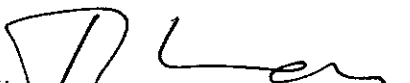
Civil Engineering and Development Department

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 February 2019

(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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EXECUTIVE SUMMARY

Introduction

1. This is the 28th 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 February 2019.

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	17	12	Under investigation	1	Refer to Appendix K & O
Groundwater Quality	1	1	0	0	Refer to Appendix K
Marine Water Quality	35	284	35	284	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. Seventeen (17) Action Level exceedances were recorded due to the documented complaints received in this reporting month.

8. Twelve (12) Limit Level exceedances were recorded in the reporting month.

Water Quality Monitoring

9. One (1) Action Level and One (1) Limit Level exceedances in groundwater quality monitoring were recorded in the reporting month.

10. Additional suspended solids monitoring was conducted on 26 February 2019. There were thirty five (35) Action Level and two hundred and eighty four (284) Limit Level exceedances in marine water quality monitoring.

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. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded 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 April 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/2015/03, NE/2017/01 and NE/2017/02 on 27, 13, 13, 28 and 13 February 2019 respectively. Details of the audit findings and implementation status are presented in **Section 10**.

Waste Management

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

Key Information in the Reporting Month

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

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status
	Number	Nature		
Complaint received by Project Team / Complaint referred by EPD (February 2019)	20	Noise nuisance/ Dust / Smoke / Odour	Details refer to App O	On-going
Complaint received by Project Team / Complaint referred by EPD (January 2019)	39	Noise nuisance/ Construction dust/ Water Pollution	Details refer to App O	On-going
Complaint received by Project Team / Complaint referred by EPD (December 2018)	9	Noise nuisance/ Construction dust	Details refer to App O	On-going / Closed
Complaint received by Project Team / Complaint referred by EPD (November 2018)	14	Noise nuisance/ Construction dust	Details refer to App O	On-going / Closed
Notifications of any summons & prosecutions received	0	---	N/A	N/A

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

19. Summary of key construction work in the reporting month is tabulated in **Table III**.

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

Contract No.	Project Title	Site Activities (February 2019)	
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 3, Area 4 & Area 5
		Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works
		TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Cavern Excavation 7) Steel Platform for Bridge Construction
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works at P2 U-trough CH411 – CH500 2) Construction of U-trough structure at SR2 CH170-CH250 3) Construction of U-trough structure at P2 CH411-CH500 4) Pre-bore works for decked U-trough at CH318 – CH363.5 5) Sheet pile works for decked U-trough at CH318.00 – CH363.50	

Contract No.	Project Title	Site Activities (February 2019)
		6) ELS works for 2100 pipe 7) Installation of 2100 storm water pipe at Portion IV / VII 8) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 9) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 10) Installation of 1350 diversion pipe and manhole 11) Street lighting duct installation works at Portion IV near Ocean Shores EVA 12) Construction of P2A retaining wall 13) Backfilling of P2A retaining wall 14) ELS works for CH318 – CH363.50 15) Construction of manhole for 2100 pipe (upper part) 16) Dismantling of 1st layer of struct at P2 CH411 – CH500 U-trough 17) Construction of retaining wall SR2 (bases lab modification) 18) Surcharging at surcharge Area 1a 19) Land band drain at surcharge Area 1b 20) Reclamation works at Portion IX 21) Reinstatement of existing seawall at Portion VII 22) Pre-drilling at P2 CH230 – CH264 23) Installation of socket H-pile at P2 CH290 – CH305
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Erect steel frames and purlins for canopy at main deck 2) Removal of scaffolding at +12.15 Platform and Staircase 1 3) Excavation and carry out plate load test for south retaining walls
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Installation of Precast Pile Cap Shell 2) Pre-drilling 3) Bored Piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement Setup 4) Pilling works 5) Construction of Temporary carriage way 6) Pre-bored Socket H-Pile 7) Modification of traffic Island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain

Contract No.	Project Title	Site Activities (February 2019)
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) Erection of Contractor's site accommodation and project signboard at Po Yap Road, Tseung Kwan O

Future Key Issues

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

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

Contract No. and Project Title	Site Activities (March 2019)		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 3, Area 4 & Area 5	(A) / (B) / (C) / (D) / (E) / (G)
	Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works	(B)
	TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Cavern Excavation 7) Steel Platform for Bridge Construction	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works at P2 U-trough CH411 – CH500 2) Construction of U-trough structure at SR2 CH170-CH250 3) Construction of U-trough structure at P2 CH411-CH500 4) Pre-bore works for decked U-trough at CH318 – CH363.5 5) Sheet pile works for decked U-trough at CH318.00 – CH363.50 6) ELS works for 2100 pipe 7) Installation of 2100 storm water pipe at Portion IV / VII 8) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 9) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 10) Installation of 1350 diversion pipe and manhole 11) Street lighting duct installation works at Portion IV near Ocean Shores EVA 12) Construction of P2A retaining wall 13) Backfilling of P2A retaining wall		(A) / (B) / (C) / (D) / (E) / (G) / (I)

Contract No. and Project Title	Site Activities (March 2019)	Key Environmental Issues *
	14) ELS works for CH318 – CH363.50 15) Construction of manhole for 2100 pipe (upper part) 16) Dismantling of 1st layer of struct at P2 CH411 – CH500 U-trough 17) Construction of retaining wall SR2 (bases lab modification) 18) Surcharging at surcharge Area 1a 19) Land band drain at surcharge Area 1b 20) Reclamation works at Portion IX 21) Reinstatement of existing seawall at Portion VII 22) Pre-drilling at P2 CH230 – CH264 23) Installation of socket H-pile at P2 CH290 – CH305	
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Erect bamboo scaffolding for the cladding work at main deck 2) Construction of South Retaining Walls 3) Concreting of Pour 1,2,3 of Staircase	(A) / (B) / (C) / (D) / (E)
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Installation of Precast Pile Cap Shell 2) Pre-drilling 3) Bored piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform	(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Construction of Temporary carriageway 5) Modification of traffic island 6) Predrilling 7) Construction of Temporary cycle track 8) Construction of Drainage and watermain 9) Bored Piles	(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) Erection of Contractor's site accommodation and project signboard at Po Yap Road, Tseung Kwan O	(A) / (B) / (C) / (D) / (E) / (F) / (G) / (H)

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 28th Monthly EM&A report summarizing the EM&A works for the Project in February 2019.

Purpose of the Report

1.2 This is the 28th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in February 2019.

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**.

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 April 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 (February 2019)	
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 3, Area 4 & Area 5
		Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works
		TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Cavern Excavation 7) Steel Platform for Bridge Construction
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works at P2 U-trough CH411 – CH500 2) Construction of U-trough structure at SR2 CH170-CH250 3) Construction of U-trough structure at P2 CH411-CH500 4) Pre-bore works for decked U-trough at CH318 – CH363.5 5) Sheet pile works for decked U-trough at CH318.00 – CH363.50 6) ELS works for 2100 pipe 7) Installation of 2100 storm water pipe at Portion IV / VII 8) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 9) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50	

Contract No.	Project Title	Site Activities (February 2019)
		10) Installation of 1350 diversion pipe and manhole 11) Street lighting duct installation works at Portion IV near Ocean Shores EVA 12) Construction of P2A retaining wall 13) Backfilling of P2A retaining wall 14) ELS works for CH318 – CH363.50 15) Construction of manhole for 2100 pipe (upper part) 16) Dismantling of 1st layer of struct at P2 CH411 – CH500 U-trough 17) Construction of retaining wall SR2 (bases lab modification) 18) Surcharging at surcharge Area 1a 19) Land band drain at surcharge Area 1b 20) Reclamation works at Portion IX 21) Reinstatement of existing seawall at Portion VII 22) Pre-drilling at P2 CH230 – CH264 23) Installation of socket H-pile at P2 CH290 – CH305
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Erect steel frames and purlins for canopy at main deck 2) Removal of scaffolding at +12.15 Platform and Staircase 1 3) Excavation and carry out plate load test for south retaining walls
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Installation of Precast Pile Cap Shell 2) Pre-drilling 3) Bored Piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement Setup 4) Pilling works 5) Construction of Temporary carriage way 6) Pre-bored Socket H-Pile 7) Modification of traffic Island 8) Predrilling 9) Construction of Temporary cycle track 10) Construction of drainage and watermain
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) Erection of Contractor's site accommodation and project signboard at Po Yap Road, Tseung Kwan O

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
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
Vessel Billing Account under construction waste disposal charging scheme				
NE2015/01	Account No. 7027764	24/01/2019	10/05/2019	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Registration of Chemical Waste Producer				
NE/2015/01	Waste Producer No. 5218-290-L2881-02	22/08/2016	N/A	Valid
	Waste Producer No. 5213-833-L2532-03	22/08/2016	N/A	Valid
NE/2015/02	Waste Producer No. 5213-838-C4094-01	23/08/2016	N/A	Valid
NE/2015/03	Waste Producer No. 5213-265-W3435-04	19/07/2017	N/A	Valid
NE/2017/02	Waste Producer No. 5213-833-Z4004-04	01/02/2018	N/A	Valid
NE/2017/01	Waste Producer No. 5213-833-C4262-01	12/02/2018	N/A	Valid
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
	WT-00028495-2017	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
NE/2015/03	WT00027295-2017	20/03/2017	18/04/2019	Valid
	WT00027266-2017	08/03/2017	18/04/2019	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-RE0807-18	05/12/2018	04/03/2019	Valid
	GW-RE0881-18	24/12/2018	22/06/2019	Valid
	GW-RE0898-18	31/12/2018	30/03/2019	Valid
	GW-RE0102-19	26/02/2019	17/04/2019	Valid
	GW-RE0109-19	23/02/2019	22/04/2019	Valid
NE/2015/02	GW-RE0680-18	11/10/2018	10/04/2019	Valid
	GW-RE0833-18	02/12/2018	01/06/2019	Valid
	GW-RE0004-19	30/01/2019	29/04/2019	Valid
	GW-RE0008-19	15/01/2019	14/07/2019	Valid
	GW-RE0071-19	25/01/2019	22/02/2019	Expired on 22 Feb 2019
NE/2017/01	GW-RE0744-18	03/11/2018	02/02/2019	Expired on 2 Feb 2019
	GW-RE0755-18	07/11/2018	06/05/2019	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Marine Dumping Permit				
NE/2017/01	EP/MD/19-064	01/12/2018	31/05/2019	Valid
	EP/MD/19-086	14/01/2019	13/07/2019	Valid
	EP/MD/19-093	01/02/2019	28/02/2019	Expired on 28 Feb 2019
	EP/MD/19-102	01/03/2019	31/03/2019	Valid
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 February 2019.

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	3
	Met One Instruments Model No.: AEROCET-831	0
	Handheld Particle Counter Hal-HPC300 / Hal-HPC301	2
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)

- 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 aluminum 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 (Wellab Ltd.) 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.

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

Table 4.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)/Refuge floor (26/F)#
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Rooftop (40/F)
CM4	Tin Hau Temple, Cha Kwo Ling	Ground Level
CM5	CCC Kei Faat Primary School, Yau Tong	Rooftop (6/F)
CM6(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Ground Level
CM7(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Ground Level
CM8(A)*	Park Central, L1/F Open Space Area	1/F

Remarks:

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

Monitoring location has changed from 41/f to 26/f on 23rd Nov 2018.

Monitoring Equipment

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

Table 4.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 957/ 959 / 979	5
Calibrator	SV30A	1
	Brüel & Kjær 4231	1

4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**. Additional weekly impact monitoring are carried out for evening time (1900 – 2300 hours) , night-time (2300 – 0700 hours) and daytime (0700- 1900 hours) during general holidays including Sundays for monitoring stations CM1, CM2, CM3 and CM4.

Table 4.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
CM1	L_{10}(30 min) dB(A) L_{90}(30 min) dB(A) L_{eq}(30 min) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
CM2				Façade
CM3				Façade
CM4				Façade
CM5				Façade
CM6(A)				Free Field
CM7(A)				Free Field
CM8(A)				Façade
CM1	L_{10}(5 min) dB(A) L_{90}(5 min) dB(A) L_{eq}(5 min) dB(A)	1900 – 2300 hrs on normal weekdays/ 0700 to 1900 hours on any day being a Sunday or general holiday / 2300-0700 on all day		Façade
CM2				Façade
CM3				Façade
CM4				Façade

Monitoring Methodology and QA/QC Procedure

4.5 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels 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

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

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

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

Results and Observations

4.9 Seventeen (17) Action Level exceedance was recorded due to the documented complaints received in this reporting month. Eleven (11) Limit Level exceedance for night-time construction noise monitoring and they were considered due to the road traffic near Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related. One (1) Limit Level exceedance for day time were recorded in the reporting month and it was considered Project related.

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

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

Table 4.4 Major Noise Source during Noise Monitoring

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

CM7(A)	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Road Traffic at Tong Yin Street
CM8(A)	Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

4.12 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured 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	

(*) Noise Limit Level is 65 dB(A) during school examination periods.

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

Station	Baseline Noise Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))	Noise Limit Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))
CM1	64.4	70
CM2	62.2	
CM3	64.7	
CM4	57.0	

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		
CM4		

Current Tunnel Blasting Arrangement

4.13 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.

4.14 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 Groundwater quality monitoring shall be conducted as identified in the EIA report (locations refer to **Figure 4**, Stream 1 to 3). According to the EM&A Manual, dissolved oxygen (DO), pH, temperature, turbidity, suspended solids (SS), 5-day biochemical oxygen demand (BOD_5), Total organic carbon (TOC), Total Nitrogen, Ammonia-N and Total Phosphate are the parameters for the monitoring. **Appendix A** shows the established Action and Limit Levels.

5.2 As stated in the Baseline Environmental Monitoring Plan submitted to EPD in September 2016, Groundwater quality monitoring could not be conducted at the other identified monitoring station in the EIA Report, Stream 4, as it was found to be not accessible due to safety reason. EPD has no further comment on the Plan in October 2016.

Marine Water Quality

5.3 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.

5.4 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.

5.5 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.

Groundwater Level Monitoring (Piezometer Monitoring)

5.6 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. The monitoring commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was

recorded in the reporting month.

Monitoring Locations

Groundwater Quality

5.7 Stream 1 – Stream 3 is designated for the groundwater quality monitoring according to EM&A Manual. The locations are summarized in **Table 5.1** and shown on **Figure 4**.

Table 5.1 Groundwater Quality Monitoring Stations

Monitoring Streams	Descriptions	Sampling Location
Stream 1	Stream running between the Kwong Tin Estate and Lei Yue Mun Road	1 sampling location for each stream
Stream 2	Stream on western coast of Chiu Keng Wan	
Stream 3	Stream on western coast of Chiu Keng Wan	

Marine Water Quality

5.8 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** and **Figure 9**.

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
W1	Ocean Shores (for WQM in temporary marine embayment)	844324	817791

Monitoring Equipment

5.9 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

5.10 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.

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

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

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

Turbidity

5.14 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

5.15 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

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

Water Sampler

5.17 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

5.18 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

5.19 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.

5.20 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.

5.21 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.

5.22 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.

5.23 **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	2
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

Monitoring Parameters and Frequency

5.24 **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
Groundwater Quality			
Stream 1-Stream 3	• DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Turbidity, NTU • SS, mg/L • BOD_5, mg O_2/L • TOC, mg-TOC/L • Total Nitrogen, mg/L • Ammonia-N, mg NH_3-N/L • Total Phosphate, mg-P/L	Mid-depth	Biweekly (When the tunnel construction works are found within 50m of the location, weekly.)
Marine Water Quality			
M1 M2 M3 M4 M5 M6 C1	*In-situ*: Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity Laboratory Testing:	M1-M5, C1-C2, G1-G4 • 3 water depths: 1m below water surface, mid-depth and 1m above sea bed.	3 days per week / 2 per monitoring day (1 for mid-ebb and 1 for mid-flood)

Monitoring Stations	Parameters, unit	Depth	Frequency
C2 G1 G2 G3 G4	Suspended Solids (SS)	• 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)	
Water Quality Monitoring in Temporary Marine Embayment			
W1	• DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Salinity, ppt	• 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth monitoring only. • If the water depth is less than 6m, omit mid-depth monitoring	Weekly during the period when the fully enclosed barrier is installed

Monitoring Methodology

Groundwater Quality

5.25 At each monitoring location, two consecutive in-situ measurements for DO concentration, DO saturation, pH, temperature and turbidity were taken for water samples on site. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

5.26 For SS, BOD_5, TOC, Total Nitrogen, Ammonia-N and Total Phosphate, measurement and grab samples of surface water was collected. Water samples of about adequate volume was collected and stored in high density polythene bottles. Following collection, water samples was stored in high density polythene bottles. Preservation H_2SO_4 was appropriately added for water samples for TOC, Total Nitrogen, Ammonia-N and Total Phosphate testing. Water samples was packed in ice and cooled to 4°C (without being frozen), delivered to the HOKLAS accredited laboratory, Wellab Limited and analyzed.

Marine Water Quality

5.27 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.

5.28 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

5.29 The testing of all parameters were conducted by Wellab Ltd. (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

5.30 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

5.31 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.

5.32 QA/QC procedures as attached in **Appendix J** are available for the parameters analysed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

Groundwater Quality Monitoring

5.33 Summary of groundwater quality monitoring results is shown in **Table 5.6**. Groundwater quality monitoring results, graphical presentations and laboratory testing reports are shown in **Appendix H**.

5.34 Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.

5.35 Action and Limit Level for groundwater quality monitoring has been reviewed with consideration of monitoring results obtained from November 2016 to June 2017, as there was no tunnel boring or tunnel construction works from November 2016 to June 2017. A "Review Report for Action and Limit Levels of Groundwater Quality Monitoring" was submitted to EPD in August 2017. EPD has no further comment on the report and the updated Action and Limit Level is shown in **Appendix A**.

Table 5.6 Summary of Groundwater Quality Monitoring Results

Date	Location	Parameters (unit)								
		pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)	SS (mg/L)	BOD_5 (mg O_2/L)	TOC (mg-TOC/L)	Total Nitrogen (mg/L)	NH_3-N (mg NH_3-N/L)	Total Phosphorus (mg-P/L)
12 Feb 2019	Stream 1	6.9	9.1	0.8	2.7	<2	5	1.7	0.07	<0.05
	Stream 2	7.6	8.4	0.7	2.1	<2	7	1.5	<0.05	<0.05
	Stream 3	7.1	***7.1***	0.9	1.4	<2	3	1.1	<0.05	<0.05
26 Feb 2019	Stream 1	8.1	9.2	***2.2***	3	<2	6	0.8	<0.05	<0.05
25 Feb 2019	Stream 2	7.8	8.6	2.0	<2.5	<2	6	0.9	<0.05	<0.05
	Stream 3	7.8	8.0	1.8	<2.5	<2	6	1.5	<0.05	<0.05
No. of Exceedance	Action Level	0	0	1	0	0	0	0	0	0
	Limit Level	0	1	0	0	0	0	0	0	0

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

5.36 One (1) Action Level and One (1) Limit Level exceedances were recorded in the reporting month. The exceedances are considered due to human activities, therefore non-Project related. Details of the investigation are presented in **Appendix K**.

Marine Water Quality Monitoring

5.37 An additional monitoring was conducted on 26 February 2019. 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.

5.38 Calculated Action and Limit Levels for Marine Water Quality is presented in **Appendix I**. Thirty five (35) Action Level and two hundred and eighty four (284) Limit Level exceedance were recorded in marine water quality monitoring.

5.39 The exceedance in the reporting month was reported for the whole month and the key parameter was suspended solids (SS). As mentioned in the Monthly EM&A Report for December 2018, an emergency sand discharge incident within the Junk Bay occurred on 15 December 2018 due to damage of a sand hopper barge outside the double watergate of Contract No. NE/2015/02. Subsequently, the dumped sandfill was retrieved on 21 December 2018. As the elevation of SS concentration coincided with the hopper barge incident, the SS exceedance was considered due to sandfill dumping and retrieval activities.

Groundwater Level Monitoring (Piezometer Monitoring)

5.40 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.

5.41 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. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded in the reporting month. Details of the result are presented in **Appendix U**.

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 April 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 21 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

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 105 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: 4, 12, 20 and 27 February 2019
- Contract No. NE/2015/02: 4, 13, 21 and 28 February 2019
- Contract No. NE/2015/03: 4, 13, 21 and 28 February 2019
- Contract No. NE/2017/01: 8, 13, 19 and 28 February 2019
- Contract No. NE/2017/02: 4, 13, 21 and 28 February 2019

Monthly joint site inspection with the representative of IEC was conducted for NE/2015/01, NE/2015/02, NE/2015/03, NE/2017/01 and NE/2017/02 on 27, 13, 13, 28 and 13 February 2019 respectively.

Implementation Status of Environmental Mitigation Measures

10.3 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**.

10.4 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 Seventeen (17) Action Level exceedances were recorded due to the documented complaints received in the reporting month. One (1) and eleven (11) Limit Level exceedances of construction noise monitoring were recorded for day-time and night-time respectively in the reporting month. The daytime Limit Level exceedance was considered project related. The night time Limit Level exceedances were considered due to road traffic near the Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related.

12.2 One (1) Action Level and One (1) Limit Level exceedances for groundwater quality monitoring were recorded in the reporting month. The Limit Level exceedances were considered due to rainfall or human activities, therefore non-Project related.

12.3 Thirty five (35) Action Level and two hundred and eighty four (284) Limit Level exceedance were recorded in marine water quality monitoring.

12.4 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

12.5 No Non-compliance was recorded on this reporting month.

Summary of Environmental Complaint

12.6 Twenty (20) 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

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

13. FUTURE KEY ISSUES

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

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

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

Contract No. and Project Title	Site Activities (February 2019)		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 3, Area 4 & Area 5	(A) / (B) / (C) / (D) / (E) / (G)
	Main Tunnel	3) Main Tunnel Excavation 4) Main Tunnel Lining Works	(B)
	TKO Interchange	5) Haul Road Construction and Site Formation & Slope Works 6) Cavern Excavation 7) Steel Platform for Bridge Construction	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Backfilling works at P2 U-trough CH411 – CH500 2) Construction of U-trough structure at SR2 CH170-CH250 3) Construction of U-trough structure at P2 CH411-CH500 4) Pre-bore works for decked U-trough at CH318 – CH363.5 5) Sheet pile works for decked U-trough at CH318.00 – CH363.50 6) ELS works for 2100 pipe 7) Installation of 2100 storm water pipe at Portion IV / VII 8) King post and de-watering system for proposed U-trough CH318.00 – CH363.50 at Portion V/VI 9) Fabrication of ELS members for proposed ELS system at CH318.00 – CH363.50 10) Installation of 1350 diversion pipe and manhole 11) Street lighting duct installation works at Portion IV near Ocean Shores EVA 12) Construction of P2A retaining wall 13) Backfilling of P2A retaining wall 14) ELS works for CH318 – CH363.50 15) Construction of manhole for 2100 pipe (upper part) 16) Dismantling of 1st layer of struct at P2 CH411 – CH500 U-trough 17) Construction of retaining wall SR2 (bases lab modification)		(A) / (B) / (C) / (D) / (E) / (G) / (I)

Contract No. and Project Title	Site Activities (February 2019)	Key Environmental Issues *
	18) Surcharging at surcharge Area 1a 19) Land band drain at surcharge Area 1b 20) Reclamation works at Portion IX 21) Reinstatement of existing seawall at Portion VII 22) Pre-drilling at P2 CH230 – CH264 23) Installation of socket H-pile at P2 CH290 – CH305	
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	1) Erect bamboo scaffolding for the cladding work at main deck 2) Construction of South Retaining Walls 3) Concreting of Pour 1,2,3 of Staircase	(A) / (B) / (C) / (D) / (E)
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Installation of Precast Pile Cap Shell 2) Pre-drilling 3) Bored piling 4) Dismantling Works for Temporary Working Platform 5) Construction of Temporary Working Platform	(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Trial pit 2) Underground utilities detection 3) Temporary traffic arrangement setup 4) Construction of Temporary carriageway 5) Modification of traffic island 6) Predrilling 7) Construction of Temporary cycle track 8) Construction of Drainage and watermain 9) Bored Piles	(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) Erection of Contractor's site accommodation and project signboard at Po Yap Road, Tseung Kwan O	(A) / (B) / (C) / (D) / (E) / (F) / (G) / (H)

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;
- 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 28th Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in February 2019 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 Seventeen (17) Action Level exceedances were recorded due to the documented complaints received in this reporting month. Eleven (11) Limit Level exceedances were recorded during night-time in the reporting month. They were considered due to road traffic near the Eastern Cross Harbour Tunnel Toll Plaza, therefore non-Project related.

14.5 One (1) Limit Level exceedances was recorded for daytime construction noise in the reporting month. The exceedance was considered Project related.

Water Quality Monitoring

14.6 One (1) Action Level and One (1) Limit Level exceedances were recorded in the reporting month. The exceedances were considered due to rainfall or human activities, therefore non-Project related.

14.7 Thirty five (35) Action Level and two hundred and eighty four (284) Limit Level exceedances were recorded in 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. The daily piezometer monitoring has resumed on 19 November 2018, as the construction activity was within 50m. No Action Level exceedance was recorded in the reporting month. Details of the result are presented in **Appendix U**.

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 L**.

Complaint, Prosecution and Notification of Summons

14.14 Twenty (20) 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 the 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 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.

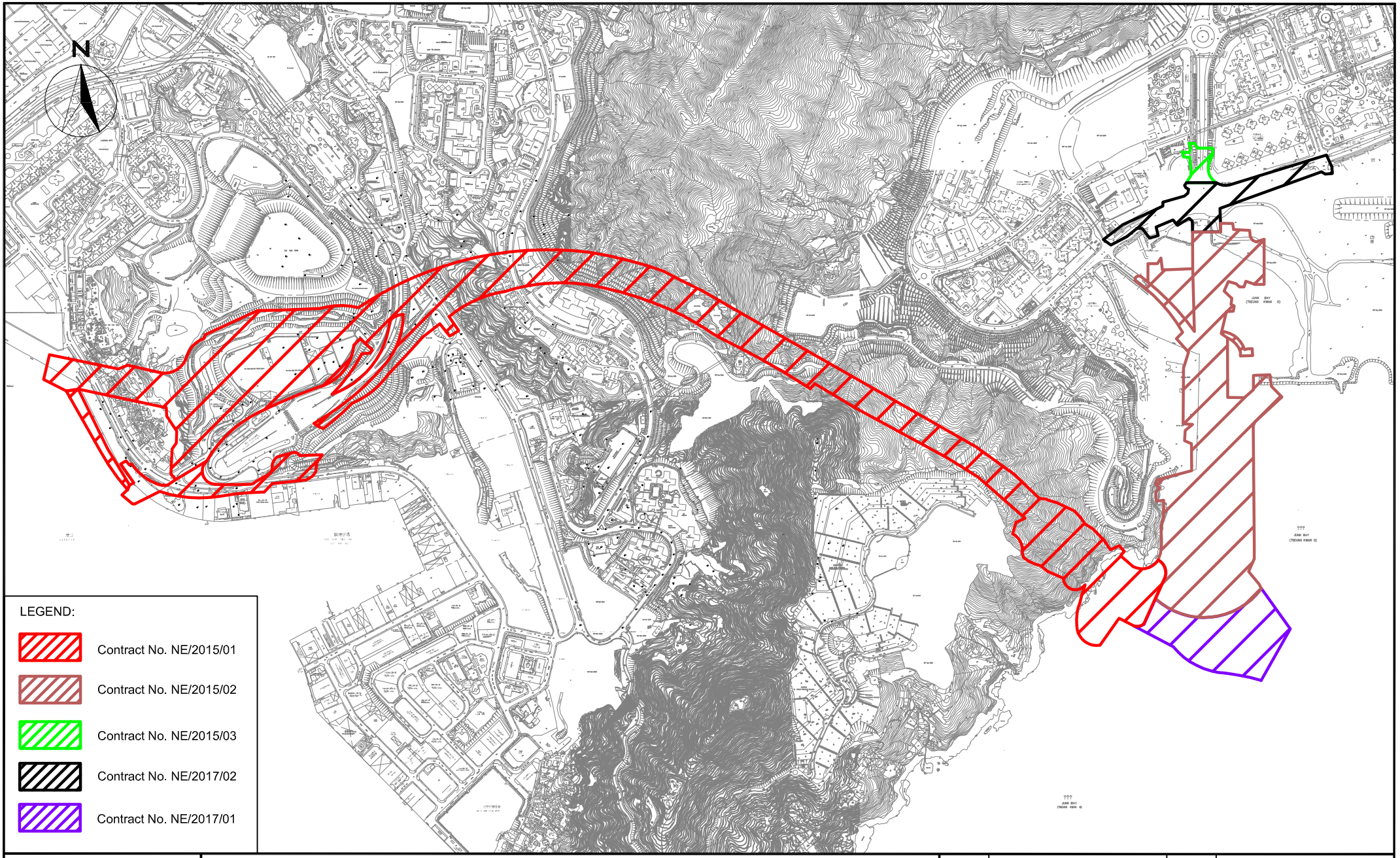
Waste/Chemical Management

- 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



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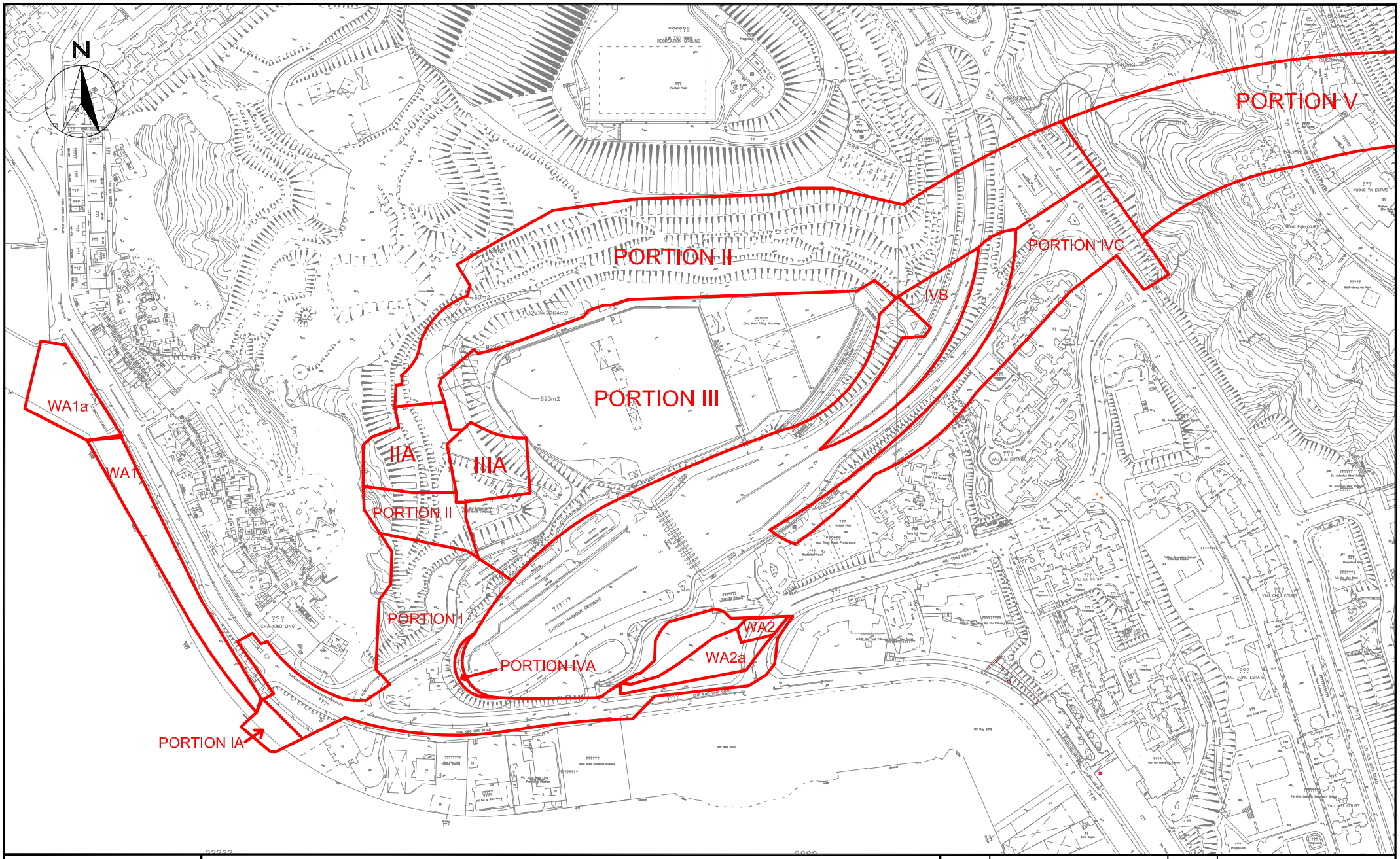
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

Site Layout Plan

SCALE	1:15000 @ A4	DATE	APR 2018
CHECK	JF	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1	REV -



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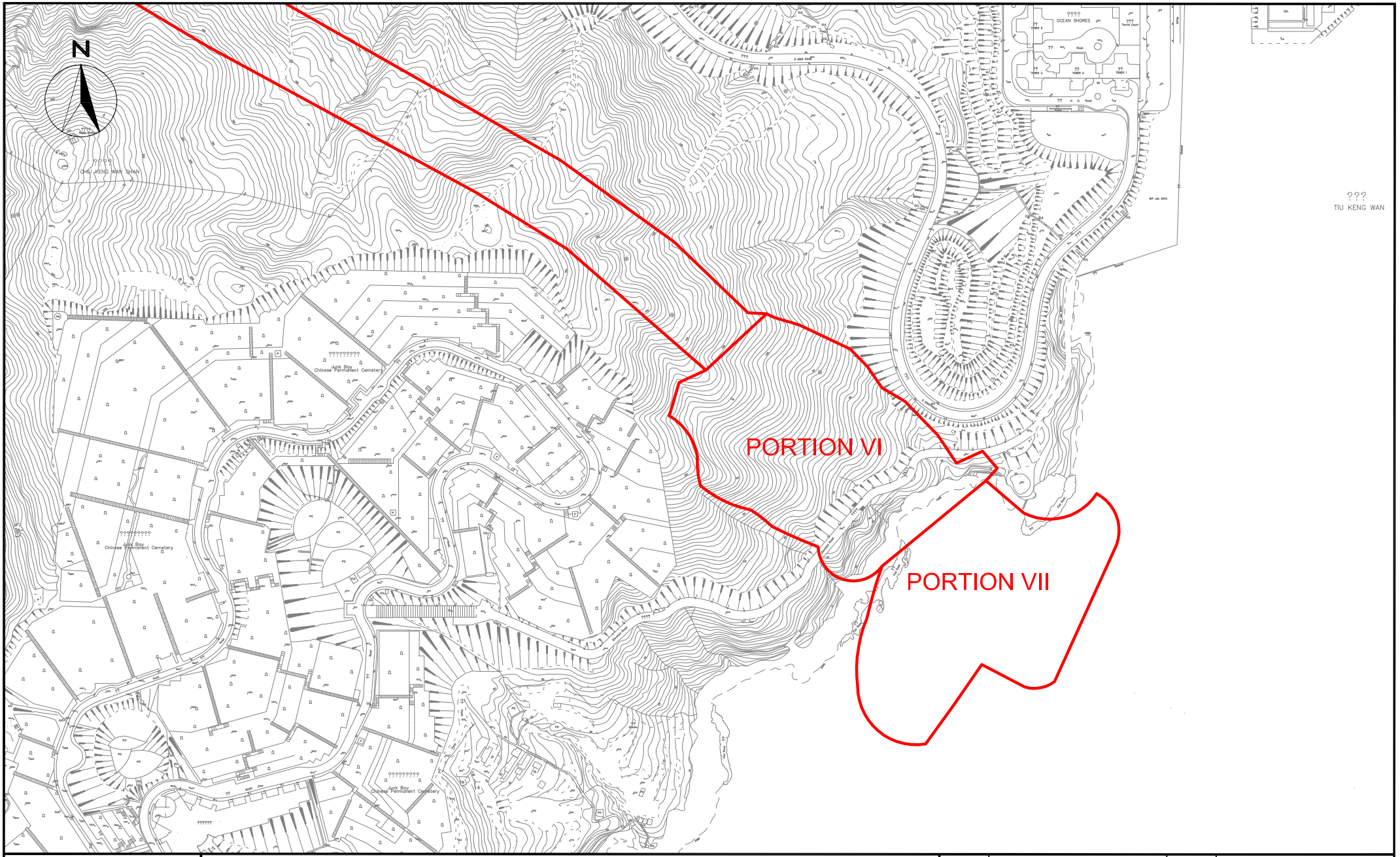
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel
- Design and Construction

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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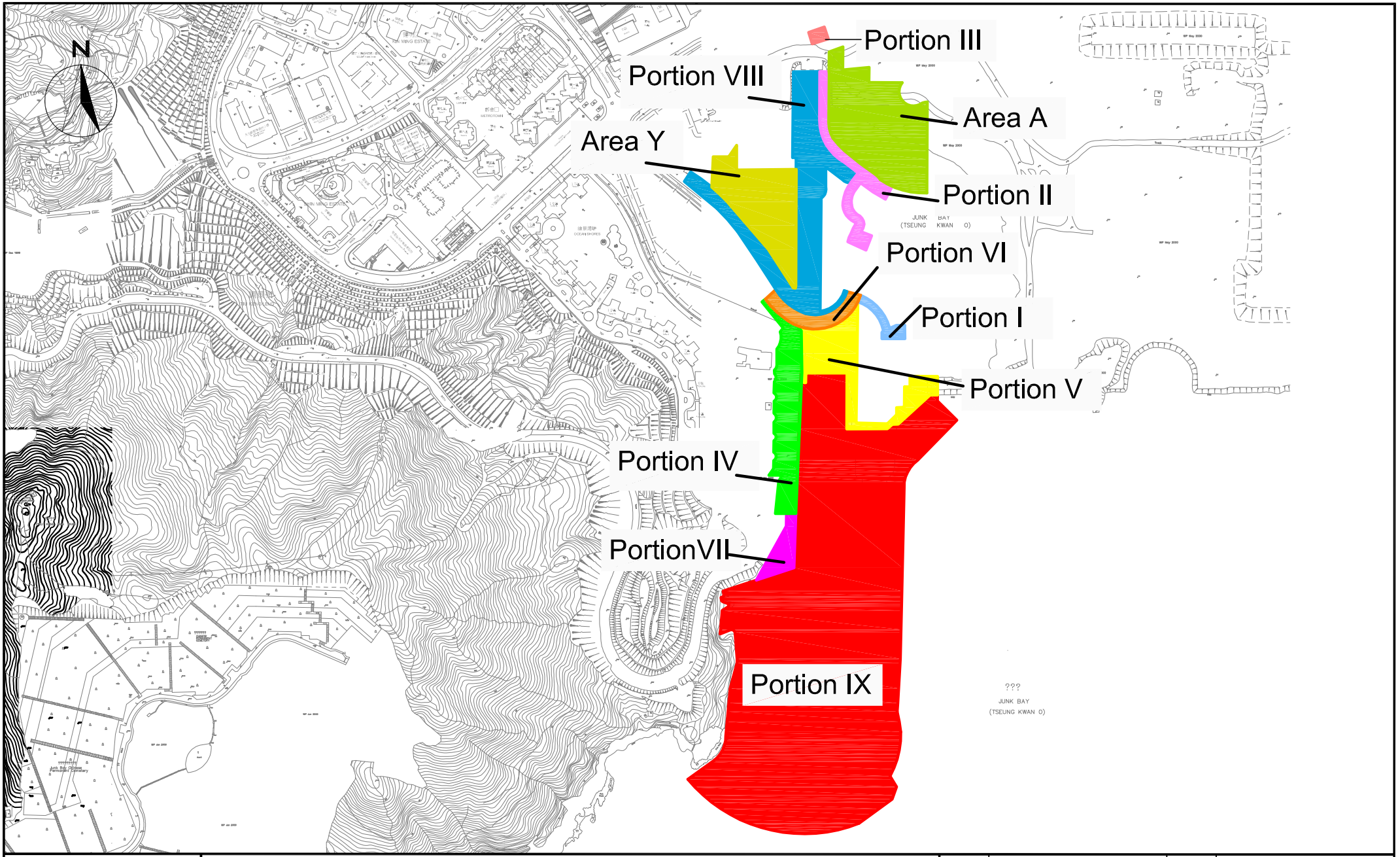
Cinotech Consultants Limited

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

Site Portions under Works Contract No. NE/2015/01 (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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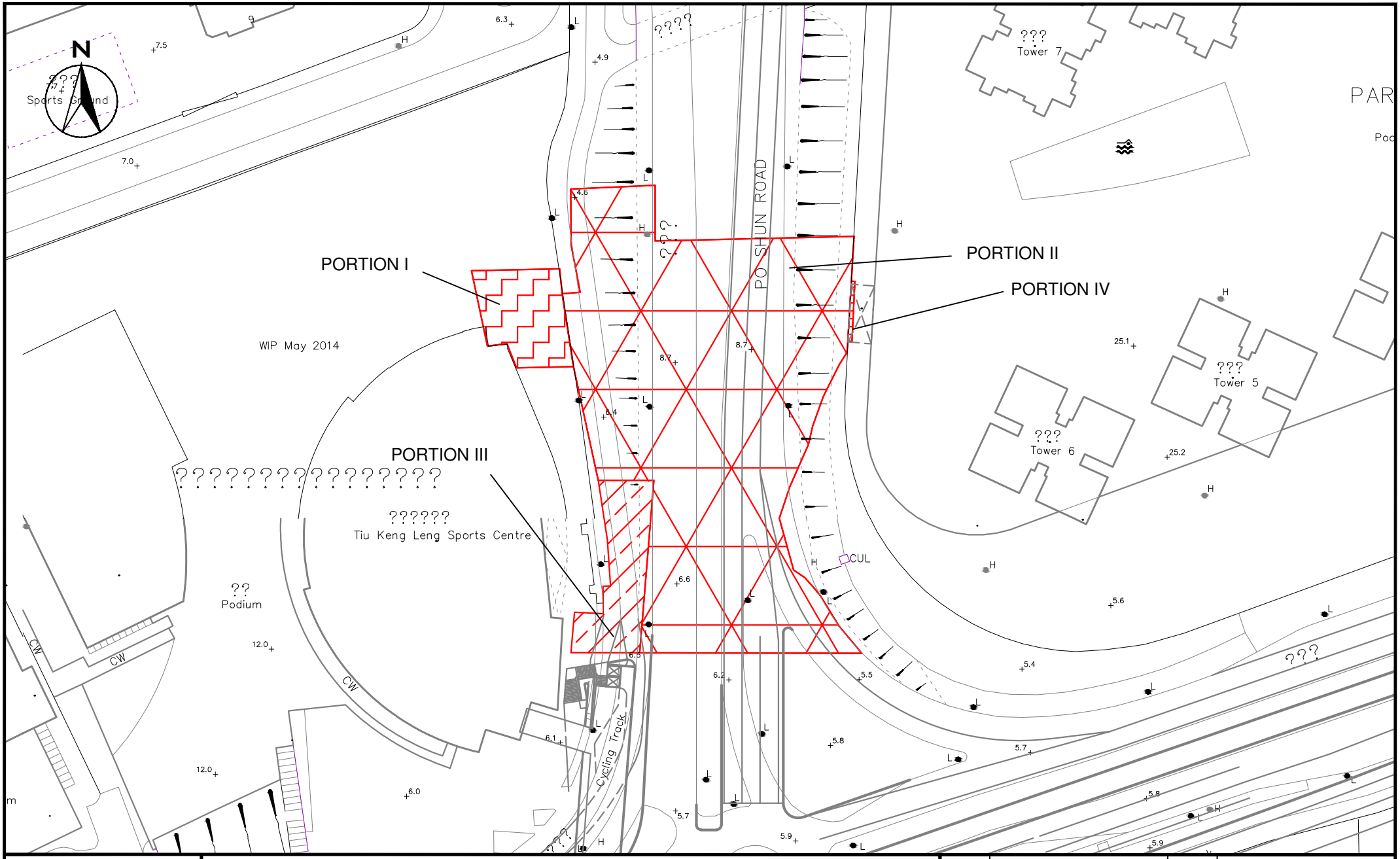
Cinotech Consultants Limited

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

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



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Cinotech Consultants Limited

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
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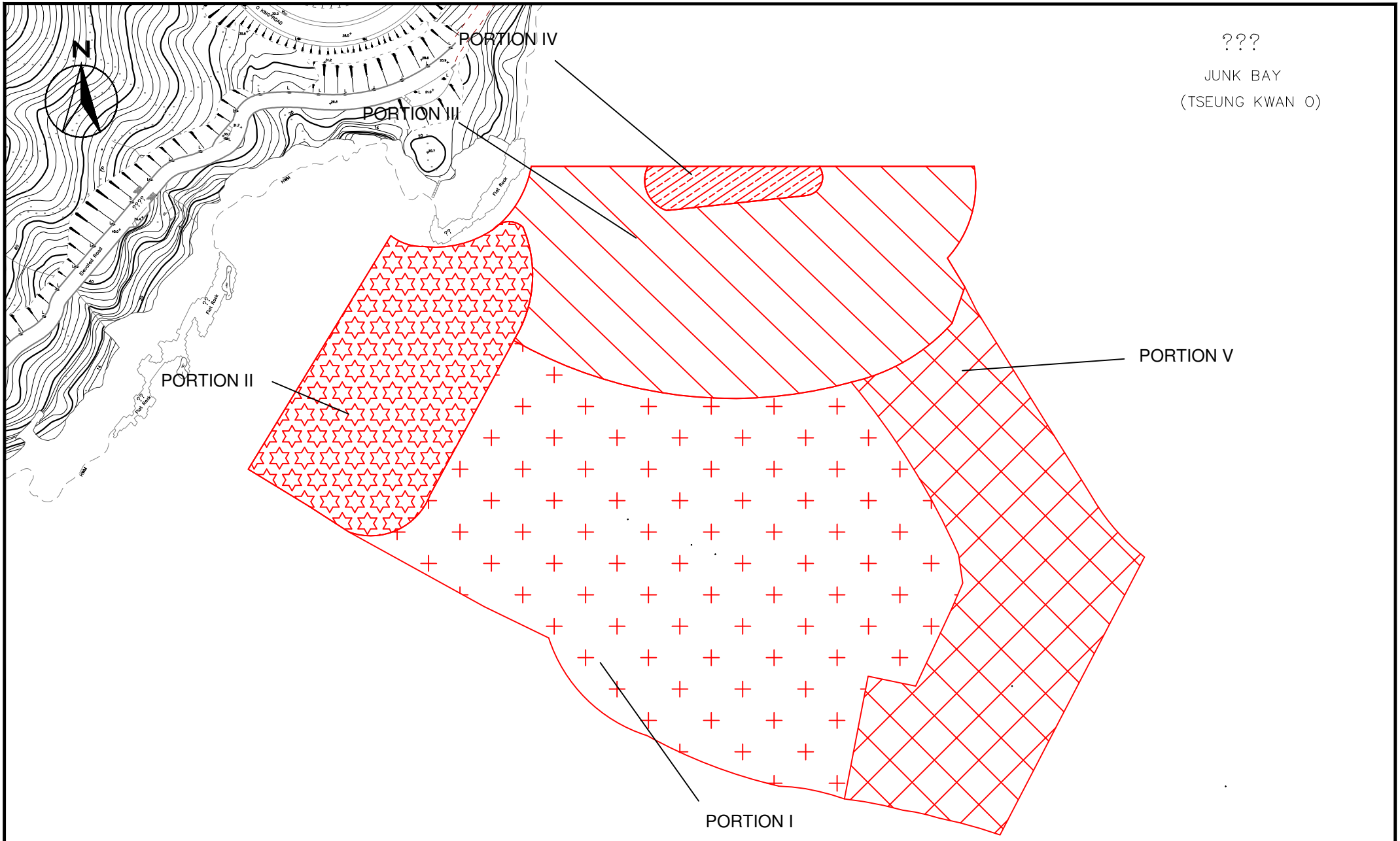

CINOTECH
Cinotech Consultants Limited

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

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

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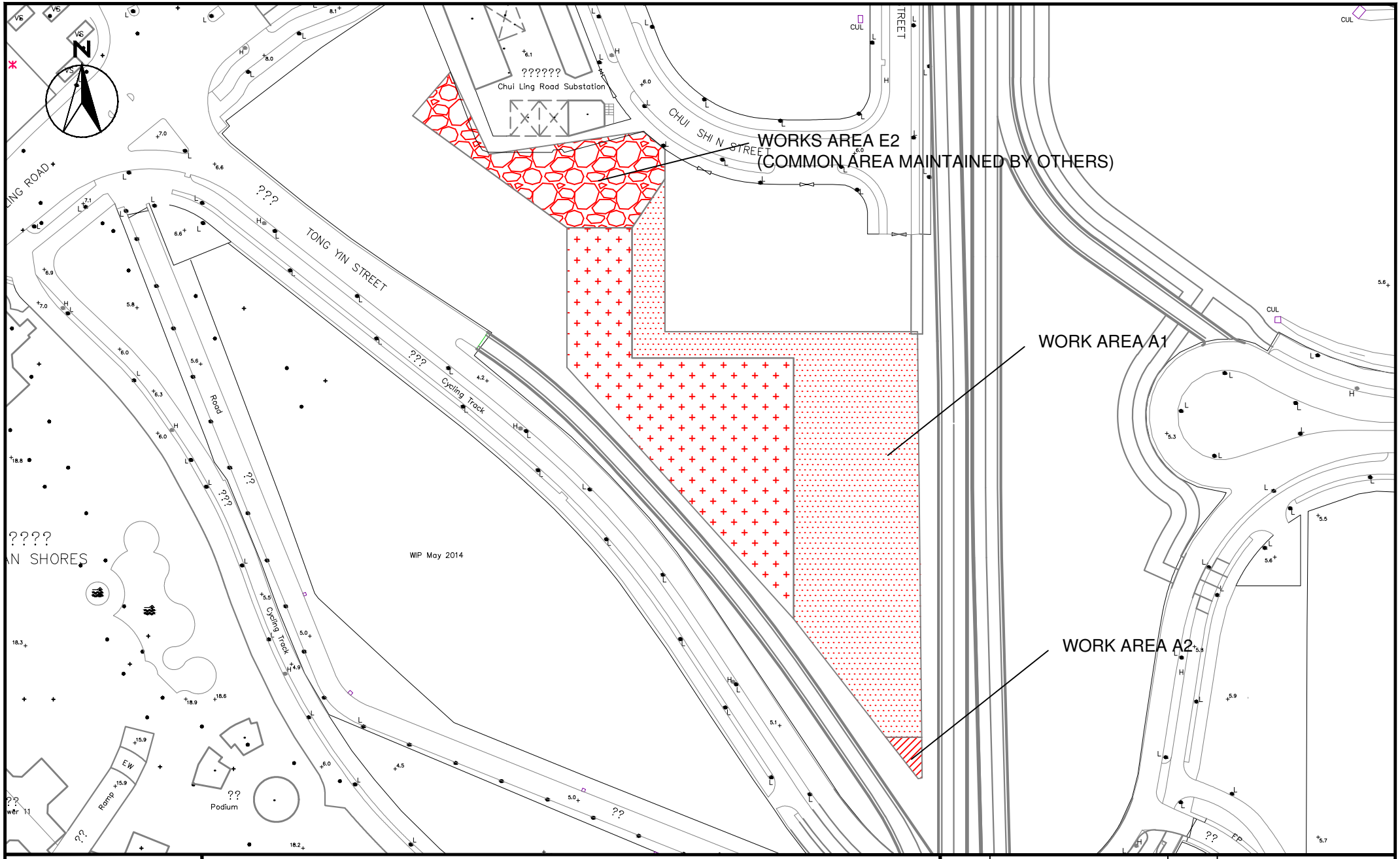

CINOTECH
Cinotech Consultants Limited

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

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

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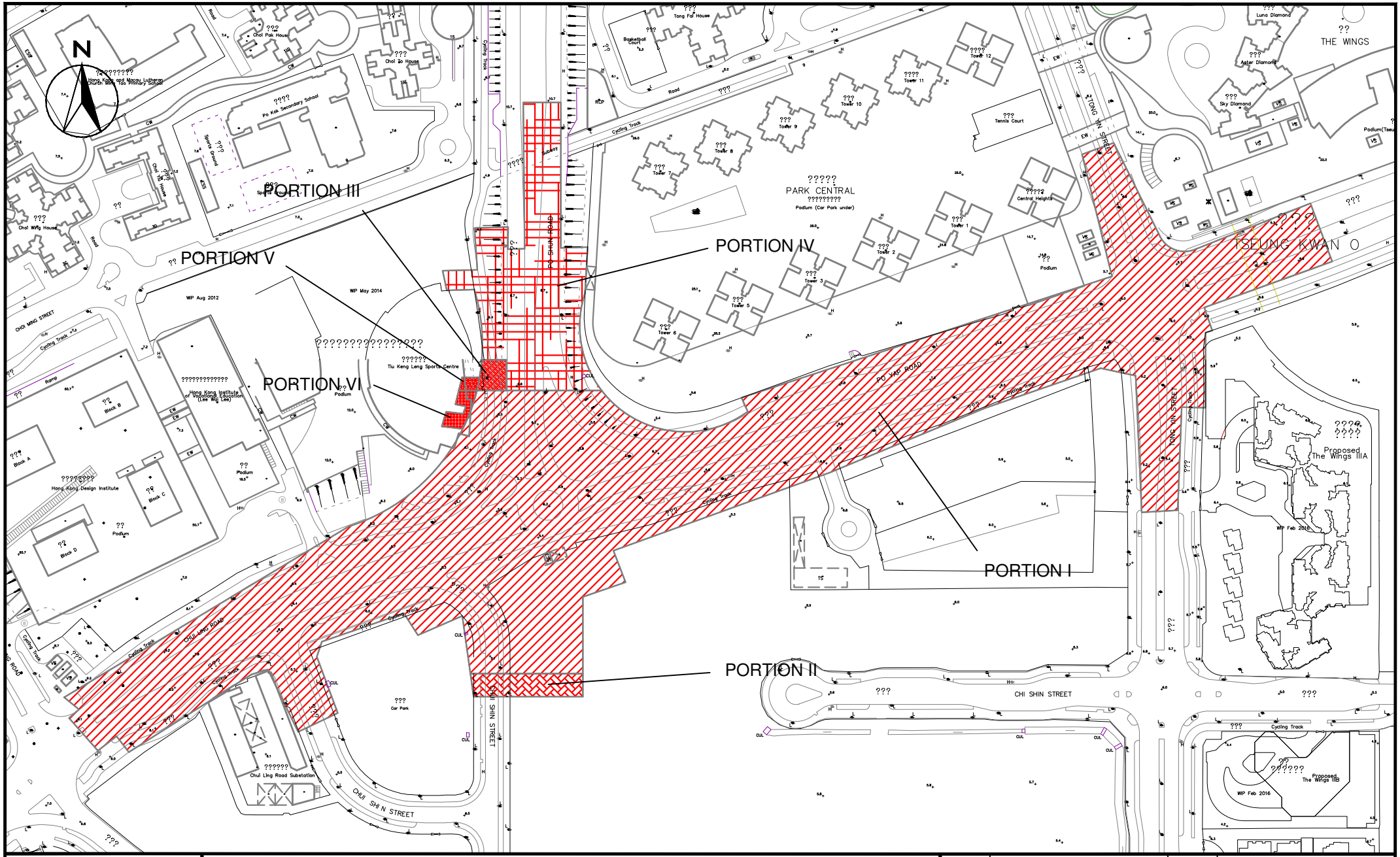
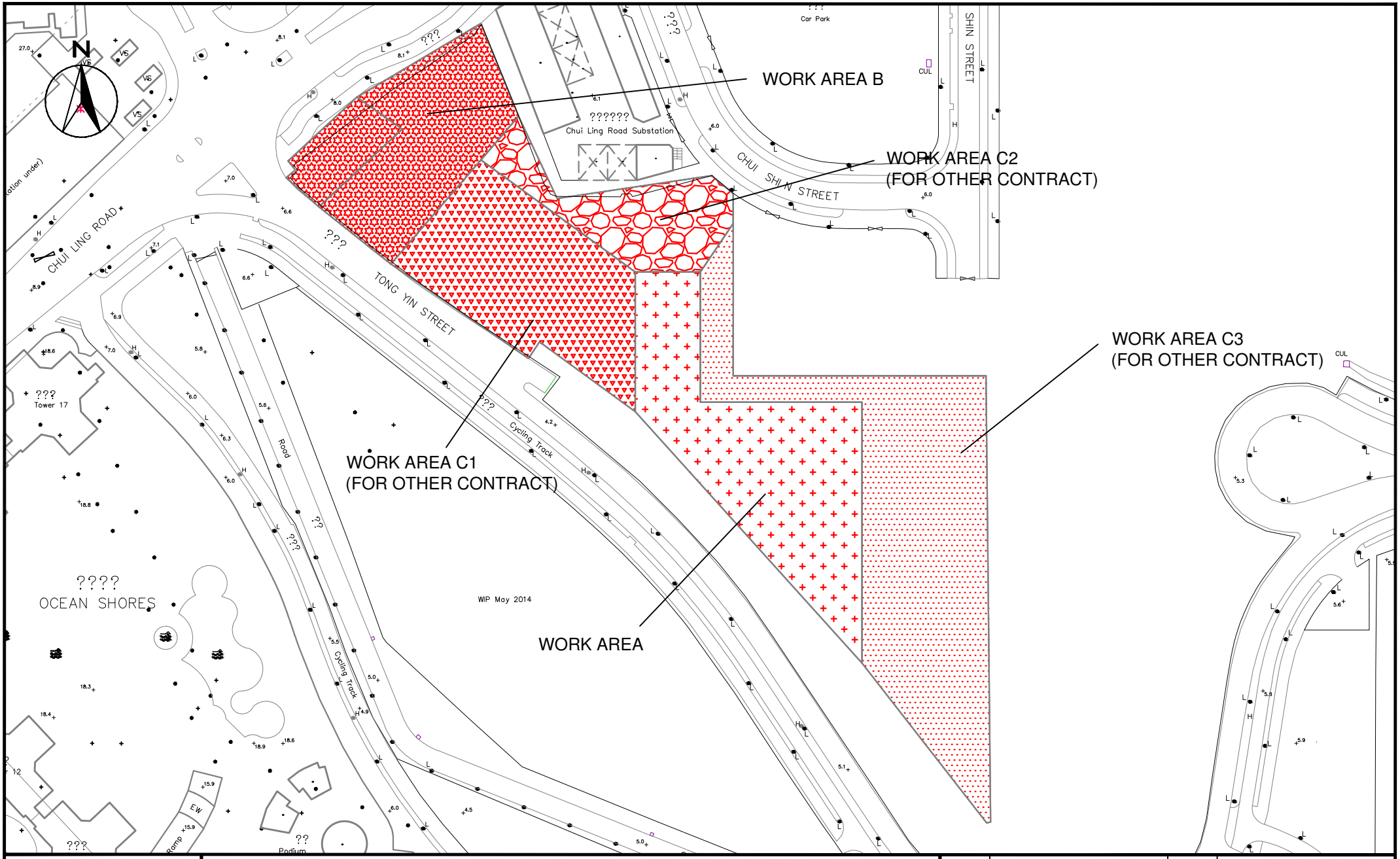


CINOTECH
Cinotech Consultants Limited

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

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

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

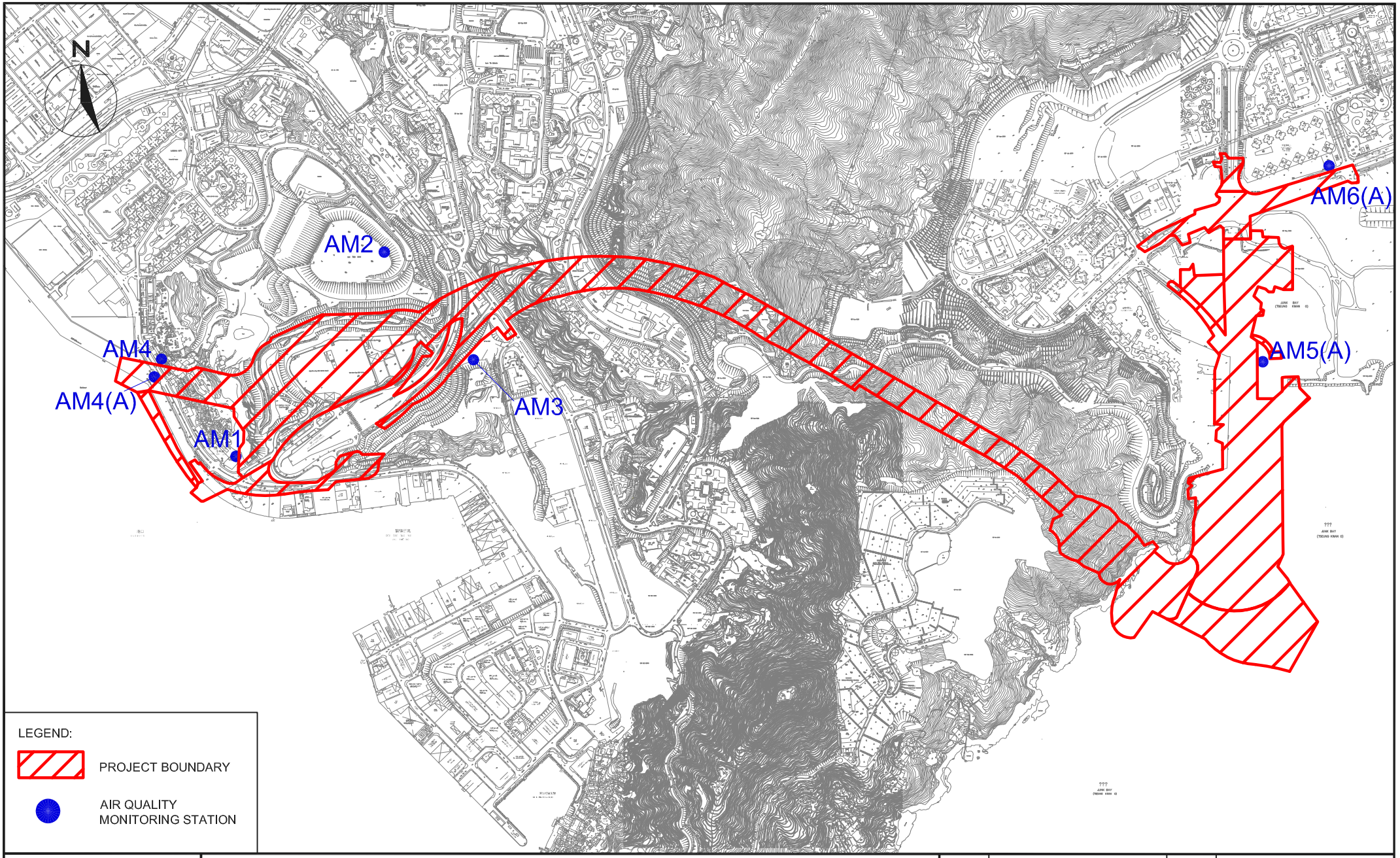


CINOTECH
Cinotech Consultants Limited

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

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

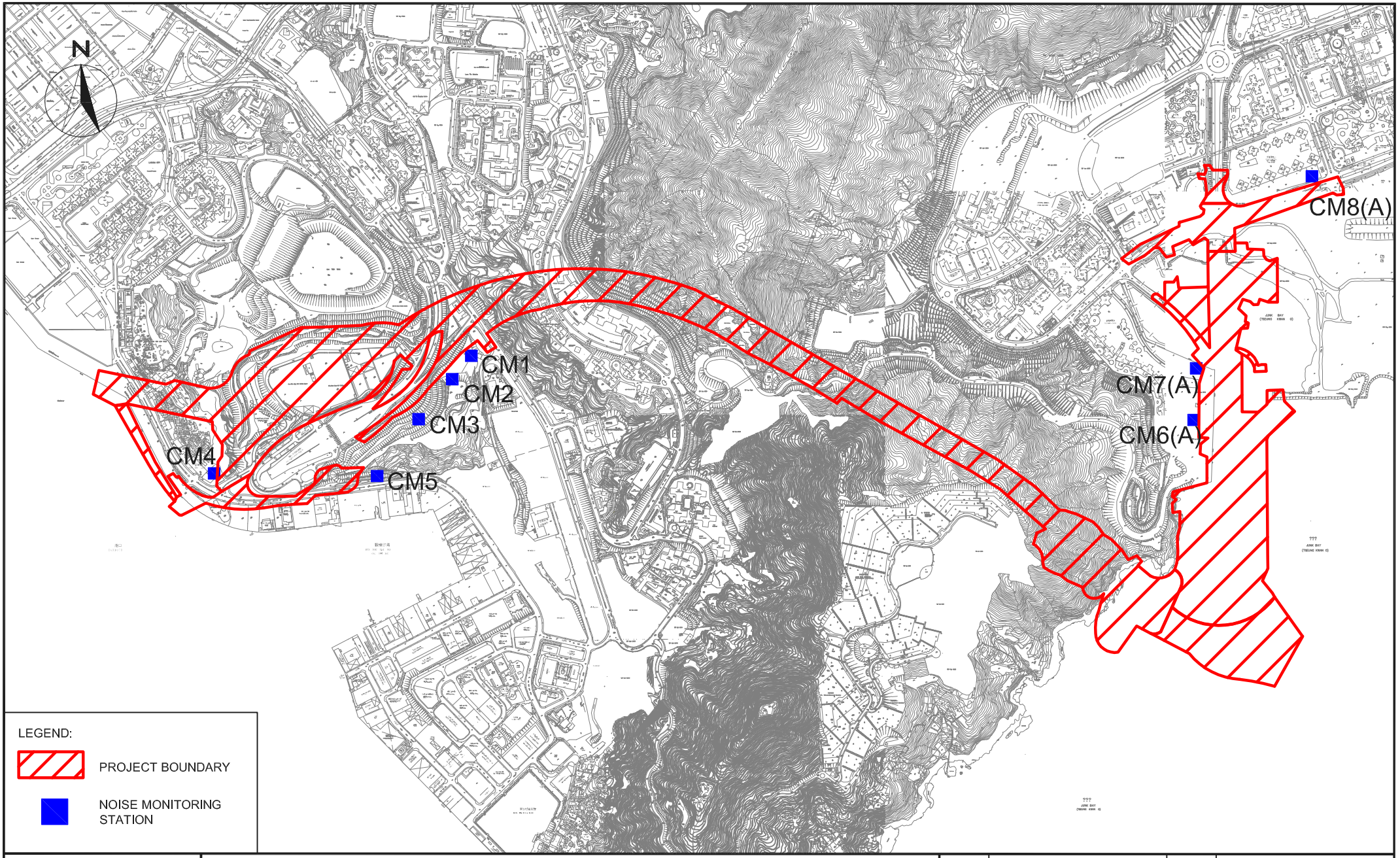
SCALE	1:1500 @ A4	DATE	AUG 2018
CHECK	VC	DRAWN	AC
JOB No.	MA16034	FIGURE NO. 1h	REV -



CINOTECH
Cinotech Consultants Limited

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

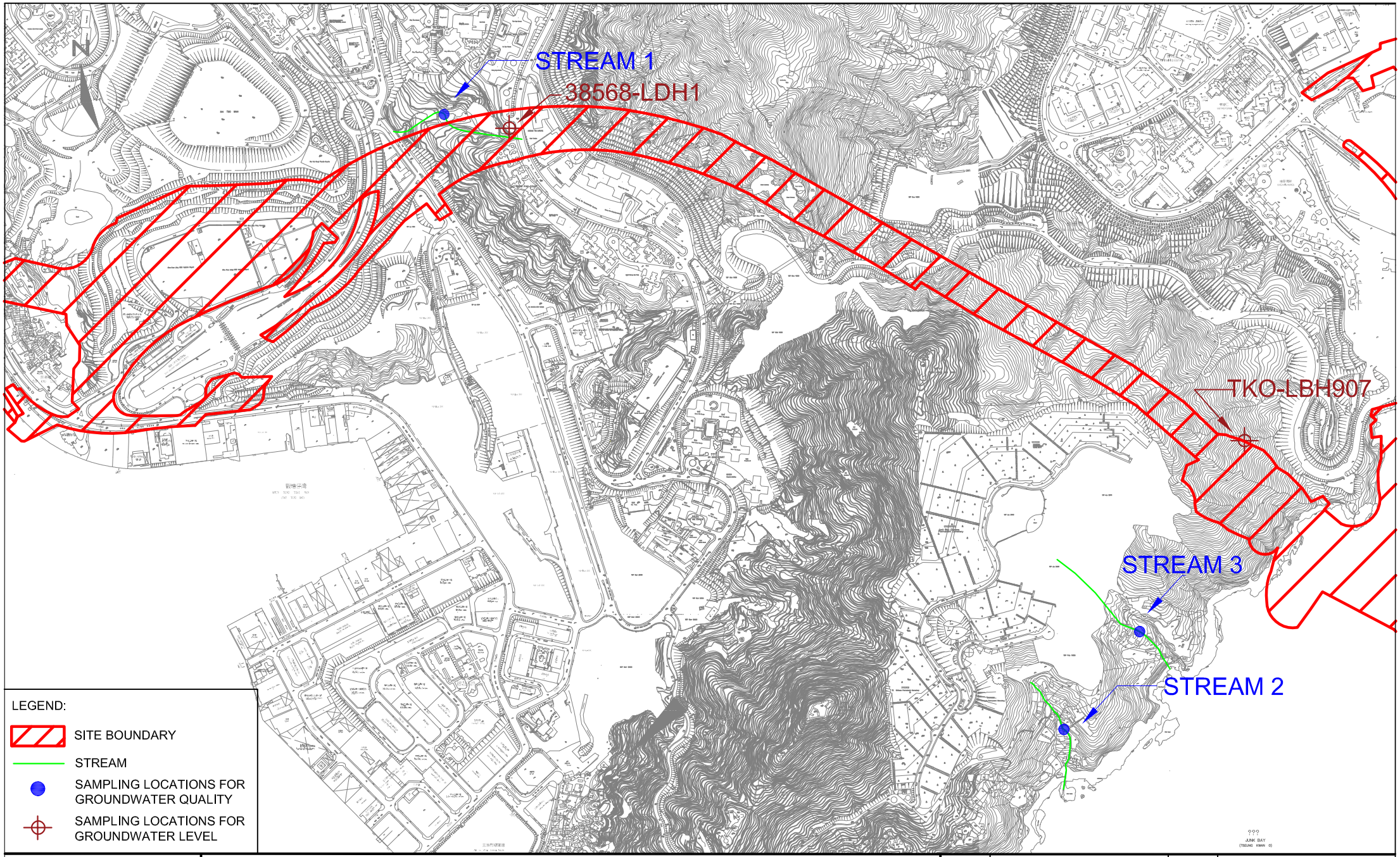
SCALE	1:15000 @ A4	DATE	JAN 2018
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 2	REV -



CINOTECH
Cinotech Consultants Limited

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 -



CINOTECH
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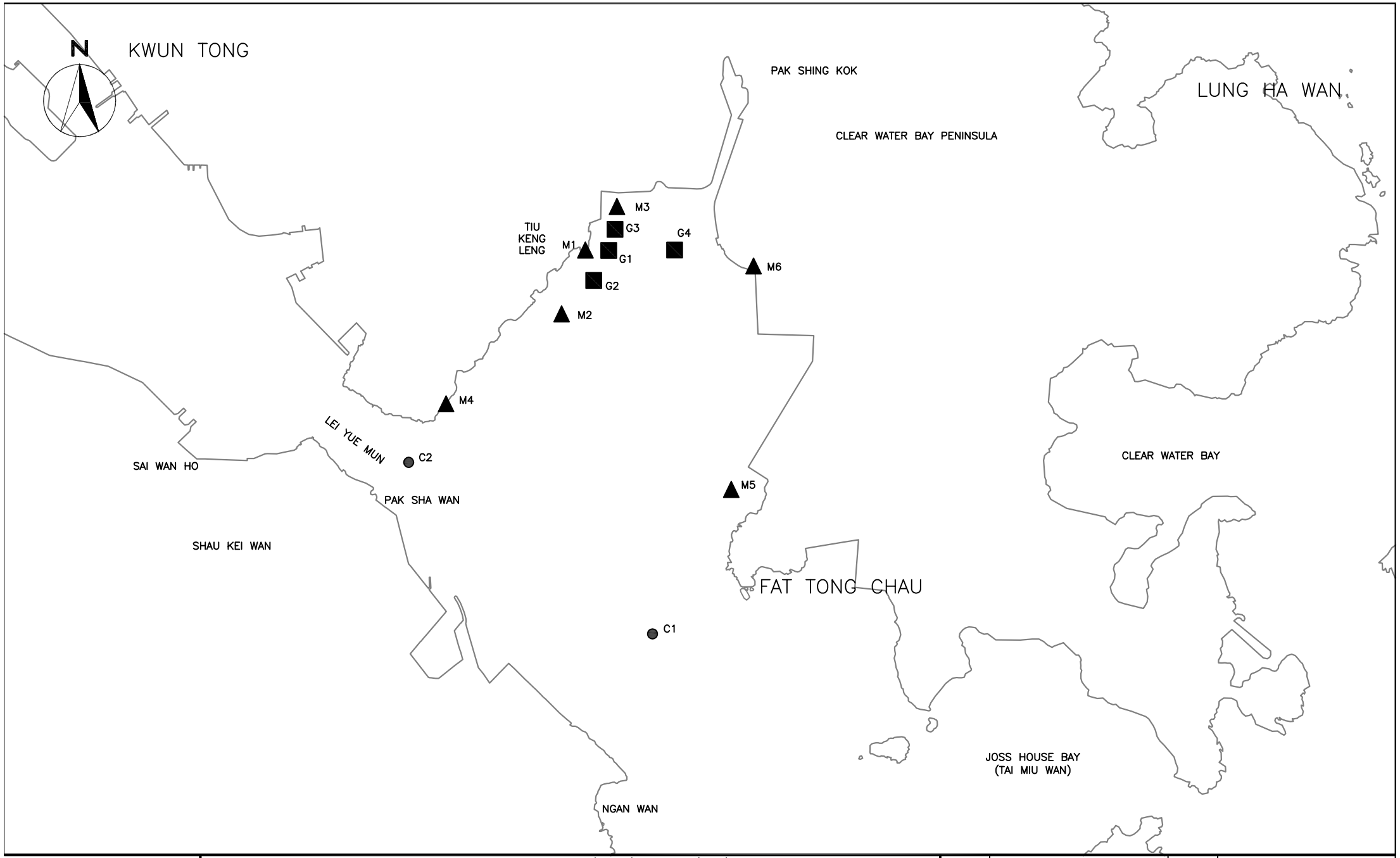
Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Location of Streams for Groundwater Quality and Groundwater Level Monitoring

SCALE	1:10000 @ A4	DATE	APR 2017
CHECK	JF	DRAWN	JW
JOB No.	MA16034	FIGURE NO. 4	REV -

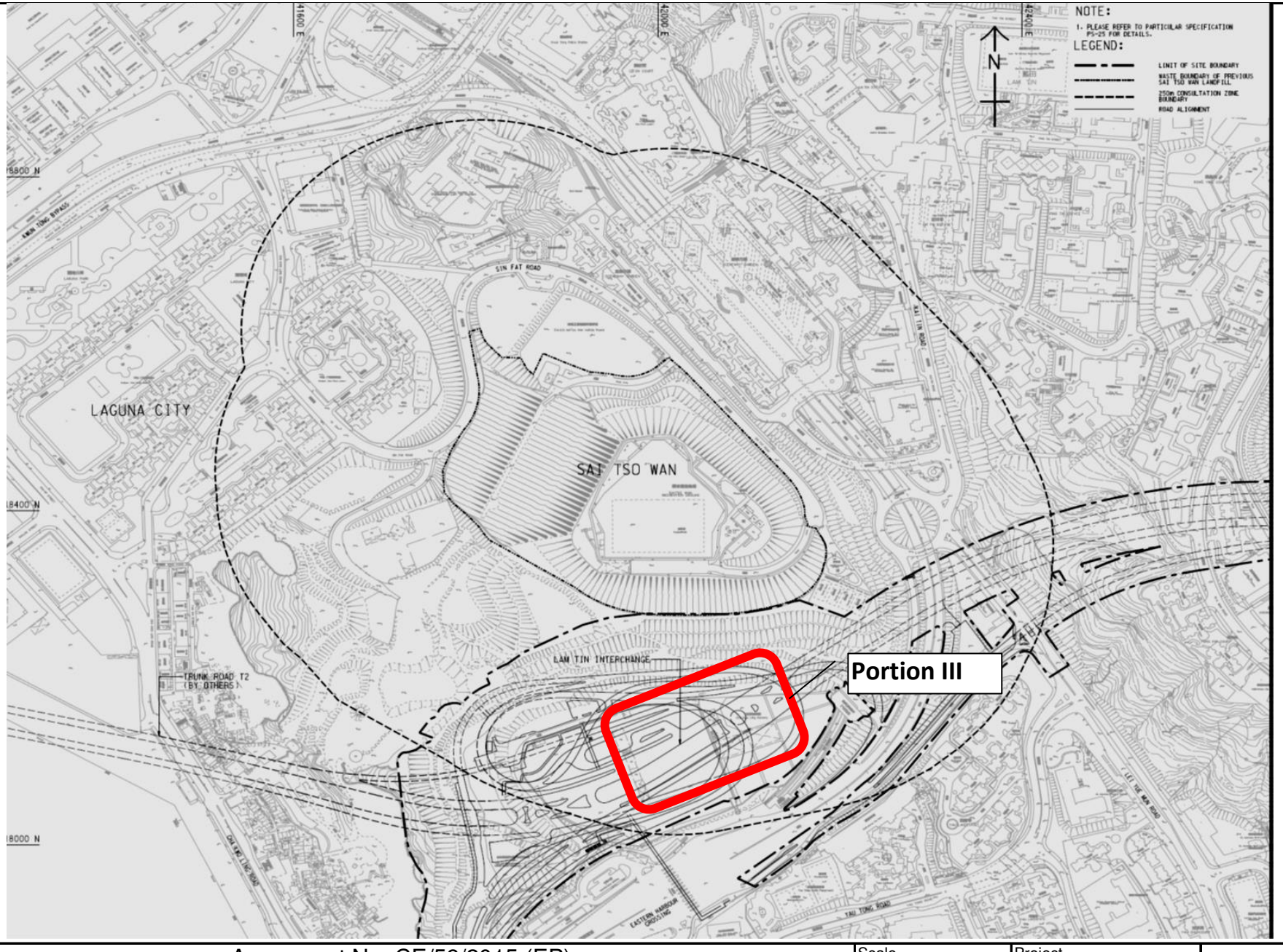


CINOTECH
Cinotech Consultants Limited

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

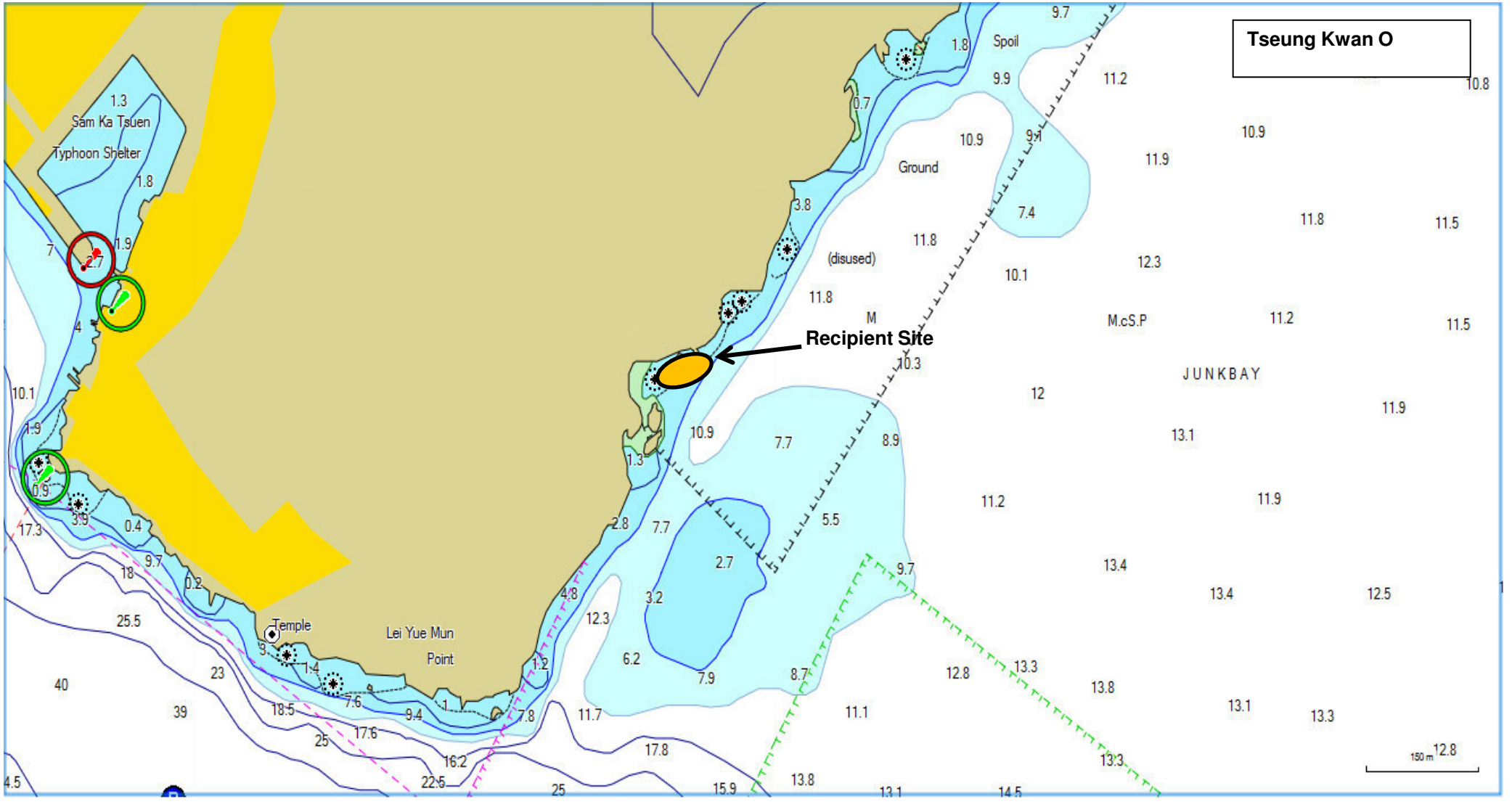
Locations of Water Quality Monitoring Stations

SCALE	N.T.S	DATE	AUG 2016
CHECK	JF	DRAWN	JW
PROJECT NO.	MA16034	FIGURE NO.	5
		REV	–

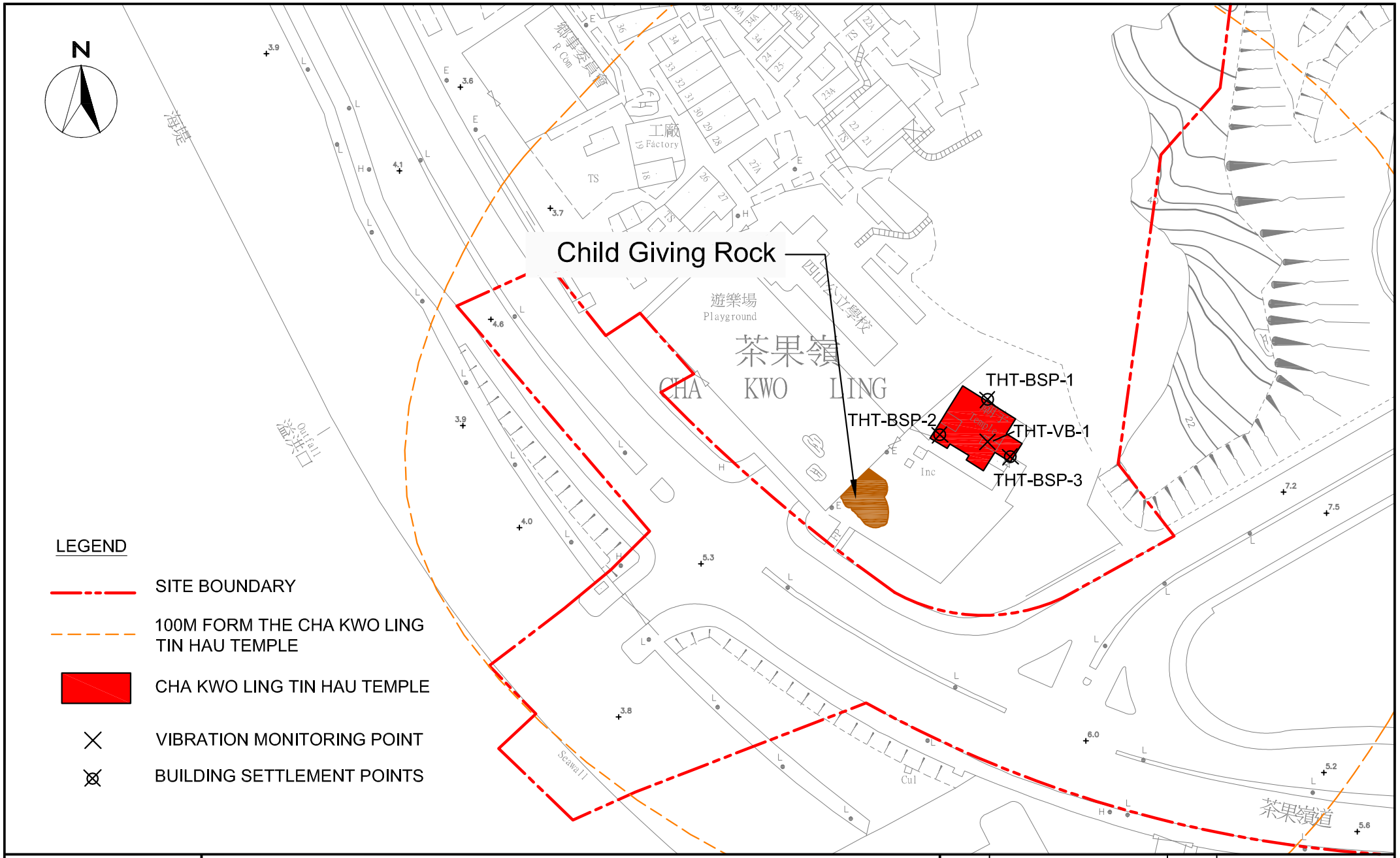


Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Locations of Landfill Gas Monitoring	Scale: N.T.S Date: Dec-16	Project No.: MA16034 Figure: 6

CINOTECH



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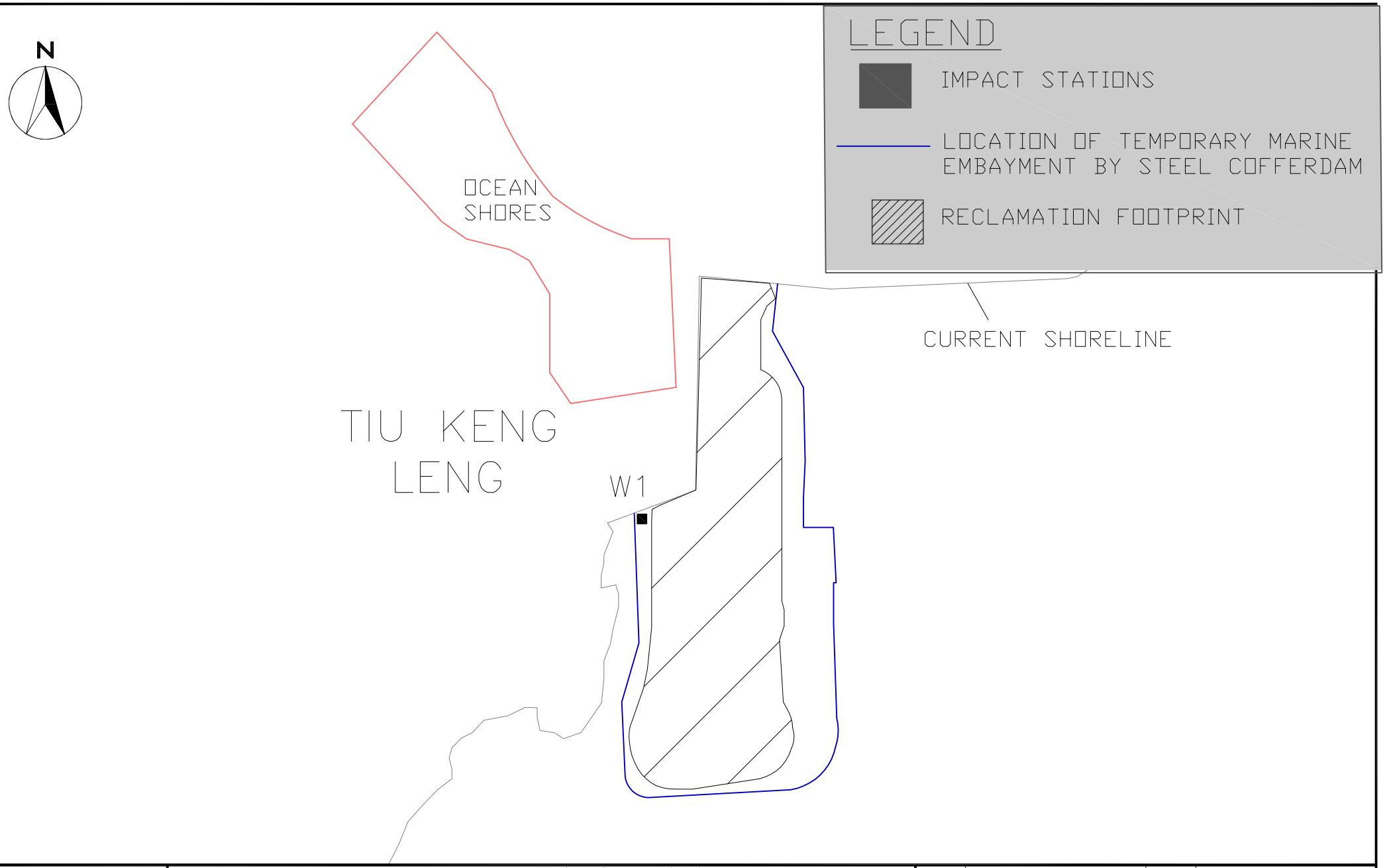
Agreement No. CE/59/2015 (EP)
Environmental Team for Tsueng Kwan O - Lam Tin Tunnel - Design and Construction

Locations of Monitirong for Cultural Heritage

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



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Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction
Location of Water Quality Monitoring Stations within Temporary Marine Embayment

SCALE	N.T.S	DATE	MAY 2017
CHECK	JF	DRAWN	JW
PROJECT NO.	MA16034	FIGURE NO.	9
		REV	–

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Air Quality

1-hr TSP

Monitoring Stations	Location	Action Level, µg/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

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30523
Date of Issue:	2018-12-16
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-16
Next Due Date:	2019-02-15

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
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.

Results:

Correlation Factor (CF)	1.066

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

Cerificate of Calibration

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

Description: Handheld Particle Counter

Manufacturer: Hal Technology

Model No.: Hal -HPC301

Serial No.: 3011701012

Equipment No.: A-27-07

High Volume Sampler No.: A-01-03

Tisch Calibration Orifice No.: 3607

Date of Calibration 13-Feb-19

Validity of Calibration Record 12-Apr-19

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	140	149.3
2	113	121.9
3	110	119.4
Average	**121**	**130**

By Linear Regression of Y on X

Slope , mw = **1.0038** **Intercept, bw =** **8.7346**

Correlation coefficient* = **0.9999**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	130
Particaulate Concentration by Dust Meter (μg/m^3)	121
Measureing time, (min)	60

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μ g/m3)] **1.08**

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **CINOTECH SOLUTIONS LTD.**
Room 1710, Technology Park,
18 On Lai Street, Shatin,
N.T. , Hong Kong

ATTN: **Mr. Henry Leung**

Test Report No.:	SC/181228/02
Date of Issue:	2018-12-28
Date Received:	2018-12-27
Date Tested:	2018-12-27
Date Completed:	2018-12-28
Next Due Date:	2019-02-27
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: SIBATA
Model No.	: LD-3B
Serial No.	: 2Y6194
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 578 CPM
Equipment No.	: SA-01-02

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 58%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	**0.0029**

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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 26-Feb-19

Manufacturer: Sibata Scientific Technology LTD.

Validity of Calibration Record 25-Apr-19

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	1887	31.45	87.1
2	1970	32.83	89.1
3	2056	34.27	91.5
Average		**32.85**	**89.23**

By Linear Regression of Y on X

Slope , mw = **1.5611**

Intercept, bw = **37.9527**

Correlation coefficient* = **0.9992**

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μg/m3)] **0.0027**

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

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **CINOTECH SOLUTIONS LTD.**
Room 1710, Technology Park,
18 On Lai Street, Shatin,
N.T. , Hong Kong

ATTN: **Mr.W.K.Tang**

Test Report No.:	30525
Date of Issue:	2018-12-27
Date Received:	2018-12-24
Date Tested:	2018-12-27
Date Completed:	2018-12-27
Next Due Date:	2019-02-26
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 30117011019
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: SA-01-03

Test Conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	**2.50**

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

Cerificate of Calibration

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

Description: Handheld Particle Counter

Manufacturer: Hal Technology

Model No.: Hal -HPC300

Serial No.: 30117011019

Equipment No.: SA-01-03

High Volume Sampler No.: A-01-03

Tisch Calibration Orifice No.: 3607

Date of Calibration 26-Feb-19

Validity of Calibration Record 25-Apr-19

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	37.4	87.1
2	43.2	89.1
3	51.3	91.5
Average	**44.0**	**89.2**

By Linear Regression of Y on X

Slope , mw = **0.3153** **Intercept, bw =** **75.3725**

Correlation coefficient* = **0.9991**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	89.2
Particaulate Concentration by Dust Meter (µg/m^3)	44.0
Measureing time, (min)	60

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.03**

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

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 13-Feb-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 12-Apr-19
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** Mass Concentration (μg/m3) **X-axis**	**HVS** Mass concentration (μg/m^3) **Y-axis**
1	74	149.3
2	60	121.9
3	58	119.4
Average	**64**	**130**

By Linear Regression of Y on X

Slope , mw = **1.9013** **Intercept, bw =** **8.5158**

Correlation coefficient* = **0.9992**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	130
Particaulate Concentration by Dust Meter (μg/m^3)	64
Measureing time, (min)	60

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

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 13-Feb-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 12-Apr-19
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	74	149.3
2	62	121.9
3	60	119.4
Average	**65**	**130**

By Linear Regression of Y on X

Slope , mw = **2.1872** **Intercept, bw =** **-12.6977**

Correlation coefficient* = **0.9984**

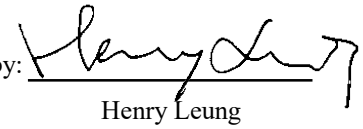
Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	130
Particaulate Concentration by Dust Meter (μg/m^3)	65
Measureing time, (min)	60

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

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/05/0015

Project No. AM1 - Tin Hau Temple

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	766.0

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	13.5	3.71	63.35	8.1	2.87
2	9.8	3.16	53.98	5.7	2.41
3	8.1	2.87	49.07	4.9	2.23
4	5.5	2.37	40.44	3.2	1.81
5	3.3	1.83	31.33	2.0	1.43

By Linear Regression of Y on X

Slope , mw = **0.0451** **Intercept, bw =** **0.0009**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.70**

Remarks:

Conducted by: LEE MAN HAU Signature: Date: 21/12/2018

Checked by: WK Tang Signature: Date: 21/12/2018

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/05/0016

Project No. AM1 - Tin Hau Temple

Date: 19-Feb-19 Next Due Date: 18-Apr-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	764.9

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	8-Jan-20	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	12.8	3.63	62.10	8.1	2.89
2	9.2	3.08	52.71	5.8	2.44
3	7.8	2.83	48.57	4.9	2.24
4	4.9	2.24	38.58	3.3	1.84
5	2.8	1.70	29.26	2.1	1.47

By Linear Regression of Y on X

Slope , mw = **0.0429** **Intercept, bw =** **0.1934**

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.04**

Remarks:

Conducted by: SK Wong Signature: Date: 19 Feb 2019

Checked by: Henry Leung Signature: Date: 19 Feb 2019

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0015

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	295.5	Pressure, Pa (mmHg)	766.2

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	13.5	3.70	63.31	8.1	2.87
2	10.7	3.30	56.36	6.7	2.61
3	8.6	2.96	50.53	5.3	2.32
4	5.4	2.34	40.04	3.2	1.80
5	3.3	1.83	31.30	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0452 **Intercept, bw =** 0.0316

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) = **3.83**

Remarks:

Conducted by: Lee Man Hei Signature: Date: 21/12/2018

Checked by: W K Tang Signature: Date: 21/12/2018

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/08/0016

Project No. AM2 - Sai Tso Wan Recreation Ground

Date: 19-Feb-19 Next Due Date: 18-Apr-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	764.9

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**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	3.64	62.34	8.1	2.89
2	9.5	3.12	53.55	6.1	2.50
3	8.0	2.87	49.18	5.1	2.29
4	4.9	2.24	38.58	3.1	1.79
5	3.0	1.76	30.28	2.1	1.47

By Linear Regression of Y on X

Slope , mw = **0.0448** **Intercept, bw =** **0.0886**

Correlation coefficient* = **0.9993**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.96**

Remarks:

Conducted by: SK Wong Signature: Date: 19 Feb 2019

Checked by: Henry Leung Signature: Date: 19 Feb 2019

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0013

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

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	296.1	Pressure, Pa (mmHg)	765.9

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	12.5	3.56	60.84	7.9	2.83
2	10.7	3.29	56.29	6.8	2.63
3	7.9	2.83	48.37	4.9	2.23
4	5.4	2.34	39.99	3.3	1.83
5	3.2	1.80	30.79	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0462 **Intercept, bw =** 0.0106

Correlation coefficient* = 0.9992

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.94**

Remarks:

Conducted by: Lee Man Hin Signature: Date: 21/12/2018

Checked by: Wk Tang Signature: Date: 21/12/2018

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/03/0016

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

Date: 19-Feb-19 Next Due Date: 18-Apr-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	764.9

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

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Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.6	3.60	61.61	8.0	2.87
2	9.5	3.12	53.55	6.2	2.52
3	7.9	2.85	48.87	4.9	2.24
4	5.1	2.29	39.35	3.2	1.81
5	3.0	1.76	30.28	2.0	1.43

By Linear Regression of Y on X

Slope , mw = 0.0463 **Intercept, bw = 0.0113**

Correlation coefficient* = 0.9989

*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) = **3.91**

Remarks:

Conducted by: SK Wong Signature: Date: 19 Feb 2019

Checked by: Henry Leung Signature: Date: 19 Feb 2019

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0015

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

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	297.2	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	16.5	4.08	69.73	9.4	3.08
2	12.7	3.58	61.18	7.3	2.71
3	10.6	3.27	55.89	6.6	2.58
4	6.5	2.56	43.77	4.0	2.01
5	4.4	2.11	36.01	2.7	1.65

By Linear Regression of Y on X

Slope , mw = **0.0423** **Intercept, bw =** **0.1530**

Correlation coefficient* = **0.9977**

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.85**

Remarks:

Conducted by: LEE MAN HEI Signature: Lei Date: 21/12/2018

Checked by: WK Tang Signature: Kwai Date: 21/12/2018

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/54/0016

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

Date: 19-Feb-19 Next Due Date: 18-Apr-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	764.9

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**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	3.66	62.58	8.5	2.96
2	9.8	3.17	54.39	6.5	2.58
3	7.9	2.85	48.87	5.3	2.33
4	5.3	2.33	40.11	3.4	1.87
5	3.2	1.81	31.26	2.2	1.50

By Linear Regression of Y on X

Slope , mw = 0.0470 **Intercept, bw = 0.0179**

Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **4.05**

Remarks:

Conducted by: SK Wong Signature: Date: 19 Feb 2019

Checked by: Henry Leung Signature: Date: 19 Feb 2019

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0015

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

Date: 21-Dec-18 Next Due Date: 20-Feb-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	297.8	Pressure, Pa (mmHg)	764

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	16.3	4.05	69.19	9.2	3.04
2	13.7	3.71	63.43	7.6	2.76
3	9.4	3.08	52.55	5.8	2.42
4	6.7	2.60	44.36	4.1	2.03
5	4.5	2.13	36.36	2.9	1.71

By Linear Regression of Y on X

Slope , mw = **0.0400** **Intercept, bw =** **0.2647**

Correlation coefficient* = **0.9983**

*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) = **3.92**

Remarks:

Conducted by: Lee Man Hei Signature: Lee Date: 21/12/2018

Checked by: Wk Tang Signature: Kwan Date: 21/12/2018

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16034/37/0016

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

Date: 19-Feb-19 Next Due Date: 18-Apr-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	764.9

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	8-Jan-20	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

.

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	13.5	3.73	63.76	8.6	2.97
2	10.1	3.22	55.21	6.6	2.60
3	8.1	2.89	49.48	5.3	2.33
4	5.5	2.38	40.85	3.5	1.90
5	3.4	1.87	32.20	2.4	1.57

By Linear Regression of Y on X

Slope , mw = **0.0453** **Intercept, bw =** **0.0885**

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.03**

Remarks:

Conducted by: SK Wong Signature: Date: 19 Feb 2019

Checked by: Henry Leung Signature: Date: 19 Feb 2019

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/07/0015

Project No. AM6 - Psrk Central

Date: 21-Jan-19 Next Due Date: 20-Mar-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	287	Pressure, Pa (mmHg)	765.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	13-Feb-19	**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	10.8	3.36	57.44	6.5	2.61
2	8.5	2.98	50.96	5.4	2.38
3	6.8	2.67	45.58	4.2	2.10
4	4.3	2.12	36.25	2.7	1.68
5	2.8	1.71	29.25	1.8	1.37

By Linear Regression of Y on X

Slope , mw = 0.0446 **Intercept, bw = 0.0705**

Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.77**

Remarks:

Conducted by: SK Wong Signature: Date: 21 January 2019

Checked by: Henry Leung Signature: Date: 21 January 2019

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

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.
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Village of Cleves, OH 45002

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TOLL FREE: (877)263-7610
FAX: (513)467-9009

TISCH Environmental

RECALIBRATION DUE DATE:
January 8, 2020

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	January 8, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 748.0	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3607**			

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	1.0190	6.3	4.00
3	5	6	1	0.9110	7.8	5.00
4	7	8	1	0.8650	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)
0.9934	0.6927	1.4125	0.9957	0.6944	0.8866
0.9892	0.9708	1.9976	0.9916	0.9731	1.2538
0.9872	1.0837	2.2334	0.9896	1.0862	1.4018
0.9860	1.1399	2.3424	0.9884	1.1426	1.4703
0.9808	1.3718	2.8251	0.9832	1.3750	1.7732
QSTD	**m=**	**2.07879**	**QA**	**m=**	**1.30170**
	b=	**-0.02422**		**b=**	**-0.01520**
	r=	**0.99997**		**r=**	**0.99997**

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

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Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	29681
Date of Issue:	2018-08-25
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-25
Next Due Date:	2019-02-24
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Monitor II
Manufacturer	: Davis Instruments
Model No.	: 7440
Serial No.	: MC01010A44

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	29681
Date of Issue:	2018-08-25
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-25
Next Due Date:	2019-02-24

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.3	90	0.3
135	135	0
180.1	180	0.1
225.2	225	0.2
270.2	270	0.2
315	315	0
360	360	0

**********END OF REPORT**********

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30760
Date of Issue:	2019-02-23
Date Received:	2019-02-22
Date Tested:	2019-02-22
Date Completed:	2019-02-23
Next Due Date:	2019-08-22

ATTN: **Mr. W.K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Weather Monitor II
Manufacturer	: Davis Instruments
Model No.	: 7440
Serial No.	: MC01010A44

Test conditions:

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	30760
Date of Issue:	2019-02-23
Date Received:	2019-02-22
Date Tested:	2019-02-22
Date Completed:	2019-02-23
Next Due Date:	2019-08-22
Page:	2 of 2

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	1.95	0.05

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90	90	0
135.5	135	0.5
180	180	0
225	225	0
270.5	270	0.5
315	315	0
360	360	0

**********END OF REPORT**********

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/181221/1
Date of Issue:	2018-12-21
Date Received:	2018-12-19
Date Tested:	2018-12-19
Date Completed:	2018-12-21
Next Due Date:	2019-12-20

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 959
Serial No.	: 11275
Microphone No.	: 86553
Equipment No.	: N-08-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 55%

Methodology:

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

Results:

Sound Pressure Level (1KHz)	Measured SPL	Tolerance
At 94.0 SPL	94.0	94.0 ± 0.1dB
At 114.0 SPL	114.0	114.0 ± 0.1dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30289
Date of Issue:	2018-11-04
Date Received:	2018-11-03
Date Tested:	2018-11-03
Date Completed:	2018-11-04
Next Due Date:	2019-11-03
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

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

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70 %

Methodology:

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

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	29501
Date of Issue:	2018-08-27
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-27
Next Due Date:	2019-08-26

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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Test Report No.:	30294
Date of Issue:	2018-11-24
Date Received:	2018-11-23
Date Tested:	2018-11-23
Date Completed:	2018-11-24
Next Due Date:	2019-11-23

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23851
Equipment No.	: N-08-12

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	29817A
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10965
Equipment No.	: N-09-02

Test conditions:

Room Temperatre	: 17-22 degree Celsius
Relative Humidity	: 40-70%

Methodology:

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

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/181213/1
Date of Issue:	2018-12-13
Date Received:	2018-12-12
Date Tested:	2018-12-12
Date Completed:	2018-12-13
Next Due Date:	2019-12-12
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 979
Serial No.	: 27189
Microphone No.	: 165399
Equipment No.	: SN-01-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 58 %

Methodology:

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

Results:

Sound Pressure Level (1KHz)	Measured SPL	Tolerance
At 94.0 SPL	94.0	94.0 ± 0.1dB
At 114.0 SPL	114.0	114.0 ± 0.1dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse
PATRICK TSE
Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/171213/2
Date of Issue:	2018-12-13
Date Received:	2018-12-12
Date Tested:	2018-12-12
Date Completed:	2018-12-13
Next Due Date:	2019-12-12
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 979
Serial No.	: 27190
Microphone No.	: 167465
Equipment No.	: SN-01-02

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 58 %

Methodology:

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

Results:

Sound Pressure Level (1KHz)	Measured SPL	Tolerance
At 94.0 SPL	94.0	94.0 ± 0.1dB
At 114.0 SPL	114.0	114.0 ± 0.1dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick Tse
PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Miss Mei Ling Tang**

Test Report No.:	30431C
Date of Issue:	2018-12-14
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-14
Page:	1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-30	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599501-02	16J100891
- EXO Optical DO Sensor, Ti	599100-01	16J100954
- EXO conductivity/Temperature Sensor, Ti	599870	16H100189
- EXO Turbuduty Sensor, Ti	599101-01	16J101107
- EXO pH Sensor Assembly, Guarded, Ti	599701	17A105261

Test conditions:

Room Temperatre : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

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PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
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TEST REPORT

Test Report No.:	30431C
Date of Issue:	2018-12-14
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-14
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	13000	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	20.001	-0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.02	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.84	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.19	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.08	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	7.96	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	10.02	9.0-11.0	Pass
50 NTU	50.04	45.0-55.0	Pass
100 NTU	99.6	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (m)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

WELLAB LIMITED
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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Miss Mei Ling Tang**

Test Report No.:	30431E
Date of Issue:	2018-12-14
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-14
Page:	1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-46	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599501-02	16J102318
- EXO Optical DO Sensor, Ti	599100-01	16J100971
- EXO conductivity/Temperature Sensor, Ti	599870	16H100205
- EXO Turbuduty Sensor, Ti	599101-01	16J101124
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J101292

Test conditions:

Room Temperatre : 17-22 degree Celsius
Relative Humidity : 40-70%

Test Specifications:

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

Methodology:

According to manufacturer instruction manual, APHA 20e 4500-O C

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
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Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	30431E
Date of Issue:	2018-12-14
Date Received:	2018-12-14
Date Tested:	2018-12-14
Date Completed:	2018-12-14
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (μS/cm)	Accetance Criteria	Comment
KCl stock solution (12890 μS/cm)	13000	12246-13534	Pass

Temperature performance checking

Reference thermometer-E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	20.000	0.000	N/A

pH performance checking

	Instrument Readings (pH unit)	Accetance Criteria	Comment
pH QC buffer 4.00	4.02	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.86	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.14	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Accetance Criteria	Comment
Zero DO soultion	0.07	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Accetance Criteria	Comment
8.00	8.09	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Accetance Criteria	Comment
10 NTU	9.98	9.0-11.0	Pass
50 NTU	50.01	45.0-55.0	Pass
100 NTU	99.9	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (m)	Accetance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

**********END OF REPORT**********

- when it has to be right

Leica Geosystems

Leica Geosystems
Calibration Certificate Blue

Calibration Certificate Blue without measurement values issued by Authorised Service Centre

Product	LS15 0.3mm Digital Level with Auto Focus	**Certificate No.**	701141-14092018
Article No.	804549	**Inspection Date**	14.09.2018
Serial No.	701141	**Order No.**	501195285
Equipment No.	7434370	**PO No.**	PO
Issued by	Authorised Service Centre Leica Geosystems Ltd. Kowloon, Hong Kong Hongkong	**Ordered by**	LEIGHTON - CHINA STATE J.V. HONG KONG Hongkong
		Customer	LEIGHTON - CHINA STATE J.V. HONG KONG Hongkong

Compliance

The Calibration Certificate Blue without measurement values issued by Authorised Service Centre corresponds to the Producer Inspection Certificate O in accordance with DIN 55 350 Part 18-4.2.1.

Certificate

We hereby certify that the product described has been tested and complies with the specifications of the product. The test equipment used is traceable to national standards or to recognized procedures. This is established by our Quality Management System, audited and certified to ISO 9001.

Leica Geosystems Ltd.

14.09.2018

Stella Kam
Operations Manager

Jacky Ng
Service Manager

Leica Geosystems AG
Heinrich-Wild-Strasse
9435 Heerbrugg
Switzerland
Telephone +41 71 / 727 31 31
www.leica-geosystems.com

東業德勤測試顧問有限公司
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W: www.ets-testconsult.com

HKAS HOKLAS 022 TEST CAL

Calibration Certificate

Certificate No. : **CSA85446**

Page : 1 of 2

Information Provided by Customer

Customer : Leighton - China State Joint Venture

Address : Room 506-518, 5/F, Shui On Centre, 6-8 Harbour Road, Wanchai, Hong Kong

Information of Unit-under-test (UUT)

Description	: Digital Caliper		
Manufacturer	: Mitutoyo	Equipment I.D. No.	: -
Type	: CD-6"ASX	Serial No.	: A17047921
Range	: 0 to 150 mm	Graduation	: 0.01 mm

Laboratory Information

Lab. Ref. No.	: Q/CAL/18/6093/E	Procedure	: CQS/002/L
Date of Calibration	: 2-Nov-2018		

Test Condition

Ambient Temperature	: (20±3) °C	Relative Humidity	: (50±20) %
Stabilizing Time	: 2 hours		

Reference equipment

- Gauge Block Ref. No. : ET/2001/01 to 05

Calibration specification

- To perform the calibration of flatness, squareness, parallelism and scale accuracy.

Calibration result

- The results are detailed on the subsequent pages.

Remarks

- The calibration results apply to the particular unit-under-test only.

Calibrated By : **K S CHAN** (Technician)

Approved Signatory : **CHAN Chi Wai**

HKAS has accredited this laboratory (Reg. No. HOKLAS 022) under HOKLAS for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards.

東業德勤測試顧問有限公司
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W: www.ets-testconsult.com

Calibration Certificate

Certificate No. : **CSA85446**

Calibration Results (Unit in: mm)

1. Maximum Flatness (Fixed jaw face and Sliding jaw face)
   Error : 0.02

2. Squareness of the Face of Fixed Jaw Check (external)
   Error : 0.02

3. Parallelism of the Face (external)
   Error : 0.01

4. Zero Check : 0.00

5. Scale Accuracy

	Applied Value	UUT Reading	Correction	Expanded Uncertainty	Coverage Factor
External Measurement Jaw	5.12	5.12	0.00	0.02	2.0
	10.24	10.23	0.01		
	15.36	15.34	0.02		
	21.50	21.49	0.01		
	25.00	25.00	0.00		
	50.00	50.00	0.00		
	75.00	75.00	0.00		
	100.00	100.00	0.00		
	125.00	125.00	0.00		
	150.00	149.99	0.01		
Internal Measurement Jaw	25.00	25.00	0.00		
	150.00	150.00	0.00		

Note :
- Correction = Applied Value - UUT Reading
- Uncertainty quoted are based on 95 % confidence level.
- UUT reading are mean of three measurements.
- Result of scale accuracy measured on UUT tip.

*** End of certificate ***

CERTIFICATE OF CALIBRATION

Calibration Date: 13 September, 2018

Model: iCivil-1011 Tiltmeter
Serial No. : HK110118
Method Used: By direct measurement

Laboratory Conditions:
Ambient Temperature: (27±2)℃
Relative Humidity: (50 ±20)%

Test Reference	Model	Equipment ID
Dual-Axis Digital Angle Protractor	TLL-90S	EPC001

Calibration Result

X-Axis Measurement

Applied Angle (degree)	UUT Reading (degree)	Error (degree)
10.028	10.018	-0.01
5.006	4.992	-0.014
1.027	1.018	-0.009
0.001	0.004	0.003
-1.020	-1.011	0.009
-5.069	-5.066	0.003
-9.995	-10.001	-0.006

Remarks:

1. The above calibration data applies only to the instrument described above.

Checked By: Leung Man Hin

Date: 13 September, 2018

*** End of Report***

CERTIFICATE OF CALIBRATION

Calibration Date: 10 September, 2018

Model: iCivil-1011 Tiltmeter
Serial No. : HK110120
Method Used: By direct measurement

Laboratory Conditions:
Ambient Temperature: (27±2)℃
Relative Humidity: (50 ±20)%

Test Reference	Model	Equipment ID
Dual-Axis Digital Angle Protractor	TLL-90S	EPC001

Calibration Result

X-Axis Measurement

Applied Angle (degree)	UUT Reading (degree)	Error (degree)
10.024	10.013	-0.011
5.009	5.003	-0.006
1.014	1.016	0.002
0.003	0.007	0.004
-1.018	-1.011	0.007
-5.004	-4.974	0.03
-10.008	-9.958	0.05

Remarks:

1. The above calibration data applies only to the instrument described above.

Checked By: Leung Man Hin

Date: 10 September, 2018

*** End of Report***

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15892)
Part Number:	714A9701
Serial No.:	BG14849
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG14849)
Model No.:	716A0403
Serial No.:	BE15892
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17906)
Part Number:	714A9701
Serial No.:	BG14853
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG14853)
Model No.:	716A0403
Serial No.:	BE17906
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: 

(Wong, Keefe Solomon)

Date: 9 April 2018

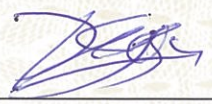
CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG14852)
Model No.:	716A0403
Serial No.:	BE15890
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15890)
Part Number:	714A9701
Serial No.:	BG14852
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE16223)
Part Number:	714A9701
Serial No.:	BG16955
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16955)
Model No.:	716A0403
Serial No.:	BE16223
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17504)
Part Number:	714A9701
Serial No.:	BG20672
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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: 

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG20672)
Model No.:	716A0403
Serial No.:	BE17504
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG15353)
Model No.:	716A0403
Serial No.:	BE15891
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15891)
Part Number:	714A9701
Serial No.:	BG15353
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16513)
Model No.:	716A0403
Serial No.:	BE16355
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE16355)
Part Number:	714A9701
Serial No.:	BG16513
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG15180)
Model No.:	716A0403
Serial No.:	BE15894
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE15894)
Part Number:	714A9701
Serial No.:	BG15180
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17902)
Part Number:	714A9701
Serial No.:	BG20674
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG20674)
Model No.:	716A0403
Serial No.:	BE17902
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17905)
Part Number:	714A9701
Serial No.:	BG16514
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16514)
Model No.:	716A0403
Serial No.:	BE17905
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG20673)
Model No.:	716A0403
Serial No.:	BE13849
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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: 

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE13849)
Part Number:	714A9701
Serial No.:	BG20673
Calibration Date:	10 April 2018
Next Calibration Date:	10 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 10 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE13853)
Part Number:	714A9701
Serial No.:	BG16512
Calibration Date:	11 April 2018
Next Calibration Date:	11 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 11 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16512)
Model No.:	716A0403
Serial No.:	BE13853
Calibration Date:	11 April 2018
Next Calibration Date:	11 April 2019
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.

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Authorized by: _____

(Wong, Keefe Solomon)

Date: 11 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17506)
Part Number:	714A9701
Serial No.:	BG16959
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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.

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Authorized by: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16959)
Model No.:	716A0403
Serial No.:	BE17506
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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.

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Authorized by: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17904)
Part Number:	714A9701
Serial No.:	BG14847
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: 

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG14847)
Model No.:	716A0403
Serial No.:	BE17904
Calibration Date:	9 April 2018
Next Calibration Date:	9 April 2019
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: _____

(Wong, Keefe Solomon)

Date: 9 April 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG16957)
Model No.:	716A0403
Serial No.:	BE17505
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE17505)
Part Number:	714A9701
Serial No.:	BG16957
Calibration Date:	22 March 2018
Next Calibration Date:	22 March 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 22 March 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG17240)
Model No.:	716A0403
Serial No.:	BE20015
Calibration Date:	10 May 2018
Next Calibration Date:	10 May 2019
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: _____

(Leung Man Hin, Eric)

Date: 10 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE20015)
Part Number:	714A9701
Serial No.:	BG17240
Calibration Date:	10 May 2018
Next Calibration Date:	10 May 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 10 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Minimate Plus Unit (Calibration with Geophone BG19189)
Model No.:	716A0403
Serial No.:	BE21658
Calibration Date:	10 May 2018
Next Calibration Date:	10 May 2019
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: _____

(Leung Man Hin, Eric)

Date: 10 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit BE21658)
Part Number:	714A9701
Serial No.:	BG19189
Calibration Date:	10 May 2018
Next Calibration Date:	10 May 2019
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.

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Authorized by: _____

(Leung Man Hin, Eric)

Date: 10 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12902)
Part Number:	721A2901
Serial No.:	UM12902
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: _____

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12902)
Model No.:	721A2501
Serial No.:	UM12902
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12904)
Model No.:	721A2501
Serial No.:	UM12904
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12904)
Part Number:	721A2901
Serial No.:	UM12904
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12905)
Part Number:	721A2901
Serial No.:	UM12905
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12905)
Model No.:	721A2501
Serial No.:	UM12905
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: _____

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12906)
Part Number:	721A2901
Serial No.:	UM12906
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12906)
Model No.:	721A2501
Serial No.:	UM12906
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12907)
Model No.:	721A2501
Serial No.:	UM12907
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12907)
Part Number:	721A2901
Serial No.:	UM12907
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12928)
Part Number:	721A2901
Serial No.:	UM12928
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: _____

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12928)
Model No.:	721A2501
Serial No.:	UM12928
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM12929)
Model No.:	721A2501
Serial No.:	UM12929
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM12929)
Part Number:	721A2901
Serial No.:	UM12929
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM13698)
Model No.:	721A2501
Serial No.:	UM13698
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM13698)
Part Number:	721A2901
Serial No.:	UM13698
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	TRIAXIAL GEOPHONE (Calibration with main unit UM13701)
Part Number:	721A2901
Serial No.:	UM13701
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: 

(Wong, Keefe Solomon)

Date: 14 May 2018

CALIBRATION CERTIFICATE

Calibration Item:	Micromate Unit (Calibration with Geophone UM13701)
Model No.:	721A2501
Serial No.:	UM13701
Calibration Date:	14 May 2018
Next Calibration Date:	14 May 2019
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: _____

(Wong, Keefe Solomon)

Date: 14 May 2018

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13695
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13696
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13699
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13702
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13703
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13704
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: _____
Xiaoming Yang

Instantel

Calibration Certificate

Part Number: 721A2501
Description: Micromate ISEE Base Unit

Serial Number: UM13708
Calibration Date: MAY 0 4 2018
Calibration Equipment: 714J7403

Instantel certifies that the above product was calibrated in accordance with the applicable Instantel procedures. These procedures are part of a quality system that is designed to assure that the product listed above meets or exceeds Instantel specifications.

Instantel further certifies that the measurement instruments used during the calibration of this product are traceable to the National Institute of Standards and Technology; or National Research Council of Canada. Evidence of traceability is on file at Instantel and is available upon request.

The environment in which this product was calibrated is maintained within the operating specifications of the instrument.

Please note that the sensor check function is intended to check that the sensors are connected to the unit, installed in the proper orientation and sufficiently level to operate properly. This function should not be confused with a formal calibration, which requires the sensors be checked against a reference that is traceable to a known standard. Instantel recommends that products be returned to Instantel or an authorized service and calibration facility for annual calibration.

Calibrated By: Xiaoming Yang

Instantel

MSA
The Safety Company
MSA Corporate Center • 1000 Cranberry Woods Drive • Cranberry Township, PA 16066
www.msasafety.com
Telephone: (800) MSA-2222

ALTAIR5X
CERTIFICATE OF CALIBRATION

Serial Number: 137333
Part Number: A-ALT5X-A-N-K-D-1-0-0-T-0-0-0

Factory Calibration Date: 06/18/18

Set Points

	METHANE 0-100.00 %LEL	O2 0-30.00 %VOL	CO 0-2000.00 PPM	H2S 0-200.00 PPM	NH3 0-100.00 PPM	
↓ (Low)	10.00 %LEL	19.50 %VOL	25.00 PPM	10.00 PPM	25.00 PPM	
↑ (High)	20.00 %LEL	23.00 %VOL	100.00 PPM	15.00 PPM	50.00 PPM	
STEL			100.00 PPM	15.00 PPM	35.00 PPM	
TWA			25.00 PPM	10.00 PPM	25.00 PPM	
Calibrated Value	Methane 1.452 %VOL	O2 15.07 %VOL	CO 60.41 PPM	H2S 19.29 PPM	NH3 25 PPM	
Cylinder Lot #	122-401120204-1	122-401120204-1	122-401120204-1	122-401120204-1	216662	

Calibration Certification
All applicable inspections, testing, and calibrations were performed using NIST traceable equipment, where available, in accordance with MSA's ISO 9001 Certified Quality System. Each material, component, and/or instrument must be installed, operated and maintained in strict accordance with its labels, cautions, warnings, instructions, and within the limitations stated in the supplied instruction manual. Routine calibration checks, equipment inspections, and applicable preventative maintenance measures must be performed to verify that the materials, components, and/or instruments are operating properly. Failure to perform these tasks on a routine basis, or suggested intervals, with specified equipment or methods, may result in inaccurate readings.

Conformance Statement
MSA certifies that the materials, components, and/or instruments delivered in this shipment conform to all applicable specifications. The items delivered have been processed through the appropriate approved document controlled procedures for Receiving, Manufacturing and Inspection. The materials, components, and/or instruments were inspected, tested, and calibrated, as applicable, per the associated drawings, standards requirements, and/or specifications, and were deemed acceptable by appropriate authorized personnel.

Process Certified By:

Jim Hoffman

JIM HOFFMAN
QUALITY ENGINEER

Calibrated By: S.Key

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 February 2019	18.8	70	0.0
2 February 2019	18.6	80	Trace
3 February 2019	21.8	83	Trace
4 February 2019	21.7	83	0.0
5 February 2019	20.1	84	0.0
6 February 2019	22.1	85	0.0
7 February 2019	23.0	83	Trace
8 February 2019	21.7	87	Trace
9 February 2019	19.3	90	0.8
10 February 2019	18.0	90	0.8
11 February 2019	18.4	85	Trace
12 February 2019	19.0	82	0.2
13 February 2019	21.1	80	0.0
14 February 2019	20.4	83	Trace
15 February 2019	20.4	84	0.2
16 February 2019	22.4	81	0.0
17 February 2019	18.8	86	0.1
18 February 2019	17.9	90	18.1
19 February 2019	20.3	91	31.0
20 February 2019	22.6	92	0.2

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
21 February 2019	21.4	93	Trace
22 February 2019	20.4	82	1.6
23 February 2019	18.1	87	12.3
24 February 2019	16.9	83	3.4
25 February 2019	18.0	85	Trace
26 February 2019	18.7	88	Trace
27 February 2019	20.7	85	Trace
28 February 2019	22.8	85	0.0

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Feb-19	00:00	3.4	ENE
1-Feb-19	01:00	3.1	ENE
1-Feb-19	02:00	1.2	NNE
1-Feb-19	03:00	1.5	NW
1-Feb-19	04:00	2	NNW
1-Feb-19	05:00	1.4	SE
1-Feb-19	06:00	2.6	ENE
1-Feb-19	07:00	2.5	E
1-Feb-19	08:00	2.4	ENE
1-Feb-19	09:00	2.3	E
1-Feb-19	10:00	2.9	NE
1-Feb-19	11:00	2.4	ENE
1-Feb-19	12:00	2.2	NE
1-Feb-19	13:00	2	NNE
1-Feb-19	14:00	3	NE
1-Feb-19	15:00	2.6	ENE
1-Feb-19	16:00	2.4	ENE
1-Feb-19	17:00	2.3	N
1-Feb-19	18:00	2.9	ENE
1-Feb-19	19:00	2.7	NNE
1-Feb-19	20:00	3.2	NNE
1-Feb-19	21:00	2.7	NE
1-Feb-19	22:00	2.6	ENE
1-Feb-19	23:00	2.5	ENE
2-Feb-19	00:00	2.6	E
2-Feb-19	01:00	2.4	E
2-Feb-19	02:00	2.6	ENE
2-Feb-19	03:00	2.4	NE
2-Feb-19	04:00	2.5	NE
2-Feb-19	05:00	2.5	ENE
2-Feb-19	06:00	2.3	ENE
2-Feb-19	07:00	2.2	NE
2-Feb-19	08:00	2.1	N
2-Feb-19	09:00	2.4	N
2-Feb-19	10:00	2.6	ENE
2-Feb-19	11:00	2.6	N
2-Feb-19	12:00	2.5	NNE
2-Feb-19	13:00	2.7	ENE
2-Feb-19	14:00	2.9	ENE
2-Feb-19	15:00	2.9	NE
2-Feb-19	16:00	2.7	NE
2-Feb-19	17:00	2.7	N
2-Feb-19	18:00	2.1	NNW
2-Feb-19	19:00	2	NW
2-Feb-19	20:00	1.9	NNW
2-Feb-19	21:00	1.7	NW
2-Feb-19	22:00	1.1	N
2-Feb-19	23:00	1.8	NNW
3-Feb-19	00:00	1.5	NW
3-Feb-19	01:00	0.9	NE
3-Feb-19	02:00	0.1	ENE
3-Feb-19	03:00	0.1	NNE
3-Feb-19	04:00	0.1	NE
3-Feb-19	05:00	0	ENE
3-Feb-19	06:00	0.1	E
3-Feb-19	07:00	0.1	SSW
3-Feb-19	08:00	0	N
3-Feb-19	09:00	0.1	ENE
3-Feb-19	10:00	1.8	NE
3-Feb-19	11:00	1.7	ENE
3-Feb-19	12:00	1.5	S
3-Feb-19	13:00	2.3	S
3-Feb-19	14:00	1.3	SSE
3-Feb-19	15:00	1.5	S
3-Feb-19	16:00	0.9	S
3-Feb-19	17:00	0.1	SSE
3-Feb-19	18:00	0	SSW
3-Feb-19	19:00	0.1	SSW
3-Feb-19	20:00	0.1	SSE
3-Feb-19	21:00	0.1	ENE
3-Feb-19	22:00	0	WNW
3-Feb-19	23:00	0.1	NW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
4-Feb-19	00:00	0.1	NNW
4-Feb-19	01:00	0.1	NW
4-Feb-19	02:00	0.1	NNW
4-Feb-19	03:00	0.1	NW
4-Feb-19	04:00	0	W
4-Feb-19	05:00	0.1	WNW
4-Feb-19	06:00	0.1	NNE
4-Feb-19	07:00	0.1	SSW
4-Feb-19	08:00	0.1	ENE
4-Feb-19	09:00	0.1	E
4-Feb-19	10:00	0.4	E
4-Feb-19	11:00	2.2	ENE
4-Feb-19	12:00	2	E
4-Feb-19	13:00	2.3	S
4-Feb-19	14:00	1.5	E
4-Feb-19	15:00	2.1	ENE
4-Feb-19	16:00	2.5	NE
4-Feb-19	17:00	2.4	NNE
4-Feb-19	18:00	2.1	ENE
4-Feb-19	19:00	2.2	NE
4-Feb-19	20:00	2	ENE
4-Feb-19	21:00	2	NNE
4-Feb-19	22:00	2.3	N
4-Feb-19	23:00	2.5	NNE
5-Feb-19	00:00	2.4	NE
5-Feb-19	01:00	2.7	NE
5-Feb-19	02:00	3	NNE
5-Feb-19	03:00	2.7	NNE
5-Feb-19	04:00	3.2	NNE
5-Feb-19	05:00	3.4	NE
5-Feb-19	06:00	1.5	ENE
5-Feb-19	07:00	1.8	S
5-Feb-19	08:00	1.4	ENE
5-Feb-19	09:00	1.3	N
5-Feb-19	10:00	1.9	NNE
5-Feb-19	11:00	1.7	NE
5-Feb-19	12:00	1.8	E
5-Feb-19	13:00	2.1	ENE
5-Feb-19	14:00	3	NNE
5-Feb-19	15:00	2	ENE
5-Feb-19	16:00	2.3	NE
5-Feb-19	17:00	0.9	NE
5-Feb-19	18:00	1.4	NNE
5-Feb-19	19:00	0.8	NE
5-Feb-19	20:00	1.2	NNE
5-Feb-19	21:00	0.1	NNE
5-Feb-19	22:00	0	ENE
5-Feb-19	23:00	0.1	NE
6-Feb-19	00:00	0.1	NE
6-Feb-19	01:00	0.1	NNE
6-Feb-19	02:00	0	NE
6-Feb-19	03:00	0.1	N
6-Feb-19	04:00	0.1	E
6-Feb-19	05:00	0.8	N
6-Feb-19	06:00	0.7	NNW
6-Feb-19	07:00	0.1	NW
6-Feb-19	08:00	0.1	N
6-Feb-19	09:00	0.9	NE
6-Feb-19	10:00	1.5	ENE
6-Feb-19	11:00	1.1	NNE
6-Feb-19	12:00	2.2	ENE
6-Feb-19	13:00	1.8	ENE
6-Feb-19	14:00	1.2	S
6-Feb-19	15:00	1.2	S
6-Feb-19	16:00	1.8	SSW
6-Feb-19	17:00	2	S
6-Feb-19	18:00	1.1	SW
6-Feb-19	19:00	0.7	S
6-Feb-19	20:00	1	S
6-Feb-19	21:00	0.4	SE
6-Feb-19	22:00	0.3	SW
6-Feb-19	23:00	0.8	SSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
7-Feb-19	00:00	0.2	SW
7-Feb-19	01:00	0.1	SW
7-Feb-19	02:00	0.2	ENE
7-Feb-19	03:00	0.2	SW
7-Feb-19	04:00	0.1	NW
7-Feb-19	05:00	0.1	S
7-Feb-19	06:00	0	W
7-Feb-19	07:00	0.1	NNW
7-Feb-19	08:00	0.1	WNW
7-Feb-19	09:00	0.2	ENE
7-Feb-19	10:00	1.6	E
7-Feb-19	11:00	1.3	SW
7-Feb-19	12:00	1.5	S
7-Feb-19	13:00	1.7	S
7-Feb-19	14:00	2.4	SSW
7-Feb-19	15:00	1.9	S
7-Feb-19	16:00	1.5	SSW
7-Feb-19	17:00	1.7	SSW
7-Feb-19	18:00	1	SW
7-Feb-19	19:00	0.3	SSW
7-Feb-19	20:00	1.4	S
7-Feb-19	21:00	0.1	SSW
7-Feb-19	22:00	0	SW
7-Feb-19	23:00	0.1	SW
8-Feb-19	00:00	0.1	W
8-Feb-19	01:00	0	SE
8-Feb-19	02:00	0.1	NNW
8-Feb-19	03:00	0.1	NW
8-Feb-19	04:00	0.1	NNW
8-Feb-19	05:00	0.1	N
8-Feb-19	06:00	0.1	NW
8-Feb-19	07:00	0	NNW
8-Feb-19	08:00	0.1	N
8-Feb-19	09:00	0.1	ENE
8-Feb-19	10:00	0.2	NE
8-Feb-19	11:00	0.5	SSW
8-Feb-19	12:00	2.1	E
8-Feb-19	13:00	3.8	NE
8-Feb-19	14:00	2.9	N
8-Feb-19	15:00	2.6	NE
8-Feb-19	16:00	2.7	ENE
8-Feb-19	17:00	3.7	NE
8-Feb-19	18:00	3.6	N
8-Feb-19	19:00	3.3	NE
8-Feb-19	20:00	3.1	NE
8-Feb-19	21:00	2.4	ENE
8-Feb-19	22:00	2.3	E
8-Feb-19	23:00	2.4	NE
9-Feb-19	00:00	2.5	NNE
9-Feb-19	01:00	2	ENE
9-Feb-19	02:00	2.7	NNE
9-Feb-19	03:00	2.9	NE
9-Feb-19	04:00	2.5	ENE
9-Feb-19	05:00	2	NNE
9-Feb-19	06:00	1.8	NE
9-Feb-19	07:00	2.1	N
9-Feb-19	08:00	2.4	NE
9-Feb-19	09:00	2.4	N
9-Feb-19	10:00	2.4	NNE
9-Feb-19	11:00	2.3	N
9-Feb-19	12:00	2.4	NE
9-Feb-19	13:00	2.2	NNE
9-Feb-19	14:00	2.4	NE
9-Feb-19	15:00	2.2	N
9-Feb-19	16:00	1.6	NNE
9-Feb-19	17:00	2.5	NE
9-Feb-19	18:00	2.6	N
9-Feb-19	19:00	3	NE
9-Feb-19	20:00	2.6	NE
9-Feb-19	21:00	2.9	NNE
9-Feb-19	22:00	3.3	NE
9-Feb-19	23:00	2.5	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
10-Feb-19	00:00	2.6	NE
10-Feb-19	01:00	2.4	NE
10-Feb-19	02:00	3.2	N
10-Feb-19	03:00	3.7	NNE
10-Feb-19	04:00	2.7	NE
10-Feb-19	05:00	2.4	NE
10-Feb-19	06:00	3.1	ENE
10-Feb-19	07:00	3.2	NE
10-Feb-19	08:00	3.5	ENE
10-Feb-19	09:00	3.3	NE
10-Feb-19	10:00	3.5	NE
10-Feb-19	11:00	3.4	ENE
10-Feb-19	12:00	3.6	NE
10-Feb-19	13:00	3.8	NE
10-Feb-19	14:00	3.4	NE
10-Feb-19	15:00	2.5	NNE
10-Feb-19	16:00	2.5	NE
10-Feb-19	17:00	2	NE
10-Feb-19	18:00	1.9	NNE
10-Feb-19	19:00	2.1	NE
10-Feb-19	20:00	2.5	N
10-Feb-19	21:00	1.8	N
10-Feb-19	22:00	1.6	ENE
10-Feb-19	23:00	2.1	NE
11-Feb-19	00:00	2.4	NNE
11-Feb-19	01:00	1.2	NW
11-Feb-19	02:00	1.5	N
11-Feb-19	03:00	1.7	NNW
11-Feb-19	04:00	2.5	NW
11-Feb-19	05:00	1.2	E
11-Feb-19	06:00	2.2	NNE
11-Feb-19	07:00	2.1	NE
11-Feb-19	08:00	1.9	E
11-Feb-19	09:00	1.2	NE
11-Feb-19	10:00	1.9	ENE
11-Feb-19	11:00	1.8	E
11-Feb-19	12:00	2.2	N
11-Feb-19	13:00	1.9	NE
11-Feb-19	14:00	1.8	ENE
11-Feb-19	15:00	2.2	NE
11-Feb-19	16:00	2.1	NE
11-Feb-19	17:00	2.6	NE
11-Feb-19	18:00	2.4	NNW
11-Feb-19	19:00	2.7	NE
11-Feb-19	20:00	2.4	NE
11-Feb-19	21:00	1.9	NNE
11-Feb-19	22:00	1.3	NNE
11-Feb-19	23:00	2.3	NE
12-Feb-19	00:00	1.7	N
12-Feb-19	01:00	0.5	WNW
12-Feb-19	02:00	1.5	NNE
12-Feb-19	03:00	1.8	N
12-Feb-19	04:00	3	NNE
12-Feb-19	05:00	2.5	N
12-Feb-19	06:00	2.3	W
12-Feb-19	07:00	1.2	NE
12-Feb-19	08:00	1.3	ENE
12-Feb-19	09:00	1.7	NE
12-Feb-19	10:00	2.5	NNE
12-Feb-19	11:00	2.9	E
12-Feb-19	12:00	2.5	NE
12-Feb-19	13:00	3.2	E
12-Feb-19	14:00	3.2	NE
12-Feb-19	15:00	2.2	NNE
12-Feb-19	16:00	3	NNE
12-Feb-19	17:00	1.8	NE
12-Feb-19	18:00	1	NNE
12-Feb-19	19:00	0.6	NW
12-Feb-19	20:00	0.2	WNW
12-Feb-19	21:00	0.1	NW
12-Feb-19	22:00	0	N
12-Feb-19	23:00	0.1	WNW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
13-Feb-19	00:00	0.3	NNW
13-Feb-19	01:00	0.5	ENE
13-Feb-19	02:00	0.1	N
13-Feb-19	03:00	0	ESE
13-Feb-19	04:00	0.1	N
13-Feb-19	05:00	0.1	NE
13-Feb-19	06:00	0.1	N
13-Feb-19	07:00	0.1	E
13-Feb-19	08:00	0.4	NNE
13-Feb-19	09:00	0.7	NE
13-Feb-19	10:00	1.8	ENE
13-Feb-19	11:00	1.6	NNE
13-Feb-19	12:00	1.3	NE
13-Feb-19	13:00	0.9	E
13-Feb-19	14:00	1.5	NE
13-Feb-19	15:00	1.8	ENE
13-Feb-19	16:00	2.1	S
13-Feb-19	17:00	2.2	SSW
13-Feb-19	18:00	1.1	S
13-Feb-19	19:00	0.1	NE
13-Feb-19	20:00	1.5	NNE
13-Feb-19	21:00	0.1	SSE
13-Feb-19	22:00	0.1	NE
13-Feb-19	23:00	0.8	NNE
14-Feb-19	00:00	2.1	NE
14-Feb-19	01:00	2.3	NNE
14-Feb-19	02:00	3	NE
14-Feb-19	03:00	3.2	ENE
14-Feb-19	04:00	1.9	NE
14-Feb-19	05:00	2.3	NNE
14-Feb-19	06:00	1.8	NE
14-Feb-19	07:00	2	NNE
14-Feb-19	08:00	1.7	NNE
14-Feb-19	09:00	2	ENE
14-Feb-19	10:00	2	E
14-Feb-19	11:00	2.4	ENE
14-Feb-19	12:00	2.8	NE
14-Feb-19	13:00	3.5	NNE
14-Feb-19	14:00	3.8	N
14-Feb-19	15:00	3.6	NE
14-Feb-19	16:00	3.2	NNE
14-Feb-19	17:00	3.5	N
14-Feb-19	18:00	2.4	NE
14-Feb-19	19:00	1.9	N
14-Feb-19	20:00	1.2	NE
14-Feb-19	21:00	2	ENE
14-Feb-19	22:00	1.2	E
14-Feb-19	23:00	1.2	NNE
15-Feb-19	00:00	2.2	NNE
15-Feb-19	01:00	3.5	NNE
15-Feb-19	02:00	3	N
15-Feb-19	03:00	2.1	NNE
15-Feb-19	04:00	2.2	NNW
15-Feb-19	05:00	1.9	W
15-Feb-19	06:00	2.3	WNW
15-Feb-19	07:00	2.4	NNW
15-Feb-19	08:00	2.2	NW
15-Feb-19	09:00	2.4	N
15-Feb-19	10:00	1.9	NNW
15-Feb-19	11:00	1.8	NE
15-Feb-19	12:00	2	N
15-Feb-19	13:00	1.8	NW
02/15/19	14:00	0.9	ENE
02/15/19	15:00	0.9	ENE
02/15/19	16:00	0.4	ENE
02/15/19	17:00	0.4	ENE
02/15/19	18:00	0.4	ENE
02/15/19	19:00	0.4	NE
02/15/19	20:00	0	NE
02/15/19	21:00	0	NE
02/15/19	22:00	0	NE
02/15/19	23:00	0	NE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
02/16/19	0:00	0	ENE
02/16/19	1:00	0	ENE
02/16/19	2:00	0	ENE
02/16/19	3:00	0	ENE
02/16/19	4:00	0	ENE
02/16/19	5:00	0	ENE
02/16/19	6:00	0	ENE
02/16/19	7:00	0	ENE
02/16/19	8:00	0	ENE
02/16/19	9:00	0	ENE
02/16/19	10:00	0	NE
02/16/19	11:00	0.4	NE
02/16/19	12:00	0.4	E
02/16/19	13:00	0.4	ESE
02/16/19	14:00	0.9	ESE
02/16/19	15:00	0.9	SE
02/16/19	16:00	0.9	NE
02/16/19	17:00	0.4	ENE
02/16/19	18:00	0.9	W
02/16/19	19:00	0.9	WSW
02/16/19	20:00	0.4	ENE
02/16/19	21:00	0.4	E
02/16/19	22:00	0.9	E
02/16/19	23:00	0.9	E
02/17/19	0:00	0.9	E
02/17/19	1:00	0.4	ENE
02/17/19	2:00	0.9	ENE
02/17/19	3:00	0.9	E
02/17/19	4:00	0.4	E
02/17/19	5:00	0.4	E
02/17/19	6:00	0.4	E
02/17/19	7:00	1.3	ENE
02/17/19	8:00	0.9	ENE
02/17/19	9:00	0.9	E
02/17/19	10:00	0.9	E
02/17/19	11:00	0.4	E
02/17/19	12:00	1.3	E
02/17/19	13:00	1.3	ENE
02/17/19	14:00	1.8	WSW
02/17/19	15:00	2.2	W
02/17/19	16:00	1.3	SW
02/17/19	17:00	1.3	SW
02/17/19	18:00	1.8	W
02/17/19	19:00	1.3	ENE
02/17/19	20:00	1.3	ENE
02/17/19	21:00	1.3	ENE
02/17/19	22:00	1.8	ENE
02/17/19	23:00	1.8	E
02/18/19	0:00	1.3	E
02/18/19	1:00	1.3	NE
02/18/19	2:00	1.3	E
02/18/19	3:00	1.3	ENE
02/18/19	4:00	1.3	E
02/18/19	5:00	1.3	ENE
02/18/19	6:00	1.3	ENE
02/18/19	7:00	1.3	E
02/18/19	8:00	1.3	E
02/18/19	9:00	0.9	E
02/18/19	10:00	0.4	SE
02/18/19	11:00	0.9	ENE
02/18/19	12:00	1.3	ENE
02/18/19	13:00	1.8	WSW
02/18/19	14:00	0.9	ENE
02/18/19	15:00	1.3	NW
02/18/19	16:00	1.3	WNW
02/18/19	17:00	0.9	WNW
02/18/19	18:00	0	WNW
02/18/19	19:00	0	WNW
02/18/19	20:00	0	WNW
02/18/19	21:00	0	SE
02/18/19	22:00	0	S
02/18/19	23:00	0	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
02/19/19	0:00	0.4	NE
02/19/19	1:00	0.4	E
02/19/19	2:00	0.4	ENE
02/19/19	3:00	0	ENE
02/19/19	4:00	0.4	ENE
02/19/19	5:00	0.4	E
02/19/19	6:00	0.4	E
02/19/19	7:00	0.9	ENE
02/19/19	8:00	0.9	ENE
02/19/19	9:00	0.4	WSW
02/19/19	10:00	0.4	E
02/19/19	11:00	0.4	E
02/19/19	12:00	0	E
02/19/19	13:00	0.9	WNW
02/19/19	14:00	0.9	ENE
02/19/19	15:00	0.9	ENE
02/19/19	16:00	0.9	E
02/19/19	17:00	0.4	ESE
02/19/19	18:00	0.9	ENE
02/19/19	19:00	0.4	E
02/19/19	20:00	0.4	SSW
02/19/19	21:00	0.4	E
02/19/19	22:00	0.4	SE
02/19/19	23:00	0.4	E
02/20/19	0:00	0.4	ENE
02/20/19	1:00	0.4	E
02/20/19	2:00	0.4	SE
02/20/19	3:00	0.4	E
02/20/19	4:00	0.4	ESE
02/20/19	5:00	0	ENE
02/20/19	6:00	0	ENE
02/20/19	7:00	0	ENE
02/20/19	8:00	0	ENE
02/20/19	9:00	0	ENE
02/20/19	10:00	0	ENE
02/20/19	11:00	0	E

Date	Time	Wind Speed m/s	Direction
02/20/19	12:00	0.9	SE
02/20/19	13:00	0.9	SE
02/20/19	14:00	0.9	SW
02/20/19	15:00	0.9	WSW
02/20/19	16:00	0.4	E
02/20/19	17:00	0.9	SSE
02/20/19	18:00	0.9	SE
02/20/19	19:00	0.4	NE
02/20/19	20:00	0.4	ESE
02/20/19	21:00	0	ESE
02/20/19	22:00	0	ENE
02/20/19	23:00	0	ESE
02/21/19	0:00	0.4	E
02/21/19	1:00	0.4	ENE
02/21/19	2:00	0.9	ENE
02/21/19	3:00	0.4	ENE
02/21/19	4:00	0.4	E
02/21/19	5:00	0.4	E
02/21/19	6:00	0.9	E
02/21/19	7:00	0.4	E
02/21/19	8:00	0.4	ENE
02/21/19	9:00	0.4	ENE
02/21/19	10:00	0.4	ENE
02/21/19	11:00	0.9	E
02/21/19	12:00	0.9	E
02/21/19	13:00	0.9	E
02/21/19	14:00	0.9	E
02/21/19	15:00	0.9	ENE
02/21/19	16:00	0.9	E
02/21/19	17:00	0.9	E
02/21/19	18:00	0.9	SSW
02/21/19	19:00	0	E
02/21/19	20:00	0.4	E
02/21/19	21:00	0.4	S
02/21/19	22:00	0	SE
02/21/19	23:00	0	ESE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
02/22/19	0:00	0	ESE
02/22/19	1:00	0	SW
02/22/19	2:00	1.8	W
02/22/19	3:00	1.3	W
02/22/19	4:00	2.2	W
02/22/19	5:00	1.8	W
02/22/19	6:00	2.2	WNW
02/22/19	7:00	2.2	WSW
02/22/19	8:00	0.4	W
02/22/19	9:00	0.4	WSW
02/22/19	10:00	0.4	WSW
02/22/19	11:00	0.4	WSW
02/22/19	12:00	0	S
02/22/19	13:00	0	SSW
02/22/19	14:00	0.9	SW
02/22/19	15:00	0.4	SE
02/22/19	16:00	0.4	ESE
02/22/19	17:00	0.4	SSE
02/22/19	18:00	0	SE
02/22/19	19:00	0	SSE
02/22/19	20:00	0	SSE
02/22/19	21:00	0.4	ENE
02/22/19	22:00	0.4	ENE
02/22/19	23:00	0	NE
02/23/19	0:00	0.4	ENE
02/23/19	1:00	0	ENE
02/23/19	2:00	0	ENE
02/23/19	3:00	0.4	ENE
02/23/19	4:00	0.9	ENE
02/23/19	5:00	1.8	SW
02/23/19	6:00	1.3	ENE
02/23/19	7:00	1.3	ENE
02/23/19	8:00	1.8	E
02/23/19	9:00	1.3	E
02/23/19	10:00	0.9	E
02/23/19	11:00	0.4	SSE
02/23/19	12:00	1.8	E
02/23/19	13:00	1.8	ENE
02/23/19	14:00	1.3	WSW
02/23/19	15:00	0.9	NE
02/23/19	16:00	0.4	ENE
02/23/19	17:00	0.4	SE
02/23/19	18:00	0.4	ENE
02/23/19	19:00	0.9	NE
02/23/19	20:00	0.4	ENE
02/23/19	21:00	0	WNW
02/23/19	22:00	0	NNW
02/23/19	23:00	0	SW
02/24/19	0:00	0.4	NW
02/24/19	1:00	0	NW
02/24/19	2:00	0	S
02/24/19	3:00	0	S
02/24/19	4:00	0	E
02/24/19	5:00	0	SE
02/24/19	6:00	0	SE
02/24/19	7:00	0	SE
02/24/19	8:00	0	SE
02/24/19	9:00	0	SE
02/24/19	10:00	0	SE
02/24/19	11:00	0	ENE
02/24/19	12:00	0	ENE
02/24/19	13:00	0	ENE
02/24/19	14:00	0.4	ENE
02/24/19	15:00	0.4	ENE
02/24/19	16:00	0.4	ENE
02/24/19	17:00	0	ENE
02/24/19	18:00	0	ENE
02/24/19	19:00	0	ENE
02/24/19	20:00	0	ENE
02/24/19	21:00	0	ENE
02/24/19	22:00	0.4	ENE
02/24/19	23:00	0	ENE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
02/25/19	0:00	0	E
02/25/19	1:00	0	E
02/25/19	2:00	0	E
02/25/19	3:00	0.4	E
02/25/19	4:00	0	E
02/25/19	5:00	0	NNW
02/25/19	6:00	0.4	E
02/25/19	7:00	0.4	ENE
02/25/19	8:00	0.4	ENE
02/25/19	9:00	0	E
02/25/19	10:00	0	NNE
02/25/19	11:00	0.4	ENE
02/25/19	12:00	0.4	ENE
02/25/19	13:00	0.4	ENE
02/25/19	14:00	0.4	ENE
02/25/19	15:00	0.4	ENE
02/25/19	16:00	0.4	ENE
02/25/19	17:00	0	NE
02/25/19	18:00	0	NE
02/25/19	19:00	0.4	NE
02/25/19	20:00	0.4	ENE
02/25/19	21:00	0.4	ENE
02/25/19	22:00	0.4	E
02/25/19	23:00	0.4	ENE
02/26/19	0:00	0.4	NE
02/26/19	1:00	0.4	ENE
02/26/19	2:00	0	NE
02/26/19	3:00	0.4	ENE
02/26/19	4:00	0.4	E
02/26/19	5:00	0.9	E
02/26/19	6:00	0.9	ENE
02/26/19	7:00	1.3	SW
02/26/19	8:00	0.9	E
02/26/19	9:00	0.9	NE
02/26/19	10:00	1.3	ENE
02/26/19	11:00	1.3	ENE
02/26/19	12:00	0.9	ENE
02/26/19	13:00	1.3	E
02/26/19	14:00	1.3	E
02/26/19	15:00	0.9	ENE
02/26/19	16:00	0.9	ENE
02/26/19	17:00	1.3	ENE
02/26/19	18:00	0.9	E
02/26/19	19:00	0.9	ENE
02/26/19	20:00	0.4	NNE
02/26/19	21:00	0.4	ENE
02/26/19	22:00	0.4	E
02/26/19	23:00	0.4	ENE
02/27/19	0:00	0.9	ENE
02/27/19	1:00	0.4	ENE
02/27/19	2:00	0.9	ENE
02/27/19	3:00	0.4	E
02/27/19	4:00	0.4	ENE
02/27/19	5:00	0.4	ENE
02/27/19	6:00	0.4	NE
02/27/19	7:00	0.9	ENE
02/27/19	8:00	1.3	E
02/27/19	9:00	1.3	ESE
02/27/19	10:00	1.3	WSW
02/27/19	11:00	1.3	E
02/27/19	12:00	1.3	E
02/27/19	13:00	0.9	ENE
02/27/19	14:00	0.9	NE
02/27/19	15:00	0.9	ENE
02/27/19	16:00	0.9	E
02/27/19	17:00	0.4	ENE
02/27/19	18:00	0	ENE
02/27/19	19:00	0	ENE
02/27/19	20:00	0	E
02/27/19	21:00	0	E
02/27/19	22:00	0	E
02/27/19	23:00	0	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
02/28/19	0:00	0	E
02/28/19	1:00	0	E
02/28/19	2:00	0	E
02/28/19	3:00	0	E
02/28/19	4:00	0	E
02/28/19	5:00	0	ENE
02/28/19	6:00	0	ENE
02/28/19	7:00	0	ENE
02/28/19	8:00	0	E
02/28/19	9:00	0	ENE
02/28/19	10:00	0	ENE
02/28/19	11:00	0.4	NE
02/28/19	12:00	0.4	E
02/28/19	13:00	0.9	E
02/28/19	14:00	0.4	E
02/28/19	15:00	0.9	ESE
02/28/19	16:00	1.3	SW
02/28/19	17:00	0.9	W
02/28/19	18:00	0.9	SW
02/28/19	19:00	0.4	SSW
02/28/19	20:00	0	S
02/28/19	21:00	0	ESE
02/28/19	22:00	0	SE
02/28/19	23:00	0	WNW

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Air Quality and Noise Monitoring Schedule (February 2019)

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

*Means additional monitoring

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

Noise Monitoring Station

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

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

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Water Quality Monitoring Schedule (February 2019)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
					Mid-Ebb 10:36 Mid-Flood 15:41	
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
	Mid-Ebb 12:34 Mid-Flood 17:40				Mid-Flood 09:00 Mid-Ebb 14:42	
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
	Mid-Flood 10:37 Mid-Ebb 16:49		Mid-Flood 11:56 Mid-Ebb 19:06		Mid-Ebb 08:06 Mid-Flood 13:35	
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
	Mid-Ebb 11:33 Mid-Flood 16:54		Mid-Flood 07:26 Mid-Ebb 13:03		Mid-Flood 08:39 Mid-Ebb 14:28	
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar	2-Mar
	Mid-Flood 10:31 Mid-Ebb 16:50	*Mid-Flood 10:42* *Mid-Ebb 18:10*	Mid-Flood 12:02 Mid-Ebb 20:00		Mid-Ebb N/A Mid-Flood 14:02	

Italics stands for additional monitoring

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
Tentative Impact Water Quality Monitoring Schedule in Temporary Marine Embayment (February 2019)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
	Mid-Ebb 12:34 Mid-Flood 17:40					
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
	Mid-Flood 10:37 Mid-Ebb 16:49					
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
	Mid-Ebb 11:33 Mid-Flood 16:54					
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar	2-Mar
	Mid-Flood 10:31 Mid-Ebb 16:50					

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

Monitoring Station:
W1

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Groundwater Quality Monitoring Schedule (February 2019)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
		Groundwater Quality Monitoring				
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar	2-Mar
	Groundwater Quality Monitoring (Stream 2&3)	Groundwater Quality Monitoring (Stream 1)				

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

Monitoring Location:
Stream 1, Stream 2, Stream 3

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)
4-Feb-19	9:00	Sunny	90.0
4-Feb-19	10:00	Sunny	75.0
4-Feb-19	11:00	Sunny	102.5
11-Feb-19	9:00	Cloudy	105.3
11-Feb-19	10:00	Cloudy	110.3
11-Feb-19	11:00	Cloudy	104.5
15-Feb-19	13:00	Cloudy	89.6
15-Feb-19	14:00	Cloudy	95.0
15-Feb-19	15:00	Cloudy	104.1
21-Feb-19	9:00	Cloudy	164.0
21-Feb-19	10:00	Cloudy	195.0
21-Feb-19	11:00	Cloudy	187.0
27-Feb-19	9:00	Cloudy	235.0
27-Feb-19	10:00	Cloudy	247.5
27-Feb-19	11:00	Cloudy	267.5
		Average	144.8
		Maximum	267.5
		Minimum	75.0

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	Particulate Concentration (μg/m^3)
4-Feb-19	13:00	Sunny	95.2
4-Feb-19	14:00	Sunny	98.5
4-Feb-19	15:00	Sunny	102.4
11-Feb-19	9:00	Cloudy	82.6
11-Feb-19	10:00	Cloudy	80.0
11-Feb-19	11:00	Cloudy	80.0
15-Feb-19	9:00	Fine	64.0
15-Feb-19	10:00	Fine	80.0
15-Feb-19	11:00	Fine	88.0
21-Feb-19	14:00	Foggy	200.0
21-Feb-19	15:00	Foggy	188.0
21-Feb-19	16:00	Foggy	244.0
27-Feb-19	9:00	Cloudy	150.6
27-Feb-19	10:00	Cloudy	174.2
27-Feb-19	11:00	Cloudy	161.1
		Average	125.9
		Maximum	244.0
		Minimum	64.0

Appendix E - 1-hour TSP Monitoring Results

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	Particulate Concentration (µg/m^3)
4-Feb-19	9:00	Sunny	127.8
4-Feb-19	10:00	Sunny	132.4
4-Feb-19	11:00	Sunny	137.6
11-Feb-19	14:00	Cloudy	105.0
11-Feb-19	15:00	Cloudy	112.5
11-Feb-19	16:00	Cloudy	110.0
15-Feb-19	9:00	Cloudy	102.6
15-Feb-19	10:00	Cloudy	117.1
15-Feb-19	11:00	Cloudy	122.8
21-Feb-19	9:00	Foggy	236.0
21-Feb-19	10:00	Foggy	244.0
21-Feb-19	11:00	Foggy	188.0
27-Feb-19	13:00	Cloudy	250.1
27-Feb-19	14:00	Cloudy	243.8
27-Feb-19	15:00	Cloudy	242.4
		Average	164.8
		Maximum	250.1
		Minimum	102.6

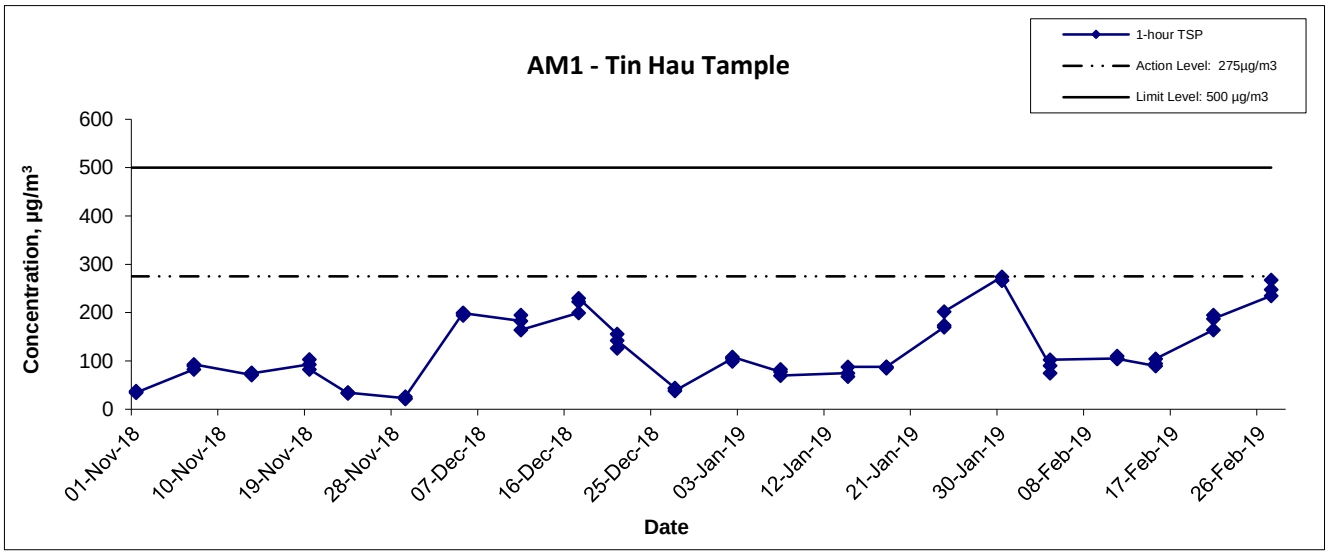
Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	Particulate Concentration (µg/m^3)
4-Feb-19	13:00	Sunny	100.0
4-Feb-19	14:00	Sunny	130.0
4-Feb-19	15:00	Sunny	132.5
11-Feb-19	13:00	Rainy	97.2
11-Feb-19	14:00	Rainy	95.6
11-Feb-19	15:00	Rainy	95.0
15-Feb-19	13:00	Fine	100.0
15-Feb-19	14:00	Fine	104.0
15-Feb-19	15:00	Fine	92.0
21-Feb-19	13:30	Cloudy	175.8
21-Feb-19	14:30	Cloudy	180.8
21-Feb-19	15:30	Cloudy	183.7
27-Feb-19	14:00	Cloudy	252.5
27-Feb-19	15:00	Cloudy	245.0
27-Feb-19	16:00	Cloudy	275.0
		Average	150.6
		Maximum	275.0
		Minimum	92.0

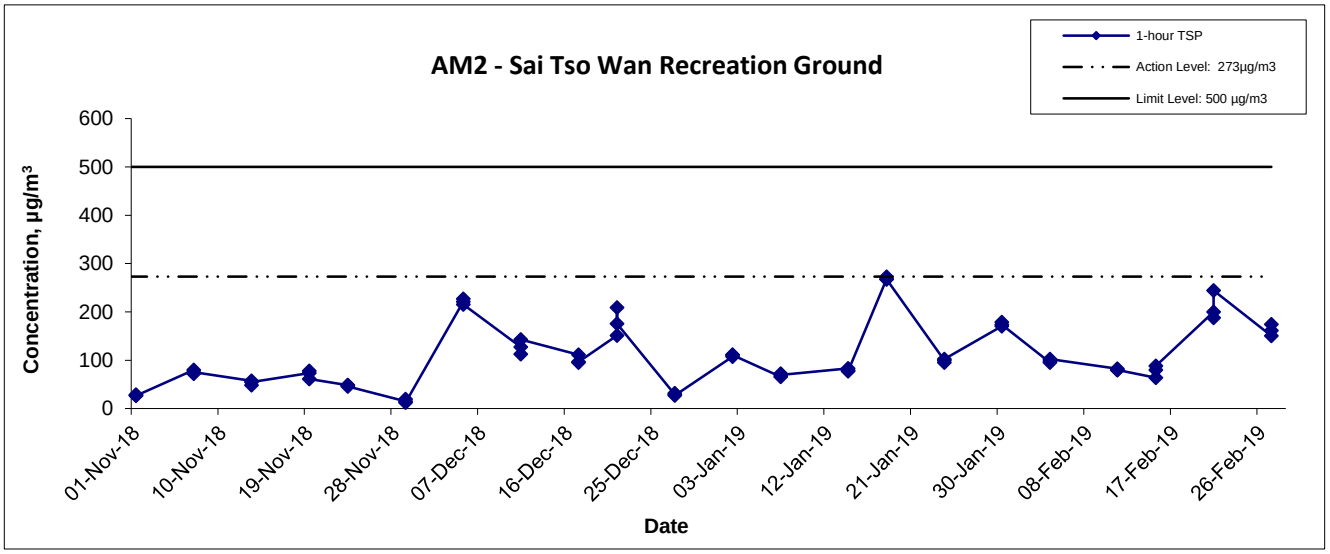
Appendix E - 1-hour TSP Monitoring Results

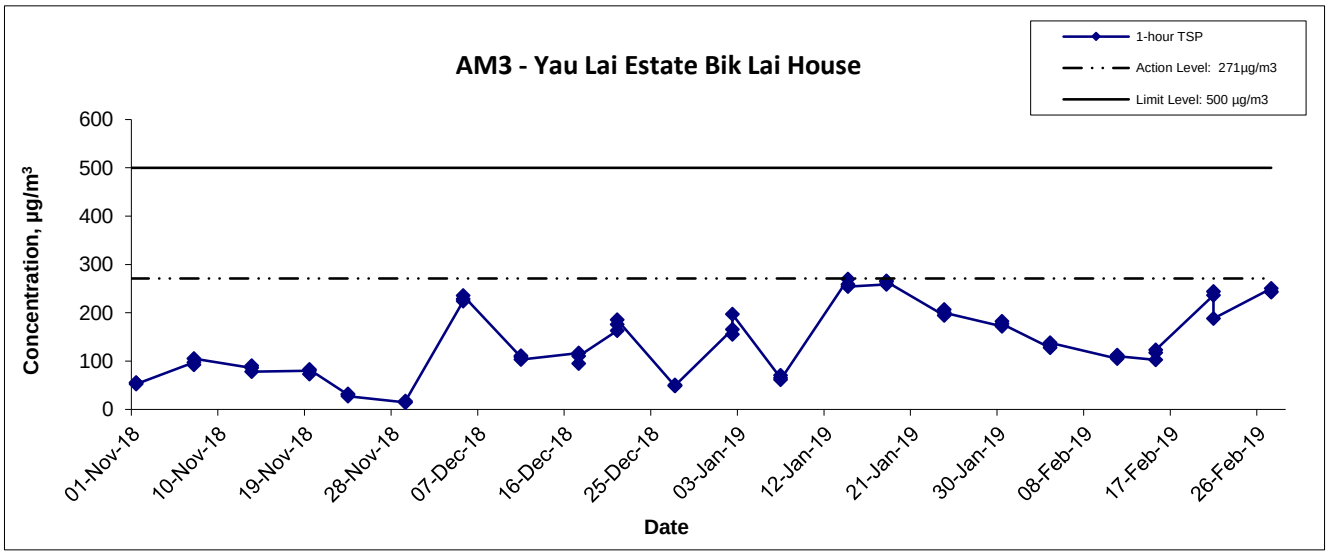
Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	Particulate Concentration (μg/m^3)
8-Feb-19	13:00	Sunny	107.9
8-Feb-19	14:00	Sunny	121.6
8-Feb-19	15:00	Sunny	116.5
14-Feb-19	9:00	Sunny	99.5
14-Feb-19	10:00	Sunny	102.6
14-Feb-19	11:00	Sunny	101.2
20-Feb-19	13:00	Cloudy	167.5
20-Feb-19	14:00	Cloudy	160.0
20-Feb-19	15:00	Cloudy	162.5
26-Feb-19	15:15	Cloudy	138.0
26-Feb-19	16:15	Cloudy	182.0
26-Feb-19	17:15	Cloudy	182.0
		Average	136.8
		Maximum	182.0
		Minimum	99.5

Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration (μg/m^3)
8-Feb-19	15:15	Sunny	102.7
8-Feb-19	16:15	Sunny	104.6
8-Feb-19	17:15	Sunny	100.6
14-Feb-19	13:00	Sunny	114.1
14-Feb-19	14:00	Sunny	121.9
14-Feb-19	15:00	Sunny	120.3
20-Feb-19	9:00	Cloudy	105.0
20-Feb-19	10:00	Cloudy	100.0
20-Feb-19	11:00	Cloudy	90.0
26-Feb-19	16:00	Cloudy	144.0
26-Feb-19	17:00	Cloudy	124.3
26-Feb-19	18:00	Cloudy	131.1
		Average	113.2
		Maximum	144.0
		Minimum	90.0

1-hr TSP Concentration Levels

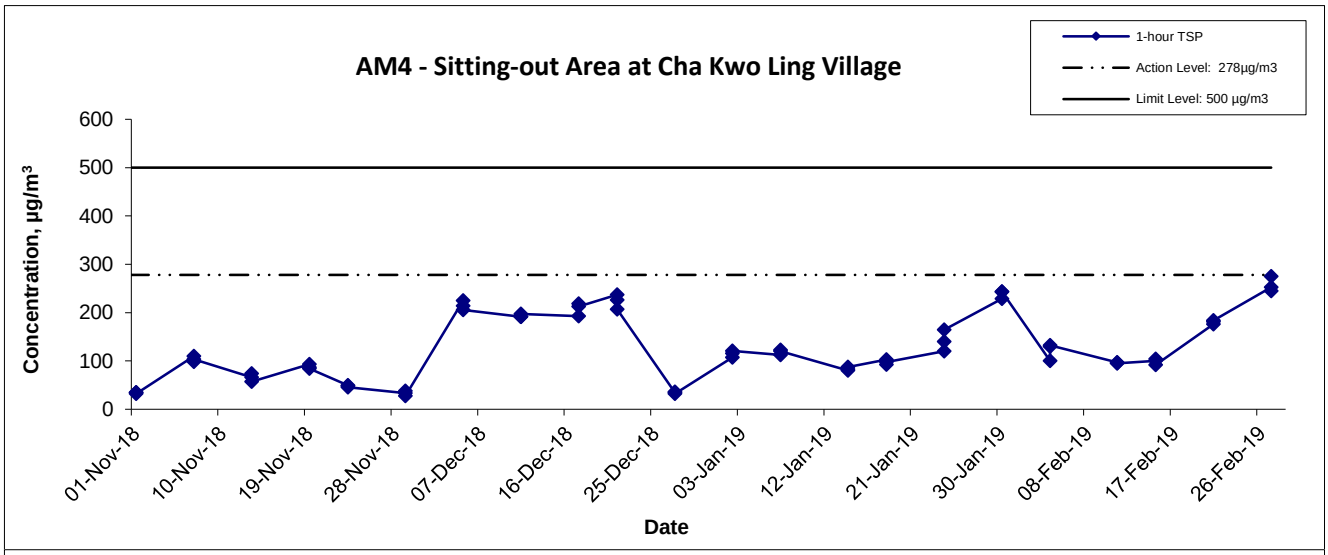


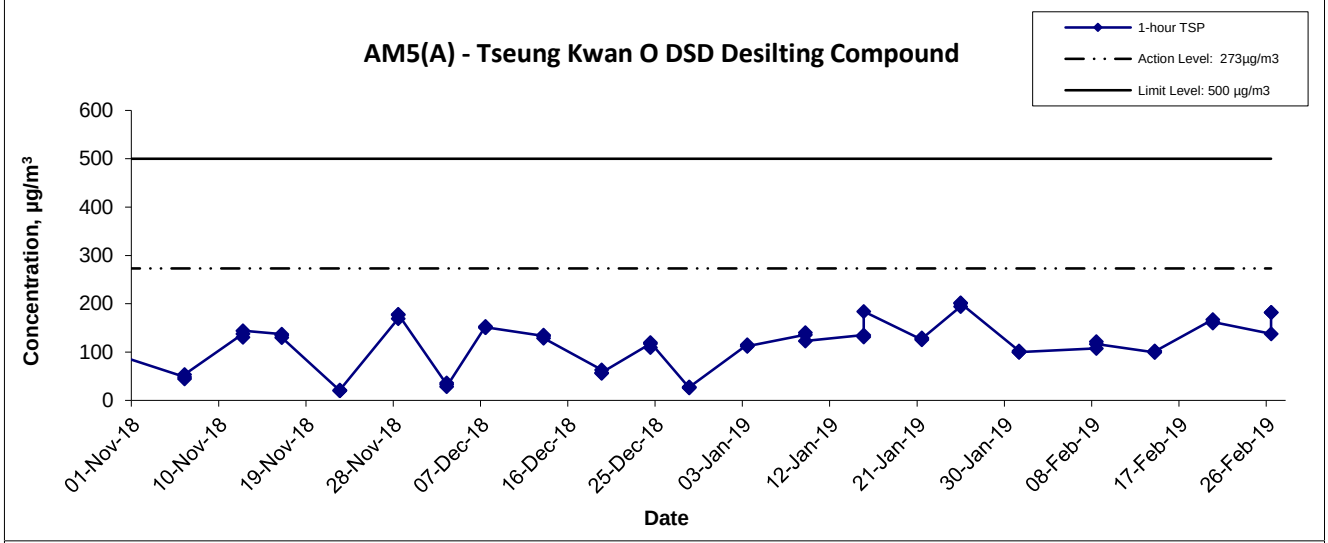


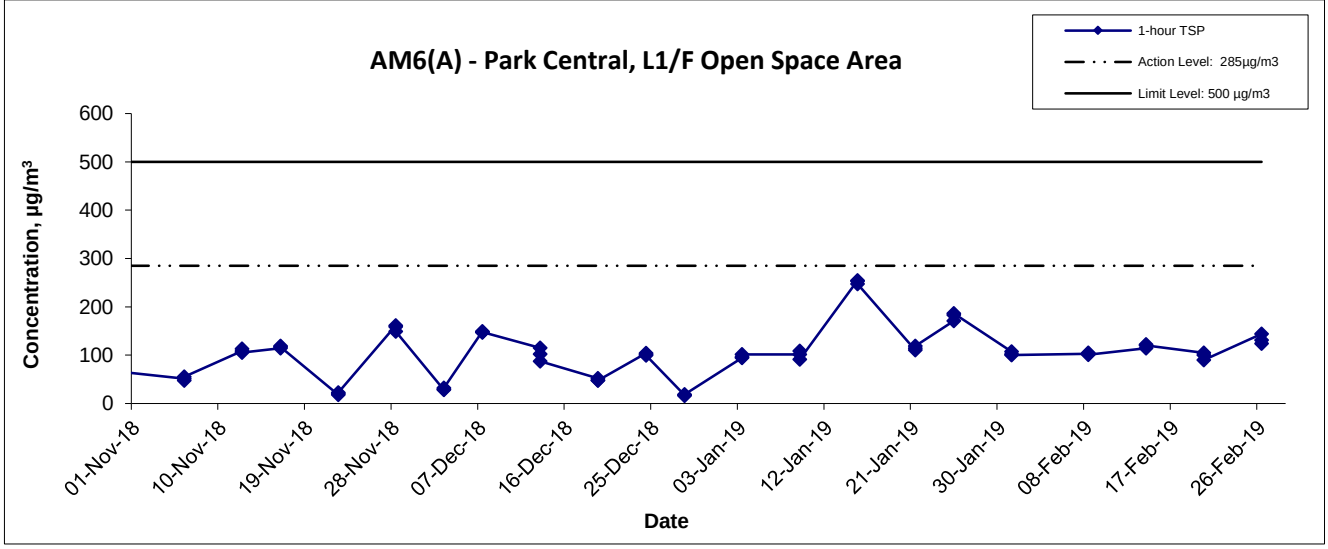


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: E	CINOTECH

1-hr TSP Concentration Levels







Title: 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: Feb 19	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 Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	2.9894	3.1017	0.1123	4871.4	4895.4	24.0	1.22	1.22	1.22	1754.8	64.0
9-Feb-19	Cloudy	291.7	766.2	2.9926	3.0824	0.0898	4895.4	4919.4	24.0	1.22	1.23	1.22	1763.3	50.9
15-Feb-19	Sunny	294.4	764.3	2.9742	3.0839	0.1097	4919.4	4943.4	24.0	1.22	1.21	1.22	1752.8	62.6
21-Feb-19	Sunny	293.9	763.3	2.9658	3.0916	0.1258	4943.4	4967.4	24.0	1.21	1.21	1.21	1743.0	72.2
27-Feb-19	Sunny	294.8	762.3	2.9906	3.1977	0.2071	4967.4	4991.4	24.0	1.21	1.21	1.21	1739.0	119.1
													Min	50.9
													Max	119.1
													Average	73.8

Location AM2 - Sai Tso Wan Recreation Ground

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	2.9720	3.0590	0.0870	25763.8	25787.8	24.0	1.22	1.22	1.22	1753.7	49.6
9-Feb-19	Cloudy	291.7	766.2	2.9787	3.0676	0.0889	25787.8	25811.8	24.0	1.22	1.23	1.22	1762.3	50.4
15-Feb-19	Sunny	294.4	764.3	2.9905	3.0646	0.0741	25811.8	25835.8	24.0	1.22	1.21	1.22	1751.7	42.3
21-Feb-19	Sunny	293.9	763.3	2.9779	3.0597	0.0818	25835.8	25859.8	24.0	1.21	1.21	1.21	1749.0	46.8
27-Feb-19	Sunny	294.8	762.3	2.9642	3.1813	0.2171	25715.8	25739.8	24.0	1.21	1.21	1.21	1742.3	124.6
													Min	42.3
													Max	124.6
													Average	62.7

Location AM3 - Yau Lai Estate, Bik Lai House

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	3.0098	3.1389	0.1291	44.8	68.8	24.0	1.22	1.22	1.22	1759.1	73.4
9-Feb-19	Cloudy	291.7	766.2	2.9650	3.0678	0.1028	68.8	92.8	24.0	1.23	1.23	1.23	1767.7	58.2
15-Feb-19	Sunny	294.4	764.3	2.9778	3.0621	0.0843	95.8	119.8	24.0	1.22	1.22	1.22	1757.1	48.0
21-Feb-19	Sunny	293.9	763.3	2.9827	3.0605	0.0778	119.8	143.8	24.0	1.22	1.22	1.22	1757.5	44.3
27-Feb-19	Sunny	294.8	762.3	2.9997	3.1261	0.1264	0.1	24.1	24.0	1.22	1.22	1.22	1753.9	72.1
													Min	44.3
													Max	73.4
													Average	59.2

Appendix F - 24-hour TSP Monitoring Results

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

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	2.9899	3.1105	0.1206	11012.0	11036.0	24.0	1.22	1.22	1.22	1762.0	68.4
9-Feb-19	Cloudy	291.7	766.2	2.9705	3.1327	0.1622	11036.0	11060.0	24.0	1.23	1.23	1.23	1771.2	91.6
15-Feb-19	Sunny	294.4	764.3	2.9642	3.2450	0.2808	11060.0	11084.0	24.0	1.22	1.22	1.22	1759.8	159.6
21-Feb-19	Sunny	293.9	763.3	2.9944	3.1394	0.1450	11084.0	11108.0	24.0	1.21	1.21	1.21	1745.3	83.1
27-Feb-19	Sunny	294.8	762.3	2.9888	3.2568	0.2680	10963.9	10987.9	24.0	1.21	1.21	1.21	1741.7	153.9
													Min	68.4
													Max	159.6
													Average	111.3

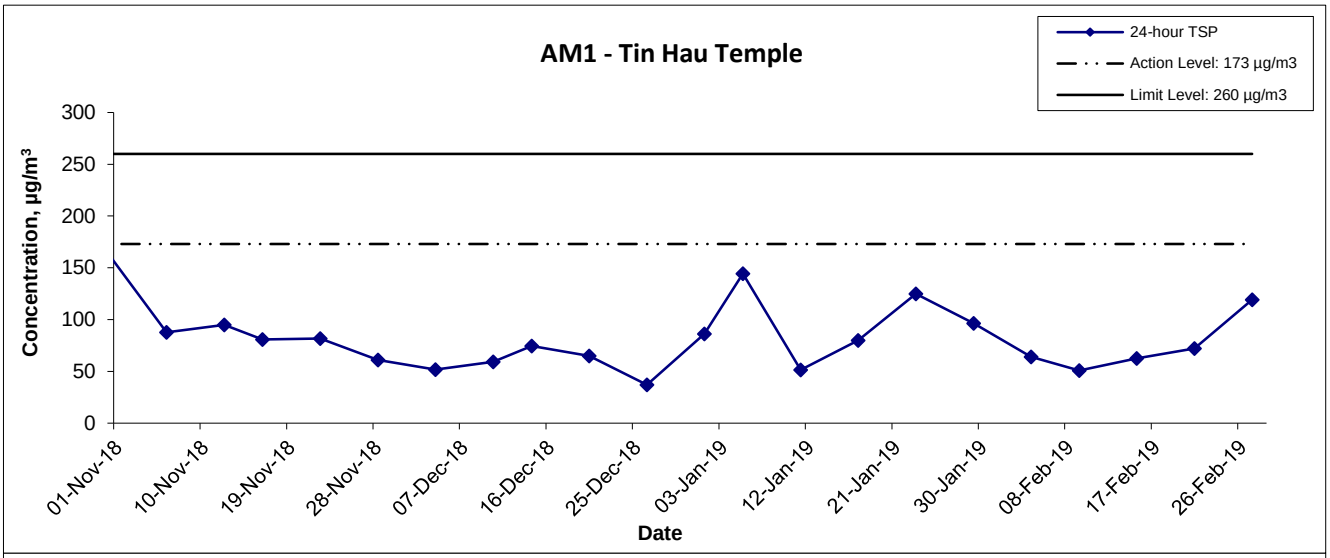
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

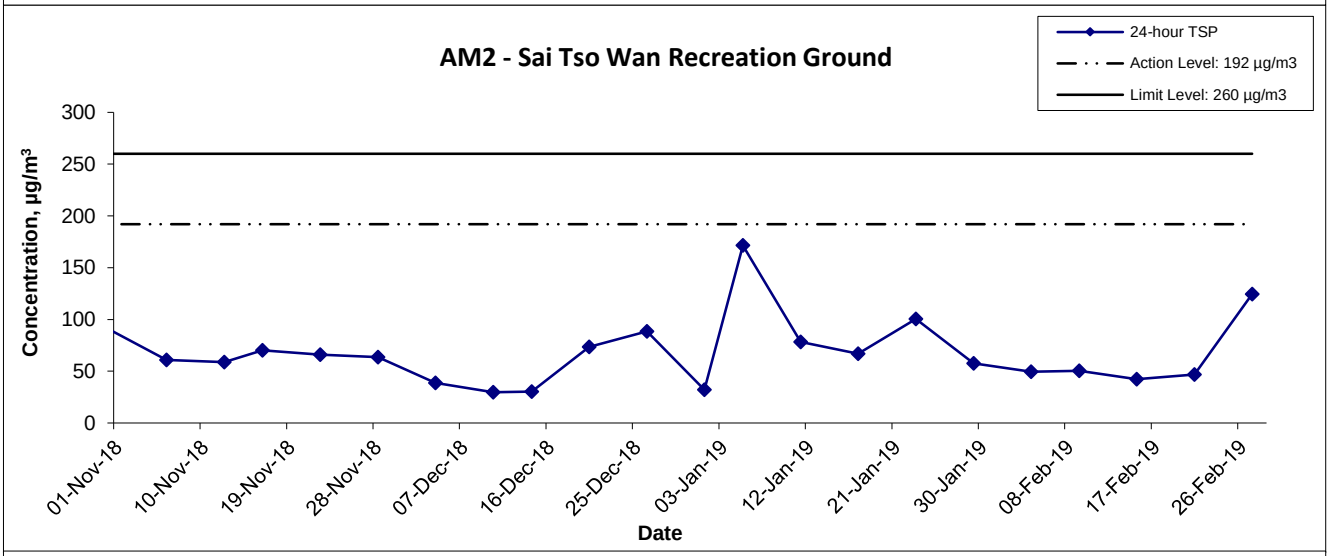
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	2.9400	3.0152	0.0752	27477.7	27501.7	24.0	1.23	1.23	1.23	1767.7	42.5
9-Feb-19	Cloudy	291.7	766.2	3.0056	3.0844	0.0788	27501.7	27525.7	24.0	1.23	1.24	1.23	1777.6	44.3
15-Feb-19	Sunny	294.4	764.3	2.9978	3.0886	0.0908	27525.7	27549.7	24.0	1.23	1.22	1.23	1765.4	51.4
21-Feb-19	Sunny	293.9	763.3	2.9719	3.1321	0.1602	27549.6	27573.6	24.0	1.10	1.10	1.10	1584.3	101.1
27-Feb-19	Sunny	294.8	762.3	2.9811	3.1502	0.1691	27573.6	27597.6	24.0	1.10	1.10	1.10	1580.5	107.0
													Min	42.5
													Max	107.0
													Average	69.3

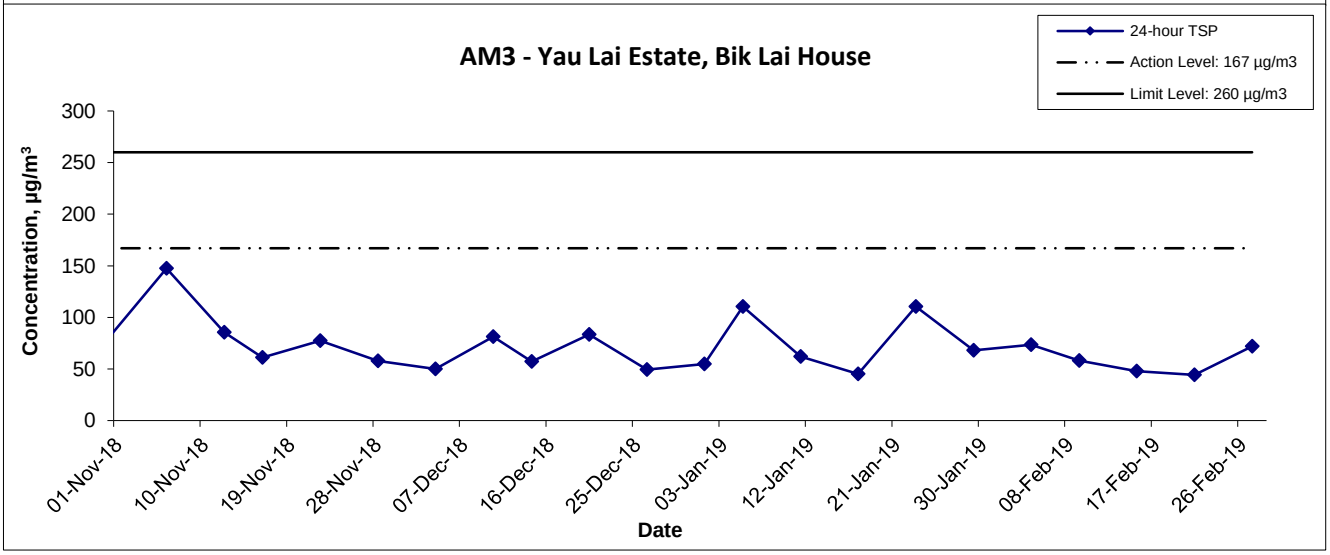
Location AM6(A) - Park Central, L1/F Open Space Area

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
4-Feb-19	Sunny	293.9	764.7	3.2579	3.5139	0.2560	72.1	96.1	24.0	1.20	1.20	1.20	1727.6	148.2
9-Feb-19	Cloudy	291.7	766.2	2.9769	3.1746	0.1977	96.1	120.1	24.0	1.20	1.21	1.21	1736.2	113.9
15-Feb-19	Sunny	294.4	764.3	2.9656	3.1559	0.1903	120.1	144.1	24.0	1.20	1.20	1.20	1725.5	110.3
21-Feb-19	Sunny	293.9	763.3	3.0062	3.1449	0.1387	144.1	168.1	24.0	1.20	1.20	1.20	1725.9	80.4
27-Feb-19	Sunny	294.8	762.3	2.9788	3.0815	0.1027	173.1	197.1	24.0	1.20	1.19	1.20	1722.2	59.6
													Min	59.6
													Max	148.2
													Average	102.5

24-hr TSP Concentration Levels



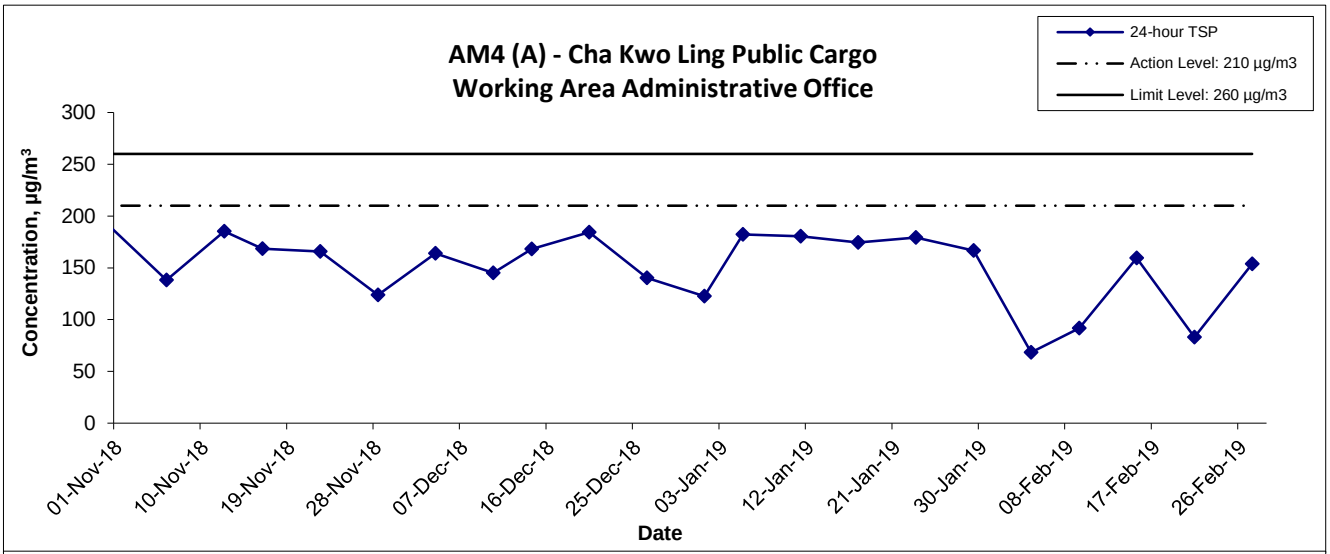


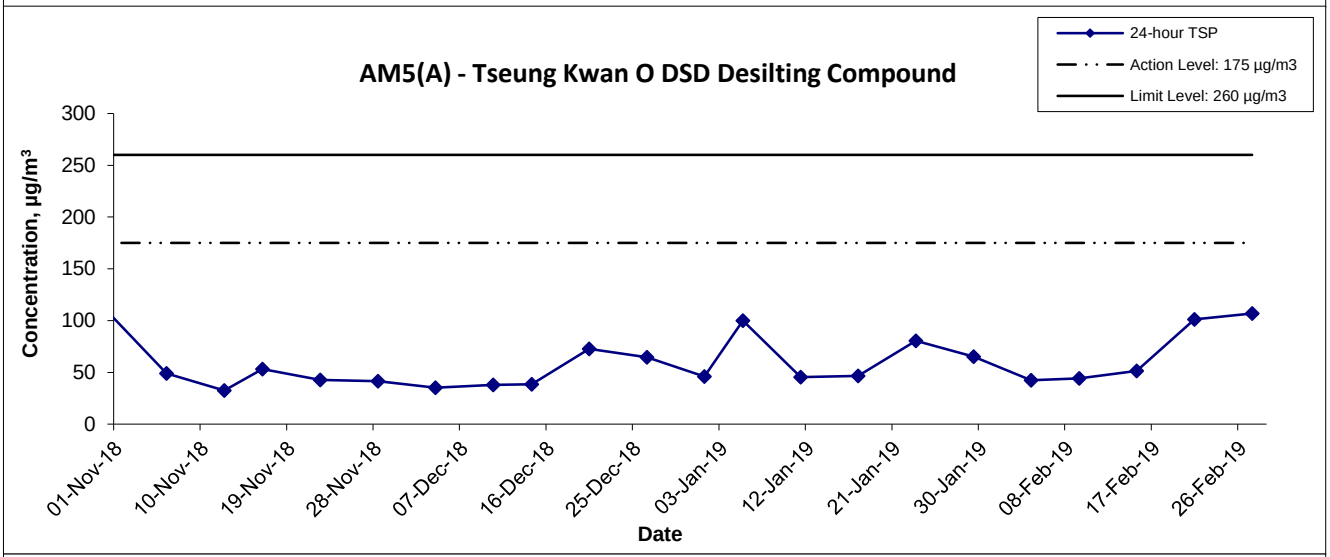


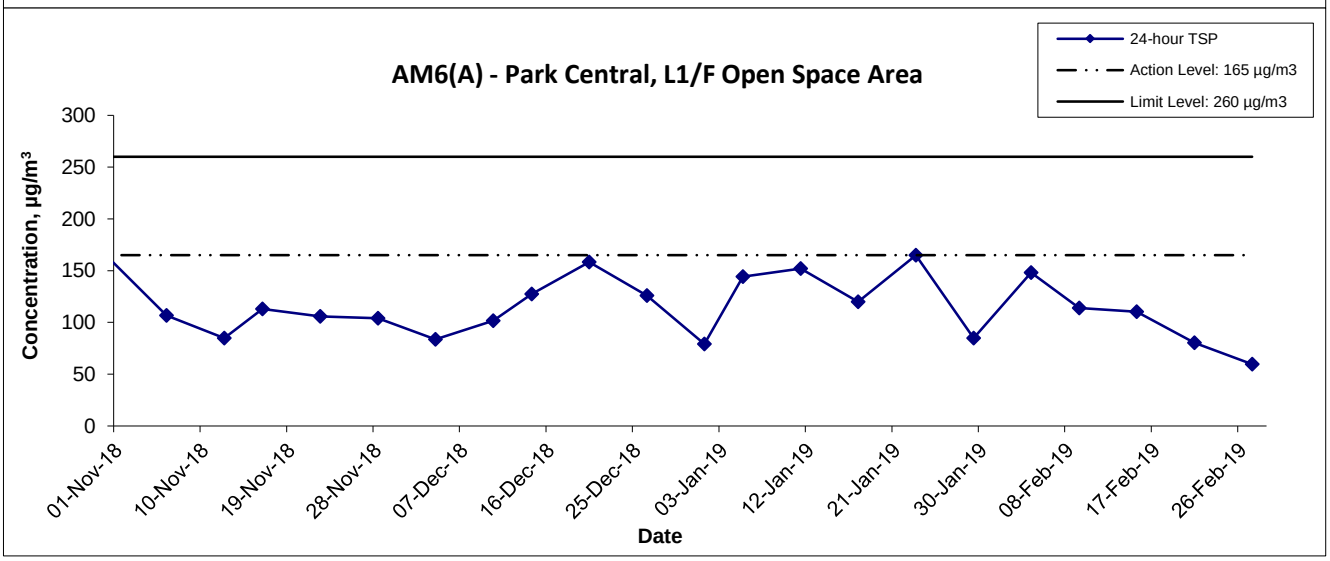
Title	Scale	Project No.
Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	N.T.S	MA16034
	Date: Feb 19	Appendix: F

CINOTECH

24-hr TSP Concentration Levels







Title: 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: Feb 19	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}
4-Feb-19	09:00	Sunny	74.2	76.0	73.3	65.5	74
12-Feb-19	10:30	Sunny	75.6	77.0	73.6		75
18-Feb-19	09:20	Rainy	80.2	76.7	71.8		*80*
18-Feb-19	10:10	Rainy	75.6	76.1	72.9		75
21-Feb-19	11:30	Cloudy	73.8	76.2	70.5		73
27-Feb-19	16:00	Cloudy	74.9	76.8	72.3		74
28-Feb-19	11:30	Sunny	71.2	72.8	69.0		70

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}
4-Feb-19	09:45	Sunny	74.7	76.4	71.8	63.6	74
11-Feb-19	14:00	Cloudy	74.8	78.1	67.2		74
18-Feb-19	15:00	Rainy	75.4	78.3	71.3		75
28-Feb-19	14:45	Sunny	71.8	73.6	69.0		71

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}
4-Feb-19	10:40	Sunny	74.0	76.1	70.2	65.6	73
11-Feb-19	16:45	Rainy	75.8	77.7	73.9		75
18-Feb-19	11:20	Rainy	74.7	76.4	72.4		74
28-Feb-19	13:30	Sunny	74.9	76.7	72.3		74

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}
4-Feb-19	09:00	Sunny	58.7	61.9	50.6	62.0	59Measured ≦ Baseline
11-Feb-19	16:10	Cloudy	60.9	63.8	55.7		61Measured ≦ Baseline
18-Feb-19	15:15	Rainy	64.5	67.6	58.6		61
28-Feb-19	16:10	Sunny	60.8	63.5	55.1		61Measured ≦ 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}
4-Feb-19	11:15	Sunny	65.2	68.3	63.3	68.2	65Measured ≦ Baseline
11-Feb-19	13:00	Cloudy	66.9	69.3	63.4		67Measured ≦ Baseline
18-Feb-19	13:00	Rainy	70.2	72.0	67.1		66
28-Feb-19	10:40	Sunny	65.7	68.8	63.4		66Measured ≦ Baseline

Appendix G - Noise Monitoring Results

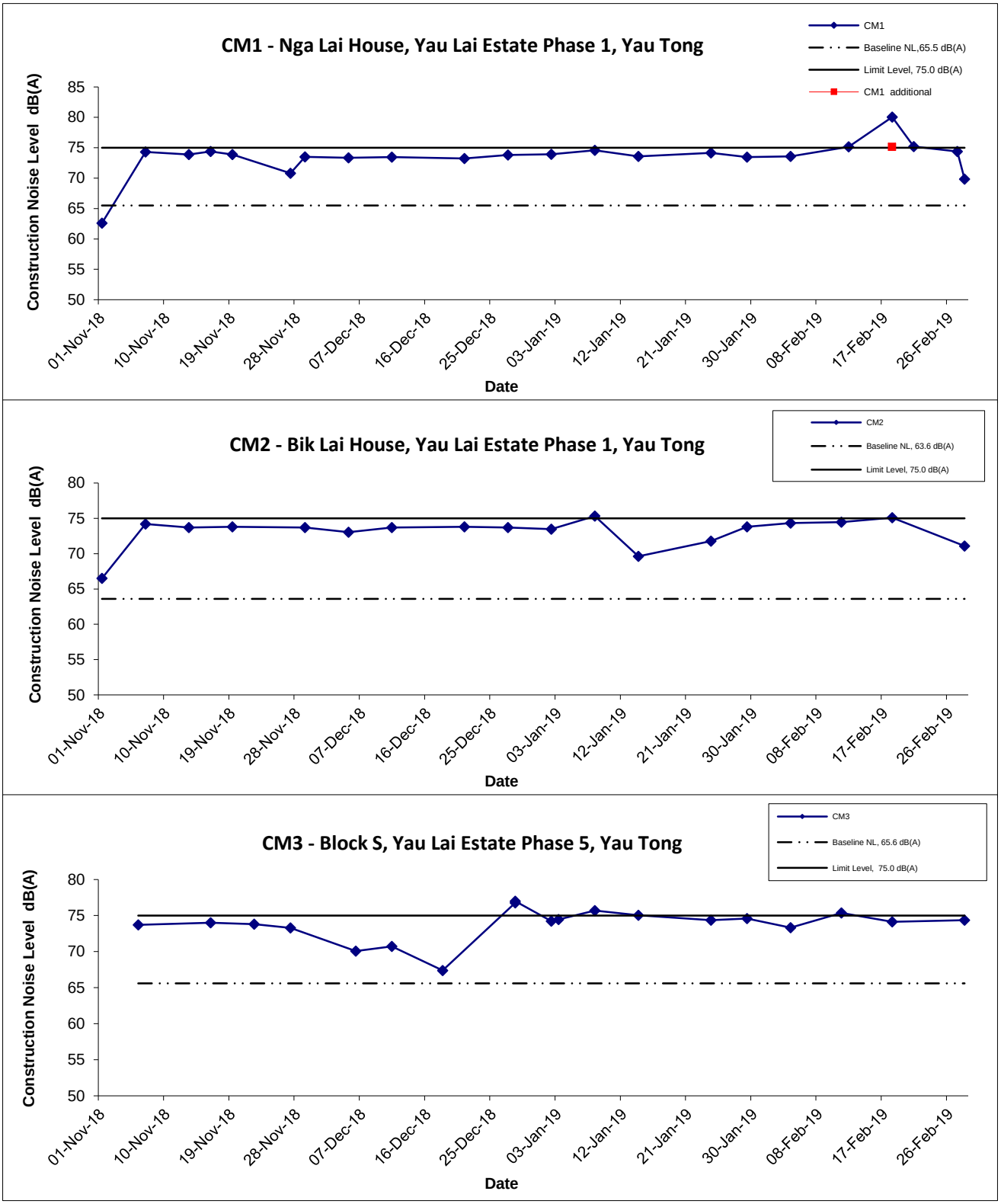
(0700-1900 hrs on Normal Weekdays)

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}
8-Feb-19	09:00	Sunny	58.2	60.3	56.1	61.9	58Measured ≦ Baseline
14-Feb-19	09:15	Sunny	67.1	69.8	64.3		66
20-Feb-19	17:00	Cloudy	63.9	67.8	57.8		60
26-Feb-19	15:30	Cloudy	65.8	69.2	61.3		64
27-Feb-19	09:45	Cloudy	66.2	69.7	62.4		64

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}
8-Feb-19	09:50	Sunny	56.2	58.1	49.2	58.3	56Measured ≦ Baseline
14-Feb-19	10:00	Sunny	59.1	63.1	56.1		51
20-Feb-19	16:00	Cloudy	57.6	59.1	54.9		58Measured ≦ Baseline
26-Feb-19	16:15	Cloudy	58.7	63.9	52.1		48
27-Feb-19	10:30	Cloudy	59.3	64.8	49.1		52

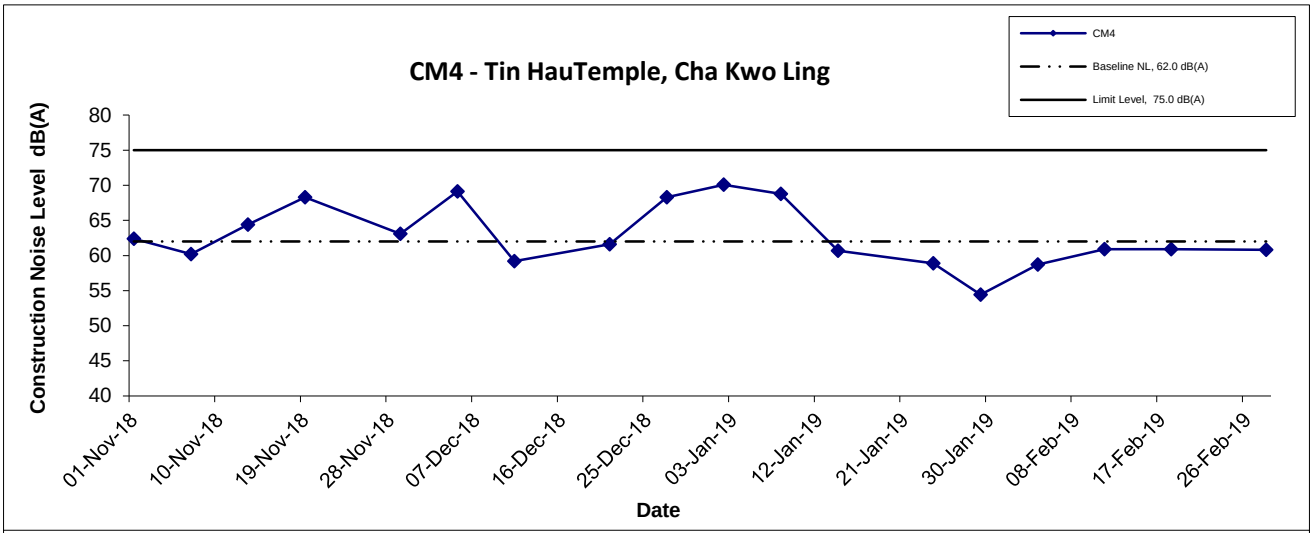
Location CM8(A) - Park Central, L1/F Open Space Area							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
8-Feb-19	10:55	Sunny	68.2	69.7	65.3	69.1	68Measured ≦ Baseline
14-Feb-19	13:00	Sunny	67.7	69.3	64.2		68Measured ≦ Baseline
20-Feb-19	09:00	Cloudy	67.8	69.9	59.3		68Measured ≦ Baseline
26-Feb-19	17:30	Cloudy	57.9	60.0	55.7		58Measured ≦ Baseline
27-Feb-19	11:30	Cloudy	61.3	65.8	59.2		61Measured ≦ Baseline

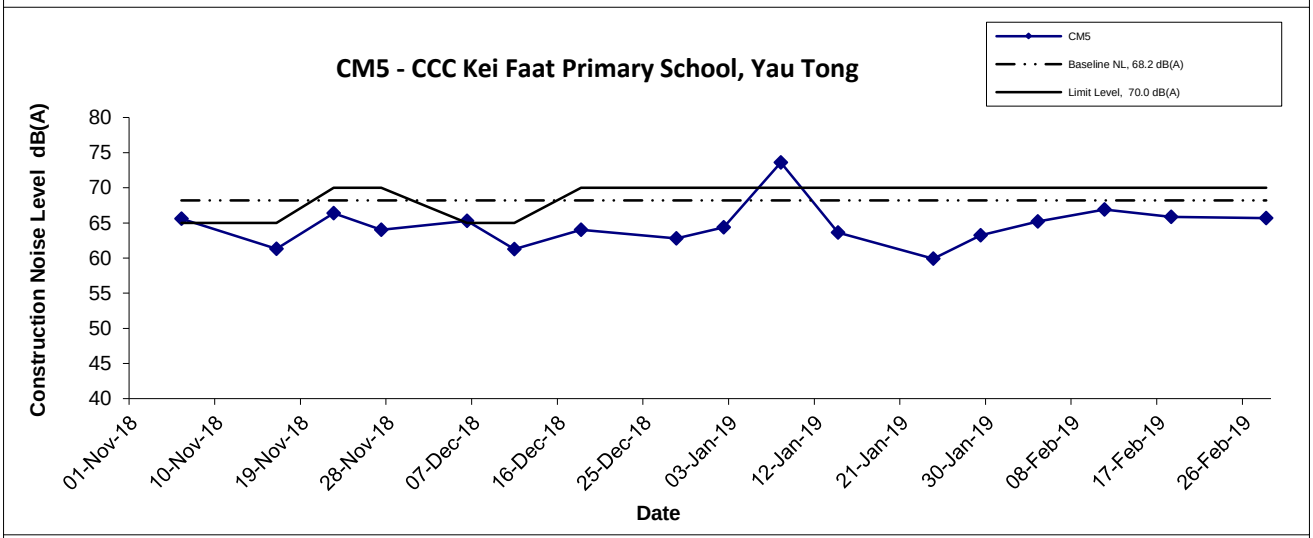
Noise Levels

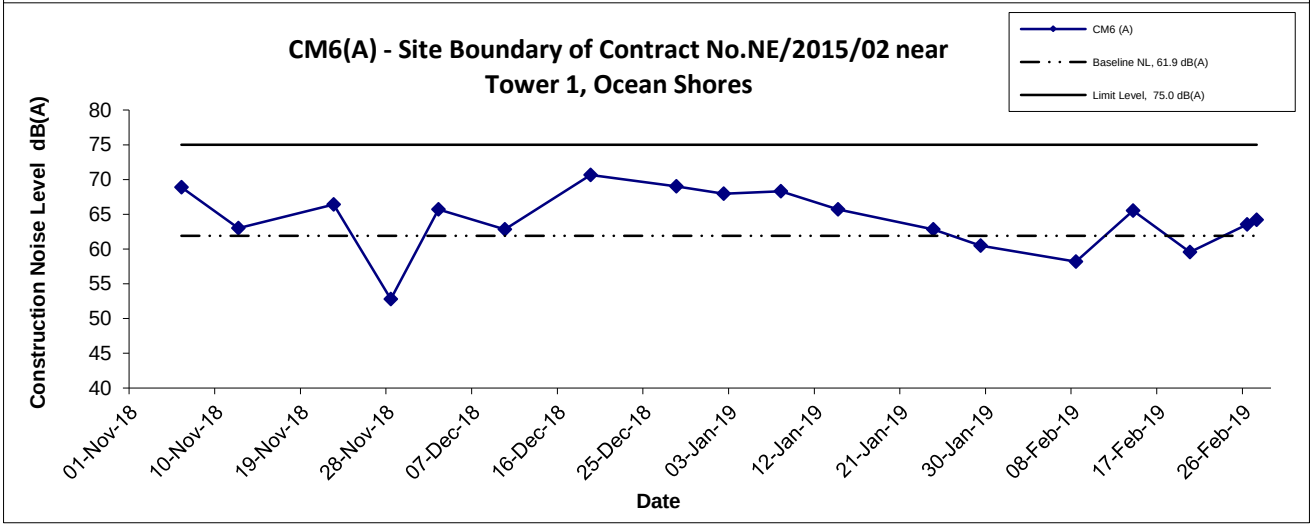


Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA16034	
	Date: Dec 18	Appendix: G	

Noise Levels

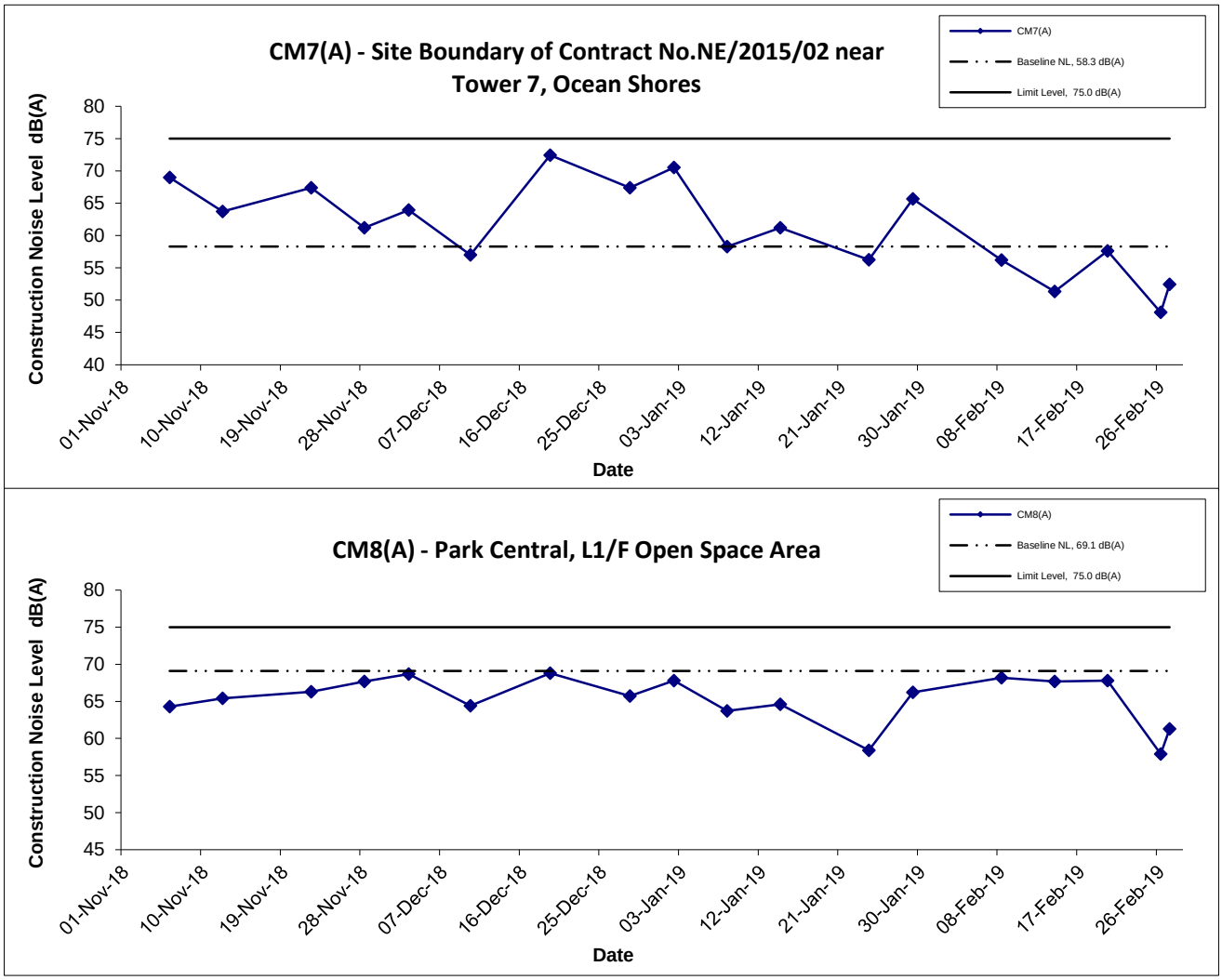






Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA16034	
	Date: Dec 18	Appendix: G	

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	Project No.: MA16034	
	Date: Dec 18	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}
1-Feb-19	22:20	Sunny	67.3	68.6	65.9	67.3	64.4	64
	22:25		67.1	68.6	66.0			
	22:30		67.4	68.6	66.0			
3-Feb-19	10:31	Sunny	67.2	68.7	65.8	67.0		64
	10:36		67.1	68.6	66.1			
	10:41		66.8	68.6	65.7			
8-Feb-19	19:15	Cloudy	65.3	68.8	63.3	65.5		59
	19:20		65.7	68.7	63.2			
	19:25		65.6	68.8	63.4			
10-Feb-19	10:30	Sunny	65.9	68.1	63.2	66.1		61
	10:35		66.3	68.3	63.5			
	10:40		66.1	67.6	64.2			
15-Feb-19	22:00	Cloudy	67.7	69.2	66.1	68.1		66
	22:05		68.5	69.7	67.0			
	22:10		68.2	69.8	66.2			
17-Feb-19	9:15	Cloudy	65.8	69.3	62.1	65.8		60
	9:20		65.6	69.4	62.4			
	9:25		66.1	69.3	62.4			
22-Feb-19	21:35	Cloudy	65.8	67.5	63.0	66.1		61
	21:40		66.4	68.3	63.3			
	21:45		66.2	67.2	64.0			
24-Feb-19	10:40	Rainy	65.9	69.2	62.2	66.0		61
	10:45		65.8	69.2	62.3			
	10:50		66.2	69.2	62.1			
28-Feb-19	20:00	Sunny	62.6	63.9	60.8	62.5		63Measured ≦ Baseline
	20:05		62.5	63.8	61.0			
	20:10		62.3	63.7	60.6			

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}
1-Feb-19	21:36	Sunny	64.7	65.9	63.3	64.9	64.2	57
	21:41		65.2	67.1	62.7			
	21:46		64.9	66.9	63.0			
3-Feb-19	11:29	Sunny	64.8	66.0	63.2	64.8		56
	11:34		64.5	65.9	63.2			
	11:39		65.0	66.2	63.4			
8-Feb-19	20:05	Cloudy	65.1	67.2	61.8	65.0		57
	20:10		64.9	67.4	62.0			
	20:15		65.0	67.4	61.9			
10-Feb-19	11:10	Sunny	66.4	68.3	65.1	66.3		62
	11:15		66.1	68.2	64.9			
	11:20		66.3	67.9	63.7			
15-Feb-19	21:00	Cloudy	68.1	69.6	66.5	67.8		65
	21:05		67.8	68.7	66.8			
	21:10		67.4	68.5	66.2			
17-Feb-19	9:35	Cloudy	65.7	68.9	62.4	65.7		60
	9:40		65.4	69.3	62.3			
	9:45		65.9	69.2	62.4			
22-Feb-19	21:00	Cloudy	66.9	75.8	64.5	67.5		65
	21:05		68.3	75.9	64.0			
	21:10		67.3	76.7	64.4			
24-Feb-19	10:00	Rainy	65.6	68.8	62.5	65.7		60
	10:05		65.7	69.4	62.6			
	10:10		65.8	69.0	62.5			
28-Feb-19	20:30	Sunny	63.6	64.7	62.2	63.4		63Measured ≦ Baseline
	20:35		63.6	64.9	62.1			
	20:40		63.0	63.9	61.9			

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}
1-Feb-19	20:51	Sunny	64.2	65.6	62.2	63.6	64.7	64Measured ≦ Baseline
	20:56		63.6	64.8	62.2			
	21:01		63.0	64.6	61.1			
3-Feb-19	9:01	Sunny	63.4	64.6	62.0	63.4		63Measured ≦ Baseline
	9:06		63.5	64.5	62.0			
	9:11		63.4	64.5	62.1			
8-Feb-19	19:35	Cloudy	65.5	67.1	61.2	65.7		59
	19:40		65.7	67.2	61.6			
	19:45		65.9	67.7	61.5			
10-Feb-19	13:30	Sunny	65.8	67.2	64.1	65.9		60
	13:35		66.1	68.3	63.5			
	13:40		65.7	67.5	64.3			
15-Feb-19	20:15	Cloudy	65.1	66.4	63.5	65.3		56
	20:20		64.7	66.5	62.2			
	20:25		66.0	67.0	64.4			
17-Feb-19	9:55	Cloudy	66.2	69.4	63.3	66.1		61
	10:00		66.0	68.8	63.4			
	10:05		66.1	68.7	63.3			
22-Feb-19	22:05	Cloudy	66.0	67.3	64.2	65.9		60
	22:10		66.1	68.0	63.6			
	22:15		65.6	67.4	64.2			
24-Feb-19	11:15	Rainy	66.3	68.8	63.2	66.1		61
	11:20		66.2	69.0	63.2			
	11:25		65.8	68.5	63.5			
28-Feb-19	21:00	Sunny	61.3	62.8	58.4	61.0		61Measured ≦ Baseline
	21:05		61.8	62.3	58.4			
	21:10		59.5	60.7	58.1			

Appendix G - Noise Monitoring Results

Location CM4 - Tin Hau Temple, Cha Kwo Ling								
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}
1-Feb-19	20:08	Sunny	58.2	60.8	48.4	57.6	57.0	49
	20:13		57.1	60.9	44.9			
	20:18		57.5	60.8	46.0			
3-Feb-19	13:30	Sunny	57.5	60.8	46.0	57.4		47
	13:35		57.6	60.7	45.8			
	13:40		57.1	60.8	45.0			
8-Feb-19	20:35	Cloudy	55.1	57.7	53.7	55.3		55Measured ≦ Baseline
	20:40		55.4	57.9	52.9			
	20:45		55.4	57.7	53.4			
10-Feb-19	14:10	Sunny	56.2	58.0	54.9	56.3		56Measured ≦ Baseline
	14:15		57.1	58.2	55.3			
	14:20		55.4	57.9	52.3			
15-Feb-19	19:45	Cloudy	55.8	57.9	53.5	55.6		56Measured ≦ Baseline
	19:50		55.6	57.8	53.4			
	19:55		55.5	57.8	53.5			
17-Feb-19	10:30	Cloudy	57.3	60.2	47.1	57.5		48
	10:35		57.6	60.3	47.5			
	10:40		57.6	60.0	47.4			
22-Feb-19	22:45	Cloudy	56.0	58.2	55.0	56.2		56Measured ≦ Baseline
	22:50		56.5	58.1	55.2			
	22:55		56.2	57.9	54.8			
24-Feb-19	13:00	Rainy	57.2	60.3	49.0	57.4		46
	13:05		57.5	60.5	49.2			
	13:10		57.4	60.6	49.3			
28-Feb-19	21:30	Sunny	55.4	56.5	53.1	55.1		55Measured ≦ Baseline
	21:35		54.9	55.9	53.2			
	21:40		55.1	56.2	54.2			

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}
1-Feb-19	23:00	Sunny	66.7	66.2	63.4	66.7	63.7	***64***
	23:05		66.7	68.0	63.5			
	23:10		66.8	68.1	63.5			
9-Feb-19	0:00	Cloudy	62.4	64.1	60.1	62.4	61.9	53
	0:05		62.6	64.3	60.4			
	0:10		62.1	64.3	60.1			
15-Feb-19	23:00	Cloudy	65.8	67.9	64.1	65.6	63.7	***61***
	23:05		65.6	67.7	63.9			
	23:10		65.3	67.5	63.8			
23-Feb-19	0:15	Cloudy	66.5	67.1	63.2	66.3	61.9	***64***
	0:20		66.2	67.5	63.4			
	0:25		66.2	67.2	63.2			
28-Feb-19	23:00	Sunny	61.4	62.6	60.1	61.4	63.7	61Measured ≦ Baseline
	23:05		61.4	62.7	59.8			
	23:10		61.4	62.7	60.0			

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}
1-Feb-19	23:40	Sunny	64.8	66.4	62.0	64.7	60.8	***62***
	23:45		64.7	66.3	62.1			
	23:50		64.6	66.3	62.2			
9-Feb-19	00:20	Cloudy	61.9	64.0	59.4	61.8	59.1	***58***
	0:25		61.8	64.1	59.7			
	0:30		61.8	64.1	59.7			
15-Feb-19	23:30	Cloudy	64.4	67.5	62.3	64.2	60.8	***62***
	23:35		64.1	67.6	62.4			
	23:40		64.1	67.4	62.6			
22-Feb-19	23:45	Cloudy	65.3	74.0	62.4	64.9	60.8	***63***
	23:50		65.2	72.2	62.0			
	23:55		64.0	70.1	61.2			
28-Feb-19	23:30	Sunny	62.5	63.6	61.3	62.6	60.8	***58***
	23:35		62.6	63.6	61.4			
	23:40		62.8	63.8	61.5			

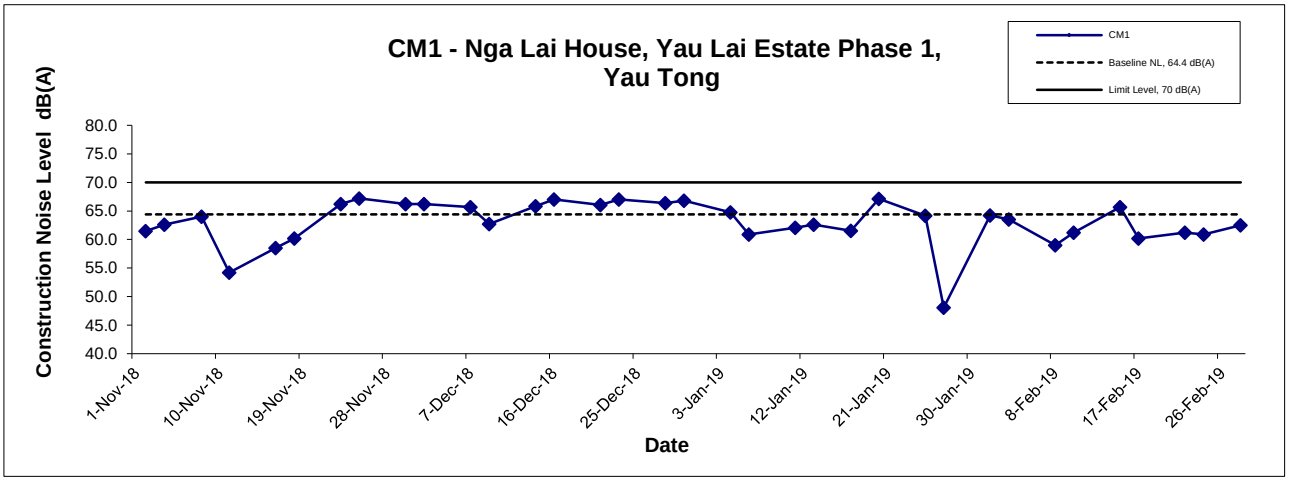
Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong

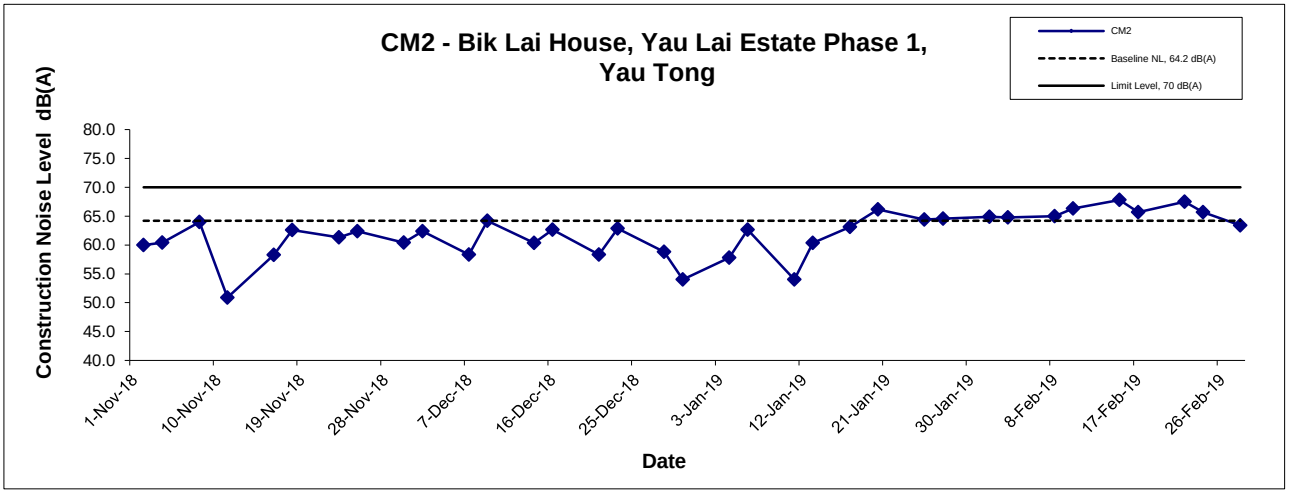
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}
2-Feb-19	0:20	Sunny	64.3	65.0	60.3	64.2	61.2	***61***
	0:25		64.2	65.2	60.2			
	0:30		64.1	65.3	60.2			
8-Feb-19	23:35	Cloudy	63.8	65.1	61.2	63.6	62.9	55
	23:40		63.6	65.4	61.4			
	23:45		63.5	65.0	61.5			
16-Feb-19	0:05	Cloudy	64.2	66.1	61.7	64.2	61.8	***60***
	0:10		64.3	66.2	61.8			
	0:15		64.0	65.9	61.5			
23-Feb-19	0:45	Cloudy	65.0	66.5	61.0	64.9	60.5	***63***
	0:50		64.8	67.1	60.9			
	0:55		64.8	66.6	61.3			
1-Mar-19	0:00	Sunny	59.2	60.6	57.4	59.1	61.8	59Measured ≦ Baseline
	0:05		58.9	60.0	56.8			
	0:10		59.1	60.9	57.1			

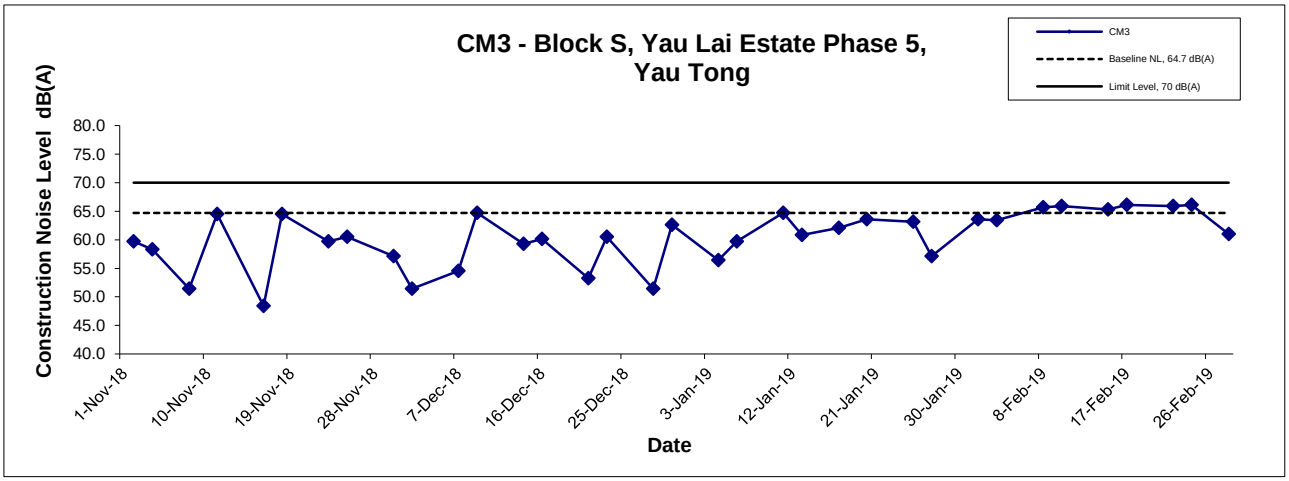
Location CM4 - Tin Hau Temple, Cha Kwo Ling

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}
2-Feb-19	1:01	Sunny	55.0	55.8	45.7	55.1	54.5	46
	1:06		55.1	56.2	45.6			
	1:11		55.1	56.1	45.7			
8-Feb-19	23:00	Cloudy	53.7	56.3	50.8	53.4	55.6	53Measured ≦ Baseline
	23:05		53.6	56.1	51.2			
	23:10		52.9	55.4	50.0			
16-Feb-19	0:40	Cloudy	54.1	56.4	50.9	54.1	54.8	54Measured ≦ Baseline
	0:45		54.2	56.1	51.1			
	0:50		53.9	56.2	51.1			
22-Feb-19	23:00	Cloudy	54.7	56.2	51.8	54.4	55.6	54Measured ≦ Baseline
	23:05		54.6	56.2	52.1			
	23:10		54.0	55.6	50.9			
1-Mar-19	0:30	Sunny	54.3	55.6	53.1	54.6	54.8	55Measured ≦ Baseline
	0:35		54.5	55.7	53.2			
	0:40		55.1	55.7	54.3			

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

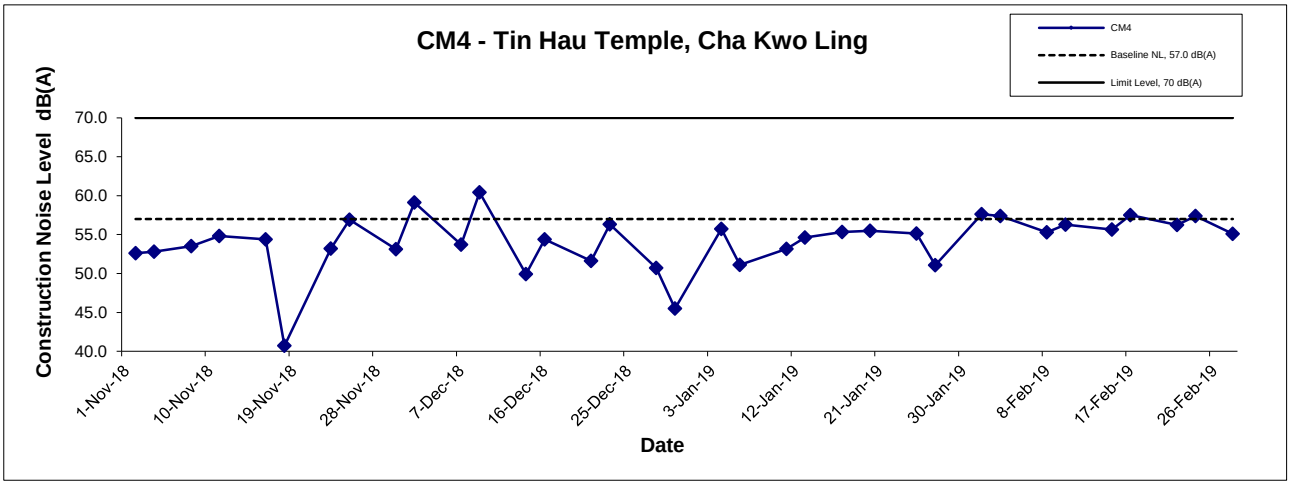






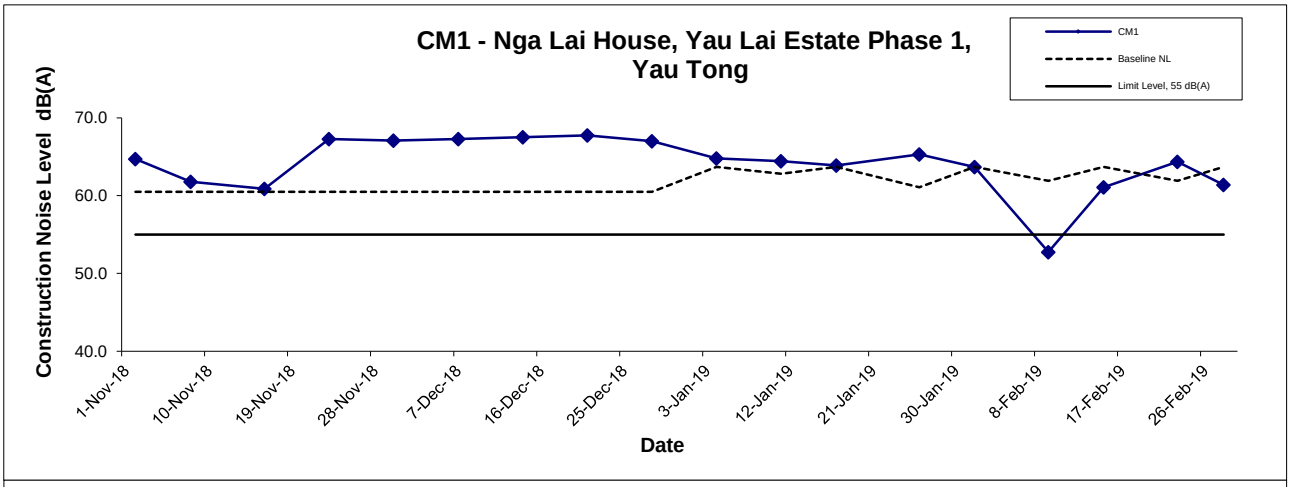
Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Feb 19	Appendix: G	

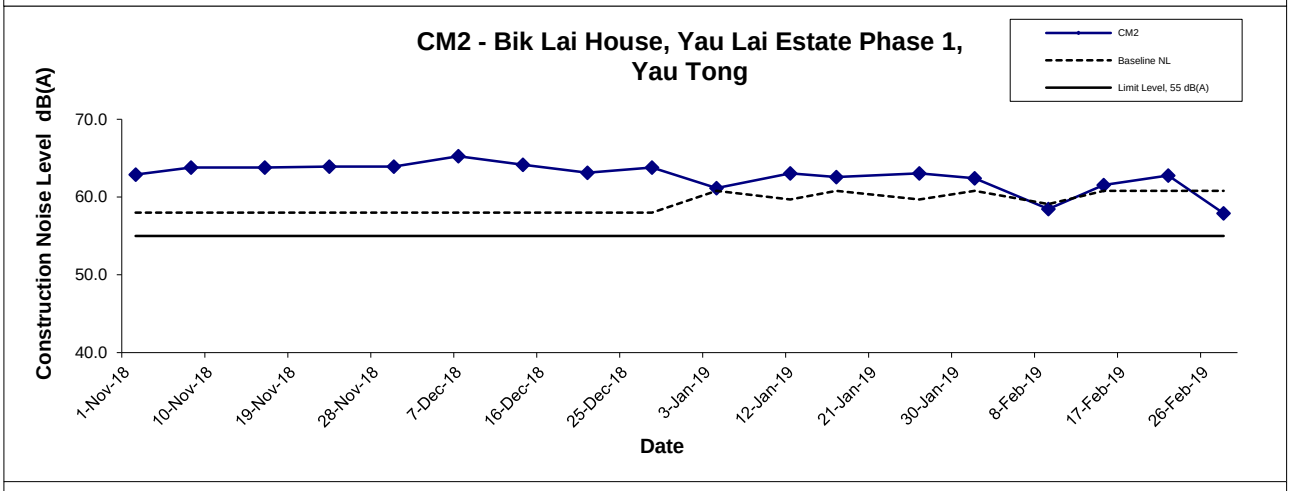
Noise Levels
(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)

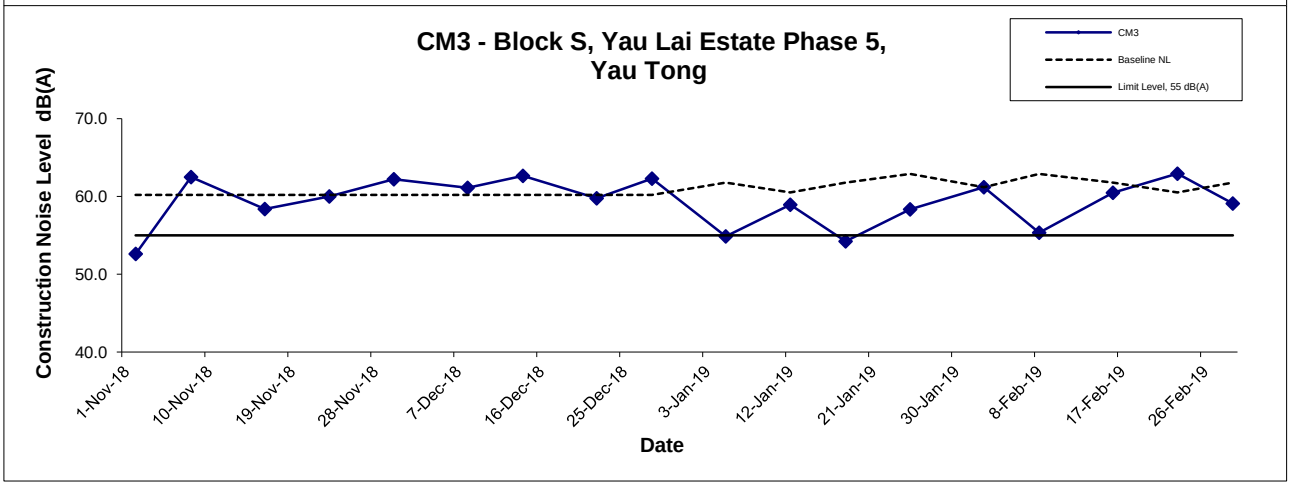


Title	Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
		Date Feb 19	Appendix G	

Noise Levels
(Restricted Hours - 2300-0700 on all days)

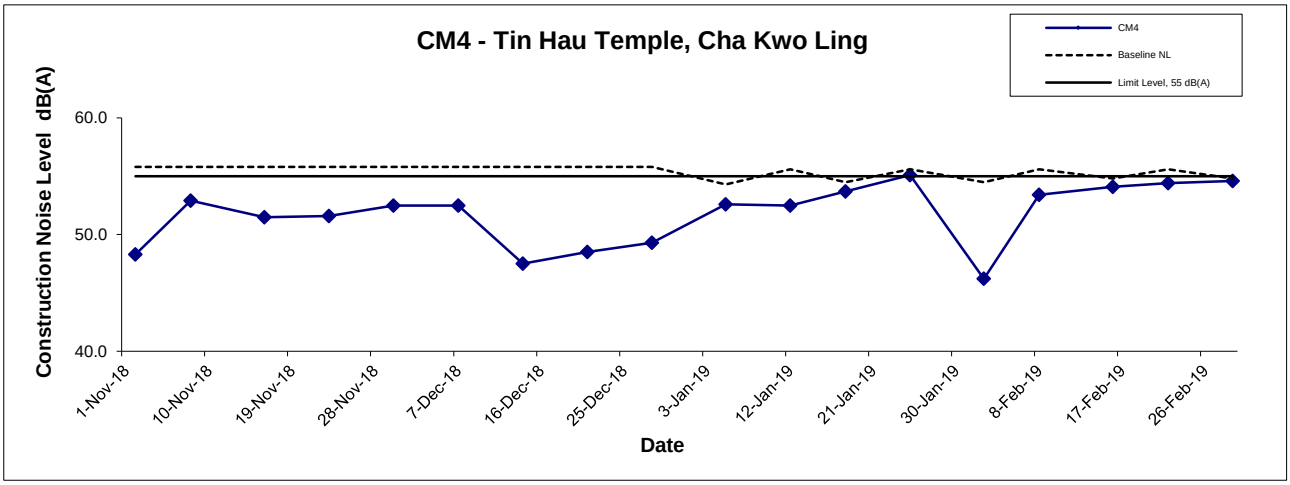






Title: Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
	Date: Feb 19	Appendix: G	

Noise Levels
(Restricted Hours - 2300-0700 on all days)



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: Feb 19	Project No.: MA16034 Appendix: G	CINOTECH

APPENDIX H
GROUNDWATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

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

Groundwater Quality Monitoring Results at Stream 1

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
12-Feb-19	Fine	14:20	Surface	21.5 21.4	21.5	6.9 7.0	6.9	1.4 1.4	1.4	103.3 103.4	103.4	9.1 9.1	9.1	0.8 0.9	0.8
26-Feb-19	Fine	13:15	Surface	19.3 19.3	19.3	8.1 8.1	8.1	0.7 0.7	0.7	100.5 100.5	100.5	9.2 9.2	9.2	2.2 2.2	***2.2***

Groundwater Quality Monitoring Results at Stream 2

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
12-Feb-19	Fine	14:36	Surface	19.9 19.9	19.9	7.6 7.6	7.6	0.2 0.2	0.2	92.6 92.5	92.6	8.4 8.4	8.4	0.7 0.7	0.7
25-Feb-19	Fine	13:03	Surface	19.3 19.3	19.3	7.8 7.8	7.8	0.1 0.1	0.1	93.7 93.6	93.7	8.6 8.6	8.6	2.0 2.0	2.0

Groundwater Quality Monitoring Results at Stream 3

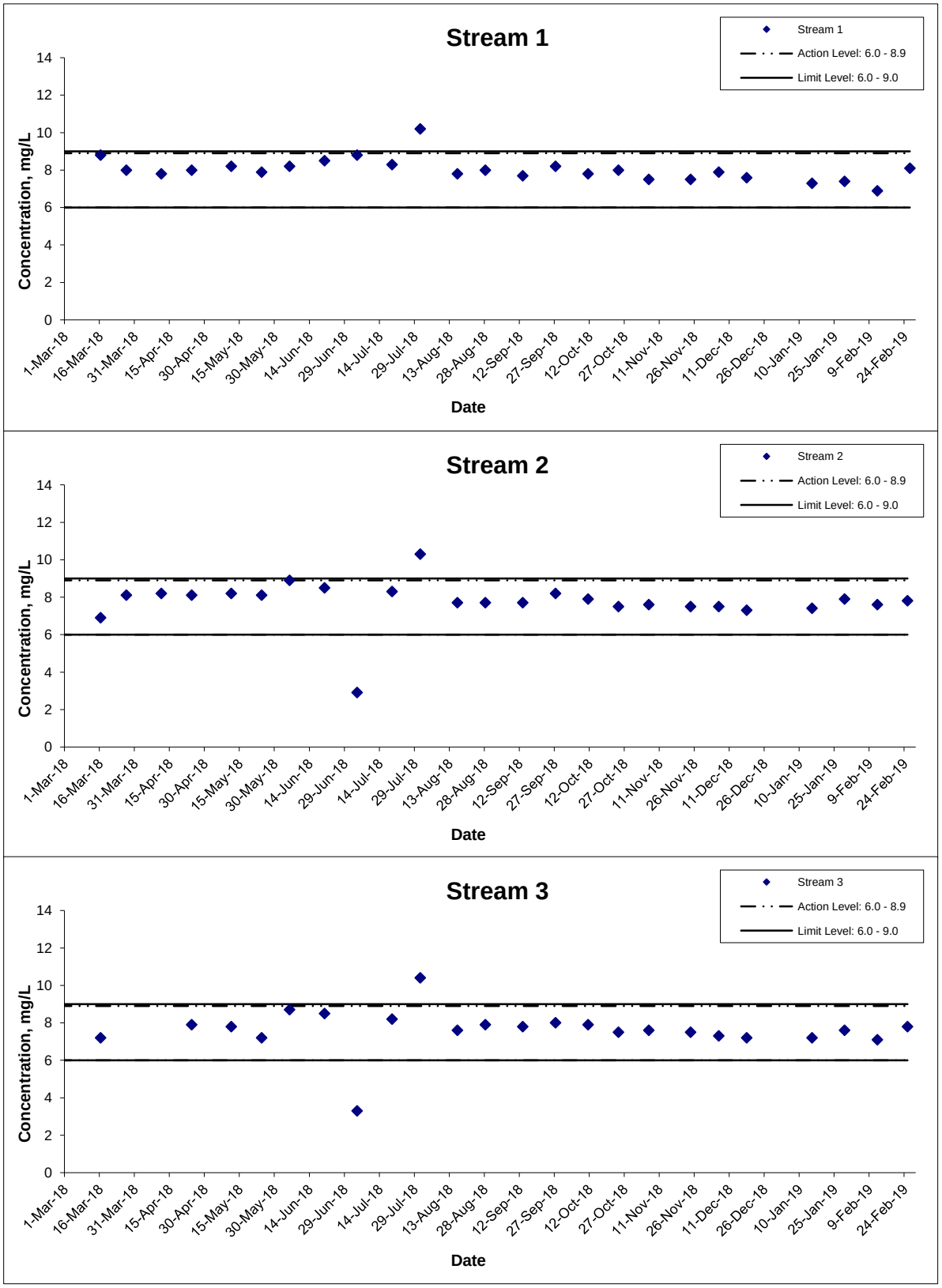
Date	Weather Condition	Sampling Time	Depth (m)	Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
12-Feb-19	Fine	14:48	Surface	21.3 21.3	21.3	7.1 7.1	7.1	0.1 0.1	0.1	80.4 80.4	80.4	7.1 7.1	***7.1***	0.9 0.9	0.9
25-Feb-19	Fine	13:15	Surface	20.0 20.0	20.0	7.8 7.8	7.8	0.1 0.1	0.1	88.6 88.2	88.4	8.1 8.0	8.0	1.8 1.8	1.8

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

Summary of Groundwater Quality Monitoring Results

Date	Location	Parameters (unit)								
		pH	Dissolved Oxygen (mg/L)	Turbidity (NTU)	SS (mg/L)	BOD_5 (mg O_2/L)	TOC (mg-TOC/L)	Total Nitrogen (mg/L)	NH_3-N (mg NH_3-N/L)	Total Phosphorus (mg-P/L)
12 Feb 2019	Stream 1	6.9	9.1	0.8	2.7	<2	5	1.7	0.07	<0.05
	Stream 2	7.6	8.4	0.7	2.1	<2	7	1.5	<0.05	<0.05
	Stream 3	7.1	***7.1***	0.9	1.4	<2	3	1.1	<0.05	<0.05
26 Feb 2019	Stream 1	8.1	9.2	***2.2***	3	<2	6	0.8	<0.05	<0.05
25 Feb 2619	Stream 2	7.8	8.6	2.0	<2.5	<2	6	0.9	<0.05	<0.05
	Stream 3	7.8	8.0	1.8	<2.5	<2	6	1.5	<0.05	<0.05

pH



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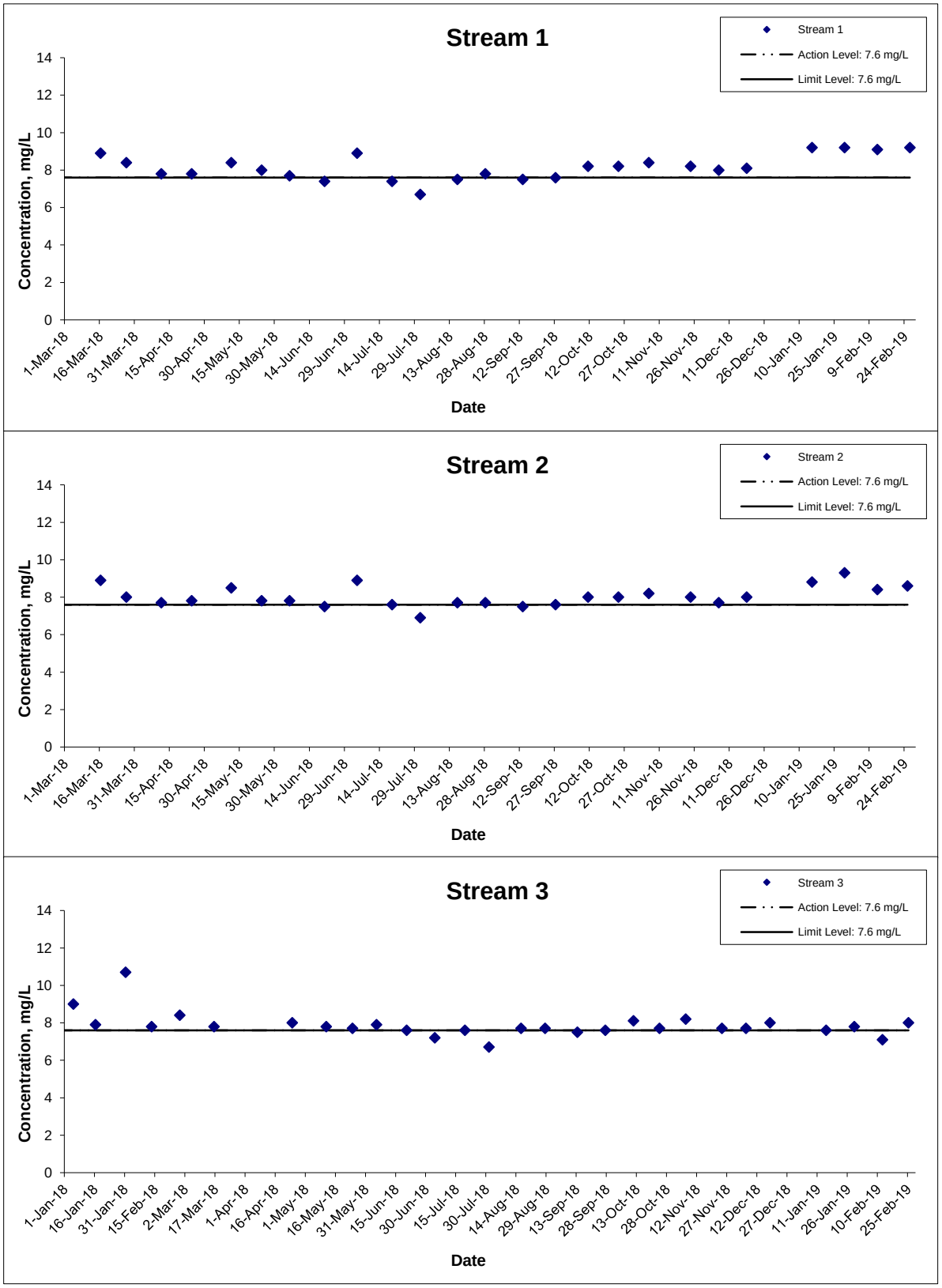
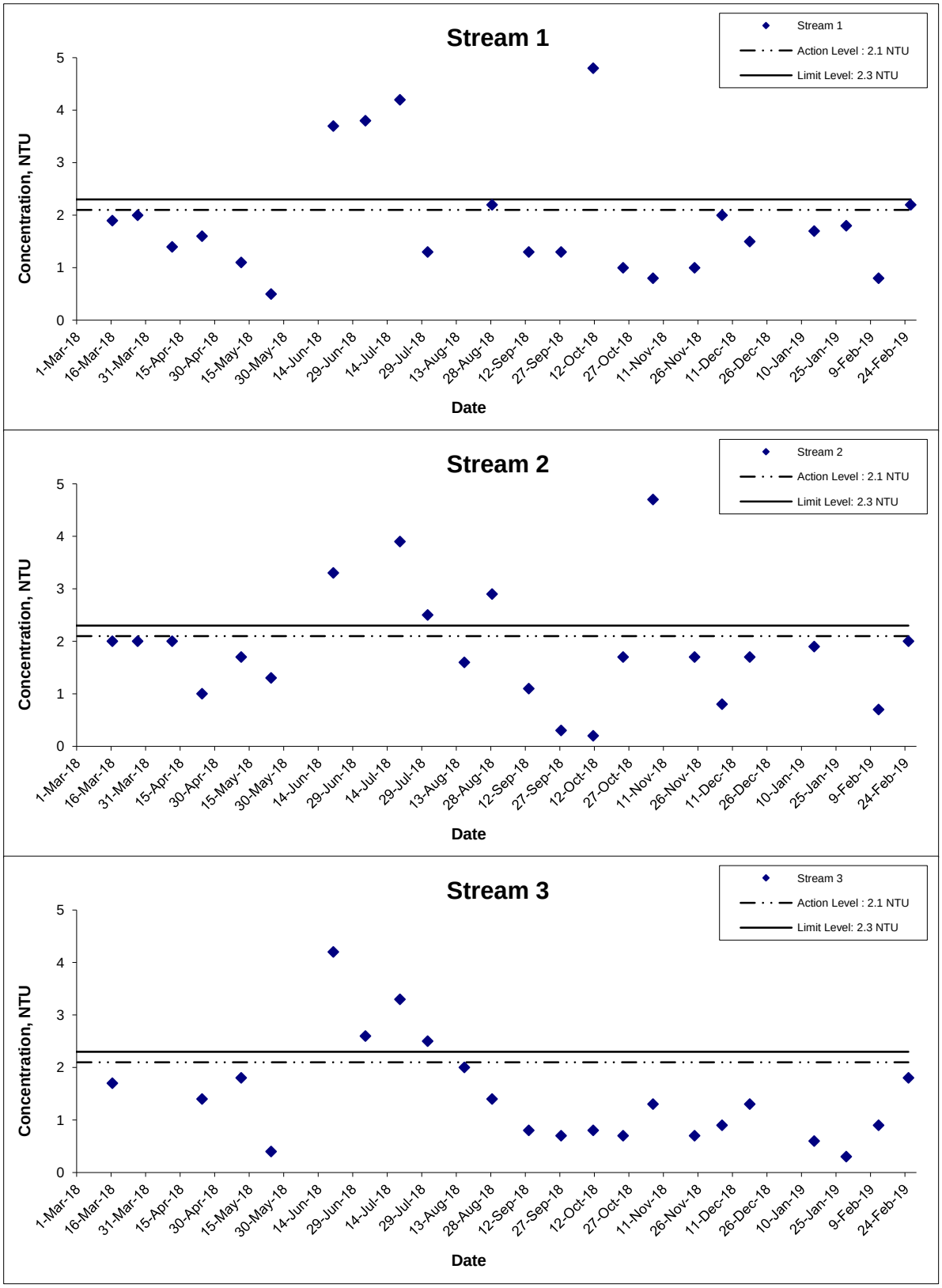
		Date: Feb 19	Appendix: H	

Dissolved Oxygen



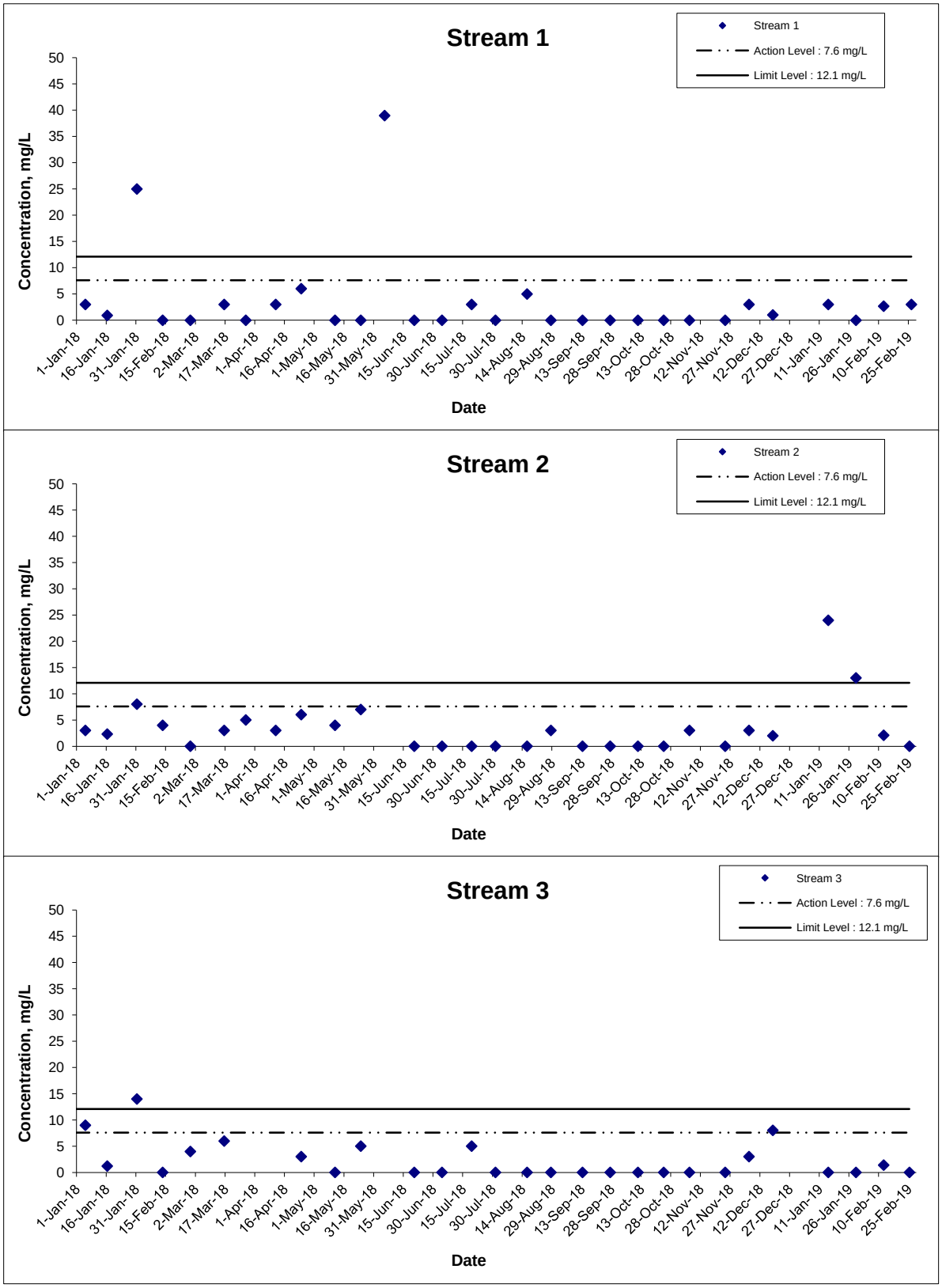
Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

Turbidity



Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

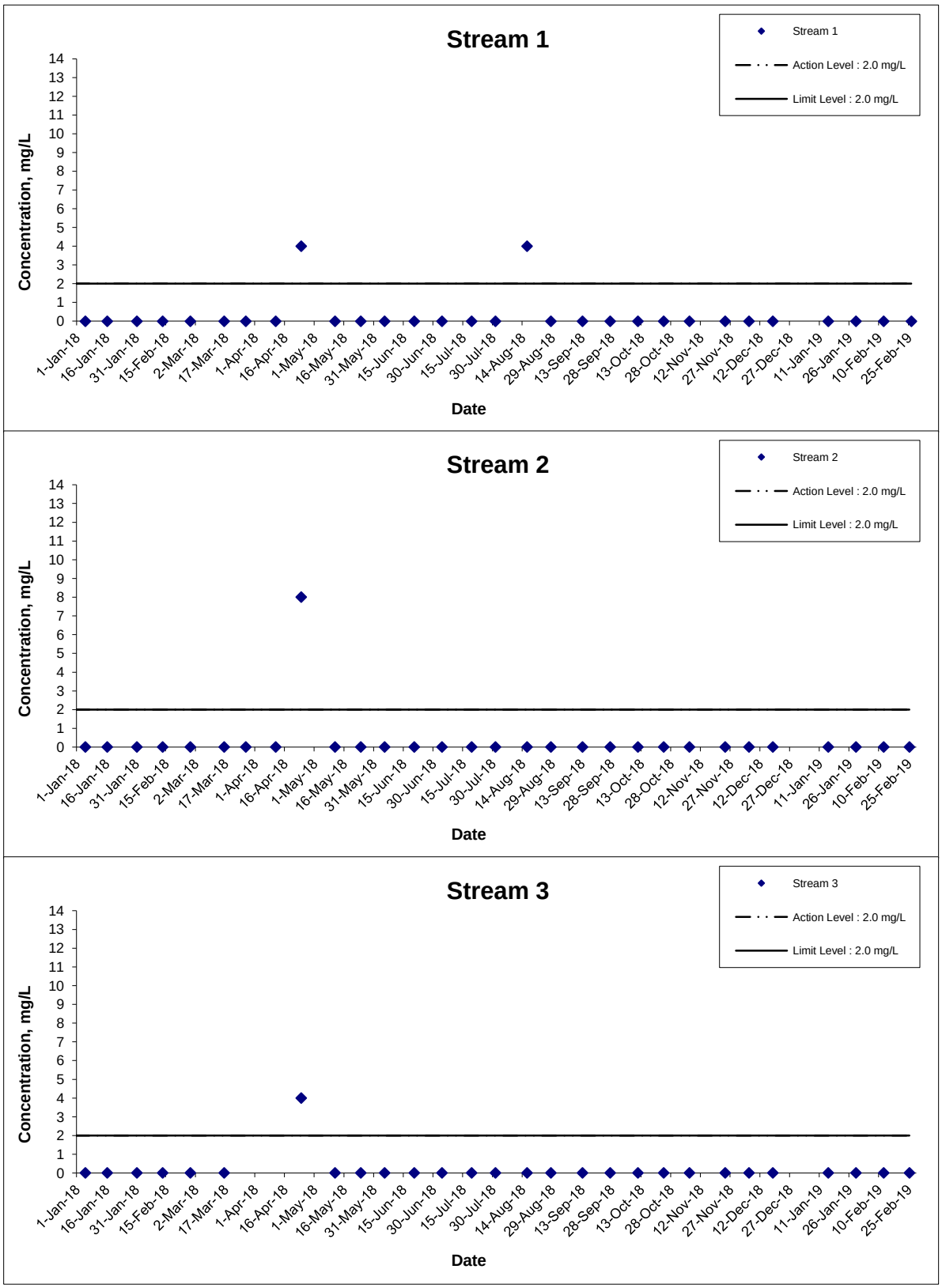
Suspended Solids



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S	Project No.: MA16034	CINOTECH
		Date: Feb 19	Appendix: H	

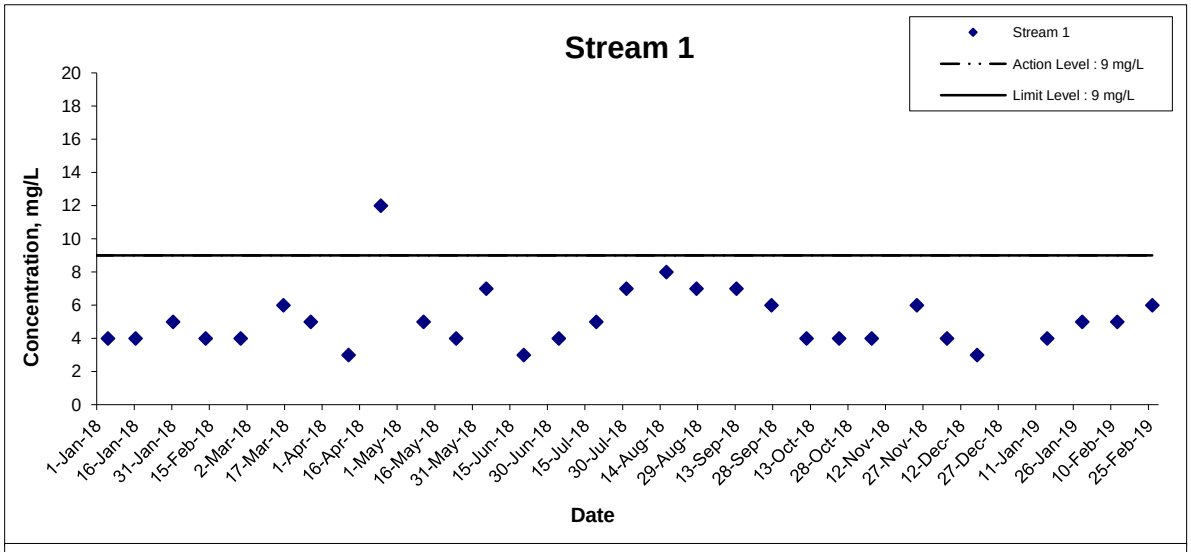
5-day Biochemical Oxygen Demand (BOD_5)

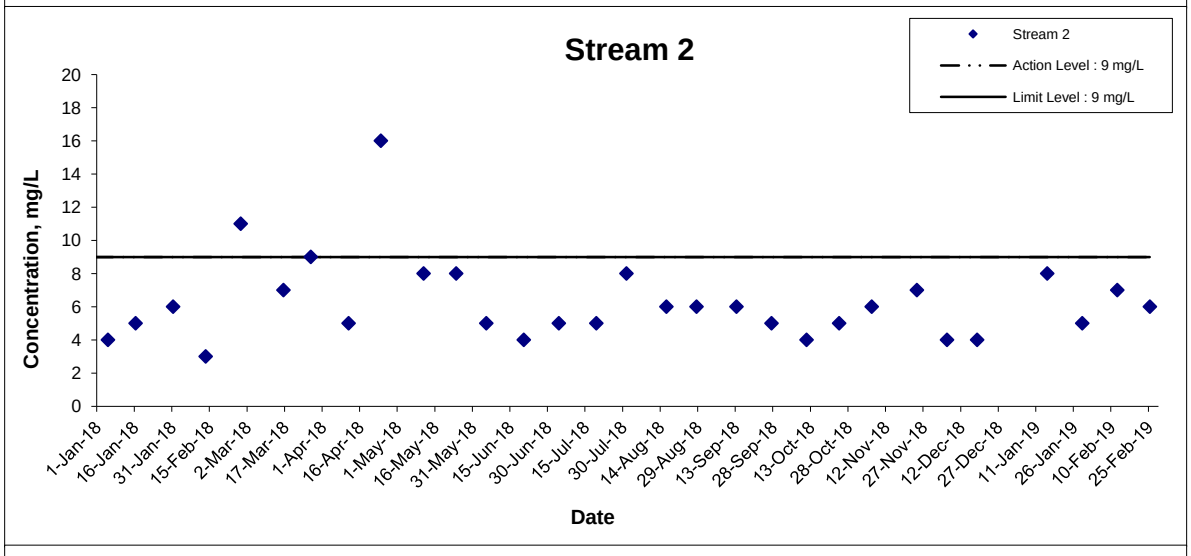


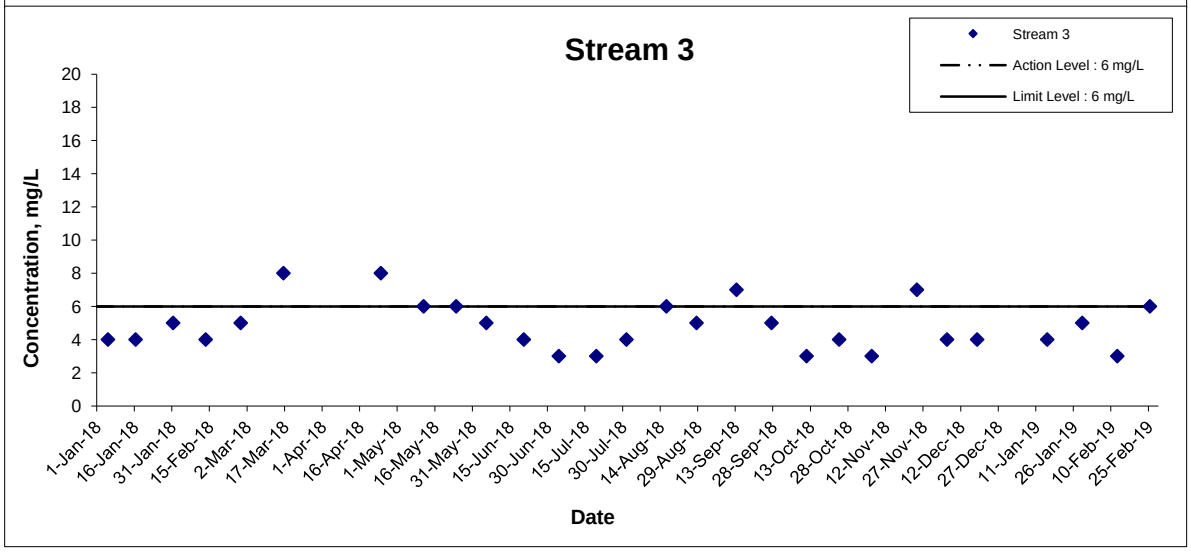
Remarks: The graphical point at zero concentration is presented as <2 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

Total Organic Carbon (TOC)

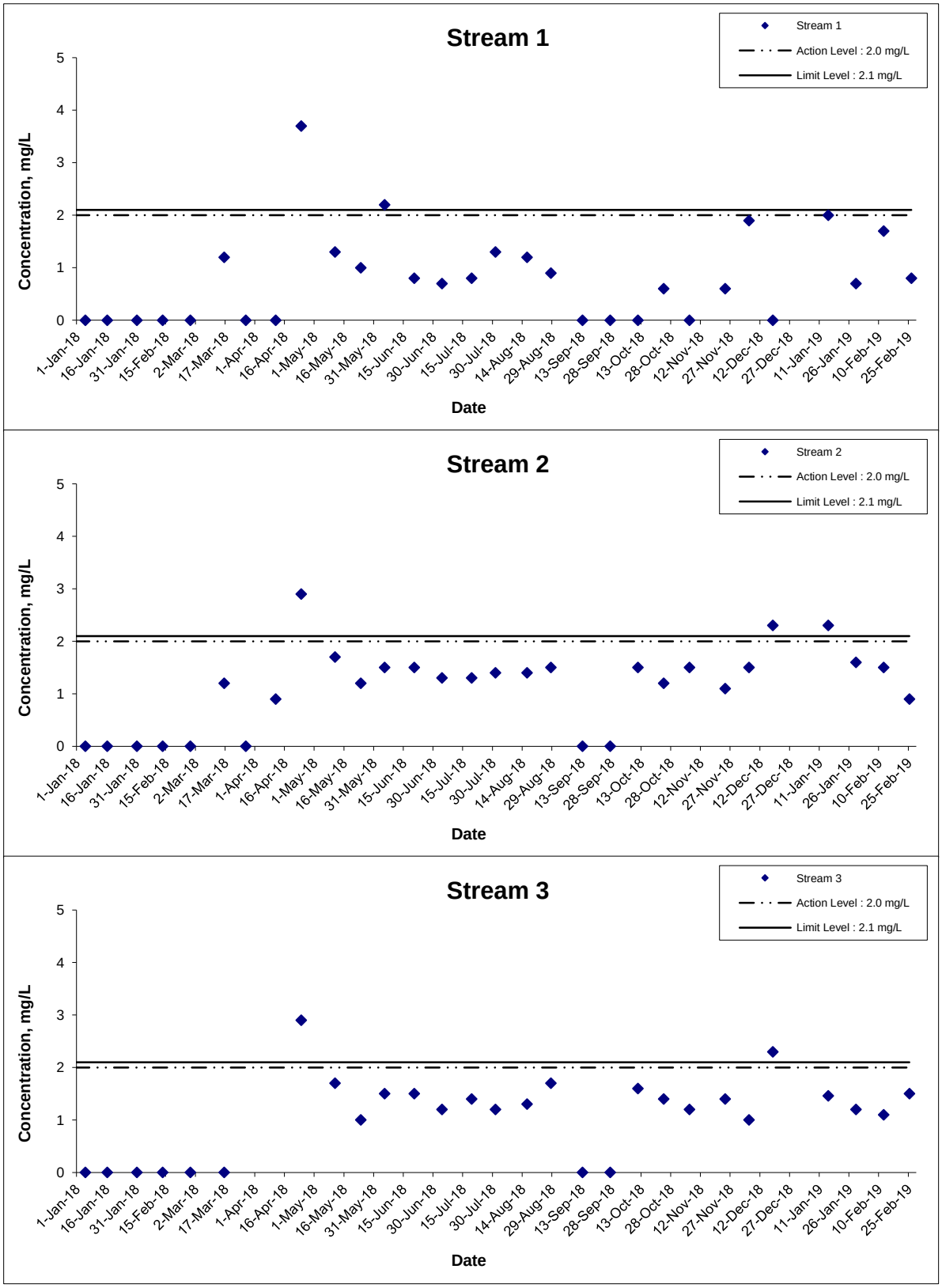






Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

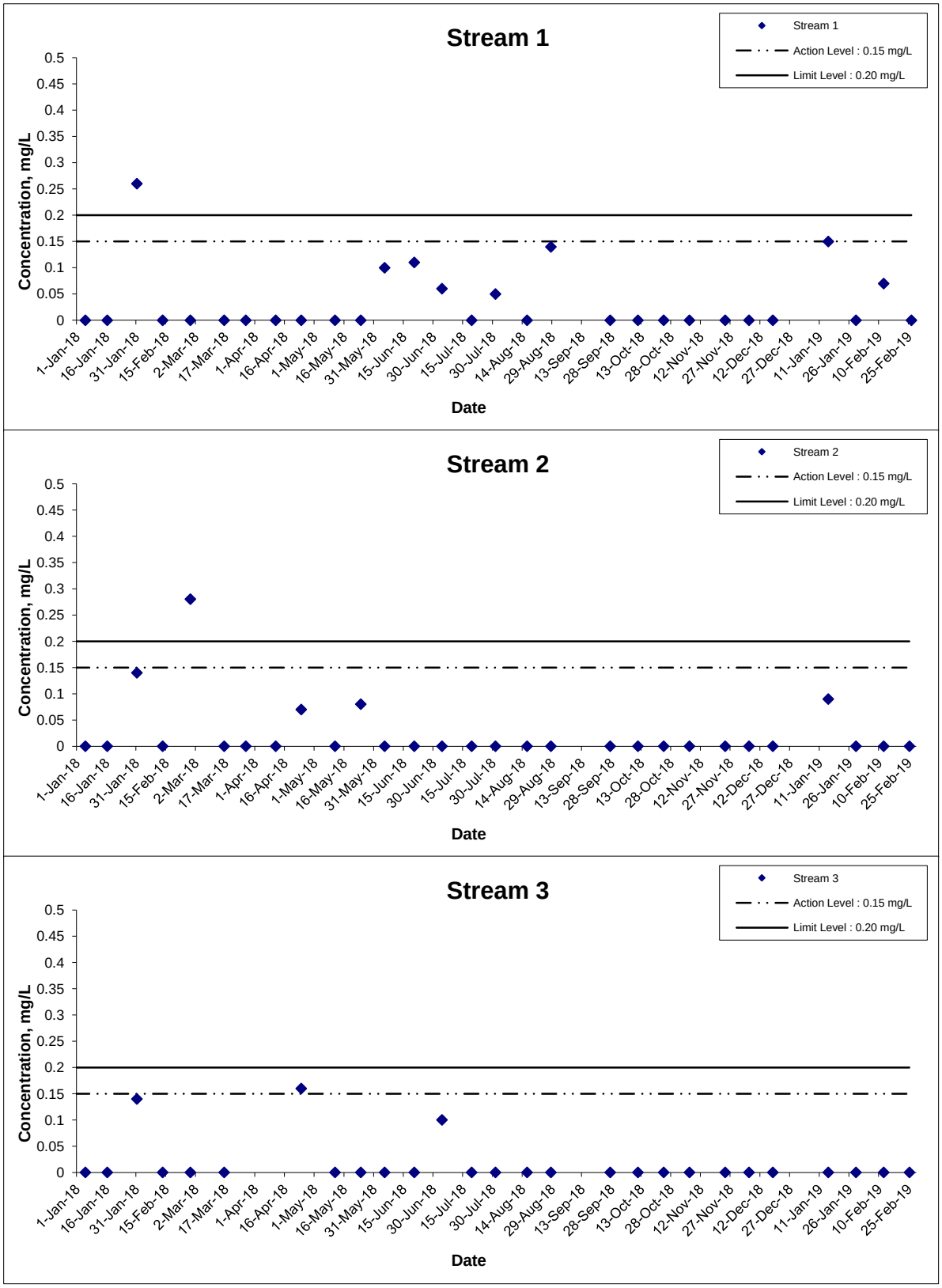
Total Nitrogen



Remarks: The graphical point at zero concentration is presented as <0.6 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

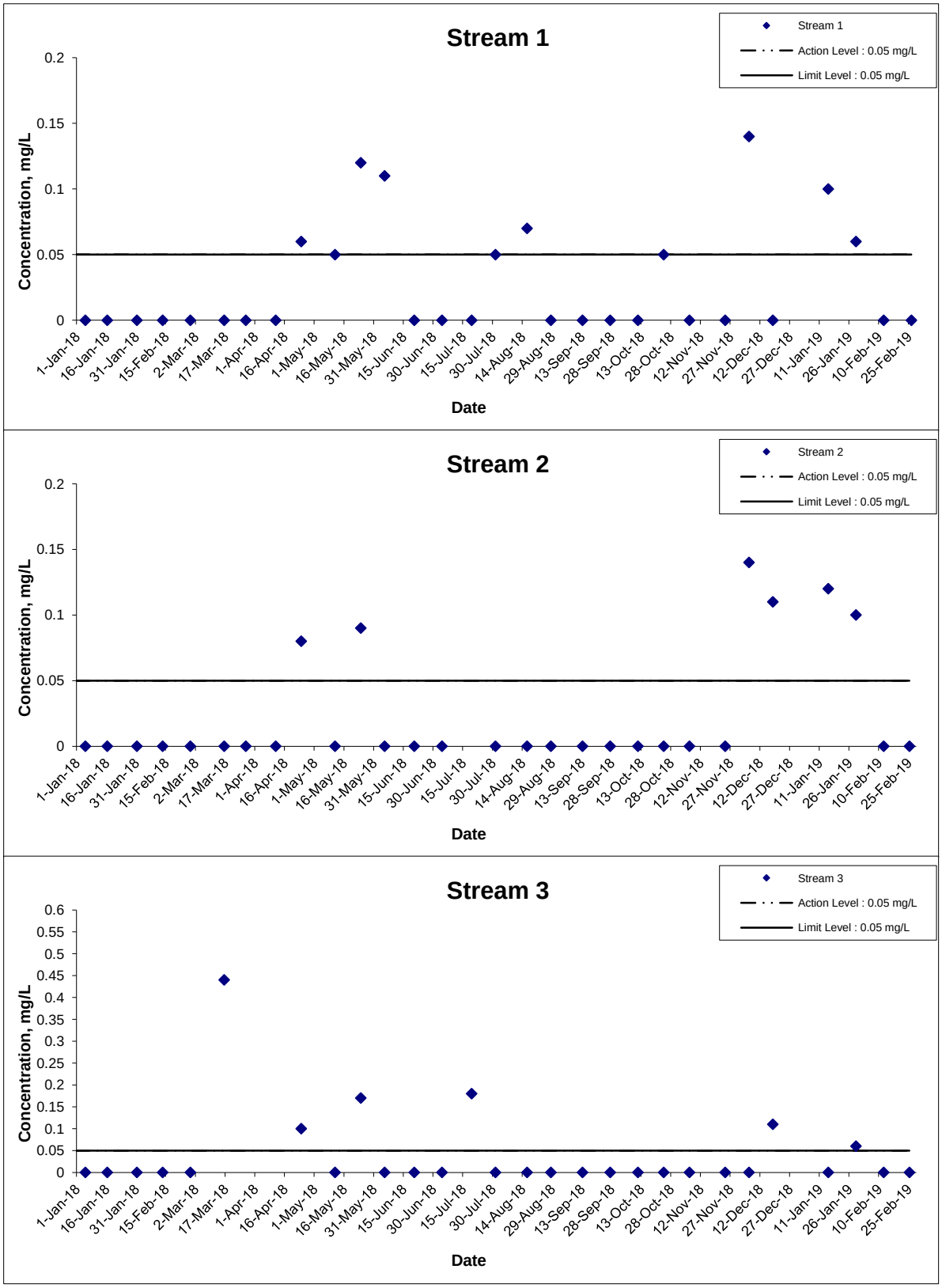
Ammonia-Nitrogen



Remarks: The graphical point at zero concentration is presented as <0.05 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S	Project No.: MA16034	CINOTECH
		Date: Feb 19	Appendix: H	

Total Phosphate



Remarks: The graphical point at zero concentration is presented as <0.05 mg/L

Title	Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: H	CINOTECH

APPENDIX I
MARINE WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix I - Action and Limit Levels for Marine Water Quality on 1 February 2019 (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: 1.6 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.7 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 ***C2: 7.4 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.0 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 ***C2: 7.4 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.0 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 ***C2: 5.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.9 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 01 February 2019

(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	11:28	Surface	1.1	18.4 18.4	18.4	8.3 8.3	8.3	33.2 33.2	33.2	124.4 124.5	124.5	9.6 9.6	9.6	9.1	0.8 0.8	0.8	0.6	5.5 5.8	5.7	6.4
				Middle	9.0	18.1 18.1	18.1	8.3 8.3	8.3	33.3 33.3	33.3	112.6 112.6	112.6	8.7 8.7	8.7		0.5 0.5	0.5		5.6 5.7	5.7	
				Bottom	17.1	17.9 17.9	17.9	8.3 8.2	8.2	33.3 33.3	33.3	108.2 108.1	108.2	8.4 8.4	8.4	8.4	0.5 0.5	0.5		8.0 7.8	7.9	
C2	Cloudy	Moderate	10:28	Surface	1.1	18.4 18.4	18.4	8.2 8.2	8.2	33.2 33.2	33.2	121.7 121.3	121.5	9.4 9.4	9.4	9.2	0.8 0.7	0.8	0.9	6.1 6.2	6.2	5.4
				Middle	16.1	18.3 18.3	18.3	8.2 8.2	8.2	33.3 33.3	33.3	117.0 117.8	117.4	9.0 9.1	9.1		0.8 0.7	0.7		5.3 5.4	5.4	
				Bottom	31.0	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	112.8 112.4	112.6	8.7 8.7	8.7	8.7	1.2 1.5	1.3		4.6 4.5	4.6	
G1	Cloudy	Moderate	10:59	Surface	1.1	18.6 18.6	18.6	8.3 8.3	8.3	33.0 33.0	33.0	131.2 131.3	131.3	10.1 10.1	10.1	10.0	1.0 1.0	1.0	1.8	4.7 4.6	4.7	8.2
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	128.3 128.7	128.5	9.9 9.9	9.9		1.7 1.6	1.7		13.4 13.2	13.3	
				Bottom	7.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	116.1 116.0	116.1	8.9 8.9	8.9	8.9	2.8 2.7	2.8		6.6 6.8	6.7	
G2	Cloudy	Moderate	10:47	Surface	1.1	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	130.1 130.1	130.1	10.0 10.0	10.0	9.5	0.9 0.9	0.9	0.8	9.6 10.1	9.9	7.9
				Middle	5.0	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	117.7 117.7	117.7	9.1 9.1	9.1		0.6 0.6	0.6		2.6 2.6	2.6	
				Bottom	9.0	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	117.3 117.2	117.3	9.0 9.0	9.0	9.0	0.7 0.7	0.7		11.0 11.5	11.3	
G3	Cloudy	Moderate	11:02	Surface	1.1	18.6 18.6	18.6	8.3 8.3	8.3	33.1 33.1	33.1	130.0 130.1	130.1	10.0 10.0	10.0	9.7	1.2 1.2	1.2	1.8	8.9 9.1	9.0	9.4
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	122.4 122.4	122.4	9.4 9.4	9.4		1.7 1.7	1.7		12.3 12.4	12.4	
				Bottom	7.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	115.2 115.2	115.2	8.9 8.9	8.9	8.9	2.4 2.5	2.4		6.9 7.0	7.0	
G4	Cloudy	Moderate	11:10	Surface	1.0	18.5 18.5	18.5	8.4 8.4	8.4	33.2 33.2	33.2	132.7 132.8	132.8	10.2 10.2	10.2	9.8	0.8 0.8	0.8	1.3	8.0 7.9	8.0	11.2
				Middle	4.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	121.2 121.2	121.2	9.3 9.3	9.3		1.5 1.5	1.5		3.6 3.6	3.6	
				Bottom	7.0	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	116.4 116.4	116.4	9.0 9.0	9.0	9.0	1.4 1.4	1.4		22.1 22.2	22.2	
M1	Cloudy	Moderate	10:52	Surface	1.0	18.6 18.6	18.6	8.3 8.3	8.3	33.2 33.2	33.2	126.7 126.8	126.8	9.7 9.7	9.7	9.6	2.0 2.1	2.0	2.2	9.3 9.3	9.3	8.1
				Middle	3.1	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	124.0 124.0	124.0	9.5 9.5	9.5		2.1 2.1	2.1		4.9 5.1	5.0	
				Bottom	5.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	118.8 118.7	118.8	9.1 9.1	9.1	9.1	2.6 2.6	2.6		9.8 9.9	9.9	
M2	Cloudy	Moderate	10:43	Surface	1.1	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	125.9 125.9	125.9	9.7 9.7	9.7	9.4	1.0 1.0	1.0	0.9	13.7 14.1	13.9	9.4
				Middle	6.0	18.4 18.4	18.4	8.3 8.3	8.3	33.2 33.2	33.2	119.3 119.4	119.4	9.2 9.2	9.2		0.9 0.9	0.9		8.6 8.3	8.5	
				Bottom	11.1	18.3 18.3	18.3	8.2 8.2	8.2	33.3 33.3	33.3	115.0 114.9	115.0	8.9 8.9	8.9	8.9	1.0 0.9	0.9		5.8 5.7	5.8	
M3	Cloudy	Moderate	11:06	Surface	1.1	18.6 18.6	18.6	8.4 8.4	8.4	33.1 33.2	33.2	138.5 138.0	138.3	10.6 10.6	10.6	10.2	0.7 0.7	0.7	0.8	9.9 9.9	9.9	9.6
				Middle	4.1	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	128.0 128.3	128.2	9.8 9.9	9.8		0.8 0.8	0.8		9.1 9.3	9.2	
				Bottom	7.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	123.1 123.0	123.1	9.5 9.5	9.5	9.5	1.0 1.0	1.0		9.4 9.7	9.6	
M4	Cloudy	Moderate	10:36	Surface	1.0	18.3 18.4	18.4	8.2 8.3	8.3	33.2 33.2	33.2	118.3 125.7	122.0	9.1 9.7	9.4	9.1	0.8 0.8	0.8	0.9	7.3 7.2	7.3	6.0
				Middle	5.1	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	113.0 112.5	112.8	8.7 8.7	8.7		0.9 0.9	0.9		5.9 5.7	5.8	
				Bottom	9.0	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	111.9 111.8	111.9	8.6 8.6	8.6	8.6	1.0 0.9	0.9		5.0 5.1	5.1	
M5	Cloudy	Moderate	11:21	Surface	1.1	18.4 18.4	18.4	8.3 8.3	8.3	33.2 33.2	33.2	122.0 123.0	122.5	9.4 9.5	9.4	9.3	1.0 1.2	1.1	1.2	2.6 2.7	2.7	6.8
				Middle	5.5	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	116.7 119.5	118.1	9.0 9.2	9.1		1.2 1.4	1.3		7.1 7.0	7.1	
				Bottom	10.0	18.2 18.3	18.2	8.3 8.3	8.3	33.3 33.3	33.3	113.7 116.5	115.1	8.8 9.0	8.9	8.9	0.9 1.1	1.0		10.6 10.6	10.6	
M6	Cloudy	Moderate	11:15	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	10.1	- -	-	0.6	- -	-	4.8
				Middle	2.0	18.4 18.4	18.4	8.3 8.3	8.3	33.2 33.2	33.2	131.6 131.4	131.5	10.1 10.1	10.1		0.6 0.6	0.6		4.8 4.7	4.8	
				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 1 February 2019 (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: 0.8 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.8 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: 9.1 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 9.9 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 ***C1: 9.1 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 9.9 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 ***C1: 3.2 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.5 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 01 February 2019

(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	15:22	Surface	1.1	18.1 18.1	18.1	8.3 8.3	8.3	33.3 33.3	33.3	118.9 118.9	118.9	9.2 9.2	9.2	8.8	0.4 0.5	0.5	0.5	7.6 7.6	7.6	4.7
				Middle	9.1	18.0 18.0	18.0	8.3 8.3	8.3	33.3 33.3	33.3	109.4 109.4	109.4	8.5 8.5	8.5		0.5 0.6	0.5		3.9 3.9	3.9	
				Bottom	17.0	17.9 17.9	17.9	8.2 8.2	8.2	33.4 33.4	33.4	107.8 107.7	107.8	8.4 8.4	8.4	8.4	0.6 0.6	0.6		2.7 2.7	2.7	
C2	Cloudy	Moderate	14:23	Surface	1.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	128.9 128.9	128.9	9.9 9.9	9.9	9.4	0.7 0.7	0.7	0.8	7.9 8.2	8.1	5.8
				Middle	16.0	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	114.8 114.8	114.8	8.9 8.9	8.9		1.0 1.0	1.0		4.7 4.7	4.7	
				Bottom	31.1	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	111.4 111.3	111.4	8.6 8.6	8.6	8.6	0.9 0.9	0.9		4.5 4.6	4.6	
G1	Cloudy	Moderate	14:53	Surface	1.0	18.7 18.8	18.7	8.4 8.4	8.4	33.1 33.1	33.1	148.2 148.5	148.4	11.3 11.4	11.4	10.5	0.8 0.8	0.8	1.6	12.4 12.4	12.4	7.4
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	125.6 125.6	125.6	9.7 9.7	9.7		1.8 1.8	1.8		6.1 6.1	6.1	
				Bottom	7.0	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	116.6 116.6	116.6	9.0 9.0	9.0	9.0	2.3 2.3	2.3		3.7 3.6	3.7	
G2	Cloudy	Moderate	14:41	Surface	3.0	18.6 18.3	18.4	8.4 8.3	8.3	33.2 33.3	33.2	134.3 120.4	127.4	10.3 9.3	9.8	9.7	1.0 0.8	0.9	0.8	7.6 7.6	7.6	5.8
				Middle	4.8	18.6 18.2	18.4	8.4 8.3	8.3	33.2 33.3	33.2	134.4 112.4	123.4	10.3 8.7	9.5		1.1 0.6	0.8		3.8 3.9	3.9	
				Bottom	6.8	18.3 18.2	18.2	8.3 8.3	8.3	33.3 33.3	33.3	120.4 112.4	116.4	9.3 8.7	9.0	9.0	0.8 0.6	0.7		5.9 5.9	5.9	
G3	Cloudy	Moderate	14:57	Surface	1.1	18.8 18.8	18.8	8.4 8.4	8.4	33.0 33.0	33.0	145.5 145.6	145.6	11.2 11.2	11.2	10.4	0.8 0.8	0.8	1.4	3.5 3.6	3.6	3.8
				Middle	4.1	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	126.7 126.7	126.7	9.7 9.7	9.7		1.0 1.1	1.0		4.8 4.7	4.8	
				Bottom	7.1	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	116.6 116.2	116.4	9.0 9.0	9.0	9.0	2.2 2.3	2.2		2.9 3.0	3.0	
G4	Cloudy	Moderate	15:04	Surface	1.1	18.6 18.6	18.6	8.4 8.4	8.4	33.2 33.2	33.2	136.9 136.9	136.9	10.5 10.5	10.5	10.2	0.9 0.9	0.9	1.4	3.6 3.6	3.6	4.5
				Middle	4.0	18.4 18.4	18.4	8.3 8.3	8.3	33.2 33.2	33.2	127.6 127.6	127.6	9.8 9.8	9.8		1.2 1.2	1.2		3.4 3.4	3.4	
				Bottom	7.1	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	118.5 118.6	118.6	9.1 9.1	9.1	9.1	2.0 2.0	2.0		6.6 6.6	6.6	
M1	Cloudy	Moderate	14:46	Surface	1.0	18.6 18.6	18.6	8.3 8.3	8.3	33.2 33.2	33.2	128.8 132.9	130.9	9.9 10.2	10.0	10.0	1.3 1.4	1.3	1.4	6.8 6.9	6.9	5.4
				Middle	3.0	18.6 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	130.6 128.8	129.7	10.0 9.9	10.0		1.5 1.5	1.5		5.7 5.7	5.7	
				Bottom	5.0	18.4 18.3	18.4	8.3 8.3	8.3	33.3 33.3	33.3	122.0 116.9	119.5	9.4 9.0	9.2	9.2	1.3 1.3	1.3		3.5 3.5	3.5	
M2	Cloudy	Moderate	14:37	Surface	1.0	18.6 18.6	18.6	8.4 8.4	8.4	33.2 33.2	33.2	137.3 137.4	137.4	10.5 10.5	10.5	10.0	1.0 1.0	1.0	1.1	8.0 8.1	8.1	7.9
				Middle	6.1	18.3 18.4	18.3	8.3 8.3	8.3	33.3 33.3	33.3	121.8 121.9	121.9	9.4 9.4	9.4		1.1 1.0	1.0		4.2 4.2	4.2	
				Bottom	11.1	18.2 18.2	18.2	8.2 8.2	8.2	33.3 33.3	33.3	113.9 113.8	113.9	8.8 8.8	8.8	8.8	1.2 1.3	1.3		11.3 11.6	11.5	
M3	Cloudy	Moderate	15:00	Surface	1.0	18.7 18.7	18.7	8.4 8.4	8.4	33.1 33.1	33.1	138.0 138.0	138.0	10.6 10.6	10.6	10.0	0.7 0.7	0.7	1.2	7.2 7.5	7.4	5.2
				Middle	4.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	123.1 123.1	123.1	9.5 9.5	9.5		1.2 1.2	1.2		5.7 5.7	5.7	
				Bottom	7.1	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	115.3 115.3	115.3	8.9 8.9	8.9	8.9	1.6 1.6	1.6		2.7 2.6	2.7	
M4	Cloudy	Moderate	14:30	Surface	1.0	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	135.1 135.1	135.1	10.4 10.4	10.4	9.7	0.6 0.6	0.6	0.9	6.2 6.3	6.3	6.6
				Middle	5.1	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	117.9 118.0	118.0	9.1 9.1	9.1		1.0 1.0	1.0		9.1 9.1	9.1	
				Bottom	9.0	18.3 18.3	18.3	8.3 8.3	8.3	33.3 33.3	33.3	116.6 116.6	116.6	9.0 9.0	9.0	9.0	1.1 1.1	1.1		4.5 4.6	4.6	
M5	Cloudy	Moderate	15:16	Surface	1.1	18.5 18.5	18.5	8.3 8.3	8.3	33.2 33.2	33.2	133.2 133.3	133.3	10.2 10.2	10.2	9.6	1.1 1.1	1.1	1.3	8.6 8.4	8.5	6.9
				Middle	5.5	18.2 18.2	18.2	8.3 8.3	8.3	33.3 33.3	33.3	117.2 117.4	117.3	9.1 9.1	9.1		1.4 1.4	1.4		6.6 6.5	6.6	
				Bottom	10.1	18.1 18.1	18.1	8.2 8.2	8.2	33.3 33.3	33.3	107.4 107.5	107.5	8.3 8.3	8.3	8.3	1.5 1.5	1.5		5.8 5.7	5.8	
M6	Cloudy	Moderate	15:09	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	9.8	- -	-	1.3	- -	-	3.3
				Middle	2.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	126.8 126.7	126.8	9.8 9.8	9.8		1.3 1.3	1.3		3.3 3.2	3.3	
				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 February 2019 (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: 0.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.8 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: 4.0 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.3 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: 4.0 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 4.3 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: 7.0 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 7.5 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 04 February 2019

(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	13:42	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	33.2 33.2	33.2	125.3 125.3	125.3	9.5 9.5	9.5	9.2	0.3 0.3	0.3	0.4	3.0 2.9	3.0	4.3
				Middle	9.0	18.4 18.4	18.4	8.3 8.3	8.3	33.5 33.5	33.5	115.8 115.9	115.9	8.9 8.9	8.9		0.4 0.4	0.4		5.2 5.7	5.5	
				Bottom	17.1	18.1 18.1	18.1	8.3 8.3	8.3	33.9 33.9	33.9	106.7 106.6	106.7	8.2 8.2	8.2	8.2	0.5 0.5	0.5		4.3 4.7	4.5	
C2	Sunny	Moderate	12:30	Surface	1.0	18.8 18.8	18.8	8.2 8.2	8.2	33.1 33.1	33.1	116.2 116.2	116.2	8.9 8.9	8.9	8.7	0.7 0.7	0.7	0.6	3.1 3.5	3.3	4.3
				Middle	16.1	18.3 18.3	18.3	8.2 8.2	8.2	33.5 33.5	33.5	109.3 109.4	109.4	8.4 8.4	8.4		0.6 0.6	0.6		4.0 3.8	3.9	
				Bottom	31.0	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	108.2 108.2	108.2	8.3 8.3	8.3	8.3	0.6 0.6	0.6		5.8 5.8	5.8	
G1	Sunny	Moderate	13:10	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	33.1 33.1	33.1	124.2 124.4	124.3	9.4 9.4	9.4	9.3	0.4 0.4	0.4	0.7	7.9 7.8	7.9	5.1
				Middle	4.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	118.9 118.9	118.9	9.2 9.1	9.1		0.7 0.7	0.7		3.8 4.4	4.1	
				Bottom	7.0	18.3 18.3	18.3	8.3 8.3	8.3	33.4 33.4	33.4	110.3 110.3	110.3	8.5 8.5	8.5	8.5	1.1 1.1	1.1		3.2 3.3	3.3	
G2	Sunny	Moderate	12:52	Surface	1.1	19.0 19.0	19.0	8.3 8.3	8.3	33.3 33.3	33.3	123.4 123.4	123.4	9.4 9.4	9.4	9.4	0.4 0.4	0.4	0.7	5.4 5.9	5.7	4.5
				Middle	5.0	18.6 18.7	18.6	8.3 8.3	8.3	33.3 33.3	33.3	122.8 122.9	122.9	9.4 9.4	9.4		0.5 0.5	0.5		3.4 2.8	3.1	
				Bottom	9.1	18.3 18.3	18.3	8.3 8.3	8.3	33.5 33.5	33.5	111.6 111.5	111.6	8.6 8.6	8.6	8.6	1.3 1.4	1.4		4.9 4.5	4.7	
G3	Sunny	Moderate	13:15	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	33.1 33.1	33.1	127.6 127.7	127.7	9.7 9.7	9.7	9.8	0.3 0.3	0.3	0.6	7.4 7.6	7.5	4.9
				Middle	4.1	18.6 18.6	18.6	8.4 8.4	8.4	33.3 33.3	33.3	130.1 130.1	130.1	10.0 10.0	10.0		0.6 0.6	0.6		3.0 3.4	3.2	
				Bottom	7.0	18.3 18.3	18.3	8.3 8.3	8.3	33.4 33.4	33.4	114.9 114.8	114.9	8.9 8.8	8.8	8.8	0.9 0.9	0.9		4.1 4.0	4.1	
G4	Sunny	Moderate	13:24	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	33.2 33.2	33.2	127.6 127.7	127.7	9.7 9.7	9.7	9.6	0.3 0.3	0.3	0.6	2.1 2.0	2.1	4.1
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	123.8 123.9	123.9	9.5 9.5	9.5		0.4 0.4	0.4		3.3 3.5	3.4	
				Bottom	7.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	117.0 117.0	117.0	9.0 9.0	9.0	9.0	1.3 1.2	1.2		6.5 6.9	6.7	
M1	Sunny	Moderate	13:05	Surface	1.1	19.3 19.2	19.2	8.3 8.3	8.3	33.3 33.3	33.3	118.0 118.2	118.1	8.9 9.0	8.9	9.0	0.6 0.6	0.6	1.1	2.9 3.2	3.1	6.2
				Middle	3.1	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	116.8 116.8	116.8	9.0 9.0	9.0		1.1 1.1	1.1		3.4 3.6	3.5	
				Bottom	5.1	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	114.3 114.2	114.3	8.8 8.8	8.8	8.8	1.6 1.6	1.6		11.9 12.0	12.0	
M2	Sunny	Moderate	12:46	Surface	1.1	18.8 18.8	18.8	8.3 8.3	8.3	33.3 33.3	33.3	122.6 122.6	122.6	9.4 9.4	9.4	9.1	0.4 0.4	0.4	0.7	4.5 4.8	4.7	3.2
				Middle	6.0	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	115.7 115.8	115.8	8.9 8.9	8.9		0.5 0.5	0.5		2.2 2.1	2.2	
				Bottom	11.0	18.3 18.3	18.3	8.3 8.3	8.3	33.5 33.5	33.5	108.4 108.4	108.4	8.4 8.4	8.4	8.4	1.0 1.1	1.0		2.5 3.1	2.8	
M3	Sunny	Moderate	13:19	Surface	1.1	19.0 19.0	19.0	8.3 8.3	8.3	33.1 33.1	33.1	130.5 130.5	130.5	10.0 10.0	10.0	9.8	0.4 0.4	0.4	0.6	2.4 2.4	2.4	3.7
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	125.2 125.3	125.3	9.6 9.6	9.6		0.4 0.4	0.4		4.5 4.7	4.6	
				Bottom	7.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	116.2 116.1	116.2	9.0 8.9	8.9	8.9	0.9 0.9	0.9		4.2 3.8	4.0	
M4	Sunny	Moderate	12:40	Surface	1.0	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	111.8 111.8	111.8	8.6 8.6	8.6	8.5	1.1 1.1	1.1	0.8	7.4 7.4	7.4	4.6
				Middle	5.0	18.3 18.3	18.3	8.3 8.3	8.3	33.6 33.6	33.6	110.2 110.2	110.2	8.5 8.5	8.5		0.6 0.6	0.6		3.1 3.2	3.2	
				Bottom	9.0	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	109.8 109.8	109.8	8.5 8.5	8.5	8.5	0.6 0.6	0.6		3.7 2.9	3.3	
M5	Sunny	Moderate	13:36	Surface	1.1	18.7 18.8	18.7	8.3 8.3	8.3	33.3 33.3	33.3	116.9 117.1	117.0	8.9 9.0	8.9	8.7	0.9 0.9	0.9	1.4	3.7 3.8	3.8	6.5
				Middle	5.5	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	110.8 110.9	110.9	8.5 8.5	8.5		1.7 1.7	1.7		12.3 12.1	12.2	
				Bottom	10.0	18.2 18.2	18.2	8.3 8.3	8.3	33.7 33.7	33.7	109.4 109.4	109.4	8.4 8.4	8.4	8.4	1.7 1.7	1.7		3.4 3.7	3.6	
M6	Sunny	Moderate	13:29	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	9.6	- -	-	0.4	- -	-	2.4
				Middle	2.1	18.6 18.6	18.6	8.3 8.3	8.3	33.2 33.2	33.2	125.2 125.3	125.3	9.6 9.6	9.6		0.4 0.4	0.4		2.4 2.4	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 4 February 2019 (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: 0.6 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.7 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: 4.1 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.5 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 ***C1: 4.1 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.5 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 ***C1: 5.6 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.1mg/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 February 2019

(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	17:27	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	33.2 33.2	33.2	124.8 124.9	124.9	9.4 9.5	9.4	9.2	0.3 0.3	0.3	0.4	3.3 3.6	3.5	4.6
				Middle	9.0	18.4 18.4	18.4	8.3 8.3	8.3	33.5 33.5	33.5	115.7 115.8	115.8	8.9 8.9	8.9		0.4 0.4	0.4		5.7 5.4	5.6	
				Bottom	17.1	18.1 18.1	18.1	8.3 8.3	8.3	33.9 33.9	33.9	106.9 106.8	106.9	8.3 8.2	8.2	8.2	0.5 0.5	0.5		4.7 4.7	4.7	
C2	Sunny	Moderate	16:15	Surface	1.0	18.8 18.8	18.8	8.2 8.2	8.2	33.1 33.1	33.1	116.2 116.2	116.2	8.9 8.9	8.9	8.7	0.7 0.7	0.7	0.6	6.3 6.7	6.5	5.8
				Middle	16.0	18.3 18.3	18.3	8.2 8.2	8.2	33.5 33.5	33.5	109.4 109.5	109.5	8.4 8.4	8.4		0.6 0.6	0.6		4.5 4.2	4.4	
				Bottom	31.0	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	108.4 108.3	108.4	8.4 8.4	8.4	8.4	0.6 0.6	0.6		6.5 6.6	6.6	
G1	Sunny	Moderate	16:56	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	33.1 33.1	33.1	124.0 124.0	124.0	9.4 9.4	9.4	9.3	0.3 0.3	0.3	0.7	3.0 3.4	3.2	6.2
				Middle	4.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	118.9 118.9	118.9	9.2 9.2	9.2		0.7 0.7	0.7		7.2 7.6	7.4	
				Bottom	7.1	18.3 18.3	18.3	8.3 8.3	8.3	33.4 33.4	33.4	110.2 110.3	110.3	8.5 8.5	8.5	8.5	1.1 1.1	1.1		7.8 7.9	7.9	
G2	Sunny	Moderate	16:37	Surface	1.1	19.0 19.0	19.0	8.3 8.3	8.3	33.3 33.3	33.3	123.3 123.4	123.4	9.4 9.4	9.4	9.4	0.3 0.4	0.4	0.7	7.9 7.3	7.6	6.1
				Middle	5.0	18.6 18.6	18.6	8.3 8.3	8.3	33.3 33.3	33.3	122.6 122.7	122.7	9.4 9.4	9.4		0.5 0.5	0.5		3.1 3.1	3.1	
				Bottom	9.1	18.3 18.3	18.3	8.3 8.3	8.3	33.4 33.4	33.4	112.0 111.8	111.9	8.6 8.6	8.6	8.6	1.2 1.2	1.2		7.3 7.6	7.5	
G3	Sunny	Moderate	17:00	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	33.1 33.1	33.1	127.8 127.9	127.9	9.7 9.7	9.7	9.8	0.3 0.3	0.3	0.6	12.0 11.5	11.8	7.7
				Middle	4.1	18.6 18.6	18.6	8.4 8.4	8.4	33.3 33.3	33.3	130.1 130.1	130.1	10.0 10.0	10.0		0.6 0.6	0.6		7.8 7.1	7.5	
				Bottom	7.0	18.3 18.3	18.3	8.3 8.3	8.3	33.4 33.4	33.4	114.6 112.6	113.6	8.8 8.7	8.8	8.8	0.9 0.9	0.9		3.6 3.9	3.8	
G4	Sunny	Moderate	17:09	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	33.2 33.2	33.2	127.7 127.8	127.8	9.7 9.7	9.7	9.6	0.3 0.3	0.3	0.6	4.5 5.1	4.8	5.4
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	123.9 124.0	124.0	9.5 9.5	9.5		0.4 0.4	0.4		4.6 4.9	4.8	
				Bottom	7.0	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	116.9 117.0	117.0	9.0 9.0	9.0	9.0	1.2 1.2	1.2		6.9 6.6	6.8	
M1	Sunny	Moderate	16:50	Surface	1.1	19.2 19.2	19.2	8.3 8.3	8.3	33.3 33.3	33.3	118.3 118.4	118.4	9.0 9.0	9.0	9.0	0.6 0.6	0.6	1.1	6.4 7.1	6.8	6.4
				Middle	3.1	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	116.8 116.7	116.8	9.0 9.0	9.0		1.1 1.1	1.1		4.9 5.0	5.0	
				Bottom	5.1	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	114.2 114.1	114.2	8.8 8.8	8.8	8.8	1.6 1.7	1.6		7.5 7.7	7.6	
M2	Sunny	Moderate	16:31	Surface	1.1	18.8 18.8	18.8	8.3 8.3	8.3	33.3 33.3	33.3	122.7 122.8	122.8	9.4 9.4	9.4	9.1	0.5 0.5	0.5	0.7	4.5 4.7	4.6	5.0
				Middle	6.0	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	115.9 116.0	116.0	8.9 8.9	8.9		0.5 0.5	0.5		6.5 6.9	6.7	
				Bottom	11.1	18.3 18.3	18.3	8.3 8.3	8.3	33.5 33.5	33.5	108.3 108.3	108.3	8.4 8.4	8.4	8.4	1.1 1.1	1.1		3.7 3.4	3.6	
M3	Sunny	Moderate	17:04	Surface	1.0	19.1 19.1	19.1	8.4 8.4	8.4	33.1 33.1	33.1	130.9 130.8	130.9	10.0 10.0	10.0	9.8	0.4 0.4	0.4	0.5	6.5 7.2	6.9	6.4
				Middle	4.0	18.5 18.5	18.5	8.3 8.3	8.3	33.3 33.3	33.3	125.0 125.1	125.1	9.6 9.6	9.6		0.4 0.4	0.4		4.5 5.3	4.9	
				Bottom	7.1	18.4 18.4	18.4	8.3 8.3	8.3	33.3 33.3	33.3	116.4 116.3	116.4	9.0 9.0	9.0	9.0	0.9 0.9	0.9		7.3 7.4	7.4	
M4	Sunny	Moderate	16:25	Surface	1.0	18.4 18.4	18.4	8.3 8.3	8.3	33.4 33.4	33.4	111.7 111.7	111.7	8.6 8.6	8.6	8.5	1.1 1.1	1.1	0.8	6.3 6.3	6.3	4.3
				Middle	5.0	18.3 18.3	18.3	8.3 8.3	8.3	33.6 33.6	33.6	110.2 110.3	110.3	8.5 8.5	8.5		0.6 0.6	0.6		3.3 2.8	3.1	
				Bottom	9.0	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	109.8 109.8	109.8	8.5 8.5	8.5	8.5	0.6 0.6	0.6		3.4 3.7	3.6	
M5	Sunny	Moderate	17:21	Surface	1.1	18.8 18.8	18.8	8.3 8.3	8.3	33.3 33.3	33.3	117.2 117.3	117.3	9.0 9.0	9.0	8.8	0.9 0.9	0.9	1.5	4.8 5.6	5.2	8.1
				Middle	5.5	18.2 18.2	18.2	8.3 8.3	8.3	33.6 33.6	33.6	110.9 111.0	111.0	8.6 8.6	8.6		1.7 1.8	1.7		8.5 8.2	8.4	
				Bottom	10.0	18.2 18.2	18.2	8.3 8.3	8.3	33.7 33.7	33.7	109.4 109.4	109.4	8.4 8.4	8.4	8.4	1.8 1.8	1.8		11.0 10.5	10.8	
M6	Sunny	Moderate	17:14	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	9.6	- -	-	0.4	- -	-	9.0
				Middle	2.0	18.6 18.6	18.6	8.3 8.3	8.3	33.2 33.2	33.2	125.4 125.5	125.5	9.6 9.6	9.6		0.4 0.4	0.4		8.6 9.3	9.0	
				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 8 February 2019 (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: 0.5 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.6 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: 9.6 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 10.4 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 ***C2: 9.6 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 10.4 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 ***C2: 6.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 7.1 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 08 February 2019

(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	Foggy	Moderate	14:40	Surface	1.0	18.9 18.9	18.9	8.1 8.1	8.1	34.0 34.0	34.0	101.7 101.6	101.7	7.8 7.8	7.8	7.7	0.6 0.6	0.6	0.5	2.3 2.2	2.3	4.0
				Middle	9.0	18.9 18.9	18.9	8.1 8.1	8.1	34.0 34.0	34.0	100.6 100.4	100.5	7.7 7.7	7.7		0.5 0.5	0.5		4.7 5.3	5.0	
				Bottom	17.1	19.0 19.0	19.0	8.1 8.1	8.1	34.1 34.0	34.0	99.2 99.9	99.6	7.6 7.6	7.6	7.6	0.5 0.4	0.5		4.6 4.8	4.7	
C2	Foggy	Moderate	13:30	Surface	1.1	19.1 19.1	19.1	8.0 8.1	8.0	34.1 34.1	34.1	100.1 99.0	99.6	7.6 7.5	7.6	7.5	0.3 0.4	0.3	0.4	8.3 7.7	8.0	6.8
				Middle	16.0	19.1 19.1	19.1	8.0 8.1	8.1	34.2 34.1	34.1	97.8 97.8	97.8	7.5 7.5	7.5		0.4 0.4	0.4		6.8 7.1	7.0	
				Bottom	32.0	19.1 19.1	19.1	8.1 8.1	8.1	34.2 34.1	34.1	97.8 97.8	97.8	7.5 7.5	7.5	7.5	0.5 0.4	0.5		5.5 5.4	5.5	
G1	Foggy	Moderate	14:05	Surface	1.0	19.3 19.2	19.2	8.1 8.1	8.1	34.0 34.1	34.1	102.0 99.7	100.9	7.8 7.6	7.7	7.6	0.7 0.7	0.7	0.5	4.0 4.2	4.1	4.5
				Middle	4.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.1	34.2	99.7 100.4	100.1	7.6 7.6	7.6		0.3 0.3	0.3		6.4 6.4	6.4	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.4 98.5	98.5	7.5 7.5	7.5	7.5	0.4 0.4	0.4		2.8 3.0	2.9	
G2	Foggy	Moderate	13:52	Surface	1.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	100.4 98.3	99.4	7.6 7.5	7.6	7.5	0.5 0.5	0.5	0.3	5.8 6.0	5.9	5.8
				Middle	5.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.2 98.1	98.2	7.5 7.5	7.5		0.3 0.3	0.3		3.9 4.6	4.3	
				Bottom	9.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.1 96.0	96.6	7.4 7.3	7.3	7.3	0.2 0.2	0.2		7.2 7.4	7.3	
G3	Foggy	Moderate	14:11	Surface	1.0	19.2 19.3	19.3	8.1 8.1	8.1	34.1 34.1	34.1	100.5 99.2	99.9	7.6 7.5	7.6	7.6	0.4 0.4	0.4	0.4	2.9 3.1	3.0	3.5
				Middle	4.1	19.2 19.3	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.3 98.7	99.0	7.5 7.5	7.5		0.4 0.3	0.4		5.1 4.4	4.8	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.8 98.0	97.9	7.4 7.4	7.4	7.4	0.4 0.4	0.4		2.9 2.6	2.8	
G4	Foggy	Moderate	14:21	Surface	1.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.9 99.4	99.7	7.6 7.6	7.6	7.6	0.4 0.4	0.4	0.7	3.9 4.0	4.0	4.6
				Middle	4.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.0 98.9	99.0	7.5 7.5	7.5		0.5 0.5	0.5		3.8 3.5	3.7	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	96.7 98.0	97.4	7.4 7.5	7.4	7.4	1.1 1.2	1.1		6.0 6.5	6.3	
M1	Foggy	Moderate	13:59	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	100.2 97.5	98.9	7.6 7.4	7.5	7.5	0.9 1.0	1.0	1.0	3.9 4.1	4.0	4.6
				Middle	3.0	19.2 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	98.7 97.5	98.1	7.5 7.4	7.5		1.0 1.0	1.0		5.4 5.3	5.4	
				Bottom	5.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.4 97.2	97.3	7.4 7.4	7.4	7.4	1.0 0.9	1.0		4.6 4.0	4.3	
M2	Foggy	Moderate	13:46	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.3 99.0	99.2	7.6 7.5	7.5	7.5	0.2 0.2	0.2	0.3	3.6 3.8	3.7	4.7
				Middle	6.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.9 98.3	98.1	7.4 7.5	7.5		0.3 0.3	0.3		3.4 4.0	3.7	
				Bottom	11.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.2 97.6	97.4	7.4 7.4	7.4	7.4	0.3 0.3	0.3		7.1 6.5	6.8	
M3	Foggy	Moderate	14:15	Surface	1.0	19.3 19.3	19.3	8.1 8.1	8.1	33.9 34.0	34.0	100.9 100.7	100.8	7.7 7.7	7.7	7.6	0.3 0.3	0.3	0.3	6.6 6.8	6.7	4.8
				Middle	4.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.0 99.9	99.5	7.5 7.6	7.6		0.2 0.2	0.2		4.0 3.3	3.7	
				Bottom	7.0	19.2 19.3	19.3	8.1 8.1	8.1	34.2 34.2	34.2	98.6 97.0	97.8	7.5 7.4	7.4	7.4	0.4 0.4	0.4		3.7 4.4	4.1	
M4	Foggy	Moderate	13:37	Surface	1.0	19.0 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	100.7 99.8	100.3	7.7 7.6	7.6	7.6	0.2 0.2	0.2	0.2	5.8 5.0	5.4	5.0
				Middle	4.7	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	99.6 99.4	99.5	7.6 7.6	7.6		0.2 0.1	0.2		3.6 2.8	3.2	
				Bottom	9.0	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	99.4 99.4	99.4	7.6 7.6	7.6	7.6	0.3 0.3	0.3		6.2 6.6	6.4	
M5	Foggy	Moderate	14:32	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.1 98.6	98.9	7.5 7.5	7.5	7.5	0.4 0.3	0.3	0.4	7.8 7.0	7.4	4.6
				Middle	6.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.7 98.7	98.7	7.5 7.5	7.5		0.5 0.4	0.5		3.9 3.6	3.8	
				Bottom	11.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.9 98.3	98.1	7.4 7.5	7.5	7.5	0.5 0.4	0.5		2.7 2.6	2.7	
M6	Foggy	Moderate	14:26	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.7	- -	-	0.2	- -	-	3.4
				Middle	2.1	19.2 19.2	19.2	8.3 8.3	8.3	33.3 33.3	33.3	114.7 114.8	114.8	8.7 8.7	8.7		0.2 0.2	0.2		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 8 February 2019 (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: 0.4 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.5 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*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.7 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.0 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: 3.7 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.0 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: 8.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 9.2 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 08 February 2019

(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	Foggy	Moderate	9:11	Surface	1.1	18.9 19.0	18.9	8.1 8.1	8.1	34.0 34.0	34.0	100.9 100.2	100.6	7.7 7.7	7.7	7.6	0.4 0.4	0.4	0.4	2.7 3.4	3.1	4.6
				Middle	9.0	19.0 19.1	19.0	8.1 8.1	8.1	34.1 34.2	34.1	100.0 99.1	99.6	7.6 7.6	7.6		0.3 0.4	0.4		3.3 4.1	3.7	
				Bottom	18.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	96.1 96.1	96.1	7.3 7.3	7.3	7.3	0.3 0.4	0.4		6.9 7.2	7.1	
C2	Foggy	Moderate	7:59	Surface	1.0	19.0 19.0	19.0	8.0 8.1	8.1	34.0 34.1	34.1	99.7 99.1	99.4	7.6 7.6	7.6	7.5	0.4 0.5	0.4	0.5	4.5 3.7	4.1	3.9
				Middle	16.0	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.2	34.2	96.9 96.5	96.7	7.4 7.4	7.4		0.5 0.5	0.5		3.2 3.7	3.5	
				Bottom	31.0	19.2 19.2	19.2	8.0 8.1	8.1	34.2 34.2	34.2	94.5 95.6	95.1	7.2 7.3	7.2	7.2	0.6 0.5	0.5		3.9 4.1	4.0	
G1	Foggy	Moderate	8:36	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	98.8 98.2	98.5	7.5 7.5	7.5	7.5	0.7 0.7	0.7	0.4	4.1 4.1	4.1	3.7
				Middle	4.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.1	34.2	98.2 98.4	98.3	7.5 7.5	7.5		0.3 0.3	0.3		2.9 3.4	3.2	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.2 97.8	97.5	7.4 7.4	7.4	7.4	0.4 0.4	0.4		3.7 3.7	3.7	
G2	Foggy	Moderate	8:22	Surface	1.0	19.1 19.2	19.1	8.1 8.1	8.1	34.2 34.1	34.1	99.7 98.9	99.3	7.6 7.5	7.6	7.5	0.5 0.4	0.5	0.3	11.2 10.7	11.0	6.2
				Middle	4.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.6 98.2	98.4	7.5 7.5	7.5		0.3 0.3	0.3		4.0 4.3	4.2	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.6 97.3	97.5	7.4 7.4	7.4	7.4	0.2 0.2	0.2		3.2 3.5	3.4	
G3	Foggy	Moderate	8:40	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	33.9 34.0	33.9	100.4 99.3	99.9	7.7 7.6	7.6	7.6	0.4 0.4	0.4	0.4	4.3 4.4	4.4	5.4
				Middle	4.1	19.2 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	99.7 99.5	99.6	7.6 7.6	7.6		0.4 0.3	0.4		7.3 7.6	7.5	
				Bottom	7.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.4 99.3	98.9	7.5 7.6	7.5	7.5	0.4 0.4	0.4		4.4 4.1	4.3	
G4	Foggy	Moderate	8:53	Surface	1.0	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	100.8 98.6	99.7	7.7 7.5	7.6	7.6	0.3 0.4	0.4	0.7	3.5 3.4	3.5	5.3
				Middle	4.0	19.1 19.1	19.1	8.1 8.1	8.1	34.2 34.2	34.2	98.5 98.3	98.4	7.5 7.5	7.5		0.5 0.5	0.5		8.3 7.9	8.1	
				Bottom	7.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.9 98.0	98.0	7.5 7.5	7.5	7.5	1.1 1.1	1.1		4.1 4.5	4.3	
M1	Foggy	Moderate	8:28	Surface	1.0	19.1 19.1	19.1	8.1 8.1	8.1	34.0 34.1	34.0	97.6 96.2	96.9	7.4 7.3	7.4	7.4	0.9 1.0	1.0	1.0	5.9 5.9	5.9	5.2
				Middle	3.0	19.1 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	96.6 96.5	96.6	7.4 7.4	7.4		1.0 1.0	1.0		4.0 4.2	4.1	
				Bottom	5.0	19.2 19.2	19.2	8.1 8.1	8.1	34.1 34.1	34.1	96.6 96.4	96.5	7.4 7.3	7.4	7.4	1.0 0.9	1.0		5.7 5.4	5.6	
M2	Foggy	Moderate	8:15	Surface	1.1	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	100.9 99.2	100.1	7.7 7.6	7.6	7.5	0.2 0.2	0.2	0.3	3.9 4.2	4.1	4.7
				Middle	6.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.0 97.8	97.9	7.5 7.5	7.5		0.3 0.3	0.3		5.5 5.2	5.4	
				Bottom	11.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	97.0 96.7	96.9	7.4 7.4	7.4	7.4	0.3 0.2	0.2		4.4 4.7	4.6	
M3	Foggy	Moderate	8:46	Surface	1.0	19.3 19.3	19.3	8.1 8.1	8.1	34.1 34.1	34.1	100.4 100.2	100.3	7.6 7.6	7.6	7.6	0.3 0.3	0.3	0.3	4.8 4.9	4.9	4.4
				Middle	4.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	100.0 99.6	99.8	7.6 7.6	7.6		0.2 0.2	0.2		3.2 2.7	3.0	
				Bottom	7.1	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	99.4 99.1	99.3	7.6 7.5	7.6	7.6	0.4 0.4	0.4		5.5 5.3	5.4	
M4	Foggy	Moderate	8:09	Surface	1.0	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	100.0 99.5	99.8	7.6 7.6	7.6	7.6	0.2 0.2	0.2	0.2	5.7 5.0	5.4	4.5
				Middle	5.0	19.1 19.1	19.1	8.1 8.1	8.1	34.1 34.1	34.1	98.4 98.6	98.5	7.5 7.5	7.5		0.2 0.1	0.1		4.1 4.1	4.1	
				Bottom	9.0	19.1 19.1	19.1	8.1 8.1	8.1	34.2 34.2	34.2	97.7 97.7	97.7	7.4 7.5	7.4	7.4	0.3 0.3	0.3		3.8 4.0	3.9	
M5	Foggy	Moderate	9:04	Surface	1.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.5 98.1	98.3	7.5 7.5	7.5	7.5	0.4 0.3	0.3	0.4	4.7 4.9	4.8	4.7
				Middle	6.0	19.2 19.1	19.1	8.1 8.1	8.1	34.2 34.2	34.2	97.6 98.1	97.9	7.4 7.5	7.5		0.5 0.4	0.4		4.8 4.0	4.4	
				Bottom	11.1	19.2 19.1	19.1	8.1 8.1	8.1	34.2 34.2	34.2	97.0 97.5	97.3	7.4 7.4	7.4	7.4	0.5 0.4	0.4		5.1 4.9	5.0	
M6	Foggy	Moderate	8:59	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.5	- -	-	0.2	- -	-	6.9
				Middle	2.0	19.2 19.2	19.2	8.1 8.1	8.1	34.2 34.2	34.2	98.8 98.7	98.8	7.5 7.5	7.5		0.2 0.2	0.2		7.1 6.6	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 11 February 2019 (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: 0.8 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.9 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: 5.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.8 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 ***C2: 5.3 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.8 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 ***C2: 3.7 mg/L***	***7.9 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 02/11/2019

(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	11:56	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.2	34.1	105.6 104.0	104.8	8.0 7.9	7.9	7.8	0.7 0.6	0.6	0.6	2.8 3.8	3.3	3.6
				Middle	9.1	19.1 19.1	19.1	8.3 8.3	8.3	34.3 34.3	34.3	102.7 102.1	102.4	7.8 7.7	7.7		0.5 0.6	0.5		2.2 3.0	2.6	
				Bottom	17.1	19.1 19.1	19.1	8.3 8.3	8.3	34.3 34.3	34.3	101.1 101.3	101.2	7.6 7.7	7.6	7.6	0.7 0.7	0.7		5.0 4.6	4.8	
C2	Sunny	Calm	10:51	Surface	1.0	19.1 19.1	19.1	8.2 8.3	8.2	34.0 34.0	34.0	104.5 103.8	104.2	7.9 7.9	7.9	7.8	0.7 0.7	0.7	0.7	4.1 4.8	4.5	3.4
				Middle	16.0	19.1 19.1	19.1	8.2 8.3	8.2	34.0 34.0	34.0	102.5 101.7	102.1	7.8 7.7	7.7		0.6 0.6	0.6		2.4 2.8	2.6	
				Bottom	31.1	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	100.7 101.0	100.9	7.6 7.6	7.6	7.6	0.7 0.7	0.7		3.1 3.0	3.1	
G1	Sunny	Calm	11:22	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.0 33.7	33.8	106.4 103.0	104.7	8.1 7.8	7.9	7.9	0.4 0.3	0.3	0.4	5.3 5.5	5.4	4.8
				Middle	4.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	103.7 103.4	103.6	7.8 7.8	7.8		0.2 0.2	0.2		4.1 4.1	4.1	
				Bottom	7.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	97.4 96.6	97.0	7.3 7.3	7.3	7.3	0.7 0.7	0.7		5.4 4.5	5.0	
G2	Sunny	Calm	11:11	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	105.9 105.2	105.6	8.0 8.0	8.0	8.0	0.2 0.2	0.2	0.2	2.6 2.7	2.7	3.6
				Middle	5.1	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.1	34.1	105.8 105.1	105.5	8.0 8.0	8.0		0.2 0.2	0.2		2.8 2.9	2.9	
				Bottom	9.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	103.3 104.0	103.7	7.8 7.9	7.8	7.8	0.2 0.2	0.2		5.2 5.5	5.4	
G3	Sunny	Calm	11:28	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	34.0 33.9	34.0	105.6 103.8	104.7	8.0 7.8	7.9	7.8	0.8 0.8	0.8	0.6	4.2 4.0	4.1	4.5
				Middle	4.0	19.2 19.2	19.2	8.3 8.3	8.3	34.1 34.1	34.1	100.9 102.7	101.8	7.6 7.8	7.7		0.5 0.5	0.5		4.6 4.5	4.6	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	99.6 99.1	99.4	7.5 7.5	7.5	7.5	0.6 0.6	0.6		5.0 4.8	4.9	
G4	Sunny	Calm	11:41	Surface	1.1	19.2 19.2	19.2	8.3 8.3	8.3	34.0 34.1	34.1	104.1 102.9	103.5	7.9 7.8	7.8	7.8	0.5 0.5	0.5	0.5	4.6 4.7	4.7	5.6
				Middle	4.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	102.4 102.2	102.3	7.7 7.7	7.7		0.7 0.8	0.7		7.6 7.6	7.6	
				Bottom	7.0	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	102.2 102.1	102.2	7.7 7.7	7.7	7.7	0.3 0.3	0.3		4.4 4.4	4.4	
M1	Sunny	Calm	11:16	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	33.9 34.0	34.0	104.8 102.5	103.7	7.9 7.8	7.8	7.9	0.6 0.5	0.5	0.5	4.4 4.1	4.3	3.4
				Middle	3.0	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	104.4 103.5	104.0	7.9 7.8	7.9		0.5 0.5	0.5		2.2 2.1	2.2	
				Bottom	5.0	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	102.9 102.4	102.7	7.8 7.7	7.8	7.8	0.4 0.4	0.4		3.9 3.5	3.7	
M2	Sunny	Calm	11:06	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	33.9 33.9	33.9	106.9 106.8	106.9	8.1 8.1	8.1	8.0	0.1 0.1	0.1	0.2	3.9 3.9	3.9	3.6
				Middle	6.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	103.8 105.1	104.5	7.9 8.0	7.9		0.2 0.2	0.2		4.2 4.0	4.1	
				Bottom	11.1	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	102.9 103.4	103.2	7.8 7.8	7.8	7.8	0.2 0.2	0.2		2.7 2.6	2.7	
M3	Sunny	Calm	11:35	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	33.9 34.1	34.0	104.8 100.5	102.7	7.9 7.6	7.8	7.8	0.7 0.6	0.7	0.7	7.4 7.5	7.5	6.0
				Middle	4.1	19.2 19.2	19.2	8.3 8.3	8.3	34.1 34.1	34.1	103.8 101.9	102.9	7.8 7.7	7.8		0.6 0.6	0.6		3.3 3.4	3.4	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	100.9 100.1	100.5	7.6 7.6	7.6	7.6	0.7 0.7	0.7		6.9 7.4	7.2	
M4	Sunny	Calm	11:01	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	105.1 104.7	104.9	8.0 7.9	7.9	7.9	0.2 0.2	0.2	0.3	5.0 4.6	4.8	5.9
				Middle	5.1	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.1	34.1	103.8 103.6	103.7	7.8 7.8	7.8		0.4 0.4	0.4		6.0 6.2	6.1	
				Bottom	9.1	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	102.0 102.3	102.2	7.7 7.7	7.7	7.7	0.4 0.6	0.5		6.4 6.9	6.7	
M5	Sunny	Calm	11:50	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	104.0 103.2	103.6	7.9 7.8	7.8	7.8	0.4 0.4	0.4	0.5	4.7 4.2	4.5	5.2
				Middle	5.6	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	103.1 102.5	102.8	7.8 7.7	7.8		0.5 0.4	0.5		7.1 6.2	6.7	
				Bottom	10.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.2	34.2	101.7 101.0	101.4	7.7 7.6	7.7	7.7	0.6 0.5	0.6		4.2 4.6	4.4	
M6	Sunny	Calm	11:45	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.0	- -	-	0.5	- -	-	4.4
				Middle	2.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	106.3 106.0	106.2	8.0 8.0	8.0		0.5 0.5	0.5		4.2 4.5	4.4	
				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 February 2019 (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: 0.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.8 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: 4.0 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.3 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: 4.0 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.3 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: 3.1 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 02/11/2019

(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	16:12	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	104.6 104.8	104.7	7.9 7.9	7.9	7.9	0.2 0.1	0.2	0.3	3.7 2.9	3.3	3.2
				Middle	9.0	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	104.3 103.7	104.0	7.9 7.8	7.9		0.1 0.2	0.1		3.7 3.8	3.8	
				Bottom	17.0	19.1 19.1	19.1	8.3 8.3	8.3	34.3 34.3	34.3	100.2 100.9	100.6	7.6 7.6	7.6	7.6	0.6 0.5	0.6		2.6 2.5	2.6	
C2	Sunny	Calm	15:17	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	106.1 106.2	106.2	8.0 8.0	8.0	7.9	0.6 0.7	0.7	0.6	2.7 2.5	2.6	3.0
				Middle	16.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.2	34.2	104.8 102.4	103.6	7.9 7.7	7.8		0.5 0.6	0.6		3.9 4.0	4.0	
				Bottom	31.1	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	102.3 101.9	102.1	7.7 7.7	7.7	7.7	0.5 0.6	0.5		2.6 2.4	2.5	
G1	Sunny	Calm	15:41	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	104.2 104.5	104.4	7.9 7.9	7.9	7.9	0.3 0.3	0.3	0.5	8.0 8.6	8.3	5.8
				Middle	4.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	104.8 104.2	104.5	7.9 7.9	7.9		0.4 0.4	0.4		3.4 3.5	3.5	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.1	34.1	104.9 104.6	104.8	7.9 7.9	7.9	7.9	1.1 0.9	1.0		5.4 6.1	5.8	
G2	Sunny	Calm	15:30	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	104.6 102.5	103.6	7.9 7.8	7.8	7.8	0.3 0.3	0.3	0.4	6.4 5.8	6.1	5.0
				Middle	5.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.2	34.2	104.4 102.7	103.6	7.9 7.8	7.8		0.3 0.3	0.3		4.3 4.4	4.4	
				Bottom	9.0	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	101.7 101.4	101.6	7.7 7.7	7.7	7.7	0.5 0.6	0.5		4.6 4.2	4.4	
G3	Sunny	Calm	15:46	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	101.9 103.4	102.7	7.7 7.8	7.8	7.8	1.4 1.3	1.3	1.3	7.3 7.1	7.2	5.9
				Middle	4.1	19.2 19.2	19.2	8.3 8.3	8.3	34.1 34.2	34.1	102.7 103.7	103.2	7.8 7.8	7.8		1.2 1.2	1.2		5.5 4.8	5.2	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	104.3 103.3	103.8	7.9 7.8	7.8	7.8	1.2 1.4	1.3		5.5 5.4	5.5	
G4	Sunny	Calm	15:57	Surface	1.1	19.2 19.2	19.2	8.3 8.3	8.3	34.0 34.1	34.0	108.2 107.7	108.0	8.2 8.1	8.2	8.0	0.4 0.5	0.4	0.5	7.8 8.2	8.0	6.4
				Middle	4.0	19.2 19.2	19.2	8.3 8.3	8.3	34.1 34.2	34.2	106.5 103.6	105.1	8.1 7.8	7.9		0.4 0.4	0.4		6.2 6.1	6.2	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	102.9 101.8	102.4	7.8 7.7	7.7	7.7	0.6 0.6	0.6		4.8 5.4	5.1	
M1	Sunny	Calm	15:36	Surface	1.0	19.1 19.1	19.1	8.3 8.3	8.3	34.0 34.0	34.0	102.1 102.6	102.4	7.7 7.8	7.7	7.8	0.3 0.4	0.3	0.3	4.2 4.7	4.5	4.4
				Middle	3.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.0	34.1	103.0 102.5	102.8	7.8 7.8	7.8		0.3 0.4	0.3		5.8 6.2	6.0	
				Bottom	5.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	102.7 103.0	102.9	7.8 7.8	7.8	7.8	0.3 0.3	0.3		2.7 2.6	2.7	
M2	Sunny	Calm	15:26	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	104.7 105.3	105.0	7.9 8.0	7.9	7.9	0.0 0.0	0.0	0.1	2.9 3.2	3.1	3.2
				Middle	6.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	105.1 105.1	105.1	8.0 8.0	8.0		0.1 0.1	0.1		2.3 2.6	2.5	
				Bottom	11.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.2	34.1	104.4 103.5	104.0	7.9 7.8	7.9	7.9	0.2 0.2	0.2		4.4 4.0	4.2	
M3	Sunny	Calm	15:51	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	33.9 33.9	33.9	107.8 102.8	105.3	8.1 7.8	8.0	7.8	0.7 0.7	0.7	0.6	3.9 4.1	4.0	4.3
				Middle	4.0	19.2 19.2	19.2	8.3 8.3	8.3	34.1 34.1	34.1	100.9 103.3	102.1	7.6 7.8	7.7		0.4 0.4	0.4		3.5 3.6	3.6	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	100.1 100.0	100.1	7.6 7.6	7.6	7.6	0.6 0.6	0.6		5.4 5.4	5.4	
M4	Sunny	Calm	15:22	Surface	1.1	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	105.6 105.5	105.6	8.0 8.0	8.0	8.0	0.1 0.1	0.1	0.2	3.8 3.3	3.6	3.8
				Middle	5.0	19.1 19.1	19.1	8.3 8.3	8.3	34.1 34.1	34.1	105.4 105.6	105.5	8.0 8.0	8.0		0.2 0.2	0.2		2.2 1.8	2.0	
				Bottom	9.0	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	104.1 103.3	103.7	7.9 7.8	7.8	7.8	0.2 0.2	0.2		5.7 6.1	5.9	
M5	Sunny	Calm	16:06	Surface	1.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	101.8 101.9	101.9	7.7 7.7	7.7	7.7	2.0 1.9	2.0	1.0	5.0 5.3	5.2	3.7
				Middle	5.5	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	101.0 101.3	101.2	7.6 7.7	7.6		0.6 0.5	0.5		3.3 4.1	3.7	
				Bottom	10.0	19.1 19.1	19.1	8.3 8.3	8.3	34.3 34.3	34.3	100.3 100.6	100.5	7.6 7.6	7.6	7.6	0.5 0.4	0.5		2.2 2.3	2.3	
M6	Sunny	Calm	16:01	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.4	- -	-	0.3	- -	-	3.2
				Middle	2.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	111.4 111.5	111.5	8.4 8.4	8.4		0.3 0.3	0.3		3.1 3.2	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 13 February 2019 (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: 0.5 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.5 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*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 6.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 6.8 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 ***C2: 6.2mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 6.8 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 ***C2: 4.8 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 5.2 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 13 February 2019

(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	18:52	Surface	1.1	19.7 19.6	19.7	8.4 8.4	8.4	34.1 34.2	34.2	118.1 115.2	116.7	8.8 8.6	8.7	8.5	0.6 0.6	0.6	0.5	2.3 2.3	2.3	2.3
				Middle	9.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	109.6 108.4	109.0	8.2 8.1	8.2		0.3 0.3	0.3		1.2 1.2	1.2	
				Bottom	17.1	19.4 19.3	19.4	8.3 8.3	8.3	34.4 34.3	34.4	100.4 104.9	102.7	7.5 7.9	7.7	7.7	0.6 0.6	0.6		3.5 3.4	3.5	
C2	Fine	Calm	17:42	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	103.6 103.7	103.7	7.8 7.8	7.8	7.7	0.3 0.3	0.3	0.3	5.2 5.1	5.2	3.5
				Middle	16.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.4 102.3	102.4	7.7 7.7	7.7		0.2 0.2	0.2		1.4 1.4	1.4	
				Bottom	31.1	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.4	34.3	99.8 99.6	99.7	7.5 7.5	7.5	7.5	0.4 0.4	0.4		4.0 4.0	4.0	
G1	Fine	Calm	18:17	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	34.1 34.1	34.1	104.7 105.6	105.2	7.8 7.9	7.9	7.9	0.7 0.7	0.7	0.7	2.6 2.6	2.6	3.3
				Middle	4.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	104.3 105.1	104.7	7.8 7.9	7.9		0.7 0.6	0.6		4.4 4.6	4.5	
				Bottom	7.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.9 103.6	103.3	7.8 7.8	7.8	7.8	0.8 0.8	0.8		2.8 2.9	2.9	
G2	Fine	Calm	18:04	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	34.1 34.1	34.1	115.4 116.1	115.8	8.6 8.7	8.7	8.4	0.5 0.4	0.4	0.2	3.8 3.7	3.8	4.5
				Middle	4.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	107.1 107.5	107.3	8.1 8.1	8.1		0.1 0.1	0.1		5.3 5.6	5.5	
				Bottom	7.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	104.6 104.8	104.7	7.9 7.9	7.9	7.9	0.2 0.2	0.2		4.4 4.4	4.4	
G3	Fine	Calm	18:23	Surface	1.0	19.6 19.5	19.6	8.3 8.3	8.3	34.1 34.1	34.1	111.5 107.9	109.7	8.4 8.1	8.2	8.1	0.7 0.7	0.7	0.7	3.9 4.0	4.0	4.7
				Middle	4.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	105.7 106.3	106.0	7.9 8.0	8.0		0.8 0.8	0.8		7.1 7.0	7.1	
				Bottom	7.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.2 102.8	102.5	7.7 7.7	7.7	7.7	0.7 0.7	0.7		3.0 3.0	3.0	
G4	Fine	Calm	18:33	Surface	1.1	19.8 19.7	19.8	8.3 8.3	8.3	34.1 34.1	34.1	112.2 112.4	112.3	8.4 8.4	8.4	8.1	0.5 0.5	0.5	0.6	2.0 2.0	2.0	3.0
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.1	34.1	104.5 105.9	105.2	7.9 8.0	7.9		0.6 0.6	0.6		3.9 4.0	4.0	
				Bottom	7.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	103.4 101.3	102.4	7.8 7.6	7.7	7.7	0.6 0.5	0.6		3.1 3.2	3.2	
M1	Fine	Calm	18:11	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	34.1 34.1	34.1	101.3 101.1	101.2	7.6 7.6	7.6	7.6	0.6 0.6	0.6	0.6	4.7 4.7	4.7	4.8
				Middle	3.0	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	101.1 101.2	101.2	7.6 7.6	7.6		0.6 0.6	0.6		4.5 4.5	4.5	
				Bottom	5.0	19.5 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	100.7 100.1	100.4	7.6 7.5	7.5	7.5	0.5 0.6	0.5		5.2 4.9	5.1	
M2	Fine	Calm	17:58	Surface	1.1	19.6 19.5	19.6	8.3 8.3	8.3	34.2 34.2	34.2	113.7 112.1	112.9	8.5 8.4	8.5	8.3	0.3 0.2	0.2	0.2	6.3 6.6	6.5	4.3
				Middle	6.0	19.2 19.4	19.3	8.3 8.3	8.3	34.2 34.2	34.2	106.1 108.5	107.3	8.0 8.1	8.1		0.2 0.2	0.2		4.4 4.4	4.4	
				Bottom	11.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	103.9 104.6	104.3	7.8 7.9	7.9	7.9	0.2 0.2	0.2		2.1 2.0	2.1	
M3	Fine	Calm	18:27	Surface	1.1	19.8 19.8	19.8	8.3 8.3	8.3	34.0 34.0	34.0	108.5 108.2	108.4	8.1 8.1	8.1	8.1	0.7 0.6	0.6	0.8	6.2 6.2	6.2	4.7
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	106.9 107.1	107.0	8.0 8.0	8.0		0.7 0.8	0.8		4.0 4.0	4.0	
				Bottom	7.0	19.4 19.3	19.4	8.3 8.3	8.3	34.2 34.2	34.2	105.8 101.8	103.8	8.0 7.7	7.8	7.8	0.9 0.9	0.9		3.8 3.7	3.8	
M4	Fine	Calm	17:50	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	34.2 34.2	34.2	105.4 108.9	107.2	7.9 8.2	8.0	8.1	0.1 0.1	0.1	0.1	8.6 8.7	8.7	6.7
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	108.2 108.0	108.1	8.1 8.1	8.1		0.1 0.2	0.1		6.0 5.7	5.9	
				Bottom	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.9 103.7	103.3	7.8 7.8	7.8	7.8	0.1 0.1	0.1		5.5 5.7	5.6	
M5	Fine	Calm	18:44	Surface	1.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	105.5 105.5	105.5	7.9 7.9	7.9	7.9	0.1 0.1	0.1	0.1	4.0 4.0	4.0	3.4
				Middle	6.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	105.0 105.1	105.1	7.9 7.9	7.9		0.2 0.1	0.1		4.9 5.0	5.0	
				Bottom	11.1	19.3 19.3	19.3	8.3 8.3	8.3	34.3 34.4	34.3	103.4 102.4	102.9	7.8 7.7	7.7	7.7	0.2 0.2	0.2		1.2 1.3	1.3	
M6	Fine	Calm	18:38	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.6	- -	-	0.5	- -	-	4.0
				Middle	2.1	20.1 20.1	20.1	8.3 8.3	8.3	34.2 34.2	34.2	113.5 113.6	113.6	8.6 8.6	8.6		0.5 0.5	0.5		4.0 4.0	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 13 February 2019 (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: 0.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.8 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: 9.4 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 10.2 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: 9.4 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 10.2 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: 3.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 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 13 February 2019

(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	12:39	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.2	34.1	109.2 108.1	108.7	8.2 8.1	8.2	8.1	0.2 0.2	0.2	0.3	7.9 7.8	7.9	5.3
				Middle	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.3 34.2	34.3	107.6 107.2	107.4	8.1 8.1	8.1		0.2 0.2	0.2		5.2 5.2	5.2	
				Bottom	17.0	19.4 19.4	19.4	8.3 8.3	8.3	34.5 34.5	34.5	102.0 100.8	101.4	7.7 7.6	7.6	7.6	0.6 0.7	0.6		2.9 3.0	3.0	
C2	Fine	Calm	11:49	Surface	1.0	19.4 19.4	19.4	8.2 8.3	8.2	34.0 34.0	34.0	103.8 103.8	103.8	7.8 7.8	7.8	7.7	0.2 0.2	0.2	0.4	2.9 2.8	2.9	2.3
				Middle	16.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	100.7 101.2	101.0	7.6 7.6	7.6		0.3 0.3	0.3		3.1 3.1	3.1	
				Bottom	31.0	19.3 19.4	19.3	8.3 8.3	8.3	34.3 34.4	34.3	99.5 98.7	99.1	7.5 7.4	7.5	7.5	0.6 0.7	0.6		1.1 1.0	1.1	
G1	Fine	Calm	12:13	Surface	1.1	19.7 19.4	19.5	8.3 8.3	8.3	33.8 34.1	33.9	99.3 104.8	102.1	7.4 7.9	7.7	7.7	0.8 0.9	0.9	0.8	1.6 1.6	1.6	2.4
				Middle	4.1	19.2 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	100.7 102.7	101.7	7.6 7.7	7.7		0.8 0.8	0.8		2.2 2.1	2.2	
				Bottom	7.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	99.7 100.6	100.2	7.5 7.6	7.6	7.6	0.9 0.9	0.9		3.5 3.3	3.4	
G2	Fine	Calm	12:02	Surface	1.1	19.2 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	104.7 107.5	106.1	7.9 8.1	8.0	8.1	0.3 0.3	0.3	0.2	9.2 9.5	9.4	4.1
				Middle	4.0	19.2 19.3	19.2	8.3 8.3	8.3	34.2 34.2	34.2	109.6 107.4	108.5	8.3 8.1	8.2		0.1 0.1	0.1		1.7 1.7	1.7	
				Bottom	7.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	109.4 105.2	107.3	8.3 7.9	8.1	8.1	0.1 0.1	0.1		1.1 1.1	1.1	
G3	Fine	Calm	12:17	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	106.4 105.0	105.7	8.0 7.9	8.0	8.0	0.7 0.7	0.7	0.7	1.1 1.1	1.1	1.9
				Middle	4.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	105.1 106.5	105.8	7.9 8.0	8.0		0.6 0.6	0.6		2.4 2.4	2.4	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	98.6 98.4	98.5	7.4 7.4	7.4	7.4	0.9 1.0	1.0		2.2 2.2	2.2	
G4	Fine	Calm	12:27	Surface	1.0	19.4 19.5	19.4	8.3 8.3	8.3	34.1 34.1	34.1	109.3 110.6	110.0	8.2 8.3	8.3	8.1	0.5 0.5	0.5	0.5	3.6 3.7	3.7	4.6
				Middle	4.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	104.3 104.4	104.4	7.9 7.9	7.9		0.6 0.5	0.5		3.7 3.6	3.7	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	102.6 101.3	102.0	7.7 7.6	7.7	7.7	0.6 0.5	0.6		6.6 6.5	6.6	
M1	Fine	Calm	12:06	Surface	1.0	19.4 19.3	19.3	8.3 8.3	8.3	34.1 34.2	34.1	99.8 98.0	98.9	7.5 7.4	7.4	7.4	0.9 0.9	0.9	0.9	2.4 2.3	2.4	4.1
				Middle	3.1	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	99.1 98.5	98.8	7.5 7.4	7.4		0.7 0.7	0.7		6.2 6.2	6.2	
				Bottom	5.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	97.7 97.9	97.8	7.4 7.4	7.4	7.4	1.1 1.0	1.0		3.7 3.7	3.7	
M2	Fine	Calm	11:59	Surface	1.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	109.2 107.9	108.6	8.2 8.1	8.2	8.1	0.2 0.2	0.2	0.1	2.6 2.6	2.6	4.7
				Middle	6.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	106.3 105.0	105.7	8.0 7.9	8.0		0.1 0.1	0.1		2.7 2.7	2.7	
				Bottom	11.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	105.0 104.4	104.7	7.9 7.9	7.9	7.9	0.1 0.1	0.1		8.7 8.6	8.7	
M3	Fine	Calm	12:22	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	107.3 106.5	106.9	8.1 8.0	8.0	7.9	0.7 0.7	0.7	0.6	2.6 2.6	2.6	2.7
				Middle	4.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	102.1 101.4	101.8	7.7 7.7	7.7		0.6 0.6	0.6		3.5 3.4	3.5	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	101.3 100.1	100.7	7.6 7.6	7.6	7.6	0.7 0.7	0.7		2.2 2.1	2.2	
M4	Fine	Calm	11:55	Surface	1.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	106.1 106.5	106.3	8.0 8.0	8.0	7.9	0.1 0.1	0.1	0.1	2.6 2.7	2.7	2.5
				Middle	5.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	103.5 105.6	104.6	7.8 8.0	7.9		0.2 0.1	0.1		2.6 2.7	2.7	
				Bottom	9.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	101.5 103.4	102.5	7.7 7.8	7.7	7.7	0.2 0.2	0.2		2.3 2.3	2.3	
M5	Fine	Calm	12:35	Surface	1.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	101.4 103.4	102.4	7.6 7.8	7.7	7.8	0.2 0.2	0.2	0.2	4.0 4.0	4.0	2.5
				Middle	6.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	104.4 104.9	104.7	7.9 7.9	7.9		0.1 0.1	0.1		1.8 1.7	1.8	
				Bottom	11.0	19.3 19.3	19.3	8.3 8.3	8.3	34.3 34.3	34.3	102.0 103.4	102.7	7.7 7.8	7.7	7.7	0.4 0.4	0.4		1.6 1.6	1.6	
M6	Fine	Calm	12:30	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.4	- -	-	0.2	- -	-	6.0
				Middle	2.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	111.1 111.0	111.1	8.4 8.4	8.4		0.2 0.2	0.2		6.0 5.9	6.0	
				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 15 February 2019 (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: 0.4 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.4 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*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 16.5 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 17.9 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: 16.5 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 17.9 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: 7.4mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.1 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 15 February 2019

(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	09:03	Surface	1.1	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	116.6 117.5	117.1	8.7 8.8	8.8	8.8	0.5 0.5	0.5	0.6	15.3 15.3	15.3	11.9
				Middle	9.0	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	116.8 117.7	117.3	8.7 8.8	8.8		0.5 0.5	0.5		13.3 13.5	13.4	
				Bottom	17.0	19.5 19.5	19.5	8.4 8.4	8.4	34.4 34.4	34.4	113.2 111.2	112.2	8.5 8.3	8.4	8.4	0.6 0.6	0.6		7.0 7.1	7.1	
C2	Sunny	Moderate	07:45	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	34.2 34.3	34.2	118.8 119.9	119.4	8.9 9.0	8.9	8.7	0.5 0.6	0.5	0.4	13.7 13.8	13.8	8.4
				Middle	16.1	19.6 19.6	19.6	8.3 8.3	8.3	34.3 34.3	34.3	112.9 113.9	113.4	8.5 8.5	8.5		0.4 0.3	0.4		5.0 5.2	5.1	
				Bottom	31.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	108.7 106.8	107.8	8.1 8.0	8.1	8.1	0.3 0.4	0.3		6.3 6.1	6.2	
G1	Sunny	Moderate	08:22	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.2	34.1	109.9 109.9	109.9	8.2 8.2	8.2	8.2	0.3 0.3	0.3	0.4	14.3 14.2	14.3	10.9
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.1	34.2	106.6 109.1	107.9	8.0 8.2	8.1		0.4 0.4	0.4		8.4 8.5	8.5	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	105.5 107.3	106.4	7.9 8.1	8.0	8.0	0.4 0.4	0.4		9.9 9.9	9.9	
G2	Sunny	Moderate	08:07	Surface	1.1	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	115.6 113.4	114.5	8.7 8.5	8.6	8.6	0.2 0.3	0.3	0.2	6.4 6.4	6.4	11.8
				Middle	5.0	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	114.6 114.1	114.4	8.6 8.6	8.6		0.3 0.3	0.3		20.9 21.5	21.2	
				Bottom	9.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	109.7 108.8	109.3	8.2 8.2	8.2	8.2	0.2 0.1	0.1		7.7 7.8	7.8	
G3	Sunny	Moderate	08:28	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	106.3 106.9	106.6	8.0 8.0	8.0	8.0	0.3 0.4	0.3	0.4	5.2 5.2	5.2	10.0
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	105.9 106.4	106.2	8.0 8.0	8.0		0.4 0.4	0.4		15.8 15.4	15.6	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.6 105.2	104.9	7.9 7.9	7.9	7.9	0.3 0.4	0.4		9.2 8.9	9.1	
G4	Sunny	Moderate	08:47	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	103.1 100.9	102.0	7.7 7.6	7.7	7.6	0.3 0.3	0.3	0.4	14.5 14.3	14.4	8.9
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	101.4 101.3	101.4	7.6 7.6	7.6		0.4 0.4	0.4		6.7 6.5	6.6	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	100.3 101.0	100.7	7.5 7.6	7.6	7.6	0.3 0.4	0.3		5.7 5.9	5.8	
M1	Sunny	Moderate	08:13	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	105.5 103.8	104.7	7.9 7.8	7.8	7.9	0.3 0.3	0.3	0.3	5.7 5.9	5.8	7.4
				Middle	3.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.3 106.2	105.3	7.8 8.0	7.9		0.3 0.3	0.3		6.4 6.6	6.5	
				Bottom	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.0 105.7	104.9	7.8 7.9	7.9	7.9	0.3 0.3	0.3		9.7 9.8	9.8	
M2	Sunny	Moderate	08:01	Surface	1.1	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	113.4 113.0	113.2	8.5 8.5	8.5	8.4	0.2 0.2	0.2	0.2	10.7 11.0	10.9	6.9
				Middle	6.1	19.5 19.5	19.5	8.3 8.4	8.3	34.2 34.2	34.2	109.9 113.2	111.6	8.2 8.5	8.4		0.2 0.2	0.2		4.7 4.7	4.7	
				Bottom	11.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	107.5 108.2	107.9	8.1 8.1	8.1	8.1	0.2 0.2	0.2		5.2 5.2	5.2	
M3	Sunny	Moderate	08:40	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	99.8 100.5	100.2	7.5 7.5	7.5	7.6	0.4 0.3	0.3	0.3	12.9 12.7	12.8	14.2
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	101.3 101.1	101.2	7.6 7.6	7.6		0.3 0.2	0.3		12.6 12.8	12.7	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	101.6 101.7	101.7	7.6 7.6	7.6	7.6	0.3 0.3	0.3		17.1 17.1	17.1	
M4	Sunny	Moderate	07:55	Surface	1.1	19.6 19.5	19.6	8.4 8.4	8.4	34.2 34.2	34.2	113.2 114.3	113.8	8.5 8.6	8.5	8.5	0.3 0.2	0.2	0.1	12.9 12.4	12.7	11.2
				Middle	5.0	19.5 19.5	19.5	8.3 8.4	8.3	34.2 34.2	34.2	111.9 114.5	113.2	8.4 8.6	8.5		0.1 0.1	0.1		5.8 5.8	5.8	
				Bottom	9.0	19.5 19.5	19.5	8.4 8.4	8.4	34.3 34.3	34.3	111.6 112.7	112.2	8.4 8.5	8.4	8.4	0.1 0.1	0.1		15.1 15.4	15.3	
M5	Sunny	Moderate	08:56	Surface	1.0	19.5 19.6	19.5	8.4 8.4	8.4	34.4 34.3	34.3	107.8 108.2	108.0	8.1 8.1	8.1	8.1	0.3 0.3	0.3	0.2	10.0 9.8	9.9	8.3
				Middle	6.0	19.5 19.5	19.5	8.4 8.4	8.4	34.3 34.3	34.3	108.2 108.0	108.1	8.1 8.1	8.1		0.2 0.2	0.2		7.9 7.8	7.9	
				Bottom	11.0	19.5 19.5	19.5	8.4 8.4	8.4	34.3 34.3	34.3	106.9 107.6	107.3	8.0 8.1	8.0	8.0	0.2 0.2	0.2		7.3 7.0	7.2	
M6	Sunny	Moderate	08:51	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.2	- -	-	0.4	- -	-	4.2
				Middle	2.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	109.2 109.3	109.3	8.2 8.2	8.2		0.4 0.4	0.4		4.1 4.3	4.2	
				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 15 February 2019 (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: 0.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.8 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: 6.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.8 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: 6.3 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.8 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: 7.0 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 7.5 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 15 February 2019

(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	15:01	Surface	1.1	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	117.2 117.3	117.3	8.8 8.8	8.8	8.8	0.5 0.5	0.5	0.5	5.4 5.1	5.3	5.9
				Middle	9.0	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	117.4 117.9	117.7	8.8 8.8	8.8		0.5 0.5	0.5		6.6 6.6	6.6	
				Bottom	17.1	19.5 19.6	19.5	8.4 8.4	8.4	34.4 34.4	34.4	111.8 111.7	111.8	8.4 8.4	8.4	8.4	0.6 0.6	0.6		5.7 5.9	5.8	
C2	Sunny	Moderate	13:40	Surface	1.0	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	118.4 120.0	119.2	8.9 9.0	8.9	8.7	0.5 0.5	0.5	0.4	6.1 6.2	6.2	4.2
				Middle	16.1	19.6 19.6	19.6	8.3 8.4	8.3	34.3 34.3	34.3	113.3 114.7	114.0	8.5 8.6	8.5		0.4 0.4	0.4		3.6 3.5	3.6	
				Bottom	31.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	108.6 108.4	108.5	8.1 8.1	8.1	8.1	0.4 0.4	0.4		3.0 3.0	3.0	
G1	Sunny	Moderate	14:27	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	110.6 109.9	110.3	8.3 8.3	8.3	8.2	0.4 0.4	0.4	0.4	6.4 6.2	6.3	8.5
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.2	34.2	109.8 107.9	108.9	8.2 8.1	8.2		0.5 0.4	0.4		10.4 10.1	10.3	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	106.0 106.0	106.0	8.0 8.0	8.0	8.0	0.4 0.4	0.4		8.7 9.0	8.9	
G2	Sunny	Moderate	14:07	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	34.2 34.2	34.2	113.1 112.6	112.9	8.5 8.4	8.5	8.4	0.2 0.2	0.2	0.1	8.5 8.3	8.4	8.8
				Middle	5.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	110.3 110.5	110.4	8.3 8.3	8.3		0.1 0.1	0.1		5.8 5.9	5.9	
				Bottom	9.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	108.7 107.6	108.2	8.2 8.1	8.1	8.1	0.1 0.1	0.1		11.9 12.1	12.0	
G3	Sunny	Moderate	14:33	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.6 105.0	104.8	7.9 7.9	7.9	7.9	0.4 0.5	0.4	0.4	13.3 13.4	13.4	10.7
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	105.8 106.2	106.0	7.9 8.0	8.0		0.4 0.5	0.5		11.9 12.0	12.0	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	105.0 105.4	105.2	7.9 7.9	7.9	7.9	0.4 0.4	0.4		6.8 6.9	6.9	
G4	Sunny	Moderate	14:48	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	100.5 102.4	101.5	7.6 7.7	7.6	7.6	0.4 0.5	0.4	0.4	10.3 10.3	10.3	10.0
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	100.7 104.0	102.4	7.6 7.8	7.7		0.3 0.4	0.4		13.9 13.9	13.9	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	100.3 102.5	101.4	7.5 7.7	7.6	7.6	0.4 0.4	0.4		5.9 5.7	5.8	
M1	Sunny	Moderate	14:16	Surface	1.1	19.5 19.6	19.5	8.3 8.3	8.3	34.2 34.1	34.1	105.2 109.8	107.5	7.9 8.2	8.1	8.1	0.3 0.4	0.3	0.3	4.9 4.9	4.9	4.9
				Middle	3.0	19.5 19.6	19.5	8.3 8.3	8.3	34.2 34.1	34.2	106.8 108.6	107.7	8.0 8.1	8.1		0.3 0.3	0.3		5.3 5.2	5.3	
				Bottom	5.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	106.8 107.2	107.0	8.0 8.0	8.0	8.0	0.3 0.3	0.3		4.6 4.7	4.7	
M2	Sunny	Moderate	14:01	Surface	1.1	19.5 19.6	19.6	8.3 8.3	8.3	34.2 34.2	34.2	113.6 111.6	112.6	8.5 8.4	8.4	8.4	0.1 0.2	0.2	0.1	5.8 5.6	5.7	7.1
				Middle	6.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	111.5 111.8	111.7	8.4 8.4	8.4		0.1 0.1	0.1		7.4 7.4	7.4	
				Bottom	11.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	107.6 110.0	108.8	8.1 8.2	8.2	8.2	0.2 0.2	0.2		8.3 8.3	8.3	
M3	Sunny	Moderate	14:42	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.2	34.2	100.4 99.9	100.2	7.5 7.5	7.5	7.5	0.4 0.4	0.4	0.4	6.7 7.0	6.9	8.3
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	99.2 100.1	99.7	7.5 7.5	7.5		0.5 0.4	0.4		8.6 8.7	8.7	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	100.1 100.3	100.2	7.5 7.5	7.5	7.5	0.4 0.4	0.4		9.2 9.5	9.4	
M4	Sunny	Moderate	13:55	Surface	1.0	19.6 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	114.4 113.9	114.2	8.6 8.5	8.6	8.6	0.2 0.2	0.2	0.1	7.0 6.9	7.0	6.4
				Middle	5.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	114.2 114.5	114.4	8.6 8.6	8.6		0.1 0.2	0.1		4.1 4.1	4.1	
				Bottom	9.0	19.5 19.5	19.5	8.4 8.4	8.4	34.3 34.3	34.3	112.9 113.1	113.0	8.5 8.5	8.5	8.5	0.0 0.0	0.0		8.1 8.0	8.1	
M5	Sunny	Moderate	14:58	Surface	1.0	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	108.7 108.6	108.7	8.1 8.1	8.1	8.2	0.2 0.2	0.2	0.2	15.9 16.0	16.0	9.3
				Middle	6.0	19.6 19.6	19.6	8.4 8.4	8.4	34.3 34.3	34.3	109.1 109.6	109.4	8.2 8.2	8.2		0.2 0.2	0.2		6.0 6.0	6.0	
				Bottom	11.0	19.5 19.5	19.5	8.4 8.4	8.4	34.4 34.3	34.3	107.5 108.2	107.9	8.1 8.1	8.1	8.1	0.2 0.2	0.2		6.0 6.0	6.0	
M6	Sunny	Moderate	14:51	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.2	- -	-	0.4	- -	-	2.8
				Middle	2.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	109.3 109.2	109.3	8.2 8.2	8.2		0.4 0.5	0.4		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 February 2019 (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: 0.4 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.4 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*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 6.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 6.7 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 ***C2: 6.2 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 6.7 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 ***C2: 8.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 9.2 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 02/18/2019

(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	Rainy	Moderate	11:36	Surface	1.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.3 108.5	107.9	8.1 8.1	8.1	8.1	0.3 0.3	0.3	0.3	1.9 1.9	1.9	8.1
				Middle	9.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.8 108.0	107.9	8.1 8.1	8.1		0.3 0.4	0.4		11.6 11.7	11.7	
				Bottom	17.0	19.4 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	107.6 107.7	107.7	8.1 8.1	8.1	8.1	0.4 0.4	0.4		10.4 10.8	10.6	
C2	Rainy	Moderate	11:42	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	109.1 110.4	109.8	8.2 8.3	8.2	8.2	0.2 0.2	0.2	0.3	5.2 5.1	5.2	4.7
				Middle	16.0	19.5 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	108.7 108.3	108.5	8.2 8.1	8.1		0.3 0.3	0.3		1.9 2.0	2.0	
				Bottom	31.1	19.4 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	108.0 108.0	108.0	8.1 8.1	8.1	8.1	0.3 0.3	0.3		7.1 7.1	7.1	
G1	Rainy	Moderate	11:09	Surface	1.0	19.5 19.5	19.5	8.3 8.4	8.3	34.2 34.2	34.2	104.1 105.4	104.8	7.8 7.9	7.9	7.9	0.5 0.5	0.5	0.5	6.3 6.4	6.4	5.7
				Middle	4.0	19.5 19.5	19.5	8.3 8.4	8.3	34.2 34.2	34.2	105.0 105.4	105.2	7.9 7.9	7.9		0.4 0.4	0.4		7.4 7.4	7.4	
				Bottom	7.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	105.0 105.3	105.2	7.9 7.9	7.9	7.9	0.5 0.5	0.5		3.3 3.5	3.4	
G2	Rainy	Moderate	10:54	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.8 106.4	105.6	7.9 8.0	7.9	7.9	0.3 0.2	0.2	0.3	10.9 10.7	10.8	7.5
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	105.5 106.2	105.9	7.9 8.0	7.9		0.4 0.4	0.4		6.0 6.1	6.1	
				Bottom	9.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.2 106.6	106.9	8.0 8.0	8.0	8.0	0.3 0.4	0.3		5.5 5.5	5.5	
G3	Rainy	Moderate	11:13	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	104.5 104.8	104.7	7.9 7.9	7.9	7.9	0.4 0.4	0.4	0.4	7.9 7.9	7.9	11.1
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.1	34.1	104.6 104.8	104.7	7.9 7.9	7.9		0.4 0.4	0.4		8.5 8.6	8.6	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.6 104.4	104.5	7.8 7.8	7.8	7.8	0.4 0.4	0.4		16.7 16.9	16.8	
G4	Rainy	Moderate	11:23	Surface	1.0	19.4 19.5	19.5	8.3 8.3	8.3	34.3 34.2	34.2	101.9 103.2	102.6	7.7 7.7	7.7	7.7	0.4 0.4	0.4	0.3	12.7 12.6	12.7	12.6
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	103.1 103.3	103.2	7.7 7.8	7.7		0.3 0.3	0.3		13.5 13.8	13.7	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	102.9 103.0	103.0	7.7 7.7	7.7	7.7	0.3 0.3	0.3		11.5 11.7	11.6	
M1	Rainy	Moderate	11:00	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	101.5 101.8	101.7	7.6 7.6	7.6	7.6	0.3 0.4	0.3	0.4	6.3 6.4	6.4	10.7
				Middle	3.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	102.1 101.7	101.9	7.7 7.6	7.6		0.4 0.4	0.4		13.6 14.3	14.0	
				Bottom	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	102.1 101.7	101.9	7.7 7.6	7.6	7.6	0.4 0.4	0.4		11.9 11.5	11.7	
M2	Rainy	Moderate	10:48	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	109.0 109.6	109.3	8.2 8.2	8.2	8.2	0.4 0.4	0.4	0.4	9.6 9.8	9.7	11.1
				Middle	6.0	19.4 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	109.1 109.5	109.3	8.2 8.2	8.2		0.4 0.4	0.4		12.5 12.7	12.6	
				Bottom	11.1	19.4 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	108.9 109.1	109.0	8.2 8.2	8.2	8.2	0.4 0.3	0.3		10.8 10.9	10.9	
M3	Rainy	Moderate	11:20	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.2	34.1	102.2 104.3	103.3	7.7 7.8	7.7	7.8	0.4 0.4	0.4	0.4	12.3 12.0	12.2	9.1
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	104.2 103.6	103.9	7.8 7.8	7.8		0.3 0.4	0.4		6.9 6.7	6.8	
				Bottom	7.1	19.5 19.5	19.5	8.4 8.3	8.3	34.2 34.2	34.2	104.4 104.2	104.3	7.8 7.8	7.8	7.8	0.3 0.3	0.3		8.4 8.2	8.3	
M4	Rainy	Moderate	10:39	Surface	1.1	19.4 19.4	19.4	8.2 8.3	8.2	34.2 34.2	34.2	106.6 109.6	108.1	8.0 8.2	8.1	8.2	0.4 0.5	0.4	0.4	15.0 15.6	15.3	17.0
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	109.0 109.5	109.3	8.2 8.2	8.2		0.3 0.4	0.3		24.1 24.4	24.3	
				Bottom	9.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	108.7 108.9	108.8	8.2 8.2	8.2	8.2	0.4 0.4	0.4		11.4 11.2	11.3	
M5	Rainy	Moderate	11:31	Surface	1.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	106.6 108.6	107.6	8.0 8.1	8.1	8.1	0.4 0.4	0.4	0.4	2.9 2.9	2.9	5.5
				Middle	6.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	108.3 108.5	108.4	8.1 8.1	8.1		0.4 0.4	0.4		6.1 6.2	6.2	
				Bottom	11.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.9 108.3	108.1	8.1 8.1	8.1	8.1	0.3 0.4	0.4		7.4 7.5	7.5	
M6	Rainy	Moderate	11:27	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.0	- -	-	0.2	- -	-	1.9
				Middle	2.0	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	106.3 106.4	106.4	8.0 8.0	8.0		0.2 0.2	0.2		1.8 1.9	1.9	
				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 18 February 2019 (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: 0.6 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.7 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: 4.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 4.7mg/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: 4.3 mg/L***	***7.4 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*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.3 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 3.6 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 02/18/2019

(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	Rainy	Moderate	16:38	Surface	1.1	19.4 19.4	19.4	8.4 8.4	8.4	34.1 34.2	34.1	108.0 107.3	107.7	8.1 8.1	8.1	8.1	0.4 0.4	0.4	0.4	3.6 3.6	3.6	3.8
				Middle	9.1	19.4 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	108.4 108.1	108.3	8.1 8.1	8.1		0.4 0.4	0.4		5.1 5.1	5.1	
				Bottom	17.0	19.4 19.4	19.4	8.4 8.4	8.4	34.2 34.2	34.2	107.5 107.3	107.4	8.1 8.1	8.1	8.1	0.5 0.5	0.5		2.7 2.8	2.8	
C2	Rainy	Moderate	16:48	Surface	1.1	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	105.6 108.0	106.8	7.9 8.1	8.0	8.0	0.3 0.3	0.3	0.3	4.6 4.5	4.6	5.2
				Middle	16.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.1 107.2	107.2	8.0 8.0	8.0		0.2 0.2	0.2		8.7 8.8	8.8	
				Bottom	31.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.1 107.0	107.1	8.0 8.0	8.0	8.0	0.2 0.3	0.3		2.3 2.3	2.3	
G1	Rainy	Moderate	15:56	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	105.1 105.8	105.5	7.9 7.9	7.9	7.9	0.3 0.3	0.3	0.3	6.8 6.9	6.9	7.9
				Middle	4.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	105.2 105.6	105.4	7.9 7.9	7.9		0.3 0.3	0.3		13.0 13.3	13.2	
				Bottom	7.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	105.0 105.1	105.1	7.9 7.9	7.9	7.9	0.3 0.3	0.3		3.7 3.7	3.7	
G2	Rainy	Moderate	15:44	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	104.8 107.6	106.2	7.9 8.1	8.0	8.0	0.4 0.4	0.4	0.3	3.3 3.2	3.3	10.5
				Middle	5.1	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	106.7 107.7	107.2	8.0 8.1	8.0		0.3 0.3	0.3		9.1 9.2	9.2	
				Bottom	9.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.1 107.5	107.3	8.0 8.1	8.1	8.1	0.3 0.4	0.3		19.2 19.2	19.2	
G3	Rainy	Moderate	16:05	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.0 34.0	34.0	104.5 104.6	104.6	7.8 7.9	7.8	7.8	0.4 0.4	0.4	0.4	7.1 7.1	7.1	8.4
				Middle	4.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.1	34.2	104.7 104.7	104.7	7.9 7.9	7.9		0.4 0.4	0.4		8.9 9.2	9.1	
				Bottom	7.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	104.5 104.4	104.5	7.8 7.8	7.8	7.8	0.4 0.4	0.4		9.2 8.9	9.1	
G4	Rainy	Moderate	16:15	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	104.9 104.9	104.9	7.9 7.9	7.9	7.9	0.4 0.3	0.4	0.3	12.9 12.9	12.9	10.7
				Middle	4.0	19.5 19.6	19.5	8.4 8.4	8.4	34.2 34.2	34.2	106.2 106.3	106.3	8.0 8.0	8.0		0.3 0.2	0.2		8.9 9.2	9.1	
				Bottom	7.1	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	105.8 105.3	105.6	7.9 7.9	7.9	7.9	0.4 0.3	0.3		10.3 10.2	10.3	
M1	Rainy	Moderate	15:50	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	33.8 33.9	33.8	102.0 102.6	102.3	7.7 7.7	7.7	7.7	0.2 0.2	0.2	0.3	10.2 10.3	10.3	9.5
				Middle	3.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	102.4 102.6	102.5	7.7 7.7	7.7		0.3 0.4	0.3		10.3 9.9	10.1	
				Bottom	5.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	102.2 102.5	102.4	7.7 7.7	7.7	7.7	0.3 0.3	0.3		8.2 8.2	8.2	
M2	Rainy	Moderate	15:38	Surface	1.0	19.5 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	104.4 107.9	106.2	7.8 8.1	8.0	8.0	0.3 0.3	0.3	0.3	6.6 6.4	6.5	13.6
				Middle	6.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.6 108.1	107.9	8.1 8.1	8.1		0.3 0.3	0.3		22.3 22.6	22.5	
				Bottom	11.1	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	108.2 108.4	108.3	8.1 8.1	8.1	8.1	0.3 0.3	0.3		11.8 11.7	11.8	
M3	Rainy	Moderate	16:10	Surface	1.1	19.5 19.5	19.5	8.4 8.4	8.4	33.8 34.0	33.9	104.0 104.9	104.5	7.8 7.9	7.8	7.8	0.2 0.3	0.3	0.3	7.2 7.1	7.2	9.9
				Middle	4.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	104.5 104.9	104.7	7.8 7.9	7.9		0.3 0.3	0.3		14.3 14.1	14.2	
				Bottom	7.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	104.3 104.7	104.5	7.8 7.9	7.8	7.8	0.3 0.3	0.3		8.2 8.3	8.3	
M4	Rainy	Moderate	15:34	Surface	1.0	19.5 19.5	19.5	8.3 8.4	8.3	34.1 34.1	34.1	108.7 108.6	108.7	8.2 8.2	8.2	8.2	0.3 0.3	0.3	0.2	12.1 12.0	12.1	10.0
				Middle	5.1	19.5 19.5	19.5	8.3 8.4	8.4	34.2 34.2	34.2	109.0 108.7	108.9	8.2 8.2	8.2		0.3 0.3	0.3		9.6 9.4	9.5	
				Bottom	9.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	108.7 108.5	108.6	8.2 8.1	8.1	8.1	0.2 0.2	0.2		8.5 8.5	8.5	
M5	Rainy	Moderate	16:30	Surface	1.0	19.4 19.5	19.5	8.4 8.4	8.4	34.1 34.1	34.1	106.9 107.8	107.4	8.0 8.1	8.1	8.1	0.4 0.4	0.4	0.4	11.9 11.5	11.7	9.3
				Middle	6.0	19.5 19.5	19.5	8.4 8.4	8.4	34.2 34.2	34.2	107.4 107.2	107.3	8.1 8.0	8.1		0.3 0.4	0.4		6.9 7.1	7.0	
				Bottom	11.0	19.4 19.5	19.4	8.4 8.4	8.4	34.2 34.2	34.2	107.5 107.3	107.4	8.1 8.1	8.1	8.1	0.3 0.4	0.4		9.2 9.2	9.2	
M6	Rainy	Moderate	16:25	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.0	- -	-	0.3	- -	-	8.7
				Middle	2.0	19.6 19.6	19.6	8.4 8.4	8.4	34.2 34.2	34.2	106.2 106.5	106.4	8.0 8.0	8.0		0.3 0.3	0.3		8.5 8.8	8.7	
				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 20 February 2019 (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: 0.7 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.8 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: 7.8 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.5 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: 7.8 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.5 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: 3.3 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 3.6 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 02/20/2019

(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	Calm	13:48	Surface	1.1	19.6 19.7	19.7	8.3 8.3	8.3	33.9 33.9	33.9	104.3 106.2	105.3	7.8 8.0	7.9	7.8	0.4 0.5	0.5	0.3	10.4 10.2	10.3	7.6
				Middle	9.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	103.2 103.5	103.4	7.8 7.8	7.8		0.4 0.4	0.4		7.7 7.5	7.6	
				Bottom	17.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	102.8 103.2	103.0	7.7 7.8	7.8		0.2 0.2	0.2		4.8 4.8	4.8	
C2	Cloudy	Calm	12:52	Surface	1.0	19.7 19.6	19.7	8.2 8.2	8.2	33.9 33.9	33.9	102.5 103.4	103.0	7.7 7.8	7.7	7.7	0.4 0.4	0.4	0.5	6.6 6.4	6.5	4.3
				Middle	16.0	19.5 19.5	19.5	8.2 8.2	8.2	33.9 33.9	33.9	101.6 101.8	101.7	7.6 7.7	7.6		0.6 0.6	0.6		3.7 3.8	3.8	
				Bottom	31.0	19.5 19.5	19.5	8.2 8.3	8.2	34.0 34.0	34.0	101.1 100.8	101.0	7.6 7.6	7.6	7.6	0.6 0.6	0.6		2.7 2.8	2.8	
G1	Cloudy	Calm	13:18	Surface	1.0	19.7 19.7	19.7	8.3 8.3	8.3	33.9 33.9	33.9	109.3 105.0	107.2	8.2 7.9	8.0	7.9	0.6 0.6	0.6	0.5	3.9 3.8	3.9	7.3
				Middle	4.0	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	103.6 103.2	103.4	7.8 7.7	7.8		0.5 0.5	0.5		7.4 7.5	7.5	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	102.2 102.4	102.3	7.7 7.7	7.7	7.7	0.5 0.5	0.5		10.5 10.6	10.6	
G2	Cloudy	Calm	13:09	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	33.9 34.0	33.9	103.7 103.5	103.6	7.8 7.8	7.8	7.8	0.3 0.3	0.3	0.3	4.0 4.2	4.1	9.3
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	103.0 103.2	103.1	7.7 7.8	7.7		0.3 0.3	0.3		11.2 10.9	11.1	
				Bottom	9.1	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	102.6 102.5	102.6	7.7 7.7	7.7	7.7	0.4 0.4	0.4		12.7 12.5	12.6	
G3	Cloudy	Calm	13:22	Surface	1.1	19.6 19.7	19.7	8.3 8.4	8.3	33.9 33.9	33.9	108.1 114.2	111.2	8.1 8.6	8.3	8.1	0.4 0.4	0.4	0.3	9.4 9.3	9.4	10.9
				Middle	4.0	19.6 19.6	19.6	8.3 8.3	8.3	34.0 33.9	33.9	104.8 105.6	105.2	7.9 7.9	7.9		0.3 0.3	0.3		13.1 13.5	13.3	
				Bottom	7.1	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	102.5 103.0	102.8	7.7 7.7	7.7	7.7	0.3 0.3	0.3		9.8 10.4	10.1	
G4	Cloudy	Calm	13:29	Surface	1.0	19.9 19.7	19.8	8.4 8.4	8.4	33.7 33.8	33.8	116.7 116.6	116.7	8.7 8.7	8.7	8.3	0.5 0.6	0.5	0.6	7.1 7.4	7.3	8.1
				Middle	4.0	19.7 19.6	19.6	8.4 8.3	8.3	33.8 33.9	33.9	108.2 104.1	106.2	8.1 7.8	8.0		0.4 0.3	0.3		10.0 9.7	9.9	
				Bottom	7.0	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	100.0 98.7	99.4	7.5 7.4	7.5	7.5	0.9 0.9	0.9		7.1 7.4	7.3	
M1	Cloudy	Calm	13:14	Surface	1.1	19.8 19.9	19.8	8.3 8.3	8.3	33.9 33.8	33.9	102.1 102.4	102.3	7.6 7.6	7.6	7.6	0.5 0.4	0.5	0.7	4.2 4.0	4.1	4.5
				Middle	3.0	19.7 19.6	19.7	8.3 8.3	8.3	33.9 33.9	33.9	101.9 101.7	101.8	7.6 7.6	7.6		0.7 0.7	0.7		4.6 4.8	4.7	
				Bottom	5.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.3 101.4	101.4	7.6 7.6	7.6	7.6	1.0 1.0	1.0		4.6 4.6	4.6	
M2	Cloudy	Calm	13:05	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	104.1 103.5	103.8	7.8 7.8	7.8	7.8	0.4 0.3	0.3	0.3	4.8 5.0	4.9	6.4
				Middle	6.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	103.3 103.1	103.2	7.8 7.8	7.8		0.2 0.3	0.3		6.8 6.9	6.9	
				Bottom	11.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.1	34.0	102.4 102.3	102.4	7.7 7.7	7.7	7.7	0.3 0.3	0.3		7.4 7.4	7.4	
M3	Cloudy	Calm	13:25	Surface	1.0	19.7 19.6	19.7	8.4 8.3	8.3	33.8 33.9	33.8	114.7 109.2	112.0	8.6 8.2	8.4	8.2	0.3 0.3	0.3	0.3	16.5 17.2	16.9	20.1
				Middle	4.0	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	106.1 106.0	106.1	8.0 8.0	8.0		0.2 0.2	0.2		29.0 29.1	29.1	
				Bottom	7.0	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	100.9 100.7	100.8	7.6 7.6	7.6	7.6	0.4 0.3	0.4		14.2 14.3	14.3	
M4	Cloudy	Calm	12:59	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	102.0 102.4	102.2	7.7 7.7	7.7	7.7	0.4 0.4	0.4	0.4	9.9 10.0	10.0	5.2
				Middle	5.1	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	101.8 102.1	102.0	7.7 7.7	7.7		0.4 0.5	0.4		2.4 2.5	2.5	
				Bottom	9.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	101.4 101.3	101.4	7.6 7.6	7.6	7.6	0.5 0.5	0.5		3.2 3.3	3.3	
M5	Cloudy	Calm	13:40	Surface	1.1	19.6 19.7	19.6	8.3 8.3	8.3	33.9 33.9	33.9	99.2 100.9	100.1	7.4 7.6	7.5	7.5	0.7 0.7	0.7	0.7	8.5 8.4	8.5	8.3
				Middle	6.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	100.3 99.4	99.9	7.5 7.5	7.5		0.9 0.8	0.8		11.3 11.9	11.6	
				Bottom	11.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	101.3 101.1	101.2	7.6 7.6	7.6	7.6	0.5 0.5	0.5		4.7 4.7	4.7	
M6	Cloudy	Calm	13:35	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	8.0	- -	-	0.2	- -	-	2.8
				Middle	2.1	19.7 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	106.7 106.3	106.5	8.0 8.0	8.0		0.2 0.3	0.2		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 20 February 2019 (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: 0.5 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 0.5 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*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 5.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.7mg/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: 5.3 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.7 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: 9.1 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 9.9mg/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 02/20/2019

(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	Calm	08:25	Surface	1.1	19.4 19.4	19.4	8.4 8.4	8.4	34.0 34.0	34.0	103.4 103.3	103.4	7.8 7.8	7.8	7.7	0.3 0.4	0.4	0.4	4.4 4.4	4.4	6.7
				Middle	9.0	19.4 19.4	19.4	8.4 8.4	8.4	34.0 34.0	34.0	102.5 102.8	102.7	7.7 7.7	7.7		0.3 0.4	0.3		8.0 8.3	8.2	
				Bottom	17.0	19.1 19.1	19.1	8.3 8.3	8.3	34.2 34.2	34.2	100.4 100.8	100.6	7.6 7.6	7.6	7.6	0.4 0.4	0.4		7.6 7.6	7.6	
C2	Cloudy	Calm	07:26	Surface	1.0	19.6 19.6	19.6	8.2 8.3	8.3	33.9 33.9	33.9	102.0 102.2	102.1	7.7 7.7	7.7	7.6	0.4 0.4	0.4	0.4	6.0 6.0	6.0	7.5
				Middle	16.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	101.5 101.5	101.5	7.6 7.6	7.6		0.4 0.4	0.4		8.7 8.6	8.7	
				Bottom	31.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	101.2 101.2	101.2	7.6 7.6	7.6	7.6	0.4 0.4	0.4		7.8 7.7	7.8	
G1	Cloudy	Calm	07:54	Surface	1.0	19.6 19.5	19.6	8.3 8.3	8.3	33.6 33.8	33.7	101.3 102.0	101.7	7.6 7.7	7.6	7.6	0.3 0.4	0.4	0.4	5.6 5.8	5.7	8.3
				Middle	4.0	19.6 19.5	19.5	8.3 8.3	8.3	33.7 33.9	33.8	101.7 102.0	101.9	7.6 7.7	7.7		0.3 0.3	0.3		10.9 10.7	10.8	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.1	34.0	101.6 101.2	101.4	7.6 7.6	7.6	7.6	0.4 0.4	0.4		8.3 8.5	8.4	
G2	Cloudy	Calm	07:44	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	33.8 33.9	33.9	102.0 102.1	102.1	7.7 7.7	7.7	7.7	0.4 0.4	0.4	0.4	11.4 11.7	11.6	7.0
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	101.8 101.7	101.8	7.7 7.6	7.6		0.4 0.4	0.4		3.1 3.1	3.1	
				Bottom	9.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.1 100.8	101.0	7.6 7.6	7.6	7.6	0.4 0.4	0.4		6.3 6.5	6.4	
G3	Cloudy	Calm	07:58	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	33.7 33.8	33.7	102.6 102.6	102.6	7.7 7.7	7.7	7.7	0.4 0.4	0.4	0.4	3.9 3.8	3.9	5.1
				Middle	4.1	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	102.5 102.5	102.5	7.7 7.7	7.7		0.4 0.4	0.4		5.9 5.8	5.9	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	100.7 102.1	101.4	7.6 7.7	7.6	7.6	0.5 0.5	0.5		5.4 5.6	5.5	
G4	Cloudy	Calm	08:08	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	33.7 33.8	33.8	102.4 102.2	102.3	7.7 7.7	7.7	7.7	0.4 0.3	0.3	0.4	6.2 6.4	6.3	6.6
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 33.9	33.9	101.9 101.8	101.9	7.7 7.6	7.6		0.3 0.4	0.3		9.4 9.6	9.5	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.0	34.1	99.9 101.0	100.5	7.5 7.6	7.5	7.5	0.6 0.5	0.5		3.9 3.9	3.9	
M1	Cloudy	Calm	07:50	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	98.9 100.1	99.5	7.4 7.5	7.5	7.5	0.5 0.5	0.5	0.5	3.1 3.1	3.1	7.0
				Middle	3.0	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	100.0 100.5	100.3	7.5 7.6	7.5		0.5 0.4	0.4		11.2 11.0	11.1	
				Bottom	5.0	19.5 19.5	19.5	8.3 8.3	8.3	33.9 34.0	33.9	100.8 100.0	100.4	7.6 7.5	7.5	7.5	0.4 0.5	0.5		6.6 6.9	6.8	
M2	Cloudy	Calm	07:39	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.8	33.9	102.2 102.4	102.3	7.7 7.7	7.7	7.7	0.5 0.6	0.5	0.5	9.0 9.3	9.2	6.8
				Middle	6.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.9 102.0	102.0	7.7 7.7	7.7		0.5 0.4	0.4		6.5 6.5	6.5	
				Bottom	11.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.3 101.5	101.4	7.6 7.6	7.6	7.6	0.5 0.5	0.5		4.8 4.8	4.8	
M3	Cloudy	Calm	08:01	Surface	1.1	19.5 19.5	19.5	8.4 8.3	8.3	33.8 33.9	33.8	102.9 102.1	102.5	7.7 7.7	7.7	7.7	0.5 0.4	0.4	0.4	5.2 5.3	5.3	8.0
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 33.9	34.0	102.8 102.7	102.8	7.7 7.7	7.7		0.4 0.5	0.4		10.5 10.6	10.6	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	101.3 101.5	101.4	7.6 7.6	7.6	7.6	0.3 0.3	0.3		8.1 8.2	8.2	
M4	Cloudy	Calm	07:34	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	101.3 102.3	101.8	7.6 7.7	7.7	7.7	0.4 0.4	0.4	0.5	8.1 8.3	8.2	4.9
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	102.0 102.0	102.0	7.7 7.7	7.7		0.4 0.5	0.5		4.0 4.1	4.1	
				Bottom	9.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.8 101.8	101.8	7.7 7.7	7.7	7.7	0.5 0.6	0.6		2.4 2.5	2.5	
M5	Cloudy	Calm	08:18	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	101.0 101.4	101.2	7.6 7.6	7.6	7.6	0.4 0.4	0.4	0.5	4.0 4.1	4.1	4.5
				Middle	6.6	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	101.0 101.2	101.1	7.6 7.6	7.6		0.4 0.3	0.4		4.7 4.6	4.7	
				Bottom	12.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	99.2 99.4	99.3	7.5 7.5	7.5	7.5	0.7 0.7	0.7		4.9 4.9	4.9	
M6	Cloudy	Calm	08:14	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.6	- -	-	0.4	- -	-	5.0
				Middle	2.1	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	101.8 101.8	101.8	7.6 7.6	7.6		0.4 0.4	0.4		5.0 4.9	5.0	
				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 22 February 2019 (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: 1.3 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.4 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*** or 120% of upstream control station's SS at the same tide of the same day ***C2: 9.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 10.0 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 ***C2: 9.2 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 10.0 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 ***C2: 15.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 16.8 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 02/22/2019

(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	09:24	Surface	1.0	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	101.2 101.4	101.3	7.6 7.6	7.6	7.6	0.8 0.7	0.7	0.8	3.9 3.9	3.9	4.4
				Middle	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	100.9 100.9	100.9	7.6 7.6	7.6		0.7 0.7	0.7		5.7 5.9	5.8	
				Bottom	17.1	18.9 18.9	18.9	8.3 8.3	8.3	34.5 34.4	34.5	98.6 99.1	98.9	7.5 7.5	7.5	7.5	1.0 1.0	1.0		3.4 3.4	3.4	
C2	Sunny	Moderate	08:03	Surface	1.0	19.7 19.6	19.7	8.3 8.3	8.3	33.9 33.9	33.9	101.4 101.4	101.4	7.6 7.6	7.6	7.5	0.7 0.7	0.7	0.9	7.9 7.5	7.7	9.7
				Middle	16.0	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	99.1 99.1	99.1	7.5 7.5	7.5		0.7 0.7	0.7		8.4 8.3	8.4	
				Bottom	31.0	19.0 19.0	19.0	8.3 8.3	8.3	34.3 34.3	34.3	97.1 97.1	97.1	7.3 7.3	7.3	7.3	1.1 1.1	1.1		12.7 13.2	13.0	
G1	Sunny	Moderate	08:44	Surface	1.1	19.7 19.7	19.7	8.3 8.3	8.3	33.8 33.8	33.8	101.8 101.8	101.8	7.6 7.6	7.6	7.6	0.2 0.2	0.2	0.3	7.5 7.6	7.6	11.8
				Middle	4.1	19.6 19.6	19.6	8.3 8.3	8.3	33.8 33.8	33.8	100.8 101.3	101.1	7.6 7.6	7.6		0.2 0.2	0.2		16.2 16.0	16.1	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	98.3 98.9	98.6	7.4 7.4	7.4	7.4	0.5 0.5	0.5		11.6 11.7	11.7	
G2	Sunny	Moderate	08:23	Surface	1.1	19.7 19.7	19.7	8.3 8.3	8.3	33.9 33.8	33.9	101.3 101.3	101.3	7.6 7.6	7.6	7.5	0.2 0.2	0.2	0.2	8.2 8.3	8.3	9.6
				Middle	5.1	19.5 19.5	19.5	8.3 8.3	8.3	33.9 33.9	33.9	100.2 99.8	100.0	7.5 7.5	7.5		0.2 0.2	0.2		7.0 7.4	7.2	
				Bottom	9.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	97.9 98.1	98.0	7.4 7.4	7.4	7.4	0.4 0.3	0.3		13.5 13.2	13.4	
G3	Sunny	Moderate	08:51	Surface	1.1	19.7 19.8	19.8	8.3 8.3	8.3	33.7 33.7	33.7	101.4 101.7	101.6	7.6 7.6	7.6	7.6	0.1 0.1	0.1	0.2	6.0 6.3	6.2	6.5
				Middle	4.0	19.7 19.6	19.6	8.3 8.3	8.3	33.8 33.8	33.8	101.4 101.3	101.4	7.6 7.6	7.6		0.2 0.2	0.2		10.1 10.0	10.1	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	100.0 100.1	100.1	7.5 7.5	7.5	7.5	0.2 0.2	0.2		3.4 3.4	3.4	
G4	Sunny	Moderate	09:01	Surface	1.0	19.9 19.8	19.9	8.3 8.3	8.3	33.8 33.8	33.8	103.4 103.6	103.5	7.7 7.7	7.7	7.7	0.1 0.1	0.1	0.2	8.9 9.1	9.0	9.9
				Middle	4.0	19.7 19.7	19.7	8.3 8.3	8.3	33.8 33.8	33.8	102.4 102.8	102.6	7.7 7.7	7.7		0.1 0.1	0.1		6.9 6.8	6.9	
				Bottom	7.0	19.5 19.6	19.5	8.3 8.3	8.3	34.0 33.9	33.9	98.9 101.3	100.1	7.4 7.6	7.5	7.5	0.2 0.2	0.2		13.7 13.9	13.8	
M1	Sunny	Moderate	08:38	Surface	1.0	19.7 19.6	19.7	8.3 8.3	8.3	33.9 33.9	33.9	100.5 99.4	100.0	7.5 7.5	7.5	7.5	0.2 0.2	0.2	0.2	13.9 13.5	13.7	7.9
				Middle	3.0	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	99.4 99.5	99.5	7.5 7.5	7.5		0.2 0.2	0.2		4.0 4.0	4.0	
				Bottom	5.0	19.6 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	98.5 98.7	98.6	7.4 7.4	7.4	7.4	0.2 0.2	0.2		6.1 6.1	6.1	
M2	Sunny	Moderate	08:16	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	100.1 100.2	100.2	7.5 7.5	7.5	7.5	0.2 0.2	0.2	0.3	11.0 11.0	11.0	6.2
				Middle	6.0	19.1 19.2	19.1	8.3 8.3	8.3	34.2 34.2	34.2	99.1 99.4	99.3	7.5 7.5	7.5		0.2 0.2	0.2		3.6 3.5	3.6	
				Bottom	11.0	19.0 19.0	19.0	8.3 8.3	8.3	34.3 34.3	34.3	98.4 98.5	98.5	7.4 7.5	7.4	7.4	0.4 0.4	0.4		4.1 4.1	4.1	
M3	Sunny	Moderate	08:55	Surface	1.0	19.8 19.8	19.8	8.3 8.3	8.3	33.7 33.7	33.7	99.6 100.7	100.2	7.5 7.5	7.5	7.5	0.1 0.1	0.1	0.2	5.5 5.4	5.5	4.7
				Middle	4.0	19.6 19.6	19.6	8.3 8.3	8.3	33.8 33.8	33.8	101.1 100.8	101.0	7.6 7.6	7.6		0.2 0.2	0.2		4.0 4.0	4.0	
				Bottom	7.0	19.5 19.6	19.6	8.3 8.3	8.3	33.9 33.9	33.9	100.5 100.4	100.5	7.6 7.5	7.5	7.5	0.3 0.3	0.3		4.5 4.6	4.6	
M4	Sunny	Moderate	08:10	Surface	1.0	19.5 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	99.8 100.4	100.1	7.5 7.6	7.5	7.5	0.1 0.1	0.1	0.1	5.3 5.3	5.3	5.8
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.0	34.0	100.0 100.2	100.1	7.5 7.5	7.5		0.1 0.1	0.1		3.6 3.6	3.6	
				Bottom	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	99.6 99.7	99.7	7.5 7.5	7.5	7.5	0.1 0.1	0.1		8.5 8.3	8.4	
M5	Sunny	Moderate	09:14	Surface	1.0	20.1 19.8	19.9	8.3 8.3	8.3	33.7 33.8	33.7	101.1 101.6	101.4	7.5 7.6	7.6	7.5	0.2 0.2	0.2	0.2	2.9 2.9	2.9	8.7
				Middle	5.5	19.4 19.3	19.4	8.3 8.3	8.3	34.0 34.0	34.0	98.4 98.9	98.7	7.4 7.4	7.4		0.2 0.3	0.3		9.8 9.5	9.7	
				Bottom	10.1	19.1 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	98.4 97.9	98.2	7.4 7.4	7.4	7.4	0.3 0.3	0.3		13.2 13.6	13.4	
M6	Sunny	Moderate	09:09	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.7	- -	-	0.2	- -	-	13.4
				Middle	2.1	19.8 19.8	19.8	8.3 8.3	8.3	33.7 33.7	33.7	103.5 103.5	103.5	7.7 7.7	7.7		0.2 0.2	0.2		13.2 13.6	13.4	
				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 22 February 2019 (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: 1.1 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 1.2 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 ***C1: 10.3 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 11.1 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 ***C1: 10.3 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 11.1 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 ***C1: 8.5 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 9.2 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 02/22/2019

(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	15:46	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	102.1 101.9	102.0	7.7 7.7	7.7	7.6	0.8 0.8	0.8	0.8	8.7 8.4	8.6	10.2
				Middle	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.1 34.1	34.1	100.2 100.7	100.5	7.6 7.6	7.6		0.8 0.9	0.8		14.8 14.8	14.8	
				Bottom	17.0	19.2 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	99.8 100.1	100.0	7.5 7.5	7.5	7.5	0.9 0.9	0.9		7.0 7.2	7.1	
C2	Sunny	Moderate	14:12	Surface	1.1	20.1 20.2	20.2	8.4 8.4	8.4	33.6 33.6	33.6	108.8 109.9	109.4	8.1 8.2	8.1	7.9	0.8 0.8	0.8	1.0	11.5 11.7	11.6	8.3
				Middle	16.1	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	101.1 101.1	101.1	7.6 7.6	7.6		1.1 1.1	1.1		7.1 7.1	7.1	
				Bottom	31.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	98.7 98.7	98.7	7.4 7.4	7.4	7.4	1.1 1.1	1.1		6.0 6.3	6.2	
G1	Sunny	Moderate	14:49	Surface	1.0	20.1 20.3	20.2	8.3 8.3	8.3	33.8 33.8	33.8	105.6 106.6	106.1	7.9 7.9	7.9	7.7	0.1 0.1	0.1	0.6	10.5 10.6	10.6	12.7
				Middle	4.1	19.5 19.7	19.6	8.3 8.3	8.3	34.0 33.9	34.0	99.2 103.6	101.4	7.5 7.8	7.6		0.9 0.8	0.8		9.5 9.6	9.6	
				Bottom	7.0	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	98.7 99.1	98.9	7.4 7.5	7.5	7.5	1.0 1.0	1.0		17.9 18.0	18.0	
G2	Sunny	Moderate	14:42	Surface	1.0	19.9 19.9	19.9	8.3 8.3	8.3	34.0 34.0	34.0	104.6 104.6	104.6	7.8 7.8	7.8	7.8	0.1 0.1	0.1	0.2	7.6 7.3	7.5	6.1
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	104.3 104.3	104.3	7.8 7.8	7.8		0.2 0.2	0.2		3.4 3.4	3.4	
				Bottom	9.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.2	34.2	101.7 101.7	101.7	7.7 7.7	7.7	7.7	0.2 0.1	0.1		7.2 7.4	7.3	
G3	Sunny	Moderate	14:57	Surface	1.0	20.1 20.0	20.1	8.3 8.3	8.3	33.8 33.8	33.8	107.4 105.7	106.6	8.0 7.9	7.9	7.8	0.1 0.1	0.1	0.3	6.0 5.9	6.0	7.9
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	103.4 101.4	102.4	7.8 7.6	7.7		0.3 0.3	0.3		7.5 7.5	7.5	
				Bottom	7.0	19.2 19.4	19.3	8.3 8.3	8.3	34.3 34.1	34.2	100.7 101.2	101.0	7.6 7.6	7.6	7.6	0.5 0.4	0.4		10.2 10.1	10.2	
G4	Sunny	Moderate	15:20	Surface	1.0	20.0 19.7	19.9	8.3 8.4	8.3	33.8 33.9	33.9	105.8 106.6	106.2	7.9 8.0	7.9	7.7	0.4 0.4	0.4	0.5	5.6 5.7	5.7	5.5
				Middle	4.0	19.5 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	98.1 100.8	99.5	7.4 7.6	7.5		0.4 0.4	0.4		7.9 8.2	8.1	
				Bottom	7.1	19.2 19.2	19.2	8.3 8.3	8.3	34.2 34.3	34.2	98.2 100.2	99.2	7.4 7.6	7.5	7.5	0.8 0.9	0.8		2.8 2.8	2.8	
M1	Sunny	Moderate	14:40	Surface	1.0	20.1 20.0	20.0	8.3 8.3	8.3	34.0 34.0	34.0	100.3 100.9	100.6	7.5 7.5	7.5	7.5	0.6 0.6	0.6	0.5	15.0 15.6	15.3	12.5
				Middle	3.0	19.6 19.9	19.8	8.3 8.3	8.3	34.1 34.0	34.0	100.8 100.5	100.7	7.6 7.5	7.5		0.4 0.5	0.4		10.0 9.6	9.8	
				Bottom	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	100.7 100.5	100.6	7.6 7.6	7.6	7.6	0.4 0.5	0.4		12.4 12.5	12.5	
M2	Sunny	Moderate	14:28	Surface	1.0	19.9 20.0	20.0	8.3 8.3	8.3	34.0 34.0	34.0	104.1 104.1	104.1	7.8 7.7	7.8	7.7	0.1 0.1	0.1	0.2	5.7 5.6	5.7	6.0
				Middle	6.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.5 102.4	102.5	7.7 7.7	7.7		0.2 0.3	0.2		5.6 5.5	5.6	
				Bottom	11.1	19.2 19.2	19.2	8.3 8.3	8.3	34.3 34.2	34.2	101.0 101.5	101.3	7.6 7.7	7.6	7.6	0.3 0.4	0.4		6.7 7.0	6.9	
M3	Sunny	Moderate	15:12	Surface	1.0	20.0 20.2	20.1	8.3 8.3	8.3	33.8 33.8	33.8	108.6 108.6	108.6	8.1 8.1	8.1	7.8	0.1 0.1	0.1	0.4	7.1 7.1	7.1	9.3
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	100.2 100.2	100.2	7.5 7.5	7.5		0.4 0.4	0.4		8.7 8.8	8.8	
				Bottom	7.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	98.7 98.7	98.7	7.4 7.4	7.4	7.4	0.6 0.6	0.6		12.2 12.0	12.1	
M4	Sunny	Moderate	14:19	Surface	1.0	19.5 19.4	19.5	8.2 8.3	8.2	34.0 34.1	34.0	100.6 100.0	100.3	7.6 7.5	7.5	7.5	0.3 0.3	0.3	0.4	4.2 4.1	4.2	4.5
				Middle	5.1	19.1 19.1	19.1	8.2 8.3	8.2	34.3 34.3	34.3	98.9 98.9	98.9	7.5 7.5	7.5		0.3 0.3	0.3		5.1 5.1	5.1	
				Bottom	9.1	19.0 19.1	19.1	8.2 8.3	8.2	34.3 34.3	34.3	98.8 99.2	99.0	7.5 7.5	7.5	7.5	0.5 0.5	0.5		4.0 4.2	4.1	
M5	Sunny	Moderate	15:39	Surface	1.0	19.6 19.7	19.7	8.3 8.3	8.3	34.0 34.0	34.0	102.3 104.8	103.6	7.7 7.8	7.8	7.8	0.3 0.3	0.3	0.3	24.8 25.5	25.2	19.9
				Middle	6.1	19.6 19.6	19.6	8.3 8.3	8.3	34.0 34.0	34.0	105.0 104.0	104.5	7.9 7.8	7.8		0.3 0.3	0.3		18.3 17.6	18.0	
				Bottom	11.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	104.6 103.0	103.8	7.9 7.7	7.8	7.8	0.2 0.2	0.2		16.3 16.7	16.5	
M6	Sunny	Moderate	15:35	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.5	- -	-	1.0	- -	-	7.0
				Middle	2.0	19.6 19.6	19.6	8.3 8.3	8.3	34.1 34.1	34.1	100.5 100.8	100.7	7.5 7.6	7.5		1.0 1.0	1.0		6.9 7.0	7.0	
				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 25 February 2019 (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: 1.1 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 1.2 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: 20.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 21.8 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 ***C2: 20.2 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 21.8 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 ***C2: 16.3mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 17.6 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 02/25/2019

(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	Calm	16:41	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	101.8 101.6	101.7	7.6 7.6	7.6	7.6	0.7 0.8	0.7	0.8	7.2 7.3	7.3	15.2
				Middle	9.1	19.4 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	101.8 101.8	101.8	7.6 7.6	7.6		0.8 0.9	0.9		26.0 25.6	25.8	
				Bottom	17.0	19.5 19.5	19.5	8.3 8.3	8.3	34.5 34.5	34.5	99.8 100.0	99.9	7.5 7.5	7.5	7.5	0.9 0.9	0.9		12.6 12.7	12.7	
C2	Cloudy	Calm	15:26	Surface	1.0	19.5 19.5	19.5	8.2 8.3	8.3	34.1 34.1	34.1	99.3 99.4	99.4	7.5 7.5	7.5	7.4	0.8 0.8	0.8	0.8	16.8 16.8	16.8	13.3
				Middle	16.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	99.0 99.2	99.1	7.4 7.4	7.4		0.8 0.8	0.8		9.6 9.7	9.7	
				Bottom	31.1	19.6 19.5	19.5	8.3 8.3	8.3	34.5 34.5	34.5	97.8 97.7	97.8	7.3 7.3	7.3	7.3	0.9 0.9	0.9		13.6 13.5	13.6	
G1	Cloudy	Calm	16:04	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	99.7 97.7	98.7	7.5 7.3	7.4	7.4	0.7 0.7	0.7	0.5	15.2 15.3	15.3	19.8
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.4 98.2	97.8	7.3 7.4	7.3		0.4 0.4	0.4		25.9 25.2	25.6	
				Bottom	7.0	19.6 19.6	19.6	8.3 8.3	8.3	34.5 34.5	34.5	97.0 97.3	97.2	7.3 7.3	7.3	7.3	0.5 0.6	0.5		18.5 18.5	18.5	
G2	Cloudy	Calm	15:50	Surface	1.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	102.7 102.8	102.8	7.7 7.7	7.7	7.7	0.1 0.1	0.1	0.1	11.4 11.2	11.3	17.0
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	102.5 102.6	102.6	7.7 7.7	7.7		0.1 0.1	0.1		18.2 18.3	18.3	
				Bottom	10.0	19.6 19.5	19.5	8.3 8.3	8.3	34.5 34.4	34.5	98.7 99.2	99.0	7.4 7.4	7.4	7.4	0.2 0.2	0.2		21.0 21.7	21.4	
G3	Cloudy	Calm	16:08	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	99.0 98.2	98.6	7.4 7.4	7.4	7.4	0.4 0.3	0.4	0.3	21.8 21.6	21.7	13.4
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.5 98.1	98.3	7.4 7.4	7.4		0.2 0.2	0.2		10.3 10.2	10.3	
				Bottom	7.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.1 97.4	97.8	7.4 7.3	7.3	7.3	0.3 0.3	0.3		8.0 8.2	8.1	
G4	Cloudy	Calm	16:22	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	102.7 102.4	102.6	7.7 7.7	7.7	7.7	0.2 0.2	0.2	0.3	16.1 15.9	16.0	14.2
				Middle	4.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.3	34.3	101.7 100.9	101.3	7.6 7.6	7.6		0.3 0.3	0.3		19.8 20.0	19.9	
				Bottom	7.0	19.4 19.5	19.4	8.3 8.3	8.3	34.3 34.4	34.3	100.8 99.5	100.2	7.6 7.5	7.5	7.5	0.3 0.4	0.4		6.6 6.6	6.6	
M1	Cloudy	Calm	15:58	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.3	34.3	96.3 96.7	96.5	7.2 7.3	7.2	7.3	0.5 0.5	0.5	0.6	19.3 19.8	19.6	13.3
				Middle	3.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	97.3 96.4	96.9	7.3 7.2	7.3		0.6 0.5	0.6		10.2 10.7	10.5	
				Bottom	5.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.2 97.1	97.2	7.3 7.3	7.3	7.3	0.7 0.9	0.8		9.8 10.1	10.0	
M2	Cloudy	Calm	15:45	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	103.6 103.5	103.6	7.8 7.8	7.8	7.8	0.1 0.1	0.1	0.1	20.5 20.5	20.5	9.6
				Middle	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.2	34.2	103.0 103.1	103.1	7.7 7.8	7.7		0.2 0.1	0.1		3.0 3.2	3.1	
				Bottom	10.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.4	34.3	102.2 100.9	101.6	7.7 7.6	7.6	7.6	0.1 0.2	0.2		5.2 5.3	5.3	
M3	Cloudy	Calm	16:16	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.2	34.1	99.2 100.2	99.7	7.5 7.5	7.5	7.5	0.3 0.3	0.3	0.2	8.3 8.5	8.4	14.9
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.4 99.6	99.5	7.5 7.5	7.5		0.2 0.2	0.2		21.0 21.0	21.0	
				Bottom	7.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.3 99.6	99.5	7.5 7.5	7.5	7.5	0.2 0.2	0.2		15.3 15.3	15.3	
M4	Cloudy	Calm	15:39	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.2	34.2	99.4 99.3	99.4	7.5 7.5	7.5	7.4	0.2 0.2	0.2	0.2	24.8 25.8	25.3	15.5
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.2 99.2	99.2	7.4 7.4	7.4		0.1 0.1	0.1		14.8 15.2	15.0	
				Bottom	10.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.3 99.0	99.2	7.4 7.4	7.4	7.4	0.2 0.2	0.2		6.2 6.2	6.2	
M5	Cloudy	Calm	16:33	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	103.3 103.5	103.4	7.8 7.8	7.8	7.7	0.1 0.1	0.1	0.4	4.9 4.9	4.9	5.2
				Middle	6.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.3	34.4	100.1 102.0	101.1	7.5 7.7	7.6		0.3 0.3	0.3		5.3 5.2	5.3	
				Bottom	11.1	19.6 19.6	19.6	8.3 8.3	8.3	34.5 34.5	34.5	98.3 98.1	98.2	7.3 7.3	7.3	7.3	0.8 0.8	0.8		5.3 5.3	5.3	
M6	Cloudy	Calm	16:27	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.8	- -	-	0.2	- -	-	9.4
				Middle	2.0	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	103.1 103.0	103.1	7.8 7.8	7.8		0.2 0.2	0.2		9.3 9.5	9.4	
				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 25 February 2019 (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: 1.2 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 1.3 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: 15.9 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 17.2 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: 15.9 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 17.2 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: 6.2 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 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 02/25/2019

(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	Calm	11:45	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	102.7 102.5	102.6	7.7 7.7	7.7	7.7	0.9 0.9	0.9	0.9	13.3 13.2	13.3	8.9
				Middle	9.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	101.3 101.2	101.3	7.6 7.6	7.6		0.9 0.9	0.9		8.3 8.1	8.2	
				Bottom	17.0	19.5 19.6	19.5	8.3 8.3	8.3	34.6 34.6	34.6	99.7 99.8	99.8	7.5 7.5	7.5	7.5	1.0 1.0	1.0		5.2 5.2	5.2	
C2	Cloudy	Calm	10:36	Surface	1.1	19.5 19.5	19.5	8.2 8.3	8.2	33.9 34.0	33.9	98.8 98.8	98.8	7.4 7.4	7.4	7.4	0.9 0.9	0.9	0.9	7.8 7.7	7.8	12.0
				Middle	16.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	97.7 97.8	97.8	7.3 7.3	7.3		0.9 0.9	0.9		20.2 20.8	20.5	
				Bottom	31.0	19.5 19.5	19.5	8.3 8.3	8.3	34.2 34.2	34.2	97.3 97.5	97.4	7.3 7.3	7.3	7.3	1.0 1.0	1.0		7.6 7.6	7.6	
G1	Cloudy	Calm	11:09	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.0	34.1	99.0 98.2	98.6	7.5 7.4	7.4	7.4	0.5 0.5	0.5	0.2	7.5 7.8	7.7	7.6
				Middle	4.1	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.3 98.3	98.8	7.5 7.4	7.4		0.2 0.1	0.1		6.3 6.1	6.2	
				Bottom	7.1	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.9 98.6	98.8	7.4 7.4	7.4	7.4	0.1 0.1	0.1		9.0 8.9	9.0	
G2	Cloudy	Calm	10:58	Surface	1.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	101.6 100.1	100.9	7.7 7.5	7.6	7.6	0.1 0.1	0.1	0.1	16.4 16.3	16.4	8.6
				Middle	5.0	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	100.8 100.6	100.7	7.6 7.6	7.6		0.1 0.1	0.1		4.7 4.7	4.7	
				Bottom	9.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.3	34.3	99.7 100.1	99.9	7.5 7.5	7.5	7.5	0.1 0.1	0.1		4.7 4.5	4.6	
G3	Cloudy	Calm	11:13	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	100.6 100.2	100.4	7.6 7.5	7.5	7.5	0.2 0.3	0.2	0.2	10.4 10.7	10.6	11.6
				Middle	4.1	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.3 100.2	99.8	7.5 7.5	7.5		0.3 0.3	0.3		17.6 16.9	17.3	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.7 98.5	98.6	7.4 7.4	7.4	7.4	0.2 0.2	0.2		7.0 6.9	7.0	
G4	Cloudy	Calm	11:27	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.0 98.8	98.9	7.4 7.4	7.4	7.4	0.4 0.4	0.4	0.3	15.3 15.8	15.6	12.2
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.4 98.7	98.6	7.4 7.4	7.4		0.3 0.3	0.3		14.2 14.5	14.4	
				Bottom	7.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.2 99.0	98.6	7.4 7.4	7.4	7.4	0.3 0.2	0.2		6.6 6.8	6.7	
M1	Cloudy	Calm	11:04	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.9 98.1	98.5	7.4 7.4	7.4	7.4	0.3 0.3	0.3	0.3	13.3 13.0	13.2	14.9
				Middle	3.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	98.2 98.0	98.1	7.4 7.4	7.4		0.3 0.3	0.3		23.4 23.5	23.5	
				Bottom	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	97.8 97.9	97.9	7.3 7.4	7.3	7.3	0.4 0.3	0.3		8.1 8.2	8.2	
M2	Cloudy	Calm	10:53	Surface	1.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	101.6 101.1	101.4	7.7 7.6	7.6	7.6	0.1 0.1	0.1	0.2	15.9 15.6	15.8	16.8
				Middle	6.0	19.4 19.5	19.4	8.3 8.3	8.3	34.3 34.3	34.3	100.5 100.1	100.3	7.6 7.5	7.5		0.1 0.1	0.1		15.8 16.1	16.0	
				Bottom	11.0	19.5 19.5	19.5	8.3 8.3	8.3	34.5 34.5	34.5	98.8 98.8	98.8	7.4 7.4	7.4	7.4	0.3 0.3	0.3		18.8 18.7	18.8	
M3	Cloudy	Calm	11:22	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	34.1 33.9	34.0	100.1 98.0	99.1	7.5 7.4	7.5	7.4	0.3 0.3	0.3	0.3	13.0 12.8	12.9	10.2
				Middle	4.0	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	97.1 97.3	97.2	7.3 7.3	7.3		0.4 0.5	0.4		8.8 9.0	8.9	
				Bottom	7.0	19.6 19.5	19.5	8.3 8.3	8.3	34.5 34.4	34.5	98.7 97.5	98.1	7.4 7.3	7.3	7.3	0.1 0.2	0.2		8.6 8.8	8.7	
M4	Cloudy	Calm	10:45	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	100.0 99.9	100.0	7.5 7.5	7.5	7.5	0.1 0.1	0.1	0.1	7.1 7.2	7.2	7.2
				Middle	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	99.6 99.5	99.6	7.5 7.5	7.5		0.1 0.1	0.1		9.0 9.4	9.2	
				Bottom	9.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.8 98.7	98.8	7.4 7.4	7.4	7.4	0.2 0.2	0.2		5.2 5.2	5.2	
M5	Cloudy	Calm	11:39	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	34.2 34.2	34.2	99.5 97.7	98.6	7.5 7.3	7.4	7.4	0.3 0.3	0.3	0.5	3.3 3.4	3.4	7.5
				Middle	6.0	19.6 19.5	19.6	8.3 8.3	8.3	34.5 34.5	34.5	98.9 98.5	98.7	7.4 7.4	7.4		0.5 0.4	0.5		14.6 15.0	14.8	
				Bottom	11.0	19.6 19.6	19.6	8.3 8.3	8.3	34.6 34.6	34.6	98.5 98.7	98.6	7.4 7.4	7.4	7.4	0.7 0.7	0.7		4.2 4.2	4.2	
M6	Cloudy	Calm	11:33	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.6	- -	-	0.1	- -	-	9.2
				Middle	2.1	19.3 19.3	19.3	8.3 8.3	8.3	34.2 34.2	34.2	101.1 101.1	101.1	7.6 7.6	7.6		0.2 0.1	0.1		9.1 9.2	9.2	
				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 26 February 2019 (Mid-Ebb Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
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: 6.7 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 7.3 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: 6.7 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 7.3 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: 4.4 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 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 02/26/2019

(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	18:01	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	4.6 4.5	4.6	5.3
				Middle	9.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		7.0 7.0	7.0	
				Bottom	17.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		4.4 4.3	4.4	
C2	Sunny	Calm	16:46	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	5.6 5.6	5.6	4.1
				Middle	16.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		3.1 3.1	3.1	
				Bottom	31.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		3.7 3.7	3.7	
G1	Sunny	Calm	17:24	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	2.5 2.4	2.5	3.6
				Middle	4.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		5.8 6.0	5.9	
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		2.5 2.5	2.5	
G2	Sunny	Calm	17:10	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	8.4 8.6	8.5	7.4
				Middle	5.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		6.4 6.4	6.4	
				Bottom	10.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		7.5 7.2	7.4	
G3	Sunny	Calm	17:28	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	3.7 3.6	3.7	5.9
				Middle	4.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		9.5 9.8	9.7	
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		4.4 4.5	4.5	
G4	Sunny	Calm	17:42	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	2.6 2.5	2.6	4.1
				Middle	4.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		2.7 2.7	2.7	
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		6.8 7.0	6.9	
M1	Sunny	Calm	17:18	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	3.2 3.1	3.2	5.4
				Middle	3.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		4.2 4.3	4.3	
				Bottom	5.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		8.9 8.6	8.8	
M2	Sunny	Calm	17:05	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	4.6 4.6	4.6	5.7
				Middle	5.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		3.7 3.6	3.7	
				Bottom	10.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		8.8 8.9	8.9	
M3	Sunny	Calm	17:36	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	9.0 9.0	9.0	9.3
				Middle	4.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		8.2 8.3	8.3	
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		10.9 10.4	10.7	
M4	Sunny	Calm	16:59	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	8.7 8.6	8.7	5.9
				Middle	5.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		5.2 5.2	5.2	
				Bottom	10.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		3.9 3.9	3.9	
M5	Sunny	Calm	17:53	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	7.5 7.8	7.7	4.5
				Middle	6.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		3.2 3.3	3.3	
				Bottom	11.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		2.5 2.5	2.5	
M6	Sunny	Calm	17:47	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	- -	-	3.5
				Middle	2.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		3.4 3.5	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 26 February 2019 (Mid-Flood Tide)

Parameter (unit)	**Depth**	**Action Level**	**Limit Level**
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: 3.5 mg/L***	***6.9 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*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 3.5 mg/L***	***7.4 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*** or 120% of upstream control station's SS at the same tide of the same day ***C1: 6.2 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 6.7 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 02/26/2019

(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	11:56	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	2.9 2.9	2.9	-
				Middle	9.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		8.9 8.7	8.8	5.6
				Bottom	17.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		5.2 5.1	5.2	
C2	Sunny	Calm	10:47	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	2.7 2.8	2.8	-
				Middle	16.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		5.2 5.2	5.2	4.2
				Bottom	31.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		4.7 4.6	4.7	
G1	Sunny	Calm	11:20	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	12.4 12.2	12.3	-
				Middle	4.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		5.2 5.2	5.2	7.2
				Bottom	7.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		3.9 4.1	4.0	
G2	Sunny	Calm	11:09	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	8.6 8.6	8.6	-
				Middle	5.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		2.5 2.5	2.5	5.4
				Bottom	9.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		5.1 5.0	5.1	
G3	Sunny	Calm	11:24	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	4.3 4.2	4.3	-
				Middle	4.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		10.0 10.2	10.1	5.8
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		2.9 2.9	2.9	
G4	Sunny	Calm	11:38	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	4.1 4.0	4.1	-
				Middle	4.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		3.5 3.6	3.6	4.2
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		4.9 5.0	5.0	
M1	Sunny	Calm	11:15	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	6.4 6.5	6.5	-
				Middle	3.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		8.2 8.3	8.3	7.0
				Bottom	5.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		6.3 6.5	6.4	
M2	Sunny	Calm	11:04	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	5.7 5.6	5.7	-
				Middle	6.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		4.0 4.0	4.0	5.6
				Bottom	11.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		7.1 7.1	7.1	
M3	Sunny	Calm	11:33	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	3.6 3.8	3.7	-
				Middle	4.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		8.5 8.8	8.7	6.0
				Bottom	7.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		5.6 5.8	5.7	
M4	Sunny	Calm	10:56	Surface	1.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	4.0 3.9	4.0	-
				Middle	5.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		7.2 7.3	7.3	6.1
				Bottom	9.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		6.9 7.0	7.0	
M5	Sunny	Calm	11:50	Surface	1.1	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	9.8 10.1	10.0	-
				Middle	6.0	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		8.5 8.8	8.7	7.2
				Bottom	11.0	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		3.0 2.9	3.0	
M6	Sunny	Calm	11:44	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-	-	- -	-	-
				Middle	2.1	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		4.3 4.4	4.4	4.4
				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 27 February 2019 (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: 0.2 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C2: 0.3 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 ***C2: 8.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.8 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 ***C2: 8.2 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 8.8 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 ***C2: 8.7 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C2: 9.4 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 02/27/2019

(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	Calm	19:51	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	34.4 34.4	34.4	101.9 102.6	102.3	7.6 7.7	7.6	7.7	0.1 0.1	0.1	0.0	5.6 5.6	5.6	9.4
				Middle	9.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	102.2 102.2	102.2	7.7 7.7	7.7		0.0 0.0	0.0		10.4 10.8	10.6	
				Bottom	17.0	19.3 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	100.8 101.8	101.3	7.6 7.6	7.6	7.6	0.1 0.1	0.1		11.9 11.8	11.9	
C2	Cloudy	Calm	19:56	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.3	34.4	99.0 99.1	99.1	7.4 7.4	7.4	7.4	0.2 0.3	0.2	0.2	6.8 6.8	6.8	8.3
				Middle	16.3	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	97.9 98.2	98.1	7.4 7.4	7.4		0.1 0.1	0.1		10.7 10.7	10.7	
				Bottom	32.2	19.4 19.4	19.4	8.3 8.3	8.3	34.6 34.5	34.6	96.6 97.1	96.9	7.2 7.3	7.3	7.3	0.3 0.2	0.2		7.2 7.3	7.3	
G1	Cloudy	Calm	19:30	Surface	1.1	19.6 19.6	19.6	8.3 8.3	8.3	34.3 34.3	34.3	97.7 97.7	97.7	7.3 7.3	7.3	7.3	0.6 0.5	0.6	0.6	12.8 12.6	12.7	15.5
				Middle	4.1	19.6 19.6	19.6	8.3 8.3	8.3	34.3 34.3	34.3	97.6 97.6	97.6	7.3 7.3	7.3		0.6 0.6	0.6		13.0 13.7	13.4	
				Bottom	7.1	19.5 19.6	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.0 97.1	97.1	7.3 7.3	7.3	7.3	0.6 0.6	0.6		20.3 20.8	20.6	
G2	Cloudy	Calm	19:22	Surface	1.0	19.6 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.9 99.3	99.1	7.4 7.5	7.4	7.4	0.2 0.2	0.2	0.2	10.3 10.7	10.5	15.1
				Middle	5.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	98.4 98.4	98.4	7.4 7.4	7.4		0.3 0.3	0.3		7.0 6.9	7.0	
				Bottom	9.1	19.3 19.4	19.3	8.3 8.3	8.3	34.5 34.4	34.5	99.2 98.5	98.9	7.5 7.4	7.4	7.4	0.1 0.2	0.1		28.3 27.5	27.9	
G3	Cloudy	Calm	19:32	Surface	1.1	19.9 19.9	19.9	8.3 8.3	8.3	34.2 34.2	34.2	98.8 99.1	99.0	7.4 7.4	7.4	7.4	0.4 0.4	0.4	0.6	11.7 11.4	11.6	7.5
				Middle	4.0	19.7 19.7	19.7	8.3 8.3	8.3	34.3 34.3	34.3	98.5 98.4	98.5	7.4 7.4	7.4		0.5 0.4	0.5		8.2 8.5	8.4	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.2 98.2	98.2	7.4 7.4	7.4	7.4	0.9 0.8	0.8		2.7 2.7	2.7	
G4	Cloudy	Calm	19:38	Surface	1.0	19.7 19.6	19.6	8.3 8.3	8.3	34.3 34.4	34.4	98.9 100.0	99.5	7.4 7.5	7.4	7.4	0.3 0.3	0.3	0.3	5.3 5.5	5.4	14.0
				Middle	4.4	19.6 19.6	19.6	8.3 8.3	8.3	34.4 34.4	34.4	98.8 99.2	99.0	7.4 7.4	7.4		0.3 0.3	0.3		11.9 12.3	12.1	
				Bottom	7.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	99.5 99.5	99.5	7.5 7.5	7.5	7.5	0.3 0.3	0.3		24.4 24.4	24.4	
M1	Cloudy	Calm	19:26	Surface	1.0	19.6 19.6	19.6	8.2 8.3	8.3	34.4 34.4	34.4	96.6 95.8	96.2	7.2 7.2	7.2	7.2	0.8 0.7	0.7	0.8	2.7 2.7	2.7	6.5
				Middle	3.1	19.6 19.6	19.6	8.3 8.3	8.3	34.4 34.4	34.4	96.3 95.8	96.1	7.2 7.2	7.2		0.7 0.8	0.8		9.9 10.3	10.1	
				Bottom	5.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	95.8 95.7	95.8	7.2 7.2	7.2	7.2	0.8 0.9	0.9		6.7 6.7	6.7	
M2	Cloudy	Calm	19:19	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.2 99.4	99.3	7.4 7.4	7.4	7.4	0.2 0.2	0.2	0.2	5.7 5.8	5.8	6.4
				Middle	5.6	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.2 99.1	99.2	7.4 7.4	7.4		0.2 0.2	0.2		5.4 5.4	5.4	
				Bottom	10.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	99.1 98.9	99.0	7.4 7.4	7.4	7.4	0.1 0.2	0.1		7.9 8.1	8.0	
M3	Cloudy	Calm	19:35	Surface	1.1	19.7 19.6	19.7	8.3 8.3	8.3	34.2 34.3	34.3	98.6 98.1	98.4	7.4 7.3	7.4	7.4	0.5 0.5	0.5	0.5	5.4 5.5	5.5	3.7
				Middle	4.1	19.5 19.6	19.6	8.3 8.3	8.3	34.4 34.3	34.3	99.1 98.9	99.0	7.4 7.4	7.4		0.3 0.4	0.3		3.0 3.0	3.0	
				Bottom	7.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.2 98.2	98.2	7.4 7.4	7.4	7.4	0.8 0.8	0.8		2.5 2.5	2.5	
M4	Cloudy	Calm	19:10	Surface	1.0	19.5 19.5	19.5	8.2 8.2	8.2	34.4 34.4	34.4	100.4 99.7	100.1	7.5 7.5	7.5	7.5	0.1 0.1	0.1	0.1	3.3 3.2	3.3	5.9
				Middle	5.0	19.5 19.5	19.5	8.2 8.2	8.2	34.4 34.4	34.4	100.4 100.7	100.6	7.5 7.6	7.5		0.1 0.1	0.1		7.9 8.0	8.0	
				Bottom	9.3	19.4 19.4	19.4	8.2 8.2	8.2	34.4 34.4	34.4	100.0 100.2	100.1	7.5 7.5	7.5	7.5	0.1 0.1	0.1		6.6 6.6	6.6	
M5	Cloudy	Calm	19:46	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	101.0 101.2	101.1	7.6 7.6	7.6	7.6	0.1 0.1	0.1	0.1	6.8 7.0	6.9	6.7
				Middle	6.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.5	34.4	101.0 100.8	100.9	7.6 7.6	7.6		0.1 0.1	0.1		8.9 8.5	8.7	
				Bottom	11.0	19.3 19.3	19.3	8.3 8.3	8.3	34.5 34.5	34.5	99.8 99.9	99.9	7.5 7.5	7.5	7.5	0.1 0.1	0.1		4.3 4.4	4.4	
M6	Cloudy	Calm	19:41	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.5	- -	-	1.0	- -	-	5.0
				Middle	2.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.9 100.1	100.0	7.5 7.5	7.5		1.0 0.9	1.0		5.0 5.0	5.0	
				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 27 February 2019 (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: 1.0 NTU***	***22.2 NTU*** or 130% of upstream control station's Turbidity at the same tide of the same day ***C1: 1.0 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: 5.2 mg/L***	***6.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.7 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: 5.2 mg/L***	***7.4 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 5.7 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: 16.3 mg/L***	***7.9 mg/L*** or 130% of upstream control station's SS at the same tide of the same day ***C1: 17.7 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.

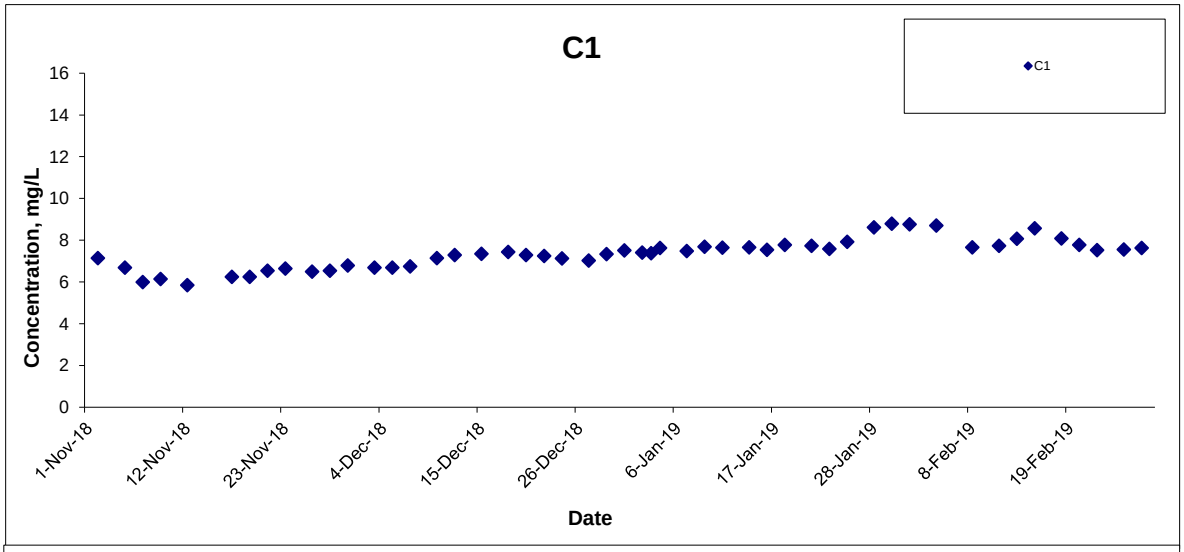
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 02/27/2019

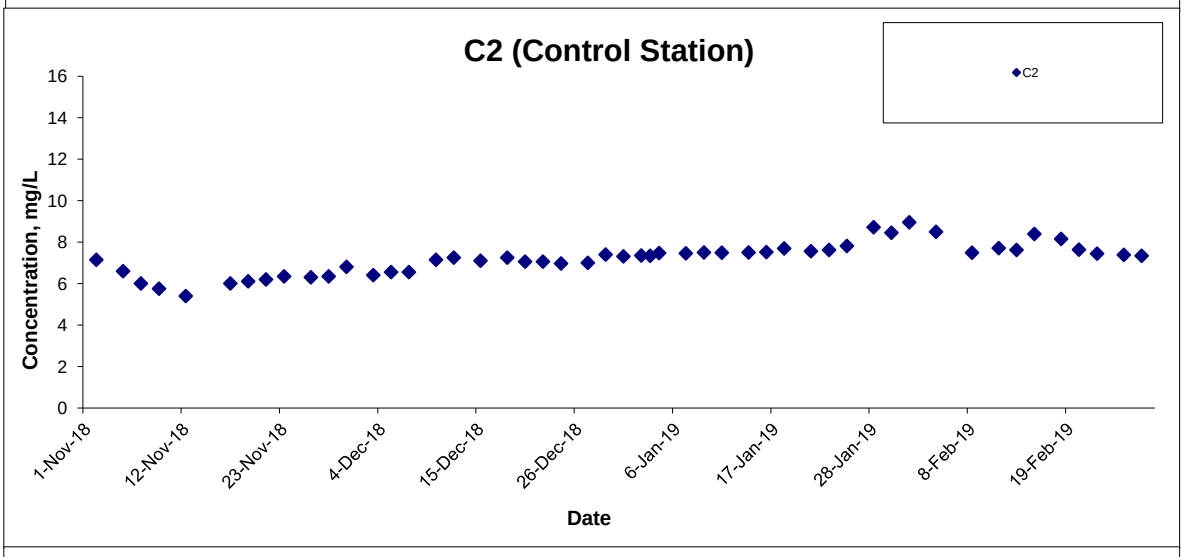
(Mid-Flood Tide)

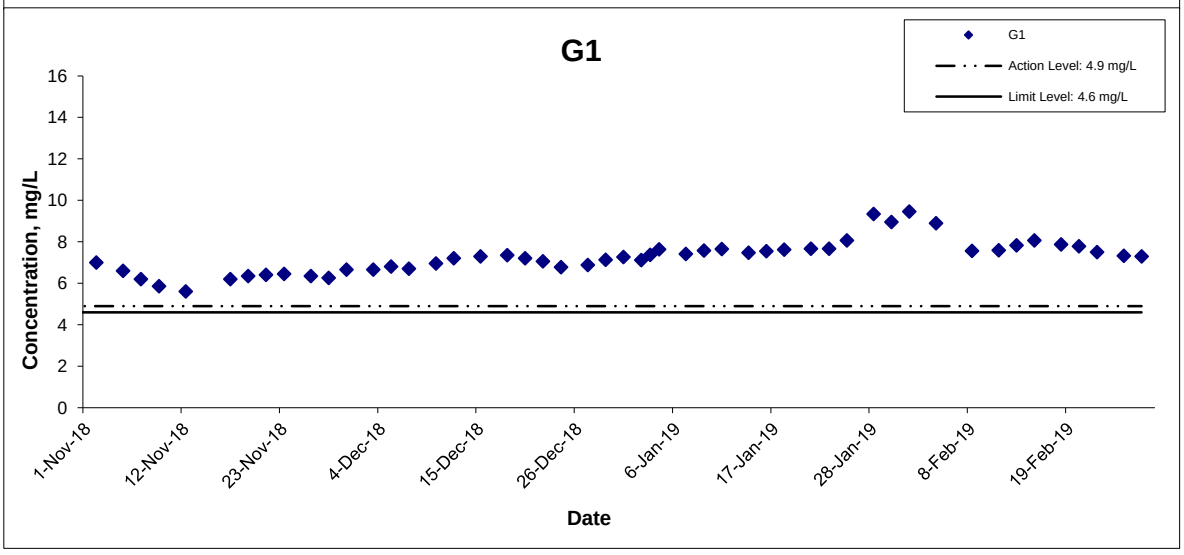
Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
C1	Cloudy	Calm	12:29	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.5 34.4	34.4	99.7 100.2	100.0	7.5 7.5	7.5	7.5	0.1 0.1	0.1	0.3	4.3 4.4	4.4	7.2
				Middle	9.0	19.3 19.3	19.3	8.3 8.3	8.3	34.5 34.5	34.5	99.2 98.8	99.0	7.5 7.4	7.4		0.1 0.1	0.1		3.4 3.6	3.5	
				Bottom	17.0	19.4 19.4	19.4	8.3 8.3	8.3	34.8 34.8	34.8	96.0 95.1	95.6	7.2 7.1	7.2	7.2	0.8 0.8	0.8		13.6 13.6	13.6	
C2	Cloudy	Calm	11:46	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	99.4 99.1	99.3	7.5 7.4	7.4	7.4	0.0 0.0	0.0	0.1	9.8 10.0	9.9	10.7
				Middle	15.5	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	98.4 97.5	98.0	7.4 7.3	7.4		0.1 0.1	0.1		11.7 11.5	11.6	
				Bottom	31.1	19.3 19.4	19.3	8.3 8.3	8.3	34.4 34.4	34.4	97.3 97.7	97.5	7.3 7.3	7.3	7.3	0.1 0.1	0.1		10.5 10.5	10.5	
G1	Cloudy	Calm	12:06	Surface	1.0	19.6 19.4	19.5	8.3 8.3	8.3	34.1 34.4	34.2	95.8 97.0	96.4	7.2 7.3	7.2	7.2	0.5 0.4	0.5	0.4	15.2 15.2	15.2	12.9
				Middle	4.0	19.4 19.5	19.4	8.3 8.3	8.3	34.4 34.4	34.4	96.5 96.6	96.6	7.2 7.2	7.2		0.4 0.5	0.4		15.7 15.2	15.5	
				Bottom	7.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	96.5 96.7	96.6	7.2 7.3	7.2	7.2	0.3 0.3	0.3		8.0 8.1	8.1	
G2	Cloudy	Calm	11:58	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.5 97.9	98.2	7.4 7.3	7.4	7.3	0.4 0.3	0.3	0.2	3.7 3.6	3.7	8.5
				Middle	5.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	97.4 96.8	97.1	7.3 7.3	7.3		0.2 0.2	0.2		13.3 13.7	13.5	
				Bottom	9.1	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	95.9 96.3	96.1	7.2 7.2	7.2	7.2	0.1 0.1	0.1		8.5 8.3	8.4	
G3	Cloudy	Calm	12:09	Surface	1.0	19.6 19.5	19.6	8.3 8.3	8.3	34.2 34.3	34.3	96.7 97.0	96.9	7.2 7.3	7.3	7.2	0.4 0.3	0.3	0.4	8.7 8.4	8.6	8.3
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	96.5 96.7	96.6	7.2 7.3	7.2		0.3 0.3	0.3		8.8 9.1	9.0	
				Bottom	7.1	19.5 19.4	19.5	8.3 8.3	8.3	34.4 34.4	34.4	96.2 96.8	96.5	7.2 7.3	7.2	7.2	0.5 0.5	0.5		7.3 7.3	7.3	
G4	Cloudy	Calm	12:15	Surface	1.1	19.7 19.6	19.6	8.3 8.3	8.3	34.3 34.3	34.3	95.0 96.7	95.9	7.1 7.2	7.2	7.2	0.3 0.4	0.3	0.5	8.6 8.5	8.6	8.6
				Middle	4.1	19.4 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.0 96.4	96.7	7.3 7.2	7.2		0.3 0.4	0.3		6.4 6.2	6.3	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.6 97.2	97.4	7.3 7.3	7.3	7.3	0.7 0.7	0.7		11.0 10.6	10.8	
M1	Cloudy	Calm	12:02	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.4	34.3	96.4 94.6	95.5	7.2 7.1	7.2	7.1	1.2 1.2	1.2	1.2	8.0 8.2	8.1	9.6
				Middle	3.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	94.5 94.2	94.4	7.1 7.1	7.1		1.3 1.3	1.3		8.9 9.0	9.0	
				Bottom	5.0	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	94.3 94.0	94.2	7.1 7.1	7.1	7.1	1.0 1.1	1.0		11.6 11.6	11.6	
M2	Cloudy	Calm	11:54	Surface	1.0	19.6 19.4	19.5	8.3 8.3	8.3	34.3 34.4	34.3	99.1 98.2	98.7	7.4 7.4	7.4	7.4	0.2 0.2	0.2	0.2	12.2 12.0	12.1	9.8
				Middle	5.3	19.3 19.4	19.4	8.3 8.3	8.3	34.4 34.3	34.4	98.3 98.6	98.5	7.4 7.4	7.4		0.1 0.2	0.1		11.0 11.1	11.1	
				Bottom	9.5	19.3 19.3	19.3	8.3 8.3	8.3	34.4 34.4	34.4	97.6 98.3	98.0	7.3 7.4	7.4	7.4	0.4 0.3	0.3		6.1 6.4	6.3	
M3	Cloudy	Calm	12:12	Surface	1.0	19.6 19.5	19.6	8.3 8.3	8.3	34.3 34.3	34.3	97.1 97.8	97.5	7.3 7.3	7.3	7.3	0.3 0.3	0.3	0.3	6.0 6.1	6.1	9.7
				Middle	4.0	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	97.4 97.8	97.6	7.3 7.3	7.3		0.3 0.3	0.3		10.3 10.6	10.5	
				Bottom	7.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	96.7 97.1	96.9	7.3 7.3	7.3	7.3	0.3 0.3	0.3		12.4 12.7	12.6	
M4	Cloudy	Calm	11:51	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.3 34.3	34.3	99.8 100.2	100.0	7.5 7.5	7.5	7.5	0.1 0.1	0.1	0.1	17.7 17.3	17.5	16.1
				Middle	5.1	19.4 19.4	19.4	8.3 8.3	8.3	34.3 34.3	34.3	99.8 99.9	99.9	7.5 7.5	7.5		0.1 0.1	0.1		23.5 23.9	23.7	
				Bottom	9.1	19.3 19.3	19.3	8.3 8.3	8.3	34.4 34.4	34.4	98.9 99.5	99.2	7.4 7.5	7.5	7.5	0.1 0.1	0.1		7.0 6.9	7.0	
M5	Cloudy	Calm	12:25	Surface	1.0	19.5 19.4	19.5	8.3 8.3	8.3	34.4 34.4	34.4	99.0 99.5	99.3	7.4 7.5	7.4	7.4	0.2 0.2	0.2	0.2	6.6 6.9	6.8	10.1
				Middle	5.6	19.4 19.4	19.4	8.3 8.3	8.3	34.4 34.4	34.4	99.2 99.2	99.2	7.4 7.5	7.4		0.2 0.2	0.2		11.6 11.7	11.7	
				Bottom	10.1	19.3 19.3	19.3	8.3 8.3	8.3	34.5 34.5	34.5	97.7 98.1	97.9	7.3 7.4	7.4	7.4	0.3 0.3	0.3		12.0 11.9	12.0	
M6	Cloudy	Calm	12:19	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	7.4	- -	-	0.2	- -	-	13.8
				Middle	2.1	19.5 19.5	19.5	8.3 8.3	8.3	34.4 34.4	34.4	98.0 99.4	98.7	7.3 7.5	7.4		0.2 0.2	0.2		13.5 14.1	13.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

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

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







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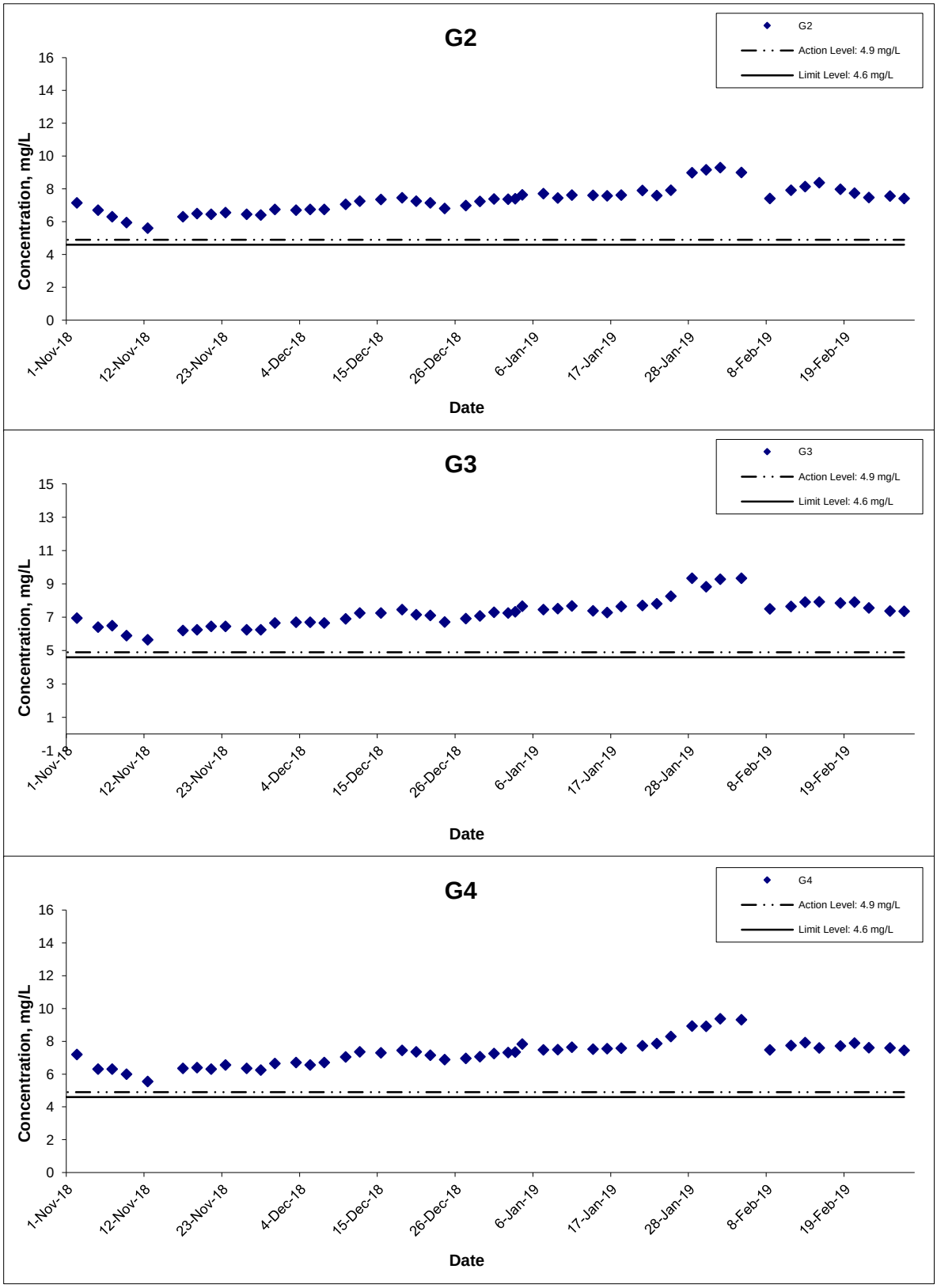
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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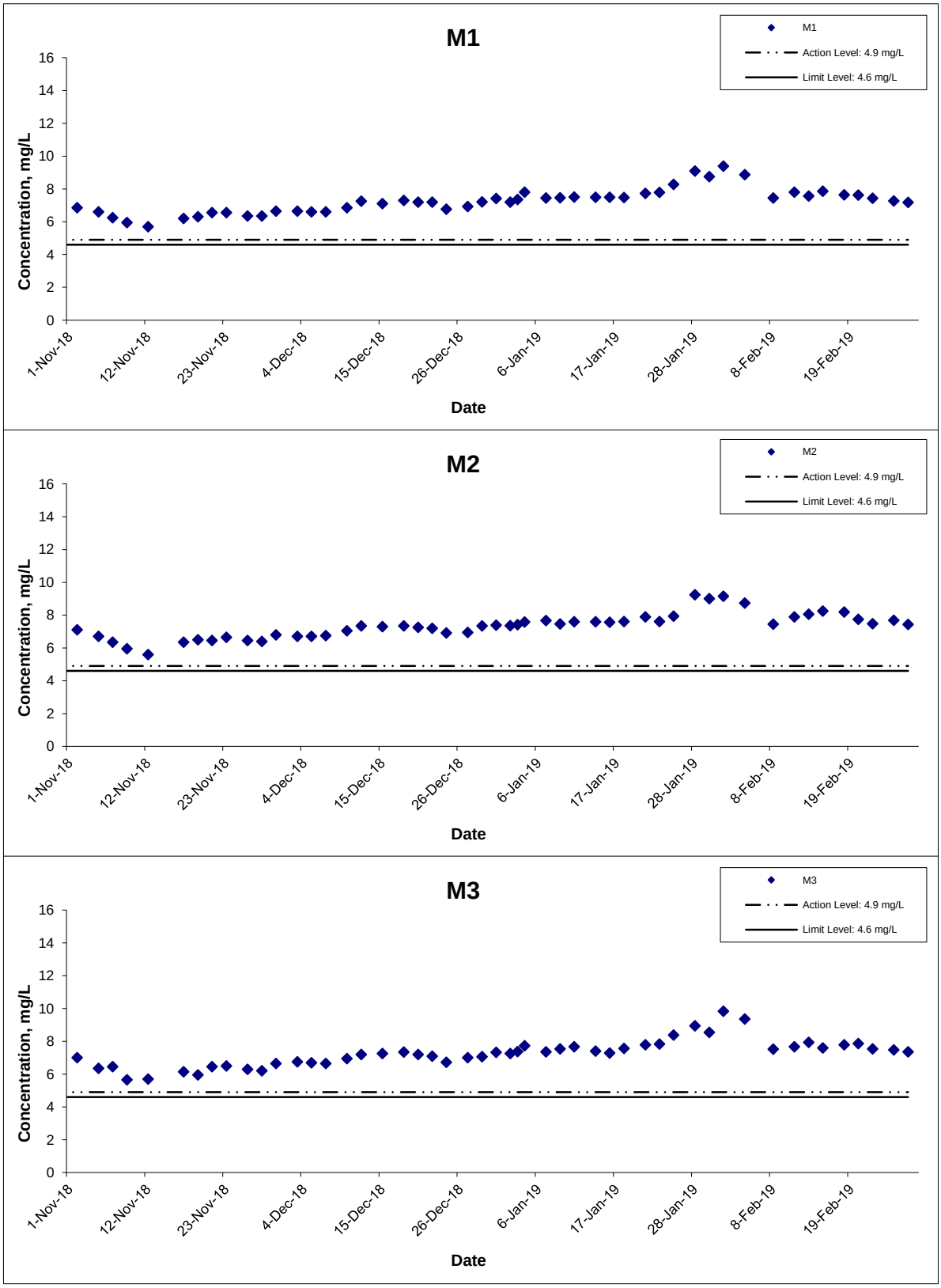
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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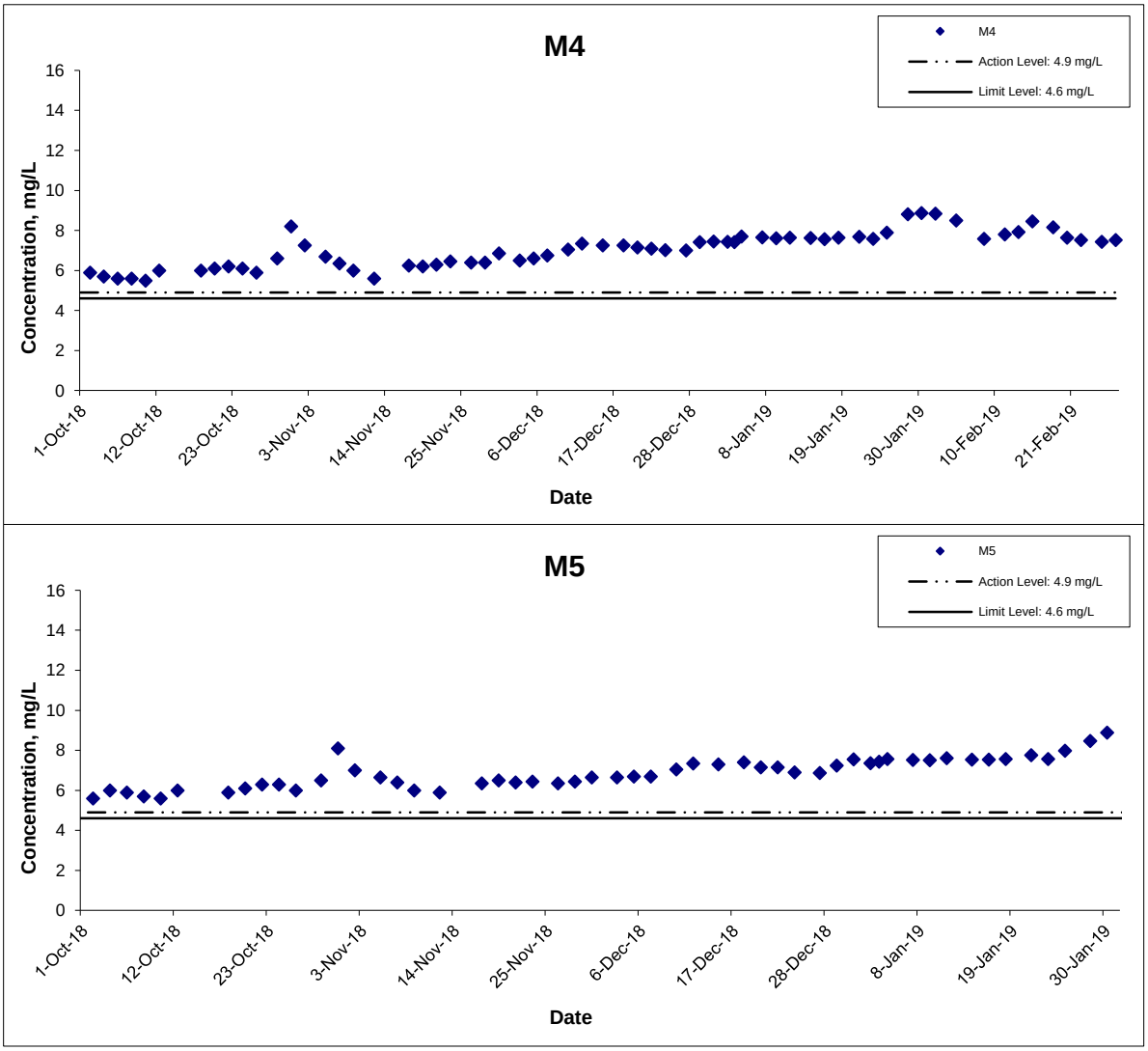
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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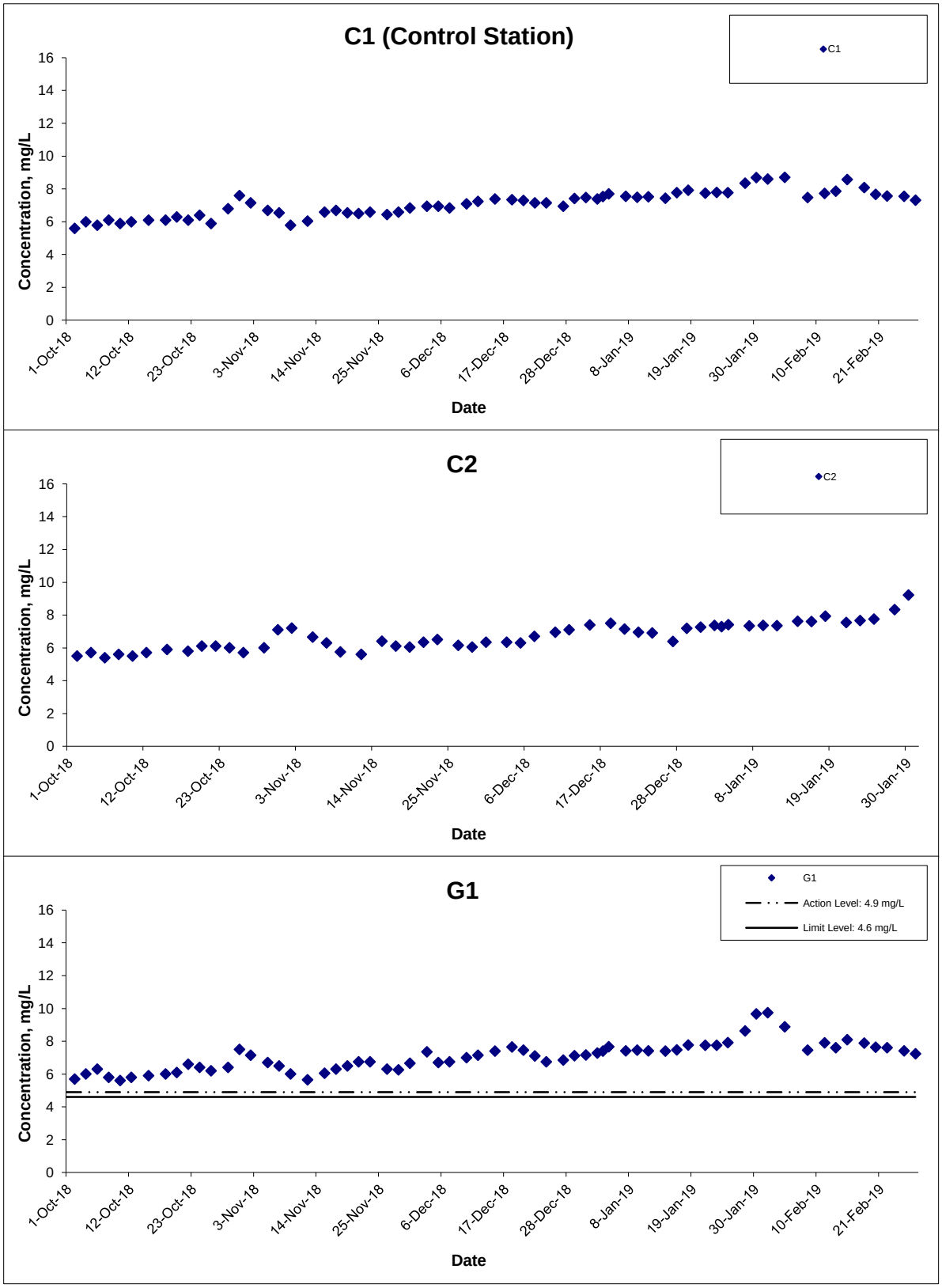
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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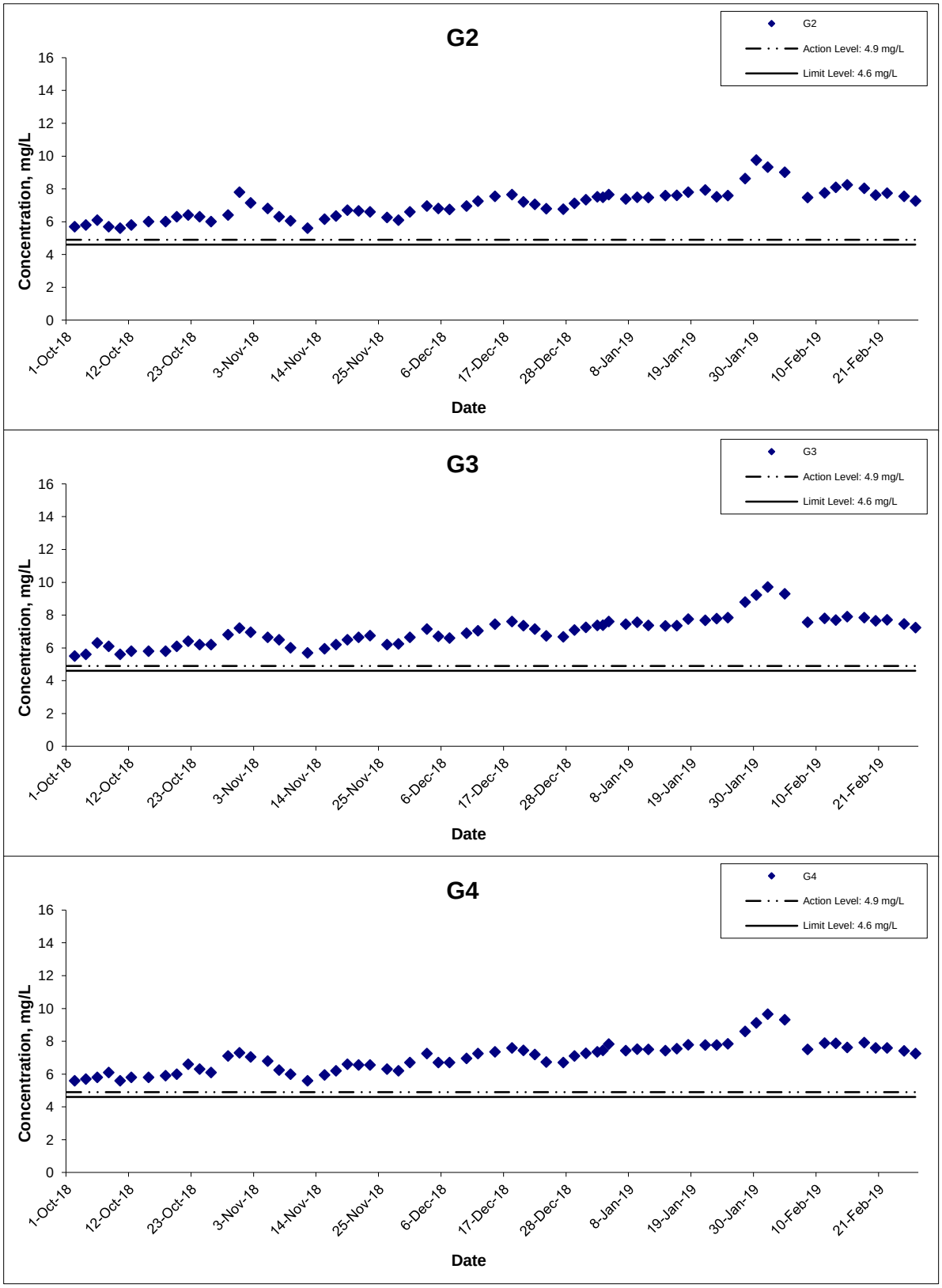
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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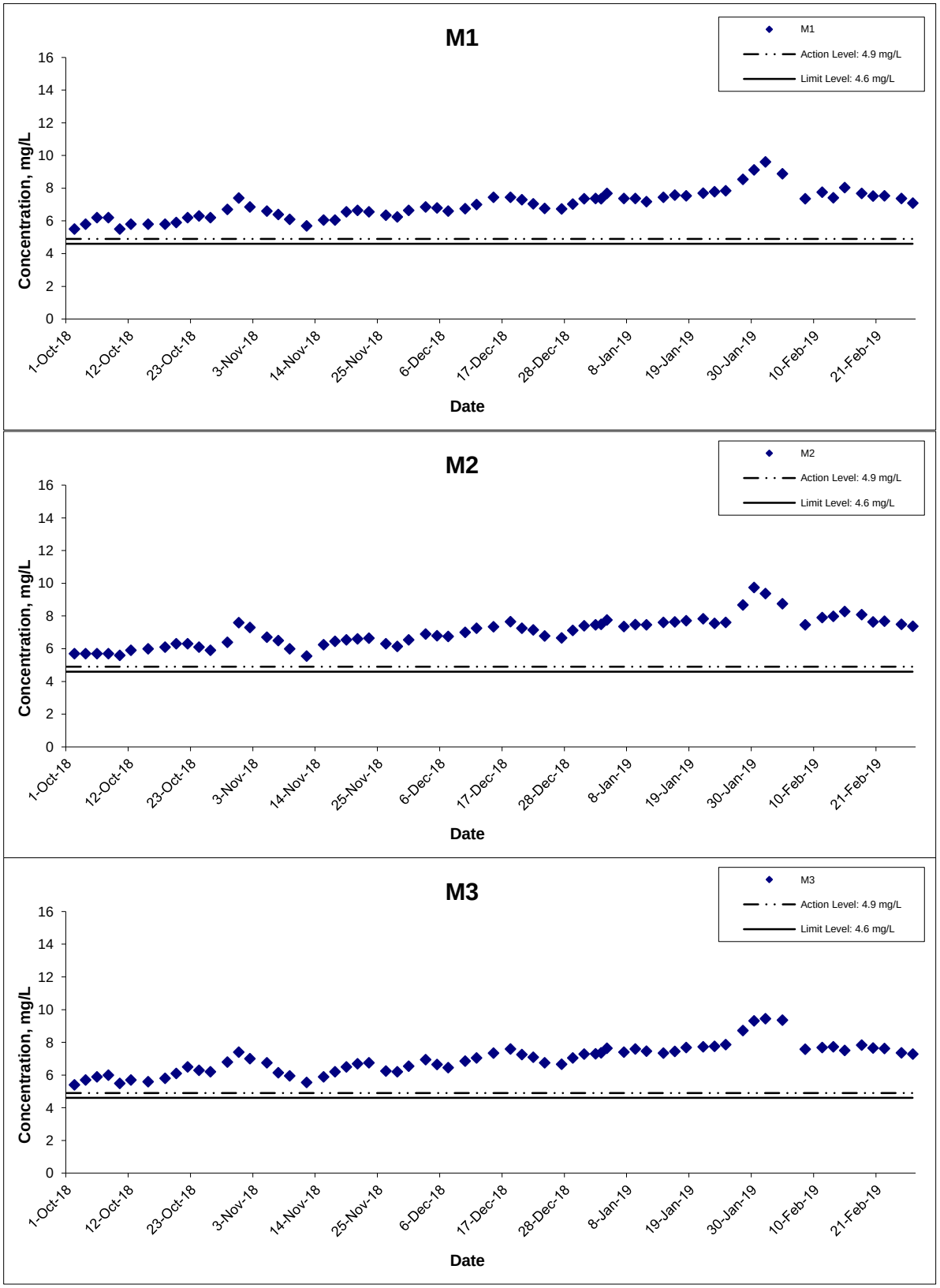
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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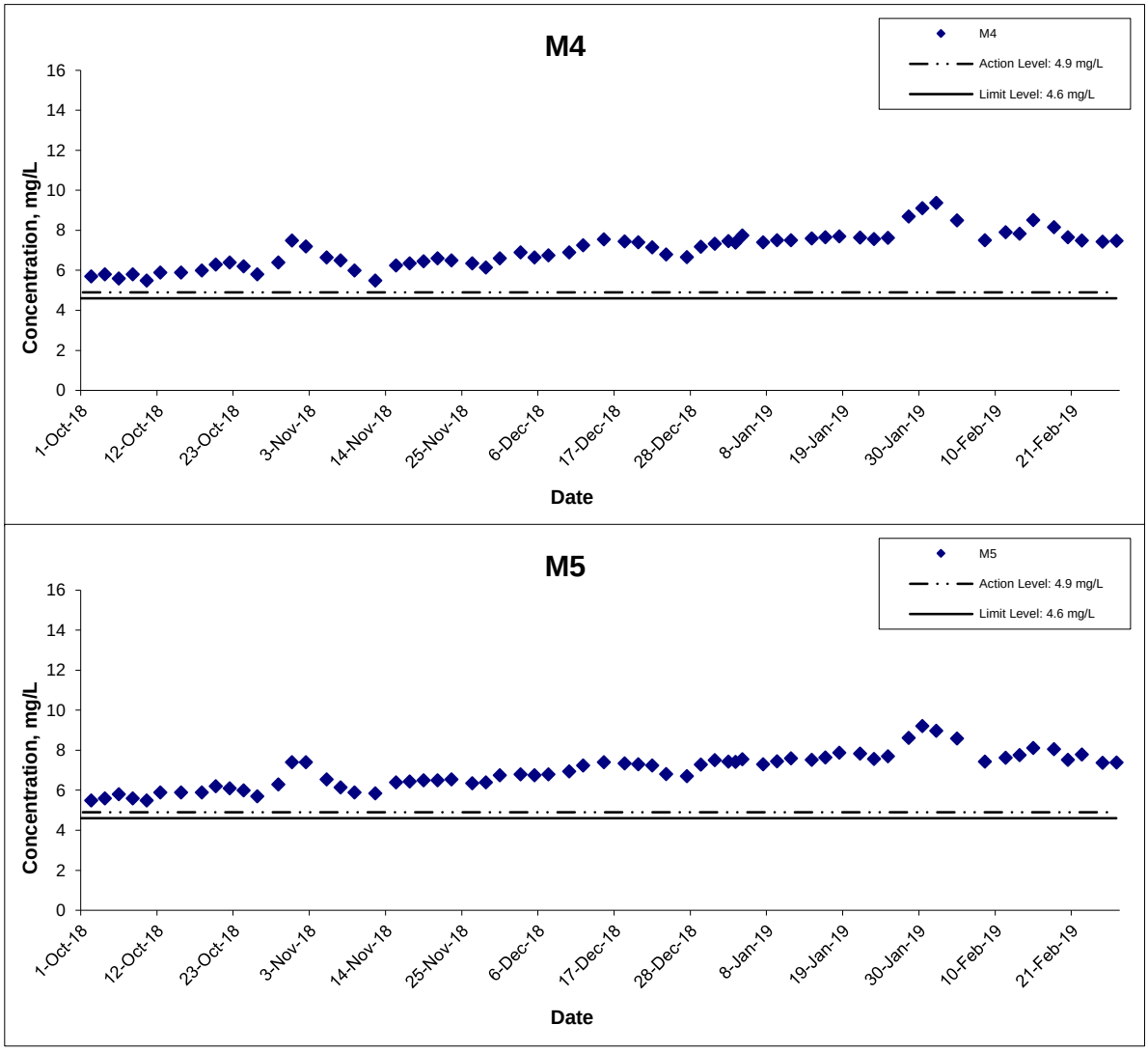
Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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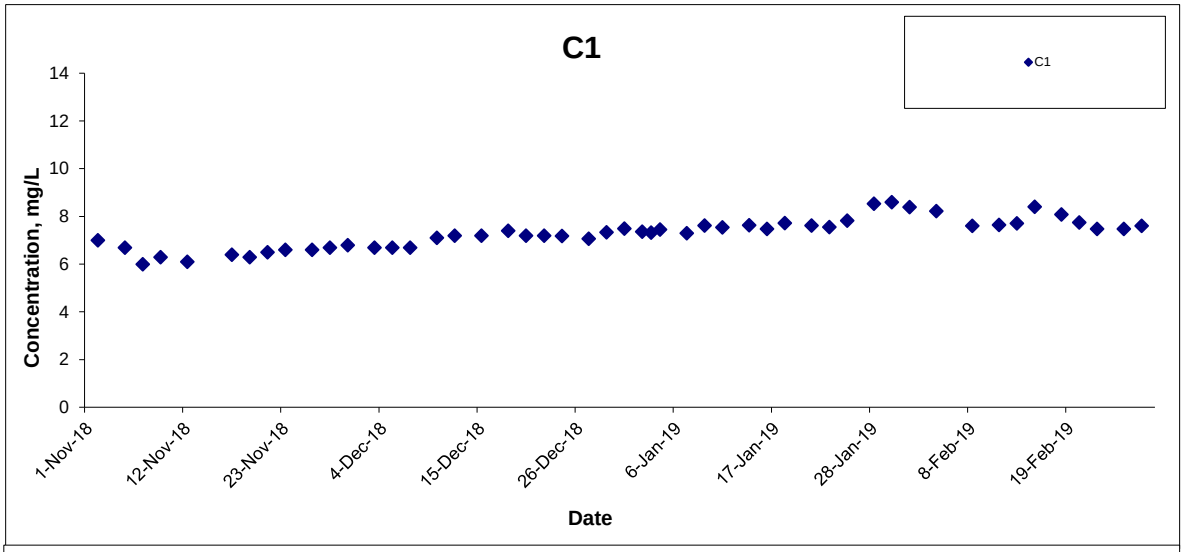
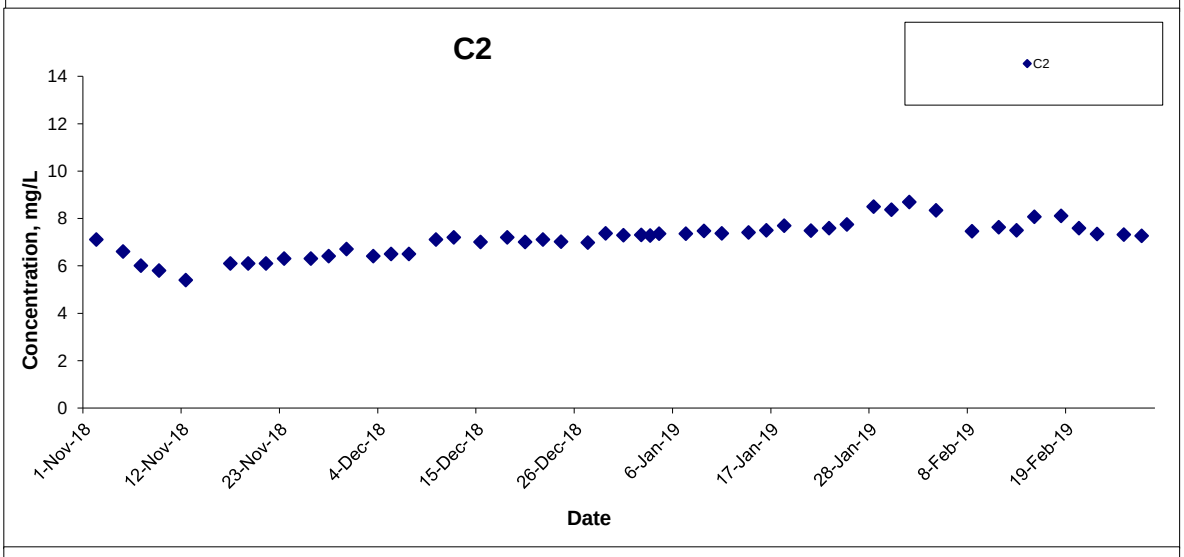
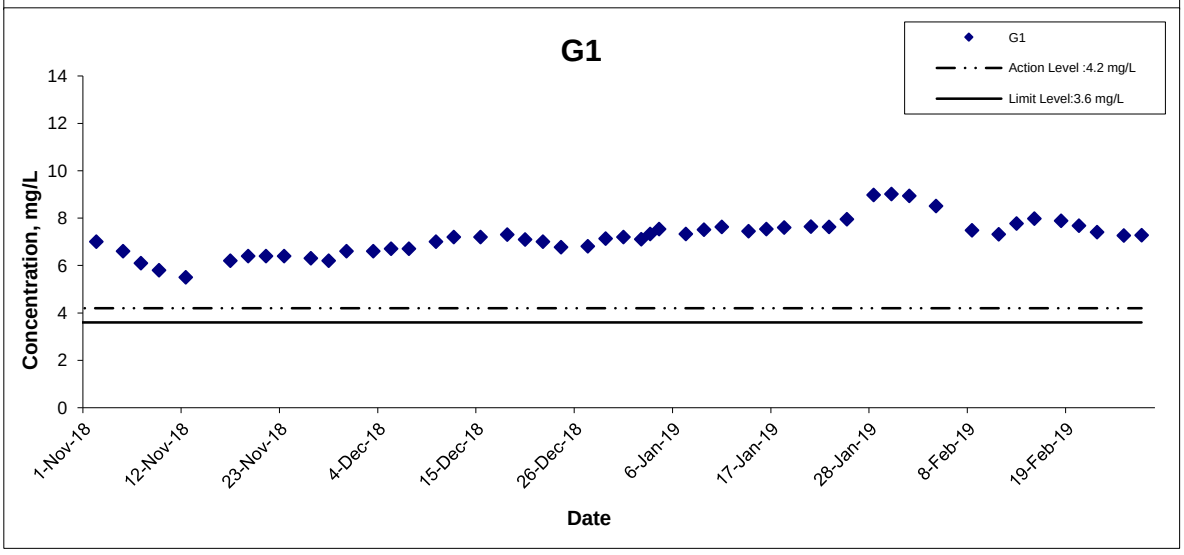
Dissolved Oxygen (Bottom) at Mid-Ebb Tide







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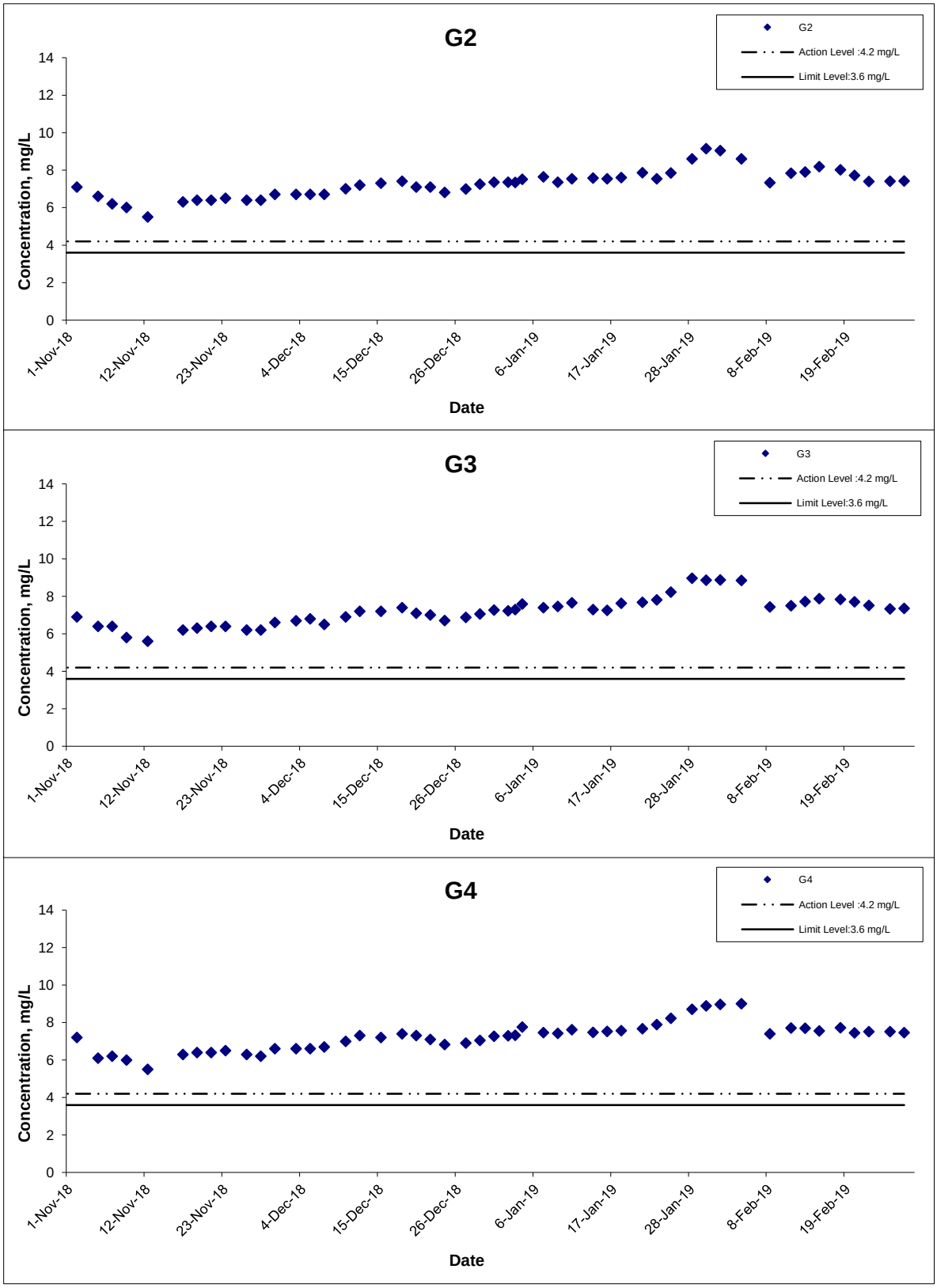
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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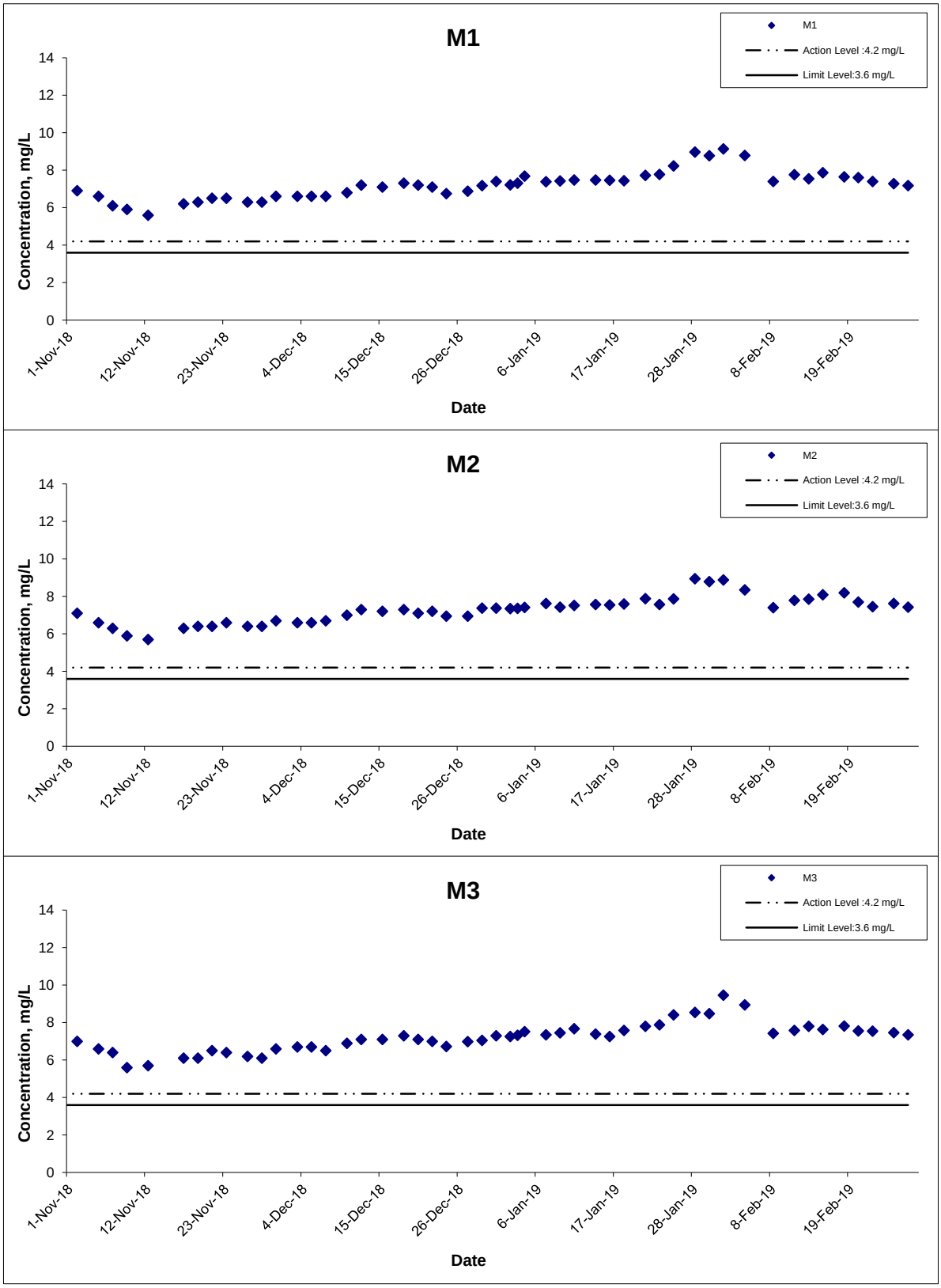
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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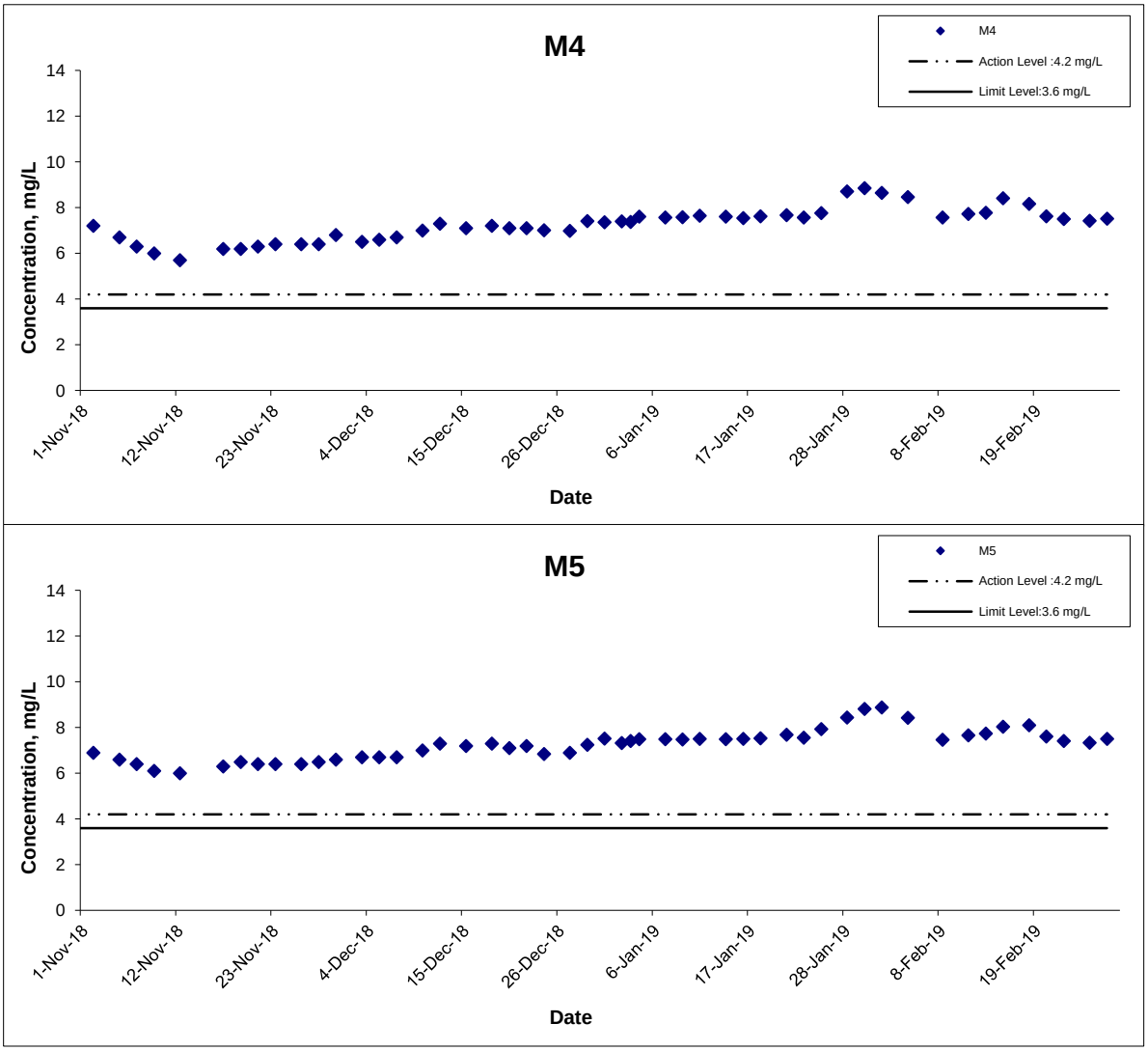
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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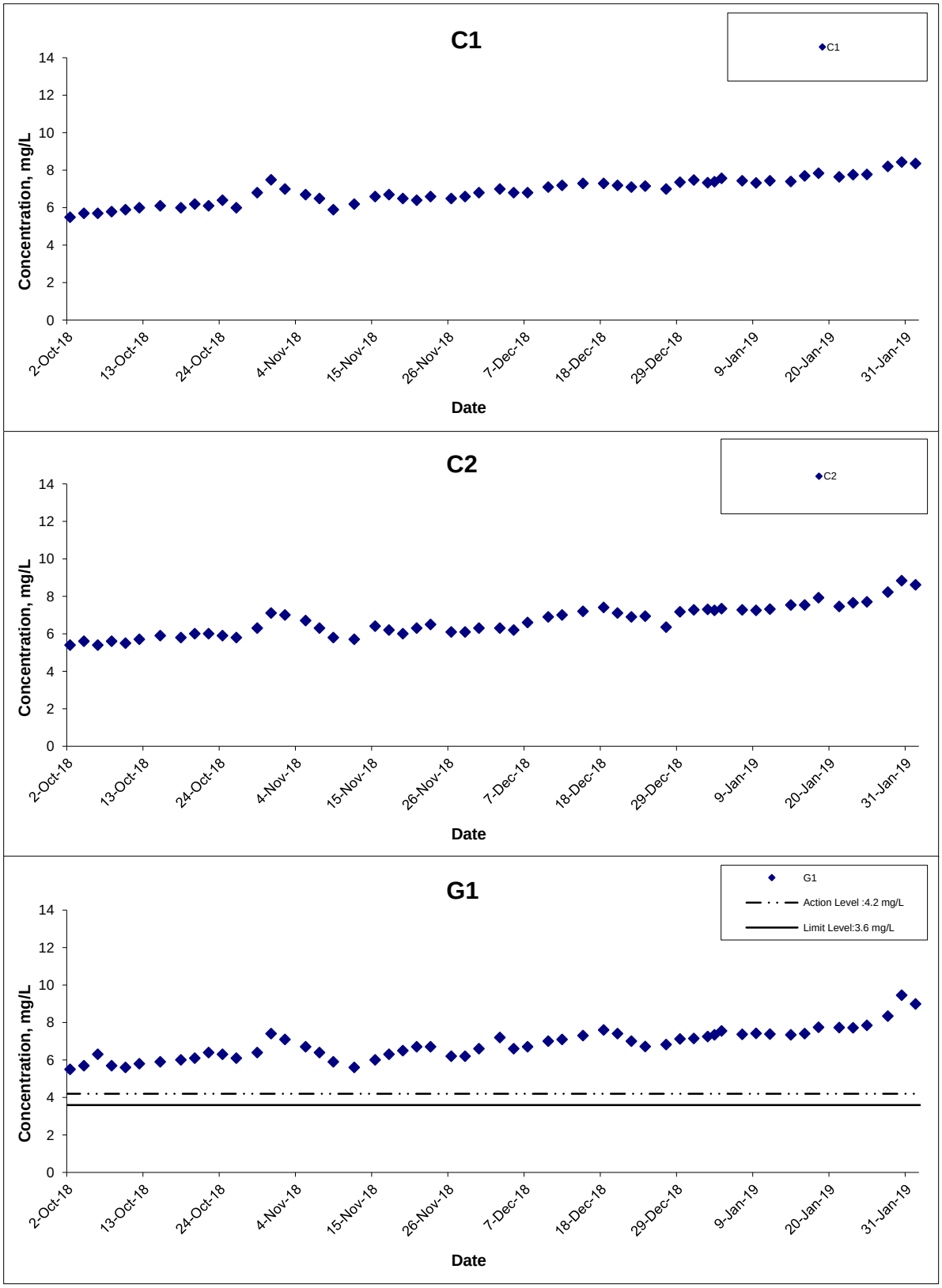
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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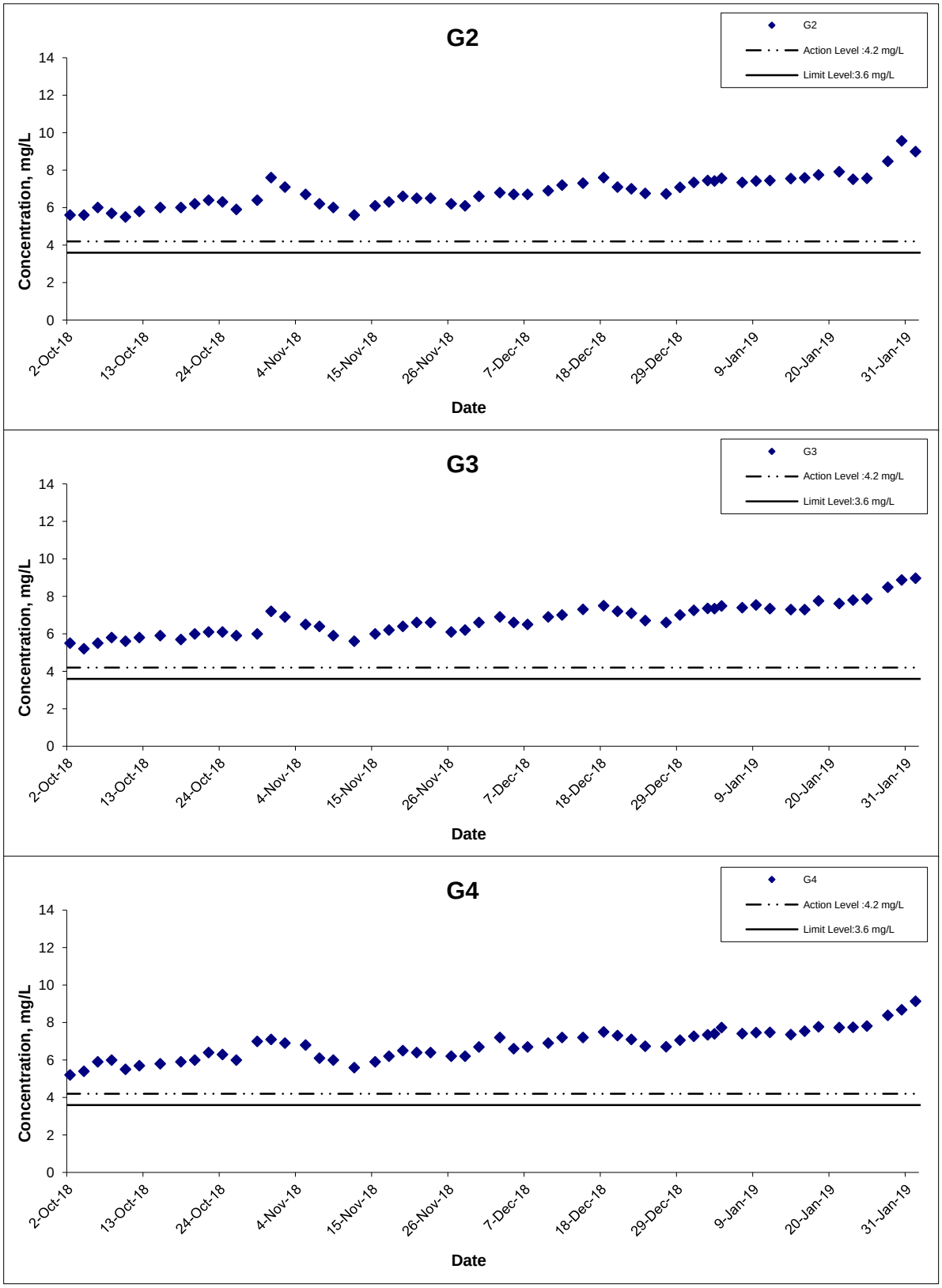
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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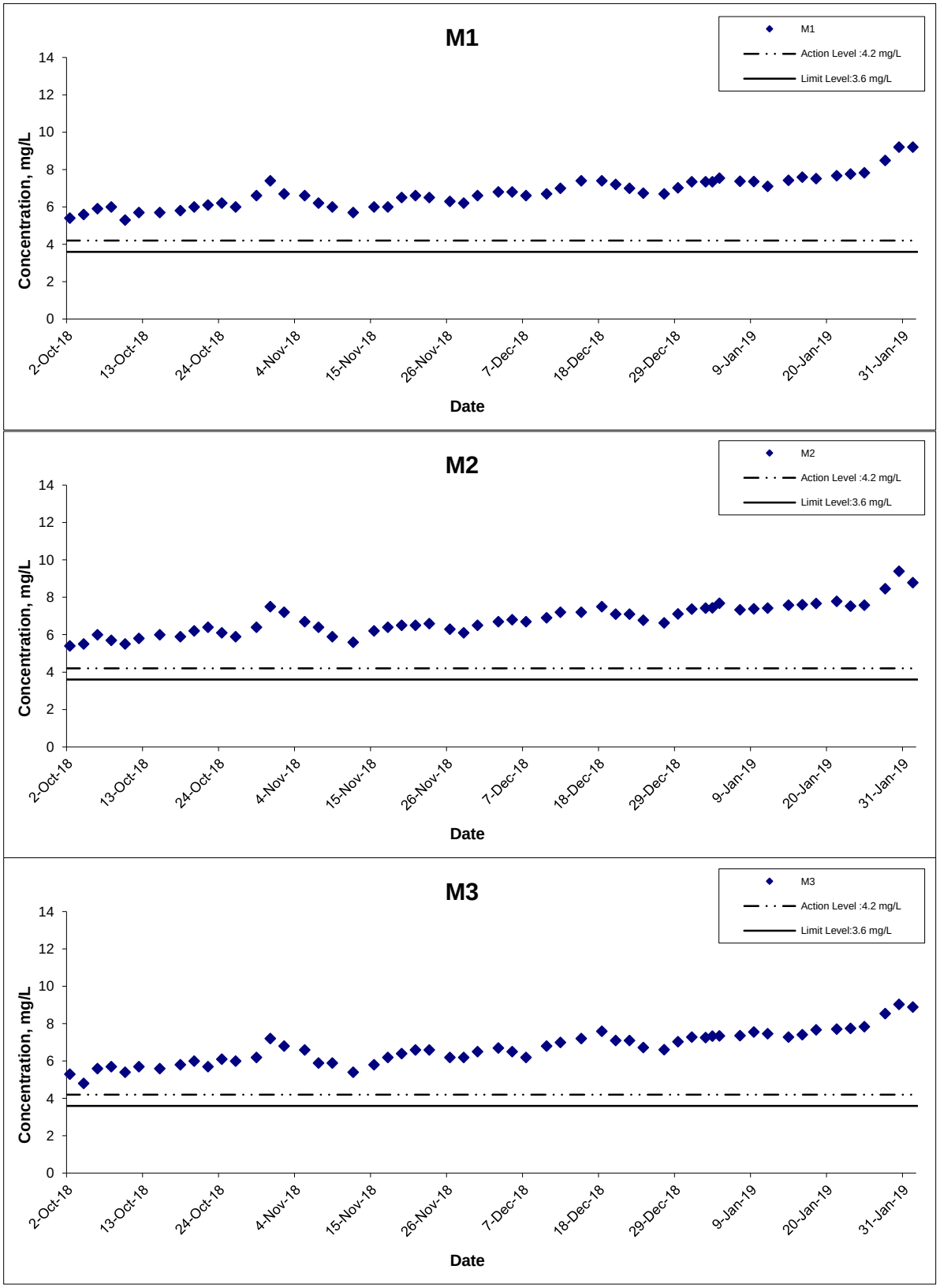
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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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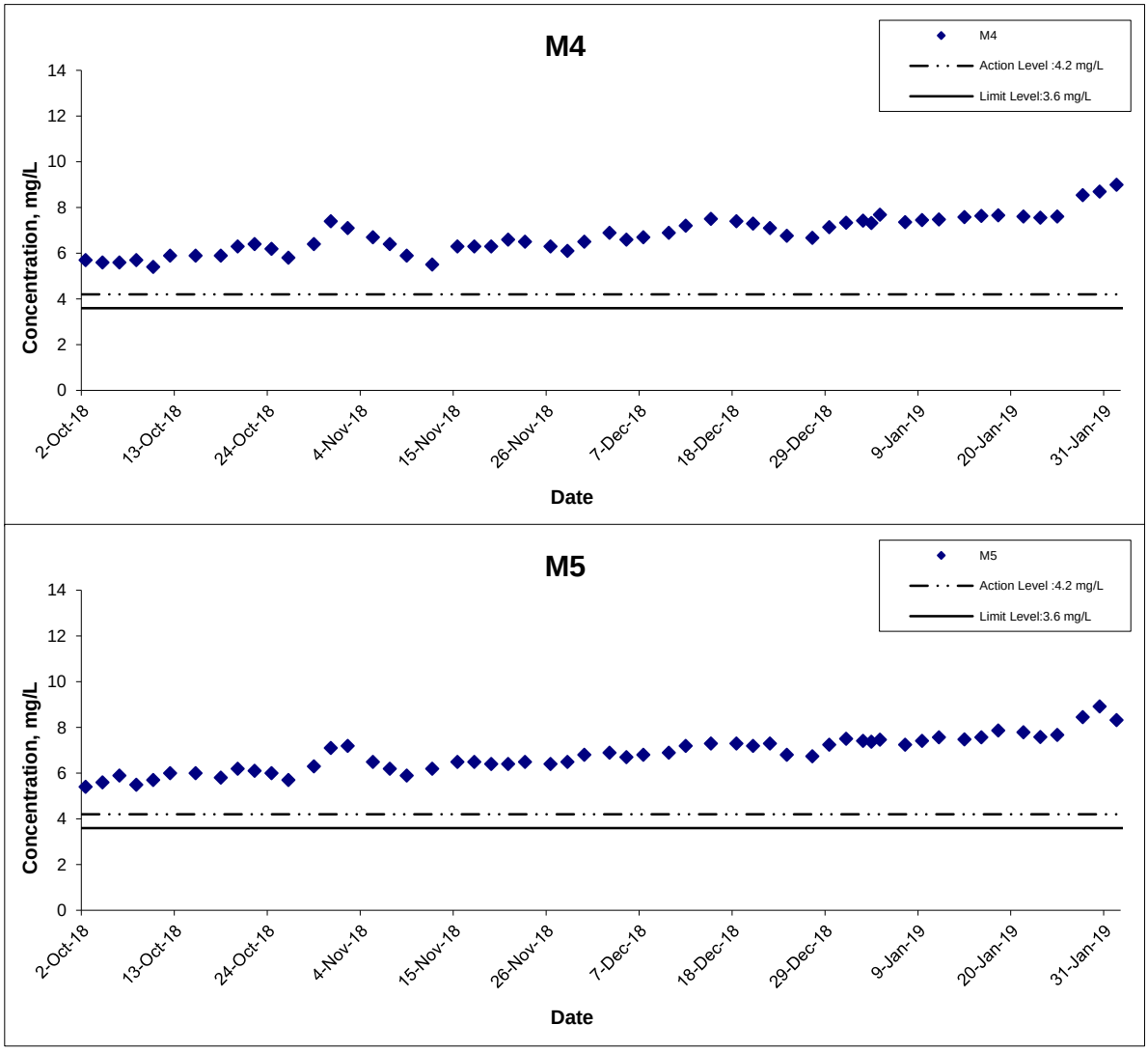
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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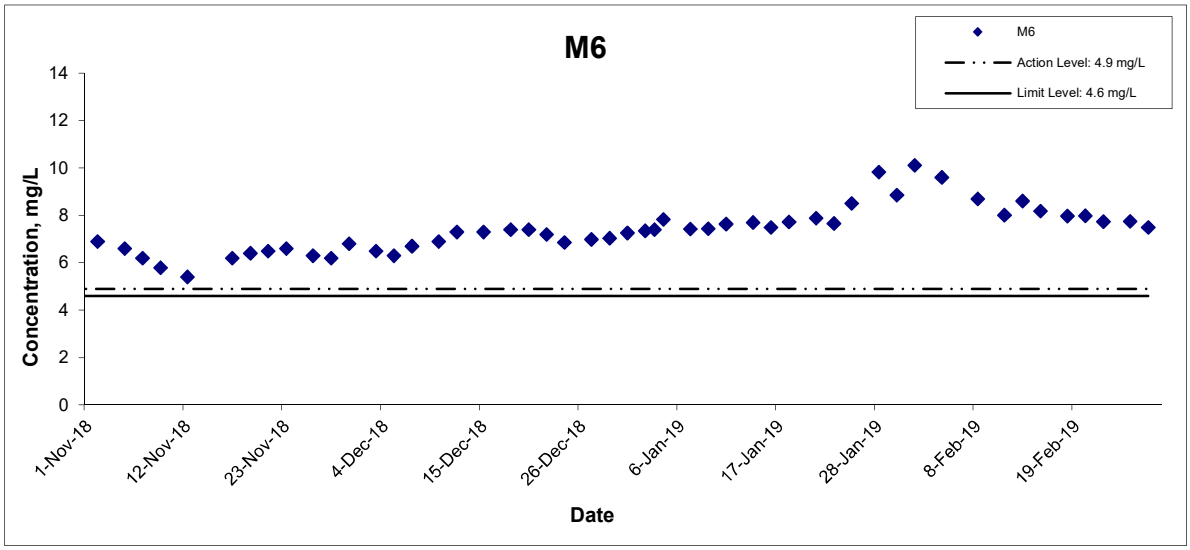
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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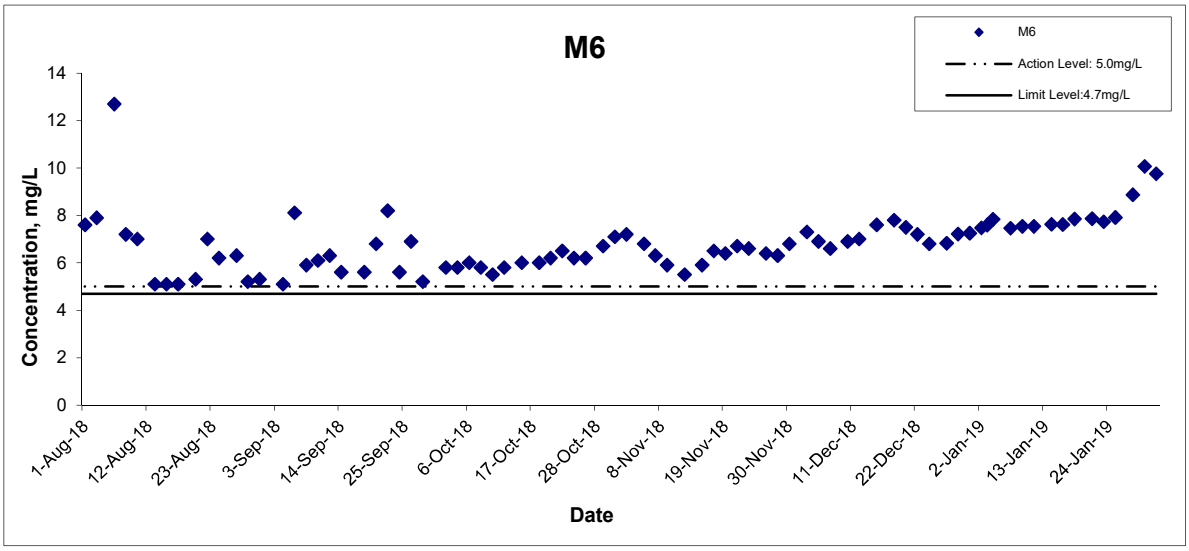
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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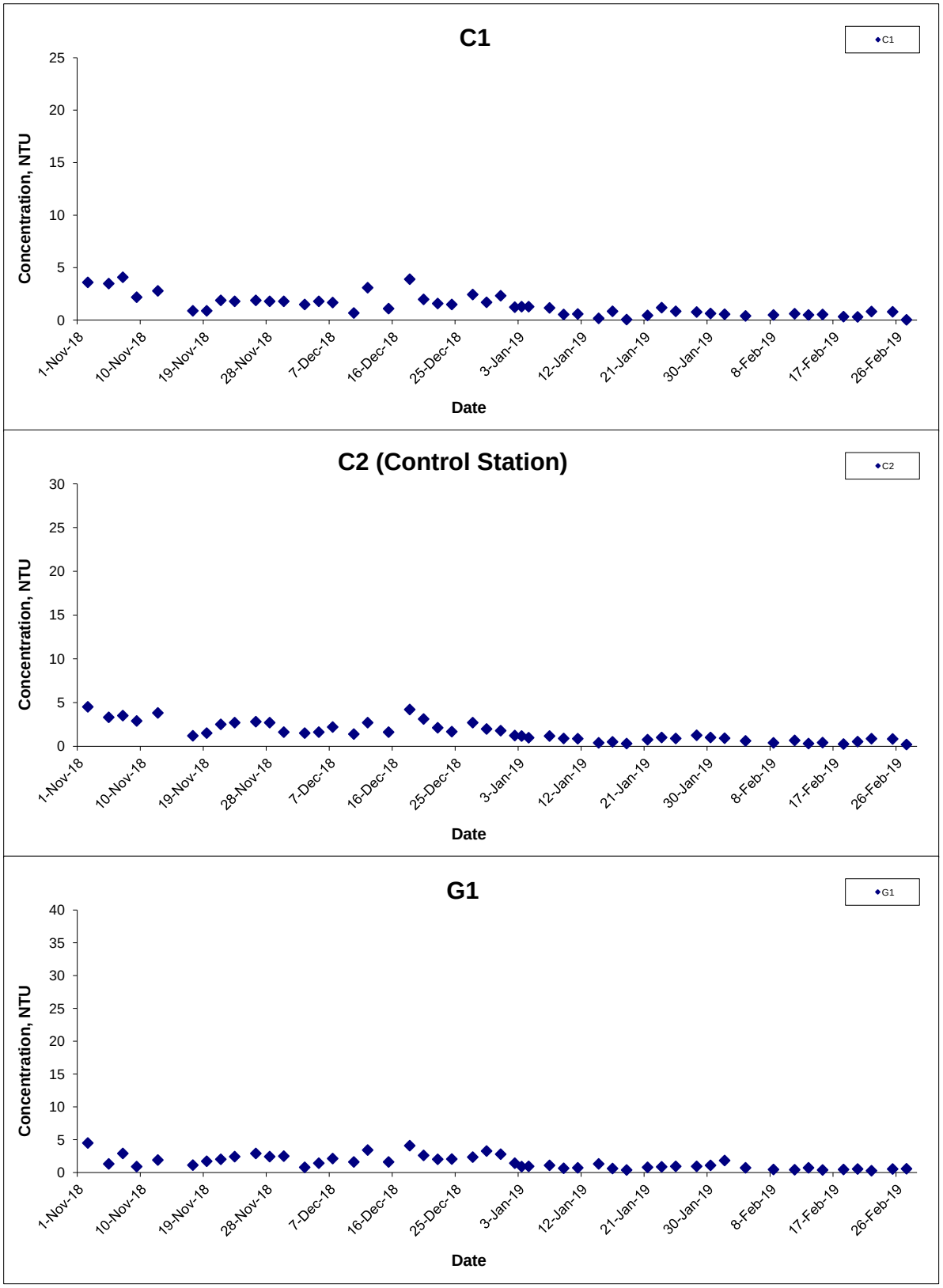
Turbidity (Depth-averaged) at Mid-Ebb Tide



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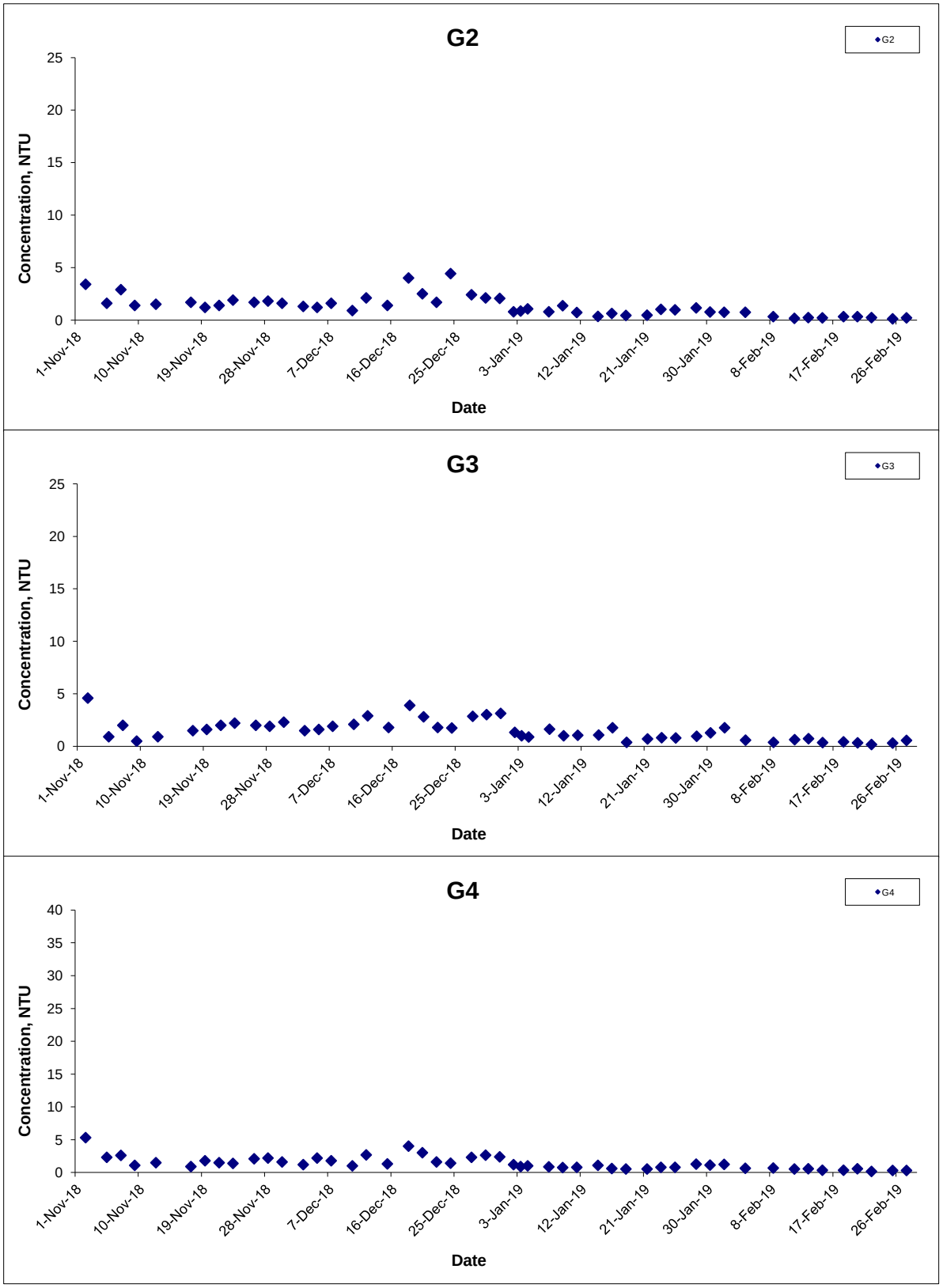
Turbidity (Depth-averaged) at Mid-Ebb Tide



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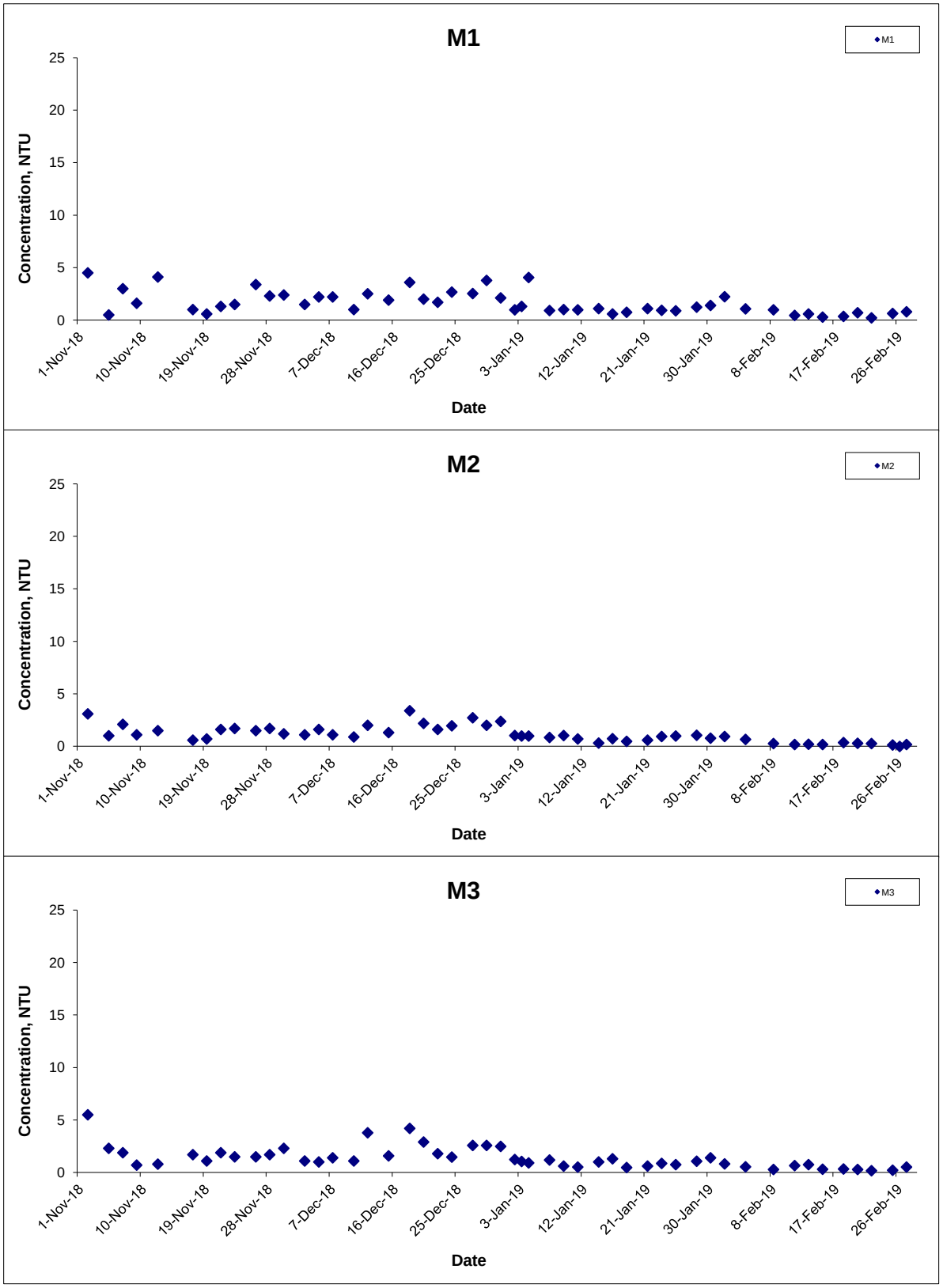
Turbidity (Depth-averaged) at Mid-Ebb Tide



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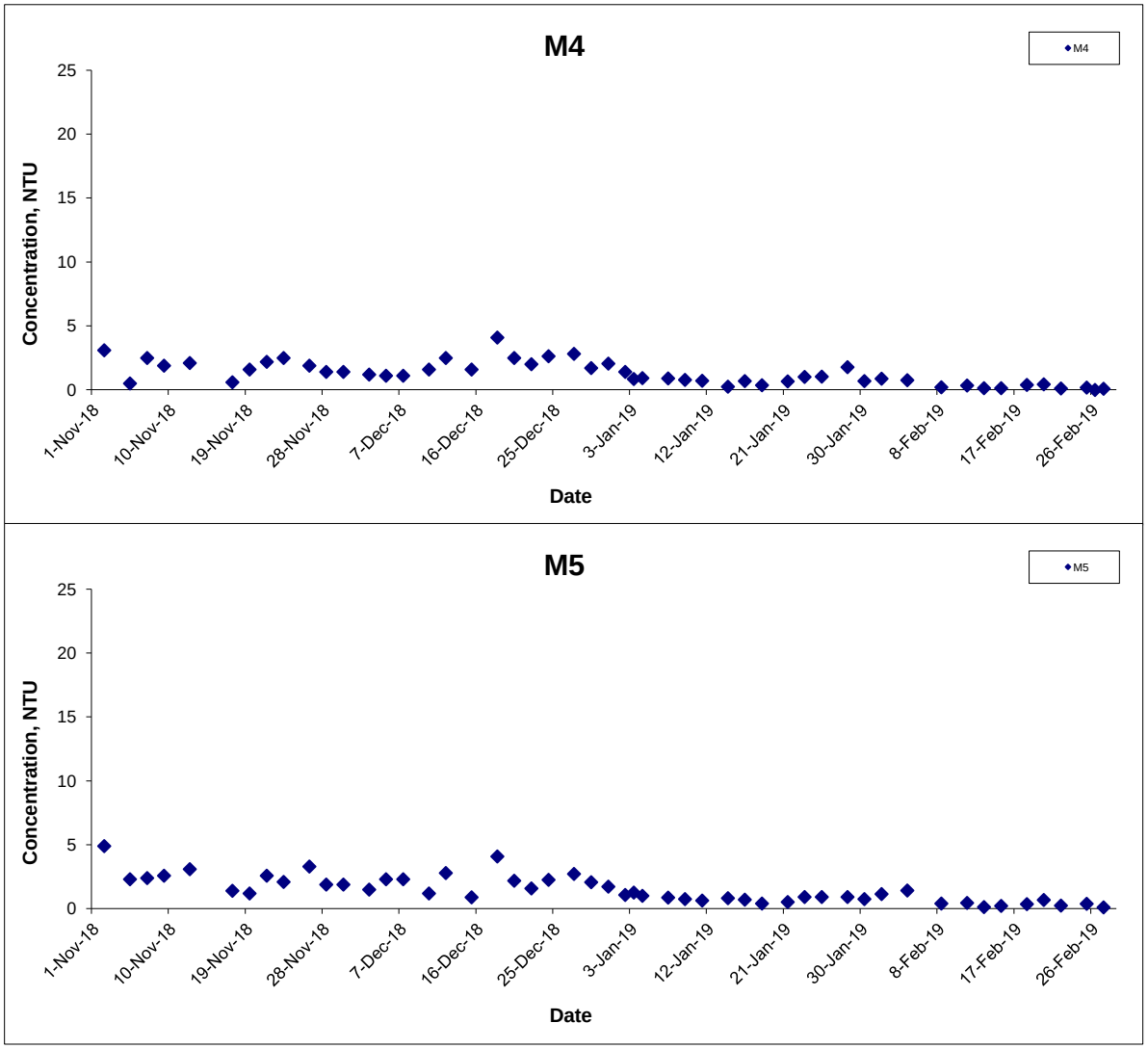
Turbidity (Depth-averaged) at Mid-Ebb Tide



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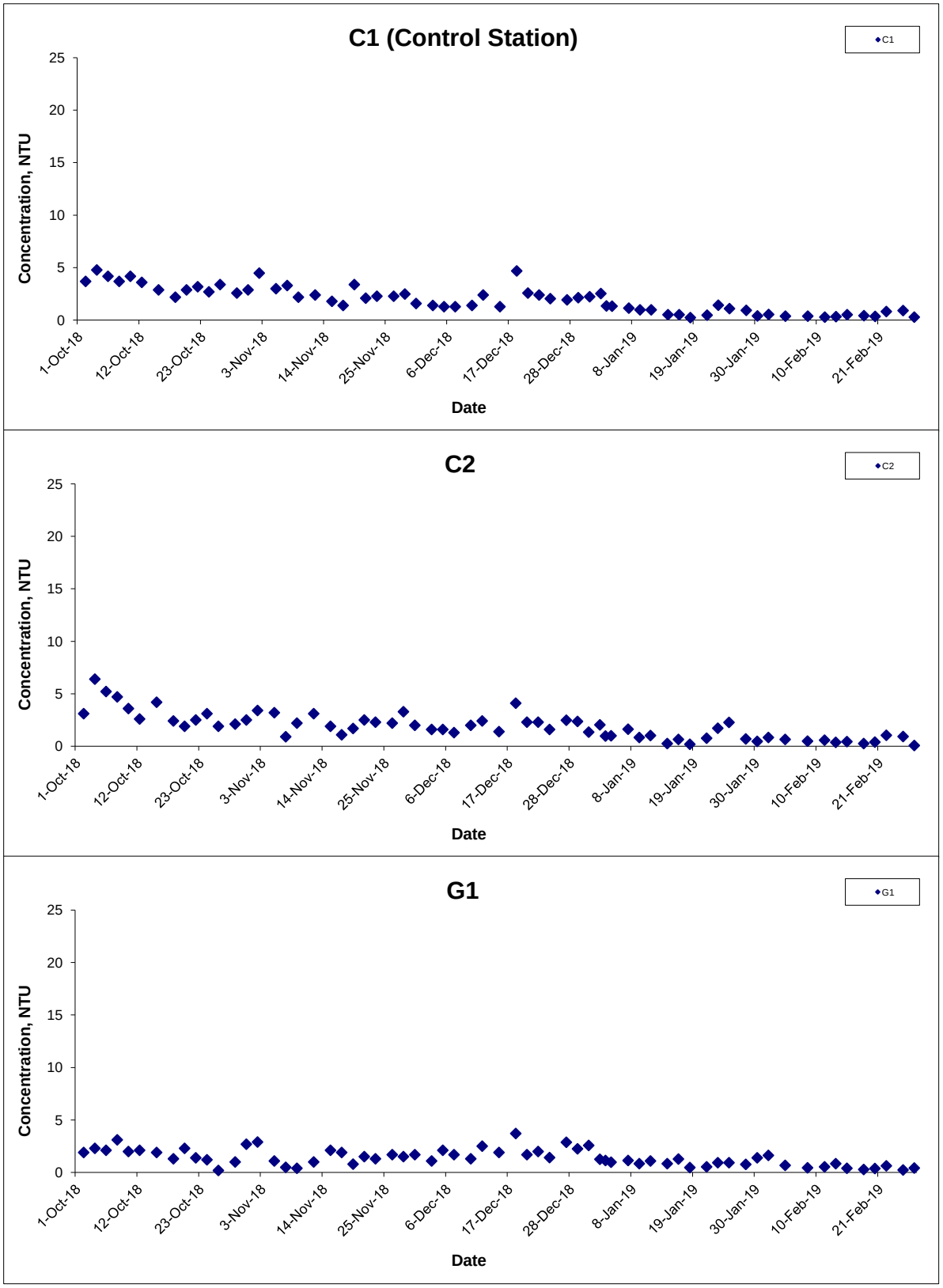
Turbidity (Depth-averaged) at Mid-Flood Tide



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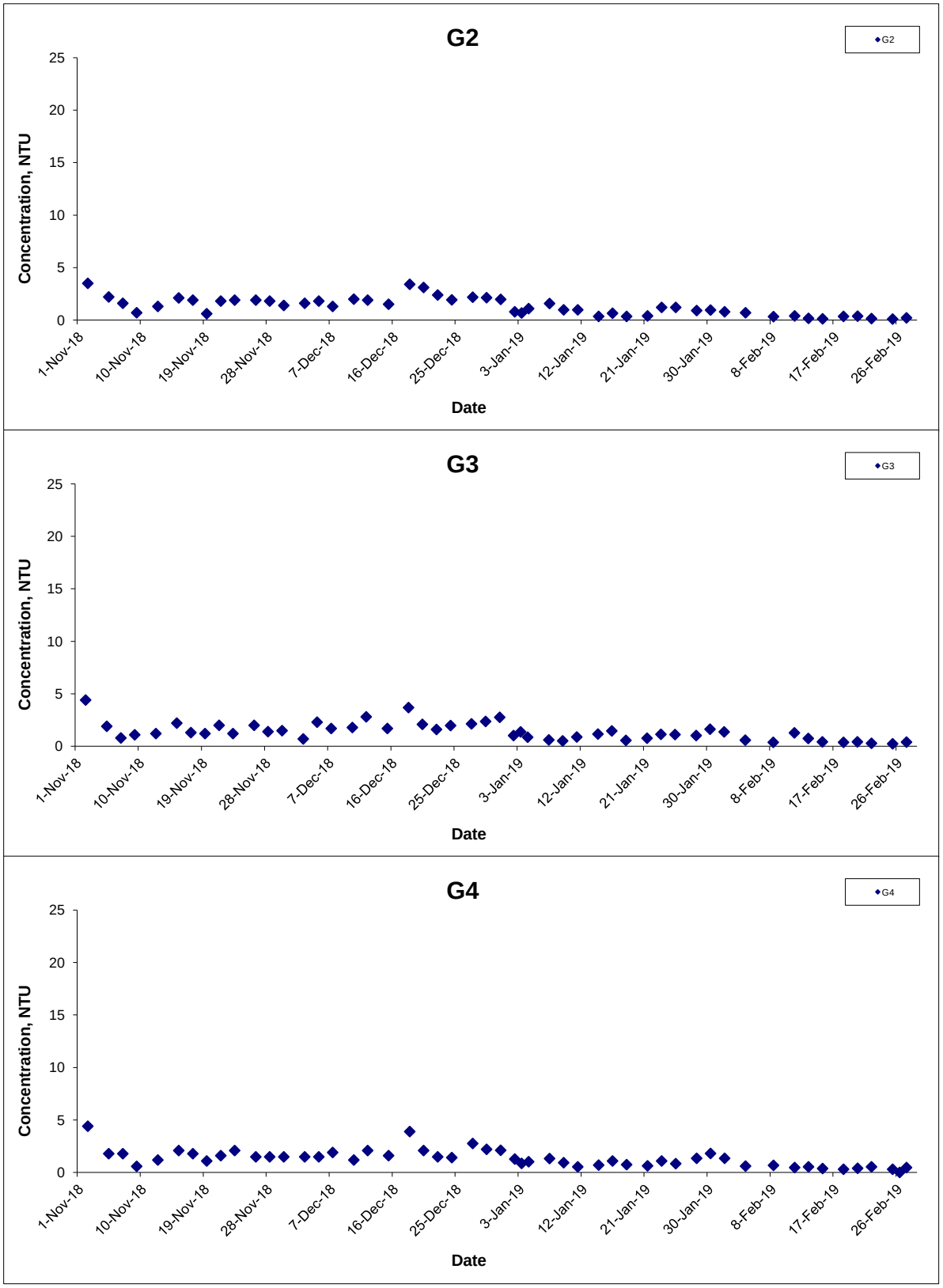
Turbidity (Depth-averaged) at Mid-Flood Tide



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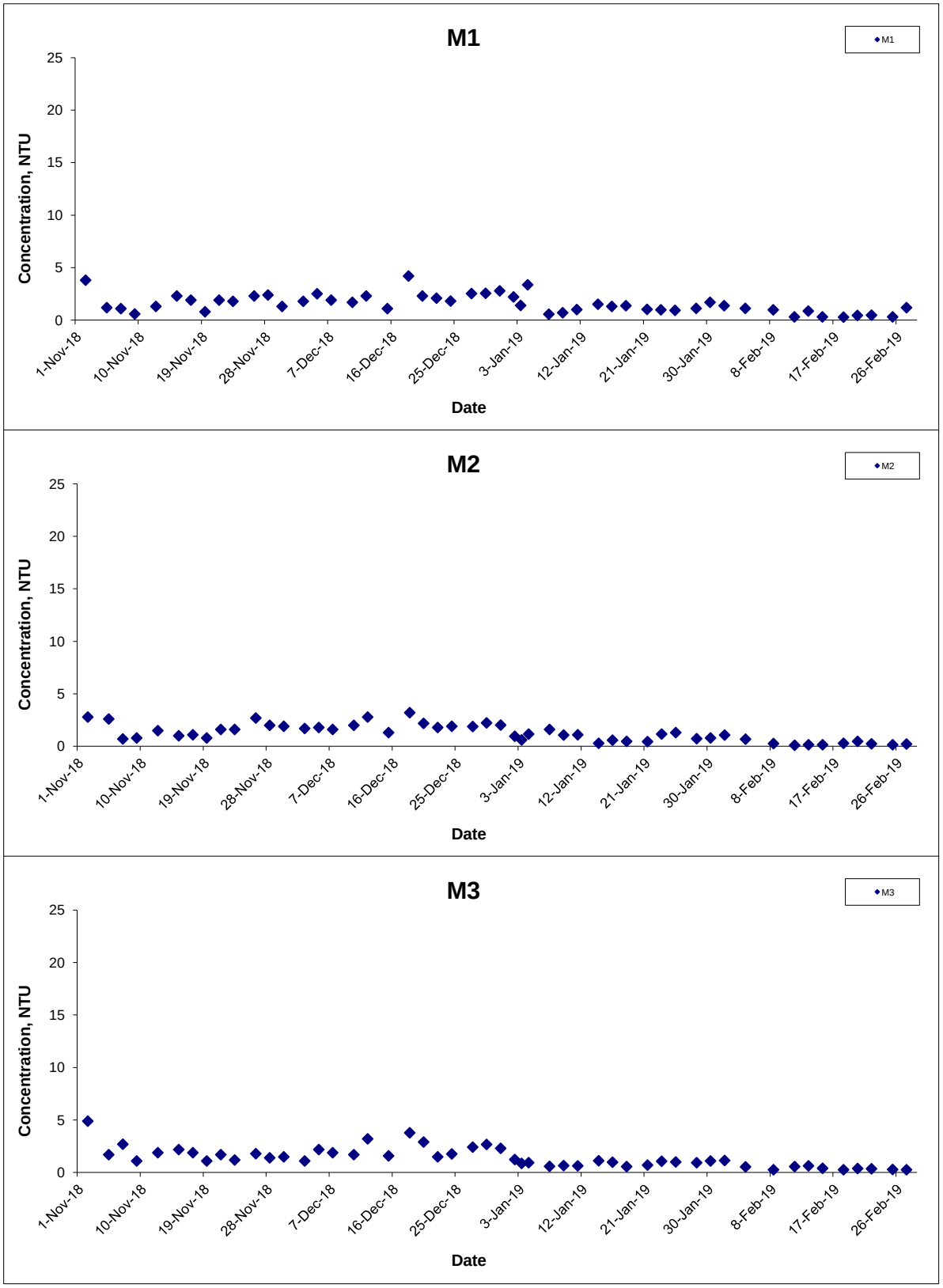
Turbidity (Depth-averaged) at Mid-Flood Tide



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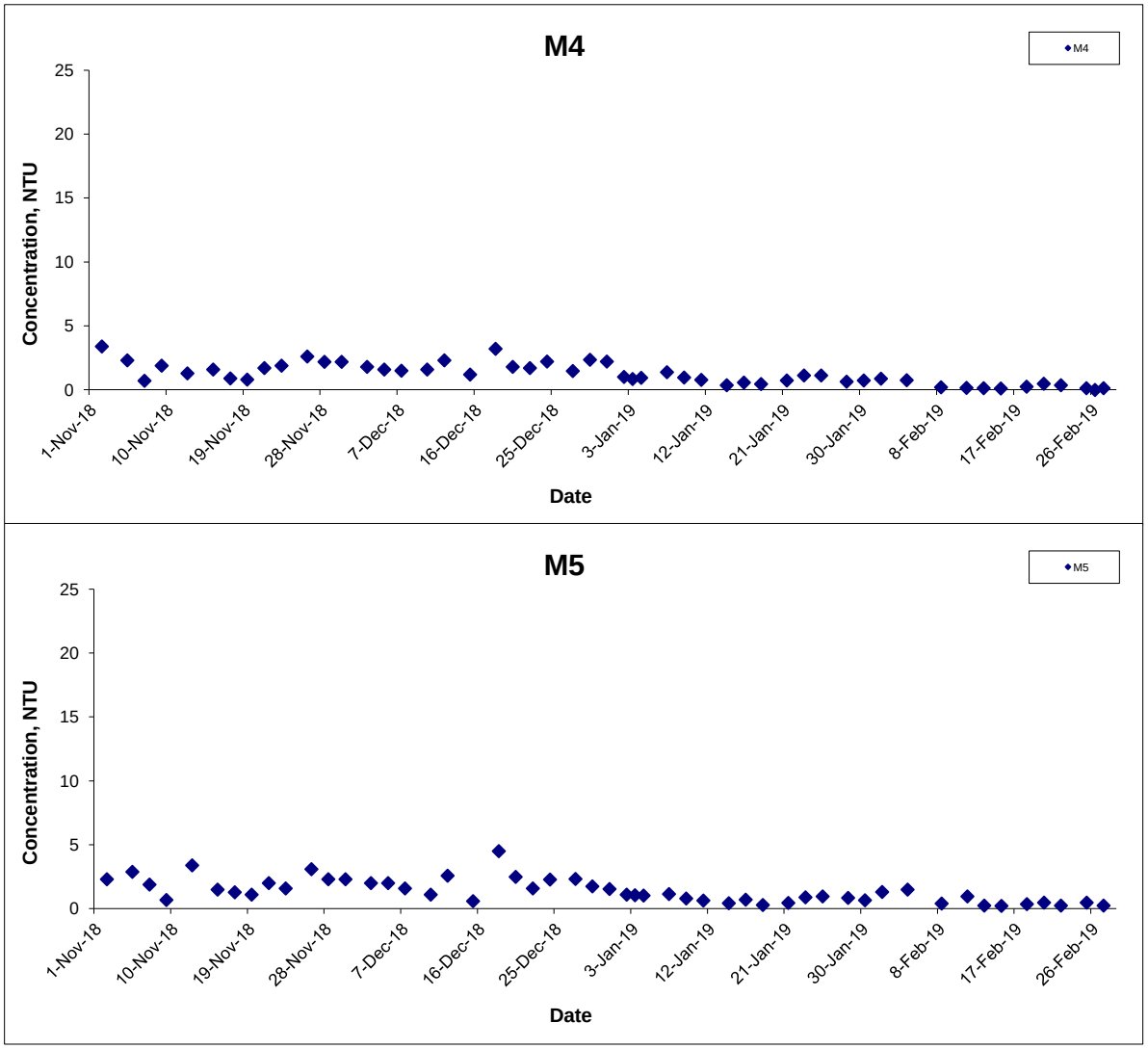
Turbidity (Depth-averaged) at Mid-Flood Tide



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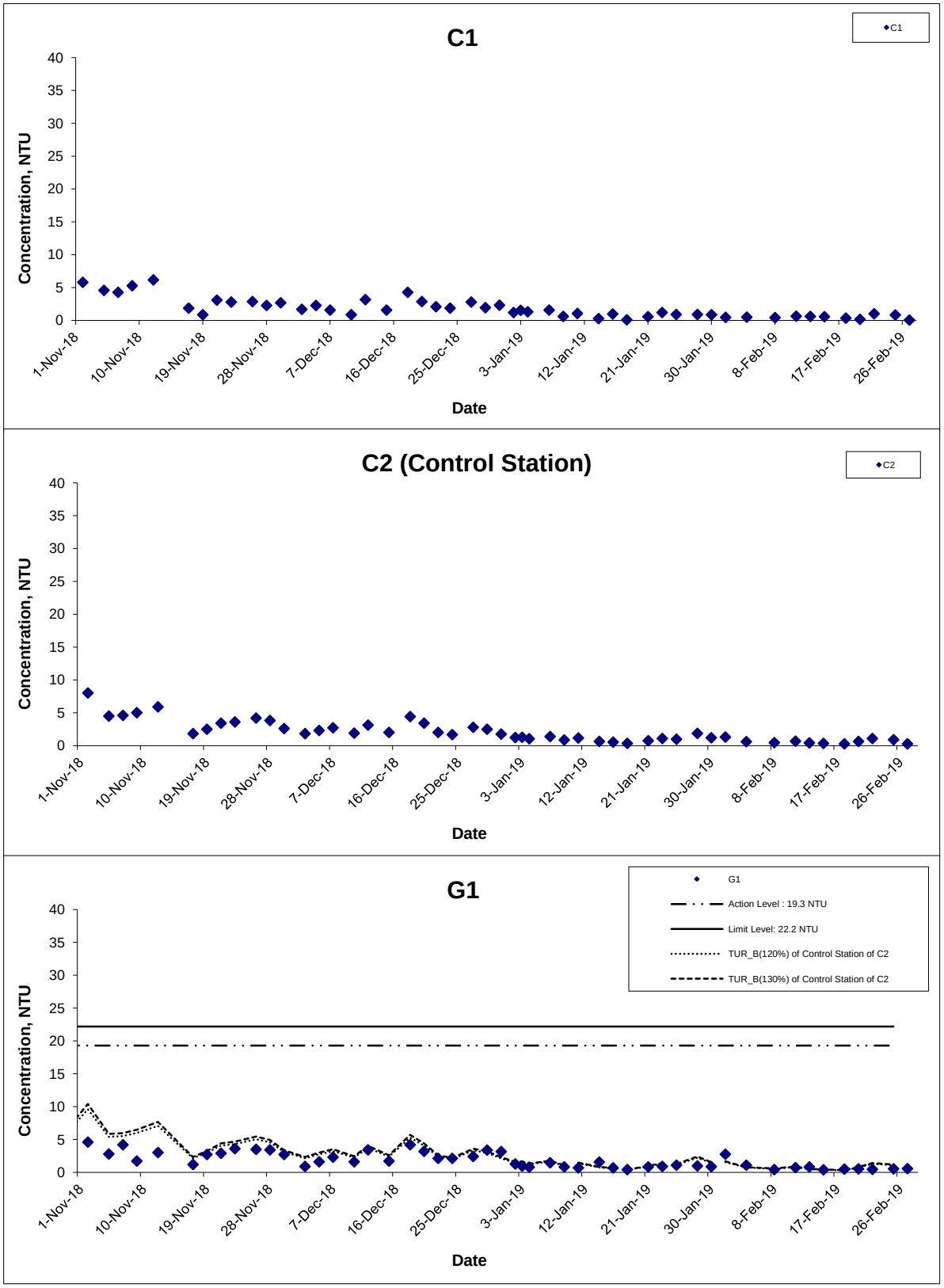
Turbidity (Bottom) at Mid-Ebb Tide



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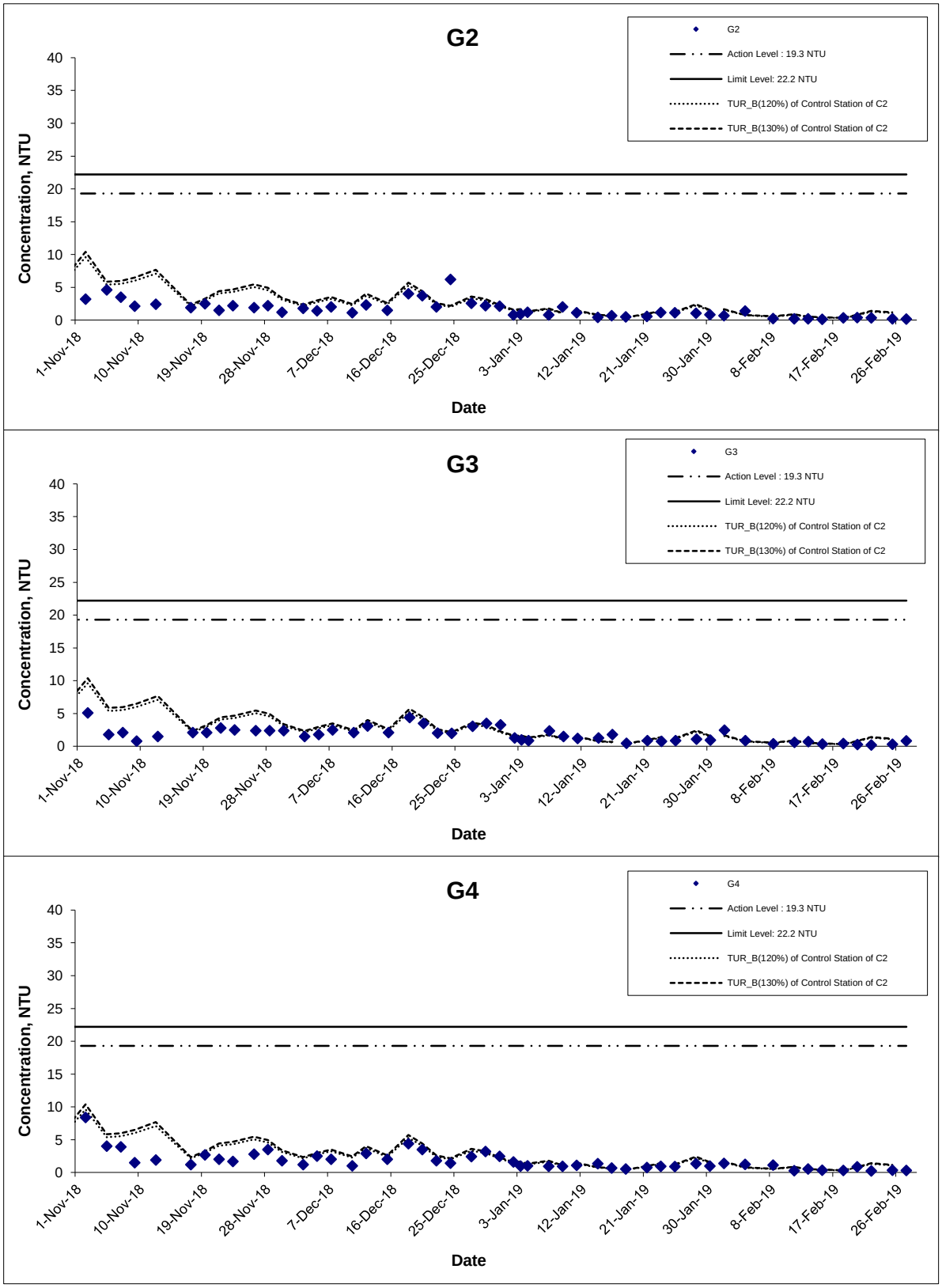
Turbidity (Bottom) at Mid-Ebb Tide



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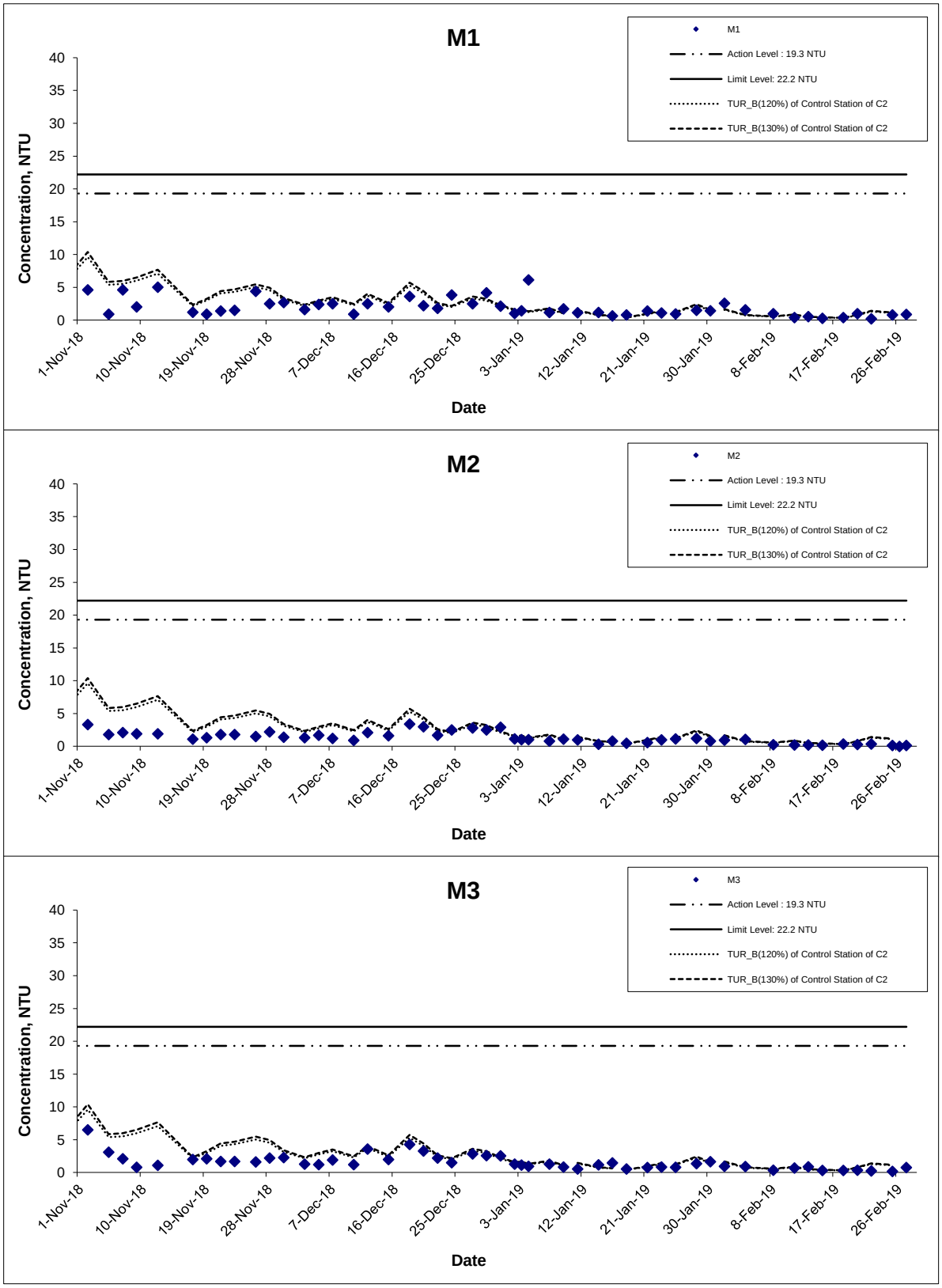
Turbidity (Bottom) at Mid-Ebb Tide



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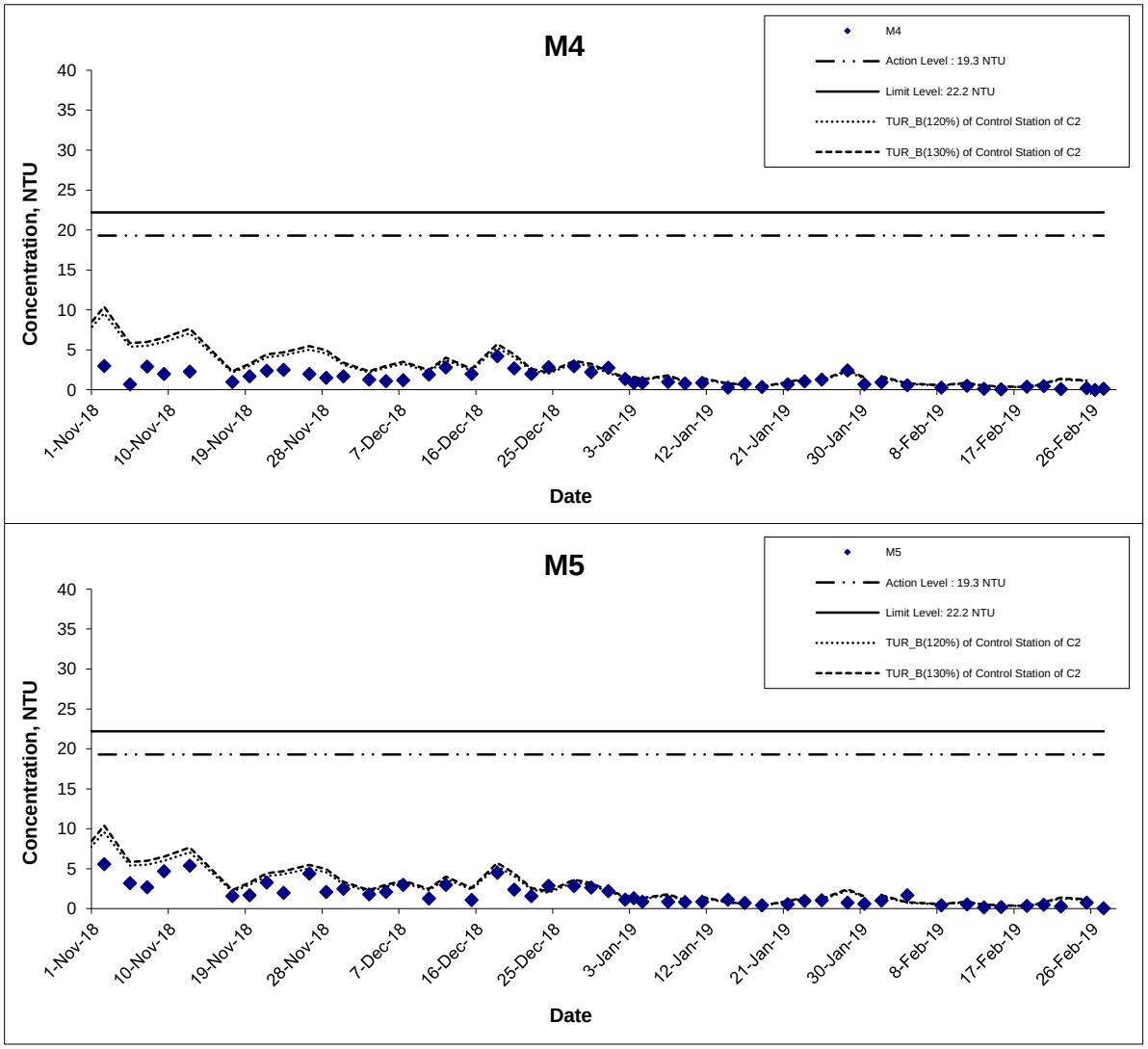
Turbidity (Bottom) at Mid-Ebb Tide



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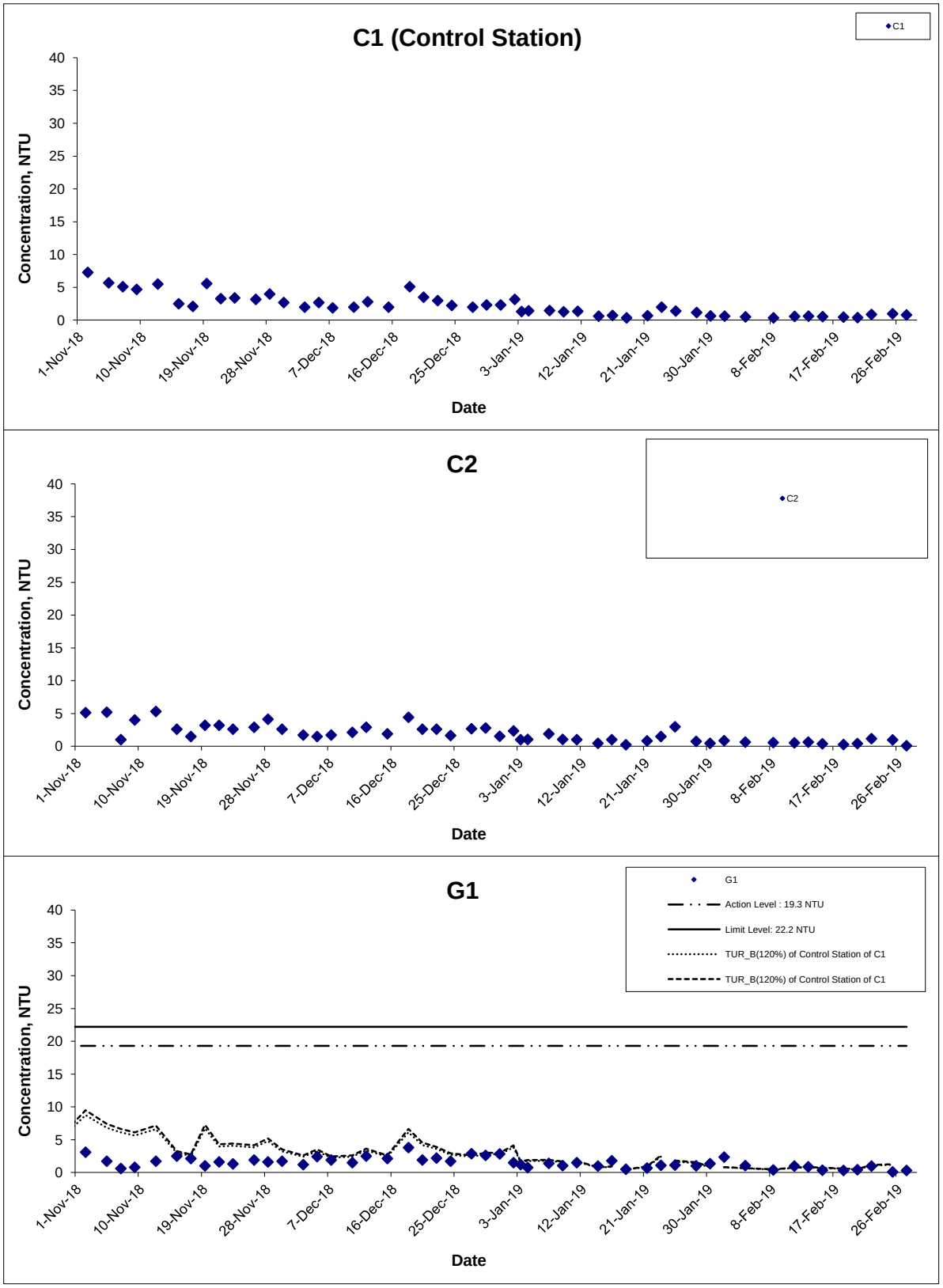
Turbidity (Bottom) at Mid-Flood Tide



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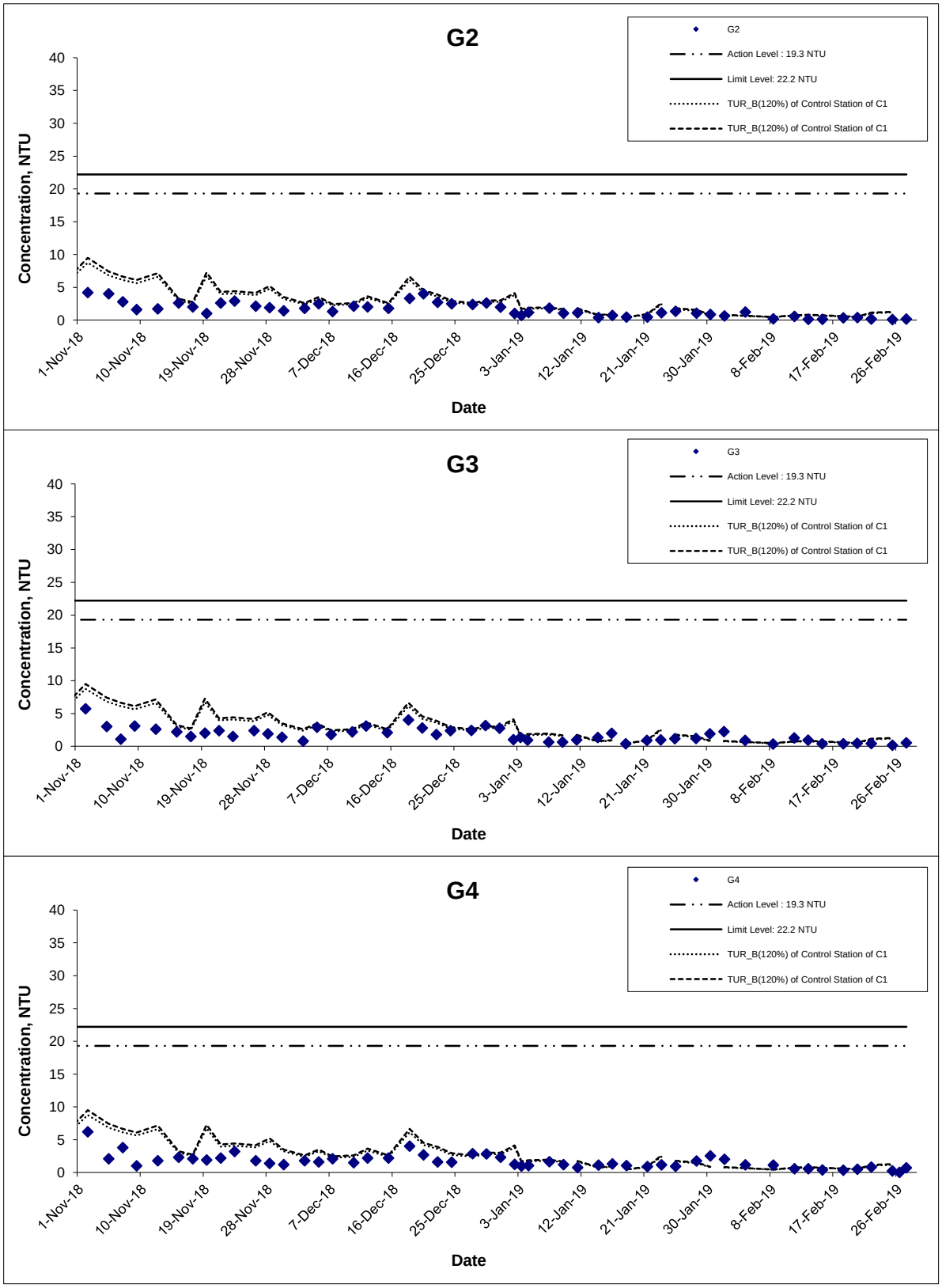
Turbidity (Bottom) at Mid-Flood Tide



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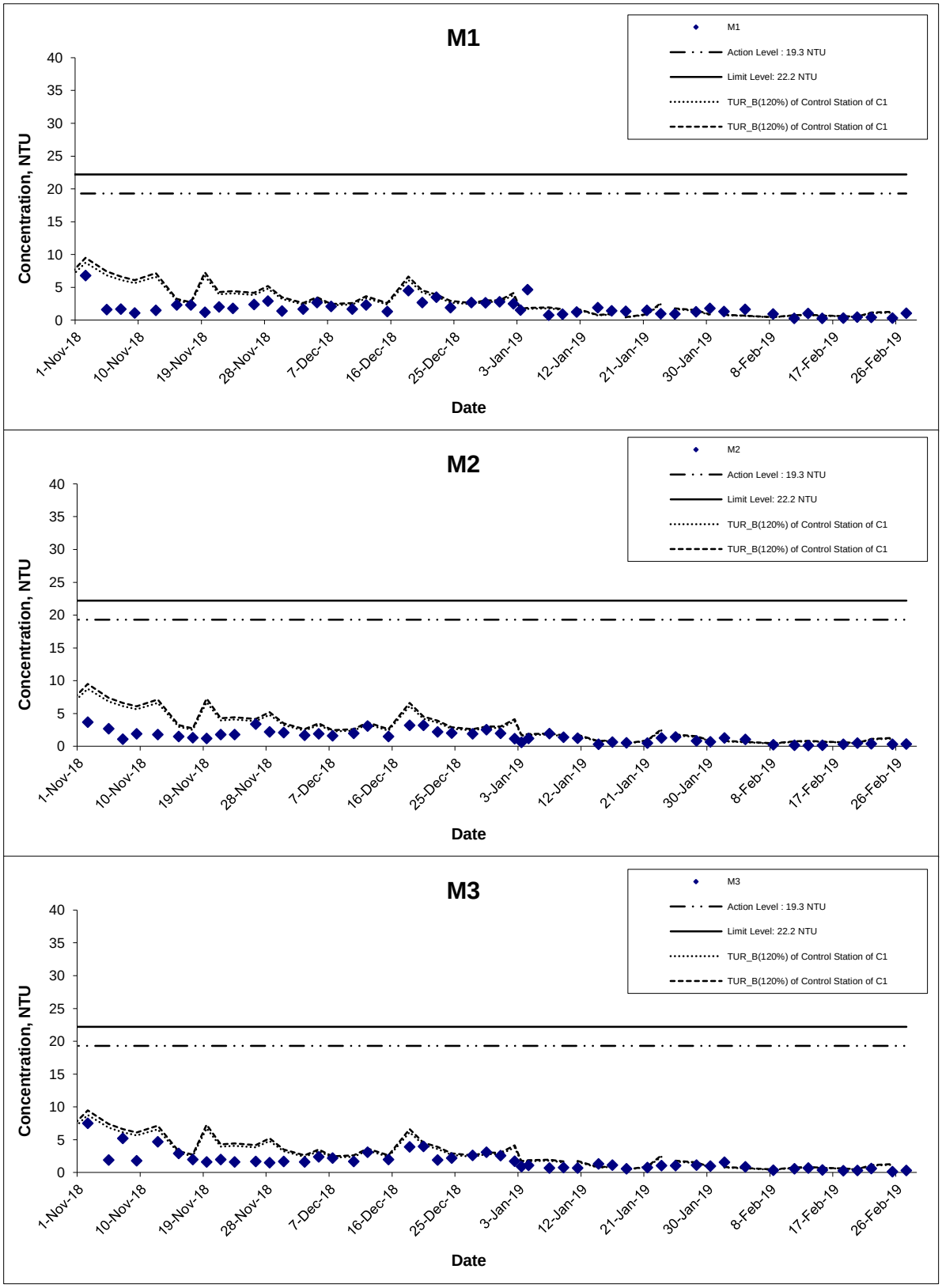
Turbidity (Bottom) at Mid-Flood Tide



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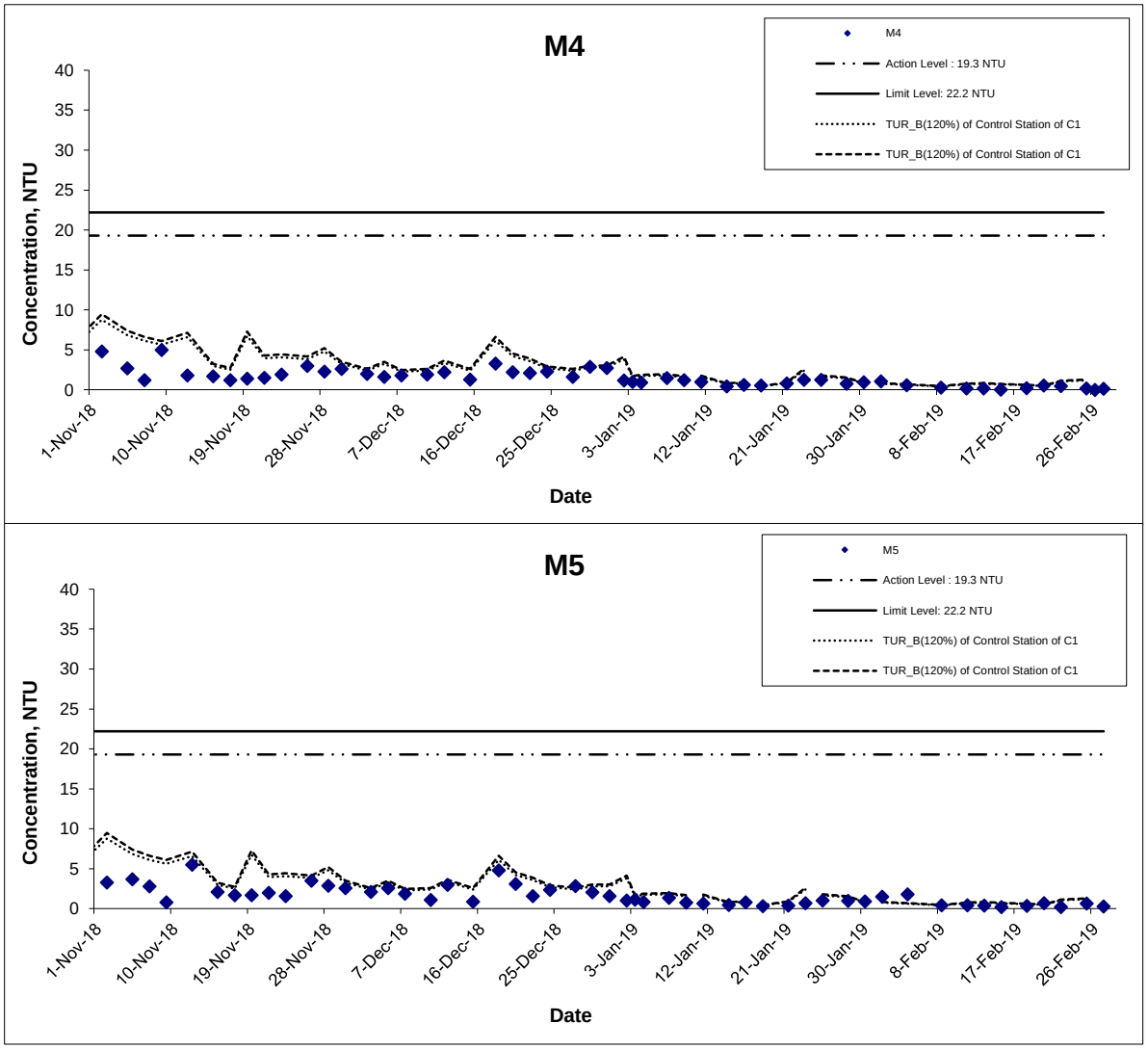
Turbidity (Bottom) at Mid-Flood Tide



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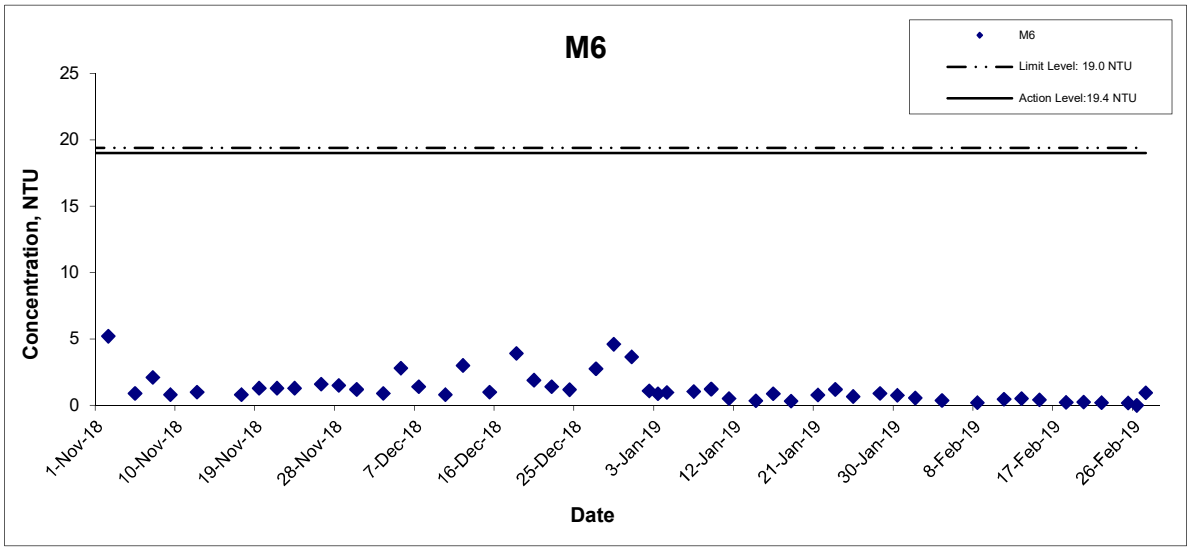
Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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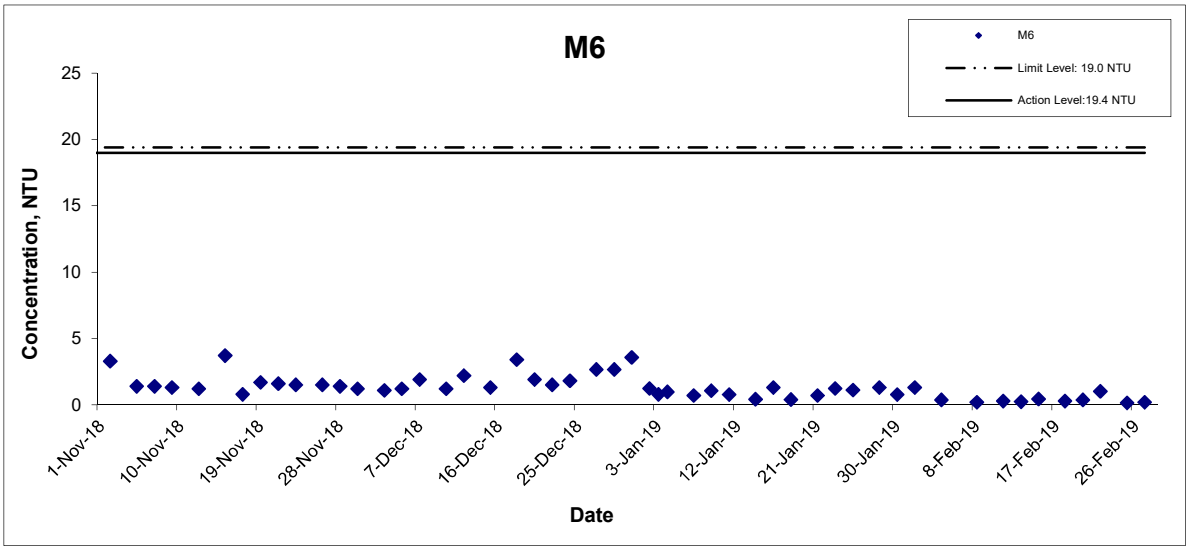
Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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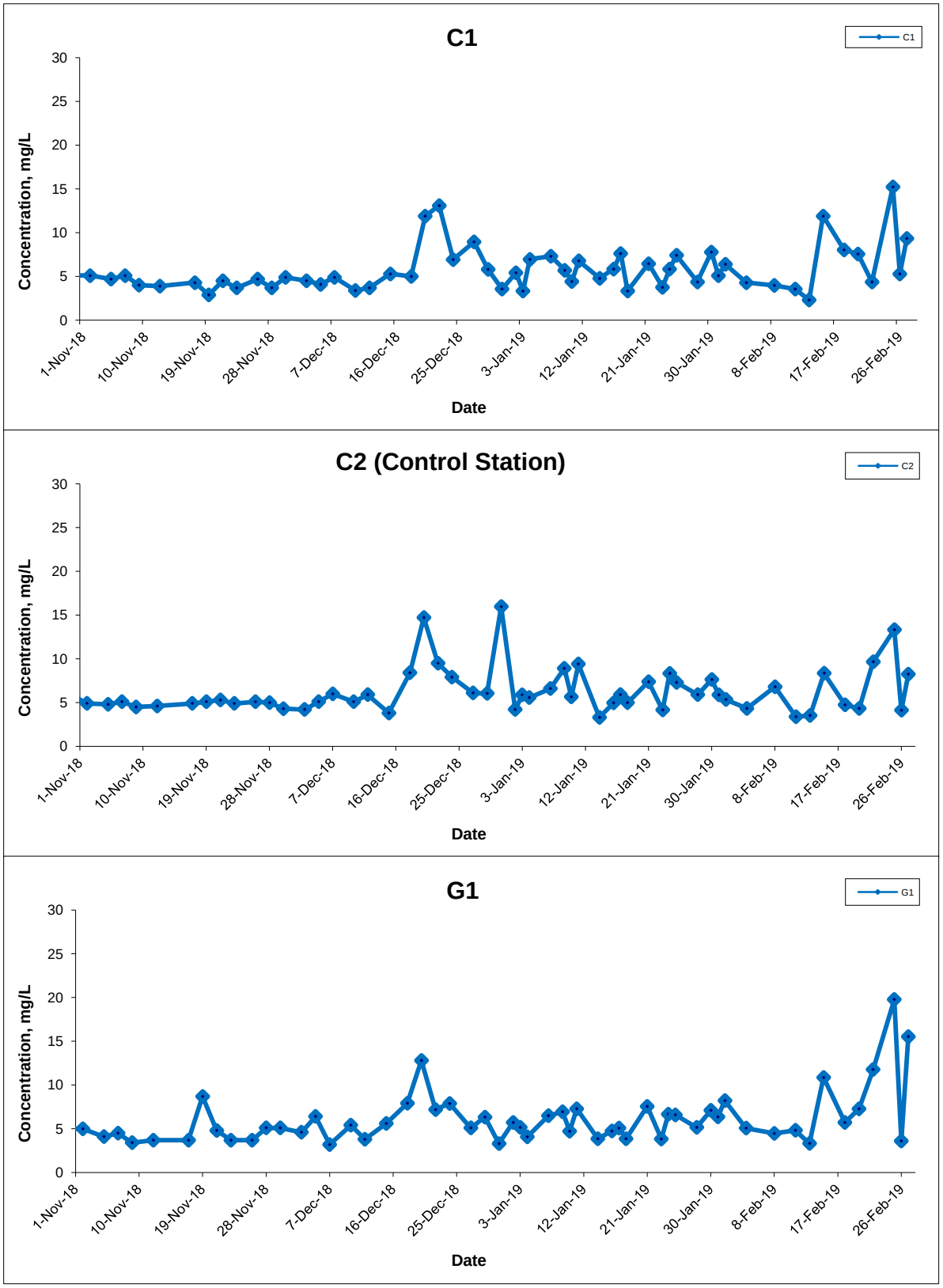
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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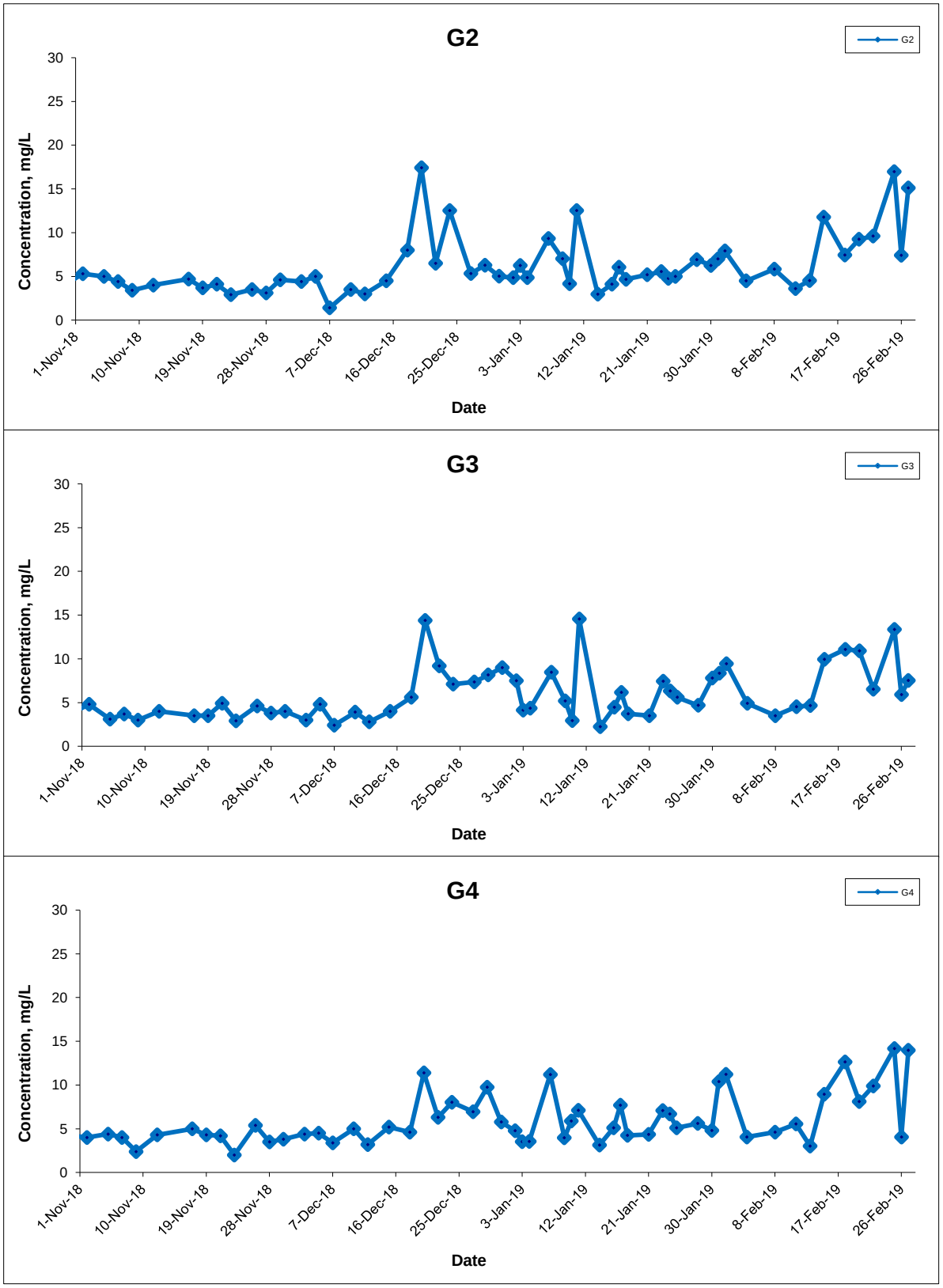

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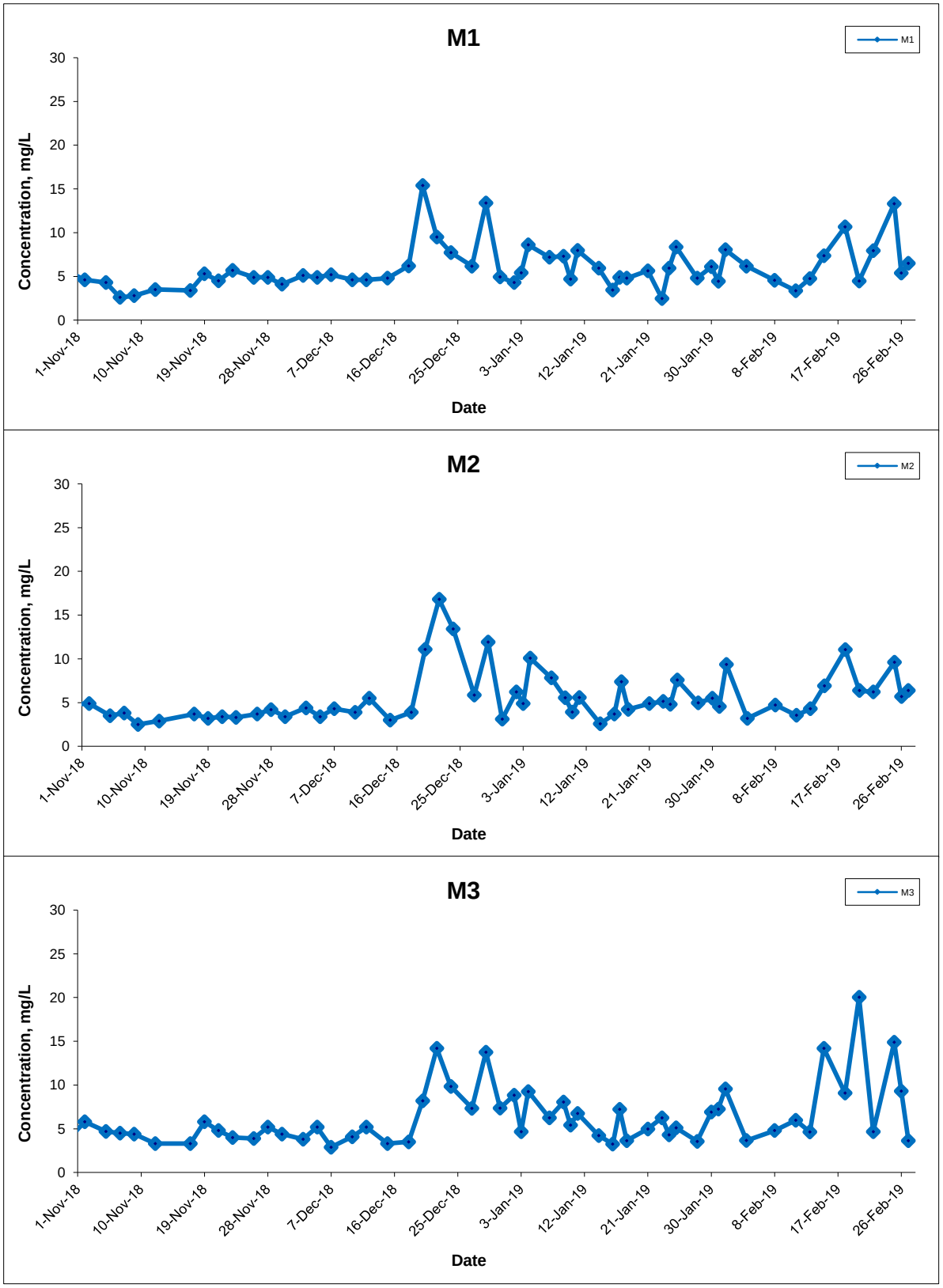

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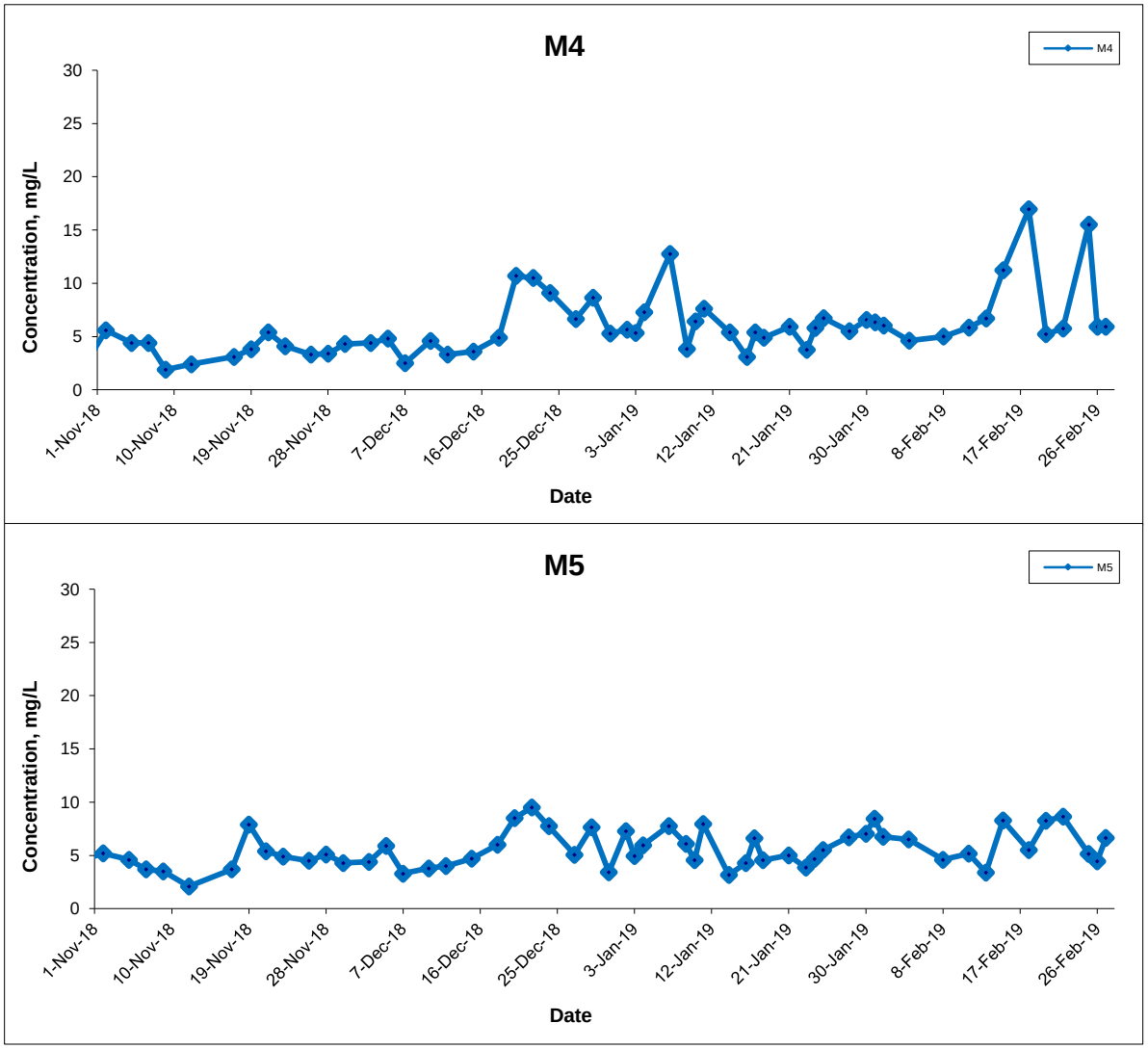

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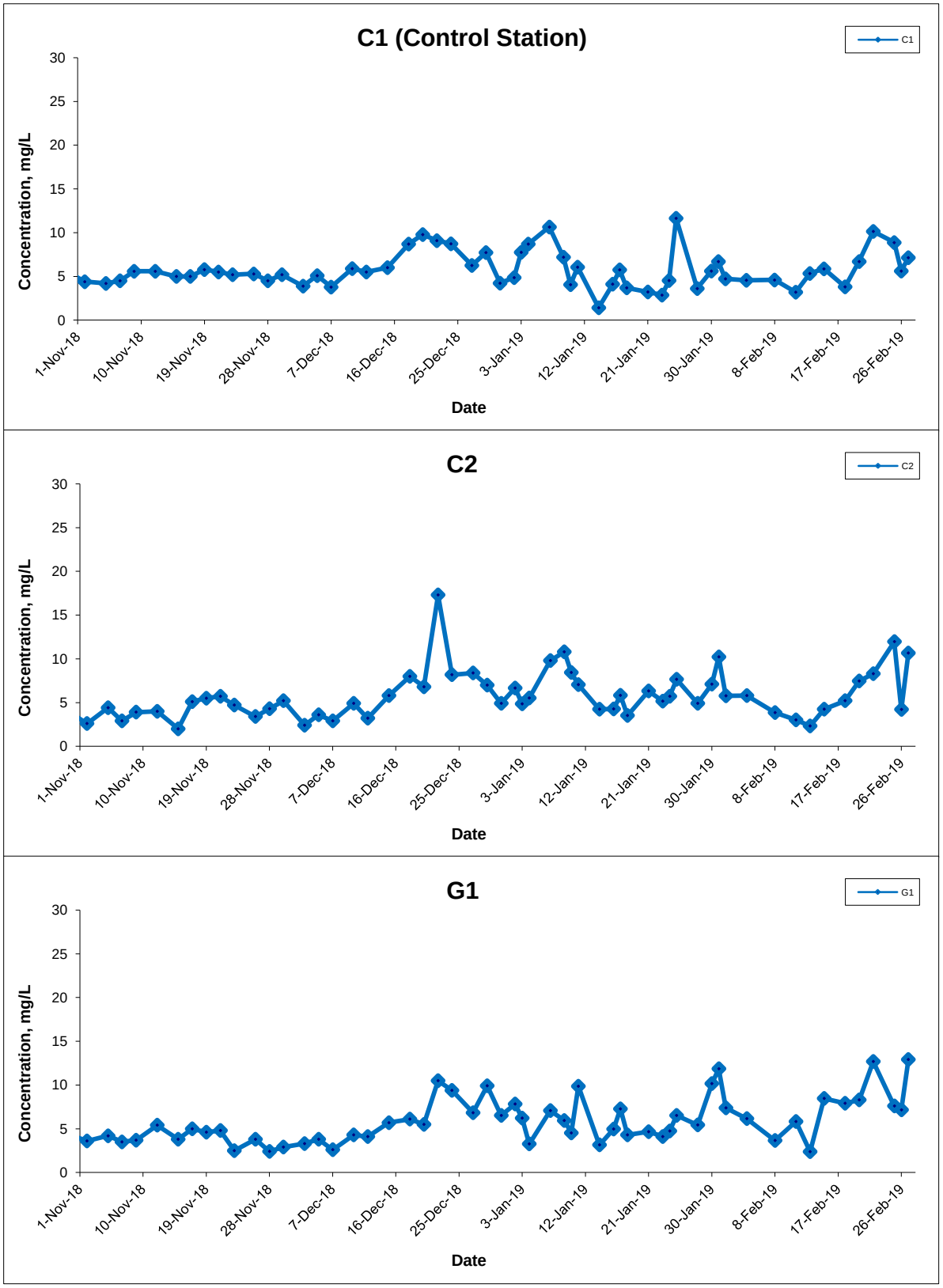

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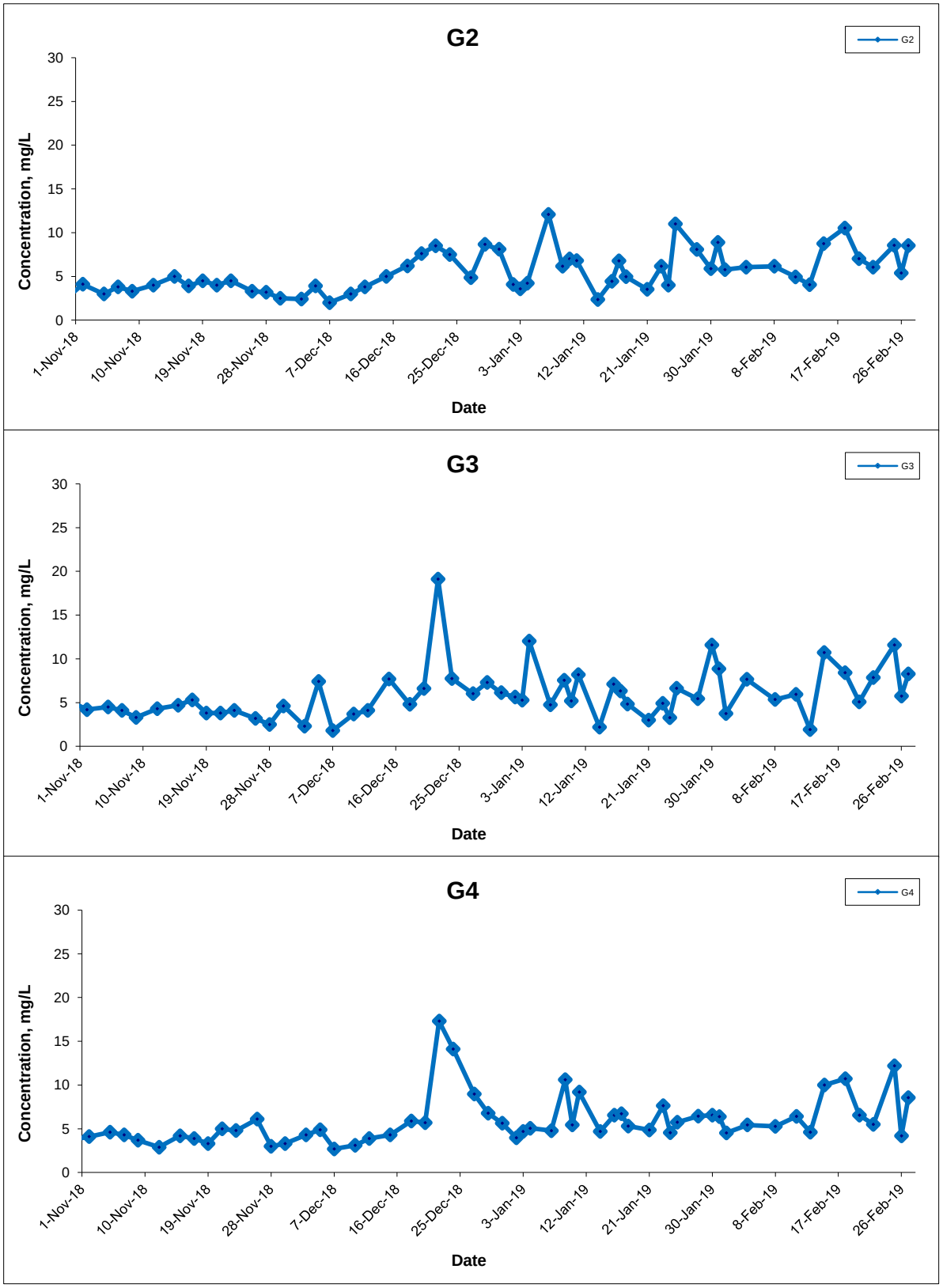
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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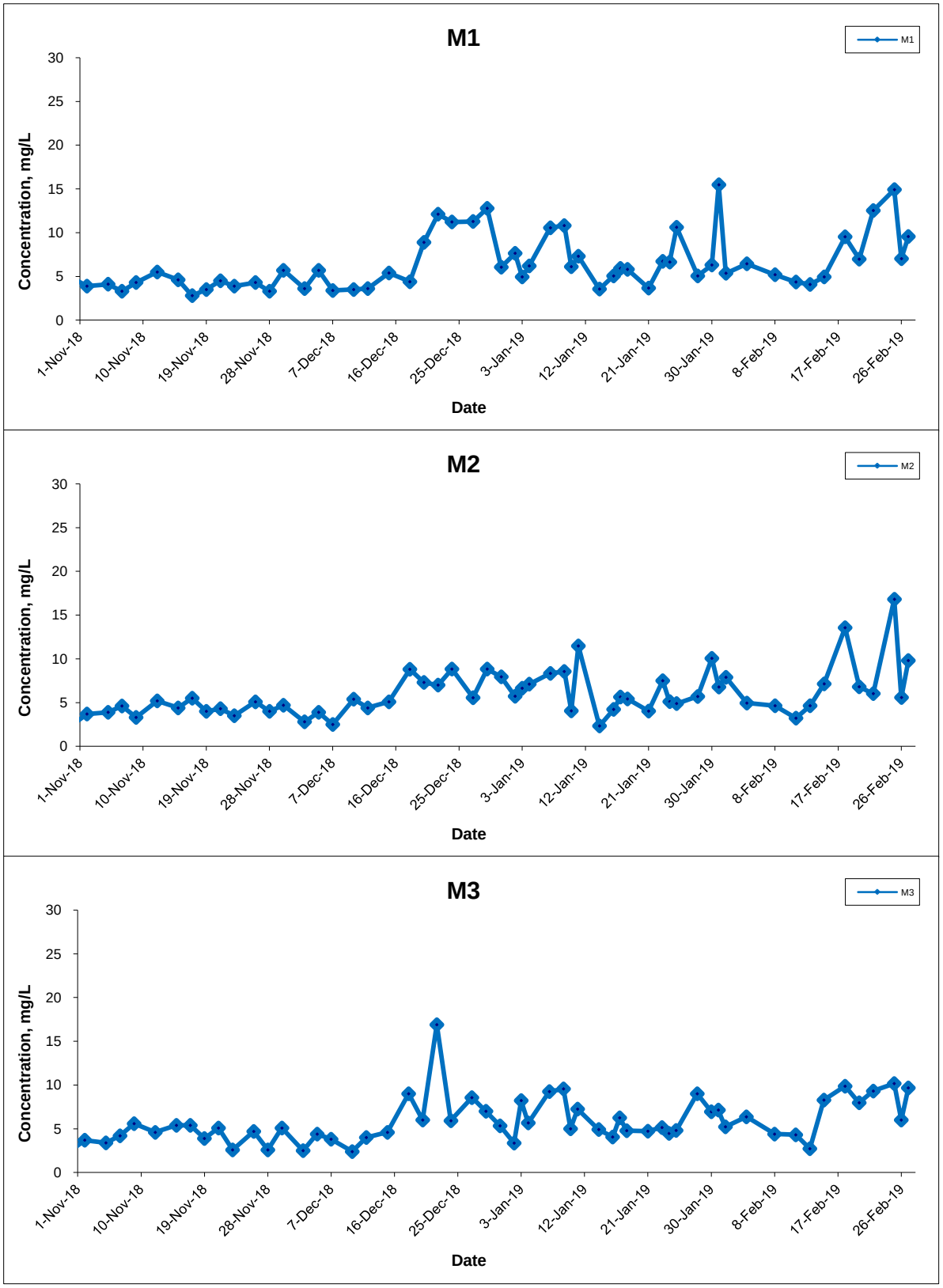

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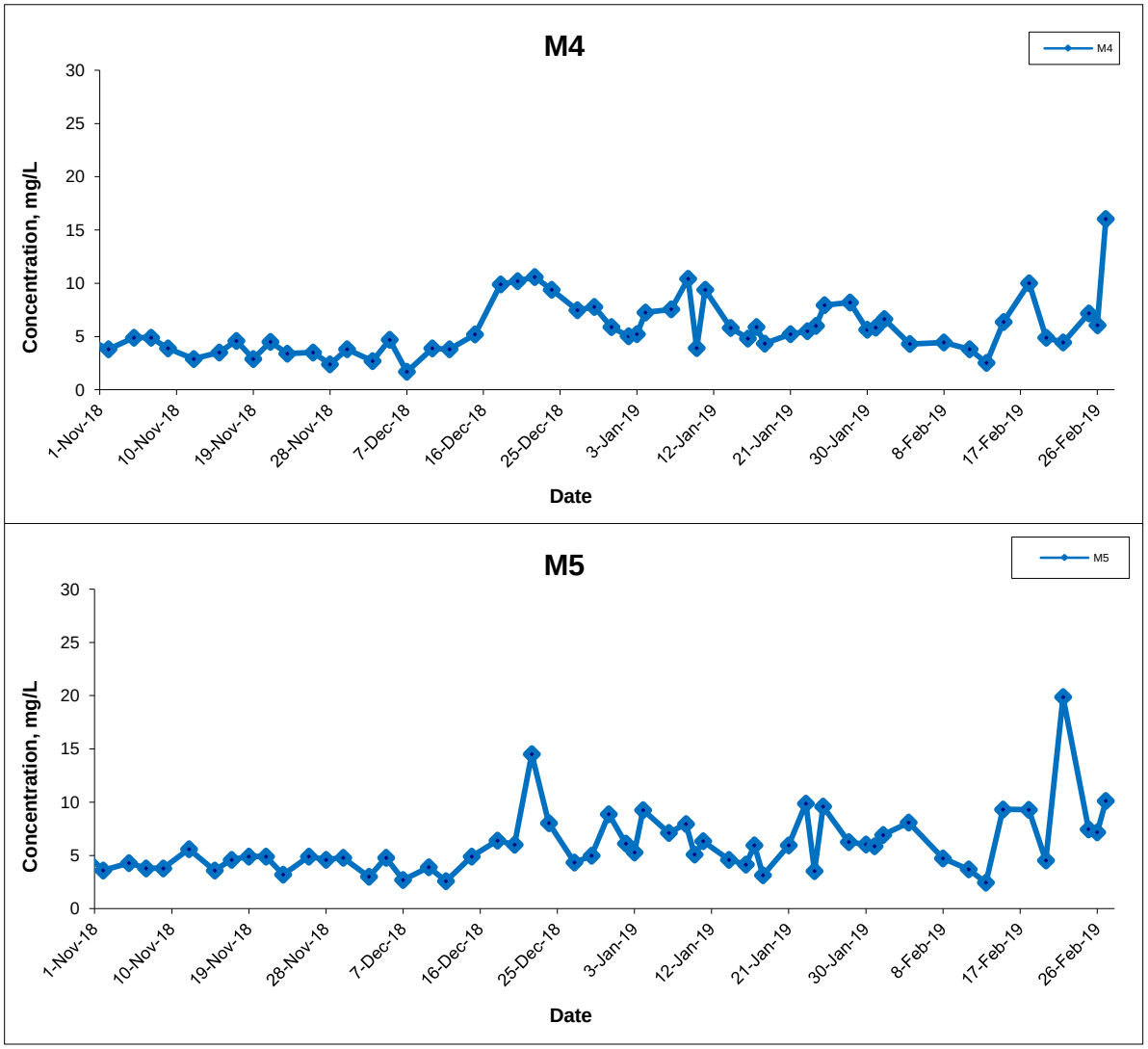
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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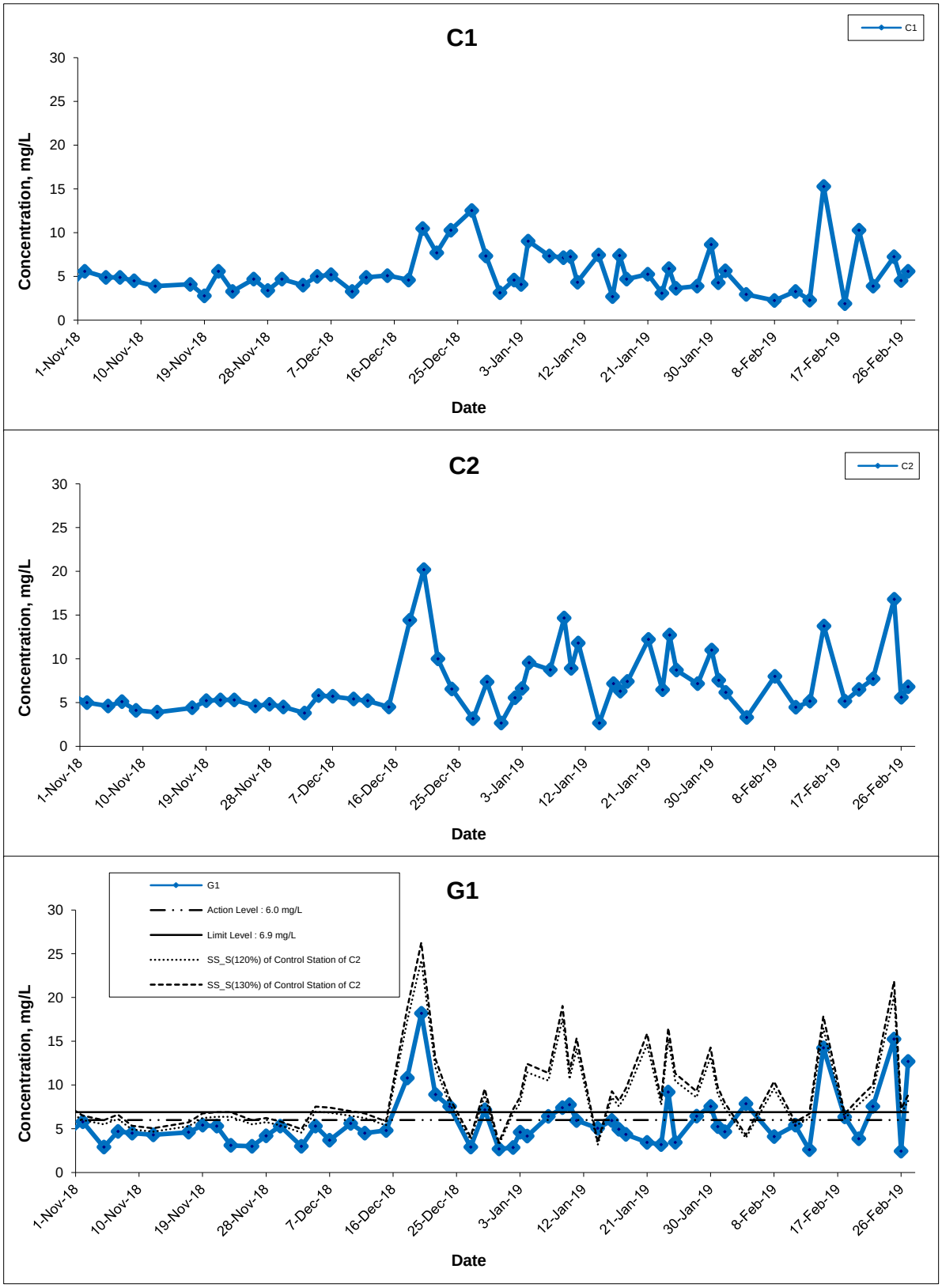
Suspended Solids (Surface) at Mid-Ebb Tide



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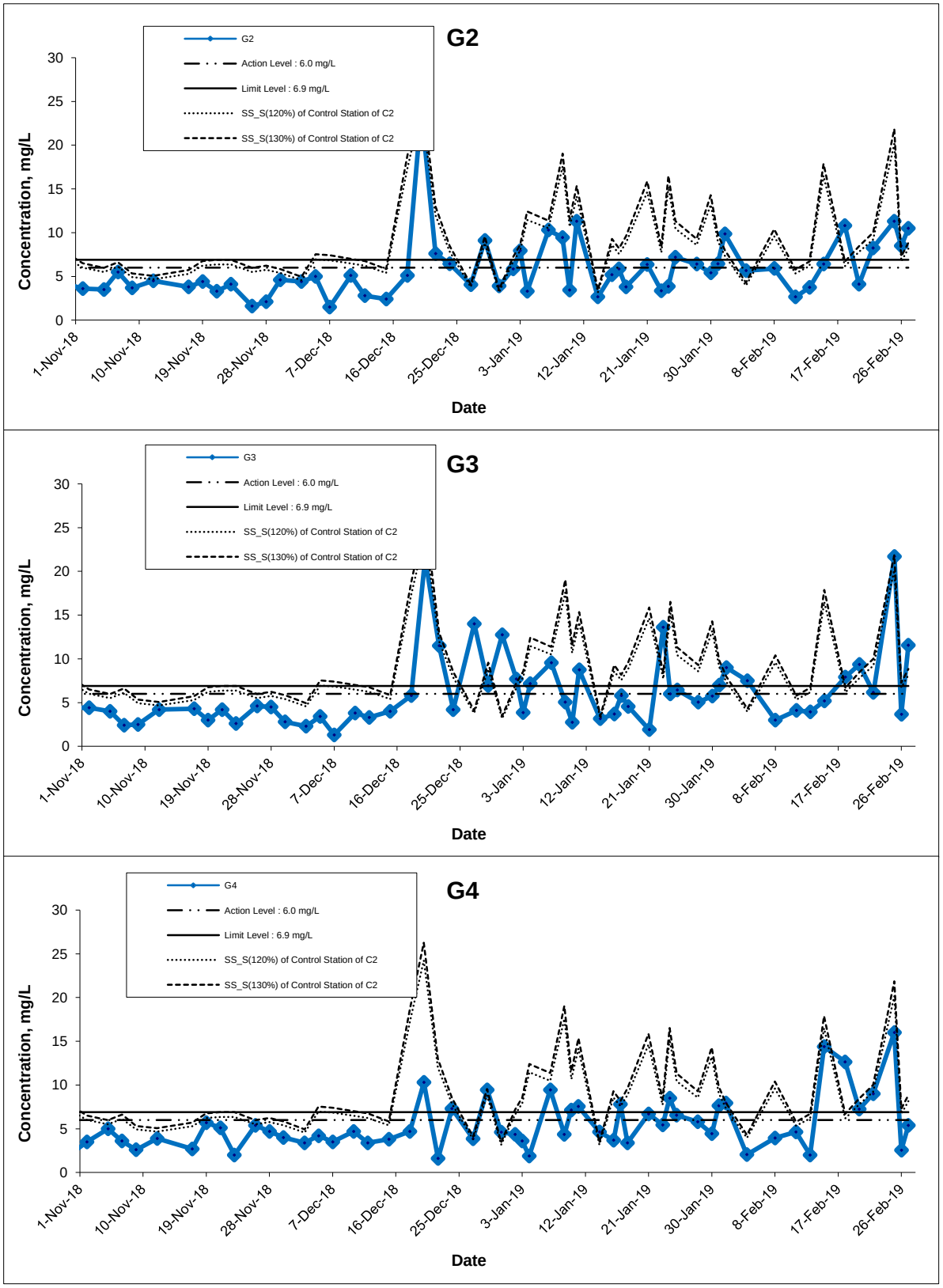

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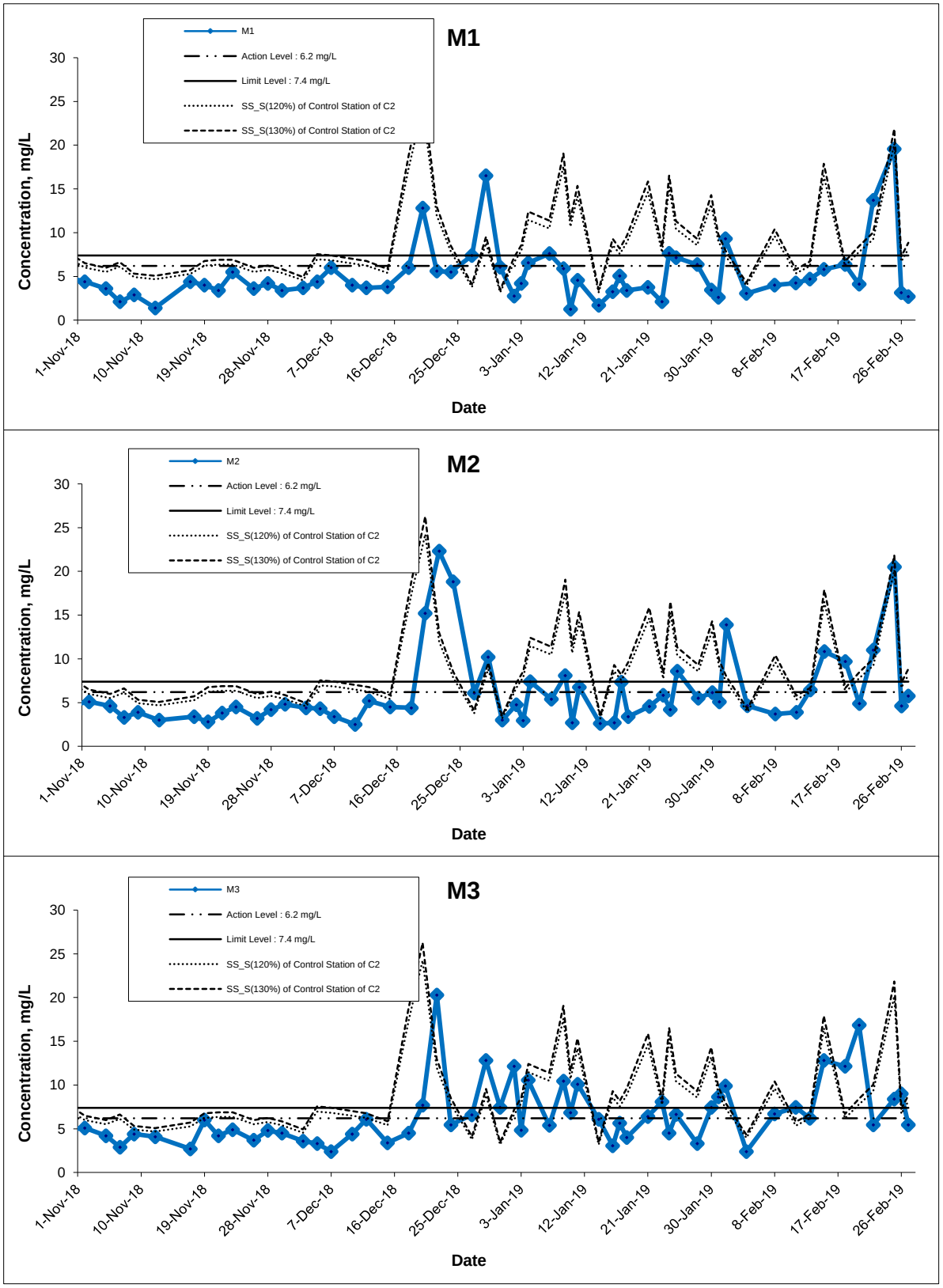
Suspended Solids (Surface) at Mid-Ebb Tide



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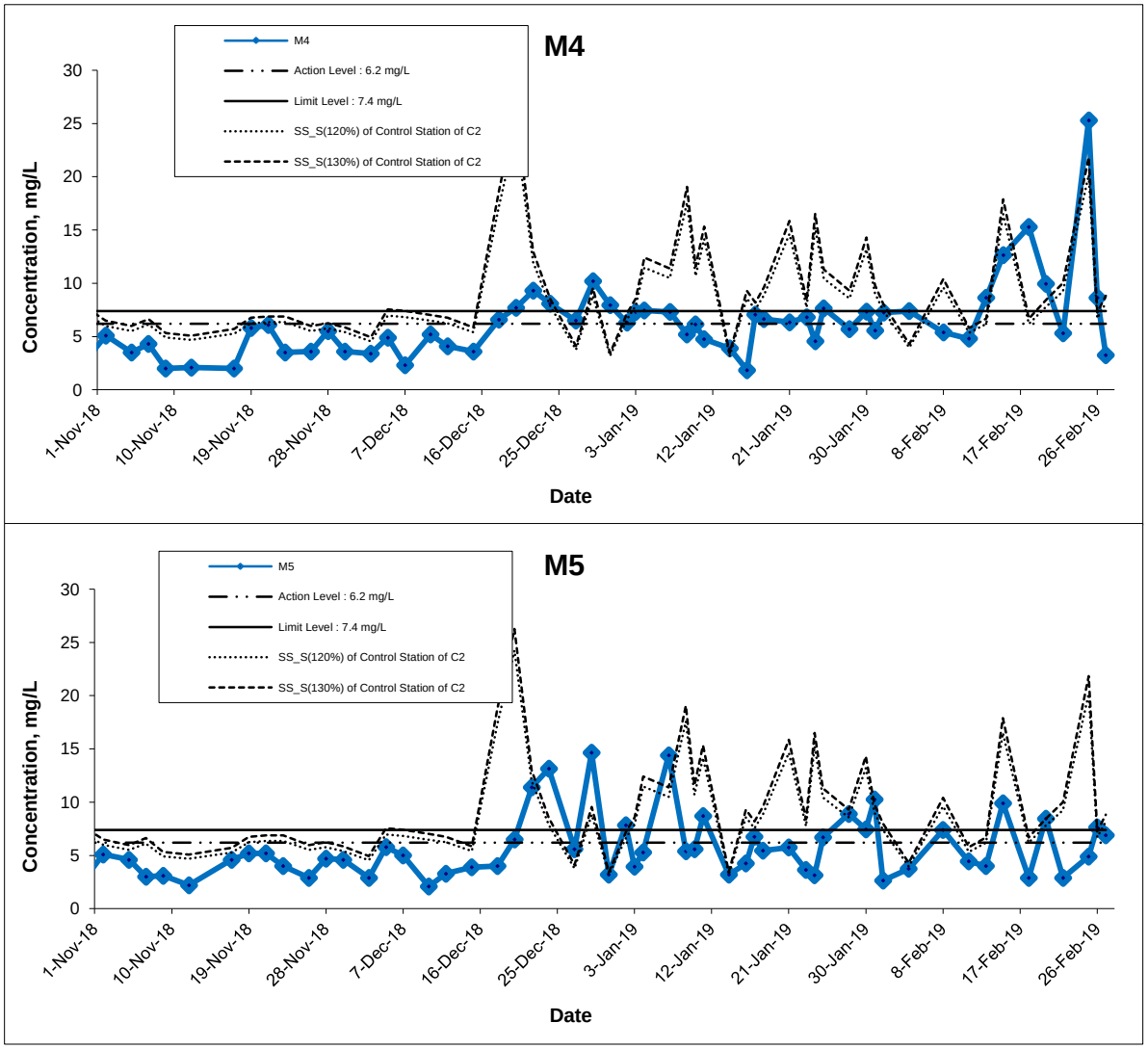

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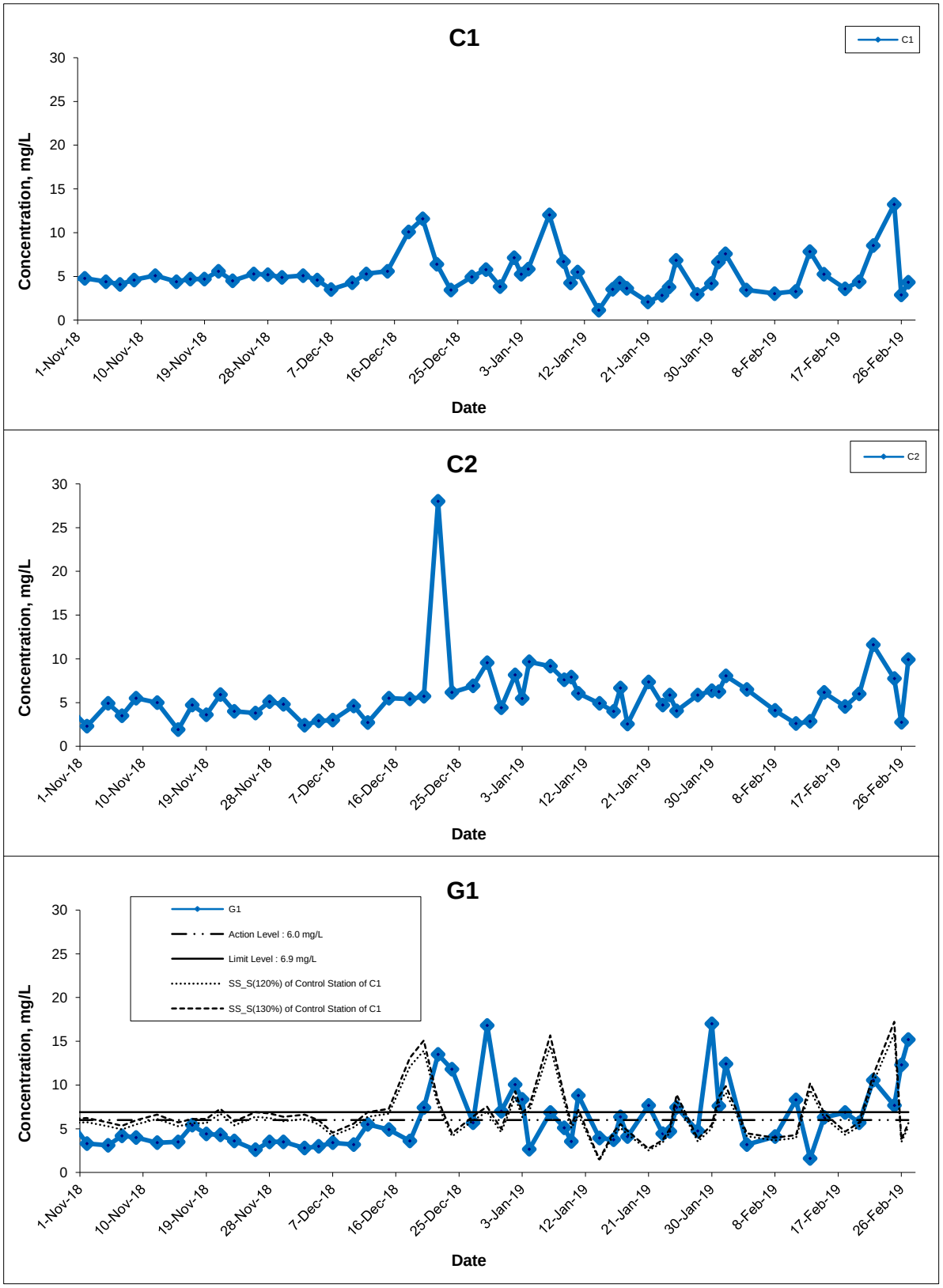
Suspended Solids (Surface) at Mid-Flood Tide



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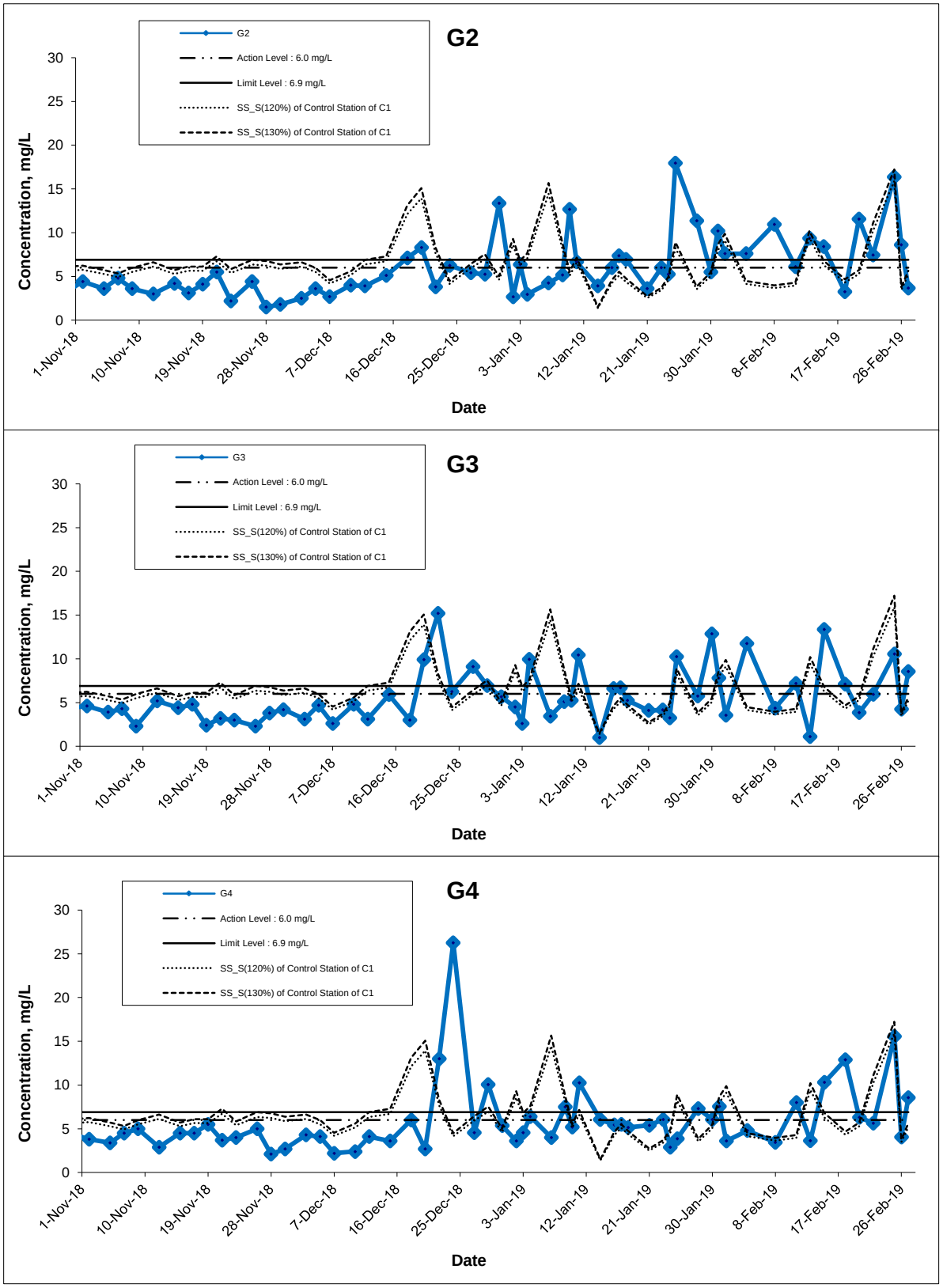

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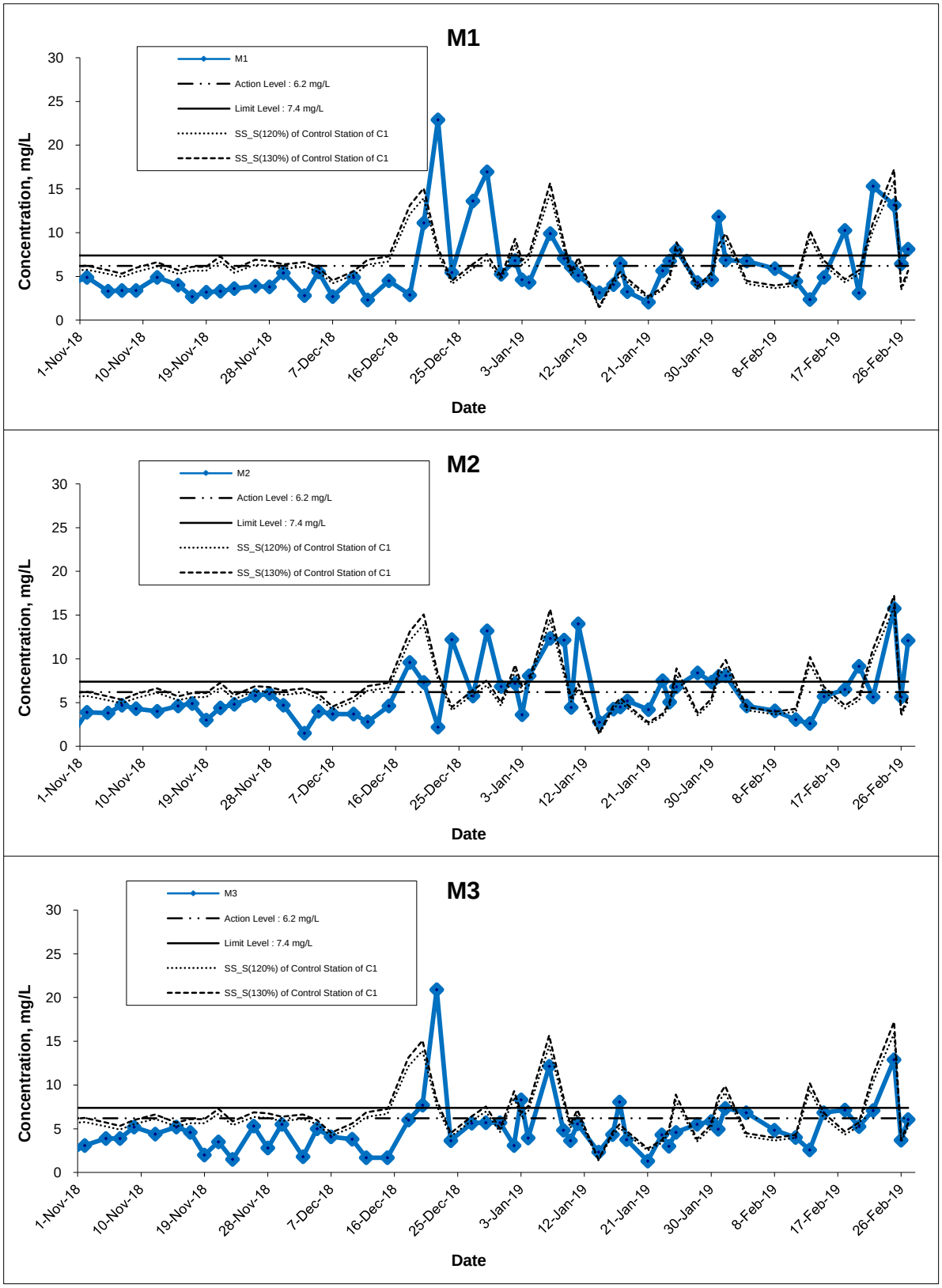

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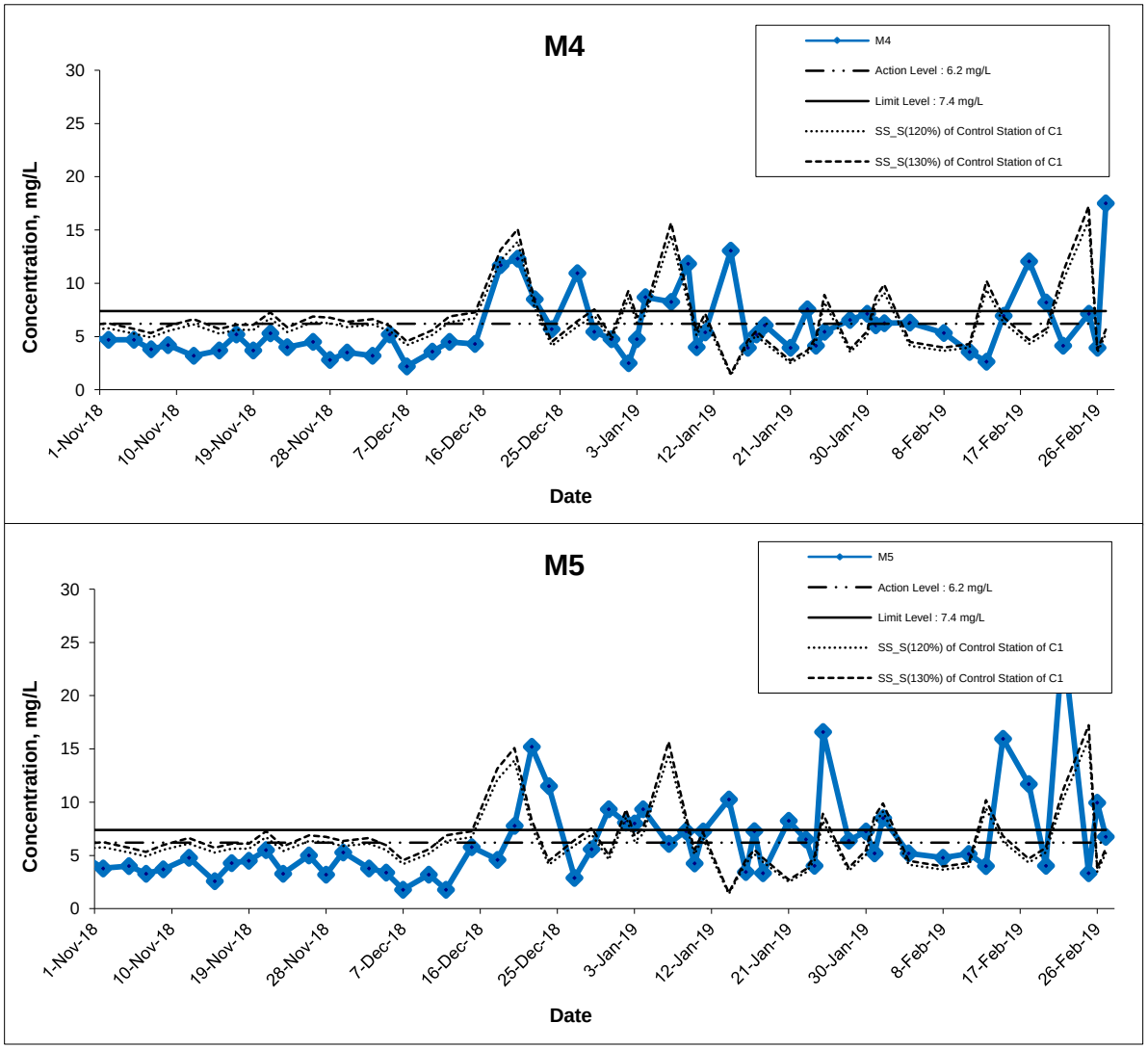
Suspended Solids (Surface) at Mid-Flood Tide



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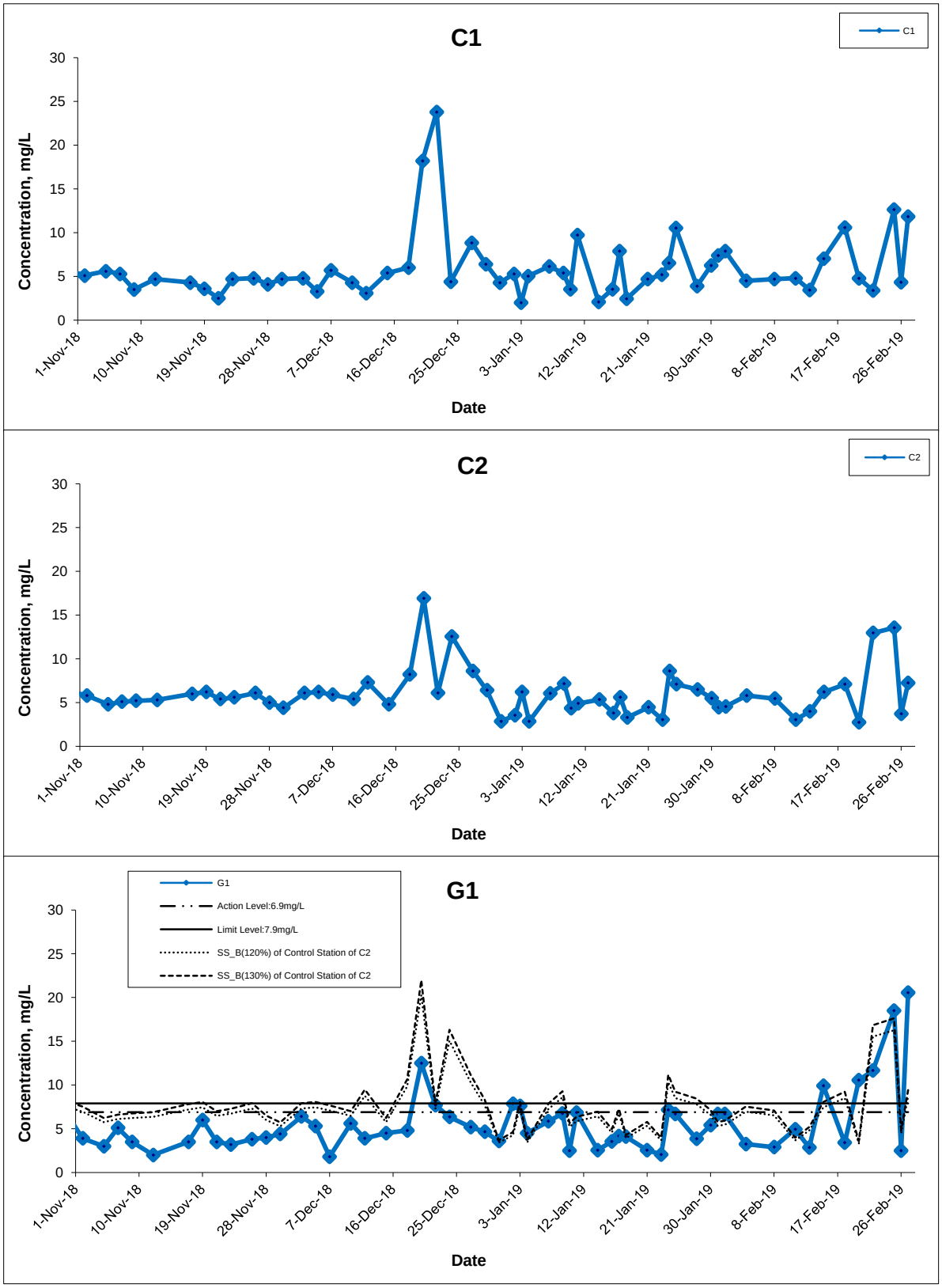
Suspended Solids (Bottom) at Mid-Ebb Tide



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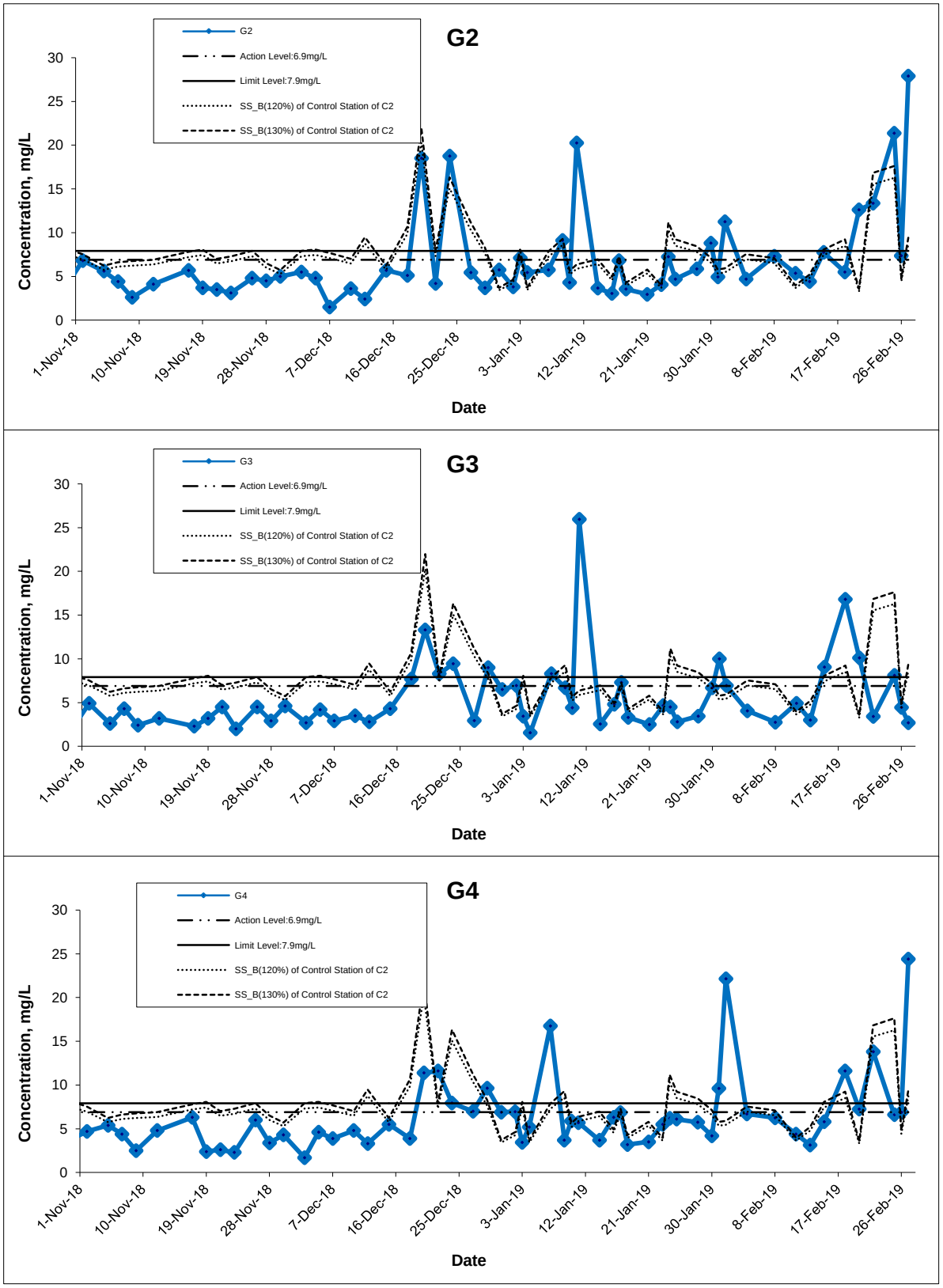
Suspended Solids (Bottom) at Mid-Ebb Tide



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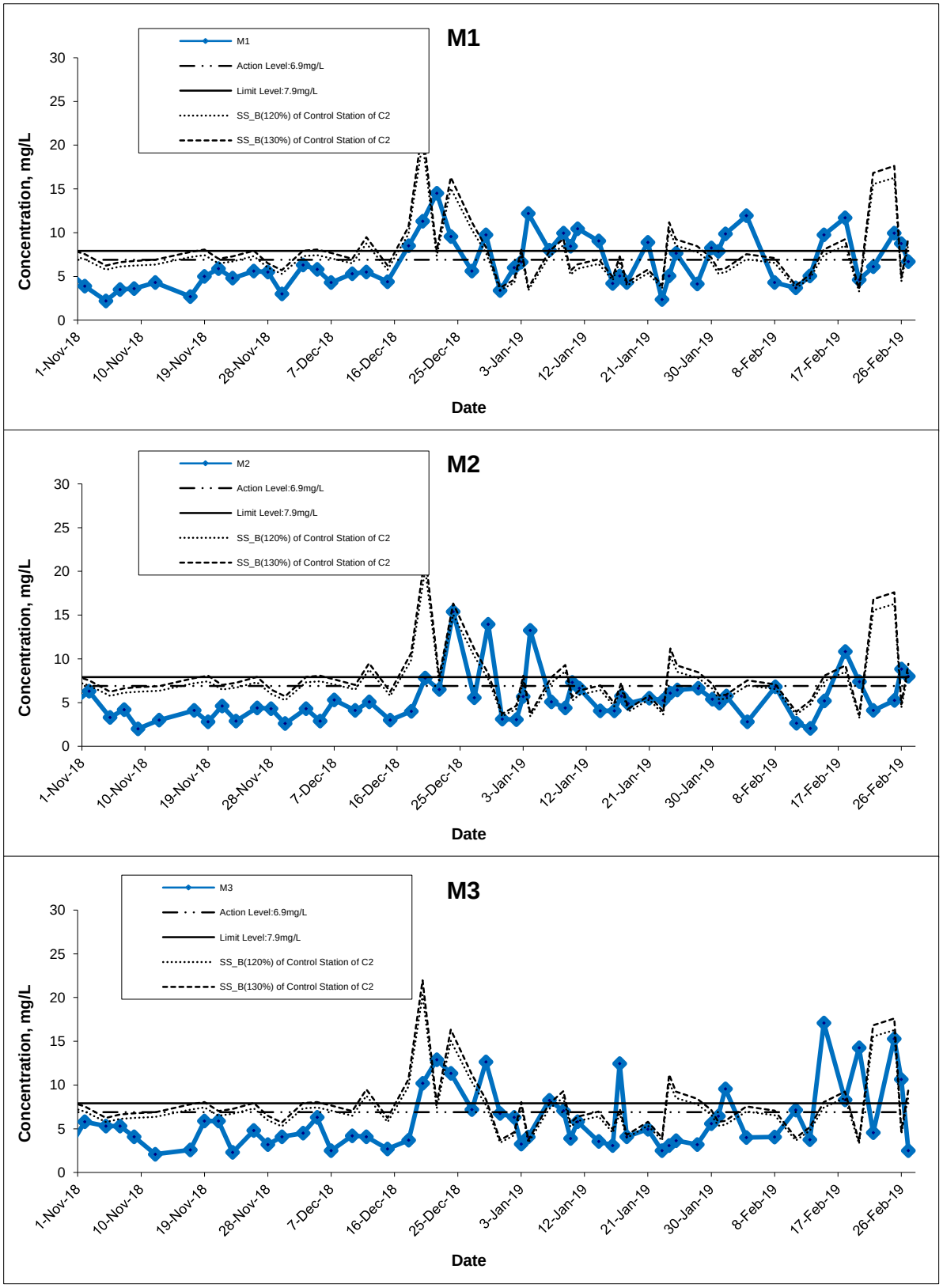
Suspended Solids (Bottom) at Mid-Ebb Tide



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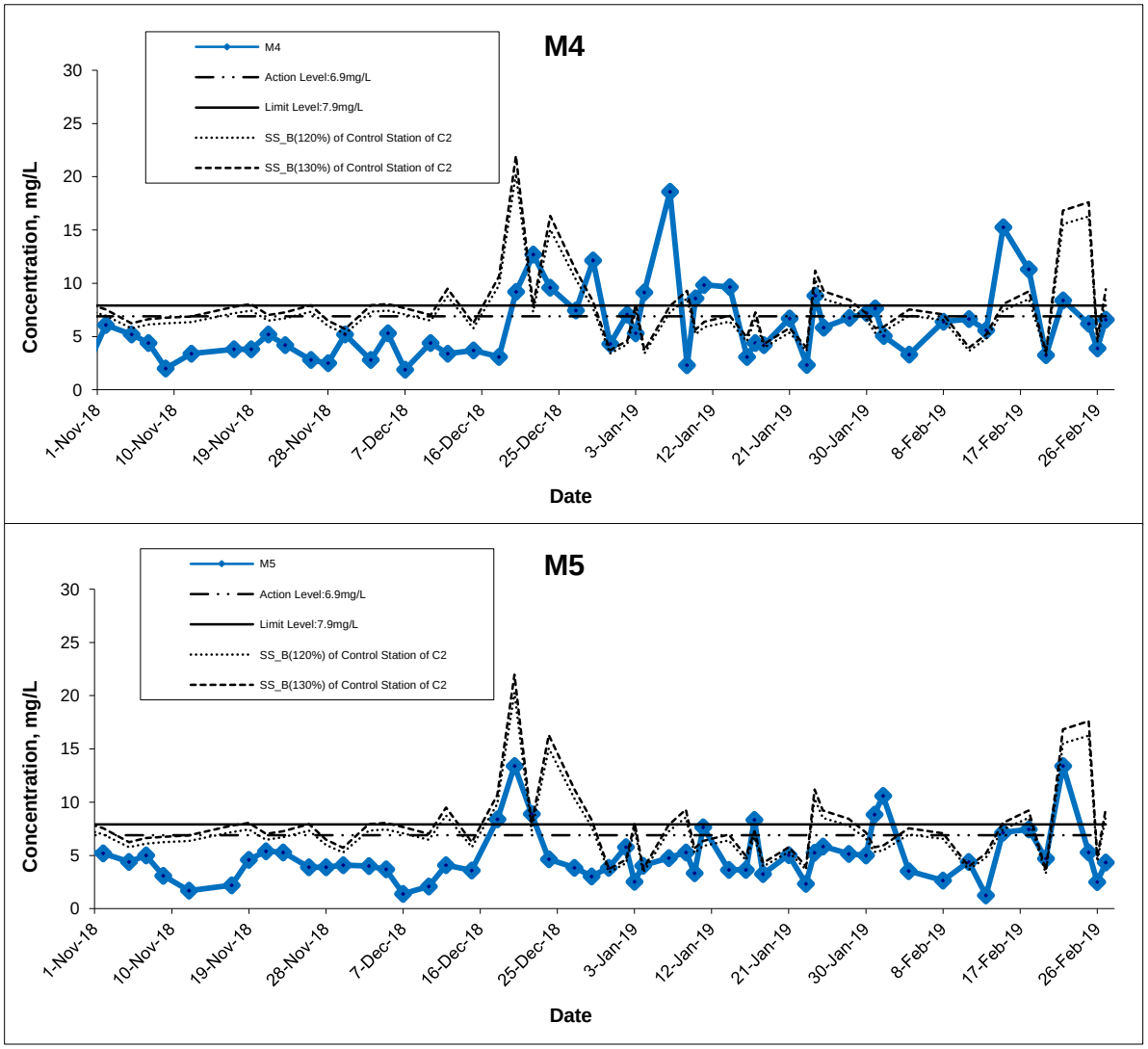
Suspended Solids (Bottom) at Mid-Ebb Tide



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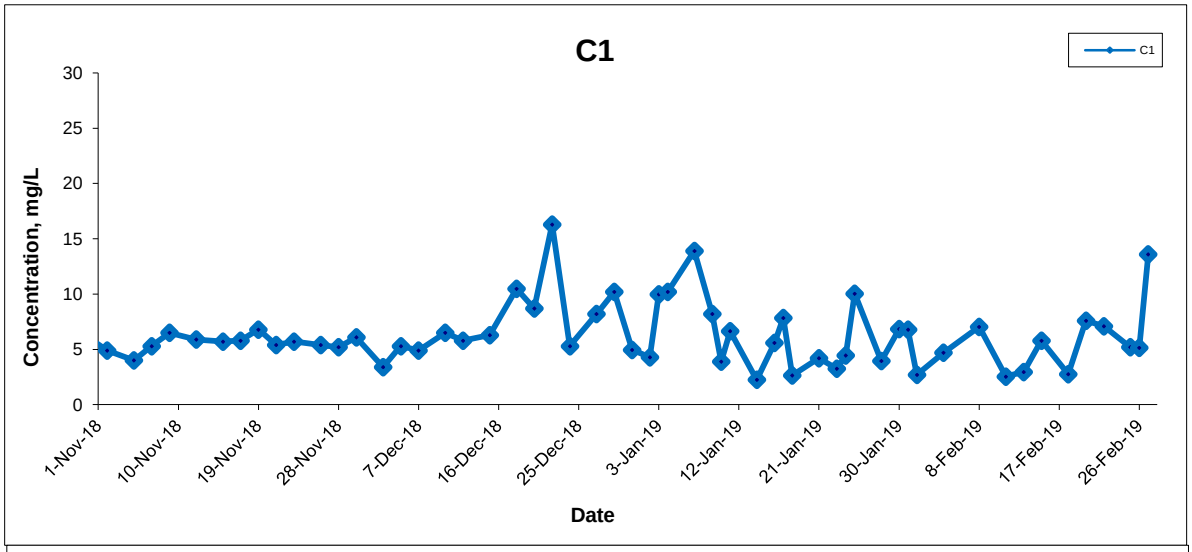

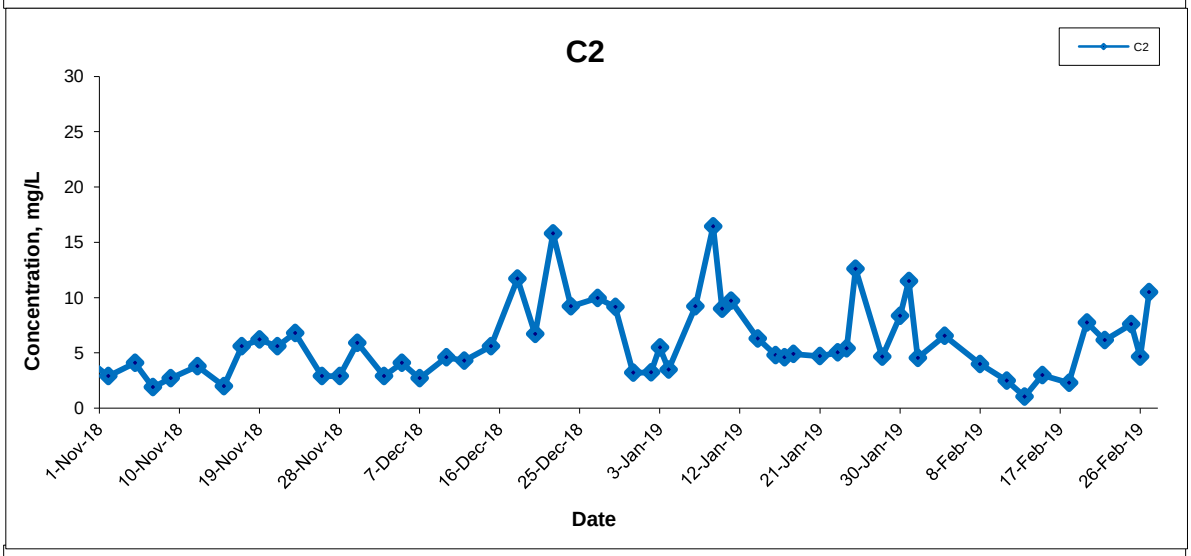

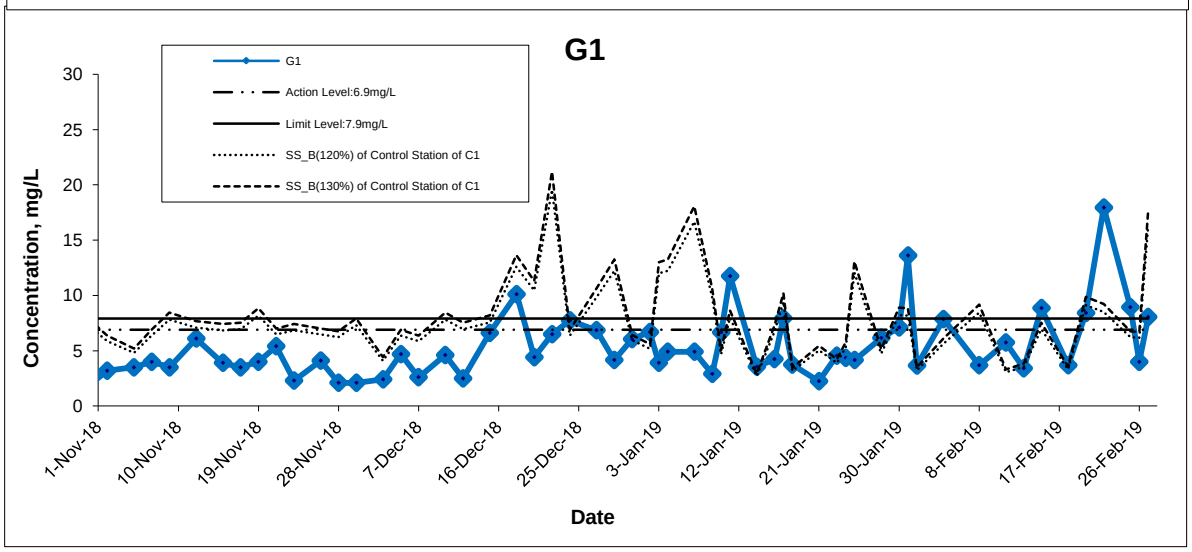

Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA16034	CINOTECH
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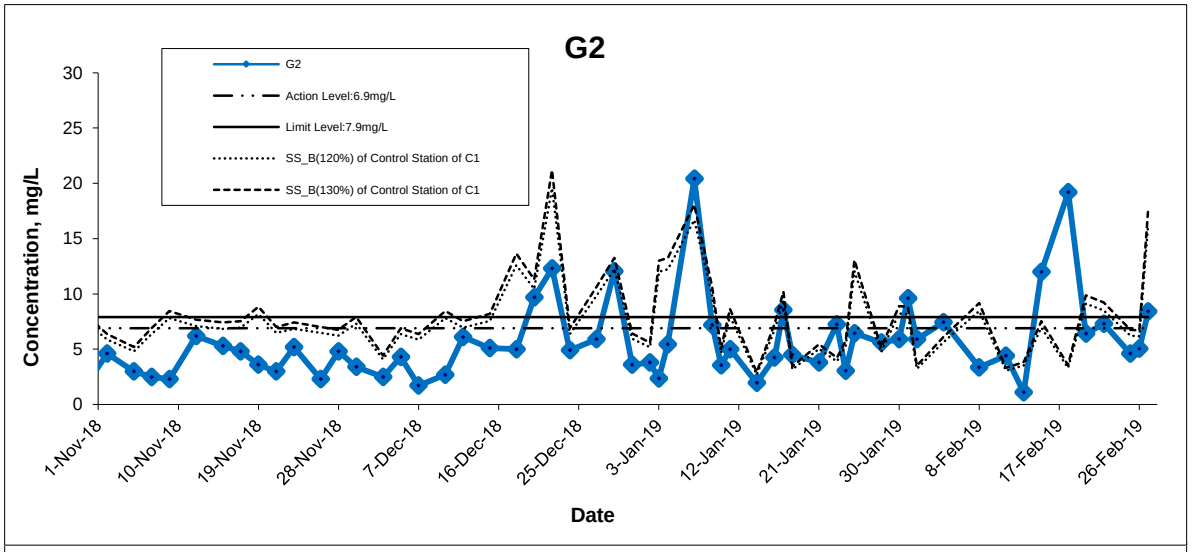
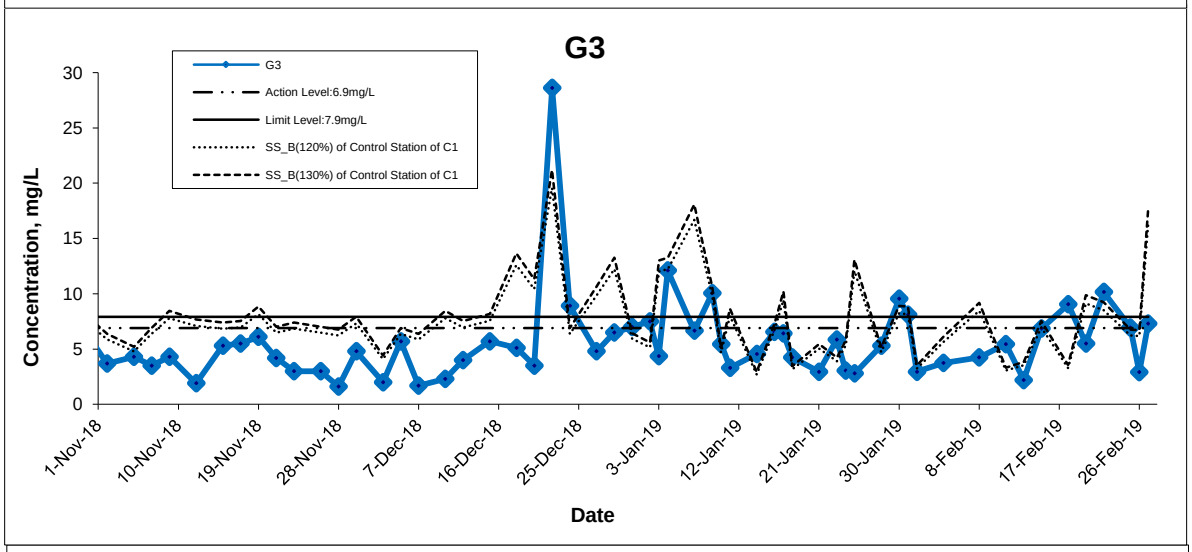
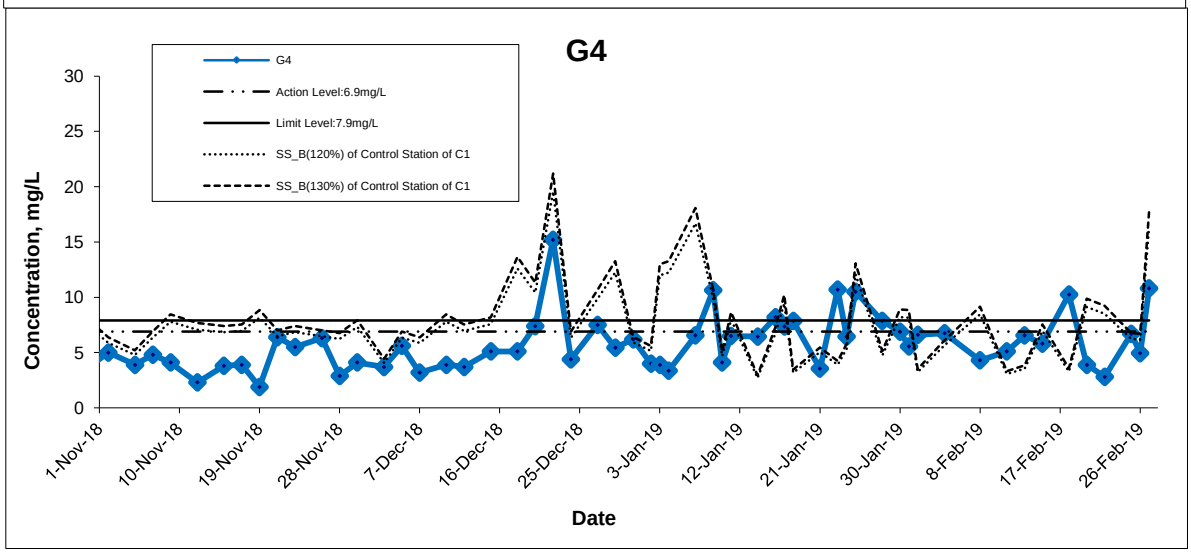
Suspended Solids (Bottom) at Mid-Flood Tide



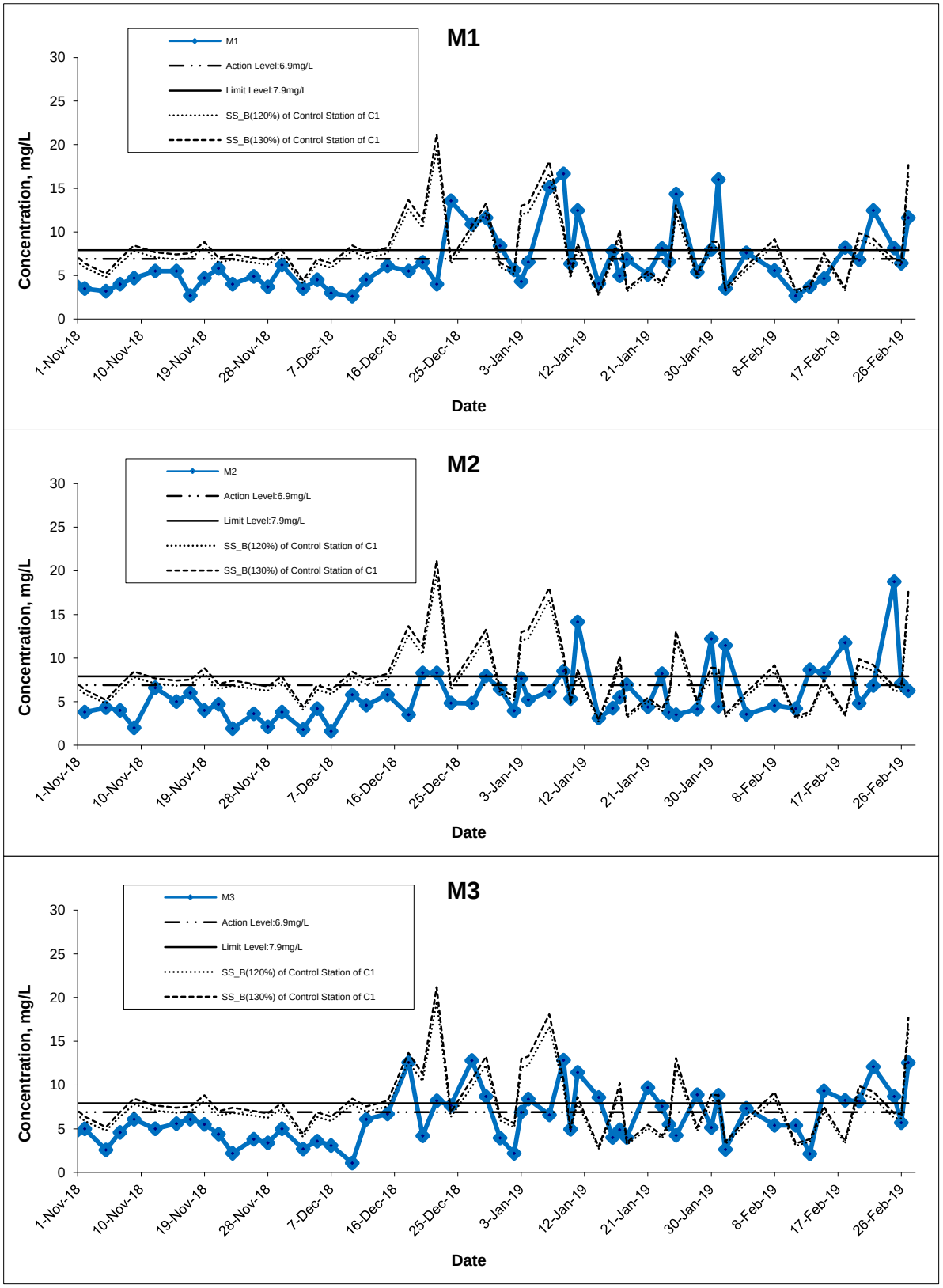




Title		Scale	Project No.
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction		N.T.S	MA16034
Graphical Presentation of Water Quality Monitoring Results		Date: Feb 19	Appendix: I

CINOTECH

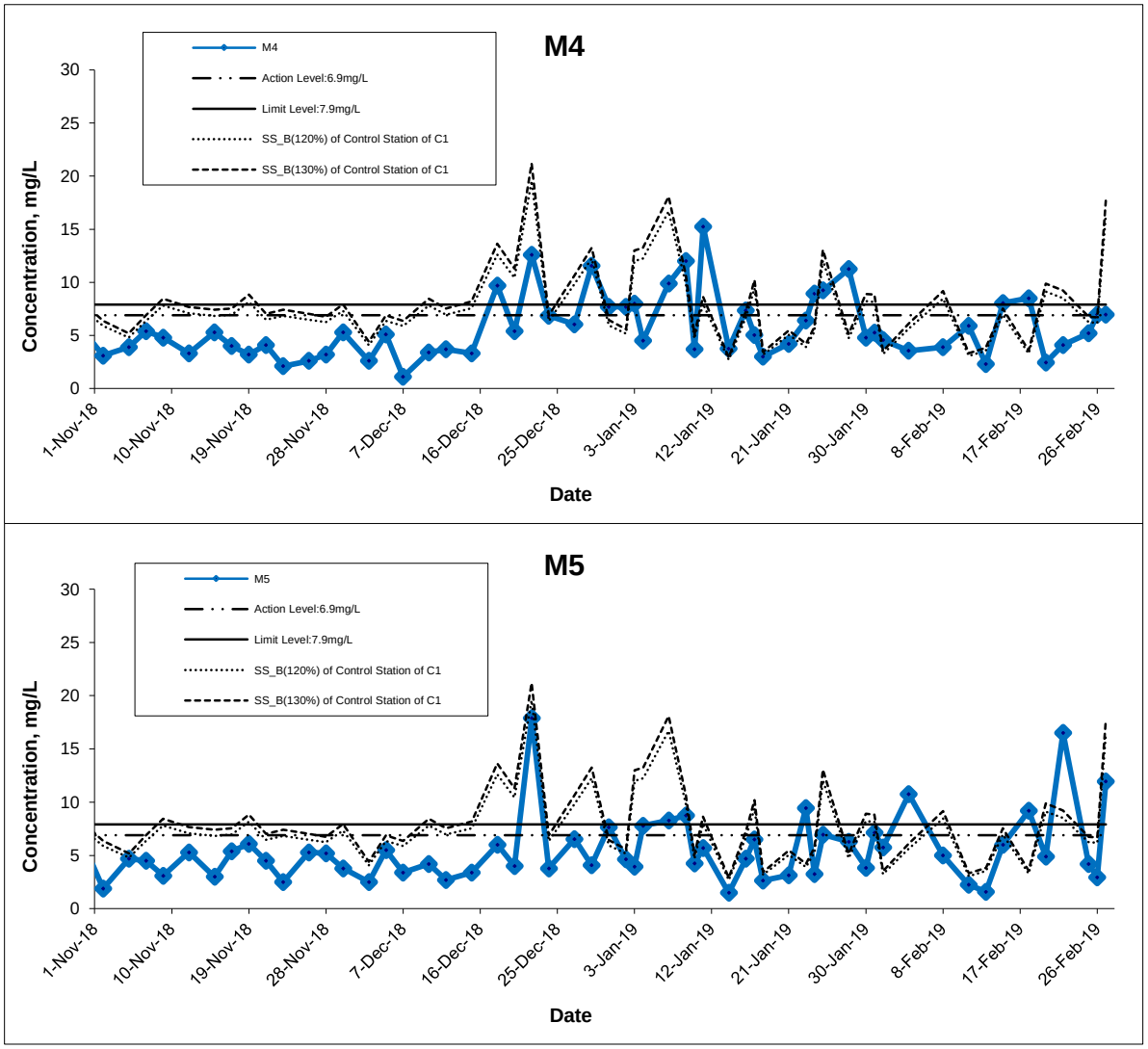
Suspended Solids (Bottom) at Mid-Flood Tide



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
	Date: Feb 19	Appendix: I

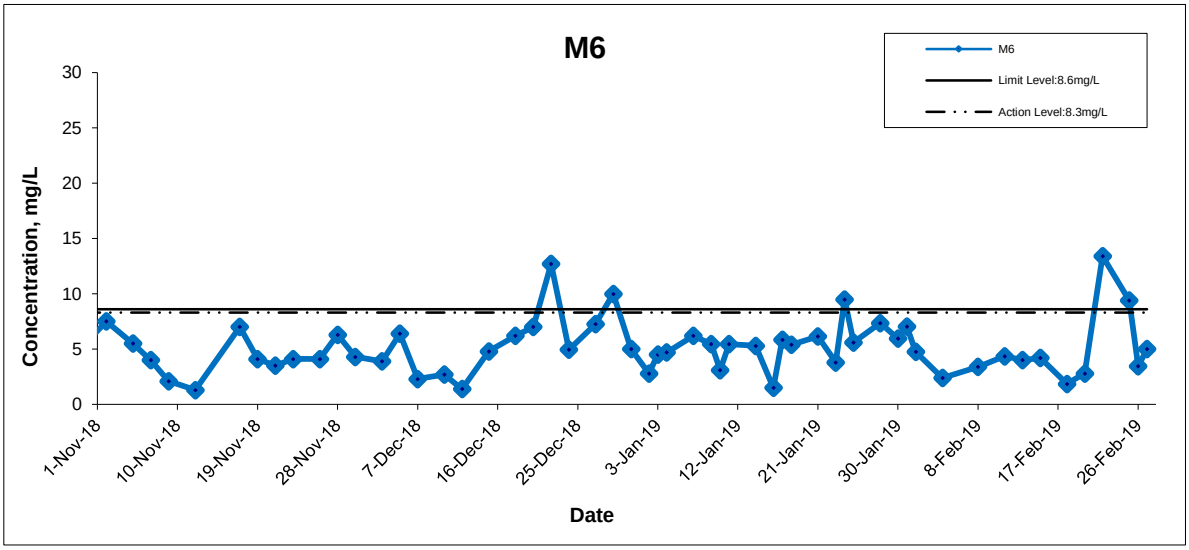
CINOTECH

Suspended Solids (Bottom) at Mid-Flood Tide



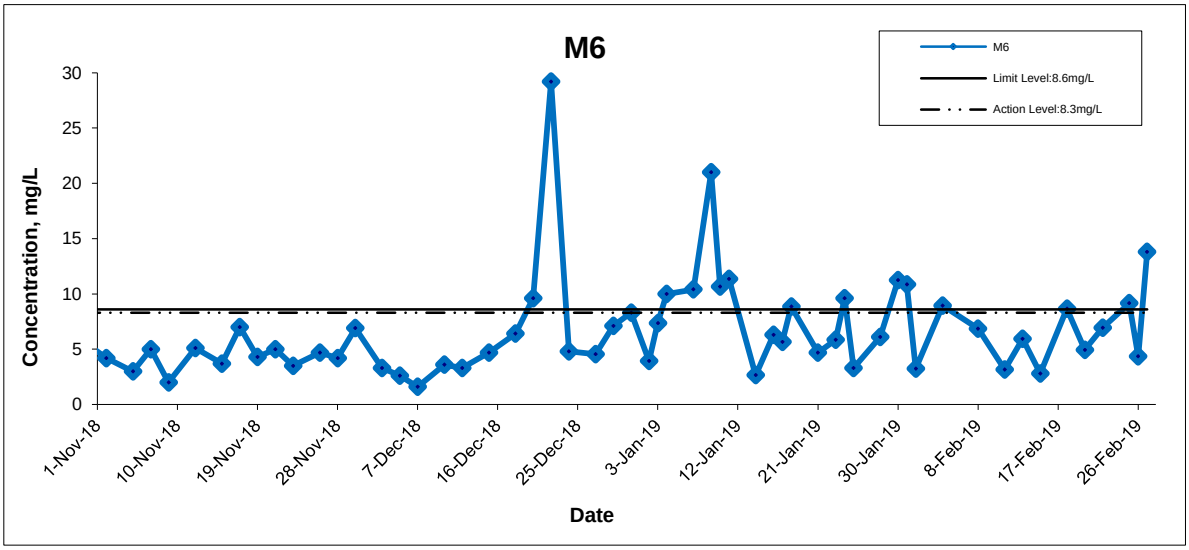
Title: Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Feb 19	Project No.: MA16034 Appendix: I	CINOTECH

Suspended Solids (Intake Level of WSD Salt Water Intake) 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 Date: Feb 19	Project No.: MA16034 Appendix: I	CINOTECH

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: Feb 19	Project No.: MA16034 Appendix: I	CINOTECH

Water Quality Monitoring Results at W1 - Mid-Ebb Tide

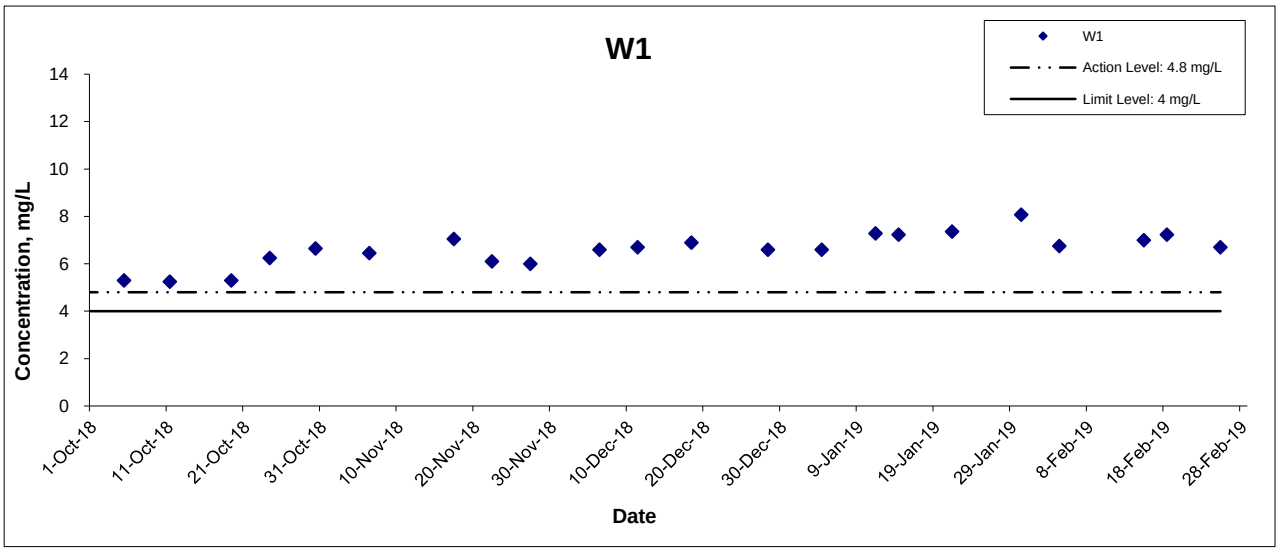
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*
4-Feb-19	Sunny	Calm	13:14	Surface	1.2	18.4 18.2	18.3	8.3 8.3	8.3	34.0 33.9	34.0	92.1 89.2	90.7	6.9 6.6	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.0	18.3 18.4	18.3	8.3 8.3	8.3	34.0 34.0	33.8	88.4 89.0	88.7	6.9 6.6	6.8	6.6
15-Feb-19	Sunny	Moderate	8:35	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	93.3 93.3	93.3	7.0 7.0	7.0	7.0
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	33.8	92.2 92.2	92.2	7.0 7.0	7.0	6.9
18-Feb-19	Rainy	Moderate	11:17	Surface	1.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	34.1	96.8 96.0	96.4	7.3 7.2	7.2	7.2
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.0	19.5 19.6	19.5	8.3 8.3	8.3	34.2 34.2	33.8	96.4 96.0	96.2	7.3 7.2	7.2	7.2
25-Feb-19	Cloudy	Calm	16:13	Surface	1.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	34.1	89.7 88.8	89.3	6.7 6.7	6.7	6.7
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.0	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	33.8	88.3 88.1	88.2	6.7 6.7	6.7	6.6

Water Quality Monitoring Results at W1 - Mid-Flood Tide

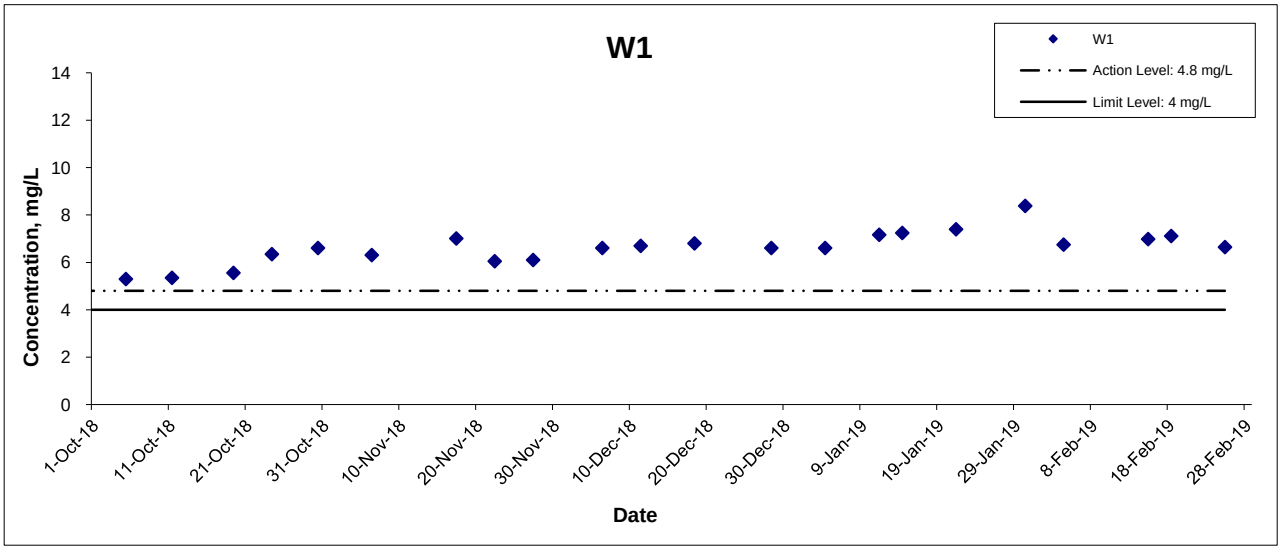
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (^{o}C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*
4-Feb-19	Sunny	Calm	16:58	Surface	1.2	18.2 18.3	18.3	8.3 8.3	8.3	33.6 33.7	33.6	91.1 90.0	90.6	6.8 6.7	6.8	6.8
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.0	18.8 18.8	18.8	8.3 8.3	8.3	33.9 33.8	33.8	89.7 90.0	89.9	6.8 6.7	6.8	6.7
15-Feb-19	Sunny	Moderate	14:37	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	93.1 92.8	93.0	7.0 7.0	7.0	7.0
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.1	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	33.8	92.2 92.2	92.2	7.0 7.0	7.0	6.9
18-Feb-19	Rainy	Moderate	16:08	Surface	1.0	19.5 19.5	19.5	8.3 8.3	8.3	34.0 34.0	34.0	95.1 94.4	94.8	7.1 7.1	7.1	7.1
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	3.0	19.5 19.5	19.5	8.3 8.3	8.3	34.1 34.1	33.8	94.6 94.4	94.5	7.1 7.1	7.1	7.1
25-Feb-19	Cloudy	Calm	11:19	Surface	1.1	19.4 19.4	19.4	8.3 8.3	8.3	34.0 34.0	34.0	88.8 88.0	88.4	6.7 6.6	6.6	6.6
				Middle	-	-	-	-	-	-	-	-	-	-	-	
				Bottom	2.9	19.4 19.4	19.4	8.3 8.3	8.3	34.1 34.1	33.8	88.0 87.7	87.9	6.7 6.6	6.6	6.6

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

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

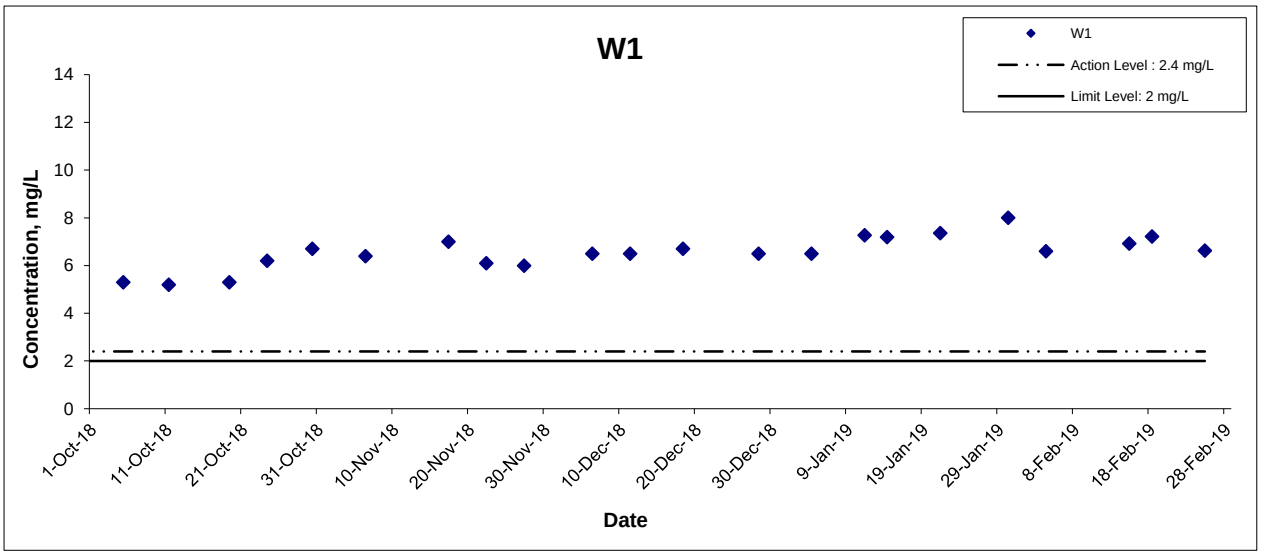


Dissolved Oxygen (Depth-Averaged) at Mid-Flood Tide

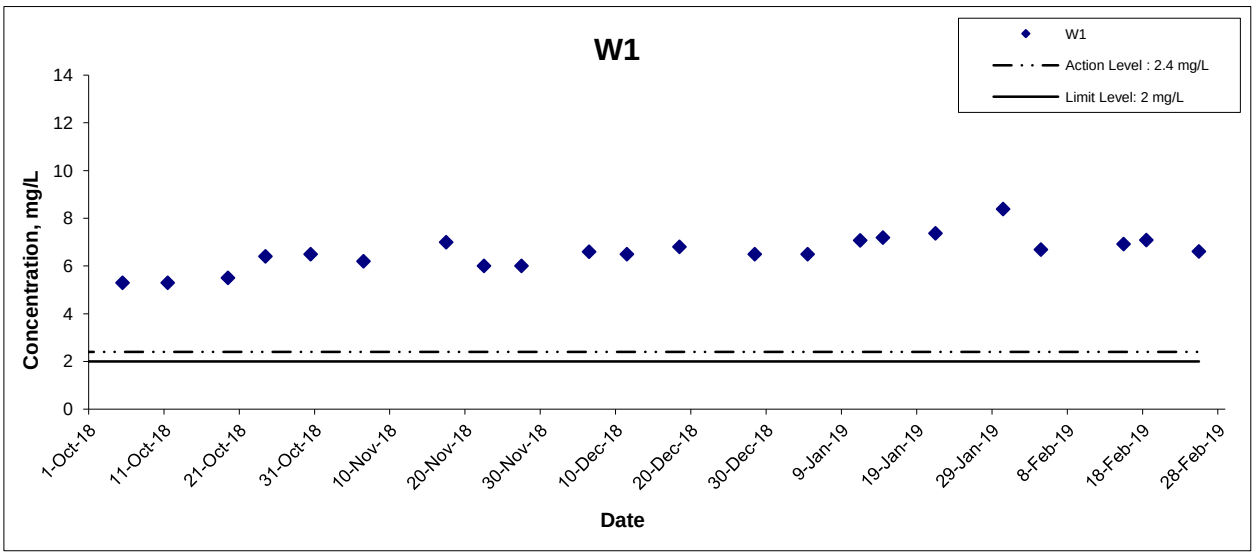


Title	Scale	Project No.	
Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Additional Water Quality Monitoring Results	N.T.S	MA16034	CINOTECH
	Date: Feb-19	Appendix: I	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Dissolved Oxygen (Bottom) at Mid-Flood 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 AddititionalWater Quality Monitoring Results	N.T.S	MA16034	CINOTECH
	Date: Feb-19	Appendix: I	

APPENDIX J
QUALITY CONTROL REPORTS FOR LABORATORY ANALYSIS

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

ATTN: **Mr. Henry Leung**

Report No.:	QC30751
Date of Issue:	2019-02-21
Date Received:	2019-02-12
Date Tested:	2019-02-12
Date Completed:	2019-02-21
Page:	1 of 2

QC report:

Method Blank

Parameter	MB 1	Acceptance
Suspended Solids (SS) (mg/L)	<0.5	<0.5
Biochemical Oxygen Demand	N/A	N/A
Total Organic Carbon (mg-TOC/L)	<0.2	<0.2
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (mg NH_3-N/L)	<0.01	<0.01
Total Phosphorus (mg-P/L)	<0.01	<0.01

Method QC

Parameter	MQC1	Acceptance
Suspended Solids (SS) (%)	103	80-120
Biochemical Oxygen Demand (mg O_2/L)	205	170-220
Total Organic Carbon (%)	95	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	96	80-120
Total Phosphorus (%)	88	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 30751.

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

MOSES TSE
Laboratory Manager

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TEST REPORT

Report No.:	QC30751
Date of Issue:	2019-02-21
Date Received:	2019-02-12
Date Tested:	2019-02-12
Date Completed:	2019-02-21

QC report:

Sample Duplicate

Parameter	30751-3 chk	Acceptance
Suspended Solids (SS) (%)	4	RPD≤20%
Biochemical Oxygen Demand (%)	N/A	RPD≤20%
Total Organic Carbon (%)	1	RPD≤20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD≤20%
Total Phosphorus (%)		RPD≤20%

Sample Spike

Parameter	30751-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	97	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	103	80-120
Total Phosphorus (%)	105	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 30751.

**********END OF REPORT**********

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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Report No.:	QC30759
Date of Issue:	2019-03-06
Date Received:	2019-02-25
Date Tested:	2019-02-25
Date Completed:	2019-03-06

ATTN: **Mr. Henry Leung**
Page: 1 of 2

QC report:

Method Blank

Parameter	MB 1	Acceptance
Suspended Solids (SS) (mg/L)	<0.5	<0.5
Biochemical Oxygen Demand	N/A	N/A
Total Organic Carbon (mg-TOC/L)	<0.2	<0.2
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (mg NH_3-N/L)	<0.01	<0.01
Total Phosphorus (mg-P/L)	<0.01	<0.01

Method QC

Parameter	MQC1	Acceptance
Suspended Solids (SS) (%)	98	80-120
Biochemical Oxygen Demand (mg O_2/L)	186	170-220
Total Organic Carbon (%)	96	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	93	80-120
Total Phosphorus (%)	103	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 30759.

****

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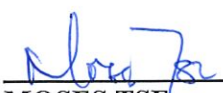
For and On Behalf of **WELLAB Ltd.**



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Laboratory Manager

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TEST REPORT

Report No.:	QC30759
Date of Issue:	2019-03-06
Date Received:	2019-02-25
Date Tested:	2019-02-25
Date Completed:	2019-03-06

QC report:

Sample Duplicate

Parameter	30759-2 chk	Acceptance
Suspended Solids (SS) (%)	N/A	RPD≤20%
Biochemical Oxygen Demand (%)	N/A	RPD≤20%
Total Organic Carbon (%)	4	RPD≤20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD≤20%
Total Phosphorus (%)	N/A	RPD≤20%

Sample Spike

Parameter	30759-2 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	96	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	101	80-120
Total Phosphorus (%)	93	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 30759.

**********END OF REPORT**********

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1710, Technology Park,
18 On Lai Street,
Shatin, N.T.

Report No.:	QC30900
Date of Issue:	2019-03-07
Date Received:	2019-02-26
Date Tested:	2019-02-26
Date Completed:	2019-03-07

ATTN: **Mr. Henry Leung**

QC report:

Method Blank

Parameter	MB 1	Acceptance
Suspended Solids (SS) (mg/L)	<0.5	<0.5
Biochemical Oxygen Demand	N/A	N/A
Total Organic Carbon (mg-TOC/L)	<0.2	<0.2
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (mg NH_3-N/L)	<0.01	<0.01
Total Phosphorus (mg-P/L)	<0.01	<0.01

Method QC

Parameter	MQC1	Acceptance
Suspended Solids (SS) (%)	104	80-120
Biochemical Oxygen Demand (mg O_2/L)	192	170-220
Total Organic Carbon (%)	96	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	93	80-120
Total Phosphorus (%)	98	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 30900.

****

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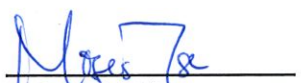
For and On Behalf of **WELLAB Ltd.**



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TEST REPORT

Report No.:	QC30900
Date of Issue:	2019-03-07
Date Received:	2019-02-26
Date Tested:	2019-02-26
Date Completed:	2019-03-07

QC report:

Sample Duplicate

Parameter	30900-1 chk	Acceptance
Suspended Solids (SS) (%)	3	RPD≤20%
Biochemical Oxygen Demand (%)	N/A	RPD≤20%
Total Organic Carbon (%)	2	RPD≤20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD≤20%
Total Phosphorus (%)	N/A	RPD≤20%

Sample Spike

Parameter	30900-1 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	92	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	103	80-120
Total Phosphorus (%)	108	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 30900.

**********END OF REPORT**********

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: February 2019

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

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise
Seventeen (17) Action Level exceedances were recorded due to the documented complaints received in this reporting month.

Limit Level for Construction Noise
One (1) Limit Level exceedances for daytime construction noise monitoring were recorded in the reporting month. The day time limit level exceedance was project related and rectified.

Eleven (11) Limit Level exceedances for nighttime construction noise monitoring were recorded in the reporting month. The night time limit level exceedances were considered non-Project related as detailed in relevant notification of exceedance.

Exceedance recorded during daytime

Date	Monitoring Location	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Limit Level
18 February 2019	CM1	80.2	65.6	***80***	75

Exceedance recorded during night-time

Date	Monitoring Location	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Limit Level
01 February 2019	CM1	66.7	63.7	***64***	55
15 February 2019		65.6	63.7	***61***	
23 February2019		66.3	61.9	***64***	
01 February 2019	CM2	64.7	60.8	***62***	
09 February 2019		61.8	59.1	***58***	
15 February 2019		64.2	60.8	***62***	
22 February 2019		64.9	60.8	***63***	
28 February 2019		62.6	60.8	***58***	
2 February 2019	CM3	64.2	61.2	***61***	
16 February 2019		64.2	61.8	***60***	
23 February 2019		64.9	60.5	***63***	

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

Appendix K – Summary of Exceedance

(C) Exceedance Report for Water Quality

Twenty six (26) Action Level and two hundred and forty seven (247) Limit Level exceedance in marine water quality monitoring. Refer to the attached notifications for details. The reasons are under investigation.

One (1) Action Level and One (1) Limit Level exceedances in groundwater quality monitoring as follows. The exceedances are considered not project-related as detailed in relevant notification of exceedance below.

Date	Monitoring Location	Monitoring Parameter	Monitoring Results	Action Level	Limit Level
2019/02/12	Stream 3	Dissolved Oxygen (mg/L)	***7.1***	7.6	7.6
2019/02/26	Stream 1	Turbidity (NTU)	***2.2***	2.1	2.3

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

(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)

Agreement 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 Noise Monitoring: 18 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	9:22	80.2	65.5	***80***	When one documented complaint is received	**75**	Limit
		10:10	75.6	65.5	75			

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

Part B – Source of Exceedance

The major noise sources and reasons for exceedances identified at CM1 are as follows:

1. Construction activities under this Project at Site Portion IVC:
   According to the observation of our monitoring staff, a breaker was in operation at site Portion IVC near the ambulance depot in the first 30-minute noise measurement (photo 1 and photo 2). It was stopped whilst the second 30-minute noise measurement was carrying out.
2. Our staff also reported that some movable noise barriers have been erected but unable to block the direct view from the monitoring station to the breaker.
3. Road Traffic Noise at slips roads approaching Eastern Harbour Crossing Tunnel.

It was drizzling during the two noise monitoring session. However, the noise from such rain was considered insignificant.

Photo 1 and Photo 2
Breaker operation in Portion IVC near the ambulance depot

Part C – Actions Taken

Engineer's Representative has instructed the contractor to stop the breaking works in Portion IVC on 19 Feb 2019.
The contractor has carried out investigation and has proposed the following remedial actions to avoid further exceedance.

1. The contractor demonstrated a proper setup of cantilevered noise barrier to screen the breaker head inside Portion IVC (photo 3).
2. The contractor reported the progress of deploying additional noise mitigation measures for Portion IVC near Yau Lai Estate. A semi-enclosure with sound proofing canvases will be setup in early March 2019.

In addition, the ET has reminded the Contractor to strictly follow the requirements in the approved Noise Mitigation Plan (NMP), including:

1. Quantity of each type of PME in operation on site should be consistent with the proposed quantity in the approved NMP;
2. Mitigation measures (such as temporary noise barrier/full enclosure) should be provided to PME as proposed in the approved NMP;
3. Should there be any update in construction program / quantities in each type of PME, the Contractor shall prepare an update of construction noise assessment. The updated construction noise assessment shall be included in Monthly EM&A Report.

	
Photo 3 Demonstration of cantilevered noise barrier for breaking works in Portion IVC	Photo 4 Current cantilevered noise barriers and SilentUP noise barriers at Portion IVC adjacent to Yau Lai Estate

Part D – Additional Noise Monitoring

According to the Event and Action Plan for Construction Noise in the EM&A Manual, ET has increased noise monitoring frequency to check the effectiveness of Contractor's remedial action. Monitoring frequency was increased from weekly to twice a week and additional noise monitoring was carried out on 21 February 2019 at Station CM1. The results of monitoring is presented as below:

Monitoring Date: 21 February 2019

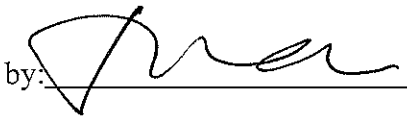
Station	Location	Date	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	21 Feb 2019	11:30	73.8	65.5	73	When one documented complaint is received	75	No Exceedance

No Limit Level Exceedance is recorded during the additional noise monitoring. Additional Noise Monitoring will be on-going until no exceedance has been recorded for 2 consecutive monitoring.

Part E – Recommendations

The Contractor is recommended to further minimize noise nuisance by implementing mitigation measures as below:

1. Make sure the cantilever noise barriers along site Portion IVC are complete and deployed properly during construction works;
2. To strictly follow the requirements in the approved Noise Mitigation Plan.
3. To continue to properly implement noise mitigation measures as recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan; and
4. To well-maintain all the PME condition and check all the mitigation measurements implemented on site regularly.
5. To reschedule operation time and reduce operation duration of each PME.
6. To turn off or throttle down idle PME.

Reviewed by: 

Dr. HF Chan

Title: Environmental Team Leader

Date: 27 February 2019

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 190201_noise (CM1-CM3) **Exceedance Level:** Limit

Time of Measurement: 23:00-00:35

Date of Noise Monitoring: 01 February 2019 – 02 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	66.7	63.7	***64***	When one documented complaint is received.	**55**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:40-23:55	64.7	60.8	***62***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:20-00:35	64.2	61.2	***61***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: 

Date: 4 February, 2019

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 190208_noise (CM2) **Exceedance Level:** Limit

Time of Measurement: 00:20-00:35

Date of Noise Monitoring: 09 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	00:20-00:35	61.8	59.1	***58***	When one documented complaint is received.	**55**	Limit

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM2 exceeded the construction noise (night time) limit level.

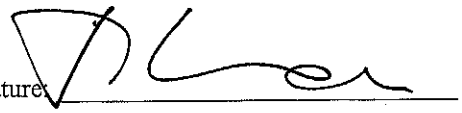
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: 

Date: 11 February, 2019

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 190215_noise (CM1-CM3) **Exceedance Level**: Limit

Time of Measurement: 23:00-00:20

Date of Noise Monitoring: 15 February 2019 – 16 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	23:00-23:15	65.6	63.7	***61***	When one documented complaint is received.	**55**	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:30-23:45	64.2	60.8	***62***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:05-00:20	64.2	61.8	***60***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: _____ Date: 18 February, 2019

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 190222_noise (CM1-CM3) **Exceedance Level**: Limit

Time of Measurement: 23:45-01:00

Date of Noise Monitoring: 22 February 2019 – 23 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	00:15-00:30	66.3	61.9	***64***	When one documented complaint is received.	55	Limit
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:45-00:00	64.9	60.8	***63***			
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	00:45-01:00	64.9	60.5	***63***			

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM1, CM2 & CM3 exceeded the construction noise (night time) limit level.

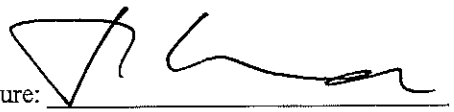
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: 

Date: 25 February, 2019

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel
- Notification of Exceedances

NOE No. 190228_noise (CM2) **Exceedance Level:** Limit

Time of Measurement: 23:30-23:45

Date of Noise Monitoring: 28 February 2019

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Action Level	Limit Level (L_{eq} dB(A))	Level exceeded
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	23:30-23:45	62.6	60.8	***58***	When one documented complaint is received.	**55**	Limit

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM2 exceeded the construction noise (night time) limit level.

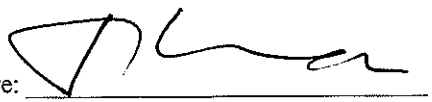
(b) Cause of exceedance(s)

The exceedance was not considered related to the Project works:

- According to our field observation, road traffic noise was identified as the dominant noise source. No noticeable noise from blasting / associated works was identified.
- No major construction activity was observed in Lam Tin Interchange during monitoring.

Part B – Conclusion: The exceedances of night time noise limit level were not due to the Project. Only blasting associated works inside the tunnel were being conducted with blast door closed, thus, noise generated within the tunnel should not be associated with the exceedance.

Part C – Recommendation: No further action is required.

ETL Signature: 

Date: 01 March, 2019

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

- Notification and Investigation Report for Environmental Quality Action & Limit Exceedances

Monitoring Parameter: Groundwater Quality

Date of Monitoring: 12 February 2019

Part A – Summary of Exceedance Records

Date	Monitoring Parameter	Monitoring Location	Monitoring Results	Action Level	Limit Level	Justification*	Exceedance due to the Project
12 Feb 2019	Dissolved Oxygen (mg/L)	Stream 3	***7.1***	<7.6	<7.6	(1)	No

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

*Remarks
(1) – The distance between the tunnel construction activities and monitoring stations of stream 2 and 3 are about 1000 meters.

Part B – Conclusions:

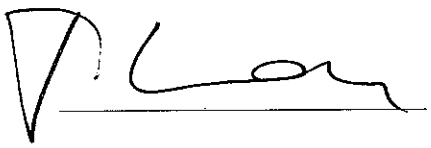
1. Based on the justification in the above table, there is no direct evidence showing that the exceedance was due to Project. The exceedance is considered properly due to non-project related factor, such as, the degradation of naturally occurring organic matter, manmade sources or domestic sewage (as observed and reported in the EIA report).
2. No increase in monitoring frequency for groundwater quality monitoring and no further action are required.

Part C – Recommendations

The monitoring of stream water is considered not representative to monitor the potential impacts on groundwater due to the Project after consideration of the location & elevation of the stream(s) and the non-project related factors (e.g. human activities etc.).

Therefore, ET recommends to suspend the water quality monitoring for the streams in accordance with the EM&A Manual, Section 4. For the details, please refer to the separate proposal for suspension of stream water monitoring.

Reviewed by: Dr. HF Chan (Environmental Team Leader) Date: 25 February, 2019

Signature: 

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

- Notification and Investigation Report for Environmental Quality Action & Limit Exceedances

Monitoring Parameter: Groundwater Quality

Date of Monitoring: 26 February 2019

Part A – Summary of Exceedance Records

Date	Monitoring Parameter	Monitoring Location	Monitoring Results	Action Level	Limit Level	Justification*	Exceedance due to the Project
26 Feb 2019	Turbidity (NTU)	Stream 1	***2.2***	2.1	2.3	(1)	No

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

*Remarks
(1) – Stream 1 is at a higher ground level than the construction site, therefore construction runoff cannot reach Stream 1.

Part B – Conclusions:

1. Based on the justification in the above table, there is no direct evidence showing that the exceedance was due to Project. The exceedance is considered properly due to non-project related factor, such as, the degradation of naturally occurring organic matter, manmade sources or domestic sewage (as observed and reported in the EIA report).
2. No increase in monitoring frequency for groundwater quality monitoring and no further action are required.

Part C – Recommendations

The monitoring of stream water is considered not representative to monitor the potential impacts on groundwater due to the Project after consideration of the location & elevation of the stream(s) and the non-project related factors (e.g. human activities etc.).

Therefore, ET recommends to suspend the water quality monitoring for the streams in accordance with the EM&A Manual, Section 4. For the details, please refer to the separate proposal for suspension of stream water monitoring.

Reviewed by: Dr. HF Chan (Environmental Team Leader) Date: 11 March, 2019

Signature: 

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: 01 February 2019

Part A – Exceedance Summary Tables

Table I: 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	1.3	G1	10:59	1.6	1.7	***2.8***
						G3	11:02			***2.4***
						M1	10:52			***2.6***
			Mid-flood	C1	0.6	G1	14:53	0.8	0.8	***2.3***
						G3	14:57			***2.2***
						G4	15:04			***2.0***
						M1	14:46			***1.3***
						M2	14:37			***1.3***
						M3	15:00			***1.6***
						M4	14:30			***1.1***
						M5	15:16			***1.5***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: 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	6.2	G2	10:47	6.0	6.9	7.4	8.0	***9.9***
				G3	11:02					***9.0***
				G4	11:10					***8.0***
				M1	10:52	6.2	7.4			***9.3***
				M2	10:43					***13.9***
				M3	11:06					***9.9***
				M4	10:36					***7.3***
		Bottom	4.6	G1	10:59	6.9	7.9	5.5	5.9	***6.7***
				G2	10:47					***11.3***
				G3	11:02					***7.0***
				G4	11:10					***22.2***
				M1	10:52					***9.9***
				M2	10:43					***5.8***
				M3	11:06					***9.6***
				M5	11:21					***10.6***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	7.6	G1	14:53	6.0	6.9	9.1	9.9	***12.4***
				G2	14:41					***7.6***
				M1	14:46	6.2	7.4			***6.9***
				M2	14:37					***8.1***
				M3	15:00					***7.4***
				M4	14:30					***6.3***
				M5	15:16					***8.5***
		Bottom	2.7	G1	14:53	6.9	7.9	3.2	3.5	***3.7***
				G2	14:41					***5.9***
				G4	15:04					***6.6***
				M1	14:46					***3.5***
				M2	14:37					***11.5***
				M4	14:30					***4.6***
				M5	15:16					***5.8***

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

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: 04 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.6	G1	13:10	0.7	0.8	***1.1***
						G2	12:52			***1.4***
						G3	13:15			***0.9***
						G4	13:24			***1.2***
						M1	13:05			***1.6***
						M2	12:46			***1.0***
						M3	13:19			***0.9***
						M5	13:36			***1.7***
			Mid-flood	C1	0.5	G1	13:10	0.6	0.7	***1.1***
						G2	12:52			***1.2***
						G3	13:15			***0.9***
						G4	13:24			***1.2***
						M1	13:05			***1.6***
						M2	12:46			***1.1***
						M3	13:19			***0.9***
						M5	13:36			***1.8***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: 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	3.3	G1	13:10	6.0	6.9	4.0	4.3	***7.9***
				G2	12:52					***5.7***
				G3	13:15					***7.5***
				M2	12:46	6.2	7.4			***4.7***
				M4	12:40					***7.4***
		Bottom	5.8	M1	13:05	6.9	7.9	7.0	7.5	***12.0***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	3.5	G2	16:37	6.0	6.9	4.1	4.5	***7.6***
				G3	17:00					***11.8***
				G4	17:09					***4.8***
				M1	16:50	6.2	7.4			***6.8***
				M2	16:31					***4.6***
				M3	17:04					***6.9***
				M4	16:25					***6.3***
				M5	17:21					***5.2***
		Intake	N.A.	M6	17:14	8.3	8.6	N.A.	N.A.	***9.0***
		Bottom	4.7	G1	16:56	6.9	7.9	5.6	6.1	***7.9***
				G2	16:37					***7.5***
				G4	17:09					***6.8***
				M1	16:50					***7.6***
				M3	17:04					***7.4***
				M5	17:21					***10.8***

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

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: 08 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.5	G4	14:21	0.5	0.6	***1.1***
						M1	13:59			***1.0***
			Mid-flood	C1	0.4	G4	08:53	0.4	0.5	***1.1***
						M1	08:28			***1.0***
						M5	09:04			***0.4***

Table II: 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	8.0	M3	14:15	6.2	7.4	9.6	10.4	***6.7***
				M5	14:32					***7.4***
		Bottom	5.5	G2	13:52	6.9	7.9	6.5	7.1	***7.3***
				M2	13:46					***6.8***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	3.1	G1	08:36	6.0	6.9	3.7	4.0	***4.1***
				G2	08:22					***11.0***
				G3	08:40					***4.4***
				M1	08:28	6.2	7.4			***5.9***
				M2	08:15					***4.1***
				M3	08:46					***4.9***
				M4	08:09					***5.4***
				M5	09:04					***4.8***

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

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: 11 February 2019

Part A – Exceedance Summary Tables

Table I: 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-flood	C1	0.6	G1	15:41	0.7	0.8	***1.0***
						G3	15:46			***1.3***

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

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: 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	4.5	G1	11:22	6.2	7.4	5.3	5.8	***5.4***
				M3	11:35					***7.5***
		Bottom	3.1	G1	11:22	6.9	7.9	3.7	4.0	***5.0***
				G2	11:11					***5.4***
				G3	11:28					***4.9***
				G4	11:41					***4.4***
				M3	11:35					***7.2***
				M4	11:01					***6.7***
				M5	11:50					***4.4***

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

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	3.3	G1	15:41	6.0	6.9	4.0	4.3	***8.3***
				G2	15:30					***6.1***
				G3	15:46					***7.2***
				G4	15:57					***8.0***
				M1	15:36	6.2	7.4			***4.5***
				M5	16:06					***5.2***
		Bottom	2.6	G1	15:41	6.9	7.9	3.1	3.3	***5.8***
				G2	15:30					***4.4***
				G3	15:46					***5.5***
				G4	15:57					***5.1***
				M2	15:26					***4.2***
				M3	15:51					***5.4***
				M4	15:22					***5.9***

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

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: 13 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.4	G1	18:17	0.5	0.6	***0.8***
						G3	18:23			***0.7***
						G4	18:33			***0.6***
						M1	18:11			***0.5***
						M3	18:27			***0.9***
			Mid-flood	C1	0.6	G1	12:13	0.7	0.8	***0.9***
						G3	12:17			***1.0***
						M1	12:06			***1.0***

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Design and Construction

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Table II: 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	5.2	M2	17:58	6.2	7.4	6.2	6.8	***6.5***
				M4	17:50					***8.7***
		Bottom	4.0	M1	18:11	6.9	7.9	4.8	5.2	***5.1***
				M4	17:50					***5.6***
Mid-Flood	C1	Surface	7.9	G2	12:20	6.0	6.9	9.4	10.2	***9.4***

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

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: 15 February 2019

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	13.8	G1	8:22	6.0	6.9	16.5	17.9	***14.3***
				G2	8:07					***6.4***
				G4	8:47					***14.4***
				M2	8:10	6.2	7.4			***10.9***
				M3	8:40					***12.8***
				M4	7:55					***12.7***
				M5	8:56					***9.9***
		Bottom	6.2	G1	8:22	6.9	7.9	7.4	8.1	***9.9***
				G2	8:07					***7.8***
				G3	8:28					***9.1***
				M1	8:13					***9.8***
				M3	8:40					***17.1***
				M4	7:55					***15.3***
				M5	8:56					***7.2***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	5.3	G1	14:27	6.0	6.9	6.3	6.8	***6.3***
				G2	14:07					***8.4***
				G3	14:33					***13.4***
				G4	14:48					***10.3***
				M3	14:42	6.2	7.4			***6.9***
				M4	13:55					***7.0***
				M5	14:58					***16.0***
		Bottom	5.8	G1	14:27	6.9	7.9	7.0	7.5	***8.9***
				G2	14:07					***12.0***
				M2	14:01					***8.3***
				M3	14:42					***9.4***
				M4	13:55					***8.1***

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

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: 18 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.3	G1	11:09	0.4	0.4	***0.5***

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

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: 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	5.2	G1	11:09	6.0	6.9	6.2	6.8	***6.4***
				G2	10:54					***10.8***
				G3	11:13					***7.9***
				G4	11:23					***12.7***
				M1	11:00	6.2	7.4			***6.4***
				M2	10:48					***9.7***
				M3	11:20					***12.2***
				M4	10:39					***15.3***
		Bottom	7.1	G3	11:13	6.9	7.9	8.5	9.2	***16.8***
				G4	11:23					***11.6***
				M1	11:00					***11.7***
				M2	10:48					***10.9***
				M3	11:20					***8.3***
				M4	10:39					***11.3***
				M5	11:31					***7.5***

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

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	3.6	G1	15:56	6.0	6.9	4.3	4.7	***6.9***
				G3	16:05					***7.1***
				G4	16:15					***12.9***
				M1	15:50	6.2	7.4			***10.3***
				M2	15:38					***6.5***
				M3	16:10					***7.2***
				M4	15:34					***12.1***
				M5	16:30					***11.7***
		Intake	n.a.	M6	16:25	8.3	8.6	n.a.	n.a.	***8.7***
		Bottom	2.8	G1	15:56	6.9	7.9	3.3	3.6	***3.7***
				G2	15:44					***19.2***
				G3	16:05					***9.1***
				G4	16:15					***10.3***
				M1	15:50					***8.2***
				M2	15:38					***11.8***
				M3	16:10					***8.3***
				M4	15:34					***8.5***
				M5	16:30					***9.2***

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

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: 20 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.6	G4	13:29	0.7	0.8	***0.9***
						M1	13:14			***1.0***
			Mid-flood	C1	0.4	M4	07:34	0.5	0.5	***0.6***
						M5	08:18			***0.7***

Table II: 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	4.4	G1	07:54	6.0	6.9	5.3	5.7	***5.7***
				G2	07:44					***11.6***
				G4	08:08					***6.3***
				M2	07:39	6.2	7.4			***9.2***
				M4	07:34					***8.2***
		Bottom	7.6	G1	07:54	6.9	7.9	9.1	9.9	***8.4***
				M3	08:01					***8.2***

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	6.5	G3	13:22	6.0	6.9	7.8	8.5	***9.4***
				G4	13:29					***7.3***
				M3	13:25	6.2	7.4			***16.9***
				M4	12:59					***10.0***
				M5	13:40					***8.5***
		Bottom	2.8	G1	13:18	6.9	7.9	3.3	3.6	***10.6***
				G2	13:09					***12.6***
				G3	13:22					***10.1***
				G4	13:29					***7.3***
				M1	13:14					***4.6***
				M2	13:05					***7.4***
				M3	13:25					***14.3***
				M5	13:40					***4.7***

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

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: 22 February 2019

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	7.7	G1	8:44	6.0	6.9	9.2	10.0	***7.6***
				G2	8:23					***8.3***
				G3	8:51					***6.2***
				G4	9:01					***9.0***
				M1	8:38	6.2	7.4			***13.7***
				M2	8:16					***11.0***
		Intake	n.a.	M6	9:09	8.3	8.6	n.a.	n.a.	***13.4***
		Bottom	13.0	G1	8:44	6.9	7.9	15.5	16.8	***11.7***
				G2	8:23					***13.4***
				G4	9:01					***13.8***
				M4	8:10					***8.4***
				M5	9:09					***13.4***

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

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	8.6	G1	14:49	6.0	6.9	10.3	11.1	***10.6***
				G2	14:42					***7.5***
				M1	14:40	6.2	7.4			***15.3***
				M3	15:12					***7.1***
				M5	15:39					***25.2***
		Bottom	7.1	G1	14:49	6.9	7.9	8.5	9.2	***18.0***
				G2	14:42					***7.3***
				G3	14:57					***10.2***
				M1	14:40					***12.5***
				M3	15:12					***12.1***
				M5	15:39					***16.5***

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

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: 25 February 2019

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	16.8	G1	16:04	6.0	6.9	20.2	21.8	***15.3***
				G2	15:50					***11.3***
				G3	16:08					***21.7***
				G4	16:22					***16.0***
				M1	15:58	6.2	7.4			***19.6***
				M2	15:45					***20.5***
				M3	16:16					***8.4***
				M4	15:39					***25.3***
		Intake	n.a.	M6	16:27	8.3	8.6	n.a	n.a	***9.4***
		Bottom	13.6	G1	16:04	6.9	7.9	16.3	17.6	***18.5***
				G2	15:50					***21.4***
				G3	16:08					***8.1***
				M1	15:58					***10.0***
				M3	16:16					***15.3***

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Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	13.3	G1	11:09	6.0	6.9	15.9	17.2	***7.7***
				G2	10:58					***16.4***
				G3	11:13					***10.6***
				G4	11:27					***15.6***
				M1	11:04	6.2	7.4			***13.2***
				M2	10:53					***15.8***
				M3	11:22					***12.9***
				M4	10:45					***7.2***
		Intake	n.a.	M6	11:33	8.3	8.6	n.a	n.a	***9.2***
		Bottom	5.2	G1	11:09	6.9	7.9	6.2	6.8	***9.0***
				G3	11:13					***7.0***
				G4	11:27					***6.7***
				M1	11:04					***8.2***
				M2	10:53					***18.8***
				M3	11:22					***8.7***

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

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: 26 February 2019

Part A – Exceedance Summary Tables

Table II: 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	5.6	G2	17:10	6.0	6.9	6.7	7.3	***8.5***
				M3	17:36	6.2	7.4			***9.0***
				M4	16:59					***8.7***
				M5	17:53					***7.7***
		Bottom	3.7	G2	17:10	6.9	7.9	4.4	4.8	***7.4***
				G3	17:28					***4.5***
				G4	17:42					***6.9***
				M1	17:18					***8.8***
				M2	17:05					***8.9***
				M3	17:36					***10.7***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	2.9	G1	11:20	6.0	6.9	3.5	3.8	***12.3***
				G2	11:09					***8.6***
				G3	11:24					***4.3***
				G4	11:38					***4.1***
				M1	11:15	6.2	7.4			***6.5***
				M2	11:04					***5.7***
				M3	11:33					***3.7***
				M4	10:56					***4.0***
				M5	11:50					***10.0***
		Bottom	5.2	M1	11:15	6.9	7.9	6.2	6.7	***6.4***
				M2	11:04					***7.1***
				M4	10:56					***7.0***

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

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: 27 February 2019

Part A – Exceedance Summary Tables

Table I: 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	0.2	G1	19:30	0.2	0.3	***0.6***
						G3	19:32			***0.8***
						G4	19:38			***0.3***
						M1	19:26			***0.9***
						M3	19:35			***0.8***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

Table II: 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	4.4	G1	12:06	6.0	6.9	5.2	5.7	***15.2***
				G3	12:09					***8.6***
				G4	12:15					***8.6***
				M1	12:02	6.2	7.4			***8.1***
				M2	11:54					***12.1***
				M3	12:12					***6.1***
				M4	11:51					***17.5***
				M5	12:25					***6.8***
		Intake	n.a.	M6	12:19	8.3	8.6	n.a.	n.a.	***13.8***
		Bottom	13.6	G1	12:06	6.9	7.9	16.3	17.7	***8.1***
				G2	11:58					***8.4***
				G3	12:09					***7.3***
				G4	12:15					***10.8***
				M1	12:02					***11.6***
				M3	12:12					***12.6***
				M4	11:51					***7.0***
				M5	12:25					***12.0***

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel

Design and Construction

- Notification of Environmental Quality Limit Exceedances

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	6.8	G1	19:30	6.0	6.9	8.2	8.8	***12.7***
				G2	19:22					***10.5***
				G3	19:32					***11.6***
				M5	19:46	6.2	7.4			***6.9***
		Bottom	7.3	G1	19:30	6.9	7.9	8.7	3.6	***20.6***
				G2	19:22					***27.9***
				G4	19:38					***24.4***
				M2	19:19					***8.0***

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 (February 2019)

Contract No. NE/2015/01
Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
At Tseung Kwan O side, part of the silt curtain is floating and part of the buoy is missing. The Contractor is reminded to check whether the curtain has been set to the sea bottom and the integrity.	30 January 2019	×	Item was not rectified and remarked on 20 February 2019 and 27 February 2019
Washing water was seen overflowing from the bored pile case in platform 1D. The Contractor should ensure that the pumping rate is sufficient to avoid discharging waste water into the sea.	30 January 2019	✓	Improved/rectified on 12 February 2019.
At the Tseung Kwan O side, part of the silt curtain was floating. The Contractor is reminded to check if it has been set to the seabed. Also, part of the buoys of the silt curtain on Platform 1D was missing. The Contractor is reminded to enclose the whole platform with silt curtain.	12 February 2019	×	Item was not rectified and remarked on 12 February 2019 20 February 2019 and 27 February 2019
Still water is observed in Portion II and needed to pump out.	20 February 2019	×	Item was not rectified and remarked on 27 February 2019
At the Tseung Kwan O side, part of the silt curtain was floating and broken. It needs to be replaced to prevent leakage of pollutants	27 February 2019	#	Follow up action will be reported in the next reporting month.
Ecology			
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Noise			
At the Lam Tin side, the noise barrier should be placed in the direction of the noise sensitive receiver (Yau Lai Estate) during breaking works.	12 February 2019	✓	Improved/rectified on12 February 2019.
Noise barriers for a driller in Portion II should be placed to block direct view from NSRs. One noise barrier is advised to move closely to drillers to further block noise to NSRs.	20 February 2019	#	Item was not rectified and remarked on 27 February 2019
Landscape and Visual			
Materials underneath tree crown (tree protection zone) should be removed.	12 February 2019	×	Item was not rectified and remarked on 12 February 2019 20 February 2019 and 27 February 2019
At the Lam Tin side, construction waste was found under a tree's crown of a retained tree near the construction entrance from East Cross-harbor Tunnel and required to be removed	20 February 2019	×	Item was not rectified and remarked on 27 February 2019
Air Quality			
The outlet of a crusher in Portion III had insufficient water sprays. It is to ensure that both inlet and outlet of crushing machines have sufficient water spray to keep the aggregates wet.	20 February 2019	#	Item was not rectified and remarked on 27 February 2019
Cement bags in Portion IVC need to be covered to prevent dust emission.	27 February 2019	#	Follow up action will be reported in the next reporting month.
Waste / Chemical Management			
At the Lam Tin side, a stripe of oil was observed along the road near the soldier pile wall. The Contractor is	04 February 2019	✓	Improved/rectified on 16 January 2019.

Appendix L - Site Audit Summary (February 2019)

Items	Date	Status*	Follow up Action
reminded to clear the oil as chemical waste			
At the Lam Tin side, a stripe of oil was observed along the road near the soldier pile wall. The Contractor is reminded to clear the oil as chemical waste	4 February 2019	✓	Improved/rectified on 20 February 2019.
At the Tseung Kwan O side near the rest room and Portion IVC, a stripe of oil was observed along the road. The Contractor is reminded to clear the oil as chemical waste.	27 February 2019	#	Follow up action will be reported in the next reporting month.
Impact on Cultural Heritage			
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Permits / Licenses			
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✓ 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 (February 2019)

Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
Stockpiling/ temporary storage of construction materials are found near seafront without cover.	29 January 2019	✓	Improved/rectified on 04 February 2019.
Floating refuse and oil slick are found on both sides inside the water gate.	13 February 2019	✕	Item was not rectified and remarked on 21 February 2019.
Floating refuse are found on both sides inside the water gate.	21 February 2019	✓	Item was not rectified and remarked on 28 February 2019.
Noise			
A breaker was operating in Portion IX without sufficient noise mitigation measure.	13 February 2019	✓	Improved/rectified on 21 February 2019.
Landscape and Visual			
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Air Quality			
The barge (Chun Ming 23's) exhaust dark smoke oftenly, the contractor promises to replace the filter on the barge.	21 February 2019	✓	Improved/rectified on 28 February 2019.
Waste / Chemical Management			
The drip tray of the generator had accumulated some water after raining.	28 February 2019	✓	Follow up action will be reported in the next reporting month.
Impact on Cultural Heritage			
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Permits / 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 rectified by the contractor

Appendix L - Site Audit Summary (February 2019)

Contract No. NE/2015/03
Tseung Kwan O - Lam Tin Tunnel - Northern Footbridge

Items	Date	Status*	Follow up Action
Water Quality			
The generator drip tray had accumulated some water after raining.	21 February 2019	#	Follow up action will be reported in the next reporting month.
The construction material need to sort out to prevent polluting surface runoff.	21 February 2019	✓	Improved/rectified on 28 February 2019.
The footbridge had accumulated some water after raining.	28 February 2019	#	Follow up action will be reported in the next reporting month.
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste / Chemical Management			
Impact on Cultural Heritage			
--	--	--	--
Permits / 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 rectified by the contractor

Appendix L - Site Audit Summary (February 2019)

Contract No. NE/2017/01
Tseung Kwan O - Lam Tin Tunnel – Tsueng Kwan O Interchange and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
The waste water and oil in the drip tray should be removed on Siu Fai.	29 January 2019	✓	Improved/rectified on 08 February 2019.
Oil was observed on the sea water around Zhung Wei 28.	13 February 2019	✓	Improved/rectified on 19 February 2019.
Noise			
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Landscape and Visual			
--	--	--	--
Air Quality			
Black smoke emission was observed at Zhung Wei 28.	13 February 2019	✓	Improved/rectified on 19 February 2019.
Waste / Chemical Management			
Oil was observed on the floor at Shing Wo.	29 January 2019	✓	Improved/rectified on 08 February 2019.
The waste water and oil in the drip tray should be removed on Siu Fai	29 January 2019	✓	Improved/rectified on 08 February 2019.
Oil was observed on the floor. The oil leakage should be avoided.	19 February 2019	✓	Improved/rectified on 28 February 2019.
The waste water in the drip trip should be removed regularly to avoid overflow.	19 February 2019	✓	Improved/rectified on 28 February 2019.
Drip trays should be provided for the oil container.	28 February 2019	#	Follow up action will be reported in the next reporting month.
Impact on Cultural Heritage			
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Permits / Licenses			
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✓ 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 rectified by the contractor

Appendix L - Site Audit Summary (February 2019)

Contract No. NE/2017/02
Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works

Items	Date	Status*	Follow up Action
Water Quality			
A manhole is not covered	13 February 2019	✓	Improved/rectified on 21 February 2019.
Noise			
--	--	--	--
Landscape and Visual			
--	--	--	--
Air Quality			
--	--	--	--
Waste / Chemical Management			
--	--	--	--
Impact on Cultural Heritage			
--	--	--	--
Permits / 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 rectified 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)

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract:NE/2015/01

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

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?	Status
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,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	# (1) ^

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	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						^ ^ ^ ^ ^ ^ ^ # (2) ^

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	dusty conditions arise.						
/	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	^ ^ ^
/	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	^

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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	*(3) # (4)
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	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	N/A

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		arising from the Project at the affected NSRs					
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	N/A
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	N/A
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	N/A
Silt Curtain	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided.	Control potential impacts from	Contractor	NE/2015/01	Construction stage	EIAO	# (5) # (6) # (7)

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Deployment Plan	- Sufficient stock of silt curtain should be provided on site.	marine woroks					
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	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ ^ ^ ^ ^ ^ ^

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	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.						^ N/A
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	N/A
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.	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	N/A N/A N/A

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	- 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.						N/A
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	# (8)

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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	* (9)
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	^ N/A ^
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	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	Appendix A1 of ProPECC PN 1/94.						
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	It is important	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	^
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	^

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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	^
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	runoff and land-based construction					
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	N/A
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		based construction					
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	^

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S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential	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	N/A

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	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.						
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	N/A
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	^

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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	N/A
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	N/A

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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	N/A
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	N/A
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	N/A
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	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	runoff and land-based construction					
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	N/A
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	spillage of chemicals					
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?	Status
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	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	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?	Status
	the nearby watercourses.						
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	N/A 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	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?	Status
	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 - 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	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	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?	Status
		construction site runoff to the receiving water bodies					
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	^
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	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)	^

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?	Status
	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.					Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ *(10) *(11) ^ ^
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)***	To achieve	Contractor	All work	Construction	ETWB TCW No.	

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?	Status
	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.	waste reduction		sites	Phase	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	^
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	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	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?	Status
	- Different locations should be designated to stockpile each material to enhance reuse.						^
S8.6.8/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - 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		^ ^ ^ ^ ^ ^
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	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

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		disposal					
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	^ ^ ^
S8.6.17 – S8.6.20	***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). - In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	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?	Status
	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.						N/A
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,	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	^ ^

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	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.						N/A
	- 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						N/A

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	they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.						
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)	^

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?	Status
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?	Status
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	CM4 - Existing trees at boundary of site and retained trees within site boundary to be	To minimize tree	CEDD (via	As per	Site clearance	ETWB TC 3/2006	*(12) *(13)

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10.8.1/ Landscape Mitigation Plan	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).	loss	Contractor)	approved Tree Removal Application(s)	and throughout construction period	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/ Landsca	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	N/A

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pe Mitigation Plan							
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	^

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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	N/A
Landfill Gas Hazard (Design and Construction Phase)							

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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"	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?	Status
	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						^ ^ ^ ^

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	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.						^
	- 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						^

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?	Status
	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:	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?	Status
	- 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.						^ ^ ^ ^ ^

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?	Status
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	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key:
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- X Non-compliance of mitigation measure
- • Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Air Quality Impact (Construction Phase)					
# (1)	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.	NE/2015/01	Construction of Lam Tin Interchange	• The outlet of a crusher in Portion III had insufficient water sprays. It is to ensure that both inlet and outlet of crushing machines have sufficient water spray to keep the aggregates wet.
* (2)	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.	NE/2015/01	Construction of Lam Tin Interchange	• Cement bags in Portion IVC need to be covered to prevent dust emission.
Noise Impact (Construction Phase)					

* (3) * (4)	Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, Silent Up, and etc) or Full Enclosure for PME according to the approved Noise Mitigation Plan	NE/2015/01	Construction of Lam Tin Interchange	• At the Lam Tin side, the noise barrier should be placed in the direction of the noise sensitive receiver (Yau Lai Estate) during breaking works. • Noise barriers for a driller in Portion II should be placed to block direct view from NSRs. One noise barrier is advised to move closely to drillers to further block noise to NSRs.
Water Quality Impact (Construction Phase)					
# (5) # (6)	Silt curtain deployment Plan	- Silt curtains should be deployed properly to surround the works area. - Maintenance of silt curtain should be provided.	NE/2015/01	Construction of TKO Portal	• At Tseung Kwan O side, part of the silt curtain is floating and part of the buoy is missing. The Contractor is reminded to check whether the curtain has been set to the sea bottom and the integrity. • At the Tseung Kwan O side, part of the silt curtain was floating. The Contractor is reminded to check if it has been set to the seabed. Also, part of the buoys of the silt curtain on Platform 1D was missing. The Contractor is reminded to enclose the whole platform with silt curtain. • At the Tseung Kwan O side, part of the silt curtain was floating and broken. It needs to be replaced to prevent leakage of pollutants
* (8)	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.	NE/2015/01	Construction of TKO Portal	• Still water is observed in Portion II and needed to pump out.

* (9)	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.	NE/2015/01	Construction of TKO Portal	• Washing water was seen overflowing from the bored pile case in platform 1D. The Contractor should ensure that the pumping rate is sufficient to avoid discharging waste water into the sea.
Waste/ Chemical Management					
* (10)	S8.6.3	- Provision of sufficient waste disposal points and regular collection of waste	NE/2015/01	Construction of Lam Tin Interchange	• At the Lam Tin side, a stripe of oil was observed along the road near the soldier pile wall. The Contractor is reminded to clear the oil as chemical waste
* (11)	S8.6.3	- Provision of sufficient waste disposal points and regular collection of waste.	NE/2015/01	Construction of Lam Tin Interchange	• At the Tseung Kwan O side near the rest room and Portion IVC, a stripe of oil was observed along the road. The Contractor is reminded to clear the oil as chemical waste.

Landscape and Visual Impact (Construction Phase)					
* (12)	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).	NE/2015/01	Construction of Lam Tin Interchange	• Materials underneath tree crown (tree protection zone) should be removed.
* (13)	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	NE/2015/01	Construction of Lam Tin Interchange	• At the Lam Tin side, construction waste was found under a tree's crown of a retained tree near the construction entrance from East Cross-harbor Tunnel and required to be removed

		retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).			

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2015/02

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

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?	Status
Air Quality Impact							
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	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^

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?	Status
	- 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						^

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?	Status
	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.						^
/	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	^ * (1) ^
/	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	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation - Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, 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?	Status
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact. - The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement. - Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions. - The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission. - The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment. - Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front. - The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control. - Any excessive air emissions will be inspected and recorded. - Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						^ ^ ^ ^ ^ ^ ^ ^ ^

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?	Status
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	* (2)
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.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^

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?	Status
	- 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.						^ ^
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	N/A
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	N/A
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	N/A
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	Control potential	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	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?	Status
	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.	impacts from filling activities					
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/2015/02	Construction stage	EIAO	^ ^ ^
Sediment Management Plan	- Loading of barges and hoppers will be controlled to prevent splashing of dredged materials into the surrounding water. Barges or hoppers will not be filled to a level that will cause the overflow of materials or pollute water during loading or transportation. - Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. - Monitoring of the barge loading shall be conducted to ensure that loss of material does not take during transportation. - Transport barges or vessels shall be equipped with automatic self-monitoring devices. - Vehicles containing any untreated / treated marine sediments will be suitably covered to limit potential dust emissions or potential contaminated wastewater run-off, and truck	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, 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?	Status
	bodies and tailgates will be sealed to prevent any discharge during transport or wet conditions. - The leachate from the untreated marine sediment will be collected and treated in the mixing pool for cement s/s treatment. - A 300mm diameter U-channel will be constructed along the perimeter of the cement s/s treatment facility to collect the run-off, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). Cleaning for the u-channel and desilting pits shall be conducted on weekly basic. - The stockpile area of treated marine sediment will be surrounded by the perimeter concrete block walls with geotextile membranes installed at the inner face of the concrete block walls. The types of perimeter wall can be used interchangeably. The Structural Feasibility of the perimeter wall for the changes of height of the stockpile had been checked and certified by ICE. - The mixing areas will be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater and will be confined by partition concrete block walls for carrying out the mixing and temporary stockpile of treated sediment.						^ ^ ^ ^
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	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal	* (3)

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?	Status
	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.	filling activities and marine-based construction				Ordinance (WDO)	^ ^ ^ ^ ^ ^ ^ * (4) 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?	Status
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	N/A
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	^ ^ 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?	Status
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ	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	^

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?	Status
	under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A ^
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	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?	Status
		construction					
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	^
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	^
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	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^

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		construction					
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than $50m^3$ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		construction					
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	N/A
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	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		construction					
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	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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		construction					
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore	Control potential impacts from construction site runoff and land-based	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A

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	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.	construction					
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	N/A
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	^

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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	N/A
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	N/A

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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	N/A
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	N/A
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	N/A

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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	N/A

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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	^

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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	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^

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	allocated to the storage area.						^
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							
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	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^

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	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.						^ ^ ^ ^
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	N/A 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).	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^

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	- 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 - 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	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^

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		contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies					^
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	^
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	Design Team / Contractor	Marine work area	Construction phase	WQO	^

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		solid level					
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)	^ ^ * (5) ^ ^
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	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance	^ ^ ^ ^

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	and avoid unnecessary generation of waste.					(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	^
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	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	-	^ ^ ^

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	materials from wind-blown or being washed away; and - Different locations should be designated to stockpile each material to enhance reuse.						^
S8.6.8/ Waste Management Plan	***Storage, Collection and Transportation of Waste (con't)*** - 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		^ ^ ^ ^ ^ ^
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	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

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		collection and disposal					
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	^ ^ ^
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02	All works areas with sediments concern	Construction Phase	RBRG	N/A

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	results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination. - Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						N/A
S8.6.17 – S8.6.20	***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). - In order to minimise the potential odour / dust emissions during boring, excavation and	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	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?	Status
	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.						N/A
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	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?	Status
	construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.						
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.	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?	Status
	- 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.						^ N/A N/A
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,	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of	^

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?	Status
	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.					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	To prevent	Contractors	Work areas	Construction	Vibration Limits	

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?	Status
	- 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.	indirect vibration impact			Phase	on Heritage Buildings by CEDD; GCHIA; AMO.	^ ^ ^ ^
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A	^
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification	^

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?	Status
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/	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce	CEDD (via	General	Throughout	As per	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?	Status
Landscape Mitigation Plan		visual intrusion	Contractor)		construction period	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	Throughout construction period	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?	Status
				roadworks			
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 permanent reclamation for TKO Interchange slip roads and Road P2.	Construction planning and reclamation stages	N/A	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key: * Observation/reminder was made during site audit but improved/rectified by the contractor.

\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Air Quality Impact (Construction Phase)					
* (1)	/	- Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	NE/2015/02	Construction of Road P2	• The barge (Chun Ming 23's) exhaust dark smoke often, the contractor promises to replace the filter on the barge.
Noise Impact (Construction Phase)					
* (2)	Noise Mitigation Plan	- Use of Temporary Noise Barriers (i.e Acoustic box, Silent Up, and etc) or Full Enclosure for PME according to the approved Noise Mitigation Plan	NE/2015/02	Construction of Road P2	• A breaker was operating in Portion IX without sufficient noise mitigation measure.
Water Quality Impact (Construction Phase)					
* (3) (4)	5.8.3	- all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea; - 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	NE/2015/02	Construction of Road P2	• Stockpiling/ temporary storage of construction materials are found near seafront without cover. • Floating refuse and oil slick are found on both sides inside the water gate.
Waste / Chemical Management					
* (5)	S8.6.3	- Provision of sufficient waste disposal points and regular collection of waste;	NE/2015/02	Construction of Road P2	• The drip tray of the generator had accumulated some water after raining.

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2017/02

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

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?	Status
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	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - 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,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

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?	Status
	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						^ ^ ^ ^ ^ ^ ^ ^ ^

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?	Status
	dusty conditions arise.						
/	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	^ ^ ^
/	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	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation - Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, 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?	Status
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact. - The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement. - Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions. - The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission. - The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment. - Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front. - The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control. - Any excessive air emissions will be inspected and recorded. - Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						^ ^ ^ ^ ^ ^ ^ ^ ^

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?	Status
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.	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ ^

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?	Status
	- 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.						^ ^
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	N/A
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	N/A
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	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	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?	Status
	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.						
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	N/A
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?	Status
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
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	* (1)

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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	^
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	^
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	Control potential impacts from construction site	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	*(1)

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	should be discharged into storm drains via silt removal facilities.	runoff and land-based construction				S5	
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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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	N/A
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	^

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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-	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^

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		based construction					
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A

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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	N/A
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	^

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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	N/A
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	N/A
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	N/A
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-	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
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	N/A
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	^

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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	N/A
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	Control potential impacts from construction site runoff and land-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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	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.	based construction					
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	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^ ^

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	- storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.						^
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							
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.	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^

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	- 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.						^ ^ ^ ^
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	N/A 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	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^

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	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 - 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	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^

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		discharge, accidental chemical spillage and construction site runoff to the receiving water bodies					
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	^
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	^

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?	Status
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	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^

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?	Status
	- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.						^
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	^
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;	To minimize potential adverse environmental impacts arising from waste	Contractor	All work sites	Construction Phase	-	^ ^

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	- 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.	storage					^ ^
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		^ ^ ^ ^ ^ ^
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	To minimize potential adverse environmental impacts arising	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010	^

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?	Status
	(including disposal sites) should be proposed.	from waste collection and disposal					
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	^ ^ ^
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	RBRG	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?	Status
	sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination. - Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						N/A
S8.6.17 – S8.6.20	***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	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	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?	Status
	discharged according to the Water Pollution Control Ordinance (WPCO). - 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.						^ N/A
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to	To determine the best handling and disposal option of	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	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?	Status
	confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.	sediment					
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	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?	Status
	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.						^ N/A N/A
S8.6.26/ Waste	***Chemical Wastes.*** - If chemical wastes are produced at the construction site, the Contractor would be	To ensure proper	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging,	^

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?	Status
Management Plan	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.	management of chemical waste				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)	^
Landscape and Visual Impact (Construction Phase)							
Table 10.8.1/ Landscape	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	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?	Status
Mitigation Plan					period		
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	CM5 - Trees unavoidably affected by the works shall be transplanted where	To maximize	CEDD (via	As per	Site clearance	ETWB TC 3/2006	^

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?	Status
10.8.1/ Landscape Mitigation Plan	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.	preservation of existing trees	Contractor)	approved Tree Removal Application(s)		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	N/A
Table 10.8.1/ Landscape Mitigation	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	^

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?	Status
Plan							
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 bodies	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 character	Minimise loss of Junk Bay and	CEDD (via Contractor)	Temporary reclamation	Construction planning and	N/A	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?	Status
		integration with existing coastline		for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	reclamation stages		

Table II - Observations/reminders/non-compliance made during Site Audit

Key:
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- X Non-compliance of mitigation measure
- • Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Water Quality Impact (Construction Phase)					
* (1)	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.	NE/2017/02	Construction of Road P2/D4	• A manhole is not covered

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2015/03

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
\# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

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?	Status
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	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - 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,	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^

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?	Status
	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.						N/A
	- 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						^

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?	Status
	dusty conditions arise.						
/	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	^ ^ ^
/	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	^

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?	Status
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	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	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?	Status
		Project at the affected NSRs					
Water Quality Impact (Construction Phase)							
	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents	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	^

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?	Status
	discharged into the corresponding WCZ under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^ N/A ^
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	# (1) # (2)
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	^

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?	Status
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	^
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	^
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	^
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-	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?	Status
		based construction					
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	# (3)
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	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?	Status
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	^

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?	Status
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-	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?	Status
		based construction					
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	N/A
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	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?	Status
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	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?	Status
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	N/A
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	N/A
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	N/A
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
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	N/A

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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)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

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?	Status
	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
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,	^

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Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^
S6.8.5	***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	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	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?	Status
	the nearby watercourses.						
S6.8.8	-						
S6.8.9 S6.8.10	***Measure to Control Water Quality Impact*** - 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	^ ^

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?	Status
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	^
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	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354)	^

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?	Status
	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.					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?	Status
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	-	^ ^ ^ ^
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		^ ^ ^ ^ ^ ^

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?	Status
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	^ ^ ^
	-						
S8.6.17 – S8.6.20	***Sediments (con't)*** - Requirements of the Air Pollution Control (Construction Dust) Regulation, where	To determine the best handling	Contractor	All works areas with	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?	Status
	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). - 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.	and treatment of sediment		sediments concern			^ ^ N/A
	-						
	-						
S8.6.26/ Waste Management	***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	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	Code of Practice on the Packaging, Labelling and Storage of	^

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?	Status
Plan	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.					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	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	^ ^ ^

EIA Ref. / EP Submission	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	works are less than 100m from the temple.						
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/	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	To minimize tree loss	CEDD (via Contractor)	As per approved	Site clearance and	ETWB TC 3/2006 and as per tree	^

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?	Status
Landscape Mitigation Plan	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).			Tree Removal Application(s)	throughout construction period	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	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	N/A

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Plan							
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/ Landsca	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses	CEDD (via Contractor)	TKO reclamation, TKO	Throughout construction period	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?	Status
pe Mitigation Plan		and water bodie		tunnel portal, Cha Kwo Ling roadworks			
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	N/A

Table II - Observations/reminders/non-compliance made during Site Audit

Key:
- * Observation/reminder was made during site audit but improved/rectified by the contractor.
- # Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
- X Non-compliance of mitigation measure
- • Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
***Water Quality** (Construction Phase)*					
#(1) #(2)	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.	NE/2015/03	Construction of Northern Footbridge	The footbridge had accumulated some water after raining. The generator drip tray had accumulated some water after raining.
*(3)	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.	NE/2015/03	Construction of Northern Footbridge	The construction material need to sort out to prevent polluting surface runoff.

Table I – Recommended Mitigation Measures stipulated in EM&A Manual of the Project

(Further information on observations/reminders/non-compliance made during site audit should refer to Table II)

Contract: NE/2017/01

Key:
^ Mitigation measure was fully implemented.
* Observation/reminder was made during site audit but improved/rectified by the contractor.
# Observation/reminder was made during site audit but not yet improved/rectified by the contractor.
X Non-compliance of mitigation measure
• Non-compliance but rectified by the contractor
N/A Not Applicable

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?	Status
Air Quality Impact (Construction Phase)							
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	N/A
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	N/A
S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	N/A 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?	Status
	- 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.						N/A
	- Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.						N/A
	- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.						N/A
	- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.						N/A
	- 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.						N/A
	- 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.						N/A
	- Imposition of speed controls for vehicles on site haul roads.						N/A
	- 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.						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?	Status
	- 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.						N/A
/	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	^ * (3) ^
/	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	^
Sediment Management Plan	- Tarpaulin sheets will be provided to cover dredged materials during transportation offsite. - Water Sprinklers will be installed along outer steel frame. Dusty materials will be dampened by spraying water to suppress dust generation during mixing operation	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, APCO	N/A 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?	Status
	- Subject to the odour intensity and instruction by the *Supervisor*, odour suppressant will be applied over the marine sediments via water blaster to minimize the impact.						N/A
	- The unloading / loading areas of the marine sediments will be barricaded with minimum 3.5m high barrier facing the nearest resident to minimize the dust impact. The mixing area and curing area will be enclosed with 3-sides and roof to minimize the dust impact.						N/A
	- The mixing area will be established with retractable roof on top and with corrugated steel sheet at side enclosure by 5.4m high concrete block walls to prevent spread of dust during the mixing process with cement.						N/A
	- Handling and mixing of cement will follow the Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions.						N/A
	- The discharge of cement from silo hopper to the concrete mixer truck will be 4-side enclosed by Tarpaulin to minimize the dust emission.						N/A
	- The mixing of cement and water will be confined in the concrete mixer truck until the pre-mixing completed. The hydrated cement will then be unloaded to the mixing area to mix with the sediment.						N/A
	- Treated marine sediments in the stockpiling area shall be covered by tarpaulin sheets or similar material except the operating earthwork front.						N/A
	- The soil filled platform is covered by a layer of sand fill material, and frequent water spray will be carried out on the sand surface for dust control.						N/A
	- Any excessive air emissions will be inspected and recorded.						

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?	Status
	- Sediment height of treated marine sediment being kept 0.9 m below the top level of concrete block wall during rainy season.						N/A
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.	To minimize construction noise impact arising from the Project at the	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^

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?	Status
	- 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.	affected NSRs					^ ^ ^ ^
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	N/A
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	N/A
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	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?	Status
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	N/A
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, NE/2015/02, NE/2017/01	Construction stage	EIAO	^ ^ ^
Sediment Management Plan	- Loading of barges and hoppers will be controlled to prevent splashing of dredged materials into the surrounding water. Barges or hoppers will not be filled to a level that will cause the overflow of materials or pollute water during loading or transportation. - Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. - Monitoring of the barge loading shall be conducted to ensure that loss of material does not take during transportation.	Control potential impacts from Cement s/s process	Contractor	NE/2015/02	Construction stage	EIAO, WPCO	N/A N/A 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?	Status
	- Transport barges or vessels shall be equipped with automatic self-monitoring devices.						N/A
	- Vehicles containing any untreated / treated marine sediments will be suitably covered to limit potential dust emissions or potential contaminated wastewater run-off, and truck bodies and tailgates will be sealed to prevent any discharge during transport or wet conditions.						N/A
	- The leachate from the untreated marine sediment will be collected and treated in the mixing pool for cement s/s treatment.						N/A
	- A 300mm diameter U-channel will be constructed along the perimeter of the cement s/s treatment facility to collect the run-off, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). Cleaning for the u-channel and desilting pits shall be conducted on weekly basic.						N/A
	- The stockpile area of treated marine sediment will be surrounded by the perimeter concrete block walls with geotextile membranes installed at the inner face of the concrete block walls. The types of perimeter wall can be used interchangeably. The Structural Feasibility of the perimeter wall for the changes of height of the stockpile had been checked and certified by ICE.						N/A
	- The mixing areas will be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater and will be confined by partition concrete block walls for carrying out the mixing and temporary stockpile of treated sediment.						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?	Status
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	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ ^ ^ ^ ^ ^ N/A ^ ^ * (2)

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?	Status
	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.						N/A
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	N/A
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	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	N/A N/A N/A 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?	Status
	barrier and at the double water gates marine access opening during its operation.						
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	N/A
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	N/A
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	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	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?	Status
	discharged into the corresponding WCZ under the TM-DSS.						
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A N/A N/A
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	N/A
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	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?	Status
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	N/A
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	N/A ^
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	N/A
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	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?	Status
		based construction					
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	N/A
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	N/A
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	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?	Status
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	N/A
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	N/A
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	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?	Status
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	N/A
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	N/A
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	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?	Status
		based construction					
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	N/A
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	N/A

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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	N/A
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	N/A
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	N/A

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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	N/A
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	N/A
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	N/A
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		based construction					
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	N/A
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	N/A
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	N/A

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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	N/A
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	N/A
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)	Control potential impacts from accidental	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

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?	Status
	(General) Regulation should be observed and complied with for control of chemical wastes.	spillage of chemicals					
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	* (1) / * (4) / * (5) / * (6) / * (7) / # (8) ^ ^
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,	^

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Ecological Impact							
S6.8.4	***Measures to Minimize Disturbance*** - Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. - Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ N/A 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	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	N/A ^ ^ N/A ^ ^

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	the nearby watercourses.						
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	N/A 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)	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	N/A N/A N/A N/A

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	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 - 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.						N/A N/A
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	Design Team, contractor	Marine and land based works area	Construction phase	WQO	N/A ^ ^ N/A

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		receiving water bodies					
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	N/A
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;	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions)	^ ^ ^

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	- 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.					Ordinance (Cap. 28)	^ N/A
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)	^ N/A ^ ^
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	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

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	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.						
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	N/A
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	-	^ ^ N/A ^
S8.6.8/ Waste Management	***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	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase		^ ^ ^

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Plan	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.	impacts arising from waste collection and disposal					^ ^ ^
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	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002	^ ^ ^

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	materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills					ETWB TCW No. 19/2005	
S8.6.15 – S8.6.16/ Waste Management Plan	***Sediments*** - Sediment encountered may be reused as filling material on-site after cement stabilization. Cement-stabilization process is undertaken by mixing sediment and cement and will convert sediment to earth filling material. The treated sediment has to comply with Risk-Based Remediation Goals (RBRGs) before being reused in order not to raise any land contamination issue. The adoption of RBRGs to assess stabilized sediment has been proposed in the current C&DMMP. MFC has no adverse comment on the current C&DMMP. The sediment quality indicates that all sediments comply with most stringent RBRGs except for one sediment sample (TKO-EBH501 3-3.95m) with lead exceeding the RBRG. Except for the sediment sample (TKO-EBH501 3-3.95m), the chemical screening results do not indicate sediment as contaminated soil. It is anticipated that reuse of sediment except sediment sample (TKO-EBH501 3-3.95m) will not lead to land contamination. - Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 33.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	RBRG	N/A N/A

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	contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP						
S8.6.17 – S8.6.20	***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). - 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	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		^ ^ ^ N/A

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	handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						
S8.6.21/ Waste Management Plan	***Sediments (con't)*** - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is responsible for the provision and management of disposal capacity and facilities for the excavated sediment, while the permit of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the DEP.	To ensure the sediment to be disposed of in an authorized and least impacted way	NE/2015/02, NE/2017/01	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S8.6.23	***Sediments (con't)*** - For allocation of sediment disposal sites and application of marine dumping permit, separate SSTP has to be submitted to EPD for agreement under DASO. Additional site investigation, based on the SSTP, maybe carried out in order to confirm the disposal arrangements for the proposed sediments removal. A Sediment Quality Report (SQR) shall then be required for EPD agreement under DASO prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal.	To determine the best handling and disposal option of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S8.6.24 - S8.6.28/ Waste Manage	***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	To ensure handling of sediments are in accordance to	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

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ment Plan	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	statutory requirements					^ ^ ^

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	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.						N/A N/A
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	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	^

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?	Status
	at Tsing Yi, or other licensed facility, in accordance with the 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	N/A N/A N/A
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.	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.	N/A N/A 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?	Status
	- 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.						N/A
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.	N/A N/A N/A
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	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	N/A
Table	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical,	To allow re-use	CEDD (via	General	Site clearance	As per the	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?	Status
10.8.1/ Landscape Mitigation Plan	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.	of topsoil	Contractor)			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	N/A
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	N/A
Table 10.8.1/ Landscape	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	Beginning of construction period	N/A	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?	Status
Mitigation Plan				landscape deck, TKO			
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	N/A
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	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	N/A
Table 10.8.1/	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion	CEDD (via Contractor)	Built structures	Design and construction	N/A	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?	Status
Landscape Mitigation Plan		and integration with environment			stage		
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	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	Construction planning and reclamation stages	N/A	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?	Status
				and Road P2			

Table II - Observations/reminders/non-compliance made during Site Audit

Key: * Observation/reminder was made during site audit but improved/rectified by the contractor.

Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Observation/Reminder
Air Quality Impact (Construction Phase)					
* (3)	/	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)	NE/2017/01	Construction of TKO Interchange	• Black smoke emission was observed at Zhung Wei 28.
Water Quality (Construction Phase)					
* (1)	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	NE/2017/01	Construction of TKO Interchange	• The waste water and oil in the drip tray should be removed on Siu Fai.

		space should be allocated to the storage area.			
* (2)	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.	NE/2017/01	Construction of TKO Interchange	• Oil was observed on the sea water around Zhung Wei 28.
Waste Management (Construction Phase)					
* (4) / * (5) / * (6) / * (7) / # (8)	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.	NE/2017/01	Construction of TKO Interchange	• Oil was observed on the floor at Shing Wo. Oil on seawater should be cleared. • The waste water and oil in the drip tray should be removed on Siu Fai • Oil was observed on the floor. The oil leakage should be avoided. • The waste water in the drip trip should be removed regularly to avoid overflow. • Drip trays should be provided for the oil container.

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

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 (Y/N)	Investigation/ Mitigation Action	File Closed
319	28th February 2019	28th February 2019/Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Construction of breaking noise (Night time)	Y	Under Investigation	On-going
318	22nd February 2019	22nd February 2019/Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Construction of breaking noise (Day time)	Y	Under Investigation	On-going
317	21st February 2019	21st February 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Construction of breaking noise (Night time)	Y	Under Investigation	On-going
316	21st February 2019	21st February 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Construction of breaking noise (Night time)	Y	Under Investigation	On-going
315	25th February 2019	25th February 2019/Construction of Road P2	Resident in O King Road	Air Quality	Complained about the petroleum smell	N	Under Investigation	On-going
314	18th February 2019	18th February 2019/Construction of Road P2	Resident in O King Road	Air Quality	Complained about the black smoke and petroleum smell	N	Under Investigation	On-going
313	17th February 2019	17th February 2019/Construction of Lam Tin Interchange, Road P2 and Tseung Kwan O Interchange	Public	Noise	Complained about construction noise (Daytime)	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
312	17th February 2019	17th February 2019/Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Air Quality	Complained about dust	N	Under Investigation	On-going
311	17th February 2019	17th February 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the explosion noise (Daytime)	Y	Under Investigation	On-going
310	16th February 2019	16th February 2019/Construction of Lam Tin Interchange	District Council	Noise	Complained about the explosion noise (Daytime)	Y	Under Investigation	On-going
309	15th February 2019	15th February 2019/Construction of Lam Tin Interchange	Public	Noise	Complained about the explosion noise (Daytime)	Y	Under Investigation	On-going
308	14th February 2019	14th February 2019/Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the dumping noise (Daytime)	Y	Under Investigation	On-going
307	13th February 2019	13th February 2019/Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complaint about construction noise (Night time)	Y	Under Investigation	On-going
306	13th February 2019	13th February 2019/Construction of Lam Tin Interchange	Management Section of Kwong Tin Estate	Noise	Complaint about construction noise (Night time)	Y	Under Investigation	On-going
305	13th February 2019	13th February 2019/Construction of Road P2	District Council	Noise	Complained about construction noise (Daytime)	Y	Under Investigation	On-going
304	13th February 2019	13th February 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about construction noise (Night time)	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
303	12th February 2019	12th February 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about construction noise (Night time)	Y	Under Investigation	On-going
302	8th February 2019	8th February 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about construction noise (Daytime)	Y	Under Investigation	On-going
301	2nd February 2019	2nd February 2019/Construction of Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Complained about construction noise from the subway (Day & night time)	Y	Under Investigation	On-going
300	2nd February 2019	2nd February 2019/Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about breaking (Day Time)	Y	Under Investigation	On-going
299	31th January 2019	31th January 2019/Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about construction noise.	Y	Under Investigation	On-going
298	30th January 2019	30th January 2019/Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	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	Under Investigation	On-going
297	30th January 2019	30th January 2019/Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Complained about the noise from safety alarm at the site near footbridge between Tiu Keng Leng Sport Centre and Park Central	Y	Under Investigation	On-going
296	29th January 2019	29th January 2019/Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	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	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
295	30th January 2019	30th January 2019/Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise & Air Quality	Complained about construction noise & dust.	Y	Under Investigation	On-going
294	29th January 2019	29th January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the noise from the Steel cable wire for anchoring between barge and pier.	Y	Under Investigation	On-going
293	29th January 2019	29th January 2019/Construction of Road P2	Resident in O King Road	Air Quality	Complained about black smoke emission and odour.	N	Under Investigation	On-going
292	30th January 2019	30th January 2019/Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from loading and unloading.	Y	Under Investigation	On-going
291	29th January 2019	29th January 2019/Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Nighttime)	Y	Under Investigation	On-going
290	7th January 2019	7th January 2019/Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Nighttime)	Y	Under Investigation	On-going
289	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	Under Investigation	On-going
288	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	Under Investigation	On-going
287	29th January 2019	29th January 2019/Construction of Lam Tin Interchange	District Council	Noise	Complained about the construction noise from Tunnel Works	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
286	24th January 2019	24th January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from Tunnel Works	Y	Under Investigation	On-going
285	18th January 2019	18th January 2019/Construction of Road P2	Public	Noise	Complained about the construction noise from Tunnel Works	Y	Under Investigation	On-going
284	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	Under Investigation	On-going
283	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 near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going
282	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.	Y	Under Investigation	On-going
281	16th January 2019	16th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going
280	15th January 2019	15th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going
279	15th January 2019	15th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
278	15th January 2019	15th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre	Y	Under Investigation	On-going
277	14th January 2019	14th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going
276	14th January 2019	14th January 2019/Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan near Tiu Keng Leng Sport Centre and Park Central.	Y	Under Investigation	On-going
275	12th January 2019	12th 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	Under Investigation	On-going
274	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	Under Investigation	On-going
273	8th January 2019	8th 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	Under Investigation	On-going
272	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	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
271	12th January 2019	12th January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Under Investigation	On-going
270	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	Under Investigation	On-going
269	11th January 2019	11th January 2019/Construction of Road D4	Public	Noise	Complained about the construction noise from a crane near footbridge between Tiu Keng Leng Sport Centre and Park Central	Y	Under Investigation	On-going
268	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	Under Investigation	On-going
267	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	Under Investigation	On-going
266	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	Under Investigation	On-going
265	7th January 2019	7th January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Under Investigation	On-going
264	7th January 2019	7th January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Under Investigation	On-going
263	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	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
262	2nd January 2019	2nd January 2019/Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Under Investigation	On-going
261	1st January 2019	1st January 2019/Coastal near TKO cemetery	General Public	Water	Complained concerning oil leakage/stain on the sea surface near the sunken barge at C2 site.	N	Under Investigation	On-going
260	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	Under Investigation	On-going
259	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	Under Investigation	On-going
258	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	Under Investigation	On-going
257	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	Under Investigation	On-going
256	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	See Investigation / Mitigation Measures for Complaint No. 257	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
255	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 complaint is considered project related. Mitigation measures: 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: • Only well-maintained plant should be operated 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
254	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	Y	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 to enhance the mitigation measures: • To frequently check and repair operating PME if any loosen or worn parts of the equipment to reduce excessive noise disturbance; • 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

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
253	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	Under Investigation	On-going
252	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	Under Investigation	On-going
251	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** • A more effective acoustic barrier was erected between the drill rig and Park Central. • Frequent water spraying along the Po Yap Road for eight times a day, • Stockpile are covered with impervious material to avoid dust resuspension	Closed
250	28th November 2018	27th November 2018/ Construction of TKO portal	Public	Noise	Complained about the construction noise from the marine works.	Y	Under Investigation	On-going
249	26th November 2018	25th 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	Under Investigation	On-going
248	25th November 2018	25th November 2018/ Public sea in TKO	Public	Noise	Complained about the noise nuisance from the operation of derrick barge on Sunday.	Y	Under Investigation	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance (Y/N)	Investigation/ Mitigation Action	File Closed
247	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	Under Investigation	On-going
246	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	Under Investigation	On-going
245	20th November 2018	19th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the noise nuisance from rock dropping during evening time	Y	Under Investigation	On-going
244	20th November 2018	20th November 2018/ Lam Tin Interchange	Public	Noise	Complained about construction noise during night time from LTI	Y	Under Investigation	On-going
243	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	Under Investigation	On-going
242	8th November 2018	8th November 2018/ Lam Tin Interchange	Public	Noise	Complained about construction noise during night time from LTI	Y	Under Investigation	On-going
241	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	Under Investigation	On-going
240	7th November 2018	7th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the construction noise and dust nuisance.	Y	Under Investigation	On-going
239	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	Under Investigation	On-going
238	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	Under Investigation	On-going

Cumulative Complaint Log since commencement of Project

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
November 2016	0	0	0
December 2016	11	0	0
January 2017	15	0	0
February 2017	4	0	0
March 2017	6	0	0
April 2017	1	0	0
May 2017	10	0	0
June 2017	8	0	0
July 2017	3	0	0
August 2017	8	0	0
September 2017	14	0	0
October 2017	8	0	0
November 2017	12	0	0
December 2017	10	1	0
January 2018	11	0	0
February 2018	6	0	0
March 2018	17	0	0
April 2018	15	0	0
May 2018	22	0	0
June 2018	11	0	1
July 2018	9	0	0
August 2018	12	0	0
September 2018	11	0	0
October 2018	13	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
November 2018	14	0	0
December 2018	9	0	0
January 2019	39	0	0
February 2019	20	0	0
Total	**319**	**1**	**1**

Cumulative Log for Notifications of Summons

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	The Summon was issued on 22 Dec 2017 First hearing on 29 Mar 2018	0	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	Successful prosecution to the subcontractor on 27 June 2018	0	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--

APPENDIX P
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: Civil Engineering Development Department

Contract No.: NE/2015/01

Monthly Summary Waste Flow Table for 2019

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	131.655	73.591	0.000	103.085	28.570	0.000	0.000	0.421	0.000	2.400	0.140
February	105.752	52.675	0.000	55.650	50.103	0.000	0.000	0.000	0.000	0.000	0.088
March											
April											
May											
June											
Sub-total	237.407	126.266	0.000	158.735	78.673	0.000	0.000	0.421	0.000	2.400	0.227
July											
August											
September											
October											
November											
December											
Total	237.407	126.266	0.000	158.735	78.673	0.000	0.000	0.421	0.000	2.400	0.227

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

Total inert C&D waste recycled = c+d

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

Notes:
(1) The performance target are given in PS Clause 6(14)
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m3. (PS Clause 1.105(4) refers)
(5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.
(6) Conversion factors for reporting purpose:
in-situ: rock = 2.5 tonnes/m^3; soil = 2.0 tonnes/m^3
(7) excavated: rock = 2.0 tonnes/m^3; soil = 1.8 tonnes/m^3; broken concrete and bitumen = 2.4 tonnes/m^3, soil and rock = 1.9 tonnes/m^3
(8) C&D Waste = 0.9 tonnes/m^3; bentonite slurry = 2.8 tonnes/m^3
Diesel density: 0.8kg/l
Numbers are rounded off to the nearest three decimal places
The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"

Monthly Summary Waste Flow Table for 2019 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	5.41318	0.00000	1.09752	0.00000	2.94501	1.37065	140.97000	0.00000	0.00000	4.11000	0.07932
Feb	1.98340	0.00000	0.73212	0.00000	1.09407	0.15721	0.00000	0.00000	0.00000	0.72000	0.01610
Mar											
Apr											
May											
June											
SUB-TOTAL	7.39657	0.00000	1.82964	0.00000	4.03908	1.52785	140.97000	0.00000	0.00000	4.83000	0.09542
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
TOTAL	7.39657	0.00000	1.82964	0.00000	4.03908	1.52785	140.97000	0.00000	0.00000	4.83000	0.09542

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 2019

Name of Person completing the Record: Martin Yiu

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	0.3428	0.0336	0	0	0.3027	0	0	0	0	0.0065
Feb	0.0650	0.0585	0	0	0.0065	0	0	0	0	0
Sub-total	0.4078	0.0921	0	0	0.3092	0	0	0	0	0.0065
Mar	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0
Sept	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0
Total	0.4078	0.0921	0	0	0.3092	0	0	0	0	0.0065

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 2019

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	0.018
Mar											
Apr											
May											
Jun											
Sub-total	0	0	0	0	0	0	0	0	0	0	0.018
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0.018

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 February 2019 to 28 February 2019.

Name of Department : CEDD Contract No. : NE/2015/03

Monthly Summary Waste Flow Table for 2019 (year)

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 (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Accumulated From 2018	1.234385	0	0.175365	0.427405	0.59793	0.03056	0	0	0	0	0.038188
Jan	0.00022	0	0	0	0.00022	0	0	0	0	0	0
Feb	0.0026				0.0026						
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	1.237205	0	0.17365	0.427405	0.60075	0.03056	0	0	0	0	0.038188

Notes:
(1) The performance targets 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 materials.
(4) The *Contractor* shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the *works*, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the *works* is equal to or exceeding 50,000 m^3.

Tseung Kwan O - Lam Tin Tunnel - Tseung Kwan O Interchange and Associated Works
(NE/2017/01)

俊和－上隧－中冶聯營
CW - STEC - CMGC JV

Monthly Summary Waste Flow Table for 2019

Name of Department: Civil Engineering and Development Department

Contract No.: NE/2017/01

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 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	0.0400	0.0000	0.0000	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0015
Feb	0.0400	0.0000	0.0000	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017
Mar											
Apr											
May											
Jun											
Sub-total	0.0800	0.0000	0.0000	0.0800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.0800	0.0000	0.0000	0.0800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032

Notes:

1. Assume the density of soil fill is 2 ton/m^3.
2. Assume the density of rock and broken concrete is 2.5 ton/m^3.
3. Assume the density of mixed rock and soil is 1.9 ton/m^3.
4. Assume the density of slurry and bentonite is 2.8 ton/m^3.
5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
6. Assume the density of C&D waste is 0.9 ton/m^3.
7. The non-inert C&D wastes are disposed at NENT.

APPENDIX Q
TENTATIVE CONSTRUCTION PROGRAMME

High Level 3 Months Look Ahead Programme

Activities	Mar-19	Apr-19	May-19
Lam Tin Interchange			
EHC2 U-Trough			
Site Formation - Area 1G1 & 1G2 &5			
Site Formation - Area 2			
Site Formation - Area 3			
Site Formation - Area 4			
Main Tunnel			
MT Excavation			
MT Lining Works			
TKO Interchange			
Haul Road Construction, Site Formation & Slope Works			
Steel Platform for Bridge Construction			
Cavern Excavation			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)			1563	867	12-Jan-17 A	05-Jul-21	-77			-73
Preliminaries, Submission, Contractor's Design Submission and Approval		P2-Cal.A	1295	534	20-Jan-17 A	06-Aug-20	146			0
General Submission and Acceptance		P2-Cal.A	30	20	21-Aug-17 A	11-Mar-19	660			-538
S10240	Prepare/Submit the Weather Protection Scheme	P2-Cal.A	30	20	21-Aug-17 A	11-Mar-19	660	33.33%		-538
Contractor's Design Submission and Acceptance		P2-Cal.A	729	98	07-Mar-17 A	28-May-19	87			-84
Foundation Design		P2-Cal.A	727	96	01-Jun-18 A	26-May-19	-91			367
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 1 CT01 CH366.059-201.44		P2-Cal.A	657	26	01-Jun-18 A	17-Mar-19	-91			367
S11260-03	3rd Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	14	5	01-Jun-18 A	24-Feb-19	-91	64.29%		-255
S11260-04	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	25-Feb-19	17-Mar-19	-91	0%		0
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 2 (S200 CH821 - P2 CH105		P2-Cal.A	271	26	08-Feb-19 A	17-Mar-19	-40			233
S11270-05	5th Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	14	5	08-Feb-19 A	24-Feb-19	-40	64.29%		-3
S11270-06	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	21	21	25-Feb-19	17-Mar-19	-40	0%		0
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 3 (P2 CH105 - CH305)		P2-Cal.A	168	34	19-Feb-19 A	25-Mar-19	-51			133
S11279-09	7th Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	14	12	19-Feb-19 A	03-Mar-19	-51	14.29%		1
S11279-10	Review and Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	21	21	05-Mar-19	25-Mar-19	-51	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 1 CT01 CH366.059-201.44		P2-Cal.A	91	91	25-Feb-19	26-May-19	-91			0
S11360	Prepare and Submit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	25-Feb-19	17-Mar-19	-91	0%		0
S11380	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	18-Mar-19	07-Apr-19	-91	0%		0
S11400	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	14	14	08-Apr-19	21-Apr-19	-91	0%		0
S11410	Review and comment by Hyd	P2-Cal.A	14	14	22-Apr-19	05-May-19	-91	0%		0
S11420	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 1)	P2-Cal.A	21	21	06-May-19	26-May-19	-91	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 2 (S200 CH821 - P2 CH105		P2-Cal.A	50	40	08-Feb-19 A	05-Apr-19	-40			-7
S11426	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	14	5	08-Feb-19 A	01-Mar-19	-40	64.29%		-8
S11428	Review and comment by Hyd	P2-Cal.A	14	14	02-Mar-19	15-Mar-19	-40	0%		0
S11430	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 2)	P2-Cal.A	21	21	16-Mar-19	05-Apr-19	-40	0%		0
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section) Zone 3 (P2 CH105 - CH305)		P2-Cal.A	209	43	20-Oct-18 A	16-Apr-19	-51			30
S11438	Review and comment by Hyd	P2-Cal.A	14	10	20-Oct-18 A	14-Mar-19	-51	28.57%		-132
S11439-03	Resubmit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	14	12	19-Feb-19 A	26-Mar-19	-51	14.29%		-22
S11439-04	Review and Accept DDA Submission for Foundation of Road P2 Structure (Reclaimed Section Zone 3)	P2-Cal.A	21	21	27-Mar-19	16-Apr-19	-51	0%		0
E&M Design		P2-Cal.A	589	54	07-Mar-17 A	14-Apr-19	53			-180
Statutory Approval for E&M Works		P2-Cal.A	0	0	14-Apr-19	14-Apr-19	53			0
S11570-11	FSD Approval for Underpass GBP	P2-Cal.A	0	0		14-Apr-19	53	0%		0
S11570-12	FSD Approval for Plant room GBP	P2-Cal.A	0	0		14-Apr-19	53	0%		0
Detail Design for E&M Works (Tunnel and associated)		P2-Cal.A	574	39	07-Mar-17 A	30-Mar-19	68			-180
MVAC Detail Design		P2-Cal.A	288	15	28-Apr-18 A	06-Mar-19	92			-25
Plantroom		P2-Cal.A	288	15	04-May-18 A	06-Mar-19	92			-19
S11577	Formal Submission to Supervisor	P2-Cal.A	8	8	04-May-18 A	27-Feb-19	92	0%		-292
S11578	Accept detail design by the Supervisor	P2-Cal.A	7	7	28-Feb-19	06-Mar-19	92	0%		0
Underpass		P2-Cal.A	280	15	28-Apr-18 A	06-Mar-19	92			-33
S11630	Formal Submission to Supervisor	P2-Cal.A	8	8	28-Apr-18 A	27-Feb-19	92	0%		-298
S11640	Accept detail design by the Supervisor	P2-Cal.A	7	7	28-Feb-19	06-Mar-19	92	0%		0
FS Detail Design		P2-Cal.A	544	24	19-Oct-17 A	15-Mar-19	53			31
Underpass		P2-Cal.A	544	24	19-Oct-17 A	15-Mar-19	53			31

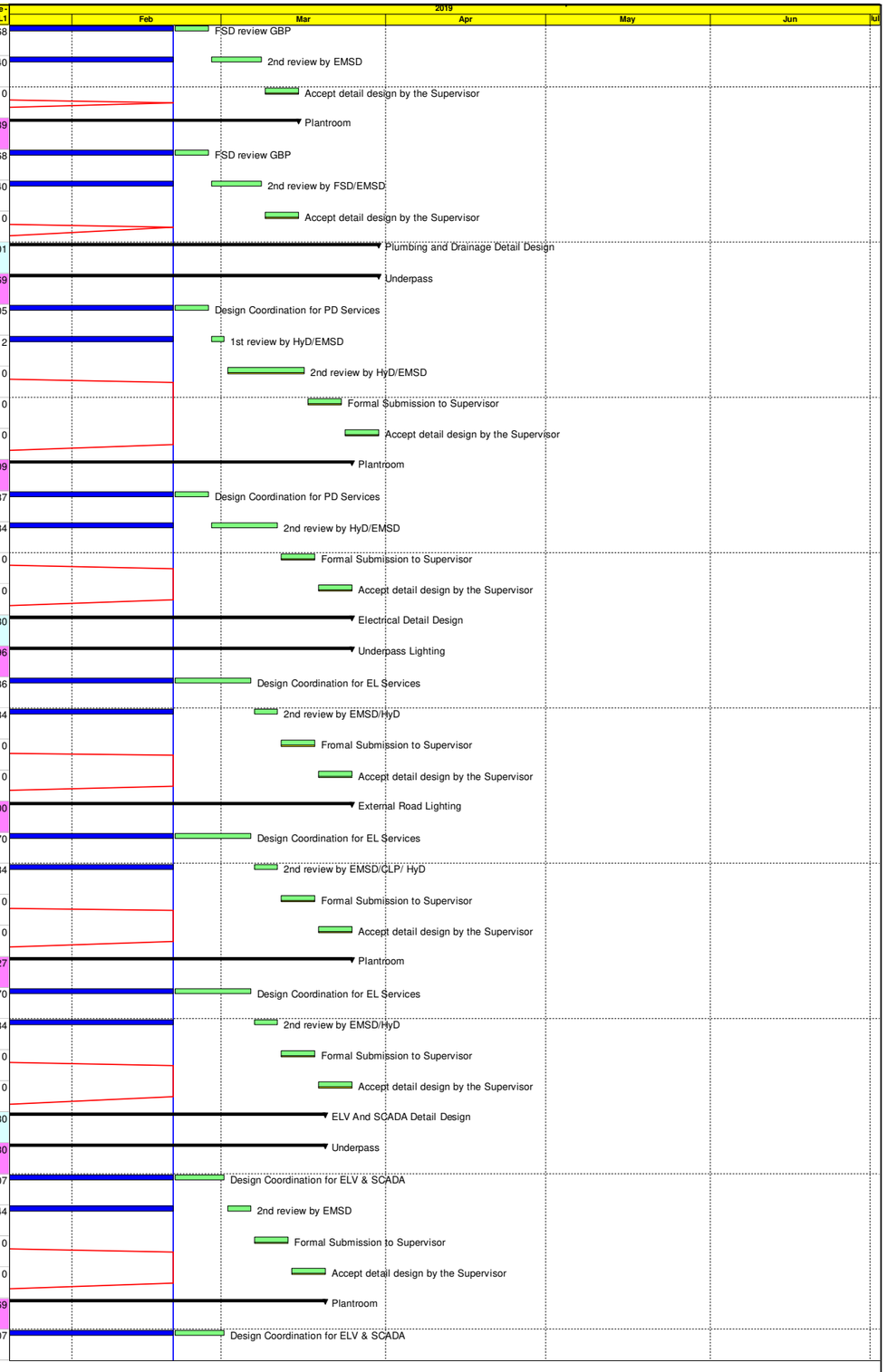
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)

3 Monthly Rolling Programme
(Data Date : 20-Feb-2019)

Date	Revision	Checked	Approved
20-Feb-19			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
S11649	FSD review GBP	P2-Cal.A	28	7	19-Oct-17 A	26-Feb-19	53	75%		-468
S11650-01	2nd review by EMSD	P2-Cal.A	15	10	19-Mar-18 A	08-Mar-19	53	33.33%		-340
S11651	Accept detail design by the Supervisor	P2-Cal.A	7	7	09-Mar-19	15-Mar-19	53	0%		0
Plantroom		P2-Cal.A	474	24	19-Oct-17 A	15-Mar-19	53			-39
S11652-10	FSD review GBP	P2-Cal.A	28	7	19-Oct-17 A	26-Feb-19	53	75%		-468
S11652-21	2nd review by FSD/EMSD	P2-Cal.A	15	10	19-Mar-18 A	08-Mar-19	53	33.33%		-340
S11652-23	Accept detail design by the Supervisor	P2-Cal.A	7	7	09-Mar-19	15-Mar-19	53	0%		0
Plumbing and Drainage Detail Design		P2-Cal.A	428	39	01-Apr-17 A	30-Mar-19	6			-301
Underpass		P2-Cal.A	428	39	03-May-17 A	30-Mar-19	6			-269
S11656	Design Coordination for PD Services	P2-Cal.A	60	7	03-May-17 A	26-Feb-19	6	88.33%		-605
S11657	1st review by HyD/EMSD	P2-Cal.A	15	3	09-Apr-18 A	01-Mar-19	6	80%		-312
S11657-01	2nd review by HyD/EMSD	P2-Cal.A	15	15	02-Mar-19	16-Mar-19	6	0%		0
S11658	Formal Submission to Supervisor	P2-Cal.A	7	7	17-Mar-19	23-Mar-19	6	0%		0
S11659	Accept detail design by the Supervisor	P2-Cal.A	7	7	24-Mar-19	30-Mar-19	6	0%		0
Plantroom		P2-Cal.A	415	34	01-Apr-17 A	25-Mar-19	11			-309
S11660-07	Design Coordination for PD Services	P2-Cal.A	60	7	01-Apr-17 A	26-Feb-19	11	88.33%		-637
S11660-09	2nd review by HyD/EMSD	P2-Cal.A	15	13	17-May-18 A	11-Mar-19	11	13.33%		-284
S11660-10	Formal Submission to Supervisor	P2-Cal.A	7	7	12-Mar-19	18-Mar-19	11	0%		0
S11660-11	Accept detail design by the Supervisor	P2-Cal.A	7	7	19-Mar-19	25-Mar-19	11	0%		0
Electrical Detail Design		P2-Cal.A	569	34	07-Mar-17 A	25-Mar-19	11			-180
Underpass Lighting		P2-Cal.A	569	34	30-May-17 A	25-Mar-19	11			-96
S11660-15	Design Coordination for EL Services	P2-Cal.A	60	15	30-May-17 A	06-Mar-19	11	75%		-586
S11660-17	2nd review by EMSD/HyD	P2-Cal.A	15	5	06-Jul-18 A	11-Mar-19	11	66.67%		-234
S11660-19	Fromal Submission to Supervisor	P2-Cal.A	7	7	12-Mar-19	18-Mar-19	11	0%		0
S11660-20	Accept detail design by the Supervisor	P2-Cal.A	7	7	19-Mar-19	25-Mar-19	11	0%		0
External Road Lighting		P2-Cal.A	549	34	07-Mar-17 A	25-Mar-19	11			-200
S11660-23	Design Coordination for EL Services	P2-Cal.A	60	15	07-Mar-17 A	06-Mar-19	11	75%		-670
S11660-25	2nd review by EMSD/CLP/ HyD	P2-Cal.A	15	5	06-Jul-18 A	11-Mar-19	11	66.67%		-234
S11660-27	Formal Submission to Supervisor	P2-Cal.A	7	7	12-Mar-19	18-Mar-19	11	0%		0
S11660-28	Accept detail design by the Supervisor	P2-Cal.A	7	7	19-Mar-19	25-Mar-19	11	0%		0
Plantroom		P2-Cal.A	422	34	07-Mar-17 A	25-Mar-19	11			-327
S11664	Design Coordination for EL Services	P2-Cal.A	60	15	07-Mar-17 A	06-Mar-19	11	75%		-670
S11666	2nd review by EMSD/HyD	P2-Cal.A	15	5	06-Jul-18 A	11-Mar-19	11	66.67%		-234
S11667	Formal Submission to Supervisor	P2-Cal.A	7	7	12-Mar-19	18-Mar-19	11	0%		0
S11668	Accept detail design by the Supervisor	P2-Cal.A	7	7	19-Mar-19	25-Mar-19	11	0%		0
ELV And SCADA Detail Design		P2-Cal.A	456	29	12-Aug-17 A	20-Mar-19	16			-130
Underpass		P2-Cal.A	456	29	12-Aug-17 A	20-Mar-19	16			-130
S11669-10	Design Coordination for ELV & SCADA	P2-Cal.A	60	10	12-Aug-17 A	01-Mar-19	16	83.33%		-507
S11669-19	2nd review by EMSD	P2-Cal.A	15	5	21-Jun-18 A	06-Mar-19	16	66.67%		-244
S11669-29	Formal Submission to Supervisor	P2-Cal.A	7	7	07-Mar-19	13-Mar-19	16	0%		0
S11669-30	Accept detail design by the Supervisor	P2-Cal.A	7	7	14-Mar-19	20-Mar-19	16	0%		0
Plantroom		P2-Cal.A	417	29	12-Aug-17 A	20-Mar-19	16			-169
S11670-10	Design Coordination for ELV & SCADA	P2-Cal.A	60	10	12-Aug-17 A	01-Mar-19	16	83.33%		-507



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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)

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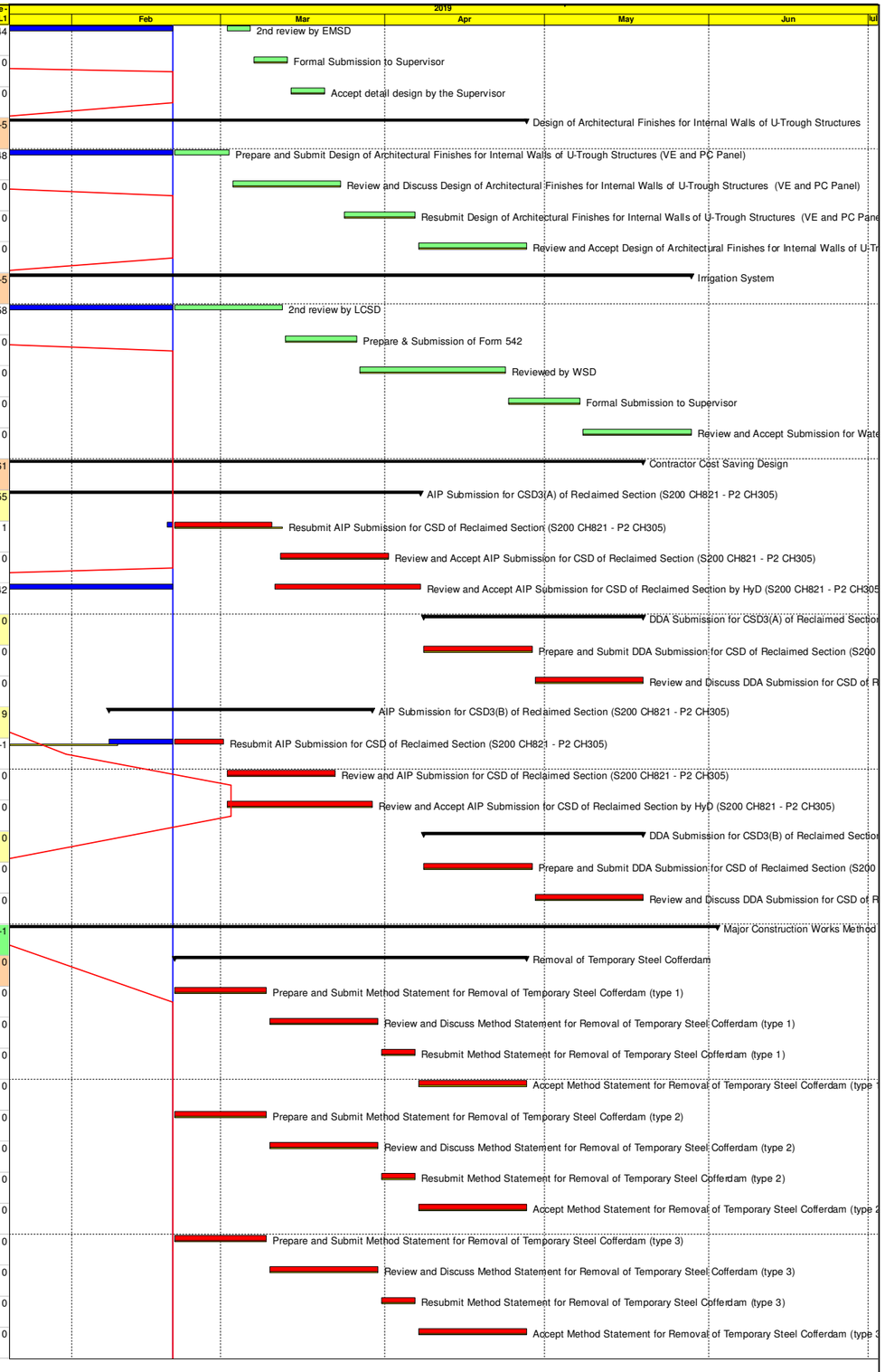
Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
S11670-19	2nd review by EMSD	P2-Cal.A	15	5	21-Jun-18 A	06-Mar-19	16	66.67%		-244
S11670-29	Formal Submission to Supervisor	P2-Cal.A	7	7	07-Mar-19	13-Mar-19	16	0%		0
S11670-30	Accept detail design by the Supervisor	P2-Cal.A	7	7	14-Mar-19	20-Mar-19	16	0%		0
Design of Architectural Finishes for Internal Walls of U-Trough Structures		P2-Cal.A	220	67	15-Sep-18 A	27-Apr-19	118			-5
S11675	Prepare and Submit Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	11	15-Sep-18 A	02-Mar-19	118	47.62%		-148
S11680	Review and Discuss Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	21	03-Mar-19	23-Mar-19	118	0%		0
S11700	Resubmit Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	14	14	24-Mar-19	06-Apr-19	118	0%		0
S11720	Review and Accept Design of Architectural Finishes for Internal Walls of U-Trough Structures (VE and PC Panel)	P2-Cal.A	21	21	07-Apr-19	27-Apr-19	118	0%		0
Irrigation System		P2-Cal.A	251	98	15-Sep-18 A	28-May-19	81			-5
S11787-01	2nd review by LCSD	P2-Cal.A	21	21	15-Sep-18 A	12-Mar-19	81	0%		-158
S11788	Prepare & Submission of Form 542	P2-Cal.A	14	14	13-Mar-19	26-Mar-19	81	0%		0
S11789	Reviewed by WSD	P2-Cal.A	28	28	27-Mar-19	23-Apr-19	81	0%		0
S11790	Formal Submission to Supervisor	P2-Cal.A	14	14	24-Apr-19	07-May-19	81	0%		0
S11800	Review and Accept Submission for Waterpoints and associated elements	P2-Cal.A	21	21	08-May-19	28-May-19	81	0%		0
Contractor Cost Saving Design		P2-Cal.A	273	89	20-Oct-18 A	19-May-19	-89			61
AIP Submission for CSD3(A) of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	225	47	20-Oct-18 A	07-Apr-19	-89			55
S11973-03	Resubmit AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	19	19-Feb-19 A	10-Mar-19	-89	9.52%		1
S11973-04	Review and Accept AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	12-Mar-19	01-Apr-19	-83	0%		0
S11974	Review and Accept AIP Submission for CSD of Reclaimed Section by HyD (S200 CH821 - P2 CH305)	P2-Cal.A	28	28	20-Oct-18 A	07-Apr-19	-89	0%		-142
DDA Submission for CSD3(A) of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	42	42	08-Apr-19	19-May-19	-89			0
S11975	Prepare and Submit DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	08-Apr-19	28-Apr-19	-89	0%		0
S11976	Review and Discuss DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	29-Apr-19	19-May-19	-89	0%		0
AIP Submission for CSD3(B) of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	69	38	08-Feb-19 A	29-Mar-19	-80			19
S11979-03	Resubmit AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	10	08-Feb-19 A	01-Mar-19	-80	52.38%		-1
S17988	Review and AIP Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	02-Mar-19	22-Mar-19	-73	0%		0
S18008	Review and Accept AIP Submission for CSD of Reclaimed Section by HyD (S200 CH821 - P2 CH305)	P2-Cal.A	28	28	02-Mar-19	29-Mar-19	-80	0%		0
DDA Submission for CSD3(B) of Reclaimed Section (S200 CH821 - P2 CH305)		P2-Cal.A	42	42	08-Apr-19	19-May-19	-89			0
S18028	Prepare and Submit DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	08-Apr-19	28-Apr-19	-89	0%		0
S18048	Review and Discuss DDA Submission for CSD of Reclaimed Section (S200 CH821 - P2 CH305)	P2-Cal.A	21	21	29-Apr-19	19-May-19	-89	0%		0
Major Construction Works Method Statement		P2-Cal.A	165	103	19-Dec-18 A	02-Jun-19	-5			-1
Removal of Temporary Steel Cofferdam		P2-Cal.A	67	67	20-Feb-19	27-Apr-19	-5			0
S13810	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	18	18	20-Feb-19	09-Mar-19	-27	0%		0
S13811	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	21	21	10-Mar-19	30-Mar-19	-27	0%		0
S13812	Resubmit Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	7	7	31-Mar-19	06-Apr-19	-27	0%		0
S13813	Accept Method Statement for Removal of Temporary Steel Cofferdam (type 1)	P2-Cal.A	21	21	07-Apr-19	27-Apr-19	-27	0%		0
S13814	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	18	18	20-Feb-19	09-Mar-19	-27	0%		0
S13815	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	21	21	10-Mar-19	30-Mar-19	-27	0%		0
S13816	Resubmit Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	7	7	31-Mar-19	06-Apr-19	-27	0%		0
S13817	Accept Method Statement for Removal of Temporary Steel Cofferdam (type 2)	P2-Cal.A	21	21	07-Apr-19	27-Apr-19	-27	0%		0
S13818-1	Prepare and Submit Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	18	18	20-Feb-19	09-Mar-19	-5	0%		0
S13818-2	Review and Discuss Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	21	21	10-Mar-19	30-Mar-19	-5	0%		0
S13818-3	Resubmit Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	7	7	31-Mar-19	06-Apr-19	-5	0%		0
S13818-4	Accept Method Statement for Removal of Temporary Steel Cofferdam (type 3)	P2-Cal.A	21	21	07-Apr-19	27-Apr-19	-5	0%		0



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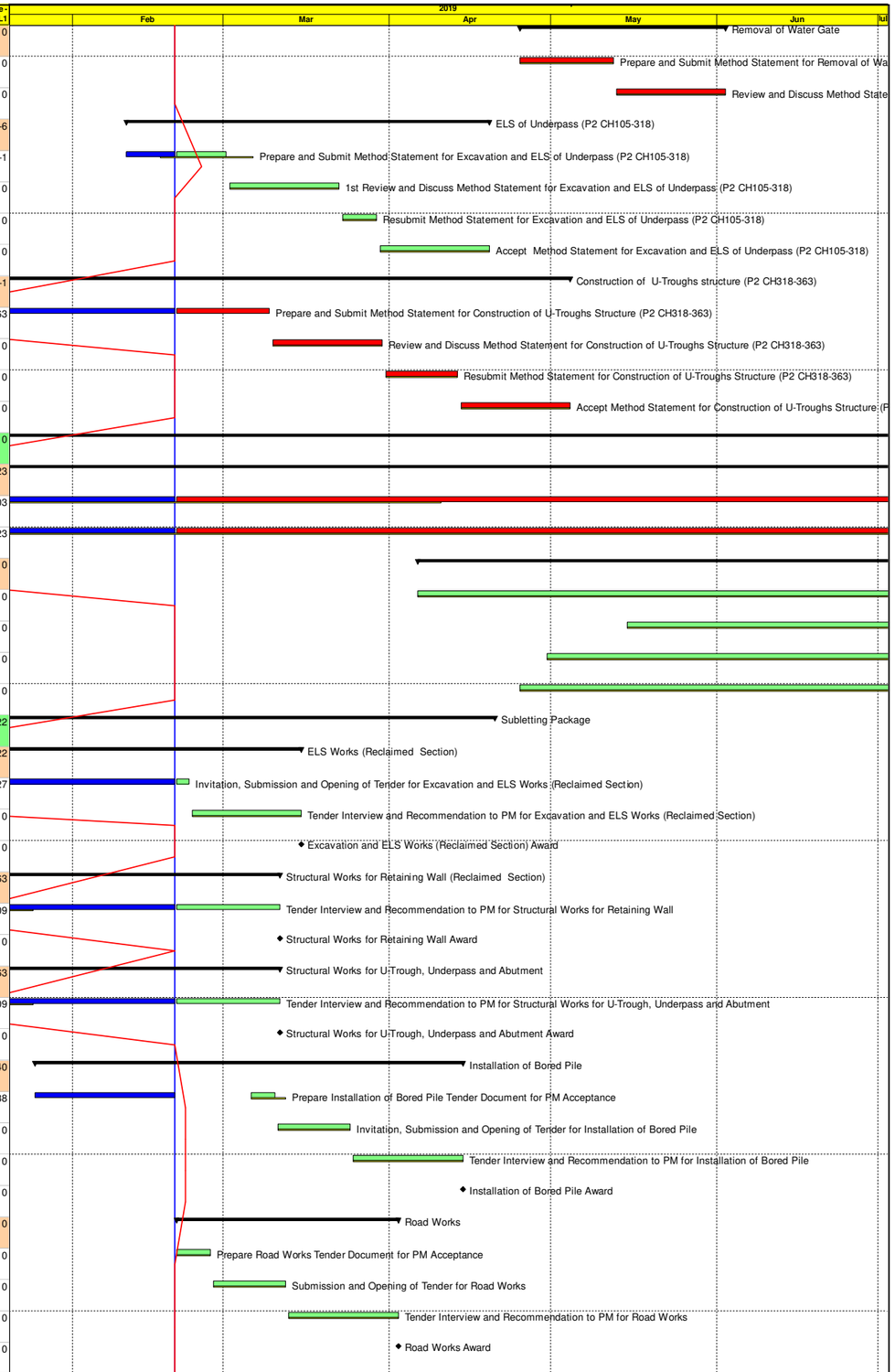
Removal of Water Gate		P2-Cal.A	39	39	25-Apr-19	02-Jun-19	-13			0
S13882	Prepare and Submit Method Statement for Removal of Water Gate	P2-Cal.A	18	18	25-Apr-19	12-May-19	-13	0%		0
S13884	Review and Discuss Method Statement for Removal of Water Gate	P2-Cal.A	21	21	13-May-19	02-Jun-19	-13	0%		0
ELS of Underpass (P2 CH105-318)		P2-Cal.A	62	59	11-Feb-19 A	19-Apr-19	39			-6
S14056	Prepare and Submit Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	18	10	11-Feb-19 A	01-Mar-19	39	44.44%		-1
S14057	1st Review and Discuss Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	21	21	02-Mar-19	22-Mar-19	39	0%		0
S14058	Resubmit Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	7	7	23-Mar-19	29-Mar-19	39	0%		0
S14059	Accept Method Statement for Excavation and ELS of Underpass (P2 CH105-318)	P2-Cal.A	21	21	30-Mar-19	19-Apr-19	39	0%		0
Construction of U-Troughs structure (P2 CH318-363)		P2-Cal.A	136	74	19-Dec-18 A	04-May-19	-254			-1
S14122	Prepare and Submit Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	18	18	19-Dec-18 A	09-Mar-19	-254	0%		-63
S14124	Review and Discuss Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	21	21	10-Mar-19	30-Mar-19	-254	0%		0
S14126	Resubmit Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	14	14	31-Mar-19	13-Apr-19	-254	0%		0
S14128	Accept Method Statement for Construction of U-Troughs Structure (P2 CH318-363)	P2-Cal.A	21	21	14-Apr-19	04-May-19	-254	0%		0
Procurement of Major Material		P2-Cal.A	1295	534	20-Jan-17 A	06-Aug-20	53			0
Civil/Structural		P2-Cal.A	1015	377	20-Jan-17 A	02-Mar-20	-264			-123
S14981	Procurement and Delivery of Steel H-Pile	P2-Cal.A	800	153	31-Jan-17 A	22-Jul-19	-279	80.88%		-103
S14983	Procurement and Delivery of ELS Wailing & Struts Members	P2-Cal.A	1015	377	20-Jan-17 A	02-Mar-20	-264	62.86%		-123
E&M		P2-Cal.A	489	489	06-Apr-19	06-Aug-20	53			0
S15144	Procurement and Delivery of MVAC Plant	P2-Cal.A	450	450	06-Apr-19	28-Jun-20	92	0%		0
S15146	Procurement and Delivery of FS Equipment	P2-Cal.A	450	450	15-May-19	06-Aug-20	53	0%		0
S15148	Procurement and Delivery of P/D Equipment	P2-Cal.A	450	450	30-Apr-19	22-Jul-20	6	0%		0
S15150	Procurement and Delivery of EL Equipment (Incl. SCADA and ELV)	P2-Cal.A	450	450	25-Apr-19	17-Jul-20	11	0%		0
Subletting Package		P2-Cal.A	176	60	05-Oct-18 A	20-Apr-19	449			-22
ELS Works (Reclaimed Section)		P2-Cal.A	140	24	05-Oct-18 A	15-Mar-19	264			-22
S16386	Invitation, Submission and Opening of Tender for Excavation and ELS Works (Reclaimed Section)	P2-Cal.A	14	3	05-Oct-18 A	22-Feb-19	264	78.57%		-127
S16387	Tender Interview and Recommendation to PM for Excavation and ELS Works (Reclaimed Section)	P2-Cal.A	21	21	23-Feb-19	15-Mar-19	264	0%		0
S16388	Excavation and ELS Works (Reclaimed Section) Award	P2-Cal.A	0	0		15-Mar-19	264	0%		0
Structural Works for Retaining Wall (Reclaimed Section)		P2-Cal.A	76	20	24-Oct-18 A	11-Mar-19	346			-63
S16391	Tender Interview and Recommendation to PM for Structural Works for Retaining Wall	P2-Cal.A	30	20	24-Oct-18 A	11-Mar-19	346	33.33%		-109
S16392	Structural Works for Retaining Wall Award	P2-Cal.A	0	0		11-Mar-19	346	0%		0
Structural Works for U-Trough, Underpass and Abutment		P2-Cal.A	76	20	24-Oct-18 A	11-Mar-19	349			-63
S16440	Tender Interview and Recommendation to PM for Structural Works for U-Trough, Underpass and Abutment	P2-Cal.A	30	20	24-Oct-18 A	11-Mar-19	349	33.33%		-109
S16460	Structural Works for U-Trough, Underpass and Abutment Award	P2-Cal.A	0	0		11-Mar-19	349	0%		0
Installation of Bored Pile		P2-Cal.A	40	40	25-Jan-19 A	14-Apr-19	107			-40
S16800	Prepare Installation of Bored Pile Tender Document for PM Acceptance	P2-Cal.A	7	5	25-Jan-19 A	10-Mar-19	107	28.57%		-38
S16820	Invitation, Submission and Opening of Tender for Installation of Bored Pile	P2-Cal.A	14	14	11-Mar-19	24-Mar-19	107	0%		0
S16840	Tender Interview and Recommendation to PM for Installation of Bored Pile	P2-Cal.A	21	21	25-Mar-19	14-Apr-19	107	0%		0
S16860	Installation of Bored Pile Award	P2-Cal.A	0	0		14-Apr-19	107	0%		0
Road Works		P2-Cal.A	42	42	20-Feb-19	02-Apr-19	152			0
S17200	Prepare Road Works Tender Document for PM Acceptance	P2-Cal.A	7	7	20-Feb-19	26-Feb-19	152	0%		0
S17220	Submission and Opening of Tender for Road Works	P2-Cal.A	14	14	27-Feb-19	12-Mar-19	152	0%		0
S17240	Tender Interview and Recommendation to PM for Road Works	P2-Cal.A	21	21	13-Mar-19	02-Apr-19	152	0%		0
S17260	Road Works Award	P2-Cal.A	0	0		02-Apr-19	152	0%		0



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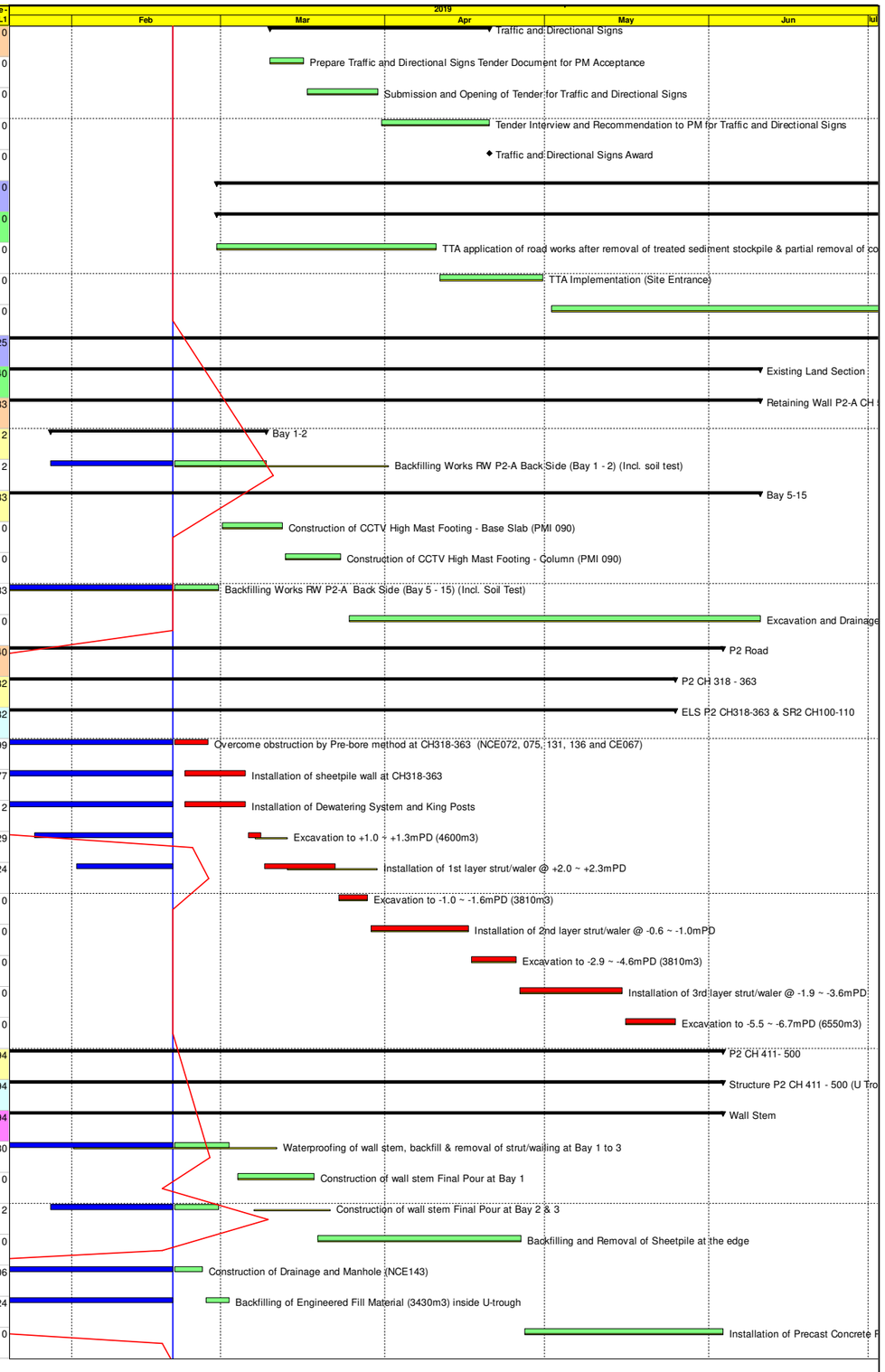
Traffic and Directional Signs		P2-Cal.A	42	42	10-Mar-19	20-Apr-19	449			0
S17440	Prepare Traffic and Directional Signs Tender Document for PM Acceptance	P2-Cal.A	7	7	10-Mar-19	16-Mar-19	449	0%		0
S17460	Submission and Opening of Tender for Traffic and Directional Signs	P2-Cal.A	14	14	17-Mar-19	30-Mar-19	449	0%		0
S17480	Tender Interview and Recommendation to PM for Traffic and Directional Signs	P2-Cal.A	21	21	31-Mar-19	20-Apr-19	449	0%		0
S17500	Traffic and Directional Signs Award	P2-Cal.A	0	0		20-Apr-19	449	0%		0
Section 2 of the Works (All Works Within Portion II)		P2-Cal.C	109	109	28-Feb-19	13-Jul-19	102			0
Roadworks		P2-Cal.C	109	109	28-Feb-19	13-Jul-19	102			0
LC11807	TTA application of road works after removal of treated sediment stockpile & partial removal of concrete blockwall	P2-Cal.C	35	35	28-Feb-19	10-Apr-19	102	0%		0
LC11808	TTA Implementation (Site Entrance)	P2-Cal.C	14	14	11-Apr-19	30-Apr-19	102	0%		0
LC11810	Drainage works, ducting and water mains	P2-Cal.C	60	60	02-May-19	13-Jul-19	102	0%		0
Section 3 of the Works All Works within Portion IV, V, VI, VII,VIII, and IX			647	262	06-Jan-18 A	08-Nov-19	263			-25
Existing Land Section		P2-Cal.C	309	88	06-Apr-18 A	10-Jun-19	251			-40
Retaining Wall P2-A CH 500- 650		P2-Cal.C	115	88	07-Aug-18 A	10-Jun-19	251			-133
Bay 1-2		P2-Cal.C	35	16	28-Jan-19 A	09-Mar-19	323			2
LC11947	Backfilling Works RW P2-A Back Side (Bay 1 - 2) (Incl. soil test)	P2-Cal.C	35	16	28-Jan-19 A	09-Mar-19	323	54.29%	6	2
Bay 5-15		P2-Cal.C	115	88	07-Aug-18 A	10-Jun-19	191			-133
LC11972-1	Construction of CCTV High Mast Footing - Base Slab (PMI 090)	P2-Cal.C	10	10	01-Mar-19	12-Mar-19	191	0%		0
LC11972-2	Construction of CCTV High Mast Footing - Column (PMI 090)	P2-Cal.C	10	10	13-Mar-19	23-Mar-19	191	0%		0
LC11988	Backfilling Works RW P2-A Back Side (Bay 5 - 15) (Incl. Soil Test)	P2-Cal.C	35	8	07-Aug-18 A	28-Feb-19	191	77.14%	12	-133
LC11989	Excavation and Drainage Works (Bay 1 - 15)	P2-Cal.C	60	60	25-Mar-19	10-Jun-19	191	0%		0
P2 Road		P2-Cal.C	304	83	06-Apr-18 A	03-Jun-19	256			-40
P2 CH 318 - 363		P2-Cal.C	297	76	16-Apr-18 A	25-May-19	-227			-32
ELS P2 CH318-363 & SR2 CH100-110		P2-Cal.C	297	76	16-Apr-18 A	25-May-19	-227			-32
LC12951	Overcome obstruction by Pre-bore method at CH318-363 (NCE072, 075, 131, 136 and CE067)	P2-Cal.C	60	6	16-Apr-18 A	26-Feb-19	-227	90%		-199
LC12952	Installation of sheetpile wall at CH318-363	P2-Cal.C	60	10	19-May-18 A	05-Mar-19	-227	83.33%		-177
LC12953	Installation of Dewatering System and King Posts	P2-Cal.C	20	10	22-Sep-18 A	05-Mar-19	-227	50%		-112
LC12956	Excavation to +1.0 ~ +1.3mPD (4600m3)	P2-Cal.C	5	3	25-Jan-19 A	08-Mar-19	-227	40%		-29
LC12957	Installation of 1st layer strut/waler @ +2.0 ~ +2.3mPD	P2-Cal.C	15	12	02-Feb-19 A	22-Mar-19	-227	20%		-24
LC12958	Excavation to -1.0 ~ -1.6mPD (3810m3)	P2-Cal.C	5	5	23-Mar-19	28-Mar-19	-227	0%		0
LC12959	Installation of 2nd layer strut/waler @ -0.6 ~ -1.0mPD	P2-Cal.C	15	15	29-Mar-19	16-Apr-19	-227	0%		0
LC12961	Excavation to -2.9 ~ -4.6mPD (3810m3)	P2-Cal.C	5	5	17-Apr-19	25-Apr-19	-227	0%		0
LC12962	Installation of 3rd layer strut/waler @ -1.9 ~ -3.6mPD	P2-Cal.C	15	15	26-Apr-19	15-May-19	-227	0%		0
LC12964	Excavation to -5.5 ~ -6.7mPD (6550m3)	P2-Cal.C	9	9	16-May-19	25-May-19	-227	0%		0
P2 CH 411- 500		P2-Cal.C	250	83	06-Apr-18 A	03-Jun-19	256			-94
Structure P2 CH 411 - 500 (U Trough A)		P2-Cal.C	250	83	06-Apr-18 A	03-Jun-19	256			-94
Wall Stem		P2-Cal.C	250	83	06-Apr-18 A	03-Jun-19	256			-94
LC15185	Waterproofing of wall stem, backfill & removal of strut/wailing at Bay 1 to 3	P2-Cal.C	30	10	17-Dec-18 A	02-Mar-19	256	66.67%		-30
LC15230	Construction of wall stem Final Pour at Bay 1	P2-Cal.C	13	13	04-Mar-19	18-Mar-19	256	0%		0
LC15235	Construction of wall stem Final Pour at Bay 2 & 3	P2-Cal.C	13	8	28-Jan-19 A	28-Feb-19	258	38.46%		-12
LC15240	Backfilling and Removal of Sheetpile at the edge	P2-Cal.C	30	30	19-Mar-19	26-Apr-19	256	0%		0
LC15250	Construction of Drainage and Manhole (NCE143)	P2-Cal.C	60	5	06-Apr-18 A	25-Feb-19	299	91.67%		-206
LC15260	Backfilling of Engineered Fill Material (3430m3) inside U-trough	P2-Cal.C	15	5	15-May-18 A	02-Mar-19	299	66.67%		-224
LC15270	Installation of Precast Concrete Profile Barrier (192m)	P2-Cal.C	30	30	27-Apr-19	03-Jun-19	256	0%		0



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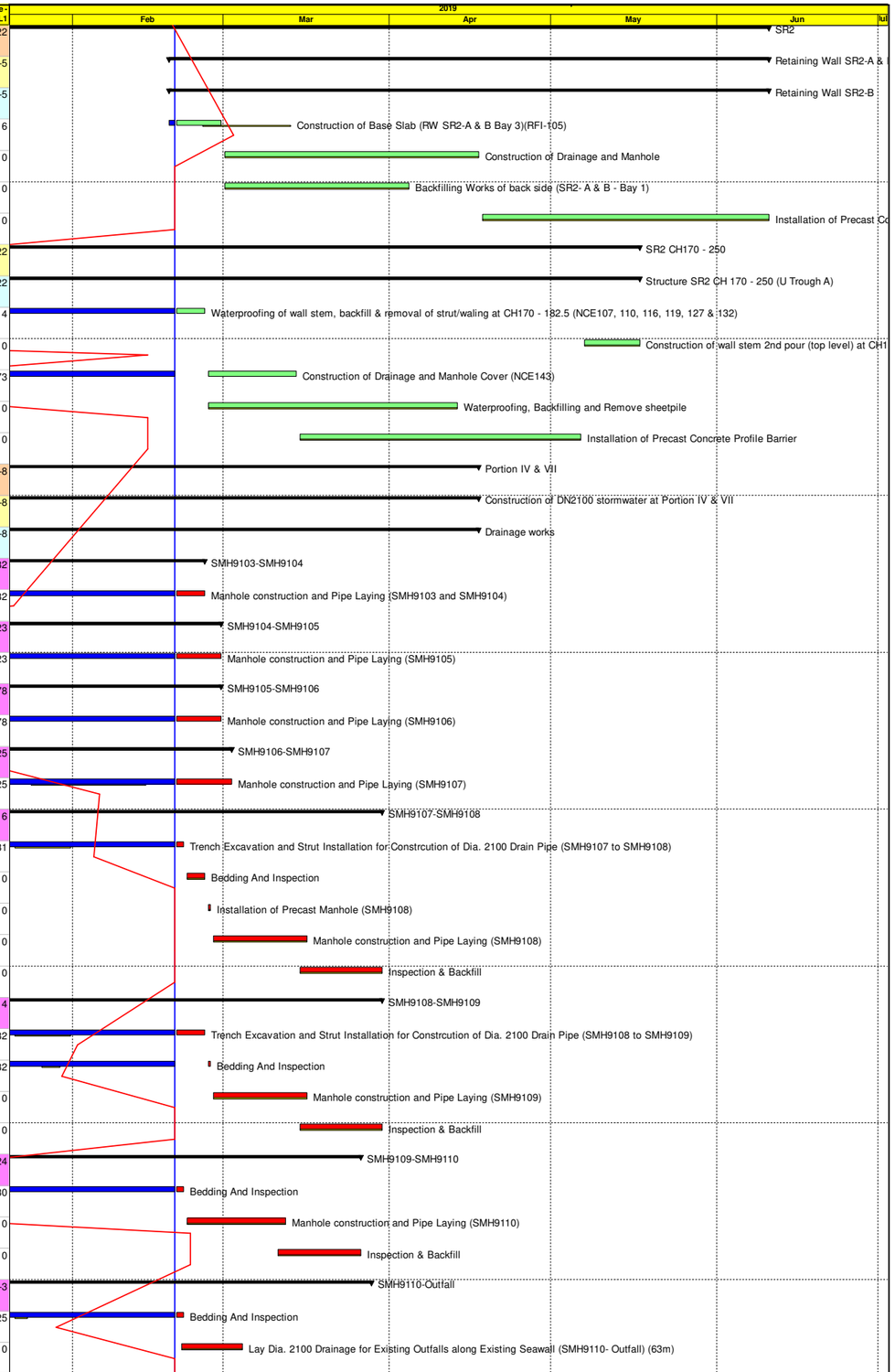
SR2		P2-Cal.C	285	88	28-May-18 A	10-Jun-19	251			-22
Retaining Wall SR2-A & B CH250 - 310		P2-Cal.C	84	88	19-Feb-19 A	10-Jun-19	251			-5
Retaining Wall SR2-B		P2-Cal.C	84	88	19-Feb-19 A	10-Jun-19	251			-5
LC16615	Construction of Base Slab (RW SR2-A & B Bay 3)(RFI-105)	P2-Cal.C	15	8	19-Feb-19 A	28-Feb-19	251	46.67%		6
LC16860	Construction of Drainage and Manhole	P2-Cal.C	40	40	01-Mar-19	17-Apr-19	251	0%	10	0
LC16865	Backfilling Works of back side (SR2- A & B - Bay 1)	P2-Cal.C	30	30	01-Mar-19	04-Apr-19	261	0%	10	0
LC16880	Installation of Precast Concrete Profile Barrier	P2-Cal.C	40	40	18-Apr-19	10-Jun-19	251	0%	10	0
SR2 CH170 - 250		P2-Cal.C	266	69	28-May-18 A	17-May-19	270			-22
Structure SR2 CH 170 - 250 (U Trough A)		P2-Cal.C	266	69	28-May-18 A	17-May-19	270			-22
LC17340	Waterproofing of wall stem, backfill & removal of strut/waling at CH170 - 182.5 (NCE107, 110, 116, 119, 127 & 132)	P2-Cal.C	10	5	28-May-18 A	25-Feb-19	270	50%		-214
LC17395	Construction of wall stem 2nd pour (top level) at CH170 - 182.5	P2-Cal.C	9	9	07-May-19	17-May-19	270	0%		0
LC17400	Construction of Drainage and Manhole Cover (NCE143)	P2-Cal.C	40	15	28-Jun-18 A	14-Mar-19	270	62.5%		-173
LC17510	Waterproofing, Backfilling and Remove sheetpile	P2-Cal.C	40	40	26-Feb-19	13-Apr-19	294	0%		0
LC17520	Installation of Precast Concrete Profile Barrier	P2-Cal.C	40	40	15-Mar-19	06-May-19	270	0%		0
Portion IV & VII		P2-Cal.C	171	48	10-Sep-18 A	17-Apr-19	-29			-8
Construction of DN2100 stormwater at Portion IV & VII		P2-Cal.C	171	48	10-Sep-18 A	17-Apr-19	-29			-8
Drainage works		P2-Cal.C	171	48	10-Sep-18 A	17-Apr-19	-29			-8
SMH9103-SMH9104		P2-Cal.C	20	5	20-Dec-18 A	25-Feb-19	-221			-32
LC17690-3	Manhole construction and Pipe Laying (SMH9103 and SMH9104)	P2-Cal.C	20	5	20-Dec-18 A	25-Feb-19	-221	75%		-32
SMH9104-SMH9105		P2-Cal.C	16	8	10-Sep-18 A	28-Feb-19	-1			-123
LC17691-3	Manhole construction and Pipe Laying (SMH9105)	P2-Cal.C	16	8	10-Sep-18 A	28-Feb-19	-1	50%		-123
SMH9105-SMH9106		P2-Cal.C	16	8	05-Nov-18 A	28-Feb-19	-1			-78
LC17692-3	Manhole construction and Pipe Laying (SMH9106)	P2-Cal.C	16	8	05-Nov-18 A	28-Feb-19	-1	50%		-78
SMH9106-SMH9107		P2-Cal.C	16	10	11-Jan-19 A	02-Mar-19	-3			-25
LC17693-3	Manhole construction and Pipe Laying (SMH9107)	P2-Cal.C	16	10	11-Jan-19 A	02-Mar-19	-3	37.5%		-25
SMH9107-SMH9108		P2-Cal.C	57	34	02-Jan-19 A	30-Mar-19	-29			-16
LC17694	Trench Excavation and Strut Installation for Constrcution of Dia. 2100 Drain Pipe (SMH9107 to SMH9108)	P2-Cal.C	10	2	02-Jan-19 A	21-Feb-19	-29	80%		-31
LC17695	Bedding And Inspection	P2-Cal.C	3	3	22-Feb-19	25-Feb-19	-29	0%		0
LC17695-01	Installation of Precast Manhole (SMH9108)	P2-Cal.C	1	1	26-Feb-19	26-Feb-19	-29	0%		0
LC17696	Manhole construction and Pipe Laying (SMH9108)	P2-Cal.C	16	16	27-Feb-19	16-Mar-19	-29	0%		0
LC17698	Inspection & Backfill	P2-Cal.C	14	14	15-Mar-19	30-Mar-19	-29	0%		0
SMH9108-SMH9109		P2-Cal.C	57	34	04-Jan-19 A	30-Mar-19	-29			-14
LC17699	Trench Excavation and Strut Installation for Constrcution of Dia. 2100 Drain Pipe (SMH9108 to SMH9109)	P2-Cal.C	10	5	04-Jan-19 A	25-Feb-19	-29	50%		-32
LC17701	Bedding And Inspection	P2-Cal.C	3	1	14-Jan-19 A	26-Feb-19	-29	66.67%		-32
LC17702	Manhole construction and Pipe Laying (SMH9109)	P2-Cal.C	16	16	27-Feb-19	16-Mar-19	-29	0%		0
LC17704	Inspection & Backfill	P2-Cal.C	14	14	15-Mar-19	30-Mar-19	-29	0%		0
SMH9109-SMH9110		P2-Cal.C	137	30	10-Sep-18 A	26-Mar-19	-25			-24
LC17707	Bedding And Inspection	P2-Cal.C	3	2	10-Sep-18 A	21-Feb-19	-25	33.33%		-130
LC17708	Manhole construction and Pipe Laying (SMH9110)	P2-Cal.C	16	16	22-Feb-19	12-Mar-19	-25	0%		0
LC17710	Inspection & Backfill	P2-Cal.C	14	14	11-Mar-19	26-Mar-19	-25	0%		0
SMH9110-Outfall		P2-Cal.C	55	32	17-Jan-19 A	28-Mar-19	-27			-3
LC17713	Bedding And Inspection	P2-Cal.C	3	2	17-Jan-19 A	21-Feb-19	-27	33.33%		-25
LC17715	Lay Dia. 2100 Drainage for Existing Outfalls along Existing Seawall (SMH9110- Outfall) (63m)	P2-Cal.C	10	10	21-Feb-19	04-Mar-19	-20	0%		0



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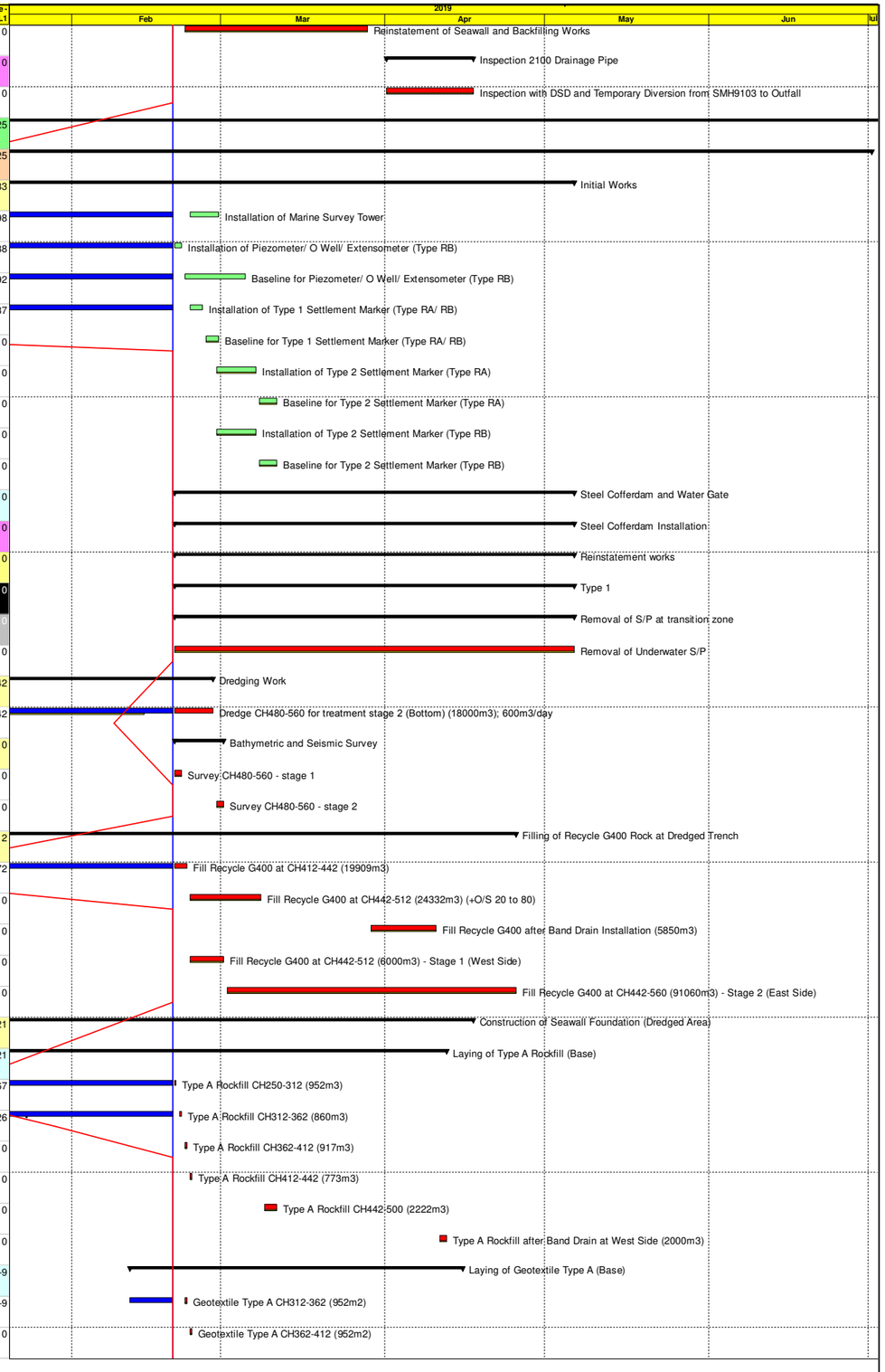
LC17716	Reinstatement of Seawall and Backfilling Works	P2-Cal.C	30	30	22-Feb-19	28-Mar-19	-27	0%		0
Inspection 2100 Drainage Pipe		P2-Cal.C	14	14	01-Apr-19	17-Apr-19	-29			0
LC17717	Inspection with DSD and Temporary Diversion from SMH9103 to Outfall	P2-Cal.C	14	14	01-Apr-19	17-Apr-19	-29	0%		0
New Reclaimed Section			647	262	06-Jan-18 A	08-Nov-19	263			-25
Marine Works			517	132	06-Jan-18 A	01-Jul-19	87			-25
Initial Works		P2-Cal.C	216	60	03-May-18 A	06-May-19	62			-83
MC10050	Installation of Marine Survey Tower	P2-Cal.C	42	5	08-Sep-18 A	28-Feb-19	114	88.1%		-98
MC10060	Installation of Piezometer/ O Well/ Extensometer (Type RB)	P2-Cal.C	7	2	28-Jun-18 A	21-Feb-19	16	71.43%		-188
MC10070	Baseline for Piezometer/ O Well/ Extensometer (Type RB)	P2-Cal.C	10	10	03-Jul-18 A	05-Mar-19	16	0%		-192
MC10080	Installation of Type 1 Settlement Marker (Type RA/ RB)	P2-Cal.C	7	2	03-May-18 A	25-Feb-19	20	71.43%		-237
MC10120	Baseline for Type 1 Settlement Marker (Type RA/ RB)	P2-Cal.C	3	3	26-Feb-19	28-Feb-19	20	0%		0
MC10156	Installation of Type 2 Settlement Marker (Type RA)	P2-Cal.C	7	7	28-Feb-19	07-Mar-19	11	0%		0
MC10160	Baseline for Type 2 Settlement Marker (Type RA)	P2-Cal.C	3	3	08-Mar-19	11-Mar-19	11	0%		0
MC10170	Installation of Type 2 Settlement Marker (Type RB)	P2-Cal.C	7	7	28-Feb-19	07-Mar-19	11	0%		0
MC10175	Baseline for Type 2 Settlement Marker (Type RB)	P2-Cal.C	3	3	08-Mar-19	11-Mar-19	11	0%		0
Steel Cofferdam and Water Gate		P2-Cal.C	60	60	20-Feb-19	06-May-19	-11			0
Steel Cofferdam Installation		P2-Cal.C	60	60	20-Feb-19	06-May-19	-11			0
Reinstatement works		P2-Cal.C	60	60	20-Feb-19	06-May-19	-11			0
Type 1		P2-Cal.C	60	60	20-Feb-19	06-May-19	-11			0
Removal of S/P at transition zone		P2-Cal.C	60	60	20-Feb-19	06-May-19	-11			0
MC10304-02	Removal of Underwater S/P	P2-Cal.C	60	60	20-Feb-19	06-May-19	-11	0%		0
Dredging Work		P2-Cal.C	30	7	29-Nov-18 A	27-Feb-19	-70			-42
MC10855	Dredge CH480-560 for treatment stage 2 (Bottom) (18000m3); 600m3/day	P2-Cal.C	30	7	29-Nov-18 A	27-Feb-19	-70	76.67%		-42
Bathymetric and Seismic Survey		P2-Cal.C	9	9	20-Feb-19	01-Mar-19	-63			0
MC11025	Survey CH480-560 - stage 1	P2-Cal.C	2	2	20-Feb-19	21-Feb-19	-74	0%	0	0
MC11035	Survey CH480-560 - stage 2	P2-Cal.C	2	2	28-Feb-19	01-Mar-19	-63	0%	0	0
Filling of Recycle G400 Rock at Dredged Trench		P2-Cal.C	119	52	13-Nov-18 A	25-Apr-19	-63			-12
MC11205	Fill Recycle G400 at CH412-442 (19909m3)	P2-Cal.C	10	3	13-Nov-18 A	22-Feb-19	-81	70%	0	-72
MC11225	Fill Recycle G400 at CH442-512 (24332m3) (+O/S 20 to 80)	P2-Cal.C	12	12	23-Feb-19	08-Mar-19	-81	0%	0	0
MC11228	Fill Recycle G400 after Band Drain Installation (5850m3)	P2-Cal.C	10	10	29-Mar-19	10-Apr-19	-82	0%	0	0
MC11235	Fill Recycle G400 at CH442-512 (6000m3) - Stage 1 (West Side)	P2-Cal.C	6	6	23-Feb-19	01-Mar-19	-81	0%	0	0
MC11245	Fill Recycle G400 at CH442-560 (91060m3) - Stage 2 (East Side)	P2-Cal.C	43	43	02-Mar-19	25-Apr-19	-63	0%	0	0
Construction of Seawall Foundation (Dredged Area)		P2-Cal.C	95	48	26-Nov-18 A	17-Apr-19	-82			-21
Laying of Type A Rockfill (Base)		P2-Cal.C	91	44	26-Nov-18 A	12-Apr-19	-82			-21
MC11275	Type A Rockfill CH250-312 (952m3)	P2-Cal.C	2	1	26-Nov-18 A	20-Feb-19	-82	50%	0	-67
MC11285	Type A Rockfill CH312-362 (860m3)	P2-Cal.C	1	1	18-Jan-19 A	21-Feb-19	-82	0%	0	-26
MC11295	Type A Rockfill CH362-412 (917m3)	P2-Cal.C	1	1	22-Feb-19	22-Feb-19	-81	0%	0	0
MC11305	Type A Rockfill CH412-442 (773m3)	P2-Cal.C	1	1	23-Feb-19	23-Feb-19	-79	0%	0	0
MC11315	Type A Rockfill CH442-500 (2222m3)	P2-Cal.C	2	2	09-Mar-19	11-Mar-19	-81	0%	0	0
MC11318	Type A Rockfill after Band Drain at West Side (2000m3)	P2-Cal.C	2	2	11-Apr-19	12-Apr-19	-82	0%	0	0
Laying of Geotextile Type A (Base)		P2-Cal.C	44	44	12-Feb-19 A	15-Apr-19	-82			-9
MC11375	Geotextile Type A CH312-362 (952m2)	P2-Cal.C	1	1	12-Feb-19 A	22-Feb-19	-82	0%	0	-9
MC11385	Geotextile Type A CH362-412 (952m2)	P2-Cal.C	1	1	23-Feb-19	23-Feb-19	-81	0%	0	0



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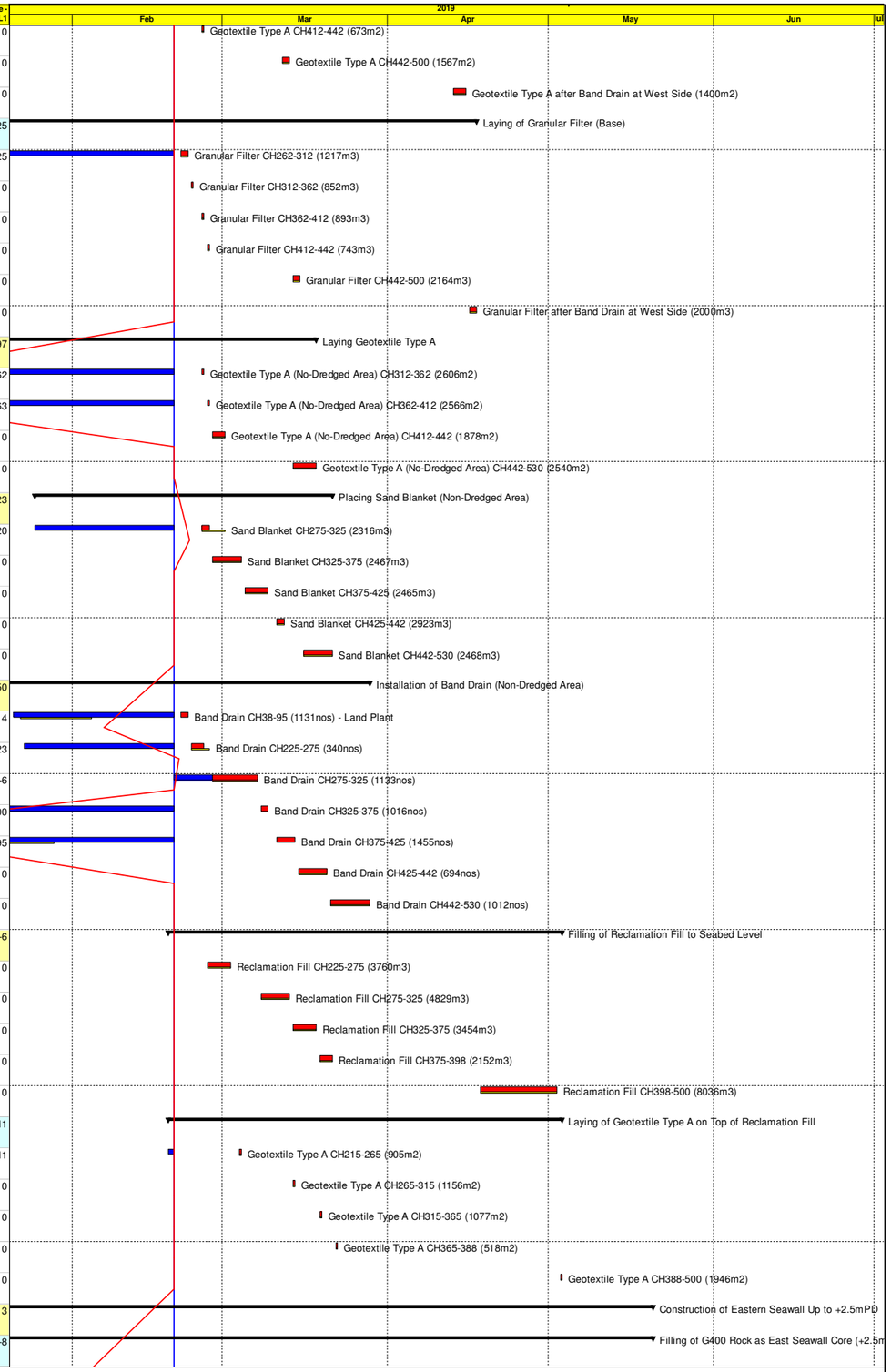
MC11395	Geotextile Type A CH412-442 (673m2)	P2-Cal.C	1	1	25-Feb-19	25-Feb-19	-79	0%	0	0
MC11405	Geotextile Type A CH442-500 (1567m2)	P2-Cal.C	2	2	12-Mar-19	13-Mar-19	-81	0%	0	0
MC11408	Geotextile Type A after Band Drain at West Side (1400m2)	P2-Cal.C	2	2	13-Apr-19	15-Apr-19	-82	0%	0	0
Laying of Granular Filter (Base)		P2-Cal.C	47	47	19-Jan-19 A	17-Apr-19	-82			-25
MC11455	Granular Filter CH262-312 (1217m3)	P2-Cal.C	2	2	19-Jan-19 A	22-Feb-19	-82	0%	0	-25
MC11465	Granular Filter CH312-362 (852m3)	P2-Cal.C	1	1	23-Feb-19	23-Feb-19	-82	0%	0	0
MC11475	Granular Filter CH362-412 (893m3)	P2-Cal.C	1	1	25-Feb-19	25-Feb-19	-81	0%	0	0
MC11485	Granular Filter CH412-442 (743m3)	P2-Cal.C	1	1	26-Feb-19	26-Feb-19	-79	0%	0	0
MC11495	Granular Filter CH442-500 (2164m3)	P2-Cal.C	2	2	14-Mar-19	15-Mar-19	-81	0%	0	0
MC11498	Granular Filter after Band Drain at West Side (2000m3)	P2-Cal.C	2	2	16-Apr-19	17-Apr-19	-82	0%	0	0
Laying Geotextile Type A		P2-Cal.C	87	19	06-Aug-18 A	18-Mar-19	-81			-97
MC12055	Geotextile Type A (No-Dredged Area) CH312-362 (2606m2)	P2-Cal.C	4	1	06-Aug-18 A	25-Feb-19	-82	75%	0	-162
MC12065	Geotextile Type A (No-Dredged Area) CH362-412 (2566m2)	P2-Cal.C	4	1	06-Aug-18 A	26-Feb-19	-81	75%	0	-163
MC12075	Geotextile Type A (No-Dredged Area) CH412-442 (1878m2)	P2-Cal.C	3	3	27-Feb-19	01-Mar-19	-79	0%	0	0
MC12085	Geotextile Type A (No-Dredged Area) CH442-530 (2540m2)	P2-Cal.C	4	4	14-Mar-19	18-Mar-19	-81	0%	0	0
Placing Sand Blanket (Non-Dredged Area)		P2-Cal.C	22	22	25-Jan-19 A	21-Mar-19	-81			-23
MC12115	Sand Blanket CH275-325 (2316m3)	P2-Cal.C	5	2	25-Jan-19 A	26-Feb-19	-82	60%	0	-20
MC12125	Sand Blanket CH325-375 (2467m3)	P2-Cal.C	5	5	27-Feb-19	04-Mar-19	-82	0%	0	0
MC12135	Sand Blanket CH375-425 (2465m3)	P2-Cal.C	5	5	05-Mar-19	09-Mar-19	-82	0%	0	0
MC12145	Sand Blanket CH425-442 (2923m3)	P2-Cal.C	2	2	11-Mar-19	12-Mar-19	-80	0%	0	0
MC12155	Sand Blanket CH442-530 (2468m3)	P2-Cal.C	5	5	16-Mar-19	21-Mar-19	-81	0%	0	0
Installation of Band Drain (Non-Dredged Area)		P2-Cal.C	73	31	30-Oct-18 A	28-Mar-19	-82			-50
MC12163	Band Drain CH38-95 (1131nos) - Land Plant	P2-Cal.C	12	2	21-Jan-19 A	22-Feb-19	-82	83.33%	0	-14
MC12175	Band Drain CH225-275 (340nos)	P2-Cal.C	3	2	23-Jan-19 A	25-Feb-19	-81	33.33%	0	-23
MC12185	Band Drain CH275-325 (1133nos)	P2-Cal.C	8	8	20-Feb-19 A	07-Mar-19	-82	0%	0	-6
MC12195	Band Drain CH325-375 (1016nos)	P2-Cal.C	7	2	30-Oct-18 A	09-Mar-19	-82	71.43%	0	-100
MC12205	Band Drain CH375-425 (1455nos)	P2-Cal.C	10	4	06-Nov-18 A	14-Mar-19	-82	60%	0	-95
MC12215	Band Drain CH425-442 (694nos)	P2-Cal.C	5	5	15-Mar-19	20-Mar-19	-82	0%	0	0
MC12225	Band Drain CH442-530 (1012nos)	P2-Cal.C	7	7	21-Mar-19	28-Mar-19	-82	0%	0	0
Filling of Reclamation Fill to Seabed Level		P2-Cal.C	53	53	19-Feb-19 A	03-May-19	-82			-6
MC12365	Reclamation Fill CH225-275 (3760m3)	P2-Cal.C	5	5	26-Feb-19	02-Mar-19	-64	0%	0	0
MC12375	Reclamation Fill CH275-325 (4829m3)	P2-Cal.C	5	5	08-Mar-19	13-Mar-19	-67	0%	0	0
MC12385	Reclamation Fill CH325-375 (3454m3)	P2-Cal.C	4	4	14-Mar-19	18-Mar-19	-62	0%	0	0
MC12395	Reclamation Fill CH375-398 (2152m3)	P2-Cal.C	3	3	19-Mar-19	21-Mar-19	-60	0%	0	0
MC12405	Reclamation Fill CH398-500 (8036m3)	P2-Cal.C	9	9	18-Apr-19	02-May-19	-82	0%	0	0
Laying of Geotextile Type A on Top of Reclamation Fill		P2-Cal.C	48	48	19-Feb-19 A	03-May-19	-82			-11
MC12445	Geotextile Type A CH215-265 (905m2)	P2-Cal.C	1	1	19-Feb-19 A	04-Mar-19	-64	0%	0	-11
MC12455	Geotextile Type A CH265-315 (1156m2)	P2-Cal.C	1	1	14-Mar-19	14-Mar-19	-67	0%	0	0
MC12465	Geotextile Type A CH315-365 (1077m2)	P2-Cal.C	1	1	19-Mar-19	19-Mar-19	-62	0%	0	0
MC12475	Geotextile Type A CH365-388 (518m2)	P2-Cal.C	1	1	22-Mar-19	22-Mar-19	-55	0%	0	0
MC12485	Geotextile Type A CH388-500 (1946m2)	P2-Cal.C	1	1	03-May-19	03-May-19	-82	0%	0	0
Construction of Eastern Seawall Up to +2.5mPD		P2-Cal.C	94	71	05-Jan-19 A	20-May-19	-73			-13
Filling of G400 Rock as East Seawall Core (+2.5mPD)		P2-Cal.C	88	68	18-Jan-19 A	20-May-19	-82			-8



Primary Baseline
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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)

3 Monthly Rolling Programme
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Date	Revision	Checked	Approved
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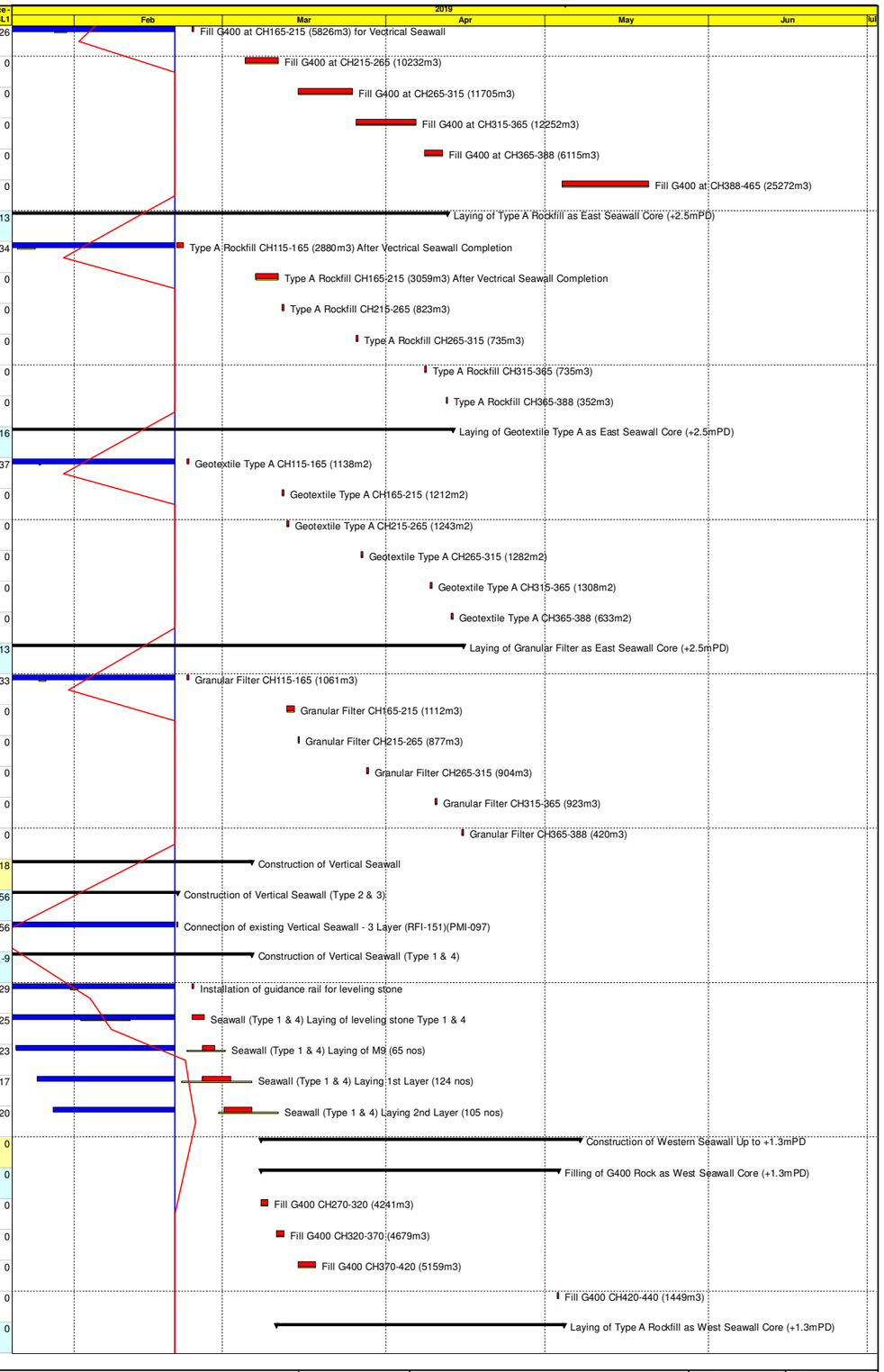
Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
MC11525	Fill G400 at CH165-215 (5826m3) for Vectrical Seawall	P2-Cal.C	3	1	18-Jan-19 A	23-Feb-19	-70	66.67%	0	-26
MC11535	Fill G400 at CH215-265 (10232m3)	P2-Cal.C	6	6	05-Mar-19	11-Mar-19	-64	0%	0	0
MC11545	Fill G400 at CH265-315 (11705m3)	P2-Cal.C	9	9	15-Mar-19	25-Mar-19	-67	0%	0	0
MC11555	Fill G400 at CH315-365 (12252m3)	P2-Cal.C	10	10	26-Mar-19	06-Apr-19	-67	0%	0	0
MC11565	Fill G400 at CH365-388 (6115m3)	P2-Cal.C	4	4	08-Apr-19	11-Apr-19	-67	0%	0	0
MC11575	Fill G400 at CH388-465 (25272m3)	P2-Cal.C	13	13	04-May-19	20-May-19	-82	0%	0	0
Laying of Type A Rockfill as East Seawall Core (+2.5mPD)		P2-Cal.C	67	44	05-Jan-19 A	12-Apr-19	-48			-13
MC11615	Type A Rockfill CH115-165 (2880m3) After Vectrical Seawall Completion	P2-Cal.C	4	2	05-Jan-19 A	21-Feb-19	-59	50%	0	-34
MC11625	Type A Rockfill CH165-215 (3059m3) After Vectrical Seawall Completion	P2-Cal.C	4	4	07-Mar-19	11-Mar-19	-70	0%	0	0
MC11635	Type A Rockfill CH215-265 (823m3)	P2-Cal.C	1	1	12-Mar-19	12-Mar-19	-59	0%	0	0
MC11645	Type A Rockfill CH265-315 (735m3)	P2-Cal.C	1	1	26-Mar-19	26-Mar-19	-67	0%	0	0
MC11655	Type A Rockfill CH315-365 (735m3)	P2-Cal.C	1	1	08-Apr-19	08-Apr-19	-50	0%	0	0
MC11665	Type A Rockfill CH365-388 (352m3)	P2-Cal.C	1	1	12-Apr-19	12-Apr-19	-48	0%	0	0
Laying of Geotextile Type A as East Seawall Core (+2.5mPD)		P2-Cal.C	64	43	07-Jan-19 A	13-Apr-19	-48			-16
MC11715	Geotextile Type A CH115-165 (1138m2)	P2-Cal.C	1	1	07-Jan-19 A	22-Feb-19	-56	0%	0	-37
MC11725	Geotextile Type A CH165-215 (1212m2)	P2-Cal.C	1	1	12-Mar-19	12-Mar-19	-70	0%	0	0
MC11735	Geotextile Type A CH215-265 (1243m2)	P2-Cal.C	1	1	13-Mar-19	13-Mar-19	-59	0%	0	0
MC11745	Geotextile Type A CH265-315 (1282m2)	P2-Cal.C	1	1	27-Mar-19	27-Mar-19	-67	0%	0	0
MC11755	Geotextile Type A CH315-365 (1308m2)	P2-Cal.C	1	1	09-Apr-19	09-Apr-19	-50	0%	0	0
MC11765	Geotextile Type A CH365-388 (633m2)	P2-Cal.C	1	1	13-Apr-19	13-Apr-19	-48	0%	0	0
Laying of Granular Filter as East Seawall Core (+2.5mPD)		P2-Cal.C	65	44	10-Jan-19 A	15-Apr-19	-48			-13
MC11815	Granular Filter CH115-165 (1061m3)	P2-Cal.C	2	1	10-Jan-19 A	22-Feb-19	-56	50%	0	-33
MC11825	Granular Filter CH165-215 (1112m3)	P2-Cal.C	2	2	13-Mar-19	14-Mar-19	-70	0%	0	0
MC11835	Granular Filter CH215-265 (877m3)	P2-Cal.C	1	1	15-Mar-19	15-Mar-19	-60	0%	0	0
MC11845	Granular Filter CH265-315 (904m3)	P2-Cal.C	1	1	28-Mar-19	28-Mar-19	-67	0%	0	0
MC11855	Granular Filter CH315-365 (923m3)	P2-Cal.C	1	1	10-Apr-19	10-Apr-19	-50	0%	0	0
MC11865	Granular Filter CH365-388 (420m3)	P2-Cal.C	1	1	15-Apr-19	15-Apr-19	-48	0%	0	0
Construction of Vertical Seawall		P2-Cal.C	53	13	07-Dec-18 A	06-Mar-19	-70			-18
Construction of Vertical Seawall (Type 2 & 3)		P2-Cal.C	3	1	07-Dec-18 A	20-Feb-19	-80			-56
MC11950	Connection of existing Vertical Seawall - 3 Layer (RFI-151)(PMI-097)	P2-Cal.C	3	1	07-Dec-18 A	20-Feb-19	-80	66.67%	0	-56
Construction of Vertical Seawall (Type 1 & 4)		P2-Cal.C	31	10	16-Jan-19 A	06-Mar-19	-70			-9
MC11955	Installation of guidance rail for leveling stone	P2-Cal.C	2	1	16-Jan-19 A	23-Feb-19	-70	50%	0	-29
MC11965	Seawall (Type 1 & 4) Laying of leveling stone Type 1 & 4	P2-Cal.C	5	2	18-Jan-19 A	25-Feb-19	-70	60%	0	-25
MC11975	Seawall (Type 1 & 4) Laying of M9 (65 nos)	P2-Cal.C	7	3	21-Jan-19 A	27-Feb-19	-70	57.14%	0	-23
MC11985	Seawall (Type 1 & 4) Laying 1st Layer (124 nos)	P2-Cal.C	12	6	25-Jan-19 A	02-Mar-19	-70	50%	0	-17
MC11995	Seawall (Type 1 & 4) Laying 2nd Layer (105 nos)	P2-Cal.C	10	5	28-Jan-19 A	06-Mar-19	-70	50%	0	-20
Construction of Western Seawall Up to +1.3mPD		P2-Cal.C	47	47	08-Mar-19	07-May-19	-54			0
Filling of G400 Rock as West Seawall Core (+1.3mPD)		P2-Cal.C	44	44	08-Mar-19	03-May-19	-54			0
MC12495	Fill G400 CH270-320 (4241m3)	P2-Cal.C	2	2	08-Mar-19	09-Mar-19	-54	0%	0	0
MC12505	Fill G400 CH320-370 (4679m3)	P2-Cal.C	2	2	11-Mar-19	12-Mar-19	-29	0%	0	0
MC12515	Fill G400 CH370-420 (5159m3)	P2-Cal.C	3	3	15-Mar-19	18-Mar-19	-28	0%	0	0
MC12525	Fill G400 CH420-440 (1449m3)	P2-Cal.C	1	1	03-May-19	03-May-19	-54	0%	0	0
Laying of Type A Rockfill as West Seawall Core (+1.3mPD)		P2-Cal.C	43	43	11-Mar-19	04-May-19	-54			0



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MC12535	Type A Rockfill CH270-320 (511m3)	P2-Cal.C	1	1	11-Mar-19	11-Mar-19	-54	0%	0	0
MC12545	Type A Rockfill CH320-370 (541m3)	P2-Cal.C	1	1	13-Mar-19	13-Mar-19	-29	0%	0	0
MC12555	Type A Rockfill CH370-420 (554m3)	P2-Cal.C	1	1	19-Mar-19	19-Mar-19	-28	0%	0	0
MC12565	Type A Rockfill CH420-440 (160m3)	P2-Cal.C	1	1	04-May-19	04-May-19	-54	0%	0	0
Laying of Geotextile Type A as West Seawall Core (+1.3mPD)		P2-Cal.C	43	43	12-Mar-19	06-May-19	-54			0
MC12575	Geotextile Type A CH270-320 (807m2)	P2-Cal.C	1	1	12-Mar-19	12-Mar-19	-54	0%	0	0
MC12585	Geotextile Type A CH320-370 (541m2)	P2-Cal.C	1	1	14-Mar-19	14-Mar-19	-29	0%	0	0
MC12595	Geotextile Type A CH370-420 (805m2)	P2-Cal.C	1	1	20-Mar-19	20-Mar-19	-28	0%	0	0
MC12605	Geotextile Type A CH420-440 (237m2)	P2-Cal.C	1	1	06-May-19	06-May-19	-54	0%	0	0
Laying of Granular Filter as West Seawall Core (+1.3mPD)		P2-Cal.C	43	43	13-Mar-19	07-May-19	-54			0
MC12615	Granular Filter CH270-320 (533m3)	P2-Cal.C	1	1	13-Mar-19	13-Mar-19	-54	0%	0	0
MC12625	Granular Filter CH320-370 (543m3)	P2-Cal.C	1	1	15-Mar-19	15-Mar-19	-29	0%	0	0
MC12635	Granular Filter CH370-420 (634m3)	P2-Cal.C	1	1	21-Mar-19	21-Mar-19	-28	0%	0	0
MC12645	Granular Filter CH420-440 (160m3)	P2-Cal.C	1	1	07-May-19	07-May-19	-54	0%	0	0
Filling of Reclamation Fill to -2.0mPD		P2-Cal.C	47	47	29-Jan-19 A	23-Apr-19	-48			-19
MC12655-05	Reclamation Fill to -2.0mPD CH80-155 (2603m3) - West Side	P2-Cal.C	5	1	29-Jan-19 A	23-Feb-19	-57	80%	0	-15
MC12665	Reclamation Fill to -2.0mPD CH80-155 (2603m3)	P2-Cal.C	2	2	25-Feb-19	26-Feb-19	-57	0%	0	0
MC12665-01	Reclamation Fill to -2.0mPD CH155-215 (2760m3) - West Side	P2-Cal.C	5	5	23-Feb-19	28-Feb-19	-58	0%	0	0
MC12665-02	Reclamation Fill to -2.0mPD CH155-215 (2760m3)	P2-Cal.C	2	2	15-Mar-19	16-Mar-19	-70	0%	0	0
MC12675	Reclamation Fill to -2.0mPD CH215-255 (4528m3)	P2-Cal.C	4	4	18-Mar-19	21-Mar-19	-61	0%	0	0
MC12675-01	Reclamation Fill to -2.0mPD CH255-315 (8839m3)	P2-Cal.C	4	4	29-Mar-19	02-Apr-19	-67	0%	0	0
MC12685	Reclamation Fill to -2.0mPD CH315-355 (6284m3)	P2-Cal.C	4	4	11-Apr-19	15-Apr-19	-50	0%	0	0
MC12685-01	Reclamation Fill to -2.0mPD CH355-405 (7927m3)	P2-Cal.C	4	4	16-Apr-19	23-Apr-19	-48	0%	0	0
Filling of Reclamation Fill to -2.0 to +1.3mPD		P2-Cal.C	19	19	03-Apr-19	29-Apr-19	-48			0
MC12705	Reclamation Fill to +1.3mPD CH260-300 (6115m3)	P2-Cal.C	4	4	03-Apr-19	08-Apr-19	-67	0%	0	0
MC12705-01	Reclamation Fill to +1.3mPD CH300-350 (7807m3)	P2-Cal.C	4	4	16-Apr-19	23-Apr-19	-50	0%	0	0
MC12715	Reclamation Fill to +1.3mPD CH350-400 (7639m3)	P2-Cal.C	4	4	24-Apr-19	27-Apr-19	-48	0%	0	0
Laying Geotextile Type A at West Side		P2-Cal.C	15	15	09-Apr-19	29-Apr-19	-48			0
MC12735	Geotextile Type A CH260-300 (617m2)	P2-Cal.C	1	1	09-Apr-19	09-Apr-19	-67	0%	0	0
MC12735-01	Geotextile Type A CH300-350 (617m2)	P2-Cal.C	1	1	24-Apr-19	24-Apr-19	-50	0%	0	0
MC12745	Geotextile Type A CH350-400 (650m2)	P2-Cal.C	1	1	29-Apr-19	29-Apr-19	-48	0%	0	0
Construction of Western Seawall Up to +2.5mPD		P2-Cal.C	18	18	10-Apr-19	04-May-19	-48			0
Filling of G400 Rock as West Seawall Core (+2.5mPD)		P2-Cal.C	15	15	10-Apr-19	30-Apr-19	-48			0
MC12765	Fill G400 CH260-300 (402m3)	P2-Cal.C	1	1	10-Apr-19	10-Apr-19	-67	0%	0	0
MC12765-01	Fill G400 CH300-350 (402m3)	P2-Cal.C	1	1	25-Apr-19	25-Apr-19	-50	0%	0	0
MC12775	Fill G400 CH350-400 (420m3)	P2-Cal.C	1	1	30-Apr-19	30-Apr-19	-48	0%	0	0
Laying of Type A Rockfill as West Seawall Core (+2.5mPD)		P2-Cal.C	15	15	11-Apr-19	02-May-19	-48			0
MC12795	Type A Rockfill CH260-300 (152m3)	P2-Cal.C	1	1	11-Apr-19	11-Apr-19	-67	0%	0	0
MC12795-01	Type A Rockfill CH300-350 (152m3)	P2-Cal.C	1	1	26-Apr-19	26-Apr-19	-50	0%	0	0
MC12805	Type A Rockfill CH350-400 (80m3)	P2-Cal.C	1	1	02-May-19	02-May-19	-48	0%	0	0
Laying of Geotextile Type A as West Seawall Core (+2.5mPD)		P2-Cal.C	15	15	12-Apr-19	03-May-19	-48			0
MC12825	Geotextile Type A CH260-300 (178m2)	P2-Cal.C	1	1	12-Apr-19	12-Apr-19	-67	0%	0	0
MC12825-01	Geotextile Type A CH300-350 (178m2)	P2-Cal.C	1	1	27-Apr-19	27-Apr-19	-50	0%	0	0

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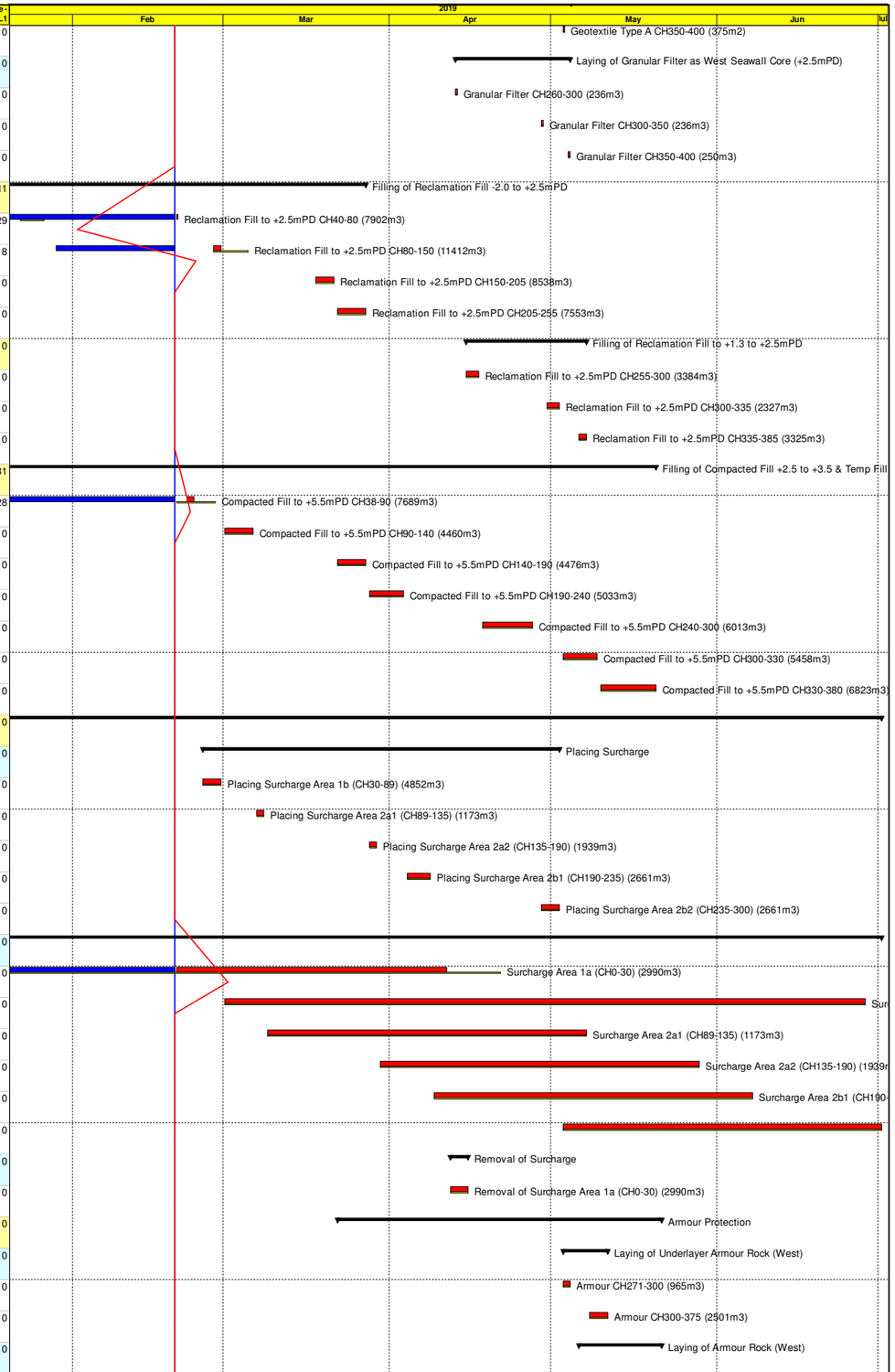
MC12835	Geotextile Type A CH350-400 (375m2)	P2-Cal.C	1	1	03-May-19	03-May-19	-48	0%	0	0
Laying of Granular Filter as West Seawall Core (+2.5mPD)		P2-Cal.C	15	15	13-Apr-19	04-May-19	-48			0
MC12855	Granular Filter CH260-300 (236m3)	P2-Cal.C	1	1	13-Apr-19	13-Apr-19	-67	0%	0	0
MC12855-01	Granular Filter CH300-350 (236m3)	P2-Cal.C	1	1	29-Apr-19	29-Apr-19	-50	0%	0	0
MC12865	Granular Filter CH350-400 (250m3)	P2-Cal.C	1	1	04-May-19	04-May-19	-48	0%	0	0
Filling of Reclamation Fill -2.0 to +2.5mPD		P2-Cal.C	53	31	09-Jan-19 A	27-Mar-19	-56			-11
MC12885	Reclamation Fill to +2.5mPD CH40-80 (7902m3)	P2-Cal.C	5	1	09-Jan-19 A	20-Feb-19	-82	80%	0	-29
MC12895	Reclamation Fill to +2.5mPD CH80-150 (11412m3)	P2-Cal.C	6	2	29-Jan-19 A	28-Feb-19	-57	66.67%	0	-18
MC12895-01	Reclamation Fill to +2.5mPD CH150-205 (8538m3)	P2-Cal.C	4	4	18-Mar-19	21-Mar-19	-70	0%	0	0
MC12905	Reclamation Fill to +2.5mPD CH205-255 (7553m3)	P2-Cal.C	5	5	22-Mar-19	27-Mar-19	-56	0%	0	0
Filling of Reclamation Fill to +1.3 to +2.5mPD		P2-Cal.C	16	16	15-Apr-19	07-May-19	-48			0
MC12925	Reclamation Fill to +2.5mPD CH255-300 (3384m3)	P2-Cal.C	3	3	15-Apr-19	17-Apr-19	-67	0%	0	0
MC12925-01	Reclamation Fill to +2.5mPD CH300-335 (2327m3)	P2-Cal.C	2	2	30-Apr-19	02-May-19	-50	0%	0	0
MC12935	Reclamation Fill to +2.5mPD CH335-385 (3325m3)	P2-Cal.C	2	2	06-May-19	07-May-19	-48	0%	0	0
Filling of Compacted Fill +2.5 to +3.5 & Temp Fill +3.5 to +5.5mPD		P2-Cal.C	71	69	11-Jan-19 A	20-May-19	-50			-31
MC12955	Compacted Fill to +5.5mPD CH38-90 (7689m3)	P2-Cal.C	7	2	11-Jan-19 A	23-Feb-19	-82	71.43%	0	-28
MC12965	Compacted Fill to +5.5mPD CH90-140 (4460m3)	P2-Cal.C	5	5	01-Mar-19	06-Mar-19	-57	0%	0	0
MC12965-01	Compacted Fill to +5.5mPD CH140-190 (4476m3)	P2-Cal.C	5	5	22-Mar-19	27-Mar-19	-70	0%	0	0
MC12975	Compacted Fill to +5.5mPD CH190-240 (5033m3)	P2-Cal.C	6	6	28-Mar-19	03-Apr-19	-56	0%	0	0
MC12975-01	Compacted Fill to +5.5mPD CH240-300 (6013m3)	P2-Cal.C	6	6	18-Apr-19	27-Apr-19	-67	0%	0	0
MC12985	Compacted Fill to +5.5mPD CH300-330 (5458m3)	P2-Cal.C	6	6	03-May-19	09-May-19	-50	0%	0	0
MC12985-01	Compacted Fill to +5.5mPD CH330-380 (6823m3)	P2-Cal.C	8	8	10-May-19	20-May-19	-50	0%	0	0
Surcharge			191	132	13-Dec-18 A	01-Jul-19	-87			-10
Placing Surcharge		P2-Cal.C	53	53	25-Feb-19	02-May-19	-67			0
MC13020	Placing Surcharge Area 1b (CH30-89) (4852m3)	P2-Cal.C	4	4	25-Feb-19	28-Feb-19	-82	0%		0
MC13035	Placing Surcharge Area 2a1 (CH89-135) (1173m3)	P2-Cal.C	2	2	07-Mar-19	08-Mar-19	-57	0%		0
MC13035-01	Placing Surcharge Area 2a2 (CH135-190) (1939m3)	P2-Cal.C	2	2	28-Mar-19	29-Mar-19	-70	0%		0
MC13055	Placing Surcharge Area 2b1 (CH190-235) (2661m3)	P2-Cal.C	3	3	04-Apr-19	08-Apr-19	-50	0%		0
MC13055-01	Placing Surcharge Area 2b2 (CH235-300) (2661m3)	P2-Cal.C	3	3	29-Apr-19	02-May-19	-67	0%		0
Surcharging		P2-Cal.A	191	132	13-Dec-18 A	01-Jul-19	-87			-10
MC13155	Surcharge Area 1a (CH0-30) (2990m3)	P2-Cal.A	120	51	13-Dec-18 A	11-Apr-19	-38	57.5%		0
MC13160	Surcharge Area 1b (CH30-89) (4852m3)	P2-Cal.A	120	120	01-Mar-19	28-Jun-19	-102	0%		0
MC13175	Surcharge Area 2a1 (CH89-135) (1173m3)	P2-Cal.A	60	60	09-Mar-19	07-May-19	-64	0%		0
MC13175-01	Surcharge Area 2a2 (CH135-190) (1939m3)	P2-Cal.A	60	60	30-Mar-19	28-May-19	-85	0%		0
MC13195	Surcharge Area 2b1 (CH190-235) (2661m3)	P2-Cal.A	60	60	09-Apr-19	07-Jun-19	-63	0%		0
MC13195-01	Surcharge Area 2b2 (CH235-300) (2661m3)	P2-Cal.A	60	60	03-May-19	01-Jul-19	-87	0%		0
Removal of Surcharge		P2-Cal.C	3	3	12-Apr-19	15-Apr-19	-19			0
MC13295	Removal of Surcharge Area 1a (CH0-30) (2990m3)	P2-Cal.C	3	3	12-Apr-19	15-Apr-19	-19	0%		0
Armour Protection		P2-Cal.C	46	46	22-Mar-19	21-May-19	-37			0
Laying of Underlayer Armour Rock (West)		P2-Cal.C	8	8	03-May-19	11-May-19	-37			0
MC13615	Armour CH271-300 (965m3)	P2-Cal.C	2	2	03-May-19	04-May-19	-35	0%		0
MC13635	Armour CH300-375 (2501m3)	P2-Cal.C	4	4	08-May-19	11-May-19	-37	0%		0
Laying of Armour Rock (West)		P2-Cal.C	13	13	06-May-19	21-May-19	-37			0



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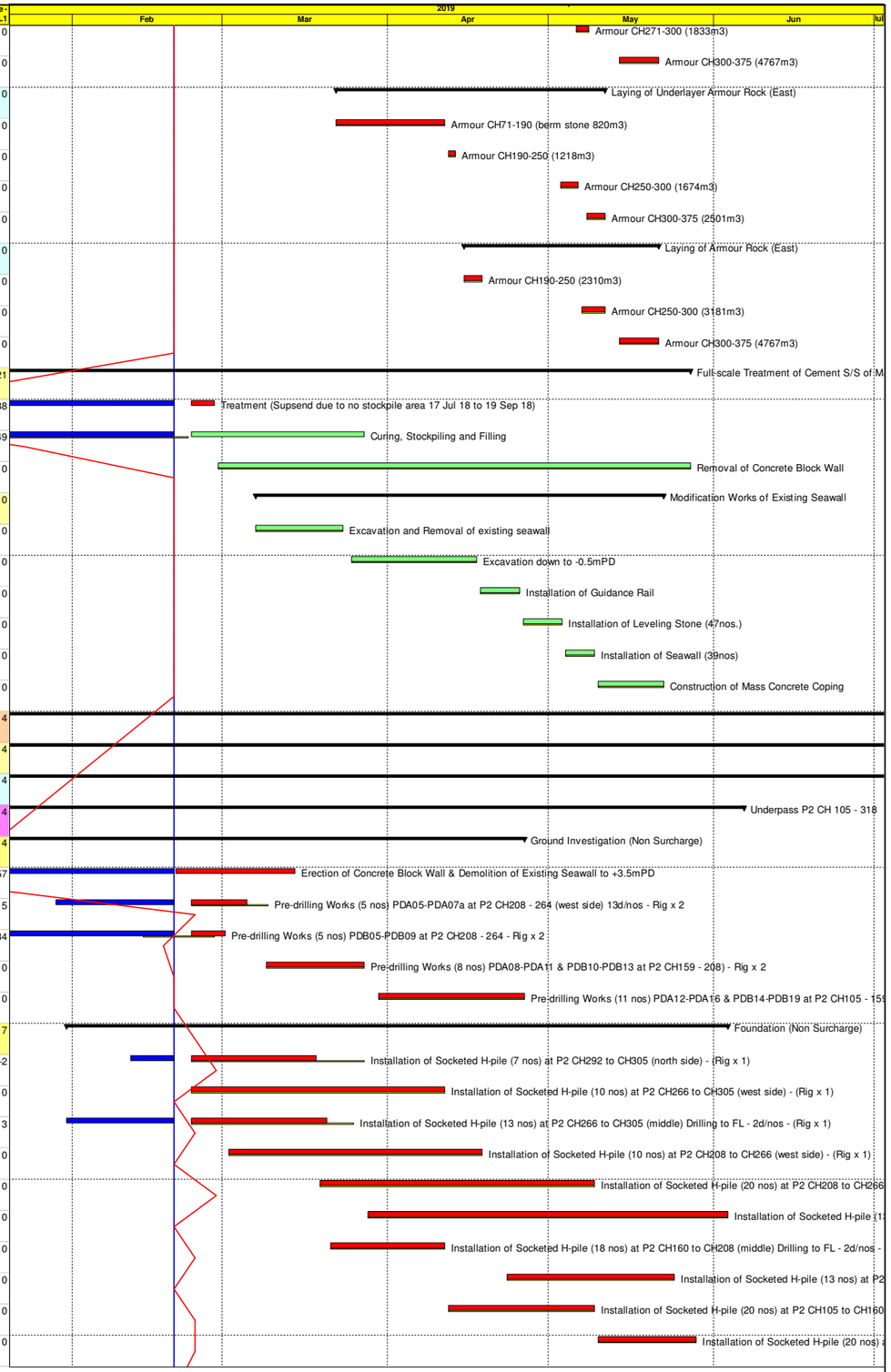
20-Feb-19			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
MC13695	Armour CH271-300 (1833m3)	P2-Cal.C	3	3	06-May-19	08-May-19	-34	0%		0
MC13715	Armour CH300-375 (4767m3)	P2-Cal.C	7	7	14-May-19	21-May-19	-37	0%		0
Laying of Underlayer Armour Rock (East)		P2-Cal.C	39	39	22-Mar-19	11-May-19	-45			0
MC13775	Armour CH71-190 (berm stone 820m3)	P2-Cal.C	17	17	22-Mar-19	11-Apr-19	-34	0%		0
MC13795	Armour CH190-250 (1218m3)	P2-Cal.C	2	2	12-Apr-19	13-Apr-19	-34	0%		0
MC13815	Armour CH250-300 (1674m3)	P2-Cal.C	3	3	03-May-19	06-May-19	-45	0%		0
MC13835	Armour CH300-375 (2501m3)	P2-Cal.C	4	4	08-May-19	11-May-19	-45	0%		0
Laying of Armour Rock (East)		P2-Cal.C	27	27	15-Apr-19	21-May-19	-45			0
MC13895	Armour CH190-250 (2310m3)	P2-Cal.C	4	4	15-Apr-19	18-Apr-19	-34	0%		0
MC13915	Armour CH250-300 (3181m3)	P2-Cal.C	5	5	07-May-19	11-May-19	-45	0%		0
MC13935	Armour CH300-375 (4767m3)	P2-Cal.C	7	7	14-May-19	21-May-19	-45	0%		0
Full-scale Treatment of Cement S/S of Marine Sediment		P2-Cal.C	387	74	06-Jan-18 A	27-May-19	102			-21
MC14075	Treatment (Supsend due to no stockpile area 17 Jul 18 to 19 Sep 18)	P2-Cal.C	250	4	06-Jan-18 A	27-Feb-19	-70	98.4%		-88
MC14080	Curing, Stockpiling and Filling	P2-Cal.C	313	28	06-Jan-18 A	27-Mar-19	123	91.05%		-49
MC14085	Removal of Concrete Block Wall	P2-Cal.C	70	70	28-Feb-19	27-May-19	102	0%		0
Modification Works of Existing Seawall		P2-Cal.C	60	60	07-Mar-19	22-May-19	39			0
MC14145	Excavation and Removal of existing seawall	P2-Cal.C	15	15	07-Mar-19	23-Mar-19	39	0%		0
MC14165	Excavation down to -0.5mPD	P2-Cal.C	20	20	25-Mar-19	17-Apr-19	39	0%		0
MC14185	Installation of Guidance Rail	P2-Cal.C	4	4	18-Apr-19	25-Apr-19	39	0%		0
MC14205	Installation of Leveling Stone (47nos.)	P2-Cal.C	6	6	26-Apr-19	03-May-19	39	0%		0
MC14225	Installation of Seawall (39nos)	P2-Cal.C	5	5	04-May-19	09-May-19	39	0%		0
MC14245	Construction of Mass Concrete Coping	P2-Cal.C	10	10	10-May-19	22-May-19	39	0%		0
Land Works		P2-Cal.C	287	214	03-Nov-18 A	08-Nov-19	211			-14
Road P2 Underpass (CH105-CH318)		P2-Cal.C	287	214	03-Nov-18 A	08-Nov-19	211			-14
Underpass		P2-Cal.C	287	214	03-Nov-18 A	08-Nov-19	211			-14
Underpass P2 CH 105 - 318		P2-Cal.C	159	86	03-Nov-18 A	06-Jun-19	-18			-14
Ground Investigation (Non Surcharge)		P2-Cal.C	126	53	03-Nov-18 A	26-Apr-19	-27			-14
LC17761-01	Erection of Concrete Block Wall & Demolition of Existing Seawall to +3.5mPD	P2-Cal.C	50	20	03-Nov-18 A	14-Mar-19	-60	60%		-57
LC17764	Pre-drilling Works (5 nos) PDA05-PDA07a at P2 CH208 - 264 (west side) 13d/nos - Rig x 2	P2-Cal.C	13	9	29-Jan-19 A	05-Mar-19	-63	30.77%		-15
LC17765	Pre-drilling Works (5 nos) PDB05-PDB09 at P2 CH208 - 264 - Rig x 2	P2-Cal.C	12	6	04-Jan-19 A	01-Mar-19	-63	50%		-34
LC17766	Pre-drilling Works (8 nos) PDA08-PDA11 & PDB10-PDB13 at P2 CH159 - 208) - Rig x 2	P2-Cal.C	16	16	09-Mar-19	27-Mar-19	-57	0%		0
LC17767	Pre-drilling Works (11 nos) PDA12-PDA16 & PDB14-PDB19 at P2 CH105 - 159) - Rig x 2	P2-Cal.C	20	20	30-Mar-19	26-Apr-19	-27	0%		0
Foundation (Non Surcharge)		P2-Cal.C	80	80	31-Jan-19 A	03-Jun-19	-57			-17
LC17768	Installation of Socketed H-pile (7 nos) at P2 CH292 to CH305 (north side) - (Rig x 1)	P2-Cal.C	28	20	12-Feb-19 A	18-Mar-19	-52	28.57%		-2
LC17769	Installation of Socketed H-pile (10 nos) at P2 CH266 to CH305 (west side) - (Rig x 1)	P2-Cal.C	40	40	23-Feb-19	11-Apr-19	-57	0%		0
LC17770	Installation of Socketed H-pile (13 nos) at P2 CH266 to CH305 (middle) Drilling to FL - 2d/nos - (Rig x 1)	P2-Cal.C	26	22	31-Jan-19 A	20-Mar-19	-52	15.38%		-13
LC17771	Installation of Socketed H-pile (10 nos) at P2 CH208 to CH266 (west side) - (Rig x 1)	P2-Cal.C	40	40	02-Mar-19	18-Apr-19	-63	0%		0
LC17772	Installation of Socketed H-pile (20 nos) at P2 CH208 to CH266 (middle) Drilling to FL - 2d/nos - (Rig x 1)	P2-Cal.C	40	40	19-Mar-19	09-May-19	-52	0%		0
LC17773	Installation of Socketed H-pile (13 nos) at P2 CH160 to CH208 (west side) - (Rig x 1)	P2-Cal.C	52	52	28-Mar-19	03-Jun-19	-57	0%		0
LC17774	Installation of Socketed H-pile (18 nos) at P2 CH160 to CH208 (middle) Drilling to FL - 2d/nos - (Rig x 2)	P2-Cal.C	18	18	21-Mar-19	11-Apr-19	-52	0%		0
LC17775	Installation of Socketed H-pile (13 nos) at P2 CH105 to CH160 (west side) - (Rig x 2)	P2-Cal.C	26	26	23-Apr-19	24-May-19	-63	0%		0
LC17776	Installation of Socketed H-pile (20 nos) at P2 CH105 to CH160 (middle) Drilling to FL - 2d/nos - (Rig x 2)	P2-Cal.C	20	20	12-Apr-19	09-May-19	-52	0%		0
LC17779-01	Installation of Socketed H-pile (20 nos) at P2 CH105 to CH160 (middle) install steel H & grouting - 1.5d/nos - (Rig x 2)	P2-Cal.C	15	15	10-May-19	28-May-19	-52	0%		0



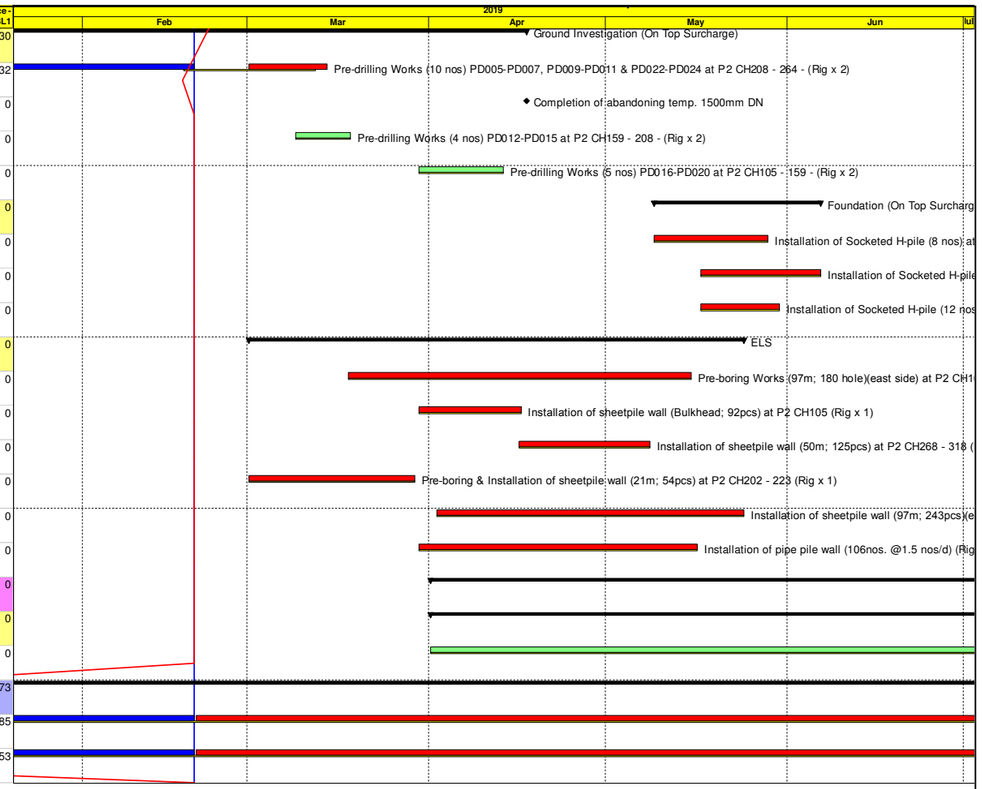
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)

3 Monthly Rolling Programme
(Data Date : 20-Feb-2019)

Date	Revision	Checked	Approved
20-Feb-19			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	TRA	Variance - BL1
Ground Investigation (On Top Surcharge)		P2-Cal.C	50	40	10-Jan-19 A	17-Apr-19	2			-30
LC17782	Pre-drilling Works (10 nos) PD005-PD007, PD009-PD011 & PD022-PD024 at P2 CH208 - 264 - (Rig x 2)	P2-Cal.C	20	12	10-Jan-19 A	14-Mar-19	-13	40%		-32
LC17783	Completion of abandoning temp. 1500mm DN	P2-Cal.C	0	0		17-Apr-19	-29	0%		0
LC17784	Pre-drilling Works (4 nos) PD012-PD015 at P2 CH159 - 208 - (Rig x 2)	P2-Cal.C	8	8	09-Mar-19	18-Mar-19	27	0%		0
LC17789	Pre-drilling Works (5 nos) PD016-PD020 at P2 CH105 - 159 - (Rig x 2)	P2-Cal.C	12	12	30-Mar-19	13-Apr-19	5	0%		0
Foundation (On Top Surcharge)		P2-Cal.C	24	24	09-May-19	06-Jun-19	-18			0
LC17805	Installation of Socketed H-pile (8 nos) at P2 CH264 to CH305 Drilling to FL - 2d/nos - (Rig x 1)	P2-Cal.C	16	16	09-May-19	28-May-19	-10	0%		0
LC17823	Installation of Socketed H-pile (9 nos) Except PPW Zone at P2 CH208 to CH264 Drilling to FL - 2d/nos - (Rig x 1)	P2-Cal.C	18	18	17-May-19	06-Jun-19	-18	0%		0
LC17830	Installation of Socketed H-pile (12 nos) PPW Zone at P2 CH208 to CH264 Drilling to FL - 2d/nos - (Rig x 2)	P2-Cal.C	12	12	17-May-19	30-May-19	-61	0%		0
ELS		P2-Cal.C	67	67	01-Mar-19	24-May-19	-32			0
LC17850	Pre-boring Works (97m; 180 hole)(east side) at P2 CH105 - 202 (Rig x 2)	P2-Cal.C	45	45	18-Mar-19	15-May-19	-32	0%		0
LC17860	Installation of sheetpile wall (Bulkhead; 92pcs) at P2 CH105 (Rig x 1)	P2-Cal.C	14	14	30-Mar-19	16-Apr-19	-4	0%		0
LC17870	Installation of sheetpile wall (50m; 125pcs) at P2 CH268 - 318 (Rig x 1)	P2-Cal.C	16	16	16-Apr-19	08-May-19	-19	0%		0
LC17880	Pre-boring & Installation of sheetpile wall (21m; 54pcs) at P2 CH202 - 223 (Rig x 1)	P2-Cal.C	25	25	01-Mar-19	29-Mar-19	-61	0%		0
LC18000	Installation of sheetpile wall (97m; 243pcs)(east side) at P2 CH105 - 202 (Rig x 1)	P2-Cal.C	40	40	02-Apr-19	24-May-19	-32	0%		0
LC18005	Installation of pipe pile wall (106nos. @1.5 nos/d) (Rig x 2)	P2-Cal.C	35	35	30-Mar-19	16-May-19	-61	0%		0
E&M Works		P2-Cal.C	180	180	01-Apr-19	08-Nov-19	211			0
Shop Drawing and Form Submission		P2-Cal.C	180	180	01-Apr-19	08-Nov-19	211			0
LC19100	Submission of Shop Drawing	P2-Cal.C	180	180	01-Apr-19	08-Nov-19	211	0%		0
Section 4 of the Works - Preservation and Protection of Existing Trees		P2-Cal.A	1563	867	12-Jan-17 A	05-Jul-21	-77			-73
LC25260	Preservation and Protection of Existing Trees	P2-Cal.A	1451	867	12-Jan-17 A	05-Jul-21	-77	40.25%		-185
LC25280	Nursery Transplanted Trees at the Contractor's holding nursery	P2-Cal.A	1177	867	28-Apr-17 A	05-Jul-21	-77	26.34%		-353



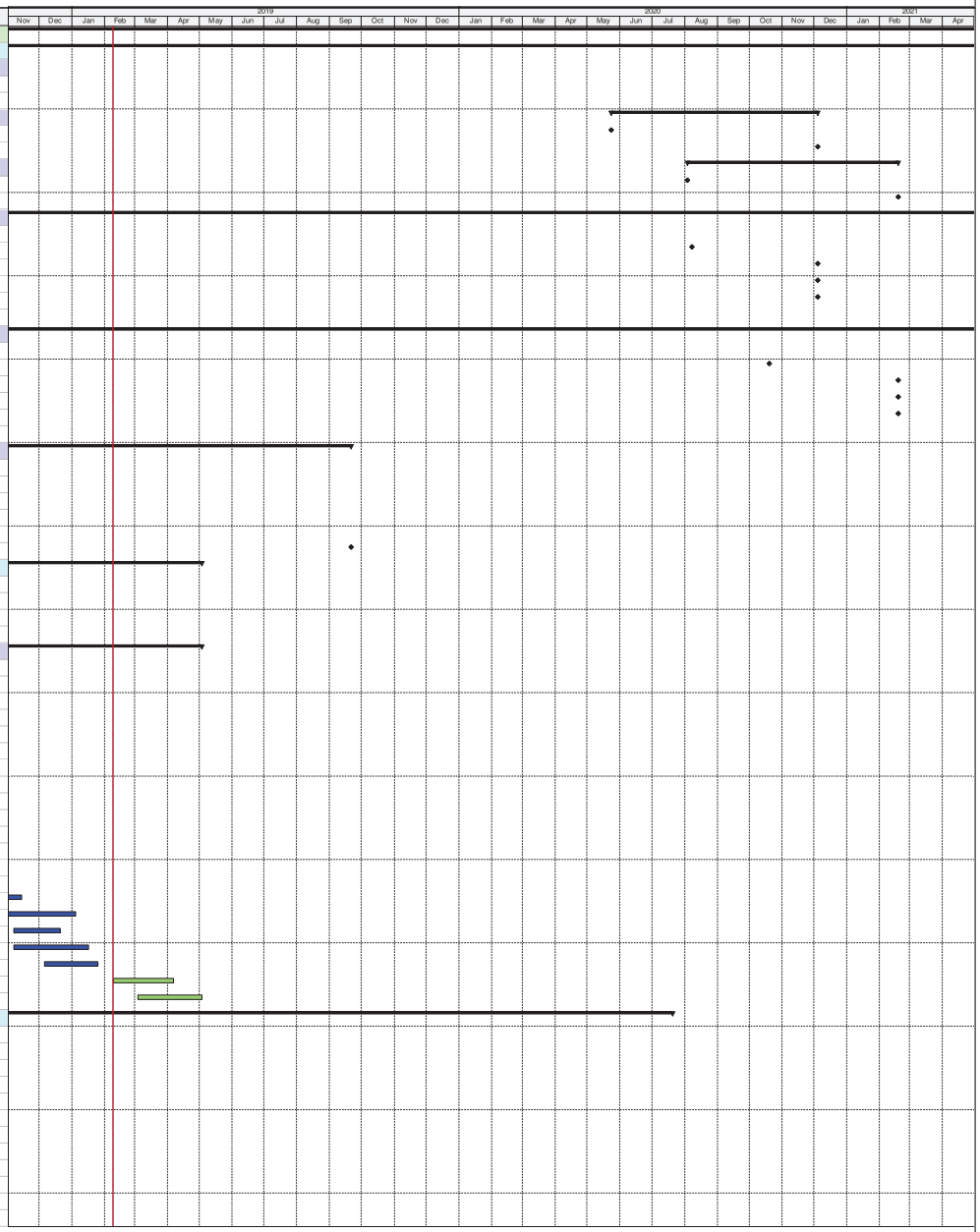
Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Feb-19)

3 Monthly Rolling Programme
(Data Date : 20-Feb-2019)

Date	Revision	Checked	Approved
20-Feb-19			

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
NE/2017/02 - Updated Programme (Feb 2019)		1552			1106	17-Nov-17 A	18-Feb-22	24-Nov-18	04-Dec-21	-76	
Contractual Dates		1542			882	17-Nov-17 A	18-Feb-22	24-Nov-18	04-Dec-21	-76	
Commencement Date		405	C3-7d		0	20-Nov-17 A	30-Nov-17 A	24-Nov-18	24-Nov-18		
K10000	Contract Date	0	C3-7d	100%	0	20-Nov-17 A		24-Nov-18			
K10010	Starting Date	0	C3-7d	100%	0	30-Nov-17 A		24-Nov-18			
Key Dates (contract)		195	C3-7d		195	23-May-20	04-Dec-20	23-May-20	04-Dec-20	0	
K10020	Key Date 1 - Completion of works for the T&C of route-wide lighting, E&M and TCSS	0	C3-7d	0%	0		23-May-20*		23-May-20	0	
K10030	Key Date 2 - Completion of works for the opening of Road P2	0	C3-7d	0%	0		04-Dec-20*		04-Dec-20	0	
Key Dates (planned)		199	C3-7d		199	03-Aug-20	18-Feb-21	23-May-20	04-Dec-20	-76	
K10040	Key Date 1 - Completion of works for the T&C of route-wide lighting, E&M and TCSS (planned)	0	C3-7d	0%	0		03-Aug-20*		23-May-20	-72	
K10050	Key Date 2 - Completion of works for the opening of Road P2 (planned)	0	C3-7d	0%	0		18-Feb-21*		04-Dec-20	-76	
Completion Dates (contract)		1195	C3-7d		484	27-Aug-18 A	04-Dec-21	07-Aug-20	04-Dec-21	0	
K10110	Section 6 - Community Liaison Centre	0	C3-7d	100%	0		27-Aug-18 A		04-Dec-21		
K10060	Section 1 - All works not covered by other Sections	0	C3-7d	0%	0		07-Aug-20*		07-Aug-20	0	
K10070	Section 2 - Bridgeworks	0	C3-7d	0%	0		04-Dec-20*		04-Dec-20	0	
K10080	Section 3 - Preservation and Protection of Existing Trees	0	C3-7d	0%	0		04-Dec-20*		04-Dec-20	0	
K10090	Section 4 - Landscape Softworks	0	C3-7d	0%	0		04-Dec-20*		04-Dec-20	0	
K10100	Section 5 - Establishment Works	0	C3-7d	0%	0		04-Dec-21*		04-Dec-21	0	
Completion Dates (planned)		1260	C3-7d		487	27-Aug-18 A	18-Feb-22	07-Aug-20	04-Dec-21	-76	
K10170	Section 6 - Community Liaison Centre (planned)	0	C3-7d	100%	0		27-Aug-18 A		04-Dec-21		
K10120	Section 1 - All works not covered by other Sections (planned)	0	C3-7d	0%	0		19-Oct-20*		07-Aug-20	-73	
K10130	Section 2 - Bridgeworks (planned)	0	C3-7d	0%	0		18-Feb-21*		04-Dec-20	-76	
K10140	Section 3 - Preservation and Protection of Existing Trees (planned)	0	C3-7d	0%	0		18-Feb-21*		04-Dec-20	-76	
K10150	Section 4 - Landscape Softworks (planned)	0	C3-7d	0%	0		18-Feb-21*		04-Dec-20	-76	
K10160	Section 5 - Establishment Works (planned)	0	C3-7d	0%	0		18-Feb-22*		04-Dec-21	-76	
Access Dates		477	C3-6d		0	17-Nov-17 A	21-Sep-19	21-Sep-19	04-Dec-21	655	
K10200	Portion III	0	C3-6d	100%	0	17-Nov-17 A		04-Dec-21			
K10180	Portion I	0	C3-6d	100%	0	30-Nov-17 A		04-Dec-21			
K10190	Portion II	0	C3-6d	100%	0	30-Nov-17 A		04-Dec-21			
K10220	Portion V	0	C3-6d	100%	0	30-Nov-17 A		04-Dec-21			
K10230	Portion VI	0	C3-6d	100%	0	30-Nov-17 A		04-Dec-21			
K10210	Portion IV	0	C3-6d	0%	0	21-Sep-19*		21-Sep-19		0	
Subcontracting		530			84	20-Nov-17 A	03-May-19	24-Nov-18	04-Dec-21	946	
S10000	Proposal on competitive process for selection of suppliers of Plant and Materials, Equipment and insurar	21	C3-7d	100%	0	20-Nov-17 A	11-Dec-17 A	22-Jun-19	22-Jun-19		
S10020	Subcontracting procedure	3	C3-6d	100%	0	04-Dec-17 A	06-Dec-17 A	24-Nov-18	24-Nov-18		
S10030	Acceptance of subcontracting procedure	6	C3-7d	100%	0	07-Dec-17 A	12-Dec-17 A	24-Nov-18	24-Nov-18		
S10010	Acceptance of proposal on competitive process	21	C3-7d	100%	0	11-Dec-17 A	18-Dec-17 A	22-Jun-19	22-Jun-19		
Subcontract Packages		418	C3-6d		67	30-Nov-17 A	03-May-19	24-Nov-18	04-Dec-21	771	
S10110	Traffic consultant (1st stage)	17	C3-6d	100%	0	30-Nov-17 A	08-Dec-17 A	24-Nov-18	24-Nov-18		
S10040	SC003 - Community Liaison Centre subcontract	48	C3-6d	100%	0	07-Dec-17 A	21-Feb-18 A	04-Dec-21	04-Dec-21		
S10050	SC004 - Contractor's site office subcontract	48	C3-6d	100%	0	07-Dec-17 A	08-Feb-18 A	07-Aug-20	07-Aug-20		
S10060	SC002 - Pre-construction condition survey subcontract	48	C3-6d	100%	0	07-Dec-17 A	27-Feb-18 A	24-Nov-18	24-Nov-18		
S10100	SC028 - Landscaping subcontract	48	C3-6d	100%	0	07-Dec-17 A	15-Feb-18 A	24-Dec-18	24-Dec-18		
S10080	SC005 - Site security system subcontract	48	C3-6d	100%	0	07-Dec-17 A	27-Feb-18 A	07-Aug-20	07-Aug-20		
S10090	SC006 - ICE for temporary works and Contractor's Design works	48	C3-6d	100%	0	07-Dec-17 A	20-Mar-18 A	24-Nov-18	24-Nov-18		
S10120	SC008 - Traffic consultant (2nd stage)	48	C3-6d	100%	0	13-Dec-17 A	19-Apr-18 A	27-Nov-18	27-Nov-18		
S10130	SC013 - Road, Drainage, Watermain subcontract	48	C3-6d	100%	0	08-Feb-18 A	03-May-18 A	24-Nov-18	24-Nov-18		
S10150	SC010 - Ground investigation subcontract	48	C3-6d	100%	0	08-Mar-18 A	04-May-18 A	11-Feb-19	11-Feb-19		
S10170	SC019 - Socketted H-pile subcontract	48	C3-6d	100%	0	02-May-18 A	24-Jul-18 A	11-Feb-19	11-Feb-19		
S10200	SC015 - Flexible surfacing, milling and resurfacing	48	C3-6d	100%	0	05-May-18 A	03-Jul-18 A	16-Feb-19	16-Feb-19		
S10070	SC014 - Groundwater monitoring subcontract	48	C3-6d	100%	0	31-May-18 A	09-Aug-18 A	11-Feb-19	11-Feb-19		
S10230	SC030 - Lift system subcontract	48	C3-6d	100%	0	09-Jul-18 A	11-Sep-18 A	12-Apr-19	12-Apr-19		
S10180	SC031 - Road lighting system and electrical system for footbridge subcontract	48	C3-6d	100%	0	27-Jul-18 A	14-Nov-18 A	18-Mar-19	18-Mar-19		
S10160	SC018 - Bored pile subcontract	48	C3-6d	100%	0	30-Aug-18 A	04-Jan-19 A	30-Jan-19	30-Jan-19		
S10280	SC021 - Prestressing, bearing and fabricated movement joint subcontract	45	C3-6d	100%	0	07-Nov-18 A	20-Dec-18 A	24-Oct-19	24-Oct-19		
S10270	SC020 - Footbridge RC works subcontract	48	C3-6d	100%	0	07-Nov-18 A	16-Jan-19 A	16-May-19	16-May-19		
S10290	SC023 - Footbridge steelwork (canopy & arch), cladding, glazing, sundry metalwork	48	C3-6d	100%	0	06-Dec-18 A	25-Jan-19 A	09-Feb-19	09-Feb-19		
S10220	SC029 - Irrigation system subcontract	48	C3-6d	0%	48	09-Feb-19*	06-Apr-19	13-Jul-19	06-Sep-19	124	
S10240	SC022 - Footbridge waterproofing	48	C3-6d	0%	48	04-Mar-19*	03-May-19	16-Apr-20	12-Jun-20	330	
General Submissions		974			528	20-Nov-17 A	20-Jul-20	24-Nov-18	12-Oct-20	84	
C10000	Draft Safety Plan (submission)	14	C3-7d	100%	0	20-Nov-17 A	19-Dec-17 A	24-Nov-18	24-Nov-18		
C10070	Subcontractor Management Plan (submission)	30	C3-7d	100%	0	20-Nov-17 A	20-Dec-17 A	24-Nov-18	24-Nov-18		
C10030	Environmental Management Plan (prepare & submit)	21	C3-7d	100%	0	20-Nov-17 A	11-Dec-17 A	24-Nov-18	24-Nov-18		
C10150	Waste Management Plan (prepare & submit)	18	C3-6d	100%	0	30-Nov-17 A	20-Dec-17 A	24-Nov-18	24-Nov-18		
C10130	Weather Protection Scheme (prepare & submit)	30	C3-7d	100%	0	30-Nov-17 A	30-Jan-18 A	27-Nov-18	27-Nov-18		
C10190	Site Traffic Safety Management Plan	42	C3-7d	100%	0	30-Nov-17 A	05-Feb-18 A	24-Nov-18	24-Nov-18		
C10200	Construction Impact Assessment (prepare & submit - Issue 1)	24	C3-6d	100%	0	12-Dec-17 A	11-Jan-18 A	11-Feb-19	11-Feb-19		
C10040	Environmental Management Plan (review & discuss)	6	C3-7d	100%	0	12-Dec-17 A	11-Jan-18 A	24-Nov-18	24-Nov-18		
C10010	Safety Plan (submission)	6	C3-6d	100%	0	20-Dec-17 A	06-Jan-18 A	24-Nov-18	24-Nov-18		
C10080	Subcontractor Management Plan (PM's comments)	21	C3-7d	100%	0	21-Dec-17 A	05-Jan-18 A	24-Nov-18	24-Nov-18		
C10160	Waste Management Plan (review & discuss)	18	C3-6d	100%	0	21-Dec-17 A	11-Jan-18 A	24-Nov-18	24-Nov-18		
C10090	Subcontractor Management Plan (resubmit)	56	C3-6d	100%	0	06-Jan-18 A	15-Mar-18 A	24-Nov-18	24-Nov-18		



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

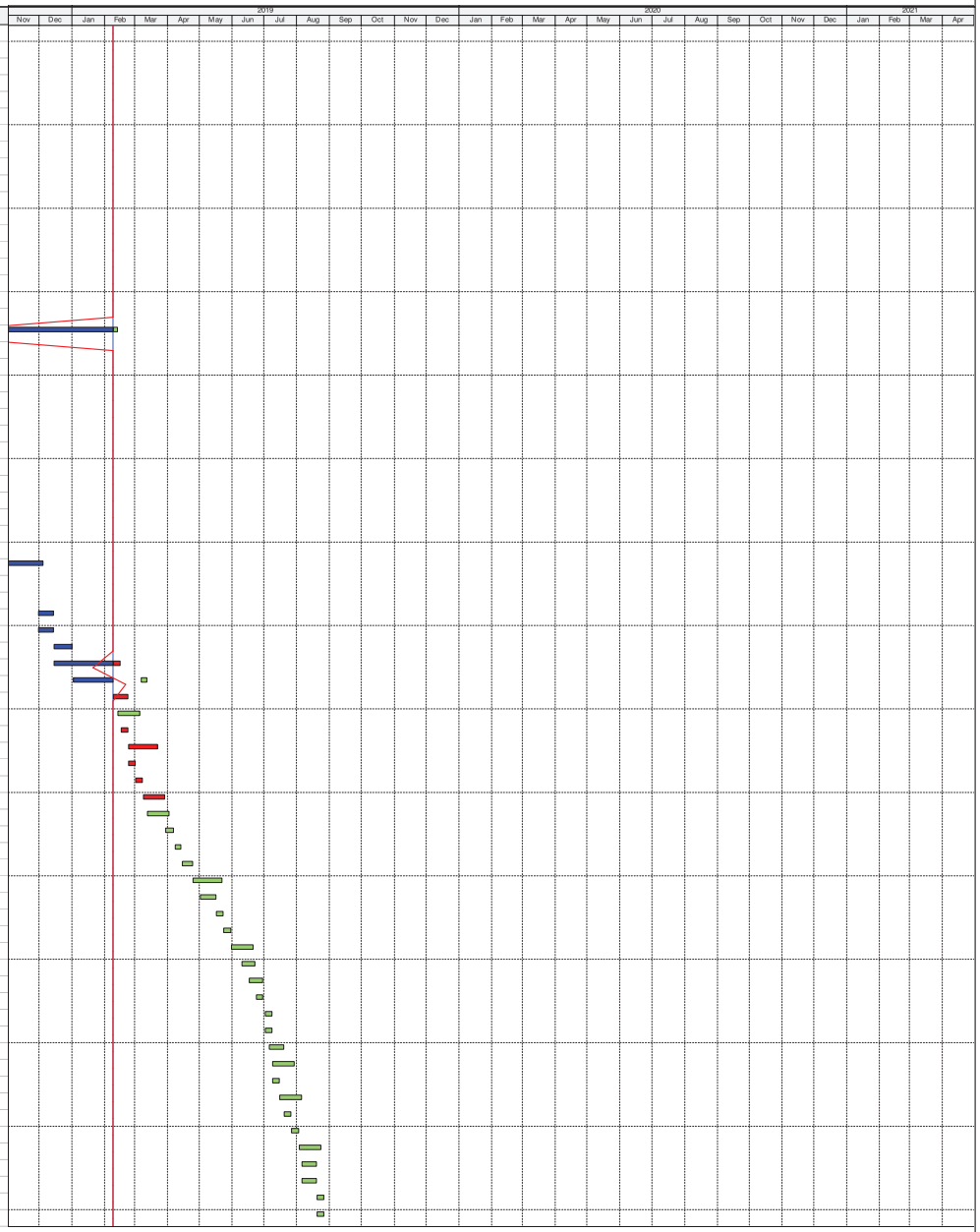
Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C10020	Safety Plan (PM's acceptance)	21	C3-7d	100%	0	07-Jan-18 A	24-Jan-18 A	24-Nov-18	24-Nov-18		
C10170	Waste Management Plan (resubmit)	12	C3-6d	100%	0	12-Jan-18 A	18-Jan-18 A	24-Nov-18	24-Nov-18		
C10210	Construction Impact Assessment (review & discuss)	12	C3-6d	100%	0	12-Jan-18 A	24-Jan-18 A	11-Feb-19	11-Feb-19		
C10050	Environmental Management Plan (resubmit)	6	C3-6d	100%	0	12-Jan-18 A	30-Jan-18 A	24-Nov-18	24-Nov-18		
C10110	Noise Mitigation Plan (prepare & submit)	1	C3-6d	100%	0	13-Jan-18 A	15-Feb-18 A	11-Feb-19	11-Feb-19		
C10180	Waste Management Plan (accept)	21	C3-7d	100%	0	19-Jan-18 A	25-Apr-18 A	24-Nov-18	24-Nov-18		
C10220	Construction Impact Assessment (resubmit - Issue 2 and 3)	12	C3-6d	100%	0	25-Jan-18 A	13-Apr-18 A	11-Feb-19	11-Feb-19		
C10140	Weather Protection Scheme (accept)	21	C3-7d	100%	0	31-Jan-18 A	05-Feb-18 A	27-Nov-18	27-Nov-18		
C10060	Environmental Management Plan (PM's acceptance)	21	C3-7d	100%	0	31-Jan-18 A	25-Apr-18 A	24-Nov-18	24-Nov-18		
C10250	Geotechnical instrumentation programme (prepare & submit)	6	C3-6d	100%	0	08-Feb-18 A	14-Feb-18 A	11-Feb-19	11-Feb-19		
C10240	Monitoring proposal for Geotechnical Monitoring	30	C3-7d	100%	0	15-Feb-18 A	02-Mar-18 A	11-Feb-19	11-Feb-19		
C10260	Geotechnical instrumentation programme (accept)	21	C3-7d	100%	0	15-Feb-18 A	02-Mar-18 A	11-Feb-19	11-Feb-19		
C10120	Noise Mitigation Plan (review & comment)	18	C3-6d	100%	0	16-Feb-18 A	26-Mar-18 A	11-Feb-19	11-Feb-19		
C10100	Subcontractor Management Plan (PM's acceptance)	21	C3-7d	100%	0	16-Mar-18 A	30-Apr-18 A	24-Nov-18	24-Nov-18		
C10121	Noise Mitigation Plan (resubmit)	12	C3-6d	100%	0	27-Mar-18 A	11-Jun-18 A	11-Feb-19	11-Feb-19		
C10230	Construction Impact Assessment (resubmit - Issue 4)	12	C3-6d	100%	0	14-Apr-18 A	29-Jun-18 A	11-Feb-19	11-Feb-19		
C10270	Temporary Drainage Management Plan (prepare & submit)	27	C3-6d	100%	0	19-Apr-18 A	03-May-18 A	27-Sep-19	27-Sep-19		
C10271	Temporary Drainage Management Plan (review & discuss)	5	C3-6d	100%	0	04-May-18 A	08-May-18 A	27-Sep-19	27-Sep-19		
C10272	Temporary Drainage Management Plan (resubmit)	6	C3-6d	66.67%	2	09-May-18 A	11-Feb-19	27-Sep-19	28-Sep-19	188	
C10122	Noise Mitigation Plan (review & comment)	12	C3-6d	100%	0	12-Jun-18 A	26-Jun-18 A	11-Feb-19	11-Feb-19		
C10123	Noise Mitigation Plan (resubmit)	12	C3-6d	100%	0	27-Jun-18 A	11-Sep-18 A	11-Feb-19	11-Feb-19		
C10231	Construction Impact Assessment (resubmit - Issue 5)	12	C3-6d	100%	0	30-Jun-18 A	29-Aug-18 A	11-Feb-19	11-Feb-19		
C10232	Construction Impact Assessment (resubmit - Issue 6)	12	C3-7d	100%	0	30-Aug-18 A	16-Oct-18 A	11-Feb-19	11-Feb-19		
C10124	Noise Mitigation Plan (accept)	21	C3-7d	100%	0	12-Sep-18 A	10-Oct-18 A	11-Feb-19	11-Feb-19		
C10233	Construction Impact Assessment (accept)	21	C3-7d	100%	0	17-Oct-18 A	07-Nov-18 A	11-Feb-19	11-Feb-19		
C10273	Temporary Drainage Management Plan (accept)	19	C3-7d	0%	19	12-Feb-19	02-Mar-19	30-Sep-19	18-Oct-19	230	
C10360	Particulars of bridge bearings (prepare & submit)	18	C3-6d	0%	18	01-Apr-19*	25-Apr-19	24-Oct-19	14-Nov-19	167	
C10370	Particulars of bridge bearings (review & discuss)	12	C3-6d	0%	12	26-Apr-19	10-May-19	14-Nov-19	28-Nov-19	167	
C10380	Particulars of bridge bearings (resubmit)	12	C3-6d	0%	12	11-May-19	25-May-19	28-Nov-19	12-Dec-19	167	
C10390	Particulars of bridge bearings (accept)	21	C3-7d	0%	21	26-May-19	15-Jun-19	12-Dec-19	02-Jan-20	201	
C10280	Fall Arrest System (prepare & submit)	18	C3-6d	0%	18	02-Jul-19*	22-Jul-19	07-Jan-20	31-Jan-20	156	
C10290	Fall Arrest System (review & discuss)	12	C3-6d	0%	12	23-Jul-19	05-Aug-19	31-Jan-20	14-Feb-20	156	
C10300	Fall Arrest System (resubmit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	14-Feb-20	28-Feb-20	156	
C10310	Fall Arrest System (accept)	21	C3-7d	0%	21	20-Aug-19	09-Sep-19	28-Feb-20	20-Mar-20	192	
C10320	Bridge waterproofing system (prepare & submit)	18	C3-6d	0%	18	02-Jan-20*	22-Jan-20	13-Jun-20	06-Jul-20	131	
C10400	Pillar box arrangement (prepare & submit)	18	C3-6d	0%	18	06-Jan-20*	29-Jan-20	21-Jan-20	13-Feb-20	13	
C10330	Bridge waterproofing system (review & discuss)	12	C3-6d	0%	12	23-Jan-20	08-Feb-20	07-Jul-20	20-Jul-20	131	
C10410	Pillar box arrangement (review & discuss)	12	C3-6d	0%	12	30-Jan-20	12-Feb-20	14-Feb-20	27-Feb-20	13	
C10340	Bridge waterproofing system (resubmit)	12	C3-6d	0%	12	10-Feb-20	22-Feb-20	21-Jul-20	03-Aug-20	131	
C10420	Pillar box arrangement (resubmit)	12	C3-6d	0%	12	13-Feb-20	26-Feb-20	28-Feb-20	12-Mar-20	13	
C10350	Bridge waterproofing system (accept)	21	C3-7d	0%	21	23-Feb-20	14-Mar-20	04-Aug-20	24-Aug-20	163	
C10430	Pillar box arrangement (accept)	21	C3-7d	0%	21	27-Feb-20	18-Mar-20	13-Mar-20	02-Apr-20	15	
Temporary Works (TW) Design		516			178	08-Mar-18 A	05-Aug-19	24-Nov-18	27-Sep-19	53	
C10440	TW for trench excavation (prepare & submit)	12	C3-6d	100%	0	08-Mar-18 A	09-Apr-18 A	24-Nov-18	24-Nov-18		
C10470	TW for trench excavation (accept)	19	C3-7d	100%	0	10-Apr-18 A	19-Apr-18 A	24-Nov-18	24-Nov-18		
C10480	TW for socketted H-pile test (prepare & submit)	18	C3-6d	100%	0	30-Nov-18 A	14-Dec-18 A	05-Jun-19	05-Jun-19		
C10490	TW for socketted H-pile test (review & discuss)	12	C3-6d	100%	0	15-Dec-18 A	31-Dec-18 A	05-Jun-19	05-Jun-19		
C10500	TW for socketted H-pile test (resubmit)	6	C3-6d	33.33%	4	02-Jan-19 A	13-Feb-19	05-Jun-19	10-Jun-19	93	
C10520	TW for construction of pile cap (prepare & submit)	12	C3-6d	0%	12	09-Feb-19	22-Feb-19	16-May-19	29-May-19	76	
C10510	TW for socketted H-pile test (accept)	21	C3-7d	0%	21	14-Feb-19	06-Mar-19	11-Jun-19	01-Jul-19	117	
C10530	TW for construction of pile cap (review & discuss)	6	C3-6d	0%	6	23-Feb-19	01-Mar-19	30-May-19	05-Jun-19	76	
C10540	TW for construction of pile cap (resubmit)	6	C3-6d	0%	6	02-Mar-19	08-Mar-19	06-Jun-19	13-Jun-19	76	
C10550	TW for construction of pile cap (accept)	21	C3-7d	0%	21	09-Mar-19	29-Mar-19	14-Jun-19	04-Jul-19	97	
C10560	TW for construction of pier/column (prepare & submit)	18	C3-6d	0%	18	01-Apr-19*	25-Apr-19	12-Jul-19	01-Aug-19	80	
C10570	TW for construction of pier/column (review & discuss)	12	C3-6d	0%	12	26-Apr-19	10-May-19	02-Aug-19	15-Aug-19	80	
C10600	TW for construction of bridge deck (prepare & submit)	18	C3-6d	0%	18	02-May-19*	23-May-19	27-Jul-19	16-Aug-19	71	
C10580	TW for construction of pier/column (resubmit)	6	C3-6d	0%	6	11-May-19	18-May-19	16-Aug-19	22-Aug-19	80	
C10590	TW for construction of pier/column (accept)	21	C3-7d	0%	21	19-May-19	08-Jun-19	23-Aug-19	12-Sep-19	96	
C10610	TW for construction of bridge deck (review & discuss)	12	C3-6d	0%	12	24-May-19	06-Jun-19	17-Aug-19	30-Aug-19	71	
C10640	TW for construction of lift shaft (prepare & submit)	18	C3-6d	0%	18	01-Jun-19*	22-Jun-19	27-Jul-19	16-Aug-19	46	
C10680	TW for construction of staircase (prepare & submit)	18	C3-6d	0%	18	01-Jun-19*	22-Jun-19	27-Jul-19	16-Aug-19	46	
C10620	TW for construction of bridge deck (resubmit)	6	C3-6d	0%	6	08-Jun-19	14-Jun-19	31-Aug-19	06-Sep-19	71	
C10630	TW for construction of bridge deck (accept)	21	C3-7d	0%	21	15-Jun-19	05-Jul-19	07-Sep-19	27-Sep-19	84	
C10650	TW for construction of lift shaft (review & discuss)	12	C3-6d	0%	12	24-Jun-19	08-Jul-19	17-Aug-19	30-Aug-19	46	
C10690	TW for construction of staircase (review & discuss)	12	C3-6d	0%	12	24-Jun-19	08-Jul-19	17-Aug-19	30-Aug-19	46	
C10660	TW for construction of lift shaft (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	31-Aug-19	06-Sep-19	46	
C10700	TW for construction of staircase (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	31-Aug-19	06-Sep-19	46	
C10670	TW for construction of lift shaft (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	07-Sep-19	27-Sep-19	53	
C10710	TW for construction of staircase (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	07-Sep-19	27-Sep-19	53	
Method Statements (MS)		894			528	22-Jan-18 A	20-Jul-20	24-Nov-18	12-Oct-20	84	
C10720	MS tree felling (prepare & submit)	12	C3-6d	100%	0	22-Jan-18 A	26-Jan-18 A	11-Feb-19	11-Feb-19		
C10730	MS tree felling (accept)	21	C3-7d	100%	0	27-Jan-18 A	07-Feb-18 A	11-Feb-19	11-Feb-19		

Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C10820	MS for temporary road construction (prepare & submit)	6	C3-6d	100%	0	08-Feb-18 A	22-Feb-18 A	24-Nov-18	24-Nov-18		
C10830	MS for temporary road construction (review & discuss)	6	C3-6d	100%	0	23-Feb-18 A	05-Mar-18 A	24-Nov-18	24-Nov-18		
C10840	MS for temporary road construction (resubmit)	6	C3-6d	100%	0	06-Mar-18 A	10-Apr-18 A	24-Nov-18	24-Nov-18		
C10900	MS for tree transplanting (prepare & submit)	6	C3-6d	100%	0	08-Mar-18 A	22-Mar-18 A	24-Dec-18	24-Dec-18		
C10780	MS for Contractor's site office (prepare & submit)	6	C3-6d	100%	0	08-Mar-18 A	12-Mar-18 A	07-Aug-20	07-Aug-20		
C10740	MS for trench excavation (prepare & submit)	11	C3-6d	100%	0	13-Mar-18 A	09-Apr-18 A	24-Nov-18	24-Nov-18		
C10790	MS for Contractor's site office (review & discuss)	6	C3-6d	100%	0	13-Mar-18 A	09-Apr-18 A	07-Aug-20	07-Aug-20		
C10910	MS for tree transplanting (review & discuss)	6	C3-6d	100%	0	23-Mar-18 A	16-Apr-18 A	24-Dec-18	24-Dec-18		
C11020	MS for ground investigation (prepare & submit)	12	C3-6d	100%	0	29-Mar-18 A	13-Apr-18 A	11-Feb-19	11-Feb-19		
C10931	MS for tree protection (prepare & submit)	6	C3-6d	100%	0	06-Apr-18 A	16-Apr-18 A	31-May-19	31-May-19		
C10980	MS for drainage (prepare & submit)	5	C3-6d	100%	0	09-Apr-18 A	16-Apr-18 A	27-Nov-18	27-Nov-18		
C10800	MS for Contractor's site office (resubmit)	5	C3-6d	100%	0	10-Apr-18 A	03-May-18 A	07-Aug-20	07-Aug-20		
C10770	MS for trench excavation (accept)	19	C3-7d	100%	0	10-Apr-18 A	19-Apr-18 A	24-Nov-18	24-Nov-18		
C10850	MS for temporary road construction (accept)	12	C3-7d	100%	0	11-Apr-18 A	23-May-18 A	24-Nov-18	24-Nov-18		
C11030	MS for ground investigation (review & discuss)	12	C3-6d	100%	0	14-Apr-18 A	04-May-18 A	11-Feb-19	11-Feb-19		
C11010	MS for drainage (accept)	21	C3-7d	100%	0	17-Apr-18 A	11-Jun-18 A	27-Nov-18	27-Nov-18		
C10920	MS for tree transplanting (resubmit)	5	C3-6d	100%	0	17-Apr-18 A	30-May-18 A	24-Dec-18	24-Dec-18		
C10932	MS for tree protection (review & discuss)	6	C3-6d	100%	0	17-Apr-18 A	25-Apr-18 A	31-May-19	31-May-19		
C10933	MS for tree protection (resubmit)	6	C3-6d	50%	3	26-Apr-18 A	12-Feb-19	31-May-19	03-Jun-19	89	
C10810	MS for Contractor's site office (accept)	19	C3-7d	100%	0	04-May-18 A	16-May-18 A	07-Aug-20	07-Aug-20		
C11040	MS for ground investigation (resubmit)	6	C3-6d	100%	0	05-May-18 A	19-May-18 A	11-Feb-19	11-Feb-19		
C10860	MS for watermain (prepare & submit)	12	C3-6d	100%	0	08-May-18 A	26-Jul-18 A	24-Nov-18	24-Nov-18		
C11050	MS for ground investigation (accept by PM & MTRCL)	28	C3-7d	100%	0	20-May-18 A	29-May-18 A	11-Feb-19	11-Feb-19		
C10930	MS for tree transplanting (accept)	19	C3-7d	100%	0	31-May-18 A	06-Jun-18 A	24-Dec-18	24-Dec-18		
C11500	MS for flexible pavement, kerb & road marking (prepare & submit)	12	C3-6d	100%	0	14-Jun-18 A	21-Jun-18 A	16-Feb-19	16-Feb-19		
C11100	MS for construction of socketted H-pile (prepare & submit)	12	C3-6d	100%	0	18-Jun-18 A	25-Jun-18 A	11-Feb-19	11-Feb-19		
C11510	MS for flexible pavement, kerb & road marking (review & discuss)	6	C3-6d	100%	0	22-Jun-18 A	30-Jul-18 A	16-Feb-19	16-Feb-19		
C11110	MS for construction of socketted H-pile (review & discuss)	6	C3-6d	100%	0	26-Jun-18 A	25-Jul-18 A	11-Feb-19	11-Feb-19		
C11120	MS for construction of socketted H-pile (resubmit)	6	C3-6d	100%	0	26-Jul-18 A	20-Aug-18 A	11-Feb-19	11-Feb-19		
C10890	MS for watermain (accept)	11	C3-7d	100%	0	27-Jul-18 A	05-Oct-18 A	24-Nov-18	24-Nov-18		
C11520	MS for flexible pavement, kerb & road marking (resubmit)	6	C3-6d	100%	0	31-Jul-18 A	16-Aug-18 A	16-Feb-19	16-Feb-19		
C11530	MS for flexible pavement, kerb & road marking (accept)	21	C3-7d	100%	0	17-Aug-18 A	22-Oct-18 A	16-Feb-19	16-Feb-19		
C11130	MS for construction of socketted H-pile (accept by PM & MTRCL)	28	C3-7d	100%	0	21-Aug-18 A	04-Dec-18 A	11-Feb-19	11-Feb-19		
C10940	MS for standpipe and piezometer (prepare & submit)	5	C3-6d	100%	0	21-Aug-18 A	28-Aug-18 A	11-Feb-19	11-Feb-19		
C10970	MS for standpipe and piezometer (accept)	28	C3-7d	100%	0	29-Aug-18 A	13-Sep-18 A	11-Feb-19	11-Feb-19		
C11140	MS for socketted H-pile testing (prepare & submit)	12	C3-6d	100%	0	30-Nov-18 A	14-Dec-18 A	02-Jul-19	02-Jul-19		
C11060	MS for bored pile (prepare & submit)	12	C3-6d	100%	0	30-Nov-18 A	14-Dec-18 A	30-Jan-19	30-Jan-19		
C11150	MS for socketted H-pile testing (review & discuss)	6	C3-6d	100%	0	15-Dec-18 A	31-Dec-18 A	02-Jul-19	02-Jul-19		
C11070	MS for bored pile (review & discuss)	12	C3-6d	50%	6	15-Dec-18 A	15-Feb-19	30-Jan-19	09-Feb-19	-5	
C11160	MS for socketted H-pile testing (resubmit)	6	C3-6d	16.67%	5	02-Jan-19 A	12-Mar-19	02-Jul-19	06-Jul-19	92	
C11540	MS for fences, railing, parapets, crash gate and untensioned beam barriers (prepare & submit)	12	C3-6d	0%	12	09-Feb-19*	22-Feb-19	09-Feb-19	22-Feb-19	0	
C10934	MS for tree protection (accept)	21	C3-7d	0%	21	13-Feb-19	05-Mar-19	04-Jun-19	24-Jun-19	111	
C11080	MS for bored pile (resubmit)	6	C3-6d	0%	6	16-Feb-19	22-Feb-19	09-Feb-19	16-Feb-19	-5	
C11090	MS for bored pile (accept by PM & MTRCL)	28	C3-7d	0%	28	23-Feb-19	22-Mar-19	16-Feb-19	16-Mar-19	-6	
C11550	MS for fences, railing, parapets, crash gate and untensioned beam barriers (review & discuss)	6	C3-6d	0%	6	23-Feb-19	01-Mar-19	23-Feb-19	01-Mar-19	0	
C11560	MS for fences, railing, parapets, crash gate and untensioned beam barriers (resubmit)	6	C3-6d	0%	6	02-Mar-19	08-Mar-19	02-Mar-19	08-Mar-19	0	
C11570	MS for fences, railing, parapets, crash gate and untensioned beam barriers (accept)	21	C3-7d	0%	21	09-Mar-19	29-Mar-19	09-Mar-19	29-Mar-19	0	
C11170	MS for socketted H-pile testing (accept)	21	C3-7d	0%	21	13-Mar-19	02-Apr-19	08-Jul-19	28-Jul-19	117	
C11220	MS for construction of pile cap (prepare & submit)	6	C3-6d	0%	6	30-Mar-19	06-Apr-19	05-Jul-19	11-Jul-19	75	
C11230	MS for construction of pile cap (review & discuss)	6	C3-6d	0%	6	08-Apr-19	13-Apr-19	12-Jul-19	18-Jul-19	75	
C11240	MS for construction of pile cap (resubmit)	6	C3-6d	0%	6	15-Apr-19	24-Apr-19	19-Jul-19	25-Jul-19	75	
C11250	MS for construction of pile cap (accept by PM & MTRCL)	28	C3-7d	0%	28	25-Apr-19	22-May-19	26-Jul-19	22-Aug-19	92	
C11180	MS for bored pile testing (prepare & submit)	12	C3-6d	0%	12	02-May-19*	16-May-19	16-Aug-19	30-Aug-19	88	
C11190	MS for bored pile testing (review & discuss)	6	C3-6d	0%	6	17-May-19	23-May-19	30-Aug-19	06-Sep-19	88	
C11200	MS for bored pile testing (resubmit)	6	C3-6d	0%	6	24-May-19	30-May-19	06-Sep-19	13-Sep-19	88	
C11210	MS for bored pile testing (accept)	21	C3-7d	0%	21	31-May-19	20-Jun-19	13-Sep-19	04-Oct-19	105	
C11260	MS for construction of pier/column (prepare & submit)	12	C3-6d	0%	12	10-Jun-19	22-Jun-19	13-Sep-19	27-Sep-19	81	
C11420	MS for installation of bearing and movement joints (prepare & submit)	12	C3-6d	0%	12	17-Jun-19	29-Jun-19	02-Jan-20	16-Jan-20	165	
C11270	MS for construction of pier/column (review & discuss)	6	C3-6d	0%	6	24-Jun-19	29-Jun-19	19-Oct-19	26-Oct-19	98	
C11280	MS for construction of pier/column (resubmit)	6	C3-6d	0%	6	02-Jul-19	08-Jul-19	26-Oct-19	02-Nov-19	98	
C11430	MS for installation of bearing and movement joints (review & discuss)	6	C3-6d	0%	6	02-Jul-19	08-Jul-19	16-Jan-20	23-Jan-20	165	
C11300	MS for construction of bridge deck (prepare & submit)	12	C3-6d	0%	12	06-Jul-19	19-Jul-19	28-Sep-19	14-Oct-19	71	
C11290	MS for construction of pier/column (accept)	21	C3-7d	0%	21	09-Jul-19	29-Jul-19	02-Nov-19	23-Nov-19	117	
C11440	MS for installation of bearing and movement joints (resubmit)	6	C3-6d	0%	6	09-Jul-19	15-Jul-19	23-Jan-20	03-Feb-20	165	
C11450	MS for installation of bearing and movement joints (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	03-Feb-20	24-Feb-20	203	
C11310	MS for construction of bridge deck (review & discuss)	6	C3-6d	0%	6	20-Jul-19	26-Jul-19	11-Jan-20	17-Jan-20	144	
C11320	MS for construction of bridge deck (resubmit)	6	C3-6d	0%	6	27-Jul-19	02-Aug-19	18-Jan-20	24-Jan-20	144	
C11330	MS for construction of bridge deck (accept)	21	C3-7d	0%	21	03-Aug-19	23-Aug-19	25-Jan-20	15-Feb-20	176	
C11340	MS for construction of lift shaft (prepare & submit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	28-Sep-19	14-Oct-19	45	
C11380	MS for construction of staircase (prepare & submit)	12	C3-6d	0%	12	06-Aug-19	19-Aug-19	28-Sep-19	14-Oct-19	45	
C11350	MS for construction of lift shaft (review & discuss)	6	C3-6d	0%	6	20-Aug-19	26-Aug-19	17-Oct-19	23-Oct-19	47	
C11390	MS for construction of staircase (review & discuss)	6	C3-6d	0%	6	20-Aug-19	26-Aug-19	15-Oct-19	21-Oct-19	45	

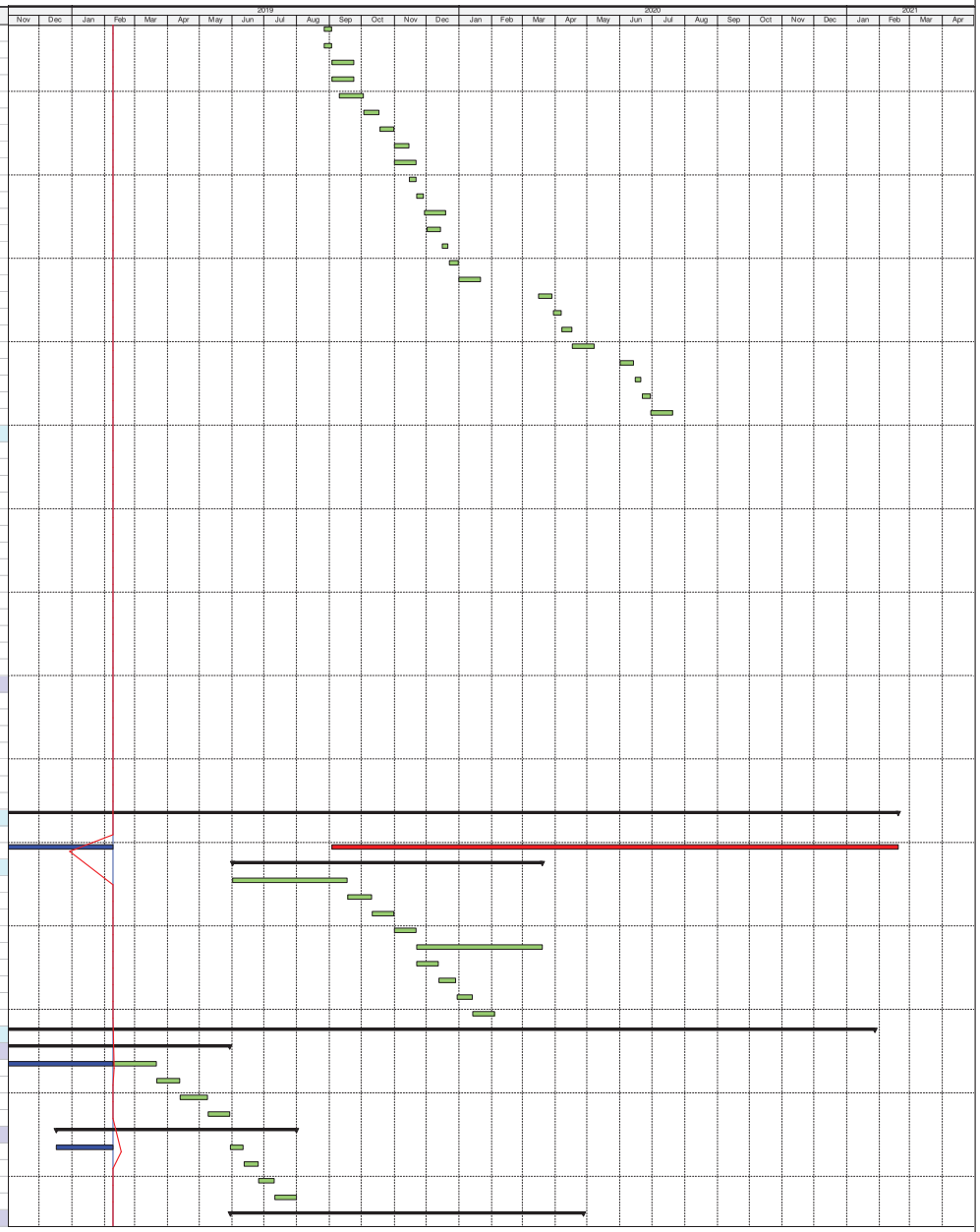


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C11360	MS for construction of lift shaft (resubmit)	6	C3-6d	0%	6	27-Aug-19	02-Sep-19	24-Oct-19	30-Oct-19	47	
C11400	MS for construction of staircase (resubmit)	6	C3-6d	0%	6	27-Aug-19	02-Sep-19	22-Oct-19	28-Oct-19	45	
C11370	MS for construction of lift shaft (accept)	21	C3-7d	0%	21	03-Sep-19	23-Sep-19	31-Oct-19	20-Nov-19	58	
C11410	MS for construction of staircase (accept)	21	C3-7d	0%	21	03-Sep-19	23-Sep-19	29-Oct-19	18-Nov-19	56	
C11700	MS for fall arrest system (prepare & submit)	18	C3-6d	0%	18	10-Sep-19	02-Oct-19	20-Mar-20	15-Apr-20	156	
C11710	MS for fall arrest system (review & discuss)	12	C3-6d	0%	12	03-Oct-19	17-Oct-19	15-Apr-20	29-Apr-20	156	
C11720	MS for fall arrest system (resubmit)	12	C3-6d	0%	12	18-Oct-19	31-Oct-19	29-Apr-20	15-May-20	156	
C11620	MS for footbridge steelworks (steel arch & lift beams) (prepare & submit)	12	C3-6d	0%	12	01-Nov-19*	14-Nov-19	27-Nov-19	10-Dec-19	22	
C11730	MS for fall arrest system (accept)	21	C3-7d	0%	21	01-Nov-19	21-Nov-19	15-May-20	05-Jun-20	196	
C11630	MS for footbridge steelworks (steel arch & lift beams) (review & discuss)	6	C3-6d	0%	6	15-Nov-19	21-Nov-19	11-Dec-19	17-Dec-19	22	
C11640	MS for footbridge steelworks (steel arch & lift beams) (resubmit)	6	C3-6d	0%	6	22-Nov-19	28-Nov-19	18-Dec-19	24-Dec-19	22	
C11650	MS for footbridge steelworks (steel arch & lift beams) (accept)	21	C3-7d	0%	21	29-Nov-19	19-Dec-19	26-Dec-19	15-Jan-20	27	
C11460	MS for prestressing (prepare & submit)	12	C3-6d	0%	12	02-Dec-19*	14-Dec-19	12-Mar-20	26-Mar-20	82	
C11470	MS for prestressing (review & discuss)	6	C3-6d	0%	6	16-Dec-19	21-Dec-19	26-Mar-20	02-Apr-20	82	
C11480	MS for prestressing (resubmit)	6	C3-6d	0%	6	23-Dec-19	31-Dec-19	02-Apr-20	14-Apr-20	82	
C11490	MS for prestressing (accept)	21	C3-7d	0%	21	01-Jan-20	21-Jan-20	14-Apr-20	05-May-20	105	
C11580	MS for footbridge waterproofing (prepare & submit)	12	C3-6d	0%	12	16-Mar-20	28-Mar-20	25-Aug-20	07-Sep-20	131	
C11590	MS for footbridge waterproofing (review & discuss)	6	C3-6d	0%	6	30-Mar-20	06-Apr-20	08-Sep-20	14-Sep-20	131	
C11600	MS for footbridge waterproofing (resubmit)	6	C3-6d	0%	6	07-Apr-20	16-Apr-20	15-Sep-20	21-Sep-20	131	
C11610	MS for footbridge waterproofing (accept)	21	C3-7d	0%	21	17-Apr-20	07-May-20	22-Sep-20	12-Oct-20	158	
C11660	MS for footbridge finishing (prepare & submit)	12	C3-6d	0%	12	01-Jun-20*	13-Jun-20	25-Aug-20	07-Sep-20	71	
C11670	MS for footbridge finishing (review & discuss)	6	C3-6d	0%	6	15-Jun-20	20-Jun-20	08-Sep-20	14-Sep-20	71	
C11680	MS for footbridge finishing (resubmit)	6	C3-6d	0%	6	22-Jun-20	29-Jun-20	15-Sep-20	21-Sep-20	71	
C11690	MS for footbridge finishing (accept)	21	C3-7d	0%	21	30-Jun-20	20-Jul-20	22-Sep-20	12-Oct-20	84	
Community Liaison Centre (CLC)		271			0	30-Nov-17 A	27-Aug-18 A	04-Dec-21	04-Dec-21		
C11740	PM's written instruction	1	C3-6d	100%	0	30-Nov-17 A	30-Nov-17 A	04-Dec-21	04-Dec-21		
C11750	Proposed layout (prepare & submit)	6	C3-6d	100%	0	01-Dec-17 A	13-Jan-18 A	04-Dec-21	04-Dec-21		
C11760	Proposed layout (review & discuss)	6	C3-6d	100%	0	14-Jan-18 A	22-Jan-18 A	04-Dec-21	04-Dec-21		
C11770	Proposed layout (resubmit)	6	C3-6d	100%	0	23-Jan-18 A	18-Apr-18 A	04-Dec-21	04-Dec-21		
C11790	Design of CLC (prepare & submit)	12	C3-6d	100%	0	19-Feb-18 A	19-Apr-18 A	04-Dec-21	04-Dec-21		
C11821	MS for CLC (prepare & submit)	6	C3-6d	100%	0	02-Apr-18 A	17-Apr-18 A	04-Dec-21	04-Dec-21		
C11822	MS for CLC (review & discuss)	6	C3-6d	100%	0	18-Apr-18 A	08-May-18 A	04-Dec-21	04-Dec-21		
C11780	Proposed layout (accept)	21	C3-7d	100%	0	19-Apr-18 A	29-May-18 A	04-Dec-21	04-Dec-21		
C11785	Design of CLC foundation (submit & accept)	12	C3-6d	100%	0	19-Apr-18 A	08-May-18 A	04-Dec-21	04-Dec-21		
C11800	Design of CLC (review & discuss)	6	C3-6d	100%	0	20-Apr-18 A	24-Apr-18 A	04-Dec-21	04-Dec-21		
C11810	Design of CLC (resubmit)	6	C3-6d	100%	0	25-Apr-18 A	30-Apr-18 A	04-Dec-21	04-Dec-21		
C11820	Design of CLC (accept)	21	C3-7d	100%	0	01-May-18 A	18-May-18 A	04-Dec-21	04-Dec-21		
C11823	MS for CLC (resubmit)	6	C3-6d	100%	0	09-May-18 A	10-May-18 A	04-Dec-21	04-Dec-21		
C11824	MS for CLC (accept)	21	C3-7d	100%	0	11-May-18 A	18-May-18 A	04-Dec-21	04-Dec-21		
Construction of CLC		69	C3-6d		0	18-Apr-18 A	27-Aug-18 A	04-Dec-21	04-Dec-21		
C11830-1	Site formation	5	C3-6d	100%	0	18-Apr-18 A	19-Apr-18 A	04-Dec-21	04-Dec-21		
C11830-2	Concrete slab	5	C3-6d	100%	0	20-Apr-18 A	23-Apr-18 A	04-Dec-21	04-Dec-21		
C11830-3	Steel frame	17	C3-6d	100%	0	18-May-18 A	25-May-18 A	04-Dec-21	04-Dec-21		
C11830-4	Wall, ceiling, doors, windows	24	C3-6d	100%	0	26-May-18 A	10-Aug-18 A	04-Dec-21	04-Dec-21		
C11830-5	Furnishing	30	C3-6d	100%	0	03-Jul-18 A	10-Aug-18 A	04-Dec-21	04-Dec-21		
C11830-6	E&M	30	C3-6d	100%	0	03-Jul-18 A	10-Aug-18 A	04-Dec-21	04-Dec-21		
C11830-7	T&C of CLC	14	C3-6d	100%	0	10-Aug-18 A	27-Aug-18 A	04-Dec-21	04-Dec-21		
Preservation and Protection of Existing Trees		852	C3-6d		433	27-Dec-17 A	18-Feb-21	24-Dec-18	04-Dec-20	-59	
C11840	Tree survey and tree report	12	C3-6d	100%	0	27-Dec-17 A	13-Jan-18 A	24-Dec-18	24-Dec-18		
C11850	Preservation and protection of existing trees	715	C3-6d	39.44%	433	08-Feb-18 A	18-Feb-21	25-Jun-19	04-Dec-20	-59	
Footbridge Canopy		293			293	01-Jun-19	19-Mar-20	16-Aug-19	05-Jun-20	78	
C11860	Design of steel canopy & cladding of arch (prepare & submit)	90	C3-6d	0%	90	01-Jun-19*	17-Sep-19	16-Aug-19	03-Dec-19	63	
C11870	Design of steel canopy & cladding of arch (review & discuss)	18	C3-6d	0%	18	18-Sep-19	10-Oct-19	03-Dec-19	24-Dec-19	63	
C11880	Design of steel canopy & cladding of arch (resubmit)	18	C3-6d	0%	18	11-Oct-19	31-Oct-19	24-Dec-19	17-Jan-20	63	
C11890	Design of steel canopy & cladding of arch (accept)	21	C3-7d	0%	21	01-Nov-19	21-Nov-19	17-Jan-20	07-Feb-20	77	
C11940	Material order, fabrication and delivery of footbridge canopy & cladding of arch	96	C3-6d	0%	96	22-Nov-19	19-Mar-20	07-Feb-20	05-Jun-20	60	
C11900	MS for steel canopy & cladding of arch (prepare & submit)	18	C3-6d	0%	18	22-Nov-19	12-Dec-19	20-Mar-20	15-Apr-20	96	
C11910	MS for steel canopy & cladding of arch (review & discuss)	12	C3-6d	0%	12	13-Dec-19	28-Dec-19	15-Apr-20	29-Apr-20	96	
C11920	MS for steel canopy & cladding of arch (resubmit)	12	C3-6d	0%	12	30-Dec-19	13-Jan-20	29-Apr-20	15-May-20	96	
C11930	MS for steel canopy & cladding of arch (accept)	21	C3-7d	0%	21	14-Jan-20	03-Feb-20	15-May-20	05-Jun-20	122	
Lift System		789			719	12-Sep-18 A	27-Jan-21	12-Apr-19	04-Dec-20	-54	
Design		180			110	12-Sep-18 A	29-May-19	12-Apr-19	01-Aug-19	64	
C11950	Design of lift system (prepare & submit)	90	C3-6d	61.11%	35	12-Sep-18 A	21-Mar-19	12-Apr-19	28-May-19	52	
C11960	Design of lift system (review & discuss)	18	C3-6d	0%	18	22-Mar-19	12-Apr-19	29-May-19	19-Jun-19	52	
C11970	Design of lift system (resubmit)	18	C3-6d	0%	18	13-Apr-19	08-May-19	20-Jun-19	11-Jul-19	52	
C11980	Design of lift system (accept)	21	C3-7d	0%	21	09-May-19	29-May-19	12-Jul-19	01-Aug-19	64	
Method Statement		63			63	17-Dec-18 A	31-Jul-19	13-Dec-19	16-Feb-20	200	
C11990	MS for lift installation (prepare & submit)	18	C3-6d	44.44%	10	17-Dec-18 A	11-Jun-19	13-Dec-19	24-Dec-19	164	
C12000	MS for lift installation (review & discuss)	12	C3-6d	0%	12	12-Jun-19	25-Jun-19	27-Dec-19	10-Jan-20	164	
C12010	MS for lift installation (resubmit)	12	C3-6d	0%	12	26-Jun-19	10-Jul-19	11-Jan-20	24-Jan-20	164	
C12020	MS for lift installation (accept)	21	C3-7d	0%	21	11-Jul-19	31-Jul-19	27-Jan-20	16-Feb-20	200	
Material Order & Delivery		334	C3-7d		334	30-May-19	27-Apr-20	02-Aug-19	07-Aug-20	102	



Actual Work
Remaining Work
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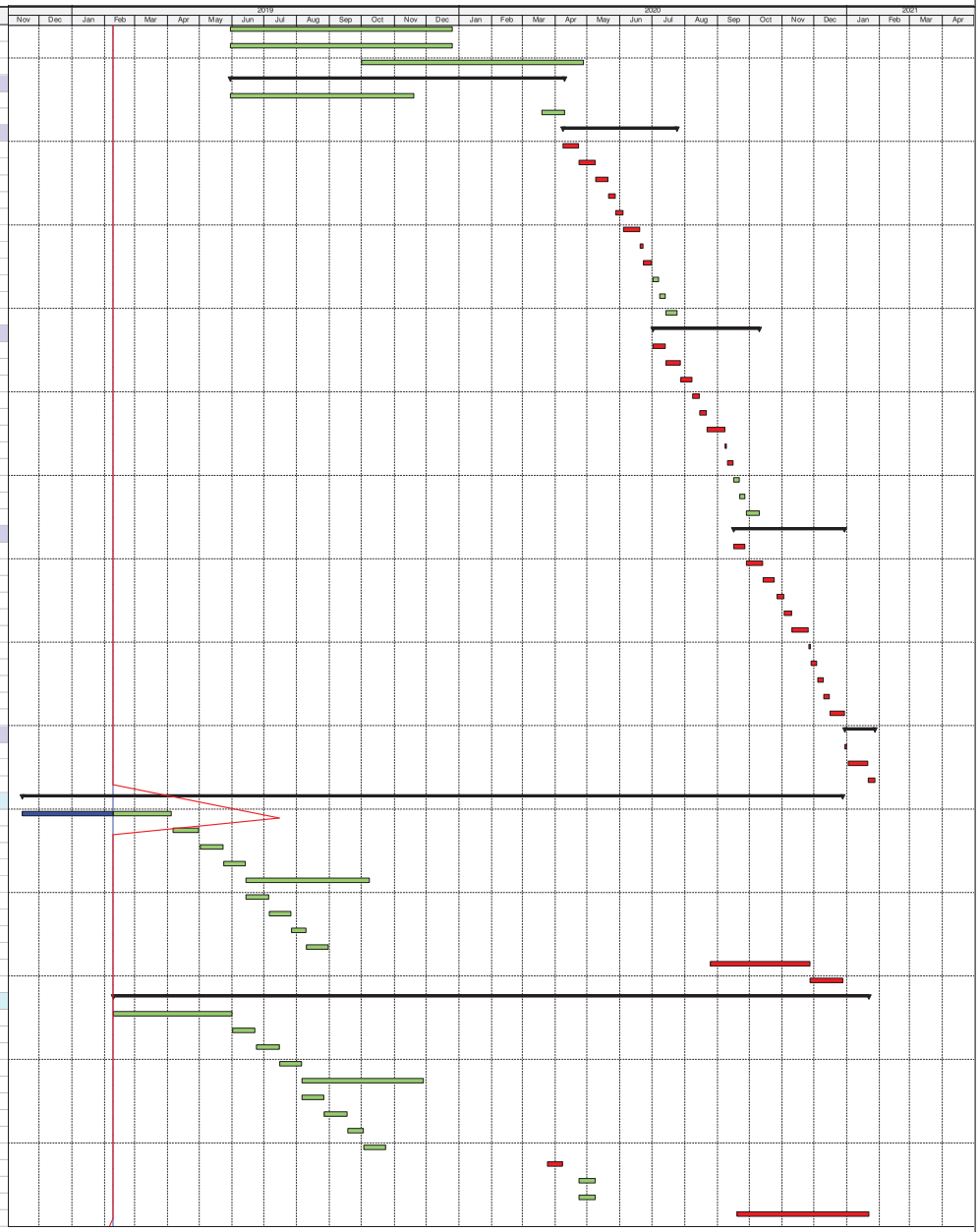
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12030	Material order and delivery - Lift 2A & 2B	210	C3-7d	0%	210	30-May-19	25-Dec-19	02-Aug-19	27-Feb-20	64	
C12032	Material order and delivery - Lift 1A & 1B	210	C3-7d	0%	210	30-May-19*	25-Dec-19	11-Jan-20	07-Aug-20	226	
C12031	Material order and delivery - Lift 3A & 3B	210	C3-7d	0%	210	01-Oct-19*	27-Apr-20	25-Oct-19	21-May-20	24	
Electricity Supply & Pillar Box		259	C3-6d		259	30-May-19	09-Apr-20	01-Nov-19	28-Apr-20	13	
C12040	Application for electricity supply	144	C3-6d	0%	144	30-May-19	19-Nov-19	01-Nov-19	28-Apr-20	128	
C12060	Pillar box (for lift) construction	18	C3-6d	0%	18	19-Mar-20	09-Apr-20	03-Apr-20	28-Apr-20	13	
Lift 2A & 2B		86	C3-6d		86	08-Apr-20	24-Jul-20	17-Feb-20	06-Nov-20	87	
C12050-10	Lift shaft scaffolding (2A & 2B)	10	C3-6d	0%	10	08-Apr-20	22-Apr-20	17-Feb-20	27-Feb-20	-43	
C12050-15	Lift machine & guide rail (2A & 2B)	12	C3-6d	0%	12	23-Apr-20	08-May-20	28-Feb-20	12-Mar-20	-43	
C12050-20	Lift door and landing (2A & 2B)	10	C3-6d	0%	10	09-May-20	20-May-20	13-Mar-20	24-Mar-20	-43	
C12050-25	Control panel and lift shaft wiring (2A & 2B)	6	C3-6d	0%	6	21-May-20	27-May-20	25-Mar-20	31-Mar-20	-43	
C12050-30	Modify lift shaft scaffolding (2A & 2B)	6	C3-6d	0%	6	28-May-20	03-Jun-20	01-Apr-20	08-Apr-20	-43	
C12050-35	Lift car assembly and cage wiring (2A & 2B)	14	C3-6d	0%	14	04-Jun-20	19-Jun-20	09-Apr-20	28-Apr-20	-43	
C12050-40	Connect temporary / permanent power supply to control panel (2A & 2B)	2	C3-6d	0%	2	20-Jun-20	22-Jun-20	29-Apr-20	02-May-20	-43	
C12050-45	Remove lift shaft scaffold (2A & 2B)	6	C3-6d	0%	6	23-Jun-20	30-Jun-20	04-May-20	09-May-20	-43	
C12050-50	Slow speed test (2A & 2B)	5	C3-6d	0%	5	02-Jul-20	07-Jul-20	14-Oct-20	19-Oct-20	87	
C12050-55	CCTV and intercom system (2A & 2B)	5	C3-6d	0%	5	08-Jul-20	13-Jul-20	20-Oct-20	24-Oct-20	87	
C12050-60	High speed & load test (2A & 2B)	10	C3-6d	0%	10	14-Jul-20	24-Jul-20	27-Oct-20	06-Nov-20	87	
Lift 3A & 3B		85	C3-6d		85	02-Jul-20	10-Oct-20	11-May-20	06-Nov-20	22	
C12052-10	Lift shaft scaffolding (3A & 3B)	10	C3-6d	0%	10	02-Jul-20	13-Jul-20	11-May-20	21-May-20	-43	
C12052-15	Lift machine & guide rail (3A & 3B)	12	C3-6d	0%	12	14-Jul-20	27-Jul-20	22-May-20	04-Jun-20	-43	
C12052-20	Lift door and landing (3A & 3B)	10	C3-6d	0%	10	28-Jul-20	07-Aug-20	05-Jun-20	16-Jun-20	-43	
C12052-25	Control panel and lift shaft wiring (3A & 3B)	6	C3-6d	0%	6	08-Aug-20	14-Aug-20	17-Jun-20	23-Jun-20	-43	
C12052-30	Modify lift shaft scaffolding (3A & 3B)	6	C3-6d	0%	6	15-Aug-20	21-Aug-20	24-Jun-20	02-Jul-20	-43	
C12052-35	Lift car assembly and cage wiring (3A & 3B)	14	C3-6d	0%	14	22-Aug-20	07-Sep-20	03-Jul-20	18-Jul-20	-43	
C12052-40	Connect temporary / permanent power supply to control panel (3A & 3B)	2	C3-6d	0%	2	08-Sep-20	09-Sep-20	20-Jul-20	21-Jul-20	-43	
C12052-45	Remove lift shaft scaffold (3A & 3B)	5	C3-6d	0%	5	10-Sep-20	15-Sep-20	22-Jul-20	27-Jul-20	-43	
C12052-50	Slow speed test (3A & 3B)	5	C3-6d	0%	5	16-Sep-20	21-Sep-20	14-Oct-20	19-Oct-20	22	
C12052-55	CCTV and intercom system (3A & 3B)	5	C3-6d	0%	5	22-Sep-20	26-Sep-20	20-Oct-20	24-Oct-20	22	
C12052-60	High speed & load test (3A & 3B)	10	C3-6d	0%	10	28-Sep-20	10-Oct-20	27-Oct-20	06-Nov-20	22	
Lift 1A & 1B		85	C3-6d		85	16-Sep-20	29-Dec-20	28-Jul-20	06-Nov-20	-43	
C12054-10	Lift shaft scaffolding (1A & 1B)	10	C3-6d	0%	10	16-Sep-20	26-Sep-20	28-Jul-20	07-Aug-20	-43	
C12054-15	Lift machine & guide rail (1A & 1B)	12	C3-6d	0%	12	28-Sep-20	13-Oct-20	08-Aug-20	21-Aug-20	-43	
C12054-20	Lift door and landing (1A & 1B)	10	C3-6d	0%	10	14-Oct-20	24-Oct-20	22-Aug-20	02-Sep-20	-43	
C12054-25	Control panel and lift shaft wiring (1A & 1B)	6	C3-6d	0%	6	27-Oct-20	02-Nov-20	03-Sep-20	09-Sep-20	-43	
C12054-30	Modify lift shaft scaffolding (1A & 1B)	6	C3-6d	0%	6	03-Nov-20	09-Nov-20	10-Sep-20	16-Sep-20	-43	
C12054-35	Lift car assembly and cage wiring (1A & 1B)	14	C3-6d	0%	14	10-Nov-20	25-Nov-20	17-Sep-20	05-Oct-20	-43	
C12054-40	Connect temporary / permanent power supply to control panel (1A & 1B)	2	C3-6d	0%	2	26-Nov-20	27-Nov-20	06-Oct-20	07-Oct-20	-43	
C12054-45	Remove lift shaft scaffold (1A & 1B)	5	C3-6d	0%	5	28-Nov-20	03-Dec-20	08-Oct-20	13-Oct-20	-43	
C12054-50	Slow speed test (1A & 1B)	5	C3-6d	0%	5	04-Dec-20	09-Dec-20	14-Oct-20	19-Oct-20	-43	
C12054-55	CCTV and intercom system (1A & 1B)	5	C3-6d	0%	5	10-Dec-20	15-Dec-20	20-Oct-20	24-Oct-20	-43	
C12054-60	High speed & load test (1A & 1B)	10	C3-6d	0%	10	16-Dec-20	29-Dec-20	27-Oct-20	06-Nov-20	-43	
EMSD		24	C3-6d		24	30-Dec-20	27-Jan-21	07-Nov-20	04-Dec-20	-43	
C12080-10	Form LE5 submission	2	C3-6d	0%	2	30-Dec-20	31-Dec-20	07-Nov-20	09-Nov-20	-43	
C12080-20	EMSD inspection	16	C3-6d	0%	16	02-Jan-21	20-Jan-21	10-Nov-20	27-Nov-20	-43	
C12080-30	Use permit issuance	6	C3-6d	0%	6	21-Jan-21	27-Jan-21	28-Nov-20	04-Dec-20	-43	
Electrical System for Footbridge		632			688	15-Nov-18 A	28-Dec-20	07-Nov-19	09-Nov-20	-48	
C12090	Design of electrical system for footbridge (prepare & submit)	90	C3-6d	47.78%	47	15-Nov-18 A	04-Apr-19	07-Nov-19	03-Jan-20	221	
C12100	Design of electrical system for footbridge (review & discuss)	18	C3-6d	0%	18	06-Apr-19	30-Apr-19	04-Jan-20	24-Jan-20	221	
C12110	Design of electrical system for footbridge (resubmit)	18	C3-6d	0%	18	02-May-19	23-May-19	29-Jan-20	18-Feb-20	221	
C12120	Design of electrical system for footbridge (accept)	21	C3-7d	0%	21	24-May-19	13-Jun-19	19-Feb-20	10-Mar-20	271	
C12170	Material order and delivery of footbridge electrical system	96	C3-6d	0%	96	14-Jun-19	08-Oct-19	11-Mar-20	09-Jul-20	222	
C12130	MS for electrical system (prepare & submit)	18	C3-6d	0%	18	14-Jun-19	05-Jul-19	22-Apr-20	14-May-20	254	
C12140	MS for electrical system (review & discuss)	18	C3-6d	0%	18	06-Jul-19	26-Jul-19	15-May-20	04-Jun-20	254	
C12150	MS for electrical system (resubmit)	12	C3-6d	0%	12	27-Jul-19	09-Aug-19	05-Jun-20	18-Jun-20	254	
C12160	MS for electrical system (accept)	21	C3-7d	0%	21	10-Aug-19	30-Aug-19	19-Jun-20	09-Jul-20	314	
C12180	Install electrical system for footbridge (incl. footbridge lighting system)	78	C3-6d	0%	78	25-Aug-20	27-Nov-20	10-Jul-20	10-Oct-20	-39	
C12190	Testing and commissioning of electrical system for footbridge	24	C3-6d	0%	24	27-Nov-20	28-Dec-20	12-Oct-20	09-Nov-20	-39	
Glazing System		713			713	09-Feb-19	21-Jan-21	12-Apr-19	04-Dec-20	-48	
C12200	Design of glazing system (prepare & submit)	90	C3-6d	0%	90	09-Feb-19	31-May-19	12-Apr-19	02-Aug-19	52	
C12210	Design of glazing system (review & discuss)	18	C3-6d	0%	18	01-Jun-19	22-Jun-19	03-Aug-19	23-Aug-19	52	
C12220	Design of glazing system (resubmit)	18	C3-6d	0%	18	24-Jun-19	15-Jul-19	24-Aug-19	13-Sep-19	52	
C12230	Design of glazing system (accept)	21	C3-7d	0%	21	16-Jul-19	05-Aug-19	14-Sep-19	04-Oct-19	60	
C12280	Material order and delivery of glazing system	96	C3-6d	0%	96	06-Aug-19	28-Nov-19	05-Oct-19	01-Feb-20	50	
C12240	MS for glazing system (prepare & submit)	18	C3-6d	0%	18	06-Aug-19	26-Aug-19	14-Nov-19	04-Dec-19	83	
C12250	MS for glazing system (review & discuss)	18	C3-6d	0%	18	27-Aug-19	17-Sep-19	05-Dec-19	27-Dec-19	83	
C12260	MS for glazing system (resubmit)	12	C3-6d	0%	12	18-Sep-19	02-Oct-19	28-Dec-19	11-Jan-20	83	
C12270	MS for glazing system (accept)	21	C3-7d	0%	21	03-Oct-19	23-Oct-19	13-Jan-20	02-Feb-20	102	
C12290	Install glazing system (Lift 2A & 2B)	12	C3-6d	0%	12	24-Mar-20	07-Apr-20	03-Feb-20	15-Feb-20	-43	
C12292	Install glazing system (Lift 3A & 3B)	12	C3-6d	0%	12	23-Apr-20	08-May-20	24-Apr-20	09-May-20	1	
C12294	Install glazing system (Lift 1A & 1B)	12	C3-6d	0%	12	23-Apr-20	08-May-20	14-Jul-20	27-Jul-20	66	
C12300	Install glazing system (canopy)	100	C3-6d	0%	100	19-Sep-20	21-Jan-21	07-Aug-20	04-Dec-20	-38	



Actual Work
Remaining Work
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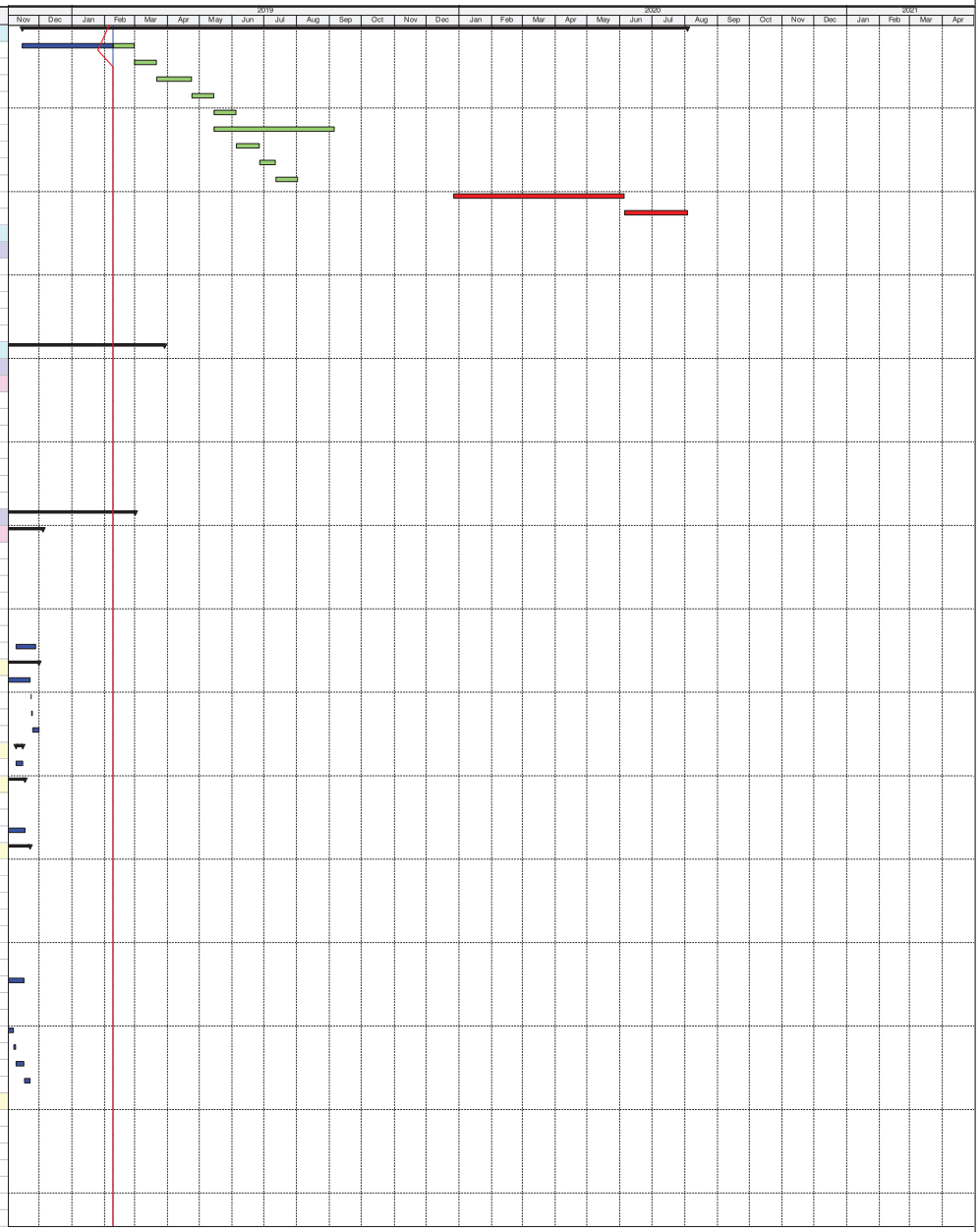
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
Road Lighting System		627			542	15-Nov-18 A	03-Aug-20	18-Mar-19	23-May-20	-72	
C12310	Design of road lighting system (prepare & submit)	70	C3-6d	75.71%	17	15-Nov-18 A	28-Feb-19	18-Mar-19	06-Apr-19	31	
C12320	Design of road lighting system (review & discuss)	18	C3-6d	0%	18	01-Mar-19	21-Mar-19	08-Apr-19	02-May-19	31	
C12330	Design of road lighting system (resubmit)	24	C3-6d	0%	24	22-Mar-19	23-Apr-19	03-May-19	31-May-19	31	
C12340	Design of road lighting system (accept by PM & HyD)	21	C3-7d	0%	21	24-Apr-19	14-May-19	01-Jun-19	21-Jun-19	38	
C12350	MS for road lighting system (prepare & submit)	18	C3-6d	0%	18	15-May-19	04-Jun-19	31-Jul-19	20-Aug-19	64	
C12390	Material order and delivery of road lighting system	96	C3-6d	0%	96	15-May-19	05-Sep-19	22-Jun-19	16-Oct-19	32	
C12360	MS for road lighting system (review & discuss)	18	C3-6d	0%	18	05-Jun-19	26-Jun-19	21-Aug-19	10-Sep-19	64	
C12370	MS for road lighting system (resubmit)	12	C3-6d	0%	12	27-Jun-19	11-Jul-19	11-Sep-19	25-Sep-19	64	
C12380	MS for road lighting system (accept)	21	C3-7d	0%	21	12-Jul-19	01-Aug-19	26-Sep-19	16-Oct-19	76	
C12400	Install road lighting system	128	C3-6d	0%	128	27-Dec-19	04-Jun-20	17-Oct-19	20-Mar-20	-59	
C12410	Testing and commissioning of road lighting system	49	C3-6d	0%	49	05-Jun-20	03-Aug-20	21-Mar-20	23-May-20	-59	
Stage 0 Works		124	C3-6d		0	01-Dec-17 A	07-Jul-18 A	24-Nov-18	07-Aug-20		
Preliminary Works		124	C3-6d		0	01-Dec-17 A	07-Jul-18 A	24-Nov-18	07-Aug-20		
C12420	Application of XP	75	C3-6d	100%	0	01-Dec-17 A	05-Mar-18 A	24-Nov-18	24-Nov-18		
C12440	Initial site survey	6	C3-6d	100%	0	11-Dec-17 A	30-Dec-17 A	24-Nov-18	24-Nov-18		
C12460	Contractor's site office	30	C3-6d	100%	0	10-Jan-18 A	07-Jul-18 A	07-Aug-20	07-Aug-20		
C12430	Utilities detection (Road P2 south of interchange)	6	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	11-Feb-19	11-Feb-19		
C12450	Pre-construction condition survey and manhole survey	24	C3-6d	100%	0	08-Mar-18 A	23-May-18 A	24-Nov-18	24-Nov-18		
Stage 1 Works		580			49	20-Dec-17 A	29-Mar-19	24-Nov-18	04-Dec-21	785	
TTA Stage 1A		147	C3-6d		0	20-Dec-17 A	28-Apr-18 A	24-Nov-18	11-Feb-19		
TTA		147	C3-6d		0	20-Dec-17 A	28-Apr-18 A	24-Nov-18	11-Feb-19		
C12470	Design and acceptance of TTA Drg. 001A / 007, 002A / 008, and 006A	42	C3-6d	100%	0	20-Dec-17 A	20-Feb-18 A	24-Nov-18	24-Nov-18		
C12500	Utilities detection (Po Shun Road north of interchange)	4	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	24-Nov-18	24-Nov-18		
C12570	Utilities detection (Chui Ling Road south - existing cycle track)	5	C3-6d	100%	0	13-Jan-18 A	18-Jan-18 A	24-Nov-18	24-Nov-18		
C12530	Tree felling (Road P2 south of interchange, TGC01 & TGC02)	12	C3-6d	100%	0	08-Feb-18 A	28-Apr-18 A	11-Feb-19	11-Feb-19		
C12480	Implementation of TTA Stage 1A (trial pits) (TTA Drg. 006A)	2	C3-6d	100%	0	08-Mar-18 A	09-Mar-18 A	24-Nov-18	24-Nov-18		1
C12490	Implementation of TTA Stage 1A (roundabout) (part of TTA Drg. 001A / 007)	2	C3-6d	100%	0	19-Mar-18 A	19-Mar-18 A	24-Nov-18	24-Nov-18		1
C12510	Modification of road layout at roundabout	12	C3-6d	100%	0	11-Apr-18 A	18-Apr-18 A	24-Nov-18	24-Nov-18		
TTA Stage 1B-1, 1B-2, 1B-3 & 1B-4		440			21	23-Apr-18 A	01-Mar-19	24-Nov-18	04-Dec-21	785	
TTA		379			0	23-Apr-18 A	04-Dec-18 A	24-Nov-18	04-Dec-21		
C12550	Implementation of TTA Stage 1B-1 (part of TTA Drg. 002A / 008)	2	C3-6d	100%	0	23-Apr-18 A	23-Apr-18 A	24-Nov-18	24-Nov-18		1
C12560	Implementation of TTA Stage 1B-2 (TTA Drg. 002A / 008, 030A & 031A)	2	C3-6d	100%	0	04-May-18 A	04-May-18 A	24-Nov-18	24-Nov-18		1
C12600	Modify north-east island at roundabout (affected by supply of aggregate NCE No.8)	32	C3-6d	100%	0	09-May-18 A	18-Oct-18 A	11-Jan-19	11-Jan-19		
C12520	Temporary footpath & cycle track at south of Chui Ling Road / Po Yap Road (for TTA Stage 1B-1 & 1B-2)	11	C3-6d	100%	0	14-May-18 A	25-Jun-18 A	24-Nov-18	24-Nov-18		
C12561	Implementation of TTA Stage 1B-3 (TTA Drg. 002A, 027B, 030A & 031A)	2	C3-6d	100%	0	31-Jul-18 A	31-Jul-18 A	04-Feb-19	04-Feb-19		1
C12562	Implementation of TTA Stage 1B-4 (TTA Drg. 038C)	2	C3-6d	100%	0	19-Oct-18 A	19-Oct-18 A	04-Feb-19	04-Feb-19		1
C12564	Preparation work & arrange RMO for TTA Stage 1C	12	C3-6d	100%	0	09-Nov-18 A	27-Nov-18 A	24-Dec-18	24-Dec-18		
Modify central median (Po Shun Road) (TTA Drg. 038C)		30	C3-6d		0	20-Oct-18 A	30-Nov-18 A	04-Feb-19	04-Feb-19		
C12605-1	Central median (Po Shun Road) - Demolish existing divider & excavation	30	C3-6d	100%	0	20-Oct-18 A	22-Nov-18 A	04-Feb-19	04-Feb-19		
C12605-2	Central median (Po Shun Road) - Formation	3	C3-6d	100%	0	23-Nov-18 A	23-Nov-18 A	04-Feb-19	04-Feb-19		
C12605-3	Central median (Po Shun Road) - Sub-base	5	C3-6d	100%	0	24-Nov-18 A	24-Nov-18 A	04-Feb-19	04-Feb-19		
C12605-4	Central median (Po Shun Road) - Sub-base SRT	7	C3-6d	100%	0	25-Nov-18 A	30-Nov-18 A	04-Feb-19	04-Feb-19		
Modify roundabout island (TTA Drg. 038C)		24	C3-6d		0	09-Nov-18 A	15-Nov-18 A	04-Feb-19	04-Feb-19		
C12606-1	Roundabout - Demolish existing island & excavation	24	C3-6d	100%	0	09-Nov-18 A	15-Nov-18 A	04-Feb-19	04-Feb-19		
Modify central median (Po Yap Road)		85			0	04-Jun-18 A	17-Nov-18 A	04-Feb-19	04-Feb-19		
C12600-2	Modify central median (Po Yap Road)	36	C3-6d	100%	0	04-Jun-18 A	27-Jul-18 A	04-Feb-19	04-Feb-19		
C12600-3	Arrangement of SRT (NCE No.13)	7	C3-7d	100%	0	28-Jul-18 A	03-Aug-18 A	04-Feb-19	04-Feb-19		
C12600-4	Modify central median (Po Yap Road)	21	C3-6d	100%	0	04-Aug-18 A	17-Nov-18 A	04-Feb-19	04-Feb-19		
Modify central median (Chui Ling Road)		137			0	06-Jun-18 A	22-Nov-18 A	24-Dec-18	24-Dec-18		
C12650-1	Modify east portion of central median (Chui Ling Road) (TTA Drg. 029B) - Excavation	18	C3-6d	100%	0	06-Jun-18 A	16-Jul-18 A	24-Dec-18	24-Dec-18		
C12650-1.1	Preparation work for TTA Stage 2.2	2	C3-6d	100%	0	17-Jul-18 A	18-Jul-18 A	24-Dec-18	24-Dec-18		
C12650-1.2	WSD emergency works Chiu Ling Road (NCE No.11)	6	C3-7d	100%	0	17-Jul-18 A	24-Jul-18 A	24-Dec-18	24-Dec-18		
C12650-1.3	Arrange subcontractor for implementation of TTA Stage 2.2	2	C3-6d	100%	0	25-Jul-18 A	26-Jul-18 A	24-Dec-18	24-Dec-18		
C12650-3	Mid portion of South central median (TTA Drg. 030A) - Excavation	18	C3-6d	100%	0	27-Jul-18 A	31-Aug-18 A	24-Dec-18	24-Dec-18		
C12650-4.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Gullies	12	C3-6d	100%	0	01-Sep-18 A	06-Sep-18 A	24-Dec-18	24-Dec-18		
C12650-4.2	Design review of clash between existing CLP cables and gullies by PM	12	C3-7d	100%	0	07-Sep-18 A	20-Sep-18 A	24-Dec-18	24-Dec-18		
C12650-8	Modify mid portion of North central median (TTA Drg. 031A)	16	C3-6d	100%	0	13-Sep-18 A	16-Nov-18 A	24-Dec-18	24-Dec-18		
C12650-4.3	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Gullies restart	12	C3-6d	100%	0	21-Sep-18 A	20-Oct-18 A	24-Dec-18	24-Dec-18		
C12650-5	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Formation	5	C3-6d	100%	0	20-Oct-18 A	25-Oct-18 A	24-Dec-18	24-Dec-18		
C12650-6	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Sub-base	6	C3-6d	100%	0	26-Oct-18 A	06-Nov-18 A	24-Dec-18	24-Dec-18		
C12650-6.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Sub-base SRT	2	C3-6d	100%	0	07-Nov-18 A	08-Nov-18 A	24-Dec-18	24-Dec-18		
C12650-7	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Road paving	7	C3-6d	100%	0	09-Nov-18 A	16-Nov-18 A	24-Dec-18	24-Dec-18		
C12650-7.1	East portion & mid portion of central median (TTA Drg. 029B, 030A, 031A) - Road paving core test	5	C3-6d	100%	0	17-Nov-18 A	22-Nov-18 A	24-Dec-18	24-Dec-18		
Tree felling and transplanting		306	C3-6d		0	24-Apr-18 A	18-Sep-18 A	24-Dec-18	04-Dec-21		
C12580	Tree felling (Po Yap Road)	12	C3-6d	100%	0	24-Apr-18 A	19-Jul-18 A	04-Dec-21	04-Dec-21		
C13540	Tree felling (Po Shun Road central median)	6	C3-6d	100%	0	24-Apr-18 A	30-Apr-18 A	21-Apr-20	21-Apr-20		
C12770	Tree felling (Chui Ling Road)	11	C3-6d	100%	0	07-May-18 A	15-Aug-18 A	26-Feb-19	26-Feb-19		
C12610	Tree transplanting (adjacent TKO Sports Centre) T304, T21005 to T21008	48	C3-6d	100%	0	01-Jun-18 A	02-Jun-18 A	24-Dec-18	24-Dec-18		
C12590	Tree transplanting (Po Yap Road) central median	54	C3-6d	100%	0	25-Jun-18 A	19-Jul-18 A	04-Dec-21	04-Dec-21		
C12630	Tree transplanting (Chui Ling Road)	48	C3-6d	100%	0	17-Sep-18 A	18-Sep-18 A	19-Mar-19	19-Mar-19		
C12611	Tree transplanting C100	1	C3-6d	100%	0	17-Sep-18 A	17-Sep-18 A	11-Feb-19	11-Feb-19		



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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

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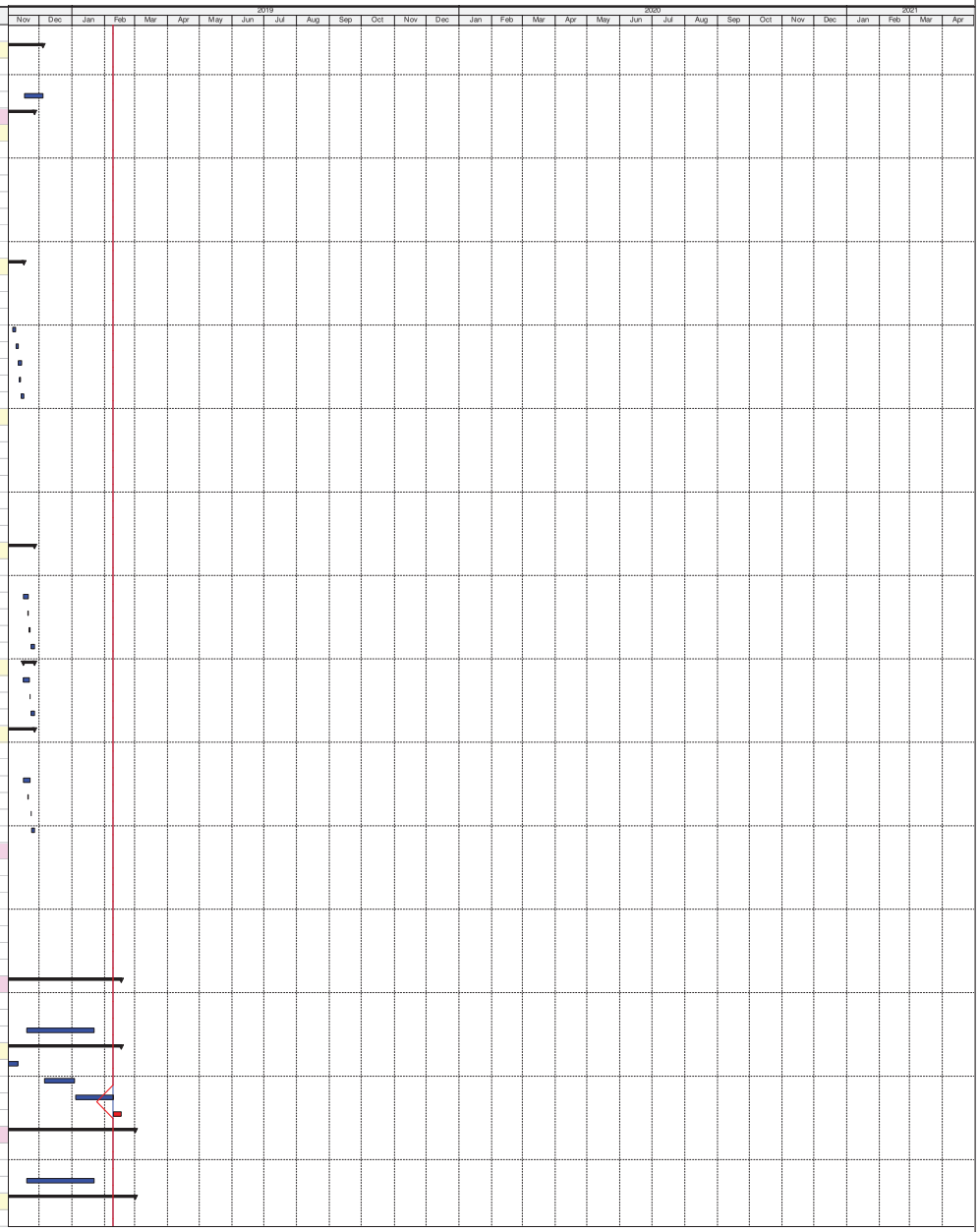
Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12591	Tree transplanting (Po Yap Road) south side	21	C3-6d	100%	0	17-Sep-18 A	17-Sep-18 A	11-Jan-19	11-Jan-19		
Groundwater monitoring point		105	C3-6d		0	22-Aug-18 A	04-Dec-18 A	11-Feb-19	27-Sep-19		
C12640	Install groundwater monitoring point GWMP 04	9	C3-6d	100%	0	22-Aug-18 A	10-Sep-18 A	11-Feb-19	11-Feb-19		
C12642	Install groundwater monitoring point GWMP 01	9	C3-6d	100%	0	05-Oct-18 A	16-Oct-18 A	11-Feb-19	11-Feb-19		
C12641	Install groundwater monitoring point GWMP 05	9	C3-6d	100%	0	17-Nov-18 A	04-Dec-18 A	27-Sep-19	27-Sep-19		
Drainage		212			0	28-Jun-18 A	26-Nov-18 A	24-Dec-18	12-Aug-19		
Stormwater SMH5101-SMH5101A		136			0	28-Jun-18 A	24-Oct-18 A	11-Feb-19	12-Aug-19		
C12660-1	Install ELS & excavate	7	C3-6d	100%	0	28-Jun-18 A	03-Jul-18 A	11-Feb-19	11-Feb-19		1
C12660-2	Idle due to shortage of supply of aggregate (NCE No.8) & design review	15	C3-7d	100%	0	04-Jul-18 A	18-Jul-18 A	11-Feb-19	11-Feb-19		
C12660-3	Re-excavate	7	C3-6d	100%	0	19-Jul-18 A	23-Jul-18 A	11-Feb-19	11-Feb-19		
C12660-4	Lay drain pipe	7	C3-6d	100%	0	24-Jul-18 A	07-Aug-18 A	11-Feb-19	11-Feb-19		
C12660-5	Manhole SMH5101	18	C3-6d	100%	0	20-Aug-18 A	18-Oct-18 A	12-Aug-19	12-Aug-19		
C12660-6	Manhole SMH5101A	18	C3-6d	100%	0	27-Aug-18 A	18-Oct-18 A	12-Aug-19	12-Aug-19		
C12660-7	Backfill	5	C3-6d	100%	0	19-Oct-18 A	24-Oct-18 A	12-Aug-19	12-Aug-19		
Stormwater DN525 (PMI No.003)		152	C3-6d		0	03-Jul-18 A	16-Nov-18 A	24-Dec-18	16-Mar-19		
C12665-1	Trial pits, removal of existing planter, modify existing manhole	14	C3-6d	100%	0	03-Jul-18 A	08-Aug-18 A	24-Dec-18	24-Dec-18		
C12665-4	Manhole SMH6702	18	C3-6d	100%	0	19-Sep-18 A	03-Oct-18 A	16-Mar-19	16-Mar-19		
C12665-5	Manhole SMH6703	18	C3-6d	100%	0	24-Sep-18 A	08-Oct-18 A	16-Mar-19	16-Mar-19		
C12665-2	Install ELS & excavate	18	C3-6d	100%	0	06-Nov-18 A	08-Nov-18 A	16-Mar-19	16-Mar-19		6
C12665-3	Lay drain DN525 pipe	8	C3-6d	100%	0	09-Nov-18 A	11-Nov-18 A	16-Mar-19	16-Mar-19		
C12665-8	Demolish existing manhole	6	C3-6d	100%	0	11-Nov-18 A	14-Nov-18 A	16-Mar-19	16-Mar-19		
C12665-6	Connection to existing manholes	4	C3-6d	100%	0	12-Nov-18 A	13-Nov-18 A	16-Mar-19	16-Mar-19		
C12665-7	Backfill	9	C3-6d	100%	0	14-Nov-18 A	16-Nov-18 A	16-Mar-19	16-Mar-19		
Stormwater SMH5001-SMH5001A		136			0	28-Jun-18 A	24-Oct-18 A	11-Feb-19	12-Aug-19		
C12680-1	Install ELS & excavate	7	C3-6d	100%	0	28-Jun-18 A	03-Jul-18 A	11-Feb-19	11-Feb-19		1
C12680-2	Idle due to shortage of supply of aggregate (NCE No.8) & design review	15	C3-7d	100%	0	04-Jul-18 A	18-Jul-18 A	11-Feb-19	11-Feb-19		
C12680-3	Re-excavate	7	C3-6d	100%	0	09-Aug-18 A	12-Aug-18 A	11-Feb-19	11-Feb-19		
C12680-4	Lay drain pipe	7	C3-6d	100%	0	13-Aug-18 A	15-Aug-18 A	11-Feb-19	11-Feb-19		
C12680-5	Manhole SMH5001	18	C3-6d	100%	0	17-Aug-18 A	18-Oct-18 A	12-Aug-19	12-Aug-19		
C12680-6	Manhole SMH5001A	18	C3-6d	100%	0	24-Aug-18 A	18-Oct-18 A	12-Aug-19	12-Aug-19		
C12680-7	Backfill	5	C3-6d	100%	0	19-Oct-18 A	24-Oct-18 A	12-Aug-19	12-Aug-19		
Stormwater SMH5101A-SMH5101B		87	C3-6d		0	19-Jul-18 A	26-Nov-18 A	12-Aug-19	12-Aug-19		
C12682-1	Install ELS & excavate (Stage 1)	7	C3-6d	100%	0	19-Jul-18 A	23-Jul-18 A	12-Aug-19	12-Aug-19		
C12682-2	Lay drain pipe (Stage 1)	7	C3-6d	100%	0	24-Jul-18 A	07-Aug-18 A	12-Aug-19	12-Aug-19		
C12682-3	Install ELS & excavate (Stage 2 start after part of Portion I & Portion II handed over by C2)	7	C3-6d	100%	0	16-Nov-18 A	20-Nov-18 A	12-Aug-19	12-Aug-19		1
C12682-5	Manhole SMH5101B (Stage 2)	18	C3-6d	100%	0	20-Nov-18 A	20-Nov-18 A	12-Aug-19	12-Aug-19		
C12682-4	Lay drain pipe (Stage 2)	7	C3-6d	100%	0	21-Nov-18 A	22-Nov-18 A	12-Aug-19	12-Aug-19		
C12682-6	Backfill (Stage 2)	5	C3-6d	100%	0	23-Nov-18 A	26-Nov-18 A	12-Aug-19	12-Aug-19		
Stormwater SMH5101B-SMH5002		15	C3-6d		0	16-Nov-18 A	26-Nov-18 A	12-Aug-19	12-Aug-19		
C12686-1	Install ELS & excavate (Stage 2)	4	C3-6d	100%	0	16-Nov-18 A	21-Nov-18 A	12-Aug-19	12-Aug-19		1
C12686-2	Lay drain pipe (Stage 2)	4	C3-6d	100%	0	22-Nov-18 A	22-Nov-18 A	12-Aug-19	12-Aug-19		
C12686-3	Backfill (Stage 2)	4	C3-6d	100%	0	23-Nov-18 A	26-Nov-18 A	12-Aug-19	12-Aug-19		
Stormwater SMH5001A-SMH5002		87	C3-6d		0	09-Aug-18 A	26-Nov-18 A	28-Jun-19	12-Aug-19		
C12684-1	Install ELS & excavate (Stage 1)	7	C3-6d	100%	0	09-Aug-18 A	12-Aug-18 A	28-Jun-19	28-Jun-19		
C12684-2	Lay drain pipe (Stage 1)	7	C3-6d	100%	0	13-Aug-18 A	15-Aug-18 A	28-Jun-19	28-Jun-19		
C12684-3	Install ELS & excavate (Stage 2 start after part of Portion I & Portion II handed over by C2)	7	C3-6d	100%	0	16-Nov-18 A	22-Nov-18 A	28-Jun-19	28-Jun-19		1
C12684-5	Manhole SMH5002 (Stage 2)	18	C3-6d	100%	0	20-Nov-18 A	20-Nov-18 A	16-Jul-19	16-Jul-19		
C12684-4	Lay drain pipe (Stage 2)	7	C3-6d	100%	0	23-Nov-18 A	23-Nov-18 A	08-Jul-19	08-Jul-19		
C12684-6	Backfill (Stage 2)	5	C3-6d	100%	0	24-Nov-18 A	26-Nov-18 A	12-Aug-19	12-Aug-19		
Utilities		142	C3-6d		0	23-Jul-18 A	26-Oct-18 A	24-Dec-18	11-Feb-19		
C12700	Gas main at Chui Ling Road (central median) by HKCG	19	C3-6d	100%	0	23-Jul-18 A	02-Aug-18 A	24-Dec-18	24-Dec-18		1
C12790	Lay 11kV cables at Po Shun Road by CLPP	19	C3-6d	100%	0	10-Aug-18 A	28-Aug-18 A	24-Dec-18	24-Dec-18		1
C12821	Lay 11kV cables by CLPP - 2nd Stage east of Road P2	14	C3-6d	100%	0	20-Aug-18 A	26-Oct-18 A	11-Feb-19	11-Feb-19		1
C12820	Lay 11kV cables by CLPP - 1st Stage cross-road ducts at north Road P2	17	C3-6d	100%	0	25-Aug-18 A	05-Sep-18 A	11-Feb-19	11-Feb-19		1
C12800	Gas main at Po Shun Road by HKCG	19	C3-6d	100%	0	26-Sep-18 A	23-Oct-18 A	24-Dec-18	24-Dec-18		1
C12791	Connection switch over of 11kV cables at Po Shun Road by CLPP	16	C3-6d	100%	0	02-Oct-18 A	05-Oct-18 A	24-Dec-18	24-Dec-18		
C12810	Telecom cables at Po Shun Road (North) by HGC & PCCW	19	C3-6d	100%	0	09-Oct-18 A	09-Oct-18 A	11-Jan-19	11-Jan-19		1
Fresh Watermain		257			8	25-Jun-18 A	16-Feb-19	03-Jan-19	13-Feb-19	-3	
C12862-10	Trial pits	66	C3-6d	100%	0	25-Jun-18 A	16-Aug-18 A	03-Jan-19	03-Jan-19		
C12862-20	Design review of fresh watermain CHA & CHA1 by PM	36	C3-7d	100%	0	17-Aug-18 A	21-Sep-18 A	03-Jan-19	03-Jan-19		
C12862-30	Material order & delivery FWM CHA 0 to 167 (PMI No. 012)	90	C3-7d	100%	0	19-Nov-18 A	21-Jan-19 A	31-Jan-19	31-Jan-19		
Fresh watermain CHA 90 to 167.181		122	C3-6d		7	26-Sep-18 A	16-Feb-19	01-Feb-19	13-Feb-19	-3	
C12862-40	Install ELS & excavate CHA 130 to 167.181	12	C3-6d	100%	0	26-Sep-18 A	10-Nov-18 A	01-Feb-19	01-Feb-19		
C12862-50	Lay fresh watermain CHA 130 to 161.413	24	C3-6d	100%	0	06-Dec-18 A	03-Jan-19 A	01-Feb-19	01-Feb-19		
C12862-52	Install ELS & excavate CHA 90 to 130	9	C3-6d	100%	0	04-Jan-19 A	09-Feb-19	01-Feb-19	01-Feb-19	-3	
C12862-54	Lay fresh watermain CHA 90 to 130	7	C3-6d	0%	7	09-Feb-19	16-Feb-19	02-Feb-19	13-Feb-19	-3	
Salt Watermain		182			21	25-Jun-18 A	01-Mar-19	24-Nov-18	05-Mar-19	3	
C12712-10	Trial pits	73	C3-6d	100%	0	25-Jun-18 A	16-Aug-18 A	24-Nov-18	24-Nov-18		
C12712-20	Design review of salt watermain CHA & CHB by PM	36	C3-7d	100%	0	17-Aug-18 A	21-Sep-18 A	24-Nov-18	24-Nov-18		
C12712-30	Material order & delivery SWM CHA 0 to 124 (PMI No. 012)	90	C3-7d	100%	0	19-Nov-18 A	21-Jan-19 A	05-Mar-19	05-Mar-19		
Salt watermain CHA 70 to 124.388		125	C3-6d		18	26-Sep-18 A	01-Mar-19	24-Nov-18	14-Dec-18	-60	
C12712-40	Install ELS & excavate CHA 74 to 124.388	12	C3-6d	100%	0	26-Sep-18 A	20-Oct-18 A	24-Nov-18	24-Nov-18		



Actual Work
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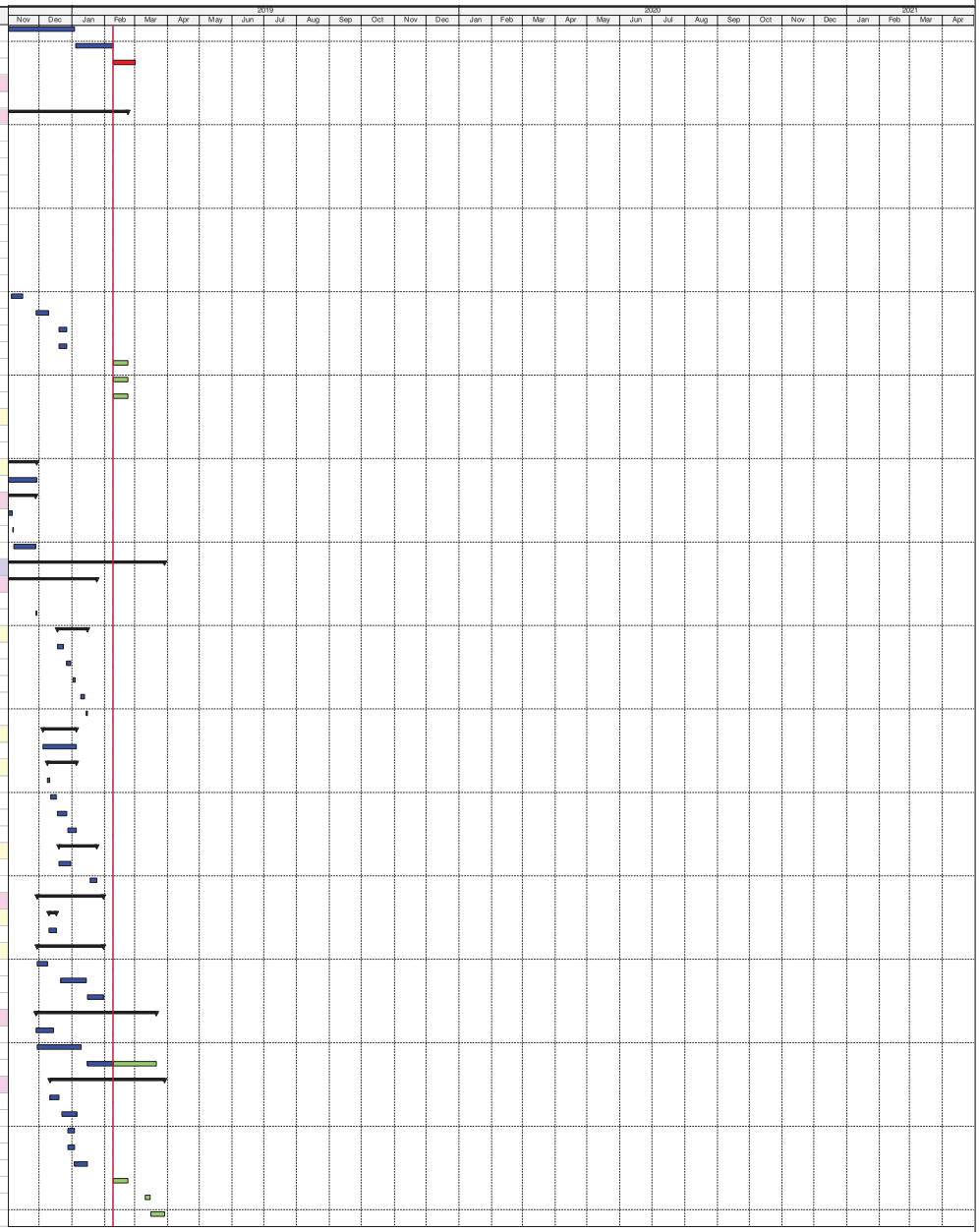
NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12712-50	Lay salt watermain CHA 74 to 118	24	C3-6d	100%	0	21-Oct-18 A	03-Jan-19 A	24-Nov-18	24-Nov-18		
C12712-52	Install ELS & excavate CHA 70 to 74	10	C3-6d	100%	0	04-Jan-19 A	08-Feb-19 A	24-Nov-18	24-Nov-18		
C12712-54	Lay salt watermain CHA 70 to 74	18	C3-6d	0%	18	09-Feb-19	01-Mar-19	24-Nov-18	14-Dec-18	-60	
CCTV High Mast		5	C3-6d		0	04-Aug-18 A	21-Aug-18 A	21-May-19	21-May-19		
C12920	Predrilling at CCTV/PH1 (1 no.) PD#1	5	C3-6d	100%	0	04-Aug-18 A	21-Aug-18 A	21-May-19	21-May-19		
Footbridge Predrilling		410			14	11-May-18 A	22-Feb-19	11-Feb-19	02-Jan-20	129	
C13010	Predrilling at PC7/PH1 (1 no.) PD#1	4	C3-6d	100%	0	11-May-18 A	16-May-18 A	11-Feb-19	11-Feb-19		
C12970	Predrilling at PC1-3/PH1 (1 no.) PD#1	4	C3-6d	100%	0	17-May-18 A	23-May-18 A	21-May-19	21-May-19		
C13320	Predrilling at PC2-2/PH3 & PH4 (Pier 03) (2 nos.) PD#1	16	C3-6d	100%	0	07-Jun-18 A	12-Jul-18 A	06-Jun-19	06-Jun-19		
C13020	Predrilling at PC4/PH1 (1 no.) PD#1	4	C3-6d	100%	0	22-Jun-18 A	03-Jul-18 A	11-Feb-19	11-Feb-19		
C13421	Predrilling at PC2-3/PH3 (Pier 04) (1 no.) PD#2	4	C3-6d	100%	0	14-Jul-18 A	20-Jul-18 A	20-Jun-19	20-Jun-19		
C13410	Predrilling at PC1-2/PH1 (1 no.) PD#1	4	C3-6d	100%	0	25-Jul-18 A	02-Aug-18 A	03-May-19	03-May-19		
C13051	Predrilling at PC2-1/PH1 & PH2 (Pier 02) (2 no.) PD#1	5	C3-6d	100%	0	03-Sep-18 A	10-Oct-18 A	10-Jul-19	10-Jul-19		
C13030	Propose founding level PC4	12	C3-6d	100%	0	09-Oct-18 A	27-Oct-18 A	11-Feb-19	11-Feb-19		
C13399	Predrilling at PC6/PH2 (Pier 05) (1 nos.) PD#1	4	C3-6d	100%	0	20-Oct-18 A	29-Oct-18 A	02-Jan-20	02-Jan-20		
C13040	Acceptance of founding level PC4	21	C3-7d	100%	0	28-Oct-18 A	28-Oct-18 A	11-Feb-19	11-Feb-19		
C13450	Predrilling at PC3-2 (1 no.) PD#2	4	C3-6d	100%	0	05-Nov-18 A	15-Nov-18 A	20-Jun-19	20-Jun-19		
C12720	Predrilling at PC5/PH4 (Pier 01) (1 no.) PD#1	4	C3-6d	100%	0	28-Nov-18 A	10-Dec-18 A	11-Feb-19	11-Feb-19		
C12980	Propose founding level PC1-1	14	C3-6d	100%	0	20-Dec-18 A	27-Dec-18 A	11-Feb-19	11-Feb-19		
C12981	Propose founding level PC8	14	C3-6d	100%	0	20-Dec-18 A	27-Dec-18 A	11-Feb-19	11-Feb-19		
C13413	Propose founding level PC3-1	12	C3-6d	0%	12	09-Feb-19	22-Feb-19	03-May-19	17-May-19	66	
C13011	Propose founding level PC7	12	C3-6d	0%	12	09-Feb-19	22-Feb-19	06-Jun-19	20-Jun-19	94	
C13411	Propose founding level PC1-2	12	C3-6d	0%	12	09-Feb-19	22-Feb-19	16-Aug-19	29-Aug-19	153	
Uncharted 2 nos. DI pipes near Sports Centre (NCE No.26)		45			0	03-Sep-18 A	16-Oct-18 A	11-Feb-19	11-Feb-19		
C13425	Investigate uncharted 2 nos. DI pipes	44	C3-7d	100%	0	03-Sep-18 A	09-Oct-18 A	11-Feb-19	11-Feb-19		
C13426	Remove and dispose of uncharted 2 nos. DI pipes (PMI No. 015)	6	C3-6d	100%	0	10-Oct-18 A	16-Oct-18 A	11-Feb-19	11-Feb-19		
Inspection pits for Predrilling		38	C3-6d		0	18-Oct-18 A	28-Nov-18 A	11-Feb-19	11-Feb-19		
C13428	Inspection pits for predrilling at PC5 (6 nos.)	38	C3-6d	100%	0	18-Oct-18 A	28-Nov-18 A	11-Feb-19	11-Feb-19		
Footbridge Piling		35			0	30-Oct-18 A	27-Nov-18 A	11-Feb-19	11-Feb-19		
C13140	Mobilize plant SP#2	6	C3-6d	100%	0	30-Oct-18 A	05-Nov-18 A	11-Feb-19	11-Feb-19		
C13150	Socketted H-pile at PC4/P4 (1 no.) SP#2	7	C3-6d	100%	0	06-Nov-18 A	06-Nov-18 A	11-Feb-19	11-Feb-19	1	
C13151	Uncharted water pipes at PC4 (NCE No.38)	21	C3-7d	100%	0	07-Nov-18 A	27-Nov-18 A	11-Feb-19	11-Feb-19		
TTA Stage 1C		326			49	23-Apr-18 A	29-Mar-19	27-Nov-18	05-Dec-19	251	
TTA		223	C3-6d		0	23-Apr-18 A	24-Jan-19 A	27-Nov-18	20-Aug-19		
C12740	Design and acceptance of TTA Stage 1C (south of roundabout)	42	C3-6d	100%	0	23-Apr-18 A	26-Sep-18 A	27-Nov-18	27-Nov-18		
C12750	Implementation of TTA Stage 1C (TTA Drg. 053B)	2	C3-6d	100%	0	28-Nov-18 A	28-Nov-18 A	24-Dec-18	24-Dec-18	1	
Modify central median (Chui Ling Road)		37	C3-6d		0	18-Dec-18 A	15-Jan-19 A	05-Jan-19	05-Jan-19		
C12650-09	West portion of central median (TTA Drg. 063) - Excavation	16	C3-6d	100%	0	18-Dec-18 A	24-Dec-18 A	05-Jan-19	05-Jan-19		
C12650-10	West portion of central median (TTA Drg. 063) - Gullies	11	C3-6d	100%	0	27-Dec-18 A	31-Dec-18 A	05-Jan-19	05-Jan-19		
C12650-11	West portion of central median (TTA Drg. 063) - Formation	5	C3-6d	100%	0	02-Jan-19 A	04-Jan-19 A	05-Jan-19	05-Jan-19		
C12650-12	West portion of central median (TTA Drg. 063) - Sub-base	12	C3-6d	100%	0	09-Jan-19 A	12-Jan-19 A	05-Jan-19	05-Jan-19		
C12650-14	West portion of central median (TTA Drg. 063) - Sub-base SRT	2	C3-6d	100%	0	14-Jan-19 A	15-Jan-19 A	05-Jan-19	05-Jan-19		
Modify central median (Po Shun Road) (TTA Drg. 038C)		6	C3-6d		0	04-Dec-18 A	05-Jan-19 A	04-Feb-19	04-Feb-19		
C12605-5	Central median (Po Shun Road) - Temporary road paving	6	C3-6d	100%	0	04-Dec-18 A	05-Jan-19 A	04-Feb-19	04-Feb-19		
Modify roundabout island (TTA Drg. 038C)		21	C3-6d		0	09-Dec-18 A	05-Jan-19 A	04-Feb-19	04-Feb-19		
C12606-2	Roundabout - Formation	3	C3-6d	100%	0	09-Dec-18 A	11-Dec-18 A	04-Feb-19	04-Feb-19		
C12606-3	Roundabout - Sub-base	5	C3-6d	100%	0	12-Dec-18 A	17-Dec-18 A	04-Feb-19	04-Feb-19		
C12606-4	Roundabout - Sub-base SRT	7	C3-6d	100%	0	18-Dec-18 A	27-Dec-18 A	04-Feb-19	04-Feb-19		
C12606-5	Roundabout - Temporary road paving	6	C3-6d	100%	0	28-Dec-18 A	05-Jan-19 A	04-Feb-19	04-Feb-19		
Groundwater monitoring point		18	C3-6d		0	20-Dec-18 A	24-Jan-19 A	03-May-19	20-Aug-19		
C12644	Install groundwater monitoring point GWMP 02	9	C3-6d	100%	0	20-Dec-18 A	31-Dec-18 A	20-Aug-19	20-Aug-19		
C12643	Install groundwater monitoring point GWMP 03	9	C3-6d	100%	0	18-Jan-19 A	24-Jan-19 A	03-May-19	03-May-19		
Drainage		72	C3-6d		0	29-Nov-18 A	30-Jan-19 A	24-Dec-18	24-Dec-18		
Uncharted 2 nos. DI pipes near Sports Centre (NCE No.26)		10	C3-6d		0	10-Dec-18 A	17-Dec-18 A	24-Dec-18	24-Dec-18		
C12669	Remove & dispose 2 nos. uncharted DI pipes near Pier 02 (PMI No. 015)	10	C3-6d	100%	0	10-Dec-18 A	17-Dec-18 A	24-Dec-18	24-Dec-18		
Stormwater DN900 (PMI No.004)		72	C3-6d		0	29-Nov-18 A	30-Jan-19 A	24-Dec-18	24-Dec-18		
C12670-0	Inspection pits	4	C3-6d	100%	0	29-Nov-18 A	08-Dec-18 A	24-Dec-18	24-Dec-18		
C12670-1	Install ELS & excavate for manhole	18	C3-6d	100%	0	21-Dec-18 A	14-Jan-19 A	24-Dec-18	24-Dec-18	1	
C12670-2	Manhole SMH6701	18	C3-6d	100%	0	15-Jan-19 A	30-Jan-19 A	24-Dec-18	24-Dec-18		
Utilities		94	C3-6d		35	28-Nov-18 A	21-Mar-19	24-Dec-18	05-Dec-19	211	
C12822	Lay 11kV cables by CLPP - 3rd Stage cross-road ducts at south Road P2	14	C3-6d	100%	0	28-Nov-18 A	14-Dec-18 A	05-Dec-19	05-Dec-19		
C12701	Gas main at Chui Ling Road (North) by HKCG	19	C3-6d	100%	0	29-Nov-18 A	09-Jan-19 A	24-Dec-18	24-Dec-18	1	
C12823	Lay 11kV cables by CLPP - 4th Stage west of Road P2	55	C3-6d	36.36%	35	15-Jan-19 A	21-Mar-19	25-Oct-19	05-Dec-19	211	
Footbridge Predrilling		110			49	11-Dec-18 A	29-Mar-19	11-Feb-19	30-Jul-19	123	
C13109	Predrilling at PC5-PH-5 (Pier 01) (1 no.) PD#1	4	C3-6d	100%	0	11-Dec-18 A	19-Dec-18 A	26-Feb-19	26-Feb-19		
C13119	Inspection pits for pre-drilling at PC2-2/PH1 & PH2	9	C3-6d	100%	0	22-Dec-18 A	05-Jan-19 A	02-May-19	02-May-19		
C12990	Acceptance of founding level PC1-1	21	C3-7d	100%	0	28-Dec-18 A	03-Jan-19 A	11-Feb-19	11-Feb-19		
C12991	Acceptance of founding level PC8	21	C3-7d	100%	0	28-Dec-18 A	03-Jan-19 A	11-Feb-19	11-Feb-19		
C13050	Predrilling at PC2-1/PH3 (Pier 02) (1 nos.) PD#1	5	C3-6d	100%	0	03-Jan-19 A	15-Jan-19 A	10-Jul-19	10-Jul-19		
C12971	Propose founding level PC1-3	12	C3-6d	0%	12	09-Feb-19	22-Feb-19	21-May-19	03-Jun-19	80	
C13049	Predrilling at PC2-1/PH4 (Pier 02) (1 nos.) PD#1	5	C3-6d	0%	5	11-Mar-19*	15-Mar-19	10-Jul-19	16-Jul-19	97	
C13060	Propose founding level PC2-1 (Pier 02)	12	C3-6d	0%	12	16-Mar-19	29-Mar-19	16-Jul-19	30-Jul-19	97	



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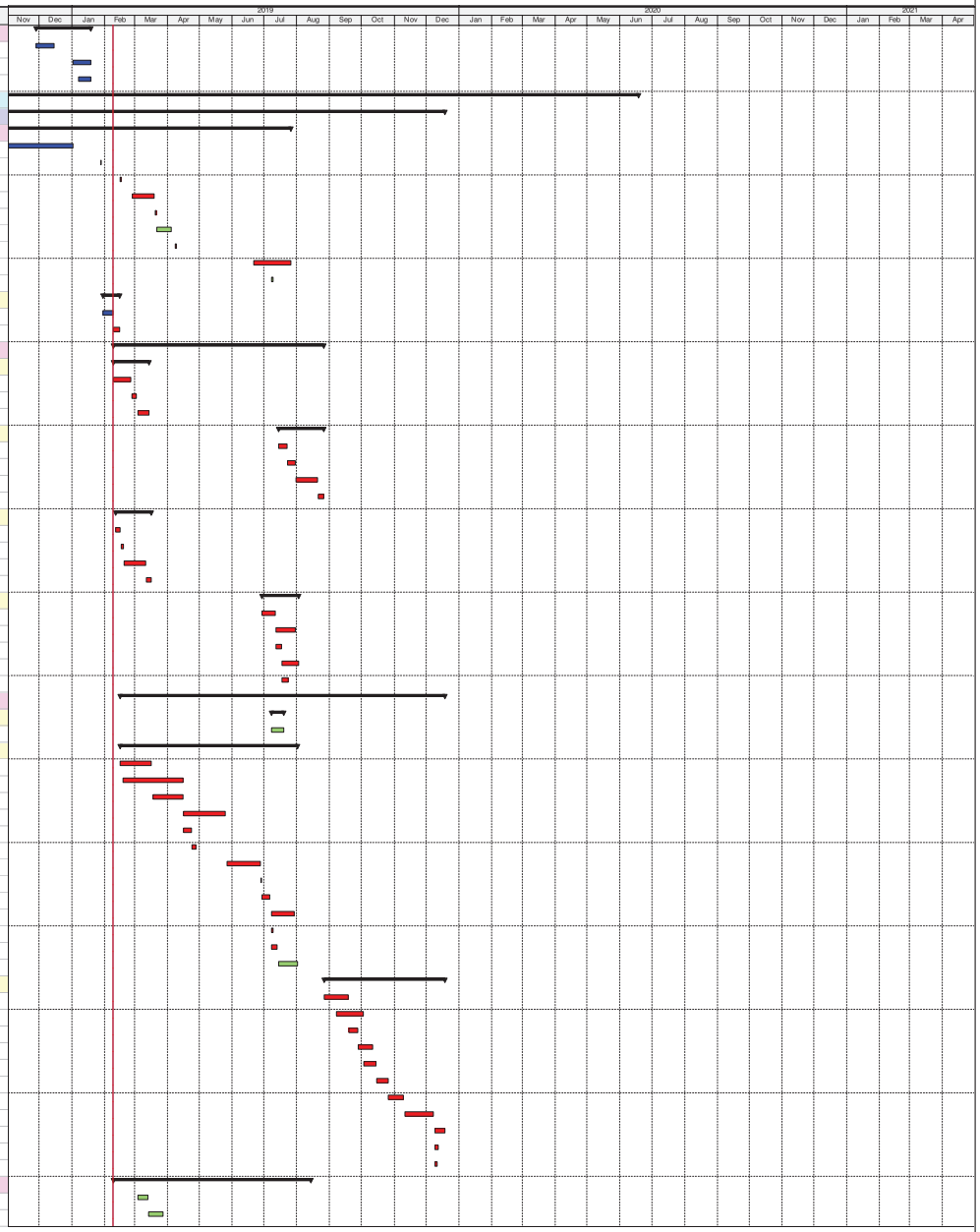
Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
Footbridge Piling		73	C3-6d		0	28-Nov-18 A	18-Jan-19 A	11-Feb-19	11-Feb-19		
C13152	Socketted H-piles at PC4 (4 nos.) SP#2 - restart	28	C3-6d	100%	0	28-Nov-18 A	15-Dec-18 A	11-Feb-19	11-Feb-19		4
C13250	Socketted H-piles at PC1-1 (2 nos.) SP#2	14	C3-6d	100%	0	02-Jan-19 A	18-Jan-19 A	11-Feb-19	11-Feb-19		2
C13260	Socketted H-piles at PC8 (2 nos.) SP#2	14	C3-6d	100%	0	07-Jan-19 A	18-Jan-19 A	11-Feb-19	11-Feb-19		2
Stage 2 Works		669			496	20-Aug-18 A	18-Jun-20	27-Nov-18	08-Jun-20	-10	
TTA Stage 2A		486			313	20-Aug-18 A	18-Dec-19	27-Nov-18	03-Feb-20	47	
TTA		276	C3-6d		136	20-Aug-18 A	26-Jul-19	27-Nov-18	20-Nov-19	97	
C13180	Design and acceptance of TTA Stage 2A	37	C3-6d	100%	0	20-Aug-18 A	02-Jan-19 A	27-Nov-18	27-Nov-18		
C13182	Implementation of TTA Stage 2A-1 (TTA Drg. 061) (Po Yap Road - Area 1)	2	C3-6d	100%	0	28-Jan-19 A	28-Jan-19 A	27-Nov-18	27-Nov-18		1
C13190	Implementation of TTA Stage 2A-2 (TTA Drg. 058)	2	C3-6d	0%	2	15-Feb-19	16-Feb-19	11-Jan-19	12-Jan-19	-27	1
C13191	Modify water barrier arrangement and junction signals test for TTA Stage 2A-3	18	C3-6d	0%	18	27-Feb-19	19-Mar-19	14-Jan-19	02-Feb-19	-35	
C13192	Implementation of TTA Stage 2A-3 (TTA Drg. 076)	2	C3-6d	0%	2	20-Mar-19	21-Mar-19	04-Feb-19	08-Feb-19	-35	1
C13193	Modify water barrier arrangement for TTA Stage 2A-4	12	C3-6d	0%	12	22-Mar-19	04-Apr-19	05-Nov-19	18-Nov-19	184	
C13196	Implementation of TTA Stage 2A-5 (TTA Drg. 072) (Chui Ling Road - Area 1)	2	C3-6d	0%	2	08-Apr-19*	09-Apr-19	09-Feb-19	11-Feb-19	-48	1
C13200	Temporary footpath and cycle track (for TTA Stage 2B)	30	C3-6d	0%	30	21-Jun-19	26-Jul-19	04-Apr-19	15-May-19	-60	
C13194	Implementation of TTA Stage 2A-4 (TTA Drg. 071)	2	C3-6d	0%	2	08-Jul-19*	09-Jul-19	19-Nov-19	20-Nov-19	112	1
Modify central median (Chui Ling Road)		15	C3-6d		5	30-Jan-19 A	14-Feb-19	05-Jan-19	10-Jan-19	-27	
C12650-15	West portion of central median (TTA Drg. 063) - Road paving	10	C3-6d	100%	0	30-Jan-19 A	08-Feb-19 A	05-Jan-19	05-Jan-19		
C12650-16	West portion of central median (TTA Drg. 063) - Road paving core test	5	C3-6d	0%	5	09-Feb-19	14-Feb-19	05-Jan-19	10-Jan-19	-27	
Drainage		162	C3-6d		162	09-Feb-19	26-Aug-19	27-Nov-18	10-Aug-19	-13	
Stormwater DN900 (PMI No.004)		29	C3-6d		29	09-Feb-19	14-Mar-19	24-Dec-18	29-Jan-19	-35	
C12670-3	Lay drain DN900 pipe	14	C3-6d	0%	14	09-Feb-19	25-Feb-19	24-Dec-18	11-Jan-19	-35	
C12670-4	Connection DN900 to existing manholes	5	C3-6d	0%	5	26-Feb-19	02-Mar-19	12-Jan-19	17-Jan-19	-35	
C12670-5	Backfill DN900 and reinstatement	10	C3-6d	0%	10	04-Mar-19	14-Mar-19	18-Jan-19	29-Jan-19	-35	
Stormwater SMH5002-SMH5003		37	C3-6d		37	15-Jul-19	26-Aug-19	28-Jun-19	10-Aug-19	-13	
C12688-1	Install ELS & excavate (Stage 2)	7	C3-6d	0%	7	15-Jul-19*	22-Jul-19	28-Jun-19	06-Jul-19	-13	1
C12688-2	Lay drain pipe (Stage 2)	7	C3-6d	0%	7	23-Jul-19	30-Jul-19	08-Jul-19	15-Jul-19	-13	
C12688-3	Manhole SMH5003 (Stage 2)	18	C3-6d	0%	18	31-Jul-19	20-Aug-19	16-Jul-19	05-Aug-19	-13	
C12688-4	Backfill (Stage 2)	5	C3-6d	0%	5	21-Aug-19	26-Aug-19	06-Aug-19	10-Aug-19	-13	
SMH6401 (Po Yap Road - Area 1)		30	C3-6d		30	11-Feb-19	16-Mar-19	27-Nov-18	03-Jan-19	-59	
C13210-10	Install ELS & excavate (10m)	5	C3-6d	0%	5	11-Feb-19*	15-Feb-19	27-Nov-18	01-Dec-18	-59	
C13210-20	Lay DN300 pipe (10m)	2	C3-6d	0%	2	16-Feb-19	18-Feb-19	03-Dec-18	04-Dec-18	-59	
C13210-30	Manhole SMH6401	18	C3-6d	0%	18	19-Feb-19	11-Mar-19	05-Dec-18	27-Dec-18	-59	
C13210-40	Backfill	5	C3-6d	0%	5	12-Mar-19	16-Mar-19	28-Dec-18	03-Jan-19	-59	
SMH6401-SMH6402-exist.manhole (Po Yap Road - Area 2)		29	C3-6d		29	29-Jun-19	02-Aug-19	15-Apr-19	23-May-19	-59	
C13212-10	Install ELS & excavate SMH6401-SMH6402 and SMH6402-exist.manhole	10	C3-6d	0%	10	29-Jun-19	11-Jul-19	15-Apr-19	29-Apr-19	-59	
C13212-20	Lay DN300 pipe (95m) SMH6401-SMH6402	16	C3-6d	0%	16	12-Jul-19	30-Jul-19	30-Apr-19	20-May-19	-59	
C13212-30	Lay DN375 pipe (22m) SMH6402-exist.manhole	5	C3-6d	0%	5	12-Jul-19	17-Jul-19	30-Apr-19	06-May-19	-59	
C13212-40	Manhole SMH6402	14	C3-6d	0%	14	18-Jul-19	02-Aug-19	07-May-19	23-May-19	-59	
C13212-50	Connection to existing manhole	5	C3-6d	0%	5	18-Jul-19	23-Jul-19	18-May-19	23-May-19	-50	
Fresh Watermain		252	C3-6d		252	15-Feb-19	18-Dec-19	30-Nov-18	19-Dec-19	1	
Fresh watermain CHA 90 to 167.181		11	C3-6d		11	08-Jul-19	19-Jul-19	07-Dec-19	19-Dec-19	128	
C12862-70	Backfill CHA 111.181 to 167.181	11	C3-6d	0%	11	08-Jul-19	19-Jul-19	07-Dec-19	19-Dec-19	128	
Fresh Watermain CHA 0 to 90 and CHA1 0 to 15.540		136	C3-6d		136	15-Feb-19	01-Aug-19	30-Nov-18	20-Nov-19	92	
C12862-62	Slewing of CLP cable at footpath for further fresh water main installation	26	C3-6d	0%	26	15-Feb-19*	16-Mar-19	30-Nov-18	02-Jan-19	-60	
C13222	Material ordering for water connection (by WSD)	48	C3-6d	0%	48	18-Feb-19	15-Apr-19	14-Feb-19	11-Apr-19	-3	
C12860-05	Install ELS & excavate CHA 0 to 90	24	C3-6d	0%	24	18-Mar-19	15-Apr-19	03-Jan-19	30-Jan-19	-60	
C12860-06	Lay fresh watermain CHA 0 to 90	30	C3-6d	0%	30	16-Apr-19	25-May-19	31-Jan-19	09-Mar-19	-60	
C12860-08	Install ELS & excavate CHA1	4	C3-6d	0%	4	16-Apr-19	23-Apr-19	01-Mar-19	05-Mar-19	-38	
C12860-09	Lay fresh watermain CHA1	4	C3-6d	0%	4	24-Apr-19	27-Apr-19	06-Mar-19	09-Mar-19	-38	
C13220	Fresh watermain test, swab, sterilize, water sample CHA, CHA1	27	C3-6d	0%	27	27-May-19	27-Jun-19	11-Mar-19	11-Apr-19	-60	
C13310	Stage 2 watermain connection CHA, CHA1 (by WSD)	1	C3-6d	0%	1	28-Jun-19	28-Jun-19	12-Apr-19	12-Apr-19	-60	
C13312	Maintain existing and new freshwatermain (NCE No.35)	6	C3-6d	0%	6	29-Jun-19	06-Jul-19	13-Apr-19	23-Apr-19	-60	
C12860-07	Backfill CHA 0 to 111.181	19	C3-6d	0%	19	08-Jul-19	29-Jul-19	06-Jun-19	28-Jun-19	-25	
C12860-10	Backfill CHA1	2	C3-6d	0%	2	08-Jul-19	09-Jul-19	04-Jun-19	05-Jun-19	-27	
C13314	Removal of existing fresh water main	6	C3-6d	0%	6	08-Jul-19	13-Jul-19	24-Apr-19	30-Apr-19	-60	
C13316	Stage 2 connection of branch pipes (by WSD)	16	C3-6d	0%	16	15-Jul-19	01-Aug-19	02-Nov-19	20-Nov-19	92	
Fresh watermain CHB 0 to 37.202, CHC 0 to 74.858, CHD 0 to 29.591		95	C3-6d		95	27-Aug-19	18-Dec-19	12-Aug-19	03-Dec-19	-13	
C12830-1	Install ELS & excavate CHC	19	C3-6d	0%	19	27-Aug-19	18-Sep-19	12-Aug-19	02-Sep-19	-13	
C12830-2	Lay fresh watermain CHC	19	C3-6d	0%	19	07-Sep-19	02-Oct-19	23-Aug-19	16-Sep-19	-13	
C12830-4	Install ELS & excavate CHD	8	C3-6d	0%	8	19-Sep-19	27-Sep-19	05-Sep-19	13-Sep-19	-11	
C12830-7	Install ELS & excavate CHB	10	C3-6d	0%	10	28-Sep-19	11-Oct-19	16-Sep-19	26-Sep-19	-11	
C12830-5	Lay fresh watermain CHD	9	C3-6d	0%	9	03-Oct-19	14-Oct-19	17-Sep-19	26-Sep-19	-13	
C12830-8	Lay fresh watermain CHB	11	C3-6d	0%	11	15-Oct-19	26-Oct-19	27-Sep-19	11-Oct-19	-13	
C12840	Fresh watermain testing CHB, CHC, CHD	12	C3-6d	0%	12	26-Oct-19	09-Nov-19	11-Oct-19	25-Oct-19	-13	
C12850	Connection of fresh watermain CHB, CHC, CHD	24	C3-6d	0%	24	11-Nov-19	07-Dec-19	26-Oct-19	22-Nov-19	-13	
C12830-3	Backfill CHC	9	C3-6d	0%	9	09-Dec-19	18-Dec-19	23-Nov-19	03-Dec-19	-13	
C12830-9	Backfill CHB	4	C3-6d	0%	4	09-Dec-19	12-Dec-19	29-Nov-19	03-Dec-19	-8	
C12830-6	Backfill CHD	3	C3-6d	0%	3	09-Dec-19	11-Dec-19	30-Nov-19	03-Dec-19	-7	
Salt Watermain		152	C3-6d		152	09-Feb-19	14-Aug-19	29-Nov-18	20-Aug-19	5	
C12890	Salt watermain CHC 0 to 9.178	9	C3-6d	0%	9	04-Mar-19	13-Mar-19	29-Jun-19	11-Jul-19	95	
C12900	Salt watermain testing CHC	12	C3-6d	0%	12	14-Mar-19	27-Mar-19	11-Jul-19	25-Jul-19	95	



Actual Work
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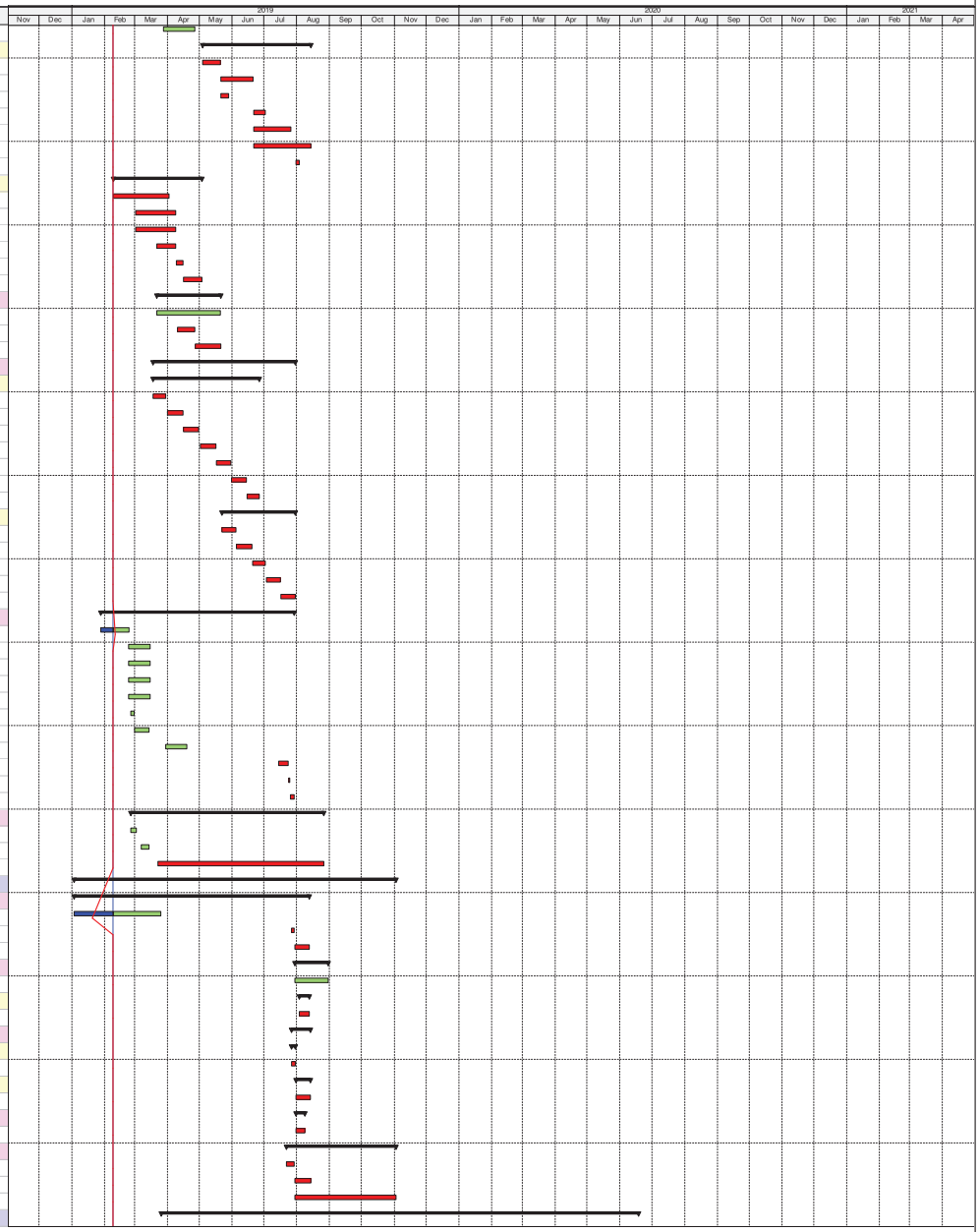
NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C12910	Connection and commissioning of salt watermain CHC	22	C3-6d	0%	22	28-Mar-19	26-Apr-19	25-Jul-19	20-Aug-19	95	
Salt Watermain CHA 0 to 70 and CHB 0 to 25.141		85	C3-6d		85	04-May-19	14-Aug-19	18-Feb-19	06-Jun-19	-57	
C12710-05	Install ELS & excavate CHA 0 to 70	13	C3-6d	0%	13	04-May-19	20-May-19	18-Feb-19	04-Mar-19	-60	
C12710-06	Lay salt watermain CHA 0 to 70	26	C3-6d	0%	26	21-May-19	20-Jun-19	05-Mar-19	03-Apr-19	-60	
C12710-08	Install ELS & excavate CHB	7	C3-6d	0%	7	21-May-19	28-May-19	29-Apr-19	07-May-19	-17	
C12710-09	Lay salt watermain CHB	9	C3-6d	0%	9	21-Jun-19	02-Jul-19	08-May-19	18-May-19	-36	
C12870	Salt watermain test, swab CHA, CHB	30	C3-6d	0%	30	21-Jun-19	26-Jul-19	09-Apr-19	18-May-19	-57	
C12710-15	Connection of remaining salt water main and removal of temporary bypass	46	C3-6d	0%	46	21-Jun-19	14-Aug-19	09-Apr-19	06-Jun-19	-57	
C12710-10	Backfill CHB	4	C3-6d	0%	4	31-Jul-19	03-Aug-19	01-Jun-19	05-Jun-19	-49	
Salt watermain CHA 70 to 124.388		67	C3-6d		67	09-Feb-19	03-May-19	29-Nov-18	16-Feb-19	-60	
C12712-72	Material ordering for water connection (by WSD)	45	C3-6d	0%	45	09-Feb-19*	02-Apr-19	29-Nov-18	23-Jan-19	-56	
C12712-64	Lay temporary bypass pipe near Sport Centre and water connection (by WSD)	31	C3-6d	0%	31	02-Mar-19*	08-Apr-19	15-Dec-18	23-Jan-19	-60	
C12712-66	Swabbing, pressure test and water sampling for Stage 1 connection	31	C3-6d	0%	31	02-Mar-19	08-Apr-19	15-Dec-18	23-Jan-19	-60	
C12712-68	Slewing of CLP cable at connection point (by CLP)	14	C3-6d	0%	14	22-Mar-19	08-Apr-19	08-Jan-19	23-Jan-19	-60	
C12712-74	Stage 1 watermain connection and blank off existing DN300 at Chui Shin Street (by WSD)	6	C3-6d	0%	6	09-Apr-19	15-Apr-19	24-Jan-19	30-Jan-19	-60	
C12712-76	Removal of existing salt water main	12	C3-6d	0%	12	16-Apr-19	03-May-19	31-Jan-19	16-Feb-19	-60	
Utilities		46	C3-6d		46	22-Mar-19	21-May-19	12-Feb-19	03-Feb-20	210	
C12824	Connection and switch over of 11kV cables at Road P2 by CLPP	45	C3-6d	0%	45	22-Mar-19	20-May-19	05-Dec-19	03-Feb-20	211	5
C12778	Inspection pits for telecom cables at Chui Ling Road	12	C3-6d	0%	12	10-Apr-19	26-Apr-19	12-Feb-19	25-Feb-19	-48	
C12780	Telecom cables at Chui Ling Road by HGC, CATV, PCCW (incl. Chui Shin Street)	19	C3-6d	0%	19	27-Apr-19*	21-May-19	26-Feb-19	19-Mar-19	-48	1
Roadworks		108	C3-6d		108	18-Mar-19	30-Jul-19	04-Jan-19	01-Jun-19	-48	
Po Yap Road - Area 1		80	C3-6d		80	18-Mar-19	26-Jun-19	04-Jan-19	11-Apr-19	-59	
C13230-10	Excavation (PYR Area 1)	12	C3-6d	0%	12	18-Mar-19	30-Mar-19	04-Jan-19	17-Jan-19	-59	2
C13230-20	Gullies (PYR Area 1)	12	C3-6d	0%	12	01-Apr-19	15-Apr-19	18-Jan-19	31-Jan-19	-59	2
C13230-30	Road lighting ducting (PYR Area 1)	10	C3-6d	0%	10	16-Apr-19	30-Apr-19	01-Feb-19	15-Feb-19	-59	
C13230-40	Formation, sub-base and kerbs (PYR Area 1)	12	C3-6d	0%	12	02-May-19	16-May-19	16-Feb-19	01-Mar-19	-59	
C13230-50	Road paving and layby pavement (PYR Area 1)	12	C3-6d	0%	12	17-May-19	30-May-19	02-Mar-19	15-Mar-19	-59	
C13230-60	Footpath and cycle track (PYR Area 1)	12	C3-6d	0%	12	31-May-19	14-Jun-19	16-Mar-19	29-Mar-19	-59	
C13230-70	Type 2 railing and chain link fence (Area 1)	10	C3-6d	0%	10	15-Jun-19	26-Jun-19	30-Mar-19	11-Apr-19	-59	
Chui Ling Road - Area 1		58	C3-6d		58	22-May-19	30-Jul-19	20-Mar-19	01-Jun-19	-48	
C13234-10	Excavation (CLR Area 1)	12	C3-6d	0%	12	22-May-19	04-Jun-19	20-Mar-19	02-Apr-19	-48	
C13234-20	Gullies (CLR Area 1)	12	C3-6d	0%	12	05-Jun-19	19-Jun-19	03-Apr-19	17-Apr-19	-48	
C13234-30	Road lighting ducting (CLR Area 1)	10	C3-6d	0%	10	20-Jun-19	02-Jul-19	18-Apr-19	03-May-19	-48	
C13234-40	Formation, sub-base and kerbs (CLR Area 1)	12	C3-6d	0%	12	03-Jul-19	16-Jul-19	04-May-19	18-May-19	-48	
C13234-50	Footpath and cycletrack (CLR Area 1)	12	C3-6d	0%	12	17-Jul-19	30-Jul-19	20-May-19	01-Jun-19	-48	
Footbridge Predrilling		176			171	28-Jan-19 A	29-Jul-19	11-Feb-19	19-Sep-19	52	
C13110	Predrilling at PC5-PH1 to PH3, PH6 (Pier 01) (4 nos.) PD#1	17	C3-6d	23.53%	13	28-Jan-19 A	23-Feb-19	11-Feb-19	26-Feb-19	2	
C13414	Acceptance of founding level PC3-1	21	C3-7d	0%	21	23-Feb-19	15-Mar-19	18-May-19	07-Jun-19	84	
C12972	Acceptance of founding level PC1-3	21	C3-7d	0%	21	23-Feb-19	15-Mar-19	04-Jun-19	24-Jun-19	101	
C13012	Acceptance of founding level PC7	21	C3-7d	0%	21	23-Feb-19	15-Mar-19	21-Jun-19	11-Jul-19	118	
C13412	Acceptance of founding level PC1-2	21	C3-7d	0%	21	23-Feb-19	15-Mar-19	30-Aug-19	19-Sep-19	188	
C13120	Propose founding level PC5 (Pier 01)	4	C3-6d	0%	4	25-Feb-19	28-Feb-19	26-Feb-19	02-Mar-19	2	
C13130	Acceptance of founding level PC5 (Pier 01)	14	C3-7d	0%	14	01-Mar-19	14-Mar-19	02-Mar-19	16-Mar-19	2	
C13070	Acceptance of founding level PC2-1 (Pier 02)	21	C3-7d	0%	21	30-Mar-19	19-Apr-19	30-Jul-19	20-Aug-19	123	
C13321	Predrilling at PC2-2/PH1 & PH2 (Pier 03) (2 nos.) PD#1	8	C3-6d	0%	8	15-Jul-19	23-Jul-19	02-May-19	10-May-19	-60	
C13322	Propose founding level PC2-2 (Pier 03)	2	C3-6d	0%	2	24-Jul-19	25-Jul-19	11-May-19	14-May-19	-60	
C13323	Acceptance of founding level PC2-2 (Pier 03)	3	C3-6d	0%	3	26-Jul-19	29-Jul-19	15-May-19	17-May-19	-60	
Footbridge Piling		149	C3-6d		149	25-Feb-19	26-Aug-19	09-Mar-19	20-Aug-19	-5	
C13345	Protection of HGC cable (CE No. 025)	6	C3-6d	0%	6	25-Feb-19	02-Mar-19	09-Mar-19	16-Mar-19	12	
C13340	Mobilize plant BP#1	6	C3-6d	0%	6	07-Mar-19	14-Mar-19	09-Mar-19	16-Mar-19	2	
C13350	Bored piles at PC5 (Pier 01) (6 nos.) BP#1	126	C3-6d	0%	126	23-Mar-19	26-Aug-19	16-Mar-19	20-Aug-19	-5	6
TTA Stage 2B		242	C3-6d		218	03-Jan-19 A	02-Nov-19	06-Mar-19	20-Nov-19	15	
TTA		174	C3-6d		150	03-Jan-19 A	12-Aug-19	06-Mar-19	15-Jun-19	-48	
C13270	Design and acceptance of TTA Stage 2B	42	C3-6d	10.24%	38	03-Jan-19 A	25-Mar-19	06-Mar-19	24-Apr-19	22	
C13280	Implementation of TTA Stage 2B	2	C3-6d	0%	2	27-Jul-19	29-Jul-19	16-May-19	17-May-19	-60	1
C13290	Temporary road for Chui Shin Street (for TTA Stage 2C)	12	C3-6d	0%	12	30-Jul-19	12-Aug-19	01-Jun-19	15-Jun-19	-48	
Drainage		28	C3-6d		28	30-Jul-19	30-Aug-19	24-May-19	20-Nov-19	67	
C13300	Stormwater SMH6601-SMH6602, SMH5001-SMH6602	28	C3-6d	0%	28	30-Jul-19	30-Aug-19	19-Oct-19	20-Nov-19	67	1
SMH6401-SMH6402-exist.manhole (Po Yap Road - Area 2)		8	C3-6d		8	03-Aug-19	12-Aug-19	24-May-19	01-Jun-19	-59	
C13212-60	Backfill	8	C3-6d	0%	8	03-Aug-19	12-Aug-19	24-May-19	01-Jun-19	-59	
Salt Watermain		15	C3-6d		15	27-Jul-19	13-Aug-19	20-May-19	05-Jun-19	-57	
Salt Watermain CHA 0 to 60 and CHB 0 to 25.141		3	C3-6d		3	27-Jul-19	30-Jul-19	20-May-19	22-May-19	-57	
C12880	Connection and commissioning of salt watermain CHA, CHB	3	C3-6d	0%	3	27-Jul-19	30-Jul-19	20-May-19	22-May-19	-57	
Salt watermain CHA 60 to 124.388		12	C3-6d		12	31-Jul-19	13-Aug-19	23-May-19	05-Jun-19	-57	
C12712-70	Backfill CHA 50 to 124.388	12	C3-6d	0%	12	31-Jul-19	13-Aug-19	23-May-19	05-Jun-19	-57	
Footbridge Predrilling		8	C3-6d		8	31-Jul-19	08-Aug-19	06-Jun-19	15-Jun-19	-45	
C13400	Predrilling at PC6/PH1 & PH3 (Pier 05) (2 nos.) PD#1	8	C3-6d	0%	8	31-Jul-19	08-Aug-19	06-Jun-19	15-Jun-19	-45	
Footbridge Piling		86	C3-6d		86	22-Jul-19	02-Nov-19	09-May-19	21-Aug-19	-60	
C13480	Mobilize plant BP#2	6	C3-6d	0%	6	22-Jul-19	29-Jul-19	09-May-19	17-May-19	-60	
C13160	Socketted H-piles at PC3-1 P1 & P3 (2 nos.) SP#1	14	C3-6d	0%	14	30-Jul-19	14-Aug-19	08-Jun-19	24-Jun-19	-43	2
C13490	Bored piles at PC2-2 (Pier 03) (4 nos.) BP#2	80	C3-6d	0%	80	30-Jul-19	02-Nov-19	18-May-19	21-Aug-19	-60	2
TTA Stage 2C		451			451	26-Mar-19	18-Jun-20	12-Apr-19	08-Jun-20	-10	



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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
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Date	Revision	Checked	Approved
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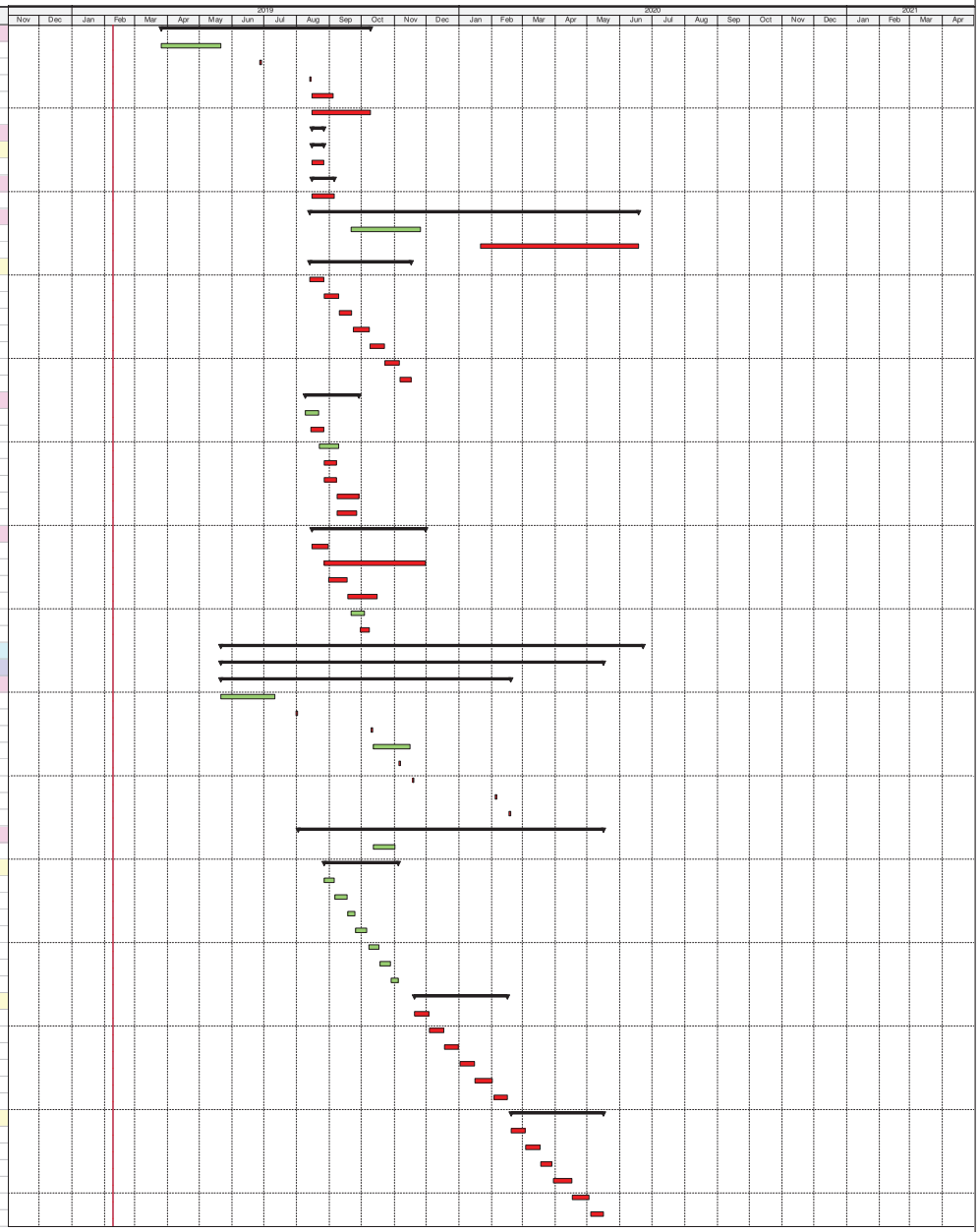
Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
TTA		159	C3-6d		159	26-Mar-19	09-Oct-19	12-Apr-19	10-Aug-19	-48	
C13360	Design and acceptance of TTA Stage 2C	42	C3-6d	0%	42	26-Mar-19	21-May-19	24-Apr-19	15-Jun-19	22	
C13372	Implementation of TTA Stage 2C-2 (Po Yap Road - Area 2)	2	C3-6d	0%	2	27-Jun-19	28-Jun-19	12-Apr-19	13-Apr-19	-59	1
C13370	Implementation of TTA - Stage 2C-1	2	C3-6d	0%	2	13-Aug-19	14-Aug-19	17-Jun-19	18-Jun-19	-48	1
C13390	Temporary footpath and cycle track (for TTA Stage 3A)	18	C3-6d	0%	18	15-Aug-19	04-Sep-19	22-Jul-19	10-Aug-19	-21	
C13380	Modification of road formation and layout	45	C3-6d	0%	45	15-Aug-19	09-Oct-19	19-Jun-19	10-Aug-19	-48	
Fresh Watermain		10	C3-6d		10	15-Aug-19	26-Aug-19	08-Jun-19	19-Jun-19	-57	
Fresh Watermain CHA 0 to 90 and CHA1 0 to 15.540		10	C3-6d		10	15-Aug-19	26-Aug-19	08-Jun-19	19-Jun-19	-57	
C12710-07	Backfill CHA 0 to 50	10	C3-6d	0%	10	15-Aug-19	26-Aug-19	08-Jun-19	19-Jun-19	-57	
Utilities		19	C3-6d		19	15-Aug-19	05-Sep-19	20-Jul-19	10-Aug-19	-22	
C12690	Gas main at Chui Ling Road (South) by HKCG	19	C3-6d	0%	19	15-Aug-19	05-Sep-19	20-Jul-19	10-Aug-19	-22	1
Roadworks		252	C3-6d		252	13-Aug-19	18-Jun-20	03-Jun-19	08-Jun-20	-9	
C13590	Roadwork within Portion IV	54	C3-6d	0%	54	21-Sep-19	25-Nov-19	31-Mar-20	08-Jun-20	156	
C13580	Roadworks at Chui Ling Road (North), Po Shun Road (North), Po Yap Road (North)	120	C3-6d	0%	120	21-Jan-20	18-Jun-20	21-Nov-19	20-Apr-20	-49	
Po Yap Road - Area 2		80	C3-6d		80	13-Aug-19	16-Nov-19	03-Jun-19	05-Sep-19	-59	
C13231-10	Excavation (PYR Area 2)	12	C3-6d	0%	12	13-Aug-19	26-Aug-19	03-Jun-19	17-Jun-19	-59	2
C13231-20	Gullies (PYR Area 2)	12	C3-6d	0%	12	27-Aug-19	09-Sep-19	18-Jun-19	02-Jul-19	-59	2
C13231-30	Road lighting ducting (PYR Area 2)	10	C3-6d	0%	10	10-Sep-19	21-Sep-19	03-Jul-19	13-Jul-19	-59	
C13231-40	Formation, sub-base and kerbs (PYR Area 2)	12	C3-6d	0%	12	23-Sep-19	08-Oct-19	15-Jul-19	27-Jul-19	-59	
C13231-50	Road paving (PYR Area 2)	12	C3-6d	0%	12	09-Oct-19	22-Oct-19	29-Jul-19	10-Aug-19	-59	
C13231-60	Footpath and cycle track (PYR Area 2)	12	C3-6d	0%	12	23-Oct-19	05-Nov-19	12-Aug-19	24-Aug-19	-59	
C13231-70	Type 2 railing and chain link fence (PYR Area 2)	10	C3-6d	0%	10	06-Nov-19	16-Nov-19	26-Aug-19	05-Sep-19	-59	
Footbridge Predrilling		51			51	09-Aug-19	28-Sep-19	06-Jun-19	03-Feb-20	128	
C13401	Propose founding level PC6 (Pier 05)	11	C3-6d	0%	11	09-Aug-19	21-Aug-19	02-Jan-20	15-Jan-20	120	
C13420	Predrilling at PC2-3/PH1, PH2, PH4 (Pier 04) (3 nos.) PD#2	11	C3-6d	0%	11	14-Aug-19	26-Aug-19	06-Jun-19	19-Jun-19	-57	
C13402	Acceptance of founding level PC6 (Pier 05)	19	C3-7d	0%	19	22-Aug-19	09-Sep-19	15-Jan-20	03-Feb-20	147	
C13460	Propose founding level PC3-2	11	C3-6d	0%	11	27-Aug-19	07-Sep-19	20-Jun-19	03-Jul-19	-57	
C13430	Propose founding level PC2-3 (Pier 04)	11	C3-6d	0%	11	27-Aug-19	07-Sep-19	22-Jul-19	02-Aug-19	-31	
C13470	Acceptance of founding level PC3-2	21	C3-7d	0%	21	08-Sep-19	28-Sep-19	04-Jul-19	24-Jul-19	-66	
C13440	Acceptance of founding level PC2-3 (Pier 04)	19	C3-7d	0%	19	08-Sep-19	26-Sep-19	03-Aug-19	21-Aug-19	-36	
Footbridge Piling		90	C3-6d		90	15-Aug-19	30-Nov-19	25-Jun-19	25-Nov-19	-5	
C13170	Socketted H-piles at PC1-3 (2 nos.) SP#1	14	C3-6d	0%	14	15-Aug-19	30-Aug-19	25-Jun-19	11-Jul-19	-43	2
C13660	Bored pile at PC2-1 (Pier 02) (4 nos.) BP#1	80	C3-6d	0%	80	27-Aug-19	30-Nov-19	20-Aug-19	25-Nov-19	-5	2
C13240	Socketted H-piles at PC7 (2 nos.) SP#1	14	C3-6d	0%	14	31-Aug-19	17-Sep-19	12-Jul-19	27-Jul-19	-43	2
C13330	First loading test (socketted H-piles)	22	C3-6d	0%	22	18-Sep-19	15-Oct-19	29-Jul-19	22-Aug-19	-43	
C13610	Bored pile testing (Pier 01)	10	C3-6d	0%	10	21-Sep-19	03-Oct-19	04-Oct-19	16-Oct-19	10	
C13500	Mobilize plant SP#2	6	C3-6d	0%	6	30-Sep-19	08-Oct-19	25-Jul-19	31-Jul-19	-56	
Stage 3 Works		399			399	21-May-19	22-Jun-20	03-Jun-19	29-Jul-20	37	
TTA Stage 3A		362			362	21-May-19	16-May-20	03-Jun-19	24-Jun-20	39	
TTA		224	C3-6d		224	21-May-19	18-Feb-20	03-Jun-19	04-Dec-19	-59	
C13520	Design and acceptance of TTA Stage 3A	42	C3-6d	0%	42	21-May-19	11-Jul-19	22-Jun-19	10-Aug-19	27	
C13536	Implementation of TTA Stage 3A-4 (Chui Ling Road - Area 2)	2	C3-6d	0%	2	31-Jul-19	01-Aug-19	03-Jun-19	04-Jun-19	-48	1
C13530	Implementation of TTA - Stage 3A-1	2	C3-6d	0%	2	10-Oct-19	11-Oct-19	12-Aug-19	13-Aug-19	-48	1
C13550	Modifcation of existing roundabout to temporary signalized junction	30	C3-6d	0%	30	12-Oct-19	15-Nov-19	28-Oct-19	30-Nov-19	13	
C13538	Implementation of TTA Stage 3A-5 (Chui Ling Road - Area 3)	2	C3-6d	0%	2	05-Nov-19	06-Nov-19	06-Sep-19	07-Sep-19	-48	1
C13532	Implementation of TTA - Stage 3A-2 (Po Yap Road - Area 4)	2	C3-6d	0%	2	18-Nov-19	19-Nov-19	06-Sep-19	07-Sep-19	-59	1
C13539	Implementation of TTA Stage 3A-6 (Chui Ling Road - Area 4)	2	C3-6d	0%	2	04-Feb-20	05-Feb-20	03-Dec-19	04-Dec-19	-48	1
C13534	Implementation of TTA - Stage 3A-3 (Po Yap Road - Area 5)	2	C3-6d	0%	2	17-Feb-20	18-Feb-20	03-Dec-19	04-Dec-19	-59	1
Roadworks		233	C3-6d		233	02-Aug-19	16-May-20	05-Jun-19	02-Mar-20	-59	
C13570	Footpath and cycle track (for TTA Stage 3B)	18	C3-6d	0%	18	12-Oct-19	01-Nov-19	11-Nov-19	30-Nov-19	25	
Po Yap Road Area 3		57	C3-6d		57	27-Aug-19	04-Nov-19	20-Dec-19	02-Mar-20	96	
C13233-10	Excavation (PYR Area 3)	9	C3-6d	0%	9	27-Aug-19	05-Sep-19	20-Dec-19	02-Jan-20	96	
C13233-20	Gullies (PYR Area 3)	9	C3-6d	0%	9	06-Sep-19	17-Sep-19	03-Jan-20	13-Jan-20	96	
C13233-30	Road lighting ducting (PYR Area 3)	6	C3-6d	0%	6	18-Sep-19	24-Sep-19	14-Jan-20	20-Jan-20	96	
C13233-40	Formation, sub-base and kerbs (PYR Area 3)	9	C3-6d	0%	9	25-Sep-19	05-Oct-19	21-Jan-20	03-Feb-20	96	
C13233-50	Road paving (PYR Area 3)	9	C3-6d	0%	9	08-Oct-19	17-Oct-19	04-Feb-20	13-Feb-20	96	
C13233-60	Footpath and cycle track (PYR Area 3)	9	C3-6d	0%	9	18-Oct-19	28-Oct-19	14-Feb-20	24-Feb-20	96	
C13233-70	Type 2 railing and chain link fence (PYR Area 3)	6	C3-6d	0%	6	29-Oct-19	04-Nov-19	25-Feb-20	02-Mar-20	96	
Po Yap Road Area 4		70	C3-6d		70	20-Nov-19	15-Feb-20	09-Sep-19	02-Dec-19	-59	
C13962-10	Excavation (PYR Area 4)	12	C3-6d	0%	12	20-Nov-19	03-Dec-19	09-Sep-19	23-Sep-19	-59	2
C13962-20	Gullies (PYR Area 4)	12	C3-6d	0%	12	04-Dec-19	17-Dec-19	24-Sep-19	09-Oct-19	-59	2
C13962-30	Road lighting ducting (PYR Area 4)	10	C3-6d	0%	10	18-Dec-19	31-Dec-19	10-Oct-19	21-Oct-19	-59	
C13962-40	Formation, sub-base and kerbs (PYR Area 4)	12	C3-6d	0%	12	02-Jan-20	15-Jan-20	22-Oct-19	04-Nov-19	-59	
C13962-50	Concrete profile barrier (PYR Area 4)	12	C3-6d	0%	12	16-Jan-20	01-Feb-20	05-Nov-19	18-Nov-19	-59	
C13962-60	Road paving (PYR Area 4)	12	C3-6d	0%	12	03-Feb-20	15-Feb-20	19-Nov-19	02-Dec-19	-59	
Po Yap Road Area 5		70	C3-6d		70	19-Feb-20	16-May-20	05-Dec-19	02-Mar-20	-59	
C13964-10	Excavation (PYR Area 5)	12	C3-6d	0%	12	19-Feb-20	03-Mar-20	05-Dec-19	18-Dec-19	-59	2
C13964-20	Gullies (PYR Area 5)	12	C3-6d	0%	12	04-Mar-20	17-Mar-20	19-Dec-19	04-Jan-20	-59	2
C13964-30	Road lighting ducting (PYR Area 5)	10	C3-6d	0%	10	18-Mar-20	28-Mar-20	06-Jan-20	16-Jan-20	-59	
C13964-40	Formation, sub-base and kerbs (PYR Area 5)	12	C3-6d	0%	12	30-Mar-20	16-Apr-20	17-Jan-20	03-Feb-20	-59	
C13964-50	Concrete profile barrier (PYR Area 5)	12	C3-6d	0%	12	17-Apr-20	02-May-20	04-Feb-20	17-Feb-20	-59	
C13964-60	Road paving (PYR Area 5)	12	C3-6d	0%	12	04-May-20	16-May-20	18-Feb-20	02-Mar-20	-59	



Actual Work
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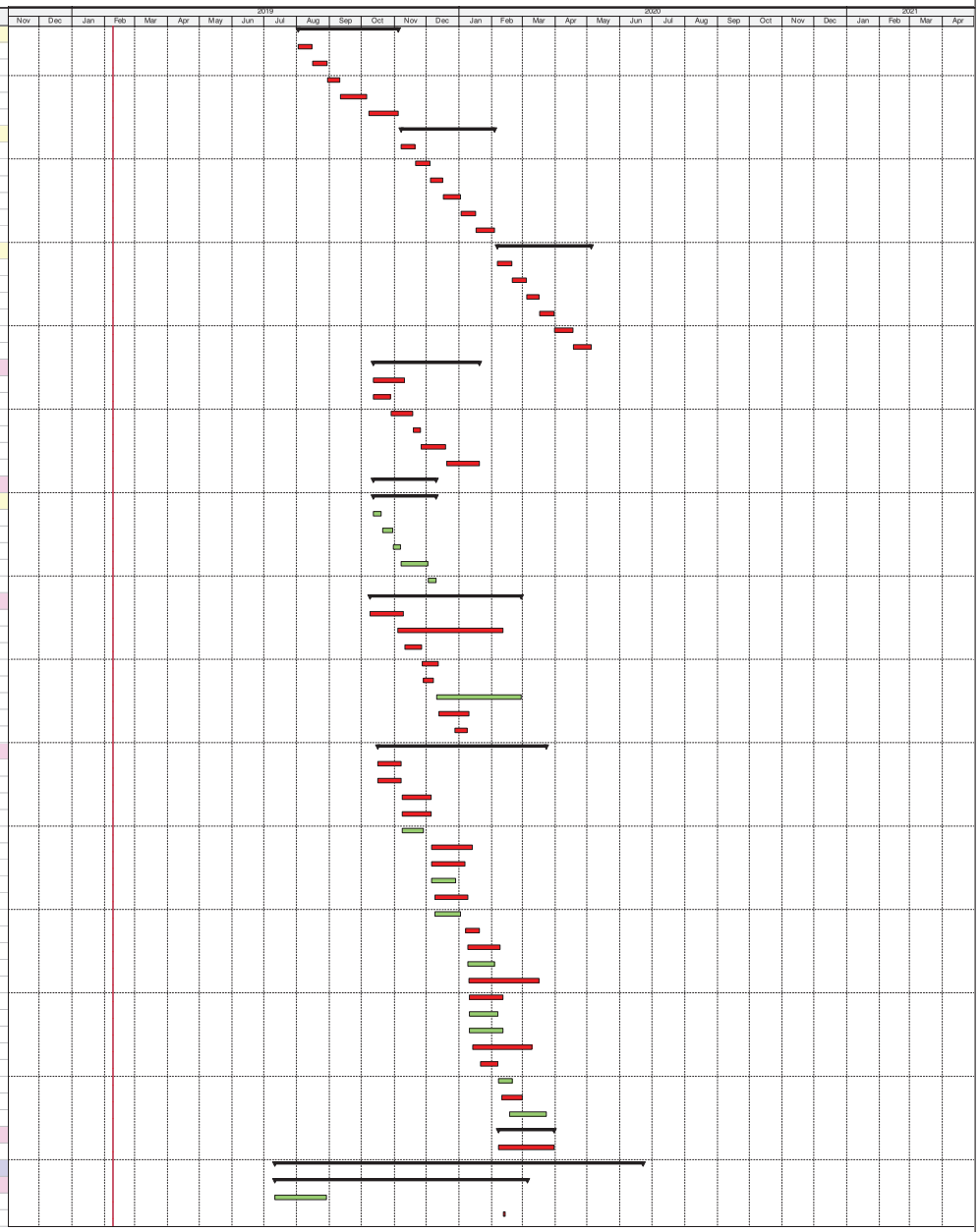
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
Chui Ling Road Area 2		78	C3-6d		78	02-Aug-19	04-Nov-19	05-Jun-19	05-Sep-19	-48	
C13232-10	Excavation (CLR Area 2)	12	C3-6d	0%	12	02-Aug-19	15-Aug-19	05-Jun-19	19-Jun-19	-48	
C13232-20	Gullies (CLR Area 2)	12	C3-6d	0%	12	16-Aug-19	29-Aug-19	20-Jun-19	04-Jul-19	-48	
C13232-30	Road lighting ducting (CLR Area 2)	10	C3-6d	0%	10	30-Aug-19	10-Sep-19	05-Jul-19	16-Jul-19	-48	
C13232-40	Formation, sub-base and kerbs (CLR Area 2)	20	C3-6d	0%	20	11-Sep-19	05-Oct-19	17-Jul-19	08-Aug-19	-48	
C13232-50	Footpath, cycletrack and layby pavement (CLR Area 2)	24	C3-6d	0%	24	08-Oct-19	04-Nov-19	09-Aug-19	05-Sep-19	-48	
Chui Ling Road Area 3		70	C3-6d		70	07-Nov-19	03-Feb-20	09-Sep-19	02-Dec-19	-48	
C13236-10	Excavation (CLR Area 3)	12	C3-6d	0%	12	07-Nov-19	20-Nov-19	09-Sep-19	23-Sep-19	-48	
C13236-20	Excavation (CLR Area 3)	12	C3-6d	0%	12	21-Nov-19	04-Dec-19	24-Sep-19	09-Oct-19	-48	
C13236-30	Road lighting ducting (CLR Area 3)	10	C3-6d	0%	10	05-Dec-19	16-Dec-19	10-Oct-19	21-Oct-19	-48	
C13236-40	Formation, sub-base and kerbs (CLR Area 3)	12	C3-6d	0%	12	17-Dec-19	02-Jan-20	22-Oct-19	04-Nov-19	-48	
C13236-50	Concrete profile barrier (CLR Area 3)	12	C3-6d	0%	12	03-Jan-20	16-Jan-20	05-Nov-19	18-Nov-19	-48	
C13236-60	Road paving (CLR Area 3)	12	C3-6d	0%	12	17-Jan-20	03-Feb-20	19-Nov-19	02-Dec-19	-48	
Chui Ling Road Area 4		70	C3-6d		70	06-Feb-20	04-May-20	05-Dec-19	02-Mar-20	-48	
C13237-10	Excavation (CLR Area 4)	12	C3-6d	0%	12	06-Feb-20	19-Feb-20	05-Dec-19	18-Dec-19	-48	
C13237-20	Excavation (CLR Area 4)	12	C3-6d	0%	12	20-Feb-20	04-Mar-20	19-Dec-19	04-Jan-20	-48	
C13237-30	Road lighting ducting (CLR Area 4)	10	C3-6d	0%	10	05-Mar-20	16-Mar-20	06-Jan-20	16-Jan-20	-48	
C13237-40	Formation, sub-base and kerbs (CLR Area 4)	12	C3-6d	0%	12	17-Mar-20	30-Mar-20	17-Jan-20	03-Feb-20	-48	
C13237-50	Concrete profile barrier (CLR Area 4)	12	C3-6d	0%	12	31-Mar-20	17-Apr-20	04-Feb-20	17-Feb-20	-48	
C13237-60	Road paving (CLR Area 4)	12	C3-6d	0%	12	18-Apr-20	04-May-20	18-Feb-20	02-Mar-20	-48	
CCTV High Mast		101			101	12-Oct-19	20-Jan-20	14-Aug-19	20-Nov-19	-61	
C12949	Order and deliver steel casing for socketted H-piles CCTV High Mast	30	C3-7d	0%	30	12-Oct-19	10-Nov-19	28-Aug-19	26-Sep-19	-45	
C12930	Propose founding levels at CCTV high mast	14	C3-6d	0%	14	12-Oct-19	28-Oct-19	14-Aug-19	29-Aug-19	-48	
C12940	Acceptance of proposed founding level at CCTV high mast	21	C3-7d	0%	21	29-Oct-19	18-Nov-19	30-Aug-19	19-Sep-19	-60	
C12950	Mobilize plant SP#1	6	C3-6d	0%	6	19-Nov-19	25-Nov-19	20-Sep-19	26-Sep-19	-49	
C12960	Socketted H-piles at CCTV High Mast (3 nos.) SP#1	21	C3-6d	0%	21	26-Nov-19	19-Dec-19	27-Sep-19	23-Oct-19	-49	3
C13600	Pile cap for CCTV high mast	24	C3-6d	0%	24	20-Dec-19	20-Jan-20	24-Oct-19	20-Nov-19	-49	
Salt Watermain		51	C3-6d		51	12-Oct-19	10-Dec-19	28-Nov-19	03-Feb-20	41	
DN200 SWM at Chui Shin Street (PMI No. 012)		51	C3-6d		51	12-Oct-19	10-Dec-19	28-Nov-19	03-Feb-20	41	
C12712-1	Install ELS & excavate DN200 SWM	7	C3-6d	0%	7	12-Oct-19	19-Oct-19	28-Nov-19	06-Dec-19	41	
C12712-2	Lay DN200 SWM	9	C3-6d	0%	9	21-Oct-19	30-Oct-19	06-Dec-19	17-Dec-19	41	
C12712-3	Salt watermain testing DN200 SWM	6	C3-6d	0%	6	31-Oct-19	06-Nov-19	17-Dec-19	24-Dec-19	41	
C12712-4	Connection of salt watermain DN200 SWM	22	C3-6d	0%	22	07-Nov-19	02-Dec-19	24-Dec-19	22-Jan-20	41	
C12712-5	Backfill DN200 SWM	7	C3-6d	0%	7	03-Dec-19	10-Dec-19	22-Jan-20	03-Feb-20	41	
Footbridge Piling		117	C3-6d		117	09-Oct-19	28-Feb-20	01-Aug-19	21-Apr-20	41	
C13510	Socketted H-piles at PC3-2 (4 nos.) SP#2	28	C3-6d	0%	28	09-Oct-19	09-Nov-19	01-Aug-19	02-Sep-19	-56	4
C13630	Bored piles at PC2-3 (Pier 04) (4 nos.) BP#2	80	C3-6d	0%	80	04-Nov-19	11-Feb-20	22-Aug-19	26-Nov-19	-60	2
C13670	Socketted H-piles at PC3-1 P2 & P4 (2 nos.) SP#2	14	C3-6d	0%	14	11-Nov-19	26-Nov-19	03-Sep-19	19-Sep-19	-56	2
C13680	Socketted H-piles at PC1-2 (2 nos.) SP#2	14	C3-6d	0%	14	27-Nov-19	12-Dec-19	20-Sep-19	08-Oct-19	-56	2
C13620	Bored pile testing (Pier 03)	9	C3-6d	0%	9	28-Nov-19	07-Dec-19	16-Oct-19	25-Oct-19	-37	
C13650	Bored piles at PC6 (Pier 05) (3 nos.) BP#1	63	C3-6d	0%	63	11-Dec-19	28-Feb-20	03-Feb-20	21-Apr-20	41	3
C13690	Second loading test (socketted H-piles)	22	C3-6d	0%	22	13-Dec-19	10-Jan-20	09-Oct-19	02-Nov-19	-56	
C14020	Bored pile testing (Pier 02)	9	C3-6d	0%	9	28-Dec-19	08-Jan-20	20-Dec-19	02-Jan-20	-5	
Footbridge Substructure		131	C3-6d		131	16-Oct-19	23-Mar-20	23-Aug-19	24-Jun-20	74	
C13710	Pile cap PC1-1	20	C3-6d	0%	20	16-Oct-19	07-Nov-19	23-Aug-19	16-Sep-19	-43	
C13700	Pile cap PC1-3	20	C3-6d	0%	20	16-Oct-19	07-Nov-19	28-Aug-19	20-Sep-19	-39	
C14040	Pile cap PC7	24	C3-6d	0%	24	08-Nov-19	05-Dec-19	21-Sep-19	21-Oct-19	-39	
C13720	Pile cap PC8	24	C3-6d	0%	24	08-Nov-19	05-Dec-19	17-Sep-19	16-Oct-19	-43	
C13860	Column at PC1-1 (Staircase 02) - 1st pour	18	C3-6d	0%	18	08-Nov-19	28-Nov-19	14-May-20	04-Jun-20	150	
C13740	Pile cap PC5 (Pier 01)	30	C3-6d	0%	30	06-Dec-19	13-Jan-20	17-Oct-19	20-Nov-19	-43	
C13730	Pile cap PC4	24	C3-6d	0%	24	06-Dec-19	06-Jan-20	22-Oct-19	18-Nov-19	-39	
C13870	Wall at PC8 (Staircase 02) - 2nd pour	18	C3-6d	0%	18	06-Dec-19	28-Dec-19	14-May-20	04-Jun-20	126	
C13790	Pile cap PC2-2 (Pier 03)	25	C3-6d	0%	25	09-Dec-19	09-Jan-20	25-Oct-19	23-Nov-19	-37	
C13880	Column at PC1-3 (Staircase 01) - 2nd pour	18	C3-6d	0%	18	09-Dec-19	02-Jan-20	16-Mar-20	07-Apr-20	78	
C13890	Wall at PC4 (Staircase 03) - 1st pour	12	C3-6d	0%	12	07-Jan-20	20-Jan-20	19-Nov-19	02-Dec-19	-39	
C14050	Pile Cap PC2-1 (Pier 02)	24	C3-6d	0%	24	09-Jan-20	08-Feb-20	02-Jan-20	03-Feb-20	-5	
C13910	Wall at PC7 (Staircase 01) - 4th pour	18	C3-6d	0%	18	09-Jan-20	03-Feb-20	16-Mar-20	07-Apr-20	54	
C13800	Column at PC2-2 (Pier 03)	54	C3-6d	0%	54	10-Jan-20	16-Mar-20	23-Nov-19	01-Feb-20	-37	
C13760	Pile cap PC3-2	24	C3-6d	0%	24	11-Jan-20	11-Feb-20	04-Nov-19	30-Nov-19	-56	
C13770	Pile cap PC1-2	20	C3-6d	0%	20	11-Jan-20	06-Feb-20	14-Feb-20	09-Mar-20	27	
C13780	Pile cap PC3-1	24	C3-6d	0%	24	11-Jan-20	11-Feb-20	13-Jan-20	13-Feb-20	2	
C13850	Wall at PC5 (Lift shaft 2A & 2B)	45	C3-6d	0%	45	14-Jan-20	09-Mar-20	21-Nov-19	15-Jan-20	-43	
C13900	Wall at PC4 (Staircase 03) - 2nd pour	12	C3-6d	0%	12	21-Jan-20	06-Feb-20	03-Dec-19	16-Dec-19	-39	
C13820	Column PC1-2 (Staircase 01) - 1st pour	12	C3-6d	0%	12	07-Feb-20	20-Feb-20	09-Mar-20	23-Mar-20	27	
C14060	Column at PC2-1 (Pier 02)	18	C3-6d	0%	18	10-Feb-20	29-Feb-20	03-Feb-20	24-Feb-20	-5	
C13810	Column at PC5 (Pier 01)	30	C3-6d	0%	30	17-Feb-20	23-Mar-20	20-May-20	24-Jun-20	74	
Footbridge Superstructure		45	C3-6d		45	07-Feb-20	30-Mar-20	17-Dec-19	13-Feb-20	-39	
C14150	Staircase 03 structure - 3rd pour	45	C3-6d	0%	45	07-Feb-20	30-Mar-20	17-Dec-19	13-Feb-20	-39	
TTA Stage 3B		283	C3-6d		283	11-Jul-19	22-Jun-20	14-Oct-19	29-Jul-20	30	
TTA		196	C3-6d		196	11-Jul-19	05-Mar-20	14-Oct-19	20-Apr-20	35	
C13930	Design and acceptance of TTA Stage 3B	42	C3-6d	0%	42	11-Jul-19	29-Aug-19	14-Oct-19	30-Nov-19	78	
C13940	Implementation of TTA - Stage 3B	2	C3-6d	0%	2	12-Feb-20	13-Feb-20	02-Dec-19	03-Dec-19	-56	1



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NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
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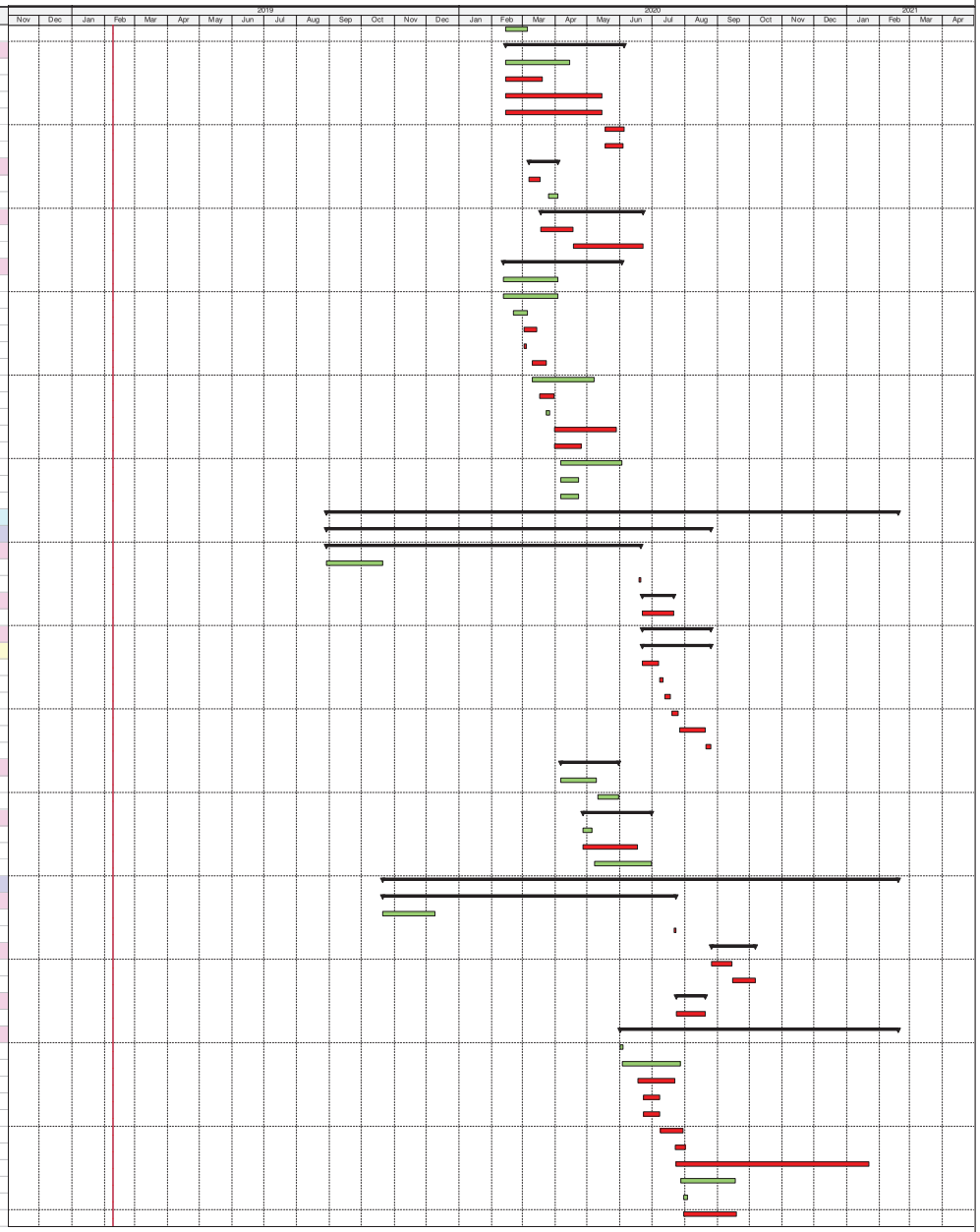
Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C13950	Permanent footpath and cycle track (for TTA Stage 4A)	18	C3-6d	0%	18	14-Feb-20	05-Mar-20	26-Mar-20	20-Apr-20	35	
Roadworks		90	C3-6d		90	14-Feb-20	04-Jun-20	04-Dec-19	20-Apr-20	-37	
C13960	Drainage works along Chui Ling Road and Po Yap Road	48	C3-6d	0%	48	14-Feb-20	14-Apr-20	20-Feb-20	20-Apr-20	5	
C13970	Directional sign DS26,27,28 (incl. footing & steel frame)	30	C3-6d	0%	30	14-Feb-20	19-Mar-20	24-Jan-20	02-Mar-20	-15	
C13980	Roadwork for carriageway and cycle track	72	C3-6d	0%	72	14-Feb-20	14-May-20	04-Dec-19	03-Mar-20	-56	
C13990	Ductings for TCSS and road lighting	72	C3-6d	0%	72	14-Feb-20	14-May-20	04-Dec-19	03-Mar-20	-56	
C14000	Signage	16	C3-6d	0%	16	18-May-20	04-Jun-20	03-Mar-20	20-Mar-20	-59	
C14010	Lighting posts	15	C3-6d	0%	15	18-May-20	03-Jun-20	04-Mar-20	20-Mar-20	-58	
Footbridge Piling		24	C3-6d		24	07-Mar-20	03-Apr-20	21-Dec-19	28-May-20	41	
C13640	Bored pile testing (Pier 04)	9	C3-6d	0%	9	07-Mar-20	17-Mar-20	21-Dec-19	03-Jan-20	-60	
C14030	Bored pile testing (Pier 05)	9	C3-6d	0%	9	25-Mar-20	03-Apr-20	19-May-20	28-May-20	41	
Footbridge Substructure		77	C3-6d		77	18-Mar-20	22-Jun-20	04-Jan-20	07-Apr-20	-60	
C13750	Pile cap PC2-3 (Pier 04)	23	C3-6d	0%	23	18-Mar-20	17-Apr-20	04-Jan-20	03-Feb-20	-60	
C14070	Column at PC2-3 (Pier 04)	54	C3-6d	0%	54	18-Apr-20	22-Jun-20	04-Feb-20	07-Apr-20	-60	
Footbridge Superstructure		90	C3-6d		90	12-Feb-20	02-Jun-20	16-Jan-20	29-Jul-20	47	
C13840	Wall at PC3-1 (Lift shaft 1A & 1B)	45	C3-6d	0%	45	12-Feb-20	03-Apr-20	13-Feb-20	07-Apr-20	2	
C13920	Wall at PC3-2 (Lift shaft 3A & 3B)	45	C3-6d	0%	45	12-Feb-20	03-Apr-20	13-Feb-20	06-Apr-20	1	
C13830	Column PC1-2 (Staircase 01) - 3rd pour	12	C3-6d	0%	12	21-Feb-20	05-Mar-20	23-Mar-20	07-Apr-20	27	
C14260	Falsework Portion 2	12	C3-6d	0%	12	02-Mar-20	14-Mar-20	24-Feb-20	09-Mar-20	-5	
C14080	Bearing Pier 02	3	C3-6d	0%	3	02-Mar-20	04-Mar-20	24-Feb-20	27-Feb-20	-5	
C14210	Lift shaft steelworks (Lift 2A & 2B)	12	C3-6d	0%	12	10-Mar-20	23-Mar-20	16-Jan-20	01-Feb-20	-43	
C14130	Staircase 02 structure - 3rd pour	45	C3-6d	0%	45	10-Mar-20	07-May-20	04-Jun-20	29-Jul-20	69	
C14230	Falsework Portion 1	12	C3-6d	0%	12	17-Mar-20	30-Mar-20	01-Feb-20	15-Feb-20	-37	
C14120	Bearing Pier 01	3	C3-6d	0%	3	23-Mar-20	26-Mar-20	09-Jul-20	13-Jul-20	85	
C14160	Staircase 03 structure -4th pour	45	C3-6d	0%	45	31-Mar-20	28-May-20	14-Feb-20	07-Apr-20	-39	
C14240	Deck structure Portion 1	19	C3-6d	0%	19	31-Mar-20	25-Apr-20	15-Feb-20	09-Mar-20	-37	
C14170	Staircase 01 structure - 5th pour	45	C3-6d	0%	45	06-Apr-20	02-Jun-20	07-Apr-20	04-Jun-20	2	
C14200	Lift shaft steelworks (Lift 1A & 1B)	12	C3-6d	0%	12	06-Apr-20	22-Apr-20	29-Jun-20	13-Jul-20	66	
C14220	Lift shaft steelworks (Lift 3A & 3B)	12	C3-6d	0%	12	06-Apr-20	22-Apr-20	07-Apr-20	23-Apr-20	1	
Stage 4 Works		437	C3-6d		437	29-Aug-19	18-Feb-21	27-Feb-20	04-Dec-20	-59	
TTA Stage 4A		294	C3-6d		294	29-Aug-19	25-Aug-20	27-Feb-20	04-Dec-20	84	
TTA		240	C3-6d		240	29-Aug-19	20-Jun-20	27-Feb-20	22-Apr-20	-49	
C14320	Design and acceptance of TTA Stage 4A	42	C3-6d	0%	42	29-Aug-19	21-Oct-19	27-Feb-20	20-Apr-20	147	
C14330	Implementation of TTA - Stage 4A	2	C3-6d	0%	2	19-Jun-20	20-Jun-20	21-Apr-20	22-Apr-20	-49	1
Roadworks		24	C3-6d		24	22-Jun-20	21-Jul-20	09-Jun-20	08-Jul-20	-11	
C14360	Roadworks at Po Shun Road north and west of interchange	24	C3-6d	0%	24	22-Jun-20	21-Jul-20	09-Jun-20	08-Jul-20	-11	
Salt Watermain		54	C3-6d		54	22-Jun-20	25-Aug-20	23-Apr-20	27-Jun-20	-49	
DN150 bypass SWM		54	C3-6d		54	22-Jun-20	25-Aug-20	23-Apr-20	27-Jun-20	-49	
C12714-0	Inspection pits for DN150SWM	12	C3-6d	0%	12	22-Jun-20	07-Jul-20	23-Apr-20	08-May-20	-49	
C12714-1	Install ELS & excavate DN150 SWM	4	C3-6d	0%	4	08-Jul-20	11-Jul-20	09-May-20	13-May-20	-49	
C12714-2	Lay DN150 SWM	6	C3-6d	0%	6	13-Jul-20	18-Jul-20	14-May-20	20-May-20	-49	
C12714-3	Salt watermain testing DN150 SWM	6	C3-6d	0%	6	20-Jul-20	25-Jul-20	21-May-20	27-May-20	-49	
C12714-4	Connection of salt watermain DN150 SWM	22	C3-6d	0%	22	27-Jul-20	20-Aug-20	28-May-20	22-Jun-20	-49	
C12714-5	Backfill DN150 SWM	4	C3-6d	0%	4	21-Aug-20	25-Aug-20	23-Jun-20	27-Jun-20	-49	
Footbridge substructure		43	C3-6d		43	06-Apr-20	30-May-20	28-May-20	20-Jul-20	41	
C14090	Pile Cap PC6 (Pier 05)	25	C3-6d	0%	25	06-Apr-20	09-May-20	28-May-20	27-Jun-20	41	
C14100	Column at PC6 (Pier 05)	18	C3-6d	0%	18	11-May-20	30-May-20	27-Jun-20	20-Jul-20	41	
Footbridge superstructure		53	C3-6d		53	27-Apr-20	30-Jun-20	09-Mar-20	04-Dec-20	131	
C14250	Remove falsework Portion 1	6	C3-6d	0%	6	27-Apr-20	05-May-20	28-Nov-20	04-Dec-20	178	
C14270	Deck structure Portion 2	43	C3-6d	0%	43	27-Apr-20	17-Jun-20	09-Mar-20	05-May-20	-37	
C14140	Staircase 02 structure - 4th pour	45	C3-6d	0%	45	08-May-20	30-Jun-20	29-Jul-20	19-Sep-20	69	
TTA Stage 4B		395	C3-6d		395	21-Oct-19	18-Feb-21	08-Apr-20	04-Dec-20	-59	
TTA		224	C3-6d		224	21-Oct-19	23-Jul-20	19-May-20	10-Jul-20	-11	
C14430	Design and acceptance of TTA Stage 4B	42	C3-6d	0%	42	21-Oct-19	09-Dec-19	19-May-20	08-Jul-20	169	
C14440	Implementation of TTA - Stage 4B	2	C3-6d	0%	2	22-Jul-20	23-Jul-20	09-Jul-20	10-Jul-20	-11	1
Drainage		34	C3-6d		34	26-Aug-20	06-Oct-20	29-Jun-20	07-Aug-20	-49	
C14340	Stormwater SMH6501 to SMH6503	17	C3-6d	0%	17	26-Aug-20	14-Sep-20	29-Jun-20	18-Jul-20	-49	1
C14350	Stormwater SMH 6503 to SMH 6502	17	C3-6d	0%	17	15-Sep-20	06-Oct-20	20-Jul-20	07-Aug-20	-49	1
Roadworks		24	C3-6d		24	24-Jul-20	20-Aug-20	11-Jul-20	07-Aug-20	-11	
C14450	Roadworks at Po Shun Road north of interchange	24	C3-6d	0%	24	24-Jul-20	20-Aug-20	11-Jul-20	07-Aug-20	-11	
Footbridge superstructure		215	C3-6d		215	01-Jun-20	18-Feb-21	08-Apr-20	04-Dec-20	-59	
C14110	Bearing Pier 05	3	C3-6d	0%	3	01-Jun-20	03-Jun-20	03-Aug-20	06-Aug-20	53	
C14180	Staircase 01 structure - 6th pour	45	C3-6d	0%	45	03-Jun-20	27-Jul-20	04-Jun-20	29-Jul-20	2	
C14280	Cure and prestress Portion 2 (Stage 1 stressing)	28	C3-6d	0%	28	18-Jun-20	22-Jul-20	05-May-20	06-Jun-20	-37	1
C14290	Falsework at Portion 0 (Pier 04)	12	C3-6d	0%	12	23-Jun-20	08-Jul-20	08-Apr-20	24-Apr-20	-60	
C14310	Falsework Portion 3a	12	C3-6d	0%	12	23-Jun-20	08-Jul-20	06-May-20	19-May-20	-41	
C14300	Deck structure Portion 0 (Pier 04)	19	C3-6d	0%	19	09-Jul-20	30-Jul-20	25-Apr-20	19-May-20	-60	
C14400	Deck outer section Portion 2	9	C3-6d	0%	9	23-Jul-20	01-Aug-20	06-Jun-20	17-Jun-20	-37	
C14460	Erect steel canopy	150	C3-6d	0%	150	23-Jul-20	21-Jan-21	05-Jun-20	03-Dec-20	-39	
C14190	Staircase 01 structure - 7th pour	45	C3-6d	0%	45	28-Jul-20	17-Sep-20	29-Jul-20	19-Sep-20	2	
C14370	Bearing Pier 04	3	C3-6d	0%	3	31-Jul-20	03-Aug-20	13-Aug-20	15-Aug-20	11	
C14390	Deck structure Portion 3a	43	C3-6d	0%	43	31-Jul-20	18-Sep-20	20-May-20	10-Jul-20	-60	

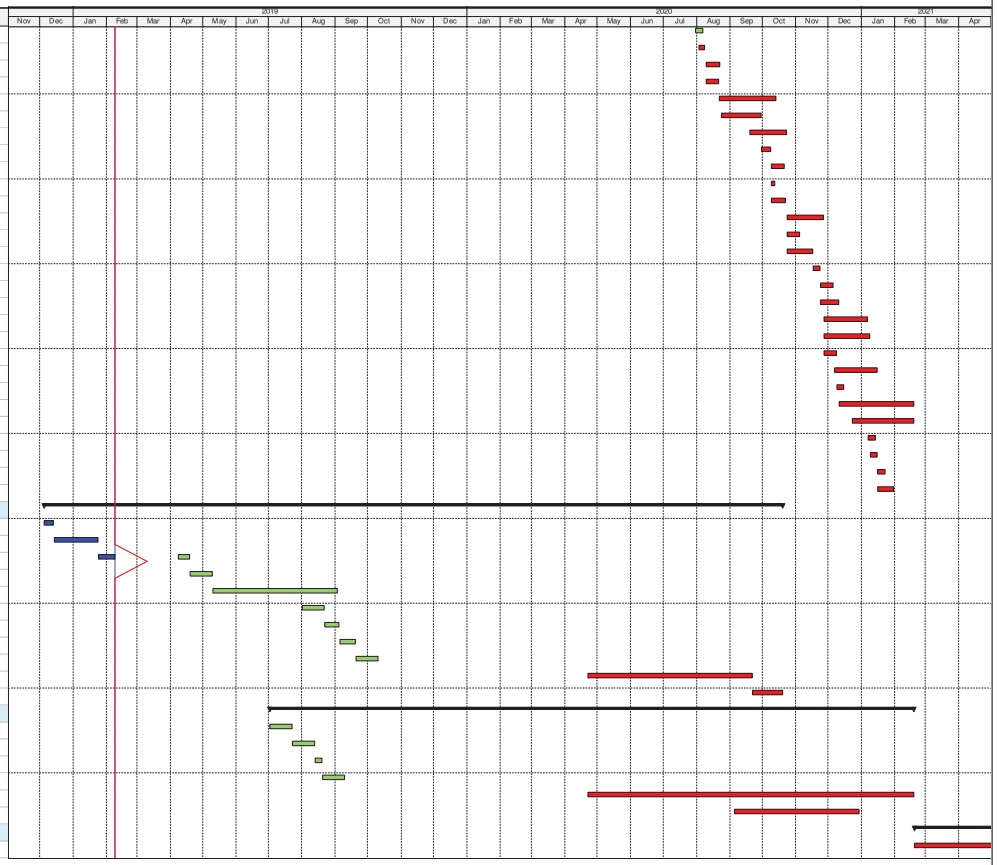


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

Activity ID	Activity Name	Original Duration	Calendar	Activity % Complete	Remaining Duration	Start	Finish	Late Start	Late Finish	Total Float	Time Risk Allowance
C14380	Remove falsework Portion 0 (Pier 04)	6	C3-6d	0%	6	31-Jul-20	06-Aug-20	28-Nov-20	04-Dec-20	100	
C14410	Remove falsework Portion 2	6	C3-6d	0%	6	03-Aug-20	08-Aug-20	17-Jun-20	24-Jun-20	-37	
C14550	Falsework Portion 4	12	C3-6d	0%	12	10-Aug-20	22-Aug-20	20-Jul-20	03-Aug-20	-17	
C14420	Falsework Portion 3b	11	C3-6d	0%	11	10-Aug-20	21-Aug-20	24-Jun-20	09-Jul-20	-37	
C14510	Deck structure Portion 3b	43	C3-6d	0%	43	22-Aug-20	13-Oct-20	09-Jul-20	28-Aug-20	-37	
C14560	Deck structure Portion 4	32	C3-6d	0%	32	24-Aug-20	29-Sep-20	03-Aug-20	09-Sep-20	-17	
C14470	Cure and prestress Portion 3a (Stage 2 stressing)	28	C3-6d	0%	28	19-Sep-20	23-Oct-20	11-Jul-20	12-Aug-20	-60	1
C14570	Remove falsework Portion 4	6	C3-6d	0%	6	30-Sep-20	08-Oct-20	09-Sep-20	16-Sep-20	-17	
C14610	Falsework Portion 6a	11	C3-6d	0%	11	09-Oct-20	21-Oct-20	19-Sep-20	05-Oct-20	-14	
C14650	Bearing Portion 6b	3	C3-6d	0%	3	09-Oct-20	12-Oct-20	30-Sep-20	06-Oct-20	-5	
C14640	Falsework Portion 6b	12	C3-6d	0%	12	09-Oct-20	22-Oct-20	16-Sep-20	30-Sep-20	-17	
C14520	Cure and prestress Portion 3b (Stage 3 stressing)	28	C3-6d	0%	28	24-Oct-20	26-Nov-20	28-Aug-20	30-Sep-20	-46	1
C14480	Deck outer section Portion 3a	9	C3-6d	0%	9	24-Oct-20	04-Nov-20	25-Aug-20	03-Sep-20	-50	
C14490	Deck structure Portion 3a adjacent Portion 0	19	C3-6d	0%	19	24-Oct-20	16-Nov-20	13-Aug-20	03-Sep-20	-60	
C14500	Remove falsework Portion 3a	6	C3-6d	0%	6	17-Nov-20	23-Nov-20	04-Sep-20	10-Sep-20	-60	
C14580	Falsework Portion 5	11	C3-6d	0%	11	24-Nov-20	05-Dec-20	19-Sep-20	05-Oct-20	-52	
C14690	Falsework for arch structure and arch cladding	15	C3-6d	0%	15	24-Nov-20	10-Dec-20	11-Sep-20	28-Sep-20	-60	
C14620	Deck structure Portion 6a	32	C3-6d	0%	32	27-Nov-20	06-Jan-21	05-Oct-20	12-Nov-20	-44	
C14660	Deck structure Portion 6b	34	C3-6d	0%	34	27-Nov-20	08-Jan-21	30-Sep-20	12-Nov-20	-46	2
C14530	Deck outer section Portion 3b	10	C3-6d	0%	10	27-Nov-20	08-Dec-20	31-Oct-20	12-Nov-20	-22	
C14590	Deck structure Portion 5	32	C3-6d	0%	32	07-Dec-20	15-Jan-21	05-Oct-20	12-Nov-20	-52	
C14540	Remove falsework Portion 3b	6	C3-6d	0%	6	09-Dec-20	15-Dec-20	28-Nov-20	04-Dec-20	-9	
C14700	Erect arch structure and arch cladding	54	C3-6d	0%	54	11-Dec-20	18-Feb-21	29-Sep-20	03-Dec-20	-60	
C14710	Finishing works	44	C3-6d	0%	44	23-Dec-20	18-Feb-21	13-Oct-20	03-Dec-20	-60	
C14630	Remove falsework Portion 6a	6	C3-6d	0%	6	07-Jan-21	13-Jan-21	28-Nov-20	04-Dec-20	-31	
C14670	Remove falsework Portion 6b	6	C3-6d	0%	6	09-Jan-21	15-Jan-21	28-Nov-20	04-Dec-20	-33	
C14600	Remove falsework Portion 5	6	C3-6d	0%	6	16-Jan-21	22-Jan-21	28-Nov-20	04-Dec-20	-39	
C14680	Install fabricated movement joints (4 nos.)	13	C3-6d	0%	13	16-Jan-21	30-Jan-21	12-Nov-20	27-Nov-20	-52	
Irrigation System		565			561	05-Dec-18 A	19-Oct-20	07-Sep-19	07-Aug-20	-73	
C14720	Details of irrigation system (prepare & submit)	18	C3-6d	100%	0	05-Dec-18 A	13-Dec-18 A	07-Sep-19	07-Sep-19		
C14730	Details of irrigation system (review & discuss)	12	C3-6d	100%	0	14-Dec-18 A	23-Jan-19 A	07-Sep-19	07-Sep-19		
C14740	Details of irrigation system (resubmit)	12	C3-6d	16.67%	10	24-Jan-19 A	18-Apr-19	07-Sep-19	19-Sep-19	124	
C14750	Details of irrigation system (accept)	21	C3-7d	0%	21	19-Apr-19	09-May-19	20-Sep-19	10-Oct-19	154	
C14800	Material order and delivery of irrigation system	96	C3-6d	0%	96	10-May-19	02-Sep-19	11-Oct-19	06-Feb-20	126	
C14760	MS for irrigation system (prepare & submit)	18	C3-6d	0%	18	01-Aug-19*	21-Aug-19	26-Nov-19	16-Dec-19	97	
C14770	MS for irrigation system (review & discuss)	12	C3-6d	0%	12	22-Aug-19	04-Sep-19	17-Dec-19	02-Jan-20	97	
C14780	MS for irrigation system (resubmit)	12	C3-6d	0%	12	05-Sep-19	19-Sep-19	03-Jan-20	16-Jan-20	97	
C14790	MS for irrigation system (accept)	21	C3-7d	0%	21	20-Sep-19	10-Oct-19	17-Jan-20	06-Feb-20	119	
C14810	Install irrigation system	127	C3-6d	0%	127	22-Apr-20	21-Sep-20	07-Feb-20	13-Jul-20	-60	
C14820	Testing and commissioning of irrigation system	22	C3-6d	0%	22	22-Sep-20	19-Oct-20	14-Jul-20	07-Aug-20	-60	
Landscaping Softworks		598			598	02-Jul-19	18-Feb-21	26-Nov-19	04-Dec-20	-76	
C14830	MS for landscaping works (prepare & submit)	18	C3-6d	0%	18	02-Jul-19*	22-Jul-19	26-Nov-19	16-Dec-19	123	
C14840	MS for landscaping works (review & discuss)	18	C3-6d	0%	18	23-Jul-19	12-Aug-19	17-Dec-19	09-Jan-20	123	
C14850	MS for landscaping works (resubmit)	6	C3-6d	0%	6	13-Aug-19	19-Aug-19	10-Jan-20	16-Jan-20	123	
C14860	MS for landscaping works (accept)	21	C3-7d	0%	21	20-Aug-19	09-Sep-19	17-Jan-20	06-Feb-20	150	
C14870	Landscaping Softworks (at-grade)	247	C3-6d	0%	247	22-Apr-20	18-Feb-21	07-Feb-20	03-Dec-20	-60	
C14880	Landscaping Softworks (on footbridge)	94	C3-6d	0%	94	05-Sep-20	29-Dec-20	14-Aug-20	04-Dec-20	-19	
Establishment Works		365	C3-7d		365	19-Feb-21	18-Feb-22	05-Dec-20	04-Dec-21	-76	
C14890	Establishment Works	365	C3-7d	0%	365	19-Feb-21	18-Feb-22	05-Dec-20	04-Dec-21	-76	



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

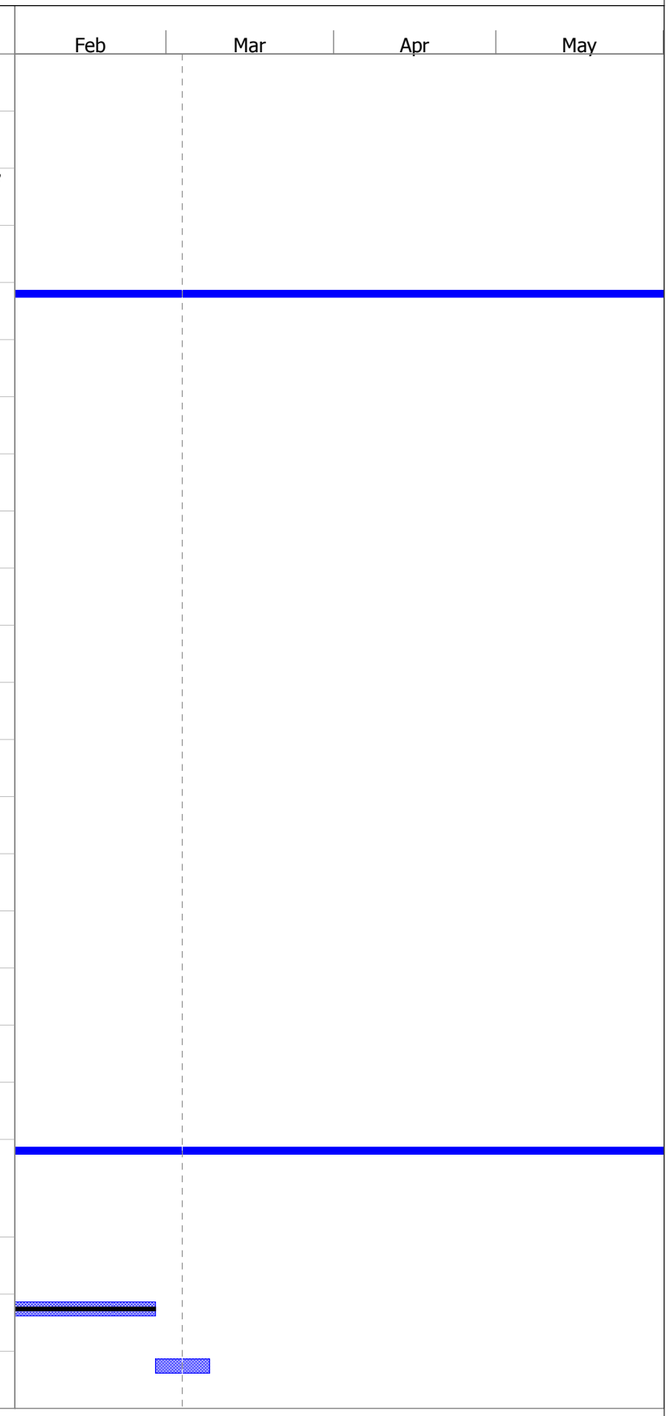
NE/2017/02 - Tseung Kwan O - Lam Tin Tunnel
Road P2/D4 and Associated Works
Updated Programme (February 2019)

Date	Revision	Checked	Approved
08-Feb-19	RWP-2019-02 (Data date 8-Feb-19)	TC	

CONTRACT NO. NE/2017/06
TSEUNG KWAN O – LAM TIN TUNNEL
TRAFFIC CONTROL SURVEILLANCE SYSTEM (TCSS) AND ASSOCIATED WORKS
3-MONTH ROLLING PROGRAMME

Issue Date: 4 March 2019

Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
1	**Contract Award**	**0 days**	**Mon 29 Oct '18**	**Mon 29 Oct '18**	**NA**		
2	Letter of Acceptance	0 days	Mon 29 Oct '18	Mon 29 Oct '18	NA		6,20,10,9,8
3	Commencement of the Works	0 days	Fri 9 Nov '18	Fri 9 Nov '18	NA		18,14,11,12,13,16,17,7
4							
5	**Design Stage**	**268 days?**	**Mon 29 Oct '18**	**Tue 23 Jul '19**	**NA**		
6	Prepare and Submit Initial Works Programme	5 days	Mon 29 Oct '18	Fri 2 Nov '18	Fri 2 Nov '18	2	
7	Submit Staffing Proposal	7 days	Fri 9 Nov '18	Thu 15 Nov '18	Thu 15 Nov '18	3	
8	Submit Quality Plan	17 days	Mon 29 Oct '18	Wed 14 Nov '18	Wed 14 Nov '18	2	
9	Submit Draft Safety Plan	12 days	Mon 29 Oct '18	Fri 9 Nov '18	Fri 9 Nov '18	2	
10	Submit Safety Plan	46 days	Mon 29 Oct '18	Thu 13 Dec '18	Thu 13 Dec '18	2	
11	Submit Draft Environmental Management Plan	6 days	Fri 9 Nov '18	Wed 14 Nov '18	Wed 14 Nov '18	3	
12	Submit Environmental Management Plan	53 days	Fri 9 Nov '18	Mon 31 Dec '18	Mon 31 Dec '18	3	
13	Submit Site Management Plan for Trip Ticket System	36 days	Fri 9 Nov '18	Fri 14 Dec '18	Fri 14 Dec '18	3	
14	Submit Sub-contractor Management Plan	17 days	Mon 29 Oct '18	Wed 14 Nov '18	Wed 14 Nov '18	3	
15							
16	Submit Software Quality Plan	57 days	Mon 29 Oct '18	Mon 24 Dec '18	Mon 24 Dec '18	3	
17	Submit Software Configuration Management Plan	60 days	Mon 29 Oct '18	Thu 27 Dec '18	Thu 27 Dec '18	3	
18	Submit Software Vertification & Validation Plan	60 days	Mon 29 Oct '18	Thu 27 Dec '18	Thu 27 Dec '18	3	
19							
20	**Prepare / Submission of PSP for TKO-LTT TCSS and CBL TCSS**	**268 days?**	**Mon 29 Oct '18**	**Tue 23 Jul '19**	**NA**	**2**	
21	Submission of PSP - Central System Software	56 days	Fri 9 Nov '18	Thu 3 Jan '19	Thu 3 Jan '19		22
22	Review and Comment the PSP	54 days	Thu 3 Jan '19	Tue 26 Feb '19	Tue 26 Feb '19	21	23
23	Resubmission of the PSP	10 days	Tue 26 Feb '19	Fri 8 Mar '19	NA	22	24



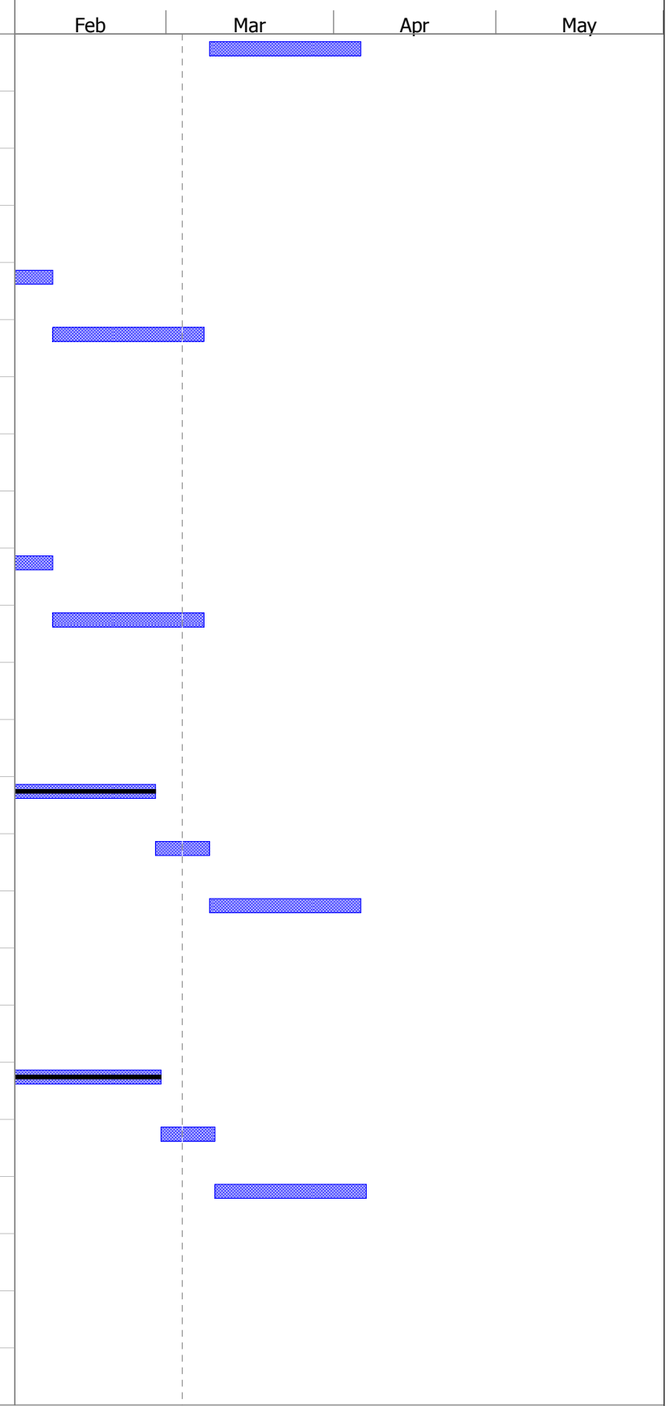
Task	Project Summary	Inactive Summary	Manual Summary	External Milestone
Split	External Tasks	Manual Task	Start-only	Progress
Milestone	External Milestone	Duration-only	Finish-only	Deadline
Summary	Inactive Milestone	Manual Summary Rollup	External Tasks	

Ver. 0

CONTRACT NO. NE/2017/06
TSEUNG KWAN O – LAM TIN TUNNEL
TRAFFIC CONTROL SURVEILLANCE SYSTEM (TCSS) AND ASSOCIATED WORKS
3-MONTH ROLLING PROGRAMME

Issue Date: 4 March 2019

Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
24	Review and Approval of the PSP	28 days	Fri 8 Mar '19	Fri 5 Apr '19	NA	23	102
25							
26	Submission of PSP - Central System Hardware	53 days?	Fri 9 Nov '18	Mon 31 Dec '18	Mon 31 Dec '18		27
27	Review and Comment the PSP	28 days	Mon 31 Dec '18	Mon 28 Jan '19	NA	26	28
28	Resubmission of the PSP	10 days	Mon 28 Jan '19	Thu 7 Feb '19	NA	27	29
29	Review and Approval of the PSP	28 days	Thu 7 Feb '19	Thu 7 Mar '19	NA	28	107
30							
31	Submission of PSP - Traffic Control Devices	53 days?	Fri 9 Nov '18	Mon 31 Dec '18	Mon 31 Dec '18		32
32	Review and Comment the PSP	28 days	Mon 31 Dec '18	Mon 28 Jan '19	NA	31	33
33	Resubmission of the PSP	10 days	Mon 28 Jan '19	Thu 7 Feb '19	NA	32	34
34	Review and Approval of the PSP	28 days	Thu 7 Feb '19	Thu 7 Mar '19	NA	33	112
35							
36	Submission of PSP - Communication System	57 days?	Fri 9 Nov '18	Fri 4 Jan '19	Fri 4 Jan '19		37
37	Review and Comment the PSP	53 days	Fri 4 Jan '19	Tue 26 Feb '19	Tue 26 Feb '19	36	38
38	Resubmission of the PSP	10 days	Tue 26 Feb '19	Fri 8 Mar '19	NA	37	39
39	Review and Approval of the PSP	28 days	Fri 8 Mar '19	Fri 5 Apr '19	NA	38	117
40							
41	Submission of PSP - Closed Circuit Television System	49 days?	Fri 9 Nov '18	Thu 27 Dec '18	Thu 27 Dec '18		42
42	Review and Comment the PSP	62 days	Thu 27 Dec '18	Wed 27 Feb '19	Wed 27 Feb '19	41	43
43	Resubmission of the PSP	10 days	Wed 27 Feb '19	Sat 9 Mar '19	NA	42	44
44	Review and Approval of the PSP	28 days	Sat 9 Mar '19	Sat 6 Apr '19	NA	43	122
45							
46	Submission of PSP - Building PABX System	50 days?	Fri 9 Nov '18	Fri 28 Dec '18	Fri 28 Dec '18		47
47	Review and Comment the PSP	28 days	Fri 28 Dec '18	Fri 25 Jan '19	NA	46	48



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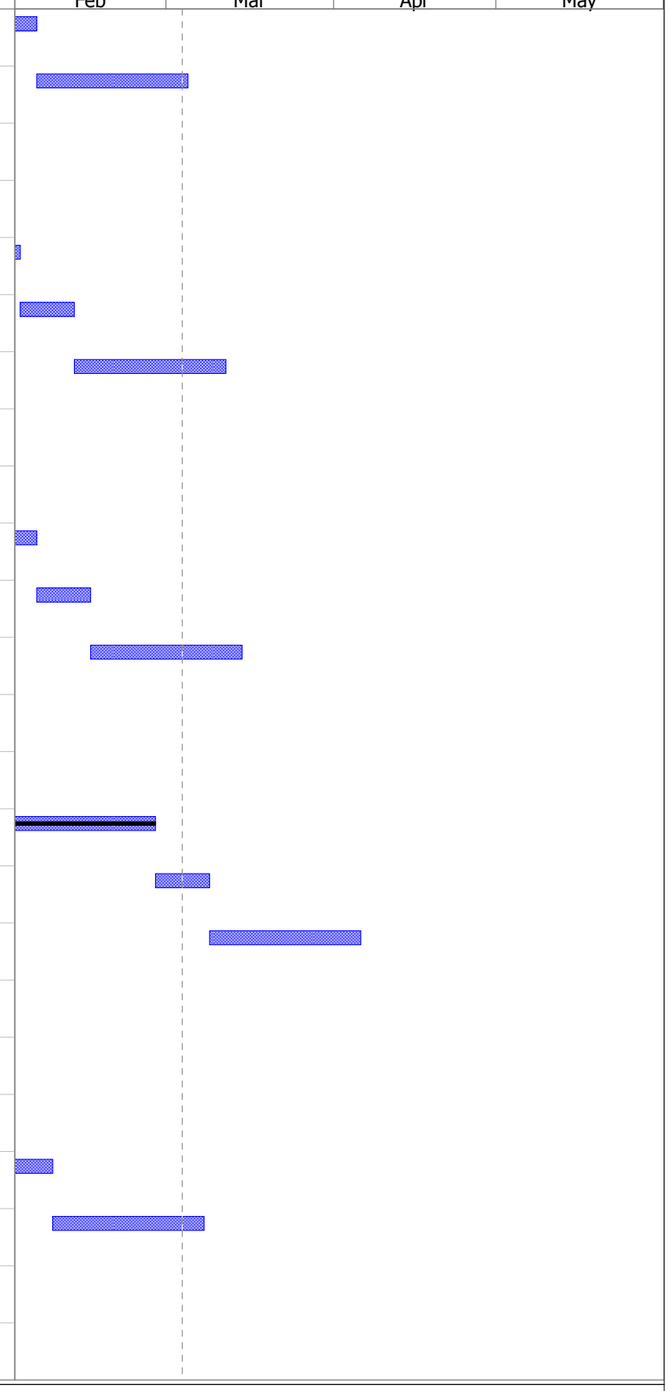
TRAFFIC CONTROL SURVEILLANCE SYSTEM (TCSS) AND ASSOCIATED WORKS
3-MONTH ROLLING PROGRAMME

Issue Date: 4 March 2019

Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
48	Resubmission of the PSP	10 days	Fri 25 Jan '19	Mon 4 Feb '19	NA	47	49
49	Review and Approval of the PSP	28 days	Mon 4 Feb '19	Mon 4 Mar '19	NA	48	127
50							
51	Submission of PSP - Emergency Telephone System	57 days?	Fri 9 Nov '18	Fri 4 Jan '19	Fri 4 Jan '19		52
52	Review and Comment the PSP	28 days	Fri 4 Jan '19	Fri 1 Feb '19	NA	51	53
53	Resubmission of the PSP	10 days	Fri 1 Feb '19	Mon 11 Feb '19	NA	52	54
54	Review and Approval of the PSP	28 days	Mon 11 Feb '19	Mon 11 Mar '19	NA	53	132
55							
56	Submission of PSP - Public Address System	71 days	Mon 29 Oct '18	Mon 7 Jan '19	Mon 7 Jan '19		57
57	Review and Comment the PSP	28 days	Mon 7 Jan '19	Mon 4 Feb '19	NA	56	58
58	Resubmission of the PSP	10 days	Mon 4 Feb '19	Thu 14 Feb '19	NA	57	59
59	Review and Approval of the PSP	28 days	Thu 14 Feb '19	Thu 14 Mar '19	NA	58	137
60							
61	Submission of PSP - Radio System	71 days	Mon 29 Oct '18	Mon 7 Jan '19	Mon 7 Jan '19		62
62	Review and Comment the PSP	50 days	Mon 7 Jan '19	Tue 26 Feb '19	Tue 26 Feb '19	61	63
63	Resubmission of the PSP	10 days	Tue 26 Feb '19	Fri 8 Mar '19	NA	62	64
64	Review and Approval of the PSP	28 days	Fri 8 Mar '19	Fri 5 Apr '19	NA	63	142
65							
66	Submission of PSP - Detection System	53 days	Fri 9 Nov '18	Mon 31 Dec '18	Mon 31 Dec '18		67
67	Review and Comment the PSP	28 days	Mon 31 Dec '18	Mon 28 Jan '19	NA	66	68
68	Resubmission of the PSP	10 days	Mon 28 Jan '19	Thu 7 Feb '19	NA	67	69
69	Review and Approval of the PSP	28 days	Thu 7 Feb '19	Thu 7 Mar '19	NA	68	147
70							
71	Submission of PSP - Manual Fallback System	46 days	Fri 9 Nov '18	Mon 24 Dec '18	Mon 24 Dec '18		72



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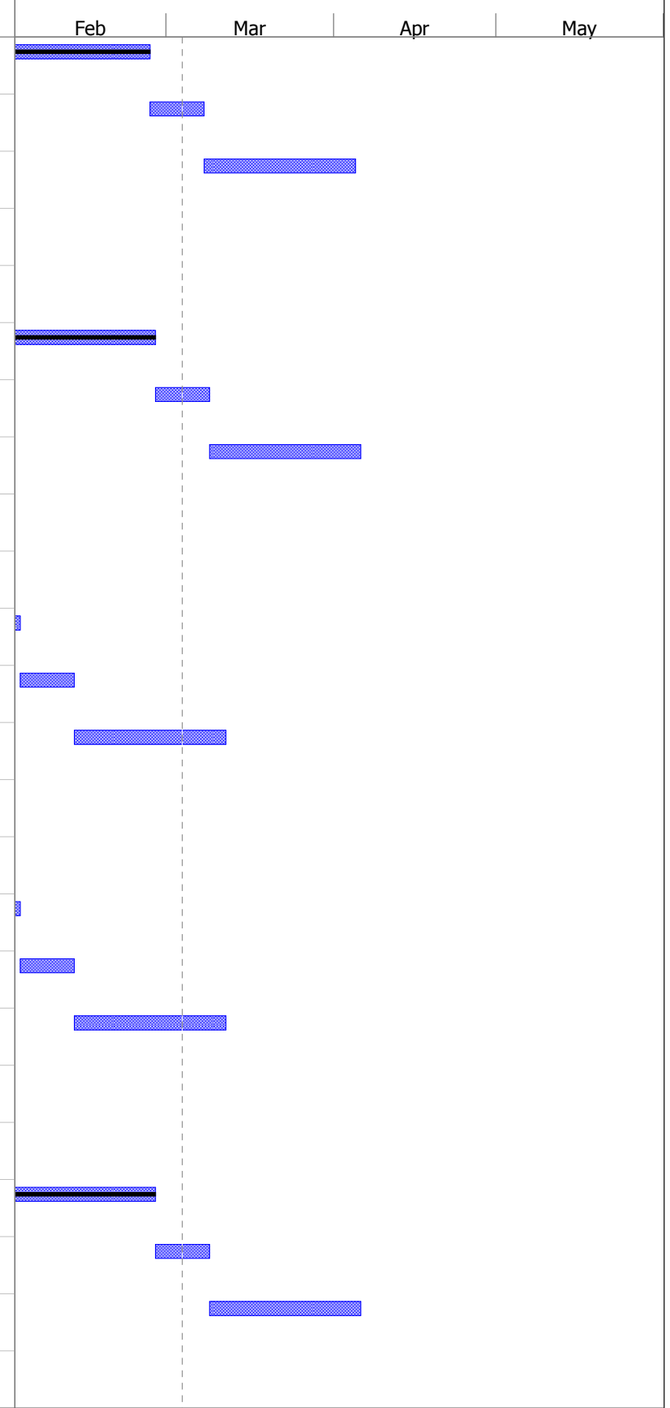
Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
72	Review and Comment the PSP	63 days	Mon 24 Dec '18	Mon 25 Feb '19	Mon 25 Feb '19	71	73
73	Resubmission of the PSP	10 days	Mon 25 Feb '19	Thu 7 Mar '19	NA	72	74
74	Review and Approval of the PSP	28 days	Thu 7 Mar '19	Thu 4 Apr '19	NA	73	152
75							
76	Submission of PSP - Operation Facilities	57 days	Fri 9 Nov '18	Fri 4 Jan '19	Fri 4 Jan '19		77
77	Review and Comment the PSP	53 days	Fri 4 Jan '19	Tue 26 Feb '19	Tue 26 Feb '19	76	78
78	Resubmission of the PSP	10 days	Tue 26 Feb '19	Fri 8 Mar '19	NA	77	79
79	Review and Approval of the PSP	28 days	Fri 8 Mar '19	Fri 5 Apr '19	NA	78	157
80							
81	Submission of PSP - Power Distribution System	57 days	Fri 9 Nov '18	Fri 4 Jan '19	Fri 4 Jan '19		82
82	Review and Comment the PSP	28 days	Fri 4 Jan '19	Fri 1 Feb '19	NA	81	83
83	Resubmission of the PSP	10 days	Fri 1 Feb '19	Mon 11 Feb '19	NA	82	84
84	Review and Approval of the PSP	28 days	Mon 11 Feb '19	Mon 11 Mar '19	NA	83	162
85							
86	Submission of PSP - Enforcement System	68 days	Mon 29 Oct '18	Fri 4 Jan '19	Fri 4 Jan '19		87
87	Review and Comment the PSP	28 days	Fri 4 Jan '19	Fri 1 Feb '19	NA	86	88
88	Resubmission of the PSP	10 days	Fri 1 Feb '19	Mon 11 Feb '19	NA	87	89
89	Review and Approval of the PSP	28 days	Mon 11 Feb '19	Mon 11 Mar '19	NA	88	167
90							
91	Submission of PSP - Government Optical Fibre System	60 days	Fri 9 Nov '18	Mon 7 Jan '19	Mon 7 Jan '19		92
92	Review and Comment the PSP	50 days	Mon 7 Jan '19	Tue 26 Feb '19	Tue 26 Feb '19	91	93
93	Resubmission of the PSP	10 days	Tue 26 Feb '19	Fri 8 Mar '19	NA	92	94
94	Review and Approval of the PSP	28 days	Fri 8 Mar '19	Fri 5 Apr '19	NA	93	172
95							



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TRAFFIC CONTROL SURVEILLANCE SYSTEM (TCSS) AND ASSOCIATED WORKS
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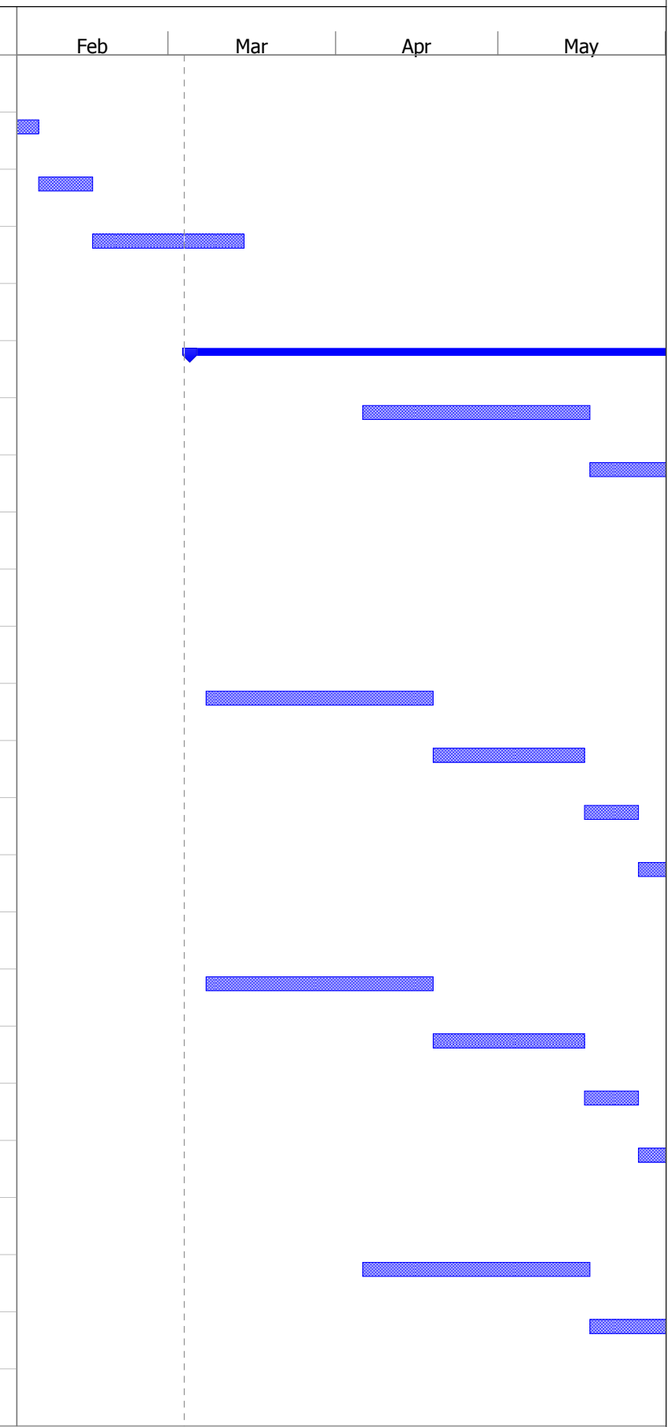
Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
96	Submission of PSP - Overview	60 days	Fri 9 Nov '18	Mon 7 Jan '19	Mon 7 Jan '19		97
97	Review and Comment the PSP	28 days	Mon 7 Jan '19	Mon 4 Feb '19	NA	96	98
98	Resubmission of the PSP	10 days	Mon 4 Feb '19	Thu 14 Feb '19	NA	97	99
99	Review and Approval of the PSP	28 days	Thu 14 Feb '19	Thu 14 Mar '19	NA	98	
100							
101	**Prepare / Submission of FSP for TKO-LTT TCSS and CBL TCSS**	**141 days**	**Mon 4 Mar '19**	**Tue 23 Jul '19**	**NA**		
102	Submission of FSP - Central System Software	42 days	Fri 5 Apr '19	Fri 17 May '19	NA	24	103
103	Review and Comment the FSP	28 days	Fri 17 May '19	Fri 14 Jun '19	NA	102	104
104	Resubmission of the FSP	10 days	Fri 14 Jun '19	Mon 24 Jun '19	NA	103	105
105	Review and Approval of the FSP	28 days	Mon 24 Jun '19	Mon 22 Jul '19	NA	104	
106							
107	Submission of FSP- Central System Hardware	42 days	Thu 7 Mar '19	Thu 18 Apr '19	NA	29	108
108	Review and Comment the FSP	28 days	Thu 18 Apr '19	Thu 16 May '19	NA	107	109
109	Resubmission of the FSP	10 days	Thu 16 May '19	Sun 26 May '19	NA	108	110
110	Review and Approval of the FSP	28 days	Sun 26 May '19	Sun 23 Jun '19	NA	109	
111							
112	Submission of FSP - Trafffic Control Devices	42 days	Thu 7 Mar '19	Thu 18 Apr '19	NA	34	113
113	Review and Comment the FSP	28 days	Thu 18 Apr '19	Thu 16 May '19	NA	112	114
114	Resubmission of the FSP	10 days	Thu 16 May '19	Sun 26 May '19	NA	113	115
115	Review and Approval of the FSP	28 days	Sun 26 May '19	Sun 23 Jun '19	NA	114	
116							
117	Submission of FSP - Communication System	42 days	Fri 5 Apr '19	Fri 17 May '19	NA	39	118
118	Review and Comment the FSP	28 days	Fri 17 May '19	Fri 14 Jun '19	NA	117	119
119	Resubmission of the FSP	10 days	Fri 14 Jun '19	Mon 24 Jun '19	NA	118	120



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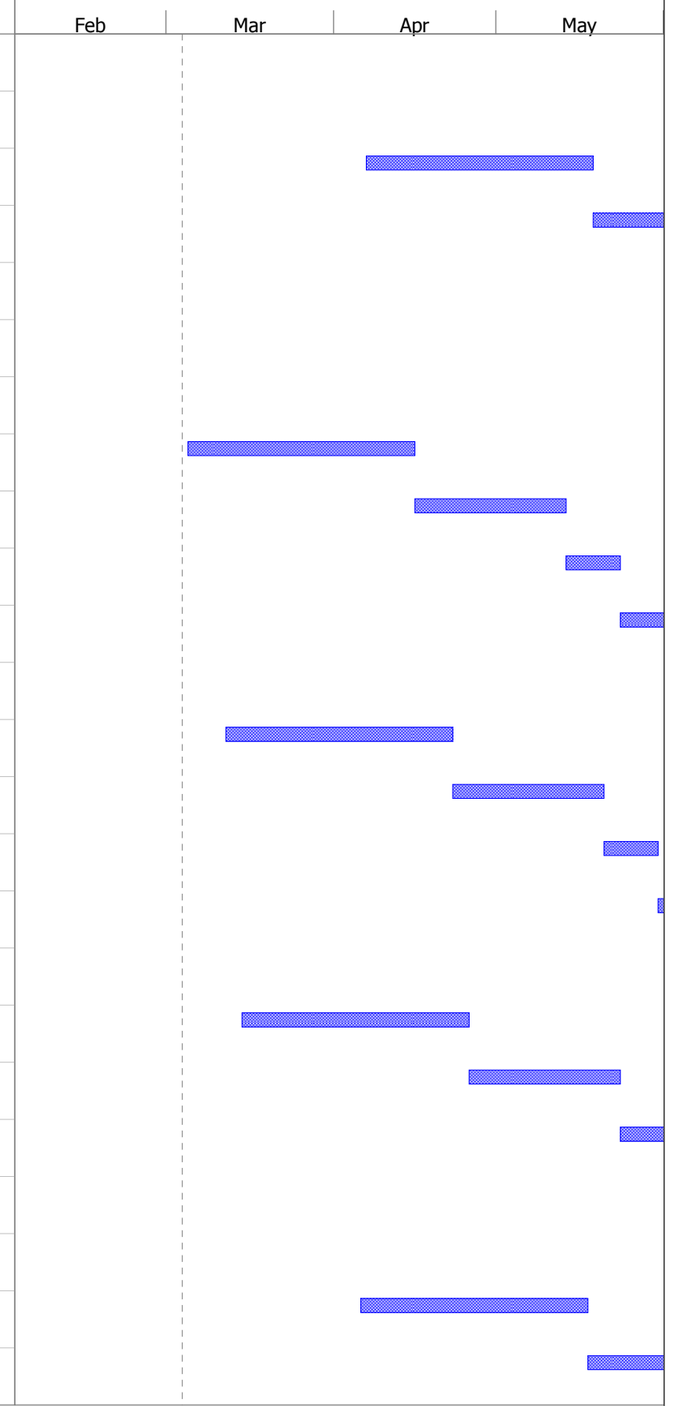
120	Review and Approval of the FSP	28 days	Mon 24 Jun '19	Mon 22 Jul '19	NA	119	
121							
122	Submission of FSP - Closed Circuit Television System	42 days	Sat 6 Apr '19	Sat 18 May '19	NA	44	123
123	Review and Comment the FSP	28 days	Sat 18 May '19	Sat 15 Jun '19	NA	122	124
124	Resubmission of the FSP	10 days	Sat 15 Jun '19	Tue 25 Jun '19	NA	123	125
125	Review and Approval of the FSP	28 days	Tue 25 Jun '19	Tue 23 Jul '19	NA	124	
126							
127	Submission of FSP - Building PABX System	42 days	Mon 4 Mar '19	Mon 15 Apr '19	NA	49	128
128	Review and Comment the FSP	28 days	Mon 15 Apr '19	Mon 13 May '19	NA	127	129
129	Resubmission of the FSP	10 days	Mon 13 May '19	Thu 23 May '19	NA	128	130
130	Review and Approval of the FSP	28 days	Thu 23 May '19	Thu 20 Jun '19	NA	129	
131							
132	Submission of FSP - Emergency Telephone System	42 days	Mon 11 Mar '19	Mon 22 Apr '19	NA	54	133
133	Review and Comment the FSP	28 days	Mon 22 Apr '19	Mon 20 May '19	NA	132	134
134	Resubmission of the FSP	10 days	Mon 20 May '19	Thu 30 May '19	NA	133	135
135	Review and Approval of the FSP	28 days	Thu 30 May '19	Thu 27 Jun '19	NA	134	
136							
137	Submission of FSP - Public Address System	42 days	Thu 14 Mar '19	Thu 25 Apr '19	NA	59	138
138	Review and Comment the FSP	28 days	Thu 25 Apr '19	Thu 23 May '19	NA	137	139
139	Resubmission of the FSP	10 days	Thu 23 May '19	Sun 2 Jun '19	NA	138	140
140	Review and Approval of the FSP	28 days	Sun 2 Jun '19	Sun 30 Jun '19	NA	139	
141							
142	Submission of FSP - Radio System	42 days	Fri 5 Apr '19	Fri 17 May '19	NA	64	143
143	Review and Comment the FSP	28 days	Fri 17 May '19	Fri 14 Jun '19	NA	142	144



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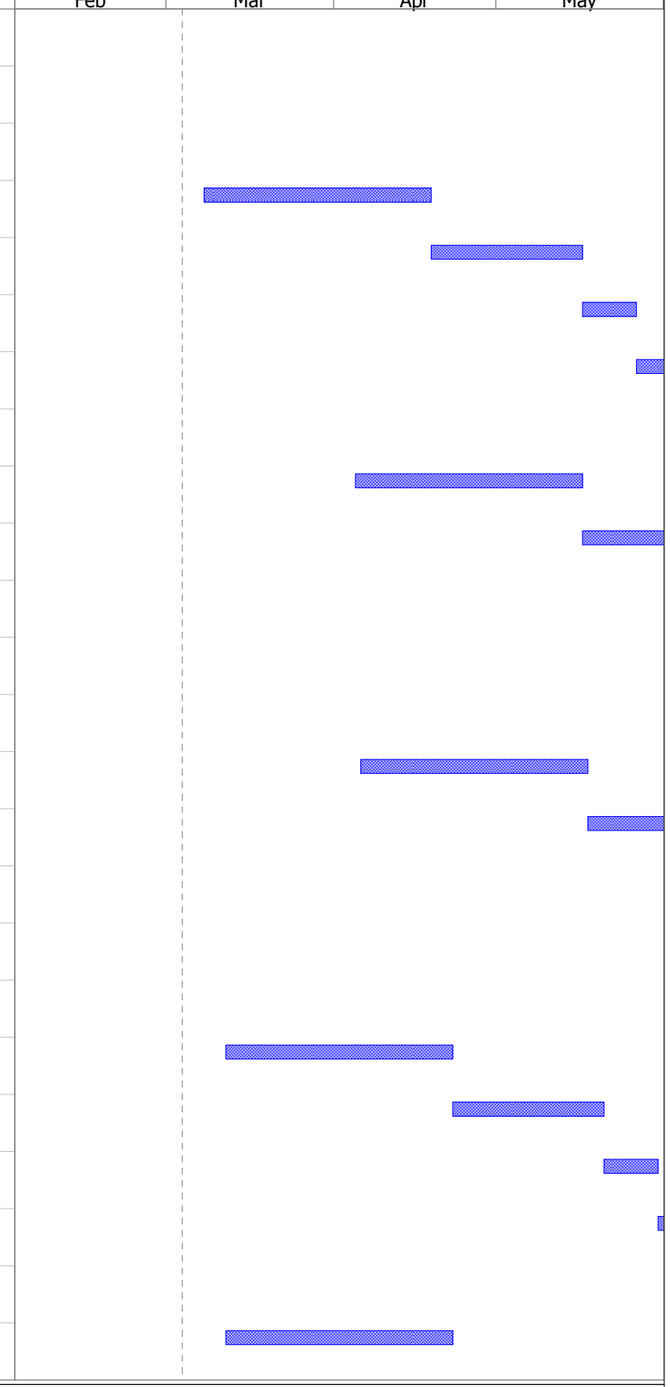
Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
144	Resubmission of the FSP	10 days	Fri 14 Jun '19	Mon 24 Jun '19	NA	143	145
145	Review and Approval of the FSP	28 days	Mon 24 Jun '19	Mon 22 Jul '19	NA	144	
146							
147	Submission of FSP - Detection System	42 days	Thu 7 Mar '19	Thu 18 Apr '19	NA	69	148
148	Review and Comment the FSP	28 days	Thu 18 Apr '19	Thu 16 May '19	NA	147	149
149	Resubmission of the FSP	10 days	Thu 16 May '19	Sun 26 May '19	NA	148	150
150	Review and Approval of the FSP	28 days	Sun 26 May '19	Sun 23 Jun '19	NA	149	
151							
152	Submission of FSP - Manual Fallback System	42 days	Thu 4 Apr '19	Thu 16 May '19	NA	74	153
153	Review and Comment the FSP	28 days	Thu 16 May '19	Thu 13 Jun '19	NA	152	154
154	Resubmission of the FSP	10 days	Thu 13 Jun '19	Sun 23 Jun '19	NA	153	155
155	Review and Approval of the FSP	28 days	Sun 23 Jun '19	Sun 21 Jul '19	NA	154	
156							
157	Submission of FSP - Operation Facilities	42 days	Fri 5 Apr '19	Fri 17 May '19	NA	79	158
158	Review and Comment the FSP	28 days	Fri 17 May '19	Fri 14 Jun '19	NA	157	159
159	Resubmission of the FSP	10 days	Fri 14 Jun '19	Mon 24 Jun '19	NA	158	160
160	Review and Approval of the FSP	28 days	Mon 24 Jun '19	Mon 22 Jul '19	NA	159	
161							
162	Submission of FSP - Power Distribution System	42 days	Mon 11 Mar '19	Mon 22 Apr '19	NA	84	163
163	Review and Comment the FSP	28 days	Mon 22 Apr '19	Mon 20 May '19	NA	162	164
164	Resubmission of the FSP	10 days	Mon 20 May '19	Thu 30 May '19	NA	163	165
165	Review and Approval of the FSP	28 days	Thu 30 May '19	Thu 27 Jun '19	NA	164	
166							
167	Submission of FSP - Enforcement System	42 days	Mon 11 Mar '19	Mon 22 Apr '19	NA	89	168



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Split		External Tasks		Manual Task		Start-only		Progress	
Milestone		External Milestone		Duration-only		Finish-only		Deadline	
Summary		Inactive Milestone		Manual Summary Rollup		External Tasks			

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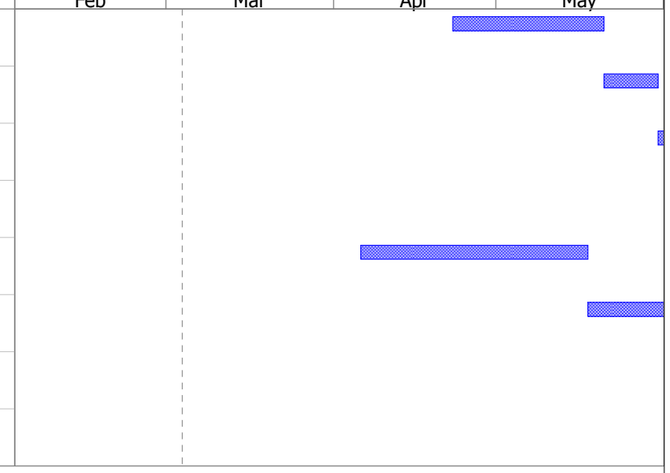
Task No.	Task Name	Duration	Start	Finish	Actual Finish	Predecessors	Successors
168	Review and Comment the FSP	28 days	Mon 22 Apr '19	Mon 20 May '19	NA	167	169
169	Resubmission of the FSP	10 days	Mon 20 May '19	Thu 30 May '19	NA	168	170
170	Review and Approval of the FSP	28 days	Thu 30 May '19	Thu 27 Jun '19	NA	169	
171							
172	Submission of FSP - Government Optical Fibre System	42 days	Fri 5 Apr '19	Fri 17 May '19	NA	94	173
173	Review and Comment the FSP	28 days	Fri 17 May '19	Fri 14 Jun '19	NA	172	174
174	Resubmission of the FSP	10 days	Fri 14 Jun '19	Mon 24 Jun '19	NA	173	175
175	Review and Approval of the FSP	28 days	Mon 24 Jun '19	Mon 22 Jul '19	NA	174	



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Split		External Tasks		Manual Task		Start-only		Progress	
Milestone		External Milestone		Duration-only		Finish-only		Deadline	
Summary		Inactive Milestone		Manual Summary Rollup		External Tasks			

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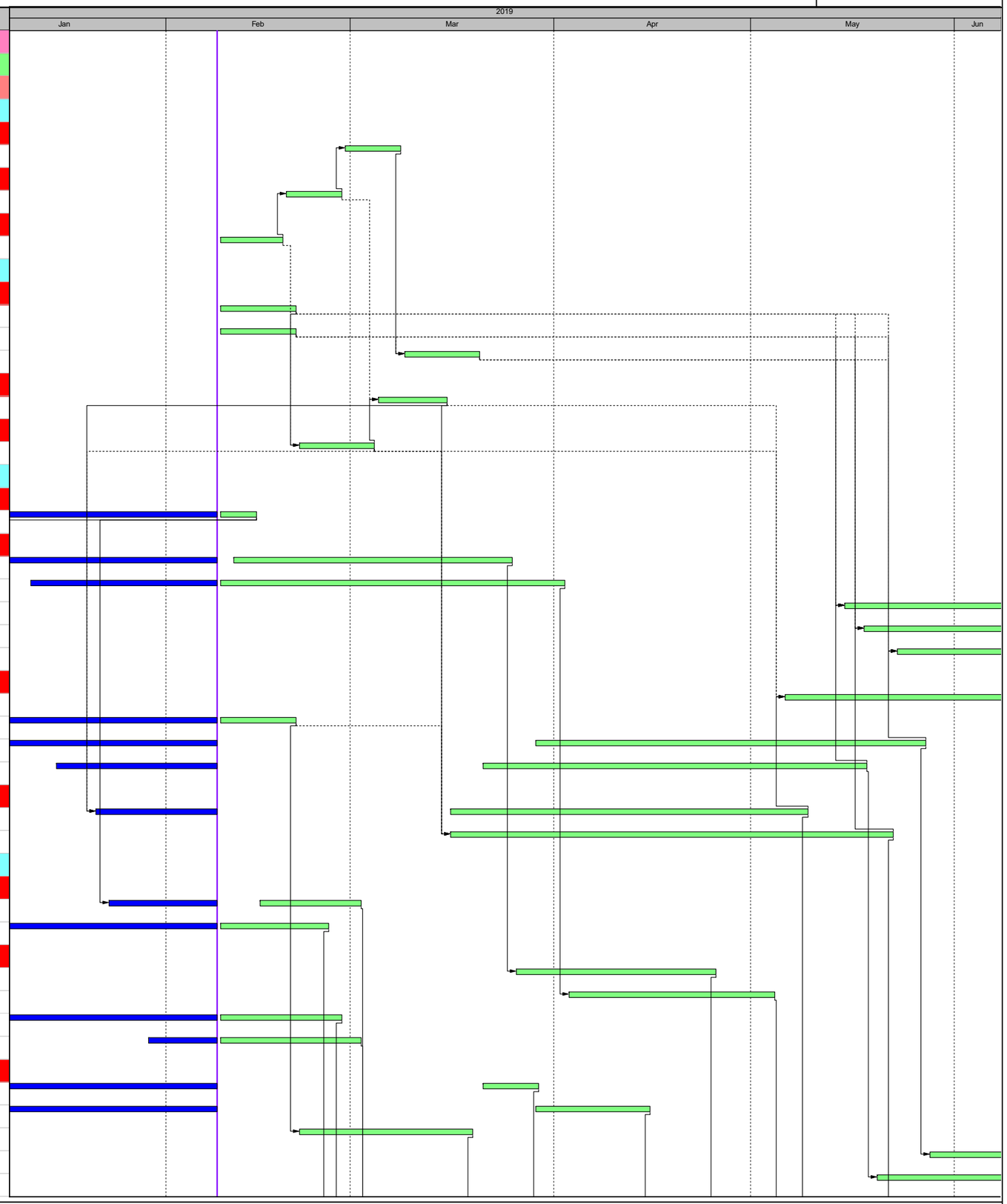
Subject: 3 Months Look Ahead Programme

Activities	Mar, 2019	Apr, 2019	May, 2019
Erect bamboo scaffolding for the cladding work at main deck			
Construction of South Retaining Walls			
Installation of cladding and skylight at bridge deck			
Erect Steel frames and purlins for canopy at Staircase 2			

Subject: Construction Programme (Feb, 2019)

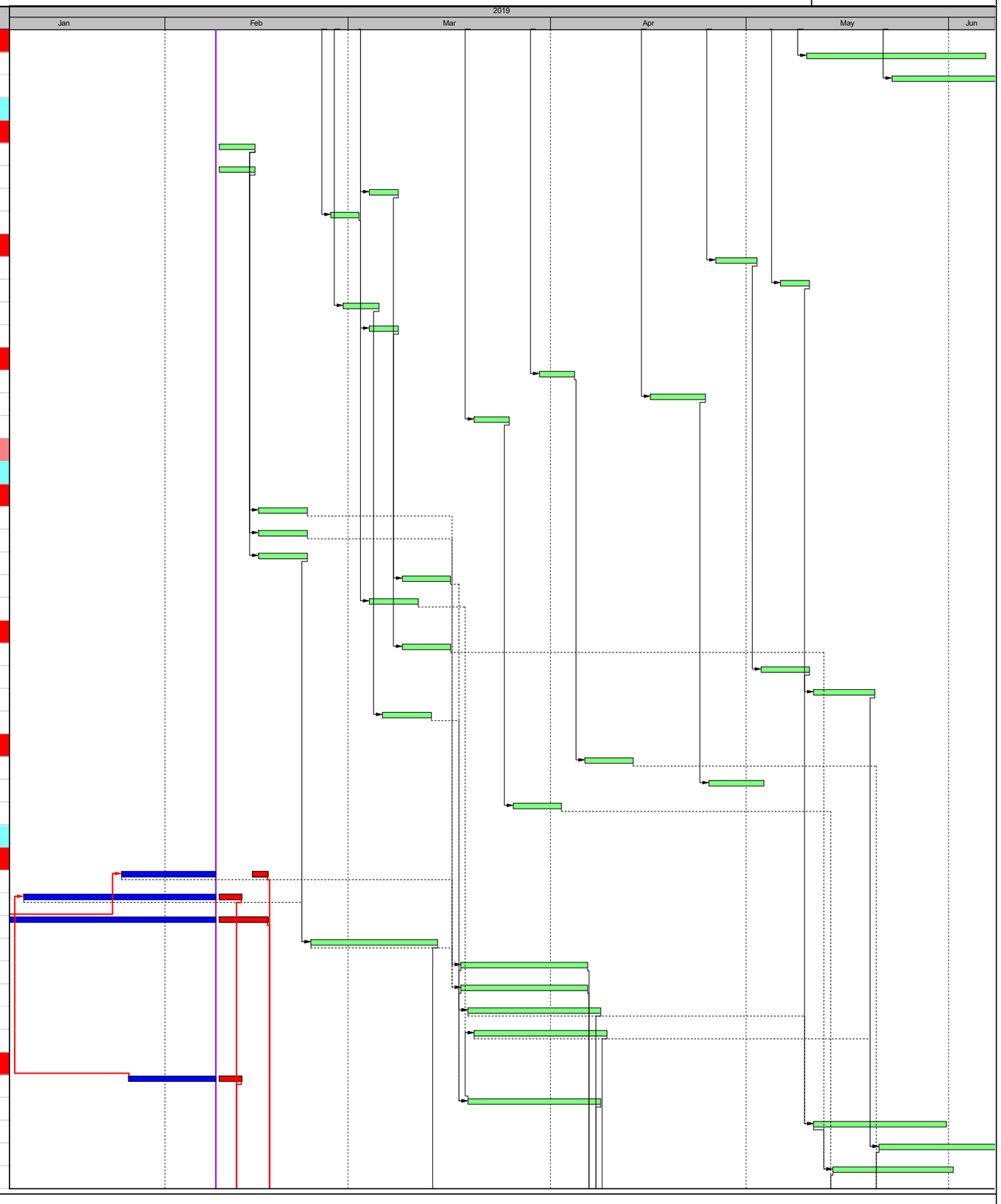
Activities	Week 1	Week 2	Week 3	Week 4
Erect steel frames and purlins for canopy at main deck				
Removal of scaffolding at +12.15 Platform and Staircase 1				
Excavation and carry out plate load test for south retaining walls				

Activity ID	Activity Name	Original Duration	Start	Finish
Tseung Kwan O Lam Tin Tunnel - Tseung Kwan O Interchange and Associated Works		228	03-Nov-18 A	26-Aug-19
Construction Work		228	03-Nov-18 A	26-Aug-19
Pre-Drilling & Piling Work		200	03-Nov-18 A	24-Jul-19
Temporary Platform erection for Pre-drilling & Piling		24	09-Feb-19	08-Mar-19
Bridge S300		8	28-Feb-19	08-Mar-19
CON-10140	Temporary Platform Erection & Silt Curtain Installation for Pier 4H	8	28-Feb-19	08-Mar-19
Bridge S200		8	19-Feb-19	27-Feb-19
CON-10220	Temporary Platform Erection & Silt Curtain Installation for Pier 2D	8	19-Feb-19	27-Feb-19
Bridge S100		8	09-Feb-19	18-Feb-19
CON-10260	Temporary Platform Erection & Silt Curtain Installation for Pier 3C	8	09-Feb-19	18-Feb-19
Pre-drilling		34	09-Feb-19	20-Mar-19
Bridge S300		34	09-Feb-19	20-Mar-19
CON-10450	Pre-drill 4F Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	09-Feb-19	20-Feb-19
CON-10470	Pre-drill 4G Including Plant Mobilisation and Demobilisation (2 nos./Team 1)	10	09-Feb-19	20-Feb-19
CON-10490	Pre-drill 4H Including Plant Mobilisation and Demobilisation (2 nos./Team 1)	10	09-Mar-19	20-Mar-19
Bridge S200		10	05-Mar-19	15-Mar-19
CON-10570	Pre-drill 2D Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	05-Mar-19	15-Mar-19
Bridge S100		10	21-Feb-19	04-Mar-19
CON-10610	Pre-drill 3C Including Plant Mobilisation and Demobilisation (2 nos./Team 3)	10	21-Feb-19	04-Mar-19
Bored Pile Include Fabrication & Delivery of Pile Cage and Casing		200	03-Nov-18 A	24-Jul-19
Bridge ML		52	03-Nov-18 A	14-Feb-19
CON-10700	Bored Pile 1J Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	03-Nov-18 A	14-Feb-19
Bridge S300		158	10-Dec-18 A	24-Jul-19
CON-10740	Bored Pile 4C Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	10-Dec-18 A	25-Mar-19
CON-10750	Bored Pile 4D Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 3)	52	11-Jan-19 A	02-Apr-19
CON-10770	Bored Pile 4F Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	15-May-19	16-Jul-19
CON-10780	Bored Pile 4G Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 2)	52	18-May-19	19-Jul-19
CON-10790	Bored Pile 4H Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 3)	52	23-May-19	24-Jul-19
Bridge S200		123	27-Nov-18 A	08-Jul-19
CON-10840	Bored Pile 2D Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 1)	52	06-May-19	08-Jul-19
CON-10870	Bored Pile 2G Including Plant Demobilisation (2 nos. Pile / Team 2)	52	27-Nov-18 A	20-Feb-19
CON-10880	Bored Pile 2H Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 3)	52	04-Jan-19 A	27-May-19
CON-10890	Bored Pile 2J Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 4)	52	15-Jan-19 A	18-May-19
Bridge S100		63	21-Jan-19 A	22-May-19
CON-10900	Bored Pile 3B Including Plant Demobilisation (2 nos. Pile / Team 1)	48	21-Jan-19 A	09-May-19
CON-10910	Bored Pile 3C Including Plant Mobilisation and Demobilisation (2 nos. Pile / Team 2)	52	16-Mar-19	22-May-19
Curing and Bored Pile Test (Sonic + Interface Core/Full Core)		127	27-Nov-18 A	24-Jun-19
Bridge ML		38	30-Dec-18 A	02-Mar-19
CON-11000	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1J Including Plant Mobilisation and Demobilisation	23	23-Jan-19 A	02-Mar-19
CON-11010	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 1K Including Plant Mobilisation and Demobilisation	23	30-Dec-18 A	25-Feb-19
Bridge S300		77	05-Jan-19 A	04-May-19
CON-11030	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4C Including Plant Mobilisation and Demobilisation	23	26-Mar-19	25-Apr-19
CON-11040	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4D Including Plant Mobilisation and Demobilisation	23	03-Apr-19	04-May-19
CON-11050	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4E Including Plant Mobilisation and Demobilisation	23	05-Jan-19 A	27-Feb-19
CON-11060	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 4B Including Plant Mobilisation and Demobilisation	23	29-Jan-19 A	02-Mar-19
Bridge S200		99	27-Nov-18 A	24-Jun-19
CON-11120	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2E Including Plant Mobilisation and Demobilisation	23	27-Nov-18 A	29-Mar-19
CON-11130	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2F Including Plant Mobilisation and Demobilisation	23	23-Dec-18 A	15-Apr-19
CON-11140	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2G Including Plant Mobilisation and Demobilisation	23	21-Feb-19	19-Mar-19
CON-11150	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2H Including Plant Mobilisation and Demobilisation	23	28-May-19	24-Jun-19
CON-11160	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 2J Including Plant Mobilisation and Demobilisation	23	20-May-19	15-Jun-19



Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

Activity ID	Activity Name	Original Duration	Start	Finish
Bridge S100		33	10-May-19	19-Jun-19
CON-11200	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 3B Including Plant Mobilisation and Demobilisation	23	10-May-19	06-Jun-19
CON-11210	Curing and Bored Pile Test (Sonic + Full Core/Interface Core) 3C Including Plant Mobilisation and Demobilisation	23	23-May-19	19-Jun-19
Removal of Temp. Working platform		73	09-Feb-19	10-May-19
Bridge ML		24	09-Feb-19	08-Mar-19
CON-11260	Removal of Temporary Platform Erection for Pier 1E-N & 1E-S	5	09-Feb-19	14-Feb-19
CON-11270	Removal of Temporary Platform Erection for Pier 1HN & 1HS	5	09-Feb-19	14-Feb-19
CON-11280	Removal of Temporary Platform Erection for Pier 1JN & 1JS	5	04-Mar-19	08-Mar-19
CON-11290	Removal of Temporary Platform Erection for Pier 1KN & 1KS	5	26-Feb-19	02-Mar-19
Bridge S300		57	28-Feb-19	10-May-19
CON-11310	Removal of Temporary Platform Erection for Pier 4C	5	26-Apr-19	02-May-19
CON-11320	Removal of Temporary Platform Erection for Pier 4D	5	06-May-19	10-May-19
CON-11330	Removal of Temporary Platform Erection for Pier 4E	5	28-Feb-19	05-Mar-19
CON-11340	Removal of Temporary Platform Erection for Pier 4B	5	04-Mar-19	08-Mar-19
Bridge S200		27	20-Mar-19	24-Apr-19
CON-11400	Removal of Temporary Platform Erection for Pier 2E	5	30-Mar-19	04-Apr-19
CON-11410	Removal of Temporary Platform Erection for Pier 2F	5	16-Apr-19	24-Apr-19
CON-11420	Removal of Temporary Platform Erection for Pier 2G	5	20-Mar-19	25-Mar-19
Pile Cap Construction		145	29-Dec-18 A	25-Jun-19
Preparation Work for the Installation of Precast Shell		75	15-Feb-19	20-May-19
Bridge ML		26	15-Feb-19	16-Mar-19
CON-15660	Preparation work Installation of Precast Shell for Pier 1E-N	7	15-Feb-19	22-Feb-19
CON-15670	Preparation work Installation of Precast Shell for Pier 1E-S	7	15-Feb-19	22-Feb-19
CON-15710	Preparation work Installation of Precast Shell for Pier 1H	7	15-Feb-19	22-Feb-19
CON-15720	Preparation work Installation of Precast Shell for Pier 1J	7	09-Mar-19	16-Mar-19
CON-15730	Preparation work Installation of Precast Shell for Pier 1K	7	04-Mar-19	11-Mar-19
Bridge S300		59	06-Mar-19	20-May-19
CON-15750	Preparation work Installation of Precast Shell for Pier 4B	7	09-Mar-19	16-Mar-19
CON-15760	Preparation work Installation of Precast Shell for Pier 4C	7	03-May-19	10-May-19
CON-15770	Preparation work Installation of Precast Shell for Pier 4D	7	11-May-19	20-May-19
CON-15780	Preparation work Installation of Precast Shell for Pier 4E	7	06-Mar-19	13-Mar-19
Bridge S200		29	26-Mar-19	03-May-19
CON-15870	Preparation work Installation of Precast Shell for Pier 2E	7	06-Apr-19	13-Apr-19
CON-15880	Preparation work Installation of Precast Shell for Pier 2F	7	25-Apr-19	03-May-19
CON-15890	Preparation work Installation of Precast Shell for Pier 2G	7	26-Mar-19	02-Apr-19
Installation of Precast Shell and Sealing		133	29-Dec-18 A	11-Jun-19
Bridge ML		85	29-Dec-18 A	09-Apr-19
CON-11520	Install Precast Shell and Sealing for Pier 1G (1 no. Shell / Team 2)	17	25-Jan-19 A	16-Feb-19
CON-11530	Install Precast Shell and Sealing for Pier 1F-N (1 nos. Shell / Team 1)	17	10-Jan-19 A	12-Feb-19
CON-11540	Install Precast Shell and Sealing for Pier 1F-S (1 nos. Shell / Team 2)	17	29-Dec-18 A	16-Feb-19
CON-11550	Install Precast Shell and Sealing for Pier 1H (1 nos. Shell / Team 1)	17	23-Feb-19	14-Mar-19
CON-11560	Install Precast Shell and Sealing for Pier 1E-N (1 nos. Shell / Team 2)	17	18-Mar-19	06-Apr-19
CON-11570	Install Precast Shell and Sealing for Pier 1E-S (1 nos. Shell / Team 1)	17	18-Mar-19	06-Apr-19
CON-11580	Install Precast Shell and Sealing for Pier 1J (1 nos. Shell / Team 1)	17	19-Mar-19	08-Apr-19
CON-11590	Install Precast Shell and Sealing for Pier 1K (1 nos. Shell / Team 2)	17	20-Mar-19	09-Apr-19
Bridge S300		119	26-Jan-19 A	10-Jun-19
CON-11600	Install Precast Shell and Sealing for Pier 4A (1 nos. Shell / Team 1)	17	26-Jan-19 A	12-Feb-19
CON-11610	Install Precast Shell and Sealing for Pier 4E (1 nos. Shell / Team 2)	17	19-Mar-19	08-Apr-19
CON-11620	Install Precast Shell and Sealing for Pier 4C (1 nos. Shell / Team 1)	17	11-May-19	31-May-19
CON-11630	Install Precast Shell and Sealing for Pier 4D (1 nos. Shell / Team 2)	17	21-May-19	10-Jun-19
CON-11640	Install Precast Shell and Sealing for Pier 4B (1 nos. Shell / Team 1)	17	14-May-19	01-Jun-19

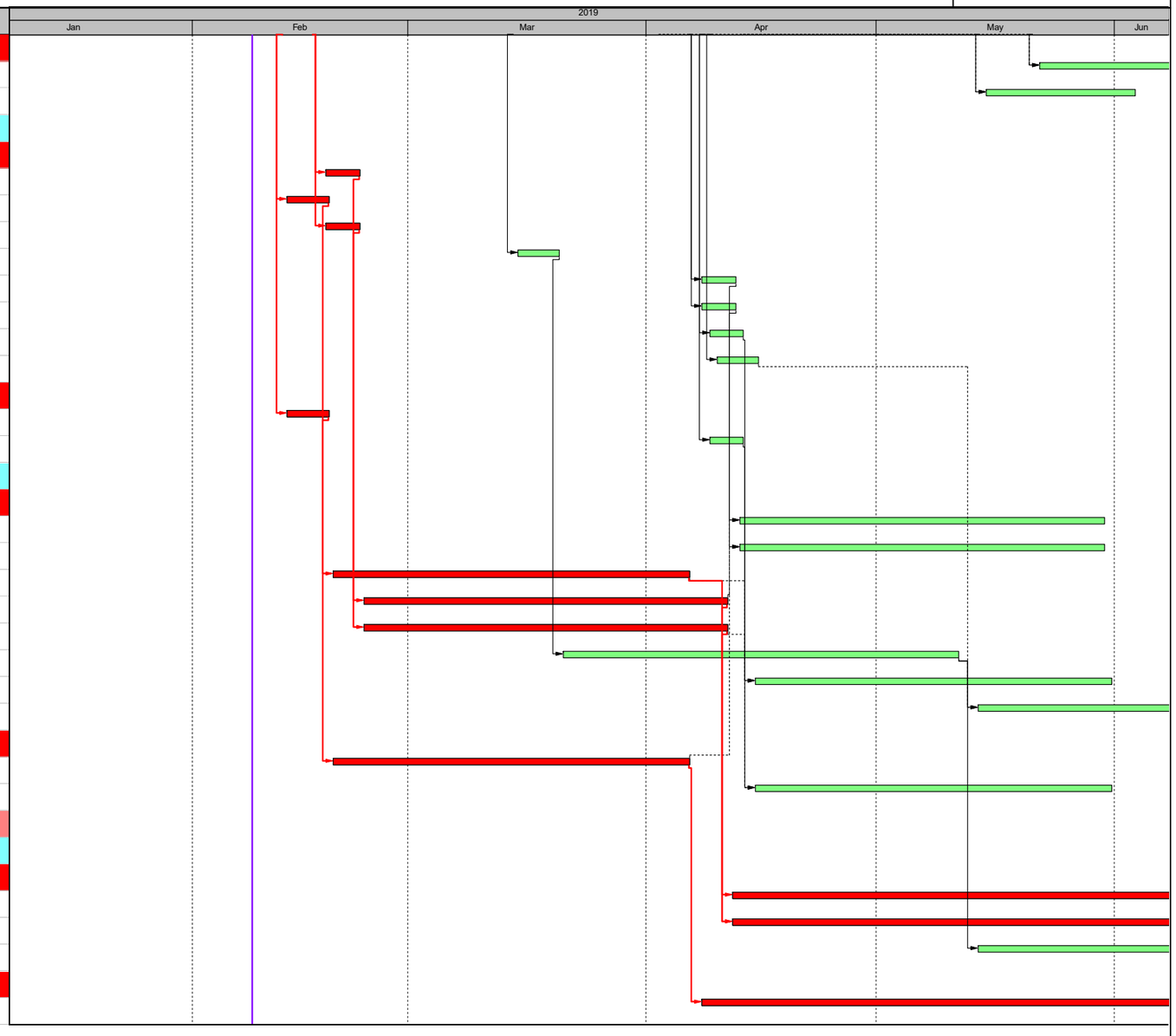


Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

NE/2017/01 Tseung Kwan O - Lam Tin Tunnel- Tseung Kwan O Interchange and Associated Works

Rolling programme (February 2019 to May 2019)

Activity ID	Activity Name	Original Duration	Start	Finish
Bridge S200		23	15-May-19	11-Jun-19
CON-11700	Install Precast Shell and Sealing for Pier 2E (1 nos. Shell / Team 2)	17	22-May-19	11-Jun-19
CON-11720	Install Precast Shell and Sealing for Pier 2G (1 nos. Shell / Team 1)	17	15-May-19	03-Jun-19
Trimming of Bored Pile Head		52	13-Feb-19	15-Apr-19
Bridge ML		52	13-Feb-19	15-Apr-19
CON-11820	Trimming Bored Pile 1G	5	18-Feb-19	22-Feb-19
CON-11830	Trimming Bored Pile 1F-N	5	13-Feb-19	18-Feb-19
CON-11840	Trimming Bored Pile 1F-S	5	18-Feb-19	22-Feb-19
CON-11850	Trimming Bored Pile 1H	5	15-Mar-19	20-Mar-19
CON-11860	Trimming Bored Pile 1E-N	5	08-Apr-19	12-Apr-19
CON-11870	Trimming Bored Pile 1E-S	5	08-Apr-19	12-Apr-19
CON-11880	Trimming Bored Pile 1J	5	09-Apr-19	13-Apr-19
CON-11890	Trimming Bored Pile 1K	5	10-Apr-19	15-Apr-19
Bridge S300		51	13-Feb-19	13-Apr-19
CON-11900	Trimming Bored Pile 4A	5	13-Feb-19	18-Feb-19
CON-11910	Trimming Bored Pile 4E	5	09-Apr-19	13-Apr-19
Pile Cap Rebar Erection, Concreting and Curing		102	19-Feb-19	25-Jun-19
Bridge ML		102	19-Feb-19	25-Jun-19
CON-12120	Pile Cap Rebar Erection, Concreting and Curing for Pier 1E-N (1 nos.Pile Cap/Team 3)	36	13-Apr-19	30-May-19
CON-12130	Pile Cap Rebar Erection, Concreting and Curing for Pier 1E-S (1 nos.Pile Cap/Team 4)	36	13-Apr-19	30-May-19
CON-12140	Pile Cap Rebar Erection, Concreting and Curing for Pier 1F-N (1 nos.Pile Cap/Team 2)	40	19-Feb-19	06-Apr-19
CON-12150	Pile Cap Rebar Erection, Concreting and Curing for Pier 1F-S (1 nos.Pile Cap/Team 3)	40	23-Feb-19	11-Apr-19
CON-12160	Pile Cap Rebar Erection, Concreting and Curing for Pier 1G (1 nos.Pile Cap/Team 1)	40	23-Feb-19	11-Apr-19
CON-12170	Pile Cap Rebar Erection, Concreting and Curing for Pier 1H (1 nos.Pile Cap/Team 5)	40	21-Mar-19	11-May-19
CON-12180	Pile Cap Rebar Erection, Concreting and Curing for Pier 1J (1 nos.Pile Cap/Team 2)	36	15-Apr-19	31-May-19
CON-12190	Pile Cap Rebar Erection, Concreting and Curing for Pier 1K (1 nos.Pile Cap/Team 5)	36	14-May-19	25-Jun-19
Bridge S300		82	19-Feb-19	31-May-19
CON-12200	Pile Cap Rebar Erection, Concreting and Curing for Pier 4A (1 nos.Pile Cap/Team 4)	40	19-Feb-19	06-Apr-19
CON-12240	Pile Cap Rebar Erection, Concreting and Curing for Pier 4E (1 nos.Pile Cap/Team 1)	36	15-Apr-19	31-May-19
Construction Pier Element		114	08-Apr-19	26-Aug-19
Construction of Pier		114	08-Apr-19	26-Aug-19
Bridge ML		110	12-Apr-19	26-Aug-19
CON-12420	Construction of Pier 1G, Type 4M (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 1)	84	12-Apr-19	26-Jul-19
CON-12430	Construction of Pier 1F, Type 3 (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 2)	88	12-Apr-19	31-Jul-19
CON-12450	Construction of Pier 1H, Type 4 (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 5)	88	14-May-19	26-Aug-19
Bridge S300		100	08-Apr-19	09-Aug-19
CON-12480	Construction of Pier 4A, type 1M (2 Pours) Including Erection of Formwork & Temp. Work (1 nos.Pier /Team 3)	100	08-Apr-19	09-Aug-19



Milestone | Works | Critical Works | Actual | Actual Progress of Regular Submission | BL Milestone

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	01-Feb-19	08:25	Sunny	20	0	0	20.9
	01-Feb-19	13:15	Sunny	21	0	0	20.9
	01-Feb-19	15:30	Sunny	22	0	0	20.9
	01-Feb-19	15:40	Sunny	22	0	0	20.9
	01-Feb-19	15:50	Sunny	22	0	0	20.9
	02-Feb-19	08:10	Sunny	19	0	0	20.9
	02-Feb-19	13:10	Sunny	20	0	0	20.9
	02-Feb-19	15:15	Sunny	21	0	0	20.9
	02-Feb-19	15:25	Sunny	21	0	0	20.9
	02-Feb-19	15:35	Sunny	21	0	0	20.9
	04-Feb-19	08:10	Sunny	21	0	0	20.9
	04-Feb-19	13:20	Sunny	22	0	0	20.9
	04-Feb-19	15:30	Sunny	23	0	0	20.9
	04-Feb-19	15:40	Sunny	23	0	0	20.9
	04-Feb-19	15:50	Sunny	23	0	0	20.9
	08-Feb-19	08:10	Sunny	20	0	0	20.9
	08-Feb-19	13:20	Sunny	21	0	0	20.9
	08-Feb-19	15:15	Sunny	22	0	0	20.9
	08-Feb-19	15:25	Sunny	22	0	0	20.9
	08-Feb-19	15:35	Sunny	22	0	0	20.9
	09-Feb-19	08:10	Sunny	18	0	0	20.9
	09-Feb-19	13:20	Sunny	19	0	0	20.9
	09-Feb-19	15:30	Sunny	20	0	0	20.9
	09-Feb-19	15:40	Sunny	20	0	0	20.9
	09-Feb-19	15:50	Sunny	20	0	0	20.9
	11-Feb-19	08:10	Sunny	18	0	0	20.9
	11-Feb-19	13:20	Sunny	19	0	0	20.9
	11-Feb-19	15:20	Sunny	20	0	0	20.9
	11-Feb-19	15:30	Sunny	20	0	0	20.9
	11-Feb-19	15:40	Sunny	20	0	0	20.9
	12-Feb-19	08:10	Sunny	19	0	0	20.9
	12-Feb-19	13:15	Sunny	20	0	0	20.9
	12-Feb-19	15:10	Sunny	21	0	0	20.9
	12-Feb-19	15:20	Sunny	21	0	0	20.9
	12-Feb-19	15:30	Sunny	21	0	0	20.9
	13-Feb-19	08:10	Sunny	21	0	0	20.9
	13-Feb-19	13:10	Sunny	22	0	0	20.9
	13-Feb-19	15:20	Sunny	23	0	0	20.9
	13-Feb-19	15:30	Sunny	23	0	0	20.9

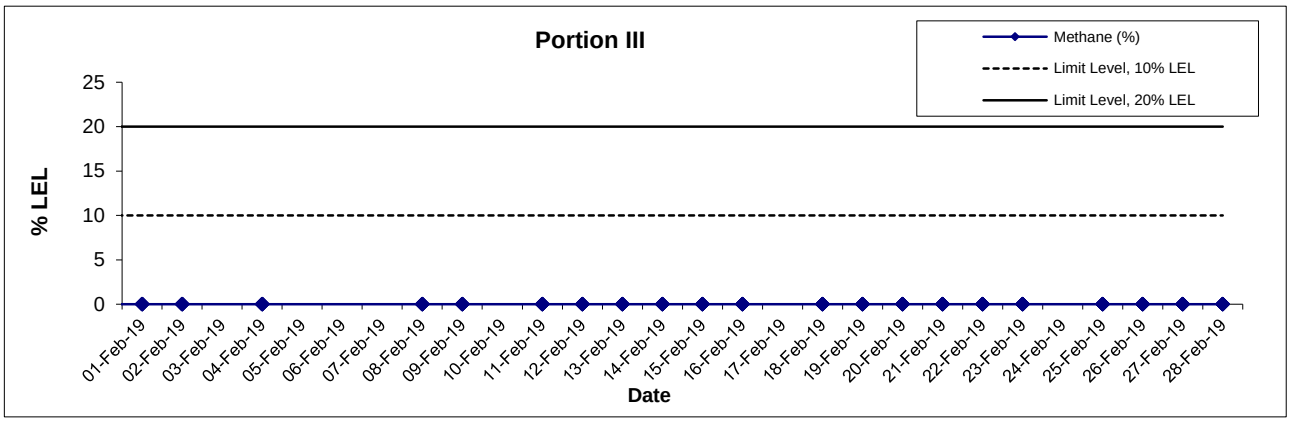
APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
	13-Feb-19	15:40	Sunny	23	0	0	20.9
	14-Feb-19	08:10	Sunny	21	0	0	20.9
	14-Feb-19	13:15	Sunny	22	0	0	20.9
	14-Feb-19	15:10	Sunny	23	0	0	20.9
	14-Feb-19	15:20	Sunny	23	0	0	20.9
	14-Feb-19	15:30	Sunny	23	0	0	20.9
	15-Feb-19	08:15	Sunny	18	0	0	20.9
	15-Feb-19	13:20	Sunny	19	0	0	20.9
	15-Feb-19	15:20	Sunny	20	0	0	20.9
	15-Feb-19	15:30	Sunny	20	0	0	20.9
	15-Feb-19	15:40	Sunny	20	0	0	20.9
	16-Feb-19	08:10	Sunny	20	0	0	20.9
	16-Feb-19	13:15	Sunny	21	0	0	20.9
	16-Feb-19	15:30	Sunny	22	0	0	20.9
	16-Feb-19	15:40	Sunny	22	0	0	20.9
	16-Feb-19	15:50	Sunny	22	0	0	20.9
	18-Feb-19	08:10	Cloudy	17	0	0	20.9
	18-Feb-19	13:15	Rainy	18	0	0	20.9
	18-Feb-19	15:20	Rainy	19	0	0	20.9
	18-Feb-19	15:30	Rainy	19	0	0	20.9
	18-Feb-19	15:40	Rainy	19	0	0	20.9
	19-Feb-19	08:20	Rainy	20	0	0	20.9
	19-Feb-19	13:15	Rainy	21	0	0	20.9
	19-Feb-19	15:30	Rainy	22	0	0	20.9
	19-Feb-19	15:40	Rainy	22	0	0	20.9
	19-Feb-19	15:50	Rainy	22	0	0	20.9
	20-Feb-19	08:15	Cloudy	20	0	0	20.9
	20-Feb-19	13:15	Cloudy	21	0	0	20.9
	20-Feb-19	15:30	Cloudy	22	0	0	20.9
	20-Feb-19	15:40	Cloudy	22	0	0	20.9
	20-Feb-19	15:50	Cloudy	22	0	0	20.9
	21-Feb-19	08:15	Cloudy	20	0	0	20.9
	21-Feb-19	13:15	Sunny	21	0	0	20.9
	21-Feb-19	15:30	Sunny	22	0	0	20.9
	21-Feb-19	15:40	Sunny	22	0	0	20.9
	21-Feb-19	15:50	Sunny	22	0	0	20.9
	22-Feb-19	08:10	Cloudy	21	0	0	20.9
	22-Feb-19	13:15	Rainy	22	0	0	20.9
	22-Feb-19	13:30	Rainy	23	0	0	20.9

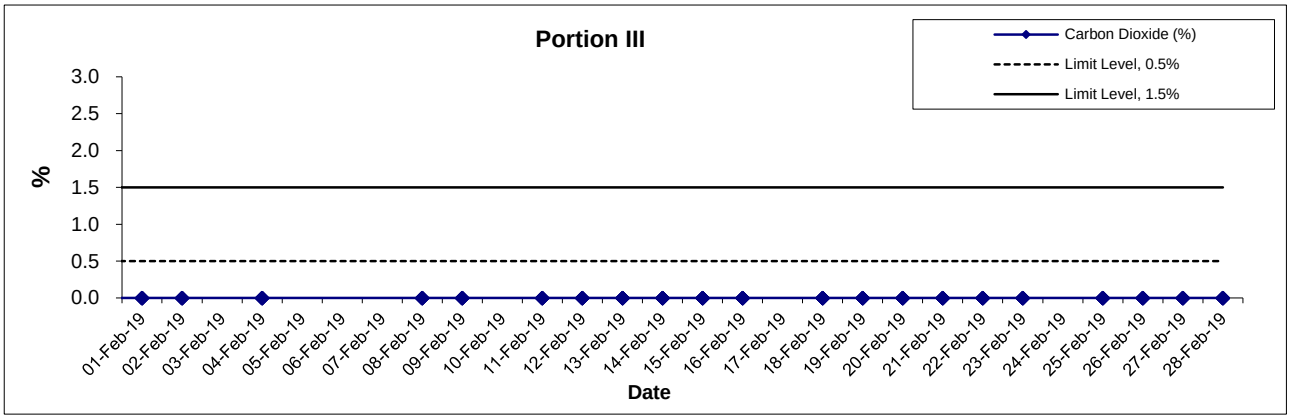
APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
	22-Feb-19	13:40	Rainy	23	0	0	20.9
	22-Feb-19	13:55	Rainy	23	0	0	20.9
	23-Feb-19	08:15	Rainy	19	0	0	20.9
	23-Feb-19	13:10	Rainy	20	0	0	20.9
	23-Feb-19	15:35	Rainy	21	0	0	20.9
	23-Feb-19	15:45	Rainy	21	0	0	20.9
	23-Feb-19	16:00	Rainy	21	0	0	20.9
	25-Feb-19	08:15	Cloudy	20	0	0	20.9
	25-Feb-19	13:20	Cloudy	21	0	0	20.9
	25-Feb-19	15:30	Cloudy	22	0	0	20.9
	25-Feb-19	15:40	Cloudy	22	0	0	20.9
	25-Feb-19	15:50	Cloudy	22	0	0	20.9
	26-Feb-19	08:15	Cloudy	19	0	0	20.9
	26-Feb-19	13:20	Cloudy	20	0	0	20.9
	26-Feb-19	15:30	Cloudy	22	0	0	20.9
	26-Feb-19	15:40	Cloudy	22	0	0	20.9
	26-Feb-19	15:50	Cloudy	22	0	0	20.9
	27-Feb-19	08:15	Sunny	20	0	0	20.9
	27-Feb-19	13:20	Sunny	21	0	0	20.9
	27-Feb-19	15:10	Sunny	22	0	0	20.9
	27-Feb-19	15:20	Sunny	22	0	0	20.9
	27-Feb-19	15:30	Sunny	22	0	0	20.9
	28-Feb-19	08:10	Sunny	21	0	0	20.9
	28-Feb-19	13:10	Sunny	22	0	0	20.9
	28-Feb-19	15:20	Sunny	23	0	0	20.9
	28-Feb-19	15:30	Sunny	23	0	0	20.9
	28-Feb-19	15:40	Sunny	23	0	0	20.9

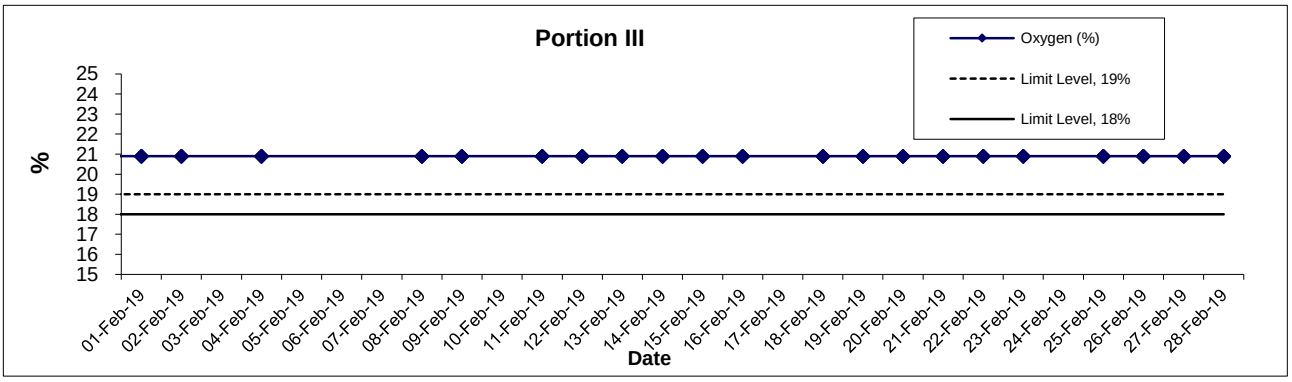
Methane



Carbon Dioxide



Oxygen



Title	Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction	Scale N.T.S	Project No. MA16034	CINOTECH
		Date 19-Feb	Appendix R	

APPENDIX T
CULTURAL HERITAGE MONITORING RESULTS

Appendix T – Cultural Heritage Monitoring Results

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
								Measurement Direction		
	THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Tran	Vertical	Longitudinal
1-Feb-19	-1 : 64281	1 : 112495	1 : 32142	1 : 23684	+2	Stop monitoring	Stop monitoring	0.221	0.181	0.189
2-Feb-19	-1 : 112492	1 : 64283	1 : 26470	1 : 23684	+2	Stop monitoring	Stop monitoring	0.142	0.268	0.213
4-Feb-19	-1 : 112492	1 : 44998	1 : 40908	1 : 16071	+1	Stop monitoring	Stop monitoring	0.158	0.158	0.142
8-Feb-19	1 : 56246	1 : 44998	1 : 40908	1 : 16071	+2	Stop monitoring	Stop monitoring	0.150	0.229	0.166
9-Feb-19	-1 : 44997	1 : 28124	1 : 19565	1 : 18000	+2	Stop monitoring	Stop monitoring	0.126	0.110	0.095
11-Feb-19	-1 : 112492	1 : 17999	1 : 17307	1 : 28125	+2	Stop monitoring	Stop monitoring	0.134	0.110	0.081
12-Feb-19	-1 : 44997	1 : 16071	1 : 22500	1 : 34615	+2	Stop monitoring	Stop monitoring	0.213	0.481	0.118
13-Feb-19	-1 : 64281	1 : 23683	1 : 40908	1 : 20454	+2	Stop monitoring	Stop monitoring	0.260	0.276	0.307
14-Feb-19	1 : 89993	1 : 14516	1 : 19565	1 : 64285	+2	Stop monitoring	Stop monitoring	0.158	0.189	0.221
15-Feb-19	-1 : 449967	1 : 17999	1 : 17307	1 : 18000	+2	Stop monitoring	Stop monitoring	0.158	0.158	0.118
16-Feb-19	-1 : 44997	1 : 20454	1 : 26470	1 : 34615	+2	Stop monitoring	Stop monitoring	0.150	0.221	0.118
18-Feb-19	-1 : 449967	1 : 20454	1 : 17307	1 : 16071	+2	Stop monitoring	Stop monitoring	0.134	0.118	0.102
19-Feb-19	-1 : 112492	1 : 16071	1 : 19565	1 : 28125	+3	Stop monitoring	Stop monitoring	0.166	0.118	0.095
20-Feb-19	1 : 40906	1 : 20454	1 : 32142	1 : 34615	+3	Stop monitoring	Stop monitoring	0.126	0.102	0.087
21-Feb-19	1 : 89993	1 : 14516	1 : 19565	1 : 20454	+1	Stop monitoring	Stop monitoring	0.158	0.221	0.087
22-Feb-19	-1 : 449967	1 : 20454	1 : 19565	1 : 14516	+3	Stop monitoring	Stop monitoring	0.134	0.205	0.118

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
								Measurement Direction		
	THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Tran	Vertical	Longitudinal
23-Feb-19	1 : 56246	1 : 28124	1 : 32142	1 : 12162	+2	Stop monitoring	Stop monitoring	0.213	0.150	0.126
25-Feb-19	1 : 40906	1 : 16071	1 : 22500	1 : 18000	+2	Stop monitoring	Stop monitoring	0.166	0.142	0.150
26-Feb-19	1 : 89993	1 : 23683	1 : 17307	1 : 23684	+2	Stop monitoring	Stop monitoring	0.173	0.134	0.095
27-Feb-19	1 : 224983	1 : 16071	1 : 26470	1 : 28125	+2	Stop monitoring	Stop monitoring	0.229	0.236	0.292
28-Feb-19	1 : 40906	1 : 28124	1 : 19565	1 : 16071	+3	Stop monitoring	Stop monitoring	0.221	0.229	0.126
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 U
PIEZOMETER MONITORING RESULTS

Appendix U – Construction Phase Daily Piezometer Monitoring Results

Date	Daily Piezometer Monitoring	
	38568-LDH1 (P)	
1-Feb-19	87.65	
2-Feb-19	87.65	
4-Feb-19	87.65	
8-Feb-19	87.65	
9-Feb-19	87.65	
11-Feb-19	87.65	
12-Feb-19	87.65	
13-Feb-19	87.65	
14-Feb-19	87.65	
15-Feb-19	87.65	**TKO-LBH907**
16-Feb-19	87.65	
18-Feb-19	87.65	
19-Feb-19	87.65	
20-Feb-19	87.65	
21-Feb-19	87.65	
22-Feb-19	87.65	
23-Feb-19	87.65	
25-Feb-19	87.65	
26-Feb-19	87.65	
27-Feb-19	87.65	
28-Feb-19	87.65	
Action Level (mPD)	+74.65	+17.59

Note:
Bold Italic with underline means Action Level exceedance