLW 2016/02/29
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CONTRACT TITLE
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STATUS

SCALE: A1 1 : 100
DIMENSION UNIT: MILLIMETRES

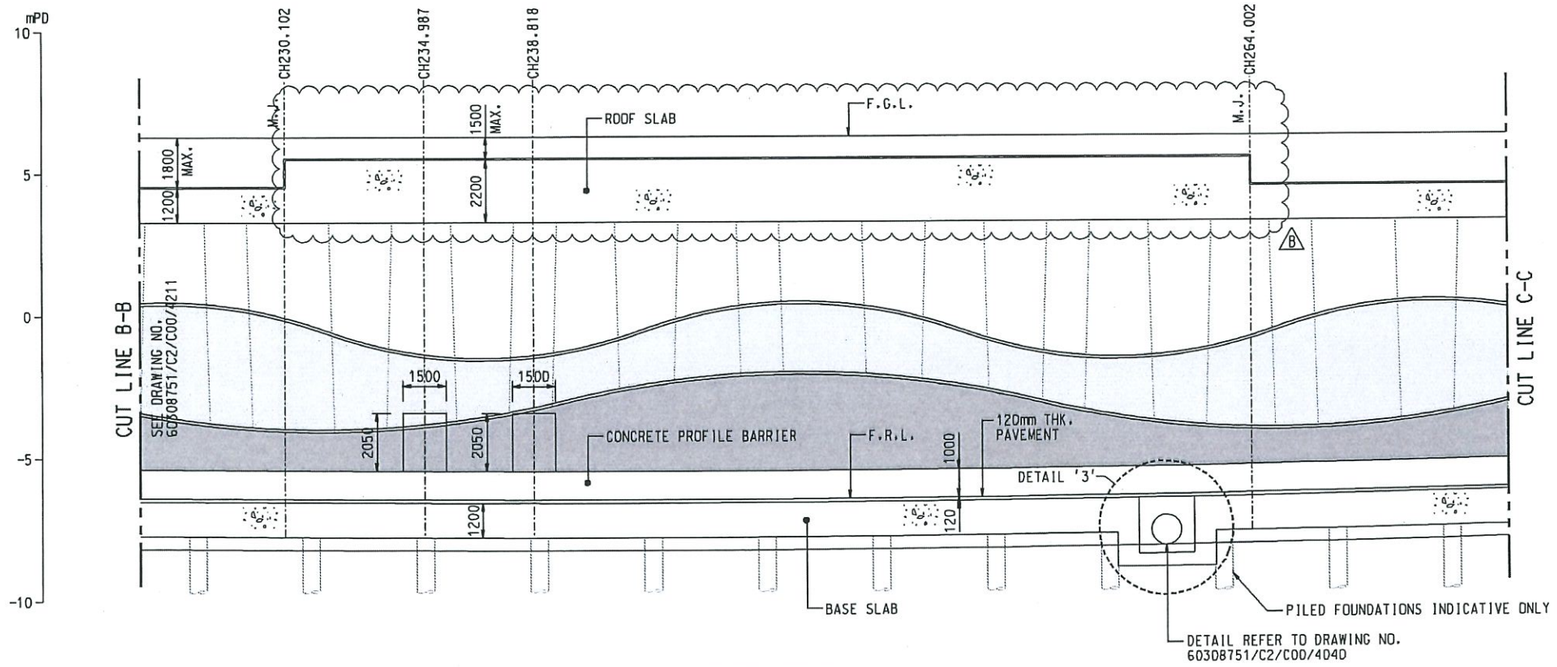
KEY PLAN

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

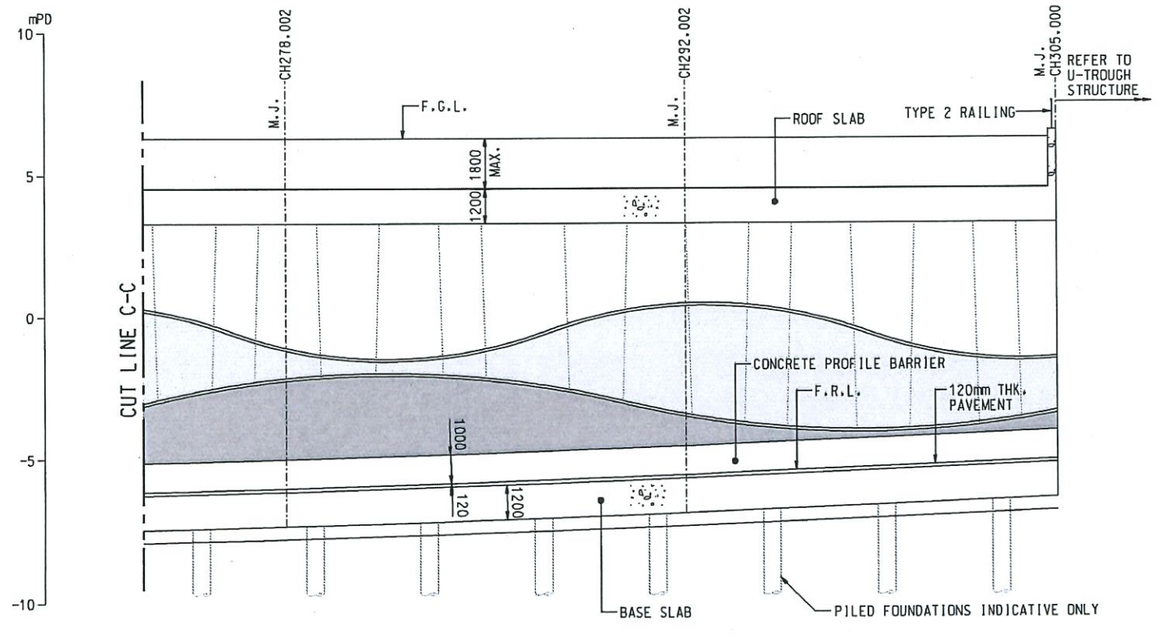
SHEET TITLE
ROAD P2 UNDERPASS - NORTHBOUND ELEVATION

SHEET 1 OF 2

SHEET NUMBER
60308751/C2/C00/4209A



ELEVATION D - D



ELEVATION D - D

NOTES:

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4201 AND 4209.

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PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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-	JAN.16	TENDER DRAWING	RPCM
VR	DATE	DESCRIPTION	CHK.

STATUS

SCALE: A1 1 : 100
DIMENSION UNIT: MILLIMETRES

KEY PLAN

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

SHEET TITLE
ROAD P2 UNDERPASS - NORTHBOUND ELEVATION

SHEET 2 OF 2

SHEET NUMBER
60308751/C2/C00/4210B

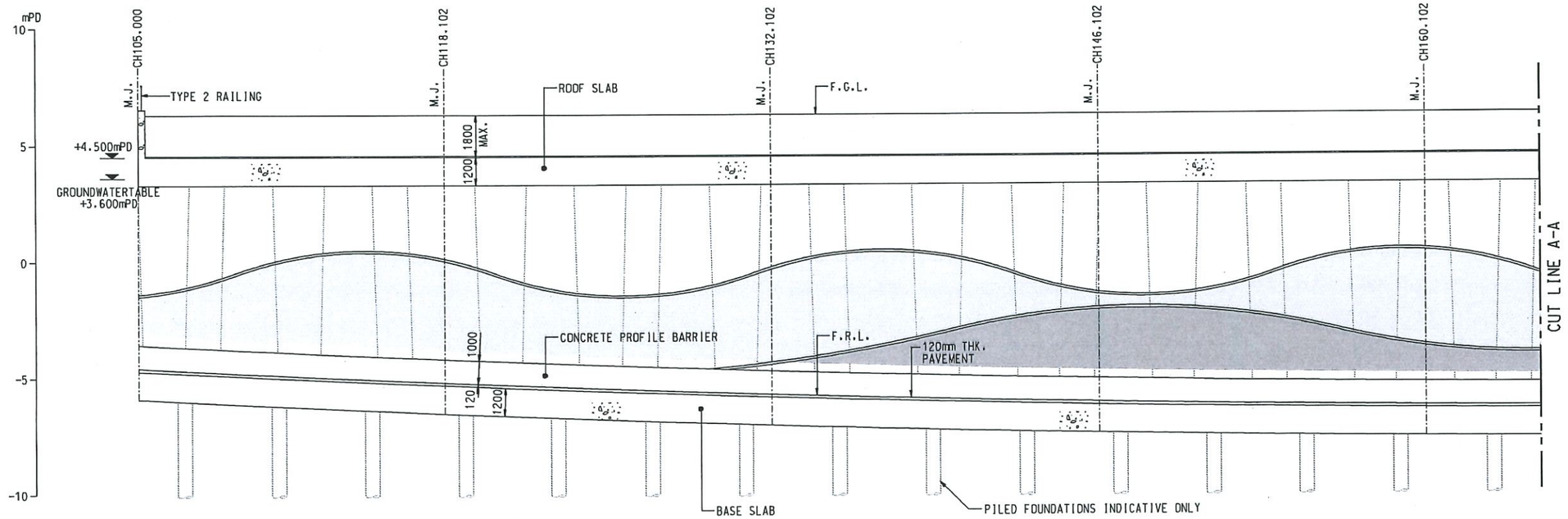
Project Management Initials: Designer: ATHH Checked: RPCM Approved: CWN Sig'y ISO A1 594mm x 841mm

Plot File by: WANGPY2 2016/03/18
PATH: P:\Projects\60308751\DRAWINGS\Contract\C2\4000\C2_C00_4210.dgn

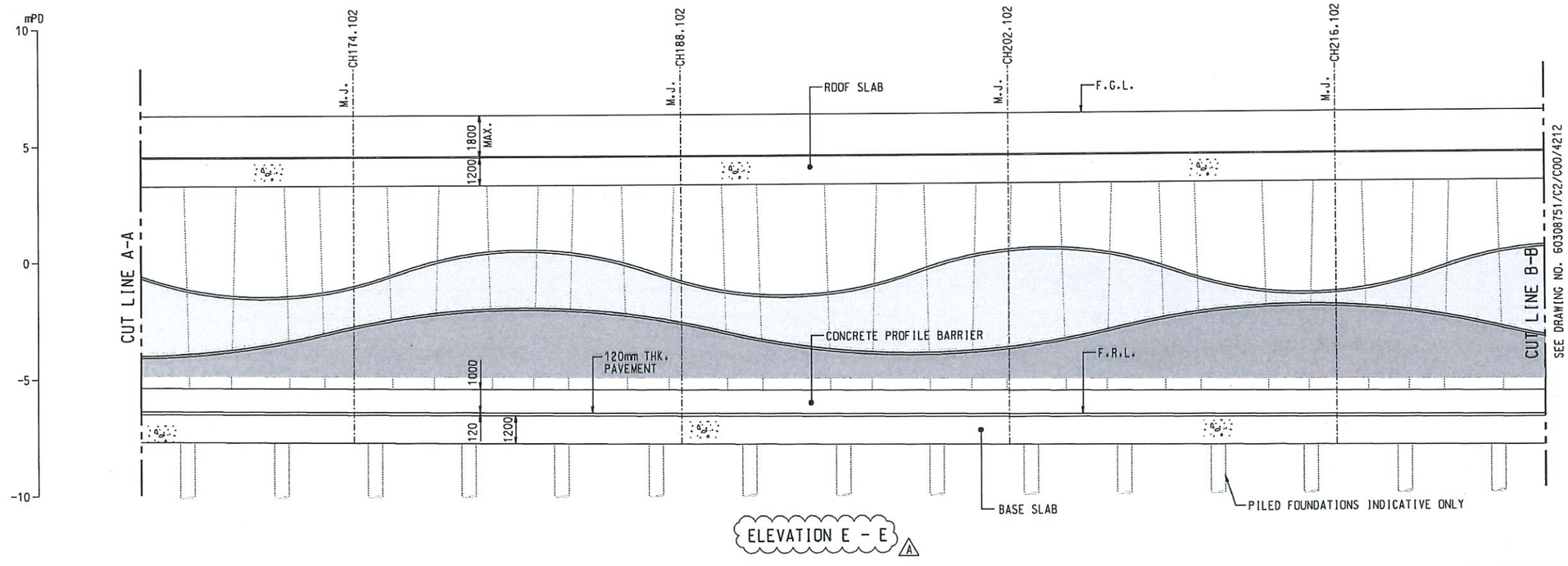
Project Management Initials: Designer: ATHH Checked: RPCM Approved: CWN ISO A1 594mm x 841mm

NOTES:

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4201 AND 4212.



ELEVATION E - E (A)



ELEVATION E - E (A)

Plot File by: WANGSLW 2016/2/28
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CONTRACT TITLE
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STATUS

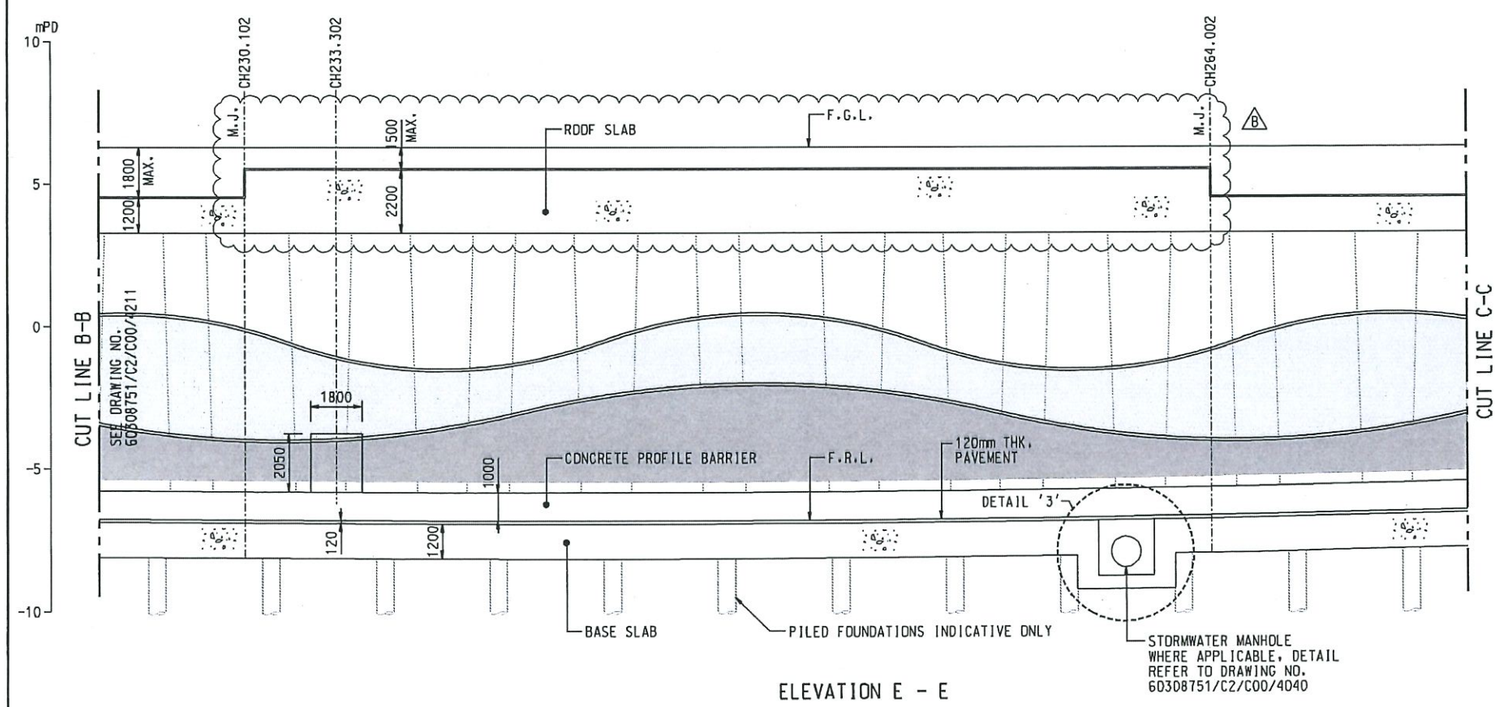
SCALE: A1 1 : 100
DIMENSION UNIT: MILLIMETRES

KEY PLAN

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

SHEET TITLE
ROAD P2 UNDERPASS - SOUTHBOUND AND CROSS PASSAGE ELEVATION
SHEET 1 OF 2

SHEET NUMBER
60308751/C2/C00/4211A



ELEVATION E - E

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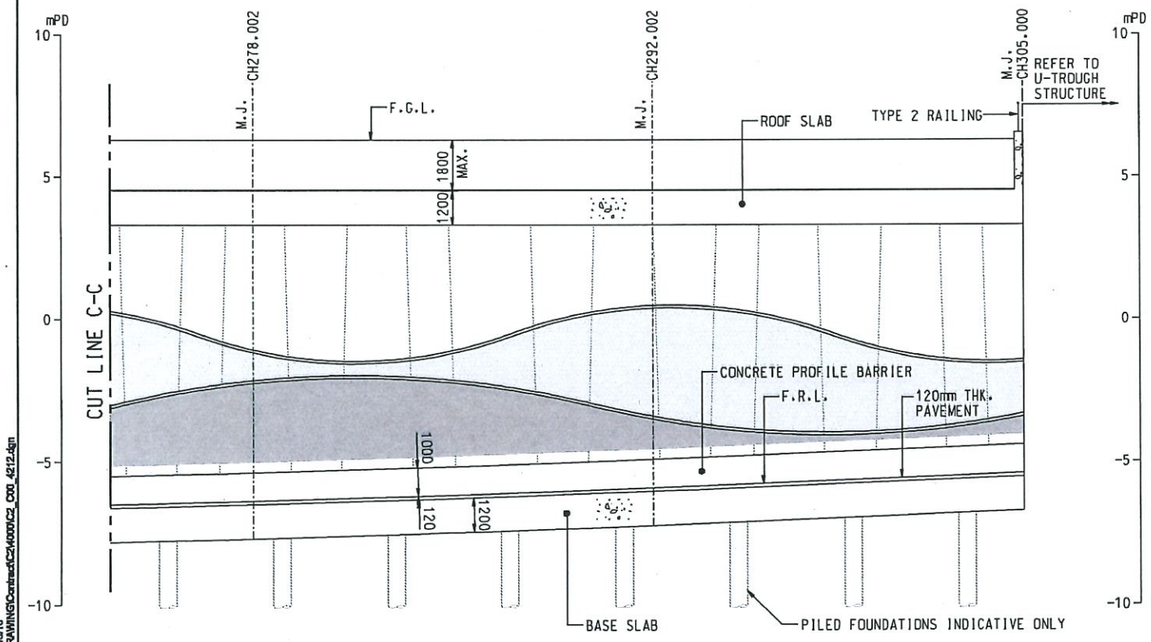
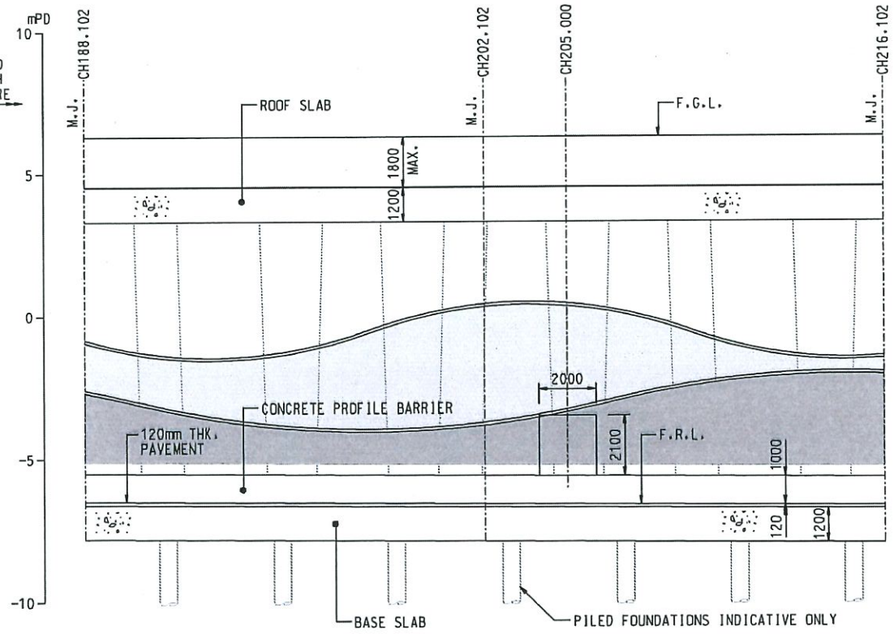
1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 60308751/C2/C00/4201.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4201 AND 4211.



ELEVATION E - E



ELEVATION FOR CROSS PASSAGE
(AT S.O.L ROAD P2 UNDERPASS CH 205.00)

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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A	FEB.16	TENDER ADDENDUM NO. 1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

STATUS

SCALE: A1 1 : 100
DIMENSION UNIT: MILLIMETRES

KEY PLAN

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

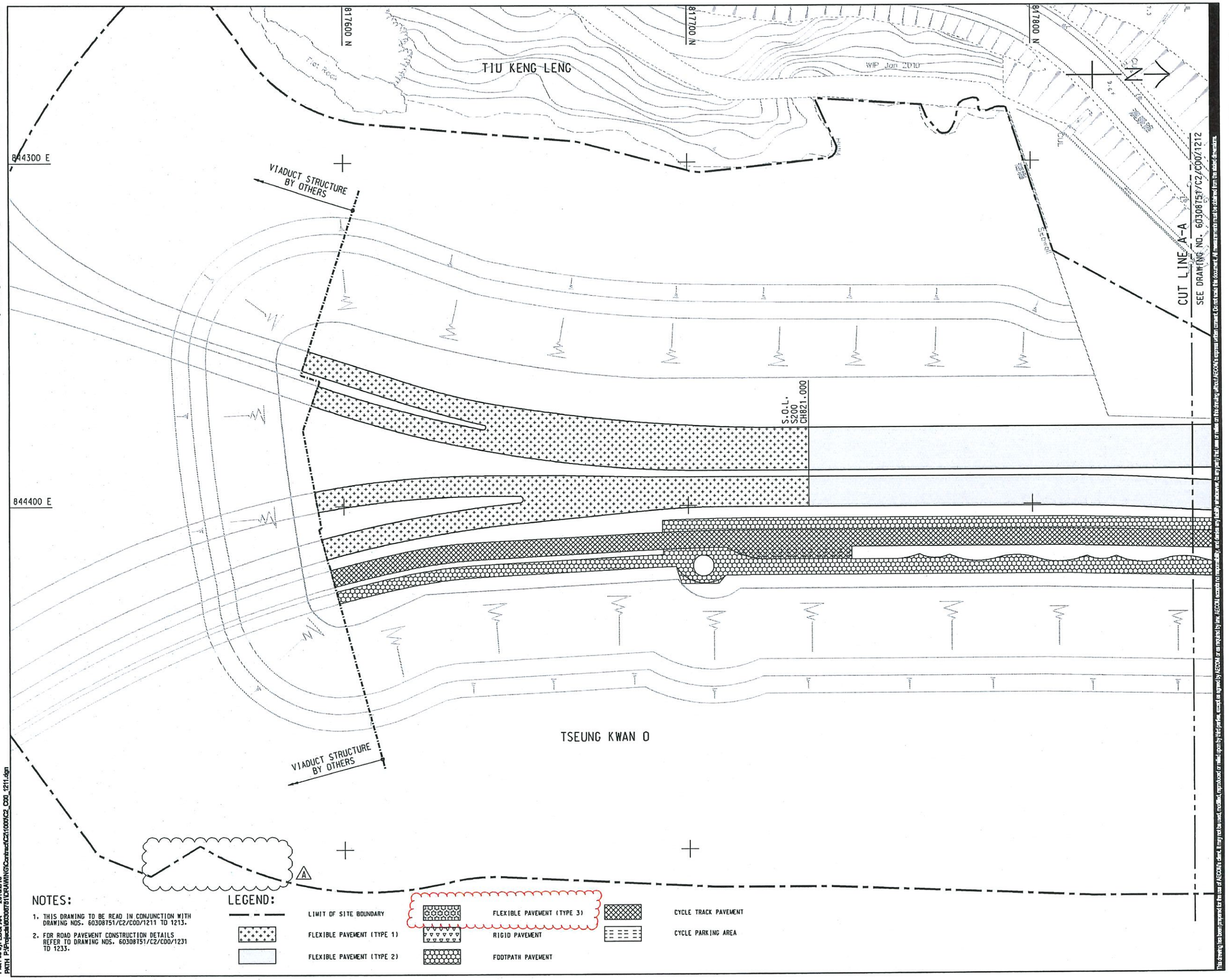
SHEET TITLE
ROAD P2 UNDERPASS - SOUTHBOUND AND CROSS PASSAGE ELEVATION
SHEET 2 OF 2

SHEET NUMBER
60308751/C2/C00/4212B

Project Management Initials: Designer: ATTH Checked: RPCM Approved: CWM ISO A1 594mm x 841mm

Plot File by: WANGFY2 2016/5/16
PATH: P:\Projects\60308751\DRAWING\Contract\C2\4000\C2_C00_4212.dgn

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



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

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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

CONSULTANT
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS

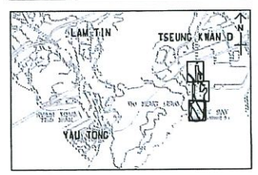
ISSUE/REVISION

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

STATUS

SCALE: A1 1 : 500
DIMENSION UNIT: METRES

KEY PLAN A1 1 : 50000

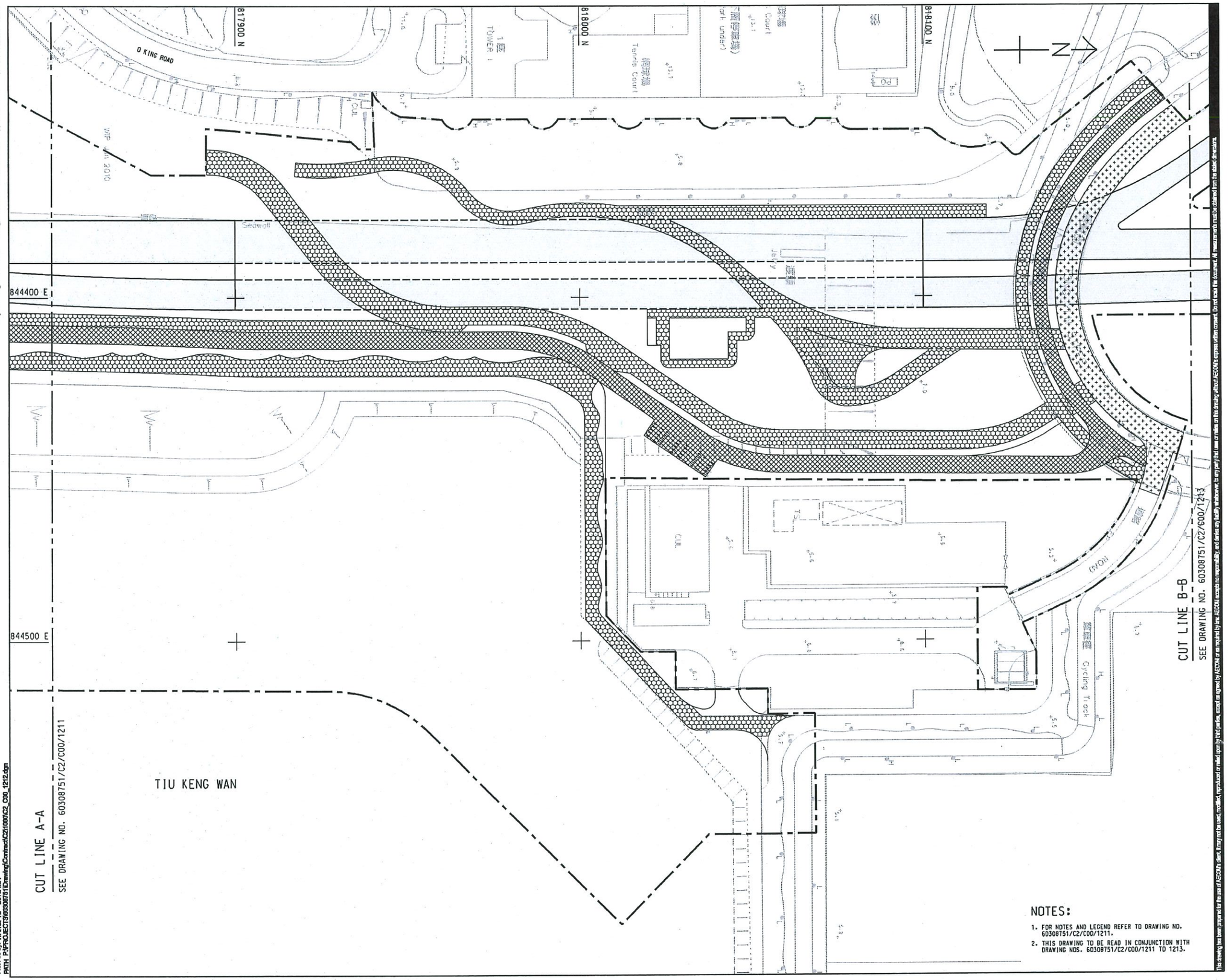


PROJECT NO.: 60308751
CONTRACT NO.: NE/2015/02

SHEET TITLE
ROAD PAVEMENT LAYOUT

SHEET 1 OF 3

SHEET NUMBER
60308751/C2/C00/1211A



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.

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

Plot File by: WANGFY2 2016/1/24
PATH: P:\PROJECTS\60308751\Drawing\Contract\C2\1000\C2_C00_1212.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

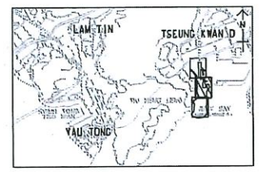
ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK
-	JAN.16	TENDER DRAWING	RPCM

STATUS

SCALE: A1 1 : 500
DIMENSION UNIT: METRES

KEY PLAN A1 1 : 50000



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

SHEET TITLE
ROAD PAVEMENT LAYOUT

SHEET 2 OF 3

SHEET NUMBER
60308751/C2/C00/1212

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

818200 N
818300 N
818400 N
844300 E
844400 E
844500 E

S.O.L. P2 CH250.000
S.O.L. P2 CH500.000

LNS1

CUT LINE B-B
SEE DRAWING NO. 60308751/C2/C00/1212

BY CONTRACT NO. NE/2015/02
BY OTHERS

Cycling Track
Chui Ling Road Substation
CHUI LING ROAD
CHUI TIN STREET
CHUI SHUN STREET
WIP May 2014

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.

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

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

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

CONSULTANT
AECOM Asia Company Ltd.
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SUB-CONSULTANTS

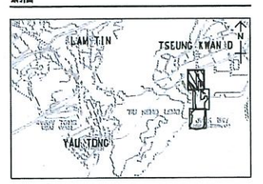
ISSUE/REVISION

VR	DATE	DESCRIPTION	CHK
-	JAN.15	TENDER DRAWING	RPCM

STATUS

SCALE: A1 1 : 500
DIMENSION UNIT

KEY PLAN A1 1 : 50000



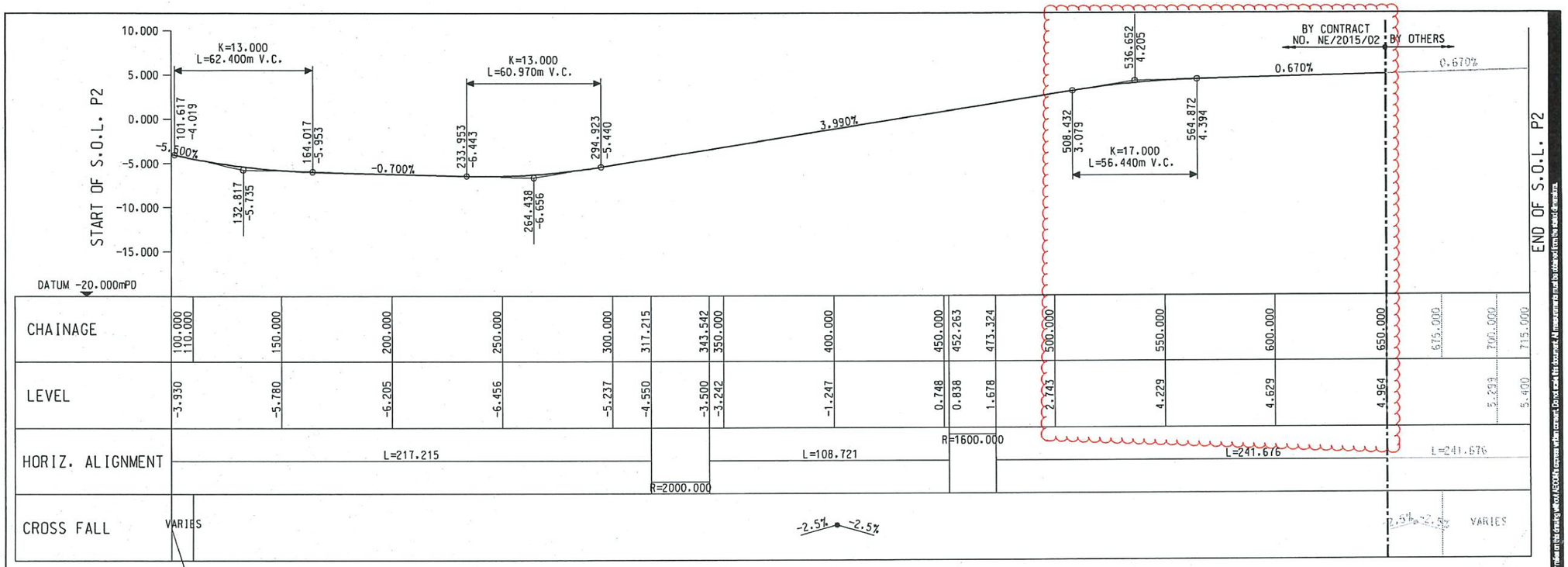
PROJECT NO. 60308751
CONTRACT NO. NE/2015/02

SHEET TITLE
ROAD PAVEMENT LAYOUT

SHEET 3 OF 3

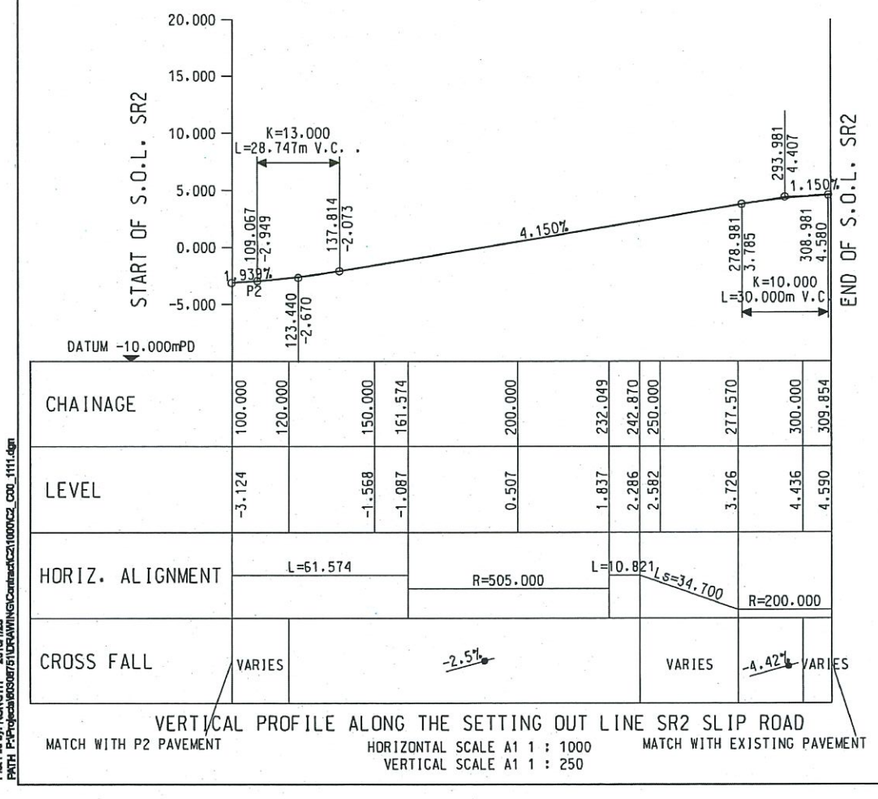
SHEET NUMBER
60308751/C2/C00/1213

Plot File by: DUW 2015/1/28
PATH: P:\Projects\60308751\DRAWING\Contract\C2\1\000\C2_C00_1213.dgn



VERTICAL PROFILE ALONG THE SETTING OUT LINE P2

HORIZONTAL SCALE A1 1 : 1000
VERTICAL SCALE A1 1 : 250

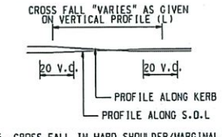


VERTICAL PROFILE ALONG THE SETTING OUT LINE SR2 SLIP ROAD

HORIZONTAL SCALE A1 1 : 1000
VERTICAL SCALE A1 1 : 250

NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SETTING OUT PLAN. DRAWING NOS. 60308751/C2/C00/1101 TO 1103.
2. ALL LEVELS SHOWN ON THE VERTICAL PROFILE ARE IN METRES ABOVE PRINCIPAL DATUM AND REFER TO THE FINISHED ROAD LEVEL ALONG SETTING OUT LINE.
3. CROSS FALL SHOWN IN THIS DRAWING IS TAKEN IN THE DIRECTION OF INCREASING CHAINAGES.
4. VERTICAL CURVE OF 20m LONG SHALL BE APPLIED AT ALL CHANGES OF GRADIENT ALONG THE CARRIAGEWAY KERB UNLESS L<20m, FOR CHANGES OF GRADIENT ALONG THE CARRIAGEWAY KERB WITH L<20m, THE VERTICAL CURVE SHALL BE L(m) LONG.



5. CROSS FALL IN HARD SHOULDER/MARGINAL STRIP SHALL BE THE SAME AS THAT OF THE ADJOINING CARRIAGEWAY UNLESS OTHERWISE SPECIFIED OR INSTRUCTED BY THE SUPERVISOR.

ABBREVIATION:

K	CONSTANT WHERE BY VERTICAL RADIUS=100 x K
R	RADIUS (METRES)
V.C.	VERTICAL CURVE (METRES)
LS	SPIRAL LENGTH (METRES)
L	STRAIGHT LINE (METRES)

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

VR	DATE	DESCRIPTION	CHK
-	JAN.16	TENDER DRAWING	RPCM

STATUS

SCALE: A1 AS SHOWN
DIMENSION UNIT: METRES

KEY PLAN

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

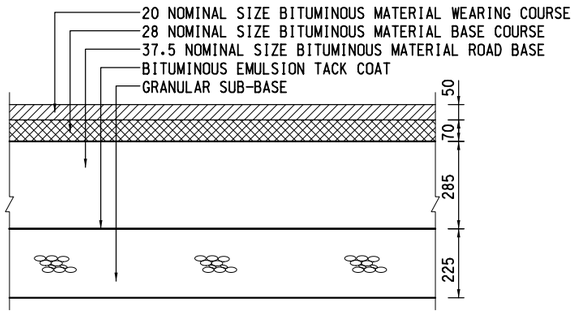
SHEET TITLE
ROAD WORKS - VERTICAL PROFILES

SHEET 1 OF 5

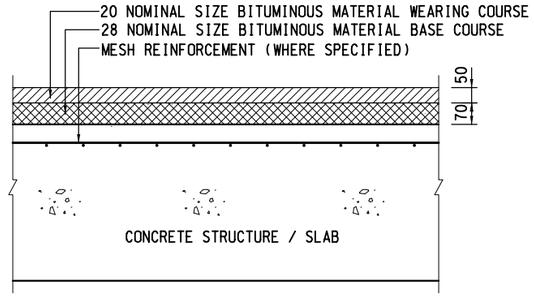
SHEET NUMBER
60308751/C2/C00/1111

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

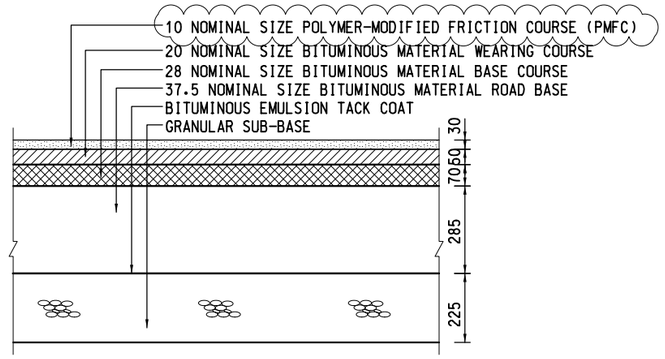
Plot File by: RONGYH 2016/1/29
PATH: P:\Projects\60308751\DRAWINGS\Contract\C2\1000\C2_C00_1111.dgn



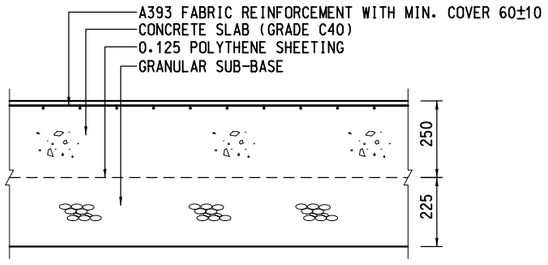
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 1)



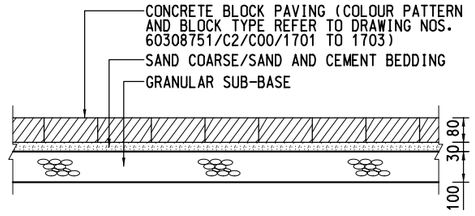
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 2)



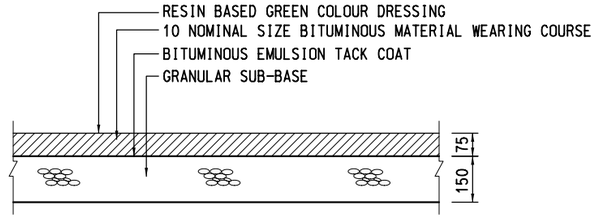
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 3)



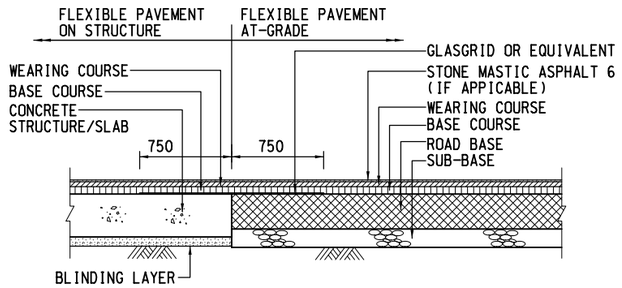
TYPICAL DETAILS FOR RIGID PAVEMENT



TYPICAL DETAILS FOR FOOTPATH PAVEMENT

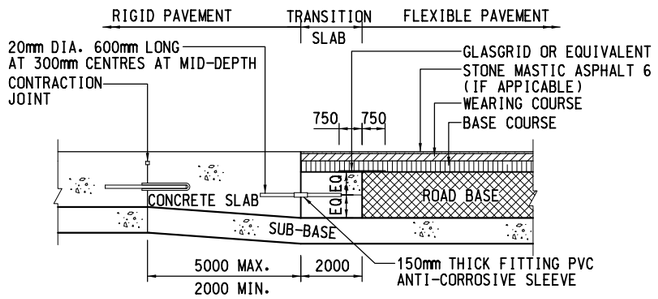


TYPICAL DETAILS FOR CYCLE TRACK PAVEMENT



TRANSITION DETAILS BETWEEN FLEXIBLE PAVEMENT ON STRUCTURE AND FLEXIBLE PAVEMENT AT-GRADE

N.T.S.



TRANSITION DETAILS BETWEEN RIGID PAVEMENT AND FLEXIBLE PAVEMENT

N.T.S.

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.
–	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.
–

EXTRACTED FROM DRG. NO.
60308751/C2/C00/1231

SCALE
1:20 (A3)

Plot File by : 27-Oct-17 9:03:27 AM

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

CRBC - Build King Joint Venture

Construction Noise Assessment

Period: 0700 to 1900 (except general holidays)

Noise Sensitive Receiver: CM6(0-39m)

Noise Criteria: 75dB(A)

Mitigation Measures Scenario

Portion	Activity	PME	TM Ref. / other Ref.	No. of plants	SWL	Total SWL	On-time, %	Time Factor	Distance from Notional Sources, m	Distance Attenuation*,dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
VIII	Group 1 - General	Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	163	-52.24	0	3	56.77	71.0
		Generator, Silenced,<=75 dB(A) at 7m	CNP 102	4	100	106	50	-3	163	-52.24	0	3	56.78	
		Concrete Lorry Mixer	BS D6/33	2	96	99	50	-3	163	-52.24	0	3	49.77	
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	163	-52.24	-10	3	62.76	
		Dump Truck	CNP 068	2	105	108	50	-3	163	-52.24	0	3	58.77	
		Water pump, subersible (electric)	CNP 283	15	85	97	50	-3	163	-52.24	0	3	47.52	
		Concrete Pump	CNP 047	1	109	109	50	-3	163	-52.24	0	3	59.76	
		Excavator (223 kw) (40T)	BS C4/63	4	105	111	50	-3	163	-52.24	0	3	61.78	
		Saw, Circular Wood	CNP 201	1	108	108	50	-3	163	-52.24	0	3	58.76	
		Poker, Vibratory, Handheld	CNP 170	2	113	116	50	-3	163	-52.24	0	3	66.77	
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	163	-52.24	0	3	54.77	
		Welding Machine	CNP 107	4	99	105	50	-3	163	-52.24	0	3	55.78	
		Air Blower	CNP 006	2	95	98	50	-3	163	-52.24	0	3	48.77	
		Lorry	BS D8/25	2	96	99	50	-3	163	-52.24	0	3	49.77	
	Group 2 - Foundation	Crane (240 kw) (105T)	BS C4/52	3	103	108	50	-3	163	-52.24	0	3	58.53	66.9
		Drill Rig, Rotary Type (Diesel)	CNP 072	3	110	115	50	-3	163	-52.24	-5	3	60.53	
		Air Compressor	CNP 002	4	102	108	50	-3	163	-52.24	0	3	58.78	
		Piling, large diameter bored, grab and chisel	CNP164	1	114	114	50	-3	163	-52.24	-5	3	59.76	
		Piling, large diameter bored, oscillator	CNP165	1	114	114	50	-3	163	-52.24	-5	3	59.76	
		Welding Machine	CNP 107	4	99	105	50	-3	163	-52.24	0	3	55.78	
	Group 3 - Sheetpiling	Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	163	-52.24	-5	3	63.77	66.4
		Power pack (diesel)	CNP 174	2	100	103	50	-3	163	-52.24	0	3	53.77	
		Crane (240 kw) (105T)	BS C4/52	4	103	109	50	-3	163	-52.24	0	3	59.78	
		Excavator (223 kw) (40T)	BS C4/63	2	105	108	50	-3	163	-52.24	0	3	58.77	
	Group 4 - Earth Works	Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	163	-52.24	-5	3	63.77	67.3
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	163	-52.24	0	3	54.77	
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	163	-52.24	-10	3	62.76	
		Dump Truck	CNP 068	2	105	108	50	-3	163	-52.24	0	3	58.77	
	Group 5 - Road Works	Asphalt Paver	BS DB/24	1	101	101	50	-3	163	-52.24	0	3	51.76	59.5
		Power Rammer Petrol	CNP 169	1	108	108	50	-3	163	-52.24	0	3	58.76	
IX	Group 7 - Reclaimed Section Works	Crane (240 kw) (105T)	BS C4/52	6	103	111	50	-3	225	-55.06	0	3	58.72	69.8
		Generator, Silenced,<=75 dB(A) at 7m	CNP 102	6	100	108	50	-3	225	-55.06	0	3	55.72	
		Concrete Lorry Mixer	BS D6/33	6	96	104	50	-3	225	-55.06	0	3	51.72	
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	225	-55.06	-10	3	59.94	
		Dump Truck	CNP 068	6	105	113	50	-3	225	-55.06	0	3	60.72	
		Water pump, subersible (electric)	CNP 283	40	85	101	50	-3	225	-55.06	0	3	48.96	
		Concrete Pump	CNP 047	3	109	114	50	-3	225	-55.06	0	3	61.71	
		Excavator (223 kw) (40T)	BS C4/63	6	105	113	50	-3	225	-55.06	0	3	60.72	
		Poker, Vibratory, Handheld	CNP 170	2	113	116	50	-3	225	-55.06	0	3	63.95	
		Roller, Vibratory	BS D8/30	4	101	107	50	-3	225	-55.06	0	3	54.96	
		Welding Machine	CNP 107	4	99	105	50	-3	225	-55.06	0	3	52.96	
		Air Blower	CNP 006	8	95	104	50	-3	225	-55.04	0	3	51.99	
		Bar Bender and Cutter	CNP 021	4	90	96	50	-3	225	-55.04	0	3	43.98	
		Lorry	BS D8/25	4	96	102	50	-3	225	-55.06	0	3	49.96	

CRBC - Build King Joint Venture

Construction Noise Assessment

Period: 0700 to 1900 (except general holidays)

Noise Sensitive Receiver: CM7(0-39m)

Noise Criteria: 75dB(A)

Mitigation Measures Scenario

Portion	Activity	PME	TM Ref. / other Ref.	No. of plants	SWL	Total SWL	On-time, %	Time Factor	Distance from Notional Sources, m	Distance Attenuation*, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
VIII	Group 1 - General	Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	157	-51.92	0	3	57.09	71.3
		Generator, Silenced,<=75 dB(A) at 7m	CNP 102	4	100	106	50	-3	157	-51.92	0	3	57.10	
		Concrete Lorry Mixer	BS D6/33	2	96	99	50	-3	157	-51.92	0	3	50.09	
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	157	-51.92	-10	3	63.08	
		Dump Truck	CNP 068	2	105	108	50	-3	157	-51.92	0	3	59.09	
		Water pump, subersible (electric)	CNP 283	15	85	97	50	-3	157	-51.92	0	3	47.84	
		Concrete Pump	CNP 047	1	109	109	50	-3	157	-51.92	0	3	60.08	
		Excavator (223 kw) (40T)	BS C4/63	4	105	111	50	-3	157	-51.92	0	3	62.10	
		Saw, Circular Wood	CNP 201	1	108	108	50	-3	157	-51.92	0	3	59.08	
		Poker, Vibratory, Handheld	CNP 170	2	113	116	50	-3	157	-51.92	0	3	67.09	
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	157	-51.92	0	3	55.09	
		Welding Machine	CNP 107	4	99	105	50	-3	157	-51.92	0	3	56.10	
		Air Blower	CNP 006	2	95	98	50	-3	157	-51.92	0	3	49.09	
		Lorry	BS D8/25	2	96	99	50	-3	157	-51.92	0	3	50.09	
	Group 2 - Foundation	Crane (240 kw) (105T)	BS C4/52	3	103	108	50	-3	157	-51.92	0	3	58.85	67.2
		Drill Rig, Rotary Type (Diesel)	CNP 072	3	110	115	50	-3	157	-51.92	-5	3	60.85	
		Air Compressor	CNP 002	4	102	108	50	-3	157	-51.92	0	3	59.10	
		Piling, large diameter bored, grab and chisel	CNP164	1	114	114	50	-3	157	-51.92	-5	3	60.08	
		Piling, large diameter bored, oscillator	CNP165	1	114	114	50	-3	157	-51.92	-5	3	60.08	
		Welding Machine	CNP 107	4	99	105	50	-3	157	-51.92	0	3	56.10	
	Group 3 - Sheetpiling	Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	157	-51.92	-5	3	64.09	66.7
		Power pack (diesel)	CNP 174	2	100	103	50	-3	157	-51.92	0	3	54.09	
		Crane (240 kw) (105T)	BS C4/52	4	103	109	50	-3	157	-51.92	0	3	60.10	
		Excavator (223 kw) (40T)	BS C4/63	2	105	108	50	-3	157	-51.92	0	3	59.09	
	Group 4 - Earth Works	Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	157	-51.92	-5	3	64.09	67.6
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	157	-51.92	0	3	55.09	
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	157	-51.92	-10	3	63.08	
		Dump Truck	CNP 068	2	105	108	50	-3	157	-51.92	0	3	59.09	
	Group 5 - Road Works	Asphalt Paver	BS DB/24	1	101	101	50	-3	157	-51.92	0	3	52.08	59.9
		Power Rammer Petrol	CNP 169	1	108	108	50	-3	157	-51.92	0	3	59.08	

NE/2015/02

Associated Cumulative Noise Levels

NSR CM6

Portion	Activity	2021											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Portion VIII	Road P2 U-Trough A CH411-500 (Structural)												
Portion VIII	Road P2 U-Trough A CH170-250 (Structural)												
Portion VIII	Road P2 CH318-650 & SR2 CH100-310 (Road and Drainage Works)												
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (ELS Welding Excavation)												
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (Structural)												
Portion IX	Concrete Coping (Structural)												
Portion IX	Road P2 Underpass CH105-318 (Foundation)												
Portion IX	Road P2 Footpath & Cycle Track CH105-318 (Road & Drainage Works)												
Portion IX	Road P2 U-Trough A&B S200 CH821 - P2 CH105 (Structural)												
Portion IX	Retaining Wall S200 CH755-821 & S300 CH326-261 (Structural)												
Portion IX	Road P2 U-Trough A S200 CH674-821, S100 CH280, S300 CH403 & S400 CH158 (Structural)												
Portion IX	Road P2 U-Trough C CT01 CH117-366 (Structural)												

NSR CM7

Portion	Activity	2021											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Portion VIII	Road P2 U-Trough A CH411-500 (Structural)												
Portion VIII	Road P2 U-Trough A CH170-250 (Structural)												
Portion VIII	Road P2 CH318-650 & SR2 CH100-310 (Road and Drainage Works)												
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (ELS Welding Excavation)												
Portion VIII	Road P2 U-Trough A&B CH363-411 & Road SR2 U-Trough B CH110-170 (Structural)												

NE/2015/02

Associated Cumulative Noise Levels (0-39m)

NSR CM6

Portion	PME Group to be Used	Predicted Noise Level for Individual PME Group / dB(A)	2021											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Portion VIII	Group 1	71.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Portion VIII	Group 2	66.9	✓	✓	✓									
Portion VIII	Group 3	66.4			✓	✓				✓				
Portion VIII	Group 4	67.3					✓	✓	✓					
Portion VIII	Group 5	59.5	✓	✓					✓	✓	✓	✓	✓	
Portion IX	Group 7	69.8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cumulative Noise / dB(A)			74.4	74.4	74.9	74.2	74.4	74.4	74.5	74.3	73.6	73.6	73.6	69.8

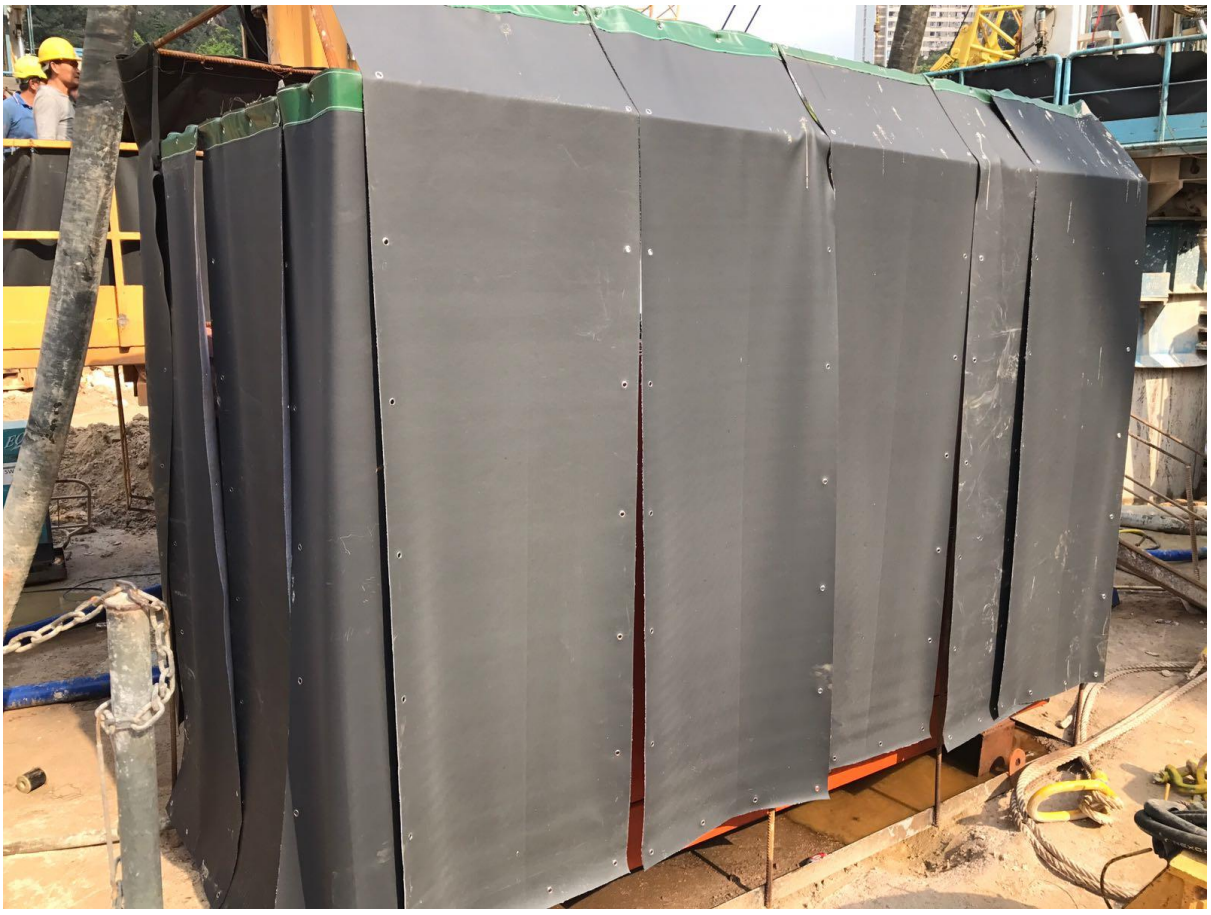
NSR CM7

Portion	PME Group to be Used	Predicted Noise Level for Individual PME Group / dB(A)	2021											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Portion VIII	Group 1	71.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Portion VIII	Group 2	67.2	✓	✓	✓	✓								
Portion VIII	Group 3	66.7			✓	✓				✓				
Portion VIII	Group 4	67.6					✓	✓	✓					
Portion VIII	Group 5	59.9	✓	✓					✓	✓	✓	✓	✓	
Cumulative Noise / dB(A)			73.0	73.0	73.7	73.7	72.8	72.8	73.1	72.8	71.6	71.6	71.6	N.A.

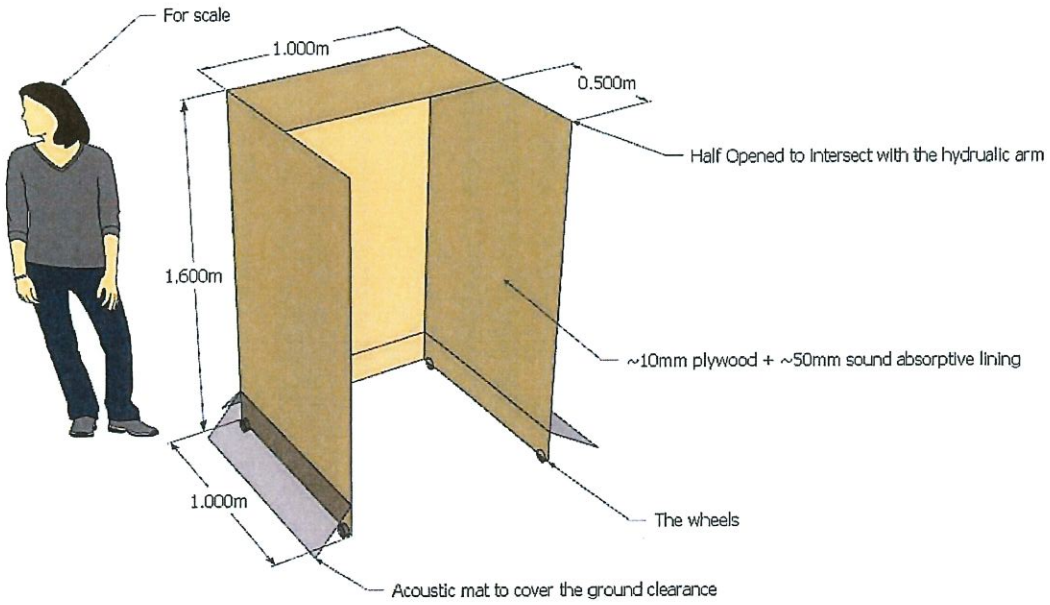
Appendix D

Sample of Movable Noise Barriers, Acoustic Mat and Enclosure

Noise Enclosure for generator & air compressor



Acoustic Box



Noise Barrier (3.5 m)

Acoustic Mat 3.5m

CHEUNG KEE CANVAS LTD.
G/F, 352, RECLAMATION ST, KLN. HK

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description	: PVC TARPAULIN
Item	: CK 2009 SOUND PROOF CANVAS(1.6M)
Sample Receiving Date	: Aug.13, 2014
Test Performing Date	: Aug.13, 2014 to Aug.19, 2014
Test Required	: In accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
Test Result(s)	: For further details, please refer to the following page(s)

Signed for and on behalf of
SGS-CSTC Co., Ltd.

Irvette Zhang
Approved signatory

1/F,1st Building,European Industrial Park,No.1 Shunhenan Road,Wusha Section,Daliang Town,Shunde,Foshan,Guangdong,China 528333 t (86-757)22805888 f (86-757)22805888 www.sgsgroup.com.cn
中国·广东·佛山市顺德区大良街道办事处五沙顺和南路1号欧洲工业园一号厂房首层 邮编: 528333 t (86-757)22805888 f (86-757)22805888 e sgs.china@sgs.com

I. Test conducted

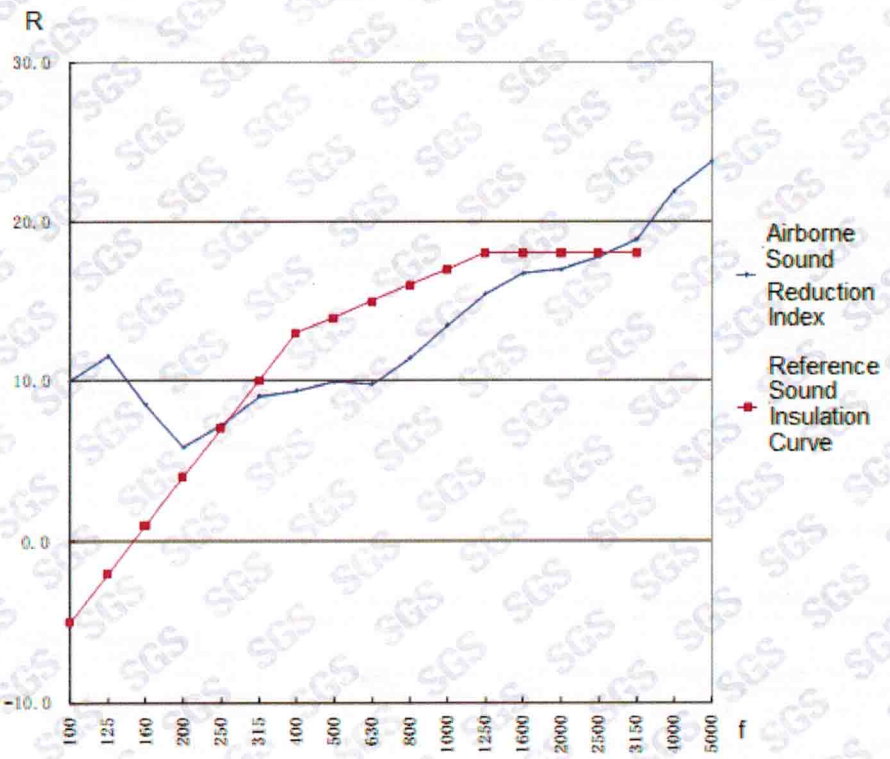
The test is performed in accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
The evaluation of the single-number rating from the results in one-third octave bands is done in accordance with ISO 717-1:1996 Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation

II. Sample Description and Conditioning

Sample name(provided by sponsor):	PVC Tarpaulin
Color:	Gray
Mass per unit area :	958 g/m^2
Area, S, of test element :	3.8 m^2
Air temp. in the test rooms :	27°C
Relative humidity in the test rooms :	58%
Receiving room volume :	67.9 m^3

III. Test results

f Hz	R dB
100	10.1
125	11.6
160	8.6
200	5.9
250	7.3
315	9.1
400	9.4
500	10.0
630	9.9
800	11.5
1000	13.5
1250	15.5
1600	16.7
2000	17.0
2500	17.8
3150	18.9
4000	21.9
5000	23.9
Rw (C;Ctr)	**14(-1;-2)**



Key
R-- sound reduction index, in dB
f--frequency, in Hz

To be continued...

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Testing Center
1/F,1st Building,European Industrial Park,No.1 Shunhenan Road,Wusha Section,Dailang Town,Shunde,Foshan,Guangdong,China 528333 t (86-757)22805888 f (86-757)22805858 www.sgsgroup.com.cn
中国·广东·佛山市顺德区大良街道办事处五沙顺和南路1号欧洲工业园一号厂房首层 邮编: 528333 t (86-757)22805888 f (86-757)22805858 e sgs.china@sgs.com

STATEMENTS:

For laboratory measurements using sound pressure, the sound reduction index is calculated using:

$$R = L_1 - L_2 + 10\lg\frac{S}{A}(dB)$$

where

L_1 is the energy average sound pressure level in the source room, in decibels;

L_2 is the energy average sound pressure level in the receiving room, in decibels;

S is the area of the free test opening in which the test element is installed, in square metres;

A is the equivalent sound absorption area in the receiving room, in square metres.

Photo Appendix:

Remark: This test was subcontracted to qualified subcontractor.

End of Report

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中国·广东·佛山市顺德区大良街道办事处五沙顺和南路1号欧洲工业园一号厂房首层 邮编: 528333 t (86-757)22805888 f (86-757)22805888 e sgs.china@sgs.com

Wilson Acoustics Limited

Unit 601, Block A, Shatin Industrial Centre,
5 - 7 Yuen Shun Circuit, Shatin, NT
Tel: (852) 3188-1170, Fax: (852) 3422-8117
E-mail: who@wal.hk
Web: www.wal.hk

CEDD Contract No. NE/2015/02

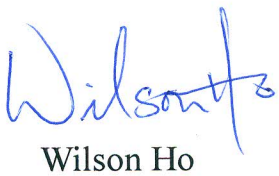
Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works

Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Report No.: 17351-3

For
CRBC-Build King JV

Approved by:



Wilson Ho
MIOA, MHKIOA, MHKIEIA, AFCHKRI, PMHKIQEP
Prepared by: MY

26 October 2017

Table of Content

List of Appendices

1. Measurement Date, Personnel and Standard

Date	:	24 October 2017 10:30-15:30 hours
Personnel	:	Conducted by Joanne Shi and Chris Ng, supervised by Wilson Ho of Wilson Acoustics Limited (WAL), assisted by Karen Chiu of CRBC-Build King JV.
Site	:	Construction site of Tseung Kwan O - Lam Tin Tunnel near the junction of O King Road and Tong Yin St.
Standard	:	*ISO 10847:1997 - In-situ determination of insertion loss of outdoor noise barriers of all types.*

2. Introduction

A 5m (H) x 7m (W) U-shape movable noise barrier (total length of 10m, **Photo 1, Appendix A**) is used to provide barrier effect for drilling rig towards nearby NSRs. Drilling rig are used for retaining wall construction during daytime (0700-1900 hours) at the construction site (**Figure 1**) near Ocean Shores of the subjected project. Ocean Shores Tower 1 is identified as the critical NSR. The movable noise barrier will be always facing the NSRs and the drilling rig will be placed 1.5m away from the barrier (**Figure 1**).

Wilson Acoustics Limited is commissioned by CRBC-Build King JV to conduct an Insertion Loss (IL) measurement for the movable noise barrier. This document presents the measurement results of the IL measurement at the worst-case location.

Photo 1. Noise Barrier (front view)

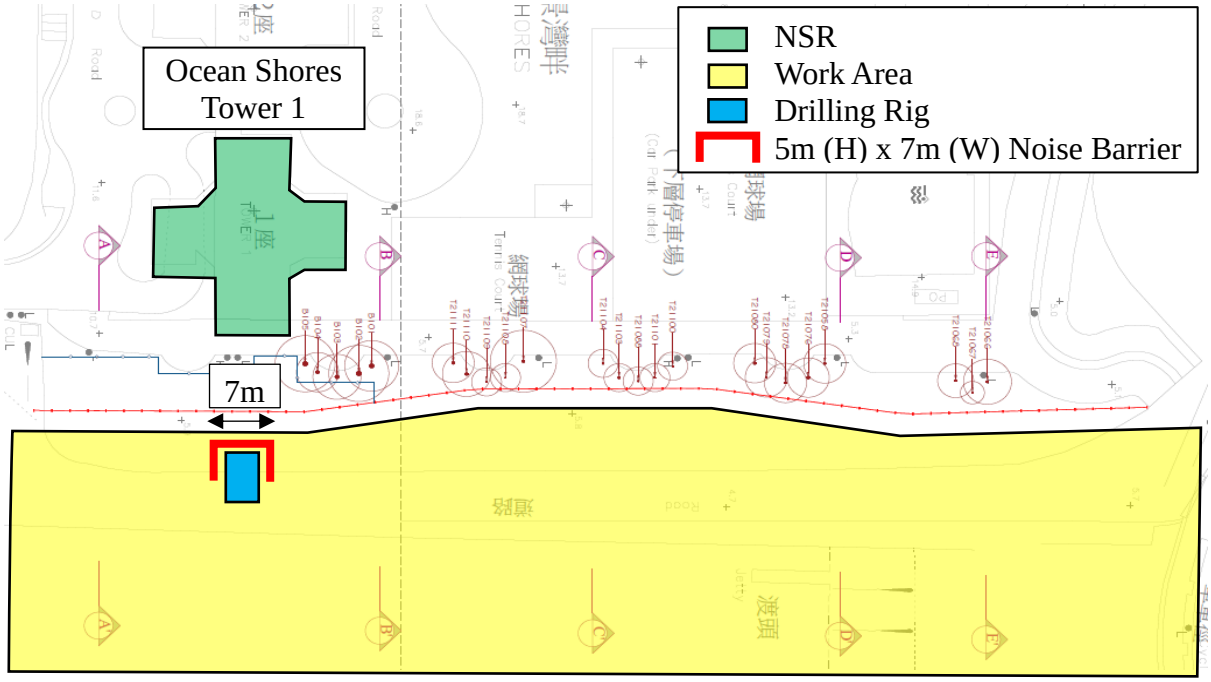


Figure 1. Site Plan with NSR of Noise Barrier Worst-case Location (Top View)

3. Instrumentation

Field calibration of sound level meter was conducted using an acoustic calibrator before and after measurements (**Table 1**). The field calibration confirmed that there was no shift on the sensitivity of the sound level meters at the calibration frequency.

Table 1: Measurement Equipment

Equipment	Brand Name & Model No.	Serial No.	Calibration Expiry
Sound level meter	Svantek - SVAN958	20890	22 Jun 2019
Sound level meter	Svantek - SVAN958	23412	12 Mar 2019
Acoustics calibrator	Svantek - SV30A	10814	14 Jun 2018
Loudspeaker	QSC – K12	GDD541208	N/A

4. Insertion Loss (IL) Testing Methodology

4.1 Testing Standard and Calculation of Insertion Loss (IL)

ISO 10847- In-situ determination of insertion loss of outdoor noise barriers of all types was used. The IL of the noise barrier was determined by comparison of the measured noise levels with and without the noise barrier. Based on the measured noise levels at the receiver and reference microphone (1m from loudspeakers) locations, the IL is given by:

IL = L (with) - L (without)

Where L (with) = L (ref, with) – L (rec, with)

L (without) = L (ref, without) – L (rec, without)

L (ref, with) is the noise level of reference microphone with noise barrier installed between the drilling rig and the receiver.
L (rec, with) is the noise level of receiver microphone with noise barrier installed between the drilling rig and the receiver.
L (ref, without) is the noise level of reference microphone without noise barrier.
L (rec, without) is the noise level of receiver microphone without noise barrier.

4.2 Loudspeaker and Receiver Microphone Locations

As the NSR, Ocean Shores Tower 1, is not accessible, noise measurement was conducted next to the NSR. The measurement results would not be affected due to the similar measurement conditions.

A schematic concept of measurement methodology is presented in **Figure 2** and **3**. A loudspeaker was located at ground level (major noise source of drilling rig, the drilling interfaces between the ground and pipe pile, is at ground level) in the site area with horizontal distance of ~23m from the receiver microphone. The receiver microphone was located 2m above the ground level of that location (there is a level difference of ~6m between the ground level of site area and ground level of receiver microphone).

For the ‘with noise barrier’ scenario, a noise barrier was placed at the closest to the receiver microphone. The loudspeaker is placed 1.5m from the noise barrier.

The noise barrier was removed for measurement of the ‘without noise barrier’ scenario. The distance between the loudspeaker and receiver microphone location was remain unchanged for both scenarios.

4.3 Playback of Drilling Rig Noise

Drilling rig noise, major noise source, was recorded and played back by loudspeaker to simulate real operation. The loudspeaker provided steady continuous noise source for accurate measurement. Reference noise measurement was conducted 1m from the loudspeaker throughout the measurement to monitor the loudspeaker output variation.

4.4 Site Conditions

During the noise measurement, all other noisy activities were stopped.

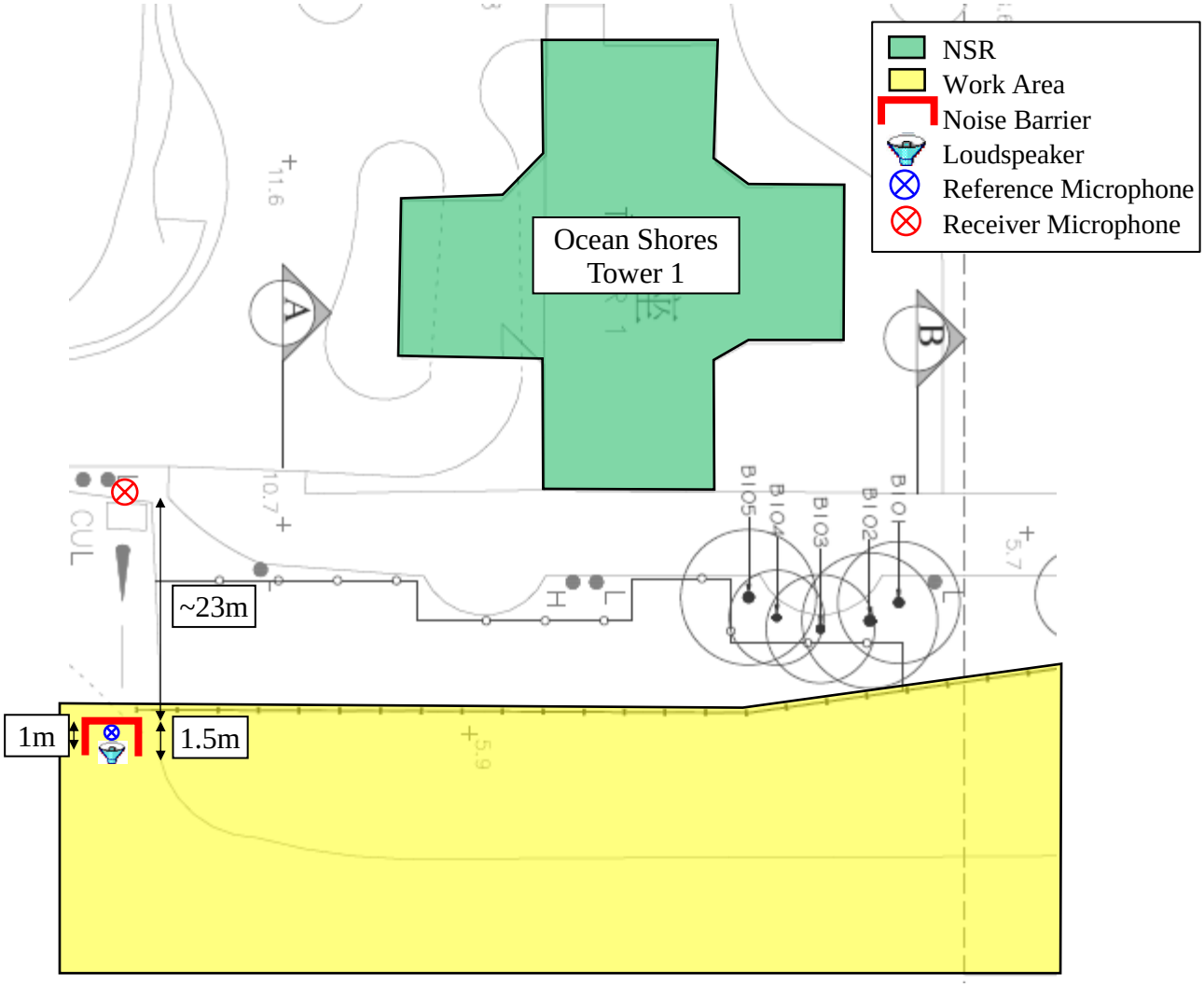


Figure 2. Schematic Concept of IL Measurement (Plan View)

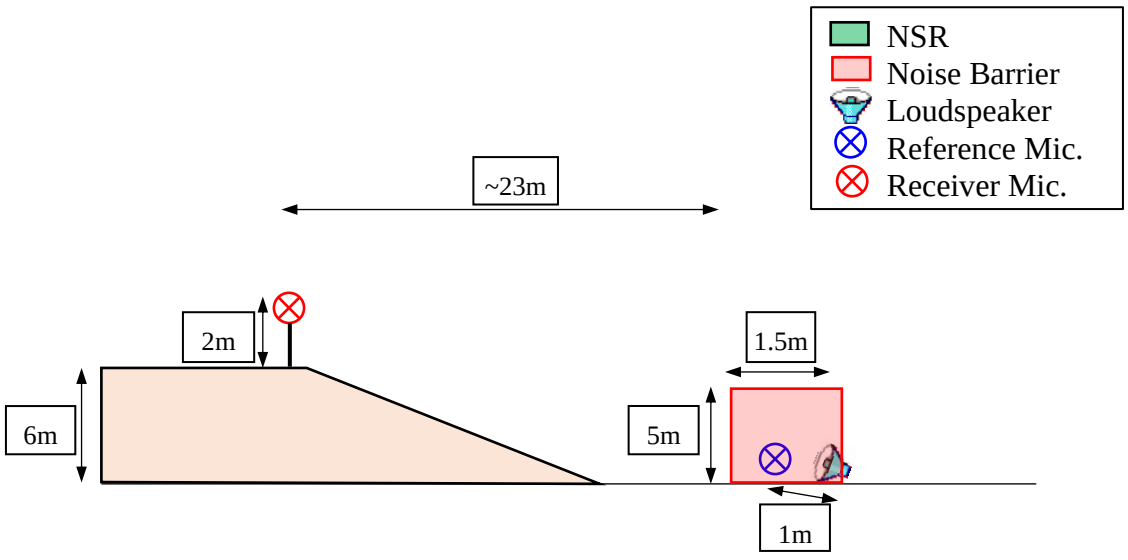


Figure 3. Schematic Concept of IL Measurement (Side View)

5. Measurement Results

5.1 Background Noise Measurement Results

Background noise measurements were conducted when all PMEs were switched off. For conservative approach, background noise correction was conducted with the minimum background $L_{eq,15s}$ (**Table 2**).

Table 2: Background (B/G) Noise Measurement Results, $L_{eq,15s}$, dB(A)

B/G Noise, $L_{eq,30s}$, dB(A)				**Minimum B/G, dB(A)**
58.0	57.6	**57.0**	57.4	**57.0**

5.2 Insertion Loss Measurement Results

The IL measurement results of the noise barrier were measured to be **11.7dB(A)** for drilling rig noise as shown in **Table 3**. Measurement photos are shown in **Appendix A.**

Table 3: IL Measurement Results for the Noise Barrier

Receiver Mic. Location	**Loudspeaker without Noise Bariier**				**Loudspeaker with Noise Barrier**				**IL, dB(A)**
	Ref. Mic. Noise Level	**Receiver Mic. Noise Level**			**Ref. Mic. Noise Level**	**Receiver Mic. Noise Level**			
		$L_{eq,30s}$	**B/G**	**B/G Corrected**		**$L_{eq,30s}$**	**B/G**	**B/G Corrected**	
R1	111.6	78.0	57.0	78.0	112.8	67.8	57.0	67.4	
	111.7	78.2	57.0	78.2	112.7	67.8	57.0	67.4	
	111.9	78.2	57.0	78.2	112.7	67.7	57.0	67.3	
	111.7	78.0	57.0	78.0	112.6	67.7	57.0	67.3	
Average	**111.7**			**78.1**	**112.7**			**67.4**	
								IL =	**11.7**

6. Conclusion

The Insertion loss measurement for the Movable Noise Barrier was conducted according to *ISO 10847:1997* for Drilling Rig noise. Insertion loss was measured to be 11.7dB(A). IL of **12dB(A)** is proposed for the Movable Noise Barrier for Drilling Rig.

Appendix A: Measurement Photos

Photo A1. *Receiver Microphone*

Photo A2. *Loudspeaker, Reference Microphone and Enclosure for with Noise Barrier Scenario*

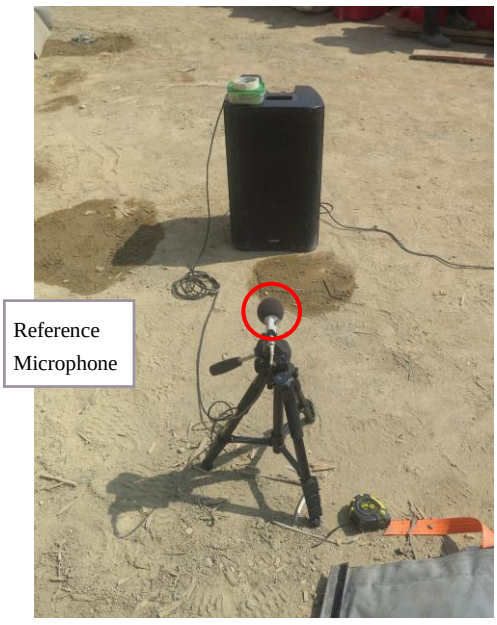


Photo A3. *Loudspeaker and Reference Microphone for without Noise Barrier Scenario*

Appendix B: Noise Spectrum

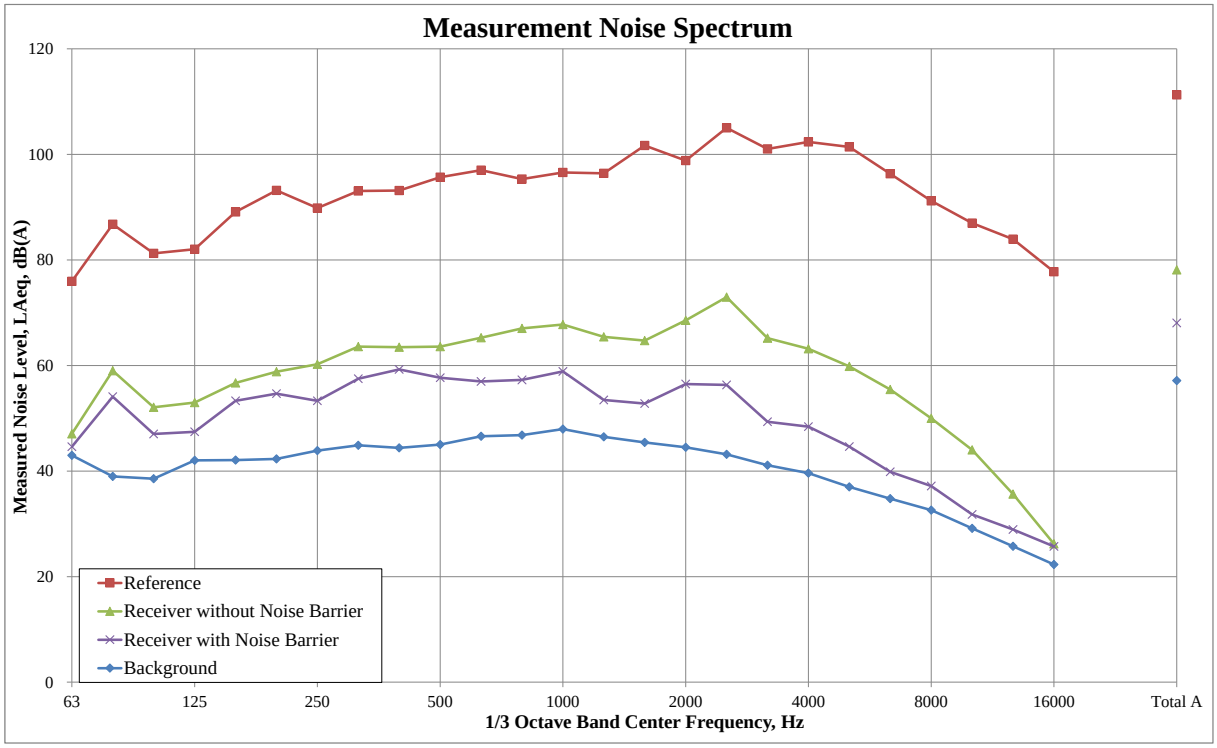


Figure B1: Measurement Noise Spectrum

Appendix C: Equipment Calibration Certificate

Figure C1: SVAN 958 (20890) Calibration Certificate, Page 1

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information			
Date of Issue	23-Jun-2017	**Certificate Number**	MLCN171137S

Customer Information	
Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)	
Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	20890
Equipment Number	--

Calibration Particular			
Date of Calibration	23-Jun-2017		
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-2018		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date		
	K.O. Lo	23-Jun-2017

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.

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MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Figure C2: SVAN 958 (20890) Calibration Certificate, Page 2

MAXLAB

Certificate No.MLCN171137S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB

- END -

Calibrated By : Patrick
Date : 23-Jun-2017

Checked By : K.O. Lo
Date : 23-Jun-2017

Page 2 of 2

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
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Figure C3: SVAN 958 (23412) Calibration Certificate, Page 1

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information			
Date of Issue	13-Mar-2017	**Certificate Number**	MLCN170405S

Customer Information	
Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)	
Description	Sound & Vibration Analyser
Manufacturer	Svantek
Model Number	SVAN 958
Serial Number	23412
Equipment Number	--

Calibration Particular			
Date of Calibration	13-Mar-2017		
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-2018		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	10 minutes
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages.		

Approved By & Date		
	K.O. Lo	13-Mar-2017

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.

Page 1 of 2

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Figure C4: SVAN 958 (23412) Calibration Certificate, Page 2

MAXLAB

Certificate No MLCN170405S

Calibration Data

Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB

- END -

Calibrated By : Patrick **Checked By :** K.O. Lo
Date : 13-Mar-2017 **Date :** 13-Mar-2017

Page 2 of 2

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MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Figure C5: Acoustics Calibrator (10814) Calibration Certificate, Page 1

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	15-Jun-2017	**Certificate Number**	MLCN171088S

Customer Information

Company Name	Wilson Accoustics Limited
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong

Equipment-under-Test (EUT)

Description	Acoustic Calibrator
Manufacturer	Svantek
Model Number	SV 30A
Serial Number	10814
Equipment Number	--

Calibration Particular

Date of Calibration	15-Jun-2017		
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-18 1351(MLTE049) / MLEC17/06/02 / 6-Jun-18		
Calibration Procedure	MLCG00, MLCG15		
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C
		Relative Humidity	55% ± 25%
	EUT	Stabilizing Time	Over 3 hours
		Warm-up Time	Not applicable
		Power Supply	Internal battery
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.		

Approved By & Date

K.O. Lo 15-Jun-2017

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
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Page 1 of 2

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MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Figure C6: Acoustics Calibrator (10814) Calibration Certificate, Page 2

MAXLAB

Certificate No. MLCN171088S

Calibration Data

EUT Setting	Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
94 dB	94.0 dB	0.0 dB	0.15 dB	± 0.3 dB
114 dB	113.9 dB	0.1 dB	0.15 dB	± 0.3 dB

- END -

Calibrated By : Patrick
Date : 15-Jun-17

Checked By : K.O. Lo
Date : 15-Jun-17

Page 2 of 2

Acoustics Innovation

SilentUP®
Retractable Noise Barrier

aihk.hk
info@aihk.hk
(852) 2702-2007

R&D Division of
Wilson Acoustics Limited

Acoustics Innovation

SilentUP®

Product Description

SilentUP® is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references aihk.hk/SilentUP/reference.

Benefits

- Quiet and manual installation
- Flexible construction site planning
- Facilitate Construction Noise Permit (CNP) application process
- Minimize noise complaints
- No concrete foundation required

Technical Information

SilentUP® noise barrier material conforms to the flammability requirement specifications.

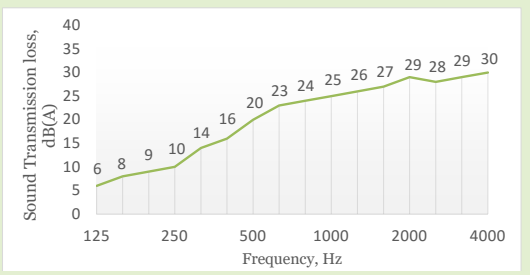
BS EN ISO 15025:2002 6 TYPE B
GB8624-1997 TYPE B

Product Specification

Modular Size	1m(H) x1.35m(W)
Modular Weight	6kg
Maximum Height	10m
Insertion Loss*	26 dB(A)
STC	23
Standard Colour	Grey
Panel Thickness	100mm on edges

* Tested with white noise source

Sound Transmission Loss



Testing method in accordance with BS EN ISO 10140-2: 2010

Client Feedback

"Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful - lightweight, easy to manoeuvre, and fit for purpose."

Richard Kwan
Environment Manager
MTR Corporation Ltd

"We are impressed by SilentUP's quick installation and relocation, it is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities."

Lighting Chan
Environmental Compliance Support Manager,
Leighton Asia Ltd

"We are happy with Acoustics Innovation's professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals."

Ronald Fung
Project QA & Environmental Manager
Kier - Laing O'Rourke - Kaden Joint Venture

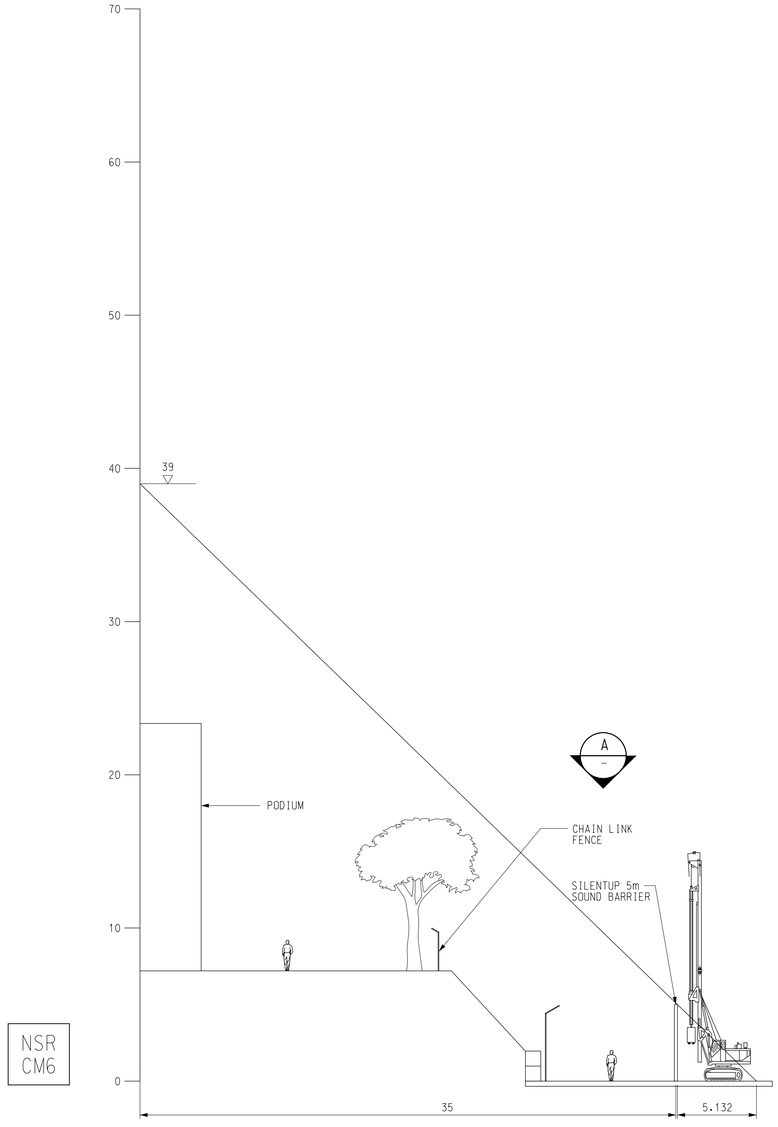
"SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs."

Clarence Yeung
Environmental Officer
Chun Wo Construction and Engineering Co. Ltd

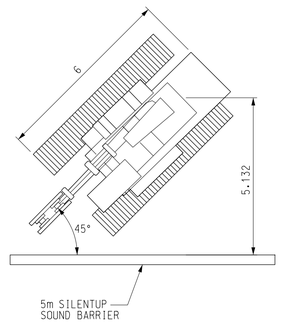
Installation videos available at aihk.hk/youtube

aihk.hk info@aihk.hk (852) 2702-2007

R&D Division of
Wilson Acoustics Limited



DETAIL
SCALE 1:200



VIEW A
SCALE 1:100

0 1 2 3 4 5
METRES
1 : 100

0 2 4 6 8 10
METRES
1 : 200

Rev. 修訂	Description 內容摘要	By 設計	Date 日期

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

Supervisor
AECOM Asia Co. Ltd.

Contractor
中國路橋 CRBC Build King
CRBC-Build King Joint Venture

Project title 工程名稱

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works

Drawing title 圖紙名稱

PORTION IV 35m FROM NSR CM6
SCHEMATIC DIAGRAMS

Drawing no. 圖紙編號	NE/2015/02/SK/0084	Rev. 修訂	–
Drawn By 繪圖	AL	Checked By 覆核	Approved By 批准人
Scale 比例	AS SHOWN @ A1	Status 階段	

Printed by : 5/12/2017
Filename : Z:\Survey\TKOLTT\JOB\JOB0128_NOISE CONTROL_GRAY FUNG_20171117_NE201502SK0084 AND 0085\NE_2015_02_SK_0084.dgn

APPENDIX T
CULTURAL HERITAGE MONITORING RESULTS

Appendix T – Cultural Heritage Monitoring Results

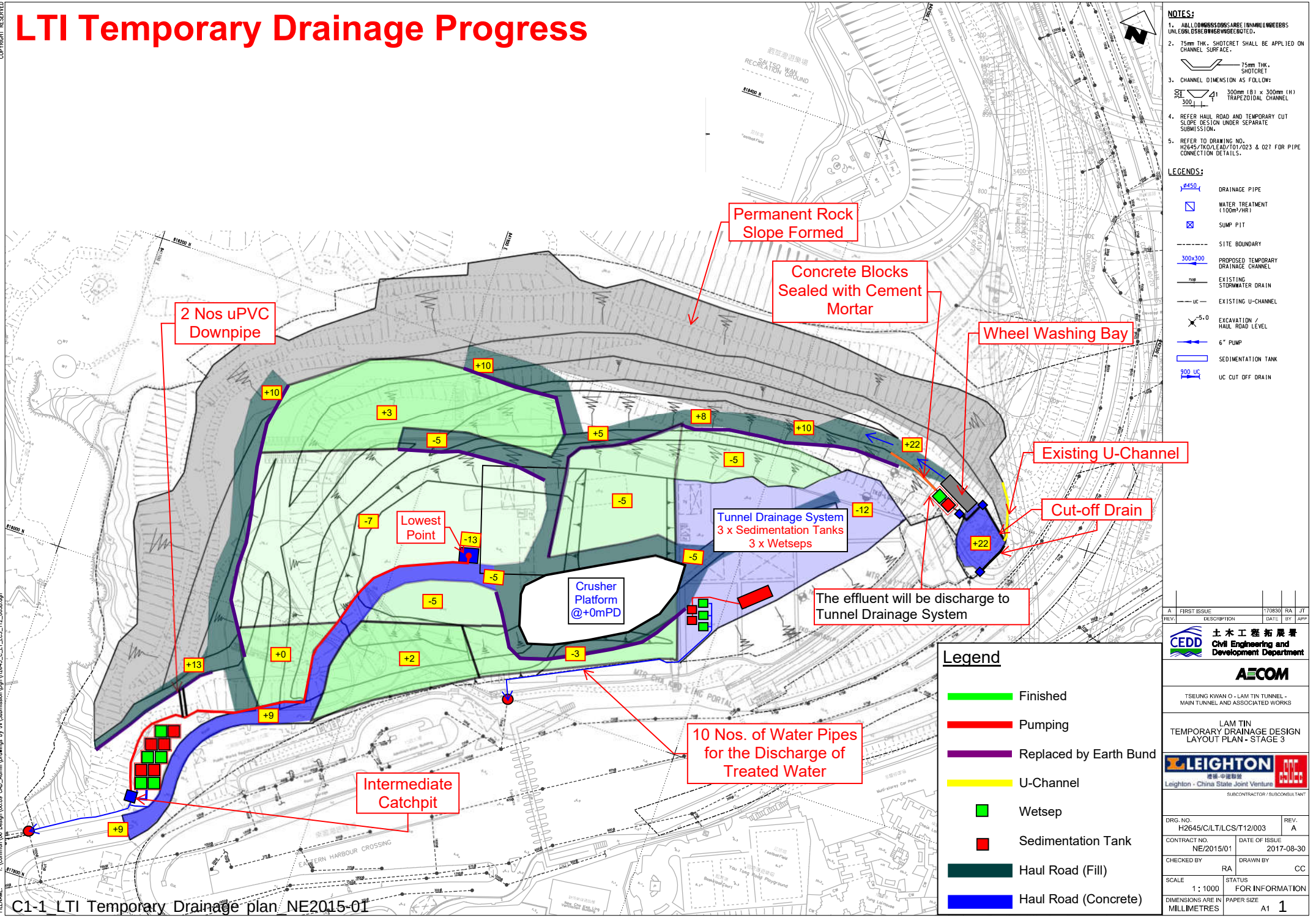
Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitudinal
1-Dec-20	-1 : 449967	-1 : 12857	1 : 8490	Obstructed by materials of stakeholder	+1	Stop monitoring	Stop monitoring	0.150	0.236	0.126
2-Dec-20	-1 : 64281	-1 : 15517	1 : 7258		+2	Stop monitoring	Stop monitoring	0.150	0.181	0.118
3-Dec-20	-1 : 44997	-1 : 17307	1 : 7627		+1	Stop monitoring	Stop monitoring	0.134	0.150	0.150
4-Dec-20	-1 : 112492	-1 : 40907	1 : 9000		+1	Stop monitoring	Stop monitoring	0.520	0.465	0.654
5-Dec-20	1 : 224983	-1 : 26469	1 : 8036		-1	Stop monitoring	Stop monitoring	0.158	0.173	0.134
7-Dec-20	-1 : 449967	-1 : 32142	1 : 8490		+1	Stop monitoring	Stop monitoring	0.213	0.292	0.150
8-Dec-20	-1 : 112492	-1 : 17307	1 : 8490		+2	Stop monitoring	Stop monitoring	0.236	0.189	0.181
9-Dec-20	-1 : 34613	-1 : 19564	1 : 8036		OBS	Stop monitoring	Stop monitoring	0.142	0.181	0.126
10-Dec-20	Site Closed				Site Closed					
11-Dec-20										
12-Dec-20										
14-Dec-20										
15-Dec-20										
16-Dec-20										
17-Dec-20										
18-Dec-20										
19-Dec-20										
21-Dec-20										
22-Dec-20										
23-Dec-20										
24-Dec-20	-1 : 20453	-1 : 15517	1 : 6618		OBS	Stop monitoring	Stop monitoring	0.213	0.221	0.142
28-Dec-20	-1 : 16070	-1 : 17307	1 : 9574		+3	Stop monitoring	Stop monitoring	0.197	0.292	0.229
29-Dec-20	-1 : 10464	-1 : 12857	1 : 7258		+4	Stop monitoring	Stop monitoring	0.142	0.126	0.095
30-Dec-20	-1 : 13234	-1 : 10975	1 : 5422		+2	Stop monitoring	Stop monitoring	0.158	0.197	0.102
31-Dec-20	-1 : 11249	-1 : 11842	1 : 6081		+3	Stop monitoring	Stop monitoring	0.134	0.166	0.110
Alert Level	1:2000				6			4.5		
Alarm Level	1:1500				8			4.8		
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

LTI Temporary Drainage Progress



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. 75mm THK. SHOTCRETE SHALL BE APPLIED ON CHANNEL SURFACE.
3. CHANNEL DIMENSION AS FOLLOW:
4. REFER HAUL ROAD AND TEMPORARY CUT SLOPE DESIGN UNDER SEPARATE SUBMISSION.
5. REFER TO DRAWING NO. H2645/TKO/LEAD/T01/023 & 027 FOR PIPE CONNECTION DETAILS.

75mm THK. SHOTCRETE

300mm (B) x 300mm (H) TRAPEZOIDAL CHANNEL

LEGENDS:

- DRAINAGE PIPE
- WATER TREATMENT (100m³/HR)
- SUMP PIT
- SITE BOUNDARY
- PROPOSED TEMPORARY DRAINAGE CHANNEL
- EXISTING STORMWATER DRAIN
- EXISTING U-CHANNEL
- EXCAVATION / HAUL ROAD LEVEL
- 6" PUMP
- SEDIMENTATION TANK
- UC CUT OFF DRAIN

Legend

- Finished
- Pumping
- Replaced by Earth Bund
- U-Channel
- Wetsep
- Sedimentation Tank
- Haul Road (Fill)
- Haul Road (Concrete)

REV.	DESCRIPTION	DATE	BY	APP
A	FIRST ISSUE	170830	RA	JT

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

AECOM

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

LAM TIN TEMPORARY DRAINAGE DESIGN LAYOUT PLAN - STAGE 3

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

SUBCONTRACTOR / SUBCONSULTANT

DRG. NO. H2645/C/LT/LCS/T12/003	REV. A
CONTRACT NO. NE/2015/01	DATE OF ISSUE 2017-08-30
CHECKED BY RA	DRAWN BY CC
SCALE 1 : 1000	STATUS FOR INFORMATION
DIMENSIONS ARE IN MILLIMETRES	PAPER SIZE A1

1

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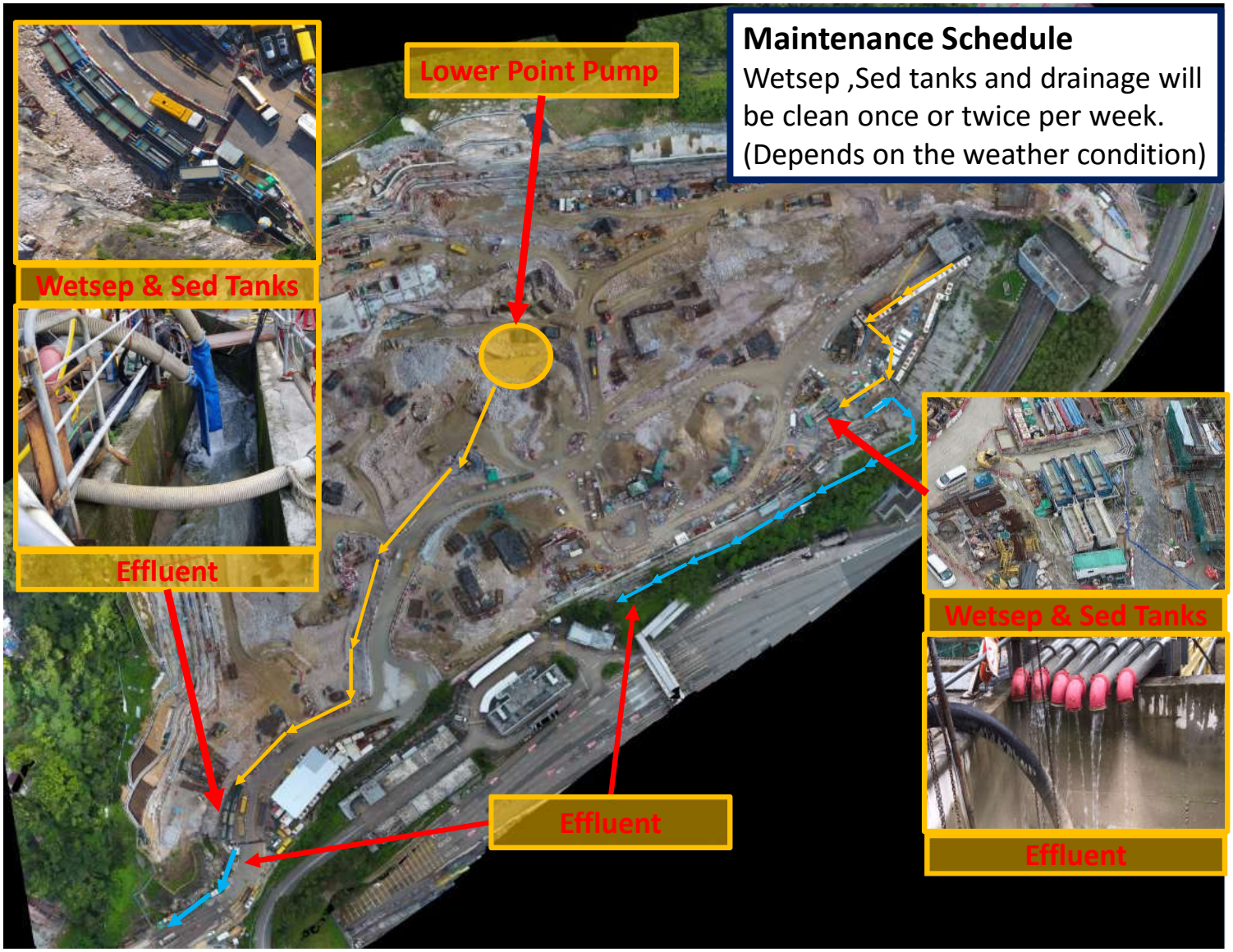
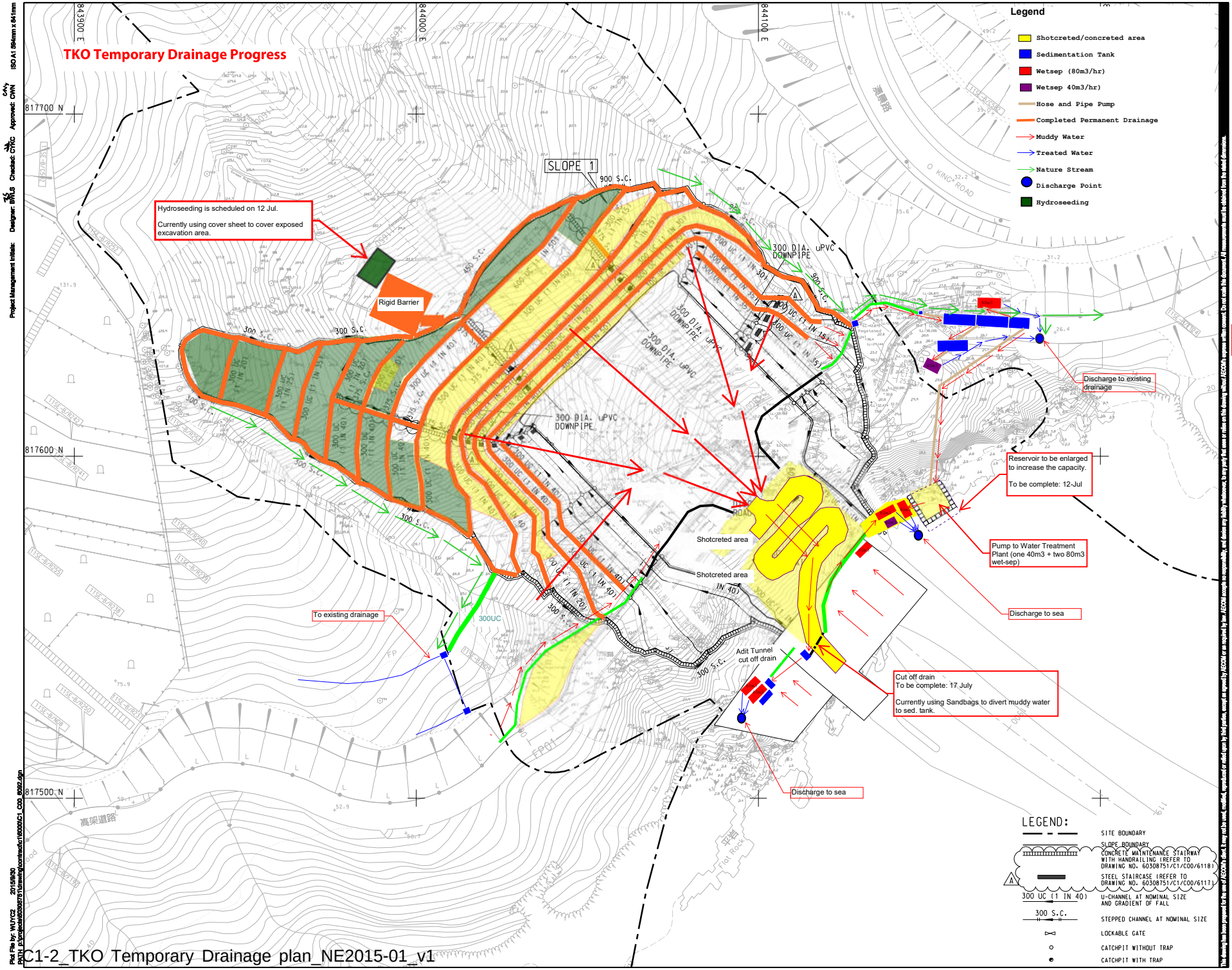
FILENAME: T:\Common\06 Design\06.89 CAD_Admin\Drawings by WV\Submission\Dgn\H2645_C_LT_LCS_T12_0038.dgn

C1-1_LTI Temporary Drainage plan_NE2015-01


Lower Point Pump
Maintenance Schedule
Wetsep ,Sed tanks and drainage will be clean once or twice per week.
(Depends on the weather condition)
Wetsep & Sed Tanks
Effluent
Wetsep & Sed Tanks
Effluent
Effluent



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
	DATE	DESCRIPTION	CHK

STATUS
WORKING DRAWING

SCALE
A1 1:500

DIMENSION UNIT
METRES

KEY PLAN

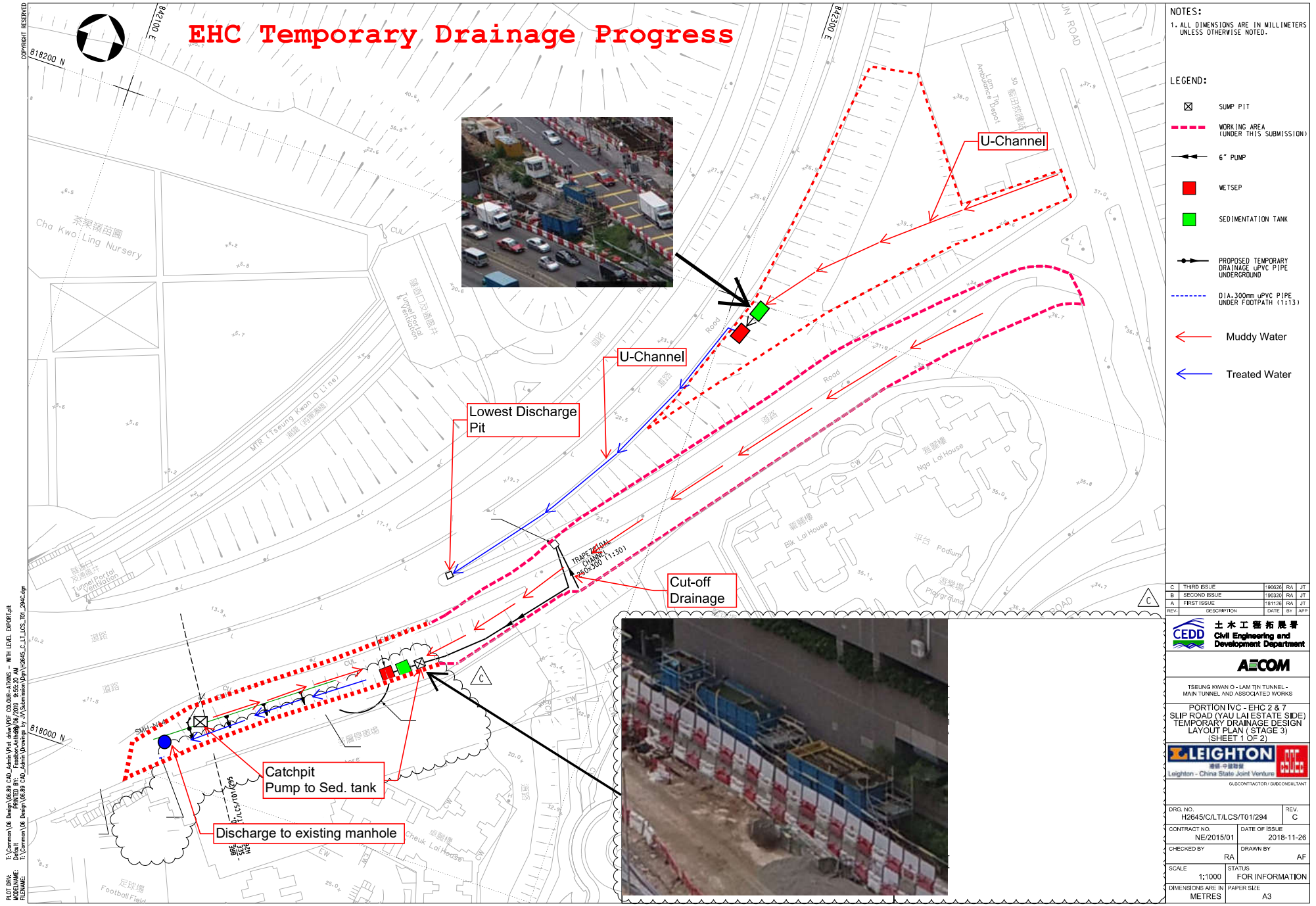
PROJECT NO.
60308751

CONTRACT NO.
NE/2015/01

SHEET TITLE
TSEUNG KWAN O PORTAL
SITE FORMATION
DRAINAGE LAYOUT PLAN

SHEET NUMBER
60308751/C1/C00/6092 B


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

LEGEND

FLOW PATH

SEDIMENTATION/ DESILTING TANK AND WETSEP (80m3/hr)

TEMPORARY CONCRETE BLOCK WALL

APPROVED DISCHARGE POINT (MANHOLE OF DN2100 DRAIN)

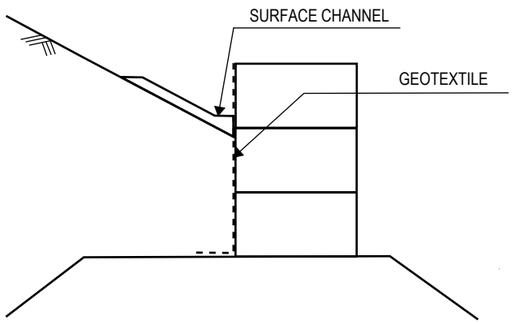
APPROVED DISCHARGE POINT (MANHOLE OF DN2100 DRAIN)

APPROVED DISCHARGE POINT

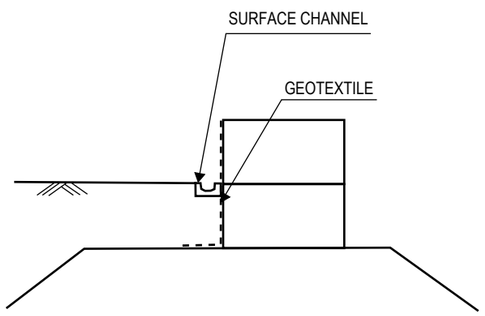
APPROVED DISCHARGE POINT

APPROVED DISCHARGE POINT

APPROVED DISCHARGE POINT (AREA Z)



TYPICAL SECTION OF TEMPORARY CONCRETE BLOCK WALL DURING PRELOADING SURCHARGE



TYPICAL SECTION OF TEMPORARY CONCRETE BLOCK WALL AFTER REMOVAL OF PRELOADING SURCHARGE

Temporary Works Design Drawings
in compliance with Contract No. **NE/2015/02**

22/05/2019

Chengrui Hu MSc, CEng, MICE, MHKIE, RPE Date
Independent Checking Engineer
on behalf of: Hewson Consulting Limited,
Unit 1101, 11/F, 9 Chong Yip Street,
Kwun Tong, Kowloon, Hong Kong

Rev. 修訂	Description 內容摘要	By 設計	Date 日期

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

Supervisor
AECOM Asia Co. Ltd.

Contractor
CRBC-Build King Joint Venture

Project title 工程名稱

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works

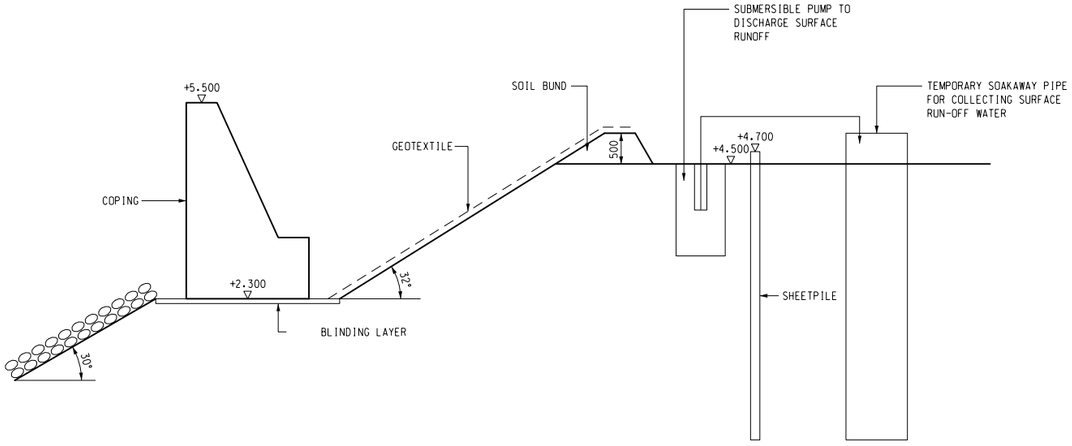
Drawing title 圖紙名稱

TEMPORARY DRAINAGE MANAGEMENT PLAN AT PORTION V, VI, IX AND AREA Z AFTER THE REMOVAL OF TEMPORARY STEEL COFFERDAM

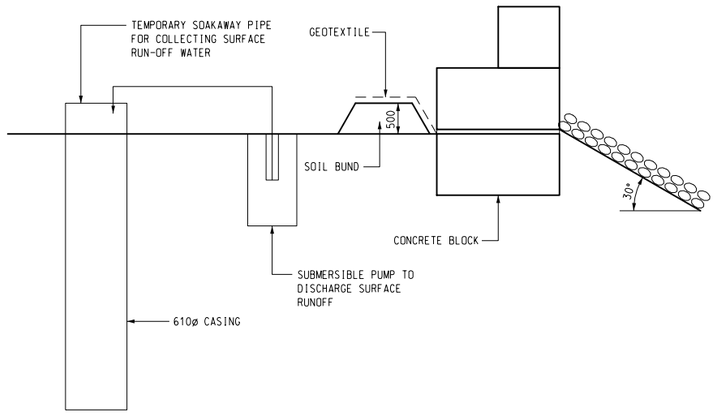
Drawing no. 圖紙編號	NE/2015/02/SK/1321	Rev. 修訂	-
Drawn By 繪圖	AL	Checked By 複核	Approved By 批准人
Scale 比例	1:600 @ A1	Status 階段	

Printed by : $DATE$
Filename : $FILE$

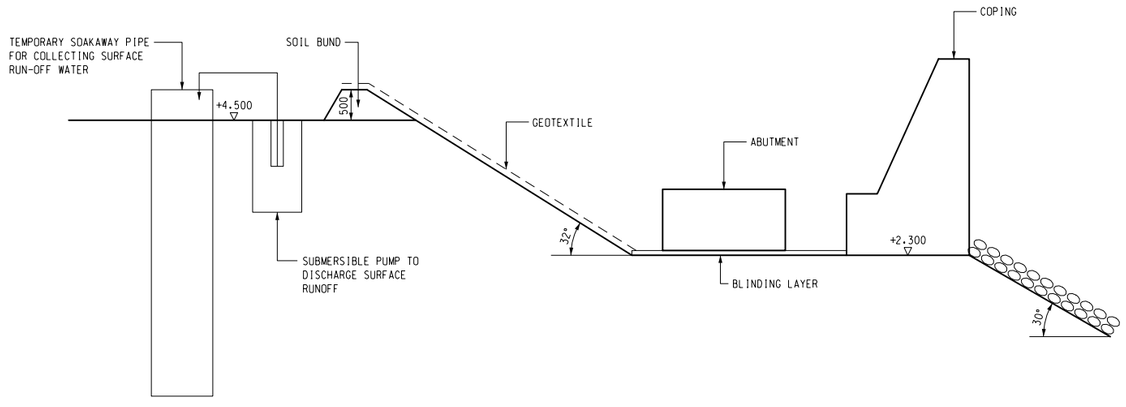
C2_SiteDrainagePlan_Dry_All



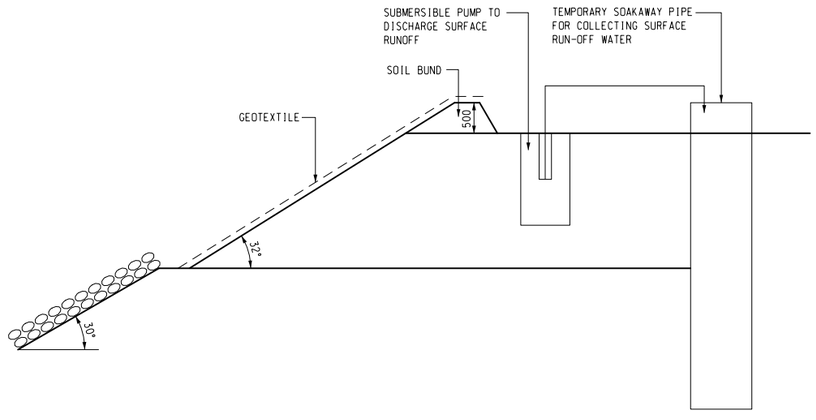
A **WEST SIDE**



B **EAST SIDE**



C **SOUTH SIDE**



D **TYPICAL SECTION**

Rev. 修訂	Description 內容摘要	By 設計	Date 日期

PM

土木工程拓展署
Civil Engineering and Development Department

Supervisor

AECOM Asia Co. Ltd.

Contractor

CRBC-Build King Joint Venture

Project title 工程名稱

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works

Drawing title 圖紙名稱

SEAWALL SECTION AND DETAILS

Drawing no. 圖紙編號	Rev. 修訂
NE/2015/02/SK/0465	–

Drawn By 繪圖	Checked By 覆核	Approved By 批准人
AL		

Scale 比例	Status 階段
1:50 @ A1	

Printed by : 31/3/2020
Filename : Z:\Survey\TKOLTT\JOB\JOB0522_SEAWALL SECTION AND DETAILS_GARY FUNG_20200313_NE_2015_02_SK_0465\NE_2015_02_SK_0465.dgn

Surface Runoff Assessment for Portion IX (inc. surcharge area)			
Portion IX Surface area :		19683.57	m^2
Design rainfall Assuming 1 hour of heavy rainfall has occurred :		70	mm/h
Design flow Rate (Qp):	Qp= = =	C i A 0.18 x 70 x 19683.5 248	 m^3/h
Water Treatment Facility			
Capacity of water treatment plan	=	80	m^3/h
Number of water treatment plant*	= =	248 /80 3	

Thus, 3 nos of water treatment plant are required.In addition, 2 others are provided on site for emergency use

*Treatment of stormwater within the worst affected hour is assumed

WIP May 2014

PROPOSED DISCHARGE POINT
AND SAMPLING POINT

SUMPIT

WETSET

HWM

唐賢街 TONG YI N STREET

道路 P2 ROAD

單車徑 Cycling Track

單車徑 Cycling Track

渡頭
Jetty

網球場
Tennis Court

（下層停車場）
(Car Park under)

網球場
Tennis Court

Road

TS

CUL

PO

Rev. 修訂	Description 內容摘要	By 設計	Date 日期

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

Supervisor
AECOM Asia Co. Ltd.

Contractor
CRBC-Build King Joint Venture

Project title 工程名稱

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel
Road P2 and Associated Works

Drawing title 圖紙名稱

PLAN

Drawing no. 圖紙編號	NE/2015/02//SK/0096	Rev. 修訂	–
Drawn By 繪圖	AL	Checked By 複核	Approved By 批准人
Scale 比例	1:400 @ A1	Status 階段	

Printed by : 7/12/2017
Filename : Z:\Survey\TKOLTT\JOB\JOB0143_AREA Z_GRAY FUNG_20171206_NE201502SK0096\NE_2015_02_SK_0096.dgn

WATER PUMP

CONSTRUCTION OF SR2
U-TROUGH IN PROGRESS

AREA BELONGS TO OTHER CONTRACT

CONSTRUCTION OF P2
U-TROUGH IN PROGRESS

CONSTRUCTION OF
U-TROUGH CH500 -
CH 530

APPROVED
DISCHARGE POINT

2 x 100 uPVC

300 UC

300 UC
COLLECTION
OF TONG
YIN STREET
SURFACE
WATER
ONLY

WATER PUMP

300 UC

SITE OFFICE

DISH CHANNEL

STORAGE TANK

AREA A
MARINE TREATMENT FACILITY

EARTH BUN TO BE PROVIDED
WHEN REQUIRD

WETSAP

300 UC

TEMPORARY
ELECTRICITY SUB-STATION

EXISTING CHANNEL

APPROVED
DISCHARGE POINT

WIP May 2014

Cycling Track

Shi Nu Street

Substation

NOTES

1. ALL DIMENSION ARE IN m UNLESS STATED.

LEGEND:

- FLOW PATH
- WETSAP
- P — WATER PUMP (TO BE INSTALLED WHEN REQUIRED)
- EARTH BUN (TO BE PROVIDED WHEN REQUIRED)
- AREA OF UPDATE

Rev	Amendment	By	Chk.	App.	Date

PM

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

SUPERVISOR

AECOM

Contractor

中國路橋 CRBC Build King
CRBC-Build King Joint Venture

Project

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

Title

TEMPORARY DRAINAGE PROPOSAL
(UPDATE JULY 2018)

Status SUBMISSION

Drawn		Checked		Approved	
Scale	1:1000 A3	CAD File No.	SK096E	Date	20-07-2018
First Issued	20-07-18	Drawing No.	NE201502/CIVIL/096E/GA/001		Rev.

WETSAP

PROPOSED DISH CHANNEL

NO CONSTRUCTION ACTIVITIES

APPROVED DISCHARGE POINT

1500 dia. TEMPORARY PIPE

PREBORE, ELS WORKS FOR U-TROUGH CH318.00 - CH363.50

PROPOSED WEIGHT BRIDGE (UNDER CONSTRUCTION)

WHEEL WASHING FACILITIES (UNDER CONSTRUCTION)

APPROVED DISCHARGE POINT

NOTES

1. ALL DIMENSION ARE IN m UNLESS STATED.

LEGEND:

FLOW PATH

WETSAP

WATER PUMP (TO BE INSTALLED WHEN REQUIRED)

EARTH BUN (TO BE PROVIDED WHEN REQUIRED)

Rev	Amendment	By	Chk.	App.	Date

PM

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

SUPERVISOR

AECOM

Contractor

CRBC-Build King Joint Venture

Project

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

Title

TEMPORARY DRAINAGE PROPOSAL (UPDATE JULY 2018)

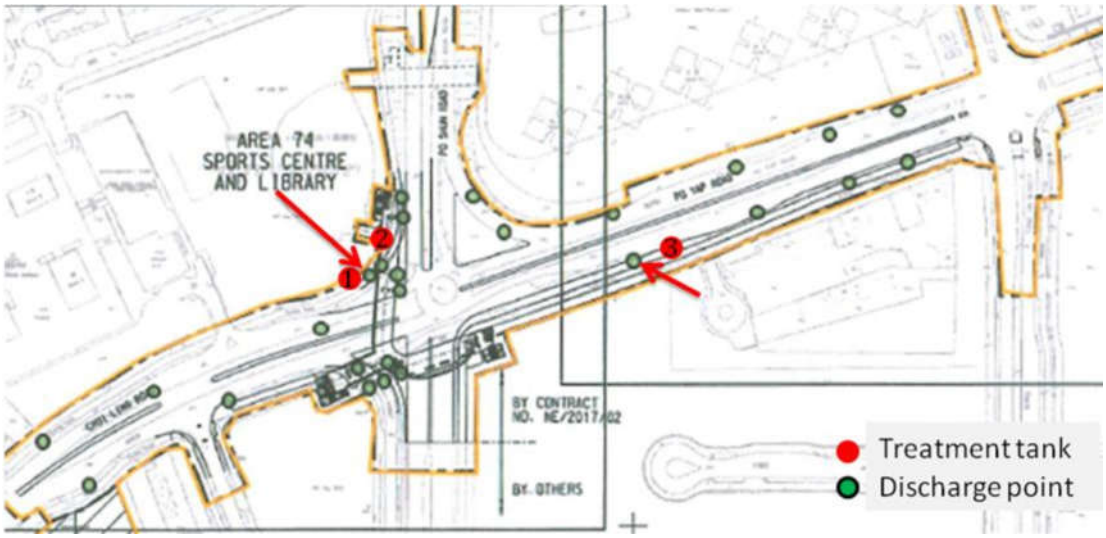
Status	SUBMISSION		
Drawn	Checked	Approved	
Scale 1:1000 A3	CAD File No. SK096E	Date 20-07-2018	
First Issued 20-07-2018	Drawing No. NE201502/CIVIL/096E/GA/002		Rev.

Contract No.: NE/2017/02

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

Flooding Mitigation Plan

Treatment facility
   

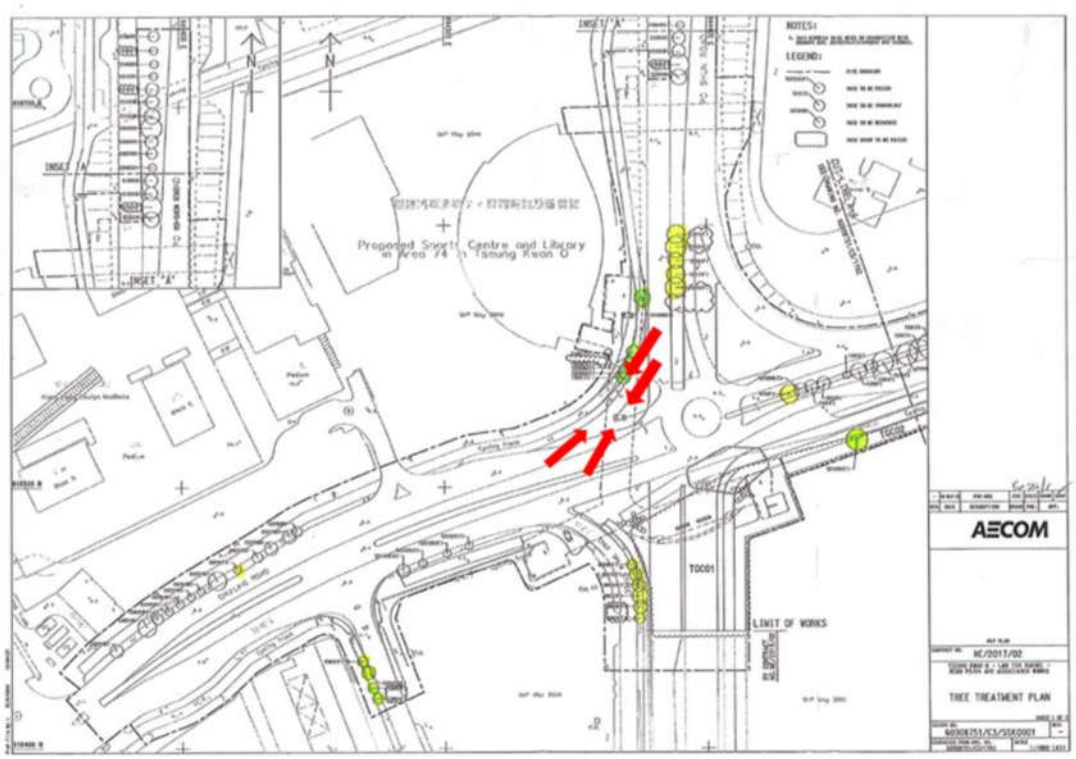


Three treatment facilities are provided on-site.

Bunding

Bunding is provided to prevent the surface runoff.

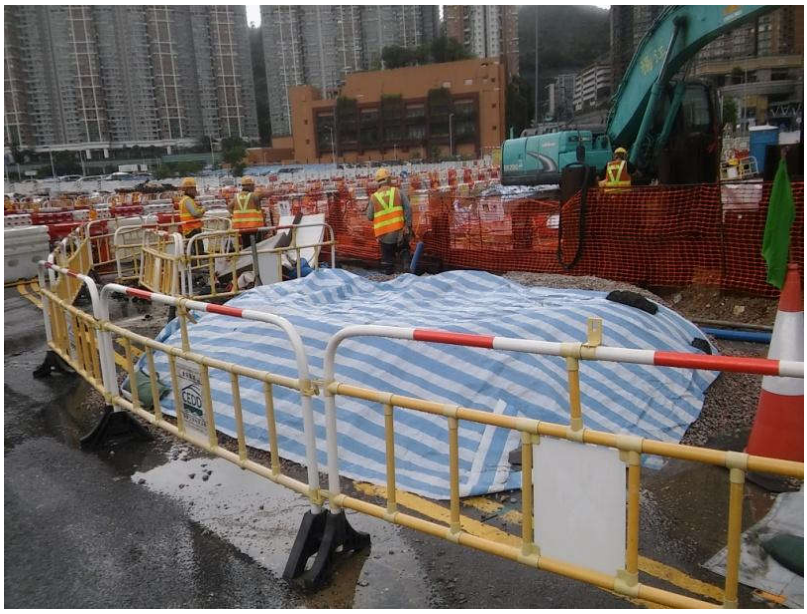
Surface runoff collection



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.

CATCHPIT SCHEDULE

U/S ID	D/S ID	U/S G.L. (mPD)	D/S G.L. (mPD)	LENGTH (m)	GRADIENT 1 IN	U/S I.L. (mPD)	D/S I.L. (mPD)	UC SIZE (mm)	U/S ID TYPE	UC MATERIAL	BEDDING
CP01	CP02	6.50	6.50	6	100	6.275	6.219	225	CATCHPIT	CONCRETE	B
CP03	CP04	8.00	5.60	6	2	7.775	5.342	225	CATCHPIT	CONCRETE	B

Water Flow
Precautionary measures
Silt Measurement
Sedimentation tank
Sampling Point

Geotextiles are on the top of gully cover along the site as a filter to avoid any muddy water discharge directly into the drainage system.

Works Area B

Sedimentation tank

Sampling & Discharge Point

CONNECTED FROM LIFT SHAFT DRAINAGE SYSTEM (DRAWING NO. 60308751/C5/M00/8101 AND 8120 REFER)

DOWN PIPE FROM DECK CONNECT TO 300 U

DOWN PIPE FROM DECK

DOWN PIPE FROM DECK CONNECT TO EXISTING 300 U

DOWN PIPE FROM DECK

FOOTBRIDGE NOT SHOWN FOR CLARITY

Sedimentation tank

Sampling & Discharge Point

Exposed slope is covered by taupaulin

Sandbag is placed along the water barrier boundary to avoid the surface runoff.

Manhole Inspection for Silt measurement,we have regular cleaning the channel weekly or in an emergency

Manhole Inspection for Silt measurement,we have regular cleaning the channel weekly or in an emergency

DN400 to [illegible] culvert

DETAILS CONNECTION OF DOWNPIPE TO U-CHANNEL WITH GRATING

AREA 74 SPORTS CENTRE AND LIBRARY

PARK CENTRAL

PO SHUN ROAD

818650 N

818600 N

May 2014

WIP May 2014

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL NORTHERN FOOTBRIDGE

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

	DATE	DESCRIPTION	CHK
-	AUG.16	TENDER DRAWING	AH(L)

STATUS

SCALE: A1 1 : 250
DIMENSION UNIT: METRES

KEY PLAN

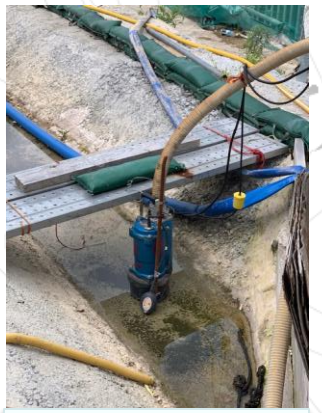
PROJECT NO.: 60308751
CONTRACT NO.: NE/2015/03

SHEET TITLE
DRAINAGE LAYOUT

SHEET NUMBER
60308751/C5/C00/1301

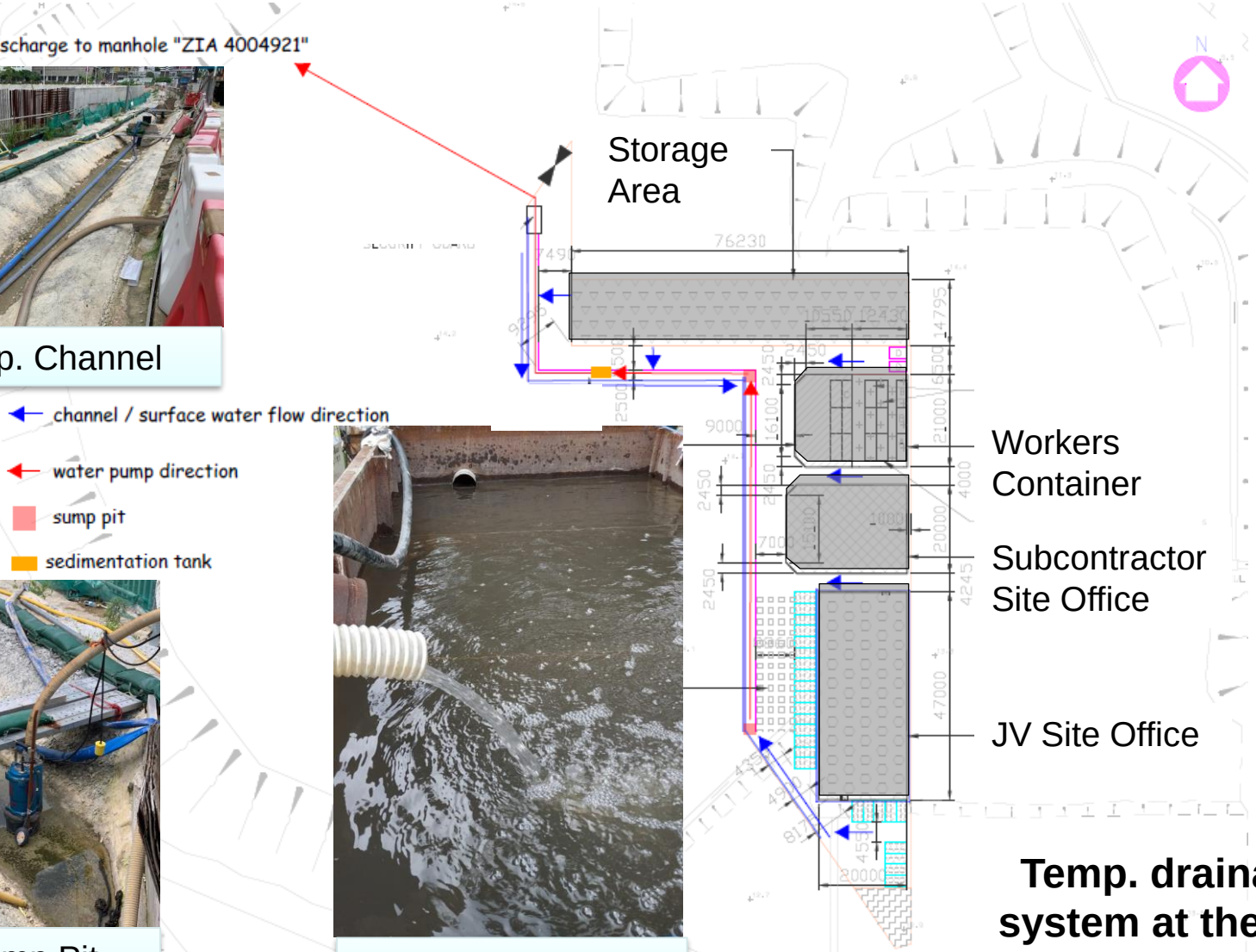
Site Surface Runoff Measures

Temp. Channel



Sump Pit

Sedimentation Tank



Temp. drainage system at the site office area