


Civil Engineering and Development Department

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

**Monthly Environmental Monitoring and
Audit Report for March 2017**

(version 3.0)

Approved By



(Dr. Friscilla Choy,
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.

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EXECUTIVE SUMMARY

Introduction

1. This is the 5th Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the “Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction” (hereinafter called “the Project”). This report documents the findings of EM&A Works conducted in March 2017.
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; and
 - Contract No. NE/2015/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2 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 in the reporting month for the Project is tabulated in **Table I**.

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

Environmental Monitoring	No. of Exceedance		No. of 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	2	1	1	0	Refer to the Appendix O
Groundwater Quality	1	10	0	0	N/A (Refer to Part 8, Executive Summary)
Marine Water Quality	0	0	0	0	N/A
Groundwater Level Monitoring (Piezometer Monitoring)	N/A	N/A	N/A	N/A	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	N/A	N/A	N/A	N/A	N/A
Landfill Gas	0	0	0	0	N/A

Air Quality Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month, except that

monitoring at Station AM4(A) – Cha Kwo Ling Public Cargo Working Area Administrative Office on 6 and 28 March 2017 were cancelled due to power supply failure. The monitoring were re-scheduled to 7 and 29 March 2017. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

7. All noise monitoring was conducted as scheduled in the reporting month. Two Action Level exceedance on 8 and 13 March 2017 was recorded due to the documented complaints received in the reporting month. One non-Project related Limit Level exceedance was recorded.

Water Quality Monitoring

8. Groundwater monitoring was conducted as scheduled in the reporting month. One Action Level Exceedance and Ten Limit Level exceedance were recorded. The exceedances are considered to be non-Project related.
9. All marine water monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
10. Construction phase daily piezometer monitoring was not carried out in this reporting period as there is no tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan.

Ecological Monitoring

11. 1st post-translocation coral monitoring survey was carried out on 6 March 2017. No action/limit level of mortality was exceeded in the monitoring survey conducted in March 2017.

Monitoring on Cultural Heritage

12. Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple has not commenced in the reporting period. Site preparation for construction works was carried out less than 100m from the temple.

Landscape and Visual Monitoring and Audit

13. 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

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

Environmental Site Inspection

15. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. The representative of the IEC joined the site inspection on 29 March 2017. Details of the audit findings and implementation status are presented in Section 10.

Waste Management

16. 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

17. 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	Remark
	Number	Nature			
Complaint received / Complaint referred by EPD (January and February 2017)	2	Construction noise nuisance in January 2017 due to works near the Eastern Harbour Crossing	Investigation completed	Closed	---
	1	Dust generated by the slope works opposite to Lam Tin Ambulance Depot	Investigation completed	Closed	---
	1	Excavated materials fell from the dump trucks on the BMPCP footpath which affected the safety of pedestrian and hikers	Investigation completed	Closed	---
Complaint received / Complaint referred by EPD (March 2017)	4	Construction dust and noise generated by both land-based and marine construction works	Investigation completed	Closed	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

18. The future 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.

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 5th Monthly EM&A report summarizing the EM&A works for the Project in March 2017.

Purpose of the Report

- 1.2 This is the 5th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in March 2017. The commencement date of construction of this Project is 7 November 2016.

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: **Monitoring on 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.

Project Organizations

- 2.4 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)
- 2.5 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. Chiang Nin Tat, Eric	2301 1384	2739 0076
AECOM	Engineer’s Representative	Mr. KY Chan	3922 9000	2759 1698
Cinotech	Environmental Team	Dr. Priscilla Choy	2151 2089	3107 1388
		Ms. Ivy Tam	2151 2090	
AnewR	Independent Environmental Checker	Mr. Adi Lee	2618 2836	3007 8648

Construction Activities undertaken during the Reporting Month

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

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

Contract No.	Project Title	Site Activities (March 2017)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) Excavation for Tunnel Adit 2) Slope Feature no. 11NE-D/C119 (along Lei Yue Mun Road) 3) EHC2 U-Trough 4) Site Formation – Area 1G1, Area 2, Area 3, Area 4 5) Temp Steel Bridge across Cha Kwo Ling Road & Barging Facility 6) Pipe Pile wall – Area 2A 7) Ground Investigation
		TKO Interchange	1) Haul Road Construction, Site Formation and Slope Works 2) Temporary Barging Facilities 3) BMCPC Bridge Temporary Diversion
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Advance Works for Construction of Temporary Cofferdam 2) Fabrication of Sheet Pile at Portion VII 3) Installation of silt curtain 4) Construction of Retaining Wall 5) Construction of DSD transformation room 6) Assembly of General Site Office 7) Piling and Sheet Piling Works 8) Temporary road for diversion of existing traffic at Tong Yin Street 9) Construction of Temporary Transformer Room 10) Site Establishment	

2.7 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	<ul style="list-style-type: none"> 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

2.8 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
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
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	19/08/2016	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
NE/2015/01	WT00025806-2016	22/11/2016	30/11/2021	Valid
	WT00026212-2016	25/11/2016	30/11/2021	Valid
NE/2015/02	WT00026386-2016	15/12/2016	31/12/2021	Valid
Construction Noise Permit (CNP)				

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
NE/2015/01	GW-RE0976-16	08/10/2016	20/03/2017	Expired on 20 Mar 2017
	GW-RE1211-16	24/12/2016	22/06/2017	Valid
	GW-RE0047-17	27/01/2017	26/03/2017	Expired on 26 Mar 2017
	GW-RE0082-17	08/02/2017	07/03/2017	Expired on 7 Mar 2017
	GW-RE0164-17	08/03/2017	07/04/2017	Valid
	GW-RE0191-17	20/03/2017	19/09/2017	Valid
	GW-RE0224-17	26/03/2017	25/06/2017	Valid
NE/2015/02	GW-RE1141-16	06/12/2016	17/05/2017	Valid
	GW-RE1208-16	23/12/2016	22/06/2017	Valid
	GW-RE0049-17	01/02/2017	31/07/2017	Valid
	GW-RE0097-17	15/02/2017	14/08/2017	Valid
Marine Dumping Permit				
NE/2015/02	EP/MD/17-118	1/12/2016	31/05/2017	Valid

Summary of EM&A Requirements

- 2.9 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.
- 2.10 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 10 of this report.
- 2.11 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 March 2017.

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-3 / LD-3B	2
	Met One Instruments Model No.: AEROCET-531	0
	Handheld Particle Counter Hal-HPC300	4
HVS Sampler	TISCH Model: TE-5170	1
	GMW Model: GS2310	5
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1

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 day
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 0.5 μ m and 5 μ m channels will show the cumulative counts of particles larger than 0.5 μ m and 5 μ m 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)

- 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) complete 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 m³/min. and 1.4 m³/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 centered 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 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3.22 All 24-hour TSP monitoring was conducted as scheduled in the reporting month, except that monitoring at Station AM4(A) – Cha Kwo Ling Public Cargo Working Area Administrative Office on 6 and 28 March 2017 were cancelled due to power supply failure. The monitoring were re-scheduled to 7 and 29 March 2017. No Action/Limit Level exceedance was recorded.
- 3.23 The air temperature, precipitation and the relative humidity data was obtained from Hong Kong Observatory where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop of Yau Lai Estate Bik Lai House (41/F). The location is shown in **Figure 2**. This weather information for the reporting month is summarized in **Appendix C**.
- 3.24 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.
- 3.25 The summary of exceedance record in reporting month is shown in **Appendix K**. No exceedance was recorded for the air quality monitoring.
- 3.26 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)
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 Equipments

- 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 955 / 957 / 977	7
	BSWA 801	2
Calibrator	SV30A	4
	Brüel & Kjær 4231	2

4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 4.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
CM1	L ₁₀ (30 min) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
CM2				Façade
CM3				Façade
CM4	L ₉₀ (30 min) dB(A)			Façade
CM5	Façade			
CM6(A)	L _{eq} (30 min) dB(A)			Free Field
CM7(A)	Façade			
CM8(A)	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}, L₉₀ and L₁₀ 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 All noise monitoring was conducted as scheduled in the reporting month. Two Action Level exceedance was recorded due to the documented complaints received in the reporting month.
- 4.10 One Limit Level Exceedance (65 dB(A) during school examination period) on 21st March 2017 at Station CM5 – CCC Kei Faat Primary School, Yau Tong was recorded. Measured noise level [67.5 dB(A)] has not exceeded the baseline noise level [68.2 dB(A)] at station CM5. Therefore, the exceedance is considered as non-Project related and invalid
- 4.11 Noise monitoring results and graphical presentations are shown in **Appendix G**.
- 4.12 The summary of exceedance record in the reporting month is shown in **Appendix K**.
- 4.13 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

- 4.14 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**.

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.

Updated Construction Noise Assessment

Contract No. NE/2015/01

4.15 Further to the approved Noise Mitigation Plan (NMP) by EPD in December 2016, the Contractor has proposed a Construction Noise Assessment based on the updated plant inventories and construction programme.

4.16 Under The updated Construction Noise Assessment, adverse residual airborne construction noise impacts at all Noise Sensitive Receivers (NSRs) are not anticipated. The updated Construction Noise Assessment is shown in **Appendix S** and will supersede that in the approved NMP.

Contract No. NE/2015/02

4.17 No update of Construction Noise Assessment in the reporting period.

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 (BOD₅), 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.

Groundwater Level Monitoring (Piezometer Monitoring)

- 5.5 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. The monitoring has not commenced in this reporting period.

Monitoring Locations

Groundwater Quality

- 5.6 Stream 1 – Stream 3 is designated for the groundwater quality monitoring according to EM&A Manual. The locations are also 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

- 5.7 A total of twelve monitoring stations are designated for the water quality monitoring program according to EM&A Manual. The locations are also summarized in **Table 5.2** and shown on **Figure 5**.

Table 5.2 Marine Water Quality Monitoring Stations

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

Monitoring Equipments

- 5.8 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, BOD₅, TOC, Total Nitrogen, Ammonia-N and Total Phosphate.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

- 5.9 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.
- 5.10 It has a membrane electrode with automatic temperature compensation complete with a cable.
- 5.11 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.

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

Turbidity

5.13 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

5.14 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

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

Water Sampler

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

Sample Container and Storage

5.17 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

5.18 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.

5.19 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.

5.20 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.

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

5.22 **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	1
	Aquaread AP-2000-D	3
	YSI EXO1 Multiparameter Sondes	1
Monitoring Position Equipment	“Magellan” Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

Monitoring Parameters and Frequency

5.23 **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	<ul style="list-style-type: none"> • DO, mg/L • DO Saturation, % • pH • Water Temperature (°C) • Turbidity, NTU • SS, mg/L • BOD₅, mg O₂/L • TOC, mg-TOC/L • Total Nitrogen, mg/L • Ammonia-N, mg NH₃-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 C2 G1 G2 G3 G4	<p><i>In-situ:</i> Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity</p> <p><u>Laboratory Testing:</u> Suspended Solids (SS)</p>	<p><u>M1-M5, C1-C2, G1-G4</u></p> <ul style="list-style-type: none"> • 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If the water depth is less than 6m, omit mid-depth sampling. <p><u>M6</u></p> <ul style="list-style-type: none"> • at the vertical level where the water abstraction point of the intake is located(i.e. approximately mid-depth level) 	3 days per week / 2 per monitoring day (1 for mid-ebb and 1 for mid-flood)

Monitoring MethodologyGroundwater Quality

5.24 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.

- 5.25 For SS, BOD₅, 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 H₂SO₄ 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

- 5.26 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.
- 5.27 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

- 5.28 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

- 5.29 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

- 5.30 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.
- 5.31 QA/QC procedures as attached in **Appendix J** are available for the parameters analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

Groundwater Quality Monitoring

- 5.32 All groundwater quality monitoring was conducted as scheduled in the reporting month. Summary of groundwater quality monitoring results and Action/Limit Level exceedance are shown in **Table 5.6**. Groundwater monitoring results, graphical presentations and laboratory testing reports are shown in **Appendix H**.

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)
15 Mar 2017	Stream 1	7.0	8.1	1.8	5.9	<2	<u>6</u>	0.9	<0.05	<0.05
	Stream 2	6.9	8.2	2.0	2.9	<2	<u>2</u>	1.0	<0.05	<0.05
	Stream 3	6.8	8.1	1.8	1.6	<2	<u>6</u>	1.0	<0.05	<0.05
30 Mar 2017	Stream 1	6.4	7.7	1.7	2.8	<2	<u>6</u>	1.5	0.05	<0.05
	Stream 2	6.3	7.9	1.8	4.9	<u>4</u>	<u>10</u>	1.3	<u>0.20</u>	<u>0.08</u>
	Stream 3	6.4	7.8	1.6	5.0	<2	<u>6</u>	1.5	<u>0.10</u>	<0.05
No. of Exceedance	Action Level	0	0	0	1	0	0	0	0	0
	Limit Level	0	0	0	0	1	6	0	2	1

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

5.33 According to the information provided by the Contractor, no tunnel boring or tunnel construction works were carried out in both Lam Tin side and Tseung Kwan O side in March 2017. Therefore, it is considered that the exceedance is not project-related. The summary of exceedance record in the reporting month is shown in **Appendix K**.

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.

Marine Water Quality Monitoring

5.35 All marine water quality monitoring was conducted as scheduled in the reporting month. 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.

5.36 Calculated Action and Limit Levels for Marine Water Quality is presented in **Appendix I**. No exceedance of Action and Limit Levels of marine water quality was recorded during the reporting period.

Groundwater Level Monitoring (Piezometer Monitoring)

5.37 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.

5.38 Construction Phase Piezometer Monitoring has not commenced in this reporting period.

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. The first post-translocation coral monitoring was carried out on 6 March 2017.

Monitoring Methodology and Parameters

- 6.4 On 6 March 2017, the post-translocation coral monitoring survey was conducted at the Recipient Site (**Figure 7**) to monitor the health parameters of the translocated coral colonies as well as the tagged, original coral colonies at the Recipient Site.
- 6.5 During the survey, the health conditions of each tagged coral colony was recorded, including percentage cover (%) of (1) sedimentation; (2) bleaching and (3) mortality. The general environmental conditions including weather, sea and tidal conditions of the coral recipient site will also be monitored.
- 6.6 The condition of each tagged coral colony was recorded by taking a photograph from an angle and distance that best represents the entire colony.
- 6.7 The result of the post-translocation monitoring was reviewed with reference to findings of the pre-translocation survey and the data from the tagged, original colonies at the recipient site.
- 6.8 All monitoring exercises were led and conducted by an experienced marine ecologist who is approved by AFCD.

Event and Action Plan

- 6.9 The post-translocation monitoring result was evaluated against Action and Limit Levels presented in **Appendix A**. Evaluation was based on recorded changes in percentage of partial mortality of the corals.
- 6.10 If the defined Action Level or Limit Level for coral monitoring is exceeded, the actions as set out in **Appendix M** will be implemented.
- 6.11 If observations of any die-off / abnormal conditions of the translocated corals are made during the post-translocation monitoring, the ET shall inform the Contractor, IEC and AFCD, and liaise with AFCD to investigate any mitigation measures needed.

Results and Observations

- 6.12 The location of the survey site is shown in **Figure 7**, and survey conditions in **Table 6.1**. The code, species name, area, percentage of sedimentation level, bleaching and mortality of the tagged coral colonies are summarized in **Tables 6.2** and **6.3**. Photographs of the coral colonies, taken on 6 March 2017, are shown in **Appendix T**. The survey team had tried to take photographs of the corals from an angle and distance that best represented the colonies but difficulties sometimes occurred as a result of low water visibility during the surveys.

Table 6.1 Location and Physical attributes of the Coral Recipient Site

Sites	GPS Coordinates	Depth (m)	Visibility (m)	Substrate type	Weather	Tidal Condition	Sedimentation on Hard Substrate? (thickness, mm)
Recipient Site	Start	N 22°17.333' E 114°14.744'	2.0 – 4.0	1.0 - 2.0	Sand with gravel, rubbles and boulders	Calm; cloudy with sun patches	Flooding
	End	N 22°17.344' E 114°14.763'					

Tagged Coral colonies under Contract No. NE/2015/01

Tagged, original coral colonies at the Recipient Site

- 6.13 Sedimentation cover on the coral colonies ranged from <1 to 4%, with thickness ~1mm. When compared with baseline data in November 2016, increased sedimentation cover was recorded on one colony (C09) by ~4%. No apparent coral bleaching or mortality was recorded.

Translocated coral colonies

- 6.14 Sedimentation cover on the coral colonies ranged from <1 to 5%, with thickness ~1mm. When compared with baseline data in November 2016, increased sedimentation cover was recorded on one colony (07) by ~5%. Increased mortality was recorded on two colonies (02 and 12) by 5 to 50%. No apparent coral bleaching was recorded.
- 6.15 It is considered that increased mortality of the two coral colonies (02 and 12) was due to their adaptability to changes in ambient physical conditions (e.g. water current) after coral translocation, and/or direct disturbance caused by coral translocation. High percentage change in mortality was not observed in other tagged or translocated corals, indicating such mortality was not commonly occurred in the tagged or translocated corals, and not due to any nearby construction works.

Tagged Coral colonies under Contract No. NE/2015/02

Tagged, original coral colonies at the Recipient Site

- 6.16 Sedimentation cover on the coral colonies ranged from <1 to 4%, with thickness ~1mm. When compared with baseline data in November 2016, increased sedimentation cover was recorded on one colony (SWJB-8) by ~4%. No apparent coral bleaching or mortality was recorded.

Translocated coral colonies

- 6.17 Sedimentation cover on the coral colonies ranged from <1 to 10%, with thickness ~1mm. When compared with baseline data in November 2016, increased sedimentation cover was recorded on 4 colonies (TKW-T6, TKW-T8, TKW-T9 and TKW-T10) by ~4 to 10%.
- 6.18 Coral bleaching was recorded on 2 colonies (TKW-T5 and TKW-T26), and the level of

bleaching (<1 to 10%) was more or less the same as the level recorded in baseline survey in November 2016.

- 6.19 Decreased percentage in level of bleaching was recorded in the translocated coral colony TKW-T28 (*Porites* sp.). The level of bleaching recorded in this monitoring (<1%) was less than that recorded in baseline survey in November 2016 (20%). Such recovery from bleaching is not uncommon to occur in *Porites* species (Roff et al. 2014), as *Porites* species is regarded as a long-lived species and survive under stressful Hong Kong marine environment (Goodkin et al. 2011).
- 6.20 Coral mortality was recorded on 6 colonies (TKW-T4, TKW-T12, TKW-T15, TKW-T22, TKW-T23 and TKW-T29), and the level of mortality (<1 to 10%) was more or less the same as the level recorded in baseline survey in November 2016.

REFERENCES:

Goodkin NF, Switzer AD, McCorry D, DeVantier L and others (2011) Coral communities of Hong Kong: long-lived corals in a marginal reef environment. *Mar Ecol Prog Ser* 426:185-196. <https://doi.org/10.3354/meps09019>

Roff G, Bejarano S, Bozec YM (2014) *Porites* and the Phoenix effect: unprecedented recovery after a mass coral bleaching event at Rangiroa Atoll, French Polynesia. *Mar Biol* 161: 1385-1393. doi:10.1007/s00227-014-2426-6

Table 6.2a. Original Corals under Contract No. NE/2015/01

Code	Coral Species	Size (max. diameter, cm)	Sedimentation, % (thickness, mm)		Bleaching, %		Mortality, %		
			Baseline 1 st (Nov16)	(06Mar17)	Baseline 1 st (Nov16)	(06Mar17)	Baseline 1 st (Nov16)	(06Mar17)	
C01	<i>Gonipopra stutchburyi</i>	19	<1	(1)	<1	<1	<1	<1	<1
C02	<i>Cyphastrea serailia</i>	26	<1	(1)	<1	<1	<1	<1	<1
C03.	<i>Gonipopra stutchburyi</i>	16	<1	(1)	<1	<1	<1	<1	<1
C04	<i>Cyphastrea serailia</i>	41	<1	(1)	<1	<1	<1	<1	<1
C05	<i>Cyphastrea serailia</i>	29	<1	(1)	<1	<1	<1	<1	<1
C06	<i>Cyphastrea serailia</i>	35	<1	(1)	<1	<1	<1	<1	<1
C07	<i>Cyphastrea serailia</i>	23	<1	(1)	<1	<1	<1	<1	<1
C08	<i>Turbinaria peltata</i>	12	<1	(1)	<1	<1	<1	<1	<1
C09	<i>Psammocora superficialis</i>	48	<1	4 (1) ▲	<1	<1	<1	<1	<1
C10	<i>Psammocora superficialis</i>	32	<1	(1)	<1	<1	<1	<1	<1

Note: "▲" and "▼" indicate increased and decreased in percentage, respectively, when compared with the baseline data.

Table 6.2b Translocated Corals under Contract No. NE/2015/01.

Code	Coral Species	Size (max. diameter or length, cm)	Sedimentation, % (thickness, mm)		Bleaching, %		Mortality, %		
			Baseline 1 st (Nov16)	(06Mar17)	Baseline 1 st (Nov16)	(06Mar17)	Baseline 1 st (Nov16)	(06Mar17)	
01	<i>Turbinaria peltata</i>	7	<1	<1	<1	<1	<1	<1	<1
02	<i>Cyphastrea serailia</i>	13	<1	<1	<1	<1	35	<1	40 ▲
03	<i>Gonipopra stutchburyi</i>	14	<1	<1	<1	<1	<1	<1	<1
04	<i>Gonipopra stutchburyi</i>	12	<1	<1	<1	<1	<1	<1	<1
05	<i>Gonipopra stutchburyi</i>	17	<1	<1	<1	<1	<1	<1	<1
06	<i>Gonipopra stutchburyi</i>	15	<1	<1	<1	<1	<1	<1	<1
07	<i>Gonipopra stutchburyi</i>	6	<1	5 (<1) ▲	<1	<1	<1	<1	<1
08	<i>Dendronephthya</i> sp.	10	<1	<1	<1	<1	<1	<1	<1
09	<i>Menella</i> sp.	13	<1	<1	<1	<1	<1	<1	<1
10	<i>Echinogorgia</i> sp.	19	<1	<1	<1	<1	<1	<1	<1
11	<i>Echinomuricea</i> sp.	23	<1	<1	<1	<1	<1	<1	<1
12	<i>Menella</i> sp.	14	<1	<1	<1	<1	<1	<1	50 ▲
13	<i>Menella</i> sp.	20	<1	<1	<1	<1	<1	<1	<1
14	<i>Psammocora superficialis</i>	16	<1	<1	<1	<1	<1	<1	<1

Note: "▲" and "▼" indicate increased and decreased in percentage, respectively, when compared with the baseline data.

Table 6.3a. Original Corals under Contract No. NE/2015/02.

Code	Coral Species	Size (max. diameter, cm)	Sedimentation, % (thickness, mm)		Bleaching, %		Mortality, %	
			Baseline (Nov16)	1 st (06Mar17)	Baseline (Nov16)	1 st (06Mar17)	Baseline (Nov16)	1 st (06Mar17)
SWJB-1	<i>Plesiastrea versipora</i>	28	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-2	<i>Plesiastrea versipora</i>	20	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-3.	<i>Porites</i> sp.	73	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-4	<i>Dipsastraea speciosa</i>	16	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-5	<i>Favites pentagona</i>	17	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-6	<i>Plesiastrea versipora</i>	35	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-7	<i>Plesiastrea versipora</i>	19	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-8	<i>Favites flexuosa</i>	25	<1 (<1)	4 (<1) ▲	<1	<1	<1	<1
SWJB-9.	<i>Porites</i> sp.	16	<1 (<1)	<1 (<1)	<1	<1	<1	<1
SWJB-10	<i>Favites chinensis</i>	61	<1 (<1)	<1 (<1)	<1	<1	<1	<1

Note: "▲" and "▼" indicates increased and decreased in percentage, respectively, when compared with the baseline data.

Table 6.3b. Translocated Corals under Contract No. NE/2015/02

Code	Coral Species	Size (max. diameter or length, cm)	Sedimentation, % (thickness, mm)		Bleaching, %		Mortality, %	
			Baseline (Nov16)	1 st (06Mar17)	Baseline (Nov16)	1 st (06Mar17)	Baseline (Nov16)	1 st (06Mar17)
TKW-T1	<i>Favites flexuosa</i>	20	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T2	<i>Gonipopra stutchburyi</i>	15	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T3.	<i>Porites</i> sp.	12	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T4.	<i>Porites</i> sp.	55	<1 (<1)	<1 (<1)	<1	<1	5	5
TKW-T5.	<i>Porites</i> sp.	14	<1 (<1)	<1 (<1)	5	5	<1	<1
TKW-T6	<i>Gonipopra stutchburyi</i>	10	<1 (<1)	4 (<1) ▲	<1	<1	<1	<1
TKW-T7	<i>Gonipopra stutchburyi</i>	15	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T8	<i>Gonipopra stutchburyi</i>	6	<1 (<1)	4 (<1) ▲	<1	<1	<1	<1
TKW-T9	<i>Gonipopra stutchburyi</i>	17	<1 (<1)	5 (<1) ▲	<1	<1	<1	<1
TKW-T10	<i>Gonipopra stutchburyi</i>	14	<1 (<1)	10 (<1) ▲	<1	<1	<1	<1
TKW-T11	<i>Coscinarea</i> sp.	20	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T12	<i>Plesiastrea versipora</i>	20	<1 (<1)	<1 (<1)	<1	<1	5	5
TKW-T13	<i>Gonipopra stutchburyi</i>	16	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T14	<i>Favites magnistellata</i> *	11	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T15	<i>Porites</i> sp.	21	<1 (<1)	<1 (<1)	<1	<1	5	5
TKW-T16	<i>Astrea curta</i> #	10	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T17	<i>Porites</i> sp.	35	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T18	<i>Platygyra acuta</i>	15	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T19	<i>Favites flexuosa</i>	20	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T20	<i>Gonipopra stutchburyi</i>	10	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T21	<i>Favites magnistellata</i> *	12	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T22	<i>Turbinaria peliata</i>	27	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T23	<i>Porites</i> sp.	14	<1 (<1)	<1 (<1)	<1	<1	5	5
TKW-T24	<i>Gonipopra stutchburyi</i>	20	<1 (<1)	<1 (<1)	<1	<1	10	10
TKW-T25	<i>Plesiastrea versipora</i>	14	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T26.	<i>Gonipopra stutchburyi</i>	6	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T27	<i>Plesiastrea versipora</i>	18	<1 (<1)	<1 (<1)	10	10	<1	<1
TKW-T28	<i>Porites</i> sp.	20	<1 (<1)	<1 (<1)	<1	<1	<1	<1
TKW-T29	<i>Astrea curta</i> #	13	<1 (<1)	<1 (<1)	20	<1	<1	<1

Note: “▲” and “▼” indicate increased and decreased in percentage, respectively, when compared with the baseline data.

* Former name: *Montastrea magnistellata*

Former name: *Montastrea curta*

7. MONITORING ON CULTURAL HERITAGE

- 7.1 According to the EM&A Manual, monitoring of vibration impacts should be 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.
- 7.2 Based on the information provided by the Contractor, site preparation for construction works was carried out less than 100m from the temple in the reporting period. Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple has not commenced in the reporting period.

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. The summaries of site audits are attached 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
Intrinsically safe, portable gas detector	Crowcon Tetra Portable Gas Detector (Serial No. 100378267/01-007 and 100486262/01-020)	2

Results and Observations

- 9.7 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on 52 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: 1, 8, 15, 22 and 29 March 2017
 - Contract No. NE/2015/02: 2, 9, 14, 23 and 29 March 2017
- Monthly joint site inspection with the representative of IEC was conducted on 29 March 2017 (Contract No. NE/2015/01 and NE/2015/02).

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-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 10.1**.

Table 10.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Contract No. NE/2015/01			
<i>Water Quality</i>	22 Feb 2017	<u>Observation:</u> Gaps observed between silt curtain and site boundary in TKO. The Contractor is reminded to provide and repair the silt curtain to fully enclose the site.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 1 March 2017.
	22 Feb, 1, 8, 15 Mar 2017	<u>Observation:</u> Silty water observed in the catchpits in TKO. The Contractor is reminded to remove the silt and sediment in catchpits regularly.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	22 Feb, 1, 8, 15 Mar 2017	<u>Reminder:</u> To remove the sand material deposited near the seafront at Portion WAI.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	8, 15 Mar 2017	<u>Reminder:</u> Sand and mud is observed accumulated in U-channel of Portion 2 in Cha Kwo Ling site. The construction is reminded to remove the mud regularly and ensure the effectiveness of U-channel.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	8, 15 Mar 2017	<u>Reminder:</u> To remove litter and debris from U-channel in TKO site	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	15 Mar 2017	<u>Observation:</u> Sand and mud / litter / C&D waste is observed accumulated in U-channel of Portion 2 and Portion 3. In Cha Kwo Ling site. The contractor is reminded to remove the material regularly and ensure the effectiveness of U-channel.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.

Parameters	Date	Observations and Recommendations	Follow-up
	15 Mar 2017	<u>Observation:</u> Silty water accumulated near slope in TKO. The contractor is reminded to remove the silty water to avoid silty water flow out of site.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	15 Mar 2017	<u>Reminder:</u> Dusty material observed deposited near the seafront in Portion WA I. The contractor is reminded to remove the material to avoid mud/sand fall into the sea.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	15, 22 Mar 2017	<u>Observation:</u> To set up proper drainage system in CKL site Portion 3.	Follow up action will be reported in next reporting month.
	22, 29 Mar 2017	<u>Observation:</u> Silty water on the sea observed near the marine works area. The contractor is reminded to check the silt curtain deployed and ensure the effectiveness.	Follow up action will be reported in next reporting month.
<i>Noise</i>	18, 25 Jan, 1, 8, 15, 22 Feb, 1,8, 15, 22, 29 Mar 2017	<u>Reminder:</u> The contractor is reminded to provide noise mitigation measures (e.g. Temporary noise barrier or Full enclosure) to PME as proposed in the approved NMP in Cha Kwo Ling.	Follow up action will be reported in next reporting month.
	1, 8, 15 Mar 2017	<u>Reminder:</u> To repair the gap between the cantilever noise barrier and the container noise barrier.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	15 Mar 2017	<u>Reminder:</u> To repair noise barrier of breaker in CKL site Portion 3.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
<i>Landscape and Visual</i>	--	--	--
<i>Air Quality</i>	15 Mar 2017	<u>Reminder:</u> To repair the gaps and holes of the tarpaulin sheets in Portion 3 to ensure the effectiveness of dust curtain.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	29 Mar 2017	<u>Observation:</u> Dust emission observed at the top of slope of TKO. The contractor is reminded to provide frequent water spray to unpaved works area.	Follow up action will be reported in next reporting month.
	29 Mar 2017	<u>Reminder:</u> Clear the used cement bags in TKO slope.	Follow up action will be reported in next reporting month.
<i>Waste / Chemical Management</i>	8,15 Mar 2017	<u>Reminder:</u> To remove litter and debris from U-channel in TKO site	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
	15, 22 Mar 2017	<u>Reminder:</u> To remove the oil stain near the drill rig in TKO.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 29 March 2017.
	29 Mar 2017	<u>Reminder:</u> Provide drip tray to chemical containers at the top of slope of TKO.	Follow up action will be reported in next reporting month.
<i>Permits / Licenses</i>	1, 8, 15 Mar 2017	<u>Reminder:</u> To provide and display the Environmental Permit for the marine barge in TKO.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 22 March 2017.
Contract No. NE/2015/02			

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	23 Feb 2017	<u>Reminder:</u> Accumulated sand in U-channel should be removed more frequently.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 2 March 2017.
	23 Feb 2017	<u>Reminder:</u> Concrete bund should be provided to the footing of hoarding to prevent silt runoff out of the site at Portion 8.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 2 March 2017.
	23 Feb 2017	<u>Reminder:</u> Muddy water on the ground surface should be directed to the wastewater treatment facilities before discharge.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 2 March 2017.
	2 Mar 2017	<u>Reminder:</u> To remove the muddy water accumulated in the U-channel near site boundary at Area A.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 9 March 2017.
	9 Mar 2017	<u>Reminder:</u> To repair the silt curtain at Chang Sheng 307 that the geotextile should be extended to seabed before start the works.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 14 March 2017.
	14 Mar 2017	<u>Reminder:</u> To properly cover the dusty material stored near gullies near Portion I and remove the sand deposited near the gullies.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 23 March 2017.
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	14 Mar 2017	<u>Reminder:</u> To remove the construction material/waste near the tree and set up proper tree protection area in Portion 8.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 23 March 2017.
<i>Air Quality</i>	23 Feb 2017	<u>Reminder:</u> Stockpile of dusty material should be covered by impervious sheet to prevent dust generation at Portion 8.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 2 March 2017.
	2 Mar 2017	<u>Reminder:</u> To provide water spray to unpaved area at Portion 8 to avoid dust emission.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 9 March 2017.
	29 Mar 2017	<u>Reminder:</u> To cover the stockpile of dusty material by tarpaulin sheet properly in Area A.	Follow up action will be reported in next reporting month.
<i>Waste / Chemical Management</i>	23 Feb 2017	<u>Reminder:</u> Accumulated waste should be removed at Portion 8.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 2 March 2017.
	14 Mar 2017	<u>Reminder:</u> To provide drip trays to chemical containers on unpaved ground in Portion 8.	The deficiency was observed to be improved/rectified by the Contractor during the audit session on 23 March 2017.
	29 Mar 2017	<u>Reminder:</u> To clear the oil stain near the drip tray as “chemical waste” in Portion 8.	Follow up action will be reported in next reporting month.
<i>Permits / Licenses</i>	--	--	--

11. WASTE MANAGEMENT

- 11.1 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Inert C&D waste includes soil, broken rock, broken concrete and building debris, while non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. Marine sediment shall be expected from excavation and dredging works of this Project.
- 11.2 With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised and presented in **Appendix P**.
- 11.3 The Contractors are advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the approved EM&A Manual and waste management plans shall be fully implemented. The status of implementation of waste management and reduction measures are summited in **Appendix N**.

12. ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 12.1 No exceedance of Action and Limit Levels of air quality monitoring in the reporting period.
- 12.2 Two Action Level exceedance of noise monitoring on 8 and 13 March 2017 was recorded due to the documented complaints received in the reporting month. One non-Project related Limit Level exceedance of noise monitoring was recorded.
- 12.3 One Action Level exceedance and Ten Limit Level exceedances in ground water quality monitoring was recorded during the reporting period. The exceedance is considered to be non-Project related. The summary of exceedance is provided in **Appendix K**.
- 12.4 Should the monitoring results of the environmental monitoring parameters at any designated monitoring stations indicate that the Action / Limit Levels are exceeded, the actions in accordance with the Event and Action Plans in **Appendix M** be carried out.

Summary of Environmental Non-Compliance

- 12.5 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

- 12.6 Four environmental complaints were received in the reporting month. The Cumulative Complaint Log since the commencement of the Project 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 There was no successful environmental prosecution or notification of summons received since the Project commencement. 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.	Project Title	Site Activities (April 2017)	
NE/2015/01	Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works	Lam Tin Interchange	1) Excavation for Tunnel Adit 2) EHC2 U-Trough 3) Site Formation – Area 1G1, Area 2, Area 3, Area 4 4) Temp Steel Bridge across CKL Road 5) Pipe Pile Wall – Area 2A 6) Ground Investigation
		Mined Tunnel	1) Tunnel Team Mobilisation Works
		TKO Interchange	1) Haul Road Construction and Site Formation 2) Temporary Barging Facilities 3) BMCPC Bridge Temporary Diversion
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Construction and Backfilling of Retaining wall 2) Installation of silt curtain 3) Installation of Temporary Cofferdam 4) Installation of Double Water Gate 5) Dredging Works 6) Construction of sloping seawall 7) Temporary road for Tong Yin Street 8) Ground investigation at Portion VI 9) Preparation of Treatment work for Marine Sediment 10) Construction of Temporary Transformer Room 11) Construction of outfall for diversion of existing drainpipe 12) Installation of 2100mm dia. Drainage at Portion IV 13) Construction of preboring socket H-piles 14) Assembly of General Site Office	

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.

Monitoring Schedule for the Next Month

13.4 The tentative environmental monitoring schedules for the next month are shown in **Appendix D**.

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 14.1 This is the 5th Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in March 2017 in accordance with EM&A Manual and the requirement under EP.

Air Quality Monitoring

- 14.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 14.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month, except that monitoring at Station AM4(A) – Cha Kwo Ling Public Cargo Working Area Administrative Office on 6 and 28 March 2017 were cancelled due to power supply failure. The monitoring were re-scheduled to 7 and 29 March 2017. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 14.4 All noise monitoring was conducted as scheduled in the reporting month. Two Action Level exceedance on 8 and 13 March 2017 was recorded due to the documented complaints received in the reporting month. One non-Project related Limit Level exceedance was recorded.

Water Quality Monitoring

- 14.5 All groundwater Quality monitoring was conducted as scheduled in the reporting month. One Action Level Exceedance and Ten Limit Level exceedance were recorded. The exceedance is considered to be non-Project related.
- 14.6 All marine water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

- 14.7 The 1st post-translocation coral monitoring survey was carried out on 6 March 2017. No Action/Limit Level exceedance was recorded.

Monitoring on Cultural Heritage

- 14.8 Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple has not commenced in the reporting period. Site preparation for construction works was carried out less than 100m from the temple.

Landscape and Visual Monitoring and Audit

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

Landfill Gas Monitoring

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

Environmental Site Inspection

- 14.11 Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. During site inspections in the reporting month, no non-conformance was identified

Complaint, Prosecution and Notification of Summons

- 14.12 4 environmental complaints, no successful prosecution or notification of summons were received during the reporting period.

Recommendations

- 14.13 According to environmental audits performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To implement dust suppression measures such as water spray on all haul roads, stockpiles, dry surfaces and open slopes.
- To cover stockpile of dusty material by impervious material.
- To remove the dusty cement bags after use.

Construction Noise

- To provide noise mitigation measures (e.g. Temporary noise barrier or Full enclosure) to PME as proposed in the approved Noise Mitigation Plan.
- To repair the gaps between the noise barriers.

Water Quality Impact

- To provide and repair the silt curtain to fully enclose the site and prevent any gap between the silt curtains.
- To review and implement temporary drainage system.
- To clear the litter, debris, silt and sediment in drainage or catchpits.
- To remove the sand or dusty material deposited near the seafront.
- To provide bund or covers to gullies and stockpile storage area on site to avoid leakage of surface runoff.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.

Waste/Chemical Management

- To provide drip tray to chemical containers and provide plus to drip tray.
- To check for any accumulation of waste materials or rubbish on site or in drainage.
- To removed oil stain near any powered mechanical equipment on paved ground

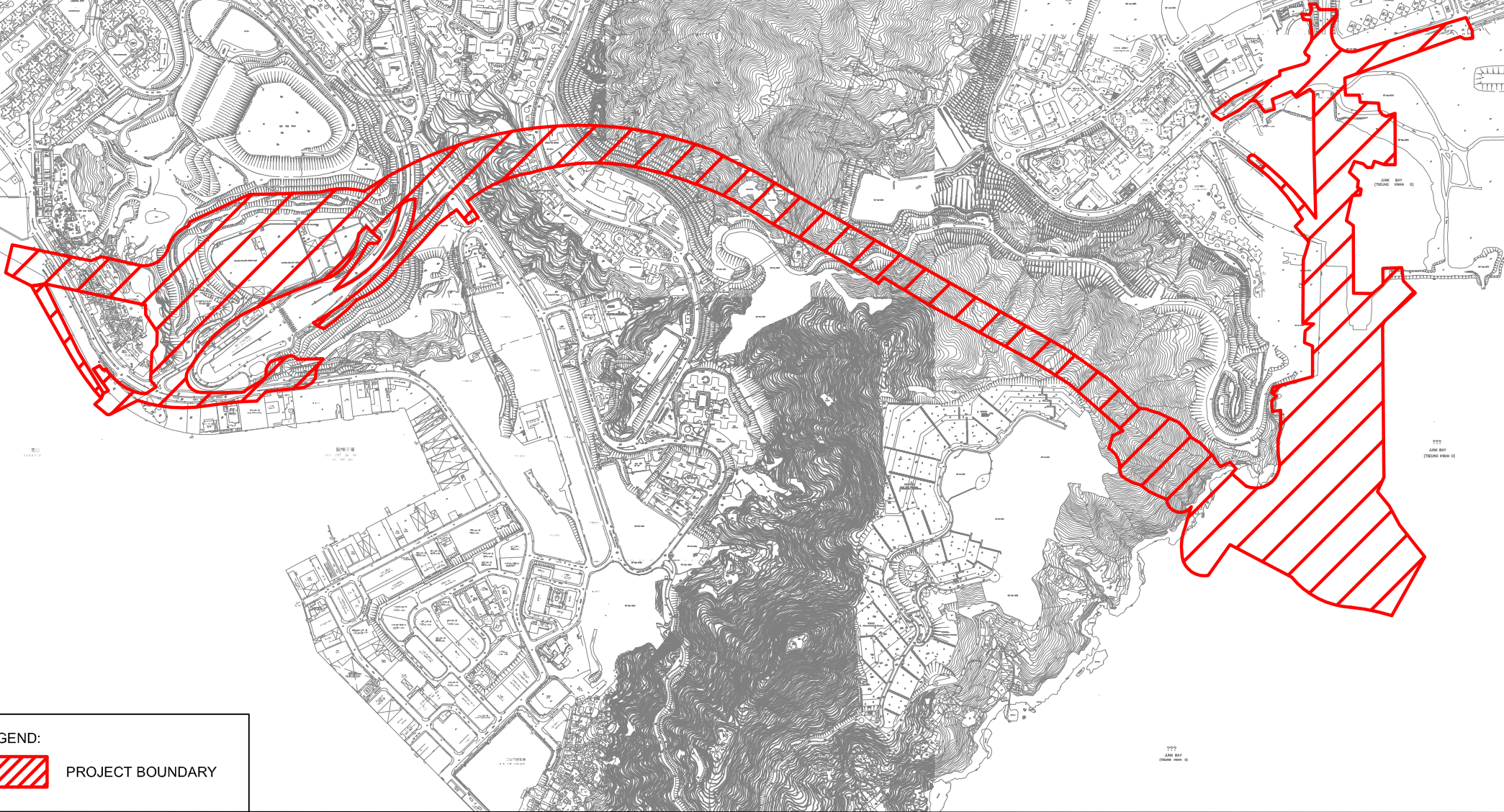
Landscape and Visual

- To remove the construction material/waste near the tree and set up proper tree protection area.

Permits/Licenses

- N/A

FIGURES

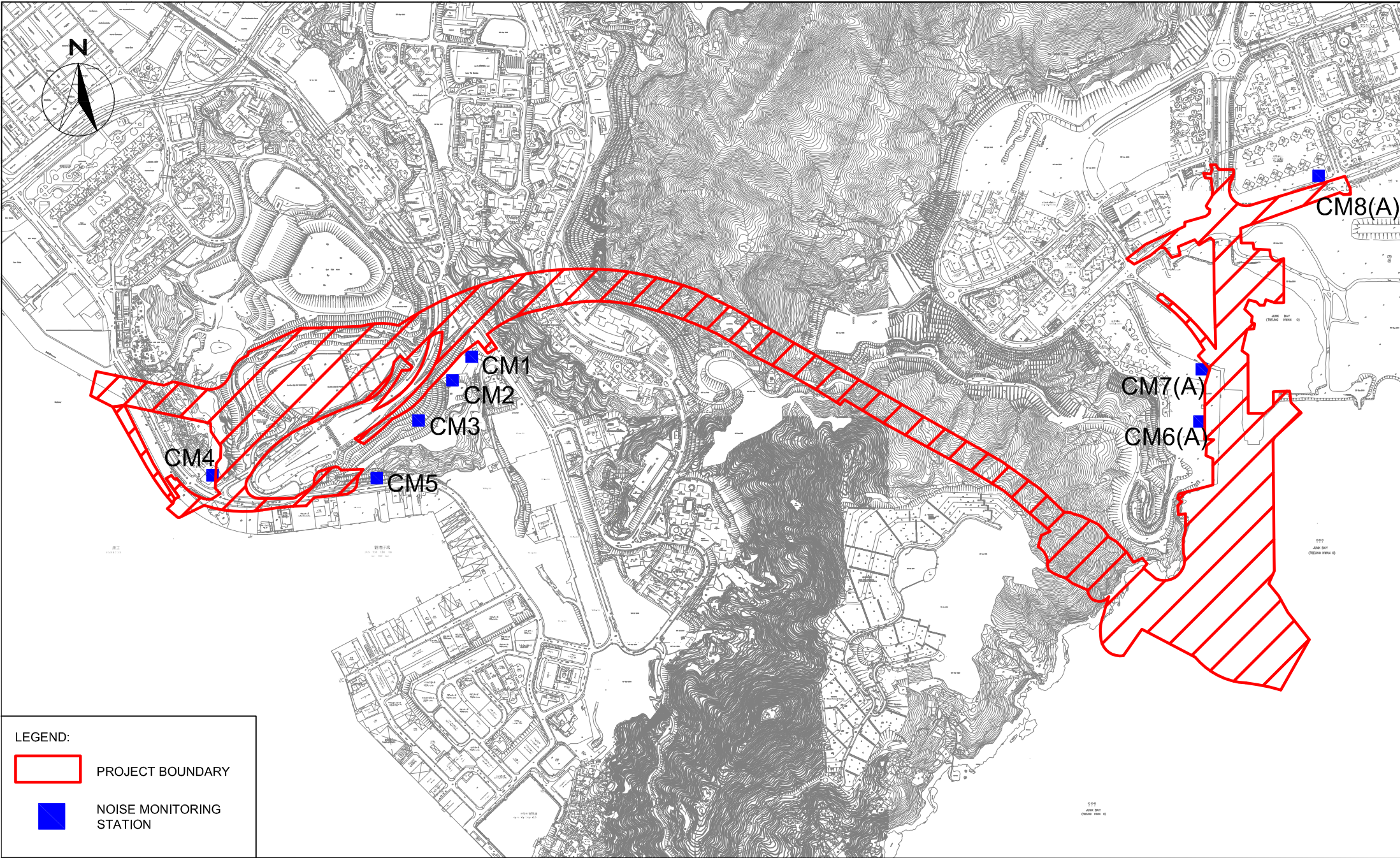


LEGEND:
 PROJECT BOUNDARY



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 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	1	REV
				-



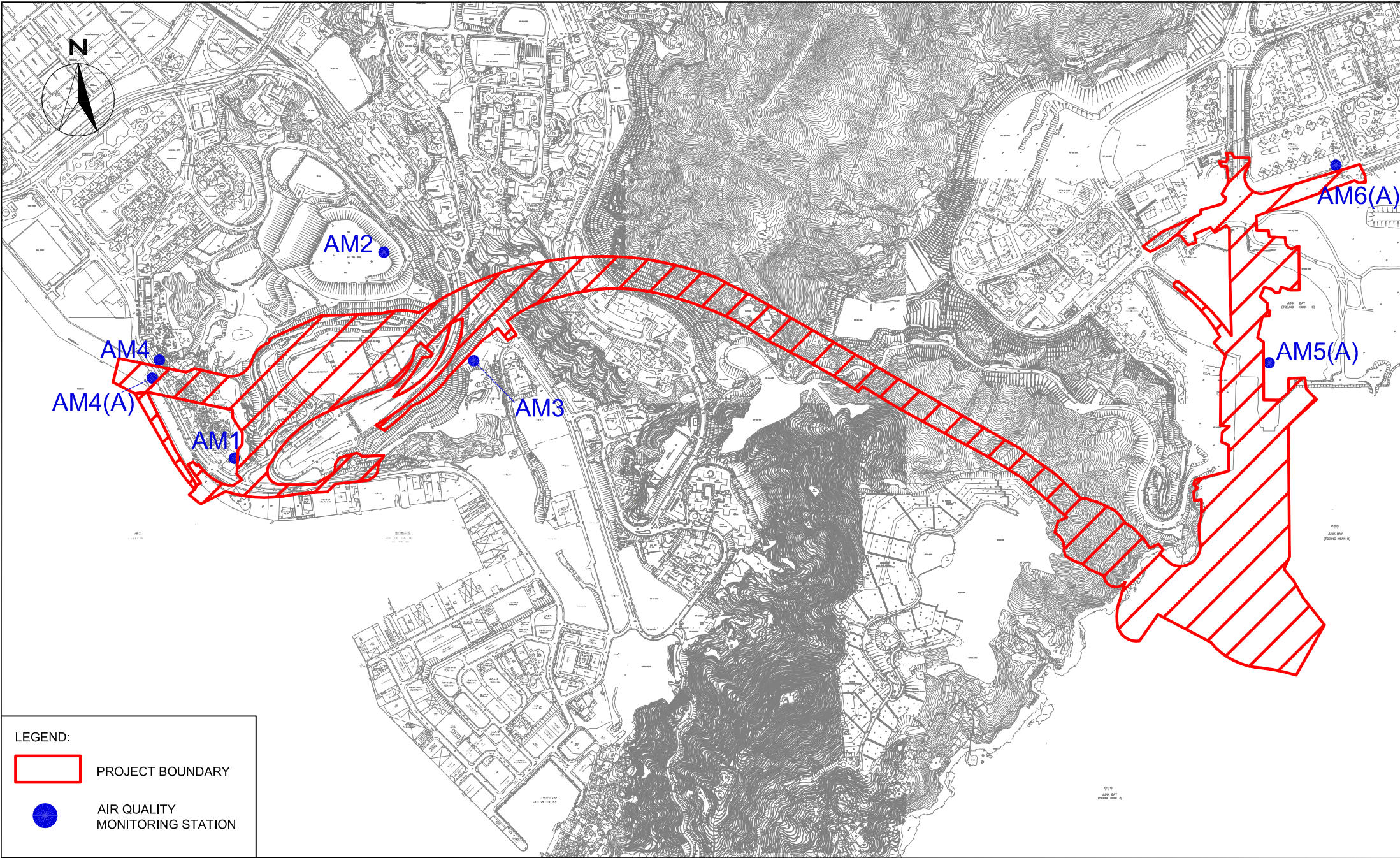
LEGEND:

- PROJECT BOUNDARY
- NOISE MONITORING STATION



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	APR 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	3	REV
			-	



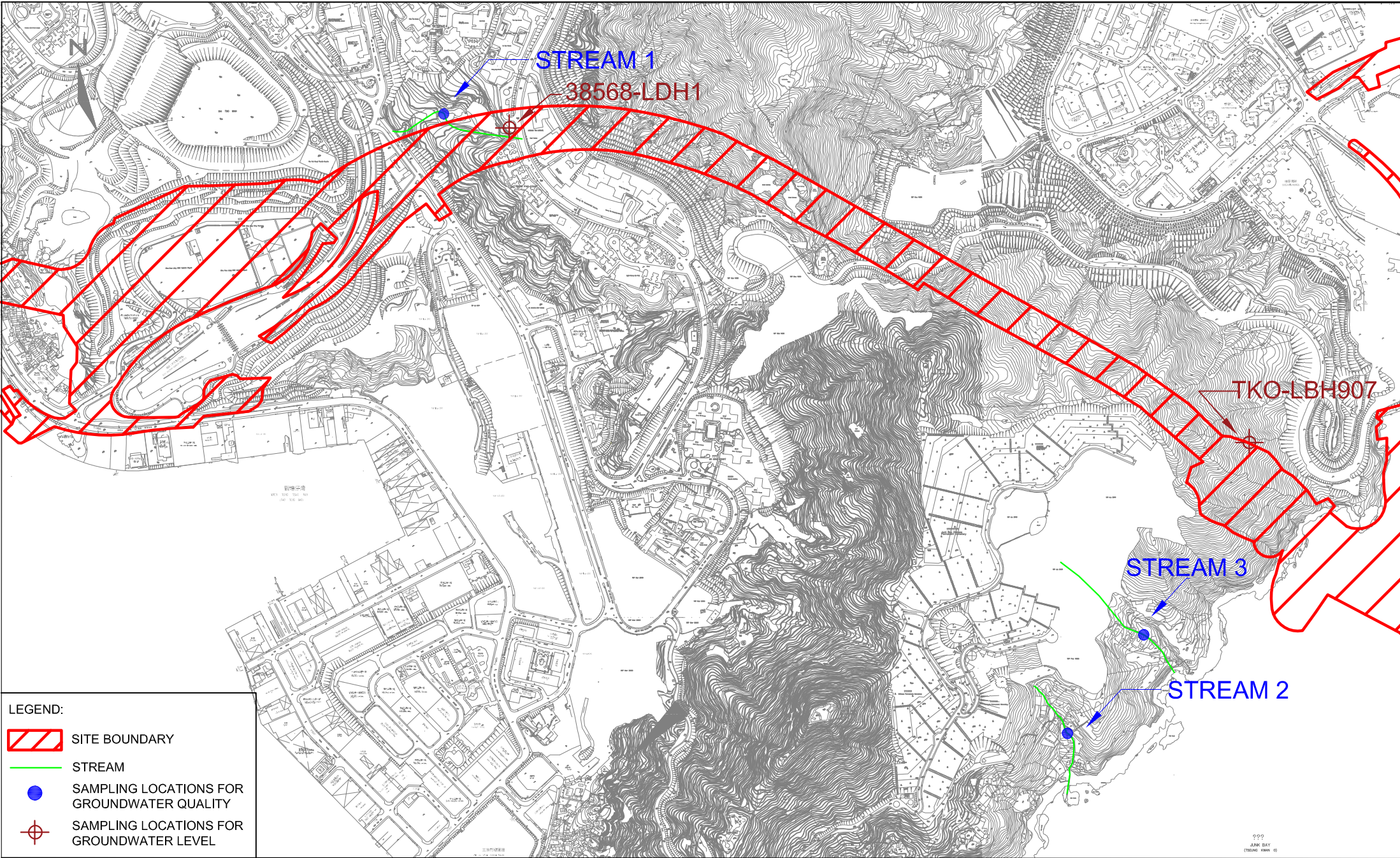
LEGEND:

- PROJECT BOUNDARY
- AIR QUALITY MONITORING STATION







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	APR 2017	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	2	REV
				-



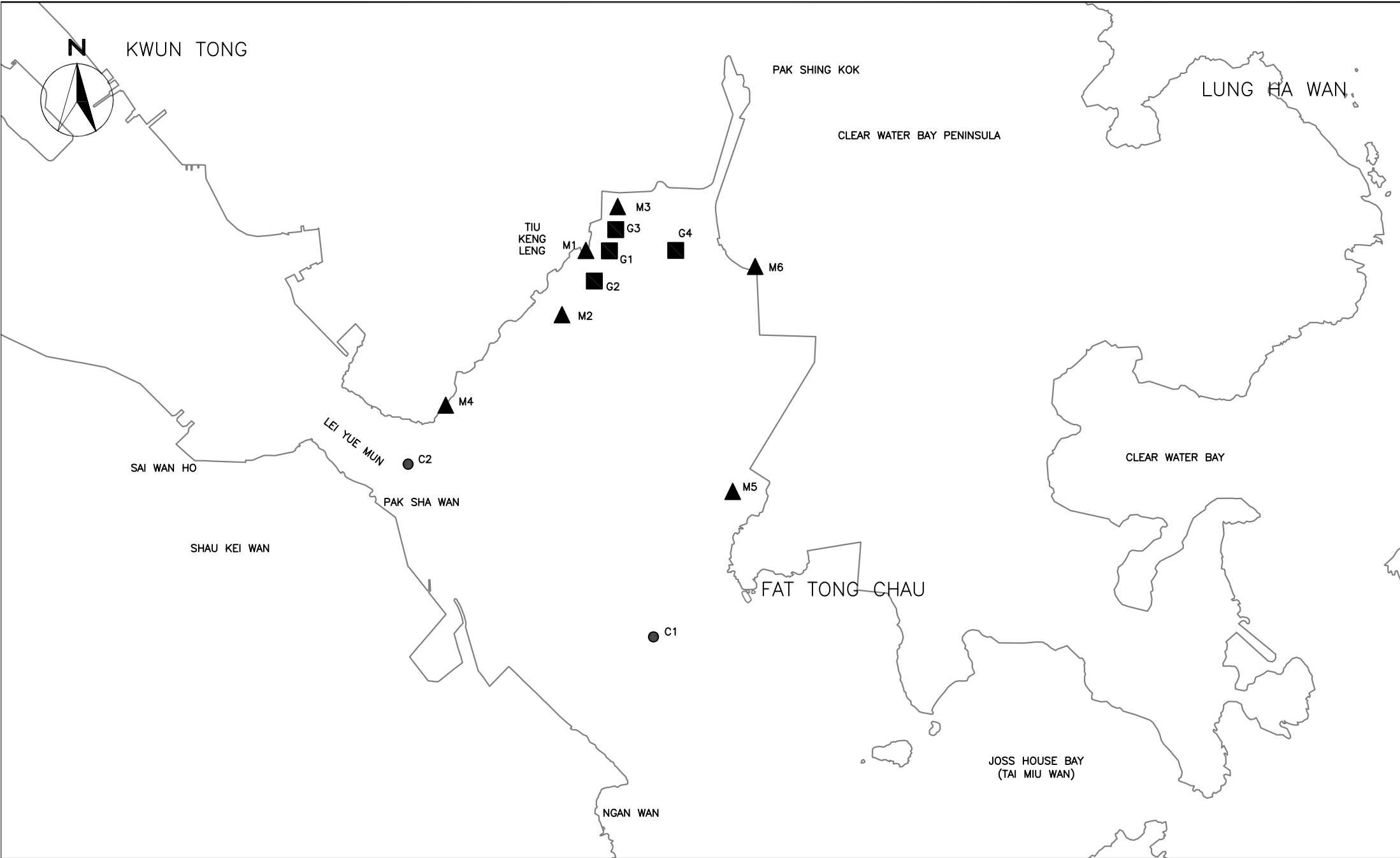
LEGEND:

-  SITE BOUNDARY
-  STREAM
-  SAMPLING LOCATIONS FOR GROUNDWATER QUALITY
-  SAMPLING LOCATIONS FOR GROUNDWATER LEVEL



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



**APPENDIX A
ACTION AND LIMIT LEVELS**

APPENDIX A – Action and Limit Levels**Air Quality*****1-hr TSP***

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
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, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	Tin Hau Temple	173	500
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/C³ 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	7.5
pH	6.0 – 8.9	6.0 – 9.0
BOD ₅ in mg L ⁻¹	2.0	2.0
TOC in mg L ⁻¹	4.3	4.9
Total Nitrogen in mg L ⁻¹	1.7	1.7
Ammonia-N in mg L ⁻¹	0.05	0.06
Total Phosphate in mg L ⁻¹	0.05	0.05
SS in mg L ⁻¹	5.5	6.2
Turbidity in NTU	2.2	2.4

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, 5-day biochemical oxygen demand (BOD₅), 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.
3. 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)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2, 4 and 5)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2, 4 and 5)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>6.9mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Station M6</u>		
Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>	

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.

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%

**APPENDIX B
COPIES OF CALIBRATION
CERTIFICATES**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0003

Station: AM1 - Tin Hau Temple Operator: WK
 Date: 19-Jan-17 Next Due Date: 18-Mar-17
 Equipment No.: A-01-05 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	292.6	Pressure, Pa (mmHg)	769.3

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	13.4	3.72	63.01	7.3	2.74
2	10.1	3.23	54.82	5.5	2.38
3	8.8	3.01	51.23	4.9	2.25
4	5.4	2.36	40.31	3.2	1.82
5	3.3	1.84	31.70	2.0	1.44

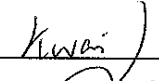
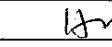
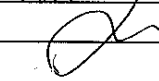
By Linear Regression of Y on X

Slope, mw = 0.0412 Intercept, bw : 0.1363
 Correlation coefficient* = 0.9997

*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 x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = <u>3.54</u>

Remarks: _____

Conducted by: wk Tang Signature:  Date: 19/1/17
 Checked by:  Signature:  Date: 19 January 2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0004

Station: AM1 - Tin Hau Temple Operator: HL
 Date: 17-Mar-17 Next Due Date: 16-May-17
 Equipment No.: A-01-05 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	290.6	Pressure, Pa (mmHg)	766.4

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	13.4	3.72	65.28	7.4	2.77
2	10.2	3.25	57.06	5.6	2.41
3	8.6	2.98	52.46	4.8	2.23
4	5.5	2.38	42.13	3.3	1.85
5	3.2	1.82	32.33	2.1	1.47

By Linear Regression of Y on X

Slope, mw = 0.0388 Intercept, bw : 0.2094
 Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.41

Remarks: _____

Conducted by: her Signature: her Date: 17/3/2017
 Checked by: Wk Tang Signature: Wk Tang Date: 17/3/17

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0003

Station: AM2 - Sai Tso Wan Recreation Ground Operator: WK
 Date: 13-Jan-17 Next Due Date: 12-Mar-17
 Equipment No.: A-01-08 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	285.6	Pressure, Pa (mmHg)	765.3

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	13.2	3.72	63.14	7.4	2.79
2	10.8	3.37	57.19	5.8	2.47
3	8.7	3.02	51.42	4.9	2.27
4	5.2	2.34	39.94	3.0	1.78
5	3.2	1.83	31.52	1.8	1.38

By Linear Regression of Y on X

Slope, mw = 0.0437 Intercept, bw = 0.0097
 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

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

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

Remarks: _____

Conducted by: Wk Tang Signature: Kwan
 Checked by: Wk Signature: _____

Date: 13/1/17
 Date: 13 January 2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0004

Station: AM2 - Sai Tso Wan Recreation Ground Operator: HL
 Date: 13-Mar-17 Next Due Date: 12-May-17
 Equipment No.: A-01-08 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	291.3	Pressure, Pa (mmHg)	764.1

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	13.3	3.70	64.86	7.5	2.78
2	10.8	3.33	58.54	6.2	2.53
3	8.6	2.97	52.33	5.0	2.27
4	5.3	2.33	41.26	3.3	1.84
5	3.3	1.84	32.74	2.0	1.43

By Linear Regression of Y on X

Slope, $mw =$ 0.0413 Intercept, $bw =$ 0.1043
 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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.44

Remarks: _____

Conducted by: LEE MAN HUI Signature: Lee Date: 13-3-2017
 Checked by: W.K. TANG Signature: W.K. Tang Date: 13/3/17

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0003

Station: AM3 - Yau Lai Estate, Bik Lai House Operator: WK
 Date: 9-Jan-17 Next Due Date: 8-Mar-17
 Equipment No.: A-01-03 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	292.6	Pressure, Pa (mmHg)	766.5

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	12.6	3.60	61.02	6.9	2.66
2	10.7	3.32	56.30	5.7	2.42
3	7.9	2.85	48.49	4.2	2.08
4	5.2	2.31	39.50	2.7	1.67
5	3.3	1.84	31.64	1.8	1.36

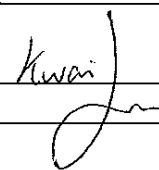
By Linear Regression of Y on X

Slope, mw = 0.0444 Intercept, bw = -0.0652
 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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>3.30</u>	

Remarks: _____

Conducted by: Wk Tang Signature:  Date: 9/1/17
 Checked by: dar Signature: _____ Date: 9 January 2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0004

Station: AM3 - Yau Lai Estate, Bik Lai House Operator: HL
 Date: 7-Mar-17 Next Due Date: 6-May-17
 Equipment No.: A-01-03 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	290.2	Pressure, Pa (mmHg)	766.1

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.7	3.63	63.60	7.0	2.69
2	10.5	3.30	57.91	5.9	2.47
3	7.6	2.80	49.39	4.4	2.13
4	5.4	2.36	41.77	3.3	1.85
5	3.4	1.88	33.32	2.0	1.44

By Linear Regression of Y on X

Slope, mw = 0.0409 Intercept, bw = 0.1070
 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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.36

Remarks: _____

Conducted by: W.E. MAN Signature: W.E. Man
 Checked by: W.K. TANG Signature: W.K. Tang

Date: 7/3/2017
 Date: 7/15/17

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0003

Station: AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office Operator: WK

Date: 23-Jan-17 Next Due Date: 22-Mar-17

Equipment No.: A-01-54 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	290.6	Pressure, Pa (mmHg)	772.2

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	17.7	4.29	72.68	10.2	3.26
2	13.2	3.71	62.88	7.8	2.85
3	10.6	3.32	56.43	6.4	2.58
4	6.7	2.64	45.04	3.9	2.02
5	4.3	2.12	36.25	2.7	1.68

By Linear Regression of Y on X

Slope, mw = 0.0442 Intercept, bw = 0.0624

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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.70

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 23/1/17

Checked by: [Signature] Signature: [Signature] Date: 23 January 2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0004

Station: AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office Operator: HL

Date: 17-Mar-17 Next Due Date: 16-May-17

Equipment No.: A-01-54 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	291.3	Pressure, Pa (mmHg)	764.4

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	17.7	4.27	74.71	10.4	3.27
2	13.0	3.66	64.15	7.9	2.85
3	10.7	3.32	58.28	6.4	2.57
4	6.8	2.65	46.63	4.2	2.08
5	4.2	2.08	36.83	2.8	1.70

By Linear Regression of Y on X

Slope, mw = 0.0419 Intercept, bw = 0.1393

Correlation coefficient* = 0.9996

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.67

Remarks: _____

Conducted by: LEE MAN WAI Signature: *Lee Man Wai* Date: 17-3-2017

Checked by: W.K. TANG Signature: *W.K. Tang* Date: 17/3/17

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0003

Station: AM5(A) - DSD Desilting Compound Operator: WK
 Date: 13-Jan-17 Next Due Date: 12-Mar-17
 Equipment No.: A-01-37 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	285.4	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	17.2	4.25	71.96	8.9	3.06
2	13.8	3.81	64.55	7.6	2.83
3	10.5	3.32	56.41	5.8	2.47
4	6.3	2.57	43.89	3.5	1.92
5	4.2	2.10	35.99	2.4	1.59

By Linear Regression of Y on X

Slope, mw = 0.0417 Intercept, bw : 0.0967
 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

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

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

Remarks: _____

Conducted by: Wk. Tang Signature: [Signature] Date: 13/1/17
 Checked by: [Signature] Signature: [Signature] Date: 13 January 2017

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0004

Station: AM5(A) - DSD Desilting Compound Operator: HL
 Date: 13-Mar-17 Next Due Date: 12-May-17
 Equipment No.: A-01-37 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	292	Pressure, Pa (mmHg)	764.5

Orifice Transfer Standard Information					
Serial No.:	0993	Slope, mc (CFM)	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	17.1	4.19	73.37	9.0	3.04
2	13.6	3.74	65.52	7.1	2.70
3	10.7	3.31	58.21	5.9	2.46
4	6.4	2.56	45.21	3.5	1.90
5	4.3	2.10	37.21	2.3	1.54

By Linear Regression of Y on X

Slope, mw = 0.0412 Intercept, bw = 0.0214
 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

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

Therefore, Set Point; W = (mw x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.14

Remarks: _____

Conducted by: LEE MAN YEE Signature: Lee Date: 13-3-2017
 Checked by: W.K. TONG Signature: W.K. Tong Date: 13/3/17

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/07/0003

Station AM6 - Park Central Operator: WK
 Date: 2-Feb-17 Next Due Date: 1-Apr-17
 Equipment No.: A-01-07 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	289.5	Pressure, Pa (mmHg)	770.1

Orifice Transfer Standard Information					
Serial No.:	2896	Slope, mc (CFM)	0.0598	Intercept, bc	-0.05079
Last Calibration Date:	4-Mar-16	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Mar-17	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			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	11.9	3.52	59.77	7.4	2.78
2	9.5	3.15	53.50	5.8	2.46
3	7.3	2.76	47.00	4.5	2.17
4	5.1	2.31	39.43	3.2	1.83
5	3.3	1.86	31.88	2.0	1.44

By Linear Regression of Y on X

Slope, mw = 0.0472 Intercept, bw : -0.0528
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

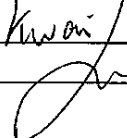
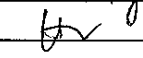
From the TSP Field Calibration Curve, take Qstd = 43 CFM

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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.75

Remarks: _____

Conducted by: Wk Tang Signature: 
 Checked by:  Signature: _____

Date: 2/2/17
 Date: 2 February 2017



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3860	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8840	7.9	5.00
4	NA	NA	1.00	0.8430	8.7	5.50
5	NA	NA	1.00	0.6970	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.7191	1.4149	0.9957	0.7184	0.8851
0.9925	1.0015	2.0010	0.9915	1.0005	1.2517
0.9904	1.1204	2.2372	0.9894	1.1192	1.3995
0.9894	1.1737	2.3464	0.9884	1.1725	1.4678
0.9842	1.4120	2.8299	0.9832	1.4106	1.7702
Qstd slope (m) = 2.04055			Qa slope (m) = 1.27776		
intercept (b) = -0.04890			intercept (b) = -0.03059		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760) (298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}

TEST REPORT

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

Test Report No.:	C/W/161001
Date of Issue:	2016-10-03
Date Received:	2016-10-01
Date Tested:	2016-10-01
Date Completed:	2016-10-03
Next Due Date:	2017-04-02

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Weather Monitor II
Manufacturer : Davis Instruments
Model No. : 7440
Serial No. : MC20813A11

Test conditions:

Room Temperature : 23 degree Celsius
Relative Humidity : 56 %

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

TEST REPORT

Test Report No.:	C/W/161001
Date of Issue:	2016-10-03
Date Received:	2016-10-01
Date Tested:	2016-10-01
Date Completed:	2016-10-03
Next Due Date:	2017-04-02
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	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
45.1	45	0.1
90	90	0
135.1	135	0.1
180	180	0
225.2	225	0.2
270.3	270	0.3
315	315	0
360	360	0

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

TEST REPORT

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

Test Report No.:	C/A/170303C
Date of Issue:	2017-03-06
Date Received:	2017-03-03
Date Tested:	2017-03-03
Date Completed:	2017-03-06
Next Due Date:	2017-05-05

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Laser Dust Monitor
 Manufacturer : Sibata
 Model No. : LD-3B
 Serial No. : 541146
 Sensitivity (K) 1 CPM : 0.001 mg/m³
 Sen. Adjustment Scale Setting : 625 CPM
 Equipment No. : A-02-07

Test Conditions:

Room Temperature : 23 degree Celsius
 Relative Humidity : 64 %

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 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)	0.0034
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PREPARED AND CHECKED BY:
 For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170302C
Date of Issue:	2017-03-04
Date Received:	2017-03-02
Date Tested:	2017-03-02
Date Completed:	2017-03-04
Next Due Date:	2017-05-03

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description : Laser Dust Monitor
 Manufacturer : Sibata
 Model No. : LD-3B
 Serial No. : 095029
 Sensitivity (K) 1 CPM : 0.001 mg/m³
 Sen. Adjustment Scale Setting : 551 CPM
 Equipment No. : A-02-10

Test Conditions:

Room Temperature : 22 degree Celsius
 Relative Humidity : 61 %

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 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)	0.0037
-------------------------	--------

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170217
Date of Issue:	2017-02-20
Date Received:	2017-02-17
Date Tested:	2017-02-17
Date Completed:	2017-02-20
Next Due Date:	2017-04-19

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-HPC300
 Serial No. : 3020408
 Flow rate : 0.1 cfm
 Zero Count Test : 0 count per 5 minutes
 Equipment No. : A-26-01

Test Conditions:

Room Temperature : 22 degree Celsius
 Relative Humidity : 61 %

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 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)	1.081
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170217A
Date of Issue:	2017-02-20
Date Received:	2017-02-17
Date Tested:	2017-02-17
Date Completed:	2017-02-20
Next Due Date:	2017-04-19

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-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 61 %

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 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)	1.098
-------------------------	-------

PREPARED AND CHECKED BY:

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170217B
Date of Issue:	2017-02-20
Date Received:	2017-02-17
Date Tested:	2017-02-17
Date Completed:	2017-02-20
Next Due Date:	2017-04-19

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-HPC300
 Serial No. : 3020410
 Flow rate : 0.1 cfm
 Zero Count Test : 0 count per 5 minutes
 Equipment No. : A-26-03

Test Conditions:

Room Temperature : 22 degree Celsius
 Relative Humidity : 61 %

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 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)	1.156
-------------------------	-------

PREPARED AND CHECKED BY:

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


 PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/170210
Date of Issue:	2017-02-13
Date Received:	2017-02-10
Date Tested:	2017-02-10
Date Completed:	2017-02-13
Next Due Date:	2017-04-12

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-HPC300
 Serial No. : 3020411
 Flow rate : 0.1 cfm
 Zero Count Test : 0 count per 5 minutes
 Equipment No. : A-26-04

Test Conditions:

Room Temperature : 23 degree Celsius
 Relative Humidity : 65 %

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 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)	1.159
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/160917B
Date of Issue:	2016-09-19
Date Received:	2016-09-17
Date Tested:	2016-09-17
Date Completed:	2016-09-19
Next Due Date:	2017-09-18

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 955
Serial No. : 12553
Microphone No. : 35222
Equipment No. : N-08-02

Test conditions:

Room Temperature : 24 degree Celsius
Relative Humidity : 57%

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

TEST REPORT

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

Test Report No.:	C/N/160917C
Date of Issue:	2016-09-19
Date Received:	2016-09-17
Date Tested:	2016-09-17
Date Completed:	2016-09-19
Next Due Date:	2017-09-18

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 955
Serial No. : 12563
Microphone No. : 34377
Equipment No. : N-08-03

Test conditions:

Room Temperature : 24 degree Celsius
Relative Humidity : 57%

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

TEST REPORT

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

Test Report No.:	C/N/160826A
Date of Issue:	2016-08-29
Date Received:	2016-08-26
Date Tested:	2016-08-26
Date Completed:	2016-08-29
Next Due Date:	2017-08-28

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 Temperature	: 25 degree Celsius
Relative Humidity	: 57%

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

TEST REPORT

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

Test Report No.:	C/N/160819B
Date of Issue:	2016-08-22
Date Received:	2016-08-19
Date Tested:	2016-08-19
Date Completed:	2016-08-22
Next Due Date:	2017-08-21

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. : 21459
Microphone No. : 43676
Equipment No. : N-08-08

Test conditions:

Room Temperature : 24 degree Celsius
Relative Humidity : 58%

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

TEST REPORT

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

Test Report No.:	C/N/160819C
Date of Issue:	2016-08-22
Date Received:	2016-08-19
Date Tested:	2016-08-19
Date Completed:	2016-08-22
Next Due Date:	2017-08-21

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.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 58%

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

TEST REPORT

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

Test Report No.:	C/N/161128
Date of Issue:	2016-11-30
Date Received:	2016-11-28
Date Tested:	2016-11-28
Date Completed:	2016-11-30
Next Due Date:	2017-11-29

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.	: 23853
Microphone No.	: 48530
Equipment No.	: N-08-10

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 66%

Test Specifications:

Performance checking at 94 and 114 dB

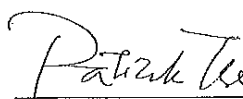
Methodology:

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

TEST REPORT

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

Test Report No.:	C/N/160919
Date of Issue:	2016-09-21
Date Received:	2016-09-19
Date Tested:	2016-09-19
Date Completed:	2016-09-21
Next Due Date:	2017-09-20

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 977
Serial No. : 45482
Microphone No. : 63626
Equipment No. : N-08-14

Test conditions:

Room Temperature : 22 degree Celsius
Relative Humidity : 56%

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

TEST REPORT

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

Test Report No.:	C/N/161216
Date of Issue:	2016-12-19
Date Received:	2016-12-16
Date Tested:	2016-12-16
Date Completed:	2016-12-19
Next Due Date:	2017-12-15

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 60 %

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

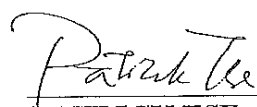
In-house method, according to manufacturer instruction manual

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

TEST REPORT

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

Test Report No.:	C/N/161216A
Date of Issue:	2016-12-19
Date Received:	2016-12-16
Date Tested:	2016-12-16
Date Completed:	2016-12-19
Next Due Date:	2017-12-15

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35921
Equipment No.	: N-13-02

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 56%

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

TEST REPORT

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

Test Report No.:	C/N/161028/1
Date of Issue:	2016-10-31
Date Received:	2016-10-28
Date Tested:	2016-10-28
Date Completed:	2016-10-31
Next Due Date:	2017-10-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 60 %

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

TEST REPORT

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

Test Report No.:	C/N/160930A
Date of Issue:	2016-10-03
Date Received:	2016-09-30
Date Tested:	2016-09-30
Date Completed:	2016-10-03
Next Due Date:	2017-10-02

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24803
Equipment No. : N-09-03

Test conditions:

Room Temperature : 25 degree Celsius
Relative Humidity : 60%

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

TEST REPORT

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

Test Report No.:	C/N/160930B
Date of Issue:	2016-10-03
Date Received:	2016-09-30
Date Tested:	2016-09-30
Date Completed:	2016-10-03
Next Due Date:	2017-10-02

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 60%

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

TEST REPORT

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

Test Report No.:	C/N/160930C
Date of Issue:	2016-10-03
Date Received:	2016-09-30
Date Tested:	2016-09-30
Date Completed:	2016-10-03
Next Due Date:	2017-10-02

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24780
Equipment No. : N-09-05

Test conditions:

Room Temperature : 25 degree Celsius
Relative Humidity : 60%

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

TEST REPORT

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

Test Report No.:	C/N/161104/1
Date of Issue:	2016-11-07
Date Received:	2016-11-04
Date Tested:	2016-11-04
Date Completed:	2016-11-07
Next Due Date:	2017-11-06

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 62 %

Methodology:

The sound 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

TEST REPORT

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

Test Report No.:	C/N/160819D
Date of Issue:	2016-08-22
Date Received:	2016-08-19
Date Tested:	2016-08-19
Date Completed:	2016-08-22
Next Due Date:	2017-08-21

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperature	: 24 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 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

TEST REPORT

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

Test Report No.:	C/W/170105A
Date of Issue:	2017-01-05
Date Received:	2017-01-05
Date Tested:	2017-01-05
Date Completed:	2017-01-05
Next Due Date:	2017-04-04

ATTN: Mr. W.K. Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description : Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : 6820-C-M
Serial No. : 12B100804
Equipment No. : W.03.13

Test conditions:

Room Temperature : 20 degree Celsius
Relative Humidity : 64%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, L/N: 12B100055
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution
Dissolved Oxygen Sensor, Model: 6562, L/N: 12A100930
1. Performance check against Winkler titration
Turbidity Sensor, Model: 6136, S/N: 12B100645
1. Calibration check with Formazin standard solution
pH Meter, Model: 6561, L/N: 11H
1. Calibration check with standard pH buffer
Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards
Conductivity (APHA 20ed 2510), Salinity (APHA 20ed 2520B)
Dissolved Oxygen (APHA 20ed 4500-O C), Turbidity (APHA 19ed 2130 B),
pH (APHA 19th 4500-H+ B)

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

Test Report No.:	C/W/170105A
Date of Issue:	2017-01-05
Date Received:	2017-01-05
Date Tested:	2017-01-05
Date Completed:	2017-01-05
Next Due Date:	2017-04-04

Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	$D = C1 - C2$	
1420	1420	0	1420 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.0	0	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O ₂ /L		Correction, mg O ₂ /L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.0	9.0	0.0	± 0.2
Half-saturated	5.8	5.8	0.0	± 0.2
Zero	0.0	0.0	0.0	± 0.2

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5
1000	1000	0	1000 ± 100

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.01	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

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

TEST REPORT

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

Test Report No.:	C/W/170214
Date of Issue:	2017-02-14
Date Received:	2017-02-14
Date Tested:	2017-02-14
Date Completed:	2017-02-14
Next Due Date:	2017-05-13

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	: AP-2000-D
Serial No.	: 122252120
Equipment No.	: W.18.02

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 55%

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

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

TEST REPORT

Test Report No.:	C/W/170214
Date of Issue:	2017-02-14
Date Received:	2017-02-14
Date Tested:	2017-02-14
Date Completed:	2017-02-14
Next Due Date:	2017-05-13
Page:	2 of 2

Certificate of Calibration

Results:

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.01	4.06	4.01 ± 0.10	Pass
pH QC buffer 6.86	6.87	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.18	9.18 ± 0.10	Pass

ORP performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
Zobell Solution	228.8	229 ± 10	Pass

D.O. performance checking

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.40	8.45	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity check

Turbidity solution (NTU)	Instrument Readings (NTU)	Acceptance Criteria	Comment
0.00	0.00	0.00 ± 0.05	Pass
100	100	100 ± 5	Pass
1000	1000	1000 ± 100	Pass

Salinity Performance check

Salinity, ppt		Acceptable range	Comment
Instrument Reading	Theoretical Value	30.0 ± 3	Pass
30.1	30.0		

Conductivity performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
KCl stock solution (2570 µs/cm)	2586	2442-2698	Pass

Temperature performance checking

Reference thermometer- E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
24.1	24.0	+0.1	N/A

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

TEST REPORT

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

Test Report No.:	C/W/170111
Date of Issue:	2017-01-11
Date Received:	2017-01-11
Date Tested:	2017-01-11
Date Completed:	2017-01-11
Next Due Date:	2017-04-10

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	: AP-2000-D
Serial No.	: 122251520
Equipment No.	: W.18.12

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

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

TEST REPORT

Test Report No.:	C/W/170111
Date of Issue:	2017-01-11
Date Received:	2017-01-11
Date Tested:	2017-01-11
Date Completed:	2017-01-11
Next Due Date:	2017-04-10

Page: 2 of 2

Certificate of Calibration

Results:

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.01	4.03	4.01 ± 0.10	Pass
pH QC buffer 6.86	6.87	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.19	9.18 ± 0.10	Pass

ORP performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
Zobell Solution	228.6	229 ± 10	Pass

D.O. performance checking

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.40	8.45	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity check

Turbidity solution (NTU)	Instrument Readings (NTU)	Acceptance Criteria	Comment
0.00	0.00	0.00 ± 0.05	Pass
100	100	100 ± 5	Pass
1000	1000	1000 ± 100	Pass

Salinity Performance check

Salinity, ppt		Acceptable range	Comment
Instrument Reading	Theoretical Value	30.0 ± 3	Pass
30.0	30.7		

Conductivity performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
KCl stock solution (2570 µs/cm)	2586	2442-2698	Pass

Temperature performance checking

Reference thermometer- E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
24.1	24.2	-0.1	N/A

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

TEST REPORT

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

Test Report No.:	C/W/170111C
Date of Issue:	2017-01-11
Date Received:	2017-01-11
Date Tested:	2017-01-11
Date Completed:	2017-01-11
Next Due Date:	2017-04-10

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

Description	: Multiparameter Water Quality Probe
Manufacturer	: Aquaread Ltd
Model No.	: AP-2000-D
Serial No.	: 122251720
Equipment No.	: W.18.13

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking for pH, Oxidation Reduction Potential (ORP), Dissolved oxygen (D.O.), Turbidity, Salinity, Conductivity and Temperature

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

TEST REPORT

Test Report No.:	C/W/170111C
Date of Issue:	2017-01-11
Date Received:	2017-01-11
Date Tested:	2017-01-11
Date Completed:	2017-01-11
Next Due Date:	2017-04-10

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Certificate of Calibration

Results:

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.01	4.06	4.01 ± 0.10	Pass
pH QC buffer 6.86	6.82	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.22	9.18 ± 0.10	Pass

ORP performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
Zobell Solution	229.4	229 ± 10	Pass

D.O. performance checking

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.40	8.42	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity check

Turbidity solution (NTU)	Instrument Readings (NTU)	Acceptance Criteria	Comment
0.00	0.00	0.00 ± 0.05	Pass
100	100	100 ± 5	Pass
1000	1000	1000 ± 100	Pass

Salinity Performance check

Salinity, ppt		Acceptable range	Comment
Instrument Reading	Theoretical Value	30.0 ± 3	Pass
30.2	30.0		

Conductivity performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
KCl stock solution (2570 µs/cm)	2688	2442-2698	Pass

Temperature performance checking

Reference thermometer- E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
24.1	24.2	-0.1	N/A

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

TEST REPORT

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

Test Report No.:	C/W/170228A
Date of Issue:	2017-02-28
Date Received:	2017-02-28
Date Tested:	2017-02-28
Date Completed:	2017-02-28
Next Due Date:	2017-05-27

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-06 (S/N: 16J100680)	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO Optical DO Sensor, Ti	599100-01	16H102985
- EXO conductivity/Temperature Sensor, Ti	599870	16G102307
- EXO Turbidity Sensor, Ti	599101-01	16H102463
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J100416

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 67%

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

TEST REPORT

Test Report No.:	C/W/170228A
Date of Issue:	2017-02-28
Date Received:	2017-02-28
Date Tested:	2017-02-28
Date Completed:	2017-02-28
Next Due Date:	2017-05-27

Page: 2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings ($\mu\text{S}/\text{cm}$)	Acceptance Criteria	Comment
KCl stock solution (12890 $\mu\text{S}/\text{cm}$)	13327	12246-13534	Pass

Temperature performance checking

Reference thermometer- E431 Readings ($^{\circ}\text{C}$)	Instrument Readings ($^{\circ}\text{C}$)	Correction ($^{\circ}\text{C}$)	Comment
22.4	22.408	-0.008	N/A

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.02	4.00 \pm 0.10	Pass
pH QC buffer 6.86	6.90	6.86 \pm 0.10	Pass
pH QC buffer 9.18	9.16	9.18 \pm 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.05	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.41	8.43	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Acceptance Criteria	Comment
10 NTU	10.26	9.0-11.0	Pass
50 NTU	50.53	45.0-55.0	Pass
100 NTU	104.7	90.0-110.0	Pass

Depth performance checking

Water Depth	Instrument Readings (NTU)	Acceptance Criteria	Comment
0.5 meter	0.51	0.45-0.55	Pass

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



Calibration Certificate

Number: CCP/61946

Customer Name: Leighton Contractors (Asia) Limited
Address: 39/F., Sun Hung Kai Centre,
30 Harbour Road, Hong Kong.
Detector Model: Crowcon Tetra Portable Gas Detector
Serial Number: 100378267/01-007

Sensor Type	Measuring Range	Alarm Level Settings				Test Gas	Result
		Alarm 1	Alarm 2	STEL	LTEL		
CH4	0 to 100%LEL	20	40	NA	NA	50%LEL	Passed
H2S	0 to 100ppm	5	10	10	5	25ppm	Passed
O2	0 to 25%v/v	19	23.5	NA	NA	18.0%v/v	Passed
CO	0 to 500ppm	30	100	200	30	100ppm	Passed

Next Calibration Date: 3rd Mar 2017

Remarks:

1. "Passed" refers to the detector has been successfully calibrated to meet with manufacturer tolerance of the instrument & sensor specification and repeatability $\pm 5\%$ FSD.
2. The above equipment has been tested and calibrated in accordance with procedures referred to in Crowcon's BSI validated ISO9001 quality manual. Test equipment used has been factory calibrated and is traceable to national standards. Canned calibration gas has been prepared in accordance with BS4559 and original gas mixture has been prepared using NPL (UK) certified Gravimetric Standard. Gas generator has been tested to meet with: Mil Std 45662A / ANSI/NCSS Z540-1

Authorized Signature



Date: 4th Mar 2016

FireMark Hong Kong Limited
Unit 901, 9/F., Lai Sun Commercial Center, 680 Cheung Sha Wan Road, Kowloon,
Hong Kong
Tel : (852) 2751 8875 Fax : (852) 2751 8806



Calibration Certificate

Number: CCP/66453

Customer Name: Far East Metal & Hardware Company
Contact Person: Ms. Cherry Yiu
Detector Model: Crowcon Tetra Portable Gas Detector
Serial Number: 100486262/01-020

Sensor Type	Measuring Range	Alarm Level Settings				Test Gas	Result
		Alarm 1	Alarm 2	STEL	LTEL		
CH4	0 to 100%LEL	20	40	NA	NA	50%LEL	Passed
H2S	0 to 100ppm	5	10	10	5	25ppm	Passed
O2	0 to 25%v/v	19.0	23.5	NA	NA	18.0%v/v	Passed
CO	0 to 500ppm	30	100	200	30	100ppm	Passed

Next Calibration Date: 5th January 2018

Remarks:

1. "Passed" refers to the detector has been successfully calibrated to meet with manufacturer tolerance of the instrument & sensor specification and repeatability $\pm 5\%$ FSD.
2. The above equipment has been tested and calibrated in accordance with procedures referred to in Crowcon's BSI validated ISO9001 quality manual. Test equipment used has been factory calibrated and is traceable to national standards. Canned calibration gas has been prepared in accordance with BS4559 and original gas mixture has been prepared using NPL (UK) certified Gravimetric Standard. Gas generator has been tested to meet with: Mil Std 45662A / ANSI/NCSL Z540-1

Mark Chan

Technical Service Manager

6th January 2017



FireMark Hong Kong Limited
Flat A, 11/F., Hop Hing Industrial Building, 704 Castle Peak Road, Lai Chi Kok,
Kowloon, Hong Kong.
Tel : (852) 2751 8871 Fax : (852) 2751 880

APPENDIX C
WEATHER INFORMATION

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 March 2017	15.9 – 22.9	67	0
2 March 2017	17.2 – 23.9	45	0
3 March 2017	15.7 – 20.1	67	0
4 March 2017	16.8 – 21.8	73	0
5 March 2017	18.7 – 24	83	0
6 March 2017	17.9 – 23.5	80	Trace
7 March 2017	17.1 – 20.7	75	Trace
8 March 2017	15 – 17.3	86	2.8
9 March 2017	16 – 19.6	74	Trace
10 March 2017	16.4 – 19.2	90	Trace
11 March 2017	16.7 – 18.4	88	Trace
12 March 2017	17 – 19.5	90	1
13 March 2017	19.4 – 24.4	92	0
14 March 2017	16.8 – 22	94	8.5
15 March 2017	16.2 – 17.9	75	Trace
16 March 2017	16.8 – 19	78	Trace
17 March 2017	17 – 20.4	86	Trace
18 March 2017	17.4 – 20.1	90	0.3
19 March 2017	18.9 – 20.6	94	10.7

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 March 2017	18.6 – 27.1	86	Trace
21 March 2017	19.1 – 27.6	85	0.6
22 March 2017	17.6 – 19.7	88	0.9
23 March 2017	19 – 24.6	84	0
24 March 2017	18.9 – 22.4	83	Trace
25 March 2017	16.5 – 23.4	84	Trace
26 March 2017	13.8 – 16.9	76	1
27 March 2017	16.3 – 21.5	55	0
28 March 2017	18.1 – 24.9	70	0
29 March 2017	20.4 – 23.7	84	0.3
30 March 2017	21 – 23.1	89	Trace
31 March 2017	15.5 – 23.7	92	21.9

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

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Mar-2017	0:00	2.6	WNW
1-Mar-2017	1:00	2.6	WNW
1-Mar-2017	2:00	2.3	WSW
1-Mar-2017	3:00	2.3	W
1-Mar-2017	4:00	2.3	WSW
1-Mar-2017	5:00	1.7	WNW
1-Mar-2017	6:00	1.3	W
1-Mar-2017	7:00	1.9	W
1-Mar-2017	8:00	1.3	WNW
1-Mar-2017	9:00	1.7	W
1-Mar-2017	10:00	1.1	W
1-Mar-2017	11:00	2.1	W
1-Mar-2017	12:00	1.8	WNW
1-Mar-2017	13:00	2.8	WNW
1-Mar-2017	14:00	3.2	W
1-Mar-2017	15:00	3	WNW
1-Mar-2017	16:00	2.8	WNW
1-Mar-2017	17:00	2.7	WNW
1-Mar-2017	18:00	2.7	W
1-Mar-2017	19:00	2.7	SSW
1-Mar-2017	20:00	2.7	SW
1-Mar-2017	21:00	3	N
1-Mar-2017	22:00	2.3	NE
1-Mar-2017	23:00	2.4	ENE
2-Mar-2017	0:00	2.5	E
2-Mar-2017	1:00	2.3	N
2-Mar-2017	2:00	2.2	N
2-Mar-2017	3:00	2.1	NNE
2-Mar-2017	4:00	2.1	NNE
2-Mar-2017	5:00	2.5	NNE
2-Mar-2017	6:00	2.1	ENE
2-Mar-2017	7:00	2.6	NE
2-Mar-2017	8:00	2.8	NE
2-Mar-2017	9:00	2.5	ENE
2-Mar-2017	10:00	2.5	ENE
2-Mar-2017	11:00	2.3	ENE
2-Mar-2017	12:00	2.6	ENE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

2-Mar-2017	13:00	1.9	ESE
2-Mar-2017	14:00	1.8	SSE
2-Mar-2017	15:00	2.3	SSE
2-Mar-2017	16:00	1.8	SSE
2-Mar-2017	17:00	0.9	SSE
2-Mar-2017	18:00	1.1	SE
2-Mar-2017	19:00	1.1	S
2-Mar-2017	20:00	1.3	SE
2-Mar-2017	21:00	1.1	S
2-Mar-2017	22:00	1.1	S
2-Mar-2017	23:00	0.9	S
3-Mar-2017	0:00	0.7	SE
3-Mar-2017	1:00	0.8	SSW
3-Mar-2017	2:00	0.8	SSW
3-Mar-2017	3:00	0.8	S
3-Mar-2017	4:00	1	S
3-Mar-2017	5:00	0.9	S
3-Mar-2017	6:00	0.5	S
3-Mar-2017	7:00	0.8	S
3-Mar-2017	8:00	0.9	SW
3-Mar-2017	9:00	1.3	SW
3-Mar-2017	10:00	1.6	SSW
3-Mar-2017	11:00	1.5	SSW
3-Mar-2017	12:00	1.7	S
3-Mar-2017	13:00	1.8	SSW
3-Mar-2017	14:00	1.6	S
3-Mar-2017	15:00	2.4	S
3-Mar-2017	16:00	1.6	S
3-Mar-2017	17:00	1.4	S
3-Mar-2017	18:00	1	S
3-Mar-2017	19:00	0.7	SSW
3-Mar-2017	20:00	0.5	SSW
3-Mar-2017	21:00	0.5	SSW
3-Mar-2017	22:00	0.6	NW
3-Mar-2017	23:00	0.7	NNW
4-Mar-2017	0:00	0.8	SSE
4-Mar-2017	1:00	0.9	ESE
4-Mar-2017	2:00	0.9	S

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

4-Mar-2017	3:00	0.7	WNW
4-Mar-2017	4:00	0.7	NW
4-Mar-2017	5:00	0.8	NNW
4-Mar-2017	6:00	1	NNW
4-Mar-2017	7:00	0.8	WSW
4-Mar-2017	8:00	0.7	NW
4-Mar-2017	9:00	0.7	WNW
4-Mar-2017	10:00	1.1	NW
4-Mar-2017	11:00	1.4	WNW
4-Mar-2017	12:00	1.4	WNW
4-Mar-2017	13:00	1.7	WNW
4-Mar-2017	14:00	1.1	NW
4-Mar-2017	15:00	1.5	NNW
4-Mar-2017	16:00	1.3	NW
4-Mar-2017	17:00	1.2	NW
4-Mar-2017	18:00	0.8	NW
4-Mar-2017	19:00	0.4	WNW
4-Mar-2017	20:00	0.8	NNW
4-Mar-2017	21:00	0.4	NNW
4-Mar-2017	22:00	0.2	WNW
4-Mar-2017	23:00	0.4	NNW
5-Mar-2017	0:00	0.2	NNW
5-Mar-2017	1:00	0.2	WNW
5-Mar-2017	2:00	0.3	NNW
5-Mar-2017	3:00	0.2	NNW
5-Mar-2017	4:00	0.6	NNW
5-Mar-2017	5:00	0.7	NW
5-Mar-2017	6:00	0.6	NW
5-Mar-2017	7:00	0.8	WNW
5-Mar-2017	8:00	0.9	W
5-Mar-2017	9:00	1	NW
5-Mar-2017	10:00	1.1	NW
5-Mar-2017	11:00	1.5	NNW
5-Mar-2017	12:00	1.7	NNW
5-Mar-2017	13:00	1.8	NNW
5-Mar-2017	14:00	1.4	NNW
5-Mar-2017	15:00	1.8	WNW
5-Mar-2017	16:00	1.8	WNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

5-Mar-2017	17:00	1	SW
5-Mar-2017	18:00	1.2	E
5-Mar-2017	19:00	1.2	SW
5-Mar-2017	20:00	1.6	NNW
5-Mar-2017	21:00	1.3	NNW
5-Mar-2017	22:00	1	NNW
5-Mar-2017	23:00	1.6	N
6-Mar-2017	0:00	1.3	NNW
6-Mar-2017	1:00	1.4	NNW
6-Mar-2017	2:00	2.1	WNW
6-Mar-2017	3:00	2.1	W
6-Mar-2017	4:00	1.5	WNW
6-Mar-2017	5:00	1.7	SE
6-Mar-2017	6:00	2.2	ESE
6-Mar-2017	7:00	2	WSW
6-Mar-2017	8:00	1.5	WNW
6-Mar-2017	9:00	1.4	S
6-Mar-2017	10:00	1.7	NNE
6-Mar-2017	11:00	1.7	NNE
6-Mar-2017	12:00	1.7	W
6-Mar-2017	13:00	2	S
6-Mar-2017	14:00	2.7	WSW
6-Mar-2017	15:00	2.7	NNE
6-Mar-2017	16:00	2.2	WSW
6-Mar-2017	17:00	2.2	ESE
6-Mar-2017	18:00	1.9	SE
6-Mar-2017	19:00	1.5	ESE
6-Mar-2017	20:00	1.9	SW
6-Mar-2017	21:00	1.5	S
6-Mar-2017	22:00	1.6	NW
6-Mar-2017	23:00	1.3	S
7-Mar-2017	0:00	1.4	S
7-Mar-2017	1:00	1.4	S
7-Mar-2017	2:00	1.9	S
7-Mar-2017	3:00	1.9	E
7-Mar-2017	4:00	2	NW
7-Mar-2017	5:00	1.7	NE
7-Mar-2017	6:00	1.4	WSW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

7-Mar-2017	7:00	1.1	NW
7-Mar-2017	8:00	1.1	NW
7-Mar-2017	9:00	1.3	NNW
7-Mar-2017	10:00	1.4	NW
7-Mar-2017	11:00	1.7	NNW
7-Mar-2017	12:00	2.3	SSW
7-Mar-2017	13:00	2.3	SE
7-Mar-2017	14:00	1.9	SSW
7-Mar-2017	15:00	1.6	SSW
7-Mar-2017	16:00	1.7	NE
7-Mar-2017	17:00	2	N
7-Mar-2017	18:00	1.5	N
7-Mar-2017	19:00	1.6	N
7-Mar-2017	20:00	1.2	NNW
7-Mar-2017	21:00	1.2	NNW
7-Mar-2017	22:00	1	NNW
7-Mar-2017	23:00	1	WNW
8-Mar-2017	0:00	1.1	WSW
8-Mar-2017	1:00	1.1	WSW
8-Mar-2017	2:00	1.1	WNW
8-Mar-2017	3:00	1	N
8-Mar-2017	4:00	0.9	SE
8-Mar-2017	5:00	0.7	SE
8-Mar-2017	6:00	1.1	ENE
8-Mar-2017	7:00	1.1	S
8-Mar-2017	8:00	1.4	SSE
8-Mar-2017	9:00	1.9	NW
8-Mar-2017	10:00	2.1	WNW
8-Mar-2017	11:00	1.9	NW
8-Mar-2017	12:00	2.3	NW
8-Mar-2017	13:00	2.4	NW
8-Mar-2017	14:00	2.5	NW
8-Mar-2017	15:00	2.2	W
8-Mar-2017	16:00	2	WNW
8-Mar-2017	17:00	2.8	WNW
8-Mar-2017	18:00	1.8	NW
8-Mar-2017	19:00	2.2	WNW
8-Mar-2017	20:00	2.2	NW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

8-Mar-2017	21:00	2.6	NW
8-Mar-2017	22:00	2.6	N
8-Mar-2017	23:00	2.5	NNW
9-Mar-2017	0:00	2.5	NNW
9-Mar-2017	1:00	2.6	NW
9-Mar-2017	2:00	2.2	NNW
9-Mar-2017	3:00	2.3	NW
9-Mar-2017	4:00	2.4	W
9-Mar-2017	5:00	2	NNW
9-Mar-2017	6:00	2.2	NNW
9-Mar-2017	7:00	2	WNW
9-Mar-2017	8:00	2.4	NW
9-Mar-2017	9:00	2.8	NW
9-Mar-2017	10:00	2.9	WNW
9-Mar-2017	11:00	3.2	NW
9-Mar-2017	12:00	3	WNW
9-Mar-2017	13:00	2.3	WSW
9-Mar-2017	14:00	2.5	WNW
9-Mar-2017	15:00	2.7	WNW
9-Mar-2017	16:00	2.3	WNW
9-Mar-2017	17:00	1.9	W
9-Mar-2017	18:00	1.8	W
9-Mar-2017	19:00	1.1	WNW
9-Mar-2017	20:00	1.2	NW
9-Mar-2017	21:00	1.6	WNW
9-Mar-2017	22:00	1.6	WSW
9-Mar-2017	23:00	1.2	WNW
10-Mar-2017	0:00	1.1	NW
10-Mar-2017	1:00	1.1	NW
10-Mar-2017	2:00	1.4	S
10-Mar-2017	3:00	1.8	S
10-Mar-2017	4:00	1.4	S
10-Mar-2017	5:00	0.9	SSW
10-Mar-2017	6:00	0.3	SSW
10-Mar-2017	7:00	0.7	N
10-Mar-2017	8:00	0.8	NNE
10-Mar-2017	9:00	1.2	NNE
10-Mar-2017	10:00	1.7	WNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

10-Mar-2017	11:00	2.1	WNW
10-Mar-2017	12:00	2.5	SSW
10-Mar-2017	13:00	2.5	WSW
10-Mar-2017	14:00	1.7	WNW
10-Mar-2017	15:00	1.1	NW
10-Mar-2017	16:00	1.7	NW
10-Mar-2017	17:00	1.3	S
10-Mar-2017	18:00	0.7	S
10-Mar-2017	19:00	0.8	S
10-Mar-2017	20:00	1	SSW
10-Mar-2017	21:00	0.6	SW
10-Mar-2017	22:00	0.8	SSW
10-Mar-2017	23:00	0.9	NNW
11-Mar-2017	0:00	1.2	N
11-Mar-2017	1:00	0.9	N
11-Mar-2017	2:00	0.8	ENE
11-Mar-2017	3:00	0.5	WNW
11-Mar-2017	4:00	1	WSW
11-Mar-2017	5:00	0.8	SW
11-Mar-2017	6:00	1.4	WSW
11-Mar-2017	7:00	1.3	NW
11-Mar-2017	8:00	1.2	NW
11-Mar-2017	9:00	2.4	SW
11-Mar-2017	10:00	2.1	W
11-Mar-2017	11:00	2.1	WNW
11-Mar-2017	12:00	2	W
11-Mar-2017	13:00	2.5	NW
11-Mar-2017	14:00	3	NNW
11-Mar-2017	15:00	2.8	WNW
11-Mar-2017	16:00	2	NNW
11-Mar-2017	17:00	2.3	NNW
11-Mar-2017	18:00	2.5	WNW
11-Mar-2017	19:00	1.8	NW
11-Mar-2017	20:00	1.6	NW
11-Mar-2017	21:00	1.2	NW
11-Mar-2017	22:00	0.8	NNW
11-Mar-2017	23:00	1.1	NNW
12-Mar-2017	0:00	1.6	NNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

12-Mar-2017	1:00	1.2	NNW
12-Mar-2017	2:00	0.9	NNW
12-Mar-2017	3:00	1.3	NNW
12-Mar-2017	4:00	1.3	NNW
12-Mar-2017	5:00	1	NW
12-Mar-2017	6:00	0.9	NNW
12-Mar-2017	7:00	0.5	NNW
12-Mar-2017	8:00	0.8	WNW
12-Mar-2017	9:00	1.8	WNW
12-Mar-2017	10:00	2.2	NNW
12-Mar-2017	11:00	2.3	NW
12-Mar-2017	12:00	3.2	NW
12-Mar-2017	13:00	2.5	NNW
12-Mar-2017	14:00	2.3	NNW
12-Mar-2017	15:00	2.1	NNW
12-Mar-2017	16:00	2.2	NW
12-Mar-2017	17:00	1.9	NW
12-Mar-2017	18:00	2.1	NW
12-Mar-2017	19:00	1.9	NW
12-Mar-2017	20:00	2.1	WNW
12-Mar-2017	21:00	1.7	NNW
12-Mar-2017	22:00	2	W
12-Mar-2017	23:00	2.4	WNW
13-Mar-2017	0:00	2.7	WNW
13-Mar-2017	1:00	2.3	WNW
13-Mar-2017	2:00	1.9	WNW
13-Mar-2017	3:00	2.1	W
13-Mar-2017	4:00	1.3	ENE
13-Mar-2017	5:00	1.3	ESE
13-Mar-2017	6:00	1.3	ESE
13-Mar-2017	7:00	1.5	SE
13-Mar-2017	8:00	1.6	S
13-Mar-2017	9:00	2.1	SSE
13-Mar-2017	10:00	2.5	WNW
13-Mar-2017	11:00	3.4	WNW
13-Mar-2017	12:00	4	NW
13-Mar-2017	13:00	3.2	WSW
13-Mar-2017	14:00	3.3	WNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

13-Mar-2017	15:00	3.5	WNW
13-Mar-2017	16:00	3.1	WNW
13-Mar-2017	17:00	2.8	NW
13-Mar-2017	18:00	2.7	WNW
13-Mar-2017	19:00	1.9	S
13-Mar-2017	20:00	2.1	SE
13-Mar-2017	21:00	2.2	ESE
13-Mar-2017	22:00	1.9	SE
13-Mar-2017	23:00	1.7	S
14-Mar-2017	0:00	1.6	SE
14-Mar-2017	1:00	1.5	SE
14-Mar-2017	2:00	1.7	ESE
14-Mar-2017	3:00	1.2	SE
14-Mar-2017	4:00	1.5	SE
14-Mar-2017	5:00	1.5	SE
14-Mar-2017	6:00	1.3	SE
14-Mar-2017	7:00	1.8	S
14-Mar-2017	8:00	1.7	SE
14-Mar-2017	9:00	2.4	S
14-Mar-2017	10:00	2.4	SE
14-Mar-2017	11:00	2.3	SE
14-Mar-2017	12:00	2.5	S
14-Mar-2017	13:00	3	S
14-Mar-2017	14:00	2.6	SE
14-Mar-2017	15:00	2.9	SE
14-Mar-2017	16:00	2.9	S
14-Mar-2017	17:00	2.6	SW
14-Mar-2017	18:00	2.4	WSW
14-Mar-2017	19:00	2.3	WNW
14-Mar-2017	20:00	2.3	S
14-Mar-2017	21:00	2.4	S
14-Mar-2017	22:00	2.4	S
14-Mar-2017	23:00	2.2	S
15-Mar-2017	0:00	2.7	S
15-Mar-2017	1:00	2.4	SSW
15-Mar-2017	2:00	2.1	SW
15-Mar-2017	3:00	2.2	S
15-Mar-2017	4:00	1.9	SSW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

15-Mar-2017	5:00	1.6	SW
15-Mar-2017	6:00	1.7	N
15-Mar-2017	7:00	2.1	WNW
15-Mar-2017	8:00	2.4	WNW
15-Mar-2017	9:00	2.2	WNW
15-Mar-2017	10:00	3	NW
15-Mar-2017	11:00	2.6	NNW
15-Mar-2017	12:00	2.5	NNW
15-Mar-2017	13:00	2.5	NW
15-Mar-2017	14:00	2.3	NW
15-Mar-2017	15:00	2.3	NNW
15-Mar-2017	16:00	2.2	NNW
15-Mar-2017	17:00	2	NNW
15-Mar-2017	18:00	1.7	NNW
15-Mar-2017	19:00	1.7	NNW
15-Mar-2017	20:00	1.7	NW
15-Mar-2017	21:00	2	NW
15-Mar-2017	22:00	2.2	WNW
15-Mar-2017	23:00	2.1	WNW
16-Mar-2017	0:00	2.1	NW
16-Mar-2017	1:00	1.7	NW
16-Mar-2017	2:00	1.1	NW
16-Mar-2017	3:00	1.7	N
16-Mar-2017	4:00	2.2	N
16-Mar-2017	5:00	2.3	N
16-Mar-2017	6:00	1.7	N
16-Mar-2017	7:00	1.7	N
16-Mar-2017	8:00	1.6	NNW
16-Mar-2017	9:00	1.9	WNW
16-Mar-2017	10:00	1.4	WNW
16-Mar-2017	11:00	1.9	WNW
16-Mar-2017	12:00	2.8	WNW
16-Mar-2017	13:00	2.9	NNE
16-Mar-2017	14:00	2.7	W
16-Mar-2017	15:00	2.5	NNW
16-Mar-2017	16:00	2.4	NW
16-Mar-2017	17:00	2.8	ESE
16-Mar-2017	18:00	1.9	ESE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

16-Mar-2017	19:00	1.9	SSE
16-Mar-2017	20:00	1.9	NW
16-Mar-2017	21:00	2	SW
16-Mar-2017	22:00	1.6	S
16-Mar-2017	23:00	2	NNW
17-Mar-2017	0:00	2	WNW
17-Mar-2017	1:00	1.8	S
17-Mar-2017	2:00	1.7	NW
17-Mar-2017	3:00	1.7	N
17-Mar-2017	4:00	1.4	NNE
17-Mar-2017	5:00	1.4	N
17-Mar-2017	6:00	1.4	NW
17-Mar-2017	7:00	1.4	N
17-Mar-2017	8:00	1.3	ESE
17-Mar-2017	9:00	1.6	ESE
17-Mar-2017	10:00	2.3	S
17-Mar-2017	11:00	1.9	S
17-Mar-2017	12:00	2	SE
17-Mar-2017	13:00	1.5	ESE
17-Mar-2017	14:00	2	SSE
17-Mar-2017	15:00	2.1	SSE
17-Mar-2017	16:00	2.2	SSE
17-Mar-2017	17:00	1.6	ESE
17-Mar-2017	18:00	1.6	SSE
17-Mar-2017	19:00	1.7	ESE
17-Mar-2017	20:00	1.6	SSW
17-Mar-2017	21:00	1.4	ESE
17-Mar-2017	22:00	1.3	WSW
17-Mar-2017	23:00	1.3	W
18-Mar-2017	0:00	1.3	NNE
18-Mar-2017	1:00	1.2	NNE
18-Mar-2017	2:00	1.2	SSE
18-Mar-2017	3:00	1	ENE
18-Mar-2017	4:00	1	ENE
18-Mar-2017	5:00	1.1	ENE
18-Mar-2017	6:00	1.1	NE
18-Mar-2017	7:00	0.8	ENE
18-Mar-2017	8:00	1.2	NNE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

18-Mar-2017	9:00	2.1	NNE
18-Mar-2017	10:00	2.4	NE
18-Mar-2017	11:00	2.2	NE
18-Mar-2017	12:00	2.3	NE
18-Mar-2017	13:00	2	ENE
18-Mar-2017	14:00	2.3	ENE
18-Mar-2017	15:00	1.9	ENE
18-Mar-2017	16:00	2	NE
18-Mar-2017	17:00	1.8	NE
18-Mar-2017	18:00	1.2	ENE
18-Mar-2017	19:00	0.7	NE
18-Mar-2017	20:00	0.4	NE
18-Mar-2017	21:00	0.9	ENE
18-Mar-2017	22:00	1	ENE
18-Mar-2017	23:00	1.6	ENE
19-Mar-2017	0:00	1.3	ENE
19-Mar-2017	1:00	1.3	NNE
19-Mar-2017	2:00	1.4	NE
19-Mar-2017	3:00	1.6	NNE
19-Mar-2017	4:00	1.3	ESE
19-Mar-2017	5:00	1.1	ESE
19-Mar-2017	6:00	0.7	SSW
19-Mar-2017	7:00	0.8	ENE
19-Mar-2017	8:00	1	NE
19-Mar-2017	9:00	1	NE
19-Mar-2017	10:00	2.2	NNE
19-Mar-2017	11:00	2.9	NNE
19-Mar-2017	12:00	2.9	NNE
19-Mar-2017	13:00	2.2	NNE
19-Mar-2017	14:00	2.5	NNE
19-Mar-2017	15:00	2.8	NE
19-Mar-2017	16:00	3	ENE
19-Mar-2017	17:00	3.1	N
19-Mar-2017	18:00	2.6	NNE
19-Mar-2017	19:00	2.9	NNE
19-Mar-2017	20:00	2.1	NNE
19-Mar-2017	21:00	2.2	SSW
19-Mar-2017	22:00	1.9	S

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

19-Mar-2017	23:00	2.4	SSW
20-Mar-2017	0:00	2.2	NW
20-Mar-2017	1:00	1.9	SSE
20-Mar-2017	2:00	1.4	SSW
20-Mar-2017	3:00	1.4	SW
20-Mar-2017	4:00	1.3	ENE
20-Mar-2017	5:00	1.3	WNW
20-Mar-2017	6:00	1.3	N
20-Mar-2017	7:00	2	NNE
20-Mar-2017	8:00	2.9	N
20-Mar-2017	9:00	3.2	W
20-Mar-2017	10:00	3.6	NNE
20-Mar-2017	11:00	3.7	N
20-Mar-2017	12:00	3.3	N
20-Mar-2017	13:00	3.1	NE
20-Mar-2017	14:00	3.2	NNE
20-Mar-2017	15:00	2.8	N
20-Mar-2017	16:00	2.7	N
20-Mar-2017	17:00	2.1	ESE
20-Mar-2017	18:00	2	SSE
20-Mar-2017	19:00	1.8	SSE
20-Mar-2017	20:00	1.4	ENE
20-Mar-2017	21:00	1.5	WSW
20-Mar-2017	22:00	1.7	SW
20-Mar-2017	23:00	1.8	WNW
21-Mar-2017	0:00	2.1	W
21-Mar-2017	1:00	2	ENE
21-Mar-2017	2:00	2.1	N
21-Mar-2017	3:00	2.1	WNW
21-Mar-2017	4:00	2	NNE
21-Mar-2017	5:00	1.1	ENE
21-Mar-2017	6:00	0.9	ENE
21-Mar-2017	7:00	1	ESE
21-Mar-2017	8:00	0.5	ENE
21-Mar-2017	9:00	1.4	E
21-Mar-2017	10:00	1.5	SSW
21-Mar-2017	11:00	2	WNW
21-Mar-2017	12:00	1.8	WNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

21-Mar-2017	13:00	2	W
21-Mar-2017	14:00	1.1	W
21-Mar-2017	15:00	1.3	W
21-Mar-2017	16:00	1.8	W
21-Mar-2017	17:00	1.6	W
21-Mar-2017	18:00	1.1	N
21-Mar-2017	19:00	0.3	WNW
21-Mar-2017	20:00	0.4	WNW
21-Mar-2017	21:00	0.4	W
21-Mar-2017	22:00	0.3	W
21-Mar-2017	23:00	0.3	W
22-Mar-2017	0:00	0.2	W
22-Mar-2017	1:00	0.4	WSW
22-Mar-2017	2:00	0.4	WSW
22-Mar-2017	3:00	0.7	W
22-Mar-2017	4:00	0.5	W
22-Mar-2017	5:00	0.3	W
22-Mar-2017	6:00	0.4	W
22-Mar-2017	7:00	0.4	SW
22-Mar-2017	8:00	1.3	W
22-Mar-2017	9:00	1.8	W
22-Mar-2017	10:00	2.2	W
22-Mar-2017	11:00	2.2	W
22-Mar-2017	12:00	2.9	W
22-Mar-2017	13:00	2.7	W
22-Mar-2017	14:00	2.8	W
22-Mar-2017	15:00	2.7	SW
22-Mar-2017	16:00	2.6	ENE
22-Mar-2017	17:00	2.4	S
22-Mar-2017	18:00	2.2	SSW
22-Mar-2017	19:00	1.9	SW
22-Mar-2017	20:00	1.6	S
22-Mar-2017	21:00	2.1	SSW
22-Mar-2017	22:00	1.8	SSW
22-Mar-2017	23:00	1.5	W
23-Mar-2017	0:00	1.7	W
23-Mar-2017	1:00	1.6	W
23-Mar-2017	2:00	1.4	W

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

23-Mar-2017	3:00	1.3	NE
23-Mar-2017	4:00	1.7	NNE
23-Mar-2017	5:00	1.5	S
23-Mar-2017	6:00	1.4	SSW
23-Mar-2017	7:00	1.6	SSW
23-Mar-2017	8:00	1.9	SSW
23-Mar-2017	9:00	1.7	SSW
23-Mar-2017	10:00	2.3	WSW
23-Mar-2017	11:00	2.6	SW
23-Mar-2017	12:00	2.9	SW
23-Mar-2017	13:00	2.7	SW
23-Mar-2017	14:00	2.6	SW
23-Mar-2017	15:00	2.6	SW
23-Mar-2017	16:00	2.3	SW
23-Mar-2017	17:00	2.2	S
23-Mar-2017	18:00	1.8	ENE
23-Mar-2017	19:00	2	NE
23-Mar-2017	20:00	1.5	NE
23-Mar-2017	21:00	1.4	NE
23-Mar-2017	22:00	2.1	ENE
23-Mar-2017	23:00	1.5	NE
24-Mar-2017	0:00	1.5	N
24-Mar-2017	1:00	1.8	SW
24-Mar-2017	2:00	2	NNE
24-Mar-2017	3:00	2.3	NE
24-Mar-2017	4:00	1.8	ENE
24-Mar-2017	5:00	2.5	ENE
24-Mar-2017	6:00	2.4	E
24-Mar-2017	7:00	2.4	NNE
24-Mar-2017	8:00	3	NNE
24-Mar-2017	9:00	3.2	N
24-Mar-2017	10:00	3.3	SW
24-Mar-2017	11:00	3.3	SW
24-Mar-2017	12:00	3	SW
24-Mar-2017	13:00	3	SW
24-Mar-2017	14:00	3.2	SW
24-Mar-2017	15:00	3.3	SW
24-Mar-2017	16:00	3	ENE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

24-Mar-2017	17:00	3.5	NE
24-Mar-2017	18:00	2.3	ENE
24-Mar-2017	19:00	2.7	N
24-Mar-2017	20:00	2.4	N
24-Mar-2017	21:00	1.9	ENE
24-Mar-2017	22:00	3	WSW
24-Mar-2017	23:00	2.9	SW
25-Mar-2017	0:00	2.6	SW
25-Mar-2017	1:00	2.4	SW
25-Mar-2017	2:00	2.2	SW
25-Mar-2017	3:00	2.2	N
25-Mar-2017	4:00	1.9	N
25-Mar-2017	5:00	1.8	N
25-Mar-2017	6:00	1.9	SW
25-Mar-2017	7:00	1.1	SW
25-Mar-2017	8:00	1.6	SW
25-Mar-2017	9:00	2.4	SW
25-Mar-2017	10:00	3	SW
25-Mar-2017	11:00	3.4	WSW
25-Mar-2017	12:00	3.4	ENE
25-Mar-2017	13:00	3.1	E
25-Mar-2017	14:00	3.5	SSE
25-Mar-2017	15:00	3.6	SSE
25-Mar-2017	16:00	2.8	N
25-Mar-2017	17:00	1.8	W
25-Mar-2017	18:00	1.8	W
25-Mar-2017	19:00	1.7	WSW
25-Mar-2017	20:00	2.2	N
25-Mar-2017	21:00	2	W
25-Mar-2017	22:00	2.2	ENE
25-Mar-2017	23:00	2.5	N
26-Mar-2017	0:00	1.9	NNW
26-Mar-2017	1:00	2.1	ENE
26-Mar-2017	2:00	1.9	ENE
26-Mar-2017	3:00	1.5	NE
26-Mar-2017	4:00	2.1	N
26-Mar-2017	5:00	1.8	N
26-Mar-2017	6:00	1.3	N

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

26-Mar-2017	7:00	1	N
26-Mar-2017	8:00	1.2	NNE
26-Mar-2017	9:00	2.2	N
26-Mar-2017	10:00	2.5	NNW
26-Mar-2017	11:00	2.5	N
26-Mar-2017	12:00	3.7	SW
26-Mar-2017	13:00	2.9	NE
26-Mar-2017	14:00	3.2	ENE
26-Mar-2017	15:00	3	N
26-Mar-2017	16:00	2.5	SW
26-Mar-2017	17:00	1.6	SW
26-Mar-2017	18:00	1.2	NNE
26-Mar-2017	19:00	1.4	N
26-Mar-2017	20:00	1.3	NW
26-Mar-2017	21:00	1.6	NE
26-Mar-2017	22:00	1.6	WSW
26-Mar-2017	23:00	1.4	WSW
27-Mar-2017	0:00	1.5	W
27-Mar-2017	1:00	1.3	WSW
27-Mar-2017	2:00	1.3	WNW
27-Mar-2017	3:00	2	W
27-Mar-2017	4:00	2	W
27-Mar-2017	5:00	2.1	W
27-Mar-2017	6:00	2.3	W
27-Mar-2017	7:00	2	W
27-Mar-2017	8:00	2.2	W
27-Mar-2017	9:00	2.7	W
27-Mar-2017	10:00	3.1	SSE
27-Mar-2017	11:00	3.5	ENE
27-Mar-2017	12:00	3.2	ENE
27-Mar-2017	13:00	2.9	WNW
27-Mar-2017	14:00	2.8	W
27-Mar-2017	15:00	2.6	W
27-Mar-2017	16:00	2.5	WNW
27-Mar-2017	17:00	2.1	WSW
27-Mar-2017	18:00	1.8	W
27-Mar-2017	19:00	1.9	SSE
27-Mar-2017	20:00	2.4	SSW

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WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

27-Mar-2017	21:00	2.7	SW
27-Mar-2017	22:00	1.9	SW
27-Mar-2017	23:00	1.8	WNW
28-Mar-2017	0:00	1.8	W
28-Mar-2017	1:00	2.1	WNW
28-Mar-2017	2:00	2	WNW
28-Mar-2017	3:00	2	W
28-Mar-2017	4:00	1.8	W
28-Mar-2017	5:00	1.9	W
28-Mar-2017	6:00	1.8	W
28-Mar-2017	7:00	1.5	WNW
28-Mar-2017	8:00	1.7	W
28-Mar-2017	9:00	2.4	SW
28-Mar-2017	10:00	3	WNW
28-Mar-2017	11:00	3.4	WNW
28-Mar-2017	12:00	2.9	WNW
28-Mar-2017	13:00	2.9	WNW
28-Mar-2017	14:00	2.4	W
28-Mar-2017	15:00	2.4	WNW
28-Mar-2017	16:00	3	WSW
28-Mar-2017	17:00	2.5	WSW
28-Mar-2017	18:00	1.9	W
28-Mar-2017	19:00	1.6	WNW
28-Mar-2017	20:00	1.6	WNW
28-Mar-2017	21:00	1.6	WSW
28-Mar-2017	22:00	1.3	W
28-Mar-2017	23:00	1.1	W
29-Mar-2017	0:00	1.2	W
29-Mar-2017	1:00	1.4	W
29-Mar-2017	2:00	1.4	WNW
29-Mar-2017	3:00	1.2	W
29-Mar-2017	4:00	1.7	W
29-Mar-2017	5:00	1.6	SSW
29-Mar-2017	6:00	1.4	W
29-Mar-2017	7:00	1.6	W
29-Mar-2017	8:00	1.6	WNW
29-Mar-2017	9:00	2.3	NNE
29-Mar-2017	10:00	2.8	NNE

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

29-Mar-2017	11:00	2.9	NNE
29-Mar-2017	12:00	2.3	ENE
29-Mar-2017	13:00	2	ENE
29-Mar-2017	14:00	2.7	SW
29-Mar-2017	15:00	2.3	SW
29-Mar-2017	16:00	2.6	SW
29-Mar-2017	17:00	2.5	WSW
29-Mar-2017	18:00	1.7	NE
29-Mar-2017	19:00	1.1	NE
29-Mar-2017	20:00	1.1	SW
29-Mar-2017	21:00	0.9	W
29-Mar-2017	22:00	1	W
29-Mar-2017	23:00	1.3	W
30-Mar-2017	0:00	0.9	ENE
30-Mar-2017	1:00	1	ENE
30-Mar-2017	2:00	0.8	ENE
30-Mar-2017	3:00	1	ENE
30-Mar-2017	4:00	1.3	NNE
30-Mar-2017	5:00	1.3	ENE
30-Mar-2017	6:00	1.5	W
30-Mar-2017	7:00	1.8	W
30-Mar-2017	8:00	2.2	W
30-Mar-2017	9:00	2	E
30-Mar-2017	10:00	2.5	ESE
30-Mar-2017	11:00	1.9	ESE
30-Mar-2017	12:00	2.2	N
30-Mar-2017	13:00	3.2	NNE
30-Mar-2017	14:00	2.9	SSE
30-Mar-2017	15:00	3.3	SSW
30-Mar-2017	16:00	2.6	SSW
30-Mar-2017	17:00	2.9	WSW
30-Mar-2017	18:00	2.1	SSW
30-Mar-2017	19:00	2.2	WSW
30-Mar-2017	20:00	1.5	SSW
30-Mar-2017	21:00	1.5	WNW
30-Mar-2017	22:00	1.1	W
30-Mar-2017	23:00	1.2	W
31-Mar-2017	0:00	2.1	WNW

**APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD**

II. Mean Wind Speed and Wind Direction

31-Mar-2017	1:00	2.1	W
31-Mar-2017	2:00	1.8	W
31-Mar-2017	3:00	1.5	W
31-Mar-2017	4:00	1.5	W
31-Mar-2017	5:00	1.5	WSW
31-Mar-2017	6:00	1.3	W
31-Mar-2017	7:00	1.4	SW
31-Mar-2017	8:00	2	SW
31-Mar-2017	9:00	2.4	SW
31-Mar-2017	10:00	2.8	WSW
31-Mar-2017	11:00	2.8	SSE
31-Mar-2017	12:00	3.2	NNW
31-Mar-2017	13:00	3.2	W
31-Mar-2017	14:00	3.6	W
31-Mar-2017	15:00	3.5	W
31-Mar-2017	16:00	3.2	WNW
31-Mar-2017	17:00	3	WSW
31-Mar-2017	18:00	2.9	WSW
31-Mar-2017	19:00	2.8	W
31-Mar-2017	20:00	2.7	WSW
31-Mar-2017	21:00	2.4	WNW
31-Mar-2017	22:00	3	WNW
31-Mar-2017	23:00	2.5	NE

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Air Quality and Noise Monitoring Schedule (March 2017)

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

Air Quality Monitoring Station

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

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

Noise Monitoring Station

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

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Groundwater Quality Monitoring Schedule (April 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Apr
2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr
9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr
		Groundwater Quality Monitoring				
16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr
23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr
				Groundwater Quality Monitoring		
30-Apr						

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

Monitoring Location:
Stream 1, Stream 2, Stream 3

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Water Quality Monitoring Schedule (April 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Apr
2-Apr	3-Apr	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr
	Mid-Flood 10:30 Mid-Ebb 17:47		Mid-Flood 12:55 Mid-Ebb 20:27			Mid-Ebb 10:57 Mid-Flood 16:40
9-Apr	10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr
	Mid-Ebb 12:02 Mid-Flood 18:10		Mid-Ebb 13:03 Mid-Flood 19:29		Mid-Flood 7:46 Mid-Ebb 14:08	
16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr
		Mid-Flood 9:18 Mid-Ebb 16:48		Mid-Flood 6:34 Mid-Ebb 19:18		Mid-Ebb 9:50 Mid-Flood 14:50
23-Apr	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr
	Mid-Ebb 11:01 Mid-Flood 16:51		Mid-Ebb 12:17 Mid-Flood 18:35		Mid-Flood 7:13 Mid-Ebb 13:42	
30-Apr						

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

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Post-Translocation Coral Monitoring Schedule (March 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Mar	2-Mar	3-Mar	4-Mar
5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar
	Coral Monitoring					
12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar
19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar
26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Air Quality and Noise Monitoring Schedule (April 2017)

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

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

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 Groundwater Quality Monitoring Schedule (March 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Mar	2-Mar	3-Mar	4-Mar
5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar
12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar
			Groundwater Quality Monitoring			
19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar
26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	
				Groundwater Quality Monitoring		

Monitoring Location:
Stream 1, Stream 2, Stream 3

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Water Quality Monitoring Schedule (March 2017)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Mar	2-Mar	3-Mar	4-Mar
			Mid-Flood 8:22 Mid-Ebb 14:23		Mid-Flood 9:36 Mid-Ebb 15:55	
5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar
	Mid-Flood 12:09 Mid-Ebb 19:37		Mid-Ebb 9:23 Mid-Flood 14:37		Mid-Ebb 11:15 Mid-Flood 16:45	
12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar
	Mid-Flood 7:07 Mid-Ebb 12:59		Mid-Flood 8:00 Mid-Ebb 14:01		Mid-Flood 8:57 Mid-Ebb 15:11	
19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar
	Mid-Flood 10:22 Mid-Ebb 17:45		Mid-Flood 8:15 Mid-Ebb 20:38		Mid-Ebb 10:21 Mid-Flood 15:12	
26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	
	Mid-Ebb 12:04 Mid-Flood 17:55		Mid-Flood 7:11 Mid-Ebb 13:19		Mid-Flood 8:22 Mid-Ebb 14:44	

**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 ($\mu\text{g}/\text{m}^3$)
1-Mar-17	8:55	Fine	36.8
1-Mar-17	9:55	Fine	38.9
1-Mar-17	10:55	Fine	40.0
7-Mar-17	9:00	Cloudy	30.3
7-Mar-17	10:00	Cloudy	28.1
7-Mar-17	11:00	Cloudy	27.0
13-Mar-17	9:00	Fine	45.4
13-Mar-17	10:00	Fine	46.5
13-Mar-17	11:00	Fine	46.5
16-Mar-17	9:00	Cloudy	19.7
16-Mar-17	10:00	Cloudy	22.0
16-Mar-17	11:00	Cloudy	20.9
22-Mar-17	9:00	Cloudy	20.8
22-Mar-17	10:00	Cloudy	19.7
22-Mar-17	11:00	Cloudy	17.3
28-Mar-17	15:00	Cloudy	59.1
28-Mar-17	16:00	Cloudy	66.1
28-Mar-17	17:00	Cloudy	78.8
Average			36.9
Maximum			78.8
Minimum			17.3

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Mar-17	13:00	Fine	41.7
1-Mar-17	14:00	Fine	42.8
1-Mar-17	15:00	Fine	42.8
7-Mar-17	9:00	Fine	31.8
7-Mar-17	10:00	Fine	27.5
7-Mar-17	11:00	Fine	25.3
13-Mar-17	13:00	Cloudy	32.9
13-Mar-17	14:00	Cloudy	36.2
13-Mar-17	15:00	Cloudy	34.0
16-Mar-17	13:00	Cloudy	15.0
16-Mar-17	14:00	Cloudy	16.2
16-Mar-17	15:00	Cloudy	16.2
22-Mar-17	9:00	Cloudy	12.7
22-Mar-17	10:00	Cloudy	13.9
22-Mar-17	11:00	Cloudy	12.7
28-Mar-17	9:00	Sunny	156.4
28-Mar-17	10:00	Sunny	152.3
28-Mar-17	11:00	Sunny	154.3
Average			48.0
Maximum			156.4
Minimum			12.7

Appendix E - 1-hour TSP Monitoring Results

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Mar-17	8:40	Fine	34.0
1-Mar-17	9:40	Fine	36.2
1-Mar-17	10:40	Fine	36.2
7-Mar-17	13:00	Cloudy	25.9
7-Mar-17	14:00	Cloudy	29.2
7-Mar-17	15:00	Cloudy	29.2
13-Mar-17	9:00	Fine	30.7
13-Mar-17	10:00	Fine	28.5
13-Mar-17	11:00	Fine	27.5
16-Mar-17	9:00	Cloudy	28.9
16-Mar-17	10:00	Cloudy	27.7
16-Mar-17	11:00	Cloudy	28.9
22-Mar-17	13:00	Cloudy	32.5
22-Mar-17	14:00	Cloudy	30.1
22-Mar-17	15:00	Cloudy	29.0
28-Mar-17	14:00	Cloudy	177.0
28-Mar-17	15:00	Cloudy	188.0
28-Mar-17	16:00	Cloudy	180.7
		Average	55.6
		Maximum	188.0
		Minimum	25.9

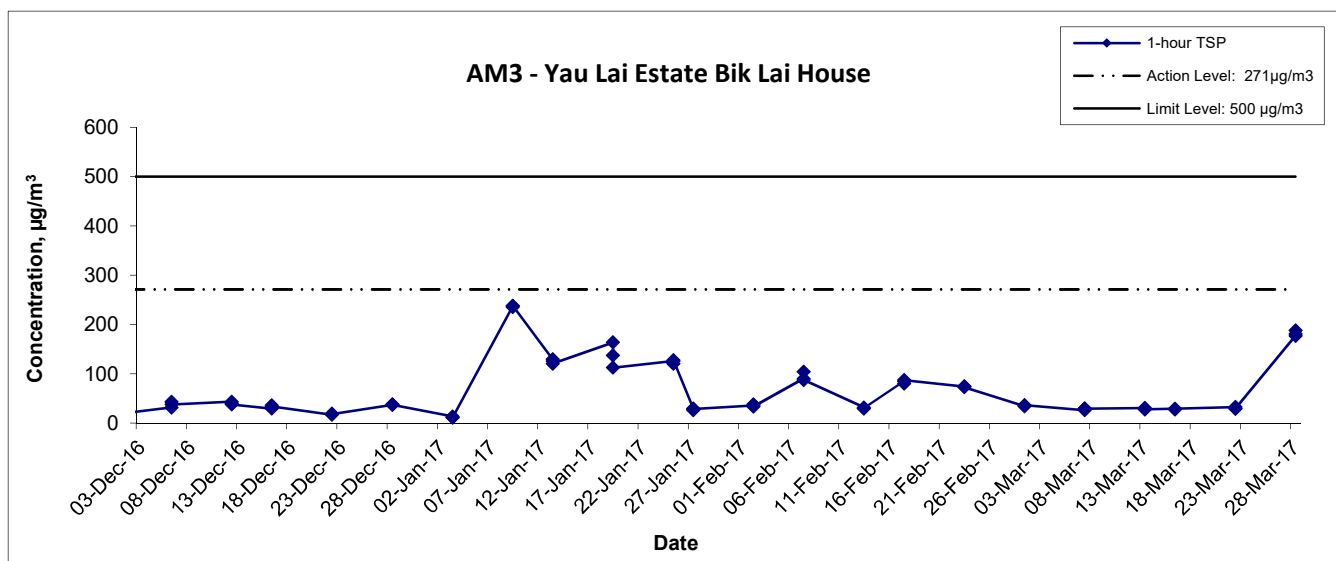
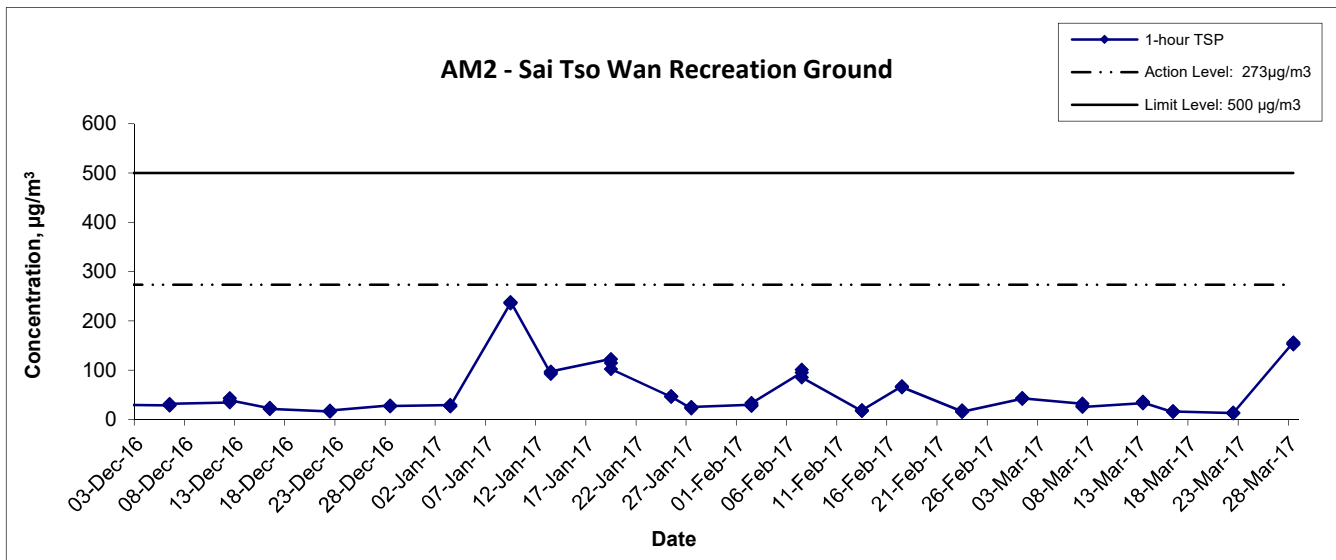
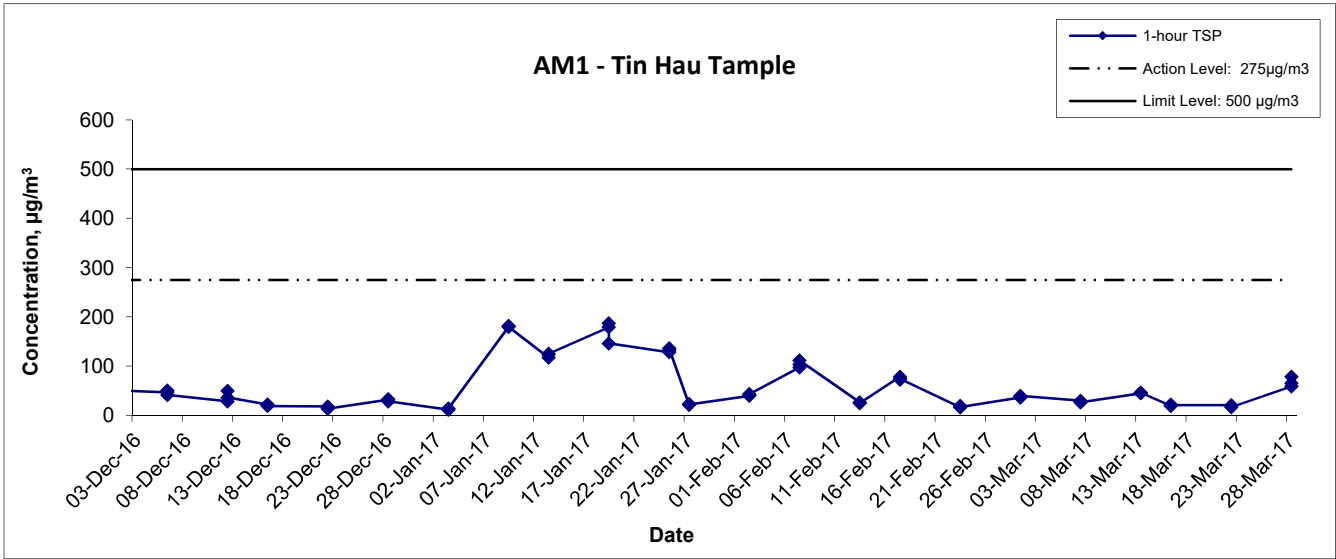
Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Mar-17	13:15	Fine	42.2
1-Mar-17	14:15	Fine	45.4
1-Mar-17	15:15	Fine	45.4
7-Mar-17	13:00	Fine	35.1
7-Mar-17	14:00	Fine	36.2
7-Mar-17	15:00	Fine	35.1
13-Mar-17	13:00	Cloudy	35.7
13-Mar-17	14:00	Cloudy	37.8
13-Mar-17	15:00	Cloudy	35.7
16-Mar-17	13:00	Cloudy	17.4
16-Mar-17	14:00	Cloudy	15.1
16-Mar-17	15:00	Cloudy	15.1
22-Mar-17	13:00	Cloudy	15.0
22-Mar-17	14:00	Cloudy	17.3
22-Mar-17	15:00	Cloudy	16.2
28-Mar-17	10:35	Cloudy	162.5
28-Mar-17	14:00	Cloudy	187.2
28-Mar-17	15:00	Cloudy	187.9
		Average	54.6
		Maximum	187.9
		Minimum	15.0

Appendix E - 1-hour TSP Monitoring Results

Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Mar-17	13:10	Fine	37.1
1-Mar-17	14:10	Fine	40.6
1-Mar-17	15:10	Fine	41.7
7-Mar-17	13:10	Cloudy	41.3
7-Mar-17	14:10	Cloudy	44.5
7-Mar-17	15:10	Cloudy	39.2
13-Mar-17	9:00	Cloudy	77.3
13-Mar-17	10:00	Cloudy	72.0
13-Mar-17	11:00	Cloudy	80.5
17-Mar-17	13:00	Cloudy	71.9
17-Mar-17	14:00	Cloudy	66.1
17-Mar-17	15:00	Cloudy	61.4
23-Mar-17	13:00	Fine	15.4
23-Mar-17	14:00	Fine	15.4
23-Mar-17	15:00	Fine	14.3
29-Mar-17	13:15	Cloudy	233.8
29-Mar-17	14:15	Cloudy	241.8
29-Mar-17	15:15	Cloudy	260.3
Average			80.8
Maximum			260.3
Minimum			14.3

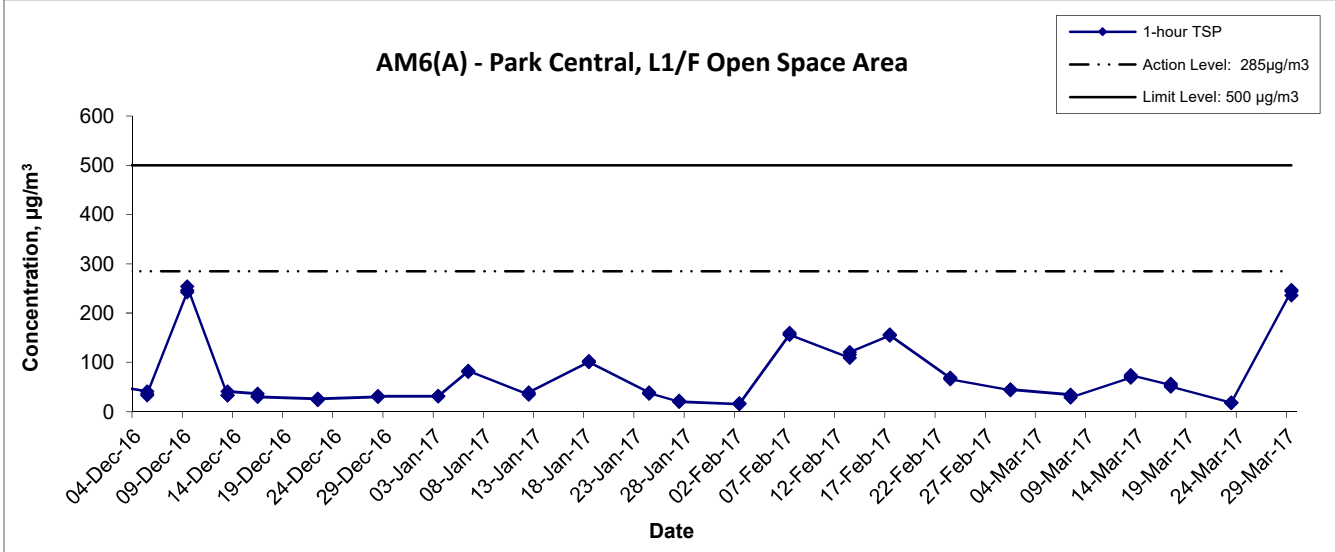
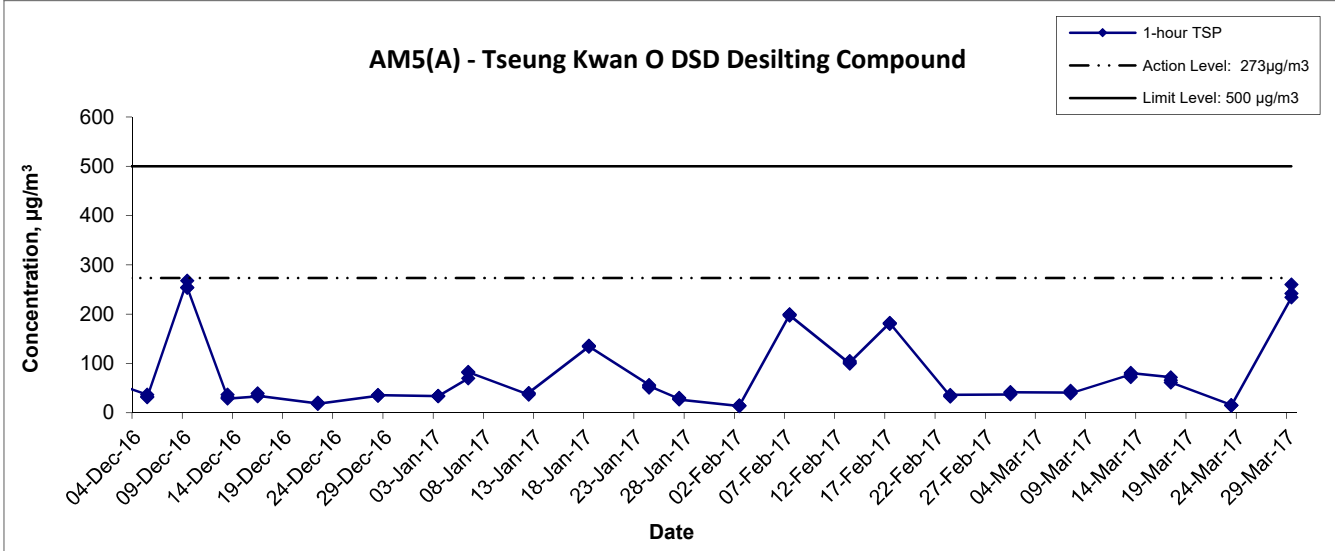
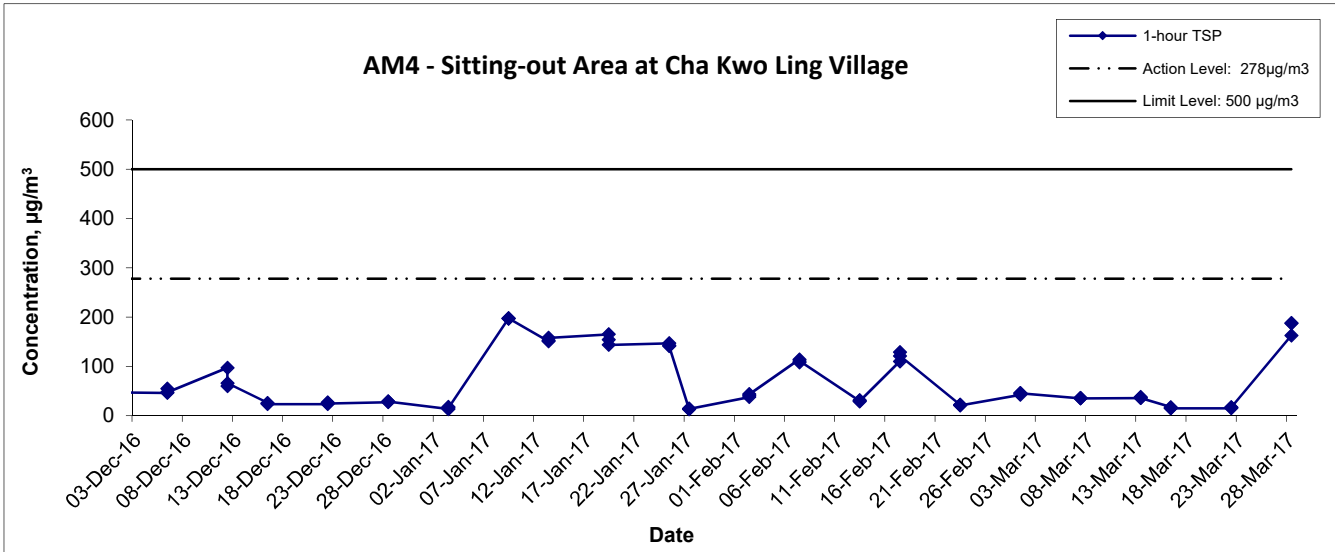
Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Mar-17	8:50	Fine	44.0
1-Mar-17	9:50	Fine	45.2
1-Mar-17	10:50	Fine	45.2
7-Mar-17	13:00	Cloudy	34.7
7-Mar-17	14:00	Cloudy	32.4
7-Mar-17	15:00	Cloudy	28.9
13-Mar-17	13:00	Cloudy	68.8
13-Mar-17	14:00	Cloudy	71.0
13-Mar-17	15:00	Cloudy	74.1
17-Mar-17	13:25	Cloudy	54.3
17-Mar-17	14:25	Cloudy	56.6
17-Mar-17	15:25	Cloudy	50.9
23-Mar-17	9:00	Fine	18.7
23-Mar-17	10:00	Fine	17.6
23-Mar-17	11:00	Fine	18.7
29-Mar-17	13:30	Cloudy	244.7
29-Mar-17	14:30	Cloudy	247.0
29-Mar-17	15:30	Cloudy	236.2
Average			77.2
Maximum			247.0
Minimum			17.6

1-hr TSP Concentration Levels



Title	Agreement No. CE/59/2015 (EP)	Scale	Project	CINOTECH
	Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction	N.T.S	No. MA16034	
Graphical Presentation of 1-hour TSP Monitoring Results		Date	Appendix	
		Mar 17	E	

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	Project No. MA16034	
	Date Mar 17	Appendix E	

**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. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-17	Cloudy	292.5	763.4	3.5893	3.8075	0.2182	1595.0	1619.0	24.0	1.21	1.21	1.21	1737.2	125.6
10-Mar-17	Sunny	291.4	762.7	3.6428	3.7717	0.1289	1619.0	1643.0	24.0	1.21	1.21	1.21	1739.8	74.1
16-Mar-17	Cloudy	290.4	765.5	3.5693	3.8074	0.2381	1643.0	1667.0	24.0	1.21	1.21	1.21	1746.5	136.3
22-Mar-17	Cloudy	291.3	764.4	3.5697	3.8089	0.2392	1667.0	1691.0	24.0	1.21	1.21	1.21	1744.5	137.1
28-Mar-17	Sunny	292.7	768.2	2.8731	3.1076	0.2345	1691.0	1715.0	24.0	1.21	1.21	1.21	1744.7	134.4
													Min	74.1
													Max	137.1
													Average	121.5

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. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-17	Cloudy	293.1	763.8	3.6002	3.7589	0.1587	22559.3	22583.3	24.0	1.20	1.20	1.20	1729.1	91.8
10-Mar-17	Sunny	290.7	762.1	3.6165	3.6878	0.0713	22583.3	22607.3	24.0	1.20	1.20	1.20	1734.3	41.1
16-Mar-17	Cloudy	291.4	766.3	3.6017	3.7198	0.1181	22607.3	22631.3	24.0	1.21	1.21	1.21	1744.6	67.7
22-Mar-17	Cloudy	291.8	765.1	3.5871	3.7347	0.1476	22631.3	22655.3	24.0	1.21	1.21	1.21	1741.9	84.7
28-Mar-17	Sunny	293.4	767.7	2.8315	3.0758	0.2443	22655.3	22679.3	24.0	1.21	1.21	1.21	1740.0	140.4
													Min	41.1
													Max	140.4
													Average	85.1

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. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-17	Cloudy	292.3	762.6	3.5847	3.7217	0.1370	11126.7	11150.7	24.0	1.21	1.21	1.21	1746.2	78.5
10-Mar-17	Cloudy	291.4	762.3	3.5635	3.6624	0.0989	11150.7	11174.7	24.0	1.22	1.22	1.22	1754.1	56.4
16-Mar-17	Cloudy	291.5	760.7	3.5849	3.7156	0.1307	11174.7	11198.7	24.0	1.22	1.22	1.22	1751.8	74.6
22-Mar-17	Cloudy	292.3	766.6	3.5967	3.7459	0.1492	11198.7	11222.7	24.0	1.22	1.22	1.22	1756.5	84.9
28-Mar-17	Sunny	294.1	768.3	2.8133	2.9823	0.1690	11222.7	11246.7	24.0	1.22	1.22	1.22	1752.8	96.4
													Min	56.4
													Max	96.4
													Average	78.2

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. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
7-Mar-17	Cloudy	289.8	766.3	3.6126	3.8291	0.2165	8113.2	8137.2	24.0	1.21	1.21	1.21	1748.3	123.8
10-Mar-17	Sunny	290.7	762.4	3.6258	3.7291	0.1033	8137.2	8161.2	24.0	1.21	1.21	1.21	1740.9	59.3
16-Mar-17	Cloudy	290.8	765.4	3.6238	3.9341	0.3103	8161.2	8185.2	24.0	1.21	1.21	1.21	1744.1	177.9
22-Mar-17	Cloudy	291.6	766.7	3.5705	3.8027	0.2322	8185.2	8209.2	24.0	1.23	1.22	1.23	1764.1	131.6
29-Mar-17	Sunny	293.5	767.6	3.5656	3.8288	0.2632	8209.2	8233.2	24.0	1.22	1.22	1.22	1759.0	149.6
													Min	59.3
													Max	177.9
													Average	128.5

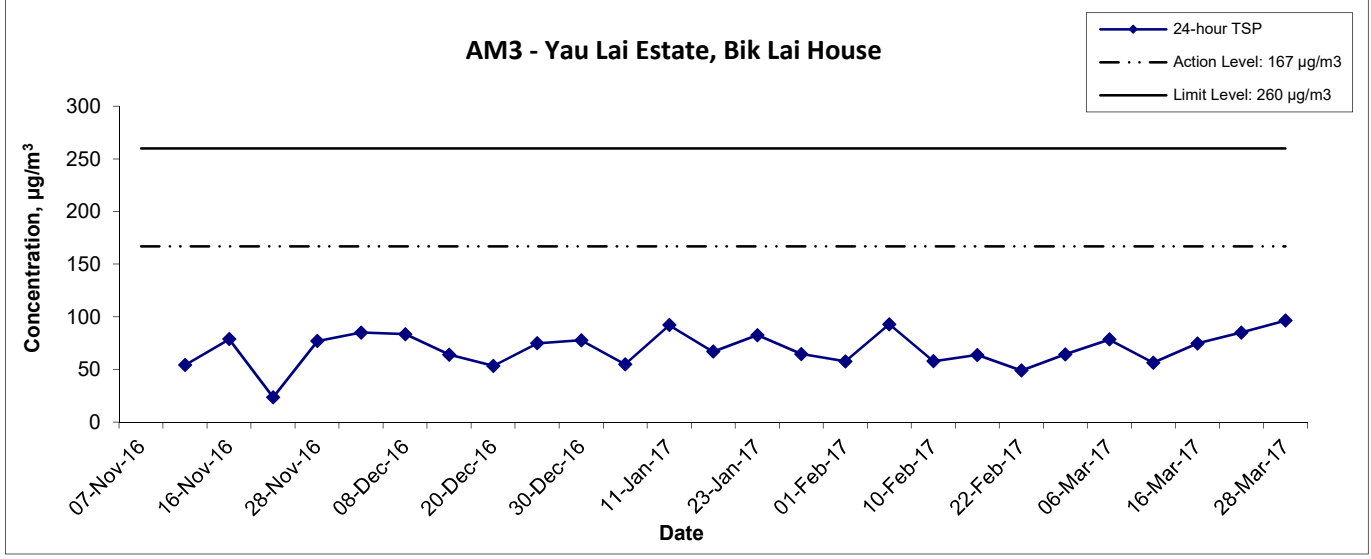
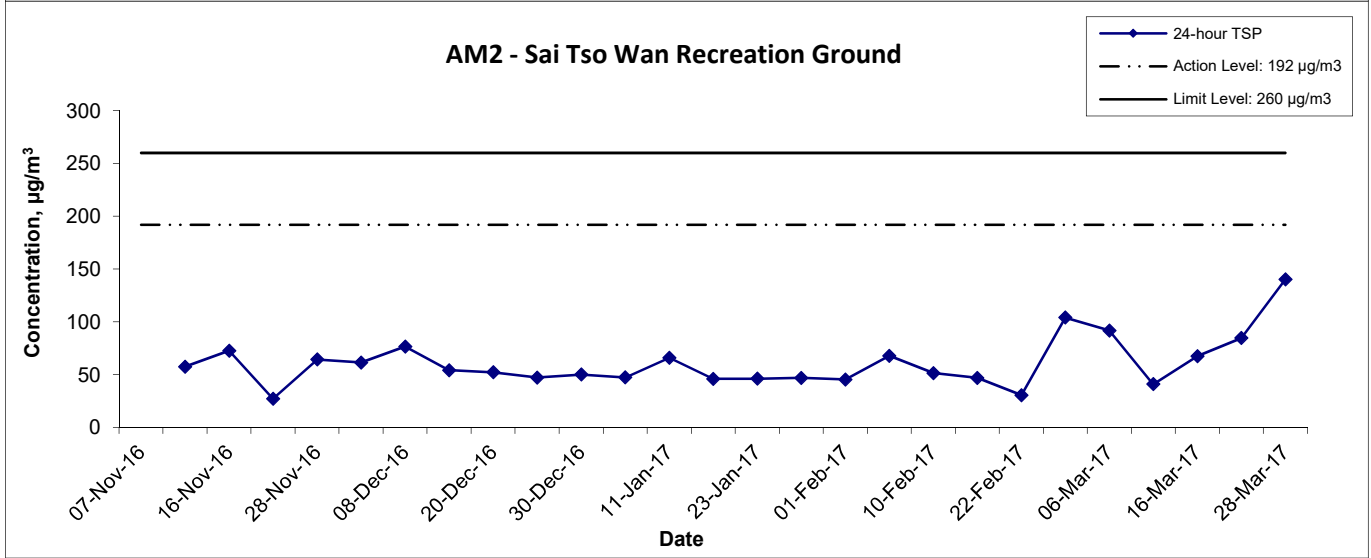
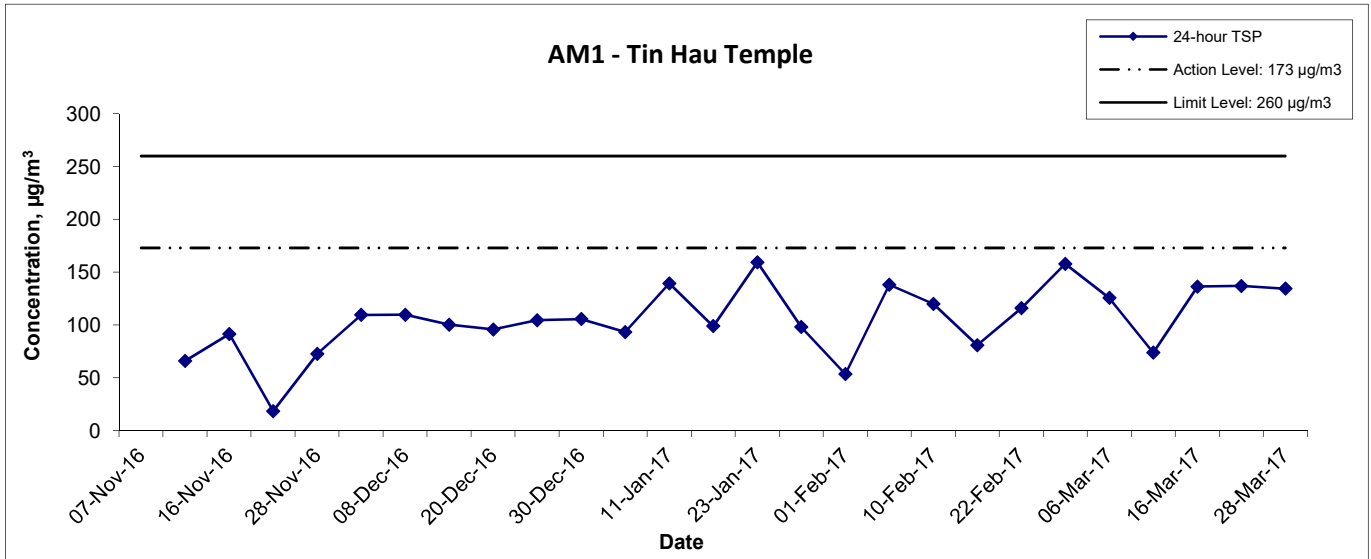
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

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. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-17	Cloudy	292.8	763.1	3.6298	3.8023	0.1725	21855.5	21879.5	24.0	1.20	1.20	1.20	1727.1	99.9
10-Mar-17	Cloudy	290.8	762.5	3.5632	3.6569	0.0937	21879.5	21903.5	24.0	1.20	1.20	1.20	1732.7	54.1
16-Mar-17	Cloudy	291.7	764.3	3.6072	3.7642	0.1570	21903.5	21927.5	24.0	1.21	1.21	1.21	1744.0	90.0
22-Mar-17	Cloudy	292.4	767.2	3.5692	3.7744	0.2052	21927.5	21951.5	24.0	1.21	1.21	1.21	1745.3	117.6
28-Mar-17	Sunny	294.2	766.4	3.5883	3.7775	0.1892	21951.5	21975.5	24.0	1.21	1.21	1.21	1739.1	108.8
													Min	54.1
													Max	117.6
													Average	94.1

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

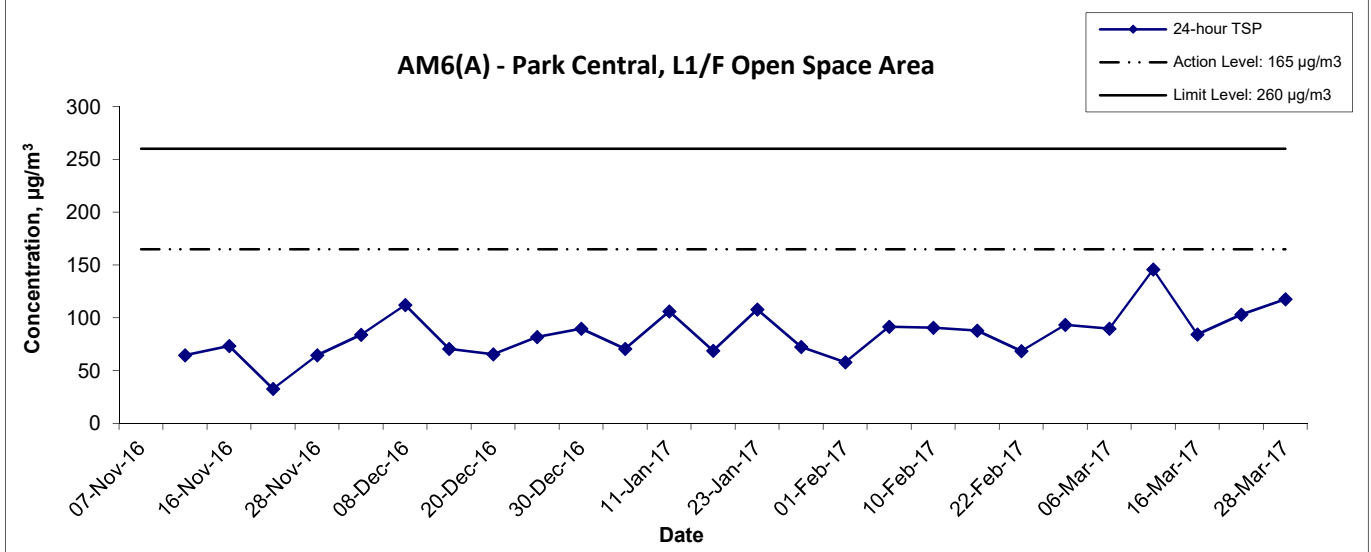
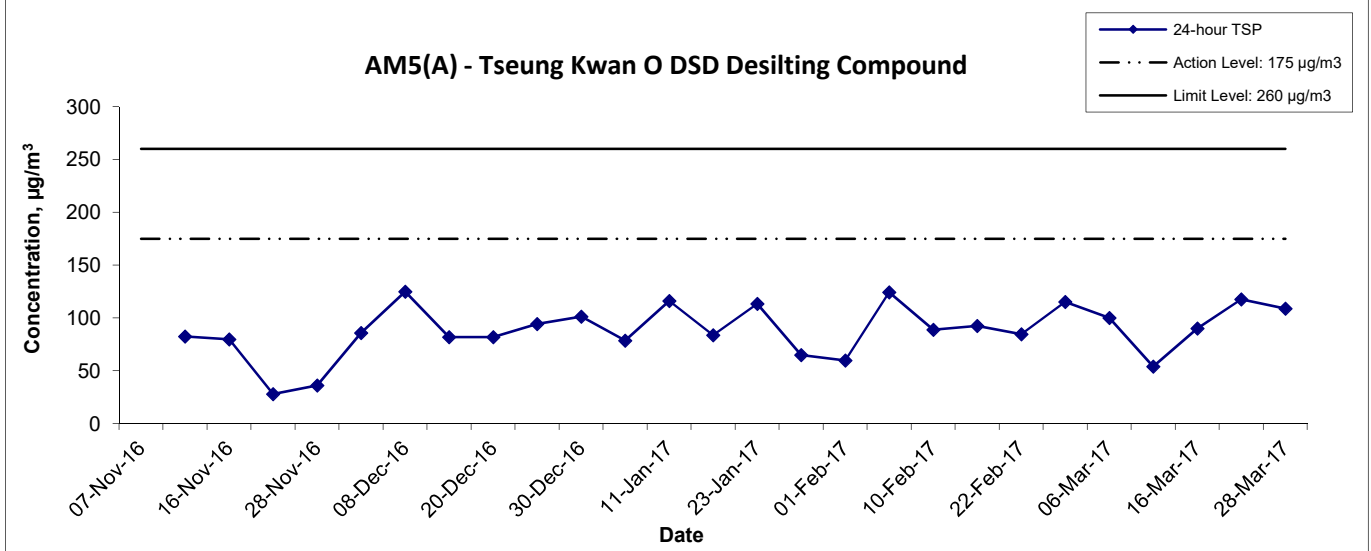
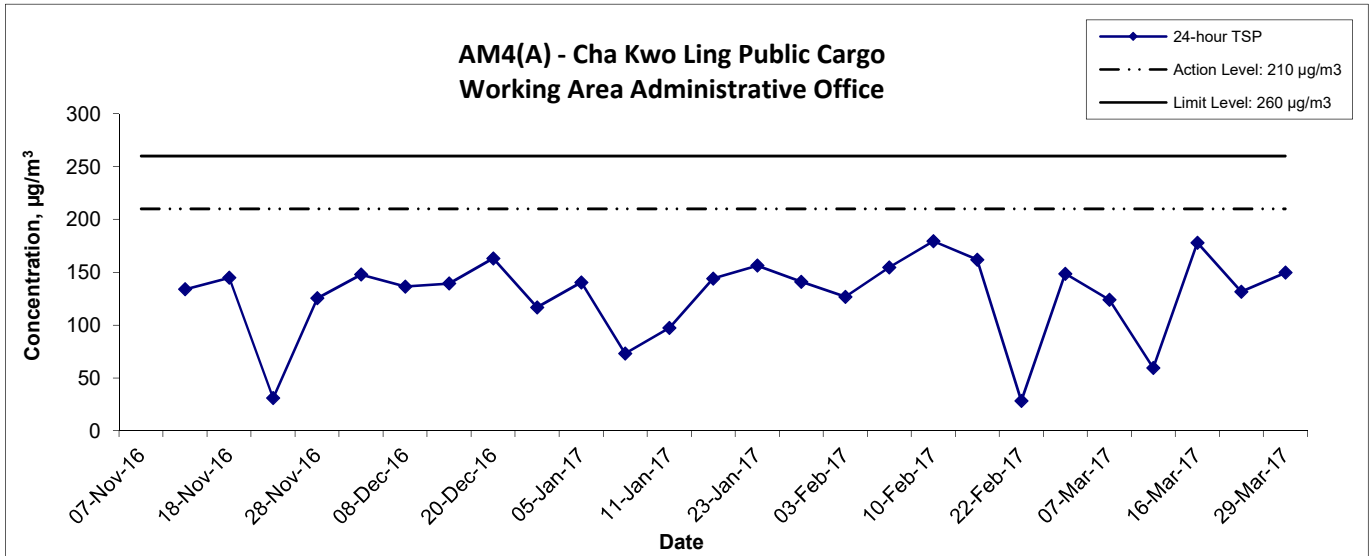
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-17	Cloudy	293.7	764.4	3.6223	3.7789	0.1566	14915.8	14939.8	24.0	1.21	1.21	1.21	1745.8	89.7
10-Mar-17	Cloudy	290.9	762.2	3.5449	3.8002	0.2553	14939.8	14963.8	24.0	1.22	1.22	1.22	1751.5	145.8
16-Mar-17	Cloudy	290.8	765.1	3.6164	3.7644	0.1480	14963.8	14987.8	24.0	1.22	1.22	1.22	1755.1	84.3
22-Mar-17	Cloudy	293.5	767.0	3.5806	3.7608	0.1802	14987.8	15011.8	24.0	1.22	1.21	1.21	1749.3	103.0
28-Mar-17	Sunny	292.8	768.4	3.6253	3.8315	0.2062	15011.8	15035.8	24.0	1.22	1.22	1.22	1752.9	117.6
													Min	84.3
													Max	145.8
													Average	108.1

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	Project No. MA16034	CINOTECH
	Date Mar 17	Appendix F	

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	Project No. MA16034	CINOTECH
	Date Mar 17	Appendix F	

**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}
2-Mar-17	10:10	Sunny	73.9	75.8	70.1	65.5	73.2
10-Mar-17	14:30	Cloudy	72.2	74.6	68.4		71.2
16-Mar-17	13:45	Cloudy	69.3	71.5	66.3		67.0
21-Mar-17	15:40	Sunny	74.3	75.9	72.2		73.7
30-Mar-17	13:00	Cloudy	71.8	73.6	68.9		70.6

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}
1-Mar-17	10:30	Cloudy	72.9	74.3	71.1	63.6	72.4
7-Mar-17	13:05	Cloudy	70.2	72.5	63.5		69.1
13-Mar-17	9:30	Cloudy	71.2	73.3	68.3		70.4
22-Mar-17	13:10	Cloudy	71.5	73.5	68.4		70.7
28-Mar-17	14:00	Sunny	69.9	72.7	67.1		68.7

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}
1-Mar-17	8:25	Cloudy	72.4	74.0	70.3	65.6	71.4
2-Mar-17	11:10	Sunny	73.8	75.9	71.7		73.1
7-Mar-17	14:10	Cloudy	71.9	74.5	66.4		70.7
10-Mar-17	14:30	Cloudy	71.7	74.1	68.0		70.5
16-Mar-17	13:00	Cloudy	68.0	69.0	66.4		64.3
17-Mar-17	11:30	Cloudy	68.2	71.3	65.1		64.7
21-Mar-17	16:20	Sunny	74.8	76.2	72.9		74.2
22-Mar-17	14:00	Cloudy	70.9	73.1	67.9		69.4
28-Mar-17	13:30	Sunny	70.4	73.2	67.6		68.7
30-Mar-17	14:00	Cloudy	71.5	73.4	68.3		70.2

Note: Increased monitoring frequency due to Limit Level Exceedance

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}
1-Mar-17	9:20	Cloudy	69.7	72.6	63.6	62.0	68.9
7-Mar-17	9:05	Cloudy	63.6	65.2	60.7		58.5
13-Mar-17	13:30	Cloudy	68.0	70.4	62.2		66.7
22-Mar-17	9:15	Cloudy	66.4	69.3	58.7		64.4
28-Mar-17	11:00	Cloudy	63.3	63.4	56.6		57.4

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}
2-Mar-17	14:15	Cloudy	70.1	73.8	67.4	68.2	65.6
10-Mar-17	13:45	Cloudy	69.6	71.0	67.7		64.0
16-Mar-17	11:30	Cloudy	68.5	71.3	65.1		56.7
21-Mar-17	15:00	Sunny	67.5	68.9	64.1		67.5 Measured ≤ Baseline (*)
30-Mar-17	14:50	Cloudy	69.2	71.2	66.9		62.3

Note(*): Limit Level (65 dB(A) during school examination period) Exceedance which is non-Project related and invalid

Appendix G - Noise Monitoring Results

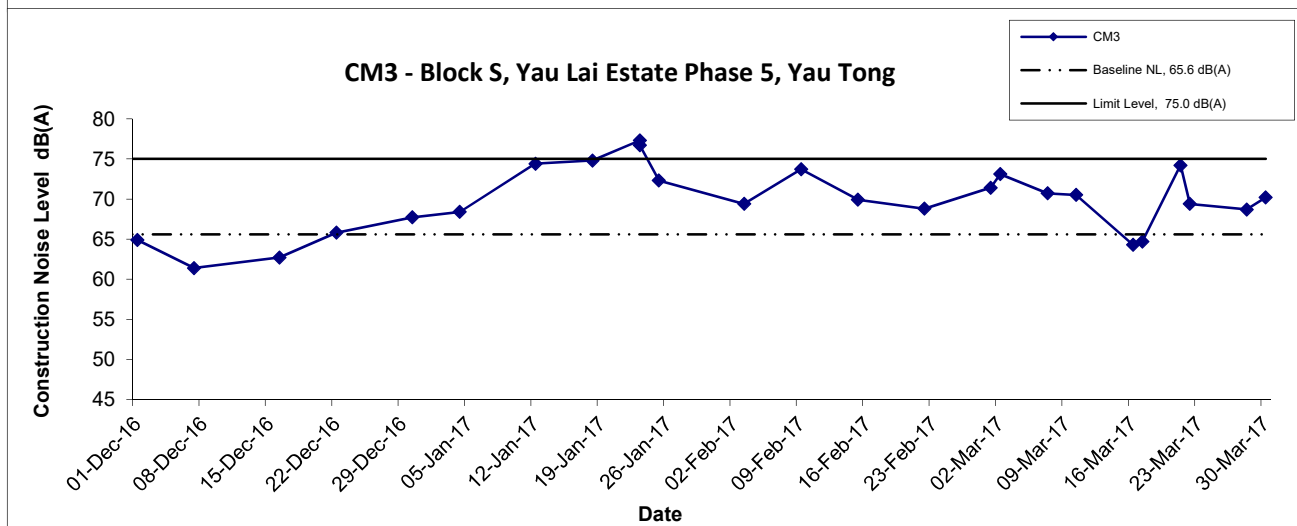
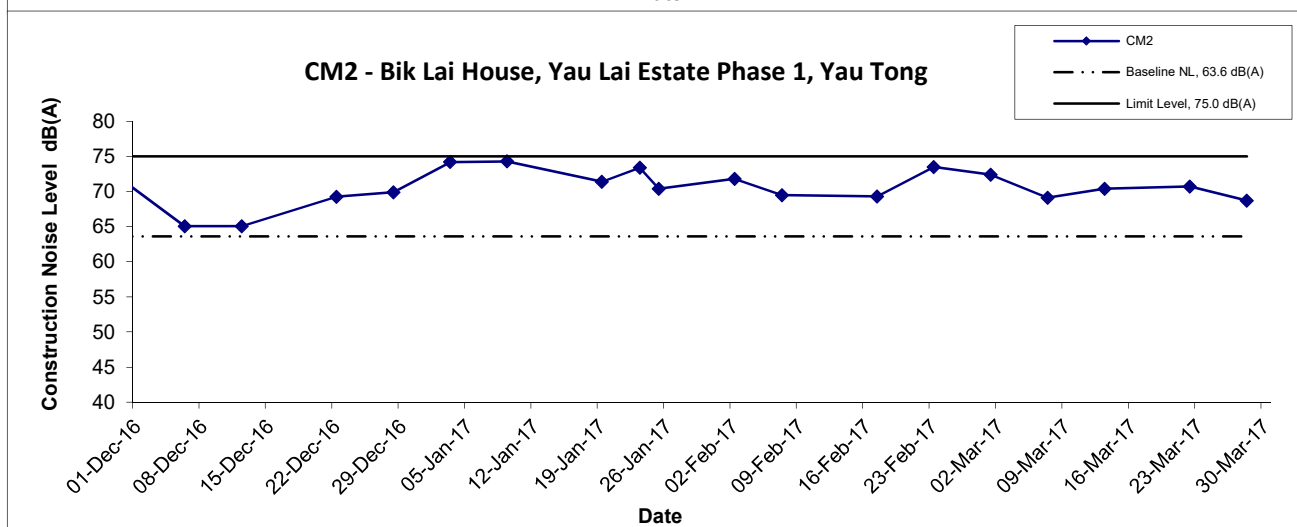
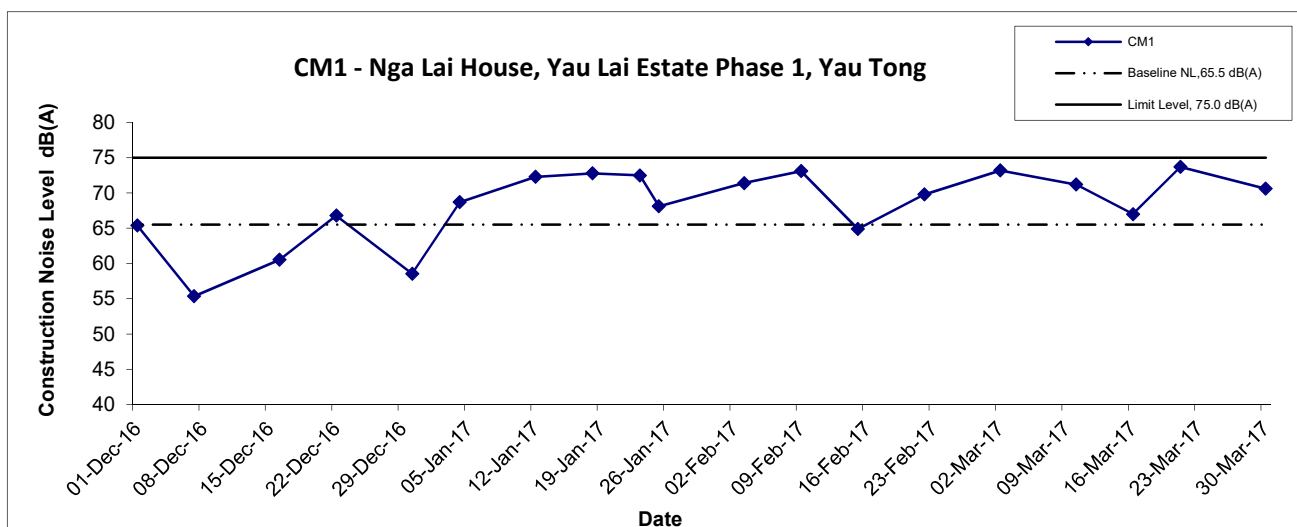
(0700-1900 hrs on Normal Weekdays)

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}
1-Mar-17	9:00	Cloudy	70.3	72.4	68.6	61.9	69.6
7-Mar-17	13:30	Cloudy	66.2	69.3	59.4		64.2
13-Mar-17	14:00	Cloudy	64.2	67.8	57.3		60.3
23-Mar-17	15:30	Cloudy	63.7	67.6	53.3		59.0
29-Mar-17	11:20	Cloudy	69.1	71.7	62.3		68.2

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}
1-Mar-17	13:30	Cloudy	69.6	71.4	67.0	58.3	69.3
7-Mar-17	14:30	Cloudy	69.4	71.8	66.3		69.0
13-Mar-17	15:00	Cloudy	62.2	64.8	57.7		59.9
23-Mar-17	14:00	Cloudy	63.7	65.8	61.6		62.2
29-Mar-17	10:10	Cloudy	68.2	71.4	60.0		67.7

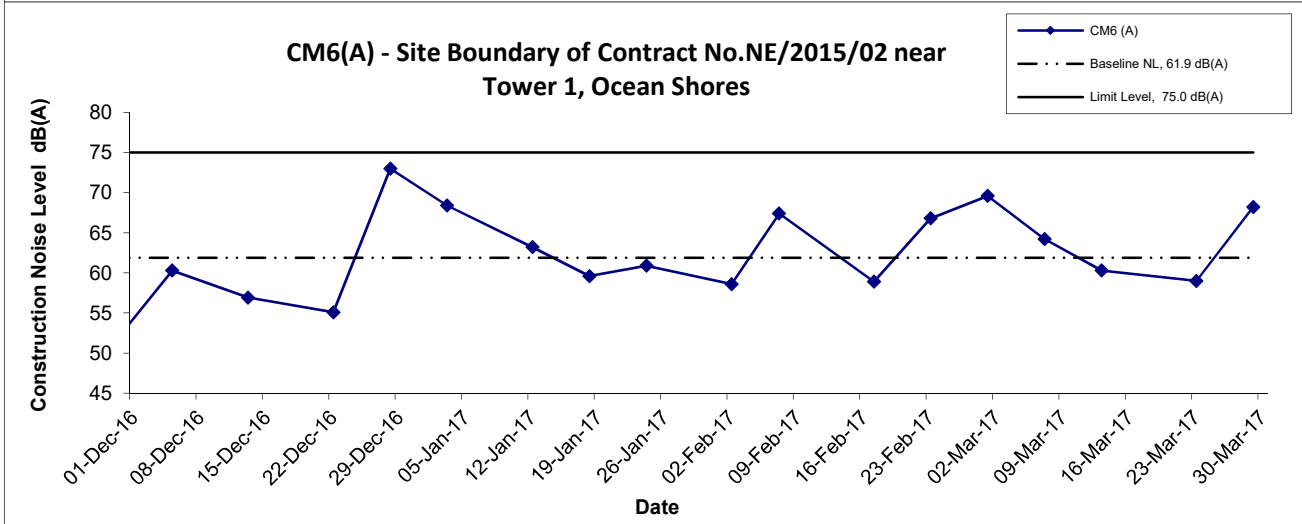
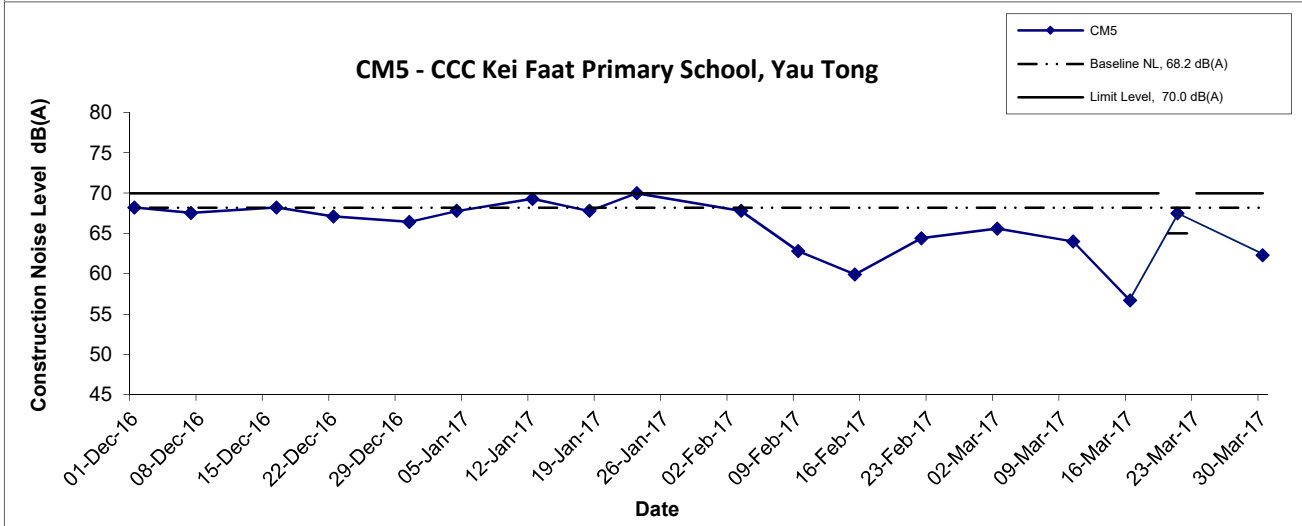
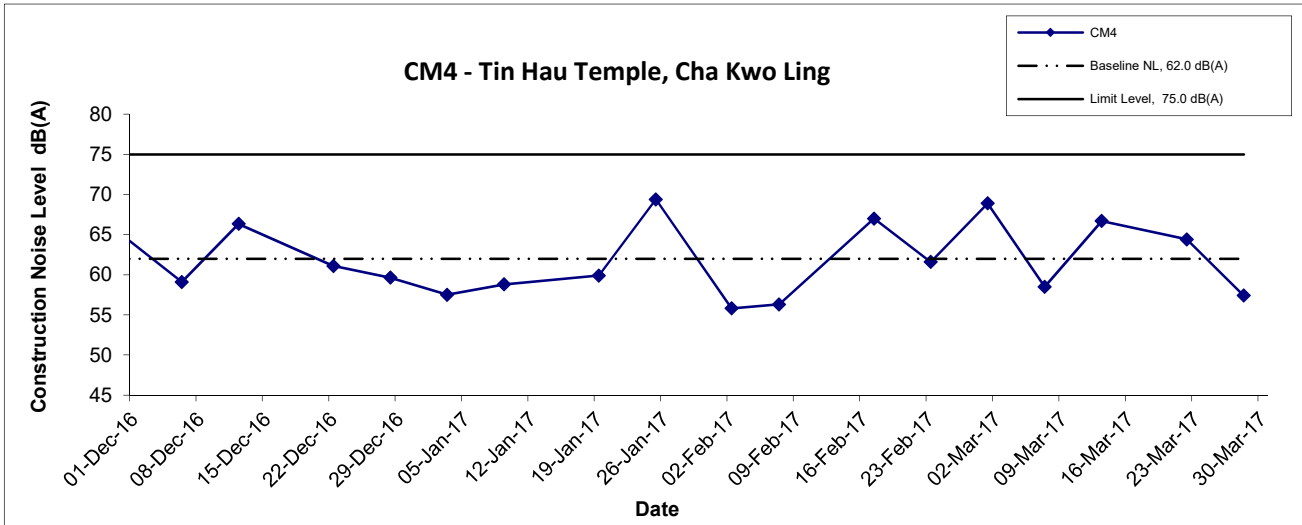
Location CM8(A) - Park Central, L1/F Open Space Area							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
1-Mar-17	15:25	Cloudy	67.2	69.3	63.4	69.1	67.2 Measured ≤ Baseline
7-Mar-17	13:30	Cloudy	66.5	70.3	59.2		66.5 Measured ≤ Baseline
13-Mar-17	16:00	Cloudy	68.1	70.4	61.5		68.1 Measured ≤ Baseline
23-Mar-17	9:30	Cloudy	64.3	67.5	58.4		64.3 Measured ≤ Baseline
29-Mar-17	13:00	Sunny	66.9	69.7	59.6		66.9 Measured ≤ Baseline

Noise Levels



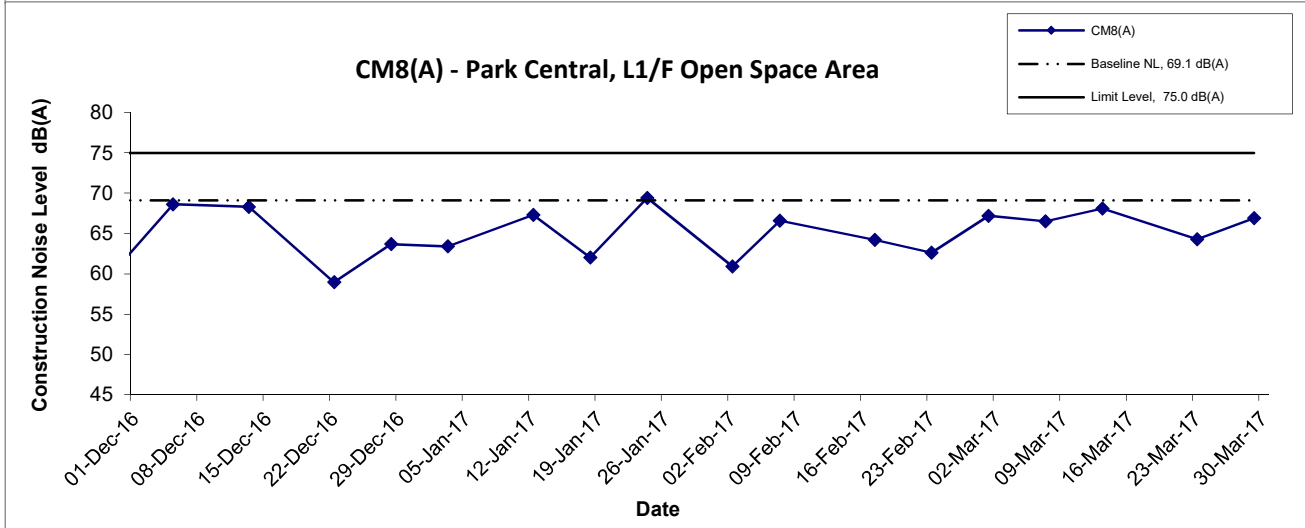
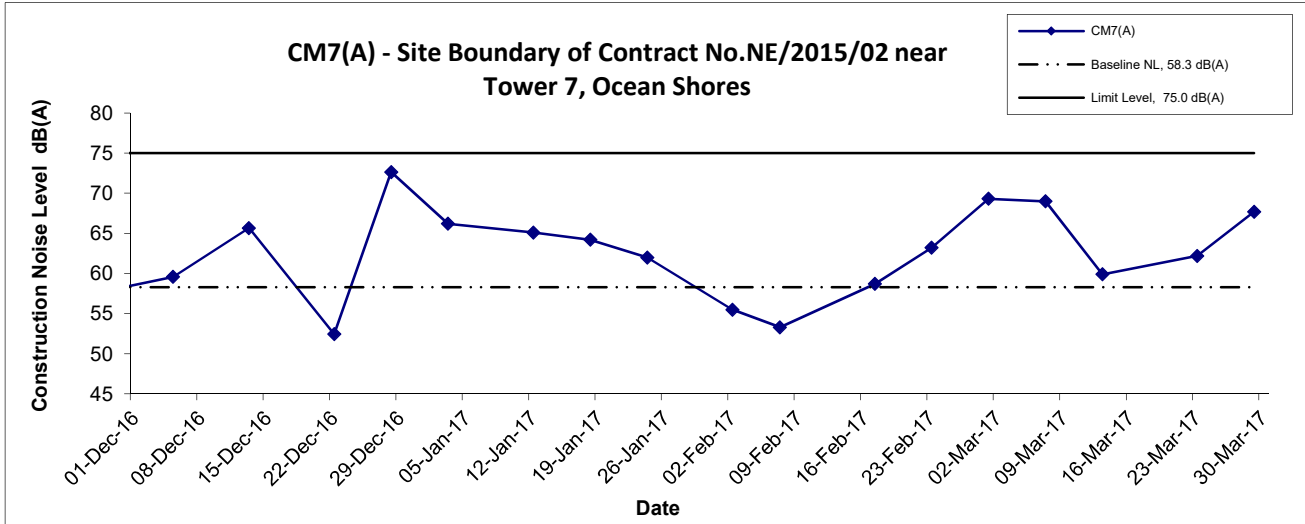
Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale	Project	CINOTECH
	N.T.S	No. MA16034	
	Date	Appendix	
	Mar 17	G	

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 Mar 17	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	Project	
	Date	Appendix	
	N.T.S	No. MA16034	
	Mar 17	G	

**APPENDIX H
GROUNDWATER QUALITY
MONITORING RESULTS, GRAPHICAL
PRESENTATIONS AND LABORATORY
TESTING REPORTS**

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 (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
15-Mar-17	Cloudy	14:08	Middle	20.3	20.3	6.9	7.0	0.3	0.3	89.5	89.5	8.1	8.1	1.8	1.8
				20.3		7.0		0.3		89.4		8.1			
30-Mar-17	Cloudy	17:00	Middle	19.3	19.3	6.4	6.4	0.2	0.2	83.4	83.2	7.7	7.7	1.6	1.7
				19.2		6.4		0.2		83.0		7.7			

Groundwater Quality Monitoring Results at Stream 2

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
15-Mar-17	Cloudy	13:42	Middle	20.3	20.3	6.9	6.9	0.1	0.1	90.4	90.4	8.2	8.2	2.0	2.0
				20.3		6.9		0.1		90.3		8.2			
30-Mar-17	Cloudy	16:32	Middle	19.4	19.4	6.3	6.3	0.1	0.1	85.3	85.2	7.9	7.9	1.8	1.8
				19.4		6.3		0.1		85.0		7.8			

Groundwater Quality Monitoring Results at Stream 3

Date	Weather Condition	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
15-Mar-17	Cloudy	13:27	Middle	20.2	20.2	6.8	6.8	0.1	0.1	89.7	89.7	8.1	8.1	1.7	1.8
				20.2		6.8		0.1		89.6		8.1			
30-Mar-17	Cloudy	16:13	Middle	19.2	19.2	6.4	6.4	0.1	0.1	84.9	84.8	7.8	7.8	1.5	1.6
				19.2		6.4		0.1		84.6		7.8			

TEST REPORT

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

Report No.:	26674
Date of Issue:	2017-03-27
Date Received:	2017-03-15
Date Tested:	2017-03-15
Date Completed:	2017-03-27

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Sample Description : 3 liquid samples as received from client said to be groundwater
Laboratory No. : 26674
Project No. : MA16034 (Groundwater)
Project Name : Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O –
 Lam Tin Tunnel – Design and Construction
Custody No. : MA16034(Groundwater)/170315
Sampling Date : 2017-03-15

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Total Suspended Solids	APHA 17ed 2540 D	*0.5 mg/L
2	Biochemical Oxygen Demand	APHA 19ed 5210B	2 mg O ₂ /L
3	Total Organic Carbon	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L
4	Nitrogen (Total Kjeldahl + nitrate + nitrite)	In-house method SOP063 (FIA)	0.6 mg N/L
5	Ammonia	In-house method SOP057 (FIA)	0.05 mg NH ₃ -N/L
6	Total Phosphorus	In-house method SOP055 (FIA)	0.05 mg-P/L

Results:

Sample ID	Stream 1	Stream 2	Stream 3
Sampling Depth	S	S	S
Sample No.	26674-1	26674-2	26674-3
Total Suspended Solids (mg/L)	5.9	2.9	1.6
Biochemical Oxygen Demand (mg O ₂ /L)	<2	<2	<2
Total Organic Carbon (mg-TOC/L)	6	9	6
Nitrogen (Total Kjeldahl + nitrate + nitrite) (mg N/L)	0.9	1.0	1.0
Ammonia (mg NH ₃ -N/L)	<0.05	<0.05	<0.05
Total Phosphorus (mg-P/L)	<0.05	<0.05	<0.05

Remarks: 1) <= less than
 2) S = Surface, M = Middle, B = Bottom
 3) * Limit of Reporting is reported as Detection Limit

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

TEST REPORT

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

Report No.:	26758
Date of Issue:	2017-04-12
Date Received:	2017-03-31
Date Tested:	2017-03-31
Date Completed:	2017-04-12

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Sample Description : 3 liquid samples as received from client said to be groundwater
Laboratory No. : 26758
Project No. : MA16034 (Groundwater)
Project Name : Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O –
 Lam Tin Tunnel – Design and Construction
Custody No. : MA16034(Groundwater)/170331
Sampling Date : 2017-03-31

Tests Requested & Methodology:

Item	Parameters	Ref. Method	Limit of reporting
1	Total Suspended Solids	APHA 17ed 2540 D	*0.5 mg/L
2	Biochemical Oxygen Demand	APHA 19ed 5210B	2 mg O ₂ /L
3	Total Organic Carbon	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L
4	Nitrogen (Total Kjeldahl + nitrate + nitrite)	In-house method SOP063 (FIA)	0.6 mg N/L
5	Ammonia	In-house method SOP057 (FIA)	0.05 mg NH ₃ -N/L
6	Total Phosphorus	In-house method SOP055 (FIA)	0.05 mg-P/L

Results:

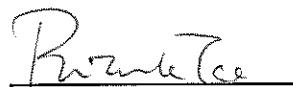
Sample ID	Stream 1	Stream 2	Stream 3
Sampling Depth	S	S	S
Sample No.	26758-1	26758-2	26758-3
Total Suspended Solids (mg/L)	2.8	4.9	5.0
Biochemical Oxygen Demand (mg O ₂ /L)	<2	4	<2
Total Organic Carbon (mg-TOC/L)	6	10	6
Nitrogen (Total Kjeldahl + nitrate + nitrite) (mg N/L)	1.5	1.3	1.5
Ammonia (mg NH ₃ -N/L)	0.05	0.20	0.10
Total Phosphorus (mg-P/L)	<0.05	0.08	<0.05

Remarks: 1) < = less than
 2) S = Surface, M = Middle, B = Bottom
 3) * Limit of Reporting is reported as Detection Limit

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
 Laboratory Manager

Agreement No. CE/59/2015 (EP)

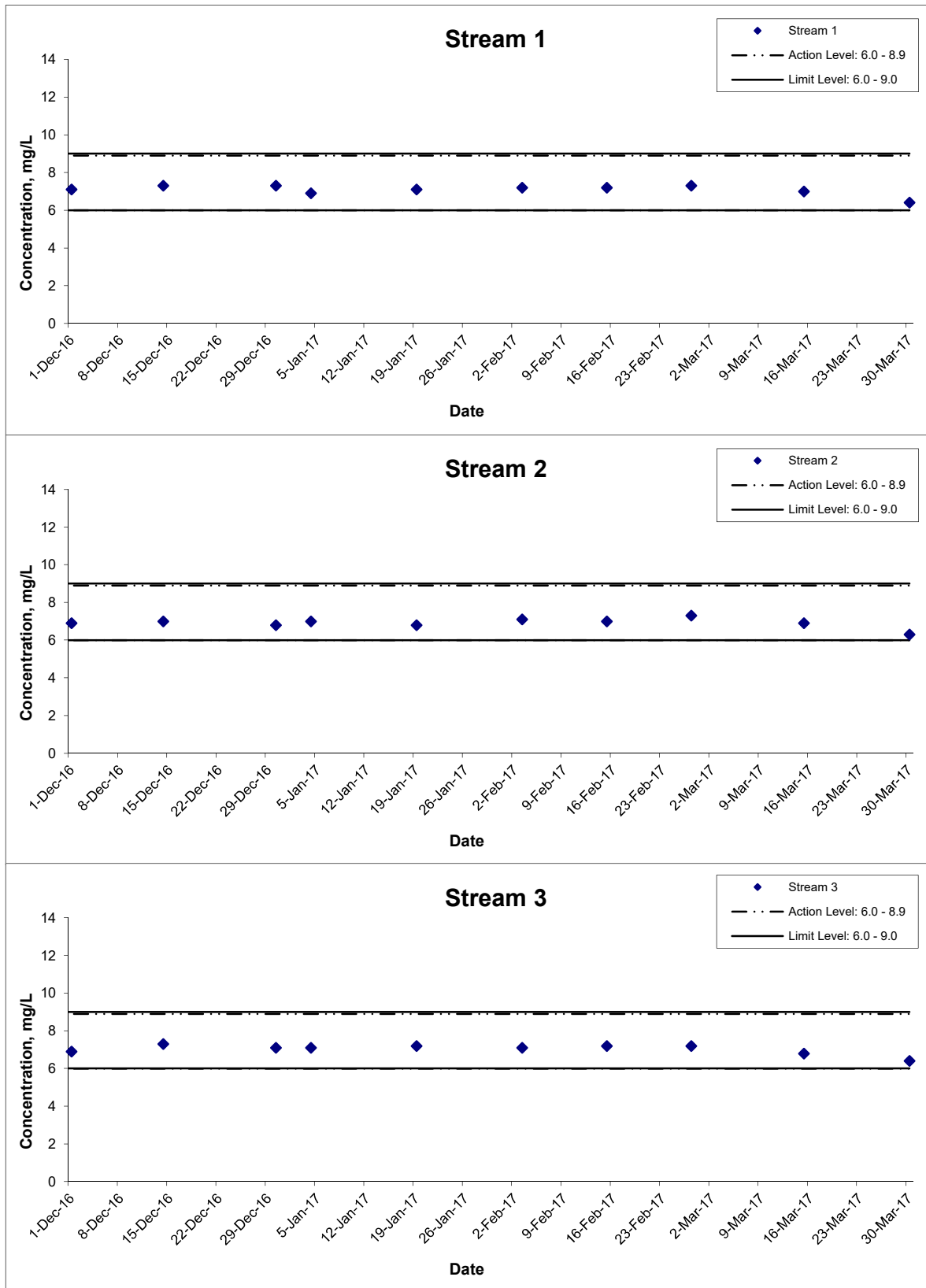
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction

Summary of Groundwater Quality Monitoring Results

Location	Date	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)
Stream 1	15-Mar-17	7	8.1	1.8	5.9	<2	<u>6</u>	0.9	<0.05	<0.05
	30-Mar-17	6.4	7.7	1.7	2.8	<2	<u>6</u>	1.5	0.05	<0.05
Stream 2	15-Mar-17	6.9	8.2	2	2.9	<2	<u>9</u>	1	<0.05	<0.05
	30-Mar-17	6.3	7.9	1.8	4.9	4	10	1.3	0.2	0.08
Stream 3	15-Mar-17	6.8	8.1	1.8	1.6	<2	<u>6</u>	1	<0.05	<0.05
	30-Mar-17	6.4	7.8	1.6	5	<2	<u>6</u>	1.5	0.1	<0.05
No. of Exceedance	Action Level	0	0	0	1	0	0	0	0	0
	Limit Level	0	0	0	0	1	6	0	2	1

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

pH



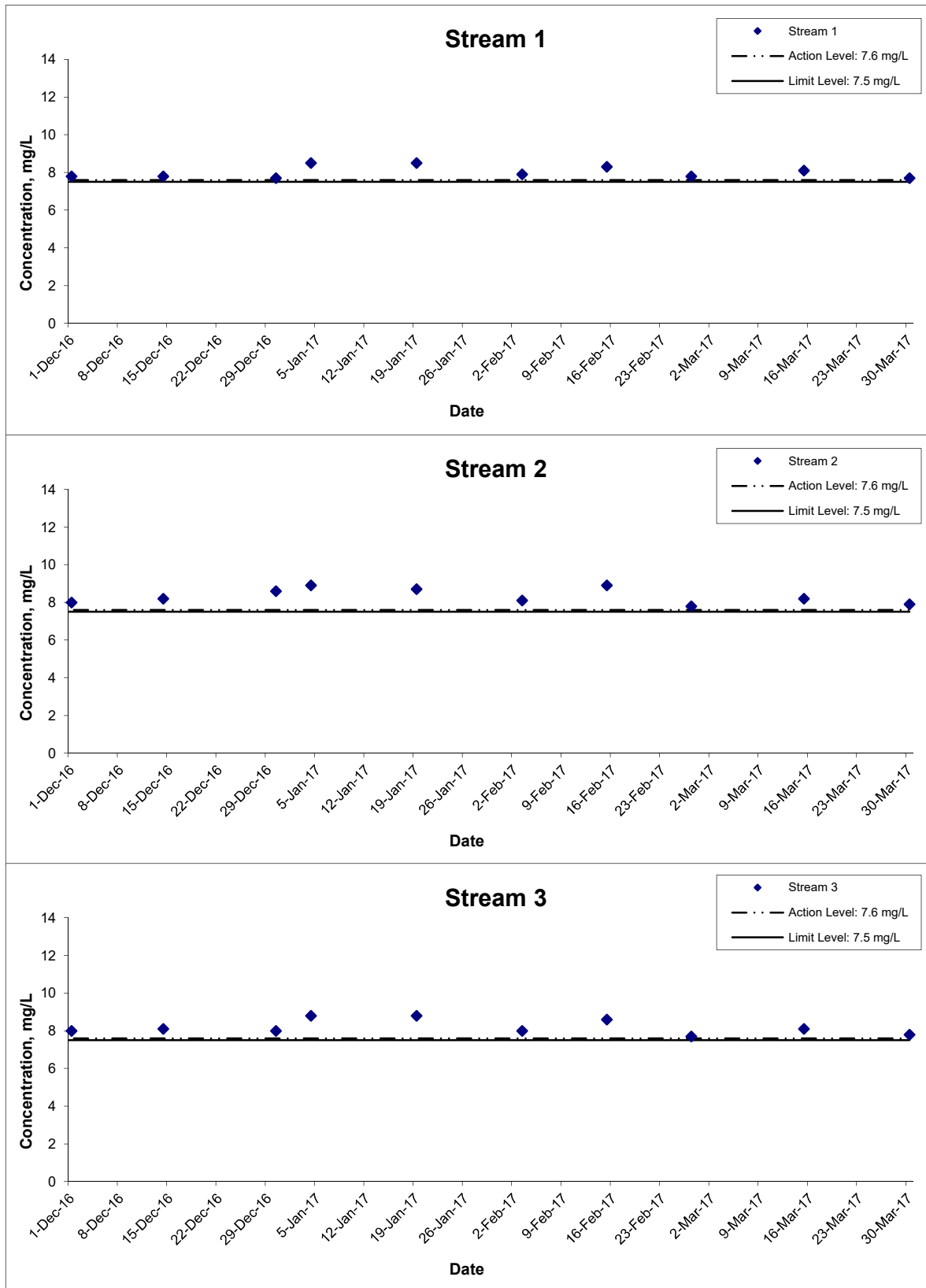
Title Agreement No. CE 59/2015(EP)
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 Design and Construction
 Graphical Presentation of Groundwater Quality
 Monitoring Result

Scale N.T.S
 Date Mar 17

Project No. MA16034
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Dissolved Oxygen



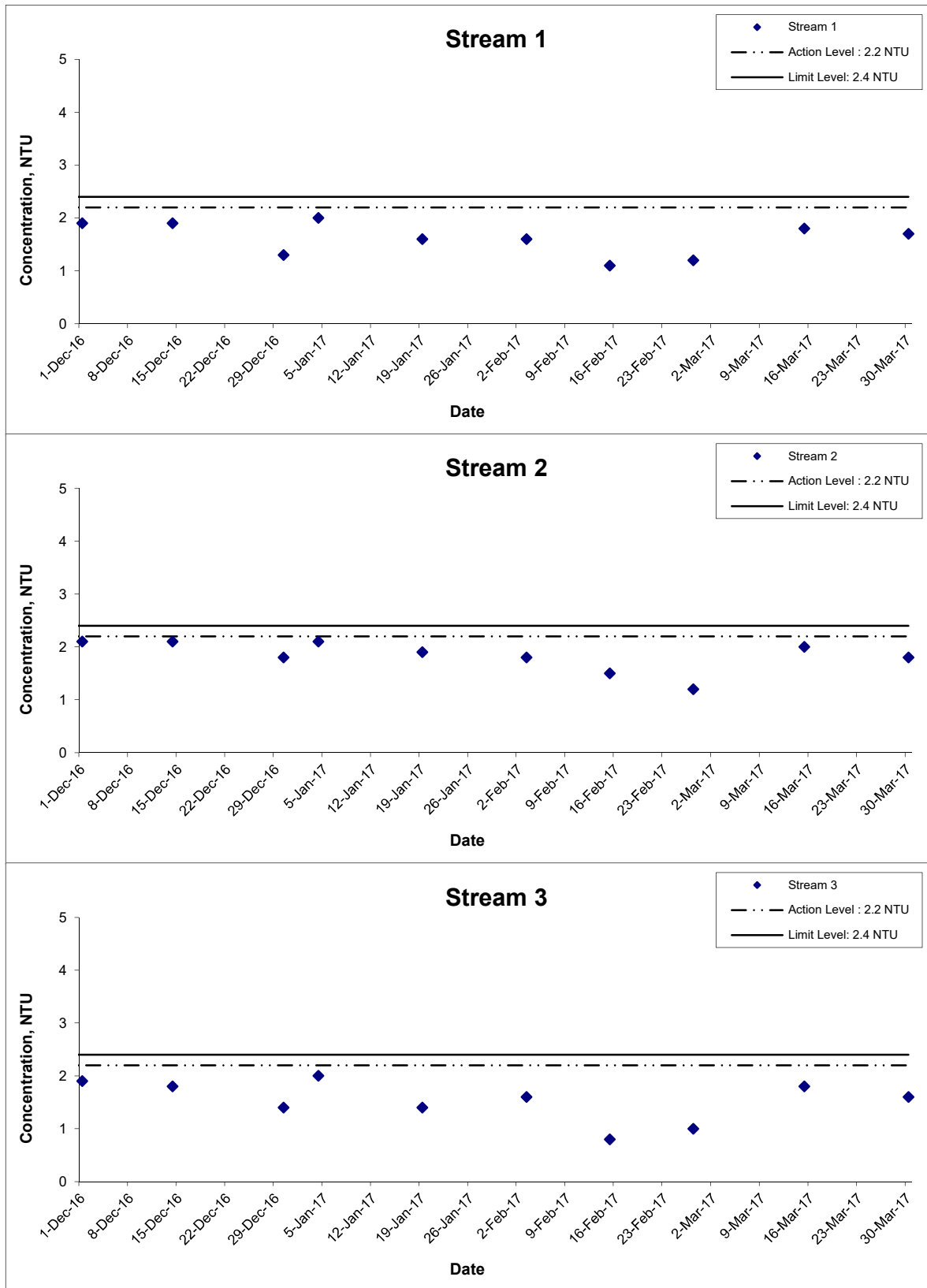
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Turbidity



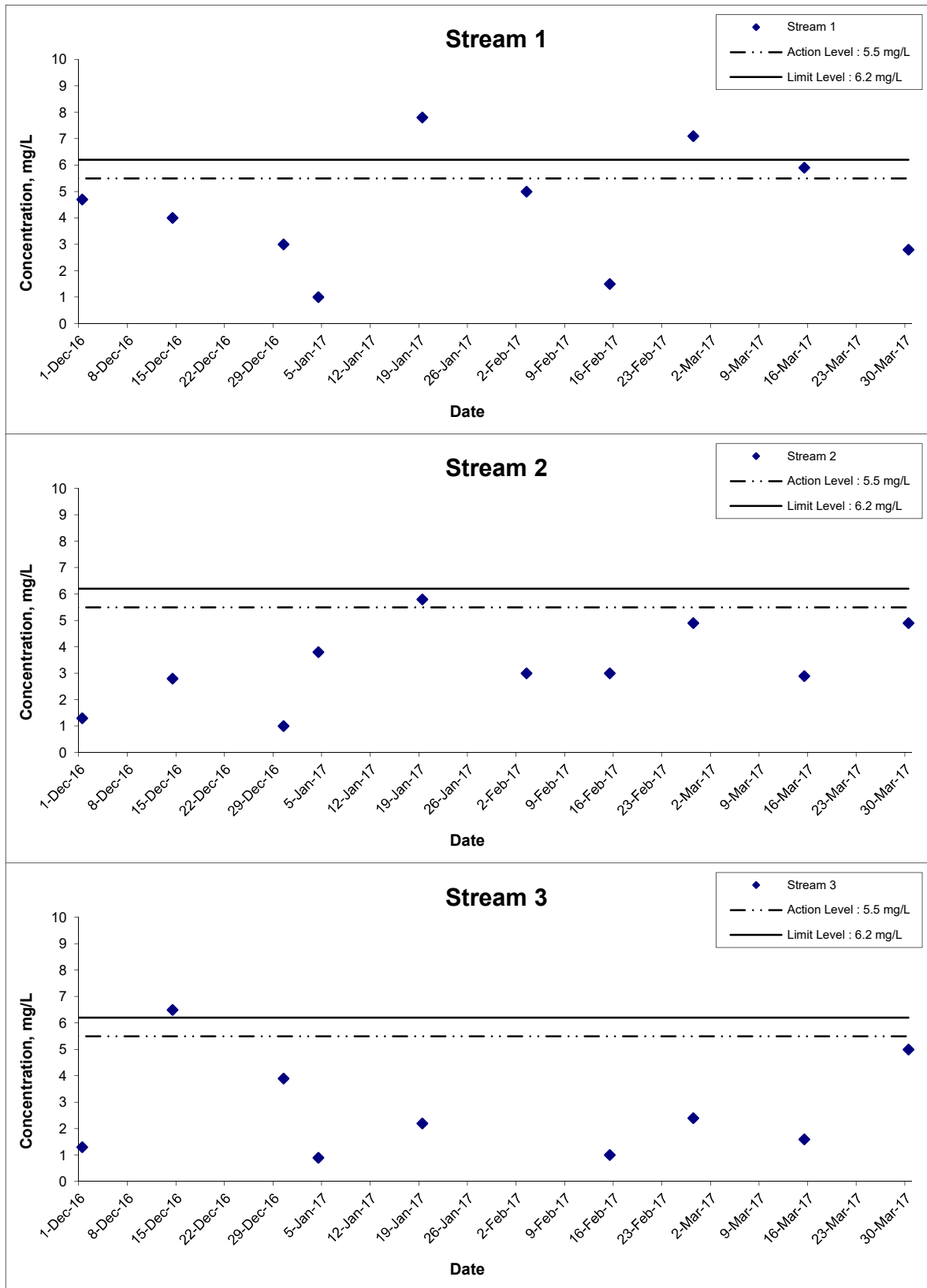
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Suspended Solids



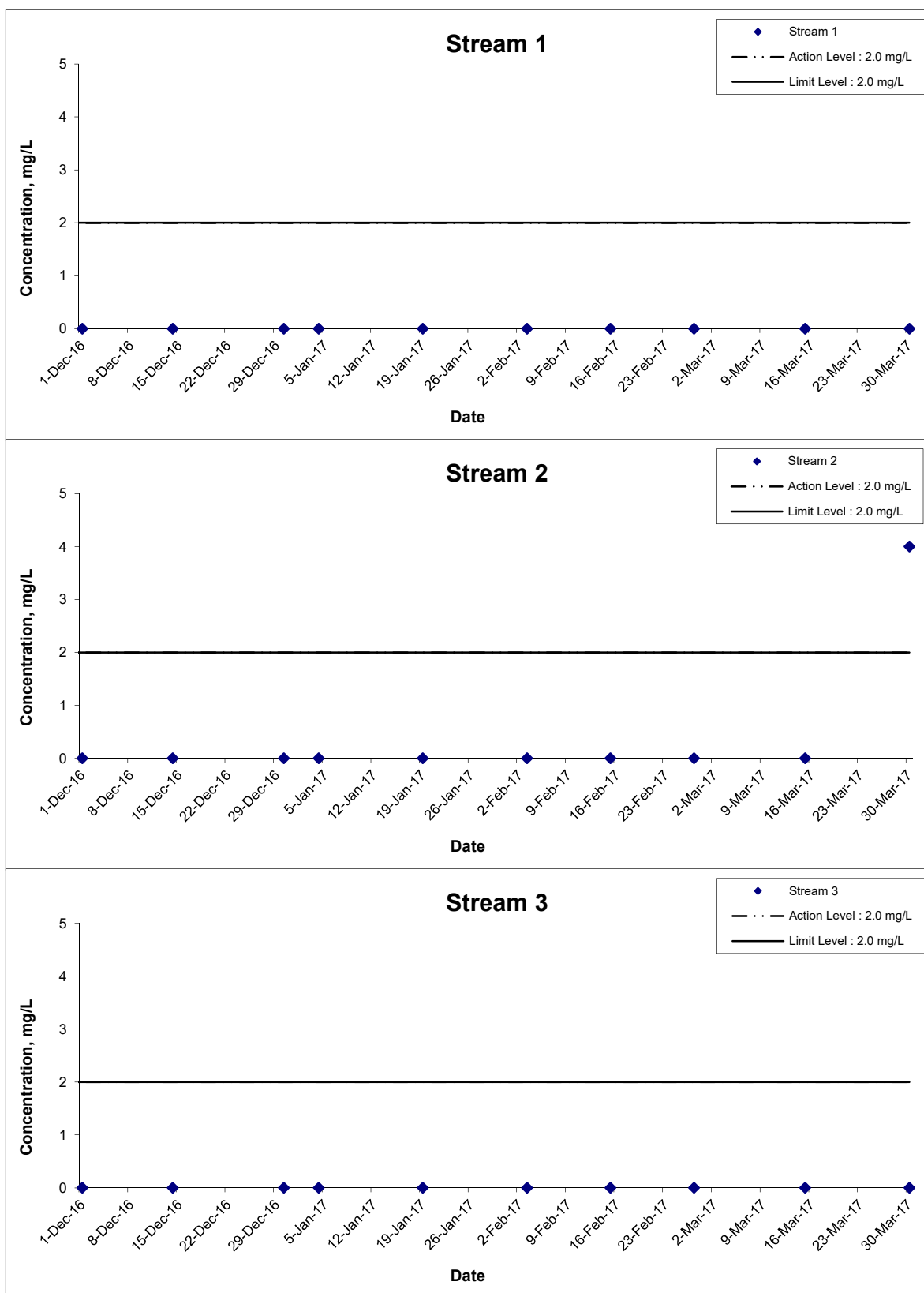
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5-day Biochemical Oxygen Demand (BOD₅)

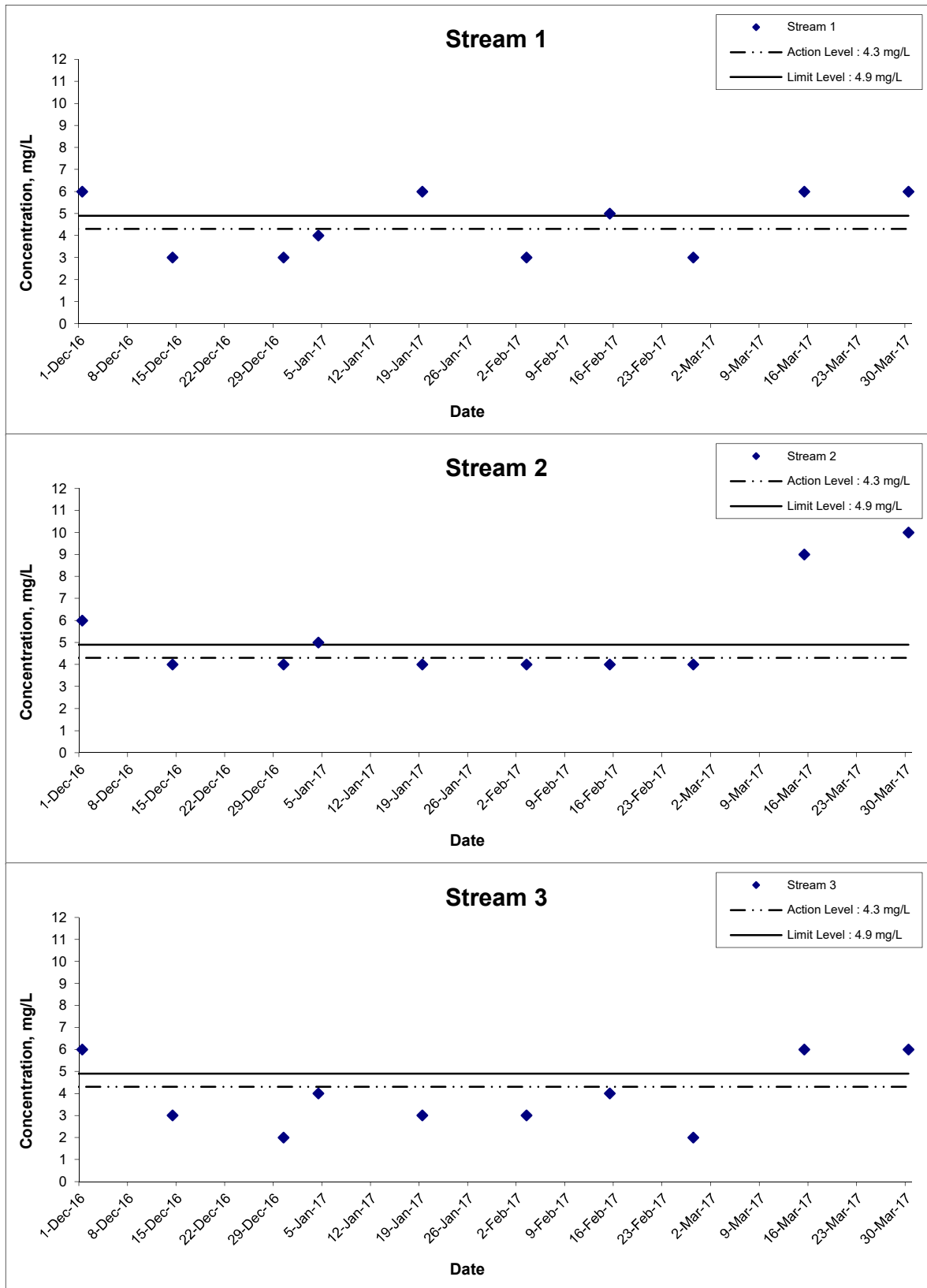


Remarks: The graphical point at zero concentration is presented as <2 mg/L

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CINOTECH

Total Organic Carbon (TOC)



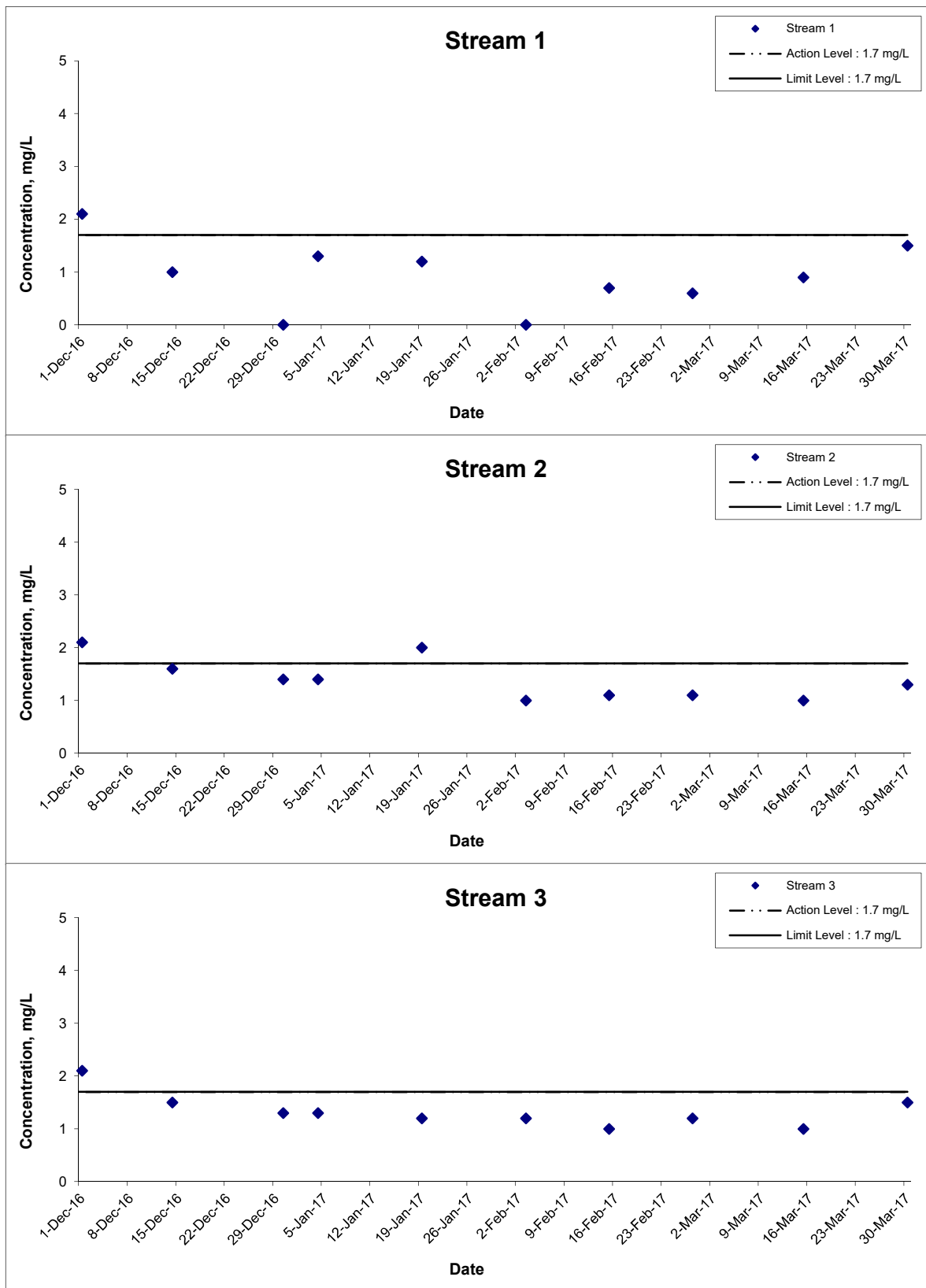
Title Agreement No. CE 59/2015(EP)
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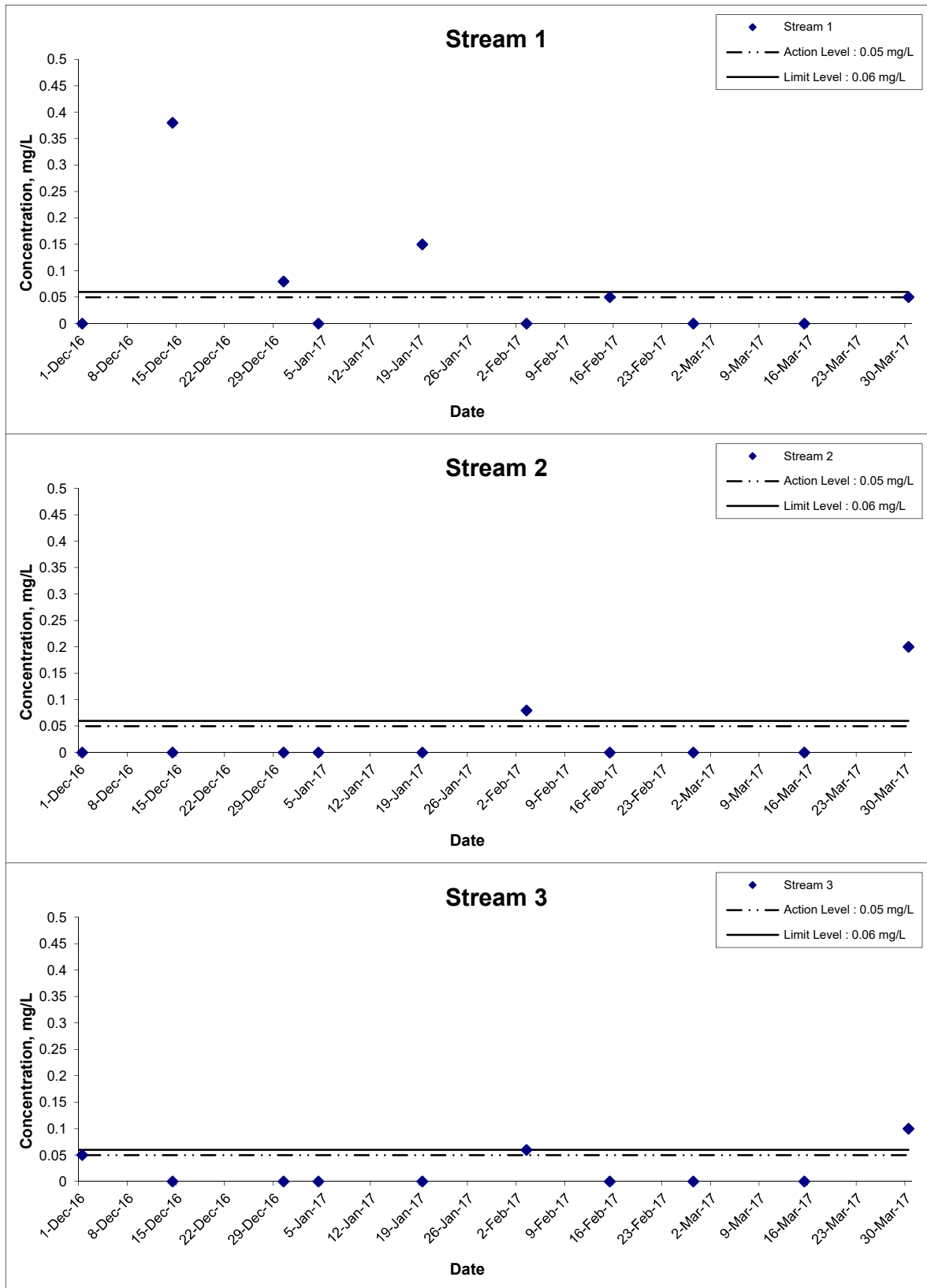
Total Nitrogen



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	Project No. MA16034	
	Date Mar 17	Appendix H	

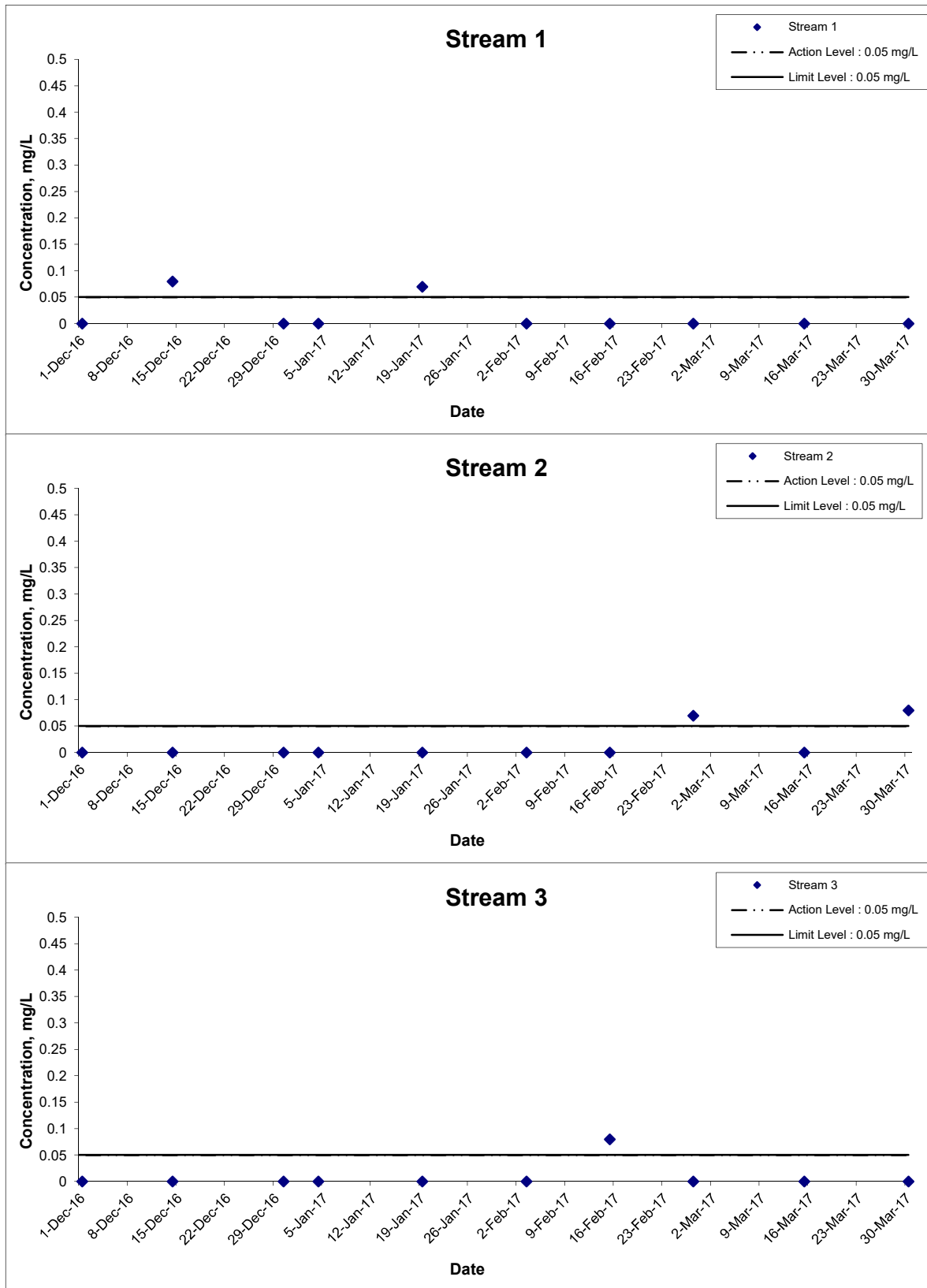
Ammonia-Nitrogen



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
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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	Project No. MA16034	CINOTECH
	Date Mar 17	Appendix H	

**APPENDIX I
MARINE WATER QUALITY
MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix I - Action and Limit Levels for Marine Water Quality on 1 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.2 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.5 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.0 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.5 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.0 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.0 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.5 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)			
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Cloudy	Moderate	15:07	Surface	1	17.8 17.8	17.8	8.1 8.1	8.1	32.2 32.1	32.2	104.8 104.7	104.6	8.2 8.3	8.2	8.3	3.4 3.2	3.3	4.0	1.5 1.5	1.5	1.9
				Middle	10	17.5 17.5	17.5	8.1 8.1	8.1	32.1 32.3	32.2	104.7 104.1	104.4	8.2 8.3	8.3	4.1 3.9	4.0	2.5 2.5		2.5		
				Bottom	19	17.3 17.3	17.3	8.2 8.2	8.2	32.1 32.3	32.2	104.4 104.1	104.3	8.3 8.2	8.3	4.8 4.6	4.7	1.6 1.5		1.6		
C2	Cloudy	Moderate	13:24	Surface	1	17.9 17.9	17.9	8.1 8.0	8.1	33.0 32.9	33.0	103.4 103.2	103.3	8.1 8.0	8.1	8.1	2.8 2.9	2.9	3.5	4.6 4.6	4.6	4.2
				Middle	18	17.6 17.5	17.6	8.1 8.1	8.1	32.9 32.9	32.9	103.0 103.0	103.0	8.1 8.1	8.1	3.3 3.3	3.3	3.0 3.0		3.0		
				Bottom	35	17.3 17.2	17.3	8.1 8.1	8.1	32.9 32.9	32.9	102.8 102.7	102.8	8.1 8.1	8.1	4.2 4.4	4.3	5.0 5.0		5.0		
G1	Cloudy	Moderate	14:13	Surface	1	17.8 17.8	17.8	8.1 8.1	8.1	32.3 32.3	32.3	109.5 109.0	109.3	8.6 8.5	8.6	8.5	2.9 2.8	2.9	3.6	4.9 5.0	5.0	4.2
				Middle	4	17.5 17.5	17.5	8.1 8.1	8.1	32.4 32.4	32.4	107.0 106.7	106.9	8.4 8.4	8.4	3.6 3.5	3.6	2.3 2.4		2.4		
				Bottom	7	17.3 17.2	17.3	8.1 8.1	8.1	32.5 32.5	32.5	105.4 105.7	105.6	8.3 8.4	8.4	4.1 4.4	4.3	5.3 5.1		5.2		
G2	Cloudy	Moderate	13:53	Surface	1	17.8 17.8	17.8	8.1 8.1	8.1	32.5 32.5	32.5	108.5 108.5	108.5	8.5 8.5	8.5	8.5	2.5 2.8	2.7	3.5	2.1 2.2	2.2	2.4
				Middle	5	17.6 17.5	17.6	8.1 8.1	8.1	32.6 32.6	32.6	108.2 108.2	108.2	8.5 8.5	8.5	3.4 3.3	3.4	2.0 1.9		2.0		
				Bottom	9	17.3 17.3	17.3	8.1 8.1	8.1	32.5 32.4	32.5	108.1 108.1	108.1	8.5 8.5	8.5	4.3 4.2	4.3	3.1 3.1		3.1		
G3	Cloudy	Moderate	14:22	Surface	1	17.9 17.9	17.9	8.1 8.1	8.1	32.1 32.1	32.1	108.8 109.0	108.9	8.5 8.5	8.5	8.5	2.3 2.6	2.5	3.6	2.0 2.0	2.0	1.8
				Middle	4	17.6 17.5	17.6	8.1 8.1	8.1	32.3 32.3	32.3	107.7 107.4	107.6	8.5 8.5	8.5	3.7 3.6	3.7	1.7 1.7		1.7		
				Bottom	7	17.3 17.3	17.3	8.1 8.1	8.1	32.4 32.4	32.4	103.9 103.7	103.8	8.2 8.2	8.2	4.5 4.7	4.6	1.7 1.8		1.8		
G4	Cloudy	Moderate	14:41	Surface	1	17.9 17.8	17.9	8.0 8.1	8.1	32.1 32.2	32.2	109.1 109.0	109.1	8.5 8.5	8.5	8.5	3.3 3.3	3.3	4.2	1.7 1.6	1.7	3.5
				Middle	4	17.6 17.6	17.6	8.1 8.1	8.1	32.2 32.2	32.2	108.1 108.0	108.1	8.5 8.5	8.5	4.2 4.5	4.4	3.9 4.0		4.0		
				Bottom	7	17.3 17.2	17.3	8.1 8.1	8.1	32.2 32.3	32.3	106.1 107.1	106.6	8.4 8.5	8.5	4.8 4.8	4.8	4.8 5.0		4.9		
M1	Cloudy	Moderate	14:03	Surface	1	17.7 17.8	17.8	8.1 8.1	8.1	32.4 32.3	32.4	109.1 109.1	109.1	8.6 8.5	8.6	8.6	2.8 2.5	2.7	3.7	4.6 4.7	4.7	4.6
				Middle	3	17.5 17.5	17.5	8.1 8.1	8.1	32.4 32.4	32.4	108.9 108.7	108.8	8.6 8.6	8.6	3.6 3.4	3.5	5.3 5.5		5.4		
				Bottom	5	17.4 17.3	17.4	8.1 8.1	8.1	32.4 32.4	32.4	107.7 107.7	107.7	8.5 8.5	8.5	4.9 4.7	4.8	3.6 3.7		3.7		
M2	Cloudy	Moderate	13:44	Surface	1	17.7 17.8	17.8	8.1 8.1	8.1	32.6 32.5	32.6	108.5 108.7	108.6	8.5 8.5	8.5	8.5	2.1 2.4	2.3	3.2	4.1 4.2	4.2	2.6
				Middle	5	17.4 17.4	17.4	8.1 8.1	8.1	32.5 32.5	32.5	109.0 108.9	109.0	8.6 8.6	8.6	2.9 3.1	3.0	2.0 2.0		2.0		
				Bottom	9	17.3 17.2	17.3	8.1 8.1	8.1	32.6 32.6	32.6	108.1 107.9	108.0	8.5 8.5	8.5	4.3 4.1	4.2	1.6 1.6		1.6		
M3	Cloudy	Moderate	14:33	Surface	1	17.9 17.9	17.9	8.0 8.1	8.1	32.0 32.0	32.0	109.7 109.7	109.7	8.6 8.6	8.6	8.6	3.5 3.2	3.4	3.9	2.4 2.4	2.4	3.4
				Middle	4	17.5 17.6	17.6	8.1 8.1	8.1	32.1 32.2	32.2	107.6 107.3	107.5	8.5 8.4	8.5	3.6 3.9	3.8	4.6 4.7		4.7		
				Bottom	7	17.2 17.1	17.2	8.1 8.1	8.1	32.3 32.3	32.3	104.3 104.2	104.3	8.3 8.3	8.3	4.5 4.7	4.6	3.1 3.2		3.2		
M4	Cloudy	Moderate	13:35	Surface	1	17.8 17.7	17.8	8.1 8.1	8.1	32.7 32.6	32.7	107.6 108.4	108.0	8.4 8.5	8.5	8.5	2.9 2.8	2.9	4.0	5.2 5.3	5.3	2.7
				Middle	4	17.5 17.5	17.5	8.1 8.1	8.1	32.8 32.8	32.8	104.9 104.9	104.9	8.2 8.2	8.2	4.1 4.4	4.3	1.3 1.3		1.3		
				Bottom	7	17.4 17.3	17.4	8.1 8.1	8.1	32.8 32.8	32.8	104.2 104.1	104.2	8.2 8.2	8.2	4.9 4.7	4.8	1.5 1.6		1.6		
M5	Cloudy	Moderate	14:56	Surface	1	17.8 17.8	17.8	8.1 8.0	8.1	32.1 32.1	32.1	109.1 109.2	109.2	8.6 8.6	8.6	8.6	2.6 2.7	2.7	3.8	2.5 2.5	2.5	2.5
				Middle	5.5	17.6 17.5	17.6	8.1 8.2	8.2	32.1 32.1	32.1	108.9 109.1	109.0	8.6 8.6	8.6	3.9 3.8	3.9	3.9 3.3		3.3		
				Bottom	10	17.3 17.2	17.3	8.1 8.1	8.1	32.2 32.2	32.2	108.6 108.6	108.6	8.6 8.6	8.6	4.7 4.6	4.7	1.7 1.7		1.7		
M6	Cloudy	Moderate	14:50	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.9	-	-	1.8
				Middle	2.5	17.5 17.5	17.5	8.1 8.1	8.1	32.2 32.1	32.2	104.5 104.6	104.6	8.2 8.3	8.3	4.7 5.0	4.9	1.7 1.8		1.8		
				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 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.5 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 7.0 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.1 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.1 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.6 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 2.9 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(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	08:57	Surface	1	17.6 17.6	17.6	8.1 8.1	8.1	32.1 32.1	32.1	104.1 104.0	104.1	8.2 8.2	8.2	8.2	8.2	4.1 4.4	4.3	4.8	4.8 4.6	4.7	2.7
				Middle	10	17.4 17.5	17.5	8.1 8.1	8.1	32.1 32.1	32.1	103.9 104.0	104.0	8.2 8.2	8.2	8.2	8.2	4.9 4.6	4.8		1.1 1.1	1.1	
				Bottom	19	17.2 17.3	17.3	8.2 8.2	8.2	32.1 32.1	32.1	103.8 103.6	103.7	8.2 8.2	8.2	8.2	8.2	5.2 5.5	5.4		2.2 2.2	2.2	
C2	Cloudy	Moderate	07:10	Surface	1	17.5 17.6	17.6	8.1 8.1	8.1	32.6 32.6	32.6	104.6 104.4	104.5	8.2 8.2	8.2	8.2	8.2	2.5 2.7	2.6	3.1	0.9 0.9	0.9	1.1
				Middle	18	17.2 17.2	17.2	8.2 8.1	8.2	33.0 33.1	33.1	103.7 103.5	103.6	8.2 8.2	8.2	8.2	8.2	3.3 3.1	3.2		0.8 0.8	0.8	
				Bottom	35	17.0 17.0	17.0	8.2 8.2	8.2	32.5 32.4	32.5	99.1 98.5	98.8	7.9 7.8	7.9	7.9	7.9	3.6 3.6	3.6		1.6 1.6	1.6	
G1	Cloudy	Moderate	08:00	Surface	1	17.7 17.6	17.7	8.0 8.0	8.0	32.0 32.0	32.0	104.3 104.4	104.4	8.2 8.2	8.2	8.2	8.3	2.6 2.8	2.7	3.6	1.0 1.0	1.0	0.9
				Middle	4	17.4 17.5	17.5	8.1 8.1	8.1	32.0 32.0	32.0	104.4 104.3	104.4	8.3 8.2	8.3	8.3	8.3	3.7 3.6	3.7		0.5 0.5	0.5	
				Bottom	7	17.2 17.1	17.2	8.1 8.1	8.1	32.1 32.2	32.2	104.2 104.4	104.3	8.3 8.3	8.3	8.3	8.3	4.3 4.6	4.5		1.2 1.2	1.2	
G2	Cloudy	Moderate	07:41	Surface	1	17.4 17.5	17.5	8.0 8.1	8.1	32.4 32.3	32.4	103.7 103.6	103.7	8.2 8.2	8.2	8.2	8.2	2.8 2.5	2.7	3.4	1.8 1.8	1.8	1.3
				Middle	4.5	17.6 17.7	17.7	8.1 8.1	8.1	32.3 32.3	32.3	103.4 103.4	103.4	8.1 8.1	8.1	8.1	8.1	3.5 3.3	3.4		1.4 1.4	1.4	
				Bottom	8	17.3 17.3	17.3	8.1 8.1	8.1	32.4 32.4	32.4	103.3 103.3	103.3	8.2 8.2	8.2	8.2	8.2	4.1 4.2	4.2		0.8 0.8	0.8	
G3	Cloudy	Moderate	08:10	Surface	1	17.6 17.6	17.6	8.0 8.1	8.1	32.1 32.0	32.1	104.9 104.8	104.9	8.3 8.3	8.3	8.3	8.3	2.5 2.5	2.5	3.6	0.9 0.9	0.9	1.9
				Middle	4	17.4 17.3	17.4	8.1 8.1	8.1	32.1 32.1	32.1	104.6 104.7	104.7	8.3 8.3	8.3	8.3	8.3	3.9 4.0	4.0		3.0 3.1	3.1	
				Bottom	7	17.1 17.2	17.2	8.1 8.1	8.1	32.2 32.1	32.2	104.8 104.7	104.8	8.3 8.3	8.3	8.3	8.3	4.3 4.2	4.3		1.7 1.6	1.7	
G4	Cloudy	Moderate	08:29	Surface	1	17.6 17.6	17.6	8.1 8.1	8.1	32.0 32.0	32.0	103.7 103.6	103.7	8.2 8.2	8.2	8.2	8.2	4.7 4.4	4.6	5.4	1.9 1.9	1.9	1.7
				Middle	4	17.4 17.4	17.4	8.1 8.1	8.1	32.0 32.0	32.0	103.3 103.2	103.3	8.2 8.2	8.2	8.2	8.2	5.7 5.6	5.7		1.9 1.9	1.9	
				Bottom	7	17.1 17.2	17.2	8.1 8.1	8.1	32.0 32.0	32.0	103.5 103.7	103.6	8.2 8.2	8.2	8.2	8.2	5.9 5.9	5.9		1.3 1.4	1.4	
M1	Cloudy	Moderate	07:50	Surface	1	17.5 17.5	17.5	8.1 8.0	8.1	32.2 32.1	32.2	103.2 102.9	103.1	8.1 8.1	8.1	8.1	8.1	2.1 2.2	2.2	3.4	2.0 2.0	2.0	1.6
				Middle	3	17.4 17.3	17.4	8.1 8.1	8.1	32.3 32.3	32.3	102.8 102.9	102.9	8.1 8.1	8.1	8.1	8.1	3.7 3.5	3.6		1.3 1.2	1.3	
				Bottom	5	17.1 17.1	17.1	8.1 8.1	8.1	32.3 32.3	32.3	102.7 102.7	102.7	8.2 8.2	8.2	8.2	8.2	4.3 4.3	4.3		1.5 1.5	1.5	
M2	Cloudy	Moderate	07:32	Surface	1	17.4 17.5	17.5	8.0 8.1	8.1	32.4 32.4	32.4	103.7 103.7	103.7	8.2 8.2	8.2	8.2	8.2	3.7 3.5	3.6	4.6	2.0 2.0	2.0	2.1
				Middle	5	17.1 17.1	17.1	8.1 8.1	8.1	32.4 32.4	32.4	103.3 103.2	103.3	8.2 8.2	8.2	8.2	8.2	4.5 4.7	4.6		1.6 1.6	1.6	
				Bottom	9	16.9 17.0	17.0	8.1 8.1	8.1	32.5 32.5	32.5	103.1 103.1	103.1	8.2 8.2	8.2	8.2	8.2	5.7 5.6	5.7		2.6 2.6	2.6	
M3	Cloudy	Moderate	08:20	Surface	1	17.5 17.4	17.5	8.1 8.1	8.1	32.2 32.1	32.2	105.2 105.2	105.2	8.3 8.3	8.3	8.3	8.3	3.2 3.1	3.2	3.8	1.0 1.0	1.0	1.6
				Middle	4	17.3 17.3	17.3	8.1 8.1	8.1	32.1 32.1	32.1	104.5 104.7	104.6	8.3 8.3	8.3	8.3	8.3	3.7 3.6	3.7		2.3 2.3	2.3	
				Bottom	7	17.0 17.1	17.1	8.1 8.1	8.1	32.1 32.1	32.1	104.4 104.3	104.4	8.3 8.3	8.3	8.3	8.3	4.3 4.4	4.4		1.4 1.5	1.5	
M4	Cloudy	Moderate	07:22	Surface	1	17.6 17.5	17.6	8.1 8.1	8.1	32.7 32.7	32.7	103.6 103.6	103.6	8.1 8.1	8.1	8.1	8.1	2.2 2.5	2.4	3.4	1.0 1.0	1.0	1.2
				Middle	4	17.4 17.4	17.4	8.1 8.1	8.1	32.8 32.8	32.8	103.0 102.9	103.0	8.1 8.1	8.1	8.1	8.1	3.6 3.3	3.5		1.5 1.5	1.5	
				Bottom	7	17.3 17.3	17.3	8.1 8.1	8.1	32.8 32.8	32.8	102.7 102.6	102.7	8.1 8.1	8.1	8.1	8.1	4.2 4.5	4.4		1.0 1.1	1.1	
M5	Cloudy	Moderate	08:44	Surface	1	17.8 17.9	17.9	8.1 8.1	8.1	32.0 32.0	32.0	102.2 102.3	102.3	8.0 8.0	8.0	8.0	8.1	2.5 2.8	2.7	4.1	1.8 1.7	1.8	1.4
				Middle	5.5	17.6 17.5	17.6	8.1 8.1	8.1	32.0 32.0	32.0	102.5 102.5	102.5	8.1 8.1	8.1	8.1	8.1	4.5 4.3	4.4		1.3 1.2	1.3	
				Bottom	10	17.5 17.4	17.5	8.2 8.2	8.2	32.1 32.1	32.1	102.5 102.6	102.6	8.1 8.1	8.1	8.1	8.1	5.4 5.2	5.3		1.0 1.0	1.0	
M6	Cloudy	Moderate	08:38	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.2	-	-	1.3	
				Middle	2.5	17.9 17.7	17.8	8.1 8.1	8.1	31.9 31.9	31.9	98.1 98.3	98.2	7.7 7.7	7.7	7.7	7.7	4.3 4.1		4.2	1.3 1.3		1.3
				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 3 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.2 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 2.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.0 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 2.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.0 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.8 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 03 March 2017**

(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	Moderate	15:53	Surface	1	22.7 22.4	22.6	7.9 7.8	7.9	30.0 30.0	30.0	98.7 99.0	98.9	7.2 7.2	7.2	7.2	4.0	4.0	7.2	3.9 4.0	4.0	1.4 1.5	1.5	
				Middle	10	22.2 22.9	22.6	7.7 7.7	7.7	30.0 30.0	30.0	96.5 97.8	97.2	7.1 7.1	7.1	4.6	4.6	4.4	4.6	4.4	4.5 4.6	4.6	1.5 1.6	1.6
				Bottom	19	22.4 22.7	22.6	7.6 7.5	7.6	30.0 30.1	30.1	95.2 96.3	95.8	6.9 7.0	7.0	4.8 4.6	4.7	7.0	4.6	4.7	4.8 4.6	4.7	1.5 1.5	1.5
C2	Fine	Moderate	14:41	Surface	1	23.2 22.5	22.9	7.6 7.7	7.7	29.5 29.5	29.5	91.7 90.5	91.1	6.6 6.6	6.6	6.6	3.1	2.9	6.6	2.7 3.1	2.9	2.2 2.3	2.3	
				Middle	18	22.2 22.6	22.4	7.5 7.5	7.5	29.8 29.7	29.8	89.5 89.8	89.7	6.6 6.5	6.6	3.1	3.1	3.4	3.1	3.4	3.1 3.0	3.1	2.8 2.8	2.8
				Bottom	35	22.6 22.2	22.4	7.5 7.5	7.5	29.8 29.7	29.8	90.4 89.1	89.8	6.6 6.5	6.6	4.2 4.4	4.3	6.6	4.2 4.4	4.3	4.2 4.4	4.3	3.1 3.2	3.2
G1	Fine	Moderate	15:14	Surface	1	23.2 22.4	22.8	8.0 8.0	8.0	29.7 29.8	29.8	94.7 93.5	94.1	6.8 6.8	6.8	6.9	2.8	2.9	6.9	2.8 2.9	2.9	0.8 0.8	0.8	
				Middle	4	22.7 22.4	22.6	7.8 7.9	7.9	30.0 30.0	30.0	95.4 95.5	95.5	6.9 7.0	7.0	3.6	4.0	3.9	4.0	3.9	3.6 4.3	4.0	3.2 3.2	3.2
				Bottom	7	22.6 22.2	22.4	7.8 7.8	7.8	30.1 30.2	30.2	96.3 94.7	95.5	7.0 6.9	7.0	4.6 4.7	4.7	7.0	4.6 4.7	4.7	4.6 4.7	4.7	2.2 2.2	2.2
G2	Fine	Moderate	15:01	Surface	1	22.3 23.1	22.7	8.0 8.0	8.0	30.3 30.2	30.3	93.8 95.9	94.9	6.8 6.9	6.9	6.9	2.5	2.6	6.9	2.5 2.6	2.6	2.4 2.4	2.4	
				Middle	5	22.3 22.7	22.5	7.9 7.9	7.9	30.3 30.2	30.3	94.0 93.4	93.7	6.9 6.8	6.9	3.1	3.3	3.5	3.3	3.5	3.1 3.5	3.3	3.3 3.4	3.4
				Bottom	9	22.2 22.7	22.5	7.8 7.8	7.8	30.5 30.5	30.5	93.5 94.6	94.1	6.8 6.8	6.8	4.0	4.5	6.8	4.0 5.0	4.5	4.0 5.0	4.5	1.7 1.7	1.7
G3	Fine	Moderate	15:20	Surface	1	22.1 22.8	22.5	8.1 8.1	8.1	30.0 29.9	30.0	94.5 94.9	94.7	6.9 6.9	6.9	6.9	3.7	4.0	6.9	3.7 4.3	4.0	2.4 2.5	2.5	
				Middle	4	22.9 22.5	22.7	7.9 8.0	8.0	30.0 29.9	30.0	93.9 93.6	93.8	6.8 6.8	6.8	4.7	4.4	4.1	4.4	4.1	4.7 4.0	4.4	3.2 3.2	3.2
				Bottom	7	22.5 22.5	22.5	7.9 7.8	7.9	30.0 30.2	30.1	94.3 92.4	93.4	6.9 6.7	6.8	4.1	3.9	6.8	4.1 3.7	3.9	4.1 3.7	3.9	2.1 2.1	2.1
G4	Fine	Moderate	15:33	Surface	1	22.4 22.5	22.5	8.0 8.0	8.0	29.6 29.5	29.6	95.2 95.1	95.2	7.0 6.9	7.0	7.0	3.0	3.0	7.0	3.0 3.0	3.0	2.7 2.6	2.7	
				Middle	4	22.2 22.9	22.6	7.8 7.8	7.8	29.7 29.7	29.7	95.2 95.3	95.3	7.0 6.9	7.0	3.4	3.5	6.9	3.5	6.9	3.4 3.6	3.5	2.2 2.1	2.2
				Bottom	7	22.9 22.6	22.8	7.7 7.7	7.7	30.1 30.0	30.1	93.7 93.1	93.4	6.8 6.8	6.8	5.0	5.0	6.8	5.0 5.0	5.0	5.0 5.0	5.0	2.2 2.2	2.2
M1	Fine	Moderate	15:08	Surface	1	23.4 23.0	23.2	8.0 8.0	8.0	30.1 30.0	30.1	93.9 93.1	93.5	6.7 6.7	6.7	6.7	3.0	3.1	6.7	3.0 3.1	3.1	1.7 1.6	1.7	
				Middle	3	22.6 22.8	22.7	7.9 7.9	7.9	30.1 30.2	30.2	93.2 94.2	93.7	6.8 6.8	6.8	4.6	4.8	6.8	4.6 4.9	4.8	6.8 6.8	6.8	2.0 2.0	2.0
				Bottom	5	22.2 22.8	22.5	7.8 7.9	7.9	30.4 30.4	30.4	91.2 93.2	92.2	6.7 6.7	6.7	3.6	4.1	6.7	3.6 4.5	4.1	6.7 6.7	6.7	1.9 1.8	1.9
M2	Fine	Moderate	14:54	Surface	1	22.7 23.3	23.0	7.9 8.0	8.0	29.5 29.5	29.5	93.1 95.5	94.3	6.8 6.9	6.9	6.9	2.5	2.5	6.9	2.5 2.5	2.5	2.2 2.3	2.3	
				Middle	5	21.9 22.9	22.4	7.9 7.9	7.9	29.7 29.7	29.7	92.9 94.4	93.7	6.9 6.8	6.9	2.9	2.8	6.9	2.9 2.7	2.8	6.8 6.8	6.8	1.2 1.2	1.2
				Bottom	9	22.6 22.5	22.6	7.8 7.8	7.8	29.7 29.7	29.7	90.8 92.3	91.6	6.6 6.7	6.7	2.7	2.9	6.7	2.7 3.0	2.9	6.6 6.7	6.7	1.9 1.8	1.9
M3	Fine	Moderate	15:27	Surface	1	22.6 22.9	22.8	7.8 7.7	7.8	29.7 29.8	29.8	95.5 95.7	95.6	7.0 6.9	7.0	7.0	2.7	2.8	6.9	2.7 2.8	2.8	2.6 2.5	2.6	
				Middle	4	22.8 23.0	22.9	7.6 7.7	7.7	29.8 29.8	29.8	93.8 94.1	94.0	6.8 6.8	6.8	3.0	2.8	6.8	3.0 2.6	2.8	6.8 6.8	6.8	2.1 2.1	2.1
				Bottom	7	22.3 22.9	22.6	7.5 7.5	7.5	30.1 30.1	30.1	89.2 89.6	89.4	6.5 6.5	6.5	4.3	4.3	6.5	4.3 4.3	4.3	6.5 6.5	6.5	1.3 1.3	1.3
M4	Fine	Moderate	14:48	Surface	1	22.6 23.3	23.0	7.8 7.9	7.9	29.7 29.7	29.7	95.5 94.8	95.2	7.0 6.8	6.9	6.9	2.9	3.1	6.9	2.9 3.3	3.1	1.8 1.7	1.8	
				Middle	4	22.3 22.2	22.3	7.7 7.8	7.8	29.8 29.9	29.9	92.9 92.7	92.8	6.8 6.8	6.8	2.9	3.3	6.8	2.9 3.6	3.3	6.8 6.8	6.8	1.3 1.2	1.3
				Bottom	7	22.6 22.5	22.6	7.8 7.7	7.8	30.1 30.1	30.1	91.3 90.4	90.9	6.6 6.6	6.6	3.9	4.2	6.6	3.9 4.5	4.2	6.6 6.6	6.6	1.4 1.4	1.4
M5	Fine	Moderate	15:44	Surface	1	22.2 22.7	22.5	7.8 7.7	7.8	30.6 30.1	30.4	96.8 96.7	96.8	7.1 7.0	7.1	7.1	4.3	4.3	7.1	4.3 4.3	4.3	2.4 2.4	2.4	
				Middle	5.5	22.4 22.5	22.5	7.6 7.6	7.6	30.0 30.0	30.0	95.6 95.4	95.5	7.0 7.0	7.0	4.6	5.0	7.0	4.6 5.4	5.0	6.8 6.8	6.8	3.1 3.1	3.1
				Bottom	10	22.3 22.7	22.5	7.6 7.6	7.6	30.1 30.1	30.1	94.3 95.1	94.7	6.9 6.9	6.9	4.1	4.3	6.9	4.1 4.5	4.3	6.9 6.9	6.9	1.4 1.5	1.5
M6	Fine	Moderate	15:39	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	6.9	-	-	-	-		
				Middle	2.6	22.2 22.7	22.5	7.9 7.8	7.9	30.2 30.0	30.1	95.0 93.3	94.2	7.0 6.8	6.9	4.7	4.6	6.9	4.7 4.4	4.6	6.9 6.9	6.9	1.5 1.5	1.5
				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 3 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.3 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.7 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.3 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.7 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.3 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.7 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.1 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.4 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 03 March 2017**

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)			
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Fine	Moderate	10:08	Surface	1	21.6 21.6	21.6	7.9 7.9	7.9	29.7 29.7	29.7	91.9 92.6	92.3	6.8 6.9	6.9	6.9	4.8 4.9	4.9	4.3	3.6 3.5	3.6	3.1
				Middle	10	21.9 21.7	21.8	7.8 7.7	7.8	29.9 30.0	30.0	92.5 90.8	91.7	6.8 6.7	6.8	6.7	3.7 3.7	3.7		2.2 2.2	2.2	
				Bottom	19	22.3 22.1	22.2	7.7 7.7	7.7	30.2 30.1	30.2	92.2 92.2	92.2	6.7 6.8	6.8	6.8	4.4 4.3	4.4		3.4 3.4	3.4	
C2	Fine	Moderate	09:03	Surface	1	21.4 21.1	21.3	7.9 7.9	7.9	29.8 29.8	29.8	89.0 87.5	88.3	6.6 6.5	6.6	6.6	3.1 3.3	3.2	3.4	2.5 2.5	2.5	2.3
				Middle	18	21.8 22.2	22.0	7.5 7.4	7.5	29.8 29.9	29.9	88.6 89.7	89.2	6.5 6.6	6.6	6.6	3.3 3.1	3.2		2.0 2.0	2.0	
				Bottom	35	22.0 22.2	22.1	7.7 7.7	7.7	29.9 29.9	29.9	89.7 89.9	89.8	6.6 6.6	6.6	6.6	3.8 3.8	3.8		2.3 2.2	2.3	
G1	Fine	Moderate	09:34	Surface	1	21.2 21.9	21.6	7.8 7.9	7.9	30.2 30.0	30.1	89.9 90.8	90.4	6.7 6.7	6.7	6.8	3.7 3.7	3.7	4.2	1.8 1.9	1.9	2.8
				Middle	4	21.9 22.0	22.0	7.8 7.9	7.9	30.1 30.0	30.1	92.1 90.7	91.4	6.8 6.7	6.8	6.8	4.3 4.1	4.2		3.0 3.1	3.1	
				Bottom	7	21.9 21.5	21.7	7.9 8.0	8.0	30.1 30.1	30.1	91.3 89.8	90.6	6.7 6.7	6.7	6.7	4.6 4.9	4.8		3.4 3.4	3.4	
G2	Fine	Moderate	09:23	Surface	1	21.4 21.8	21.6	7.8 7.8	7.8	29.9 29.9	29.9	92.6 94.0	93.3	6.9 6.9	6.9	6.9	3.7 3.0	3.4	4.2	2.1 2.2	2.2	1.9
				Middle	5	21.6 21.8	21.7	7.7 7.7	7.7	29.8 29.8	29.8	91.4 92.7	92.1	6.8 6.8	6.8	6.8	3.9 4.1	4.0		1.6 1.5	1.6	
				Bottom	9	21.7 21.5	21.6	7.6 7.7	7.7	29.9 30.0	30.0	91.9 90.4	91.2	6.8 6.7	6.8	6.8	4.9 5.3	5.1		1.7 1.8	1.8	
G3	Fine	Moderate	09:39	Surface	1	22.2 22.0	22.1	7.8 7.9	7.9	29.8 29.8	29.8	92.8 91.7	92.3	6.8 6.7	6.8	6.9	2.9 3.4	3.2	3.8	2.5 2.5	2.5	2.5
				Middle	4	21.4 21.5	21.5	7.9 7.9	7.9	29.9 30.0	30.0	92.2 92.3	92.3	6.9 6.8	6.9	6.9	4.0 4.0	4.0		2.8 2.8	2.8	
				Bottom	7	21.2 21.9	21.6	8.0 7.9	8.0	30.1 30.1	30.1	91.0 90.7	90.9	6.8 6.7	6.8	6.8	4.3 4.2	4.3		2.2 2.3	2.3	
G4	Fine	Moderate	09:50	Surface	1	21.8 21.3	21.6	7.9 7.9	7.9	29.6 29.7	29.7	92.2 90.6	91.4	6.8 6.8	6.8	6.8	4.2 3.6	3.9	3.8	3.0 3.0	3.0	2.4
				Middle	4	21.8 21.5	21.7	8.0 7.9	8.0	30.1 30.2	30.2	89.6 89.4	89.5	6.6 6.6	6.6	6.6	3.7 3.4	3.6		2.3 2.4	2.4	
				Bottom	7	22.2 21.8	22.0	8.0 8.0	8.0	30.2 30.2	30.2	89.7 89.5	89.6	6.6 6.6	6.6	6.6	3.8 3.8	3.8		1.8 1.8	1.8	
M1	Fine	Moderate	09:28	Surface	1	21.6 21.3	21.5	7.8 7.8	7.8	30.2 30.0	30.1	92.7 92.0	92.4	6.9 6.8	6.9	6.9	3.6 3.7	3.7	4.0	1.8 1.8	1.8	2.8
				Middle	3	21.3 21.2	21.3	7.8 7.7	7.8	29.9 29.9	29.9	91.2 90.5	90.9	6.8 6.8	6.8	6.8	3.4 4.2	3.8		3.0 2.9	3.0	
				Bottom	5	21.8 21.8	21.8	7.7 7.8	7.8	30.0 30.1	30.1	91.2 90.4	90.8	6.7 6.7	6.7	6.7	4.4 4.5	4.5		3.5 3.5	3.5	
M2	Fine	Moderate	09:17	Surface	1	22.0 21.6	21.8	7.8 7.8	7.8	29.7 29.6	29.7	91.9 89.8	90.9	6.8 6.7	6.8	6.8	3.4 3.2	3.3	4.2	2.3 2.3	2.3	2.4
				Middle	5	21.4 22.2	21.8	7.8 7.8	7.8	29.8 29.7	29.8	89.4 91.0	90.2	6.7 6.7	6.7	6.7	3.9 4.3	4.1		2.3 2.2	2.3	
				Bottom	9	22.2 22.0	22.1	7.7 7.7	7.7	29.8 29.8	29.8	92.1 92.5	92.3	6.8 6.8	6.8	6.8	5.2 5.0	5.1		2.6 2.7	2.7	
M3	Fine	Moderate	09:45	Surface	1	21.7 21.9	21.8	7.9 8.0	8.0	30.1 30.0	30.1	91.4 91.6	91.5	6.8 6.7	6.8	6.8	3.6 3.5	3.6	3.4	3.0 3.1	3.1	3.0
				Middle	4	21.4 21.8	21.6	7.8 7.8	7.8	30.3 30.4	30.4	89.2 90.5	89.9	6.6 6.7	6.7	6.7	3.6 3.6	3.6		4.0 4.1	4.1	
				Bottom	7	21.8 21.9	21.9	7.7 7.9	7.8	30.5 30.5	30.5	87.9 87.2	87.6	6.5 6.4	6.5	6.5	2.9 3.0	3.0		1.8 1.9	1.9	
M4	Fine	Moderate	09:10	Surface	1	22.0 21.4	21.7	7.7 7.7	7.7	29.9 29.9	29.9	91.4 90.0	90.7	6.7 6.7	6.7	6.7	3.2 2.6	2.9	3.5	1.9 1.9	1.9	2.2
				Middle	4	21.7 21.6	21.7	7.7 7.7	7.7	29.8 29.9	29.9	90.6 89.4	90.0	6.7 6.6	6.7	6.7	3.6 3.3	3.5		2.6 2.6	2.6	
				Bottom	7	22.2 21.8	22.0	7.6 7.7	7.7	29.9 30.0	30.0	90.3 88.7	89.5	6.6 6.5	6.6	6.6	3.9 4.2	4.1		2.1 2.2	2.2	
M5	Fine	Moderate	10:01	Surface	1	21.6 21.5	21.6	8.0 8.0	8.0	29.9 29.8	29.9	93.6 92.9	93.3	6.9 6.9	6.9	6.9	3.5 3.4	3.5	4.2	2.6 2.6	2.6	2.5
				Middle	5.5	21.7 21.6	21.7	7.9 7.9	7.9	29.8 29.8	29.8	92.1 92.2	92.2	6.8 6.8	6.8	6.8	3.8 4.1	4.0		2.2 2.3	2.3	
				Bottom	10	21.7 21.8	21.8	7.9 7.9	7.9	29.9 30.0	30.0	89.8 91.8	90.8	6.6 6.8	6.7	6.7	5.2 4.7	5.0		2.5 2.6	2.6	
M6	Fine	Moderate	09:56	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	2.1	
				Middle	2.7	21.7 21.3	21.5	7.9 7.9	7.9	30.1 30.1	30.1	88.1 86.9	87.5	6.5 6.5	6.5	6.5	5.2 5.3		5.3	2.1 2.1		2.1
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-		-

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Appendix I - Action and Limit Levels for Marine Water Quality on 6 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 8.3 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 9.0 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.1 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.1 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.4 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 06 March 2017**

(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	20:15	Surface	1	19.2 19.2	19.2	8.2 8.2	8.2	31.2 31.2	31.2	94.2 94.7	94.5	7.2 7.3	7.3	6.9	5.5 5.5	5.5	6.2	0.6 0.6	0.6	1.2	
				Middle	10	19.0 18.9	19.0	8.1 8.2	8.2	31.4 31.5	31.5	83.7 83.9	83.8	6.4 6.5	6.5		6.4 6.3	6.3		1.1 1.2	1.2		
				Bottom	19	18.5 18.5	18.5	8.1 8.2	8.2	31.7 31.6	31.7	82.9 83.3	83.1	6.4 6.5	6.5		6.7 6.8	6.8		1.2 1.7	1.8		
C2	Cloudy	Moderate	18:30	Surface	1	18.9 18.9	18.9	8.2 8.2	8.2	31.7 31.6	31.7	91.4 90.9	91.2	7.0 7.0	7.0	6.8	4.5 4.6	4.6	5.4	2.6 2.5	2.6	2.4	
				Middle	18	18.9 18.8	18.9	8.2 8.1	8.2	31.5 31.5	31.5	85.1 85.6	85.4	6.6 6.6	6.6		4.6 4.8	4.7		1.9 1.8	1.9		
				Bottom	35	18.5 18.5	18.5	8.2 8.2	8.2	31.6 31.6	31.6	84.0 83.7	83.9	6.5 6.5	6.5		6.8 6.9	6.9		2.8 2.7	2.8		
G1	Cloudy	Moderate	19:20	Surface	1	19.2 19.3	19.3	8.1 8.1	8.1	31.5 31.5	31.5	91.2 91.1	91.2	7.0 7.0	7.0	6.7	4.5 4.4	4.5	5.4	1.2 1.1	1.2	1.6	
				Middle	4	19.0 19.0	19.0	8.2 8.2	8.2	31.4 31.4	31.4	82.6 82.6	82.6	6.4 6.4	6.4		5.3 5.4	5.4		1.5 1.5	1.5		
				Bottom	7	18.6 18.6	18.6	8.2 8.2	8.2	31.6 31.6	31.6	82.6 82.2	82.4	6.4 6.4	6.4		6.2 6.2	6.2		2.1 2.1	2.1		
G2	Cloudy	Moderate	19:01	Surface	1	18.9 18.9	18.9	8.1 8.1	8.1	31.8 31.7	31.8	89.8 90.0	89.9	6.9 6.9	6.9	6.7	5.2 5.3	5.3	5.6	1.1 1.2	1.2	1.4	
				Middle	5	18.7 18.7	18.7	8.2 8.2	8.2	32.0 32.0	32.0	83.8 84.0	83.9	6.5 6.5	6.5		5.2 5.1	5.2		1.6 1.6	1.6		
				Bottom	9	18.7 18.7	18.7	8.3 8.3	8.3	32.4 32.4	32.4	80.8 80.4	80.6	6.2 6.2	6.2		6.3 6.1	6.2		1.3 1.2	1.3		
G3	Cloudy	Moderate	19:30	Surface	1	18.9 18.9	18.9	8.1 8.1	8.1	31.4 31.4	31.4	91.6 92.0	91.8	7.1 7.1	7.1	6.8	5.0 5.0	5.0	6.0	2.1 2.1	2.1	2.1	
				Middle	4	18.5 18.6	18.6	8.1 8.1	8.1	31.5 31.5	31.5	82.8 82.4	82.6	6.4 6.4	6.4		6.0 6.0	6.0		1.7 1.8	1.8		
				Bottom	7	18.5 18.5	18.5	8.2 8.2	8.2	31.9 31.9	31.9	81.2 81.7	81.5	6.3 6.3	6.3		6.9 7.1	7.0		2.5 2.4	2.5		
G4	Cloudy	Moderate	19:49	Surface	1	19.2 19.2	19.2	8.0 8.0	8.0	31.2 31.2	31.2	90.5 89.9	90.2	7.0 6.9	7.0	6.7	4.9 4.9	4.9	5.7	2.0 2.0	2.0	2.1	
				Middle	4	18.8 18.8	18.8	8.2 8.2	8.2	31.7 31.7	31.7	83.1 83.2	83.2	6.4 6.4	6.4		4.8 4.7	4.8		2.1 2.1	2.1		
				Bottom	7	18.7 18.8	18.8	8.2 8.2	8.2	32.0 32.0	32.0	86.6 86.8	86.7	6.7 6.7	6.7		7.2 7.3	7.3		2.1 2.1	2.1		
M1	Cloudy	Moderate	19:10	Surface	1	19.1 19.1	19.1	8.1 8.1	8.1	31.8 31.7	31.8	90.6 90.6	90.6	7.0 7.0	7.0	7.0	5.0 5.0	5.0	5.3	2.8 2.8	2.8	2.5	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-
				Bottom	4.2	18.6 18.6	18.6	8.2 8.2	8.2	31.6 31.6	31.6	83.8 83.4	83.6	6.5 6.5	6.5		5.5 5.5	5.5		2.2 2.2	2.2		
M2	Cloudy	Moderate	18:52	Surface	1	19.2 19.2	19.2	8.2 8.2	8.2	31.8 31.8	31.8	86.3 85.6	86.0	6.6 6.6	6.6	6.4	4.9 5.0	5.0	5.4	1.1 1.1	1.1	1.5	
				Middle	5	18.9 18.8	18.9	8.1 8.1	8.1	31.9 31.9	31.9	80.2 80.2	80.2	6.2 6.2	6.2		5.8 5.9	5.9		2.1 2.0	2.1		
				Bottom	9	18.5 18.6	18.6	8.1 8.1	8.1	31.9 32.0	32.0	78.5 79.2	78.9	6.1 6.1	6.1		5.4 5.3	5.4		1.3 1.3	1.3		
M3	Cloudy	Moderate	19:39	Surface	1	19.1 19.0	19.1	8.1 8.1	8.1	31.8 31.8	31.8	101.7 101.5	101.6	7.8 7.8	7.8	7.2	5.0 5.2	5.1	5.4	2.8 2.7	2.8	2.6	
				Middle	4	18.9 18.9	18.9	8.2 8.2	8.2	32.2 32.3	32.3	85.2 84.7	85.0	6.5 6.5	6.5		5.8 5.7	5.8		3.5 3.5	3.5		
				Bottom	7	18.8 18.9	18.9	8.2 8.2	8.2	32.3 32.3	32.3	78.9 78.9	78.9	6.1 6.1	6.1		5.2 5.3	5.3		1.5 1.5	1.5		
M4	Cloudy	Moderate	18:41	Surface	1	18.9 18.9	18.9	8.1 8.1	8.1	31.6 31.6	31.6	91.1 91.2	91.2	7.0 7.0	7.0	6.8	6.2 6.1	6.2	6.3	1.8 1.7	1.8	1.9	
				Middle	4	18.9 18.8	18.9	8.1 8.1	8.1	31.7 31.7	31.7	84.5 84.0	84.3	6.5 6.5	6.5		6.3 6.2	6.3		3.4 3.3	3.4		
				Bottom	7	18.8 18.9	18.9	8.1 8.1	8.1	31.7 31.7	31.7	81.3 81.4	81.4	6.3 6.3	6.3		6.4 6.6	6.5		<0.5 <0.5	<0.5		
M5	Cloudy	Moderate	20:04	Surface	1	19.2 19.2	19.2	8.1 8.2	8.2	31.5 31.6	31.6	91.1 91.4	91.3	7.0 7.0	7.0	6.7	5.8 5.7	5.8	6.3	0.6 0.6	0.6	1.1	
				Middle	5.5	18.7 18.7	18.7	8.2 8.2	8.2	31.8 31.8	31.8	82.0 82.5	82.3	6.3 6.4	6.4		5.9 5.9	5.9		1.3 1.2	1.3		
				Bottom	10	18.5 18.6	18.6	8.2 8.2	8.2	31.7 31.7	31.7	79.5 79.7	79.6	6.2 6.2	6.2		7.1 7.0	7.1		1.5 1.5	1.5		
M6	Cloudy	Moderate	19:57	Surface	-	-	-	-	-	-	-	-	-	-	-	7.3	-	-	5.8	-	-	0.8	
				Middle	2.1	19.1 19.3	19.2	8.2 8.2	8.2	31.3 31.3	31.3	93.4 94.7	94.1	7.2 7.3	7.3		5.6 6.0	5.8		0.8 0.8	0.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 6 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>CI: 10.3 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>CI: 11.2 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 2.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 3.0 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 2.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 3.0 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 3.8 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 4.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 06 March 2017**

(Mid-Flood Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)				
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*		
C1	Fine	Moderate	13:13	Surface	1	19.1 19.2	19.2	8.1 8.1	8.1	30.8 30.7	30.8	98.7 99.2	99.0	7.6 7.6	7.6	7.1	4.5 4.5	4.5	6.5	2.3 2.2	2.3	2.4	
				Middle	10	18.8 18.9	18.9	8.1 8.1	8.1	32.1 32.1	32.1	84.7 85.0	84.9	6.5 6.5	6.5		6.3 6.3	6.3		1.6 1.7			1.7
				Bottom	19	18.5 18.6	18.6	8.1 8.1	8.1	32.6 32.6	32.6	82.6 82.2	82.4	6.4 6.3	6.4		8.6 8.6	8.6		3.1 3.2			3.2
C2	Fine	Moderate	11:25	Surface	1	18.9 18.9	18.9	8.1 8.1	8.1	31.1 31.1	31.1	93.6 93.4	93.5	7.2 7.2	7.2	6.9	4.6 4.7	4.7	5.1	1.0 1.0	1.0	1.3	
				Middle	18	18.9 18.8	18.9	8.1 8.1	8.1	32.4 32.4	32.4	85.3 85.7	85.5	6.5 6.6	6.6		4.7 4.7	4.7		1.2 1.3			1.3
				Bottom	35	18.8 18.8	18.8	8.2 8.2	8.2	32.5 32.5	32.5	80.4 80.9	80.7	6.2 6.2	6.2		5.8 5.7	5.8		1.5 1.4			1.5
G1	Fine	Moderate	12:15	Surface	1	19.5 19.5	19.5	8.1 8.1	8.1	32.6 32.5	32.6	92.3 91.6	92.0	7.0 6.9	7.0	6.7	4.5 4.6	4.6	4.9	1.1 1.0	1.1	1.5	
				Middle	4	18.7 18.7	18.7	8.1 8.1	8.1	32.8 32.7	32.8	83.7 83.2	83.5	6.4 6.4	6.4		5.1 5.0	5.1		1.3 1.3			1.3
				Bottom	7	18.5 18.4	18.5	8.2 8.2	8.2	33.0 33.0	33.0	83.9 84.2	84.1	6.5 6.5	6.5		5.0 5.1	5.1		2.1 2.2			2.2
G2	Fine	Moderate	11:56	Surface	1	19.4 19.4	19.4	8.1 8.1	8.1	32.4 32.3	32.4	95.2 95.3	95.3	7.2 7.2	7.2	6.9	3.8 3.9	3.9	5.5	1.5 1.5	1.5	2.5	
				Middle	5	19.1 19.0	19.1	8.2 8.2	8.2	32.9 32.9	32.9	85.9 86.4	86.2	6.5 6.6	6.6		5.5 5.5	5.5		2.3 2.4			2.4
				Bottom	9	19.0 18.9	19.0	8.1 8.1	8.1	33.5 33.5	33.5	80.7 81.1	80.9	6.1 6.2	6.2		7.1 7.3	7.2		3.5 3.6			3.6
G3	Fine	Moderate	12:25	Surface	1	19.4 19.3	19.4	8.1 8.1	8.1	33.0 32.9	33.0	93.0 92.8	92.9	7.0 7.0	7.0	7.1	4.2 4.2	4.2	4.7	1.7 1.6	1.7	1.9	
				Middle	4	18.9 18.9	18.9	8.2 8.2	8.2	32.9 32.9	32.9	92.4 92.7	92.6	7.1 7.1	7.1		4.1 4.1	4.1		2.3 2.3			2.3
				Bottom	7	18.8 18.7	18.8	8.2 8.2	8.2	32.9 32.9	32.9	92.8 93.1	93.0	7.1 7.1	7.1		5.8 5.9	5.9		1.6 1.5			1.6
G4	Fine	Moderate	12:47	Surface	1	18.8 18.7	18.8	8.1 8.1	8.1	31.0 31.0	31.0	79.4 79.9	79.7	6.2 6.2	6.2	6.1	4.7 4.7	4.7	6.3	2.6 2.7	2.7	2.3	
				Middle	4	18.9 18.9	18.9	8.1 8.1	8.1	31.9 31.9	31.9	76.9 77.2	77.1	5.9 5.9	5.9		5.8 5.7	5.8		0.8 0.8			0.8
				Bottom	7	18.8 18.8	18.8	8.2 8.2	8.2	32.4 32.4	32.4	77.5 77.6	77.6	6.0 6.0	6.0		8.4 8.3	8.4		3.5 3.5			3.5
M1	Cloudy	Moderate	12:05	Surface	1	19.3 19.4	19.4	8.2 8.2	8.2	32.9 32.9	32.9	89.4 89.9	89.7	6.8 6.8	6.8	6.8	4.9 4.9	4.9	5.2	1.7 1.7	1.7	1.8	
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-			-
				Bottom	4.2	19.1 19.2	19.2	8.2 8.2	8.2	31.3 31.4	31.4	92.5 92.4	92.5	7.1 7.1	7.1		5.4 5.3	5.4		1.8 1.8			1.8
M2	Fine	Moderate	11:47	Surface	1	18.9 19.0	19.0	8.1 8.1	8.1	31.1 31.1	31.1	87.2 87.2	87.2	6.7 6.7	6.7	6.7	4.7 4.5	4.6	5.1	1.3 1.4	1.4	2.5	
				Middle	5	19.0 18.9	19.0	8.1 8.1	8.1	32.3 32.3	32.3	87.1 87.7	87.4	6.7 6.7	6.7		5.0 4.9	5.0		2.4 2.4			2.4
				Bottom	9	18.4 18.4	18.4	8.2 8.2	8.2	32.5 32.5	32.5	79.5 79.0	79.3	6.2 6.1	6.2		5.6 5.6	5.6		3.7 3.6			3.7
M3	Fine	Moderate	12:36	Surface	1	19.6 19.5	19.6	8.1 8.1	8.1	30.8 30.8	30.8	85.9 85.8	85.9	6.6 6.6	6.6	6.3	4.2 4.2	4.2	4.9	2.1 2.1	2.1	2.0	
				Middle	4	19.2 19.2	19.2	8.1 8.1	8.1	31.3 31.3	31.3	76.9 77.4	77.2	5.9 5.9	5.9		5.0 5.0	5.0		2.5 2.6			2.6
				Bottom	7	19.0 19.0	19.0	8.1 8.1	8.1	31.6 31.6	31.6	77.8 77.1	77.5	6.0 5.9	6.0		5.5 5.7	5.6		1.4 1.4			1.4
M4	Fine	Moderate	11:35	Surface	1	19.0 19.1	19.1	8.1 8.1	8.1	32.8 32.8	32.8	96.3 96.1	96.2	7.4 7.3	7.4	7.2	4.0 4.0	4.0	5.6	1.0 0.9	1.0	1.3	
				Middle	4	18.8 18.7	18.8	8.2 8.2	8.2	32.9 32.9	32.9	89.6 89.6	89.6	6.9 6.9	6.9		5.7 5.6	5.7		1.9 1.9			1.9
				Bottom	7	18.7 18.6	18.7	8.1 8.1	8.1	33.9 33.8	33.9	87.7 87.3	87.5	6.7 6.7	6.7		7.1 7.2	7.2		1.1 1.0			1.1
M5	Fine	Moderate	13:02	Surface	1	19.3 19.3	19.3	8.1 8.1	8.1	30.8 30.9	30.9	82.7 82.3	82.5	6.4 6.3	6.4	6.4	4.7 4.7	4.7	5.7	1.2 1.3	1.3	0.8	
				Middle	5.5	18.8 18.7	18.8	8.1 8.1	8.1	32.0 32.0	32.0	83.3 83.2	83.3	6.4 6.4	6.4		5.3 5.5	5.4		0.7 0.7			0.7
				Bottom	10	18.7 18.6	18.7	8.2 8.2	8.2	32.6 32.6	32.6	85.5 84.7	85.1	6.6 6.5	6.6		7.0 6.9	7.0		<0.5 <0.5			<0.5
M6	Fine	Moderate	12:55	Surface	-	-	-	-	-	-	-	-	-	-	7.2	-	-	5.5	-	-	1.1		
				Middle	2.1	18.8 18.9	18.9	8.2 8.2	8.2	30.7 30.7	30.7	92.4 93.4	92.9	7.2 7.2		7.2	5.3 5.7		5.5			1.1 1.0	1.1
				Bottom	-	-	-	-	-	-	-	-	-	-		-	-		-			-	-

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 8 March 2017 (Mid-Ebb Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 3.1 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 3.4 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 7.0 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.5 mg/L</u>
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(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	09:31	Surface	1	18.1 18.2	18.2	7.6 7.6	7.6	29.9 29.7	29.8	93.8 93.7	93.8	7.4 7.4	7.4	7.4	1.2 1.3	1.3	1.7	2.3 2.3	2.3	2.7	
				Middle	10	18.3 18.3	18.3	7.6 7.6	7.6	29.8 29.9	29.9	93.8 93.8	93.8	7.4 7.4	7.4	7.4	1.2 1.4	1.3		2.8 2.8	2.8		
				Bottom	19	18.4 18.4	18.4	7.6 7.6	7.6	30.0 30.0	30.0	93.8 93.8	93.8	7.4 7.4	7.4	7.4	2.4 2.6	2.5		3.0 2.9	3.0		
C2	Sunny	Moderate	08:13	Surface	1	18.4 18.4	18.4	7.7 7.7	7.7	28.8 28.9	28.9	89.7 89.8	89.8	7.1 7.1	7.1	7.2	1.9 1.9	1.9	2.0	5.5 5.4	5.5	4.4	
				Middle	18	18.4 18.4	18.4	7.6 7.6	7.6	29.6 29.7	29.7	91.6 91.7	91.7	7.2 7.2	7.2	7.2	1.4 1.5	1.5		1.9 1.9	1.9		
				Bottom	35	18.4 18.4	18.4	7.7 7.7	7.7	29.7 29.7	29.7	91.9 92.0	92.0	7.2 7.2	7.2	7.2	2.7 2.4	2.6		5.8 5.8	5.8		
G1	Sunny	Moderate	08:49	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	29.2 29.3	29.3	91.7 91.8	91.8	7.3 7.3	7.3	7.3	1.4 1.7	1.6	2.4	2.3 2.2	2.3	2.2	
				Middle	4	18.3 18.3	18.3	7.6 7.6	7.6	29.7 29.7	29.7	92.0 92.1	92.1	7.3 7.3	7.3	7.3	2.3 2.7	2.5		1.7 1.8	1.8		
				Bottom	7	18.4 18.4	18.4	7.6 7.6	7.6	29.9 30.0	30.0	93.0 93.0	93.0	7.3 7.3	7.3	7.3	3.1 2.8	3.0		2.5 2.5	2.5		
G2	Sunny	Moderate	08:34	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	28.7 28.8	28.8	91.2 91.4	91.3	7.2 7.2	7.2	7.5	1.4 1.4	1.4	2.2	2.4 2.5	2.5	2.4	
				Middle	5	18.4 18.4	18.4	7.6 7.6	7.6	29.3 29.6	29.5	97.1 98.1	97.6	7.7 7.7	7.7	7.7	2.3 2.5	2.4		2.4 2.4	2.4		
				Bottom	9	18.4 18.4	18.4	7.6 7.6	7.6	29.7 29.7	29.7	98.3 98.0	98.2	7.7 7.7	7.7	7.7	2.7 2.6	2.7		2.4 2.3	2.4		
G3	Sunny	Moderate	08:56	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	29.3 29.3	29.3	91.7 91.7	91.7	7.2 7.2	7.2	7.2	1.9 2.0	2.0	2.5	3.0 2.9	3.0	2.1	
				Middle	4	18.4 18.3	18.4	7.6 7.6	7.6	29.6 29.7	29.7	91.9 91.9	91.9	7.2 7.2	7.2	7.2	2.5 2.9	2.7		1.6 1.6	1.6		
				Bottom	7	18.4 18.4	18.4	7.5 7.5	7.5	29.8 29.8	29.8	92.3 92.4	92.4	7.3 7.3	7.3	7.3	2.9 2.7	2.8		1.8 1.8	1.8		
G4	Sunny	Moderate	09:09	Surface	1	18.2 18.2	18.2	7.6 7.6	7.6	29.6 29.7	29.7	92.6 92.3	92.5	7.3 7.3	7.3	7.3	1.1 1.2	1.2	1.8	3.6 3.6	3.6	2.4	
				Middle	4	18.3 18.3	18.3	7.6 7.6	7.6	29.8 29.9	29.9	92.9 93.1	93.0	7.3 7.3	7.3	7.3	1.4 1.3	1.4		1.5 1.5	1.5		
				Bottom	7	18.3 18.4	18.4	7.6 7.6	7.6	30.0 30.0	30.0	93.3 93.6	93.5	7.3 7.4	7.4	7.4	2.9 2.9	2.9		2.1 2.0	2.1		
M1	Sunny	Moderate	08:41	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	29.6 29.5	29.6	91.7 91.7	91.7	7.2 7.2	7.2	7.2	1.7 1.8	1.8	2.1	3.0 3.1	3.1	3.6	
				Middle	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-		-
				Bottom	5	18.4 18.4	18.4	7.6 7.6	7.6	29.9 30.0	30.0	92.4 92.5	92.5	7.3 7.3	7.3	7.3	2.3 2.5	2.4		4.1 4.0	4.1		
M2	Sunny	Moderate	08:28	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	28.7 28.8	28.8	90.3 90.3	90.3	7.2 7.2	7.2	7.2	1.5 1.6	1.6	2.1	2.0 2.1	2.1	2.3	
				Middle	5	18.4 18.4	18.4	7.6 7.6	7.6	29.1 29.3	29.2	91.0 91.2	91.1	7.2 7.2	7.2	7.2	1.6 1.9	1.8		2.4 2.3	2.4		
				Bottom	9	18.4 18.4	18.4	7.6 7.6	7.6	29.6 29.6	29.6	91.5 91.7	91.6	7.2 7.2	7.2	7.2	2.8 2.9	2.9		2.5 2.5	2.5		
M3	Sunny	Moderate	09:03	Surface	1	18.3 18.3	18.3	7.6 7.6	7.6	29.5 29.3	29.4	92.1 92.0	92.1	7.3 7.3	7.3	7.3	1.5 1.5	1.5	1.9	2.1 2.1	2.1	2.5	
				Middle	4	18.3 18.3	18.3	7.6 7.6	7.6	29.6 29.8	29.7	92.2 92.0	92.1	7.3 7.3	7.3	7.3	1.7 2.1	1.9		2.4 2.5	2.5		
				Bottom	7	18.4 18.3	18.4	7.6 7.6	7.6	29.8 30.0	29.9	92.2 92.4	92.3	7.3 7.3	7.3	7.3	2.4 2.4	2.4		2.9 2.8	2.9		
M4	Sunny	Moderate	08:21	Surface	1	18.4 18.4	18.4	7.6 7.6	7.6	28.8 28.8	28.8	90.2 90.2	90.2	7.1 7.1	7.1	7.2	1.8 1.6	1.7	2.2	2.0 2.0	2.0	2.2	
				Middle	4	18.4 18.4	18.4	7.6 7.6	7.6	29.6 29.7	29.7	91.4 91.5	91.5	7.2 7.2	7.2	7.2	2.5 2.1	2.3		2.9 2.8	2.9		
				Bottom	7	18.4 18.4	18.4	7.6 7.7	7.7	29.8 29.8	29.8	92.0 92.0	92.0	7.2 7.2	7.2	7.2	2.8 2.5	2.7		1.8 1.7	1.8		
M5	Sunny	Moderate	09:23	Surface	1	18.1 18.2	18.2	7.7 7.7	7.7	29.7 29.6	29.7	93.1 93.2	93.2	7.4 7.4	7.4	7.4	1.4 1.4	1.4	1.9	2.7 2.8	2.8	3.7	
				Middle	5.5	18.3 18.3	18.3	7.7 7.7	7.7	29.7 29.7	29.7	93.4 93.6	93.5	7.4 7.4	7.4	7.4	1.7 1.9	1.8		2.1 2.1	2.1		
				Bottom	10	18.3 18.3	18.3	7.6 7.5	7.6	30.0 30.0	30.0	93.7 93.7	93.7	7.4 7.4	7.4	7.4	2.5 2.5	2.5		6.2 6.2	6.2		
M6	Sunny	Moderate	09:16	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	-	1.9	
				Middle	2.6	18.3 18.3	18.3	7.6 7.6	7.6	29.7 29.7	29.7	92.9 92.7	92.8	7.3 7.3	7.3	7.3	2.2 2.3	2.3		1.9 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 8 March 2017 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 3.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 4.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>	
Surface		<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 2.9 mg/L</u>
<u>Stations M1-M5</u>			
Surface		<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 2.9 mg/L</u>
<u>Stations G1-G4, M1-M5</u>			
Bottom		<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.5 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.0 mg/L</u>
<u>Station M6</u>			
Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>	

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 March 2017**

(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	14:38	Surface	1	18.3	18.3	7.4	7.4	30.4	30.4	92.7	92.7	7.3	7.3	7.3	1.2	1.3	1.8	2.2	2.2	2.8
				Middle	10	18.4	18.4	7.4	7.4	30.3	30.3	92.5	92.5	7.3	7.3		1.4	1.4		1.7	1.7	
				Bottom	19	18.4	18.4	7.4	7.4	30.4	30.4	92.4	92.5	7.2	7.3		2.9	2.8		4.5	4.6	
C2	Sunny	Moderate	13:20	Surface	1	18.5	18.5	7.4	7.4	30.7	30.7	93.8	93.9	7.3	7.3	7.4	1.2	1.2	1.3	2.1	2.1	2.8
				Middle	18	18.4	18.4	7.4	7.4	30.6	30.6	94.1	94.1	7.4	7.4		1.4	1.5		2.9	2.9	
				Bottom	35	18.4	18.4	7.4	7.4	30.6	30.6	94.2	94.2	7.4	7.4		1.3	1.3		3.4	3.4	
G1	Sunny	Moderate	13:57	Surface	1	18.3	18.4	7.4	7.4	30.4	30.4	93.5	93.3	7.3	7.3	7.3	1.0	1.0	1.6	1.6	1.6	1.5
				Middle	4	18.4	18.4	7.4	7.4	30.3	30.3	93.2	93.2	7.3	7.3		2.1	2.3		1.1	1.1	
				Bottom	7	18.4	18.4	7.4	7.4	30.4	30.4	93.2	92.9	7.3	7.3		1.6	1.5		1.9	1.9	
G2	Sunny	Moderate	13:44	Surface	1	18.3	18.3	7.4	7.4	30.4	30.4	94.1	94.0	7.4	7.4	7.4	1.2	1.2	1.7	1.7	1.7	2.8
				Middle	5	18.4	18.4	7.4	7.4	30.3	30.3	94.0	94.0	7.4	7.4		1.3	1.3		2.1	2.1	
				Bottom	9	18.4	18.4	7.4	7.4	30.4	30.4	93.8	93.9	7.4	7.4		2.4	2.6		4.7	4.7	
G3	Sunny	Moderate	14:04	Surface	1	18.4	18.4	7.4	7.4	29.5	29.5	93.0	92.8	7.3	7.3	7.3	1.6	1.8	1.9	2.0	2.0	2.0
				Middle	4	18.4	18.4	7.4	7.4	29.7	29.9	93.2	93.2	7.3	7.3		1.9	2.1		1.4	1.4	
				Bottom	7	18.4	18.4	7.4	7.4	30.3	30.3	93.1	93.2	7.3	7.3		1.7	1.7		2.5	2.6	
G4	Sunny	Moderate	14:16	Surface	1	18.3	18.3	7.4	7.4	30.1	30.1	93.4	93.3	7.3	7.3	7.3	1.9	1.9	2.1	1.6	1.7	3.1
				Middle	4	18.4	18.4	7.4	7.4	30.0	30.1	93.1	93.1	7.3	7.3		2.0	1.8		2.6	2.6	
				Bottom	7	18.4	18.4	7.4	7.4	30.3	30.3	93.2	93.0	7.3	7.3		2.6	2.7		5.0	5.1	
M1	Sunny	Moderate	13:52	Surface	1	18.3	18.3	7.4	7.4	31.1	30.8	93.9	93.9	7.3	7.4	7.4	1.3	1.3	1.8	1.4	1.4	2.6
				Middle	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-	
				Bottom	5	18.4	18.4	7.4	7.4	30.4	30.4	94.0	93.9	7.4	7.4		2.2	2.3		3.8	3.8	
M2	Sunny	Moderate	13:36	Surface	1	18.3	18.4	7.4	7.4	30.4	30.4	93.8	93.7	7.4	7.4	7.4	2.2	2.1	2.0	2.5	2.6	2.0
				Middle	5	18.4	18.4	7.4	7.4	30.3	30.3	93.6	93.6	7.3	7.3		1.6	1.8		1.2	1.2	
				Bottom	9	18.4	18.4	7.4	7.4	30.4	30.4	93.5	93.5	7.3	7.3		1.9	2.0		2.3	2.3	
M3	Sunny	Moderate	14:10	Surface	1	18.3	18.4	7.4	7.4	29.8	29.7	93.1	92.9	7.3	7.3	7.3	1.4	1.4	1.5	2.0	2.0	1.6
				Middle	4	18.4	18.4	7.4	7.4	29.9	30.0	93.2	93.3	7.3	7.3		1.9	1.9		2.2	2.2	
				Bottom	7	18.4	18.4	7.4	7.4	30.3	30.3	93.1	93.1	7.3	7.3		1.1	1.1		<0.5	<0.5	
M4	Sunny	Moderate	13:28	Surface	1	18.3	18.3	7.4	7.4	30.4	30.4	94.4	94.4	7.4	7.4	7.4	1.2	1.2	1.6	1.4	1.4	2.3
				Middle	4	18.3	18.3	7.3	7.4	30.5	30.5	94.4	94.5	7.4	7.4		1.5	1.6		4.0	4.0	
				Bottom	7	18.4	18.4	7.4	7.4	30.5	30.5	94.3	94.3	7.4	7.4		1.6	2.1		1.5	1.5	
M5	Sunny	Moderate	14:29	Surface	1	18.3	18.3	7.4	7.4	30.5	30.4	93.4	93.4	7.3	7.3	7.3	1.3	1.3	1.9	2.2	2.2	2.7
				Middle	5.5	18.4	18.4	7.4	7.4	30.1	30.1	93.1	93.1	7.3	7.3		2.4	2.5		2.1	2.1	
				Bottom	10	18.4	18.4	7.4	7.4	30.2	30.3	93.1	93.1	7.3	7.3		2.6	2.0		3.8	3.8	
M6	Sunny	Moderate	14:23	Surface	-	-	-	-	-	-	-	-	-	-	7.4	-	-	2.4	-	-	2.5	
				Middle	3.6	18.3	18.3	7.4	7.4	30.0	30.0	93.4	93.5	7.4		7.4	2.1		2.4	2.5		2.5
				Bottom	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 10 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.8 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 7.4 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.2 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.5 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 3.2 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.5 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 2.5 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 2.7 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 10 March 2017**

(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	12:01	Surface	1	24.0 23.6	23.8	8.1 8.1	8.1	30.7 30.7	30.7	107.9 105.3	106.6	7.6 7.5	7.6	7.1	2.5 2.6	2.6	4.1	1.1 1.1	1.1	1.4
				Middle	10.5	23.9 23.4	23.7	8.1 8.1	8.1	31.8 31.7	31.8	93.1 93.7	93.4	6.5 6.7	6.6		4.1 3.7	3.9		1.4 1.5	1.5	
				Bottom	20	23.6 23.5	23.6	8.2 8.1	8.2	32.4 32.3	32.4	90.3 92.2	91.3	6.4 6.5	6.5		5.8 5.9	5.9		1.4 1.5	1.5	
C2	Sunny	Moderate	10:01	Surface	1	23.7 23.1	23.4	8.1 8.0	8.1	30.9 30.9	30.9	101.8 105.5	103.7	7.2 7.6	7.4	7.1	4.2 4.3	4.3	4.9	2.7 2.6	2.7	2.1
				Middle	18	23.7 22.9	23.3	8.0 8.0	8.0	32.1 32.1	32.1	93.0 95.8	94.4	6.6 6.8	6.7		4.7 4.6	4.7		1.6 1.6	1.6	
				Bottom	35	23.1 22.9	23.0	8.1 8.1	8.1	32.3 32.4	32.4	86.6 87.1	86.9	6.2 6.2	6.2		5.7 5.7	5.7		2.0 2.1	2.1	
G1	Sunny	Moderate	10:44	Surface	1	23.5 23.4	23.5	8.1 8.1	8.1	32.2 32.2	32.2	98.7 95.7	97.2	7.0 6.8	6.9	6.9	4.7 5.1	4.9	5.0	<0.5 5.1	<0.5	0.7
				Middle	4	23.6 23.4	23.5	8.1 8.1	8.1	32.5 32.6	32.6	91.6 99.5	95.6	6.5 7.0	6.8		5.0 4.9	5.0		0.7 0.7	0.7	
				Bottom	7	23.4 23.4	23.4	8.1 8.1	8.1	32.8 32.8	32.8	91.4 92.7	92.1	6.5 6.5	6.5		5.1 5.3	5.2		0.9 0.8	0.9	
G2	Sunny	Moderate	10:28	Surface	1	23.4 23.4	23.4	8.1 8.1	8.1	32.3 32.3	32.3	102.1 106.8	104.5	7.2 7.6	7.4	7.1	4.0 4.5	4.3	5.4	1.2 1.1	1.2	1.1
				Middle	5	23.4 23.4	23.4	8.1 8.1	8.1	32.6 32.5	32.6	92.8 96.8	94.8	6.6 6.8	6.7		5.7 5.7	5.7		0.9 0.9	0.9	
				Bottom	9	23.4 23.4	23.4	8.1 8.1	8.1	33.3 33.1	33.2	87.6 88.2	87.9	6.2 6.2	6.2		6.2 6.2	6.2		1.3 1.2	1.3	
G3	Sunny	Moderate	10:57	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.6 32.6	32.6	99.1 99.0	99.1	7.0 7.0	7.0	7.1	4.3 4.0	4.2	4.6	1.6 1.6	1.6	2.1
				Middle	4	23.1 23.0	23.1	8.1 8.1	8.1	32.7 32.7	32.7	99.4 99.0	99.2	7.1 7.1	7.1		4.5 4.3	4.4		2.5 2.5	2.5	
				Bottom	7	23.1 23.0	23.1	8.2 8.2	8.2	32.7 32.7	32.7	100.3 101.7	101.0	7.1 7.2	7.2		5.5 5.1	5.3		2.2 2.1	2.2	
G4	Sunny	Moderate	11:30	Surface	1	24.0 23.4	23.7	8.1 8.1	8.1	30.7 30.7	30.7	86.8 82.0	84.4	6.1 5.9	6.0	6.0	4.7 4.3	4.5	5.7	2.2 2.2	2.2	2.5
				Middle	4	24.0 23.3	23.7	8.1 8.1	8.1	31.6 31.6	31.6	83.7 83.8	83.8	5.9 6.0	6.0		5.9 6.2	6.1		3.3 3.2	3.3	
				Bottom	7	23.4 23.4	23.4	8.2 8.2	8.2	32.3 32.2	32.3	84.3 79.4	81.9	6.0 5.6	5.8		6.5 6.5	6.5		2.1 2.0	2.1	
M1	Sunny	Moderate	10:36	Surface	1	23.1 23.1	23.1	8.1 8.1	8.1	32.6 32.6	32.6	96.0 96.3	96.2	6.8 6.8	6.8	6.8	5.2 5.3	5.3	5.3	1.7 1.6	1.7	1.5
				Middle	3	23.1 23.0	23.1	8.1 8.1	8.1	32.8 32.8	32.8	95.0 94.6	94.8	6.7 6.7	6.7		4.7 5.2	5.0		1.3 1.3	1.3	
				Bottom	5	24.0 23.6	23.8	8.1 8.1	8.1	31.3 31.2	31.3	100.6 99.7	100.2	7.1 7.1	7.1		5.4 5.5	5.5		1.4 1.4	1.4	
M2	Sunny	Moderate	10:21	Surface	1	23.7 23.1	23.4	8.1 8.1	8.1	30.9 30.9	30.9	95.3 94.8	95.1	6.8 6.8	6.8	6.8	4.9 5.0	5.0	5.1	2.0 1.9	2.0	1.5
				Middle	5.5	23.7 22.9	23.3	8.1 8.1	8.1	32.1 32.1	32.1	95.0 94.2	94.6	6.7 6.7	6.7		4.7 4.9	4.8		1.0 1.1	1.1	
				Bottom	10	23.1 22.9	23.0	8.1 8.1	8.1	32.3 32.4	32.4	86.6 85.9	86.3	6.2 6.1	6.2		5.4 5.3	5.4		1.3 1.3	1.3	
M3	Sunny	Moderate	11:18	Surface	1	24.0 23.6	23.8	8.1 8.1	8.1	30.5 30.4	30.5	92.9 94.6	93.8	6.6 6.7	6.7	6.4	3.9 4.0	4.0	5.1	1.4 1.3	1.4	1.0
				Middle	4.5	24.0 23.4	23.7	8.1 8.1	8.1	31.1 31.1	31.1	83.7 87.0	85.4	5.9 6.2	6.1		5.3 5.5	5.4		1.0 1.0	1.0	
				Bottom	8	23.6 23.4	23.5	8.1 8.1	8.1	31.4 31.5	31.5	84.2 82.8	83.5	6.0 5.9	6.0		5.7 6.1	5.9		<0.5 <0.5	<0.5	
M4	Sunny	Moderate	10:14	Surface	1	23.1 23.0	23.1	8.1 8.1	8.1	32.6 32.6	32.6	103.7 102.3	103.0	7.4 7.3	7.4	7.2	4.0 4.5	4.3	5.4	2.9 2.9	2.9	2.0
				Middle	4	23.1 22.5	22.8	8.1 8.1	8.1	32.7 32.7	32.7	96.5 95.7	96.1	6.8 6.9	6.9		5.7 5.7	5.7		1.3 1.2	1.3	
				Bottom	7	23.0 22.5	22.8	8.1 8.1	8.1	33.6 33.6	33.6	94.7 93.5	94.1	6.7 6.7	6.7		6.2 6.4	6.3		1.9 1.9	1.9	
M5	Sunny	Moderate	11:54	Surface	1	23.9 23.6	23.8	8.1 8.1	8.1	30.7 30.7	30.7	89.8 95.2	92.5	6.4 6.8	6.6	6.6	4.7 4.2	4.5	5.4	1.6 1.6	1.6	1.5
				Middle	5.5	23.9 23.4	23.7	8.2 8.2	8.2	31.7 31.7	31.7	91.2 95.8	93.5	6.4 6.8	6.6		5.1 5.5	5.3		1.6 1.5	1.6	
				Bottom	10	23.6 23.4	23.5	8.2 8.2	8.2	32.4 32.4	32.4	93.3 88.0	90.7	6.6 6.2	6.4		6.3 6.5	6.4		1.4 1.4	1.4	
M6	Sunny	Moderate	11:40	Surface	-	-	-	-	-	-	-	-	-	-	-	7.2	-	-	5.3	-	-	1.8
				Middle	2	24.1 23.6	23.9	8.1 8.1	8.1	30.4 30.5	30.5	101.2 100.0	100.6	7.2 7.1	7.2		5.3 5.2	5.3		1.7 1.8	1.8	
				Bottom	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 10 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 9.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 10.1 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 3.4 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.6 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 3.4 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.6 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.7 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.1 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 10 March 2017**

(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	17:20	Surface	1	24.4 24.2	24.3	8.1 8.1	8.1	31.1 31.1	31.1	103.6 105.9	104.8	7.3 7.4	7.4	7.0	6.1 5.7	5.9	6.8	2.8 2.8	2.8	2.9
				Middle	10	24.4 24.1	24.3	8.1 8.1	8.1	31.3 31.2	31.3	92.4 92.7	92.6	6.5 6.5	6.5		7.0 6.2	6.6		2.1 2.1	2.1	
				Bottom	19	24.2 24.1	24.2	8.1 8.1	8.1	31.3 31.4	31.4	91.4 91.3	91.4	6.4 6.4	6.4		8.1 7.5	7.8		3.9 3.9	3.9	
C2	Sunny	Moderate	15:42	Surface	1	24.1 24.0	24.1	8.1 8.1	8.1	31.4 31.4	31.4	99.8 101.0	100.4	7.0 7.1	7.1	6.8	4.3 4.2	4.3	5.3	1.1 1.0	1.1	1.0
				Middle	18	24.1 24.1	24.1	8.1 8.1	8.1	31.4 31.4	31.4	93.0 93.0	93.0	6.5 6.5	6.5		4.5 4.8	4.7		0.8 0.8	0.8	
				Bottom	35	24.0 24.1	24.1	8.1 8.1	8.1	31.4 31.5	31.5	92.5 92.7	92.7	6.5 6.5	6.5		7.0 6.8	6.9		1.2 1.2	1.2	
G1	Sunny	Moderate	16:24	Surface	1	24.0 23.9	24.0	8.1 8.1	8.1	31.1 31.1	31.1	99.5 100.1	99.8	7.0 7.1	7.1	6.8	4.8 4.6	4.7	5.5	1.0 1.0	1.0	1.4
				Middle	4	24.0 23.7	23.9	8.1 8.1	8.1	31.3 31.3	31.3	90.3 91.3	90.8	6.4 6.5	6.5		5.0 5.3	5.2		1.4 1.5	1.5	
				Bottom	7	23.9 23.7	23.8	8.2 8.2	8.2	31.4 31.4	31.4	90.7 91.6	91.2	6.4 6.5	6.5		6.4 6.5	6.5		1.6 1.5	1.6	
G2	Sunny	Moderate	16:06	Surface	1	24.0 24.0	24.0	8.1 8.1	8.1	31.7 31.6	31.7	98.5 99.1	98.8	6.9 7.0	7.0	6.8	5.0 4.9	5.0	5.5	2.5 2.4	2.5	2.0
				Middle	5	24.0 23.9	24.0	8.1 8.1	8.1	31.8 31.8	31.8	92.4 91.2	91.8	6.5 6.4	6.5		5.5 5.4	5.5		2.0 2.0	2.0	
				Bottom	9	24.0 23.9	24.0	8.2 8.2	8.2	32.1 32.1	32.1	88.5 87.3	87.9	6.2 6.1	6.2		6.0 6.0	6.0		1.5 1.5	1.5	
G3	Sunny	Moderate	16:34	Surface	1	24.0 24.0	24.0	8.1 8.1	8.1	31.1 31.1	31.1	100.2 100.8	100.5	7.1 7.1	7.1	6.8	5.1 4.9	5.0	5.9	1.7 1.8	1.8	1.6
				Middle	4	23.9 23.8	23.9	8.1 8.1	8.1	31.4 31.4	31.4	91.4 91.2	91.3	6.4 6.4	6.4		5.6 6.1	5.9		1.7 1.7	1.7	
				Bottom	7	24.0 23.8	23.9	8.1 8.1	8.1	31.7 31.7	31.7	90.0 89.3	89.7	6.3 6.3	6.3		6.8 6.8	6.8		1.4 1.4	1.4	
G4	Sunny	Moderate	16:53	Surface	1	24.4 24.2	24.3	8.0 8.1	8.1	31.2 31.2	31.2	99.8 99.9	99.9	7.0 7.0	7.0	6.7	5.1 4.5	4.8	6.1	0.8 0.8	0.8	1.2
				Middle	4	24.4 24.2	24.3	8.1 8.1	8.1	31.5 31.5	31.5	91.9 91.9	91.9	6.4 6.4	6.4		5.1 5.3	5.2		1.5 1.4	1.5	
				Bottom	7	24.2 24.2	24.2	8.1 8.1	8.1	31.9 31.9	31.9	95.6 95.6	95.6	6.7 6.7	6.7		8.0 8.3	8.2		1.1 1.2	1.2	
M1	Sunny	Moderate	16:15	Surface	1	24.0 24.0	24.0	8.1 8.1	8.1	31.4 31.4	31.4	98.7 99.0	98.9	6.9 7.0	7.0	6.8	4.7 5.1	4.9	5.2	1.2 1.2	1.2	1.8
				Middle	3	24.0 23.9	24.0	8.1 8.1	8.1	31.4 31.4	31.4	91.8 91.4	91.6	6.5 6.4	6.5		4.9 4.9	4.9		1.1 1.2	1.2	
				Bottom	5	24.4 24.2	24.3	8.1 8.1	8.1	31.4 31.4	31.4	92.8 93.2	93.0	6.5 6.5	6.5		5.9 5.6	5.8		3.0 3.1	3.1	
M2	Sunny	Moderate	15:59	Surface	1	24.0 24.0	24.0	8.1 8.1	8.1	31.6 31.6	31.6	94.2 94.6	94.4	6.6 6.7	6.7	6.5	4.8 5.0	4.9	5.4	2.1 2.0	2.1	1.5
				Middle	5.5	24.0 24.0	24.0	8.1 8.1	8.1	31.7 31.8	31.8	87.9 87.6	87.8	6.2 6.2	6.2		5.7 5.4	5.6		1.6 1.6	1.6	
				Bottom	10	24.0 24.0	24.0	8.1 8.1	8.1	31.8 31.8	31.8	86.2 86.2	86.2	6.1 6.1	6.1		5.8 5.8	5.8		0.8 0.8	0.8	
M3	Sunny	Moderate	16:46	Surface	1	24.3 24.2	24.3	8.1 8.1	8.1	31.6 31.6	31.6	111.7 107.7	109.7	7.8 7.5	7.7	7.2	5.0 5.2	5.1	5.5	1.0 1.0	1.0	1.0
				Middle	4.5	24.3 24.2	24.3	8.1 8.1	8.1	31.9 31.9	31.9	93.6 93.9	93.8	6.5 6.6	6.6		5.8 5.6	5.7		0.9 0.9	0.9	
				Bottom	8	24.2 24.2	24.2	8.1 8.1	8.1	32.3 32.3	32.3	86.4 86.0	86.2	6.0 6.0	6.0		5.6 5.7	5.7		1.1 1.2	1.2	
M4	Sunny	Moderate	15:50	Surface	1	24.0 24.0	24.0	8.1 8.1	8.1	31.4 31.4	31.4	100.0 99.9	100.0	7.0 7.0	7.0	6.8	6.1 5.8	6.0	6.2	1.4 1.4	1.4	1.8
				Middle	4	24.0 23.3	23.7	8.1 8.1	8.1	31.4 31.4	31.4	92.6 91.0	91.8	6.5 6.5	6.5		6.3 6.1	6.2		1.1 1.1	1.1	
				Bottom	7	24.0 23.3	23.7	8.1 8.1	8.1	31.6 31.6	31.6	89.2 86.8	88.0	6.3 6.2	6.3		6.4 6.5	6.5		3.0 2.9	3.0	
M5	Sunny	Moderate	17:12	Surface	1	24.4 24.2	24.3	8.1 8.1	8.1	31.4 31.4	31.4	99.6 99.3	99.5	7.0 7.0	7.0	6.7	5.5 5.9	5.7	6.3	1.6 1.6	1.6	1.7
				Middle	5.5	24.4 24.2	24.3	8.1 8.1	8.1	31.5 31.5	31.5	91.1 91.5	91.3	6.4 6.4	6.4		6.1 6.0	6.1		2.7 2.6	2.7	
				Bottom	10	24.2 24.2	24.2	8.2 8.1	8.2	31.5 31.5	31.5	88.1 87.9	88.0	6.2 6.2	6.2		7.0 7.3	7.2		0.8 0.8	0.8	
M6	Sunny	Moderate	17:00	Surface	-	-	-	-	-	-	-	-	-	-	-	7.3	-	-	5.5	-	-	1.8
				Middle	2.1	24.4 24.2	24.3	8.1 8.1	8.1	31.1 31.1	31.1	102.2 103.6	102.9	7.2 7.3	7.3		5.3 5.6	5.5		1.8 1.7	1.8	
				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 13 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 7.8 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 8.5 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>	
Surface		<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>
<u>Stations M1-M5</u>			
Surface		<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.9 mg/L</u>
<u>Stations G1-G4, M1-M5</u>			
Bottom		<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.2 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.6 mg/L</u>
<u>Station M6</u>			
Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>	

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 March 2017

(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	13:47	Surface	1	24.5 24.3	24.4	8.2 8.2	8.2	30.4 30.4	30.4	103.1 105.4	7.2 7.4	7.3	6.9	5.7 5.3	5.5	6.3	3.5 3.6	3.6	3.7			
				Middle	10	24.5 24.2	24.4	8.1 8.2	8.2	30.5 30.5	30.5	91.9 92.2	92.1	6.4 6.5		6.5			6.6 5.8			6.2	6.1 6.2	6.2
				Bottom	19	24.3 24.2	24.3	8.1 8.2	8.2	30.6 30.7	30.7	90.9 90.8	90.9	6.4 6.4		6.4			7.7 6.8			7.3	1.2 1.2	1.2
C2	Sunny	Moderate	12:09	Surface	1	24.2 24.1	24.2	8.2 8.1	8.2	30.7 30.7	30.7	99.3 100.5	99.9	7.0 7.1	7.1	6.8	3.9 3.8	3.9	4.9	3.8 3.7	3.8			
				Middle	18	24.2 24.2	24.2	8.1 8.1	8.1	30.7 30.7	30.7	92.5 92.5	92.5	6.5 6.5	6.5		4.1 4.4			4.3		1.3 1.3	1.3	
				Bottom	35	24.1 24.2	24.2	8.1 8.2	8.2	30.7 30.8	30.8	92.1 92.2	92.2	6.5 6.5	6.5		6.6 6.4			6.5		4.2 4.3	4.3	
G1	Sunny	Moderate	12:50	Surface	1	24.1 24.0	24.1	8.2 8.2	8.2	30.4 30.4	30.4	99.0 99.6	99.3	7.0 7.0	7.0	6.7	4.4 4.2	4.3	5.1	1.5 1.6	1.6			
				Middle	4	24.1 23.8	24.0	8.2 8.2	8.2	30.5 30.5	30.5	89.8 90.8	90.3	6.3 6.4	6.4		4.6 4.9			4.8		2.0 2.0	2.0	
				Bottom	7	24.0 23.8	23.9	8.2 8.2	8.2	30.7 30.7	30.7	90.2 91.1	90.7	6.4 6.5	6.5		6.0 6.1			6.1		1.4 1.4	1.4	
G2	Sunny	Moderate	12:33	Surface	1	24.1 24.1	24.1	8.1 8.1	8.1	31.0 30.9	31.0	97.9 98.6	98.3	6.9 6.9	6.9	6.7	4.6 4.5	4.6	5.1	3.2 3.2	3.2			
				Middle	5	24.1 24.0	24.1	8.1 8.2	8.2	31.1 31.0	31.1	91.9 90.7	91.3	6.5 6.4	6.5		5.1 5.0			5.1		2.6 2.6	2.6	
				Bottom	9	24.1 24.0	24.1	8.1 8.1	8.1	31.4 31.4	31.4	88.0 86.8	87.4	6.2 6.1	6.2		5.6 5.6			5.6		2.6 2.6	2.6	
G3	Sunny	Moderate	13:01	Surface	1	24.1 24.1	24.1	8.1 8.1	8.1	30.4 30.4	30.4	99.7 100.3	100.0	7.0 7.1	7.1	6.8	4.7 4.5	4.6	5.5	3.5 3.6	3.6			
				Middle	4	24.0 23.9	24.0	8.1 8.1	8.1	30.7 30.7	30.7	90.9 90.7	90.8	6.4 6.4	6.4		5.2 5.7			5.5		5.2 5.2	5.2	
				Bottom	7	24.1 23.9	24.0	8.1 8.1	8.1	31.0 31.0	31.0	89.5 88.8	89.2	6.3 6.3	6.3		6.4 6.4			6.4		4.7 4.7	4.7	
G4	Sunny	Moderate	13:20	Surface	1	24.5 24.3	24.4	8.1 8.1	8.1	30.5 30.4	30.5	99.3 99.4	99.4	7.0 7.0	7.0	6.7	4.7 4.1	4.4	5.7	3.3 3.2	3.3			
				Middle	4	24.5 24.3	24.4	8.1 8.1	8.1	30.8 30.8	30.8	91.4 91.4	91.4	6.4 6.4	6.4		4.7 4.9			4.8		5.7 5.8	5.8	
				Bottom	7	24.3 24.3	24.3	8.1 8.1	8.1	31.2 31.2	31.2	95.1 95.1	95.1	6.7 6.7	6.7		7.6 7.9			7.8		3.0 2.9	3.0	
M1	Sunny	Moderate	12:42	Surface	1	24.1 24.1	24.1	8.1 8.1	8.1	30.7 30.7	30.7	98.2 98.4	98.3	6.9 6.9	6.9	6.7	4.3 4.7	4.5	4.8	4.4 4.3	4.4			
				Middle	3	24.1 24.0	24.1	8.1 8.1	8.1	30.7 30.7	30.7	91.3 90.9	91.1	6.4 6.4	6.4		4.5 4.5			4.5		3.9 3.8	3.9	
				Bottom	5	24.5 24.3	24.4	8.1 8.1	8.1	30.7 30.7	30.7	92.3 92.7	92.5	6.5 6.5	6.5		5.5 5.2			5.4		4.6 4.6	4.6	
M2	Sunny	Moderate	12:26	Surface	1	24.1 24.1	24.1	8.2 8.2	8.2	30.9 30.9	30.9	93.7 94.1	93.9	6.6 6.6	6.6	6.4	4.4 4.6	4.5	5.0	4.2 4.2	4.2			
				Middle	5.5	24.1 24.1	24.1	8.1 8.1	8.1	30.9 31.0	31.0	87.3 87.1	87.2	6.2 6.1	6.2		5.3 5.0			5.2		5.9 5.9	5.9	
				Bottom	10	24.1 24.1	24.1	8.1 8.1	8.1	31.1 31.1	31.1	85.7 85.7	85.7	6.0 6.0	6.0		5.4 5.4			5.4		4.1 4.1	4.1	
M3	Sunny	Moderate	13:13	Surface	1	24.4 24.3	24.4	8.1 8.2	8.2	30.9 30.9	30.9	111.1 107.1	109.1	7.8 7.5	7.7	7.1	4.6 4.8	4.7	5.1	4.1 4.1	4.1			
				Middle	4.5	24.4 24.3	24.4	8.1 8.1	8.1	31.2 31.2	31.2	93.1 93.3	93.2	6.5 6.5	6.5		5.4 5.2			5.3		3.3 3.2	3.3	
				Bottom	8	24.3 24.3	24.3	8.1 8.1	8.1	31.6 31.6	31.6	85.9 85.5	85.7	6.0 6.0	6.0		5.2 5.3			5.3		2.7 2.8	2.8	
M4	Sunny	Moderate	12:17	Surface	1	24.1 24.1	24.1	8.1 8.1	8.1	30.8 30.7	30.8	99.5 99.4	99.5	7.0 7.0	7.0	6.8	5.7 5.4	5.6	5.8	2.3 2.4	2.4			
				Middle	4	24.1 23.4	23.8	8.1 8.1	8.1	30.7 30.7	30.7	92.1 90.5	91.3	6.5 6.5	6.5		5.9 5.7			5.8		3.4 3.4	3.4	
				Bottom	7	24.1 23.4	23.8	8.1 8.2	8.2	30.8 30.8	30.8	88.7 86.3	87.5	6.3 6.2	6.3		6.0 6.1			6.1		3.3 3.3	3.3	
M5	Sunny	Moderate	13:39	Surface	1	24.5 24.3	24.4	8.1 8.2	8.2	30.7 30.7	30.7	99.1 98.8	99.0	6.9 6.9	6.9	6.7	5.1 5.5	5.3	5.9	2.3 2.2	2.3			
				Middle	5.5	24.5 24.3	24.4	8.2 8.1	8.2	30.8 30.8	30.8	90.6 91.0	90.8	6.3 6.4	6.4		5.7 5.6			5.7		3.5 3.4	3.5	
				Bottom	10	24.3 24.3	24.3	8.2 8.2	8.2	30.8 30.8	30.8	87.6 87.4	87.5	6.2 6.1	6.2		6.6 6.9			6.8		3.5 3.4	3.5	
M6	Sunny	Moderate	13:27	Surface	-	-	-	-	-	-	-	-	-	-	7.2	-	-	5.1	-	-				
				Middle	2.1	24.5 24.3	24.4	8.2 8.2	8.2	30.4 30.4	30.4	101.7 103.1	102.4	7.1 7.3		7.2			4.9 5.2		5.1	3.1 3.0	3.1	
				Bottom	-	-	-	-	-	-	-	-	-	-		-			-		-	-	-	-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 13 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>CI: 12.1 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>CI: 13.1 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 6.0 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 6.5 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 6.0 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 6.5 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 4.2 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 4.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(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	08:29	Surface	1	24.1 23.7	23.9	8.2 8.2	8.2	30.2 30.2	30.2	110.7 108.0	109.4	7.8 7.7	7.8	7.3	5.7 5.8	5.8	7.7	5.0 5.0	5.0	4.6		
				Middle	10.5	24.0 23.5	23.8	8.1 8.1	8.1	31.3 31.2	31.3	95.8 96.4	96.1	6.7 6.9	6.8		6.7 6.9	7.1		3.4 5.2	5.2			
				Bottom	20	23.7 23.6	23.7	8.1 8.2	8.2	32.0 31.8	31.9	93.0 94.9	94.0	6.6 6.7	6.7		6.6 6.7	10.1		9.9 10.2	10.1		3.5 3.5	3.5
C2	Sunny	Moderate	06:29	Surface	1	23.8 23.2	23.5	8.1 8.1	8.1	30.4 30.4	30.4	104.5 108.2	106.4	7.4 7.8	7.6	7.3	5.4 5.5	5.5	6.1	1.4 1.5	1.5	1.7		
				Middle	18	23.8 23.0	23.4	8.1 8.1	8.1	31.6 31.6	31.6	95.7 98.5	97.1	6.8 7.0	6.9		6.8 7.0	6.9		5.9 5.8	5.9		1.7 1.7	1.7
				Bottom	35	23.2 23.0	23.1	8.1 8.1	8.1	31.8 31.9	31.9	89.4 89.8	89.6	6.4 6.4	6.4		6.4 6.4	6.4		6.9 6.9	6.9		1.9 1.9	1.9
G1	Sunny	Moderate	07:12	Surface	1	23.6 23.5	23.6	8.1 8.1	8.1	31.7 31.7	31.7	101.5 98.4	100.0	7.2 7.0	7.1	7.1	5.9 6.3	6.1	6.2	2.1 2.2	2.2	3.5		
				Middle	4	23.7 23.5	23.6	8.1 8.2	8.2	32.0 32.1	32.1	94.3 102.2	98.3	6.7 7.2	7.0		6.7 7.2	7.0		6.2 6.1	6.2		4.9 5.0	5.0
				Bottom	7	23.5 23.5	23.5	8.2 8.1	8.2	32.3 32.3	32.3	94.2 95.4	94.8	6.7 6.7	6.7		6.7 6.7	6.7		6.3 6.5	6.4		3.2 3.2	3.2
G2	Sunny	Moderate	06:55	Surface	1	23.5 23.5	23.5	8.2 8.1	8.2	31.8 31.8	31.8	104.8 109.5	107.2	7.4 7.8	7.6	7.3	5.2 5.7	5.5	7.0	5.6 5.6	5.6	3.0		
				Middle	5	23.5 23.5	23.5	8.1 8.2	8.2	32.1 32.0	32.1	95.5 99.5	97.5	6.8 7.0	6.9		6.8 7.0	6.9		6.9 6.9	6.9		1.8 1.8	1.8
				Bottom	9	23.5 23.5	23.5	8.2 8.2	8.2	32.8 32.6	32.7	90.3 90.9	90.6	6.4 6.4	6.4		6.4 6.4	6.4		8.4 8.6	8.5		1.6 1.7	1.7
G3	Sunny	Moderate	07:25	Surface	1	23.2 23.2	23.2	8.1 8.1	8.1	32.2 32.2	32.2	101.8 101.7	101.8	7.2 7.2	7.2	7.3	5.5 5.2	5.4	5.8	2.0 1.9	2.0	2.7		
				Middle	4	23.2 23.1	23.2	8.2 8.1	8.2	32.2 32.2	32.2	102.1 101.7	101.9	7.3 7.2	7.3		7.3 7.2	7.3		5.7 5.5	5.6		3.8 3.7	3.8
				Bottom	7	23.2 23.1	23.2	8.1 8.1	8.1	32.2 32.2	32.2	103.0 104.4	103.7	7.3 7.4	7.4		7.4 7.4	7.4		6.7 6.3	6.5		2.2 2.3	2.3
G4	Sunny	Moderate	07:57	Surface	1	24.1 23.5	23.8	8.2 8.2	8.2	30.2 30.2	30.2	89.6 84.7	87.2	6.3 6.1	6.2	6.2	5.9 5.5	5.7	7.6	2.0 2.0	2.0	3.4		
				Middle	4	24.1 23.4	23.8	8.1 8.1	8.1	31.2 31.1	31.2	86.5 86.6	86.6	6.1 6.2	6.2		6.1 6.2	6.2		7.1 7.4	7.3		5.5 5.4	5.5
				Bottom	7	23.5 23.5	23.5	8.2 8.2	8.2	31.8 31.7	31.8	87.1 82.2	84.7	6.2 5.8	6.0		6.0 6.0	6.0		9.7 10.1	9.9		2.8 2.8	2.8
M1	Sunny	Moderate	07:03	Surface	1	23.2 23.2	23.2	8.1 8.2	8.2	32.1 32.1	32.1	98.7 99.0	98.9	7.0 7.0	7.0	7.0	6.4 6.5	6.5	6.5	2.0 2.0	2.0	2.7		
				Middle	3	23.2 23.1	23.2	8.2 8.2	8.2	32.3 32.3	32.3	97.7 97.3	97.5	6.9 6.9	6.9		6.9 6.9	6.9		6.4 6.4	6.2		2.4 2.4	2.4
				Bottom	5	24.1 23.7	23.9	8.1 8.2	8.2	30.8 30.7	30.8	103.3 102.5	102.9	7.3 7.3	7.3		7.3 7.3	7.3		6.6 6.7	6.7		3.5 3.6	3.6
M2	Sunny	Moderate	06:49	Surface	1	23.8 23.2	23.5	8.2 8.1	8.2	30.4 30.4	30.4	98.0 97.5	97.8	7.0 7.0	7.0	7.0	6.1 6.2	6.2	6.3	2.6 2.6	2.6	3.2		
				Middle	5.5	23.8 23.0	23.4	8.1 8.2	8.2	31.6 31.6	31.6	97.7 96.9	97.3	6.9 6.9	6.9		6.9 6.9	6.9		5.9 6.1	6.0		3.4 3.4	3.4
				Bottom	10	23.2 23.0	23.1	8.2 8.1	8.2	31.8 31.9	31.9	89.4 88.6	89.0	6.4 6.3	6.4		6.4 6.3	6.4		6.6 6.5	6.6		3.7 3.6	3.7
M3	Sunny	Moderate	07:45	Surface	1	24.1 23.7	23.9	8.1 8.1	8.1	30.0 29.9	30.0	95.6 97.3	96.5	6.8 6.9	6.9	6.6	5.1 5.2	5.2	6.3	2.2 2.3	2.3	1.7		
				Middle	4.5	24.1 23.5	23.8	8.1 8.1	8.1	30.6 30.6	30.6	86.5 89.7	88.1	6.1 6.4	6.3		6.1 6.4	6.3		6.5 6.7	6.6		1.2 1.2	1.2
				Bottom	8	23.7 23.5	23.6	8.2 8.1	8.2	30.9 31.0	31.0	86.9 85.5	86.2	6.2 6.1	6.2		6.2 6.1	6.2		6.9 7.3	7.1		1.5 1.5	1.5
M4	Sunny	Moderate	06:41	Surface	1	23.2 23.1	23.2	8.1 8.1	8.1	32.2 32.2	32.2	106.4 105.0	105.7	7.6 7.5	7.6	7.4	5.2 5.7	5.5	7.0	2.6 2.7	2.7	2.4		
				Middle	4	23.2 22.6	22.9	8.2 8.2	8.2	32.2 32.2	32.2	99.2 98.3	98.8	7.0 7.1	7.1		7.0 7.1	7.1		6.9 6.9	6.9		2.7 2.7	2.7
				Bottom	7	23.1 22.6	22.9	8.1 8.1	8.1	33.1 33.1	33.1	97.5 96.2	96.9	6.9 6.9	6.9		6.9 6.9	6.9		8.4 8.6	8.5		1.8 1.8	1.8
M5	Sunny	Moderate	08:21	Surface	1	24.0 23.7	23.9	8.1 8.1	8.1	30.2 30.2	30.2	92.5 97.9	95.2	6.6 7.0	6.8	6.8	5.9 5.4	5.7	6.9	2.3 2.4	2.4	3.8		
				Middle	5.5	24.0 23.5	23.8	8.1 8.2	8.2	31.2 31.2	31.2	93.9 98.5	96.2	6.6 7.0	6.8		6.6 7.0	6.8		6.3 6.7	6.5		6.5 6.5	6.5
				Bottom	10	23.7 23.5	23.6	8.2 8.2	8.2	31.9 31.9	31.9	96.0 90.7	93.4	6.8 6.4	6.6		6.8 6.4	6.6		8.5 8.7	8.6		2.4 2.4	2.4
M6	Sunny	Moderate	08:07	Surface	-	-	-	-	-	-	-	-	-	-	-	7.4	-	-	6.5	-	-	2.9		
				Middle	2	24.2 23.7	24.0	8.2 8.1	8.2	29.9 30.0	30.0	103.9 102.7	103.3	7.4 7.3	7.4		7.4 7.3	7.4		6.5 6.4	6.5		2.8 2.9	2.9
				Bottom	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 15 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.1 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.1 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.1 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.8 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)					
					Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*			
C1	Cloudy	Moderate	15:09	Surface	1	19.9 19.6	19.8	7.8 7.8	7.8	30.8 30.7	30.8	93.4 92.9	93.2	7.1 7.1	7.1	7.1	4.4 3.6	4.0	5.2	2.4 2.4	2.4	2.4		
				Middle	10	19.5 20.3	19.9	7.6 7.5	7.6	30.7 30.8	30.8	90.8 91.9	91.4	7.0 6.9	7.0	6.9	6.0	6.0		6.0	3.1 3.1		3.2	
				Bottom	19	19.7 19.6	19.7	7.4 7.4	7.4	30.7 30.8	30.8	90.7 90.1	90.4	6.9 6.9	6.9	6.9	5.5	5.5		5.5	6.1 4.9		1.7	1.7
C2	Cloudy	Moderate	13:40	Surface	1	19.9 19.9	19.9	7.5 7.5	7.5	30.2 30.1	30.2	85.1 86.2	85.7	6.5 6.6	6.6	6.6	3.0 3.2	3.1	3.8	3.4 3.4	3.4	3.1		
				Middle	18	19.6 20.1	19.9	7.4 7.4	7.4	30.4 30.4	30.4	84.4 85.4	84.9	6.5 6.5	6.5	6.5	3.3	3.3		3.3	2.0 2.0		2.0	
				Bottom	35	19.9 19.4	19.7	7.4 7.4	7.4	30.5 30.5	30.5	86.5 84.9	85.7	6.6 6.5	6.6	6.6	5.1	5.1		5.1	5.0 3.9		4.0	4.0
G1	Cloudy	Moderate	14:22	Surface	1	20.3 19.6	20.0	7.9 7.9	7.9	30.5 30.5	30.5	89.5 88.7	89.1	6.8 6.8	6.8	6.8	2.9 2.9	2.9	4.0	3.3 3.3	3.3	2.5		
				Middle	4	19.7 19.5	19.6	7.7 7.8	7.8	30.6 30.8	30.7	89.0 89.9	89.5	6.8 6.9	6.9	6.9	4.3	4.3		4.3	4.1 4.4		3.0	3.0
				Bottom	7	19.5 19.2	19.4	7.7 7.7	7.7	30.8 30.9	30.9	89.6 88.9	89.3	6.9 6.8	6.9	6.9	4.9	4.9		4.9	5.0 4.8		1.2	1.2
G2	Cloudy	Moderate	14:05	Surface	1	19.5 20.3	19.9	7.9 7.9	7.9	31.0 30.9	31.0	88.8 90.8	89.8	6.8 6.8	6.8	6.8	2.6 3.0	2.8	3.7	1.9 2.0	2.0	2.6		
				Middle	5	19.7 20.0	19.9	7.8 7.7	7.8	31.0 30.9	31.0	89.4 88.4	88.9	6.8 6.7	6.8	6.8	3.5	3.5		3.5	3.2 3.8		2.3	2.3
				Bottom	9	19.3 20.1	19.7	7.7 7.7	7.7	31.3 31.2	31.3	88.1 89.3	88.7	6.8 6.7	6.8	6.8	4.7	4.7		4.7	4.4 4.9		3.5	3.5
G3	Cloudy	Moderate	14:30	Surface	1	19.2 20.1	19.7	7.9 8.0	8.0	30.8 30.6	30.7	88.7 89.2	89.0	6.8 6.8	6.8	6.8	3.7 4.4	4.1	4.2	2.7 2.7	2.7	2.4		
				Middle	4	19.9 19.3	19.6	7.8 7.8	7.8	30.6 30.7	30.7	88.6 87.3	88.0	6.7 6.7	6.7	6.7	4.5	4.5		4.5	4.7 4.3		2.4	2.4
				Bottom	7	19.8 19.7	19.8	7.8 7.7	7.8	30.8 30.9	30.9	88.6 87.2	87.9	6.7 6.7	6.7	6.7	3.9	3.9		3.9	4.0 3.8		2.2	2.2
G4	Cloudy	Moderate	14:47	Surface	1	19.8 20.0	19.9	7.9 7.8	7.9	30.3 30.3	30.3	90.8 89.8	90.3	6.9 6.8	6.9	6.9	3.2 3.2	3.2	4.3	2.8 2.8	2.8	2.9		
				Middle	4	19.4 19.9	19.7	7.7 7.8	7.8	30.4 30.4	30.4	89.9 89.1	89.5	6.9 6.8	6.9	6.9	3.7	3.7		3.7	3.6 3.8		2.9	2.9
				Bottom	7	20.1 19.4	19.8	7.6 7.5	7.6	30.8 30.7	30.8	88.5 87.9	88.2	6.7 6.7	6.7	6.7	6.0	6.0		6.0	6.2 5.8		2.9	2.9
M1	Cloudy	Moderate	14:14	Surface	1	20.5 19.8	20.2	7.9 7.8	7.9	30.8 30.7	30.8	89.0 87.4	88.2	6.7 6.7	6.7	6.7	3.0 3.2	3.1	4.0	2.1 2.1	2.1	2.2		
				Middle	3	19.8 20.0	19.9	7.8 7.8	7.8	30.8 30.9	30.9	87.4 89.0	88.2	6.7 6.7	6.7	6.7	4.8	4.8		4.8	4.4 5.1		2.2	2.2
				Bottom	5	19.4 20.2	19.8	7.7 7.8	7.8	31.0 31.2	31.1	85.8 86.6	87.2	6.6 6.7	6.7	6.7	4.1	4.1		4.1	4.0 4.1		2.3 2.4	2.4
M2	Cloudy	Moderate	13:57	Surface	1	19.8 20.5	20.2	7.8 7.9	7.9	30.2 30.2	30.2	87.8 90.6	89.2	6.7 6.8	6.8	6.8	2.5 2.9	2.7	2.8	2.2 2.1	2.2	2.7		
				Middle	5	19.5 20.1	19.8	7.8 7.8	7.8	30.4 30.3	30.4	88.3 89.1	88.7	6.8 6.8	6.8	6.8	2.7	2.7		2.7	2.7 2.6		2.6	2.6
				Bottom	9	19.6 19.8	19.7	7.7 7.7	7.7	30.5 30.5	30.5	86.2 86.4	86.3	6.6 6.6	6.6	6.6	2.9	2.9		2.9	2.7 3.0		3.4	3.4
M3	Cloudy	Moderate	14:38	Surface	1	19.6 19.8	19.7	7.7 7.6	7.7	30.4 30.4	30.4	89.2 89.8	89.5	6.8 6.9	6.9	6.9	2.9 3.0	3.0	3.5	4.0 4.0	4.0	3.7		
				Middle	4	20.0 20.0	20.0	7.5 7.6	7.6	30.5 30.6	30.6	88.6 88.5	88.6	6.7 6.7	6.7	6.7	3.0	3.0		3.0	3.0 2.9		3.0	3.0
				Bottom	7	19.4 20.1	19.8	7.5 7.5	7.5	30.8 30.8	30.8	83.5 84.8	84.2	6.4 6.4	6.4	6.4	4.4	4.4		4.4	4.3 4.5		4.2	4.2
M4	Cloudy	Moderate	13:50	Surface	1	19.6 20.2	19.9	7.7 7.8	7.8	30.4 30.4	30.4	89.0 89.3	89.2	6.8 6.8	6.8	6.8	2.8 3.3	3.1	3.5	4.0 4.0	4.0	2.7		
				Middle	4	19.5 19.5	19.5	7.6 7.6	7.6	30.5 30.6	30.6	87.6 87.6	87.6	6.7 6.7	6.7	6.7	3.4	3.4		3.4	3.0 3.7		1.7	1.8
				Bottom	7	19.5 19.8	19.7	7.7 7.6	7.7	30.8 30.8	30.8	85.4 85.1	85.3	6.5 6.5	6.5	6.5	4.1	4.1		4.1	3.8 4.4		2.4	2.4
M5	Cloudy	Moderate	15:01	Surface	1	19.5 19.8	19.7	7.6 7.6	7.6	31.4 30.9	31.2	91.3 90.8	91.1	7.0 6.9	7.0	7.0	4.6 4.3	4.5	4.7	4.0 4.0	4.0	3.3		
				Middle	5.5	19.4 19.9	19.7	7.5 7.5	7.5	30.7 30.7	30.7	89.1 90.0	89.6	6.8 6.8	6.8	6.8	5.2	5.2		5.2	4.8 5.5		4.3	4.3
				Bottom	10	19.6 20.0	19.8	7.5 7.5	7.5	30.8 30.8	30.8	88.1 90.4	89.3	6.7 6.9	6.8	6.8	4.4	4.4		4.4	4.1 4.7		1.6	1.6
M6	Cloudy	Moderate	14:55	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	-	-	1.9			
				Middle	3.6	19.2 19.9	19.6	7.8 7.7	7.8	30.9 30.7	30.8	89.6 88.4	89.0	6.9 6.7	6.8	6.8	4.6		4.6	4.6		4.9 4.2	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 15 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.9 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>	
Surface		<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 3.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.9 mg/L</u>
<u>Stations M1-M5</u>			
Surface		<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 3.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.9 mg/L</u>
<u>Stations G1-G4, M1-M5</u>			
Bottom		<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.9 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.3 mg/L</u>
<u>Station M6</u>			
Intake Level		<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 March 2017**

(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	09:25	Surface	1	18.6	18.6	7.8	7.8	30.0	30.1	87.3	87.9	6.8	6.9	6.9	4.3	4.9	5.0	5.0	3.0	3.0	3.0
				Middle	10	18.4	18.5	7.7	7.7	30.3	30.3	87.4	87.3	6.9	6.8	6.9		3.6	3.4	3.5	3.0	3.1	3.1
				Bottom	19	18.9	18.9	7.6	7.6	30.4	30.4	88.2	87.8	6.8	6.8	6.8		4.5	4.4	4.5	4.1	4.1	4.1
C2	Cloudy	Moderate	08:04	Surface	1	18.4	18.5	7.7	7.8	30.1	30.1	85.7	84.9	6.7	6.7	6.7	3.3	3.1	3.4	3.3	1.0	1.0	1.0
				Middle	18	18.9	19.0	7.4	7.4	30.2	30.2	84.7	85.2	6.6	6.6	6.6		3.2	3.2	3.2	1.9	1.9	1.9
				Bottom	35	18.8	18.8	7.6	7.6	30.2	30.3	86.0	85.7	6.7	6.7	6.7		3.4	3.3	3.4	1.4	1.4	1.4
G1	Cloudy	Moderate	08:42	Surface	1	18.2	18.5	7.7	7.8	30.5	30.4	86.3	86.6	6.8	6.8	6.8	4.3	3.4	3.5	3.5	2.3	2.3	2.3
				Middle	4	18.8	18.8	7.7	7.8	30.4	30.4	87.6	86.4	6.8	6.7	6.8		4.4	4.2	4.3	3.8	3.8	3.8
				Bottom	7	18.8	18.8	7.7	7.8	30.4	30.5	87.5	86.2	6.8	6.7	6.8		4.8	5.2	5.0	2.8	2.8	2.8
G2	Cloudy	Moderate	08:28	Surface	1	18.4	18.7	7.7	7.8	30.2	30.2	88.0	88.6	6.9	6.9	6.9	4.2	3.5	2.9	3.2	3.0	3.0	3.0
				Middle	5	18.5	18.7	7.6	7.6	30.1	30.2	87.5	88.1	6.9	6.9	6.9		4.2	4.2	4.2	1.3	1.3	1.3
				Bottom	9	18.4	18.4	7.5	7.6	30.2	30.2	86.6	86.3	6.8	6.8	6.8		5.0	5.3	5.2	4.1	4.1	4.1
G3	Cloudy	Moderate	08:49	Surface	1	18.7	18.8	7.7	7.8	30.0	30.1	87.3	87.3	6.8	6.8	6.8	3.9	3.2	3.3	3.3	3.0	3.0	3.0
				Middle	4	18.8	18.8	7.8	7.8	30.2	30.3	87.9	88.1	6.8	6.9	6.9		4.1	3.8	4.0	3.0	3.0	3.0
				Bottom	7	18.3	18.4	7.9	7.9	30.4	30.4	86.4	85.9	6.8	6.7	6.8		4.3	4.3	4.3	3.3	3.3	3.3
G4	Cloudy	Moderate	09:03	Surface	1	18.5	18.6	7.8	7.9	29.9	30.0	87.2	87.3	6.8	6.8	6.8	3.8	3.8	3.7	3.8	2.5	2.5	2.5
				Middle	4	19.1	18.8	7.9	7.9	30.4	30.5	85.4	86.4	6.6	6.7	6.7		3.6	3.8	3.7	5.2	5.2	5.2
				Bottom	7	18.8	18.7	7.8	7.9	30.4	30.5	85.2	85.9	6.6	6.7	6.7		3.7	3.8	3.8	3.0	2.9	3.0
M1	Cloudy	Moderate	08:34	Surface	1	18.8	18.5	7.7	7.8	30.5	30.4	88.2	87.6	6.9	6.9	6.9	4.0	3.4	4.0	3.7	2.7	2.7	2.7
				Middle	3	18.2	18.2	7.7	7.7	30.2	30.2	86.7	87.1	6.8	6.9	6.9		3.8	3.8	3.8	2.7	2.8	2.8
				Bottom	5	18.9	18.9	7.7	7.7	30.3	30.4	88.1	86.4	6.8	6.7	6.8		4.3	4.6	4.5	3.8	3.7	3.8
M2	Cloudy	Moderate	08:21	Surface	1	19.1	18.8	7.7	7.7	29.9	29.9	87.2	86.6	6.8	6.8	6.8	4.2	3.4	3.2	3.3	3.4	3.4	3.4
				Middle	5	18.7	18.8	7.7	7.7	30.0	30.1	86.4	86.1	6.7	6.7	6.7		4.2	4.4	4.3	2.2	2.1	2.2
				Bottom	9	18.8	18.9	7.6	7.6	30.1	30.1	87.3	88.0	6.8	6.8	6.8		4.8	5.0	4.9	3.1	3.1	3.1
M3	Cloudy	Moderate	08:56	Surface	1	18.8	18.9	7.7	7.8	30.3	30.3	87.5	87.6	6.8	6.8	6.8	3.6	3.5	3.9	3.7	2.7	2.7	2.7
				Middle	4	18.3	18.5	7.7	7.7	30.6	30.7	84.8	86.7	6.7	6.8	6.8		4.0	3.3	3.7	2.6	2.6	2.6
				Bottom	7	18.7	18.8	7.7	7.8	30.7	30.8	83.9	82.4	6.5	6.4	6.5		3.3	3.2	3.3	1.8	1.8	1.8
M4	Cloudy	Moderate	08:13	Surface	1	18.5	18.4	7.6	7.6	30.2	30.2	86.4	85.7	6.8	6.8	6.8	3.6	3.1	2.7	2.9	3.3	3.3	3.3
				Middle	4	18.9	19.0	7.5	7.6	30.1	30.1	86.8	86.1	6.8	6.7	6.8		3.9	3.7	3.8	3.2	3.2	3.2
				Bottom	7	19.1	19.0	7.6	7.6	30.2	30.2	85.4	84.7	6.6	6.6	6.6		4.0	4.4	4.2	2.7	2.6	2.7
M5	Cloudy	Moderate	09:17	Surface	1	18.5	18.7	8.0	8.0	30.1	30.2	88.5	88.8	6.9	6.9	6.9	4.0	3.2	3.8	3.5	3.1	3.1	3.1
				Middle	5.5	18.3	18.4	7.8	7.8	30.1	30.2	87.5	87.5	6.9	6.9	6.9		3.8	4.0	3.9	2.4	2.2	2.3
				Bottom	10	18.5	18.6	7.8	7.8	30.2	30.3	87.4	87.1	6.8	6.8	6.8		4.9	4.4	4.7	3.0	3.0	3.0
M6	Cloudy	Moderate	09:10	Surface	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	-	-	-	-
				Middle	3.7	18.8	18.6	7.8	7.8	30.4	30.4	84.4	83.2	6.6	6.6	6.6		5.6	5.5	5.6	2.5	2.5	2.5
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 17 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 7.0 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 7.5 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.4 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.4 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 7.6 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 8.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 17 March 2017**

(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	15:21	Surface	1	24.2 24.0	24.1	8.2 8.2	8.2	32.7 32.7	32.7	100.5 102.8	101.7	7.0 7.2	7.1	6.7	4.3 4.5	4.4	4.7	3.2 3.0	3.1	3.9
				Middle	10	24.2 23.9	24.1	8.1 8.1	8.1	32.9 32.9	32.9	89.2 89.5	89.4	6.2 6.3	6.3		4.4 4.5	4.5		4.7 4.9	4.6	
				Bottom	19	24.0 23.9	24.0	8.2 8.2	8.2	33.0 33.0	33.0	88.2 88.1	88.2	6.2 6.2	6.2		5.4 5.0	5.2		5.4 3.8	3.9	
C2	Sunny	Moderate	13:43	Surface	1	23.9 23.8	23.9	8.2 8.1	8.2	33.0 33.0	33.0	96.6 97.8	97.2	6.8 6.8	6.8	6.6	5.4 5.1	5.3	5.5	4.6 4.3	4.5	6.6
				Middle	18	23.9 23.8	23.9	8.1 8.1	8.1	33.0 33.0	33.0	89.8 89.7	89.8	6.3 6.3	6.3		5.6 5.4	5.5		9.0 8.7	8.9	
				Bottom	35	23.8 23.8	23.8	8.2 8.2	8.2	33.1 33.1	33.1	89.4 89.5	89.5	6.3 6.3	6.3		5.7 5.8	5.8		6.3 6.2	6.3	
G1	Sunny	Moderate	14:25	Surface	1	23.8 23.7	23.8	8.1 8.1	8.1	32.8 32.8	32.8	96.3 96.9	96.6	6.8 6.8	6.8	6.5	4.4 4.2	4.3	5.1	4.2 4.3	4.3	5.3
				Middle	4	23.8 23.5	23.7	8.1 8.2	8.2	32.9 32.9	32.9	87.1 88.1	87.6	6.1 6.2	6.2		4.9 5.4	5.2		6.5 6.3	6.4	
				Bottom	7	23.7 23.5	23.6	8.2 8.2	8.2	33.0 33.0	33.0	87.5 88.4	88.0	6.1 6.2	6.2		5.9 5.9	5.9		5.1 5.3	5.2	
G2	Sunny	Moderate	14:07	Surface	1	23.8 23.8	23.8	8.1 8.1	8.1	33.3 33.3	33.3	95.3 95.9	95.6	6.7 6.7	6.7	6.5	4.1 3.7	3.9	4.3	4.3 4.5	4.4	4.9
				Middle	5	23.8 23.7	23.8	8.2 8.2	8.2	33.4 33.4	33.4	89.2 88.0	88.6	6.2 6.2	6.2		4.0 4.1	4.1		6.5 6.8	6.7	
				Bottom	9	23.8 23.7	23.8	8.2 8.2	8.2	33.8 33.7	33.8	85.2 84.0	84.6	5.9 5.9	5.9		4.8 4.7	4.8		3.7 3.6	3.7	
G3	Sunny	Moderate	14:35	Surface	1	23.8 23.8	23.8	8.1 8.2	8.2	32.7 32.7	32.7	97.1 97.7	97.4	6.8 6.8	6.8	6.5	4.1 3.9	4.0	4.8	4.9 5.0	5.0	6.4
				Middle	4	23.7 23.6	23.7	8.2 8.2	8.2	33.1 33.1	33.1	88.2 88.0	88.1	6.2 6.2	6.2		4.3 4.6	4.5		8.2 8.1	8.2	
				Bottom	7	23.8 23.6	23.7	8.2 8.2	8.2	33.4 33.3	33.4	86.8 86.0	86.4	6.1 6.0	6.1		5.7 5.8	5.8		6.1 6.1	6.1	
G4	Sunny	Moderate	14:54	Surface	1	24.2 24.0	24.1	8.1 8.1	8.1	32.8 32.8	32.8	96.6 96.7	96.7	6.7 6.8	6.8	6.5	4.4 4.6	4.5	5.3	4.3 4.2	4.3	3.2
				Middle	4	24.2 24.0	24.1	8.2 8.1	8.2	33.1 33.1	33.1	88.6 88.7	88.7	6.2 6.2	6.2		5.4 5.2	5.3		2.6 2.6	2.6	
				Bottom	7	24.0 24.0	24.0	8.1 8.1	8.1	33.5 33.6	33.6	92.4 92.4	92.4	6.4 6.4	6.4		6.1 6.2	6.2		2.7 2.6	2.7	
M1	Sunny	Moderate	14:16	Surface	1	23.8 23.8	23.8	8.2 8.1	8.2	33.0 33.1	33.1	95.5 95.8	95.7	6.7 6.7	6.7	6.5	4.0 4.2	4.1	4.4	1.2 1.2	1.2	1.9
				Middle	3	23.8 23.7	23.8	8.2 8.2	8.2	33.0 33.1	33.1	88.6 88.2	88.4	6.2 6.2	6.2		4.4 4.4	4.3		2.8 2.8	2.8	
				Bottom	5	23.8 23.7	23.8	8.2 8.2	8.2	33.2 33.2	33.2	88.7 88.2	88.5	6.2 6.2	6.2		4.6 5.0	4.8		1.7 1.6	1.7	
M2	Sunny	Moderate	14:00	Surface	1	23.8 23.8	23.8	8.1 8.2	8.2	33.2 33.2	33.2	91.0 91.4	91.2	6.4 6.4	6.4	6.2	4.3 4.2	4.3	4.3	5.1 5.1	5.1	4.2
				Middle	5.5	23.8 23.8	23.8	8.2 8.2	8.2	33.3 33.4	33.4	84.7 84.3	84.5	5.9 5.9	5.9		4.3 4.3	4.3		3.5 3.4	3.5	
				Bottom	10	23.8 23.8	23.8	8.2 8.2	8.2	33.5 33.5	33.5	83.0 82.9	83.0	5.8 5.8	5.8		4.3 4.3	4.3		4.0 4.1	4.1	
M3	Sunny	Moderate	14:47	Surface	1	24.1 24.0	24.1	8.2 8.2	8.2	33.3 33.3	33.3	108.6 104.5	106.6	7.5 7.3	7.4	6.9	4.9 4.9	4.9	5.1	2.8 2.7	2.8	2.5
				Middle	4.5	24.1 24.0	24.1	8.2 8.2	8.2	33.5 33.6	33.6	90.4 90.6	90.5	6.3 6.3	6.3		5.1 5.0	5.1		2.5 2.4	2.5	
				Bottom	8	24.0 24.0	24.0	8.1 8.2	8.2	33.9 33.9	33.9	83.2 82.7	83.0	5.8 5.7	5.8		5.3 5.5	5.4		2.1 2.1	2.1	
M4	Sunny	Moderate	13:52	Surface	1	23.8 23.8	23.8	8.2 8.2	8.2	33.0 33.0	33.0	96.8 96.8	96.8	6.8 6.8	6.8	6.6	3.6 3.5	3.6	4.6	2.2 2.1	2.2	3.4
				Middle	4	23.8 23.1	23.5	8.2 8.2	8.2	33.0 33.0	33.0	89.4 87.9	88.7	6.3 6.2	6.3		3.8 4.1	4.0		4.0 3.9	4.0	
				Bottom	7	23.8 23.1	23.5	8.1 8.1	8.1	33.2 33.2	33.2	86.0 83.6	84.8	6.0 5.9	6.0		6.3 6.1	6.2		3.9 3.8	3.9	
M5	Sunny	Moderate	15:14	Surface	1	24.2 24.0	24.1	8.2 8.1	8.2	33.0 33.0	33.0	96.4 96.1	96.3	6.7 6.7	6.7	6.5	5.2 5.2	5.2	5.4	3.1 3.2	3.2	4.1
				Middle	5.5	24.2 24.0	24.1	8.2 8.2	8.2	33.1 33.1	33.1	87.8 88.3	88.1	6.1 6.2	6.2		4.4 4.3	4.4		3.3 3.4	3.4	
				Bottom	10	24.0 24.0	24.0	8.1 8.2	8.2	33.2 33.2	33.2	84.8 84.6	84.7	5.9 5.9	5.9		6.3 6.6	6.5		5.6 5.5	5.6	
M6	Sunny	Moderate	15:01	Surface	-	-	-	-	-	-	-	-	-	-	-	7.0	-	-	5.0	-	-	5.2
				Middle	2.1	24.2 24.0	24.1	8.2 8.1	8.2	32.7 32.7	32.7	99.1 100.4	99.8	6.9 7.0	7.0		4.9 5.1	5.0		5.1 5.3	5.2	
				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 17 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>CI: 11.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>CI: 12.4 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 4.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 5.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 4.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 5.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>CI: 4.8 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>CI: 5.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 17 March 2017**

(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	09:38	Surface	1	24.3 23.9	24.1	8.2 8.1	8.2	31.6 31.7	31.7	112.5 109.8	111.2	7.9 7.7	7.8	7.4	4.6 4.7	4.7	6.9	4.0 4.0	4.0	4.0
				Middle	10.5	24.2 23.7	24.0	8.1 8.2	8.2	32.7 32.7	32.7	97.5 98.1	97.8	6.8 6.9	6.9		6.8 6.5	6.5		4.1 3.9	4.0	
				Bottom	20	23.9 23.8	23.9	8.1 8.1	8.1	33.4 33.3	33.4	94.7 96.6	95.7	6.6 6.8	6.7		9.8 9.1	9.5		4.0 4.0	4.0	
C2	Sunny	Moderate	07:38	Surface	1	24.0 23.4	23.7	8.2 8.1	8.2	31.8 31.8	31.8	106.3 110.0	108.2	7.5 7.8	7.7	7.4	4.1 4.6	4.4	5.9	2.5 2.5	2.5	2.2
				Middle	18	24.0 23.2	23.6	8.1 8.1	8.1	33.0 33.0	33.0	97.4 100.3	98.9	6.8 7.1	7.0		5.8 5.8	5.8		2.4 2.4	2.4	
				Bottom	35	23.4 23.2	23.3	8.1 8.1	8.1	33.2 33.3	33.3	91.0 91.5	91.3	6.4 6.5	6.5		7.3 7.5	7.4		1.6 1.6	1.6	
G1	Sunny	Moderate	08:21	Surface	1	23.8 23.7	23.8	8.1 8.2	8.2	33.2 33.2	33.2	103.2 100.1	101.7	7.2 7.0	7.1	7.1	5.8 5.2	5.5	5.1	4.6 4.5	4.6	2.8
				Middle	4	23.9 23.7	23.8	8.2 8.2	8.2	33.5 33.5	33.5	96.0 104.0	100.0	6.7 7.3	7.0		5.1 5.0	5.1		0.8 0.8	0.8	
				Bottom	7	23.7 23.7	23.7	8.2 8.2	8.2	33.7 33.7	33.7	95.9 97.1	96.5	6.7 6.8	6.8		4.7 4.4	4.6		2.8 2.9	2.9	
G2	Sunny	Moderate	08:05	Surface	1	23.7 23.7	23.7	8.1 8.1	8.1	33.2 33.2	33.2	106.7 111.4	109.1	7.5 7.8	7.7	7.4	5.0 5.1	5.1	4.7	3.9 3.9	3.9	2.4
				Middle	5	23.7 23.7	23.7	8.1 8.1	8.1	33.5 33.5	33.5	97.2 101.2	99.2	6.8 7.1	7.0		4.8 5.0	4.9		1.1 1.1	1.1	
				Bottom	9	23.7 23.7	23.7	8.2 8.2	8.2	34.3 34.1	34.2	92.0 92.6	92.3	6.4 6.5	6.5		4.2 4.1	4.2		2.1 2.1	2.1	
G3	Sunny	Moderate	08:34	Surface	1	23.4 23.4	23.4	8.1 8.1	8.1	33.6 33.6	33.6	103.5 103.5	103.5	7.3 7.3	7.3	7.3	4.4 4.1	4.3	4.4	1.0 1.0	1.0	2.2
				Middle	4	23.4 23.3	23.4	8.1 8.1	8.1	33.6 33.6	33.6	103.8 103.5	103.7	7.3 7.3	7.3		4.6 4.4	4.5		2.8 2.7	2.8	
				Bottom	7	23.4 23.3	23.4	8.1 8.1	8.1	33.6 33.6	33.6	104.8 106.2	105.5	7.4 7.5	7.5		4.6 4.2	4.4		2.6 2.7	2.7	
G4	Sunny	Moderate	09:06	Surface	1	24.3 23.7	24.0	8.0 8.1	8.1	31.6 31.6	31.6	91.2 86.2	88.7	6.4 6.1	6.3	6.3	4.8 4.3	4.6	5.2	3.4 3.5	3.5	2.6
				Middle	4	24.3 23.6	24.0	8.1 8.1	8.1	32.6 32.6	32.6	88.1 88.1	88.1	6.1 6.2	6.2		5.2 5.6	5.4		2.2 2.2	2.2	
				Bottom	7	23.7 23.7	23.7	8.1 8.1	8.1	33.3 33.1	33.2	88.6 83.7	86.2	6.2 5.9	6.1		5.5 5.5	5.5		2.2 2.2	2.2	
M1	Sunny	Moderate	08:13	Surface	1	23.4 23.4	23.4	8.1 8.1	8.1	33.6 33.6	33.6	100.4 100.8	100.6	7.1 7.1	7.1	7.1	4.3 4.4	4.4	4.9	2.8 2.7	2.8	3.5
				Middle	3	23.4 23.3	23.4	8.1 8.1	8.1	33.8 33.8	33.8	99.5 99.1	99.3	7.0 7.0	7.0		4.8 5.3	5.1		4.5 4.3	4.4	
				Bottom	5	23.4 23.3	23.4	8.1 8.1	8.1	33.8 33.8	33.8	99.5 99.1	99.3	7.0 7.0	7.0		5.1 5.4	5.3		3.4 3.4	3.4	
M2	Sunny	Moderate	07:58	Surface	1	24.0 23.4	23.7	8.2 8.2	8.2	31.8 31.8	31.8	99.8 99.2	99.5	7.0 7.0	7.0	7.0	4.1 4.6	4.4	5.9	1.2 1.2	1.2	2.3
				Middle	5.5	24.0 23.2	23.6	8.1 8.1	8.1	33.0 33.0	33.0	99.4 98.6	99.0	6.9 7.0	7.0		5.8 5.8	5.8		1.3 1.3	1.3	
				Bottom	10	23.4 23.2	23.3	8.1 8.1	8.1	33.2 33.3	33.3	91.0 90.2	90.6	6.4 6.4	6.4		7.3 7.5	7.4		4.2 4.3	4.3	
M3	Sunny	Moderate	08:54	Surface	1	24.3 23.9	24.1	8.1 8.1	8.1	31.4 31.3	31.4	97.3 99.1	98.2	6.8 7.0	6.9	6.6	4.0 4.1	4.1	4.5	3.6 3.5	3.6	4.0
				Middle	4.5	24.3 23.7	24.0	8.1 8.1	8.1	32.0 32.0	32.0	88.1 91.3	89.7	6.1 6.4	6.3		4.4 4.6	4.5		5.0 5.1	5.1	
				Bottom	8	23.9 23.7	23.8	8.1 8.1	8.1	32.4 32.4	32.4	88.5 87.1	87.8	6.2 6.1	6.2		4.8 4.7	4.8		3.3 3.2	3.3	
M4	Sunny	Moderate	07:50	Surface	1	23.4 23.3	23.4	8.1 8.1	8.1	33.6 33.6	33.6	108.3 106.8	107.6	7.6 7.5	7.6	7.4	4.3 4.4	4.4	5.0	2.9 2.9	2.9	3.8
				Middle	4	23.4 22.8	23.1	8.1 8.1	8.1	33.7 33.7	33.7	100.9 100.1	100.5	7.1 7.1	7.1		4.8 4.7	4.8		4.5 4.5	4.5	
				Bottom	7	23.3 22.8	23.1	8.1 8.1	8.1	34.6 34.6	34.6	99.2 97.9	98.6	6.9 6.9	6.9		5.8 5.8	5.8		3.9 3.9	3.9	
M5	Sunny	Moderate	09:30	Surface	1	24.2 23.9	24.1	8.1 8.1	8.1	31.6 31.6	31.6	94.2 99.6	96.9	6.6 7.0	6.8	6.9	4.8 4.4	4.6	6.7	4.4 1.9	4.4	2.9
				Middle	5.5	24.2 23.7	24.0	8.2 8.1	8.2	32.6 32.7	32.7	95.6 100.2	97.9	6.7 7.0	6.9		7.0 6.3	6.7		1.9 1.8	1.9	
				Bottom	10	23.9 23.7	23.8	8.2 8.1	8.2	33.3 33.4	33.4	97.7 92.4	95.1	6.8 6.5	6.7		8.6 9.0	8.8		2.4 2.4	2.4	
M6	Sunny	Moderate	09:16	Surface	-	-	-	-	-	-	-	-	-	-	7.4	-	-	5.4	-	-	2.3	
				Middle	2	24.4 23.9	24.2	8.1 8.1	8.1	31.4 31.4	31.4	105.7 104.4	105.1	7.4 7.4		7.4	5.4 5.3		5.4	2.3 2.3		2.3
				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 20 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 9.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 10.1 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.9 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.9 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 6.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.3 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.7 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 20 March 2017**

(Mid-Ebb Tide)

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)			
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Cloudy	Moderate	18:06	Surface	1	19.5 19.5	19.5	8.1 8.2	8.2	31.9 31.9	31.9	98.4 98.1	98.3	7.5 7.5	7.5	7.5	7.5	3.0 3.0	3.0	5.5	3.2 3.1	3.2	3.7
				Middle	10	19.3 19.1	19.2	8.1 8.1	8.1	31.8 31.9	31.9	97.3 97.0	97.2	7.4 7.4	7.4	6.4 6.2		6.3	4.3 3.6		3.6		
				Bottom	19	19.1 19.2	19.2	8.2 8.1	8.2	31.8 31.7	31.8	96.8 97.0	96.9	7.4 7.4	7.4	7.3 7.3		7.3	4.3 4.3		4.3		
C2	Cloudy	Moderate	16:18	Surface	1	19.4 19.4	19.4	8.0 8.1	8.1	31.8 31.8	31.8	95.0 94.6	94.8	7.2 7.2	7.2	7.3	4.5 4.0	4.3	6.3	4.9 4.8	4.9	3.7	
				Middle	18	19.3 19.3	19.3	8.1 8.0	8.1	31.9 32.0	32.0	95.9 96.2	96.1	7.3 7.3	7.3		6.5 6.8	6.7		2.5 2.6	2.6		
				Bottom	35	19.2 19.2	19.2	8.1 8.1	8.1	31.8 31.8	31.8	97.5 97.5	97.5	7.5 7.5	7.5		7.7 7.9	7.8		3.6 3.6	3.6		
G1	Cloudy	Moderate	17:07	Surface	1	20.3 20.3	20.3	8.1 8.1	8.1	32.2 32.3	32.3	101.2 101.1	101.2	7.6 7.6	7.6	7.6	3.4 3.4	3.4	4.7	1.1 1.1	1.1	1.2	
				Middle	4	19.3 19.3	19.3	8.2 8.1	8.2	31.9 32.0	32.0	98.4 98.2	98.3	7.5 7.5	7.5		3.8 3.7	3.8		1.4 1.3	1.4		
				Bottom	7	19.3 19.2	19.3	8.2 8.1	8.2	31.8 31.9	31.9	95.7 95.5	95.6	7.3 7.3	7.3		6.5 7.3	6.9		1.0 1.0	1.0		
G2	Cloudy	Moderate	16:47	Surface	1	19.8 19.9	19.9	8.1 8.1	8.1	32.1 32.0	32.1	100.2 100.2	100.2	7.6 7.6	7.6	7.6	2.3 2.6	2.5	4.4	2.8 2.8	2.8	3.4	
				Middle	5	19.6 19.5	19.6	8.2 8.1	8.2	32.0 31.9	32.0	99.0 99.1	99.1	7.5 7.5	7.5		4.7 4.9	4.8		3.4 3.3	3.4		
				Bottom	9	19.2 19.2	19.2	8.1 8.1	8.1	31.8 31.7	31.8	97.4 97.2	97.3	7.5 7.4	7.5		6.2 5.5	5.9		4.0 4.2	4.1		
G3	Cloudy	Moderate	17:18	Surface	1	19.9 19.9	19.9	8.1 8.2	8.2	32.1 32.2	32.2	99.6 99.2	99.4	7.5 7.5	7.5	7.5	4.0 4.4	4.2	4.7	1.3 1.3	1.3	2.4	
				Middle	4	19.4 19.3	19.4	8.2 8.1	8.2	31.9 31.9	31.9	97.3 96.6	97.0	7.4 7.4	7.4		4.5 5.1	4.8		3.0 3.0	3.0		
				Bottom	7	19.2 19.3	19.3	8.1 8.1	8.1	31.9 31.9	31.9	94.8 94.2	94.5	7.3 7.2	7.3		4.9 5.2	5.1		2.8 2.8	2.8		
G4	Cloudy	Moderate	17:38	Surface	1	19.4 19.5	19.5	8.1 8.1	8.1	31.9 31.9	31.9	98.8 98.8	98.8	7.5 7.5	7.5	7.5	3.1 2.6	2.9	4.6	3.1 3.2	3.2	3.2	
				Middle	4	19.3 19.3	19.3	8.1 8.1	8.1	31.9 31.8	31.9	98.8 98.6	98.7	7.5 7.5	7.5		4.6 5.1	4.9		3.0 3.1	3.1		
				Bottom	7	19.3 19.3	19.3	8.2 8.2	8.2	31.8 31.7	31.8	97.2 96.6	96.9	7.4 7.4	7.4		5.9 6.0	6.0		3.3 3.2	3.3		
M1	Cloudy	Moderate	16:57	Surface	1	20.2 20.2	20.2	8.1 8.2	8.2	32.4 32.2	32.3	102.2 102.2	102.2	7.7 7.7	7.7	7.7	4.7 4.7	4.7	4.8	3.1 3.2	3.2	3.0	
				Middle	3	19.8 19.7	19.8	8.1 8.2	8.2	32.2 32.1	32.2	100.3 100.1	100.2	7.6 7.6	7.6		5.6 5.7	5.7		1.9 1.8	1.9		
				Bottom	5	19.2 19.3	19.3	8.1 8.1	8.1	31.9 31.8	31.9	95.3 94.8	95.1	7.3 7.2	7.3		3.7 4.2	4.0		3.8 3.7	3.8		
M2	Cloudy	Moderate	16:39	Surface	1	19.5 19.5	19.5	8.1 8.1	8.1	32.0 32.0	32.0	99.1 98.9	99.0	7.5 7.5	7.5	7.5	3.1 2.9	3.0	4.6	1.5 1.5	1.5	2.6	
				Middle	5	19.3 19.3	19.3	8.1 8.1	8.1	31.9 31.9	31.9	98.7 98.1	98.4	7.5 7.5	7.5		4.4 4.3	4.4		3.8 3.8	3.8		
				Bottom	9	19.2 19.1	19.2	8.2 8.1	8.2	31.9 31.9	31.9	98.0 97.1	97.6	7.5 7.4	7.5		6.4 6.3	6.4		2.5 2.4	2.5		
M3	Cloudy	Moderate	17:30	Surface	1	19.9 20.0	20.0	8.1 8.1	8.1	32.2 32.2	32.2	98.7 98.4	98.6	7.4 7.4	7.4	7.4	3.1 2.9	3.0	4.9	1.0 1.0	1.0	2.2	
				Middle	4	19.3 19.3	19.3	8.2 8.2	8.2	32.0 31.9	32.0	96.4 95.8	96.1	7.4 7.3	7.4		5.3 5.5	5.4		1.9 1.9	1.9		
				Bottom	7	19.2 19.3	19.3	8.1 8.1	8.1	31.9 31.9	31.9	92.1 92.0	92.1	7.0 7.0	7.0		6.1 6.7	6.4		3.8 3.8	3.8		
M4	Cloudy	Moderate	16:30	Surface	1	19.7 19.7	19.7	8.1 8.1	8.1	32.1 32.2	32.2	101.9 101.3	101.6	7.7 7.7	7.7	7.6	3.7 3.7	3.7	5.0	4.3 4.4	4.4	3.6	
				Middle	4	19.1 19.1	19.1	8.1 8.1	8.1	32.0 32.0	32.0	98.5 98.1	98.3	7.5 7.5	7.5		4.9 5.2	5.1		3.1 3.1	3.1		
				Bottom	7	19.1 19.2	19.2	8.1 8.1	8.1	32.0 32.0	32.0	97.9 98.4	98.2	7.5 7.5	7.5		6.3 6.3	6.3		3.3 3.4	3.4		
M5	Cloudy	Moderate	17:57	Surface	1	19.7 19.6	19.7	8.2 8.2	8.2	31.9 32.0	32.0	99.3 99.3	99.3	7.5 7.5	7.5	7.5	3.9 4.3	4.1	5.5	2.6 2.6	2.6	2.1	
				Middle	5.5	19.2 19.2	19.2	8.1 8.1	8.1	31.8 31.7	31.8	97.5 97.7	97.6	7.5 7.5	7.5		5.3 6.0	5.7		2.8 2.9	2.9		
				Bottom	10	19.1 19.1	19.1	8.1 8.1	8.1	31.9 31.8	31.9	97.5 97.5	97.5	7.5 7.5	7.5		6.9 6.6	6.8		0.8 0.8	0.8		
M6	Cloudy	Moderate	17:46	Surface	-	-	-	-	-	-	-	-	-	-	7.6	-	-	4.5	-	-	4.0		
				Middle	2.2	19.4 19.3	19.4	8.1 8.1	8.1	31.9 31.9	31.9	99.2 98.9	99.1	7.6 7.6		7.6	4.5 4.5		4.5	4.0 3.9		4.0	
				Bottom	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-	-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 20 March 2017 (Mid-Flood Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.5 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 7.0 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 7.1 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 7.7 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 20 March 2017**

(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	11:16	Surface	1	19.7 19.7	19.7	8.1 8.1	8.1	32.0 32.1	32.1	97.6 97.5	97.6	7.4 7.4	7.4	7.5	3.3 3.6	3.5	4.3	4.7 4.8	4.8	4.9
				Middle	10	19.3 19.2	19.3	8.1 8.1	8.1	31.9 31.9	31.9	98.6 98.6	98.6	7.5 7.5	7.5		4.0 3.8	3.9		4.1 4.1	4.1	
				Bottom	19	19.1 19.1	19.1	8.2 8.2	8.2	31.9 32.0	32.0	99.6 100.0	99.8	7.6 7.7	7.7		5.2 5.5	5.4		5.9 5.9	5.9	
C2	Cloudy	Moderate	09:08	Surface	1	19.3 19.4	19.4	8.1 8.1	8.1	31.8 31.9	31.9	96.6 96.9	96.8	7.4 7.4	7.4	7.4	2.9 2.5	2.7	4.2	1.5 1.6	1.6	3.8
				Middle	18	19.1 19.1	19.1	8.1 8.1	8.1	31.8 31.7	31.8	97.1 97.0	97.1	7.4 7.4	7.4		3.8 3.3	3.6		3.5 3.4	3.5	
				Bottom	35	19.1 19.1	19.1	8.1 8.1	8.1	31.8 31.9	31.9	97.1 96.7	96.9	7.4 7.4	7.4		6.3 6.2	6.3		6.2 6.3	6.3	
G1	Cloudy	Moderate	09:56	Surface	1	19.8 19.8	19.8	8.1 8.1	8.1	32.1 32.1	32.1	96.8 96.3	96.6	7.3 7.3	7.3	7.3	3.9 4.1	4.0	4.0	3.8 3.8	3.8	3.2
				Middle	4	19.3 19.2	19.3	8.1 8.2	8.2	31.9 31.9	31.9	94.2 94.1	94.2	7.2 7.2	7.2		3.8 4.0	3.9		3.4 3.6	3.5	
				Bottom	7	19.3 19.3	19.3	8.2 8.2	8.2	31.9 31.9	31.9	93.3 93.2	93.3	7.1 7.1	7.1		4.2 4.2	4.2		2.2 2.2	2.2	
G2	Cloudy	Moderate	09:38	Surface	1	19.5 19.6	19.6	8.1 8.2	8.2	31.9 32.0	32.0	96.9 96.7	96.8	7.4 7.3	7.4	7.4	2.5 2.6	2.6	3.1	4.2 4.0	4.1	2.8
				Middle	5	19.3 19.3	19.3	8.2 8.1	8.2	31.9 31.8	31.9	97.0 96.9	97.0	7.4 7.4	7.4		2.0 2.2	2.1		2.6 2.6	2.6	
				Bottom	9	19.2 19.3	19.3	8.2 8.1	8.2	31.8 31.9	31.9	96.7 97.2	97.0	7.4 7.4	7.4		4.5 4.5	4.5		1.8 1.8	1.8	
G3	Cloudy	Moderate	10:10	Surface	1	19.4 19.5	19.5	8.2 8.2	8.2	31.9 31.9	31.9	97.7 97.7	97.7	7.4 7.4	7.4	7.5	3.5 3.2	3.4	5.1	3.4 3.4	3.4	2.6
				Middle	4	19.2 19.2	19.2	8.1 8.1	8.1	31.7 31.8	31.8	97.3 97.6	97.5	7.5 7.5	7.5		5.9 5.2	5.6		3.1 3.0	3.1	
				Bottom	7	19.1 19.1	19.1	8.2 8.1	8.2	31.9 31.8	31.9	96.6 96.2	96.4	7.4 7.4	7.4		5.7 6.6	6.2		1.4 1.4	1.4	
G4	Cloudy	Moderate	10:43	Surface	1	19.6 19.6	19.6	8.1 8.1	8.1	31.9 31.9	31.9	96.6 96.6	96.6	7.3 7.3	7.3	7.3	4.2 4.1	4.2	4.9	3.7 3.6	3.7	4.6
				Middle	4	19.3 19.3	19.3	8.2 8.1	8.2	31.8 31.8	31.8	95.4 95.7	95.6	7.3 7.3	7.3		5.0 5.3	5.2		3.5 3.3	3.4	
				Bottom	7	19.2 19.3	19.3	8.2 8.2	8.2	31.8 31.8	31.8	95.8 95.7	95.8	7.3 7.3	7.3		5.2 5.5	5.4		6.8 6.5	6.7	
M1	Cloudy	Moderate	09:47	Surface	1	19.5 19.6	19.6	8.1 8.1	8.1	32.1 32.1	32.1	97.7 98.3	98.0	7.4 7.5	7.5	7.5	2.7 3.3	3.0	3.6	2.9 2.9	2.9	3.1
				Middle	3	19.4 19.2	19.3	8.2 8.2	8.2	31.9 31.8	31.9	96.9 95.9	96.4	7.4 7.3	7.4		4.9 4.3	4.6		3.7 3.6	3.7	
				Bottom	5	19.3 19.2	19.3	8.1 8.1	8.1	31.9 31.8	31.9	94.9 94.6	94.8	7.2 7.2	7.2		3.0 3.1	3.1		2.8 2.8	2.8	
M2	Cloudy	Moderate	09:30	Surface	1	19.5 19.5	19.5	8.1 8.1	8.1	31.9 32.0	32.0	96.5 96.9	96.7	7.3 7.4	7.4	7.4	2.7 2.8	2.8	4.3	5.0 4.8	4.9	5.3
				Middle	5	19.3 19.3	19.3	8.1 8.2	8.2	31.9 31.9	31.9	96.1 96.6	96.4	7.3 7.4	7.4		5.2 5.1	5.2		5.2 5.4	5.3	
				Bottom	9	19.2 19.2	19.2	8.1 8.2	8.2	31.8 31.9	31.9	94.9 94.3	94.6	7.3 7.2	7.3		4.7 4.9	4.8		5.8 5.6	5.7	
M3	Cloudy	Moderate	10:30	Surface	1	19.4 19.4	19.4	8.1 8.1	8.1	31.9 31.9	31.9	98.1 98.1	98.1	7.5 7.5	7.5	7.5	2.0 1.8	1.9	3.5	3.8 3.9	3.9	2.7
				Middle	4	19.3 19.3	19.3	8.2 8.1	8.2	31.9 31.9	31.9	97.5 97.7	97.6	7.4 7.5	7.5		3.1 3.3	3.2		3.2 3.2	3.2	
				Bottom	7	19.3 19.3	19.3	8.1 8.1	8.1	31.9 31.7	31.8	97.7 97.9	97.8	7.5 7.5	7.5		5.3 5.5	5.4		1.0 1.0	1.0	
M4	Cloudy	Moderate	09:22	Surface	1	19.4 19.5	19.5	8.2 8.1	8.2	32.0 32.0	32.0	97.5 97.6	97.6	7.4 7.4	7.4	7.5	3.6 3.2	3.4	3.8	2.1 2.1	2.1	3.3
				Middle	4	19.2 19.2	19.2	8.1 8.1	8.1	31.7 31.7	31.7	98.1 97.7	97.9	7.5 7.5	7.5		3.3 3.7	3.5		2.4 2.5	2.5	
				Bottom	7	19.1 19.2	19.2	8.1 8.2	8.2	31.8 31.8	31.8	97.1 97.4	97.3	7.4 7.5	7.5		4.6 4.6	4.6		5.1 5.3	5.2	
M5	Cloudy	Moderate	11:07	Surface	1	19.6 19.6	19.6	8.1 8.2	8.2	31.9 31.9	31.9	96.8 97.0	96.9	7.4 7.4	7.4	7.5	4.0 4.2	4.1	5.4	5.4 5.5	5.5	3.1
				Middle	5.5	19.2 19.2	19.2	8.2 8.1	8.2	31.9 31.8	31.9	98.5 98.9	98.7	7.5 7.6	7.6		5.7 5.9	5.8		2.5 2.6	2.6	
				Bottom	10	19.1 19.1	19.1	8.2 8.2	8.2	32.0 32.0	32.0	99.5 99.5	99.5	7.6 7.6	7.6		6.2 6.3	6.3		1.3 1.3	1.3	
M6	Cloudy	Moderate	10:55	Surface	-	-	-	-	-	-	-	-	-	-	-	7.3	-	-	3.6	-	-	2.3
				Middle	2.1	19.4 19.3	19.4	8.1 8.2	8.2	31.9 31.8	31.9	96.3 96.0	96.2	7.3 7.3	7.3		3.7 3.4	3.6		2.2 2.3	2.3	
				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 22 March 2017 (Mid-Ebb Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 9.0 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 9.8 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.7 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.1 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 22 March 2017**

(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	20:50	Surface	1	19.3 19.4	19.4	7.7 7.8	7.8	30.5 30.4	30.5	98.3 98.2	98.3	7.6 7.6	7.6	7.6	7.6	4.2 4.3	4.3	5.9	3.4 3.6	3.5	3.1	
				Middle	10	18.8 18.8	18.8	7.8 7.8	7.8	30.7 30.7	30.7	97.2 97.5	97.4	7.5 7.6	7.6	7.6	7.6	6.1 6.2	6.2		6.3 6.2	2.0		2.0
				Bottom	19	18.4 18.4	18.4	7.9 7.9	7.9	30.7 30.8	30.8	95.4 95.4	95.4	7.5 7.5	7.5	7.5	7.5	7.1 7.2	7.2		7.2	3.8 3.5		3.7
C2	Cloudy	Moderate	19:12	Surface	1	19.3 19.4	19.4	7.9 7.8	7.9	30.2 30.2	30.2	98.5 98.9	98.7	7.6 7.6	7.6	7.6	7.6	5.0 5.1	5.1	6.0	5.6 5.8	5.7	4.6	
				Middle	18	18.9 18.9	18.9	8.0 8.0	8.0	30.4 30.4	30.4	97.6 97.5	97.6	7.6 7.6	7.6	7.6	7.6	5.5 5.3	5.4		5.5 5.3	4.1 4.3		4.2
				Bottom	35	18.4 18.4	18.4	8.0 8.0	8.0	30.7 30.8	30.8	97.2 97.1	97.2	7.6 7.6	7.6	7.6	7.6	7.3 7.6	7.5		7.5	3.9 3.9		3.9
G1	Cloudy	Moderate	19:57	Surface	1	19.3 19.4	19.4	7.8 7.7	7.8	30.2 30.2	30.2	98.1 98.2	98.2	7.6 7.6	7.6	7.6	7.6	3.5 3.7	3.6	4.4	3.8 4.0	3.9	3.3	
				Middle	4	19.0 18.9	19.0	7.8 7.8	7.8	30.4 30.5	30.5	97.6 97.5	97.6	7.6 7.6	7.6	7.6	7.6	4.2 4.4	4.3		4.2 4.4	1.5 1.6		1.6
				Bottom	7	18.6 18.6	18.6	7.8 7.8	7.8	30.5 30.5	30.5	96.5 96.6	96.6	7.5 7.5	7.5	7.5	7.5	5.1 5.2	5.2		5.2	4.3 4.2		4.3
G2	Cloudy	Moderate	19:39	Surface	1	19.4 19.4	19.4	7.7 7.8	7.8	30.2 30.3	30.3	98.2 98.1	98.2	7.6 7.6	7.6	7.6	7.6	3.7 4.0	3.9	5.4	2.0 2.0	2.0	2.8	
				Middle	5	19.0 19.1	19.1	7.8 7.8	7.8	30.5 30.4	30.5	97.6 97.3	97.5	7.6 7.5	7.6	7.6	7.6	5.6 5.5	5.6		5.6	5.0 5.2		5.1
				Bottom	9	18.5 18.6	18.6	7.8 7.9	7.9	30.8 30.8	30.8	96.5 96.4	96.5	7.5 7.5	7.5	7.5	7.5	6.5 6.6	6.6		6.6	1.3 1.4		1.4
G3	Cloudy	Moderate	20:06	Surface	1	19.4 19.4	19.4	7.7 7.7	7.7	30.2 30.3	30.3	98.3 98.2	98.3	7.6 7.6	7.6	7.6	7.6	2.9 3.1	3.0	4.9	1.7 1.7	1.7	1.8	
				Middle	4	19.0 19.1	19.1	7.8 7.8	7.8	30.4 30.5	30.5	97.4 97.5	97.5	7.5 7.5	7.5	7.5	7.5	4.8 4.9	4.9		4.8 4.9	1.2 1.2		1.2
				Bottom	7	18.5 18.5	18.5	7.8 7.8	7.8	30.6 30.6	30.6	96.5 96.7	96.6	7.5 7.6	7.6	7.6	7.6	6.5 6.8	6.7		6.7	2.3 2.4		2.4
G4	Cloudy	Moderate	20:26	Surface	1	19.3 19.2	19.3	7.8 7.8	7.8	30.3 30.4	30.4	98.4 98.3	98.4	7.6 7.6	7.6	7.6	7.6	3.6 3.8	3.7	5.6	1.5 1.5	1.5	0.9	
				Middle	4	18.9 19.0	19.0	7.8 7.8	7.8	30.5 30.6	30.6	97.2 97.1	97.2	7.5 7.5	7.5	7.5	7.5	5.8 5.7	5.8		5.8	0.6 0.6		0.6
				Bottom	7	18.5 18.5	18.5	7.8 7.8	7.8	30.7 30.6	30.7	96.8 96.9	96.9	7.6 7.6	7.6	7.6	7.6	7.1 7.2	7.2		7.2	0.6 0.6		0.6
M1	Cloudy	Moderate	19:47	Surface	1	19.4 19.4	19.4	7.8 7.7	7.8	30.2 30.2	30.2	98.5 98.2	98.4	7.6 7.6	7.6	7.6	7.6	3.2 3.5	3.4	4.7	2.6 2.7	2.7	4.1	
				Middle	3	19.0 19.0	19.0	7.8 7.8	7.8	30.5 30.5	30.5	97.8 97.6	97.7	7.6 7.6	7.6	7.6	7.6	4.5 4.6	4.6		4.5 4.6	6.2 6.2		6.2
				Bottom	5	18.7 18.8	18.8	7.8 7.8	7.8	30.7 30.7	30.7	96.9 96.7	96.8	7.5 7.5	7.5	7.5	7.5	5.9 6.0	6.0		6.0	3.5 3.1		3.3
M2	Cloudy	Moderate	19:31	Surface	1	19.3 19.4	19.4	7.8 7.8	7.8	30.4 30.5	30.5	98.0 97.7	97.9	7.6 7.5	7.6	7.6	7.6	3.8 3.5	3.7	5.3	5.6 5.8	5.7	3.6	
				Middle	5	18.9 18.9	18.9	7.8 7.8	7.8	30.6 30.6	30.6	97.8 97.1	97.5	7.6 7.5	7.6	7.6	7.6	5.2 5.4	5.3		5.2 5.4	2.1 2.1		2.1
				Bottom	9	18.6 18.6	18.6	7.9 7.9	7.9	30.7 30.8	30.8	96.5 96.4	96.5	7.5 7.5	7.5	7.5	7.5	6.7 6.8	6.8		6.8	3.1 3.1		3.1
M3	Cloudy	Moderate	20:15	Surface	1	19.3 19.3	19.3	7.8 7.8	7.8	30.3 30.4	30.4	98.6 98.4	98.5	7.6 7.6	7.6	7.6	7.6	3.2 3.5	3.4	4.8	3.1 3.1	3.1	2.9	
				Middle	4	18.9 18.9	18.9	7.8 7.8	7.8	30.6 30.6	30.6	97.5 97.5	97.5	7.6 7.6	7.6	7.6	7.6	4.8 4.7	4.8		4.7 4.7	3.0 2.9		3.0
				Bottom	7	18.6 18.6	18.6	8.0 7.8	7.9	30.7 30.7	30.7	96.8 96.5	96.7	7.5 7.5	7.5	7.5	7.5	6.3 6.2	6.3		6.3	2.5 2.5		2.5
M4	Cloudy	Moderate	19:22	Surface	1	19.4 19.3	19.4	7.8 7.8	7.8	30.1 30.1	30.1	98.4 98.5	98.5	7.6 7.6	7.6	7.6	7.6	3.8 3.9	3.9	4.9	5.7 5.8	5.8	2.9	
				Middle	4	19.0 19.0	19.0	7.9 7.8	7.9	30.5 30.5	30.5	97.3 97.3	97.3	7.5 7.5	7.5	7.5	7.5	4.2 4.4	4.3		4.2 4.4	1.4 1.4		1.4
				Bottom	7	18.5 18.6	18.6	7.9 7.9	7.9	31.0 30.9	31.0	96.7 96.8	96.8	7.5 7.5	7.5	7.5	7.5	6.2 6.5	6.4		6.4	1.3 1.4		1.4
M5	Cloudy	Moderate	20:38	Surface	1	19.3 19.3	19.3	7.7 7.7	7.7	30.4 30.4	30.4	98.2 98.2	98.2	7.6 7.6	7.6	7.6	7.6	4.7 4.4	4.6	6.0	0.9 0.9	0.9	2.4	
				Middle	5.5	18.8 18.7	18.8	7.8 7.8	7.8	30.5 30.5	30.5	97.6 97.4	97.5	7.6 7.6	7.6	7.6	7.6	6.2 6.5	6.4		6.2 6.5	2.1 2.0		2.1
				Bottom	10	18.4 18.4	18.4	7.9 7.9	7.9	30.8 30.7	30.8	96.3 96.5	96.4	7.5 7.5	7.5	7.5	7.5	6.9 7.2	7.1		7.1	4.2 4.3		4.3
M6	Cloudy	Moderate	20:34	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	-	-	6.9		
				Middle	2.6	19.2 19.2	19.2	7.8 7.8	7.8	30.3 30.4	30.4	97.4 97.3	97.4	7.5 7.5	7.5	7.5	7.5	3.9 3.7		3.8	3.9 3.7		7.0 6.7	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 22 March 2017 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 7.8 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 8.5 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.1 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.1 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 6.7 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 7.3 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 22 March 2017**

(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	08:56	Surface	1	19.5 19.5	19.5	7.9 7.9	7.9	30.5 30.5	30.5	98.3 98.4	98.4	7.5 7.5	7.5	7.5	4.5 4.7	4.6	5.9	3.4 3.4	3.4	3.9
				Middle	10	19.0 18.9	19.0	8.0 8.0	8.0	30.6 30.7	30.7	97.1 97.1	97.1	7.5 7.5	7.5	6.6 6.3	6.5	5.6 2.5		2.6		
				Bottom	19	18.4 18.4	18.4	8.1 8.1	8.1	30.8 30.9	30.9	96.3 96.4	96.4	7.5 7.5	7.5	6.4 6.5	6.5	5.6 5.5		5.6		
C2	Cloudy	Moderate	07:18	Surface	1	19.4 19.5	19.5	7.9 7.8	7.9	30.0 30.0	30.0	97.8 97.5	97.7	7.5 7.5	7.5	7.5	2.4 2.3	2.4	3.8	3.4 3.4	3.4	2.4
				Middle	18	19.0 19.0	19.0	7.9 7.9	7.9	30.4 30.5	30.5	96.4 96.3	96.4	7.5 7.5	7.5	3.7 3.9	3.8	1.4 1.4		1.4		
				Bottom	35	18.4 18.5	18.5	8.0 8.0	8.0	30.7 30.7	30.7	95.2 95.4	95.3	7.4 7.4	7.4	5.4 5.2	5.3	2.3 2.3		2.3		
G1	Cloudy	Moderate	08:04	Surface	1	19.5 19.4	19.5	7.9 7.9	7.9	30.3 30.3	30.3	98.7 98.4	98.6	7.6 7.6	7.6	7.6	3.8 3.6	3.7	4.2	2.2 2.2	2.2	1.9
				Middle	4	19.2 19.1	19.2	7.9 8.0	8.0	30.4 30.4	30.4	98.3 98.0	98.2	7.6 7.6	7.6	4.0 4.1	4.1	2.0 1.9		2.0		
				Bottom	7	18.8 18.8	18.8	8.0 8.0	8.0	30.5 30.6	30.6	97.1 97.1	97.1	7.5 7.5	7.5	4.7 4.9	4.8	1.4 1.4		1.4		
G2	Cloudy	Moderate	07:45	Surface	1	19.4 19.3	19.4	7.9 7.8	7.9	30.3 30.2	30.3	98.3 98.5	98.4	7.6 7.6	7.6	7.6	3.3 3.4	3.4	4.4	3.9 4.0	4.0	2.7
				Middle	4.5	19.1 19.1	19.1	7.9 8.0	8.0	30.3 30.5	30.4	97.6 97.9	97.8	7.6 7.6	7.6	4.7 4.5	4.6	2.4 2.4		2.4		
				Bottom	8	18.6 18.7	18.7	8.0 8.0	8.0	30.9 30.9	30.9	97.2 97.1	97.2	7.6 7.5	7.6	5.3 5.1	5.2	1.8 1.8		1.8		
G3	Cloudy	Moderate	08:12	Surface	1	19.4 19.3	19.4	7.9 7.8	7.9	30.1 30.2	30.2	98.3 98.3	98.3	7.6 7.6	7.6	7.6	3.2 3.5	3.4	5.0	1.1 1.1	1.1	1.6
				Middle	4	19.1 19.0	19.1	7.9 7.8	7.9	30.2 30.3	30.3	98.1 98.5	98.3	7.6 7.6	7.6	5.4 5.6	5.5	1.4 1.4		1.4		
				Bottom	7	18.8 18.9	18.9	8.0 8.0	8.0	30.6 30.5	30.6	97.6 97.3	97.5	7.6 7.5	7.6	6.1 6.2	6.2	2.4 2.4		2.4		
G4	Cloudy	Moderate	08:33	Surface	1	19.5 19.5	19.5	7.9 7.9	7.9	30.3 30.4	30.4	98.9 98.6	98.8	7.6 7.6	7.6	7.6	3.9 3.6	3.8	5.4	2.0 2.0	2.0	1.9
				Middle	4	19.0 19.1	19.1	7.9 7.9	7.9	30.2 30.3	30.3	98.4 97.5	98.0	7.6 7.5	7.6	5.2 5.5	5.4	1.9 1.9		1.9		
				Bottom	7	18.6 18.8	18.7	8.0 8.0	8.0	30.6 30.5	30.6	96.3 96.3	96.3	7.5 7.5	7.5	6.9 6.8	6.9	1.8 1.8		1.8		
M1	Cloudy	Moderate	07:54	Surface	1	19.4 19.4	19.4	7.9 7.9	7.9	30.7 30.8	30.8	98.6 98.8	98.7	7.6 7.6	7.6	7.6	3.0 2.9	3.0	4.3	0.7 0.6	0.7	0.9
				Middle	3	19.2 19.3	19.3	8.0 8.0	8.0	30.3 30.3	30.3	98.0 97.8	97.9	7.6 7.5	7.6	4.3 4.6	4.5	0.7 0.7		0.7		
				Bottom	5	18.9 19.0	19.0	8.0 8.0	8.0	30.6 30.7	30.7	97.4 97.4	97.4	7.6 7.5	7.6	5.3 5.4	5.4	1.2 1.2		1.2		
M2	Cloudy	Moderate	07:36	Surface	1	19.3 19.3	19.3	7.9 7.8	7.9	30.4 30.4	30.4	98.4 98.5	98.5	7.6 7.6	7.6	7.6	3.1 3.3	3.2	5.3	1.4 1.4	1.4	1.4
				Middle	5	19.0 19.1	19.1	8.0 7.9	8.0	30.8 30.8	30.8	97.6 97.7	97.7	7.5 7.5	7.5	5.7 5.8	5.8	1.3 1.2		1.3		
				Bottom	9	18.7 18.6	18.7	8.0 8.0	8.0	30.9 30.9	30.9	96.9 97.1	97.0	7.5 7.6	7.6	6.9 6.7	6.8	1.4 1.4		1.4		
M3	Cloudy	Moderate	08:22	Surface	1	19.4 19.4	19.4	7.8 7.9	7.9	30.6 30.7	30.7	98.3 98.4	98.4	7.5 7.6	7.6	7.6	2.9 2.8	2.9	4.0	3.7 3.7	3.7	3.1
				Middle	4	18.9 18.9	18.9	8.0 8.0	8.0	30.5 30.5	30.5	97.9 97.7	97.8	7.6 7.6	7.6	3.8 3.6	3.7	2.6 2.7		2.7		
				Bottom	7	18.5 18.7	18.6	8.0 8.0	8.0	30.7 30.8	30.8	96.7 96.7	96.7	7.5 7.5	7.5	5.1 5.4	5.3	2.9 2.9		2.9		
M4	Cloudy	Moderate	07:28	Surface	1	19.2 19.4	19.3	7.9 7.9	7.9	30.2 30.3	30.3	98.2 98.3	98.3	7.6 7.6	7.6	7.6	3.3 3.4	3.4	4.7	3.8 3.7	3.8	3.5
				Middle	4	18.9 19.1	19.0	8.0 8.0	8.0	30.4 30.3	30.4	97.6 97.8	97.7	7.6 7.6	7.6	4.7 4.6	4.7	4.9 5.0		5.0		
				Bottom	7	18.6 18.6	18.6	8.1 8.1	8.1	30.7 30.8	30.8	97.3 97.3	97.3	7.6 7.6	7.6	6.0 6.1	6.1	1.8 1.7		1.8		
M5	Cloudy	Moderate	08:46	Surface	1	19.4 19.3	19.4	7.8 7.9	7.9	30.1 30.1	30.1	98.7 98.8	98.8	7.6 7.6	7.6	7.6	4.0 4.2	4.1	5.4	2.5 2.5	2.5	2.2
				Middle	5.5	18.8 18.7	18.8	8.0 8.0	8.0	30.2 30.2	30.2	97.8 97.9	97.9	7.6 7.6	7.6	5.7 5.8	5.8	2.4 2.4		2.4		
				Bottom	10	18.5 18.6	18.6	8.0 8.1	8.1	30.4 30.5	30.5	97.2 97.1	97.2	7.6 7.6	7.6	6.1 6.3	6.2	1.6 1.6		1.6		
M6	Cloudy	Moderate	08:41	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	-	-	1.8	
				Middle	2.6	19.5 19.5	19.5	7.9 7.9	7.9	30.4 30.5	30.5	98.2 97.9	98.1	7.5 7.5	7.5	3.2 3.5	3.4		1.8 1.8	1.8		
				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 24 March 2017 (Mid-Ebb Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.9 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.0 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.5 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.0 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.5 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 5.0 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.5 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 24 March 2017**

(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	Rough	11:08	Surface	1	20.5 19.6	20.1	7.8 7.8	7.8	29.9 29.8	29.9	95.4 94.5	95.0	7.2 7.3	7.3	7.2	4.4 4.4	4.4	5.3	3.1 3.2	3.2	3.0
				Middle	10	19.9 20.3	20.1	7.6 7.5	7.6	29.8 29.8	29.8	92.9 93.5	93.2	7.1 7.1	7.1	6.3 6.2	6.3	6.3		3.1 3.1	3.1	
				Bottom	19	20.1 20.0	20.1	7.6 7.4	7.5	29.8 29.9	29.9	92.3 91.1	91.7	7.0 7.0	7.0	5.4 5.2	5.3	5.3		2.7 2.7	2.7	
C2	Cloudy	Rough	10:01	Surface	1	20.5 20.2	20.4	7.5 7.5	7.5	29.3 29.2	29.3	87.9 88.0	88.0	6.7 6.7	6.7	6.7	3.3 3.1	3.2	4.4	4.1 4.2	4.2	3.9
				Middle	18	19.6 20.4	20.0	7.4 7.4	7.4	29.6 29.5	29.6	85.3 88.3	86.8	6.6 6.7	6.7	4.7 4.8	4.8	4.8		3.3 3.3	3.3	
				Bottom	35	20.4 20.1	20.3	7.4 7.4	7.4	29.6 29.6	29.6	87.5 86.3	87.1	6.7 6.6	6.7	5.2 5.3	5.3	5.3		4.1 4.2	4.2	
G1	Cloudy	Rough	10:31	Surface	1	20.6 20.1	20.4	7.9 7.9	7.9	29.5 29.6	29.6	90.3 90.2	90.3	6.8 6.9	6.9	7.0	3.3 3.6	3.5	4.5	1.8 1.8	1.8	2.4
				Middle	4	20.0 20.2	20.1	7.8 7.9	7.9	29.8 29.8	29.8	91.2 91.2	91.2	7.0 6.9	7.0	4.2 4.9	4.6	4.6		3.2 3.3	3.3	
				Bottom	7	20.1 19.5	19.8	7.7 7.7	7.7	29.9 30.0	30.0	92.2 90.5	91.4	7.0 7.0	7.0	5.4 5.4	5.4	5.4		1.9 2.0	2.0	
G2	Cloudy	Rough	10:20	Surface	1	20.0 20.4	20.2	8.0 7.9	8.0	30.1 30.1	30.1	90.0 91.7	90.9	6.9 6.9	6.9	6.9	3.3 3.4	3.4	4.0	2.6 2.6	2.6	2.2
				Middle	5	20.0 20.1	20.1	7.8 7.8	7.8	30.1 30.0	30.1	90.2 90.5	90.4	6.9 6.9	6.9	3.5 3.9	3.7	3.7		1.8 1.8	1.8	
				Bottom	9	19.8 20.6	20.2	7.8 7.7	7.8	30.3 30.3	30.3	89.9 92.1	91.0	6.9 6.9	6.9	4.8 5.1	5.0	5.0		2.2 2.2	2.2	
G3	Cloudy	Rough	10:36	Surface	1	19.6 20.2	19.9	8.0 8.0	8.0	29.8 29.7	29.8	90.8 90.5	90.7	7.0 6.9	7.0	7.0	4.1 4.7	4.4	4.5	2.8 2.8	2.8	3.8
				Middle	4	20.4 19.9	20.2	7.8 7.9	7.9	29.8 29.8	29.8	90.9 89.3	90.1	6.9 6.8	6.9	5.5 4.7	5.1	5.1		5.6 5.6	5.6	
				Bottom	7	20.2 20.0	20.1	7.8 7.7	7.8	29.9 29.9	29.9	90.7 89.9	90.3	6.9 6.9	6.9	4.4 3.6	4.0	4.0		2.8 2.9	2.9	
G4	Cloudy	Rough	10:50	Surface	1	19.9 20.0	20.0	7.9 7.8	7.9	29.4 29.3	29.4	91.7 91.9	91.8	7.0 7.0	7.0	7.0	3.0 3.6	3.3	4.4	1.9 1.9	1.9	2.7
				Middle	4	20.1 20.2	20.2	7.7 7.7	7.7	29.5 29.5	29.5	92.3 91.6	92.0	7.0 7.0	7.0	3.9 4.5	4.2	4.2		2.1 2.2	2.2	
				Bottom	7	20.4 20.0	20.2	7.7 7.6	7.7	29.9 29.8	29.9	89.3 88.5	88.9	6.8 6.8	6.8	5.6 5.8	5.7	5.7		4.0 3.9	4.0	
M1	Cloudy	Rough	10:25	Surface	1	20.9 20.3	20.6	7.9 7.9	7.9	29.9 29.8	29.9	90.9 89.6	90.3	6.8 6.8	6.8	6.9	3.5 3.2	3.4	4.4	4.3 4.3	4.3	4.0
				Middle	3	20.2 20.1	20.2	7.8 7.8	7.8	29.9 30.1	30.0	89.4 90.9	90.2	6.8 6.9	6.9	5.0 5.9	5.5	5.5		5.7 5.5	5.6	
				Bottom	5	20.2 20.3	20.3	7.7 7.8	7.8	30.1 30.2	30.2	88.1 89.4	88.8	6.7 6.8	6.8	3.9 4.8	4.4	4.4		2.2 2.2	2.2	
M2	Cloudy	Rough	10:15	Surface	1	20.1 21.0	20.6	7.9 7.8	7.9	29.3 29.3	29.3	89.7 92.2	91.0	6.8 6.9	6.9	6.9	2.6 2.9	2.8	3.1	2.8 2.7	2.8	2.6
				Middle	5	19.5 20.3	19.9	7.8 7.7	7.8	29.5 29.5	29.5	89.7 91.1	90.4	6.9 6.9	6.9	3.1 3.4	3.3	3.3		2.3 2.3	2.3	
				Bottom	9	20.2 20.0	20.1	7.7 7.8	7.8	29.6 29.6	29.6	88.0 88.8	88.4	6.7 6.8	6.8	3.3 3.2	3.3	3.3		2.5 2.6	2.6	
M3	Cloudy	Rough	10:42	Surface	1	19.9 20.5	20.2	7.7 7.6	7.7	29.6 29.6	29.6	91.2 91.3	91.3	7.0 6.9	7.0	7.0	3.0 3.1	3.1	3.9	2.2 2.1	2.2	3.8
				Middle	4	20.6 20.2	20.4	7.5 7.6	7.6	29.7 29.7	29.7	89.7 90.5	90.1	6.8 6.9	6.9	3.6 3.2	3.4	3.4		5.8 6.0	5.9	
				Bottom	7	19.9 20.5	20.2	7.5 7.5	7.5	29.9 29.9	29.9	85.4 86.4	85.9	6.5 6.5	6.5	4.9 5.3	5.1	5.1		3.4 3.4	3.4	
M4	Cloudy	Rough	10:09	Surface	1	20.2 20.5	20.4	7.8 7.8	7.8	29.5 29.5	29.5	92.3 90.8	91.6	7.0 6.9	7.0	7.0	3.5 4.0	3.8	3.9	3.3 3.4	3.4	3.6
				Middle	4	20.1 19.9	20.0	7.6 7.6	7.6	29.5 29.7	29.6	89.3 89.2	89.3	6.8 6.8	6.8	3.3 3.8	3.6	3.6		3.5 3.5	3.5	
				Bottom	7	20.0 20.3	20.2	7.7 7.7	7.7	29.9 29.9	29.9	88.0 87.5	87.8	6.7 6.6	6.7	4.2 4.5	4.4	4.4		3.9 4.0	4.0	
M5	Cloudy	Rough	11:01	Surface	1	19.6 20.2	19.9	7.6 7.7	7.7	30.5 29.9	30.2	92.0 92.8	92.4	7.0 7.1	7.1	7.1	4.6 4.8	4.7	5.2	3.5 3.4	3.5	5.4
				Middle	5.5	19.7 20.1	19.9	7.5 7.5	7.5	29.7 29.8	29.8	91.3 91.2	91.3	7.0 6.9	7.0	5.5 6.4	6.0	6.0		8.0 8.1	8.1	
				Bottom	10	19.7 20.3	20.0	7.5 7.5	7.5	29.9 29.9	29.9	89.6 91.6	90.6	6.9 7.0	7.0	4.6 5.0	4.8	4.8		4.6 4.6	4.6	
M6	Cloudy	Rough	10:56	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	-	-	5.4
				Middle	2.7	19.7 19.7	19.7	7.8 7.7	7.8	30.0 29.8	29.9	91.3 89.5	90.4	7.0 6.9	7.0	5.5 4.6	5.1	5.1		5.4 5.3	5.4	
				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 24 March 2017 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.9 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.4 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.8 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.8 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.8 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 24 March 2017**

(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	Rough	16:25	Surface	1	20.2 20.5	20.4	7.9 8.0	8.0	29.8 29.9	29.9	89.5 90.4	90.0	6.8 6.8	6.8	6.8	5.8 6.0	5.9	4.9	3.9 4.0	4.0	3.6
				Middle	10	20.4 20.4	20.4	7.9 7.8	7.9	30.1 30.2	30.2	89.0 88.9	89.0	6.7 6.7	6.7	6.7	4.1 3.8	4.0		2.7 2.7	2.7	
				Bottom	19	20.5 20.9	20.7	7.8 7.8	7.8	30.3 30.2	30.3	89.9 88.8	89.4	6.8 6.6	6.7	6.7	5.2 4.6	4.9		4.0 4.0	4.0	
C2	Cloudy	Rough	15:14	Surface	1	20.0 20.1	20.1	7.8 7.8	7.8	29.9 30.0	30.0	86.1 85.3	85.7	6.6 6.5	6.6	6.6	3.5 3.7	3.6	3.7	2.4 2.3	2.4	2.8
				Middle	18	20.5 20.9	20.7	7.5 7.5	7.5	30.1 30.1	30.1	86.0 87.8	86.9	6.5 6.6	6.6	6.6	3.8 3.9	3.9		2.9 2.9	2.9	
				Bottom	35	20.7 20.6	20.7	7.7 7.7	7.7	30.1 30.1	30.1	87.8 87.2	87.5	6.6 6.6	6.6	6.6	3.6 3.7	3.7		3.1 3.0	3.1	
G1	Cloudy	Rough	15:45	Surface	1	20.1 20.1	20.1	7.8 7.9	7.9	30.4 30.2	30.3	88.2 87.7	88.0	6.7 6.7	6.7	6.7	3.8 4.6	4.2	4.6	3.4 3.4	3.4	2.5
				Middle	4	20.5 20.6	20.6	7.9 7.9	7.9	30.2 30.3	30.3	88.6 88.4	88.5	6.7 6.7	6.7	6.7	4.1 4.2	4.2		1.3 1.4	1.4	
				Bottom	7	20.2 20.3	20.3	7.9 8.0	8.0	30.3 30.3	30.3	88.1 88.1	88.1	6.7 6.7	6.7	6.7	5.3 5.7	5.5		2.8 2.8	2.8	
G2	Cloudy	Rough	15:33	Surface	1	20.1 20.5	20.3	7.9 7.9	7.9	30.0 30.1	30.1	89.9 90.6	90.3	6.8 6.8	6.8	6.8	3.6 3.4	3.5	4.7	2.1 2.1	2.1	2.7
				Middle	5	20.5 20.5	20.5	7.7 7.7	7.7	30.0 30.1	30.1	88.9 90.0	89.5	6.7 6.8	6.8	6.8	4.9 4.8	4.9		2.6 2.5	2.6	
				Bottom	9	20.1 20.0	20.1	7.6 7.7	7.7	30.0 30.1	30.1	88.7 87.4	88.1	6.7 6.7	6.7	6.7	5.3 6.2	5.8		3.2 3.3	3.3	
G3	Cloudy	Rough	15:52	Surface	1	20.6 20.7	20.7	7.9 7.9	7.9	30.0 29.9	30.0	89.0 87.9	88.5	6.7 6.6	6.7	6.7	3.3 3.9	3.6	4.3	2.5 2.5	2.5	1.7
				Middle	4	20.4 20.4	20.4	7.9 8.0	8.0	30.0 30.1	30.1	89.6 89.1	89.4	6.8 6.7	6.8	6.8	4.7 4.3	4.5		1.3 1.3	1.3	
				Bottom	7	19.9 20.3	20.1	8.0 7.8	7.9	30.2 30.3	30.3	89.0 87.2	88.1	6.8 6.6	6.7	6.7	4.6 5.0	4.8		1.3 1.3	1.3	
G4	Cloudy	Rough	16:06	Surface	1	20.5 20.3	20.4	8.0 8.0	8.0	29.7 29.8	29.8	89.6 89.3	89.5	6.8 6.8	6.8	6.8	4.7 4.1	4.4	4.3	1.4 1.4	1.4	2.6
				Middle	4	20.7 20.1	20.4	8.0 7.9	8.0	30.2 30.3	30.3	87.7 87.0	87.4	6.6 6.6	6.6	6.6	4.1 4.3	4.2		3.8 3.9	3.9	
				Bottom	7	20.9 20.6	20.8	8.0 8.0	8.0	30.3 30.4	30.4	87.0 87.9	87.5	6.5 6.6	6.6	6.6	4.3 4.0	4.2		2.6 2.6	2.6	
M1	Cloudy	Rough	15:40	Surface	1	20.4 20.1	20.3	7.8 7.9	7.9	30.4 30.2	30.3	89.7 89.3	89.5	6.8 6.8	6.8	6.8	3.9 4.2	4.1	4.3	4.5 4.5	4.5	3.2
				Middle	3	20.3 20.2	20.3	7.8 7.8	7.8	30.1 30.1	30.1	89.1 88.5	88.8	6.8 6.7	6.8	6.8	3.8 4.5	4.2		3.5 3.5	3.5	
				Bottom	5	20.3 20.4	20.4	7.8 7.8	7.8	30.2 30.3	30.3	89.0 88.1	88.6	6.7 6.7	6.7	6.7	4.7 4.5	4.6		1.5 1.5	1.5	
M2	Cloudy	Rough	15:26	Surface	1	20.7 20.1	20.4	7.8 7.8	7.8	29.8 29.7	29.8	88.5 87.1	87.8	6.7 6.6	6.7	6.7	3.8 3.8	3.8	4.7	1.9 2.0	2.0	2.4
				Middle	5	20.4 20.9	20.7	7.8 7.8	7.8	29.9 29.9	29.9	87.3 89.2	88.3	6.6 6.7	6.7	6.7	4.6 4.2	4.4		3.4 3.4	3.4	
				Bottom	9	20.6 20.7	20.7	7.7 7.8	7.8	30.1 30.0	30.1	88.5 89.4	89.0	6.7 6.7	6.7	6.7	5.7 5.9	5.8		1.7 1.8	1.8	
M3	Cloudy	Rough	15:58	Surface	1	20.1 20.5	20.3	7.9 8.0	8.0	30.3 30.1	30.2	88.2 88.6	88.4	6.7 6.7	6.7	6.7	4.1 4.1	4.1	3.9	4.2 4.5	4.4	3.4
				Middle	4	20.0 20.4	20.2	7.8 7.8	7.8	30.4 30.5	30.5	87.8 87.4	87.6	6.7 6.6	6.7	6.7	4.1 4.1	4.1		3.2 3.3	3.3	
				Bottom	7	20.5 20.7	20.6	7.9 7.9	7.9	30.6 30.7	30.7	85.7 83.9	84.8	6.5 6.3	6.4	6.4	3.5 3.4	3.5		2.6 2.6	2.6	
M4	Cloudy	Rough	15:21	Surface	1	20.3 19.9	20.1	7.7 7.7	7.7	30.0 30.0	30.0	87.7 87.2	87.5	6.6 6.7	6.7	6.7	3.6 3.2	3.4	4.0	1.8 1.8	1.8	1.6
				Middle	4	20.7 20.6	20.7	7.7 7.8	7.8	30.0 30.0	30.0	88.2 86.9	87.6	6.6 6.5	6.6	6.6	3.9 3.9	3.9		1.3 1.3	1.3	
				Bottom	7	21.0 20.7	20.9	7.7 7.7	7.7	30.0 30.1	30.1	88.2 86.8	87.5	6.6 6.5	6.6	6.6	4.5 4.6	4.6		1.6 1.6	1.6	
M5	Cloudy	Rough	16:17	Surface	1	20.3 20.2	20.3	8.1 8.0	8.1	30.0 30.1	30.1	90.8 90.5	90.7	6.9 6.9	6.9	6.9	3.9 4.0	4.0	4.5	2.0 2.0	2.0	1.6
				Middle	5.5	20.2 20.3	20.3	8.0 7.9	8.0	30.0 30.0	30.0	89.6 88.6	89.1	6.8 6.7	6.8	6.8	3.9 4.2	4.1		1.6 1.7	1.7	
				Bottom	10	20.5 20.3	20.4	7.9 7.9	7.9	30.0 30.0	30.0	89.0 88.2	88.6	6.7 6.7	6.7	6.7	5.7 5.2	5.5		1.1 1.1	1.1	
M6	Cloudy	Rough	16:12	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	-	-	1.0	
				Middle	2.7	20.1 20.3	20.2	8.0 7.9	8.0	30.2 30.2	30.2	84.7 84.9	84.8	6.4 6.4	6.4	6.4	4.9 4.4		4.7	1.0 1.0		1.0
				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 March 2017 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 2.6 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 2.9 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 2.9 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 3.1 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 27 March 2017**

(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	12:33	Surface	1	19.1 19.1	19.1	7.3 7.3	7.3	31.3 31.3	31.3	91.2 90.9	91.1	7.0 7.0	7.0	6.9	1.2 1.1	1.2	2.3	1.4 1.4	1.4	1.5
				Middle	10	19.3 19.3	19.3	7.2 7.2	7.2	31.6 31.6	31.6	87.1 86.9	87.0	6.7 6.6	6.7	6.9	3.2 3.2	3.2		1.9 1.9	1.9	
				Bottom	19	19.4 19.4	19.4	7.2 7.2	7.2	31.4 31.4	31.4	90.2 90.0	90.1	6.9 6.9	6.9	6.9	2.6 2.3	2.5		1.2 1.1	1.2	
C2	Cloudy	Moderate	10:37	Surface	1	19.1 19.2	19.2	7.1 7.1	7.1	31.6 31.5	31.6	91.0 90.8	90.9	7.0 7.0	7.0	7.0	1.1 1.3	1.2	1.7	3.8 3.8	3.8	2.9
				Middle	18	19.3 19.4	19.4	7.1 7.1	7.1	31.4 31.4	31.4	90.5 90.4	90.5	6.9 6.9	6.9	6.9	1.5 1.6	1.6		2.5 2.4	2.5	
				Bottom	35	19.4 19.4	19.4	7.1 7.1	7.1	31.5 31.6	31.6	90.0 89.7	89.9	6.9 6.9	6.9	6.9	2.2 2.1	2.2		2.4 2.3	2.4	
G1	Cloudy	Moderate	11:30	Surface	1	19.2 19.2	19.2	7.2 7.2	7.2	31.3 31.3	31.3	90.7 90.6	90.7	7.0 7.0	7.0	7.0	0.8 1.0	0.9	1.6	2.1 2.1	2.1	3.5
				Middle	4	19.3 19.3	19.3	7.2 7.2	7.2	31.4 31.5	31.5	90.9 90.8	90.9	7.0 7.0	7.0	1.8 1.7	1.8	7.3 7.4		7.4		
				Bottom	7	19.3 19.4	19.4	7.2 7.2	7.2	31.6 31.6	31.6	90.7 90.3	90.5	6.9 6.9	6.9	6.9	2.3 2.1	2.2		0.9 0.9	0.9	
G2	Cloudy	Moderate	11:12	Surface	1	19.3 19.4	19.4	7.2 7.2	7.2	31.3 31.3	31.3	89.4 89.2	89.3	6.9 6.8	6.9	6.9	0.5 0.6	0.6	1.1	0.9 0.9	0.9	1.0
				Middle	5	19.5 19.5	19.5	6.9 6.9	6.9	31.3 31.4	31.4	89.3 89.3	89.3	6.8 6.8	6.8	6.8	1.3 1.2	1.3		1.0 1.0	1.0	
				Bottom	9	19.5 19.5	19.5	7.0 7.0	7.0	31.4 31.5	31.5	89.4 89.5	89.5	6.8 6.8	6.8	6.8	1.3 1.3	1.3		1.1 1.0	1.1	
G3	Cloudy	Moderate	11:37	Surface	1	19.2 19.2	19.2	7.2 7.2	7.2	31.0 31.1	31.1	90.3 90.2	90.3	6.9 6.9	6.9	6.9	1.5 1.5	1.5	1.4	1.7 1.7	1.7	1.7
				Middle	4	19.4 19.4	19.4	7.2 7.2	7.2	31.6 31.6	31.6	89.6 89.4	89.5	6.8 6.8	6.8	6.8	1.3 1.5	1.4		2.4 2.3	2.4	
				Bottom	7	19.4 19.4	19.4	7.2 7.2	7.2	31.7 31.7	31.7	89.5 89.5	89.5	6.8 6.8	6.8	6.8	1.2 1.3	1.3		1.0 1.0	1.0	
G4	Cloudy	Moderate	11:55	Surface	1	19.3 19.3	19.3	7.2 7.2	7.2	31.1 31.2	31.2	90.8 90.8	90.8	7.0 7.0	7.0	7.0	2.7 2.8	2.8	2.1	0.7 0.7	0.7	1.5
				Middle	4	19.3 19.3	19.3	7.1 7.0	7.1	31.4 31.4	31.4	89.9 89.6	89.8	6.9 6.9	6.9	6.9	1.5 1.3	1.4		1.5 1.5	1.5	
				Bottom	7	19.3 19.3	19.3	7.0 7.0	7.0	31.6 31.6	31.6	89.8 89.8	89.8	6.9 6.9	6.9	6.9	2.3 1.9	2.1		2.2 2.2	2.2	
M1	Cloudy	Moderate	11:22	Surface	1	19.0 19.0	19.0	7.2 7.2	7.2	31.4 31.4	31.4	91.6 91.3	91.5	7.1 7.0	7.1	7.1	0.8 0.7	0.8	1.6	1.6 1.6	1.6	1.7
				Middle	5	19.3 19.3	19.3	7.1 7.0	7.1	31.3 31.4	31.4	90.9 90.8	90.9	7.0 7.0	7.0	7.0	1.7 2.0	1.9		1.4 1.4	1.4	
				Bottom	9	19.4 19.4	19.4	6.9 7.0	7.0	31.4 31.5	31.5	90.5 90.5	90.5	6.9 6.9	6.9	6.9	2.2 2.1	2.2		2.2 2.1	2.2	
M2	Cloudy	Moderate	11:01	Surface	1	19.1 19.3	19.2	7.1 7.1	7.1	31.6 31.5	31.6	89.3 89.1	89.2	6.9 6.8	6.9	6.9	1.4 1.2	1.3	1.8	4.4 4.4	4.4	2.4
				Middle	5	19.4 19.4	19.4	7.2 7.2	7.2	31.5 31.6	31.6	89.4 89.4	89.4	6.8 6.8	6.8	6.8	1.7 1.6	1.7		1.5 1.5	1.5	
				Bottom	9	19.4 19.4	19.4	7.2 7.2	7.2	31.6 31.6	31.6	89.4 89.4	89.4	6.8 6.8	6.8	6.8	2.3 2.6	2.5		1.3 1.3	1.3	
M3	Cloudy	Moderate	11:47	Surface	1	19.1 19.2	19.2	7.1 7.1	7.1	31.4 31.3	31.4	88.6 88.5	88.6	6.8 6.8	6.8	6.8	0.8 0.9	0.9	1.4	1.7 1.7	1.7	1.8
				Middle	4	19.3 19.3	19.3	7.1 7.1	7.1	31.3 31.3	31.3	88.1 88.0	88.1	6.8 6.7	6.8	6.8	1.2 1.4	1.3		1.6 1.6	1.6	
				Bottom	7	19.4 19.4	19.4	7.1 7.2	7.2	31.4 31.4	31.4	87.9 87.9	87.9	6.7 6.7	6.7	6.7	1.8 1.9	1.9		2.1 2.1	2.1	
M4	Cloudy	Moderate	10:50	Surface	1	19.3 19.3	19.3	7.1 7.1	7.1	31.1 31.1	31.1	89.4 89.3	89.4	6.9 6.9	6.9	6.9	1.0 1.1	1.1	1.8	3.8 3.6	3.7	2.2
				Middle	4	19.4 19.4	19.4	7.1 7.1	7.1	31.1 31.2	31.2	89.3 89.4	89.4	6.8 6.8	6.8	6.8	1.8 2.0	1.9		1.6 1.6	1.6	
				Bottom	7	19.4 19.4	19.4	7.1 7.1	7.1	31.3 31.3	31.3	89.6 89.6	89.6	6.9 6.9	6.9	6.9	2.3 2.3	2.3		1.3 1.3	1.3	
M5	Cloudy	Moderate	12:17	Surface	1	19.2 19.3	19.3	7.2 7.2	7.2	31.6 31.5	31.6	89.4 89.5	89.5	6.9 6.9	6.9	6.9	1.0 1.2	1.1	0.9	2.2 2.3	2.3	1.7
				Middle	5.5	19.4 19.4	19.4	7.2 7.2	7.2	31.8 31.8	31.8	88.9 88.8	88.9	6.8 6.8	6.8	6.8	0.9 0.9	0.9		1.6 1.6	1.6	
				Bottom	10	19.5 19.5	19.5	7.1 7.1	7.1	32.0 32.0	32.0	86.3 85.5	85.9	6.6 6.5	6.6	6.6	0.7 0.6	0.7		1.2 1.2	1.2	
M6	Cloudy	Moderate	12:04	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	0.5
				Middle	3	19.3 19.3	19.3	7.2 7.2	7.2	31.3 31.4	31.4	90.4 90.2	90.3	6.9 6.9	6.9	6.9	1.4 1.3	1.4		<0.5 <0.5	<0.5	
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
 The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 27 March 2017 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 3.4 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 3.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.9 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.1 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.9 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 3.1 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 2.0 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 2.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

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 27 March 2017

(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	18:29	Surface	1	19.6 19.6	19.6	7.2 7.2	7.2	31.8 31.8	31.8	92.5 92.2	92.4	7.0 7.0	7.0	7.0	7.0	1.7 1.7	1.7	2.2	2.3 2.4	2.4	1.7
				Middle	10	19.6 19.6	19.6	7.1 7.1	7.1	31.8 31.8	31.8	91.8 91.8	91.8	7.0 7.0	7.0	7.0		2.0 2.1	2.1		1.1 1.1	1.1	
				Bottom	19	19.4 19.4	19.4	7.0 7.0	7.0	32.0 32.1	32.1	91.2 90.9	91.1	6.9 6.9	6.9	6.9		2.6 2.9	2.8		1.7 1.6	1.7	
C2	Cloudy	Moderate	16:39	Surface	1	20.0 19.9	20.0	7.2 7.2	7.2	31.3 31.4	31.4	93.1 93.2	93.2	7.0 7.1	7.1	7.1	1.3 1.4	1.4	1.9	2.0 2.0	2.0	1.4	
				Middle	18	19.7 19.7	19.7	7.1 7.1	7.1	31.5 31.5	31.5	93.0 93.3	93.2	7.1 7.1	7.1		7.1	1.9 1.8		1.9	1.3 1.3		1.3
				Bottom	35	19.6 19.5	19.6	7.0 7.0	7.0	31.7 31.8	31.8	93.2 92.8	93.0	7.1 7.1	7.1		7.1	2.3 2.2		2.3	1.0 1.0		1.0
G1	Cloudy	Moderate	17:29	Surface	1	19.6 19.6	19.6	7.2 7.1	7.2	31.0 31.1	31.1	94.1 94.1	94.1	7.2 7.2	7.2	7.2	1.1 1.1	1.1	1.3	1.9 1.8	1.9	1.7	
				Middle	4	19.5 19.5	19.5	7.1 7.1	7.1	31.2 31.2	31.2	93.7 93.6	93.7	7.2 7.2	7.2		7.2	1.2 1.2		1.2	1.6 1.6		1.6
				Bottom	7	19.5 19.5	19.5	7.0 7.0	7.0	31.3 31.4	31.4	92.7 92.2	92.5	7.1 7.0	7.1		7.1	1.5 1.6		1.6	1.5 1.5		1.5
G2	Cloudy	Moderate	17:08	Surface	1	19.1 19.2	19.2	7.1 7.2	7.2	32.3 31.7	32.0	94.3 93.9	94.1	7.2 7.2	7.2	7.2	1.4 1.5	1.5	1.8	2.3 2.2	2.3	1.3	
				Middle	5	19.4 19.4	19.4	7.0 7.0	7.0	31.5 31.6	31.6	93.4 93.4	93.4	7.1 7.1	7.1		7.1	2.1 2.4		2.3	<0.5 <0.5		<0.5
				Bottom	9	19.4 19.4	19.4	7.0 7.0	7.0	31.6 31.6	31.6	92.5 92.3	92.4	7.1 7.0	7.1		7.1	1.6 1.7		1.7	1.2 1.2		1.2
G3	Cloudy	Moderate	17:38	Surface	1	19.6 19.6	19.6	7.2 7.2	7.2	31.2 31.2	31.2	93.4 93.0	93.2	7.1 7.1	7.1	7.1	1.3 1.4	1.4	1.7	1.4 1.4	1.4	1.6	
				Middle	4	19.5 19.5	19.5	7.1 7.1	7.1	31.3 31.4	31.4	92.5 92.4	92.5	7.1 7.1	7.1		7.1	1.6 1.6		1.6	2.1 2.1		2.1
				Bottom	7	19.5 19.5	19.5	7.0 7.0	7.0	31.6 31.6	31.6	90.4 90.3	90.4	6.9 6.9	6.9		6.9	2.1 2.2		2.2	1.4 1.4		1.4
G4	Cloudy	Moderate	17:57	Surface	1	19.6 19.6	19.6	7.2 7.2	7.2	31.8 31.8	31.8	94.7 94.5	94.6	7.2 7.2	7.2	7.2	1.2 1.2	1.2	1.7	1.5 1.5	1.5	1.9	
				Middle	4	19.6 19.6	19.6	7.1 7.1	7.1	31.8 31.8	31.8	94.1 94.1	94.1	7.2 7.2	7.2		7.2	1.5 1.6		1.6	2.4 2.5		2.5
				Bottom	7	19.4 19.4	19.4	7.0 7.0	7.0	32.0 32.1	32.1	93.5 93.3	93.4	7.1 7.1	7.1		7.1	2.1 2.4		2.3	1.7 1.7		1.7
M1	Cloudy	Moderate	17:18	Surface	1	19.9 19.9	19.9	7.2 7.2	7.2	31.0 31.0	31.0	91.5 91.6	91.6	6.9 7.0	7.0	7.0	1.2 1.3	1.3	1.6	1.2 1.2	1.2	1.2	
				Middle	3	19.7 19.7	19.7	7.0 7.0	7.0	31.2 31.2	31.2	91.5 91.4	91.5	7.0 7.0	7.0		7.0	1.5 1.6		1.6	1.2 1.2		1.2
				Bottom	5	19.6 19.6	19.6	7.0 7.1	7.1	31.3 31.3	31.3	91.3 91.3	91.3	7.0 7.0	7.0		7.0	1.8 1.9		1.9	1.3 1.3		1.3
M2	Cloudy	Moderate	17:01	Surface	1	19.4 19.5	19.5	7.1 7.1	7.1	31.6 31.5	31.6	93.0 92.9	93.0	7.1 7.1	7.1	7.1	1.7 2.0	1.9	1.9	1.2 1.2	1.2	1.4	
				Middle	5	19.6 19.6	19.6	7.0 7.0	7.0	31.5 31.5	31.5	91.9 91.6	91.8	7.0 7.0	7.0		7.0	2.1 2.1		2.1	1.2 1.2		1.2
				Bottom	9	19.5 19.5	19.5	7.0 7.0	7.0	31.7 31.7	31.7	91.7 91.4	91.6	7.0 7.0	7.0		7.0	1.8 1.5		1.7	1.8 1.8		1.8
M3	Cloudy	Moderate	17:47	Surface	1	19.3 19.3	19.3	7.2 7.2	7.2	31.6 31.6	31.6	98.3 98.2	98.3	7.5 7.5	7.5	7.5	1.2 1.1	1.2	1.9	1.2 1.2	1.2	1.1	
				Middle	4	19.5 19.5	19.5	7.0 7.0	7.0	31.5 31.6	31.6	96.5 96.3	96.4	7.4 7.3	7.4		7.4	1.8 2.0		1.9	0.7 0.8		0.8
				Bottom	7	19.5 19.5	19.5	6.9 6.9	6.9	31.6 31.7	31.7	95.2 94.7	95.0	7.3 7.2	7.3		7.3	2.9 2.5		2.7	1.4 1.4		1.4
M4	Cloudy	Moderate	16:51	Surface	1	19.9 19.8	19.9	7.2 7.2	7.2	31.7 31.5	31.6	92.2 91.8	92.0	7.0 7.0	7.0	7.0	1.2 1.3	1.3	1.8	2.1 2.1	2.1	1.5	
				Middle	4	19.7 19.6	19.7	7.1 7.1	7.1	31.7 31.8	31.8	91.5 91.2	91.4	6.9 6.9	6.9		6.9	2.1 2.5		2.3	1.4 1.4		1.4
				Bottom	7	19.6 19.6	19.6	7.0 7.0	7.0	31.9 31.9	31.9	91.0 90.7	90.9	6.9 6.9	6.9		6.9	1.8 2.0		1.9	1.1 1.1		1.1
M5	Cloudy	Moderate	18:16	Surface	1	19.8 19.7	19.8	6.9 7.0	7.0	31.3 31.3	31.3	92.4 92.3	92.4	7.0 7.0	7.0	7.1	1.9 2.1	2.0	2.5	1.1 1.1	1.1	1.6	
				Middle	5.5	19.1 19.3	19.2	7.0 7.0	7.0	31.7 31.6	31.7	91.9 91.2	91.6	7.1 7.0	7.1		7.1	3.0 2.7		2.9	1.8 1.8		1.8
				Bottom	10	19.6 19.6	19.6	6.7 6.7	6.7	31.6 31.7	31.7	87.6 87.4	87.5	6.7 6.6	6.7		6.7	2.7 2.7		2.7	1.9 1.9		1.9
M6	Cloudy	Moderate	18:07	Surface	-	-	-	-	-	-	-	-	-	-	-	7.0	-	-	2.3	-	-	1.8	
				Middle	3.1	19.7 19.7	19.7	7.1 7.1	7.1	31.4 31.3	31.4	91.1 92.3	91.7	6.9 7.0	7.0		7.0	2.1 2.4		2.3	1.8 1.8		1.8
				Bottom	-	-	-	-	-	-	-	-	-	-	-		-	-		-	-		-

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.
The reporting limit for laboratory analysis of suspended solids is 2.5 mg/L. For the results below the reporting limit, the SS level will be taken as 2.5 mg/L.

Appendix I - Action and Limit Levels for Marine Water Quality on 29 March 2017 (Mid-Ebb Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.6 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 6.1 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 4.9 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 5.3 mg/L</u>
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

**Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 29 March 2017**

(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	13:53	Surface	1	19.6 19.2	19.4	7.9 7.8	7.9	30.0 29.9	30.0	92.4 91.7	92.1	7.1 7.1	7.1	7.1	7.1	3.2 3.2	3.2	3.9	1.6 1.5	1.6	1.5
				Middle	10	19.3 20.0	19.7	7.7 7.6	7.7	29.9 30.0	30.0	90.7 91.5	91.1	7.0 7.0	7.0	7.0	4.1 4.1	4.1	4.1		1.6 1.6	1.6	
				Bottom	19	19.5 19.9	19.7	7.5 7.4	7.5	30.0 30.0	30.0	89.5 90.8	90.2	6.9 6.9	6.9	6.9	4.5 4.5	4.5	4.5		1.2 1.3	1.3	
C2	Cloudy	Moderate	12:42	Surface	1	20.3 19.7	20.0	7.6 7.6	7.6	29.5 29.4	29.5	86.2 85.1	85.7	6.6 6.5	6.6	6.6	3.1 3.3	3.2	3.8	3.8 3.7	3.8	3.1	
				Middle	18	19.3 19.4	19.4	7.4 7.5	7.5	29.7 29.6	29.7	84.0 84.0	84.0	6.5 6.5	6.5	6.5	3.5 3.5	3.5		3.5	1.5 1.4		1.5
				Bottom	35	19.5 19.1	19.3	7.4 7.5	7.5	29.8 29.7	29.8	84.4 83.3	83.9	6.5 6.5	6.5	6.5	4.6 4.8	4.7		4.7	4.1 4.1		4.1
G1	Cloudy	Moderate	13:14	Surface	1	20.3 19.5	19.9	8.0 7.9	8.0	29.7 29.8	29.8	88.8 87.0	87.9	6.7 6.7	6.7	6.7	3.1 3.0	3.1	4.1	2.2 2.1	2.2	3.2	
				Middle	4	19.6 19.6	19.6	7.8 7.8	7.8	29.9 30.0	30.0	88.7 89.3	89.0	6.8 6.9	6.9	6.9	4.0 4.6	4.3		4.3	3.4 3.3		3.4
				Bottom	7	19.7 19.4	19.6	7.7 7.8	7.8	30.1 30.1	30.1	90.2 88.9	89.6	6.9 6.8	6.9	6.9	4.8 4.9	4.9		4.9	4.0 4.0		4.0
G2	Cloudy	Moderate	13:02	Surface	1	19.6 19.9	19.8	8.0 7.9	8.0	30.2 30.2	30.2	88.1 89.9	89.0	6.8 6.9	6.9	6.9	2.9 2.9	2.9	3.6	4.1 4.2	4.2	3.1	
				Middle	5	19.3 19.5	19.4	7.8 7.8	7.8	30.2 30.2	30.2	87.7 86.7	87.2	6.8 6.7	6.8	6.8	3.2 3.8	3.5		3.5	2.1 2.1		2.1
				Bottom	9	19.3 19.6	19.5	7.7 7.8	7.8	30.5 30.4	30.5	87.4 87.9	87.7	6.7 6.7	6.7	6.7	4.6 4.4	4.5		4.5	2.8 2.9		2.9
G3	Cloudy	Moderate	13:21	Surface	1	19.4 19.8	19.6	8.1 8.0	8.1	30.0 29.9	30.0	88.3 88.2	88.3	6.8 6.8	6.8	6.8	3.8 4.5	4.2	4.3	3.5 3.5	3.5	3.7	
				Middle	4	19.7 19.3	19.5	7.9 7.9	7.9	29.9 29.8	29.9	87.8 86.7	87.3	6.7 6.7	6.7	6.7	5.1 4.2	4.7		4.7	4.8 4.7		4.8
				Bottom	7	19.5 19.7	19.6	7.9 7.8	7.9	30.0 30.1	30.1	88.3 87.1	87.7	6.8 6.7	6.8	6.8	4.4 3.8	4.1		4.1	2.8 2.8		2.8
G4	Cloudy	Moderate	13:34	Surface	1	19.5 19.5	19.5	8.0 7.9	8.0	29.5 29.5	29.5	89.5 88.8	89.2	6.9 6.9	6.9	6.9	3.4 3.3	3.4	4.1	2.5 2.5	2.5	4.1	
				Middle	4	19.2 19.7	19.5	7.8 7.8	7.8	29.7 29.6	29.7	89.1 89.2	89.2	6.9 6.9	6.9	6.9	3.5 3.5	3.5		3.5	4.9 4.8		4.9
				Bottom	7	19.8 19.4	19.6	7.7 7.6	7.7	30.1 29.9	30.0	87.1 86.7	86.9	6.7 6.7	6.7	6.7	5.2 5.3	5.3		5.3	4.9 4.8		4.9
M1	Cloudy	Moderate	13:09	Surface	1	20.4 20.1	20.3	7.9 7.9	7.9	30.1 29.9	30.0	87.6 86.9	87.3	6.6 6.6	6.6	6.6	3.2 3.4	3.3	4.2	2.5 2.5	2.5	3.1	
				Middle	3	19.6 19.7	19.7	7.9 7.9	7.9	30.1 30.2	30.2	86.5 88.1	87.3	6.6 6.7	6.7	6.7	5.0 5.4	5.2		5.2	3.1 3.2		3.2
				Bottom	5	19.4 19.6	19.5	7.8 7.9	7.9	30.3 30.4	30.4	84.9 86.5	85.7	6.5 6.6	6.6	6.6	3.9 4.5	4.2		4.2	3.7 3.7		3.7
M2	Cloudy	Moderate	12:55	Surface	1	19.5 20.2	19.9	7.9 7.9	7.9	29.5 29.5	29.5	87.0 88.5	87.8	6.7 6.7	6.7	6.7	2.8 2.5	2.7	3.0	2.5 2.6	2.6	2.8	
				Middle	5	19.1 19.9	19.5	7.9 7.8	7.9	29.7 29.6	29.7	87.4 87.8	87.6	6.8 6.7	6.8	6.8	3.3 3.0	3.2		3.2	2.2 2.1		2.2
				Bottom	9	19.4 19.3	19.4	7.8 7.8	7.8	29.7 29.7	29.7	84.5 85.3	84.9	6.5 6.6	6.6	6.6	3.0 3.0	3.0		3.0	3.6 3.5		3.6
M3	Cloudy	Moderate	13:27	Surface	1	19.6 19.9	19.8	7.7 7.6	7.7	29.7 29.7	29.7	89.2 89.5	89.4	6.9 6.8	6.9	6.9	2.9 3.0	3.0	3.6	3.2 3.1	3.2	2.9	
				Middle	4	20.0 20.1	20.1	7.6 7.7	7.7	29.8 29.7	29.8	87.6 87.6	87.6	6.7 6.7	6.7	6.7	3.5 3.0	3.3		3.3	3.6 3.5		3.6
				Bottom	7	19.2 19.9	19.6	7.5 7.5	7.5	30.0 30.0	30.0	82.9 83.9	83.4	6.4 6.4	6.4	6.4	4.4 4.6	4.5		4.5	2.0 1.9		2.0
M4	Cloudy	Moderate	12:50	Surface	1	19.6 20.4	20.0	7.7 7.8	7.8	29.6 29.6	29.6	88.7 89.2	89.0	6.8 6.8	6.8	6.8	3.0 3.6	3.3	3.7	3.9 3.9	3.9	3.0	
				Middle	4	19.5 19.4	19.5	7.6 7.7	7.7	29.7 29.8	29.8	86.9 86.7	86.8	6.7 6.7	6.7	6.7	3.1 3.8	3.5		3.5	2.7 2.6		2.7
				Bottom	7	19.4 19.5	19.5	7.7 7.7	7.7	30.0 30.0	30.0	85.0 84.4	84.7	6.6 6.5	6.6	6.6	4.3 4.5	4.4		4.4	2.4 2.4		2.4
M5	Cloudy	Moderate	13:44	Surface	1	19.4 19.8	19.6	7.7 7.6	7.7	30.6 30.1	30.4	91.2 90.0	90.6	7.0 6.9	7.0	7.0	4.6 4.6	4.6	4.8	3.1 3.2	3.2	3.2	
				Middle	5.5	19.3 19.3	19.3	7.6 7.5	7.6	29.9 29.9	29.9	89.0 88.3	88.7	6.9 6.8	6.9	6.9	4.7 5.5	5.1		5.1	3.8 3.7		3.8
				Bottom	10	19.5 19.5	19.5	7.5 7.6	7.6	30.0 30.0	30.0	88.7 88.2	88.5	6.8 6.8	6.8	6.8	4.3 4.8	4.6		4.6	2.5 2.4		2.5
M6	Cloudy	Moderate	13:40	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	-	2.6	
				Middle	2.7	19.3 19.8	19.6	7.9 7.7	7.8	30.1 29.9	30.0	89.3 86.9	88.1	6.9 6.7	6.8	6.8	4.9 4.6	4.8		4.8	2.6 2.6		2.6
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-		-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 29 March 2017 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 5.5 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.0 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.6 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.6 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 4.3 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 4.7 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition

**Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 29 March 2017**

(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	08:28	Surface	1	20.0 19.7	19.9	7.9 7.9	7.9	29.7 29.7	29.7	86.8 87.8	87.3	6.6 6.7	6.7	6.7	5.1 5.3	5.2	4.6	3.7 3.8	3.8	3.3
				Middle	10	20.3 19.9	20.1	7.7 7.7	7.7	29.9 29.9	29.9	87.3 85.4	86.4	6.6 6.5	6.6	6.6	4.1 4.1	4.0		3.8 2.4	2.4	
				Bottom	19	20.3 20.6	20.5	7.6 7.6	7.6	30.2 30.1	30.2	86.9 87.8	87.4	6.6 6.6	6.6	6.6	4.6 4.5	4.6		3.6 3.5	3.6	
C2	Cloudy	Moderate	07:23	Surface	1	19.6 19.6	19.6	7.8 7.9	7.9	29.8 29.8	29.8	83.7 83.2	83.5	6.4 6.4	6.4	6.4	3.5 3.5	3.5	3.4	3.3 3.2	3.3	2.2
				Middle	18	20.3 20.7	20.5	7.4 7.4	7.4	29.8 29.9	29.9	83.8 84.8	84.3	6.4 6.4	6.4	6.4	3.3 3.1	3.2		1.7 1.7	1.7	
				Bottom	35	20.4 20.4	20.4	7.7 7.6	7.7	29.9 29.9	29.9	84.6 85.3	85.0	6.4 6.5	6.5	6.5	3.5 3.6	3.6		1.7 1.6	1.7	
G1	Cloudy	Moderate	07:54	Surface	1	19.3 20.1	19.7	7.7 7.8	7.8	30.2 29.9	30.1	84.6 86.1	85.4	6.5 6.6	6.6	6.6	4.1 4.0	4.1	4.5	2.4 2.5	2.5	3.0
				Middle	4	20.4 20.1	20.3	7.7 7.8	7.8	30.1 30.0	30.1	87.9 86.0	87.0	6.6 6.5	6.6	6.6	4.3 4.2	4.3		2.4 2.5	2.5	
				Bottom	7	20.1 19.9	20.0	7.8 7.9	7.9	30.1 30.1	30.1	86.3 84.7	85.5	6.6 6.5	6.6	6.6	4.7 5.3	5.0		3.8 3.9	3.9	
G2	Cloudy	Moderate	07:44	Surface	1	19.8 19.9	19.9	7.7 7.8	7.8	29.9 29.8	29.9	87.9 88.9	88.4	6.7 6.8	6.8	6.8	3.6 3.7	3.7	4.5	2.4 2.5	2.5	2.2
				Middle	5	19.8 20.3	20.1	7.6 7.7	7.7	29.8 29.8	29.8	86.3 88.6	87.5	6.6 6.7	6.7	6.7	4.1 4.4	4.3		1.7 1.7	1.7	
				Bottom	9	20.2 19.8	20.0	7.5 7.7	7.6	29.9 29.9	29.9	87.2 85.9	86.6	6.6 6.6	6.6	6.6	5.1 5.6	5.4		2.4 2.3	2.4	
G3	Cloudy	Moderate	08:00	Surface	1	20.6 20.4	20.5	7.8 7.8	7.8	29.8 29.8	29.8	88.4 87.3	87.9	6.7 6.6	6.7	6.7	2.9 3.6	3.3	4.0	3.8 3.7	3.8	3.2
				Middle	4	19.6 19.8	19.7	7.8 7.9	7.9	29.9 30.0	30.0	87.5 87.7	87.6	6.7 6.7	6.7	6.7	4.4 4.2	4.3		3.3 3.2	3.3	
				Bottom	7	19.6 20.1	19.9	7.9 7.8	7.9	30.0 30.1	30.1	85.7 86.1	85.9	6.6 6.5	6.6	6.6	4.3 4.2	4.3		2.6 2.5	2.6	
G4	Cloudy	Moderate	08:10	Surface	1	20.3 19.6	20.0	7.8 7.9	7.9	29.6 29.7	29.7	87.6 85.9	86.8	6.7 6.6	6.7	6.7	4.2 3.6	3.9	3.9	2.1 2.2	2.2	2.6
				Middle	4	20.1 19.9	20.0	7.9 7.8	7.9	30.1 30.2	30.2	85.3 84.3	84.8	6.5 6.4	6.5	6.5	4.0 3.5	3.8		2.3 2.3	2.3	
				Bottom	7	20.4 20.2	20.3	7.9 8.0	8.0	30.2 30.1	30.2	85.2 84.6	84.9	6.4 6.4	6.4	6.4	3.8 4.2	4.0		3.2 3.1	3.2	
M1	Cloudy	Moderate	07:49	Surface	1	20.1 19.9	20.0	7.8 7.8	7.8	30.2 30.0	30.1	88.4 87.4	87.9	6.7 6.7	6.7	6.7	3.8 4.2	4.0	4.3	2.2 2.2	2.2	3.0
				Middle	3	19.5 19.5	19.5	7.7 7.7	7.7	29.9 29.9	29.9	86.2 86.0	86.1	6.6 6.6	6.6	6.6	4.0 4.1	4.1		3.2 3.1	3.2	
				Bottom	5	20.0 19.9	20.0	7.7 7.8	7.8	30.0 30.1	30.1	86.6 85.1	85.9	6.6 6.5	6.6	6.6	4.9 4.7	4.8		3.5 3.5	3.5	
M2	Cloudy	Moderate	07:37	Surface	1	20.4 19.7	20.1	7.8 7.7	7.8	29.7 29.6	29.7	87.2 84.5	85.9	6.6 6.5	6.6	6.6	3.7 3.3	3.5	4.3	4.2 4.2	4.2	3.8
				Middle	5	19.6 20.6	20.1	7.8 7.8	7.8	29.8 29.7	29.8	84.2 86.9	85.6	6.5 6.6	6.6	6.6	4.0 4.3	4.2		4.2 4.3	4.3	
				Bottom	9	20.5 20.2	20.4	7.7 7.6	7.7	29.8 29.8	29.8	87.5 87.0	87.3	6.6 6.6	6.6	6.6	5.5 5.0	5.3		3.0 2.9	3.0	
M3	Cloudy	Moderate	08:05	Surface	1	20.0 20.2	20.1	7.8 7.9	7.9	30.1 30.0	30.1	86.1 87.2	86.7	6.6 6.6	6.6	6.6	3.7 3.5	3.6	3.5	2.7 2.7	2.7	3.0
				Middle	4	19.6 19.9	19.8	7.7 7.8	7.8	30.3 30.4	30.4	83.8 85.9	84.9	6.4 6.5	6.5	6.5	3.8 3.8	3.8		3.2 3.3	3.3	
				Bottom	7	19.9 20.3	20.1	7.7 7.8	7.8	30.5 30.5	30.5	82.4 82.3	82.4	6.3 6.2	6.3	6.3	3.0 3.3	3.2		3.0 3.1	3.1	
M4	Cloudy	Moderate	07:31	Surface	1	20.4 19.9	20.2	7.6 7.6	7.6	29.8 29.8	29.8	86.7 85.8	86.3	6.6 6.6	6.6	6.6	3.6 2.9	3.3	3.7	2.0 2.1	2.1	1.7
				Middle	4	20.1 19.7	19.9	7.6 7.6	7.6	29.8 29.8	29.8	86.0 84.2	85.1	6.6 6.5	6.6	6.6	3.8 3.5	3.7		1.4 1.4	1.4	
				Bottom	7	20.2 20.1	20.2	7.5 7.6	7.6	29.9 29.9	29.9	85.4 83.9	84.7	6.5 6.4	6.5	6.5	3.9 4.2	4.1		1.6 1.6	1.6	
M5	Cloudy	Moderate	08:21	Surface	1	19.7 19.7	19.7	8.0 7.9	8.0	29.9 29.8	29.9	88.2 87.6	87.9	6.8 6.7	6.8	6.8	3.7 3.8	3.8	4.5	3.6 3.7	3.7	3.6
				Middle	5.5	20.2 19.8	20.0	7.8 7.8	7.8	29.8 29.8	29.8	87.9 87.4	87.7	6.7 6.7	6.7	6.7	4.2 4.3	4.3		2.8 2.7	2.8	
				Bottom	10	19.8 20.3	20.1	7.8 7.9	7.9	29.9 29.9	29.9	84.4 87.7	86.1	6.5 6.7	6.6	6.6	5.5 5.2	5.4		4.1 4.2	4.2	
M6	Cloudy	Moderate	08:16	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	3.1	
				Middle	2.7	20.1 19.5	19.8	7.8 7.8	7.8	30.1 30.0	30.1	83.0 82.6	82.8	6.3 6.4	6.4	6.4	5.6 5.5		5.6	3.1 3.0		3.1
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-		-

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

Appendix I - Action and Limit Levels for Marine Water Quality on 31 March 2017 (Mid-Ebb Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.2 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C2: 5.6 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 7.1 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.7 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 7.1mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.7 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C2: 6.6 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C2: 7.2 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

**Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 March 2017**

(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	15:10	Surface	1	19.8 19.8	19.8	8.0 7.9	8.0	30.1 30.0	30.1	87.4 87.0	87.2	6.7 6.7	6.7	6.7	2.7 2.7	2.7	3.7	4.6 4.5	4.6	5.3
				Middle	10	19.6 19.7	19.7	7.7 7.8	7.8	30.2 30.2	30.2	86.7 87.2	87.0	6.7 6.7	6.7	4.1 4.0	4.1	5.5 5.4	5.5			
				Bottom	19	19.8 19.7	19.8	7.6 7.6	7.6	30.1 30.1	30.1	85.5 84.6	85.1	6.5 6.5	6.5	4.3 4.4	4.4	5.6 5.7	5.7			
C2	Rainy	Moderate	13:15	Surface	1	20.5 20.3	20.4	7.6 7.6	7.6	29.5 29.5	29.5	85.2 84.6	84.9	6.5 6.4	6.5	2.7 2.5	2.6	3.5	6.3 5.5	5.9	5.4	
				Middle	18	19.9 19.8	19.9	7.5 7.5	7.5	29.8 29.8	29.8	83.0 83.1	83.1	6.3 6.4	6.4	3.5 3.6	3.6	4.8 4.8	4.8			
				Bottom	35	19.7 19.8	19.8	7.5 7.5	7.5	29.9 29.9	29.9	82.5 82.6	82.6	6.3 6.3	6.3	4.3 4.2	4.3	5.4 5.5	5.5			
G1	Rainy	Moderate	14:08	Surface	1	20.3 20.2	20.3	8.0 7.9	8.0	29.7 29.7	29.7	86.1 86.5	86.3	6.5 6.6	6.6	2.7 2.6	2.7	3.7	5.3 6.2	5.8	3.8	
				Middle	4	20.0 20.1	20.1	7.8 7.9	7.9	29.9 29.9	29.9	86.8 87.7	87.3	6.6 6.7	6.7	3.9 3.7	3.8	2.3 2.3	2.3			
				Bottom	7	19.9 19.8	19.9	7.8 7.8	7.8	30.1 30.2	30.2	85.5 84.7	85.1	6.5 6.5	6.5	4.6 4.4	4.5	3.4 3.3	3.4			
G2	Rainy	Moderate	13:45	Surface	1	19.7 19.6	19.7	8.0 7.9	8.0	30.3 30.2	30.3	88.5 88.8	88.7	6.8 6.8	6.8	2.8 2.7	2.8	2.9	5.1 5.2	5.2	4.4	
				Middle	5	19.7 19.6	19.7	7.8 7.9	7.9	30.2 30.3	30.3	86.4 86.5	86.5	6.6 6.6	6.6	2.9 2.9	2.9	4.9 4.9	4.9			
				Bottom	9	19.6 19.5	19.6	7.7 7.7	7.7	30.5 30.5	30.5	85.9 85.8	85.9	6.6 6.6	6.6	4.1 4.0	4.1	3.1 3.1	3.1			
G3	Rainy	Moderate	14:19	Surface	1	19.9 19.9	19.9	8.1 8.1	8.1	30.1 30.1	30.1	89.0 89.0	89.0	6.8 6.8	6.8	3.4 3.2	3.3	4.2	2.6 2.5	2.6	2.5	
				Middle	4	19.7 19.8	19.8	7.9 7.9	7.9	29.9 29.9	29.9	87.9 88.6	88.3	6.7 6.8	6.8	4.2 4.1	4.2	2.1 2.1	2.1			
				Bottom	7	19.5 19.5	19.5	7.9 7.9	7.9	30.1 30.1	30.1	86.4 87.0	86.7	6.6 6.7	6.7	4.5 4.4	4.5	2.7 2.8	2.8			
G4	Rainy	Moderate	14:40	Surface	1	19.8 19.7	19.8	8.0 8.0	8.0	29.6 29.6	29.6	86.9 86.6	86.8	6.7 6.7	6.7	3.2 3.1	3.2	3.6	4.5 4.4	4.5	3.7	
				Middle	4	19.5 19.4	19.5	7.8 7.8	7.8	29.7 29.7	29.7	84.1 84.2	84.2	6.5 6.5	6.5	3.6 3.6	3.6	3.0 3.0	3.0			
				Bottom	7	19.4 19.5	19.5	7.8 7.8	7.8	30.1 30.1	30.1	83.4 83.8	83.6	6.4 6.4	6.4	4.8 4.8	4.8	3.6 3.5	3.6			
M1	Rainy	Moderate	13:56	Surface	1	20.4 20.5	20.5	8.0 8.0	8.0	30.1 30.1	30.1	88.9 89.5	89.2	6.7 6.8	6.8	3.4 3.3	3.4	5.1	5.6 5.7	5.7	5.3	
				Middle	3	19.7 19.7	19.7	7.9 7.9	7.9	30.1 30.2	30.2	86.9 87.1	87.0	6.7 6.7	6.7	5.1 5.1	5.1	3.9 3.8	3.9			
				Bottom	5	19.8 19.9	19.9	7.8 7.8	7.8	30.3 30.3	30.3	86.9 86.5	86.7	6.6 6.6	6.6	4.3 4.5	4.4	6.2 6.3	6.3			
M2	Rainy	Moderate	13:35	Surface	1	19.8 19.9	19.9	7.9 7.9	7.9	29.5 29.5	29.5	86.6 87.1	86.9	6.6 6.7	6.7	2.8 2.8	2.8	3.1	5.4 5.5	5.5	4.6	
				Middle	5	19.3 19.2	19.3	7.9 8.0	8.0	29.7 29.7	29.7	84.0 83.9	84.0	6.5 6.5	6.5	2.9 2.9	3.0	4.2 4.1	4.2			
				Bottom	9	19.6 19.5	19.6	7.8 7.8	7.8	29.7 29.7	29.7	85.3 85.6	85.5	6.6 6.6	6.6	3.4 3.3	3.4	4.1 4.1	4.1			
M3	Rainy	Moderate	14:30	Surface	1	19.8 19.7	19.8	7.8 7.7	7.8	29.7 29.7	29.7	85.9 86.0	86.0	6.6 6.6	6.6	2.2 2.3	2.3	3.6	4.8 4.8	4.8	4.7	
				Middle	4	20.1 20.1	20.1	7.6 7.6	7.6	29.9 29.9	29.9	84.1 84.6	84.4	6.4 6.4	6.4	3.7 3.7	3.7	4.4 4.3	4.4			
				Bottom	7	19.5 19.4	19.5	7.5 7.5	7.5	30.1 30.1	30.1	81.7 82.1	81.9	6.3 6.3	6.3	4.8 4.7	4.8	5.0 4.5	4.8			
M4	Rainy	Moderate	13:26	Surface	1	19.8 19.8	19.8	7.8 7.8	7.8	29.6 29.6	29.6	85.3 85.5	85.4	6.5 6.6	6.6	2.8 3.3	3.1	3.1	4.5 4.6	4.6	3.8	
				Middle	4	19.9 19.9	19.9	7.7 7.6	7.7	29.8 29.8	29.8	85.5 85.5	85.5	6.5 6.5	6.5	3.0 3.0	3.1	3.6 3.5	3.6			
				Bottom	7	19.8 19.8	19.8	7.8 7.8	7.8	30.0 30.0	30.0	85.1 85.0	85.1	6.5 6.5	6.5	4.3 4.3	4.3	3.2 3.2	3.2			
M5	Rainy	Moderate	14:58	Surface	1	19.6 19.6	19.6	7.8 7.8	7.8	30.6 30.6	30.6	89.0 89.3	89.2	6.8 6.8	6.8	4.5 4.2	4.4	4.9	5.4 5.5	5.5	4.8	
				Middle	5.5	19.6 19.6	19.6	7.6 7.6	7.6	30.0 30.0	30.0	87.8 88.3	88.1	6.7 6.8	6.8	4.7 4.7	4.8	4.8 4.8	4.8			
				Bottom	10	19.8 19.7	19.8	7.6 7.6	7.6	30.1 30.1	30.1	85.2 85.6	85.4	6.5 6.6	6.6	4.5 4.5	4.5	4.2 4.2	4.2			
M6	Rainy	Moderate	14:50	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.0	
				Middle	3.1	19.5 19.7	19.6	8.0 8.0	8.0	30.1 30.1	30.1	81.6 83.1	82.4	6.3 6.4	6.4	4.7 4.8	4.8	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 31 March 2017 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.0 NTU</u>	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day <u>C1: 6.5 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
	<u>Stations G1-G4</u>		
SS in mg/L (See Note 2 and 4)	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 6.4 mg/L</u>	<u>6.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 6.4 mg/L</u>	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 6.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day <u>C1: 5.3 mg/L</u>	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day <u>C1: 5.7 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition

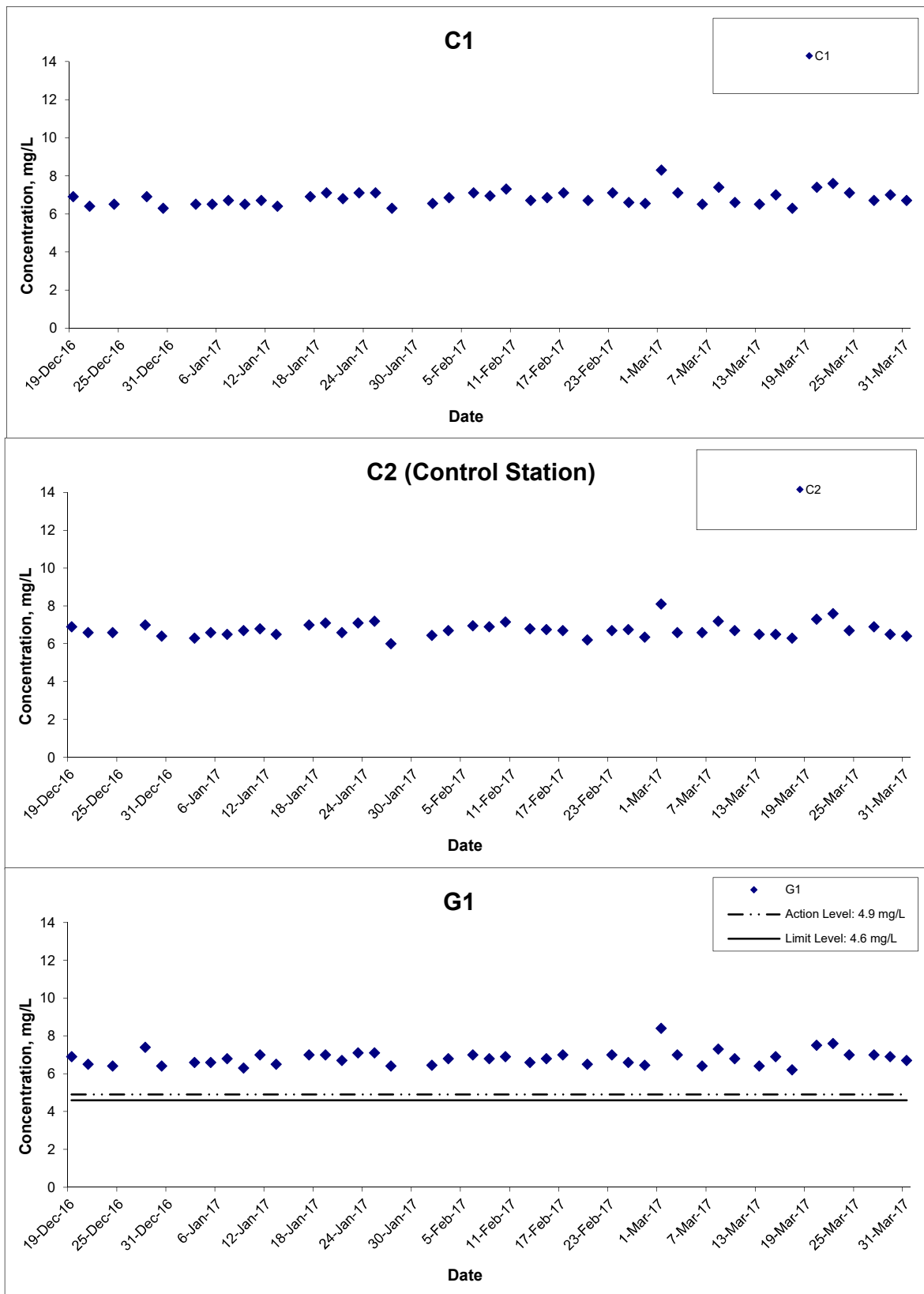
**Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 31 March 2017**

(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	09:17	Surface	1	20.0 20.2	20.1	7.9 7.9	7.9	29.8 29.9	29.9	87.6 87.8	87.7	6.7 6.7	6.7	6.7	2.3 2.2	2.3	3.7	5.3 5.2	5.3	5.3
				Middle	10	19.8 19.8	19.8	7.7 7.7	7.7	29.9 30.0	30.0	86.9 86.7	86.8	6.7 6.6	6.7	3.8 3.9	3.9	6.2 6.2		6.2		
				Bottom	19	19.5 19.3	19.4	7.7 7.7	7.7	30.2 30.2	30.2	84.8 84.2	84.5	6.5 6.5	6.5	4.9 5.0	5.0	4.4 4.4		4.4		
C2	Rainy	Moderate	07:25	Surface	1	20.1 20.0	20.1	7.9 7.9	7.9	29.7 29.7	29.7	84.3 84.2	84.3	6.4 6.4	6.4	3.1 2.9	3.0	3.9	4.2 4.3	4.3	3.9	
				Middle	18	19.9 19.9	19.9	7.8 7.8	7.8	29.8 29.8	29.8	83.2 83.3	83.3	6.4 6.4	6.4	3.3 3.2	3.3		3.0 3.0	3.0		
				Bottom	35	19.5 19.5	19.5	7.7 7.8	7.8	30.0 29.9	30.0	82.4 82.5	82.5	6.3 6.4	6.4	5.3 5.4	5.4		4.3 4.4	4.4		
G1	Rainy	Moderate	08:16	Surface	1	20.5 20.5	20.5	7.7 7.8	7.8	30.2 30.3	30.3	86.4 86.0	86.2	6.5 6.5	6.5	3.8 3.6	3.7	4.3	4.8 4.9	4.9	3.8	
				Middle	4	19.6 19.5	19.6	7.8 7.8	7.8	30.1 30.1	30.1	86.3 86.3	86.3	6.6 6.6	6.6	3.9 4.1	4.0		2.9 2.9	2.9		
				Bottom	7	19.7 19.8	19.8	7.8 7.8	7.8	30.0 30.1	30.1	85.1 85.8	85.5	6.5 6.6	6.6	5.1 5.2	5.2		3.4 3.5	3.5		
G2	Rainy	Moderate	07:56	Surface	1	20.2 20.2	20.2	7.7 7.8	7.8	29.8 29.7	29.8	88.8 88.9	88.9	6.8 6.8	6.8	3.4 3.4	3.4	4.1	4.7 4.7	4.7	3.8	
				Middle	5	20.3 20.4	20.4	7.6 7.7	7.7	29.8 29.8	29.8	87.3 87.4	87.4	6.6 6.6	6.6	3.7 3.7	3.7		1.9 1.9	1.9		
				Bottom	9	19.8 19.8	19.8	7.5 7.6	7.6	30.0 30.0	30.0	85.8 86.0	85.9	6.6 6.6	6.6	5.0 5.2	5.1		4.7 4.6	4.7		
G3	Rainy	Moderate	08:26	Surface	1	20.3 20.2	20.3	7.8 7.9	7.9	29.9 29.9	29.9	89.3 89.2	89.3	6.8 6.8	6.8	2.9 2.7	2.8	4.0	3.4 3.3	3.4	4.1	
				Middle	4	20.1 20.1	20.1	7.8 7.9	7.9	29.9 29.9	29.9	88.3 87.8	88.1	6.7 6.7	6.7	4.7 4.7	4.7		4.9 4.8	4.9		
				Bottom	7	19.6 19.6	19.6	7.9 8.0	8.0	30.1 30.1	30.1	86.2 86.2	86.2	6.6 6.6	6.6	4.5 4.5	4.5		4.0 3.9	4.0		
G4	Rainy	Moderate	08:47	Surface	1	20.3 20.1	20.2	7.9 7.9	7.9	29.6 29.6	29.6	87.5 87.8	87.7	6.7 6.7	6.7	4.2 4.2	4.2	4.2	5.5 5.4	5.5	5.3	
				Middle	4	19.9 20.0	20.0	7.9 7.9	7.9	30.1 30.1	30.1	84.9 85.6	85.3	6.5 6.5	6.5	4.4 4.6	4.5		7.3 7.3	7.3		
				Bottom	7	19.7 19.8	19.8	7.9 7.9	7.9	30.3 30.2	30.3	83.9 84.7	84.3	6.4 6.5	6.5	3.9 4.0	4.0		3.2 3.1	3.2		
M1	Rainy	Moderate	08:06	Surface	1	20.4 20.5	20.5	7.8 7.9	7.9	30.3 30.2	30.3	89.0 89.0	89.0	6.7 6.7	6.7	3.6 3.6	3.6	4.0	4.2 4.2	4.2	4.4	
				Middle	3	20.1 20.0	20.1	7.8 7.8	7.8	29.9 29.8	29.9	87.1 86.7	86.9	6.6 6.6	6.6	3.7 3.6	3.7		5.0 4.9	5.0		
				Bottom	5	19.9 19.9	19.9	7.8 7.8	7.8	30.1 30.1	30.1	86.8 87.1	87.0	6.6 6.6	6.6	4.7 4.8	4.8		3.9 3.8	3.9		
M2	Rainy	Moderate	07:46	Surface	1	19.9 19.9	19.9	7.8 7.8	7.8	29.7 29.7	29.7	86.7 86.6	86.7	6.6 6.6	6.6	3.6 3.5	3.6	4.5	5.6 5.6	5.6	4.0	
				Middle	5	19.8 19.8	19.8	7.8 7.8	7.8	29.7 29.7	29.7	84.7 85.4	85.1	6.5 6.5	6.5	4.1 4.1	4.1		3.9 4.0	4.0		
				Bottom	9	19.4 19.4	19.4	7.8 7.8	7.8	29.9 29.9	29.9	85.4 85.9	85.7	6.6 6.6	6.6	5.7 5.8	5.8		2.4 2.4	2.4		
M3	Rainy	Moderate	08:37	Surface	1	20.6 20.7	20.7	7.8 7.8	7.8	30.0 30.0	30.0	87.0 86.9	87.0	6.6 6.5	6.6	3.2 3.2	3.2	3.8	2.8 2.7	2.8	1.9	
				Middle	4	20.1 20.2	20.2	7.7 7.7	7.7	30.3 30.2	30.3	84.4 84.3	84.4	6.4 6.4	6.4	3.7 4.1	3.9		1.9 1.9	1.9		
				Bottom	7	19.9 19.8	19.9	7.7 7.7	7.7	30.4 30.3	30.4	82.3 82.7	82.5	6.3 6.3	6.3	4.1 4.2	4.2		1.1 1.1	1.1		
M4	Rainy	Moderate	07:35	Surface	1	19.9 20.0	20.0	7.6 7.7	7.7	29.9 29.9	29.9	85.8 85.9	85.9	6.6 6.6	6.6	3.7 3.8	3.8	4.2	4.7 4.7	4.7	4.7	
				Middle	4	19.9 20.0	20.0	7.6 7.6	7.6	29.8 29.8	29.8	85.6 85.9	85.8	6.5 6.6	6.6	4.2 4.1	4.2		5.3 5.2	5.3		
				Bottom	7	19.5 19.5	19.5	7.6 7.6	7.6	29.8 29.8	29.8	84.7 84.5	84.6	6.5 6.5	6.5	4.5 4.6	4.6		4.1 4.1	4.1		
M5	Rainy	Moderate	09:05	Surface	1	20.2 20.2	20.2	7.9 7.9	7.9	30.0 30.0	30.0	89.5 89.7	89.6	6.8 6.8	6.8	3.4 3.2	3.3	4.5	3.9 4.0	4.0	4.7	
				Middle	5.5	20.1 19.9	20.0	7.9 7.9	7.9	29.8 29.8	29.8	88.1 87.3	87.7	6.7 6.7	6.7	4.1 4.2	4.2		6.5 6.4	6.5		
				Bottom	10	19.8 19.8	19.8	7.9 7.9	7.9	29.7 29.8	29.8	84.6 84.7	84.7	6.5 6.5	6.5	5.9 5.9	5.9		3.6 3.7	3.7		
M6	Rainy	Moderate	08:57	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	4.4	-	-	2.4	
				Middle	3.1	19.8 20.0	19.9	7.9 7.9	7.9	30.0 30.0	30.0	82.2 83.2	82.7	6.3 6.3	6.3	4.3 4.5	4.4		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.

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



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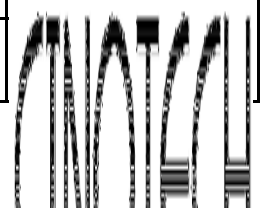
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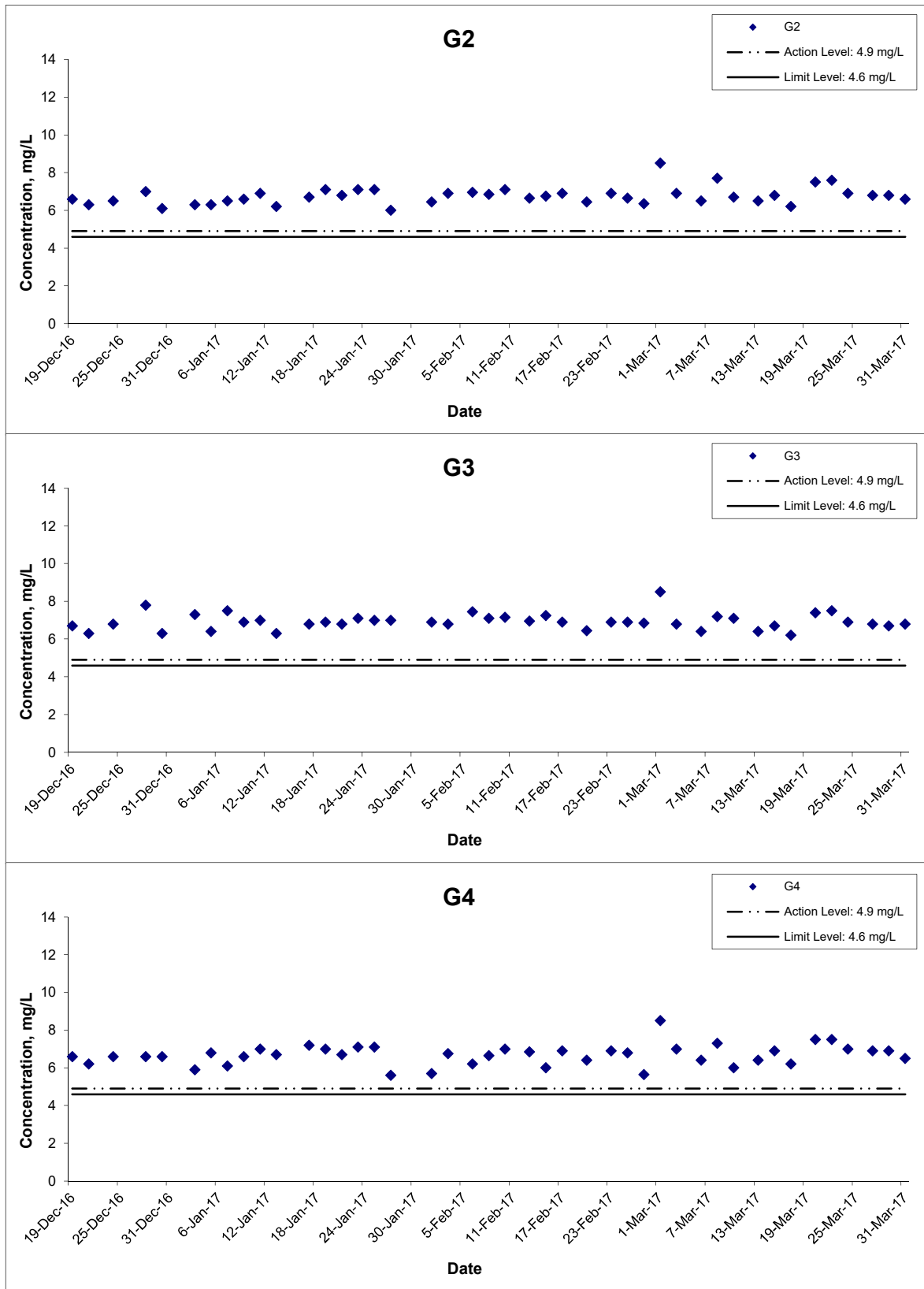
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Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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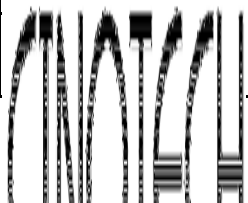
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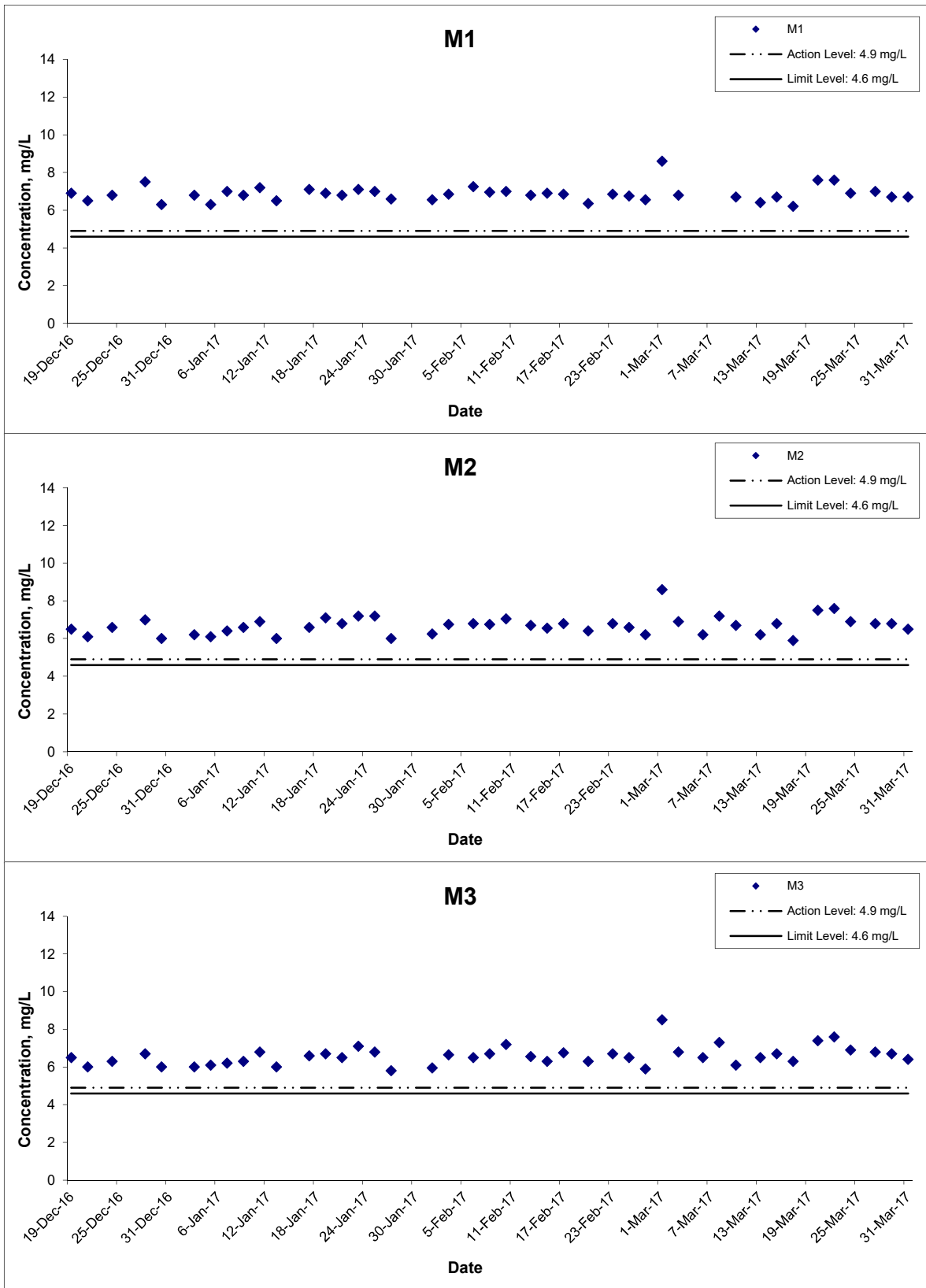
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Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



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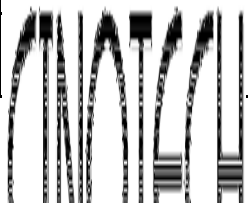
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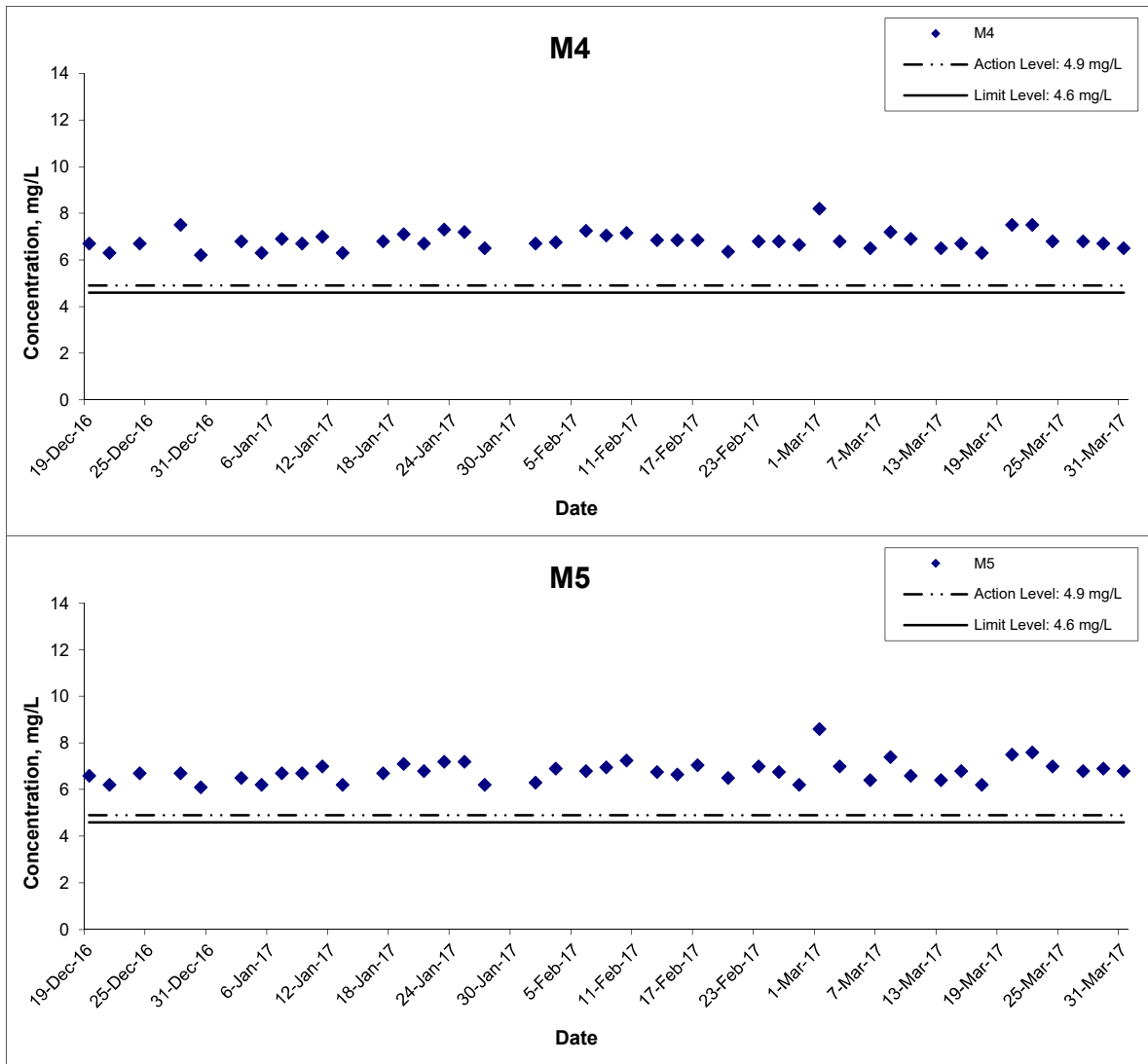
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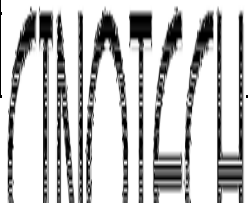
Dissolved Oxygen (Depth-averaged) at Mid-Ebb Tide



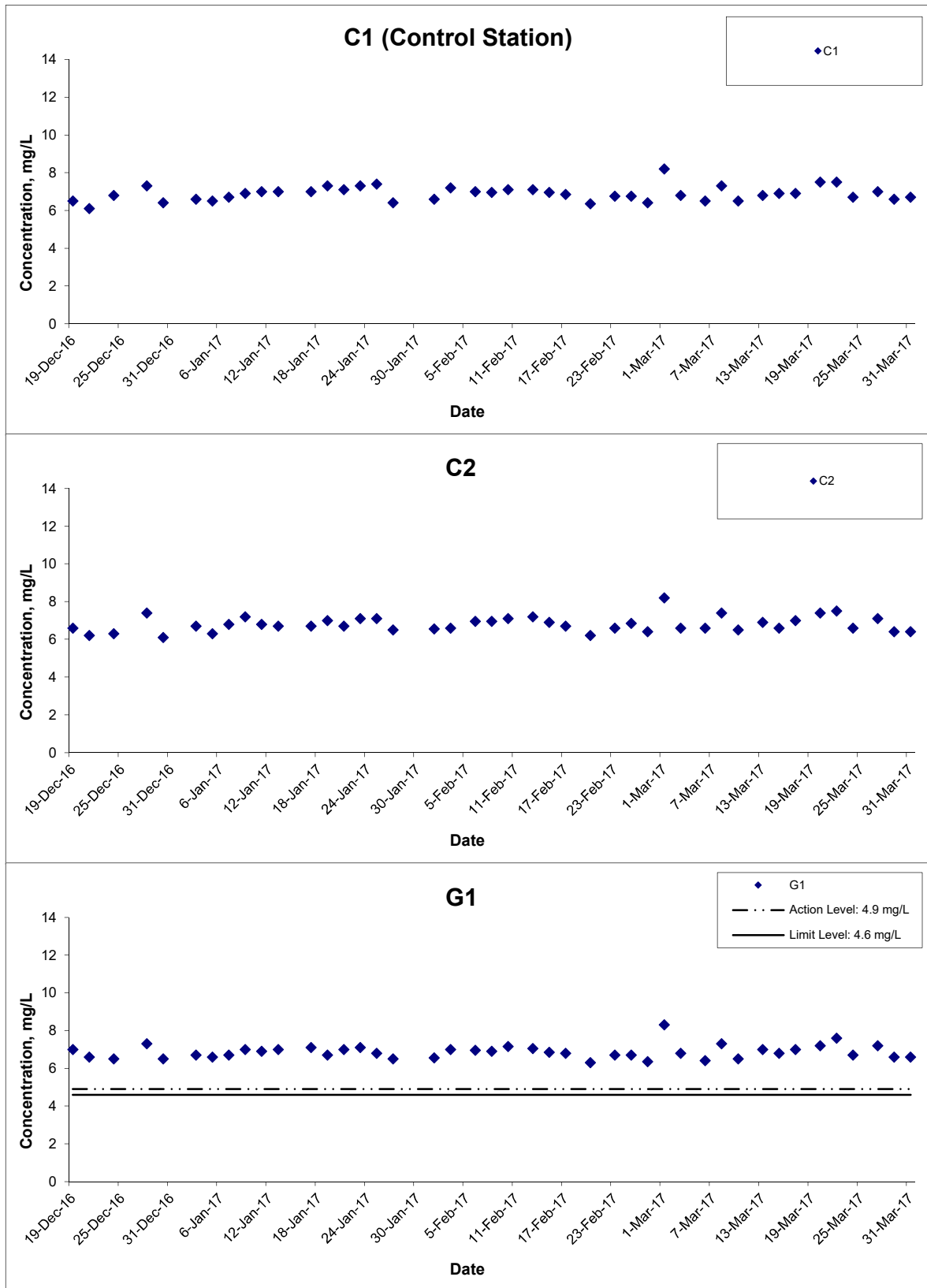
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Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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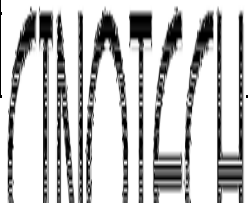
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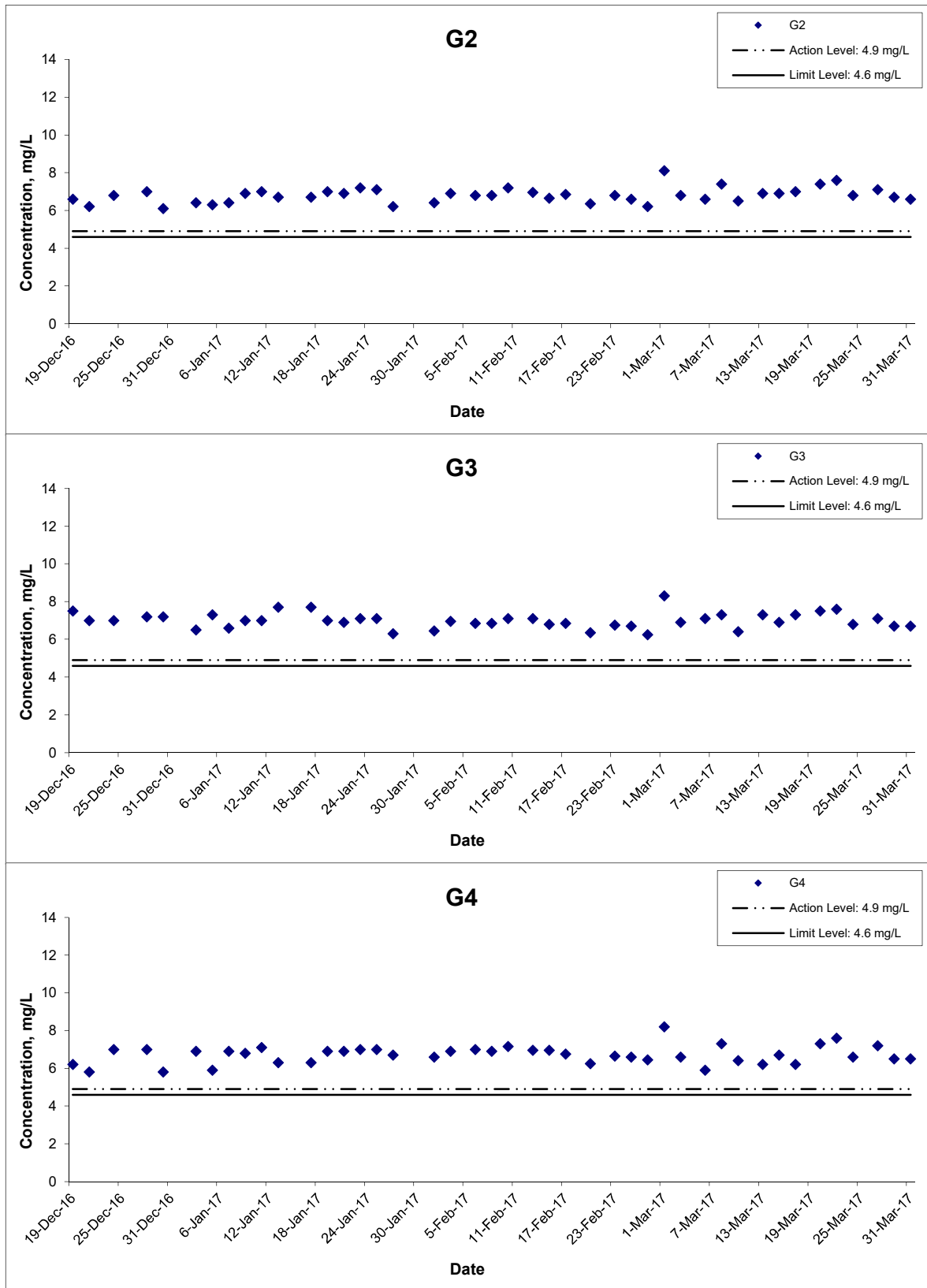
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Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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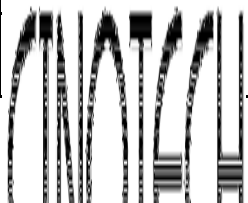
Graphical Presentation of Water Quality Monitoring Results

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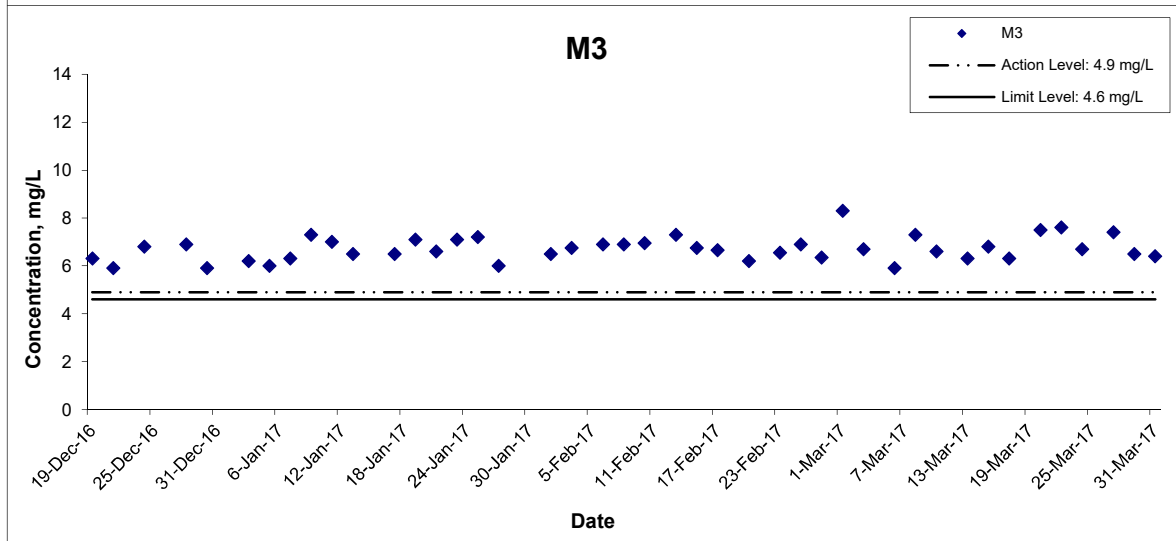
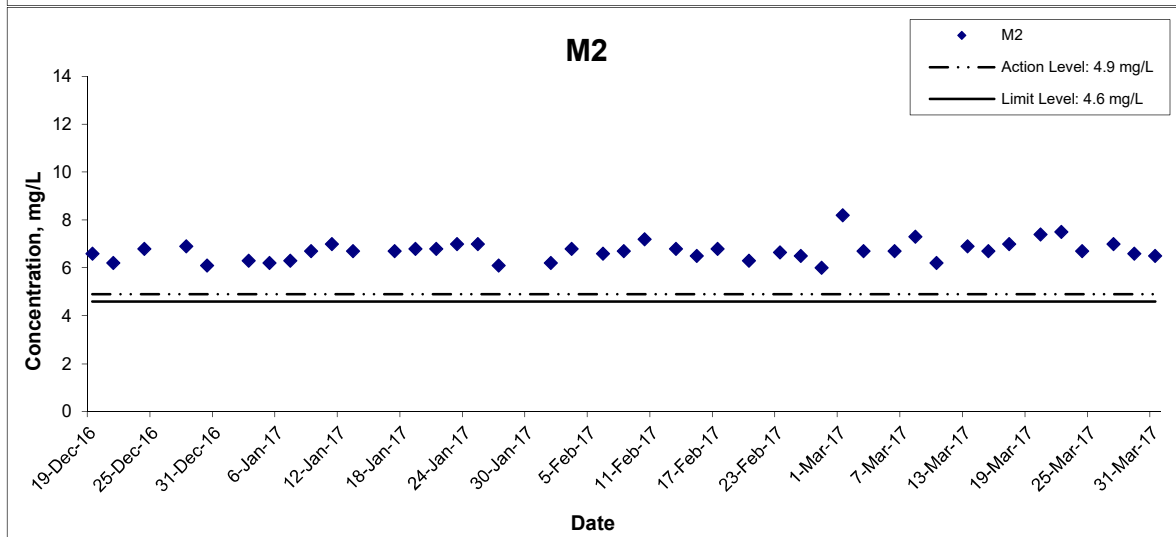
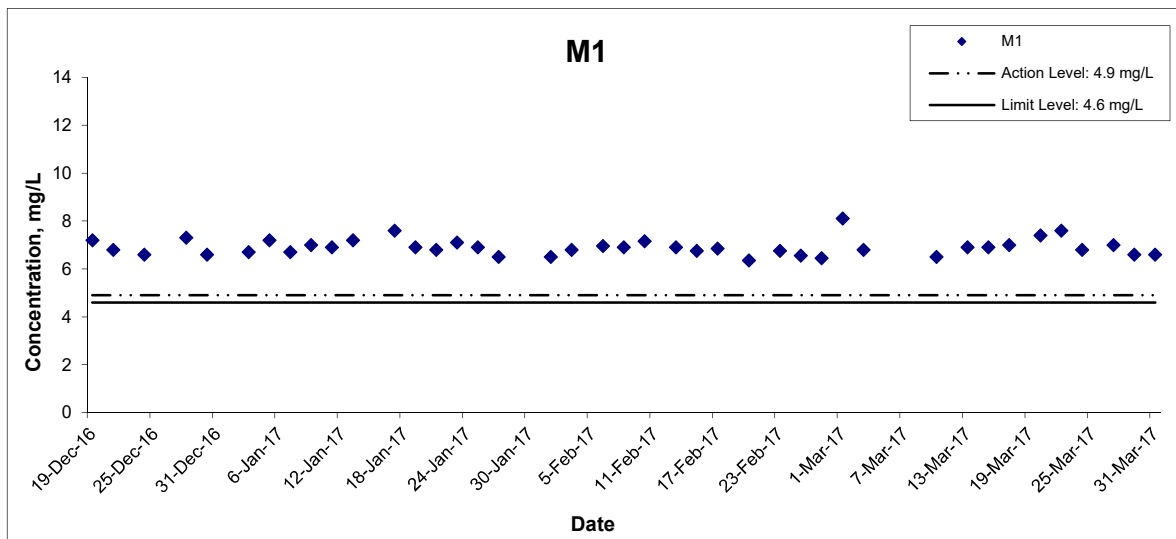
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Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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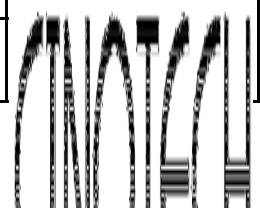
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Scale
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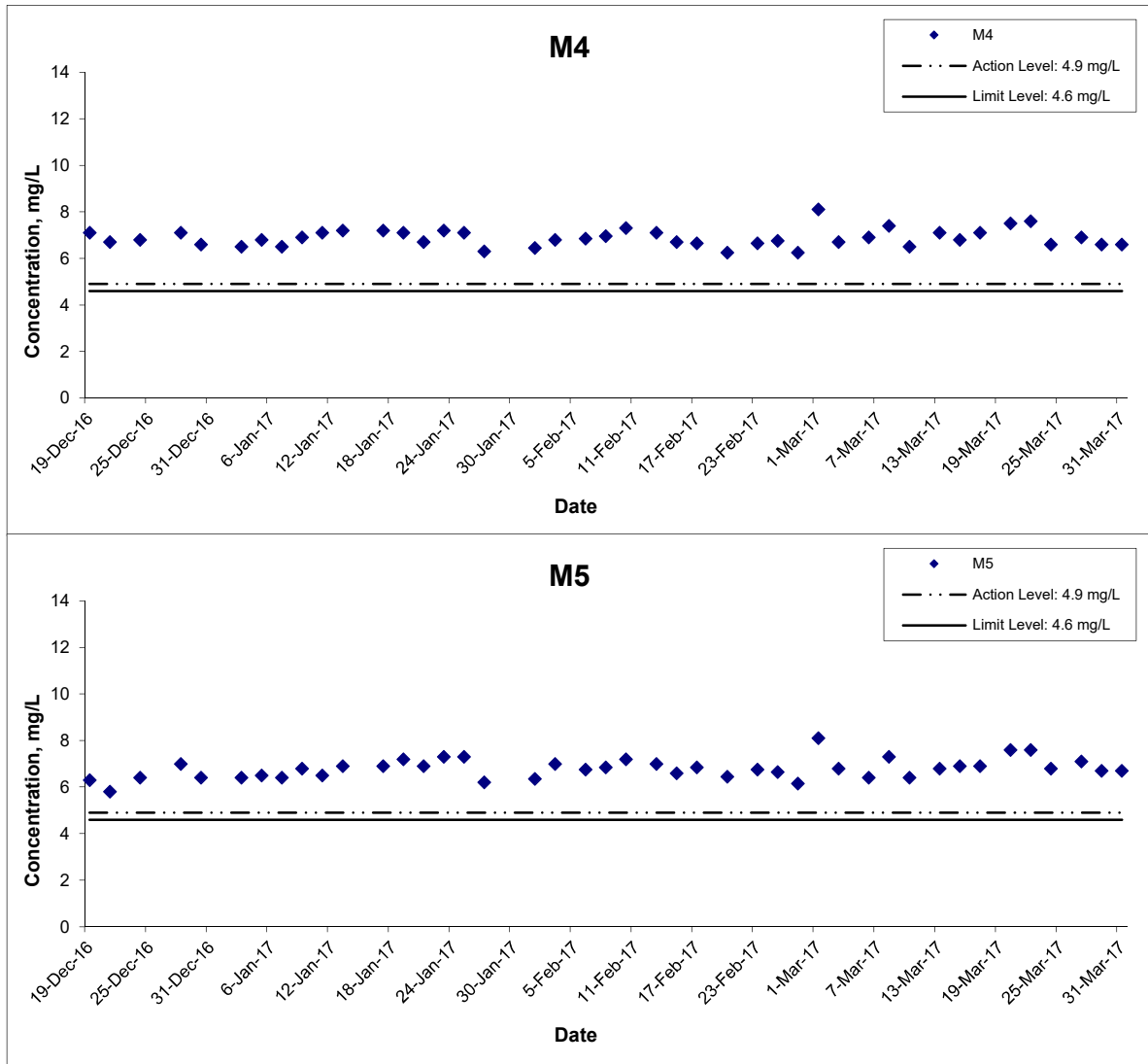
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Dissolved Oxygen (Depth-averaged) at Mid-Flood Tide



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

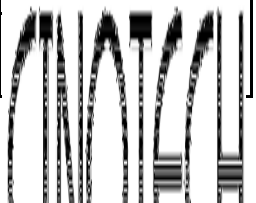
Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S

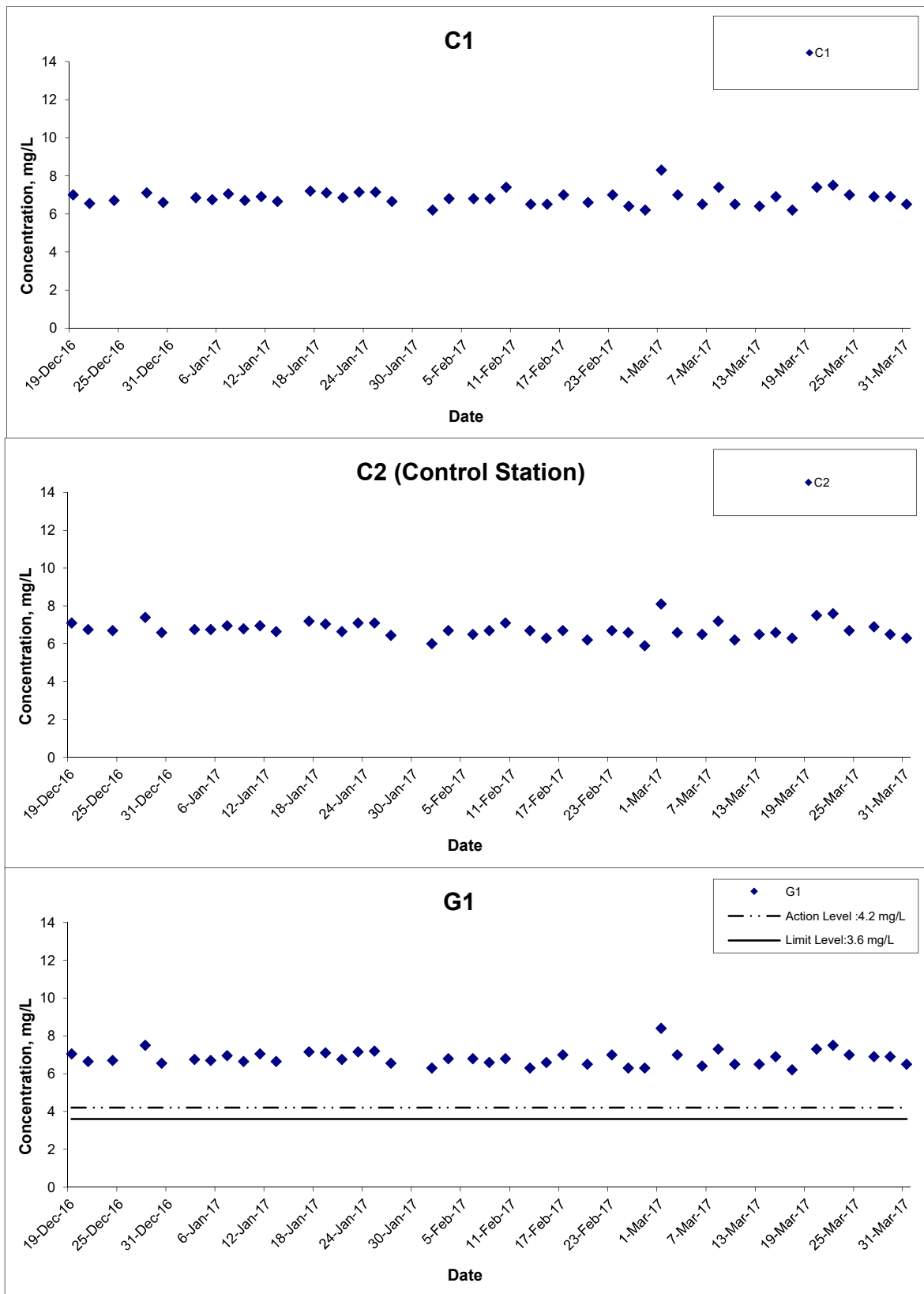
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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

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Scale N.T.S

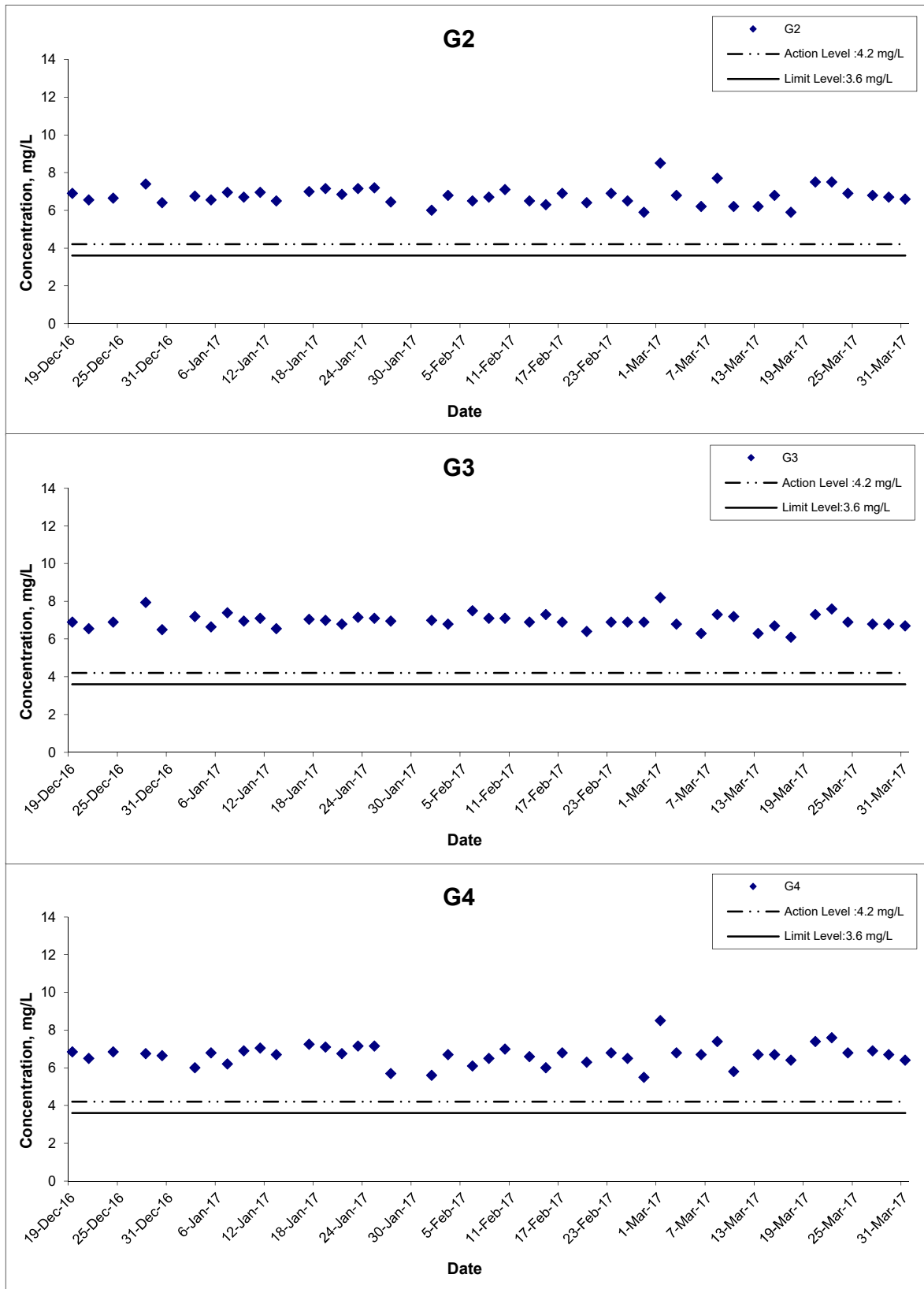
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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

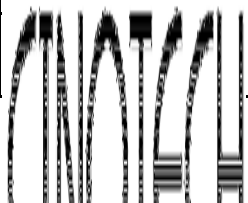
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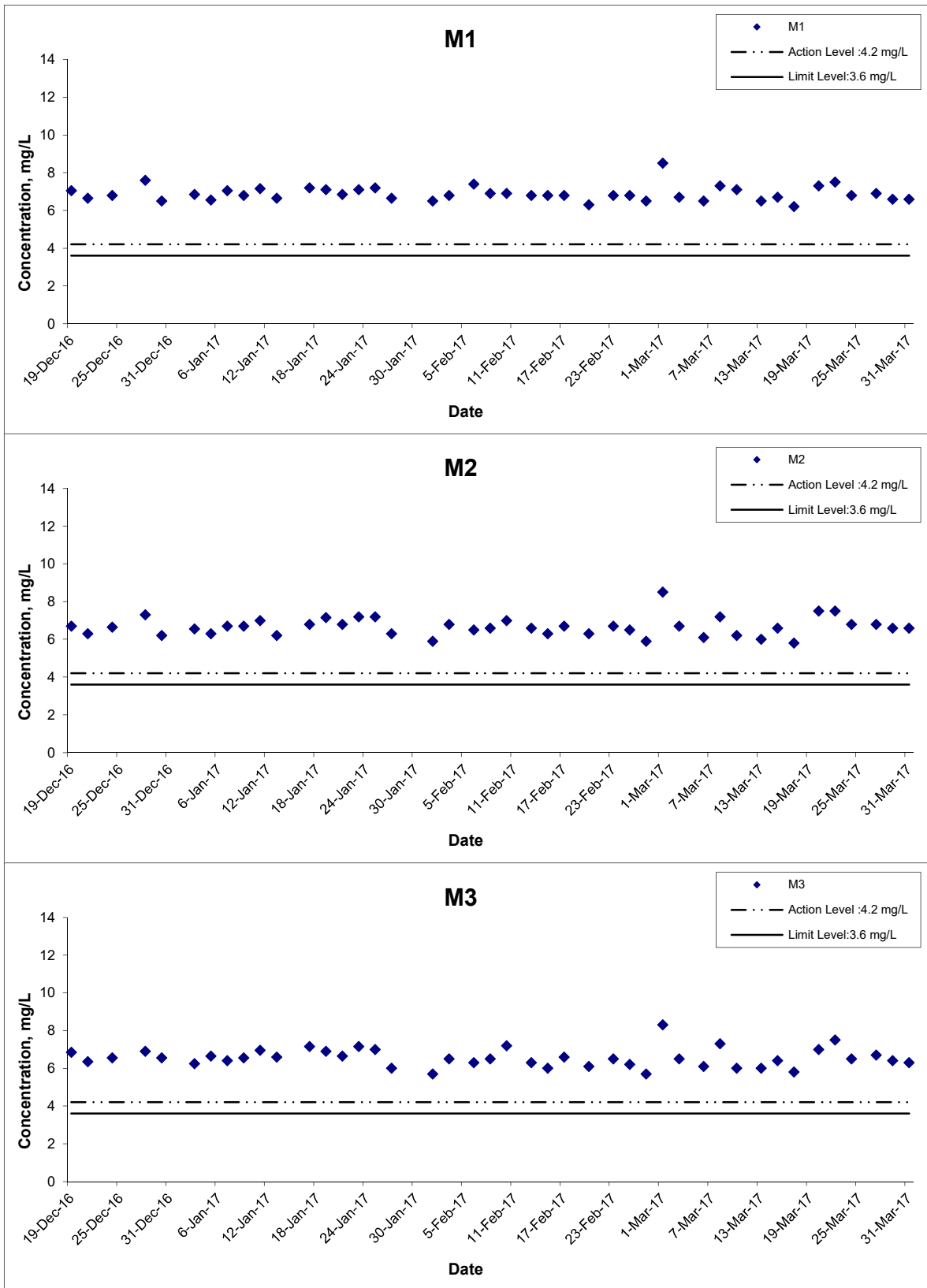
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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

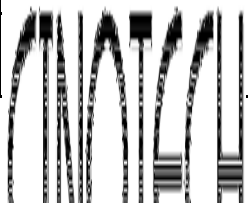
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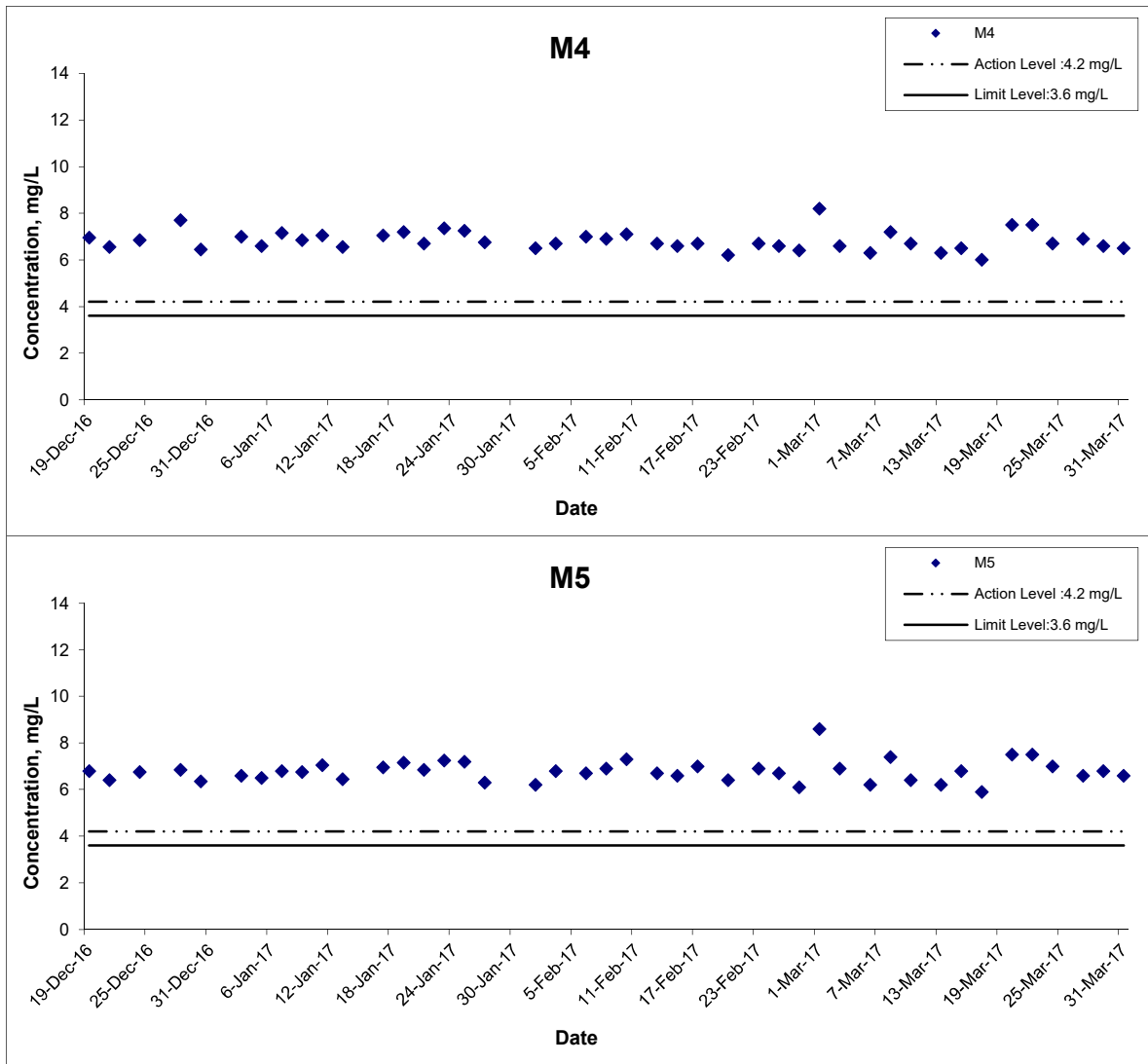
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Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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

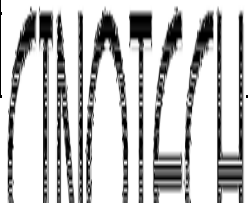
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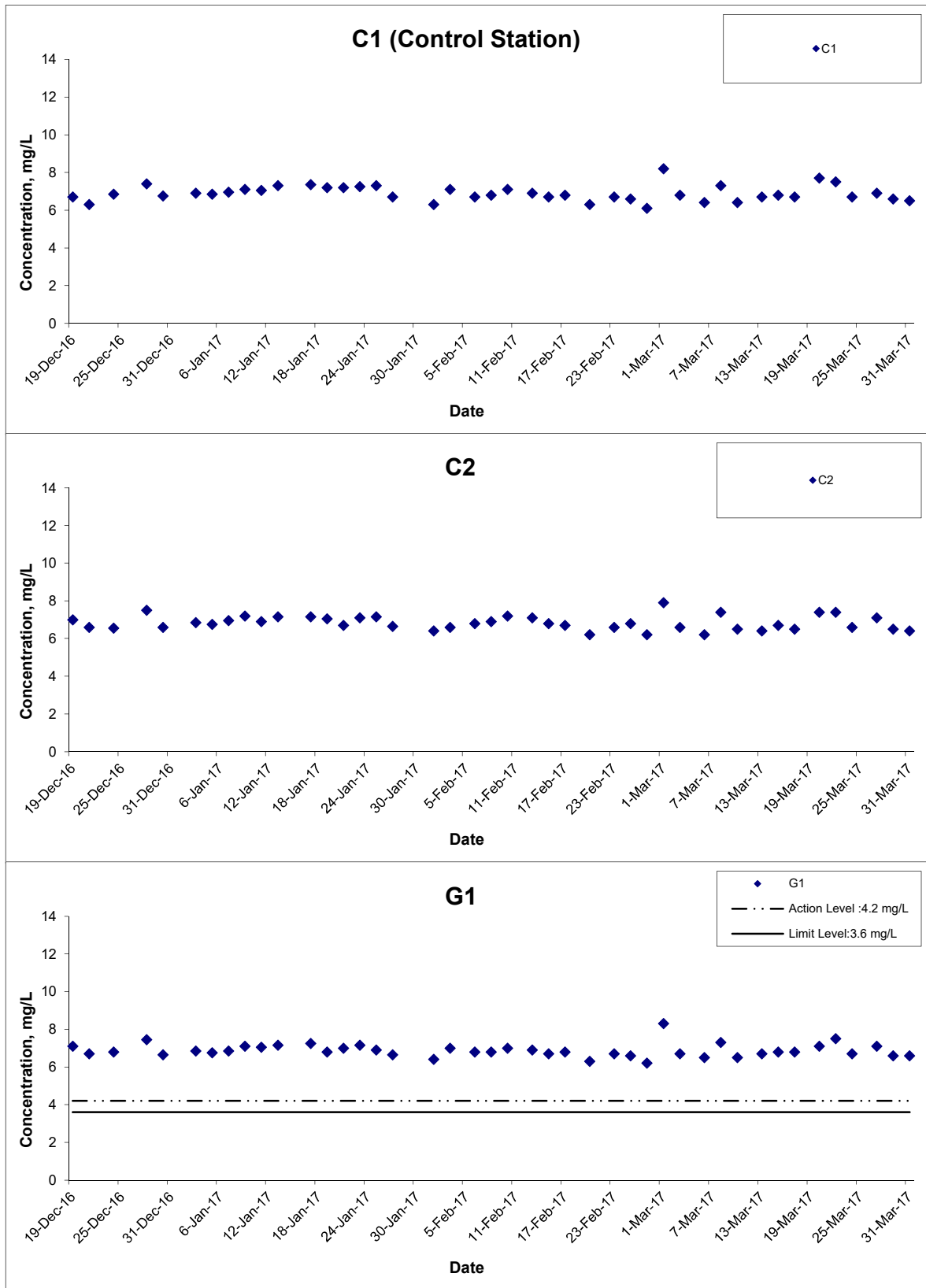
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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

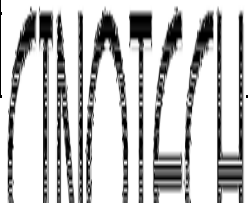
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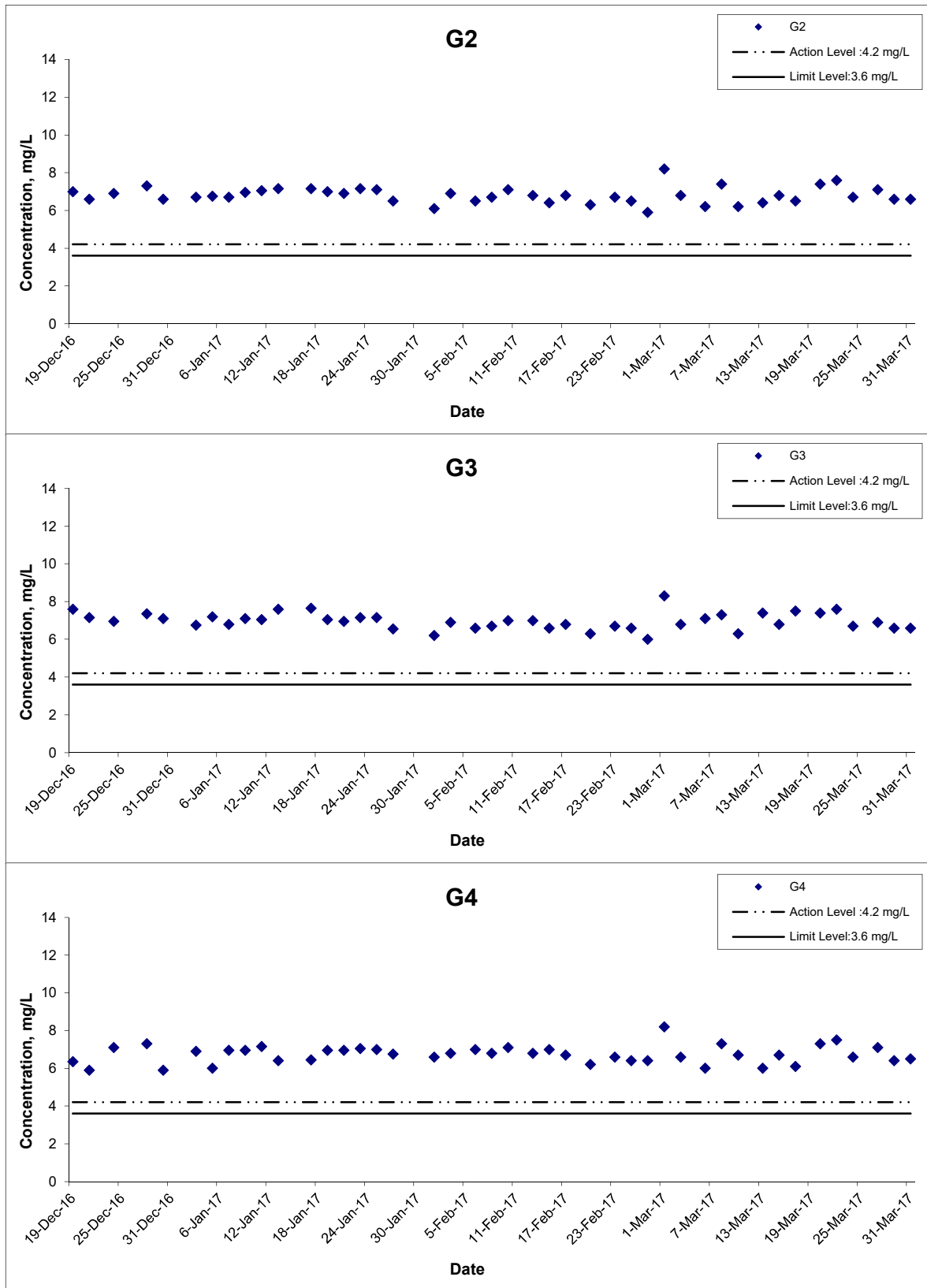
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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

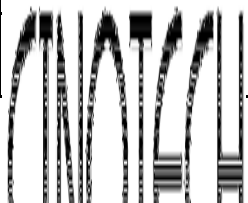
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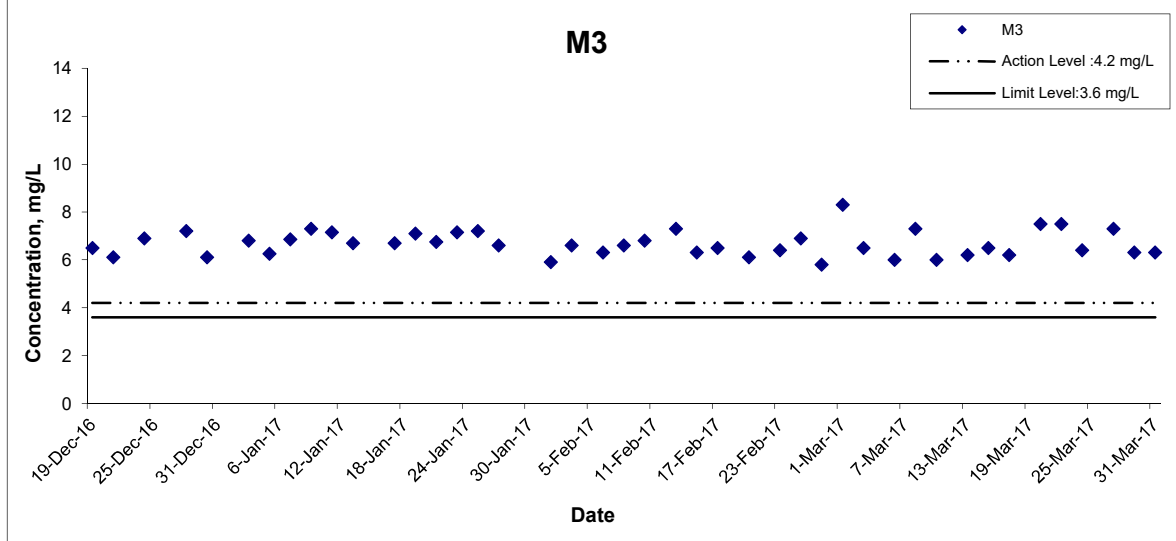
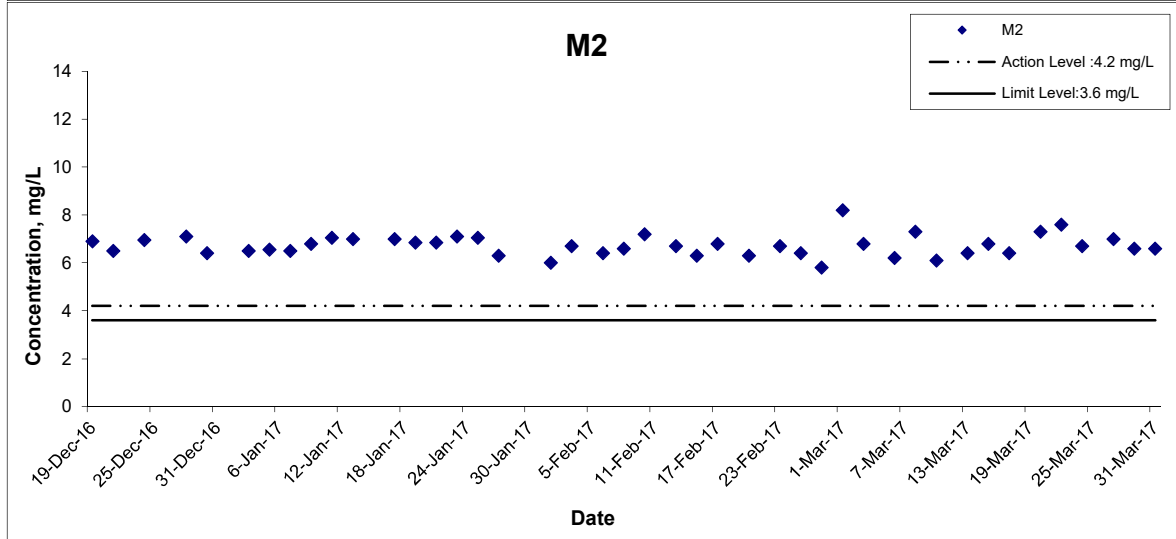
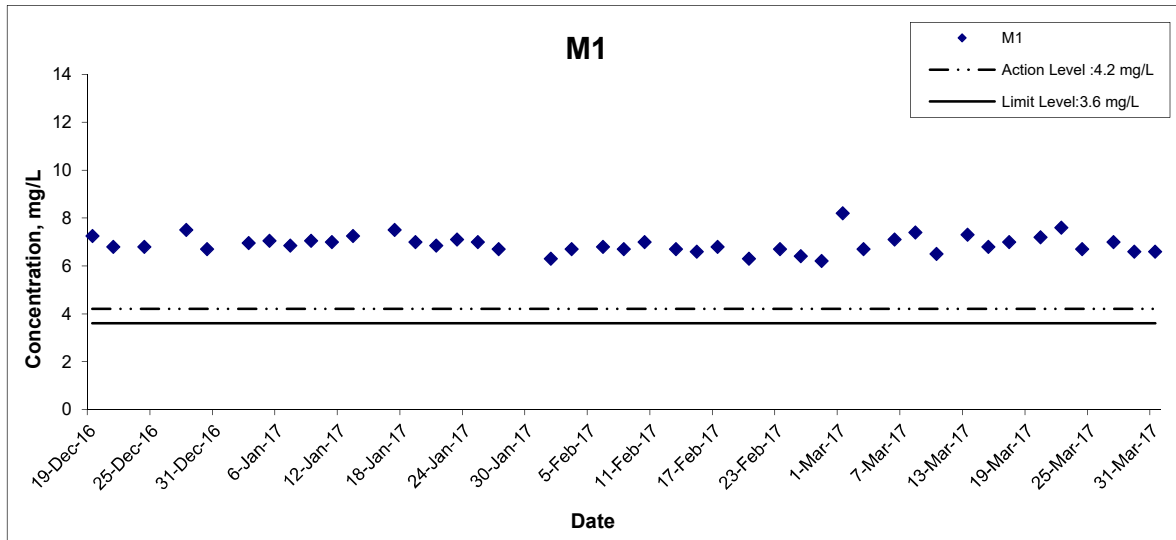
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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

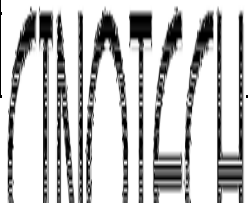
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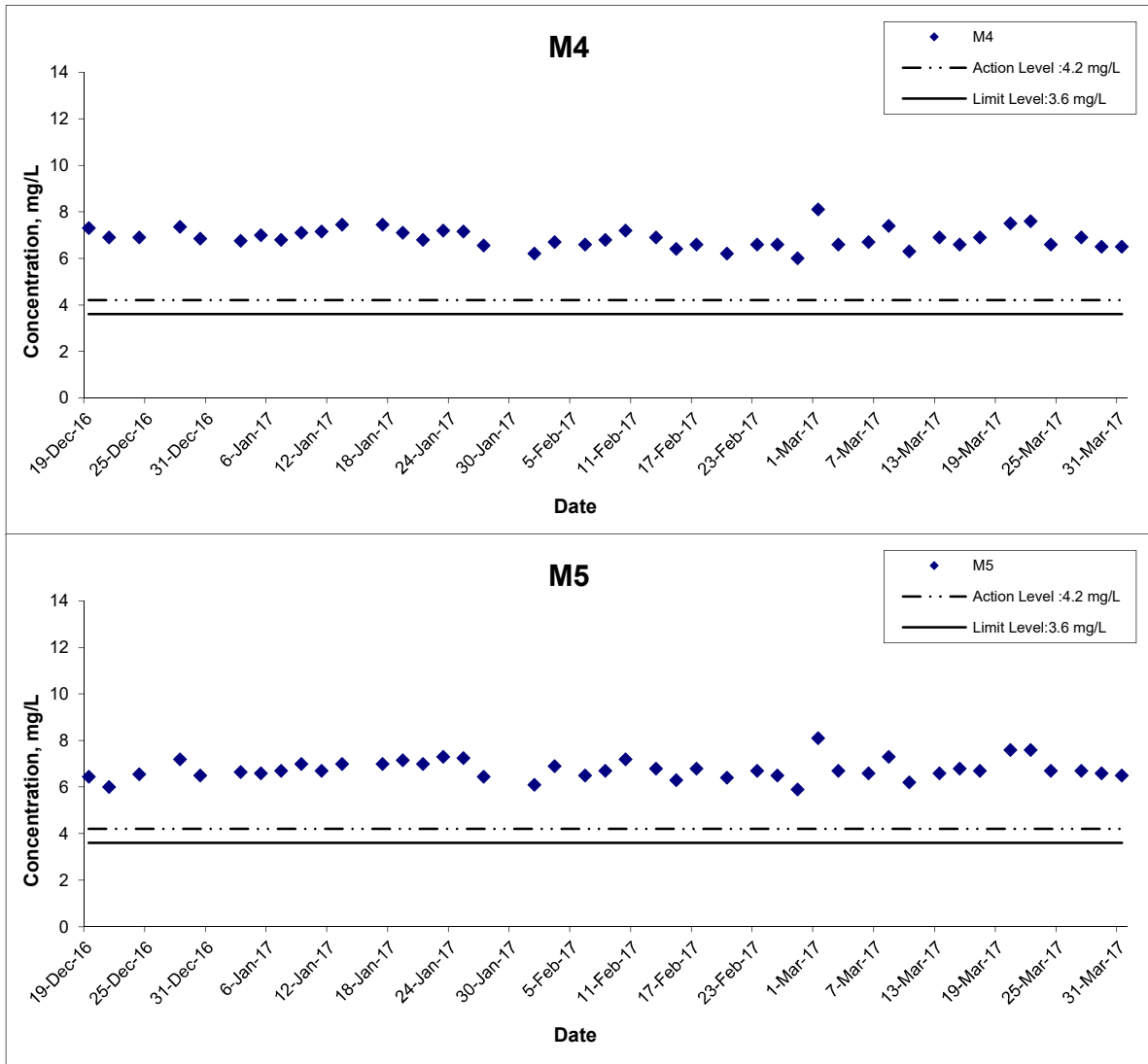
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Dissolved Oxygen (Bottom) at Mid-Flood Tide



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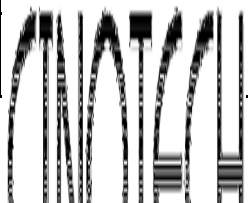
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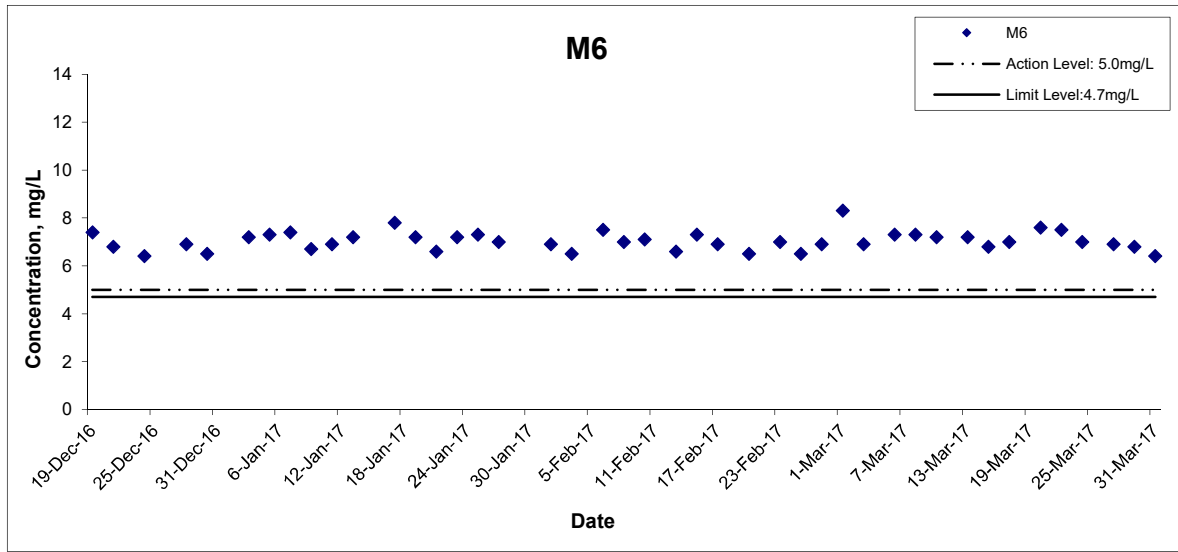
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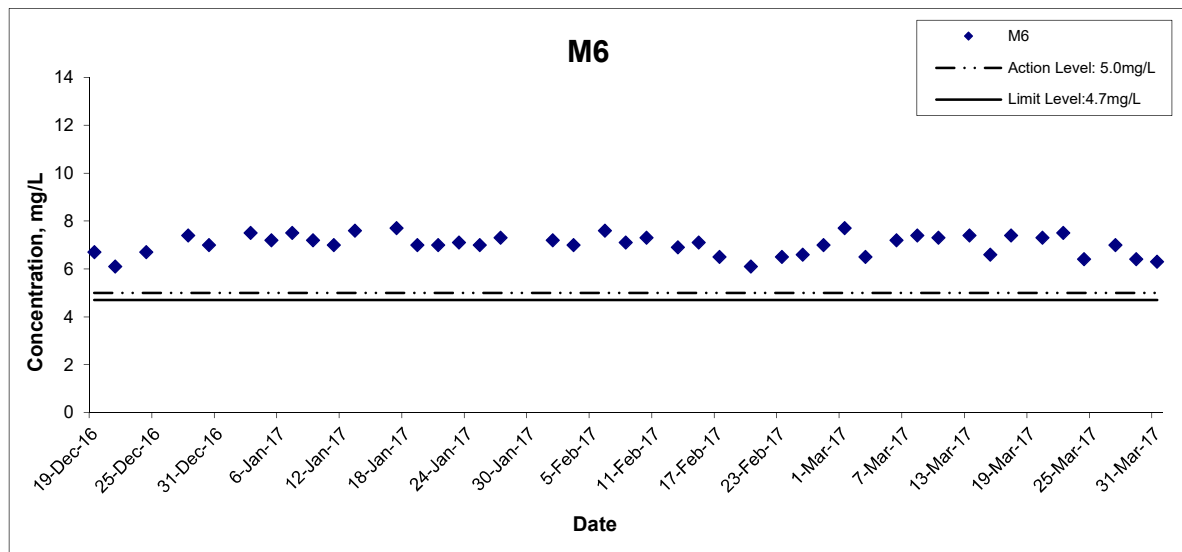


Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide

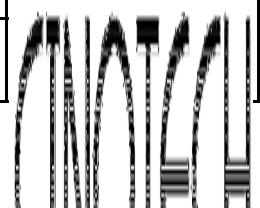


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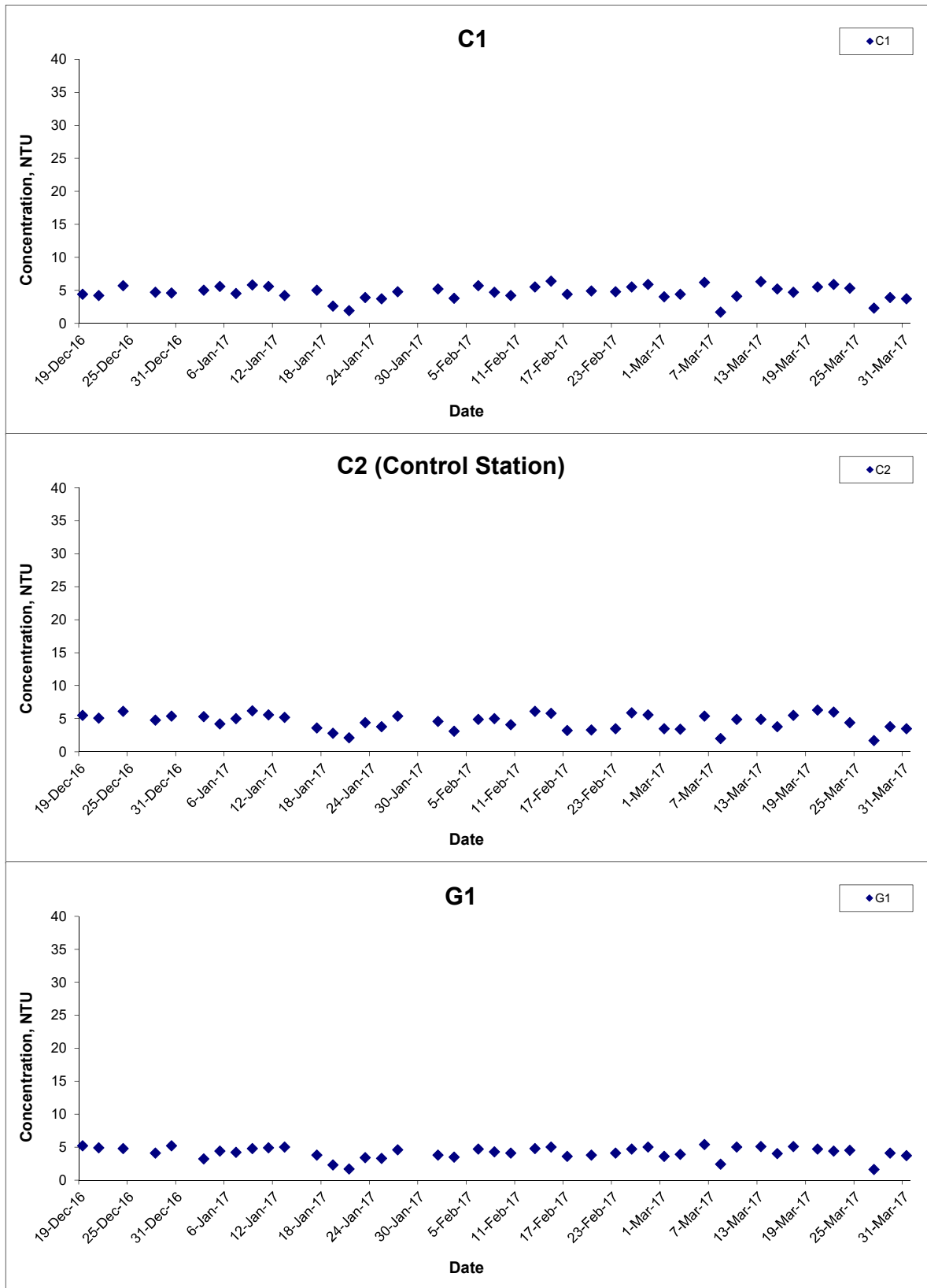
Dissolved Oxygen (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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Turbidity (Depth-averaged) at Mid-Ebb Tide



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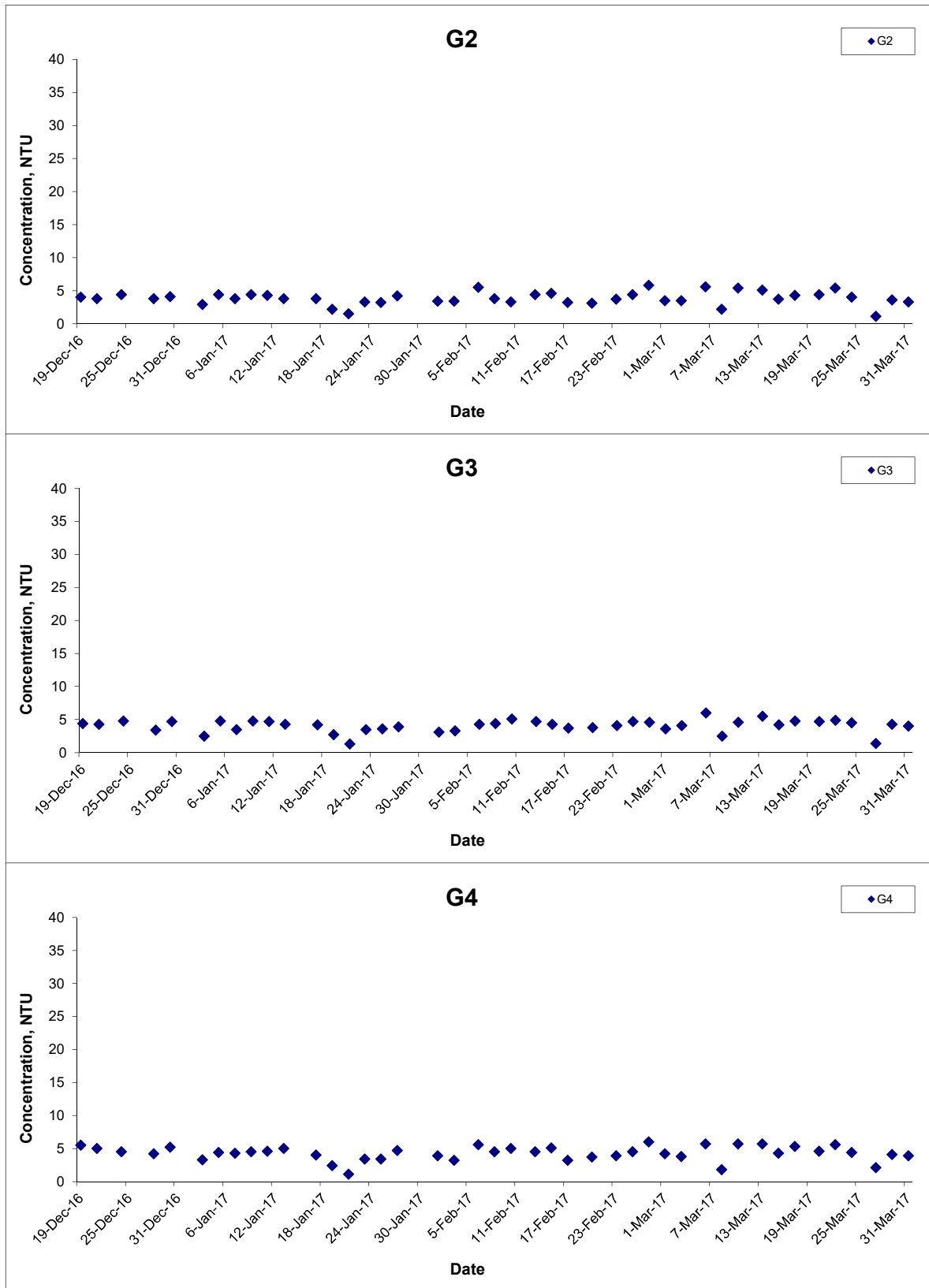
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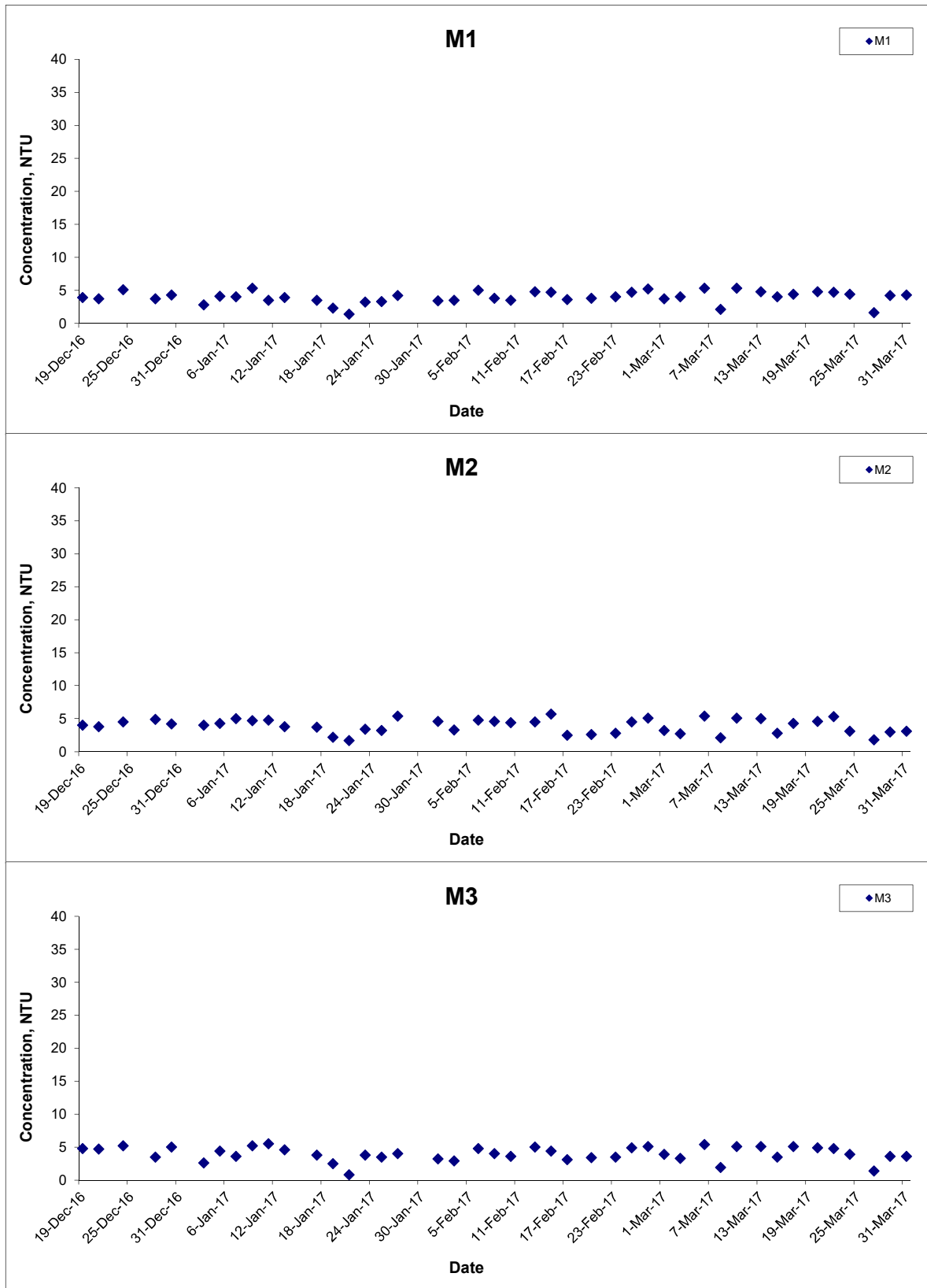


Turbidity (Depth-averaged) at Mid-Ebb Tide



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Turbidity (Depth-averaged) at Mid-Ebb Tide



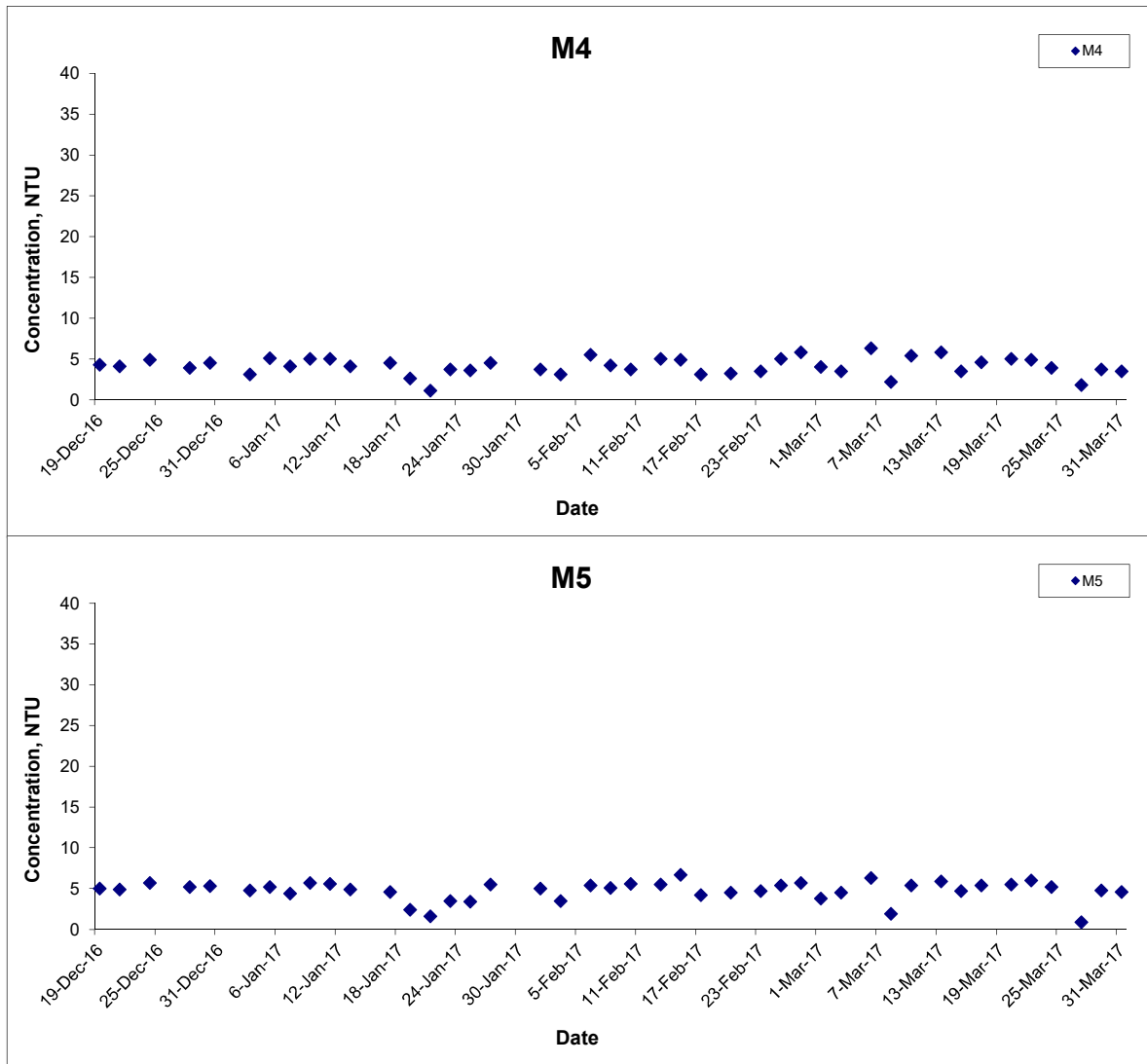
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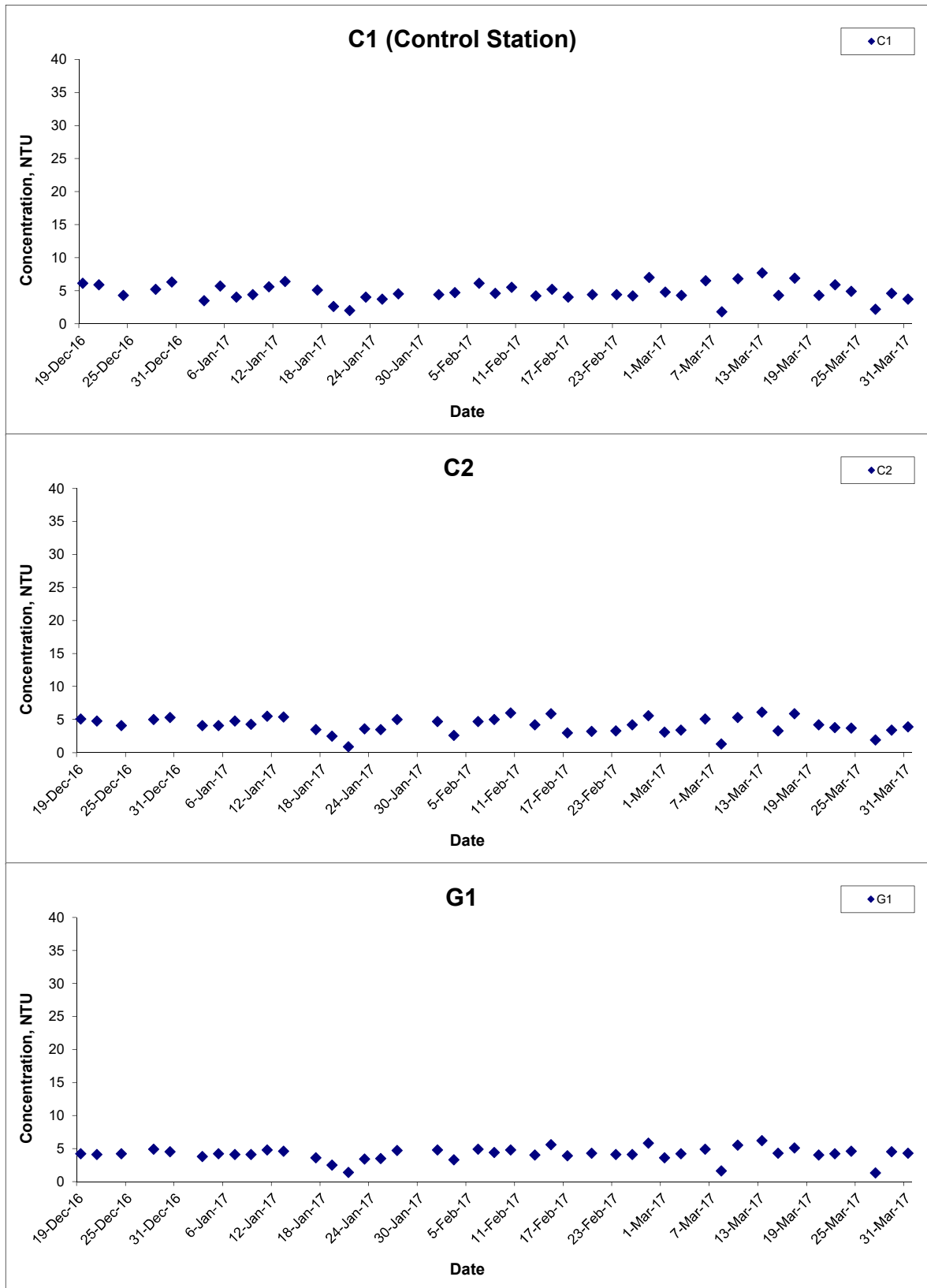


Turbidity (Depth-averaged) at Mid-Ebb Tide



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Turbidity (Depth-averaged) at Mid-Flood Tide



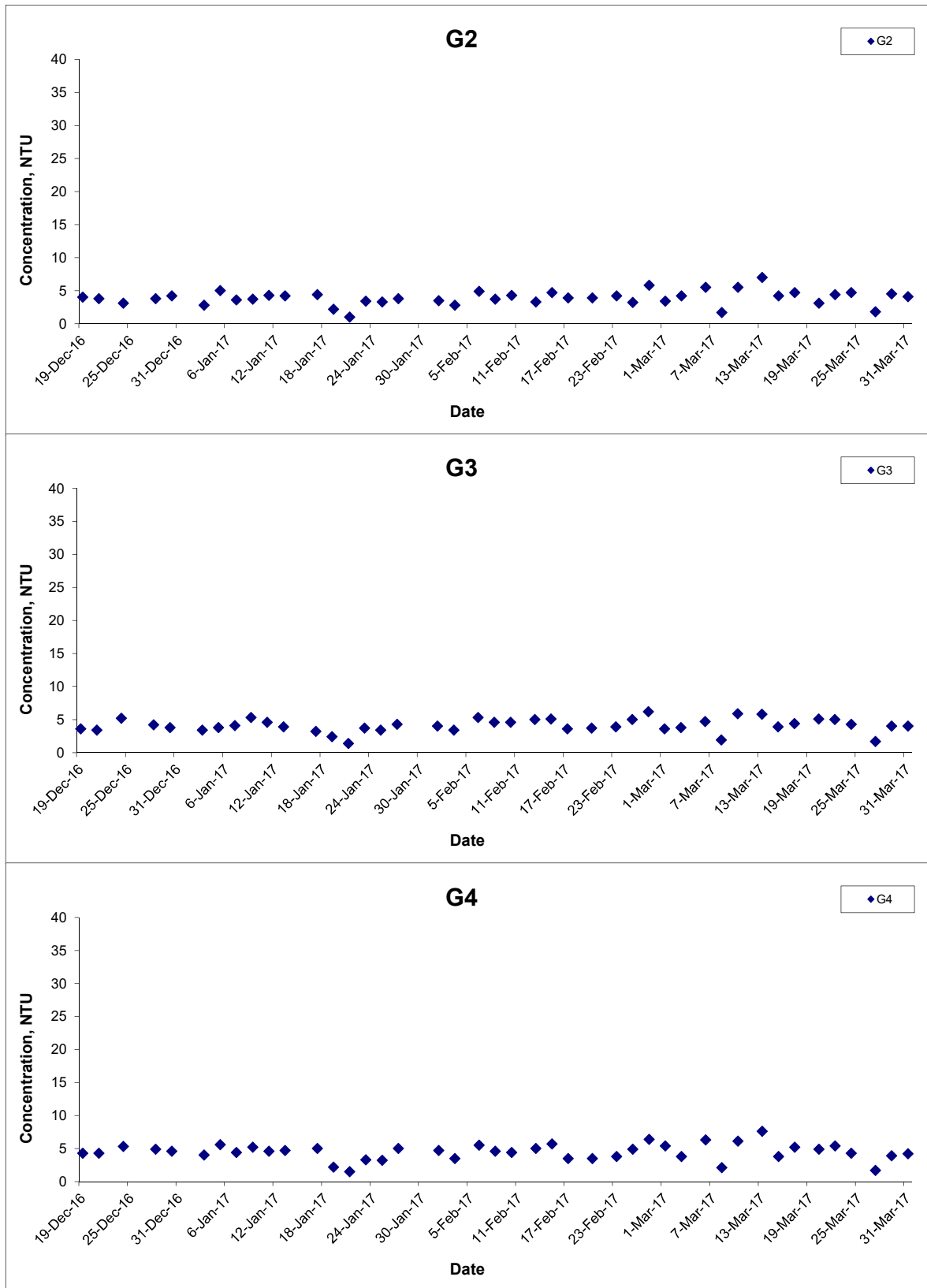
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Turbidity (Depth-averaged) at Mid-Flood Tide



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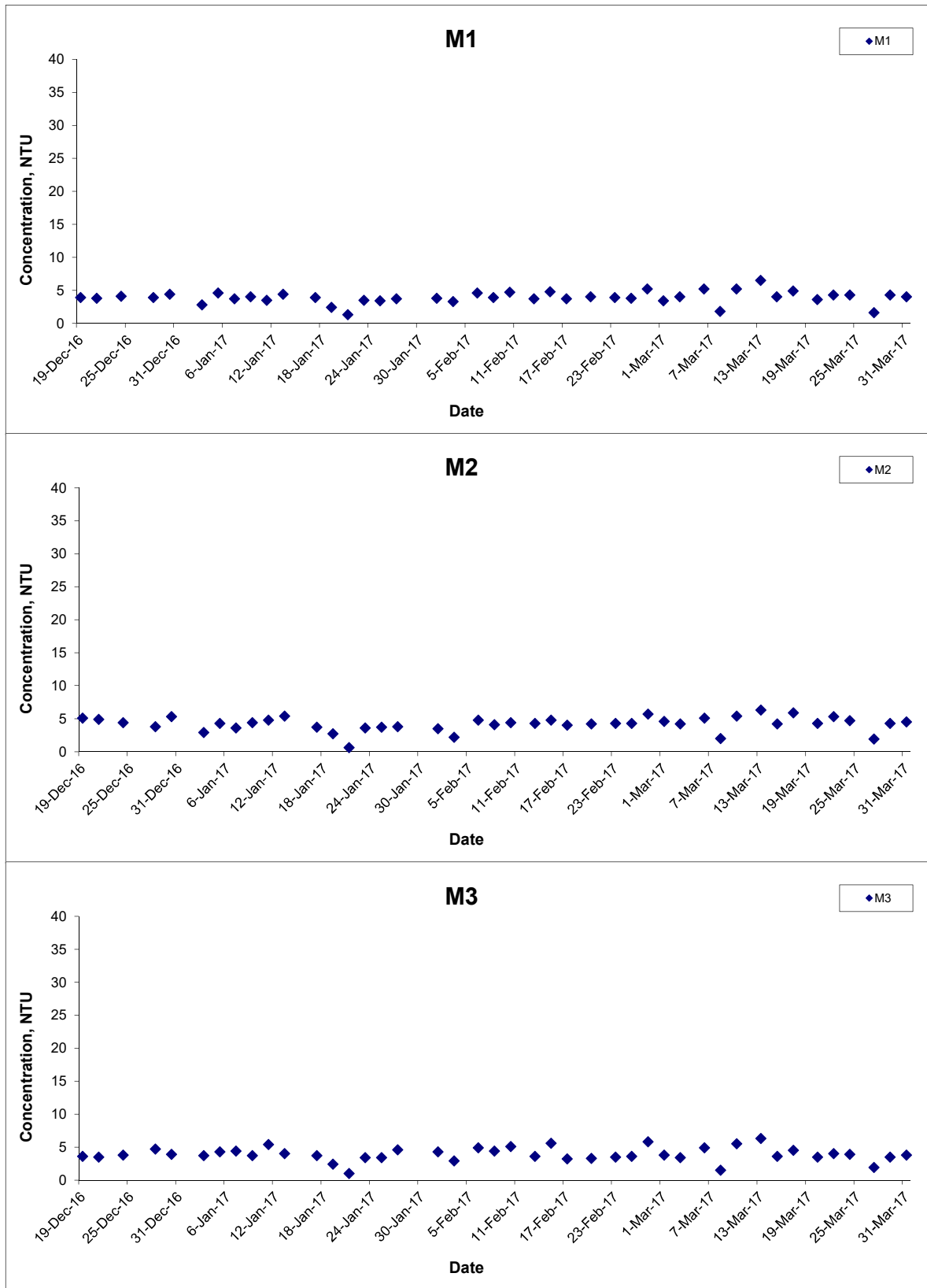
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Turbidity (Depth-averaged) at Mid-Flood Tide



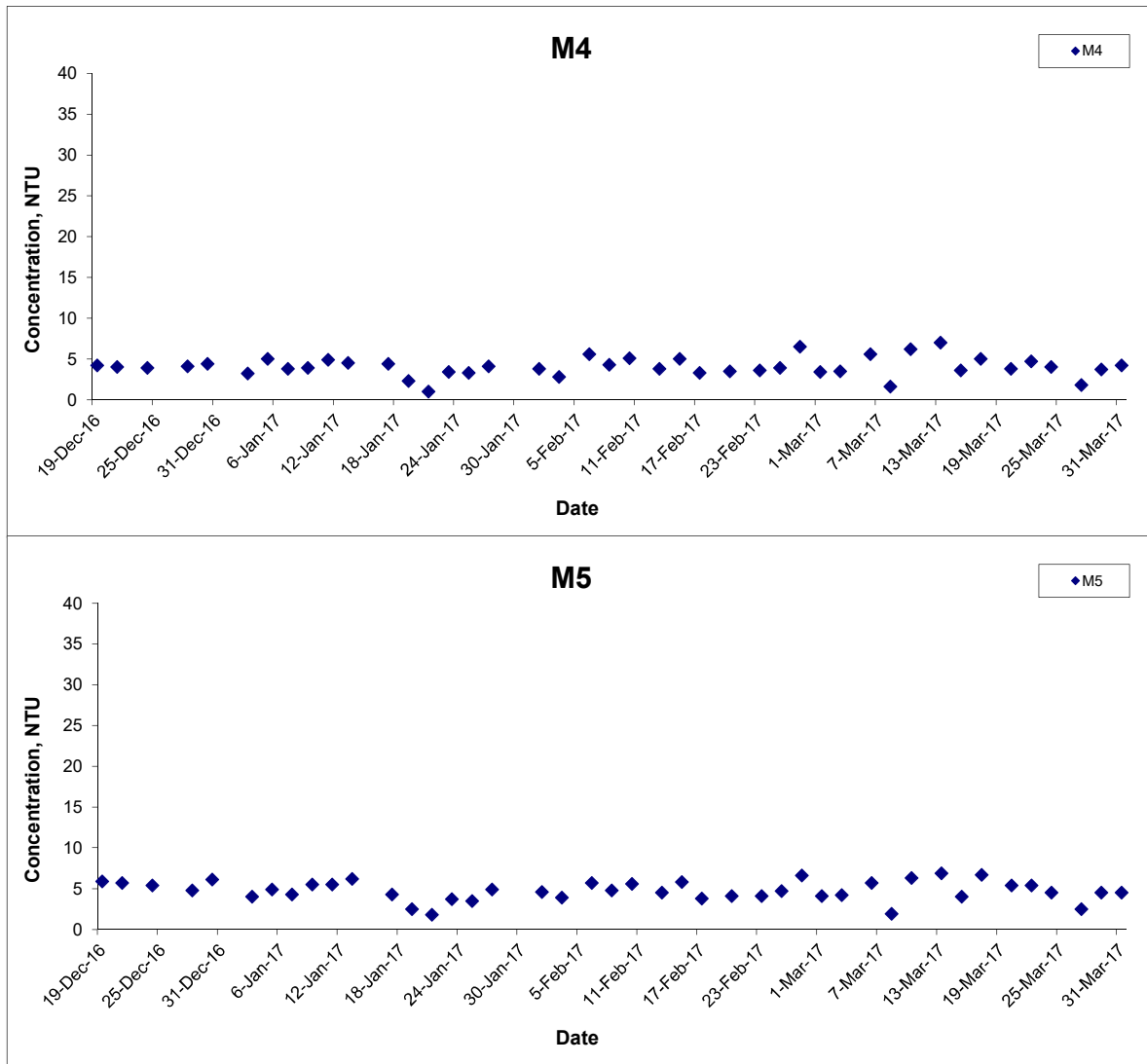
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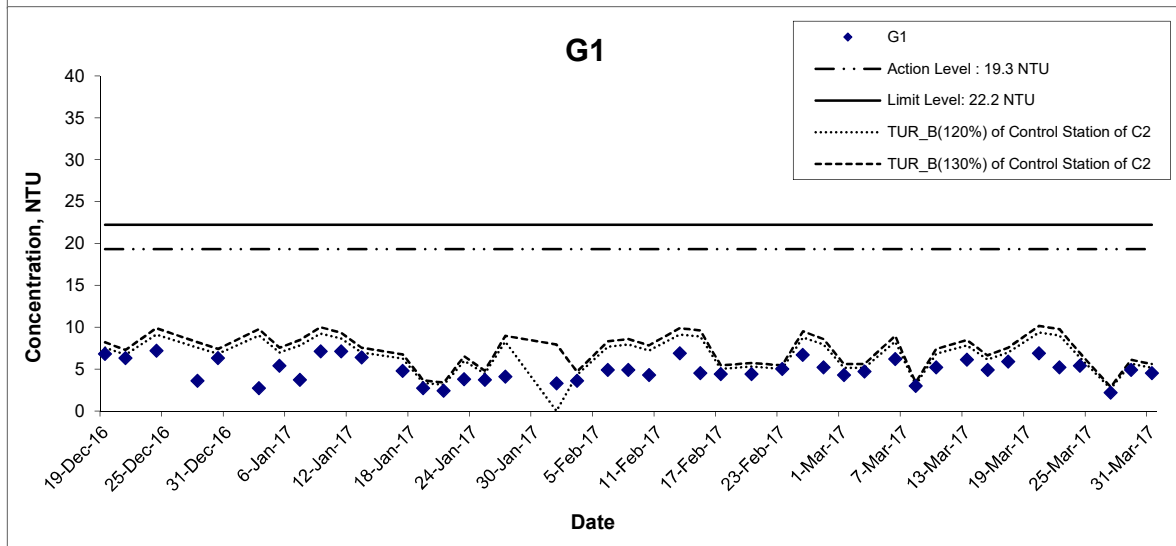
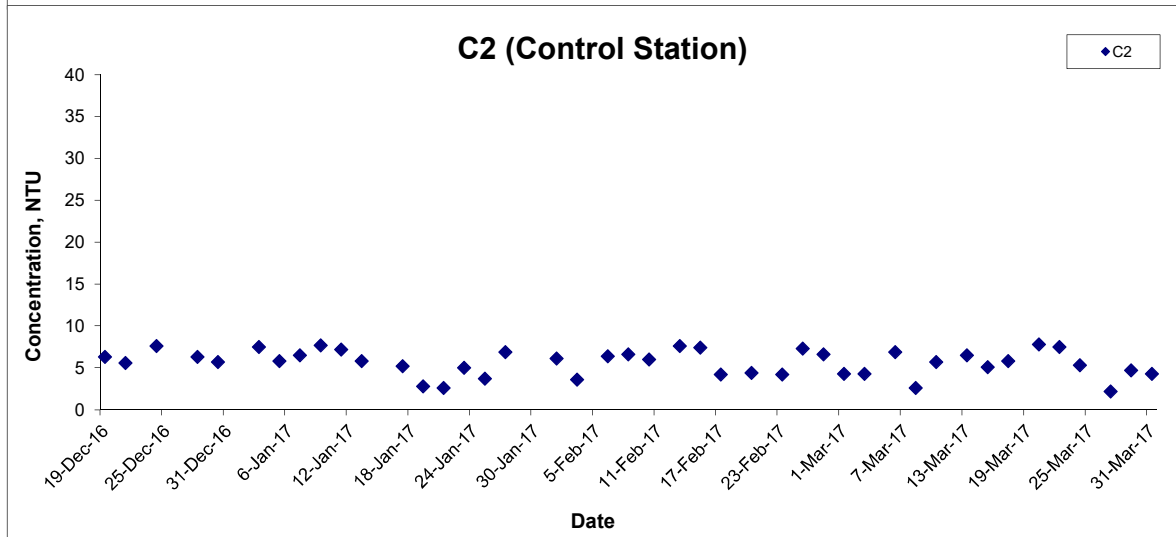
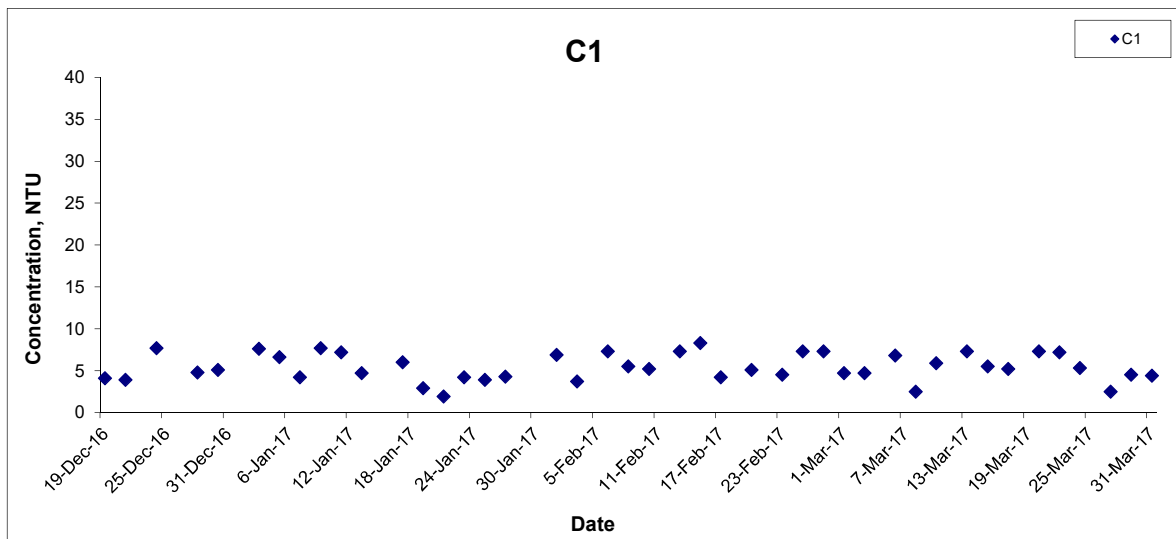


Turbidity (Depth-averaged) at Mid-Flood Tide



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Turbidity (Bottom) at Mid-Ebb Tide



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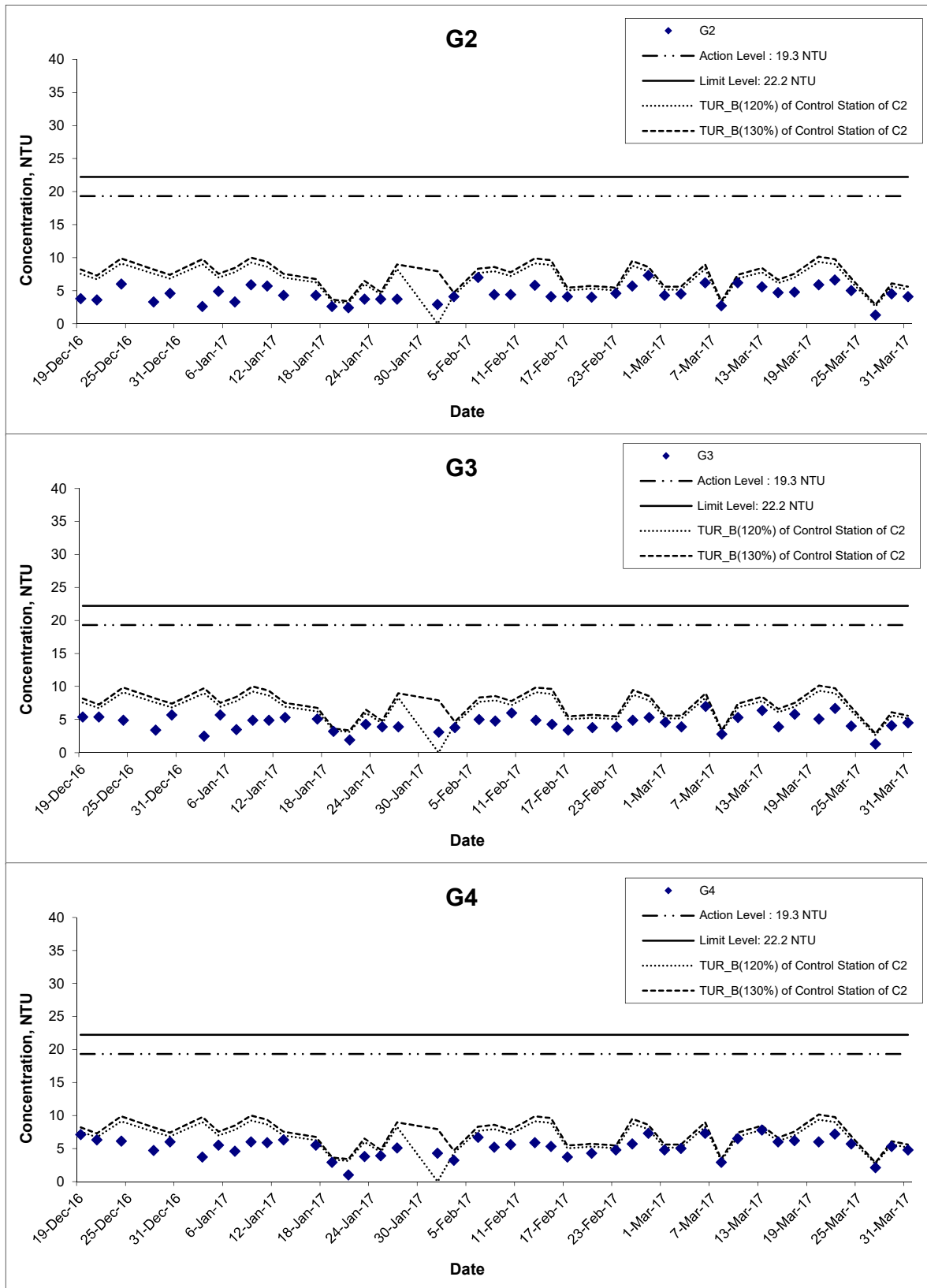
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Turbidity (Bottom) at Mid-Ebb Tide



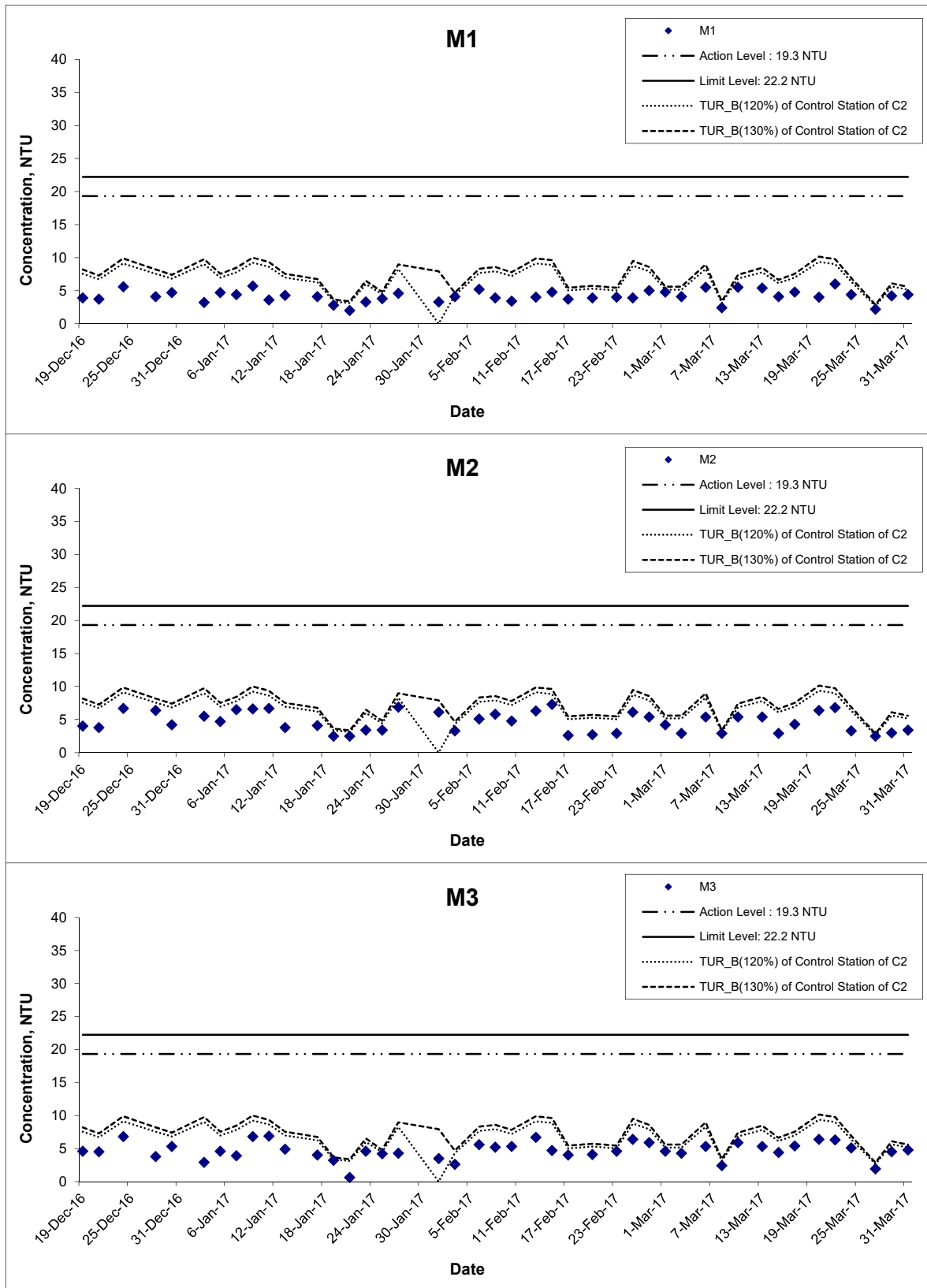
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Turbidity (Bottom) at Mid-Ebb Tide



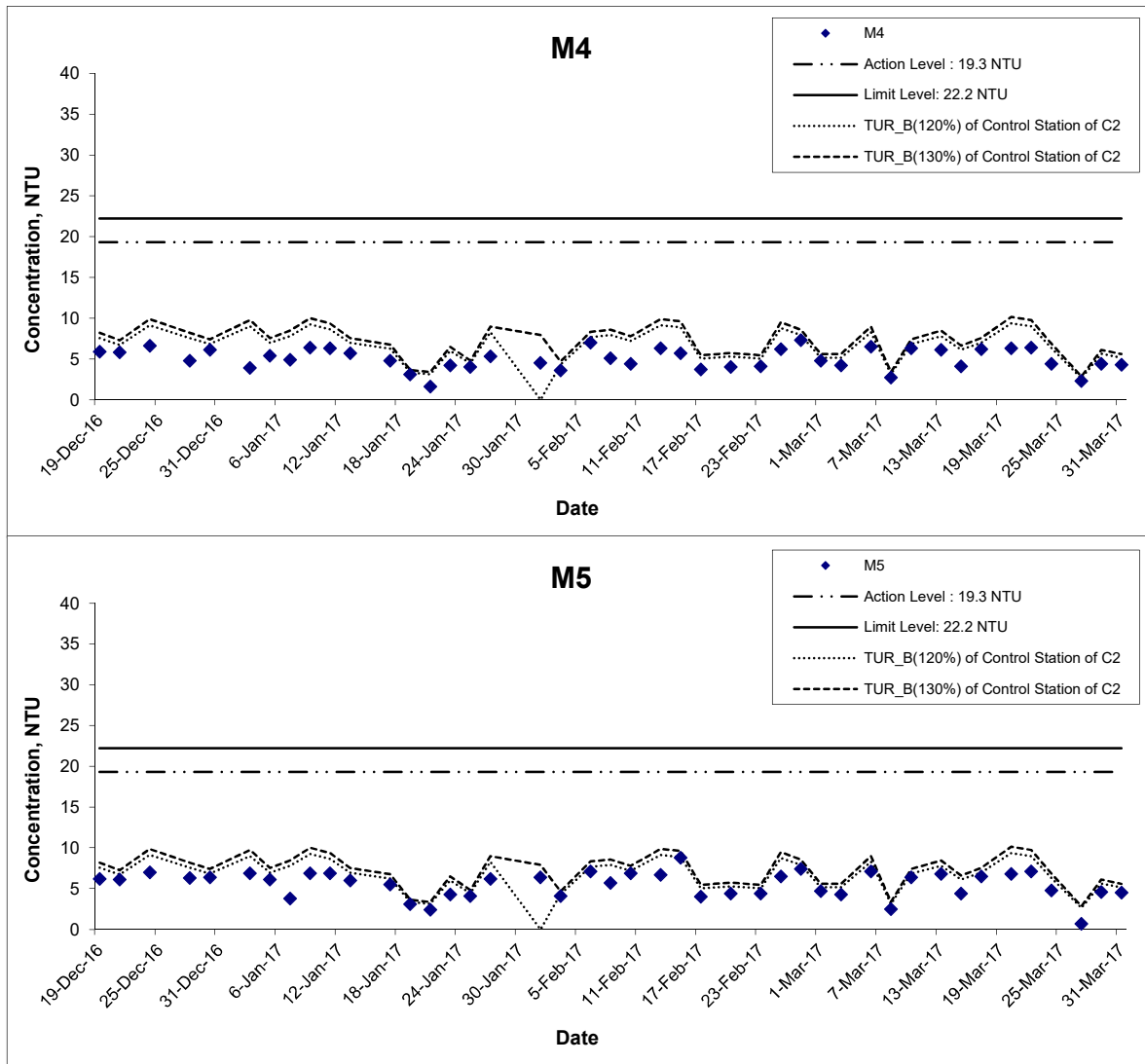
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Turbidity (Bottom) at Mid-Ebb Tide



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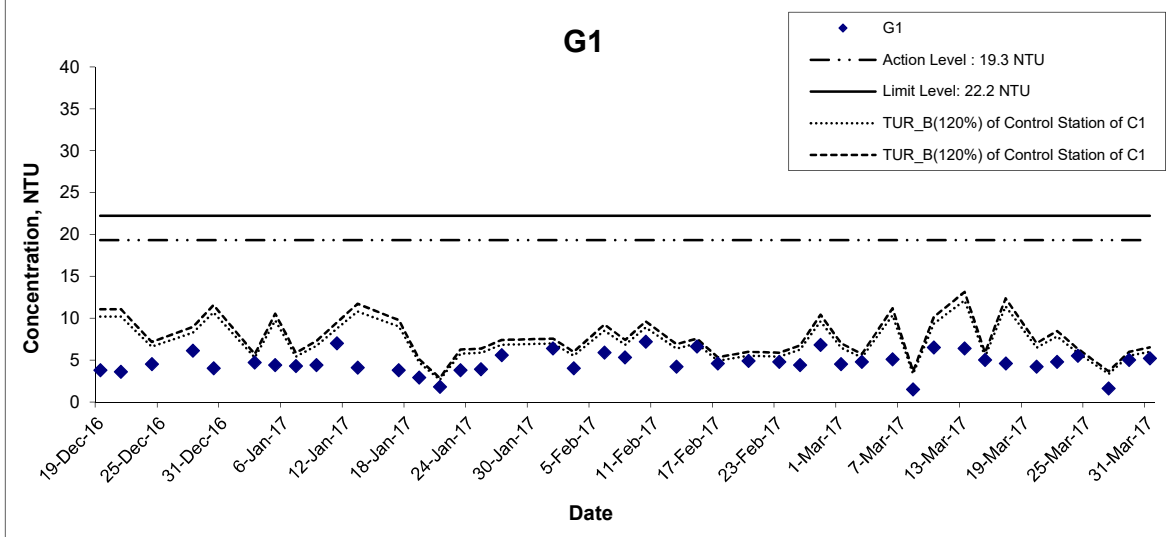
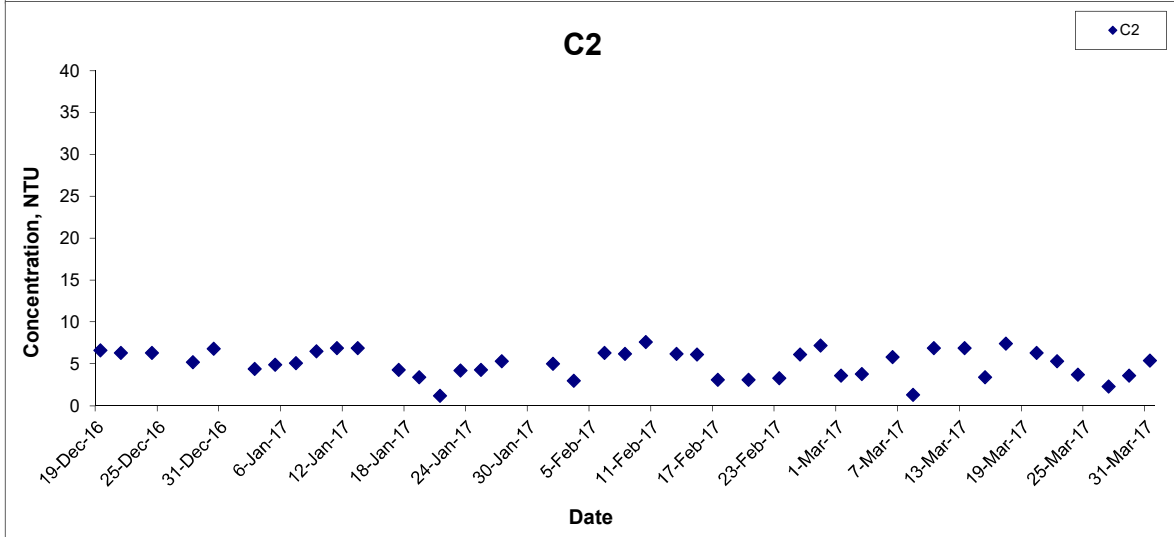
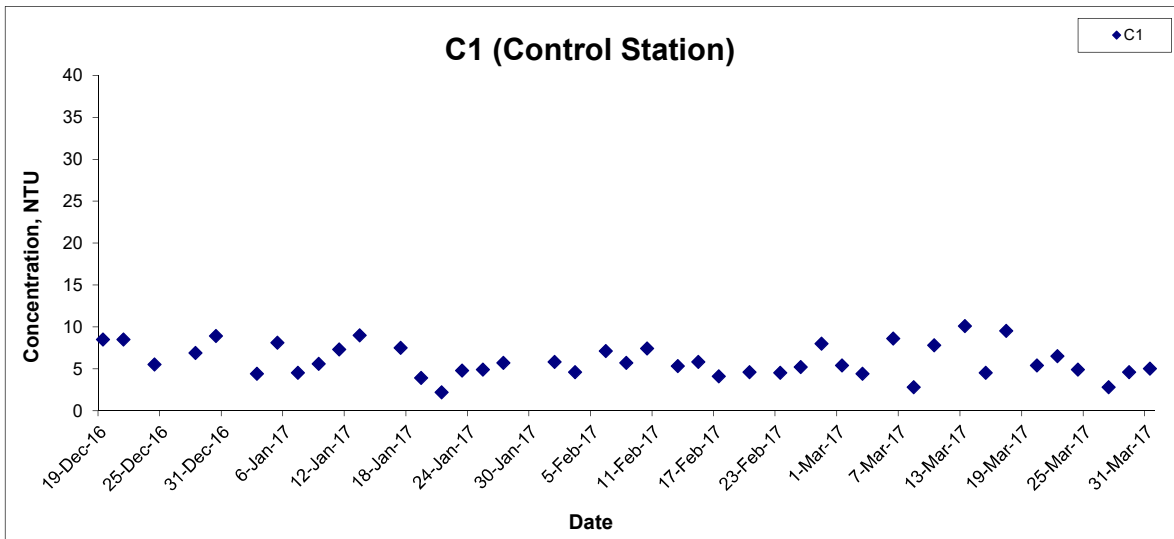
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Turbidity (Bottom) at Mid-Flood Tide



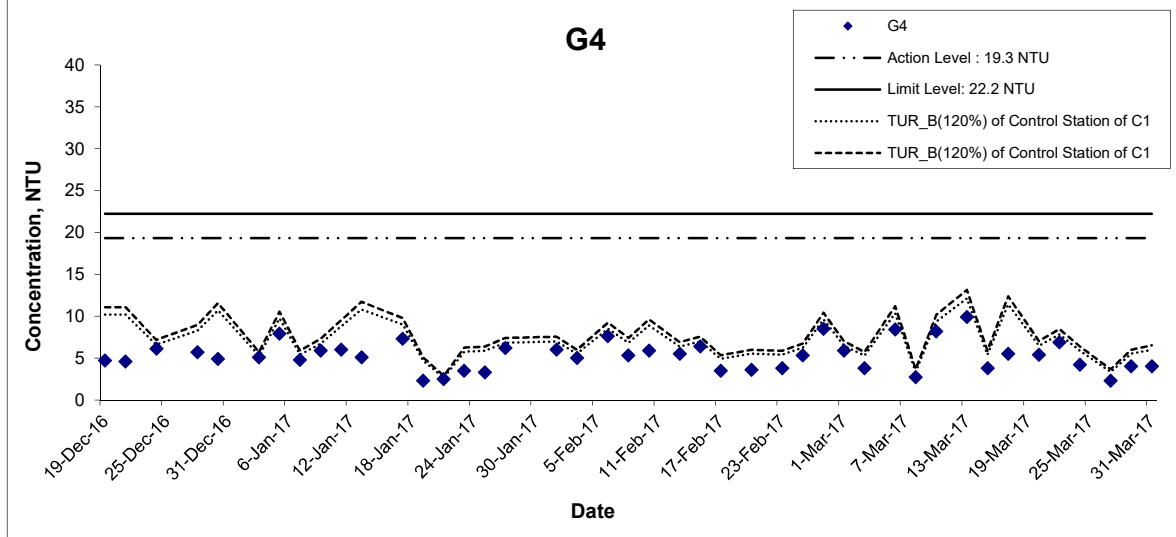
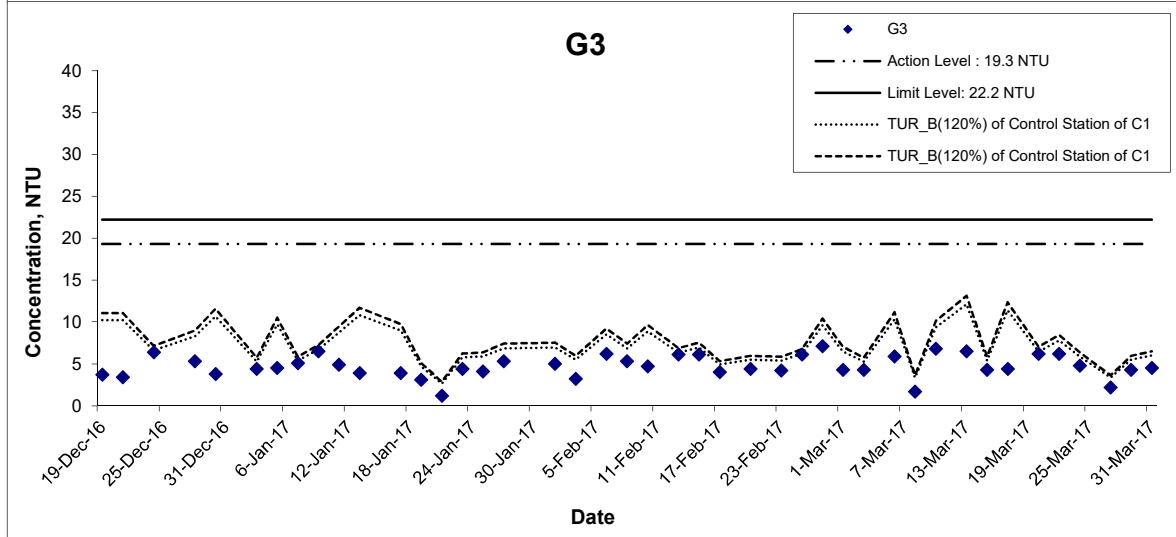
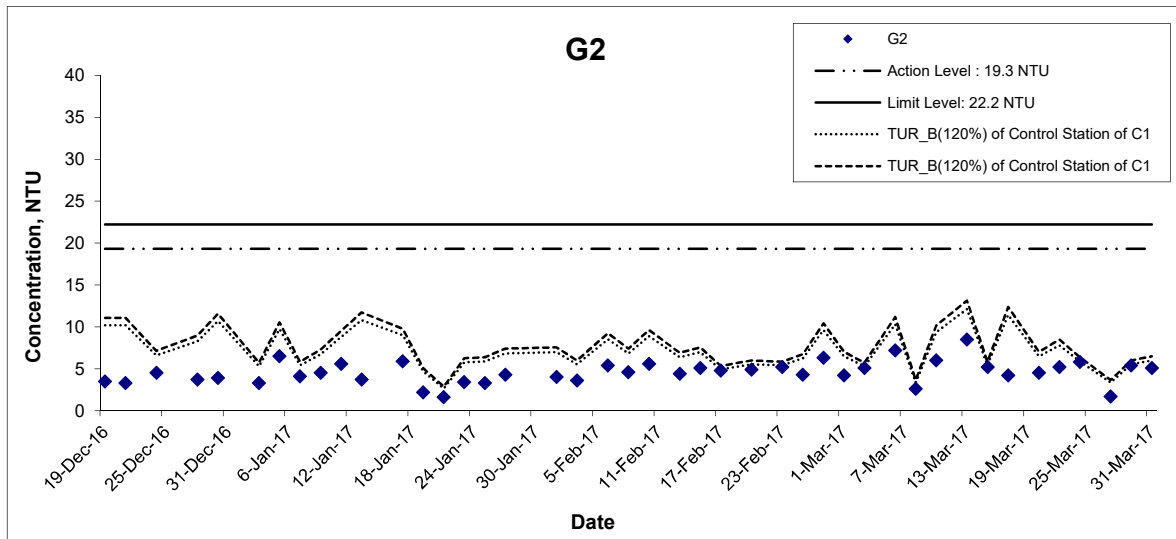
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Turbidity (Bottom) at Mid-Flood Tide



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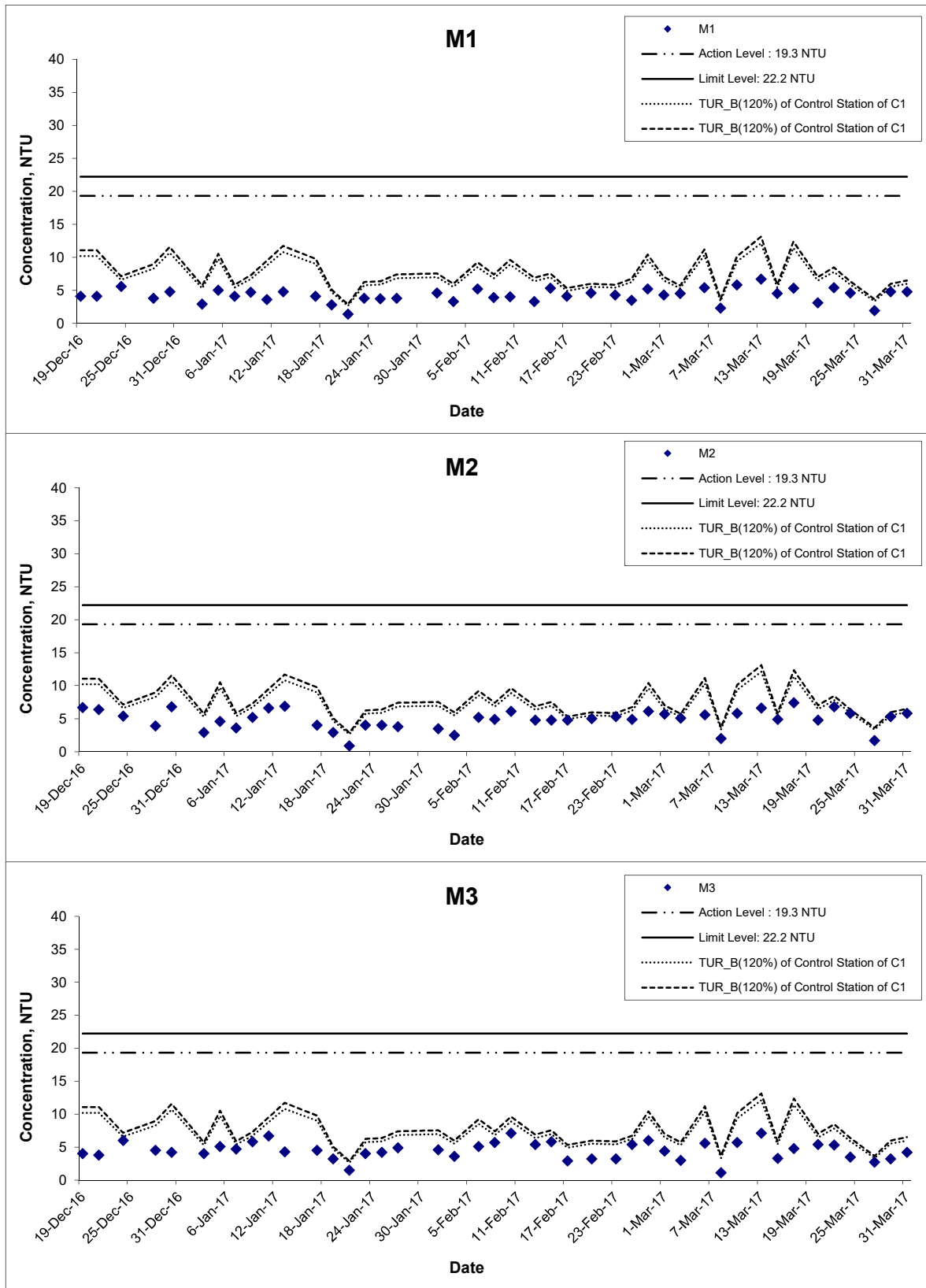
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Turbidity (Bottom) at Mid-Flood Tide



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

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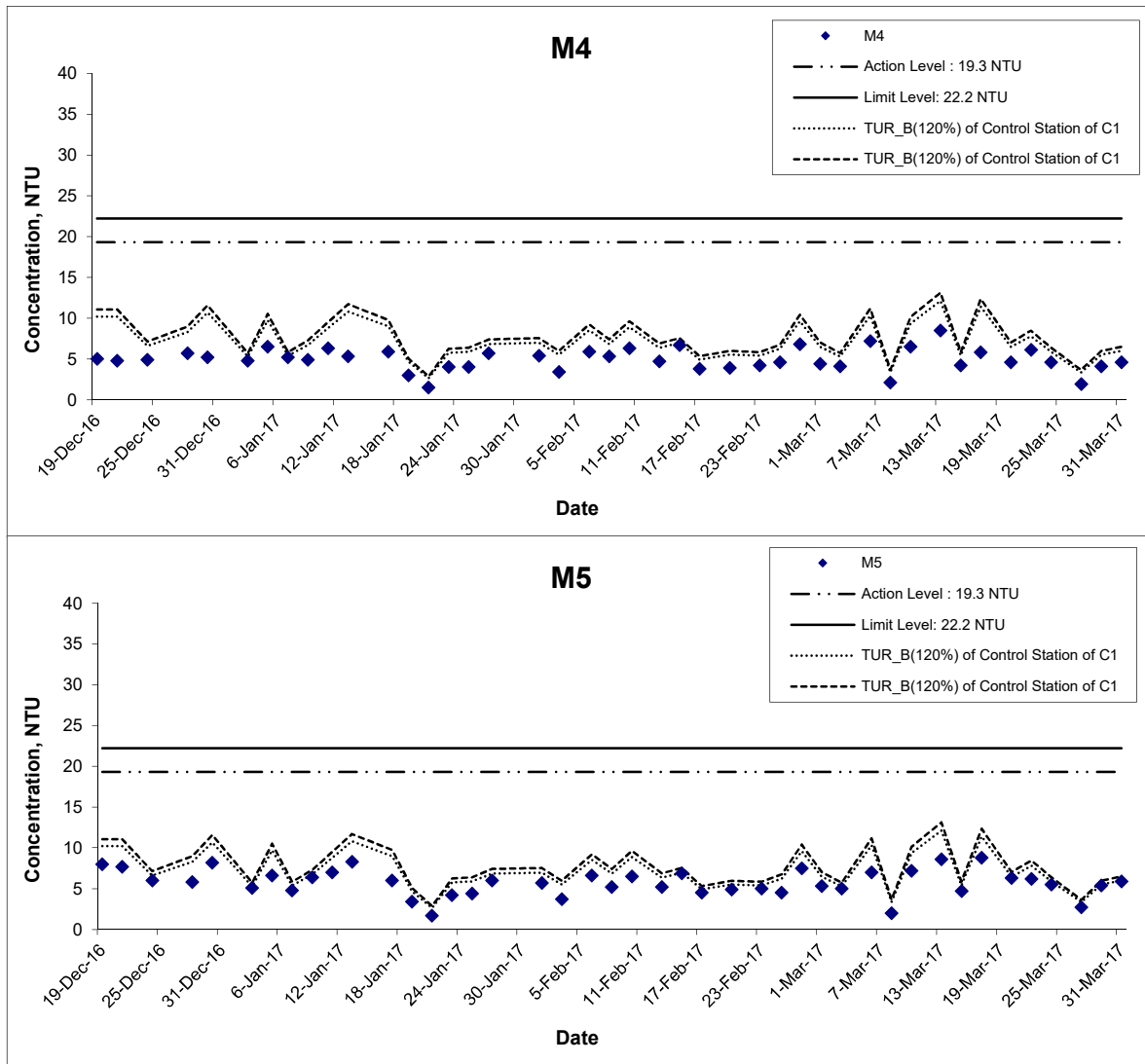
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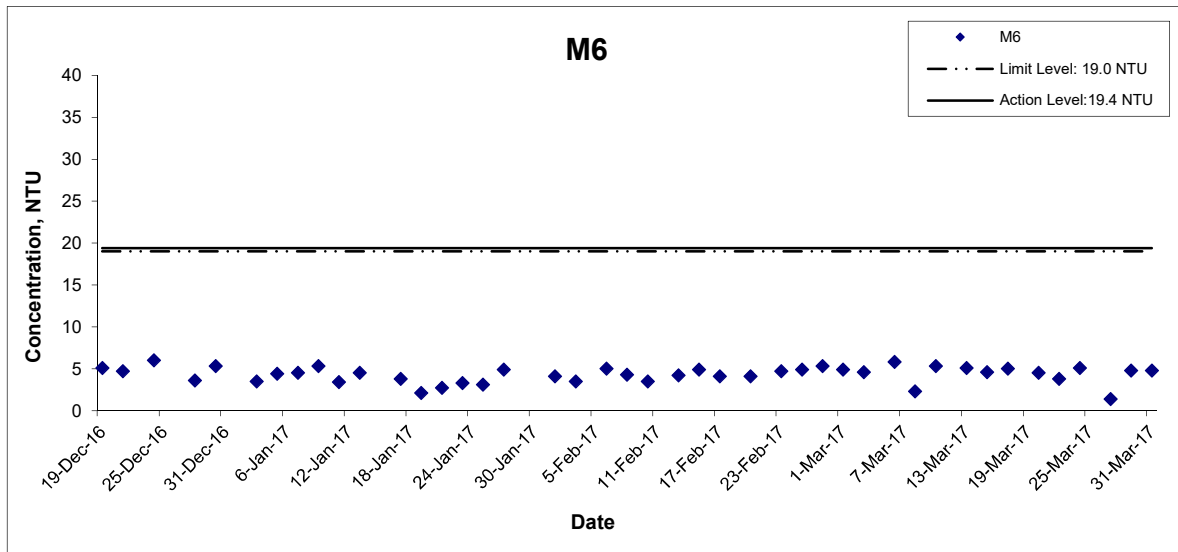


Turbidity (Bottom) at Mid-Flood Tide



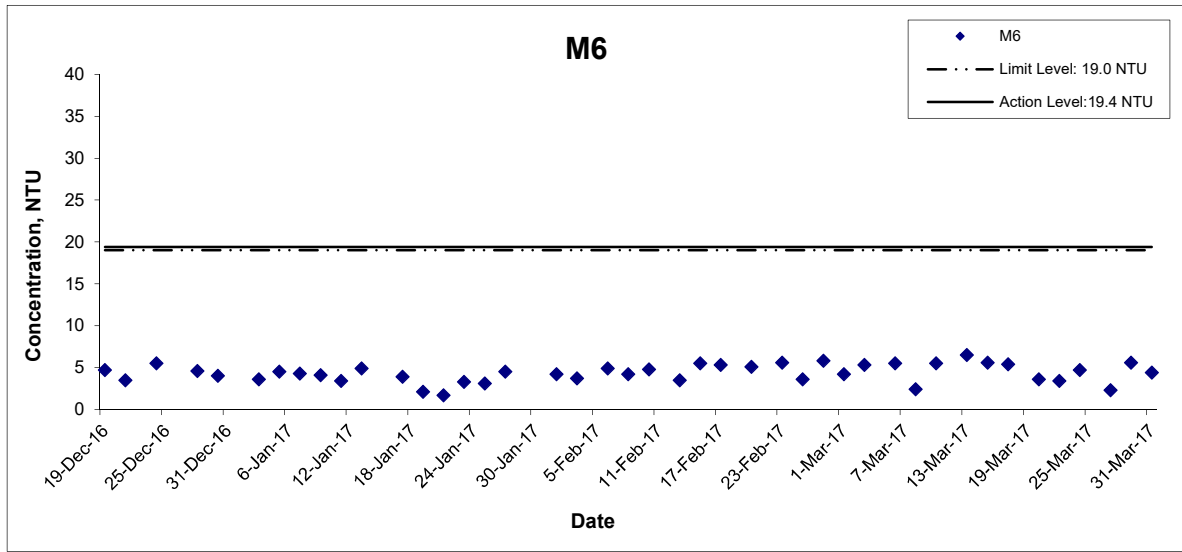
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Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



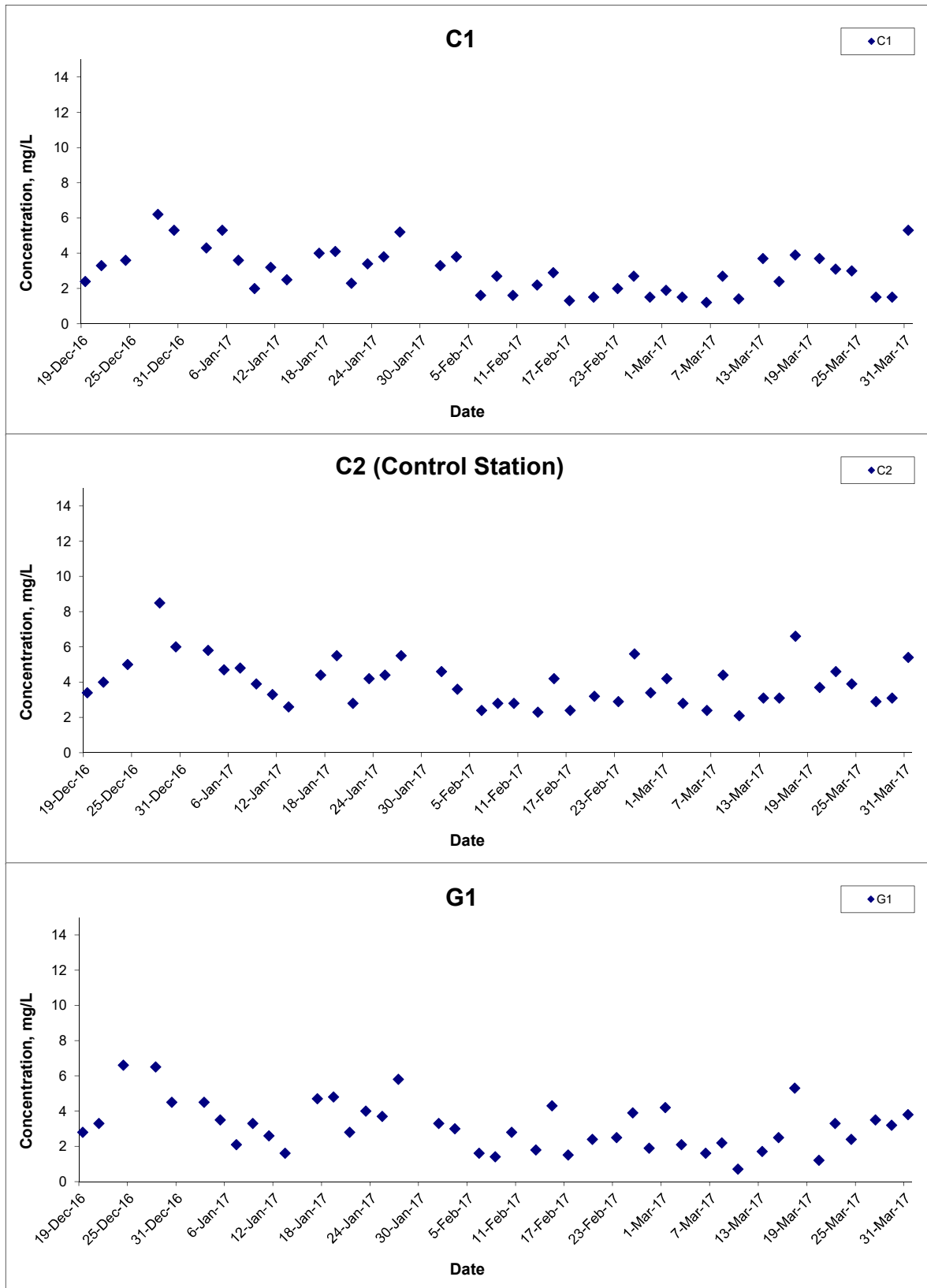
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Turbidity (Intake Level of WSD Salt Water Intake) at Mid-Flood Tide



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



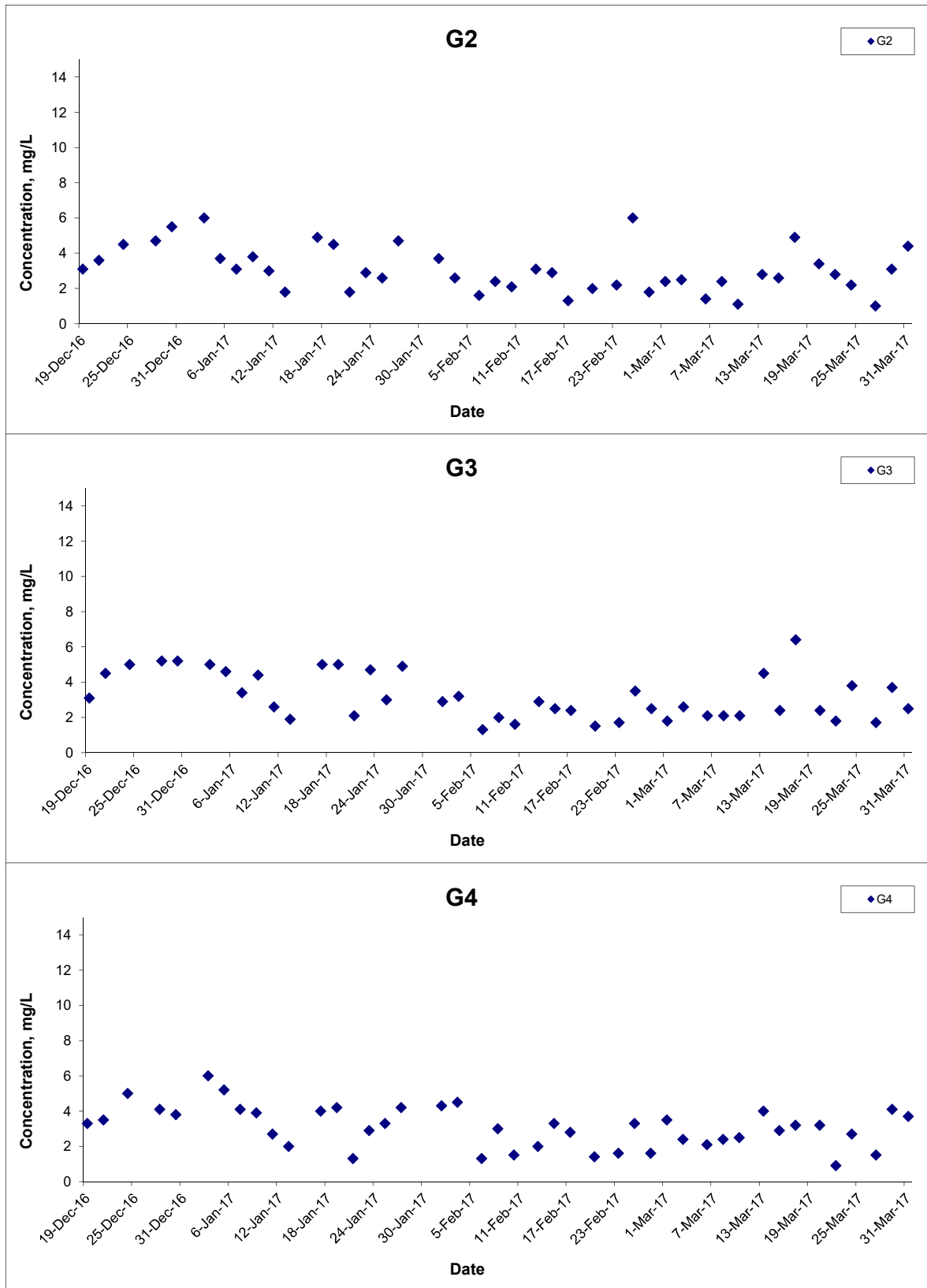
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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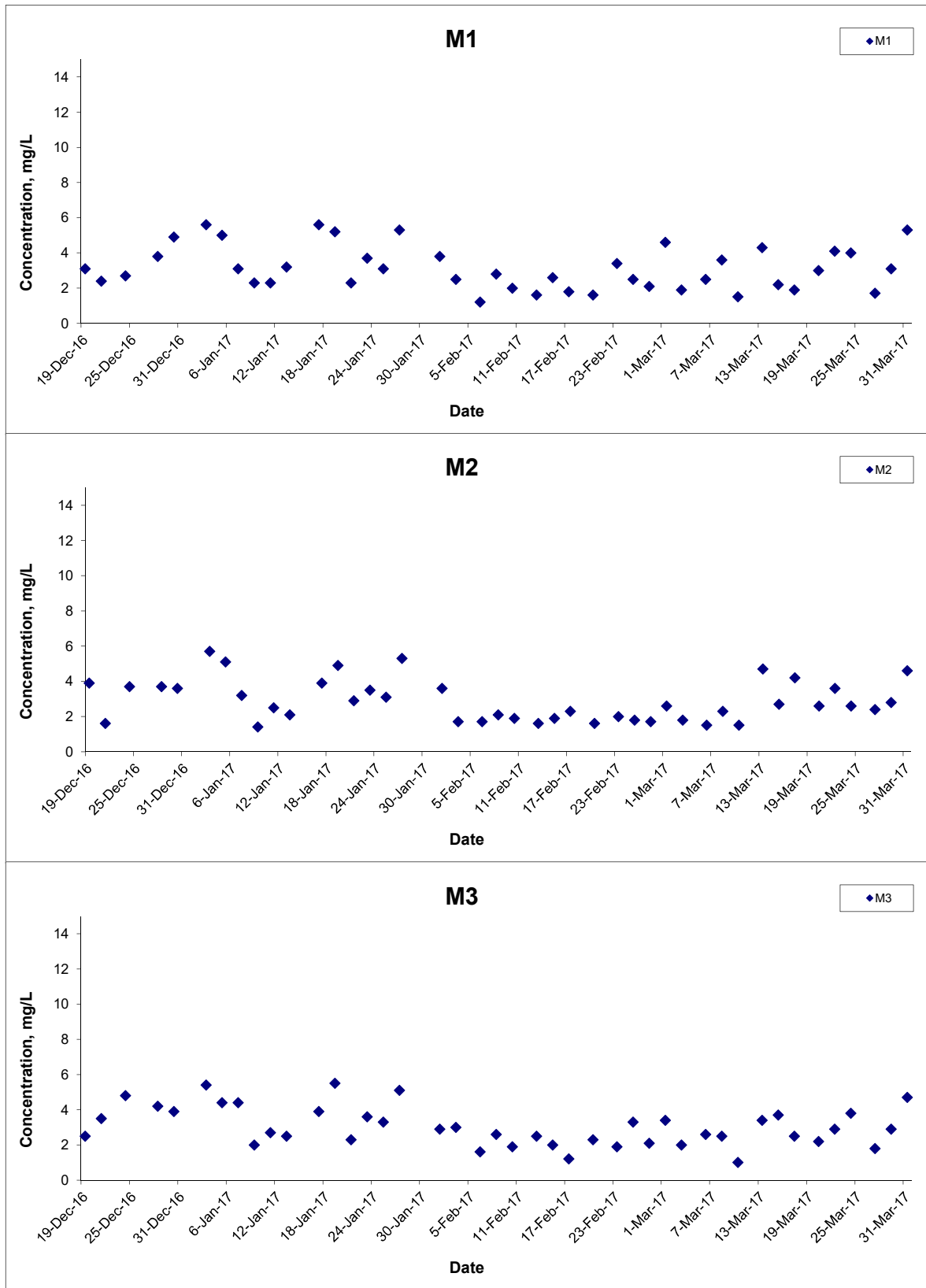
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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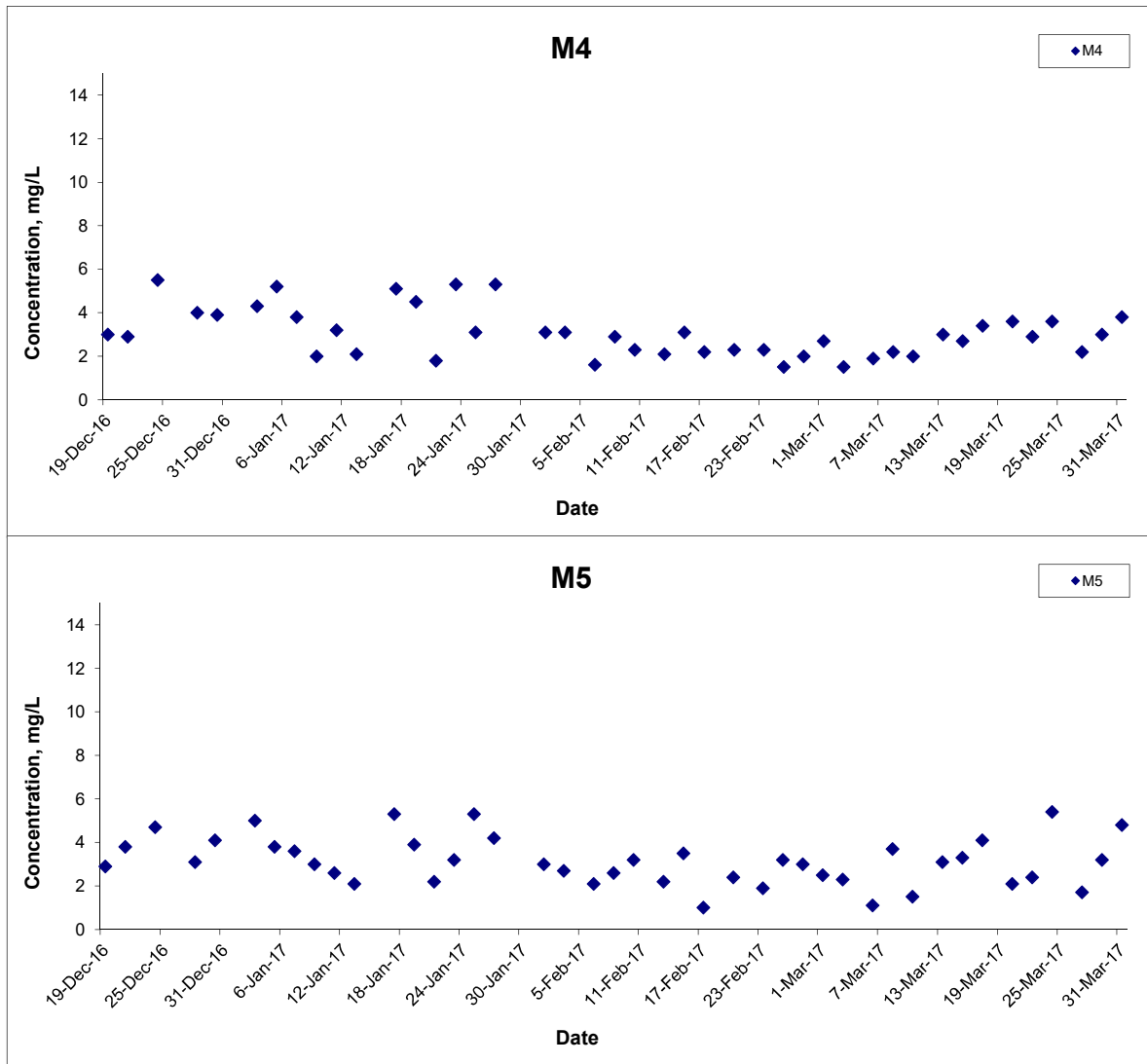
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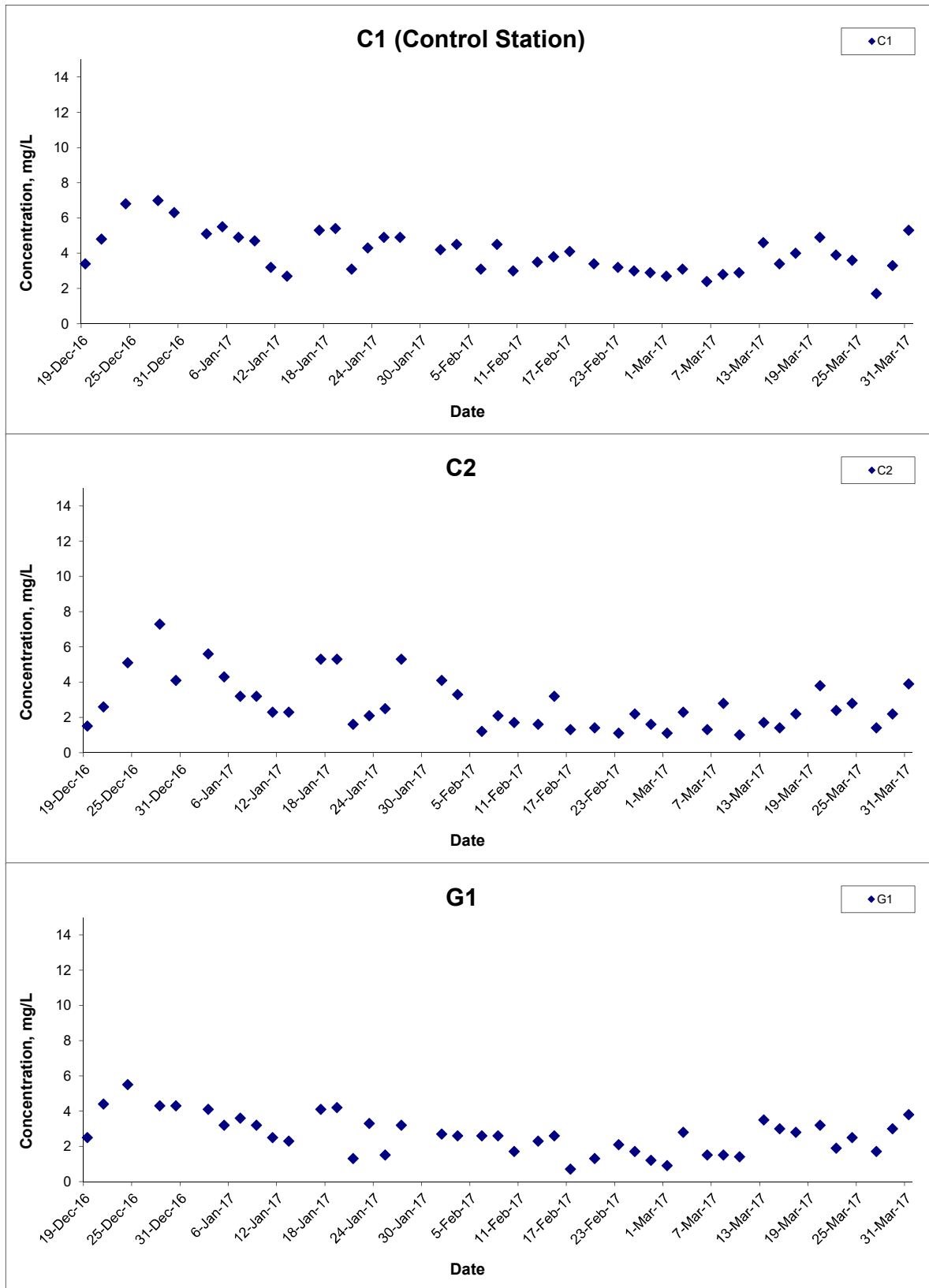


Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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



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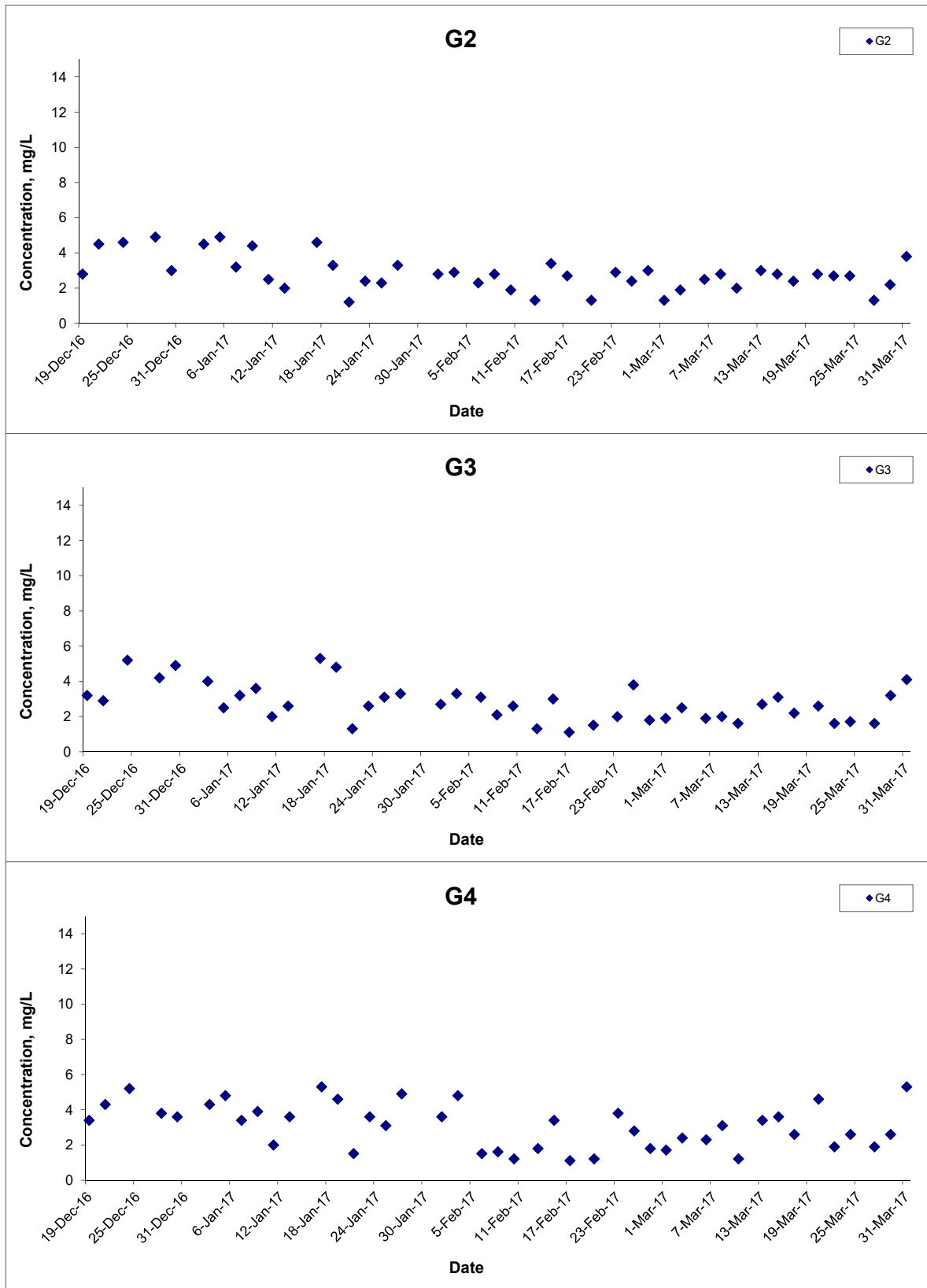
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



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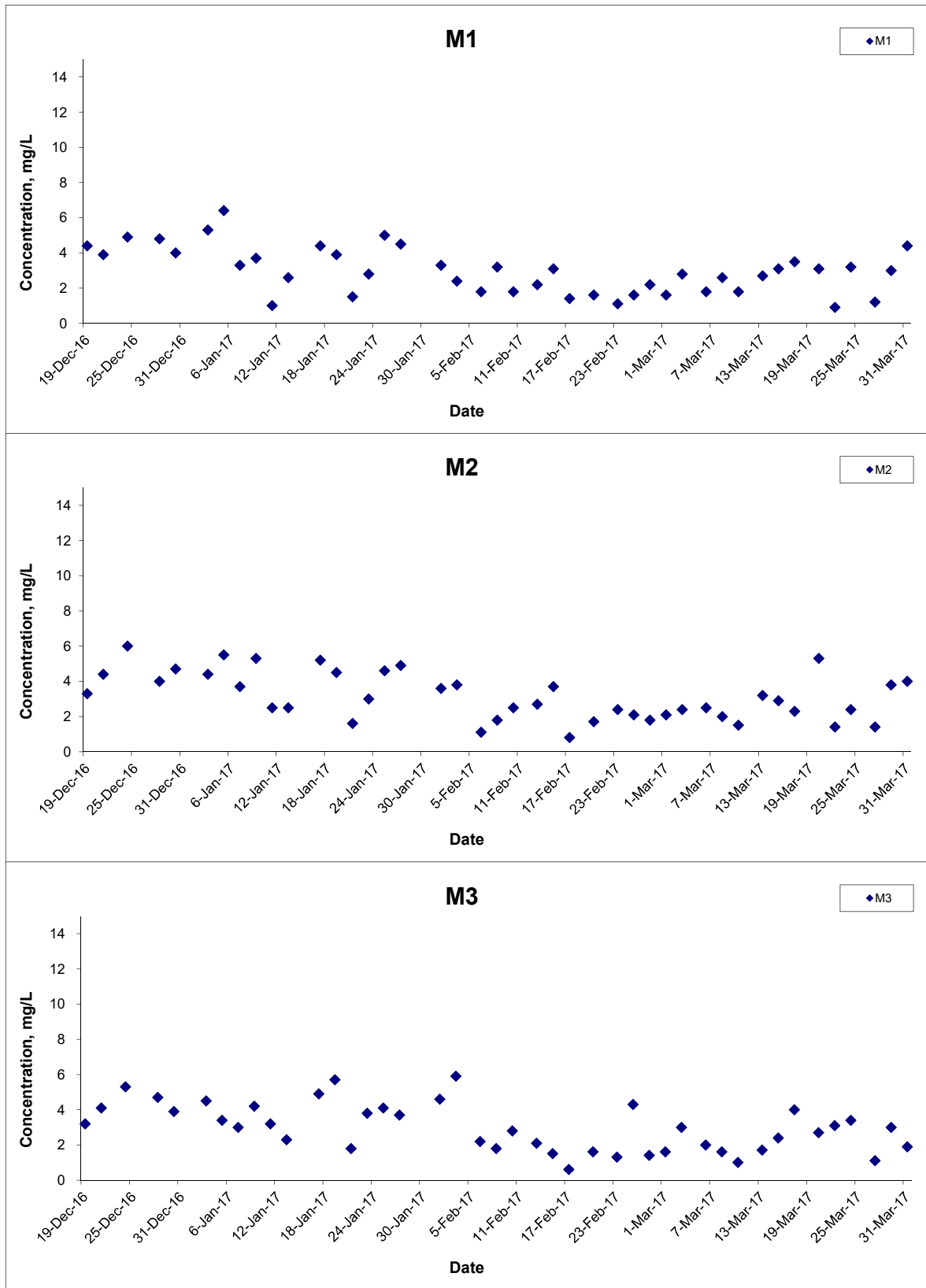
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



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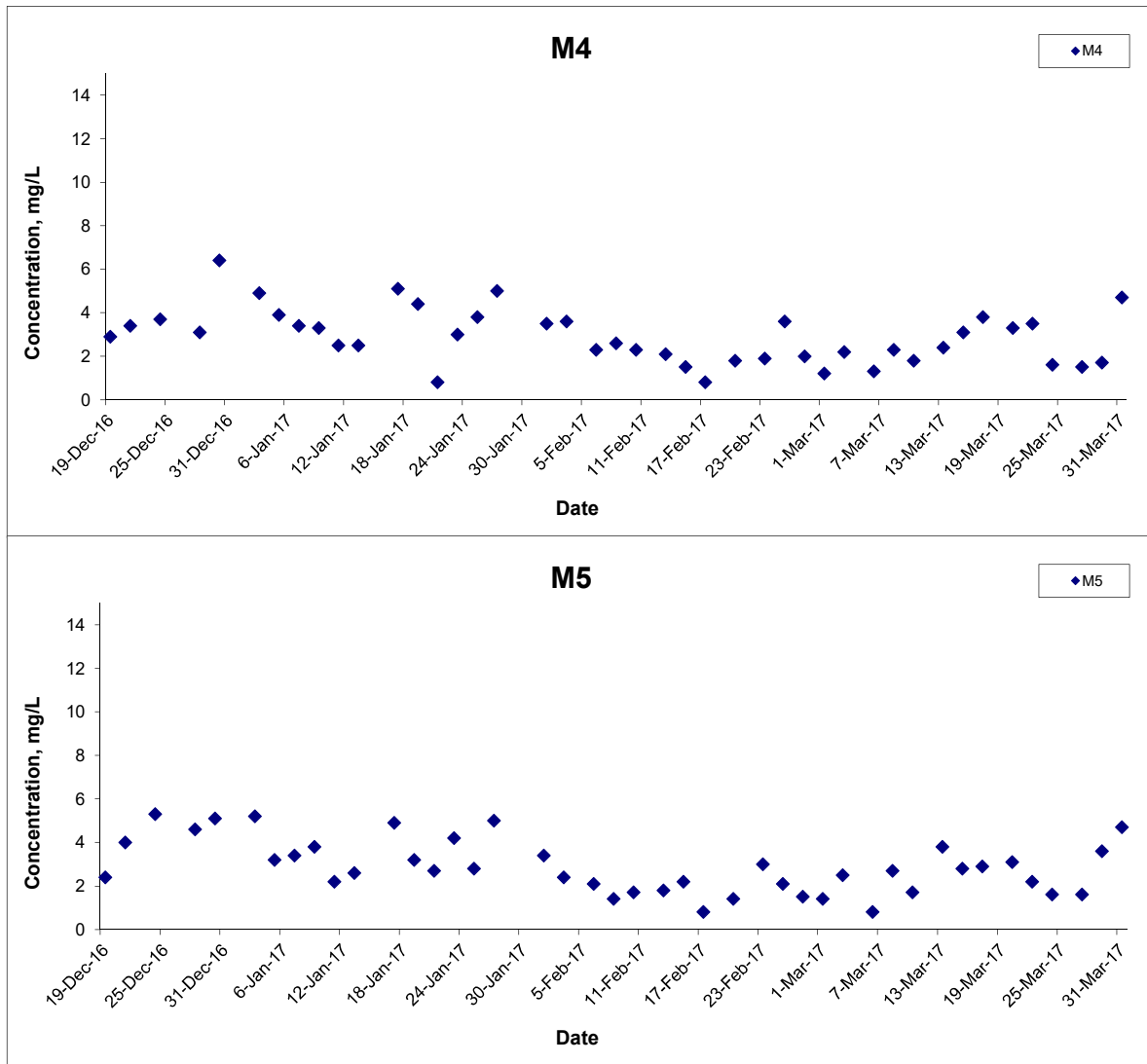
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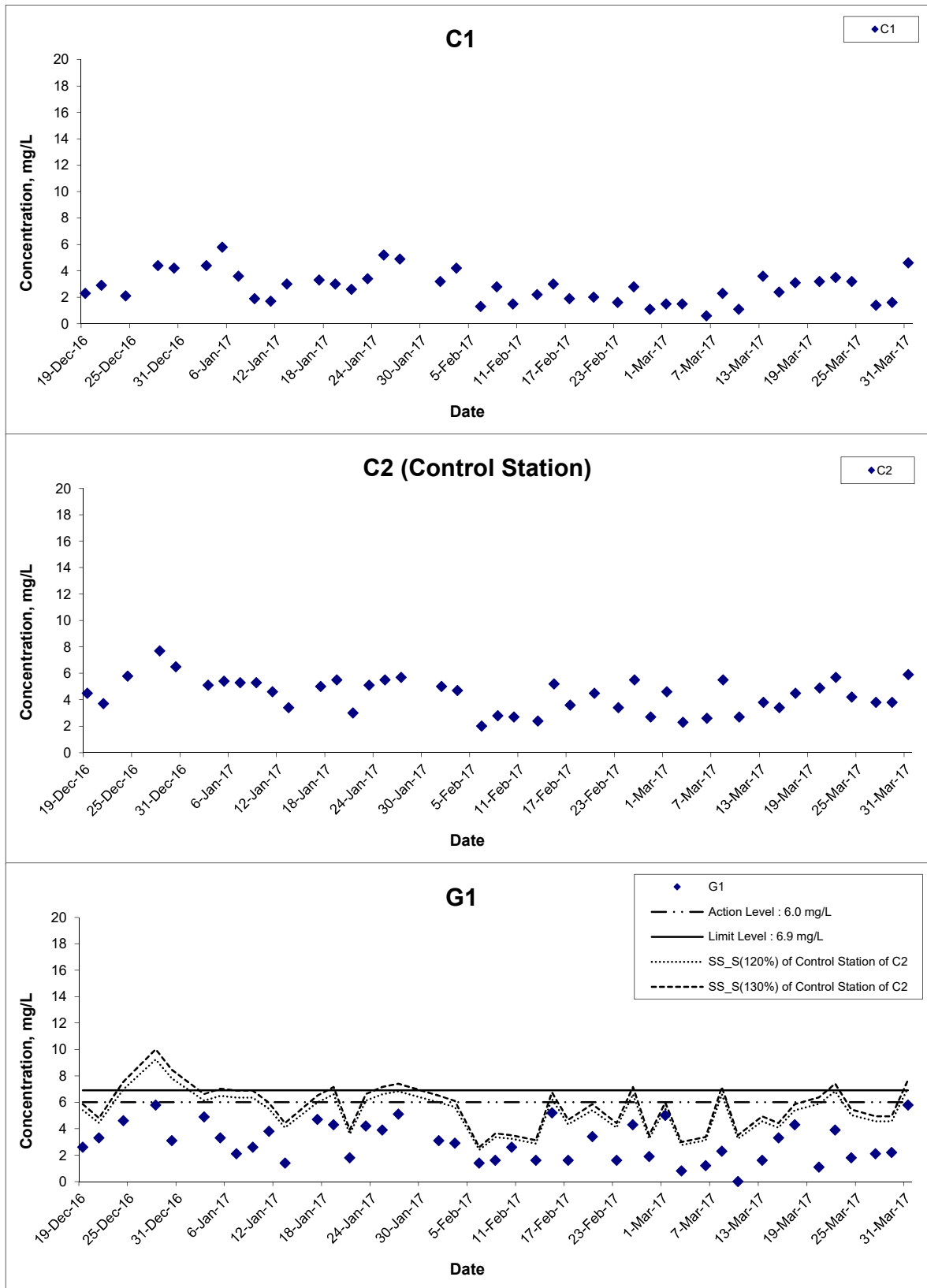


Suspended Solids (Depth-averaged) at Mid-Flood Tide



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Suspended Solids (Surface) at Mid-Ebb Tide



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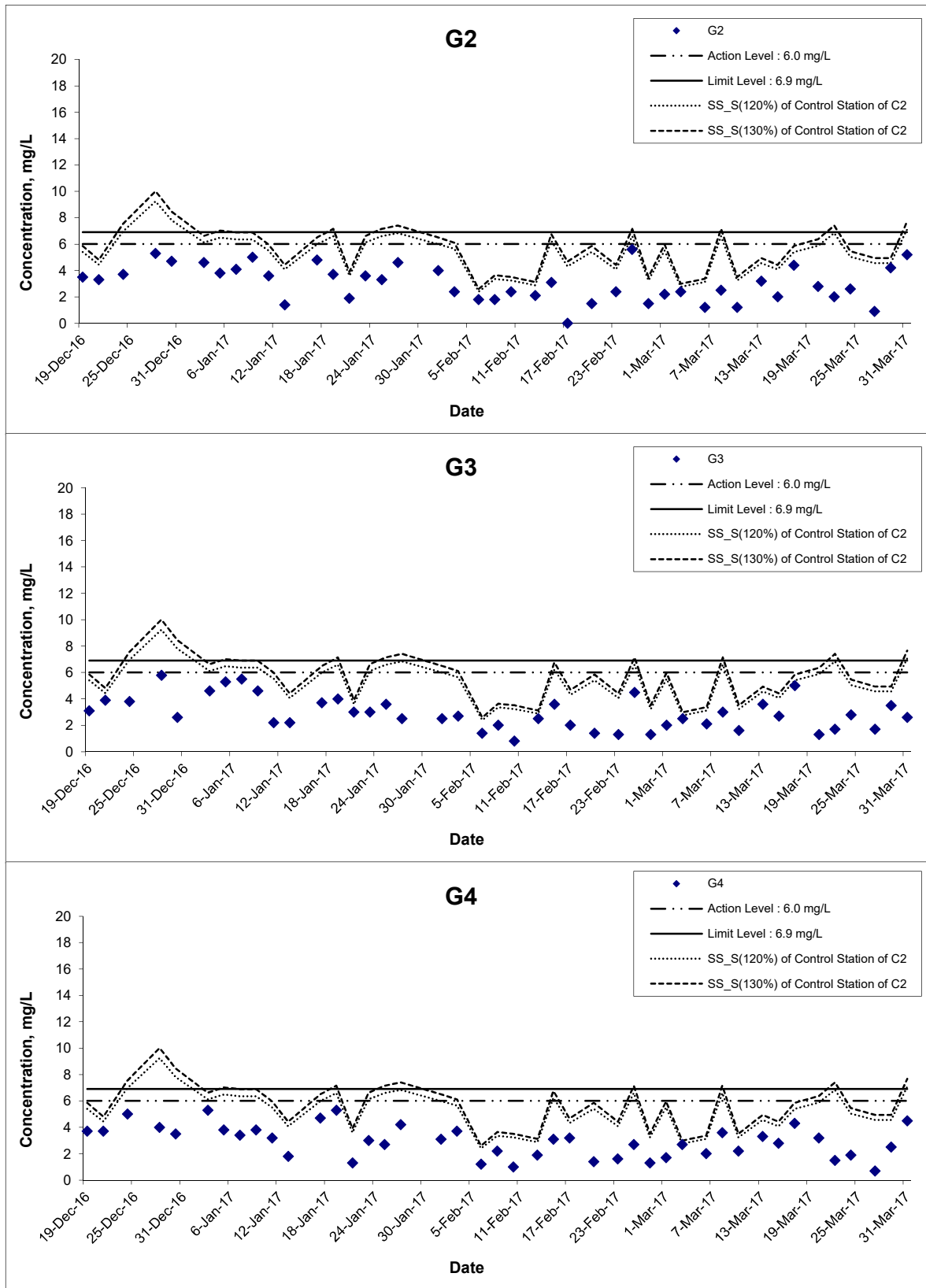
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Suspended Solids (Surface) at Mid-Ebb Tide

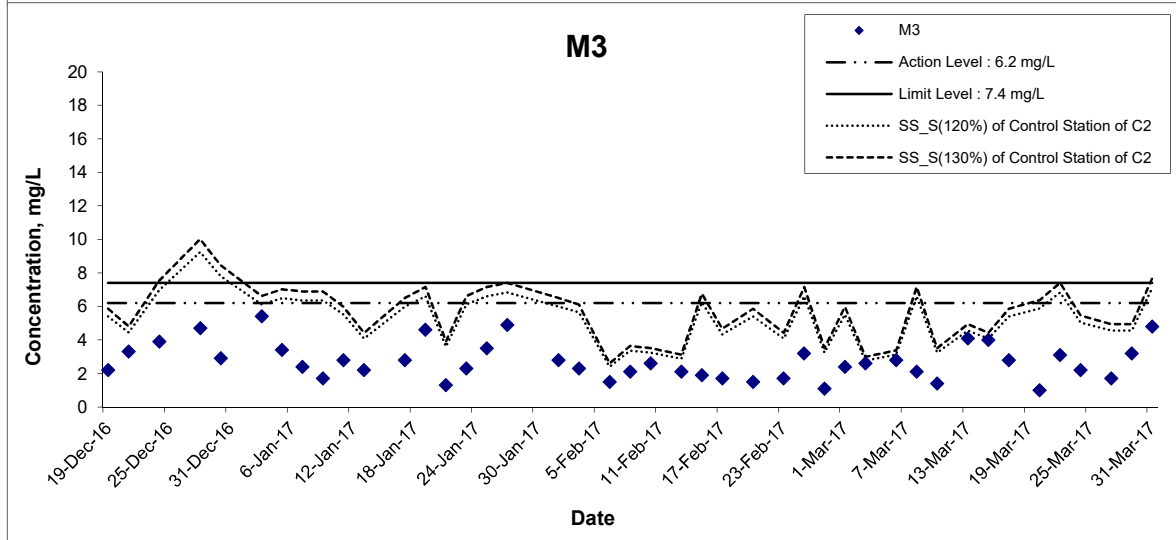
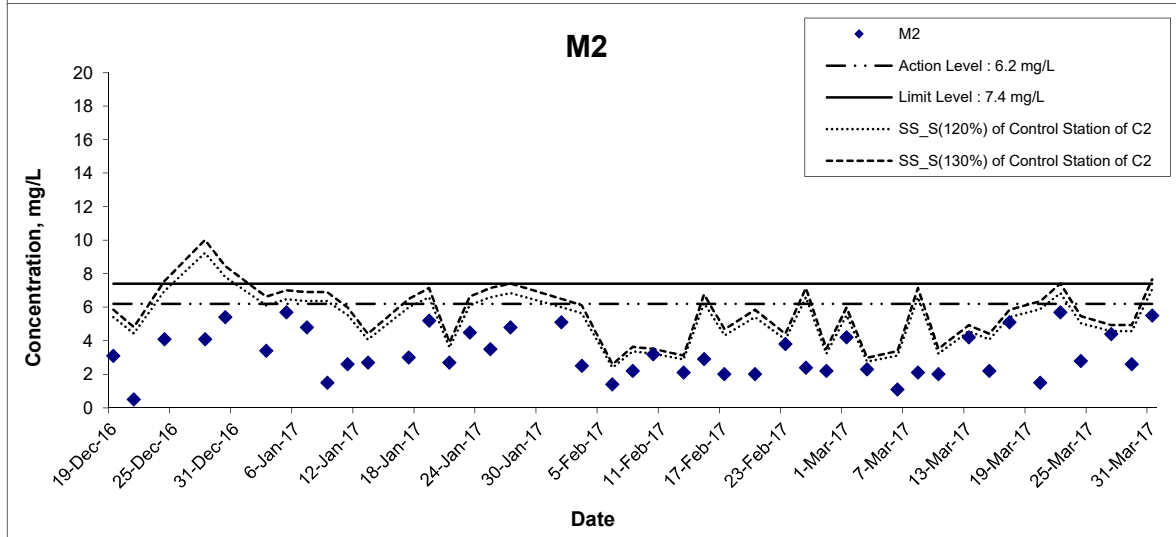
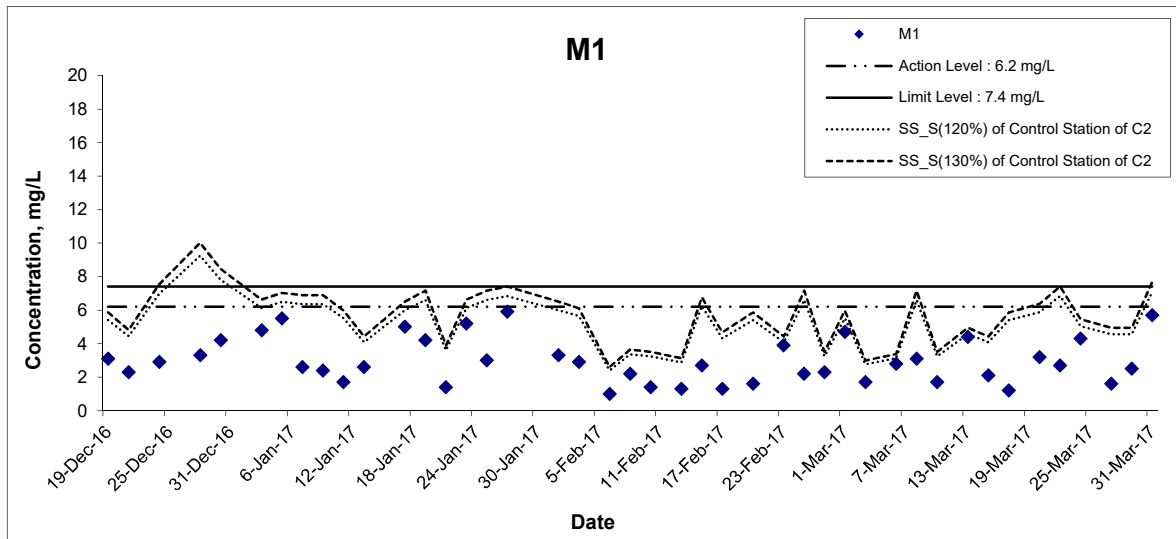


Remarks: The graphical point at zero concentration is presented as <2.5mg/L.

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I

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Suspended Solids (Surface) at Mid-Ebb Tide



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

Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S

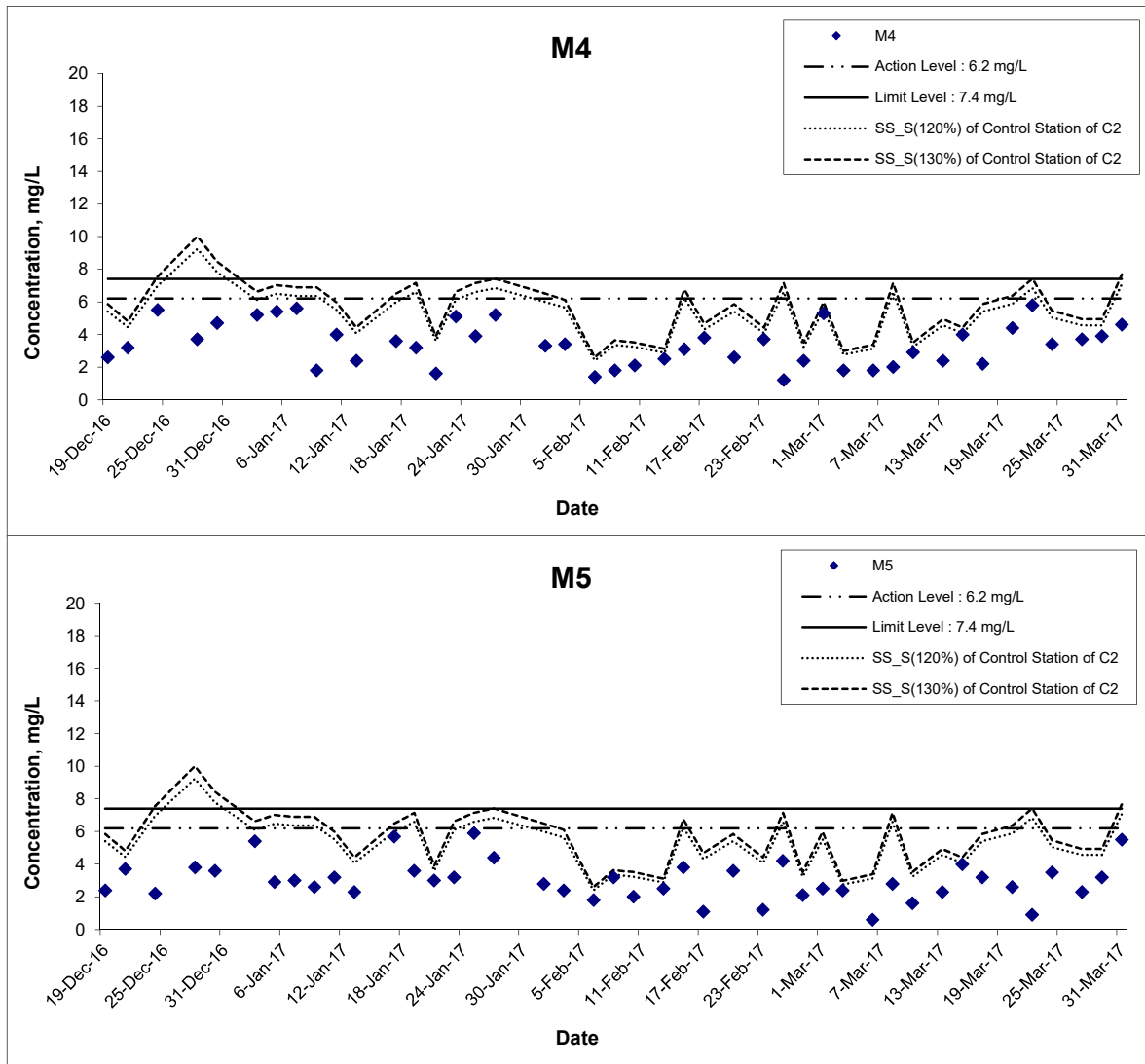
Date Mar 17

Project No. MA16034

Appendix I



Suspended Solids (Surface) at Mid-Ebb Tide



Title

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

Graphical Presentation of Water Quality Monitoring
Results

Scale

N.T.S

Date

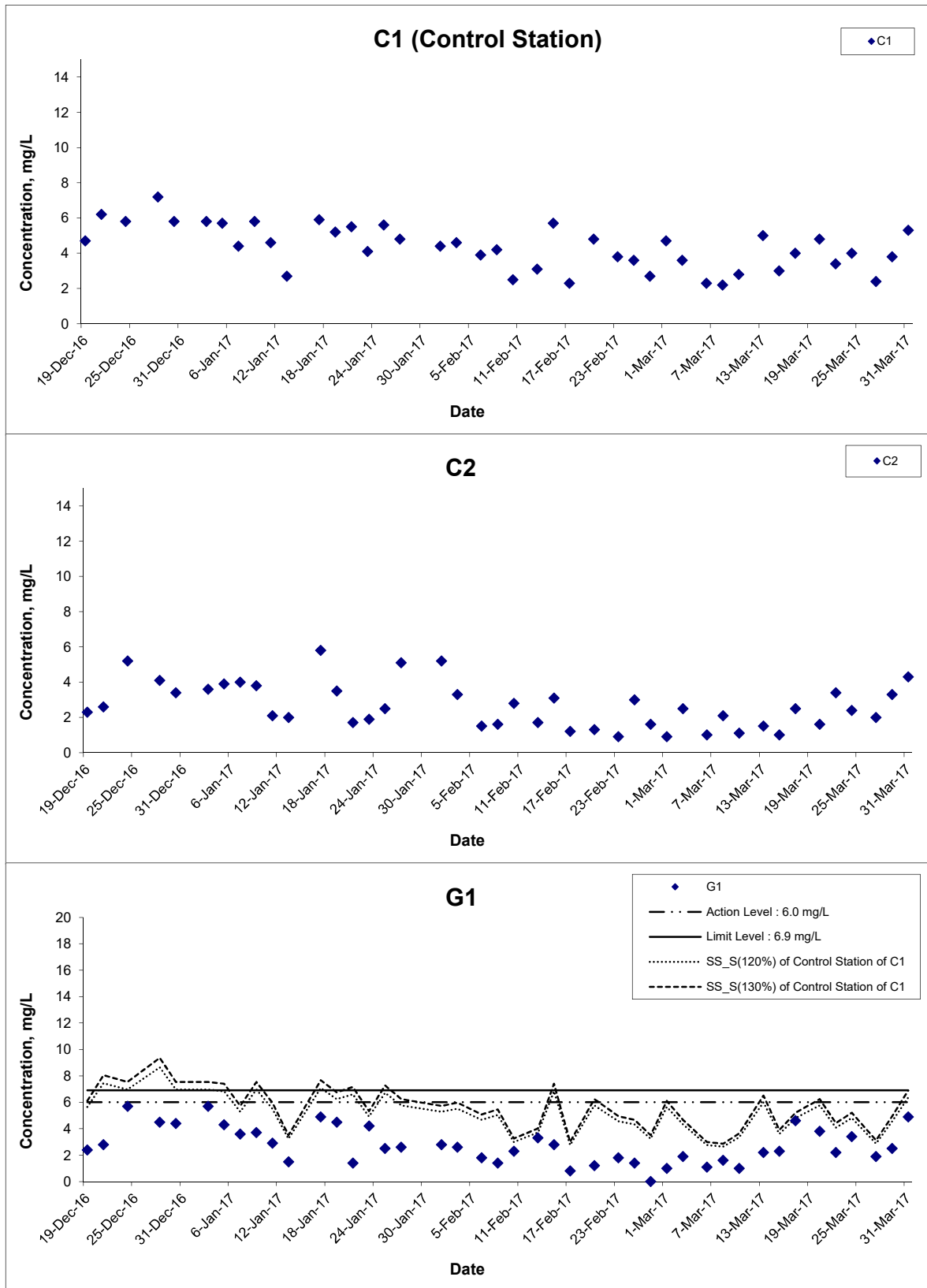
Mar 17

Project
No. MA16034

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I

CINOTECH

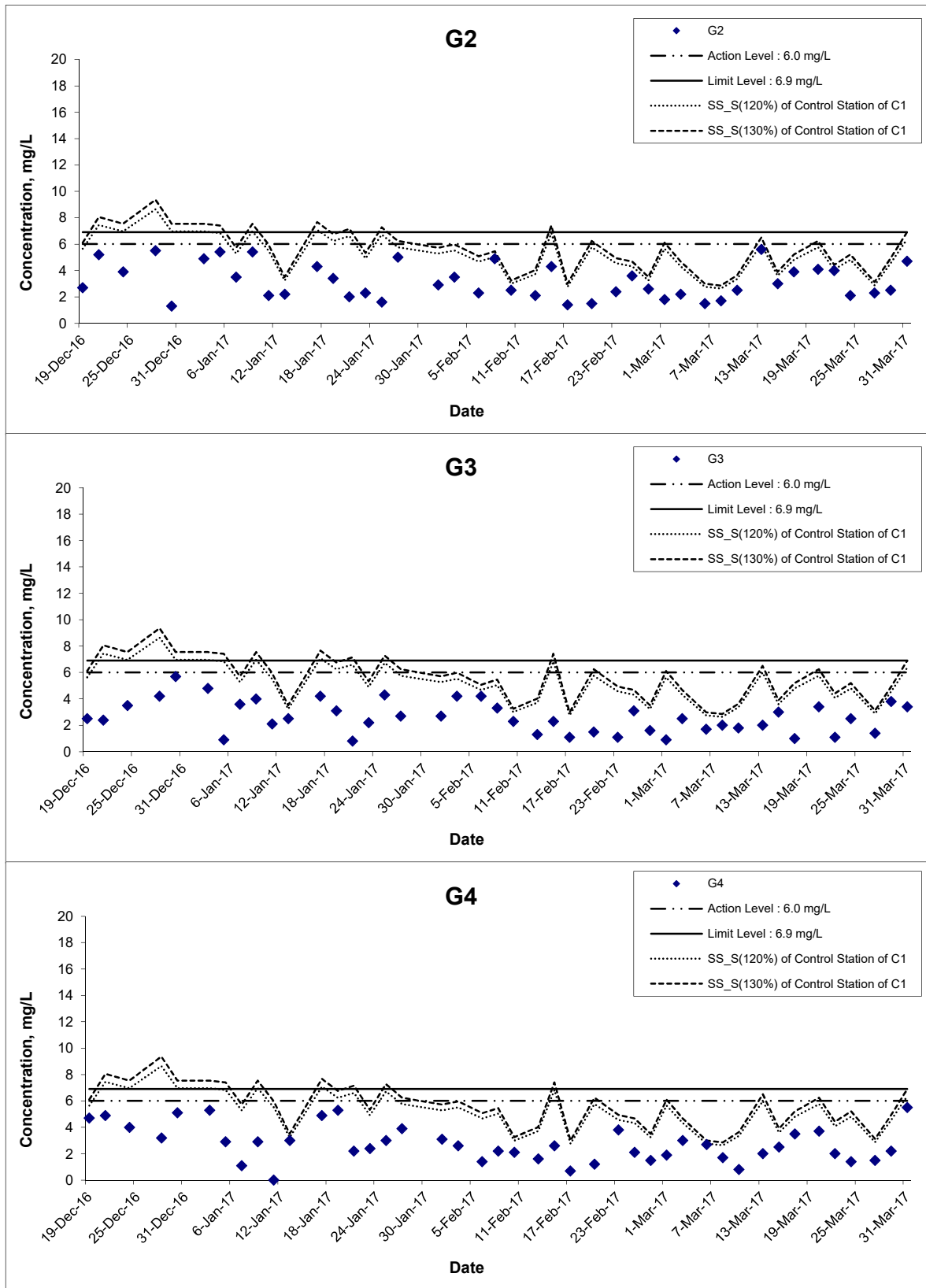
Suspended Solids (Surface) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

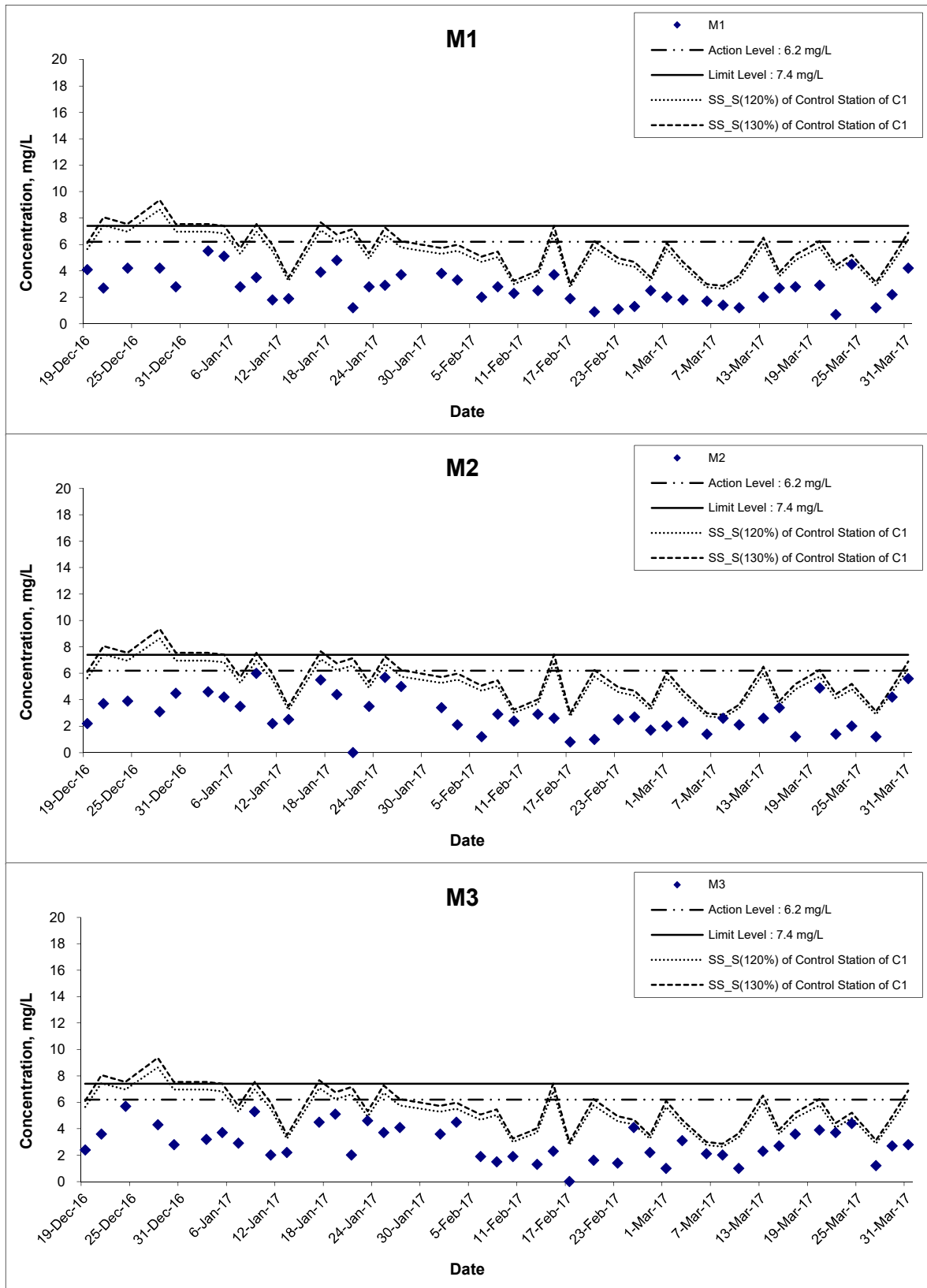
Suspended Solids (Surface) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

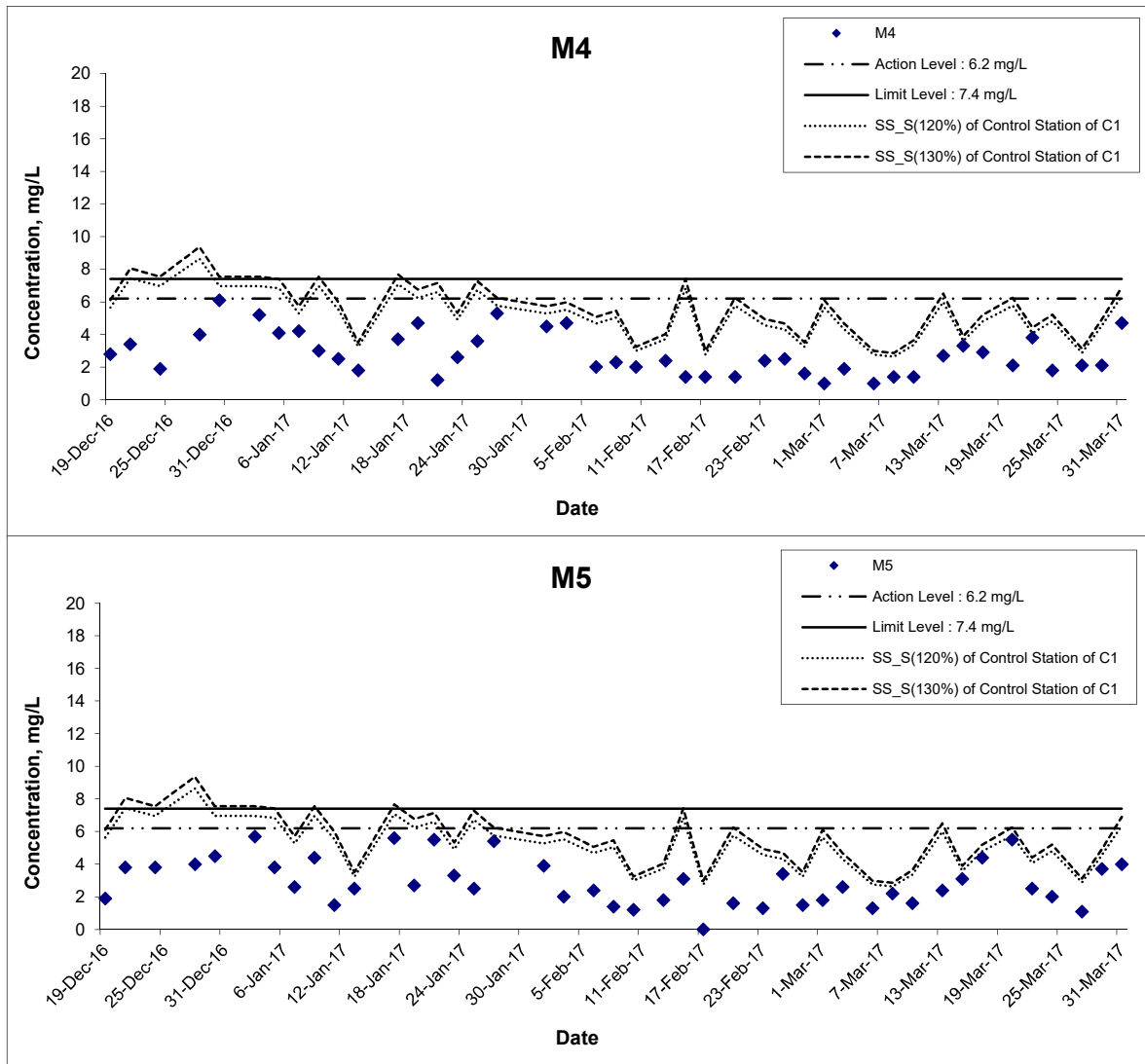
Suspended Solids (Surface) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

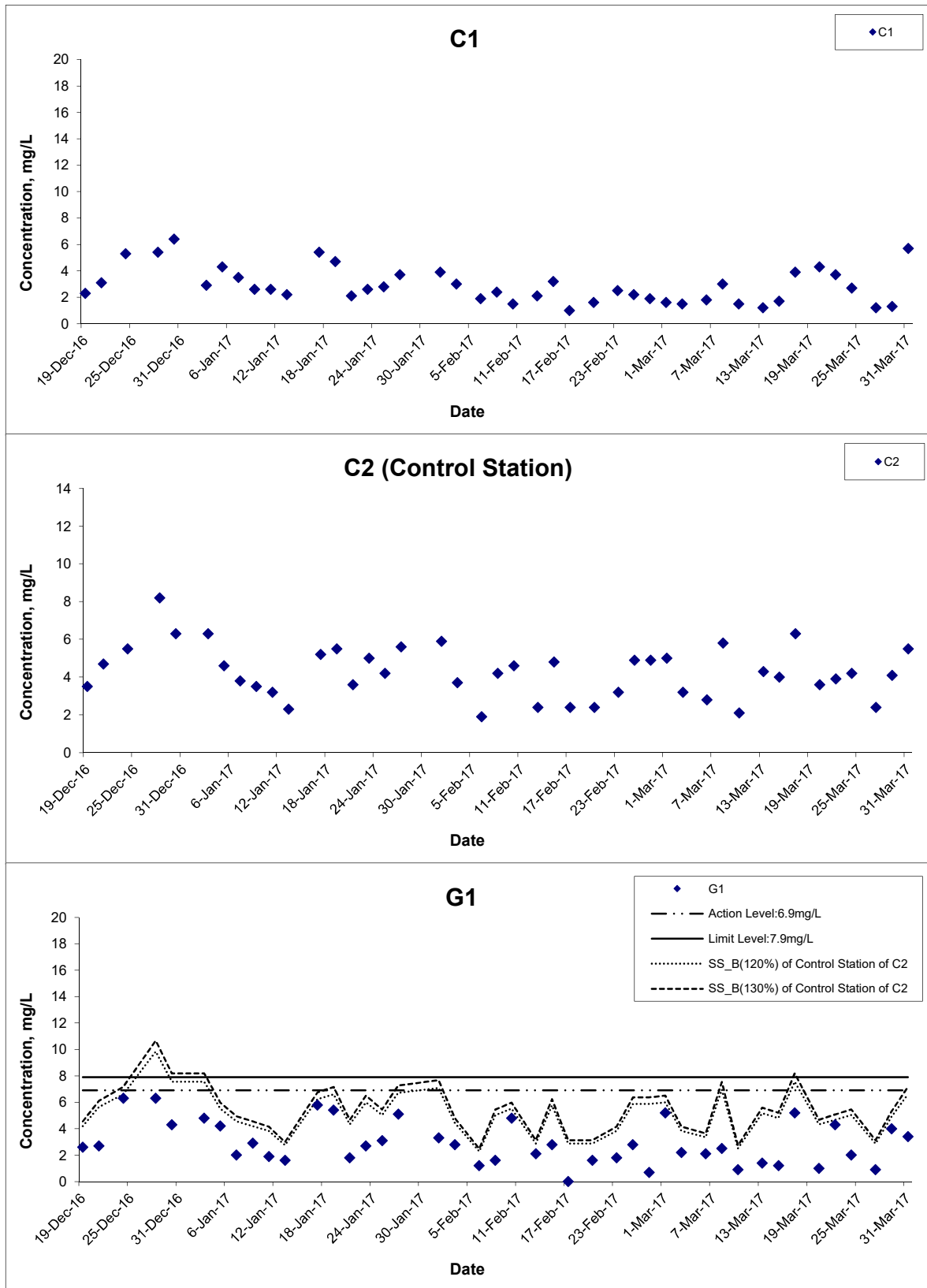
Suspended Solids (Surface) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

Suspended Solids (Bottom) at Mid-Ebb Tide

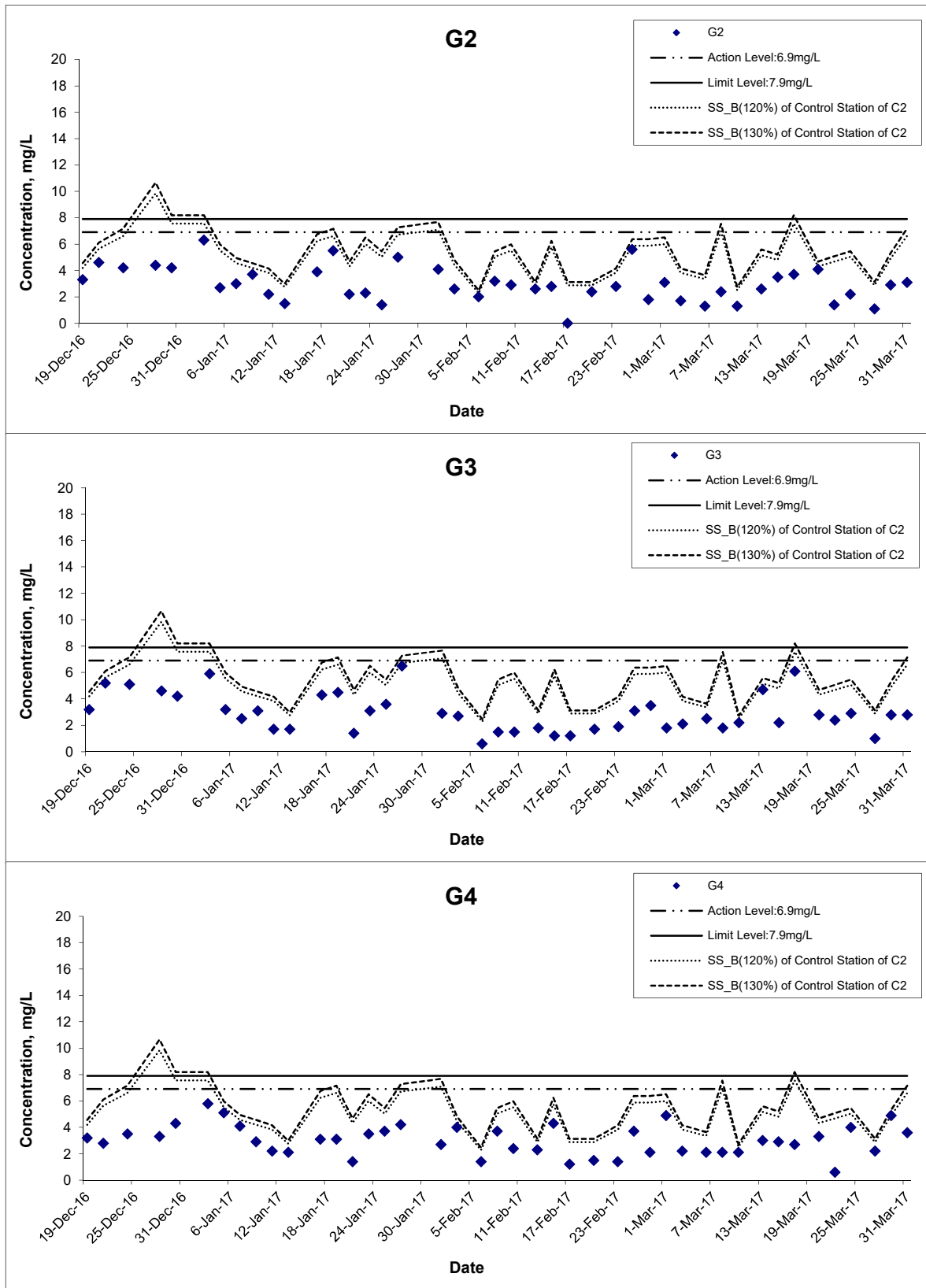


Remarks: The graphical point at zero concentration is presented as <2.5mg/L.

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
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CINOTECH

Suspended Solids (Bottom) at Mid-Ebb Tide

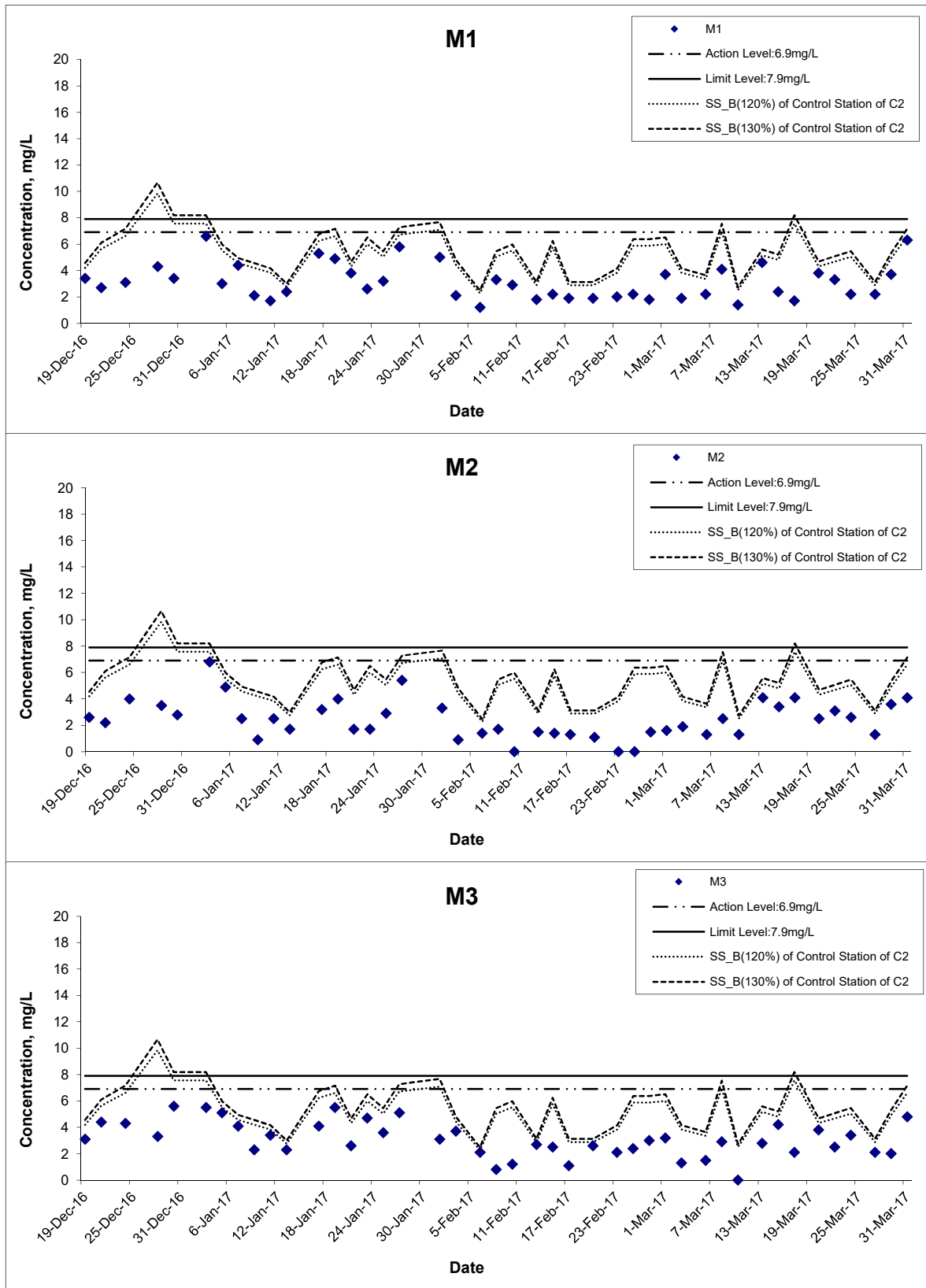


Remarks: The graphical point at zero concentration is presented as <2.5mg/L.

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
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CINOTECH

Suspended Solids (Bottom) at Mid-Ebb Tide

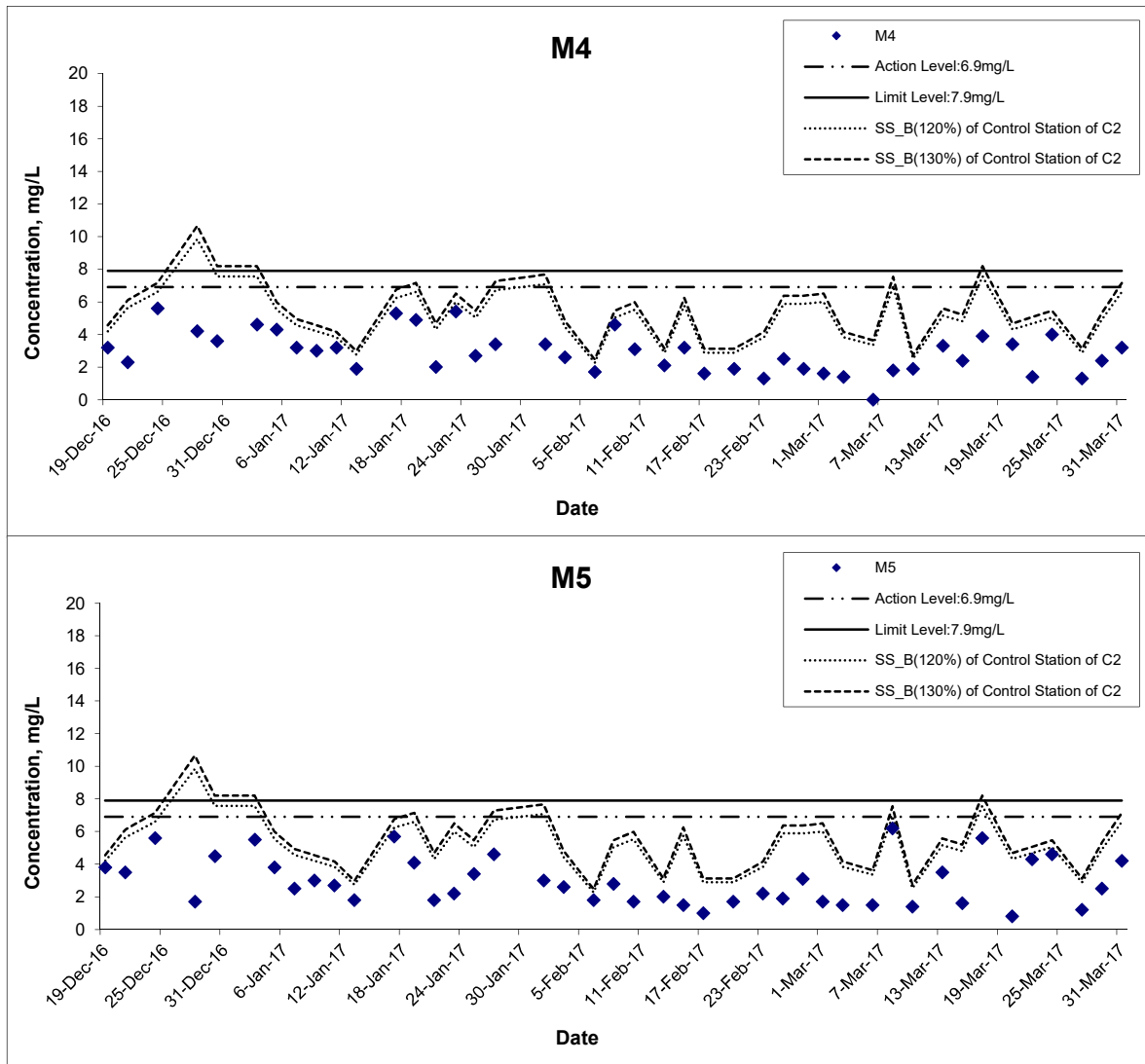


Remarks: The graphical point at zero concentration is presented as <2.5mg/L.

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
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Suspended Solids (Bottom) 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

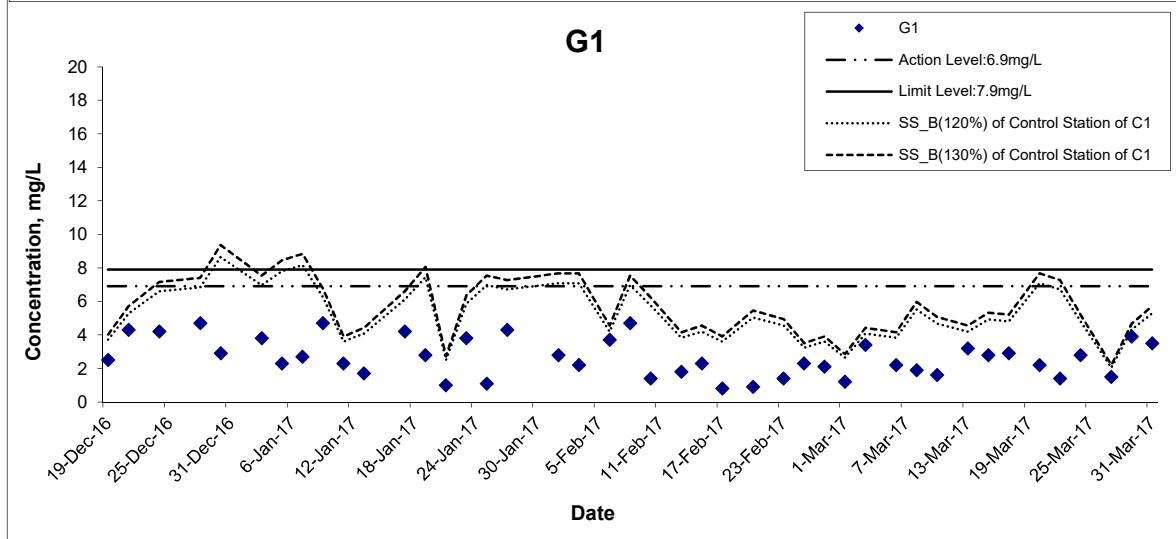
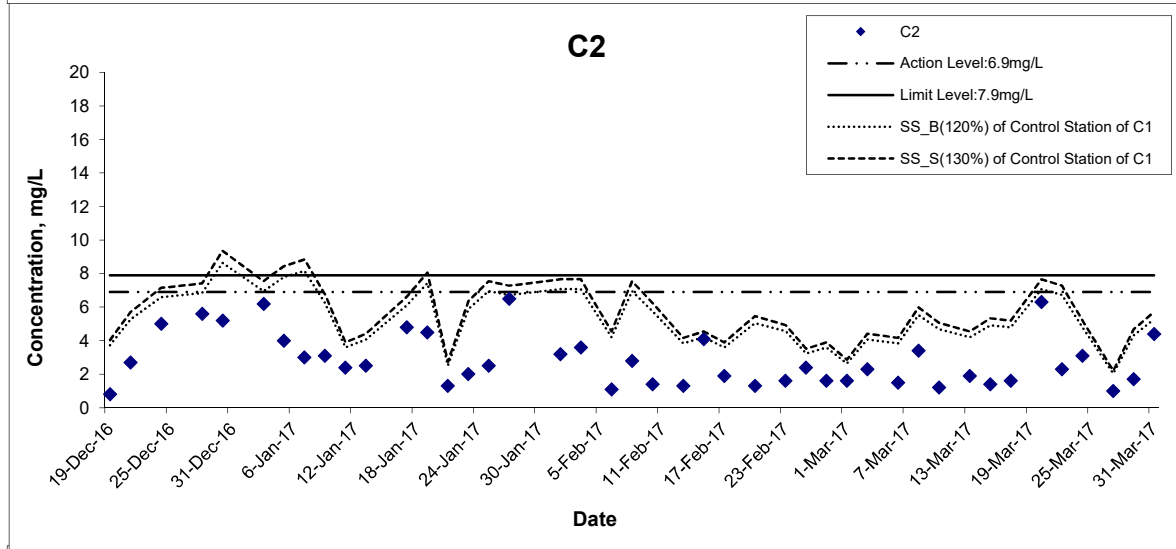
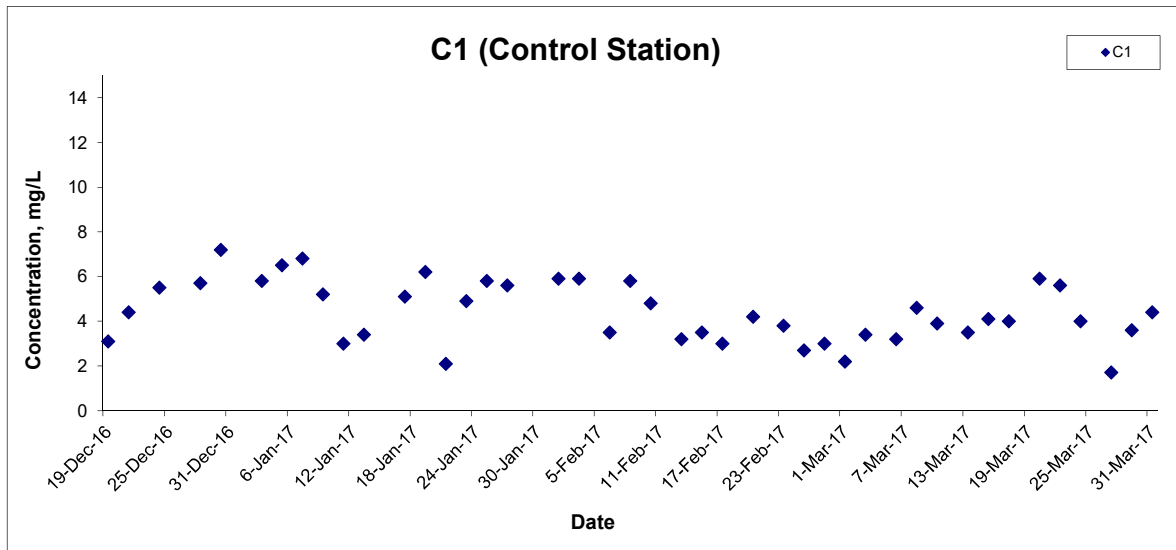
Date Mar 17

Project No. MA16034

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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

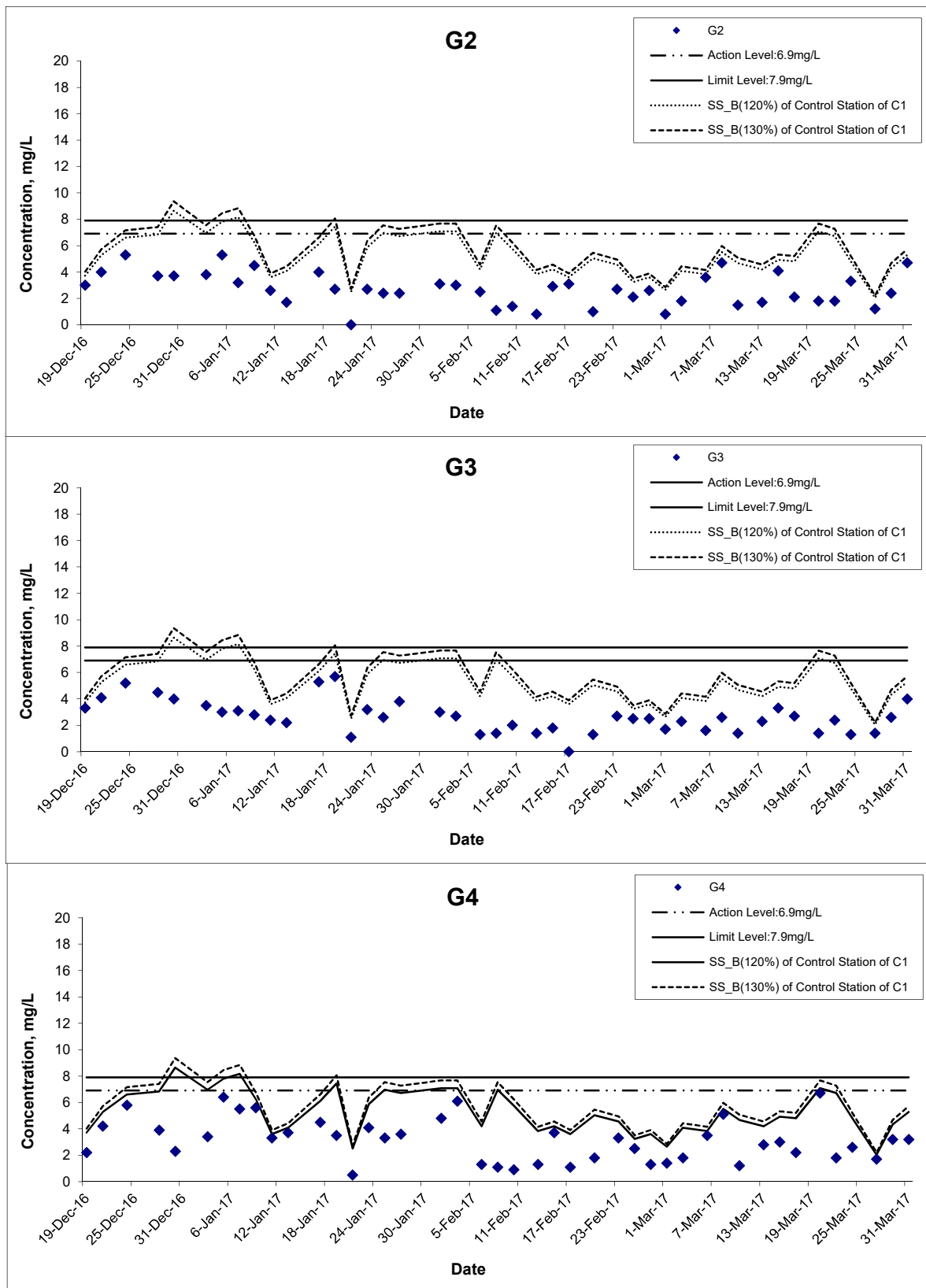
Date Mar 17

Project No. MA16034

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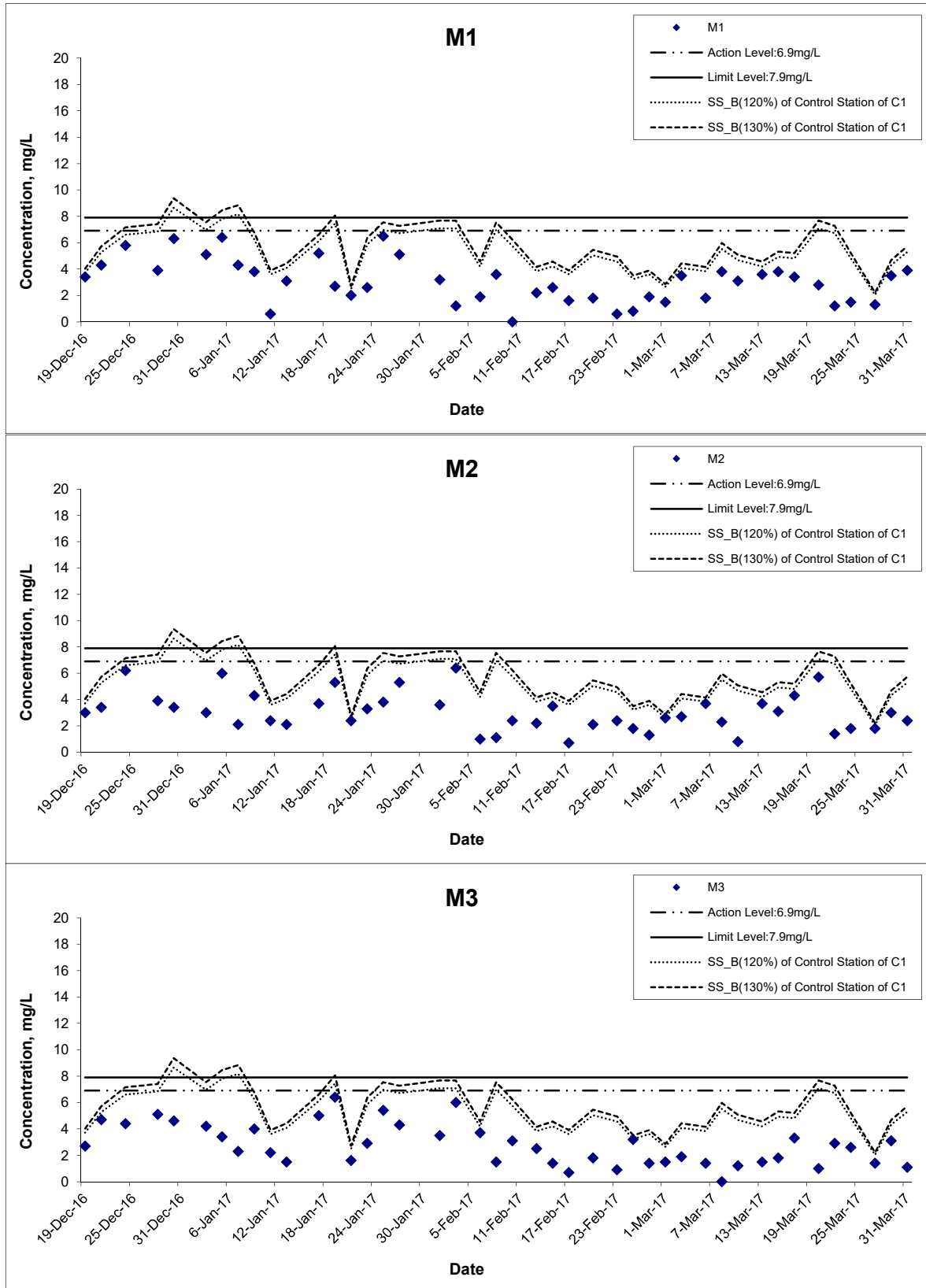
Suspended Solids (Bottom) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

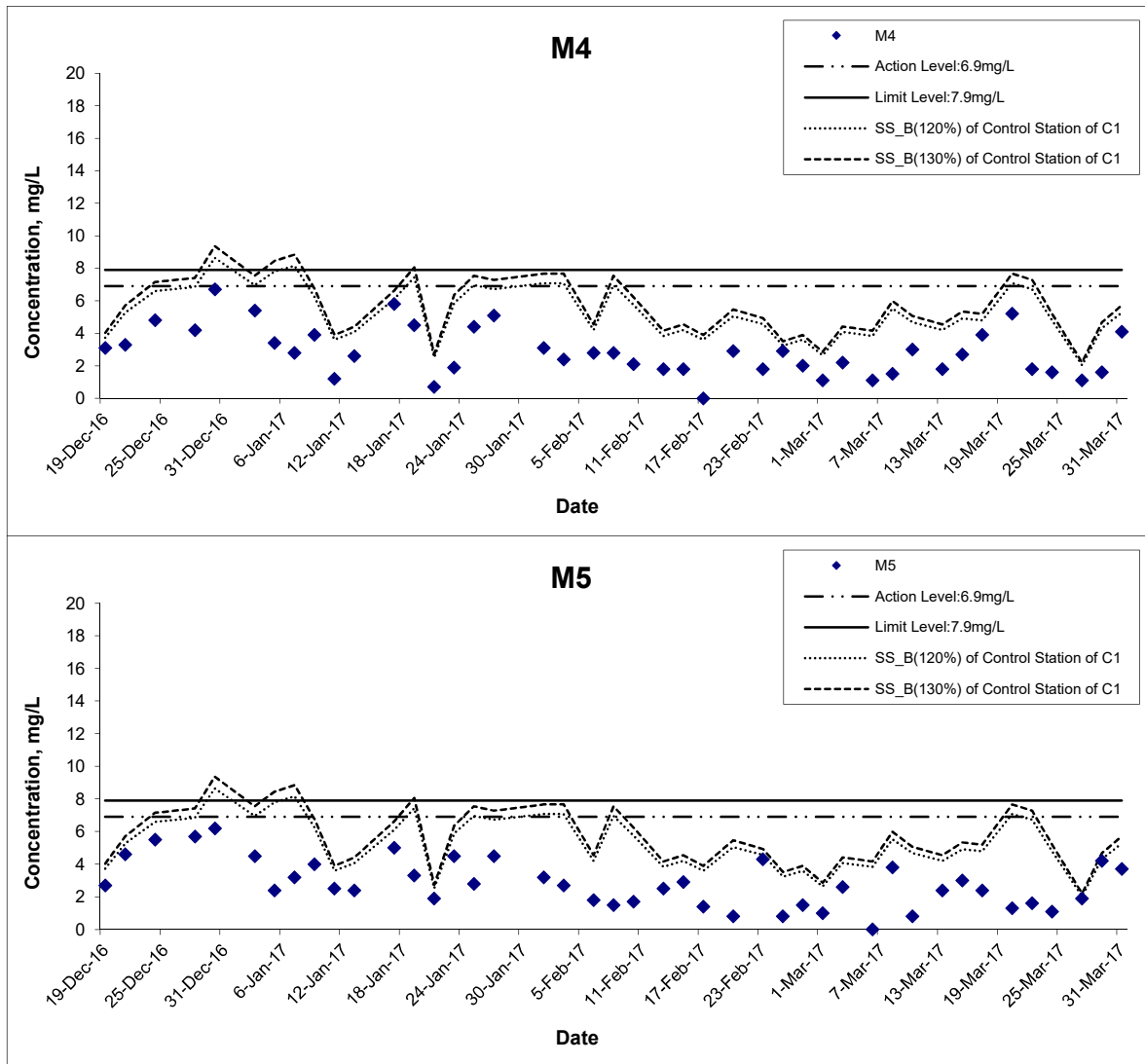
Suspended Solids (Bottom) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

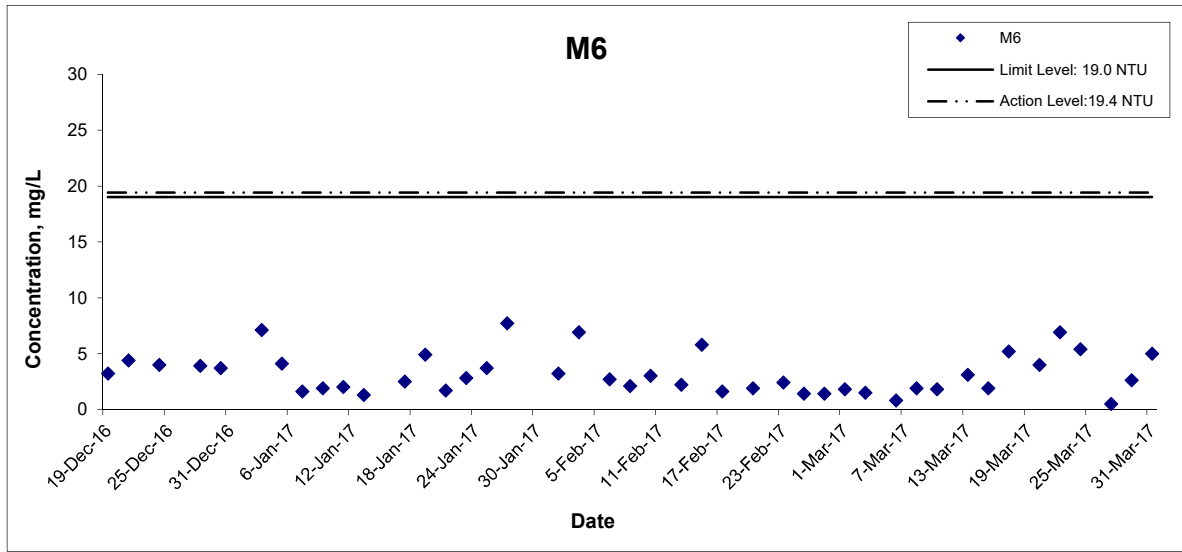
Suspended Solids (Bottom) at Mid-Flood Tide



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

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
	Graphical Presentation of Water Quality Monitoring Results	Date	Mar 17	Appendix	I	

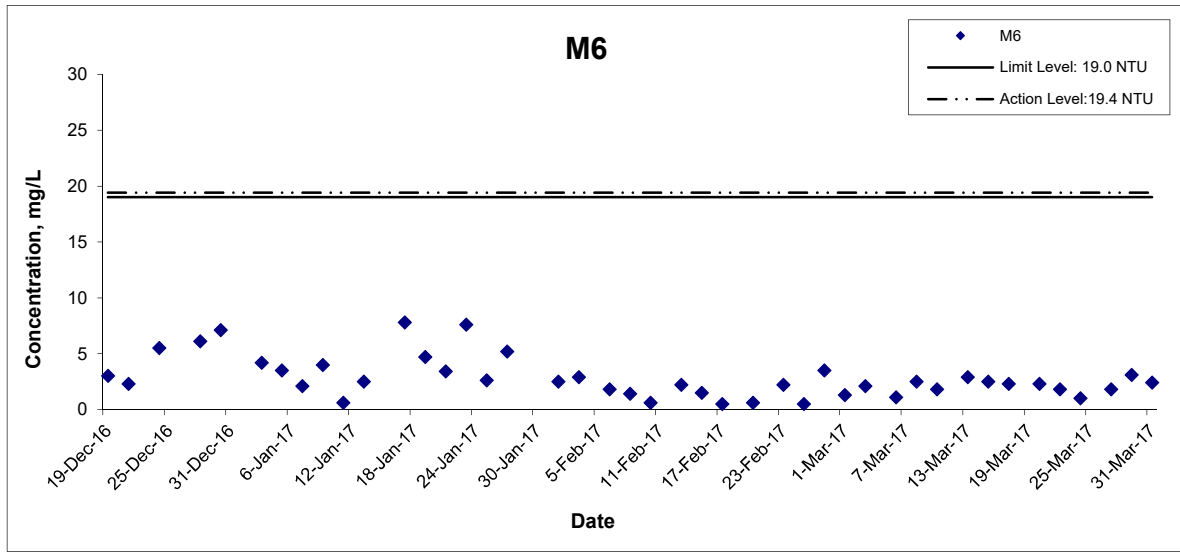
Suspended Solids (Intake Level of WSD Salt Water Intake) at Mid-Ebb Tide



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	Project No.	MA16034
	Date	Mar 17	Appendix	I



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	Project No. MA16034	CINOTECH
	Date Mar 17	Appendix I	

**APPENDIX J
QUALITY CONTROL REPORTS FOR
LABORATORY ANALYSIS**

TEST REPORT

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

Report No.:	QC26674
Date of Issue:	2017-03-27
Date Received:	2017-03-15
Date Tested:	2017-03-15
Date Completed:	2017-03-27

ATTN: Ms. Mei Ling Tang
QC report:

Page: 1 of 2

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) (%)	111	80-120
Biochemical Oxygen Demand (mg O ₂ /L)	184	170-220
Total Organic Carbon (%)	99	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	100	80-120
Total Phosphorus (%)	104	80-120

Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 26674.

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

Report No.:	QC26674
Date of Issue:	2017-03-27
Date Received:	2017-03-15
Date Tested:	2017-03-15
Date Completed:	2017-03-27

Page: 2 of 2

QC report:

Sample Duplicate

Parameter	26674-3 chk	Acceptance
Suspended Solids (SS) (%)	3	RPD \leq 20%
Biochemical Oxygen Demand (%)	N/A	RPD \leq 20%
Total Organic Carbon (%)	3	RPD \leq 20%
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	N/A	RPD \leq 20%
Total Phosphorus (%)	N/A	RPD \leq 20%

Sample Spike

Parameter	26674-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	108	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	114	80-120
Total Phosphorus (%)	87	80-120

Remarks: 1) \leq less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 26674.

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

TEST REPORT

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

Report No.:	QC26758
Date of Issue:	2017-04-12
Date Received:	2017-03-31
Date Tested:	2017-03-31
Date Completed:	2017-04-12

ATTN: Ms. Mei Ling Tang
QC report:

Page: 1 of 2

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)	197	170-220
Total Organic Carbon (%)	98	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	102	80-120
Total Phosphorus (%)	95	80-120

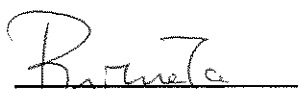
Remarks: 1) < = less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 26758.

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

Report No.:	QC26758
Date of Issue:	2017-04-12
Date Received:	2017-03-31
Date Tested:	2017-03-31
Date Completed:	2017-04-12

Page: 2 of 2

QC report:

Sample Duplicate

Parameter	26758-3 chk	Acceptance
Suspended Solids (SS) (%)	3	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 (%)	1	RPD<20%
Total Phosphorus (%)	N/A	RPD<20%

Sample Spike

Parameter	26758-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	95	80-120
Nitrogen (Total Kjeldahl + nitrate + nitrite)	N/A	N/A
Ammonia (%)	106	80-120
Total Phosphorus (%)	110	80-120

Remarks: 1) <= less than

2) N/A = Not applicable

3) This report is the summary of quality control data for report number 26758.

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

TEST REPORT

QC REPORT

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

Report No.:	26601
Date of Issue:	2017/03/02
Date Received:	2017/03/01
Date Tested:	2017/03/01
Date Completed:	2017/03/02
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

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

Project No.: MA16034

Sampling Date: 2017/03/01

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170301

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	5.2	5.2	1	102

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26614
Date of Issue:	2017/03/06
Date Received:	2017/03/03
Date Tested:	2017/03/03
Date Completed:	2017/03/06

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/03

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170303

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
G3me	2.1	2.1	2	101

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26618
Date of Issue:	2017/03/07
Date Received:	2017/03/06
Date Tested:	2017/03/06
Date Completed:	2017/03/07

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/06

Number of Sample: 132

Custody No.: MA16034-CE/59/2015(EP)/170306

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4me	3.4	3.5	4	100

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26630
Date of Issue:	2017/03/09
Date Received:	2017/03/08
Date Tested:	2017/03/08
Date Completed:	2017/03/09

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/08

Number of Sample: 132

Custody No.: MA16034-CE/59/2015(EP)/170308

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4me	2.9	2.8	3	101

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26652
Date of Issue:	2017/03/13
Date Received:	2017/03/10
Date Tested:	2017/03/10
Date Completed:	2017/03/13

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/10

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170310

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	2.9	2.9	2	98

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26659
Date of Issue:	2017/03/14
Date Received:	2017/03/13
Date Tested:	2017/03/13
Date Completed:	2017/03/14

ATTN: Ms. Mei Ling Tang

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

Project No.: MA16034

Sampling Date: 2017/03/13

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170313

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	2.3	2.4	4	97

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26669
Date of Issue:	2017/03/16
Date Received:	2017/03/15
Date Tested:	2017/03/15
Date Completed:	2017/03/16

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/15

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170315

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	4.0	4.3	7	107

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26679
Date of Issue:	2017/03/20
Date Received:	2017/03/17
Date Tested:	2017/03/17
Date Completed:	2017/03/20

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/17

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170317

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
C2se	4.6	4.7	4	94

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26689
Date of Issue:	2017/03/21
Date Received:	2017/03/20
Date Tested:	2017/03/20
Date Completed:	2017/03/21
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

Project Name: Enviromental Team for Tseung Kwan O - Lam Tin Tunnel -
Design and Construction Agreement No. CE/59/2015 (EP)
Project No.: MA16034
Sampling Date: 2017/03/20
Number of Sample: 136
Custody No.: MA16034-CE/59/2015(EP)/170320

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	4.3	4.2	3	92

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26700
Date of Issue:	2017/03/23
Date Received:	2017/03/22
Date Tested:	2017/03/22
Date Completed:	2017/03/23

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/22

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170322

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	5.7	5.8	3	102

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26710
Date of Issue:	2017/03/27
Date Received:	2017/03/24
Date Tested:	2017/03/24
Date Completed:	2017/03/27
Page:	1 of 1

ATTN: Ms. Mei Ling Tang

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

Project No.: MA16034

Sampling Date: 2017/03/24

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170324

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	3.3	3.4	2	102

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26723
Date of Issue:	2017/03/28
Date Received:	2017/03/27
Date Tested:	2017/03/27
Date Completed:	2017/03/28

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/27


Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170327

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	3.8	3.6	5	101

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26736
Date of Issue:	2017/03/30
Date Received:	2017/03/29
Date Tested:	2017/03/29
Date Completed:	2017/03/30

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/29

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170329

Total Suspended Solids	Duplicate Analysis			QC Recovery, %
Sampling Point	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	3.9	3.8	3	102

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

QC REPORT

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

Report No.:	26746
Date of Issue:	2017/04/03
Date Received:	2017/03/31
Date Tested:	2017/03/31
Date Completed:	2017/04/03

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

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

Project No.: MA16034

Sampling Date: 2017/03/31

Number of Sample: 136

Custody No.: MA16034-CE/59/2015(EP)/170331

Total Suspended Solids Sampling Point	Duplicate Analysis			QC Recovery, %
	Trial 1, mg/L	Trial 2, mg/L	Difference, %	
M4se	4.5	4.5	1	101

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

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



PATRICK TSE
Laboratory Manager

**APPENDIX K
SUMMARY OF EXCEEDANCE**

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

Appendix K – Summary of Exceedance

Reporting Period: March 2017

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

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise

(Two Action Level exceedance was recorded on 8th and 13th March 2017 due to the documented complaints received)

Limit Level for Construction Noise

(One Limit Level exceedance was recorded on 21 March 2017 at CM5)

Station	Location	Time	Measured Level (Leq dB(A))	Baseline Noise Level (Leq dB(A))	Construction Noise Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
CM5	CCC Kei Faat Primary School	15:00	67.5	68.2	67.5 Measured ≤ Baseline	When one documented complaint is received	65.0	Limit

Note: Measured noise level has not exceeded the baseline noise level at station CM5. Therefore, the exceedance is considered as non-Project related and invalid

(C) Exceedance Report for Water Quality

(One Action Level and Ten Limit Level exceedance in groundwater quality monitoring as followed:

Date	Monitoring Location	Monitoring Parameter	Monitoring Results	Action Level	Limit Level
15 Mar 2017	Stream 1	Suspended Solids	5.9 mg/L	5.5	6.2
	Stream 1	Total Organic Carbon	6 mg-TOC/L	4.3	4.9
	Stream 2	Total Organic Carbon	9 mg-TOC/L	4.3	4.9
	Stream 3	Total Organic Carbon	6 mg-TOC/L	4.3	4.9
30 Mar 2017	Stream 2	BOD ₅	4 mg O ₂ /L	2.0	2.0
	Stream 1	Total Organic Carbon	6 mg-TOC/L	4.3	4.9
	Stream 2	Total Organic Carbon	10 mg-TOC/L	4.3	4.9
	Stream 3	Total Organic Carbon	6 mg-TOC/L	4.3	4.9
	Stream 2	Ammonia-N	0.20 mg NH ₃ -N/L	0.05	0.06
	Stream 3	Ammonia-N	0.10 mg NH ₃ -N/L	0.05	0.06
	Stream 2	Total Phosphorus	0.08 mg-P/L	0.05	0.05

According to the information provided by the Contractor, no tunnel boring or tunnel construction works were carried out in both Lam Tin side and Tseung Kwan O side in March 2017. Therefore, it is considered that the exceedance is not project-related.)

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

Appendix K – Summary of 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)

**APPENDIX L
SITE AUDIT SUMMARY**

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/01

Tseung Kwan O-Lam Tin Tunnel-Main Tunnel and Associated Works

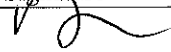

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170301
Date	1 March 2017 (Wednesday)
Time	9:15-11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170301-R02	B. Water Quality <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	F 7
170301-R03	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. D. Landscape & Visual <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. E. Air Quality <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. F. Construction Noise Impact <ul style="list-style-type: none">To repair the gap between the cantilever noise barrier and the container noise barrier.To provide mitigation measures (e.g. Temporary noise barrier or Full enclosure) to PME as proposed in the approved NMP in CKL.	F 11
170301-R01	G. Waste / Chemical Management <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. H. Permits/Licences <ul style="list-style-type: none">To provide and display the Environmental Permit for the marine barge in TKO.	H 5
170301-F04	I. Impact on Cultural Heritage <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. J. Others <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 170222), item ref no. 170222-R04 is remarked as 170301-R03. Follow up action is needed to be reviewed during the next site inspection.Follow up action is needed to be reviewed for item ref no. 170222-O02 and 170222-R03.	J2, 3

	Name	Signature	Date
Recorded by	Johnny Fung		1 March 2017
Checked by	Dr. Priscilla Choy		1 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/01

Tseung Kwan O-Lam Tin Tunnel-Main Tunnel and Associated Works

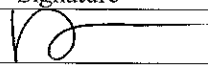

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170308
Date	8 March 2017 (Wednesday)
Time	09:15 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170308-R01	B. Water Quality <ul style="list-style-type: none"> Sand and mud is observed accumulated in U-channel of Portion 2 in Cha Kuo Ling site. The construction is reminded to remove the mud regularly and ensure the effectiveness of U-channel. 	B7
170308-R02	<ul style="list-style-type: none"> To remove litter and debris from U-channel in TKO site. 	B7
	C. Ecology <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	D. Landscape & Visual <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	E. Air Quality <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
170308-R03	F. Construction Noise Impact <ul style="list-style-type: none"> To provide mitigation measures (eg. Temporary noise barrier or full enclosure) to as prepared in the approved WMP in CKL. 	F11
170308-R02	G. Waste / Chemical Management <ul style="list-style-type: none"> To remove litter and debris from U-channel in TKO site 	G1 iii
	H. Permits/Licences <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
170308-F04	I. Others <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 170301), item ref no. 170301-F04 is remarked as 170308-F04. Follow up action is needed to be reviewed during the next site inspection. Follow up action is needed to be reviewed for item ref no. 170222-O02 and 170222-R03. 	J2, 3

	Name	Signature	Date
Recorded by	Johnny Fong		8 March 2017
Checked by	Dr. Priscilla Choy		8 March 2017

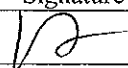

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170315
Date	15 March 2017 (Wednesday)
Time	09:00 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170315-R06 170315-R01	<p>B. Water Quality</p> <ul style="list-style-type: none"> To set up proper drainage system in CKL site Portion 3. Sand and mud/litter/C&D waste is observed accumulated in U-channel of Portion 2 and Portion 3. In Cha Kuo Ling site. The contractor is reminded to remove the material regularly and ensure the effectiveness of U-channel. 	B1 B7
170315-R02	<ul style="list-style-type: none"> Silty water accumulated near slope in TKO. The contractor is reminded to remove the silty water to avoid silty water flow out of site. 	B20
170315-R03	<ul style="list-style-type: none"> Dusty material observed deposited near the seafront in Portion WAZ. The contractor is reminded to remove the material to avoid mud/sand fall into the sea. 	B25
	<p>C. Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<p>D. Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
170315-R08	<p>E. Air Quality</p> <ul style="list-style-type: none"> To repair the gaps and noise of the tarpaulin sheets in Portion 3 to ensure the effectiveness of dust curtain. 	E11
	<p>F. Construction Noise Impact</p> <ul style="list-style-type: none"> To repair noise barrier of breaker in CKL site Portion 3. 	F7
170315-R05 170315-R07	<ul style="list-style-type: none"> To provide mitigation measures (Temporary noise barrier or Full enclosure) to drill rig and excavator as proposed in the approval NMP in Cha Kuo Ling. 	F11
170315-R04	<p>G. Waste / Chemical Management</p> <ul style="list-style-type: none"> To remove the oil stain near the drill rig in TKO. 	G9
	<p>H. Permits/Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<p>I. Others</p> <ul style="list-style-type: none"> Follow-up on previous audit session (Ref. No.: 170308), item ref no. 170308-R01 and 170308-R03 are remarked as 170315-R01 and 170315-R07 respectively. Item ref no. 170222-O02, 170222-R03, 170301-R01, 170301-R02 and 170308-R02 are remarked as 170315-F09. Follow up actions are needed to be reviewed during the next site inspection. 	J1,3 J2,4

	Name	Signature	Date
Recorded by	Johnny Fung		15 March 2017
Checked by	Dr. Priscilla Choy		15 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/01

Tseung Kwan O-Lam Tin Tunnel-Main Tunnel and Associated Works

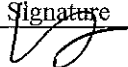
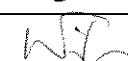
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170322
Date	22 March 2017 (Wednesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170322-R01	B. Water Quality <ul style="list-style-type: none">To repair the silt curtain and ensure that the geotextile should be extended to seabed.	B28
	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Landscape & Visual <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	E. Air Quality <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
170322-R03	F. Construction Noise Impact <ul style="list-style-type: none">To provide mitigation measures (ie. Full enclosure) to drill rig as proposed in the approved NMP in Cha Kuo Ling.	F11
170322-R02	G. Waste / Chemical Management <ul style="list-style-type: none">To remove the oil stain near the drill rig in TKO.	G9
	H. Permits/Licences <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	I. Others <ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 170315), item ref no. 170315-R04 and 170315-R07 are remarked as 170322-R02 and 170322-R03 respectively. Follow up action is needed to be reviewed for item ref no. 170315-R06.	J2,4

	Name	Signature	Date
Recorded by	Johnny Fung		22 March 2017
checked by	Dr. Priscilla Choy		22 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/01

Tseung Kwan O–Lam Tin Tunnel–Main Tunnel and Associated Works



Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170329
Date	29 March 2017 (Wednesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170329-O01	B. Water Quality <ul style="list-style-type: none">Silty water on the sea observed near the marine works area. The contractor is reminded to check the silt curtain deployed and ensure the effectiveness.	B28
	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Landscape & Visual <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
170329-O02	E. Air Quality <ul style="list-style-type: none">Dust emission observed at the top of slope of TKO. The contractor is reminded to provide frequent water spray to unpaved works area.	E5
170329-R05	<ul style="list-style-type: none">Clear the used cement bags in TKO slope.	
170329-R04	F. Construction Noise Impact <ul style="list-style-type: none">To provide mitigation measures (Full enclosure) to drill rig as proposed in the approved NMP in Cha Kwo Ching.	F11
170329-R03	G. Waste / Chemical Management <ul style="list-style-type: none">Provide drip tray to chemical containers at the top of slope of TKO.	G3
	H. Permits/Licences <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	I. Others <ul style="list-style-type: none">Follow-up on previous audit session (Ref. No.: 170322), item ref no. 170322-R01 and 170322-R03 are remarked as 170329-O01 and 170329-R04 respectively.	J1,3

	Name	Signature	Date
Recorded by	Johnny Fung		29 March 2017
Checked by	Dr. Priscilla Choy		29 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/02

Tseung Kwan O-Lam Tin Tunnel-Road P2 and Associated Works

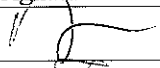
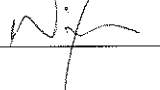
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170302
Date	2 March 2017 (Thursday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170302-R02	B. Water Quality <ul style="list-style-type: none">To remove the muddy water accumulated in the U-channel near site boundary at Area A.	B 7
	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Landscape & Visual <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
170302-R01	E. Air Quality <ul style="list-style-type: none">To provide water spray to unpaved area at Portion 8 to avoid dust emission.	E 5
	F. Construction Noise Impact <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Waste / Chemical Management <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Permits/Licences <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	I. Others <p>Follow-up on previous audit section (Ref. No.: 170223), all identified environmental deficiency was observed improved/rectified by the Contractor.</p>	

	Name	Signature	Date
Recorded by	Johnny Fung		2 March 2017
Checked by	Dr. Priscilla Choy		2 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/02

Tseung Kwan O–Lam Tin Tunnel–Road P2 and Associated Works

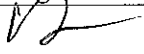

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170309
Date	9 March 2017 (Thursday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170309-R01	<p>B. Water Quality</p> <ul style="list-style-type: none">To repair the silt curtain at Chang Sheng 307 that the geotextile should be extended to seabed before start the works. <p>C. Ecology</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>D. Landscape & Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>E. Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>F. Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>G. Waste / Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>H. Permits/Licences</p> <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. <p>I. Others</p> <p>Follow-up on previous audit section (Ref. No.: 170302), all identified environmental deficiency was observed improved/rectified by the Contractor.</p>	B 42

	Name	Signature	Date
Recorded by	Johnny Fung		9 March 2017
Checked by	Dr. Priscilla Choy		9 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/02

Tseung Kwan O–Lam Tin Tunnel–Road P2 and Associated Works

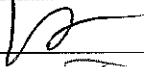
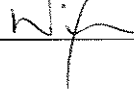
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170314
Date	14 March 2017 (Tuesday)
Time	14:00 – 10:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170314-R03	B. Water Quality <ul style="list-style-type: none">To properly cover the dusty material stored near gullies near Portion I and remove the sand deposited near the gullies.	B 20
170314-R01	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. D. Landscape & Visual <ul style="list-style-type: none">To remove the construction material/waste near the tree and set up proper tree protection area in Portion 8. E. Air Quality <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. F. Construction Noise Impact <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	D3
170314-R02	G. Waste / Chemical Management <ul style="list-style-type: none">To provide drip trays to chemical containers on unpaved ground in Portion 8.. H. Permits/Licences <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. I. Others <p>Follow-up on previous audit section (Ref. No.: 170309), all identified environmental deficiency was observed improved/rectified by the Contractor.</p>	G10

	Name	Signature	Date
Recorded by	Johnny Fung		14March 2017
Checked by	Dr. Priscilla Choy		14 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/02

Tseung Kwan O-Lam Tin Tunnel-Road P2 and Associated Works



Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170323
Date	23 March 2017 (Tuesday)
Time	14:00-15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p>B. Water Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>C. Ecology</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>D. Landscape & Visual</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>E. Air Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>F. Construction Noise Impact</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>G. Waste / Chemical Management</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection.. <p>H. Permits/Licences</p> <ul style="list-style-type: none">• No environmental deficiency was identified during site inspection. <p>I. Others</p> <p>Follow-up on previous audit section (Ref. No.: 170314), all identified environmental deficiency was observed improved/rectified by the Contractor.</p>	

	Name	Signature	Date
Recorded by	Johnny Fung		23 March 2017
Checked by	Dr. Priscilla Choy		23 March 2017

Agreement No. CE 59/2015 (EP)

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

Contract NE/2015/02

Tseung Kwan O-Lam Tin Tunnel-Road P2 and Associated Works



Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	170329
Date	29 March 2017 (Wednesday)
Time	14:00-15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
170329-R01	B. Water Quality <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. D. Landscape & Visual <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. E. Air Quality <ul style="list-style-type: none">To cover the stockpile of dusty material by tarpaulin sheet properly in Area A. F. Construction Noise Impact <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	E6
170329-R02	G. Waste / Chemical Management <ul style="list-style-type: none">To clear the oil stain near the drip tray as "chemical waste" in Portion 8. H. Permits/Licences <ul style="list-style-type: none">No environmental deficiency was identified during site inspection. I. Others <p>Follow-up on previous audit section (Ref. No.: 170322), no major environmental deficiency was identified during site inspection.</p>	G9

	Name	Signature	Date
Recorded by	Johnny Fung		29 March 2017
Checked by	Dr. Priscilla Choy		29 March 2017

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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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; 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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 <i>in-situ</i> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal. 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal; 	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> • If exceedance is found to be caused by the reclamation activities, repeat <i>in-situ</i> 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. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IC(E), ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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%	<ul style="list-style-type: none"> • Ventilate to restore oxygen to >19%
	<18%	<ul style="list-style-type: none"> • Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5% by volume)	<ul style="list-style-type: none"> • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. > 1% by volume)	<ul style="list-style-type: none"> • Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	<ul style="list-style-type: none"> • Ventilate to restore carbon dioxide to < 0.5%
	>1.5%	<ul style="list-style-type: none"> • 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.

**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)

- 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.	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	* (1) / # (2)
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, 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: <ul style="list-style-type: none"> - 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, watering shall be 	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	* (1) / # (2) * (1) / # (2) # (3) / * (4) /

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March 2017

EIA Ref.	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
	<p>applied to aggregate fines.</p> <ul style="list-style-type: none"> - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. - Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. - Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. - Imposition of speed controls for vehicles on site haul roads. - Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs - Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. - Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 						<p># (5) # (3) ^ ^ N/A ^ ^ ^ N/A ^</p>

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March 2017

EIA Ref.	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
/	Emission from Vehicles and Plants <ul style="list-style-type: none"> • 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	# (6) / * (7) / * (8)
S4.9	Good Site Practice <ul style="list-style-type: none"> - 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. 	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

March 2017

EIA Ref.	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
	<ul style="list-style-type: none"> - 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. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
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 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	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

March 2017

EIA Ref.	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
	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.						
S5.8.3	Other good site practices should be undertaken during filling operations include: <ul style="list-style-type: none"> - 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 	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	^ # (9) ^ ^ ^ * (10) ^ ^ # (11)

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

March 2017

EIA Ref.	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
	<p>objectionable matter to be present on the water within the site or dumping grounds; and</p> <ul style="list-style-type: none"> - before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain. 						^
S5.8.4	<p>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.</p>	<p>Control potential impacts from filling activities and marine based construction</p>	<p>CEDD's Contractors</p>	<p>Work site</p>	<p>Construction Phase</p>	<p>ProPECC PN 1/94, EIAOTM, WPCO</p>	<p>N/A</p>
ERR S5.6.1	<p>To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> - 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. The general of arrangement of silt curtain is shown in Figure 7 of the existing Environmental Permit (No. EP-458/2013/A). 	<p>Control potential impacts from dredging and filling works for Reclamation for Road P2</p>	<p>CEDD's Contractors</p>	<p>Work site</p>	<p>Construction Phase</p>	<p>ProPECC PN 1/94, EIAOTM, WPCO</p>	<p>^ N/A N/A ^</p>

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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	*(12)
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	# (13)
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	* (14)
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	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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	- adequate maintenance of drainage systems to prevent flooding and overflow.						^
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m ³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
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-	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^

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		based construction					
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 runoff 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	* (15)
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	^
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	^

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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	* (16)
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	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	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM,	N/A

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<p>& Table 5.18</p>	<p>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.</p>	<p>construction site runoff and land-based construction</p>				<p>WPCO, Buildings Ordinance</p>	
<p>S5.8.28</p>	<p>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.</p>	<p>Control potential impacts from construction site runoff and land-based construction</p>	<p>CEDD's Contractors</p>	<p>Work site</p>	<p>Design Stage and Construction Phas</p>	<p>ProPECC PN 1/94, EIAOTM, WPCO</p>	<p>N/A</p>
<p>S5.8.29 - S5.8.31</p>	<p>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.</p>	<p>Control potential impacts from construction site runoff and land-based construction</p>	<p>CEDD's Contractors</p>	<p>Work site</p>	<p>Construction Phase</p>	<p>ProPECC PN 1/94, EIAOTM, WPCO</p>	<p>^</p>

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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
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

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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 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	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		runoff and land-based construction					
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^

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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	<p>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:</p> <ul style="list-style-type: none"> - 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	# (17) ^ ^
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	<p>Measures to Minimize Disturbance</p> <ul style="list-style-type: none"> - 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 	Minimize noise, human and traffic disturbance to terrestrial habitat	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^

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	<p>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;</p> <ul style="list-style-type: none"> - Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities 	<p>and wildlife; and reduce dust generation</p>					^
S6.8.5	<p>Standard Good Site Practice</p> <ul style="list-style-type: none"> - Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. - Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. - Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. - General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. - Open burning on works sites is illegal, and should be strictly prohibited. - Measures should also be put into place so that litter, fuel and solvents do not enter the nearby watercourses. 	<p>Reduce disturbance to surrounding habitats</p>	Contractor	Land-based works are	Construction Phase	N/A	^ ^ ^ ^ ^ ^
S6.8.6	<p>Measure to Minimize Groundwater Inflow</p> <ul style="list-style-type: none"> - 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. 	<p>Minimize groundwater inflow</p>	Contractor	Tunnel	Construction Phase	N/A	N/A N/A

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S6.8.8	<p><i>Measure to Minimize Impact on Corals</i></p> <p><u>Coral translocation</u></p> <ul style="list-style-type: none"> - It is recommended to translocate the affected coral colonies, except the locally common <i>Oulastrea crispata</i>, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. - The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). - A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage. - The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation. <p><u>Post translocation Monitoring</u></p> <ul style="list-style-type: none"> - 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. 	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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S6.8.9 S6.8.10	<p><i>Measure to Control Water Quality Impact</i></p> <ul style="list-style-type: none"> - Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. - Diverting of the site runoff to silt trap facilities before discharging into storm drain; - Proper waste and dumping management; and - Standard good-site practice for land-based construction. 	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies	Design Team, contractor	Marine and landbased works area	Construction phase	WQO	N/A ^ ^ ^
S6.8.11	<p><i>Compensation for Vegetation Loss</i></p> <ul style="list-style-type: none"> - 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	^
<i>Fisheries Impact</i>							
S7.7.3	<p><i>Measure to Control Water Quality Impact</i></p> <ul style="list-style-type: none"> - Deployment of silt curtains around the active stone column installation points, opening of 	Control water quality impact,	Design Team / Contractor	Marine work area	Construction phase	WQO	^

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	newly installed seawall and marine works area.	especially on suspended solid level					
Waste Management (Construction Phase)							
S8.6.3	<p>Good Site Practices and Waste Reduction Measures</p> <ul style="list-style-type: none"> - 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)	^ ^ ^ ^ * (14)
S8.6.4	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <ul style="list-style-type: none"> - 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 (Cap.	^ ^ ^ ^

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	and avoid unnecessary generation of waste.					28)	
S8.6.5	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <p>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.</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^
S8.6.6	<p>Good Site Practices and Waste Reduction Measures (con't)</p> <ul style="list-style-type: none"> - 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	<p>Storage, Collection and Transportation of Waste</p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> - 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	-	^ ^ ^ ^

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S8.6.8	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <ul style="list-style-type: none"> - 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; 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	<p><i>Storage, Collection and Transportation of Waste (con't)</i></p> <ul style="list-style-type: none"> - 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	<p><i>Sorting of C&D Materials</i></p> <ul style="list-style-type: none"> - 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. 	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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	<ul style="list-style-type: none"> - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills 					ETWB TCW No. 19/2005	^
<p>S8.6.15</p> <p>–</p> <p>S8.6.16</p>	<p>Sediments</p> <ul style="list-style-type: none"> - 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 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 	To ensure the sediment to be disposed of in an authorized and least impacted way	contractor	All works areas with sediments concern	Construction Phase	RBRG	<p>N/A</p> <p>N/A</p>

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	<p>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</p>						
<p>S8.6.17 – S8.6.20</p>	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - 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 handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 	<p>To determine the best handling and treatment of sediment</p>	<p>Contractor</p>	<p>All works areas with sediments concern</p>	<p>Construction Phase</p>		<p>N/A N/A N/A N/A</p>
<p>S8.6.21</p>	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - Alternatively, excavated sediment can be treated with marine disposal. The basic requirements and procedures for excavated sediment disposal specified under ETWB 	<p>To ensure the sediment to be disposed of in an</p>	<p>contractor</p>	<p>All works areas with sediments</p>	<p>Construction Phase</p>	<p>ETWB TC(W) No. 34/2002 & Dumping at Sea</p>	<p>N/A</p>

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	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.	authorized and least impacted way		concern		Ordinance	
S8.6.23	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - 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	N/A
S8.6.24 - S8.6.28	<p>Sediments (con't)</p> <ul style="list-style-type: none"> - The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excavated 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 	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	N/A N/A

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	<p>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).</p> <ul style="list-style-type: none"> - In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. - The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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	confined mud disposal.						
S8.6.26	<p>Chemical Wastes.</p> <ul style="list-style-type: none"> - 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	<p>General Refuse</p> <ul style="list-style-type: none"> - 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	<p>Dust and visual impacts</p> <ul style="list-style-type: none"> - 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; 	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	N/A ^

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	<ul style="list-style-type: none"> - Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple. 						N/A
S9.6.4	Indirect vibration impact <ul style="list-style-type: none"> - 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.	N/A N/A N/A ^
<i>Landscape and Visual Impact (Construction Phase)</i>							
Table 10.8.1	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	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	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 provided in the	To minimize tree loss	CEDD (via Contractor)	As per approved	Site clearance and	ETWB TC 3/2006 and as per tree	* (18)

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	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	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	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 visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification	N/A
Table 10.8.1	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	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the	Reduction of visual	CEDD (via	Project site	Excretion of	N/A	^

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10.8.1	surrounding area	intrusion	Contractor)	Boundary	site hoarding		
Table 10.8.1	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	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

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Landfill Gas Hazard (Design and Construction Phase)							
S11.5.9	<p>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:</p> <p>Methane 0-100% LEL and 0100% v/v</p> <p>Carbon dioxide 0-100%</p> <p>Oxygen 0-21%</p>	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	<p>Safety Measures</p> <ul style="list-style-type: none"> - For staff who work in, or have responsibility for “at risk” area, such as all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. - An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out. - No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed. - Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. “No smoking” and “No naked flame” notices should be posted prominently on the construction site and, if necessary, special areas should be designed for smoking. - Welding, flame-cutting or other hot works should be confined to open areas at least 15m 	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	N/A N/A

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	<p>from any trench or excavation.</p> <ul style="list-style-type: none"> - Welding, flame-cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a “permit to work” procedure, properly authorized by the Safety Officer (or, in the case of small developments, other appropriately qualified person). - The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person, in attendance outside the 'confined area', who should be responsible for reviewing the gas measurements as they are made, and who should have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas. - Where there are any temporary site offices, or any other buildings located within the Sai Tso Wan Landfill Consultation Zone which have enclosed spaces with the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas (by survey using portable gas detectors); or be raised clear of the ground by a minimum of 500mm. This aims to create a clear void under the structure which is ventilated by natural air movement such that emission of gas from the ground are mixed and diluted by air. - Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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	<p>immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conducting should be capped at the end of each working day.</p> <ul style="list-style-type: none"> - 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 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 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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EIA Ref.	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, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system.						
S11.5.32	The hazards from landfill gas during the construction stage within the Sai Tso Wan Landfill Consultation Zone should be minimized by suitable precautionary measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note.	construction stage within the Sai Tso Wan Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	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.	Contractor	Work Sites	Details of Observation/Reminder
Air Quality Impact						
* (1)	S3.8.1 S3.8.7	Watering eight times a day on active works areas, exposed areas and paved haul roads 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.	NE/2015/02	CRBC – Build King JV	Construction of Road P2	To provide water spray to unpaved area at Portion 8 to avoid dust emission.
# (2)	S3.8.1 S3.8.7	Watering eight times a day on active works areas, exposed areas and paved haul roads 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	NE/2015/01	Leighton – China State JV	Site Formation of TKO Portal	Dust emission observed at the top of slope of TKO. The contractor is reminded to provide frequent water spray to unpaved works area.
# (3)	S3.8.7	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Side enclosure and covering of any aggregate or dusty material storage	NE/2015/02	CRBC – Build King JV	Construction of Road P2	To cover the stockpile of dusty material by tarpaulin sheet properly in Area A.

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March 2017

Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Contractor	Work Sites	Details of Observation/Reminder
		<p>piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.</p> <ul style="list-style-type: none"> - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. 				
* (4)	S3.8.7	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> - 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. 	NE/2015/01	Leighton – China State JV	Slope Works near Sin Fat Road Tennis Courts	To repair the gaps and noise of the tarpaulin sheets in Portion 3 to ensure the effectiveness of dust curtain.
# (5)	S3.8.7	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> - 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. 	NE/2015/01	Leighton – China State JV	Site Formation of TKO Portal	Clear the used cement bags in TKO slope.
Noise Impact (Construction Phase)						
# (6)	S4.8	<p>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.</p>	NE/2015/01	Leighton – China State JV	Construction of Lam Tin Interchange	The contractor is reminded to provide noise mitigation measures (e.g. Temporary noise barrier or Full enclosure) to PME as proposed in the approved NMP in Cha Kwo Ling.
* (7)	S4.8	<p>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</p>	NE/2015/01	Leighton – China State JV	Construction of Lam Tin Interchange	To repair the gap between the cantilever noise barrier and the container noise barrier.

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Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Contractor	Work Sites	Details of Observation/Reminder
		(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.				
* (8)	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.	NE/2015/01	Leighton – China State JV	Construction of Lam Tin Interchange	To repair noise barrier of breaker in CKL site Portion 3.
Water Quality Impact (Construction Phase) / Waste Management (Construction Phase)						
# (9)	S5.8.3	Other good site practices should be undertaken during filling operations include: - floating single silt curtain shall be employed for all marine works;	NE/2015/02	CRBC – Build King JV	Construction of Temporary Steel Cofferdam	To repair the silt curtain at Chang Sheng 307 that the geotextile should be extended to seabed before start the works.
* (10)	S5.8.3	Other good site practices should be undertaken during filling operations include: - adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;	NE/2015/01	Leighton – China State JV	Construction of Temporary Steel Bridge across Cha Kwo Ling Road & Barging Facility	To remove the sand material deposited near the seafront at Portion WA I
# (11)	S5.8.3	Other good site practices should be undertaken during filling operations include: - 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/2015/01	Leighton – China State JV	Construction of Temporary Barging Facility in TKO	Silty water on the sea observed near the marine works area. The contractor is reminded to check the silt curtain deployed and ensure the effectiveness.
*(12)	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	NE/2015/01	Leighton – China State JV	Site Formation of TKO Portal	Silty water accumulated near slope in TKO. The contractor is reminded to remove the silty water to

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Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Contractor	Work Sites	Details of Observation/Reminder
		environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.				avoid silty water flow out of site.
# (13)	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	Leighton – China State JV	Construction of Lam Tin Interchange	To set up proper drainage system in CKL site Portion 3.
* (14)	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. <i>Good Site Practices and Waste Reduction Measures</i> Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	NE/2015/01	Leighton – China State JV	Construction of Lam Tin Interchange & Site Formation of TKO Portal	Silty water observed in the catchpits in TKO. Sand and mud / litter / C&D waste is observed accumulated in U-channel of Portion 2 and Portion 3.
			NE/2015/02	CRBC – Build King JV	Construction of Road P2	To remove the muddy water accumulated in the U-channel near site boundary at Area A.
* (15)	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/2015/02	CRBC – Build King JV	Construction of Road P2	To properly cover the dusty material stored near gullies near Portion 1 and remove the sand deposited near the gullies.
* (16)	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	NE/2015/01	Leighton – China State JV	Site Formation of TKO Portal	Provide drip tray to chemical containers at the top of slope of TKO.

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Status / Remark	EIA Ref.	Recommended Mitigation Measures	Contract No.	Contractor	Work Sites	Details of Observation/Reminder
		capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	NE/2015/02	CRBC – Build King JV	Construction of Road P2	To provide drip trays to chemical containers on unpaved ground in Portion 8.
# (17)	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;	NE/2015/01	Leighton – China State JV	Site Formation of TKO Portal	To remove the oil stain near the drill rig in TKO.
			NE/2015/02	CRBC – Build King JV	Construction of Road P2	To clear the oil stain near the drip tray as “chemical waste” in Portion 8.
<i>Landscape and Visual Impact (Construction Phase)</i>						
* (18)	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 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/2015/02	CRBC – Build King JV	Construction of Road P2	To remove the construction material/waste near the tree and set up proper tree protection area in Portion 8.

**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	Details of Complaint	Investigation/ Mitigation Action	File Closed
1	7 th December 2016	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	The complainant complained about the construction noise and dust near Yau Lai Estate. (EPD Reference No.: K15/RE/00032001-16)	<p>According to information provided by the Contractor, powered Mechanical Equipment being operated for construction of Lam Tin Interchange on 7 and 9 December 2016 include breaker, dump truck, backhoes, drilling rig and small bulldozer. They were operated on and off with some idling time. It is considered that noise nuisance during the time of complaint was mainly due to high noise level emission during the use of breaker for rock breaking.</p> <p>The Contractors had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual to reduce construction dust and noise nuisance to the vicinity.</p>	Closed
2	9 th December 2016	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Block A Nga Lai House	The complainant complained about the construction noise near Yau Lai Estate. (EPD Reference No.: K15/RE/00032317-16)	<p>According to the regular air quality monitoring conducted at Air Quality Monitoring Stations AM3, no Action or Limit Level Exceedance was recorded from 6 – 14 December 2016. Similarly, no Limit Level Exceedance was recorded at Noise Monitoring Station CM1, Station CM2 and Station CM3 from 6 – 16 December 2016. With the implementation of environmental mitigation measures by Contractor on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p>	Closed
3	9 th December 2016	Not Specified / Construction of Road P2	Sai Kung District Committee Member Mr. Chan Kai Wai	The complainant complained about the noise nuisance during transportation of construction materials on haul road and dust generation during construction activities.	<p>No construction activities were carried out for both construction of Road P2 and TKO portal during night time or at about 7am. Therefore, no construction noise nuisance were generated during night-time or at about 7am under this Project and it is considered that these noise nuisance is not project-related.</p> <p>The Contractors of this Project had implemented environmental mitigation measures for air quality, noise and visual impact (night-time lighting) in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual.</p>	Closed
4	20 th December 2016	Not Specified / Construction of Road P2	Resident of Ocean Shore	The complainant complained about the lighting and noise nuisance on construction vessels moored near Ocean Shores during night time.	<p>The Contractors had taken the initiative to provide additional noise</p>	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
5	22 nd December 2016	21 Dec 2016 at night / Construction of TKO portal	Resident of Block 3, Ocean Shores	The complainant concerned the noise generated by the construction works at hillside near Block 3 of Ocean Shores in daytime.	<p>mitigation measures to works since the complaints were received including:</p> <ul style="list-style-type: none"> - Temporary noise barrier had been installed to reduce noise nuisance from piling works in construction of Road P2 Provision of noise enclosure to cover generators for reducing its noise nuisance in TKO portal; and - Provision of portable noise enclosures at breakers and generators to reduce noise emission from works in TKO portal <p>According to the regular air quality and noise monitoring for this Project, no Action or Limit Level Exceedance was recorded in December 2016. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p> <p>According to the ET's ad-hoc site inspection during night-time, no unacceptable noise nuisance from this Project was heard. No strong light emission from all the construction vessels near Ocean Shores was observed yet minimum lighting for marine safety purpose was observed from the construction vessel and anchors.</p> <p>According to the findings of investigation, minimum lighting on the construction vessel was required for guard watching the works site. Adverse night-time light and noise nuisance from the marine works area near Ocean Shores as alleged by the complainant are considered not caused by this Project.</p> <p>The Contractor had continuously implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual. To avoid strong light emission towards the sensitive receivers, night-time lighting is properly controlled by hooding all lights (except necessary lighting for safety purpose and guard watching);</p> <p>According to the ET's ad-hoc site inspection during night-time, no unacceptable noise nuisance from this Project was heard. No strong light emission from all the construction vessels near Ocean Shores was observed yet minimum lighting for marine safety and guard watching</p>	Closed
6	22 nd December 2016	Not specified / Construction of TKO portal	Public	The complainant complained about the noise generated by the construction works at hillside in daytime.		Closed
7	22 nd December 2016	Not specified / Construction of Road P2	Resident from Ocean Shore	The complainant complained about the noise nuisance of broadcast on construction vessel near Ocean Shores at 7am and the noise generated by the construction works outside Tseung Kwan O Chinese Permanent Cemetery.		Closed
8	22 nd December 2016	Not specified / Construction of Road P2 and TKO portal	Resident from Ocean Shore	The complainant complained about the noise nuisance generated by construction works of Tseung Kwan O portal in daytime and noise nuisance of "loud speaker" on construction vessel near Ocean Shores.		Closed
9	16 th December 2016	Not Specified / near Ocean Shores	DC member	The complainant complained that they noticed about 2 work vessels were being used at 00:00-01:00 and also moored there overnight which caused light pollution and affecting the residents.		Closed
10	17 th January 2017	5 January 2017 / near Ocean Shores	DC member	The complainant complained that marine vessels were used at about 22:00 and around 01:00 on 5 Jan 2017, again causing noise and light nuisance to the residents.	Closed	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
					purpose was observed from the construction vessel and anchors. The Contractor was recommended to continuously implement the following visual impact mitigation measures: <ul style="list-style-type: none"> necessary lighting on construction vessels should be oriented as much as possible such that direct strong lighting towards the sensitive receivers is avoided. Strong lighting that may be in intermittent use should be shut down between works periods 	
11	23 rd December 2016	Not Specified / near Cha Kwo Ling Tsuen	Cha Kwo Ling Tsuen	The complainant complaint about the Soil/muddy water from construction site near Cha Kwo Ling Tsuen. (EPD Reference No.: K15/RE/00033951-16)	No construction works were being carried out on 23 rd December 2016 at Portion WA1, which is the site portion near Cha Kwo Ling Tsuen. Despite, it was recorded that some muddy water was flowing from the Contractor's wheel washing facility to the gullies within the site boundary.	Closed
12	29 th December 2016	23 rd December 2016 / near Cha Kwo Ling Tsuen	Cha Kwo Ling Tsuen	The complainant complaint that some muddy water flowing from the wheel washing facility to the gullies within the site boundary.	For complaint of muddy water on 23 rd December 2016, the Contractor has fixed the clear water hose for wheel washing on 24 th December 2016 early morning. During the recent weekly site inspections to Site Portion WA1, no muddy water was observed leaked out of the Site Boundary.	Closed
13	6 th January 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Block A Nga Lai House	The complainant complained about the noise nuisance during rock breaking at the Eastern Harbour Crossing (EHC) portal and lack of noise mitigation measures during the construction works.	After investigation, it was found out that necessary rock breaking works by hydraulic or pneumatic breakers was conducted during excavation for tunnel adit at Lam Tin Interchange. Noise nuisance from the works area is considered due to the high noise level emission during use of hydraulic or pneumatic breakers. The Contractor had implemented environmental mitigation measures in accordance with the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual as below:	Closed
14	6 th January 2017	Not Specified / Cha Kwo Ling Road	Resident of Yau Lai Estate	The complainant complained about the noise nuisance generated by the excavation works at Cha Kwo Ling Road on 6 January 2017 just after 7 a.m.	<u>Air Quality</u> Use of frequent watering during construction of Lam Tin Interchange, including watering of eight times a day on active work area, exposed area and paved haul roads to mitigate air quality impacts to the nearby Air Sensitive Receivers (ASRs)	Closed
15	6 th January 2017	Not Specified / Construction site near Yau Lai Estate	Resident of Yau Lai Estate Bik Lai House	The complainant complained about the noise nuisance during the construction works near Yau Lai Estate at 7:15am. He requested to erect noise barriers and set up water spraying	<u>Noise</u> <ul style="list-style-type: none"> Provision of portable noise enclosures to head of breakers to reduce noise emission during rock breaking works in Lam Tin Interchange; 	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
				system to minimize the noise and air nuisances to the nearby residents.	<ul style="list-style-type: none"> ● Provision of portable noise enclosures to reduce noise nuisance from drilling works and generator in Lam Tin Interchange; and ● Use of Quiet PME on-site including generator and hydraulic excavator. 	
16	6 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Cheuk Lai House	The complainant complained the construction noise generated from this Project (EPD Reference No.: K15/RE/0000564-17)	The Contractor has taken the initiative to implement additional noise mitigation measures in order to further minimize noise nuisance to the nearby sensitive receivers, including the followings: <ul style="list-style-type: none"> ● Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ● Commencement time of daily construction works for construction of Lam Tin Interchange has been postponed from 7am to 8am each day. 	Closed
17	6 th January 2017	Not Specified / Construction site near Yau Lai Estate	Resident of Yau Lai Estate Bik Lai House	The Yau Lai Estate Property Services Management Office mentioned that one of the resident of Yau Lai Estate had complained to Hong Kong Housing Authority (HKHA) about the noise generated by the construction works.	According to the regular air quality and noise monitoring for this Project, no Action or Limit Level Exceedance was recorded from 16 December 2016 to 19 January 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.	Closed
18	10 th January 2017	Not Specified	Unknown	The complainant complained the construction noise generated from this Project (EPD Reference No.: K15/RE/0000967-17)	Nevertheless, the Contractor was recommended to continue to properly implement and strictly follow the air quality and noise mitigation measures as recommended in the Environmental Monitoring & Audit Manual and approved Noise Mitigation Plan to minimize environmental impact on the construction site.	Closed
19	12 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	The complainant complained the noise generated from rock breaking at Lam Tin Interchange. He requested concrete actions to improve the situation.		Closed
20	12 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	The complainant complained the noise generated from rock breaking at Lam Tin Interchange.		Closed
21	13 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning.		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
22	13 th January 2017	Not Specified / Construction Works near Eastern Harbour Crossing tunnel portal	Anonymous	The complainant complained about the noise generated by the construction works near the toll plaza of the Eastern Harbour Crossing (EHC). The complainant complained again on 24 Jan 2017 and mentioned the noise problem still affected the daily life of residents		Closed
23	16 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning.		Closed
24	17 th January 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	The complainant complained the construction noise generated at Lam Tin Interchange.		Closed
25	26 th January 2017	Not Specified / Construction Works near Eastern Harbour Crossing tunnel portal	黃國健議員及何啟明議員	LC members referred complaints about the noise generated by the construction works near the EHC tunnel portal. They mentioned that the noise generated by the construction works had greatly affected the daily life of nearby residents, especially occupants of Block 5 of Yau Lai Estate and those who lived at the upper floors.	<p>After investigation, it was found out that necessary rock breaking works by hydraulic or pneumatic breakers was conducted during excavation for tunnel adit at Lam Tin Interchange. Noise nuisance from the works area is considered due to the high noise level emission during use of hydraulic or pneumatic breakers.</p> <p>The Contractor had implemented environmental mitigation measures in accordance with the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual.</p> <p>The Contractor has taken the initiative to implement additional noise mitigation measures in order to further minimize noise nuisance to the nearby sensitive receivers, including the followings:</p> <ul style="list-style-type: none"> ➤ Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ➤ Commencement time of daily construction works for construction of Lam Tin Interchange has been postponed from 7am to 8am each day. 	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
26	27 th January 2017	Not Specified / Construction of Lam Tin Interchange	Resident of Yau Lai Estate Bik Lai House	The complainant complained the construction noise generated at Lam Tin Interchange at 7am in the morning. (EPD Ref No. K15/RE/00002945-17)	According to information provided by the Contractor, powered Mechanical Equipment being operated on site during the time of complaint include breaker, dump truck, backhoes, drilling rig, mobile crane and small bulldozer. They were operated on and off with some idling time. It is considered that noise nuisance during the time of complaint was mainly due to high noise level emission during the use of breaker for rock breaking.	Closed
27	9 th February 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yat Lai House, Yau Lai Estate	The complainant complained about the noise nuisance during the construction works of Lam Tin Interchange at 8:10am. (EPD Reference No.: K15/RE/00003855-17)	In addition to the the “Implementation Schedule of Proposed Mitigation Measures” of EM&A Manual, the Contractor has implemented the following additional noise mitigation measures since late including: <ul style="list-style-type: none"> ● Provision and installation of additional temporary noise barrier during rock breaking works for construction of Lam Tin Interchange; ● Sound absorptive materials with 50mm thickness were hanged on rock mountain wall as well as temporary noise barrier containers; and ● Adoption of alternative rock breaking method such as partial rock breaking by rock splitter. 	Closed
28	13 th February 2017	Not Specified / construction of Lam Tin Interchange	Resident of Yat Lai House, Yau Lai Estate	The complainant complained about the noise nuisance during the construction works of Lam tin Interchange.	In addition, the Contractor has taken the initiative to explore measures to further reduce construction noise nuisance such as: <ul style="list-style-type: none"> ● Installation of cantilever barrier on top of the containers; ● Installation of tuned mass dampers on breaker head; and ● Use of acoustic mat cover and a retractable noise barrier where feasible. <p>According to the regular noise monitoring no Limit Level Exceedance was recorded at Noise Monitoring Station CM1, Station CM2 and Station CM3 from 2 – 15 February 2017. With the implementation of environmental mitigation measures by Contractors on site, it is considered that no adverse air quality and noise impact was brought to the nearby sensitive receivers by the works of this Project.</p>	Closed
29	23 rd February 2017	18 Feb 2017 / Slope Works at Lei Yue Mun Road	Anonymous	The complainant complained about the dust generated by the slope works opposite to Lam Tin Ambulance Deport on 18 February 2017 afternoon. He mentioned that the dust greatly affected the pedestrian.	The major source of construction dust nuisance was construction of a temporary storage area. <p>As per investigation, the Contractor has provided environmental mitigation measures to prevent dust generation for the slope works. Water spray was prepared and provided next to the works for dust suppression during the use of handheld breaker.</p>	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
30	23 rd February 2017	Not Specified / BMCPC Footpath	陳繼偉議員	Mr. Chan complained that some of the excavated materials fell from the dump trucks on the BMCPC footpath affecting the safety of pedestrian and hikers.	The major source of construction dust nuisance was formation of temporary site haul road. As per investigation, the following environmental mitigation measures are implemented by the Contractor:	Closed
31	2 nd March 2017	Not Specified / Construction Works near BMCPC Footpath	A resident of Ocean Shores	The complainant complained about the dust generated by the construction works near the existing BMCPC footpath	<ul style="list-style-type: none"> ➤ Water truck was provided for dust suppression at least 8 times per day along the footpath within our site boundary; ➤ Wheel washing were provided for all dump trucks once loaded; ➤ All the dump trucks were covered properly with a mechanical cover once loaded. ➤ The dump trucks were loaded in a specific area (off the footpath) near the formation works area. 	Closed
32	8 th March 2017	7 Mar 2017 / Slope works near Sin Fat Road Tennis Court	Public	The complainant complained the dust and noise generated by the slope works near Sin Fat Road Tennis Court	The major source of construction dust and noise nuisance was shotcreting of slope surface. As per investigation, the following environmental mitigation measures are implemented by the Contractor: <ul style="list-style-type: none"> ➤ Tarpaulin sheets were provided along the slope adjacent to the tennis court during shotcreting; ➤ After the complaint was received, the dust screen for tennis court has been enhanced immediately with additional tarpaulin along the fencing of tennis court; ➤ Additional acoustic sheets were also provided to minimize construction noise nuisance to users of the tennis courts. 	Closed
33	13 th March 2017	27 Feb – 12 Mar 2017 / Barging point in front of Ocean Shore	Public	The complainant complained about noise from the loading / unloading activities at the barging point in front of Ocean Shore for material delivery to the LT-TKO Tunnel work site during 3:00 am and 4:00am over the past 2 weeks.	According to information provided by the Contractors, no works, including any loading / unloading works, was carried out during the restricted hours at site area near Ocean Shores in early March 2017. The complaint is concluded to be non-Project related. The Engineer and the Environmental Team have reminded the contractor(s) not to carry out any works, especially loading/unloading activities near the Ocean Shores during restricted hours to minimize noise nuisance to the nearby residents.	Closed
34	25 th March 2017	Not Specified / Construction Works of TKO Portal	Public	The complainant complaint about the construction dust impact due to marine works and construction of tunnel of this	The major source of construction dust and noise nuisance was site formation works for TKO Portal and marine works for construction of temporary barging facilities As per investigation, the following environmental mitigation measures	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Details of Complaint	Investigation/ Mitigation Action	File Closed
				Project.	<p>are implemented by the Contractor:</p> <ul style="list-style-type: none"> ➤ Provision of frequent watering including watering of eight times a day on active work area, exposed area and paved haul roads; ➤ Installation of automatic sprinklers for water spray to minimize dust generation; ➤ Shotcreting or hydroseeding to surface of TKO Portal site formation; ➤ Provision of wheel washing to vehicles out of site; ➤ Covering of dusty slope surface by impervious material such tarpaulin sheets. <p>During the weekly site inspections by the Environmental Team (ET), no deficiencies about exhaust gas or black smoke generation was observed from the Powered Mechanical Equipment (PME) on site of construction of TKO Portal. Air quality impact due to exhaust gas or black smoke emission from PME is considered insignificant from the Project.</p>	

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	4	0	0
Total	34	0	0

Cumulative Log for Notifications of Summons*Contract No. NE/2015/01*

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Contract No. NE/2015/02

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
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Cumulative Log for Successful Prosecutions*Contract No. NE/2015/01*

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

Contract No. NE/2015/02

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

**APPENDIX P
WASTE GENERATION IN THE
REPORTING MONTH**

Monthly Summary Waste Flow Table for 2017



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 (see Note 9)	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill (see Note 10)	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	40.484	0.000	22.688	5.063	12.733	0.000	0.000	0.257	0.000	0.000	0.292
February	23.357	0.000	12.911	3.874	6.572	0.000	0.000	0.000	0.000	1.000	0.488
March	2.006	0.000	TBC	TBC	2.006	0.000	0.000	0.000	0.000	0.000	0.284
April											
May											
June											
Sub-total	65.847	0.000	35.599	8.937	21.311	0.000	0.000	0.257	0.000	1.000	1.064
July											
August											
September											
October											
November											
December											
Total	65.847	0.000	35.599	8.937	21.311	0.000	0.000	0.257	0.000	1.000	1.064

Total C&D waste generated = a+b+f+g+h+i+j+k

Total C&D waste generated (excluded excavated material) = g+h+i+j+k

Total C&D waste recycled = c+d+g+h+i

% of recycled C&D waste = (Total C&D waste generated - Total C&D waste recycled) / Total C&D waste generated

Monthly Summary Waste Flow Table for 2017 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	1.02115	0.00000	0.00000	0.00000	1.02115	0.00000	0.00000	0.00000	0.00000	0.00000	0.02306
Feb	1.04554	0.00000	0.00000	0.00000	1.04554	0.00000	0.00000	0.00000	0.00000	0.00000	0.01994
Mar	0.03860	0.00000	0.00000	0.00000	0.03860	0.00000	0.00000	0.00000	0.00000	0.00000	0.03012
Apr											
May											
June											
SUB-TOTAL											
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
TOTAL	2.10528	0.00000	0.00000	0.00000	2.10528	0.00000	0.00000	0.00000	0.00000	0.00000	0.07312

Note: Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002

Conversion to 1000m³ for Inert C&D is weight in 1000kg multiply by 0.0005

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

**APPENDIX Q
TENTATIVE CONSTRUCTION
PROGRAMME**

High Level 3 Months Look Ahead Programme

Activities	Apr-17	May-17	Jun-17
Lam Tin Interchange			
Excavation for Tunnel Adit			
Haul Road Construction			
EHC2 U-Trough			
Site Formation - Area 1G1			
Site Formation - Area 2			
Site Formation - Area 3			
Site Formation - Area 4			
Temp Steel Bridge across CKL Road & Barging Facility			
Pipe Pile Wall - Area 2A			
Ground Investigation			
Main Tunnel			
Tunnel Team Mobilisation Works			
Construction Adit			
TKO Interchange			
Haul Road Construction, Site Formation & Slope Works			
BM CPC Bridge Temporary Diversion			
Temporary Barging Facilities			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - BL1	TRA	2017				
											Feb	Mar	Apr	May	Jun
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works															
Sectional Completion of the Works															
K10300	Section 1_All Works within Portion I and III	P2-Cal.A	0	0	30-Apr-17	30-Apr-17	-35	0%	-36	0	▼ Sectional Completion of the Works ◆ Section 1_All Works within Portion I and III				
Preliminaries, Submission, Contractor's Design Submission and Approval															
General Submission															
S10040	Prepare/Submit the Temporary Drainage Management Plan to DSD (DSD)	P2-Cal.A	60	5	09-Jan-17 A	24-Feb-17	108	91.67%	-90	0	→ General Submission Prepare/Submit the Temporary Drainage Management Plan to DSD (DSD)				
S10060	Prepare/Submit the PR Plan	P2-Cal.A	21	21	20-Feb-17	12-Mar-17	0	0%	-206	0	→ Prepare/Submit the PR Plan				
S10120	Produce Webpage for the acceptance of PM	P2-Cal.A	14	7	09-Sep-16 A	26-Feb-17	14	50%	-153	0	→ Produce Webpage for the acceptance of PM				
S10240	Prepare/Submit the Weather Protection Scheme	P2-Cal.A	30	5	17-Aug-16 A	24-Feb-17	16	83.33%	-174	0	→ Prepare/Submit the Weather Protection Scheme				
S10780	Submit source of sand fill	P2-Cal.A	30	30	20-Feb-17	21-Mar-17	65	0%	-6	0	→ Submit source of sand fill				
Contractor's Design Submission and Approval															
Foundation Design															
AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)															
S11240	Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.A	14	14	20-Jan-17 A	05-Mar-17	333	0%	76	0	→ Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)				
S11250	Review and comment by GEO	P2-Cal.A	14	14	06-Mar-17	19-Mar-17	333	0%	76	0	→ Review and comment by GEO				
S11260	Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.A	21	21	20-Mar-17	09-Apr-17	333	0%	76	0	→ Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)				
DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)															
S11360	Prepare and Submit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.A	21	21	10-Apr-17	30-Apr-17	333	0%	76	0	→ DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)				
S11380	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.A	21	21	01-May-17	21-May-17	333	0%	76	0	→ Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)				
E&M Design															
Detail Design for E&M Works (Tunnel and associated)															
S11580	Prepare and Submit Detail Design for E&M Works (Tunnel and associated)	P2-Cal.A	21	21	20-Feb-17	12-Mar-17	642	0%	-130	0	→ Detail Design for E&M Works (Tunnel and associated)				
S11600	Review and Discuss Detail Design for E&M Works (Tunnel and associated)	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	642	0%	-130	0	→ Review and Discuss Detail Design for E&M Works (Tunnel and associated)				
S11620	Resubmit Detail Design for E&M Works (Tunnel and associated)	P2-Cal.A	21	21	03-Apr-17	23-Apr-17	642	0%	-130	0	→ Resubmit Detail Design for E&M Works (Tunnel and associated)				
S11640	Accept Detail Design for E&M Works (Tunnel and associated)	P2-Cal.A	21	21	24-Apr-17	14-May-17	642	0%	-130	0	→ Accept Detail Design for E&M Works (Tunnel and associated)				
Design of Architectural Finishes for Internal Walls of U-Trough Structures															
S11660	Prepare and Submit Design of Architectural Finishes for Internal Walls of U-Trough Structures	P2-Cal.A	21	21	20-Feb-17	12-Mar-17	991	0%	-20	0	→ Design of Architectural Finishes for Internal Walls of U-Trough Structures				
S11680	Review and Discuss Design of Architectural Finishes for Internal Walls of U-Trough Structures	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	991	0%	-20	0	→ Review and Discuss Design of Architectural Finishes for Internal Walls of U-Trough Structures				
S11700	Resubmit Design of Architectural Finishes for Internal Walls of U-Trough Structures	P2-Cal.A	14	14	03-Apr-17	16-Apr-17	991	0%	-20	0	→ Resubmit Design of Architectural Finishes for Internal Walls of U-Trough Structures				
S11720	Accept Design of Architectural Finishes for Internal Walls of U-Trough Structures	P2-Cal.A	21	21	17-Apr-17	07-May-17	991	0%	-20	0	→ Accept Design of Architectural Finishes for Internal Walls of U-Trough Structures				
Contractor Cost Saving Design															
AIP Submission for CSD of Existing Land Section (P2 CH423 - CH500)															
S11860	Resubmit AIP Submission for CSD of Existing Land Section (P2 CH423 - CH500)	P2-Cal.A	14	3	19-Nov-16 A	22-Feb-17	711	78.57%	-79	0	→ AIP Submission for CSD of Existing Land Section (P2 CH423 - CH500)				
S11880	Accept AIP Submission for CSD of Existing Land Section (P2 CH423 - CH500)	P2-Cal.A	21	21	23-Feb-17	15-Mar-17	711	0%	-79	0	→ Resubmit AIP Submission for CSD of Existing Land Section (P2 CH423 - CH500)				
AIP Submission for CSD of Reclaimed Section (S200 CH674 - CH755, S300 CH326-CH355)															
S11940	Resubmit AIP Submission for CSD of Reclaimed Section (S200 CH674 - CH755, S300 CH326-CH355)	P2-Cal.A	14	9	28-Jan-17 A	28-Feb-17	699	35.71%	-74	0	→ AIP Submission for CSD of Reclaimed Section (S200 CH674 - CH755, S300 CH326-CH355)				
S11960	Accept AIP Submission for CSD of Reclaimed Section (S200 CH674 - CH755, S300 CH326-CH355)	P2-Cal.A	21	21	01-Mar-17	21-Mar-17	699	0%	-74	0	→ Resubmit AIP Submission for CSD of Reclaimed Section (S200 CH674 - CH755, S300 CH326-CH355)				
Major Temporary Works Design															
Double Water Gate System															
S12131	Resubmit Design of Double Water Gate System	P2-Cal.A	14	10	17-Feb-17 A	01-Mar-17	0	28.57%	0	0	→ Double Water Gate System				
S12132	Accept Design of Double Water Gate System	P2-Cal.A	21	21	02-Mar-17	22-Mar-17	0	0%	0	0	→ Resubmit Design of Double Water Gate System				
ELS Design for U-Trough A & B (SR2 CH182 - CH250)															
S12380	Prepare and Submit ELS Design for U-Trough A & B (SR2 CH182 - CH250)	P2-Cal.A	18	6	06-Feb-17 A	25-Feb-17	202	66.67%	-104	0	→ ELS Design for U-Trough A & B (SR2 CH182 - CH250)				
S12400	Review and Discuss ELS Design for U-Trough A & B (SR2 CH182 - CH250)	P2-Cal.A	21	21	26-Feb-17	18-Mar-17	202	0%	-104	0	→ Prepare and Submit ELS Design for U-Trough A & B (SR2 CH182 - CH250)				
S12420	Resubmit ELS Design for U-Trough A & B (SR2 CH182 - CH250)	P2-Cal.A	14	14	19-Mar-17	01-Apr-17	202	0%	-104	0	→ Review and Discuss ELS Design for U-Trough A & B (SR2 CH182 - CH250)				
S12440	Accept ELS Design for U-Trough A & B (SR2 CH182 - CH250)	P2-Cal.A	21	21	02-Apr-17	22-Apr-17	202	0%	-104	0	→ Resubmit ELS Design for U-Trough A & B (SR2 CH182 - CH250)				
ELS Design for U-Trough A & B (P2 CH318 - CH375)															
											→ ELS Design for U-Trough A & B (P2 CH318 - CH375)				

█ Primary Baseline █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▼ Summary

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

3 Months Rolling Programme
 (20 Feb 2017)
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Date	Revision	Checked	Approved
20-Feb-17			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - BL1 Finish Date	TRA	2017				
											Feb	Mar	Apr	May	Jun
S12460	Prepare and Submit ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	190	0%	-206	0					
S12480	Review and Discuss ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	190	0%	-206	0					
S12500	Resubmit ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	190	0%	-169	0					
S12520	Accept ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.A	21	21	14-Apr-17	04-May-17	190	0%	-169	0					
ELS Design for U-Trough A & B (P2 CH423 - CH500)		P2-Cal.A	60	60	06-Feb-17 A	20-Apr-17	204			-102					
S12540	Prepare and Submit ELS Design for U-Trough A & B (P2 CH423 - CH500)	P2-Cal.A	18	4	06-Feb-17 A	23-Feb-17	204	77.78%	-102	0					
S12560	Review and Discuss ELS Design for U-Trough A & B (P2 CH423 - CH500)	P2-Cal.A	21	21	24-Feb-17	16-Mar-17	204	0%	-102	0					
S12580	Resubmit ELS Design for U-Trough A & B (P2 CH423 - CH500)	P2-Cal.A	14	14	17-Mar-17	30-Mar-17	204	0%	-102	0					
S12600	Accept ELS Design for U-Trough A & B (P2 CH423 - CH500)	P2-Cal.A	21	21	31-Mar-17	20-Apr-17	204	0%	-102	0					
ELS Design for U-Trough A & B within the Reclaimed Section		P2-Cal.A	74	74	20-Feb-17	04-May-17	626			-4					
S12620	Prepare and Submit ELS Design for U-Trough A & B within the Reclaimed Section	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	626	0%	-4	0					
S12640	Review and Discuss ELS Design for U-Trough A & B within the Reclaimed Section	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	626	0%	-4	0					
S12660	Resubmit ELS Design for U-Trough A & B within the Reclaimed Section	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	626	0%	-4	0					
S12680	Accept ELS Design for U-Trough A & B within the Reclaimed Section	P2-Cal.A	21	21	14-Apr-17	04-May-17	626	0%	-4	0					
ELS Design for Road P2 Underpass including Plant Rooms		P2-Cal.A	53	53	31-Mar-17	22-May-17	444			0					
S12700	Pre. and Sub. ELS Design for Road P2 Underpass (Incl.Stom.W Pt Rm, Sump Pit Rm & Fixed Foam Tk Rm) & U-T. A&B CH305-318	P2-Cal.A	18	18	31-Mar-17	17-Apr-17	444	0%	0	0					
S12720	Rev. and Disc. ELS Design for Road P2 Underpass (Incl.Stom.W Pt Rm, Sump Pit Rm & Fixed Foam Tk Rm) & U-T. A&B CH305-318	P2-Cal.A	21	21	18-Apr-17	08-May-17	444	0%	0	0					
S12740	Resubmit ELS Design for Road P2 Underpass (Incl.Stom.W Pt Rm, Sump Pit Rm & Fixed Foam Tk Rm) & U-T. A&B CH305-318	P2-Cal.A	14	14	09-May-17	22-May-17	444	0%	0	0					
Design of sediment/ marine treatment area		P2-Cal.A	74	74	20-Feb-17	04-May-17	7			-36					
S12860	Prepare and Submit Design of sediment/ marine treatment area	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	7	0%	-36	0					
S12880	Review and Discuss Design of sediment/ marine treatment area	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	7	0%	-36	0					
S12900	Resubmit Design of sediment/ marine treatment area	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	7	0%	-36	0					
S12920	Accept Design of sediment/ marine treatment area	P2-Cal.A	21	21	14-Apr-17	04-May-17	7	0%	-36	0					
ELS Design for U-Trough A & B (P2 CH375 - CH423)		P2-Cal.A	74	74	20-Feb-17	04-May-17	190			-169					
S12940	Prepare and Submit ELS Design for U-Trough A & B (P2 CH375 - CH423)	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	190	0%	-206	0					
S12960	Review and Discuss ELS Design for U-Trough A & B (P2 CH375 - CH423)	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	190	0%	-206	0					
S12980	Resubmit ELS Design for U-Trough A & B (P2 CH375 - CH423)	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	190	0%	-169	0					
S13000	Accept ELS Design for U-Trough A & B (P2 CH375 - CH423)	P2-Cal.A	21	21	14-Apr-17	04-May-17	190	0%	-169	0					
Temporary Jetty Design		P2-Cal.A	74	74	20-Feb-17	04-May-17	7			-114					
S13020	Prepare and Submit Temporary Jetty Design	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	7	0%	-114	0					
S13040	Review and Discuss Temporary Jetty Design	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	7	0%	-114	0					
S13060	Resubmit Temporary Jetty Design	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	7	0%	-114	0					
S13080	Accept Temporary Jetty Design	P2-Cal.A	21	21	14-Apr-17	04-May-17	7	0%	-114	0					
Design of Marine Survey Tower		P2-Cal.A	74	74	20-Feb-17	04-May-17	161			-114					
S13100	Prepare and Submit Marine Survey Tower	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	161	0%	-114	0					
S13120	Review and Discuss Marine Survey Tower	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	161	0%	-114	0					
S13140	Resubmit Temporary Marine Survey Tower	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	161	0%	-114	0					
S13160	Accept Temporary Marine Survey Tower	P2-Cal.A	21	21	14-Apr-17	04-May-17	161	0%	-114	0					
Major Construction Works Method Statement		P2-Cal.A	123	92	29-Dec-16 A	22-May-17	602			154					
Construction of Seawall Foundation for Road P2		P2-Cal.A	67	67	06-Mar-17	11-May-17	47			0					
S13260	Prepare and Submit Method Statement for Construction of Seawall Foundation for Road P2	P2-Cal.A	18	18	06-Mar-17	23-Mar-17	47	0%	0	0					
S13280	Review and Discuss Method Statement for Construction of Seawall Foundation for Road P2	P2-Cal.A	21	21	24-Mar-17	13-Apr-17	47	0%	0	0					
S13300	Resubmit Method Statement for Construction of Seawall Foundation for Road P2	P2-Cal.A	7	7	14-Apr-17	20-Apr-17	47	0%	0	0					
S13320	Accept Method Statement for Construction of Seawall Foundation for Road P2	P2-Cal.A	21	21	21-Apr-17	11-May-17	47	0%	0	0					
Reclamation Filing		P2-Cal.A	67	67	20-Feb-17	27-Apr-17	48			-46					
S13340	Prepare and Submit Method Statement for Reclamation Filing	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	48	0%	-46	0					
S13360	Review and Discuss Method Statement for Reclamation Filing	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	48	0%	-46	0					

█ Primary Baseline █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work ▬ Summary

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

3 Months Rolling Programme
 (20 Feb 2017)
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Date	Revision	Checked	Approved
20-Feb-17			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - BL1	TRA	2017				
											Feb	Mar	Apr	May	Jun
S13380	Resubmit Method Statement for Reclamation Filing	P2-Cal.A	7	7	31-Mar-17	06-Apr-17	48	0%	-46	0					
S13400	Accept Method Statement for Reclamation Filing	P2-Cal.A	21	21	07-Apr-17	27-Apr-17	48	0%	-46	0					
Demolishing/ Removing Existing Seawall		P2-Cal.A	67	67	20-Feb-17	27-Apr-17	14		-36						
S13580	Prepare and Submit Method Statement for Demolishing/ Removing Existing Seawall	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	14	0%	-36	0					
S13600	Review and Discuss Method Statement for Demolishing/ Removing Existing Seawall	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	14	0%	-36	0					
S13620	Resubmit Method Statement for Demolishing/ Removing Existing Seawall	P2-Cal.A	7	7	31-Mar-17	06-Apr-17	14	0%	-36	0					
S13640	Accept Method Statement for Demolishing/ Removing Existing Seawall	P2-Cal.A	21	21	07-Apr-17	27-Apr-17	14	0%	-36	0					
Installation, Operation and Removal of Water Gate		P2-Cal.A	88	57	29-Dec-16 A	17-Apr-17	-24		-106						
S13820	Prepare and Submit Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.A	18	8	29-Dec-16 A	27-Feb-17	-24	55.56%	-106	0					
S13840	Review and Discuss Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.A	21	21	28-Feb-17	20-Mar-17	-24	0%	-106	0					
S13860	Resubmit Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.A	7	7	21-Mar-17	27-Mar-17	-24	0%	-106	0					
S13880	Accept Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.A	21	21	28-Mar-17	17-Apr-17	-24	0%	-106	0					
Construction of Retaining Wall Structure RW P2-A		P2-Cal.A	28	28	20-Feb-17	19-Mar-17	666								
S14043	Resubmit Method Statement for Construction of Retaining Wall Structure	P2-Cal.A	7	7	20-Feb-17	26-Feb-17	666	0%		0					
S14044	Accept Method Statement for Construction of Retaining Wall Structure	P2-Cal.A	21	21	27-Feb-17	19-Mar-17	666	0%		0					
Excavation and ELS of U-Troughs		P2-Cal.A	18	18	05-May-17	22-May-17	190		154						
S14060	Prepare and Submit Method Statement for Excavation and ELS of U-Troughs	P2-Cal.A	18	18	05-May-17	22-May-17	190	0%	154	0					
Treatment of Dredged Marine Sediment of Type 1		P2-Cal.A	57	31	07-Feb-17 A	22-Mar-17	328		57						
S14340	Resubmit Method Statement for Treatment of Dredging Marine Sediment of Type 1	P2-Cal.A	14	10	07-Feb-17 A	01-Mar-17	328	28.57%	57	0					
S14360	Accept Method Statement for Treatment of Dredging Marine Sediment of Type 1	P2-Cal.A	21	21	02-Mar-17	22-Mar-17	328	0%	57	0					
Temporary Support for Excavation of Existing Seawall		P2-Cal.A	74	74	20-Feb-17	04-May-17	-13		-46						
S14940	Prepare and Submit Method Statement for Temporary Support for Excavation of Existing Seawall	P2-Cal.A	18	18	20-Feb-17	09-Mar-17	-13	0%	-46	0					
S14960	Review and Discuss Method Statement for Temporary Support for Excavation of Existing Seawall	P2-Cal.A	21	21	10-Mar-17	30-Mar-17	-13	0%	-46	0					
S14980	Resubmit Method Statement for Temporary Support for Excavation of Existing Seawall	P2-Cal.A	14	14	31-Mar-17	13-Apr-17	-13	0%	-46	0					
S15000	Accept Method Statement for Temporary Support for Excavation of Existing Seawall	P2-Cal.A	21	21	14-Apr-17	04-May-17	-13	0%	-46	0					
Pre-Bored Works for Installation of Sheet Pile		P2-Cal.A	21	10	16-Feb-17 A	01-Mar-17	461								
S15008	Accept Method Statement for Pre-Bored Works for Installation of Sheet Pile	P2-Cal.A	21	10	16-Feb-17 A	01-Mar-17	461	52.38%		0					
Procurement of Major Material			1015	953	07-Oct-16 A	30-Sep-19	331		0						
S15020	Procurement and Delivery of Steel H-Pile	P2-Cal.A	800	653	07-Oct-16 A	04-Dec-18	201	18.38%	38	0					
S15040	Procurement and Delivery of ELS Walling & Struts Members	P2-Cal.A	1015	953	07-Oct-16 A	30-Sep-19	331	6.11%	0	0					
S15060	Offsite Fabrication of Double Water Gate System	P2-Cal.A	100	20	20-Dec-16 A	11-Apr-17	0	80%	-27	0					
S15080	Offsite Fabrication of Pre-cast Seawall blocks	P2-Cal.A	90	90	12-May-17	09-Aug-17	47	0%	0	0					
S15100	Cast-in gantry for Road Works	P2-Cal.A	120	120	20-Feb-17	19-Jun-17	758	0%	-146	0					
S15180	Fabrication of Marine Survey Tower	P2-Cal.B	120	120	05-May-17	23-Sep-17	134	0%	-89	0					
Subletting Package		P2-Cal.A	83	42	04-Nov-16 A	02-Apr-17	1131		-8						
Marine Works		P2-Cal.A	51	10	04-Nov-16 A	01-Mar-17	71		-110						
S16920	Tender Interview and Recommendation to PM for Marine Works	P2-Cal.A	21	10	04-Nov-16 A	01-Mar-17	71	52.38%	-110	0					
S16940	Marine Works Award	P2-Cal.A	0	0		01-Mar-17	71	0%	-110	0					
Cement Stabilization and Solidification		P2-Cal.A	42	42	20-Feb-17	02-Apr-17	317		-8						
S16960	Prepare Cement Stabilization and Solidification Tender Document for PM Acceptance	P2-Cal.A	7	7	20-Feb-17	26-Feb-17	317	0%	-8	0					
S16980	Invitation, Submission and Opening of Tender for Cement Stabilization and Solidification	P2-Cal.A	14	14	27-Feb-17	12-Mar-17	317	0%	-8	0					
S17000	Tender Interview and Recommendation to PM for Cement Stabilization and Solidification	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	317	0%	-8	0					
S17020	Cement Stabilization and Solidification Award	P2-Cal.A	0	0		02-Apr-17	317	0%	-8	0					
Drainage and Sewerage Works		P2-Cal.A	39	8	07-Jan-17 A	27-Feb-17	105		-84						
S17080	Tender Interview and Recommendation to PM for Drainage and Sewerage Works	P2-Cal.A	21	8	07-Jan-17 A	27-Feb-17	105	61.9%	-84	0					
S17100	Drainage and Sewerage Works Award	P2-Cal.A	0	0		27-Feb-17	105	0%	-84	0					
Water Works		P2-Cal.A	42	42	20-Feb-17	02-Apr-17	683		-56						

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Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - BL1	TRA	2017					
											Feb	Mar	Apr	May	Jun	
S17120	Prepare Water Works Tender Document for PM Acceptance	P2-Cal.A	7	7	20-Feb-17	26-Feb-17	683	0%	-56	0						
S17140	Submission and Opening of Tender for Water Works	P2-Cal.A	14	14	27-Feb-17	12-Mar-17	683	0%	-56	0						
S17160	Tender Interview and Recommendation to PM for Water Works	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	683	0%	-56	0						
S17180	Water Works Award	P2-Cal.A	0	0		02-Apr-17	683	0%	-56	0						
Road Works		P2-Cal.A	73	42	16-Jan-17 A	02-Apr-17	924		-131							
S17200	Prepare Road Works Tender Document for PM Acceptance	P2-Cal.A	7	7	16-Jan-17 A	26-Feb-17	924	0%	-131	0						
S17220	Submission and Opening of Tender for Road Works	P2-Cal.A	14	14	27-Feb-17	12-Mar-17	924	0%	-131	0						
S17240	Tender Interview and Recommendation to PM for Road Works	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	924	0%	-131	0						
S17260	Road Works Award	P2-Cal.A	0	0		02-Apr-17	924	0%	-131	0						
Irrigation Works		P2-Cal.A	42	42	20-Feb-17	02-Apr-17	1131		-26							
S17280	Prepare Irrigation Works Tender Document for PM Acceptance	P2-Cal.A	7	7	20-Feb-17	26-Feb-17	1131	0%	-26	0						
S17300	Submission and Opening of Tender for Irrigation Works	P2-Cal.A	14	14	27-Feb-17	12-Mar-17	1131	0%	-26	0						
S17320	Tender Interview and Recommendation to PM for Irrigation Works	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	1131	0%	-26	0						
S17340	Irrigation Works Award	P2-Cal.A	0	0		02-Apr-17	1131	0%	-26	0						
Traffic and Directional Signs		P2-Cal.A	42	42	20-Feb-17	02-Apr-17	931		-26							
S17440	Prepare Traffic and Directional Signs Tender Document for PM Acceptance	P2-Cal.A	7	7	20-Feb-17	26-Feb-17	931	0%	-26	0						
S17460	Submission and Opening of Tender for Traffic and Directional Signs	P2-Cal.A	14	14	27-Feb-17	12-Mar-17	931	0%	-26	0						
S17480	Tender Interview and Recommendation to PM for Traffic and Directional Signs	P2-Cal.A	21	21	13-Mar-17	02-Apr-17	931	0%	-26	0						
S17500	Traffic and Directional Signs Award	P2-Cal.A	0	0		02-Apr-17	931	0%	-26	0						
Temporary Traffic Arrangement Schemes		P2-Cal.A	78	78	20-Feb-17	08-May-17	647		-71							
S17840	Distribute Drawings to TMLG members of the TTA Scheme-TTA Stage 3 (Reinstatement of Tong Yin St.)	P2-Cal.A	12	12	20-Feb-17	03-Mar-17	647	0%	-71	0						
S17860	TMLG Meeting & RMO	P2-Cal.A	7	7	04-Mar-17	10-Mar-17	647	0%	-71	0						
S17880	Submit and Approval of the TTA Scheme - TTA Stage 3 (Reinstatement of Tong Yin Street)	P2-Cal.A	37	37	02-Apr-17	08-May-17	647	0%	-71	30						
Section 1 of the Works			70	70	17-Feb-17 A	30-Apr-17			-35							
Reprovisioning of DSD Transformer Room		P2-Cal.B	55	55	17-Feb-17 A	28-Apr-17			-25							
Structure Construction		P2-Cal.B	55	55	17-Feb-17 A	28-Apr-17			-41							
LC10770	Construction of Concrete Plinth for Trench	P2-Cal.B	5	4	17-Feb-17 A	23-Feb-17	-26	20%	0							
LC10780	Construction of Wall for DSD Transformer Room	P2-Cal.B	7	7	24-Feb-17	03-Mar-17	-26	0%	-68	0						
LC10860	Construction of Roof Slab for DSD Transformer Room	P2-Cal.B	5	5	04-Mar-17	09-Mar-17	-26	0%	-53	0						
LC10900	Construction of wall and ceiling finishing works for DSD Transformer Room	P2-Cal.B	5	5	10-Mar-17	15-Mar-17	-26	0%	-37	0						
LC10905	Construction of floor finishing works for DSD Transformer Room	P2-Cal.B	5	5	16-Mar-17	21-Mar-17	-19	0%	0							
LC10920	Construction of E&M Works for DSD Transformer Room 1st and 2nd fixing	P2-Cal.B	7	7	22-Mar-17	29-Mar-17	-26	0%	-39	0						
LC10925	Construction of E&M Works for DSD Transformer Room 3rd fixing	P2-Cal.B	5	5	30-Mar-17	05-Apr-17	-26	0%	0							
LC10940	Backfilling	P2-Cal.B	21	21	24-Feb-17	20-Mar-17	-15	0%	-43	10						
LC10950	Construction of Cable Ducts (PMI No.4)	P2-Cal.B	7	7	24-Feb-17	03-Mar-17	-12	0%	0							
LC10955	Construction of Draw Pits (PMI No.4)	P2-Cal.B	21	21	04-Mar-17	28-Mar-17	-12	0%	0							
LC10980	Connection of Equipment and Cable Laying by CLP	P2-Cal.B	10	10	06-Apr-17	20-Apr-17	-26	0%	-34	5						
LC10985	Road Pavement Works	P2-Cal.B	10	10	18-Apr-17	28-Apr-17	-25	0%	-63	0						
Road Works		P2-Cal.B	30	30	21-Mar-17	28-Apr-17			-63							
LC11000	Road Furniture Works	P2-Cal.B	10	10	21-Mar-17	31-Mar-17	-15	0%	-64	0						
LC11020	Road Marking	P2-Cal.B	10	10	18-Apr-17	28-Apr-17	-25	0%	-74	0						
LC11040	Installation of Vehicle Gate - 2 gates	P2-Cal.B	10	10	18-Apr-17	28-Apr-17	-25	0%	-63	0						
Demolition of Existing DSD Transformer Room			10	10	21-Apr-17	30-Apr-17			-35							
LC11060	Decommission of Existing Transformer from Existing DSD Transformer Room	P2-Cal.B	5	5	21-Apr-17	26-Apr-17	-26	0%	-27	3						
LC11080	Demolition of Existing Transformer Room	P2-Cal.B	3	3	27-Apr-17	29-Apr-17	-26	0%	-26	0						
LC11090	Handover to DSD	P2-Cal.A	1	1	30-Apr-17	30-Apr-17	-35	0%	0							
Section 2 of the Works		P2-Cal.B	76	21	23-Jan-17 A	15-Mar-17			143							

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											Feb	Mar	Apr	May	Jun
RW P2-B											RW P2-B				
LC11300	Construction of RW P2-B Wall Stem - Bay 12 (Team B)	P2-Cal.B	10	3	23-Jan-17 A	15-Mar-17	678	70%	41	0	Construction of RW P2-B Wall Stem - Bay 12 (Team B)				
LC11380	Construction of RW P2-B Wall Stem - Bay 10 (Team A)	P2-Cal.B	10	7	18-Feb-17 A	27-Feb-17	678	30%	77	0	Construction of RW P2-B Wall Stem - Bay 10 (Team A)				
LC11460	Construction of RW P2-B Wall Stem - Bay 8 (Team B)	P2-Cal.B	10	9	20-Feb-17 A	04-Mar-17	680	10%	72	0	Construction of RW P2-B Wall Stem - Bay 8 (Team B)				
LC11540	Construction of RW P2-B Wall Stem - Bay 6 (Team A)	P2-Cal.B	10	7	18-Feb-17 A	07-Mar-17	678	30%	110	0	Construction of RW P2-B Wall Stem - Bay 6 (Team A)				
LC11620	Construction of RW P2-B Wall Stem - Bay 4 (Team B)	P2-Cal.B	10	7	17-Feb-17 A	13-Mar-17	680	30%	105	0	Construction of RW P2-B Wall Stem - Bay 4 (Team B)				
LC11700	Construction of RW P2-B Wall Stem - Bay 2 (Team A)	P2-Cal.B	10	7	18-Feb-17 A	15-Mar-17	678	30%	143	0	Construction of RW P2-B Wall Stem - Bay 2 (Team A)				
Section 3 of the Works											Section 3 of the Works				
Existing Land Section											Existing Land Section				
Retaining Wall P2-A CH 500- 650											Retaining Wall P2-A CH 500- 650				
LC11940	Excavation to formation level (Bay 4 - 15) (Total: 2054m3 - 200m3/day)	P2-Cal.B	11	11	20-Mar-17	31-Mar-17	540	0%	-7	0	Excavation to formation level (Bay 4 - 15) (Total: 2054m3 - 200m3/day)				
LC11980	Laying Blinding (Bay 4 - 7)	P2-Cal.B	10	10	25-Mar-17	06-Apr-17	540	0%	38	0	Laying Blinding (Bay 4 - 7)				
LC11985	Laying Blinding (Bay 8 - 11)	P2-Cal.B	10	10	07-Apr-17	21-Apr-17	570	0%	0	0	Laying Blinding (Bay 8 - 11)				
LC11990	Laying Blinding (Bay 12 - 15)	P2-Cal.B	10	10	22-Apr-17	05-May-17	600	0%	0	0	Laying Blinding (Bay 12 - 15)				
LC12000	Construction of RW P2-A Base Slab - Bay 4 (Team C)	P2-Cal.B	10	10	07-Apr-17	21-Apr-17	540	0%	38	0	Construction of RW P2-A Base Slab - Bay 4 (Team C)				
LC12020	Construction of RW P2-A Wall Stem - Bay 4 (Team C)	P2-Cal.B	10	10	15-May-17	25-May-17	523	0%	21	0	Construction of RW P2-A Wall Stem - Bay 4 (Team C)				
LC12080	Construction of RW P2-A Base Slab - Bay 6 (Team D)	P2-Cal.B	10	10	07-Apr-17	21-Apr-17	540	0%	38	0	Construction of RW P2-A Base Slab - Bay 6 (Team D)				
LC12100	Construction of RW P2-A Wall Stem - Bay 6 (Team D)	P2-Cal.B	10	10	15-May-17	25-May-17	523	0%	21	0	Construction of RW P2-A Wall Stem - Bay 6 (Team D)				
P2 Road											P2 Road				
P2 CH 318 - 375											P2 CH 318 - 375				
TTA Stage 2 - TTA for Temp Road Construction at P2 CH375 - 399											TTA Stage 2 - TTA for Temp Road Construction at P2 CH375 - 399				
LC12680	Construction of temporary road base	P2-Cal.B	14	3	10-Feb-17 A	28-Feb-17	86	78.57%	96	0	Construction of temporary road base				
LC12682	Construction of temporary road pavement	P2-Cal.B	14	14	01-Mar-17	16-Mar-17	86	0%	0	0	Construction of temporary road pavement				
LC12684	Construction of temporary road furniture	P2-Cal.B	7	7	17-Mar-17	24-Mar-17	86	0%	0	0	Construction of temporary road furniture				
LC12700	Erection of temporary road lighting	P2-Cal.B	5	5	25-Mar-17	30-Mar-17	86	0%	75	0	Erection of temporary road lighting				
LC12720	Installation of temporary barrier and road marking	P2-Cal.B	5	5	31-Mar-17	06-Apr-17	86	0%	75	0	Installation of temporary barrier and road marking				
LC12740	Implementation of TTA at Tong Yin Street for Temp Road Construction	P2-Cal.B	10	10	07-Apr-17	21-Apr-17	86	0%	75	0	Implementation of TTA at Tong Yin Street for Temp Road Construction				
LC12760	Remove road lighting and street furnitures	P2-Cal.B	5	5	22-Apr-17	27-Apr-17	86	0%	75	0	Remove road lighting and street furnitures				
LC12780	Road Pavement Demolition at Tong Yin Street	P2-Cal.B	5	5	28-Apr-17	05-May-17	86	0%	75	0	Road Pavement Demolition at Tong Yin Street				
Ground Investigation											Ground Investigation				
LC12849	UU Detection (After Road Diversion at TTA - Stage 2)	P2-Cal.B	4	4	06-May-17	10-May-17	86	0%	0	0	UU Detection (After Road Diversion at TTA - Stage 2)				
LC12850	Trial Pit	P2-Cal.B	4	4	11-May-17	15-May-17	86	0%	0	0	Trial Pit				
LC12851	Predrilling (LPDH-017) (Rig A)	P2-Cal.B	4	4	16-May-17	19-May-17	90	0%	0	0	Predrilling (LPDH-017) (Rig A)				
LC12852	Predrilling (LPDH-021) (Rig B)	P2-Cal.B	4	4	16-May-17	19-May-17	90	0%	0	0	Predrilling (LPDH-021) (Rig B)				
LC12853	Predrilling (LPDH-022) (Rig C)	P2-Cal.B	4	4	16-May-17	19-May-17	90	0%	0	0	Predrilling (LPDH-022) (Rig C)				
LC12854	Predrilling (LPDH-023) (Rig D)	P2-Cal.B	4	4	16-May-17	19-May-17	86	0%	0	0	Predrilling (LPDH-023) (Rig D)				
Foundation											Foundation				
LC12869	Installation of socketed H-Pile (C11) (Rig B)	P2-Cal.B	5	2	13-Feb-17 A	21-Feb-17	231	60%	0	0	Installation of socketed H-Pile (C11) (Rig B)				
LC12870	Installation of socketed H-Pile (D21) (Rig B)	P2-Cal.B	5	2	18-Feb-17 A	23-Feb-17	231	60%	0	0	Installation of socketed H-Pile (D21) (Rig B)				
P2 CH 399 - 500											P2 CH 399 - 500				
ELS											ELS				
LC14650	Construction of Prebored ~ Rig 1 Stage 1 at CH 481.5 to 501.5 and end wall (54 hole for 3 hole/days)	P2-Cal.B	16	9	10-Feb-17 A	11-Mar-17	372	43.75%	0	0	Construction of Prebored ~ Rig 1 Stage 1 at CH 481.5 to 501.5 and end wall (54 hole for 3 hole/days)				
LC14651	Construction of Prebored ~ Rig 1 Stage 2 at CH 446.5 to 481.5 (54 hole for 3 hole/days)	P2-Cal.B	16	16	13-Mar-17	30-Mar-17	372	0%	0	0	Construction of Prebored ~ Rig 1 Stage 2 at CH 446.5 to 481.5 (54 hole for 3 hole/days)				
LC14652	Construction of Prebored ~ Rig 1 Stage 3 at CH 411.5 to 446.5 (54 hole for 3 hole/days)	P2-Cal.B	16	16	31-Mar-17	22-Apr-17	372	0%	0	0	Construction of Prebored ~ Rig 1 Stage 3 at CH 411.5 to 446.5 (54 hole for 3 hole/days)				
LC14653	Construction of Prebored ~ Rig 1 Stage 4 at CH 409.5 to 411.5 and end wall (54 hole for 3 hole/days)	P2-Cal.B	16	16	24-Apr-17	13-May-17	372	0%	0	0	Construction of Prebored ~ Rig 1 Stage 4 at CH 409.5 to 411.5 and end wall (54 hole for 3 hole/days)				
LC14655	Construction of Prebored ~ Rig 2 Stage 1 at CH 481.5 to 501.5 and end wall (54 hole for 3 hole/days)	P2-Cal.B	16	16	04-Mar-17	22-Mar-17	379	0%	0	0	Construction of Prebored ~ Rig 2 Stage 1 at CH 481.5 to 501.5 and end wall (54 hole for 3 hole/days)				
LC14656	Construction of Prebored ~ Rig 2 Stage 2 at CH 446.5 to 481.5 (54 hole for 3 hole/days)	P2-Cal.B	16	16	23-Mar-17	11-Apr-17	379	0%	0	0	Construction of Prebored ~ Rig 2 Stage 2 at CH 446.5 to 481.5 (54 hole for 3 hole/days)				

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LC14657	Construction of Prebored ~ Rig 2 Stage 3 at CH 411.5 to 466.5 (54 hole for 3 hole/days)	P2-Cal.B	16	16	12-Apr-17	05-May-17	379	0%		0										
LC14660	Installation of sheetpile wall (48m) ~ Stage 1 at CH 491.5 to 501.5 and end wall	P2-Cal.B	25	25	15-May-17	13-Jun-17	372	0%	209	10										
SR2		P2-Cal.B	167	75	16-Feb-17 A	31-May-17	789			115										
Retaining Wall SR2-A & B CH250 - 310		P2-Cal.B	167	75	16-Feb-17 A	31-May-17	789			115										
LC16585	Excavation to formation level (SR2-A Bay 1 - 6) (Total: 905m3 - 200m3/day)	P2-Cal.B	10	10	25-Feb-17	08-Mar-17	729	0%		0										
LC16620	Laying Blinding (SR2-A)	P2-Cal.B	10	10	03-Mar-17	14-Mar-17	729	0%	55	0										
LC16680	Construction of Base Slab (SR2-A Bay 2) (Team E)	P2-Cal.B	10	10	15-Mar-17	25-Mar-17	729	0%	75	0										
LC16700	Construction of Wall Stem (SR2-A Bay 2) (Team E)	P2-Cal.B	10	10	27-Mar-17	07-Apr-17	729	0%	75	0										
LC16720	Construction of Base Slab (SR2-A Bay 3) (Team E)	P2-Cal.B	10	10	08-Apr-17	22-Apr-17	729	0%	75	0										
LC16740	Construction of Wall Stem (SR2-A Bay 3) (Team E)	P2-Cal.B	10	10	24-Apr-17	06-May-17	729	0%	75	0										
LC16760	Construction of Base Slab (SR2-A Bay 4) (Team E)	P2-Cal.B	10	10	08-May-17	18-May-17	729	0%	75	0										
LC16780	Construction of Wall Stem (SR2-A Bay 4) (Team E)	P2-Cal.B	10	10	19-May-17	31-May-17	729	0%	75	0										
LC16880	Construction of Base Slab (SR2-B Bay 1) (Team F)	P2-Cal.B	10	10	09-Mar-17	20-Mar-17	834	0%	60	0										
LC16900	Construction of Wall Stem (SR2-B Bay 1) (Team F)	P2-Cal.B	10	10	15-May-17	25-May-17	793	0%	19	0										
LC16940	Construction of Wall Stem (SR2-B Bay 2) (Team F)	P2-Cal.B	10	2	16-Feb-17 A	27-Feb-17	834	80%	108	0										
LC16980	Construction of Wall Stem (SR2-B Bay 3) (Team F)	P2-Cal.B	10	2	16-Feb-17 A	01-Mar-17	834	80%	126	0										
LC17020	Construction of Wall Stem (SR2-B Bay 4) (Team F)	P2-Cal.B	10	2	16-Feb-17 A	03-Mar-17	834	80%	144	0										
LC17060	Construction of Wall Stem (SR2-B Bay 5) (Team F)	P2-Cal.B	10	2	16-Feb-17 A	06-Mar-17	834	80%	162	0										
LC17100	Construction of Wall Stem (SR2-B Bay 6) (Team F)	P2-Cal.B	10	2	16-Feb-17 A	08-Mar-17	834	80%	180	0										
SR2 CH 182 - 250		P2-Cal.B	7	7	15-May-17	22-May-17	548													
ELS		P2-Cal.B	7	7	15-May-17	22-May-17	548													
LC17145	Plant mobilization and set up for prebored works	P2-Cal.B	7	7	15-May-17	22-May-17	548	0%		0										
Portion IV & VII		P2-Cal.B	60	60	16-Mar-17	01-Jun-17	-11			-38										
LC17660	ELS along Existing EVA to BMCPC for Dia. 2100 Drain Pipe ~ Stage 1	P2-Cal.B	12	12	16-Mar-17	29-Mar-17	-11	0%	10	0										
LC17665	ELS along Existing EVA to BMCPC for Dia. 2100 Drain Pipe ~ Stage 2	P2-Cal.B	12	12	30-Mar-17	13-Apr-17	-11	0%	0	0										
LC17666	ELS along Existing EVA to BMCPC for Dia. 2100 Drain Pipe ~ Stage 3	P2-Cal.B	12	12	18-Apr-17	02-May-17	-11	0%	0	0										
LC17667	ELS along Existing EVA to BMCPC for Dia. 2100 Drain Pipe ~ Stage 4	P2-Cal.B	12	12	04-May-17	17-May-17	-11	0%	0	0										
LC17668	ELS along Existing EVA to BMCPC for Dia. 2100 Drain Pipe ~ Stage 5	P2-Cal.B	12	12	18-May-17	01-Jun-17	-11	0%	0	0										
New Reclaimed Section		P2-Cal.B	179	79	19-Dec-16 A	29-May-17	282			12										
Marine Works		P2-Cal.B	92	79	19-Dec-16 A	29-May-17	236			12										
Initial Works		P2-Cal.B	86	73	19-Dec-16 A	22-May-17	-16			-16										
MC10260	Installation of Silt Curtain (2nd stage Extension to around the Marine Portion)	P2-Cal.B	14	7	19-Dec-16 A	27-Feb-17	-12	50%	-61	0										
Steel Cofferdam and Water Gate		P2-Cal.B	66	73	20-Dec-16 A	22-May-17	-16			-16										
MC10280	Installation of Temporary Steel Cofferdam (Phase 1 - 236m)	P2-Cal.B	24	7	20-Dec-16 A	28-Feb-17	-12	70%	-12	0										
MC10300	Installation of Temporary Steel Cofferdam (Phase 2 - 236m)	P2-Cal.B	24	24	28-Feb-17	28-Mar-17	-12	0%	-12	0										
MC10310	Installation of Temporary Steel Cofferdam (Phase 3 - 24 nos type 2A Steel Box)	P2-Cal.B	12	12	28-Mar-17	12-Apr-17	-12	0%	0	0										
MC10320	Installation of Temporary Steel Cofferdam (Phase 4 - 20 nos type 2B, 2C and 2D Steel Box)	P2-Cal.B	12	12	12-Apr-17	29-Apr-17	-12	0%	-12	0										
MC10340	Foundation Preparation of Water Gate System	P2-Cal.B	14	14	18-Apr-17	05-May-17	-16	0%	-16	0										
MC10360	Installation of Water Gate System	P2-Cal.B	7	7	06-May-17	13-May-17	-16	0%	-16	0										
MC10380	Installation of Pumping System (incl. pipeline)	P2-Cal.B	7	7	15-May-17	22-May-17	-16	0%	-16	0										
Dredging Work		P2-Cal.B	15	15	05-May-17	22-May-17	-9			-19										
MC10500	Erection of temporary support	P2-Cal.B	15	15	05-May-17	22-May-17	-9	0%	-19	0										
Full-scale Treatment of Cement S/S of Marine Sediment		P2-Cal.B	21	21	05-May-17	29-May-17	236			12										
MC14100	Set up Cement S/S Treatment Facility	P2-Cal.B	21	21	05-May-17	29-May-17	236	0%	12	0										
Land Works		P2-Cal.B	166	7	15-Feb-17 A	03-Mar-17	350													
Road P2 Underpass		P2-Cal.B	166	7	15-Feb-17 A	03-Mar-17	350													
Underpass		P2-Cal.B	166	7	15-Feb-17 A	03-Mar-17	350													

█ Primary Baseline █ Critical Remaining Work
█ Actual Work ◆ Milestone
█ Remaining Work Summary

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

3 Months Rolling Programme
 (20 Feb 2017)
 Page: 6 of 7

Date	Revision	Checked	Approved
20-Feb-17			

Activity ID	Activity Name	Calendar	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - BL1	TRA	2017				
											Feb	Mar	Apr	May	Jun
Underpass P2 Ch 216 - 292 & P2 Ch 292 - 318		P2-Cal.B	166	7	15-Feb-17 A	03-Mar-17	350				Underpass P2 Ch 216 - 292 & P2 Ch 292 - 318				
Foundation		P2-Cal.B	166	7	15-Feb-17 A	03-Mar-17	350				Foundation				
LC17785	Installation of socketed H-Pile (C12) (Rig B)	P2-Cal.B	5	2	15-Feb-17 A	25-Feb-17	350	60%		0	■ Installation of socketed H-Pile (C12) (Rig B)				
LC17786	Installation of socketed H-Pile (D22) (Rig B)	P2-Cal.B	5	2	17-Feb-17 A	25-Feb-17	350	60%		0	■ Installation of socketed H-Pile (D22) (Rig B)				
LC17787	Installation of socketed H-Pile (C13) (Rig B)	P2-Cal.B	5	5	27-Feb-17	03-Mar-17	350	0%		0	■ Installation of socketed H-Pile (C13) (Rig B)				
LC17788	Installation of socketed H-Pile (D23) (Rig B)	P2-Cal.B	5	5	27-Feb-17	03-Mar-17	350	0%		0	■ Installation of socketed H-Pile (D23) (Rig B)				
Section 4 of the Works - Preservation and Protection of Existing Trees		P2-Cal.A	1424	1286	08-Oct-16 A	28-Aug-20	30			23					
LC25260	Preservation and Protection of Existing Trees	P2-Cal.A	1424	1286	08-Oct-16 A	28-Aug-20	30	9.69%		23					
Section 5 of the Works - Landscaping Works		P2-Cal.B	180	120	08-Dec-16 A	18-Jul-17	9			3					
LC25320	Tree Transplanting Preparation Works	P2-Cal.B	180	120	08-Dec-16 A	18-Jul-17	9	33.33%		3					

- Primary Baseline
- Critical Remaining Work
- Actual Work
- Remaining Work
- ◆ Milestone
- ▼ Summary

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

3 Months Rolling Programme
(20 Feb 2017)
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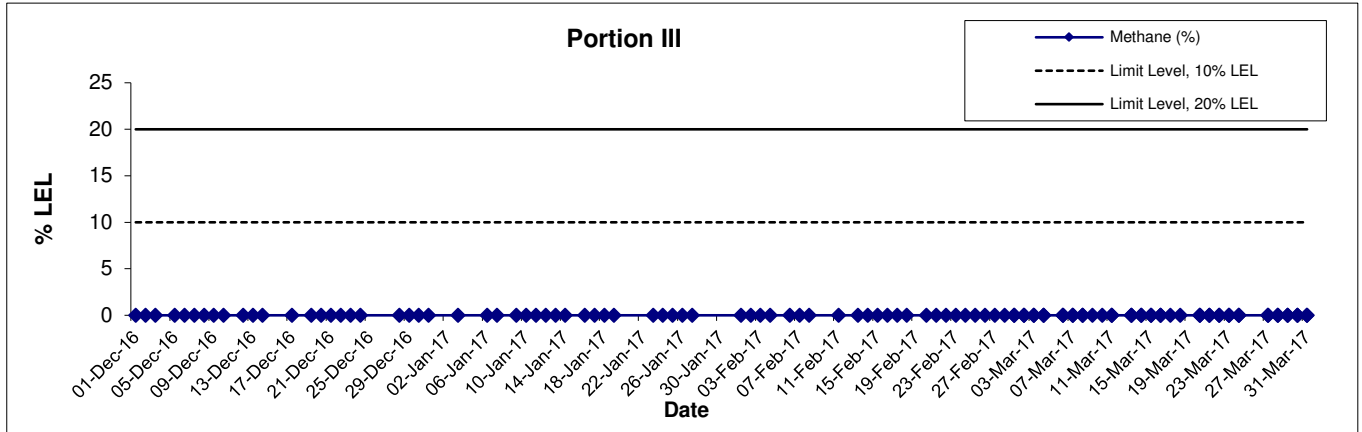
Date	Revision	Checked	Approved
20-Feb-17			

**APPENDIX R
RECORD OF LANDFILL GAS
MONITORING BY CONTRACTOR**

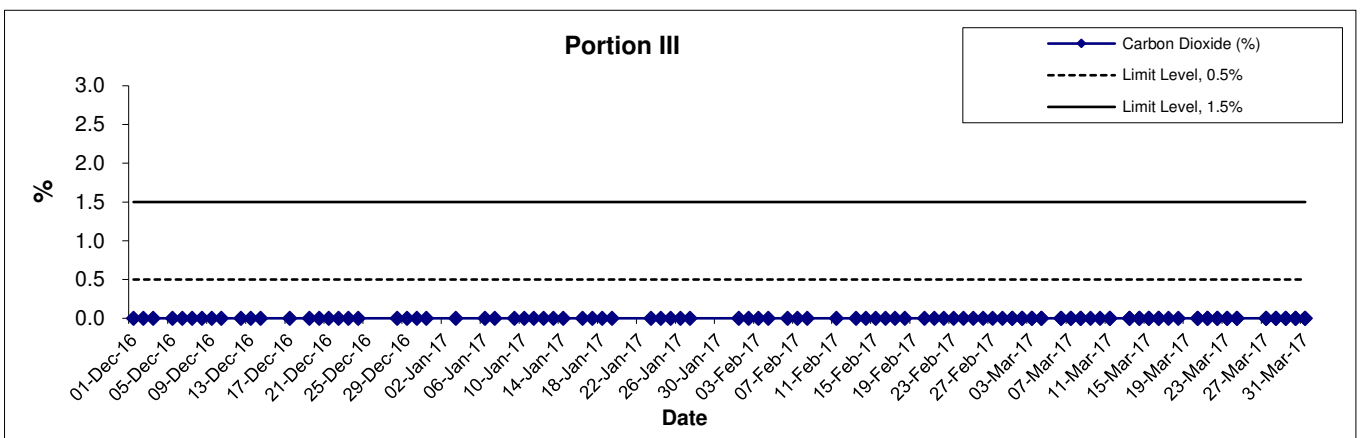
APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
Portion III	1-Mar-17	7:27 AM	Cloudy	21	0	0	20.9
	1-Mar-17	1:05 PM	Sunny	25	0	0	20.9
	2-Mar-17	7:28 AM	Sunny	17	0	0	20.9
	2-Mar-17	1:03 PM	Sunny	21	0	0	20.9
	3-Mar-17	7:30 AM	Sunny	21	0	0	20.9
	3-Mar-17	1:01 PM	Sunny	21	0	0	20.9
	4-Mar-17	7:25 AM	Sunny	19	0	0	20.9
	4-Mar-17	1:03 PM	Sunny	24	0	0	20.9
	6-Mar-17	7:28 AM	Cloudy	18	0	0	20.9
	6-Mar-17	1:04 PM	Cloudy	22	0	0	20.9
	7-Mar-17	7:30 AM	Cloudy	17	0	0	20.9
	7-Mar-17	1:01 PM	Cloudy	22	0	0	20.9
	8-Mar-17	7:28 AM	Cloudy	21	0	0	20.9
	8-Mar-17	1:00 PM	Cloudy	23	0	0	20.9
	9-Mar-17	7:30 AM	Sunny	20	0	0	20.9
	9-Mar-17	1:01 PM	Sunny	25	0	0	20.9
	10-Mar-17	7:28 AM	Cloudy	18	0	0	20.9
	10-Mar-17	1:05 PM	Cloudy	23	0	0	20.9
	11-Mar-17	7:25 AM	Sunny	17	0	0	20.9
	11-Mar-17	1:03 PM	Sunny	21	0	0	20.9
	13-Mar-17	7:30 AM	Sunny	18	0	0	20.9
	13-Mar-17	1:01 PM	Sunny	22	0	0	20.9
	14-Mar-17	7:28 AM	Cloudy	21	0	0	20.9
	14-Mar-17	1:00 PM	Cloudy	25	0	0	20.9
	15-Mar-17	7:30 AM	Sunny	20	0	0	20.9
	15-Mar-17	1:00 PM	Sunny	24	0	0	20.9
	16-Mar-17	7:31 AM	Sunny	18	0	0	20.9
	16-Mar-17	1:02 PM	Sunny	23	0	0	20.9
	17-Mar-17	7:30 AM	Sunny	17	0	0	20.9
	17-Mar-17	1:02 PM	Sunny	22	0	0	20.9
	18-Mar-17	7:28 AM	Cloudy	18	0	0	20.9
18-Mar-17	1:00 PM	Cloudy	22	0	0	20.9	
20-Mar-17	7:29 AM	Cloudy	21	0	0	20.9	
20-Mar-17	1:02 PM	Cloudy	24	0	0	20.9	
21-Mar-17	7:30 AM	Sunny	23	0	0	20.9	
21-Mar-17	1:03 PM	Sunny	27	0	0	20.9	
22-Mar-17	7:28 AM	Sunny	22	0	0	20.9	
22-Mar-17	1:05 PM	Sunny	26	0	0	20.9	
23-Mar-17	7:30 AM	Cloudy	24	0	0	20.9	
23-Mar-17	1:02 PM	Cloudy	26	0	0	20.9	
24-Mar-17	7:29 AM	Sunny	21	0	0	20.9	
24-Mar-17	1:00 PM	Sunny	25	0	0	20.9	
27-Mar-17	7:28 AM	Cloudy	23	0	0	20.9	
27-Mar-17	1:05 PM	Cloudy	26	0	0	20.9	
28-Mar-17	7:30 AM	Sunny	24	0	0	20.9	
28-Mar-17	1:00 PM	Sunny	28	0	0	20.9	
29-Mar-17	7:30 AM	Sunny	21	0	0	20.9	
29-Mar-17	1:02 PM	Sunny	24	0	0	20.9	
30-Mar-17	7:30 AM	Sunny	23	0	0	20.9	
30-Mar-17	1:01 PM	Sunny	26	0	0	20.9	
31-Mar-17	7:29 AM	Cloudy	26	0	0	20.9	
31-Mar-17	1:00 PM	Cloudy	21	0	0	20.9	

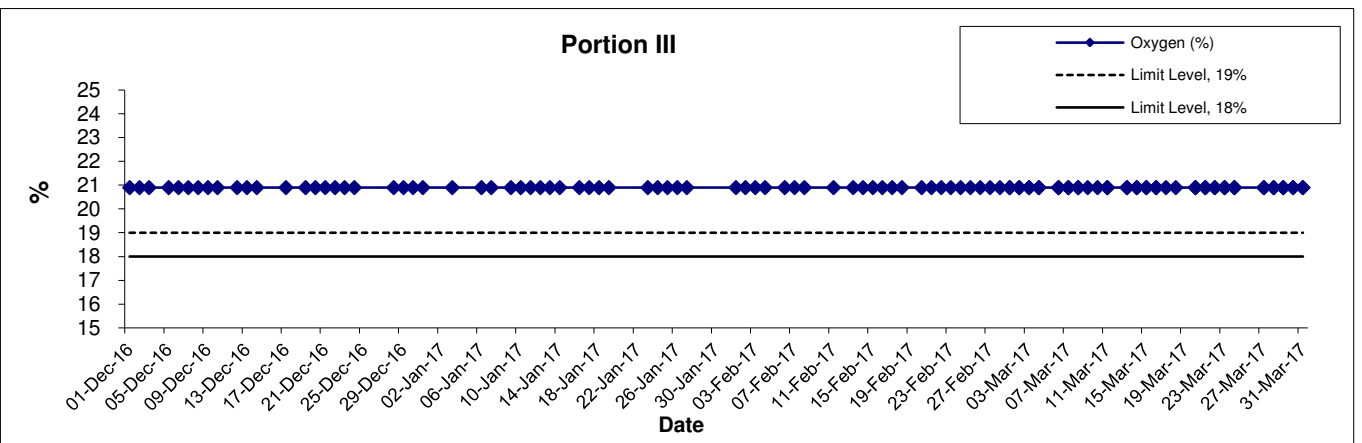
Methane



Carbon Dioxide



Oxygen



Title	Agreement No. CE 59/2015 (EP)	Scale	Project	CINOTECH
	Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction	N.T.S	No. MA16034	
Graphical Presentation of Landfill Gas Measurement	Date	Mar 17	Appendix R	

**APPENDIX S
UPDATED CONSTRUCTION NOISE
ASSESSMENT**

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario: ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

1. Lam Tin Side

1.1 Construction of Lam Tin Interchange (LTI)

(beginning of month - end of month)

Group 1.1.1.							Oct 2016 - May 2017
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Dump Truck	BS D9/24	3	104	40%	0	105	
Total SWL						105	
Group 1.1.2a							Oct 2016 - Mar 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Excavator	EPD-03840	2	91	50%	0	91	
Backhoe with hydraulic breaker	BS D8/13	1	110	30%	-5	100	
Drill rig	BS D10/2	1	112	20%	-5	100	
Dump truck	BS D9/24	2	104	25%	0	101	
Total SWL						105	
Group 1.1.2b							Oct 2016 - Mar 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Excavator	EPD-03840	2	91	70%	0	92	
Dump truck	BS D9/24	2	104	60%	0	105	
Total SWL						105	
Group 1.1.3							Oct 2016 - Jul 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	10%	-5	97	
Excavator	EPD-03840	2	91	50%	0	91	
Dump truck	BS D9/24	1	104	20%	0	97	
Backhoe with hydraulic breaker	BS D8/13	1	110	20%	-5	98	
Crane lorry	BS D7/101	1	94	50%	0	91	
Crawler crane, mobile (diesel)	EPD-03731	1	101	30%	0	96	
Bulldozer	BS D9/2	1	104	20%	0	97	
Loader, wheeled	EPD-00458	1	101	30%	0	96	
Hoist, passenger/material (electric)	CNP 122	1	95	50%	0	92	
Total SWL						105	
Group 1.1.4							Oct 2016 - Jun 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	50%	0	98	
Rigid Dump Truck	BS D11/51	1	113	10%	0	103	
Lorry with crane/grab	CNP 145	1	105	20%	0	98	
Roller, vibratory	EPD-03756	1	94	50%	0	91	
Total SWL						105	
Group 1.1.5							Sep 2018 - Jan 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Excavator	EPD-03840	2	91	70%	0	92	
Roller, vibratory	EPD-03756	1	94	70%	0	92	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						105	
Group 1.1.6							Feb 2017 - Mar 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Excavator	EPD-03840	4	91	65%	0	95	
Roller, vibratory	EPD-03756	3	94	65%	0	97	
Dump truck	BS D9/24	3	104	30%	0	104	
Total SWL						105	
Group 1.1.7							Oct 2016 - Jan 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	1	110	40%	-5	101	
Dump truck	BS D9/24	2	104	40%	0	103	
Total SWL						105	
Maximum SWL of Construction Activity 1.1						105	

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange
 1.2 Construction of Bridges and Footbridges at LTI

Group 1.2.1

Jun 2018 - Jun 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	3	101	70%	0	104
Lorry with crane/grab	CNP 145	2	105	70%	0	106
Total SWL						108

Group 1.2.2a

Sub-group A						
Feb 2019 - Feb 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Drill rig	BS D10/2	2	112	40%	-5	106
Total SWL						106
Sub-group B						
Feb 2019 - Mar 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Backhoe with hydraulic breaker	BS D8/13	2	110	50%	-5	105
Mobile crane	EPD-03731	2	101	50%	0	101
Total SWL						106
Sub-group C						
Apr 2019 - Jun 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	2	101	70%	0	102
Total SWL						102
Sub-group D						
Jul 2019 - Dec 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	1	101	70%	0	99
Total SWL						99
Maximum SWL of Construction Activity Group 1.2.2a						106

Group 1.2.2b

Sub-group A						
Feb 2019 - Feb 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Drill rig	BS D10/2	2	112	40%	-5	106
Total SWL						106
Sub-group B						
Aug 2019 - Oct 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Excavator	EPD-03840	1	91	50%	0	88
Mobile crane	EPD-03731	1	101	50%	0	98
Total SWL						98
Sub-group C						
Nov 2019 - Dec 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	1	101	70%	0	99
Total SWL						99
Sub-group D						
Jan 2020 - Apr 2020						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	1	101	70%	0	99
Total SWL						99
Maximum SWL of Construction Activity Group 1.2.2b						106

Group 1.2.3a

Sub-group A						
Apr 2017 - Apr 2017						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Drill rig	BS D10/2	2	112	70%	-5	108
Total SWL						108
Sub-group B						
Oct 2018 - Jan 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105
Piling, oscillator	CNP165	1	115	10%	0	105
Piling, reverse circulation drill	CNP166	1	100	10%	0	90
Power pack (diesel)	CNP174	2	100	40%	0	99
Air compressor	EPD-03803	1	98	70%	0	96
Excavator	EPD-03840	1	91	70%	0	89
Generator, super silenced	EPD-03816	1	88	70%	0	86
Dump truck	BS D9/24	2	104	50%	0	104
Total SWL						110
Sub-group C						
Jan 2019 - Jun 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106
Mobile crane	EPD-03731	2	101	70%	0	102
Total SWL						108
Sub-group D						
Mar 2019 - Jun 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99
Mobile crane	EPD-03731	1	101	70%	0	99
Total SWL						102
Sub-group E						
Jul 2019 - Nov 2019						
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	1	101	70%	0	99
Total SWL						99
Maximum SWL of Construction Activity Group 1.2.3a						110

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

Group 1.2.3b

							Jun 2017 - Jun 2017
Sub-group A							
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Feb 2019 - Apr 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							May 2019 - Jul 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						108	
Sub-group D							Jul 2019 - Aug 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group E							Sep 2019 - Jan 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3b						110	

Group 1.2.3c(i)

							Apr 2017 - May 2017
Sub-group A							
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Jun 2018- Feb 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Jul 2018 - May 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						108	
Sub-group D							Mar 2019 - Jul 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group E							Aug 2019 - Nov 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3c(i)						110	

Group 1.2.3c(ii)

							May 2017 - Jun 2017
Sub-group A							
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Sep 2018- Dec 2018
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Nov 2018 - Apr 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						108	
Sub-group D							Feb 2019 - May 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group E							Jun 2019 - Oct 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3c(ii)						110	

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

Group 1.2.3d

Sub-group A							Jun 2017 - Jun 2017
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Sep 2018- Sep 2018
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Sep 2018 - Oct 2018
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						108	
Sub-group D							Feb 2019 -Mar 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group E							Apr 2019 - Aug 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3d						110	

Group 1.2.3e

Sub-group A							Jul 2017 - Aug 2017
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Dec 2018- Dec 2018
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Jan 2019 - Feb 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	70%	-5	106	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						108	
Sub-group D							Mar 2019 - Apr 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group E							May 2019 - Sep 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3e						110	

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

Group 1.2.3f(i)

Sub-group A							Feb 2017 - Mar 2017
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							Apr 2019- May 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	1	100	40%	0	96	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	3	88	70%	0	91	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Jun 2019 - Oct 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	1	110	70%	-5	103	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						105	
Sub-group D							Nov 2019 - Jan 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						102	
Sub-group E							Feb 2020 - Jun 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3 f(i)						110	

Group 1.2.3f(ii)

Sub-group A							Apr 2017 - Apr 2017
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Drill rig	BS D10/2	1	112	70%	-5	105	
Total SWL						105	
Sub-group B							May 2019- Jun 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Piling, crawler crane/ grab/chisel	CNP164	1	115	10%	0	105	
Piling, oscillator	CNP165	1	115	10%	0	105	
Piling, reverse circulation drill	CNP166	1	100	10%	0	90	
Power pack (diesel)	CNP174	2	100	40%	0	99	
Air compressor	EPD-03803	1	98	70%	0	96	
Excavator	EPD-03840	1	91	70%	0	89	
Generator, super silenced	EPD-03816	1	88	70%	0	86	
Dump truck	BS D9/24	2	104	50%	0	104	
Total SWL						110	
Sub-group C							Jul 2019 - Sep 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	50%	-5	105	
Mobile crane	EPD-03731	3	101	70%	0	104	
Total SWL						108	
Sub-group D							Sep 2019 - Nov 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	2	101	70%	0	102	
Mobile crane	EPD-03731	2	101	70%	0	102	
Total SWL						105	
Sub-group E							Dec 2019 - Apr 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3 f(ii)						110	

Group 1.2.3f(iii)

Sub-group A							Aug 2019 - Dec 2019
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Backhoe with hydraulic breaker	BS D8/13	2	110	50%	-5	105	
Mobile crane	EPD-03731	3	101	70%	0	104	
Total SWL						108	
Sub-group B							Nov 2019 - Jan 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Crawler crane, mobile (diesel)	EPD-03731	1	101	70%	0	99	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						102	
Sub-group C							Feb 2020 - Jun 2020
PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)	
Mobile crane	EPD-03731	1	101	70%	0	99	
Total SWL						99	
Maximum SWL of Construction Activity Group 1.2.3 f(iii)						108	

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

Feb 2017 - Sep 2019

1.3 Construction of Lam Tin Tunnel Portal

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Group A						
Drill rig, rotary type (diesel)	CNP 072	2	110	30%	-5	103
Submersible water pump	CNP 281	1	88	100%	0	88
Telescopic handler	BS C4/54	5	104	10%	0	101
Grout pump	CNP 106	2	105	30%	0	103
Grout mixer	CNP 105	2	90	30%	0	88
Generator, super silenced	EPD-03816	1	88	100%	0	88
Crane truck	BS D7/101	1	94	100%	0	94
Excavator	EPD-03840	2	91	100%	0	94
Backhoe with hydraulic breaker	BS D8/13	2	110	20%	-5	101
Loader, wheeled	EPD-00458	2	101	50%	0	101
Dump truck	BS D9/24	6	104	10%	0	102
Concrete pump, stationary/lorry mounted	BS D6/36	1	106	30%	0	101
Material delivery truck	BS D9/19	2	102	50%	0	102
Lorry	BS D8/25	2	96	70%	0	97
Total SWL						111
Group B						
Drill rig, rotary type (diesel)	CNP 072	1	110	40%	-5	101
Backhoe with hydraulic breaker	BS D8/13	3	110	10%	-5	100
Submersible water pump	CNP 281	1	88	100%	0	88
Telescopic handler	BS C4/54	5	104	10%	0	101
Grout pump	CNP 106	2	105	30%	0	103
Grout mixer	CNP 105	2	90	30%	0	88
Generator, super silenced	EPD-03816	1	88	100%	0	88
Crane truck	BS D7/101	1	94	100%	0	94
Excavator	EPD-03840	2	91	100%	0	94
Loader, wheeled	EPD-00458	2	101	50%	0	101
Dump truck	BS D9/24	6	104	10%	0	102
Concrete pump, stationary/lorry mounted	BS D6/36	1	106	30%	0	101
Material delivery truck	BS D9/19	2	102	50%	0	102
Lorry	BS D8/25	2	96	70%	0	97
Total SWL						111
Group C						
Drill rig, rotary type (diesel)	CNP 072	3	110	20%	-5	103
Backhoe with hydraulic breaker	BS D8/13	1	110	20%	-5	98
Submersible water pump	CNP 281	1	88	100%	0	88
Telescopic handler	BS C4/54	5	104	10%	0	101
Grout pump	CNP 106	2	105	30%	0	103
Grout mixer	CNP 105	2	90	30%	0	88
Generator, super silenced	EPD-03816	1	88	100%	0	88
Crane truck	BS D7/101	1	94	100%	0	94
Excavator	EPD-03840	2	91	100%	0	94
Loader, wheeled	EPD-00458	2	101	50%	0	101
Dump truck	BS D9/24	6	104	10%	0	102
Concrete pump, stationary/lorry mounted	BS D6/36	1	106	30%	0	101
Material delivery truck	BS D9/19	2	102	50%	0	102
Lorry	BS D8/25	2	96	70%	0	97
Total SWL						111
Maximum SWL of Construction Activity 1.4						111

1.4 Construction of EHC2 (New Road Leading to EHC Consisting of U-trough and D&B Branch Tunnel)

Jul 2017 - Mar 2018

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Group A						
Drill rig, rotary type (diesel)	CNP 072	1	110	30%	-5	100
Submersible water pump	CNP 281	2	88	100%	0	91
Telescopic handler	BS C4/54	1	104	40%	0	100
Generator, super silenced	EPD-03816	1	88	100%	0	88
Excavator	EPD-03840	1	91	100%	0	91
Backhoe with hydraulic breaker	BS D8/13	3	110	10%	-5	100
Loader, wheeled	EPD-00458	1	101	50%	0	98
Dump truck	BS D9/24	1	104	40%	0	100
Total SWL						107
Group B						
Grout Pump	CNP 106	1	105	30%	0	100
Grout Mixer	CNP 105	1	90	50%	0	87
Submersible water pump	CNP 281	2	88	100%	0	91
Generator, super silenced	EPD-03816	1	88	100%	0	88
Concrete pump, stationary/lorry mounted	BS D6/36	2	106	30%	0	104
Total SWL						106
Maximum SWL of Construction Activity 1.4						107

1.5 Construction of S01 & S02 Tunnels

Sep 2018 - Jul 2019

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Drill rig, rotary type (diesel)	CNP 072	1	110	70%	-5	103
Loader, wheeled	EPD-00458	1	101	70%	0	99
Backhoe with hydraulic breaker	BS D8/13	2	110	50%	-5	105
Excavator	EPD-03840	2	91	70%	0	92
Concrete pump, stationary/lorry mounted	BS D6/36	1	106	50%	0	103
Total SWL						109

1.6 General at LT Side

Feb 2017 - Dec 2019

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Ventilation fans	CNP 241	2	108	80%	0	110
Generator, super silenced	EPD-03816	2	88	80%	0	90
Total SWL						110

1.7 Construction of Admin Building

Feb 2019 - Apr 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Crane, tower (electric)	CNP 049	1	95	100%	0	95
Generator, super silenced	EPD-03816	1	88	100%	0	88
Hoist, passenger/material (electric)	CNP 122	4	95	50%	0	98
Concrete lorry mixer	BS D6/33	1	96	100%	0	96
Concrete pump	BS D6/36	1	106	100%	0	106
Total SWL						107

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange
 1.8 Construction of West Ventilation Building at Lam Tin Side

Feb 2019 - Jun 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Crane, tower (electric)	CNP 049	1	95	100%	0	95
Generator, super silenced	EPD-03816	2	88	70%	0	89
Excavator	EPD-03840	1	91	100%	0	91
Hoist, passenger/material (electric)	CNP 122	1	95	100%	0	95
Concrete lorry mixer	BS D6/33	1	96	100%	0	96
Concrete pump	BS D6/36	1	106	100%	0	106
Total SWL						107

1.9 Cut & Cover Tunnel, U-Trough and Emergency Egress Point - Emergency Egress & Cut & Cover Tunnel

Oct 2016 - May 2019

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Group A						
Excavator	EPD-03840	2	91	70%	0	92
Backhoe with hydraulic breaker	BS D8/13	2	110	10%	-5	98
Drill rig, rotary type (diesel)	CNP 072	2	110	10%	-5	98
Telescopic handler	BS C4/54	1	104	30%	0	99
Dump truck	BS D9/24	1	104	20%	0	97
Mobile crane	EPD-03731	1	101	30%	0	96
Lorry with crane/grab	CNP 145	1	105	20%	0	98
Submersible water pump	CNP 281	2	88	100%	0	91
Generator, super silenced	EPD-03816	1	88	100%	0	88
Total SWL						106
Group B						
Concrete pump, stationary/lorry mounted	BS D6/36	2	106	10%	0	99
Grout Pump	CNP 106	1	105	20%	0	98
Grout Mixer	CNP 105	1	90	30%	0	85
Submersible water pump	CNP 281	2	88	100%	0	91
Generator, super silenced	EPD-03816	1	88	100%	0	88
Total SWL						102
Maximum SWL of Construction Activity 1.9						106

1.9 Cut & Cover Tunnel, U-Trough and Emergency Egress Point - U-Trough (a)

Oct 2016 - May 2019

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Excavator	EPD-03840	2	91	70%	0	92
Backhoe with hydraulic breaker	BS D8/13	2	110	10%	-5	98
Drill rig, rotary type (diesel)	CNP 072	2	110	20%	-5	101
Telescopic handler	BS C4/54	1	104	30%	0	99
Dump truck	BS D9/24	1	104	30%	0	99
Lorry with crane/grab	CNP 145	1	105	20%	0	98
Grout Pump	CNP 106	1	105	20%	0	98
Grout Mixer	CNP 105	1	90	20%	0	83
Total SWL						107

1.9 Cut & Cover Tunnel, U-Trough and Emergency Egress Point - U-Trough (b)

Oct 2016 - May 2019

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Group A						
Excavator	EPD-03840	2	91	70%	0	92
Backhoe with hydraulic breaker	BS D8/13	2	110	10%	-5	98
Drill rig, rotary type (diesel)	CNP 072	1	110	20%	-5	98
Telescopic handler	BS C4/54	1	104	15%	0	96
Dump truck	BS D9/24	1	104	20%	0	97
Mobile crane	EPD-03731	1	101	20%	0	94
Lorry with crane/grab	CNP 145	1	105	20%	0	98
Submersible water pump	CNP 281	2	88	100%	0	91
Generator, super silenced	EPD-03816	1	88	100%	0	88
Total SWL						105
Group B						
Backhoe with hydraulic breaker	BS D8/13	2	110	10%	-5	98
Telescopic handler	BS C4/54	1	104	15%	0	96
Dump truck	BS D9/24	1	104	20%	0	97
Mobile crane	EPD-03731	1	101	30%	0	96
Concrete pump, stationary/lorry mounted	BS D6/36	2	106	10%	0	99
Grout Pump	CNP 106	1	105	10%	0	95
Grout Mixer	CNP 105	1	90	20%	0	83
Submersible water pump	CNP 281	2	88	100%	0	91
Generator, super silenced	EPD-03816	1	88	100%	0	88
Total SWL						105
Maximum SWL of Construction Activity 1.9(b)						105

1.10 Construction of Barging Point at LT Side

Jan 2017 - Mar 2017

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Mobile crane	EPD-03731	1	101	70%	0	99
Crane lorry	BS D7/101	1	94	70%	0	92
Tug boat	CNP 221	1	110	50%	0	107
Total SWL						108

Appendix A1: Quiet Powered Mechanical Equipment (PME) for the Different Construction Tasks (With Mitigation Measures)

Scenario:

Mitigated ▼

Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange

1.11 Construction of Landscape Deck at LTI

Jun 2019 - Mar 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Lorry with crane/grab	CNP 145	4	105	20%	0	104
Mobile crane	EPD-03731	6	101	10%	0	99
Crawler crane, mobile (diesel)	EPD-03731	5	101	20%	0	101
Concrete lorry mixer	BS D6/33	1	96	50%	0	93
Concrete pump	BS D6/36	1	106	50%	0	103
Total SWL						108

1.12 Construction of Noise Barriers at LTI

Apr 2020 - Jul 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Telescopic handler	BS C4/54	2	104	100%	0	107
Total SWL						107

1.13 Construction of Noise Cover and Noise Enclosure at LTI

Jun 2019 - Mar 2020

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Group A						
Crawler crane, mobile (diesel)	EPD-03731	1	101	30%	0	96
Mobile crane	EPD-03731	1	101	30%	0	96
Air compressor	EPD-03803	2	98	50%	0	98
Excavator	EPD-03840	1	91	70%	0	89
Cherry Picker	BS C4/54	1	104	10%	0	94
Crane lorry	BS D7/101	2	94	30%	0	92
Drill rig	BS D10/2	1	112	10%	-5	97
Generator, super silenced	EPD-03816	5	88	70%	0	93
Lorry	BS D8/25	2	96	30%	0	94
Total SWL						105
Group B						
Piling, oscillator	CNP165	1	115	10%	0	105
Power pack (diesel)	CNP174	1	100	10%	0	90
Piling, reverse circulation drill	CNP186	1	100	10%	0	90
Total SWL						105
Maximum SWL of Construction Activity 1.13						105

1.14 Construction of Soldier Pile Wall

Feb 2017 - May 2017

PME	TM Ref./ other Ref	No. of Items	SWL/ Item dB(A)	On- time %	Barrier Correction	Sub-total SWL, dB(A)
Drill rig	BS D10/2	2	112	50%	-5	107
Crawler crane, mobile (diesel)	EPD-03731	2	101	20%	0	97
Air compressor	EPD-03803	6	98	25%	0	100
Grout Pump	CNP 106	2	105	25%	0	102
Backhoe with hydraulic breaker	BS D8/13	2	110	25%	-5	102
Welding machine	CNP 107	4	99	25%	0	99
Rock drill	Ref 1	2	108	25%	0	105
Total SWL						111

Reference:

1. The SWL for rock drill is made with reference to the approved EIA report for Tsim Sha Tsui Station Northern Subway (EIA 154/2008) and the approved EIA report for Kwun Tong Line Extension (EIA 184/2010).

Appendix A2 - Predicted Construction Noise Levels at Representative NSRs (Mitigated)

Appendix A2: Predicted Construction Noise Levels at Representative NSRs (Mitigated)

NSR: N2105 - Block S, Yau Lai Estate Phase 5, Yau Tong
 Scenario: Mitigated

Item	Construction Activity	Work Site No.	SWL, dB(A)	Dist (m)	SPL, Leq (30 min), dB(A)	Building Screening dB(A)	Start Month	End Month	2018												2019												2020												
									Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
									24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Contract 1: Contribution of Main Tunnel, Branch Tunnel, Lam Tin Interchange & Tseung Kwan O Interchange																																													
1.1	Construction of Lam Tin Interchange (LT1)	100a	105	253	52	0	10	54	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52								
1.1	Construction of Lam Tin Interchange (LT1)	100b	105	508	46	0	10	54	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46								
1.1	Construction of Lam Tin Interchange (LT1)	100c	105	309	50	0	10	54	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50							
1.2	Construction of Bridges and Footbridges at LTI																																												
	Group 1.2.1	101	108	287	54	0	37	47																																					
	Group 1.2.2a	102	106	324	51	0	37	47																																					
	Group 1.2.2b	103	106	249	53	0	37	51																																					
	Group 1.2.3a	104	110	181	61	0	15	46	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61								
	Group 1.2.3b	105	110	149	62	0	17	48	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62								
	Group 1.2.3c (i)	106a	110	328	55	0	15	47	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55								
	Group 1.2.3c (ii)	106b	110	187	60	0	15	45	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60								
	Group 1.2.3d	107	110	236	58	0	17	43	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58								
	Group 1.2.3e	108	110	252	57	0	18	44	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57								
	Group 1.2.3 (f)	109a	110	220	58	0	13	53	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58								
	Group 1.2.3 (f)(i)	109b	110	247	57	0	15	51	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57								
	Group 1.2.3 (f)(ii)	109c	108	348	52	0	43	53																																					
1.3	Construction of Lam Tin Tunnel Portal	110	111	182	61	0	14	44	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61								
1.4	Construction of EHC2 (New Road Leading to EHC Consisting of U-Trough and D&B Branch Tunnel)	111	107	57	67	0	18	26	67	67	67																																		
1.5	Construction of S01 & S02 Tunnels - S01	112a	109	339	54	0	32	42																																					
1.5	Construction of S01 & S02 Tunnels - S02	112b	109	374	53	0	32	42																																					
1.5	Construction of S01 & S02 Tunnels - S02	112c	109	432	52	0	32	42																																					
1.6	General at LT Side	113	110	265	57	0	14	47	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57								
1.7	Construction of Admin Building	114	107	387	51	0	37	51																																					
1.8	Construction of West Ventilation Building at Lam Tin Side	115	107	202	56	0	37	53																																					
1.9	Cut & Cover Tunnel, U-Trough and Emergency Egress Point - Emergency Egress	116a	106	244	53	0	10	43	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53								
1.9	Cut & Cover Tunnel, U-Trough and Emergency Egress Point - U-Trough (a)	116b(i)	107	96	62	0	10	43	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62								
1.9	Cut & Cover Tunnel, U-Trough and Emergency Egress Point - U-Trough (b)	116b(ii)	105	225	53	0	10	43	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53								
1.9	Cut & Cover Tunnel, U-Trough and Emergency Egress Point - Cut & Cover Tunnel	116c	106	281	52	0	10	43	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52								
1.10	Construction of Bargain Point at LT Side	117	108	508	49	0	10	50																																					
1.11	Construction of Landscape Deck at LTI - FE1c	118	108	247	55	0	41	50	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49									
1.12	Construction of Noise Barriers at LTI - Noise Barrier (VB1)	119a	107	334	52	0	51	54																																					
1.12	Construction of Noise Barriers at LTI - Noise Barrier (VB2)	119b	107	217	55	0	51	54																																					
1.12	Construction of Noise Barriers at LTI - Noise Barrier (VB3)	119c	107	249	54	0	51	54																																					
1.12	Construction of Noise Barriers at LTI - Noise Barrier (VB4)	119d	107	184	57	0	51	54																																					
1.12	Construction of Noise Barriers at LTI - Noise Barrier (VB5)	119e	107	162	58	0	51	54																																					
1.12	Construction of Noise Barriers at LTI - Noise Barrier (CT2)	119f	107	44	69	0	51	54																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Noise Cover (FE1a)	120a	105	314	50	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Noise Cover (FE1b)	120b	105	199	54	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Full-Enclosure (FE2)	120c	105	145	57	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Full-Enclosure (FE3)	120d	105	168	56	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Full-Enclosure (FE5)	120e	105	428	48	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Semi-Enclosure (SE1)	120f	105	96	61	0	41	50																																					
1.13	Construction of Noise Cover and Noise Enclosure at LTI - Semi-Enclosure (SE2)	120g	105	150	57	0	41																																						

Appendix A3 - Summary of Predicted Construction Noise Levels (Mitigated)

Appendix A3: Predicted Construction Noise Levels (Mitigated)

Predicted Construction Noise Levels due to Contract 1 of the TKOLTT Project

NSR	Noise Criteria dB(A)	Overall Noise Level, Leq (30 min), dB(A)												
		2016												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
		1	2	3	4	5	6	7	8	9	10	11	12	
N1102	75											73	73	73
N1204	75											69	69	69
N2105	75											64	64	64
N3101a	75											65	65	65
N4101	70 /65 (Exam period)											67	67	67

Remarks: xx Highlighted construction noise level exceeds the relevant noise criteria for educational use.

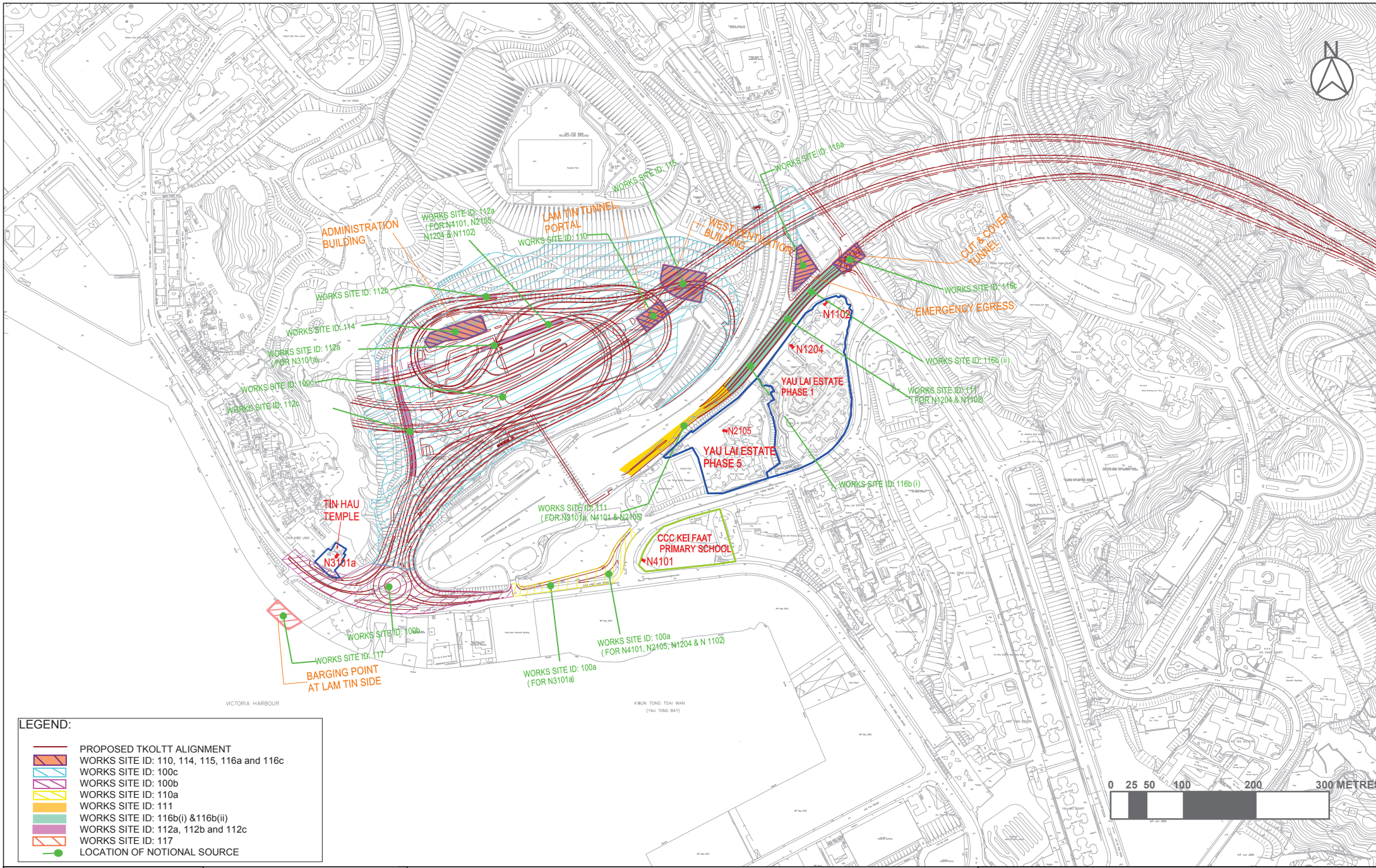
NSR	Noise Criteria dB(A)	Overall Noise Level, Leq (30 min), dB(A)																							
		2017												2018											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
N1102	75	73	74	74	74	74	75	75	75	75	75	75	75	75	75	74	74	74	74	74	74	74	74	74	
N1204	75	69	70	71	71	71	74	74	74	74	74	74	74	74	74	71	71	71	71	71	71	71	71		
N2105	75	65	68	69	70	71	72	72	72	72	72	72	72	72	72	70	70	70	70	70	71	71	71	71	
N3101a	75	66	67	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	
N4101	70 /65 (Exam period)	67	69	69	70	70	69	69	69	69	69	69	69	69	69	69	69	69	69	69	70	70	70	70	

Remarks: xx Highlighted construction noise level exceeds the relevant noise criteria for educational use.

NSR	Noise Criteria dB(A)	Overall Noise Level, Leq (30 min), dB(A)																							
		2019												2020											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
N1102	75	74	74	74	74	75	75	75	71	70	70	70	70	70	69	69	65	64	64	61					
N1204	75	72	72	72	72	74	74	73	72	71	71	71	70	70	70	66	66	66	63						
N2105	75	71	71	71	71	72	72	72	71	70	70	69	69	68	68	71	71	71	70						
N3101a	75	69	69	69	69	69	69	69	68	68	68	68	67	67	67	65	64	64	64						
N4101	70 /65 (Exam period)	70	70	70	70	70	70	70	70	70	69	69	68	68	68	68	68	68	67						

Remarks: xx Highlighted construction noise level exceeds the relevant noise criteria for educational use.

Appendix B1 - Locations of Notional Sources (Sheet 1/7)



LEGEND:

- PROPOSED TKOLTT ALIGNMENT
- WORKS SITE ID: 110, 114, 115, 116a and 116c
- WORKS SITE ID: 100c
- WORKS SITE ID: 100b
- WORKS SITE ID: 110a
- WORKS SITE ID: 111
- WORKS SITE ID: 116b(i) & 116b(ii)
- WORKS SITE ID: 112a, 112b and 112c
- WORKS SITE ID: 117
- LOCATION OF NOTIONAL SOURCE

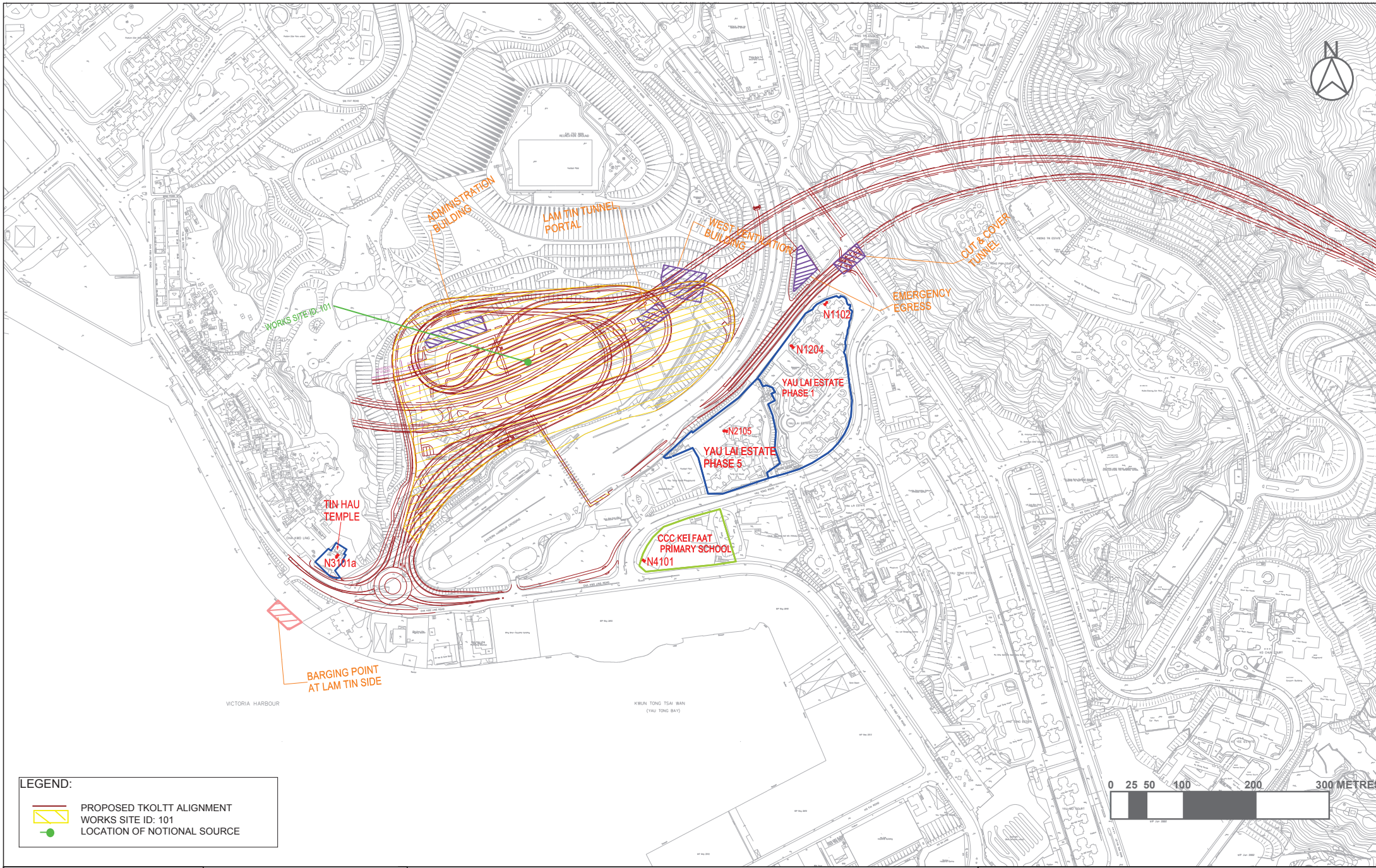


ATKINS

CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 1 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B1

Appendix B2 - Locations of Notional Sources (Sheet 2/7)



LEGEND:

- PROPOSED TKLTT ALIGNMENT
- WORKS SITE ID: 101
- LOCATION OF NOTIONAL SOURCE

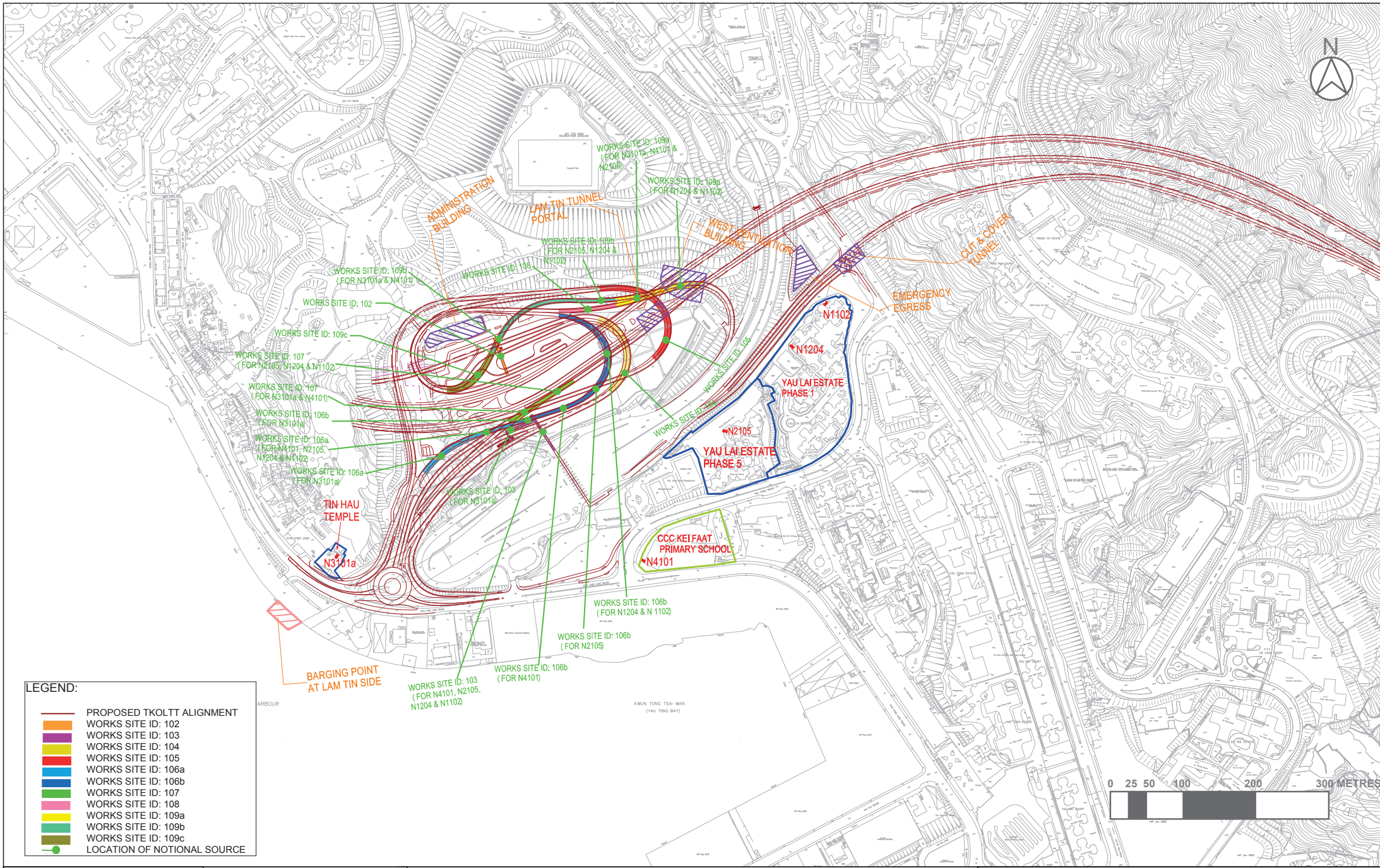


ATKINS

CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 2 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B2

Appendix B3 - Locations of Notional Sources (Sheet 3/7)



LEGEND:

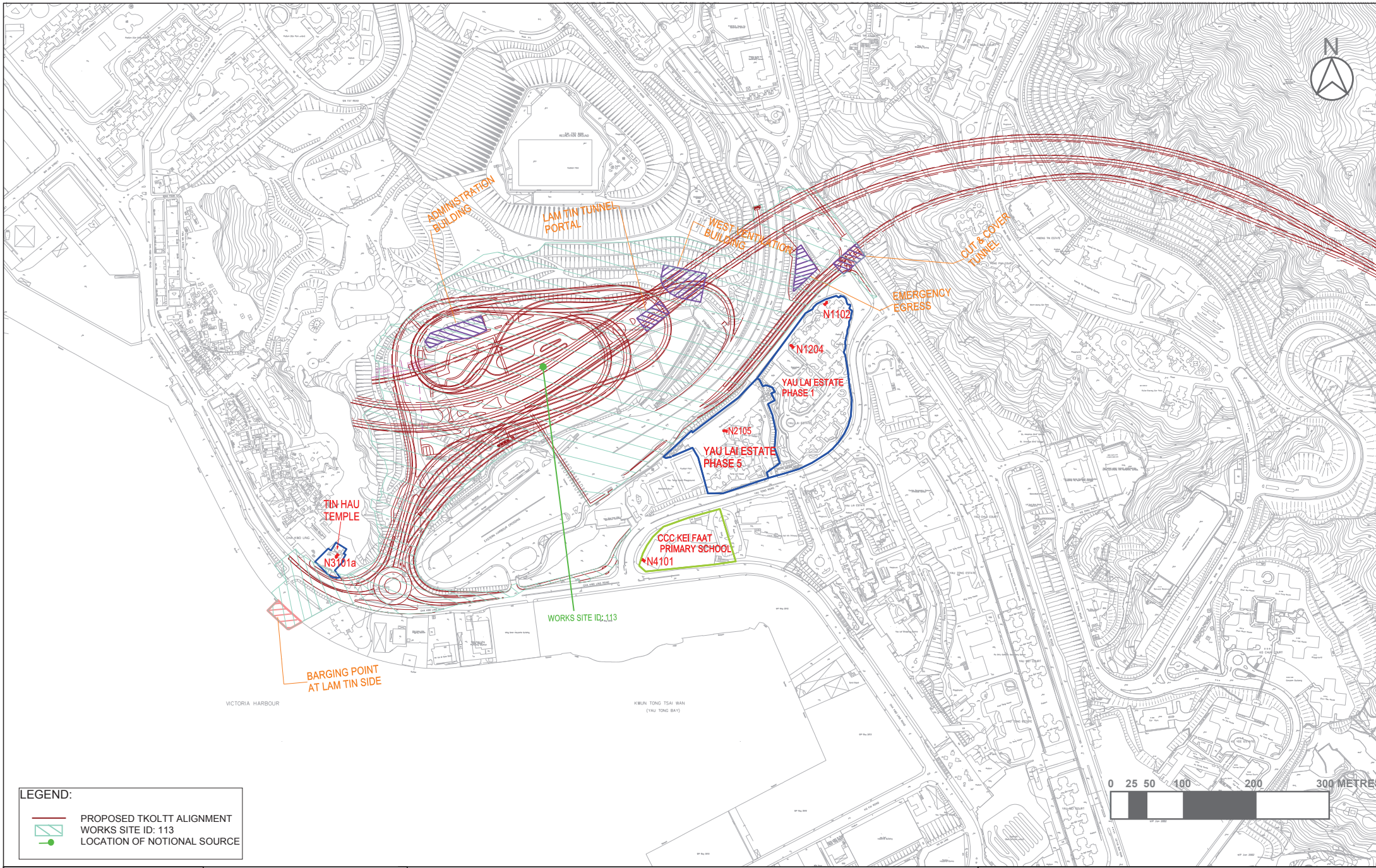
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	WORKS SITE ID: 104
	WORKS SITE ID: 105
	WORKS SITE ID: 106a
	WORKS SITE ID: 106b
	WORKS SITE ID: 107
	WORKS SITE ID: 108
	WORKS SITE ID: 109a
	WORKS SITE ID: 109b
	WORKS SITE ID: 109c
	LOCATION OF NOTIONAL SOURCE






CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 3 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B3

Appendix B4 - Locations of Notional Sources (Sheet 4/7)



LEGEND:

-  PROPOSED TKOLTT ALIGNMENT
-  WORKS SITE ID: 113
-  LOCATION OF NOTIONAL SOURCE

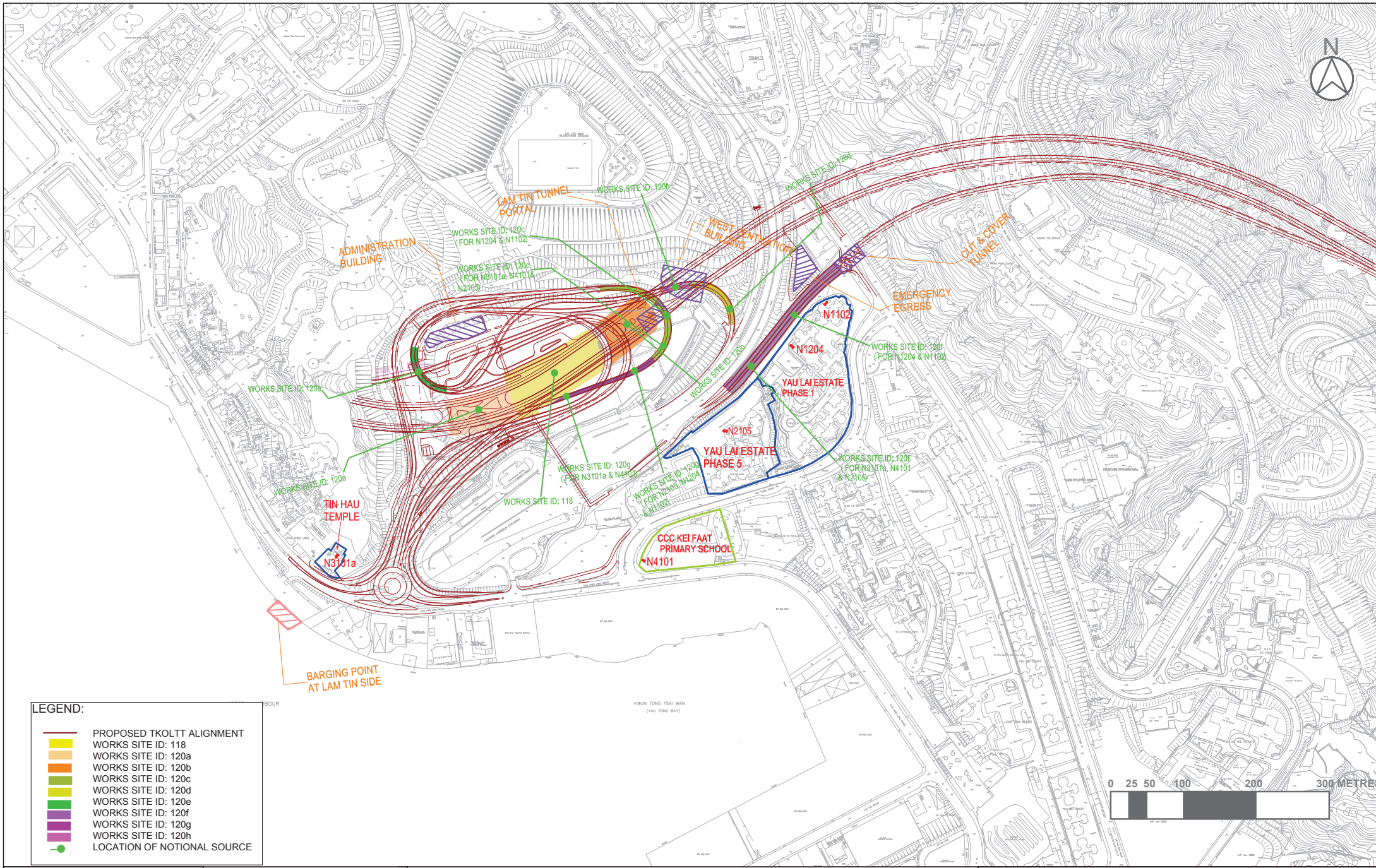


ATKINS

CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 4 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B4

Appendix B5 - Locations of Notional Sources (Sheet 5/7)



LEGEND:

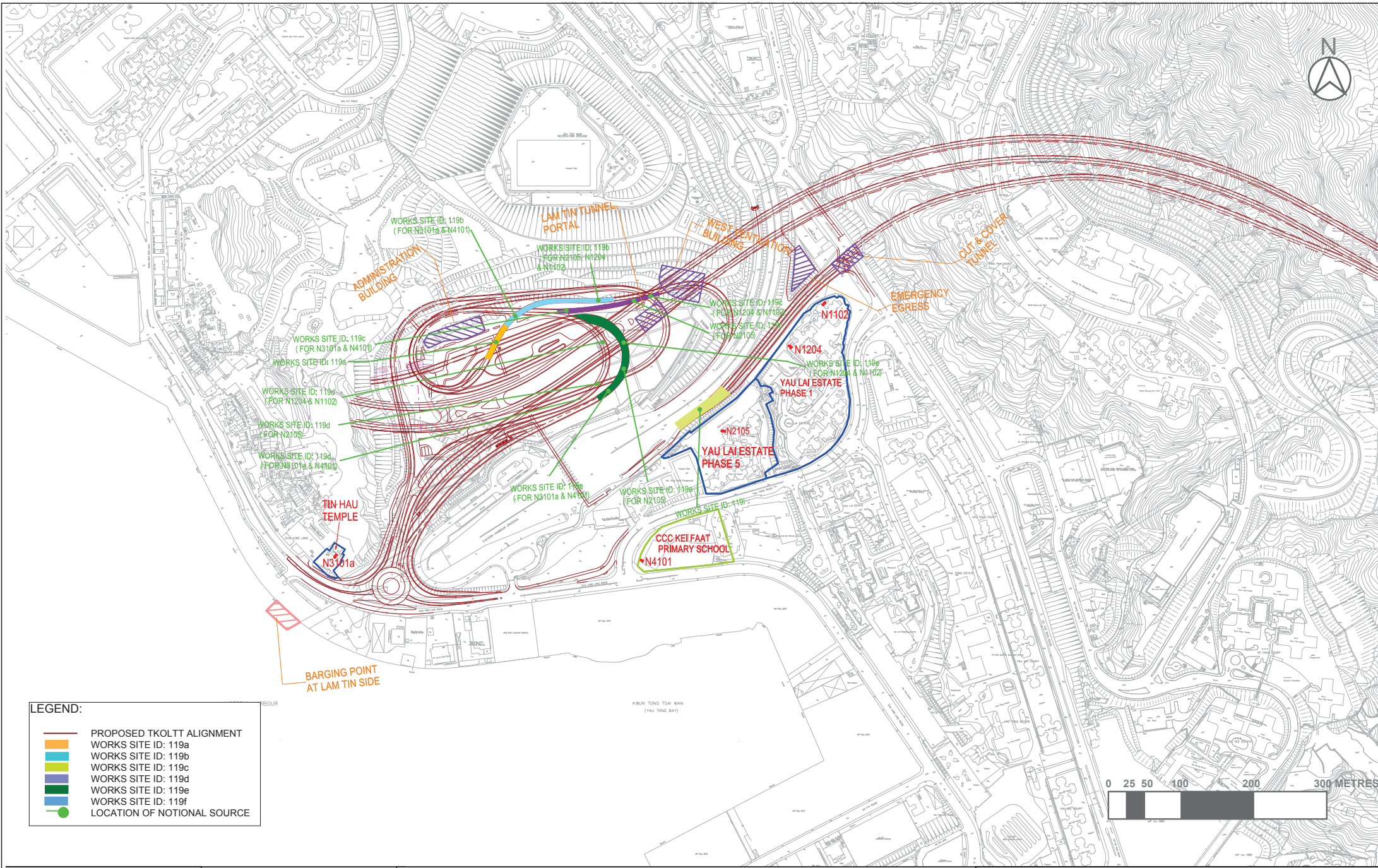
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	WORKS SITE ID: 118
	WORKS SITE ID: 120a
	WORKS SITE ID: 120b
	WORKS SITE ID: 120c
	WORKS SITE ID: 120d
	WORKS SITE ID: 120e
	WORKS SITE ID: 120f
	WORKS SITE ID: 120g
	WORKS SITE ID: 120h
	LOCATION OF NOTIONAL SOURCE



CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 5 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B5

Appendix B6 - Locations of Notional Sources (Sheet 6/7)



LEGEND:

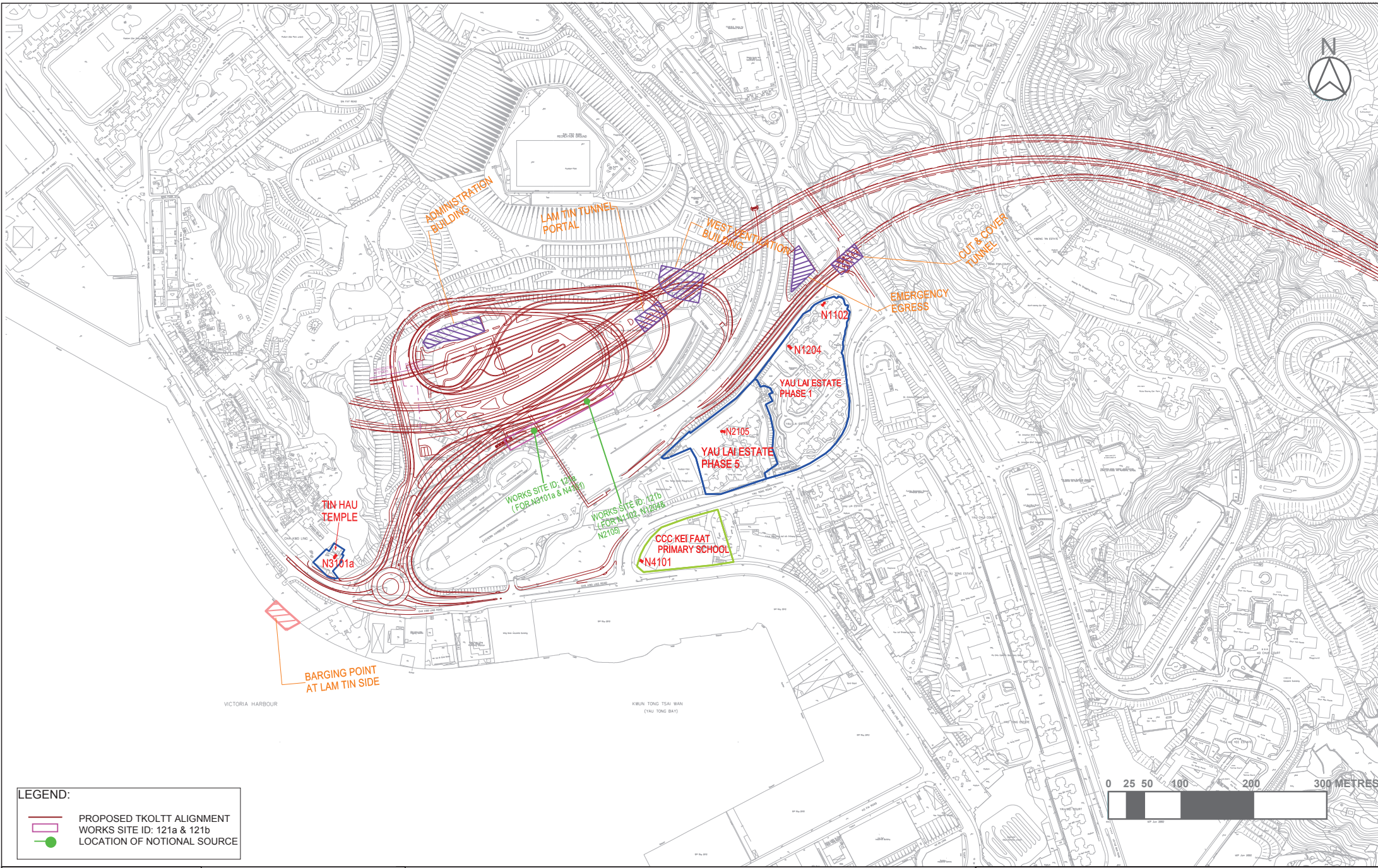
	PROPOSED TKO LTT ALIGNMENT
	WORKS SITE ID: 119a
	WORKS SITE ID: 119b
	WORKS SITE ID: 119c
	WORKS SITE ID: 119d
	WORKS SITE ID: 119e
	WORKS SITE ID: 119f
	LOCATION OF NOTIONAL SOURCE



CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 6 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B6

Appendix B7 - Locations of Notional Sources (Sheet 7/7)



LEGEND:

	PROPOSED TKLTT ALIGNMENT
	WORKS SITE ID: 121a & 121b
	LOCATION OF NOTIONAL SOURCE



ATKINS

**CONTRACT NO. NE/2015/01
TSEUNG KWAN O LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS**

TITLE: LOCATIONS OF NOTIONAL SOURCES (SHEET 7 OF 7)	
DATE: FEB 2017	DRAWING NO.: APPENDIX B7

**APPENDIX T
PHOTO RECORD OF THE 1ST POST-
TRANSLOCATION CORAL
MONITORING SURVEY**

Tagged Coral Colonies at Recipient Site (under Contract NE2015/01).



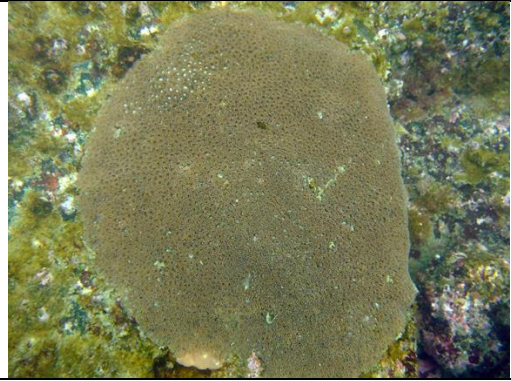
C01- *Gonipopra stutchburyi*



C01- *Gonipopra stutchburyi*



C02- *Cyphastrea serailia*



C02- *Cyphastrea serailia*



C03- *Gonipopra stutchburyi*



C03- *Gonipopra stutchburyi*



C04- *Cyphastrea serailia*



C04- *Cyphastrea serailia*



C05- *Cyphastrea serailia*



C05- *Cyphastrea serailia*

Continued.



C06- *Cyphastrea serailia*



C06- *Cyphastrea serailia*



C07- *Cyphastrea serailia*



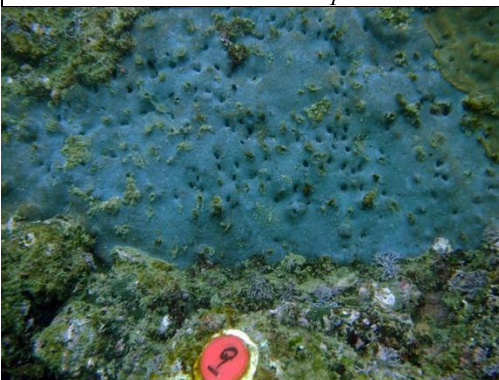
C07- *Cyphastrea serailia*



C08- *Turbinaria peltata*



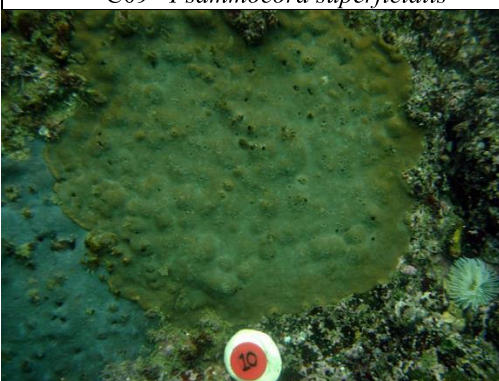
C08- *Turbinaria peltata*



C09- *Psammocora superficialis*



C09- *Psammocora superficialis*



C10- *Psammocora superficialis*



C10- *Psammocora superficialis*

Translocated Coral Colonies (under Contract NE2015/01).



01- *Turbinaria peltata*



01- *Turbinaria peltata*



02- *Cyphastrea serailia*



02- *Cyphastrea serailia*



03- *Gonipopra stutchburyi*



03- *Gonipopra stutchburyi*



04- *Gonipopra stutchburyi*



04- *Gonipopra stutchburyi*



05- *Gonipopra stutchburyi*



05- *Gonipopra stutchburyi*

Continued.



06– *Gonipopra stutchburyi*



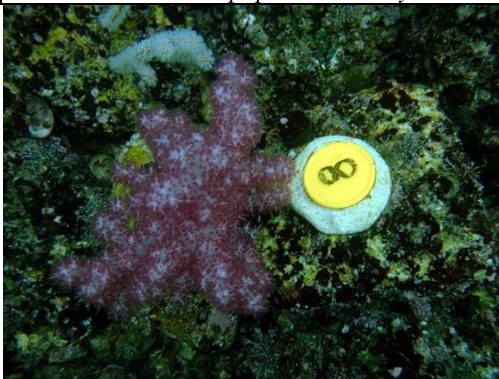
06– *Gonipopra stutchburyi*



07– *Gonipopra stutchburyi*



07– *Gonipopra stutchburyi*



08– *Dendronephthya* sp.



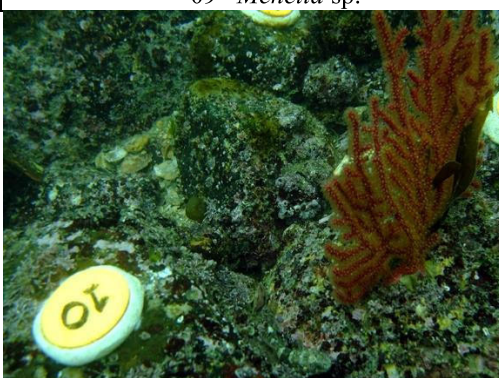
08– *Dendronephthya* sp.



09– *Menella* sp.



09– *Menella* sp.

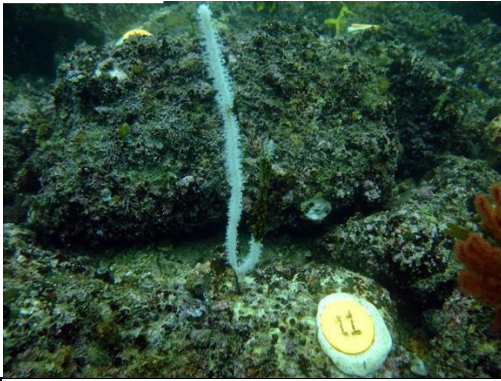


10– *Echinogorgia* sp.

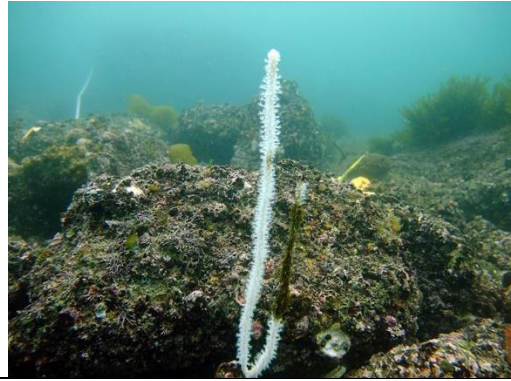


10– *Echinogorgia* sp.

Continued.



11- *Echinomuricea* sp.



11- *Echinomuricea* sp.



12- *Menella* sp.



12- *Menella* sp.



13- *Menella* sp.



13- *Menella* sp.



14- *Psammocora superficialis*



14- *Psammocora superficialis*



15- *Coscinaraea* sp.

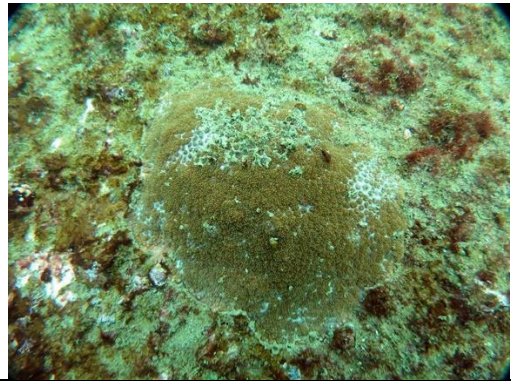


15- *Coscinaraea* sp.

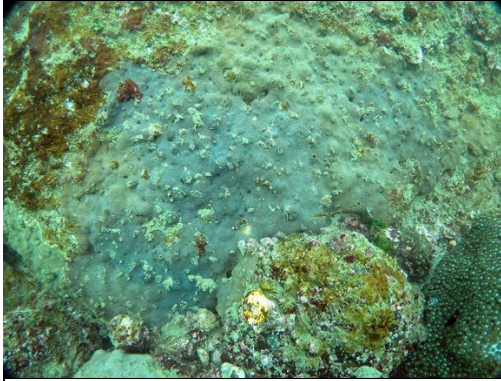
Tagged Coral Colonies at Recipient Site (under Contract NE2015/02).



SWJB1– *Plesiastrea versipora*



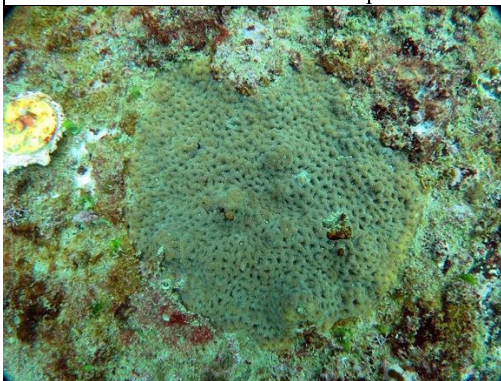
SWJB2– *Plesiastrea versipora*



SWJB3– *Porites* sp.



SWJB4– *Dipsastraea speciosa*



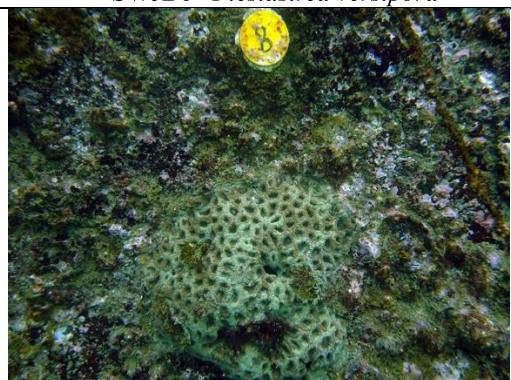
SWJB5– *Favites pentagona*



SWJB6– *Plesiastrea versipora*



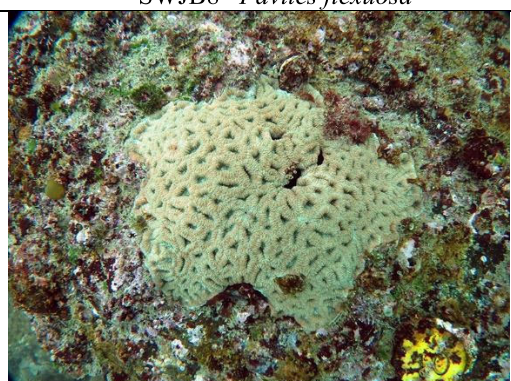
SWJB7– *Plesiastrea versipora*



SWJB8– *Favites flexuosa*



SWJB9– *Porites* sp.



SWJB10– *Favites chinensis*

Translocated Coral Colonies (under Contract NE2015/02).



TKW-T1 *Favites flexuosa*



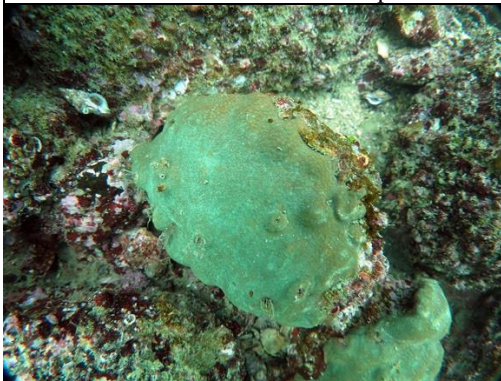
TKW-T2 *Gonipopra stutchburyi*



TKW-T3 *Porites* sp.



TKW-T4 *Porites* sp.



TKW-T5 *Porites* sp.



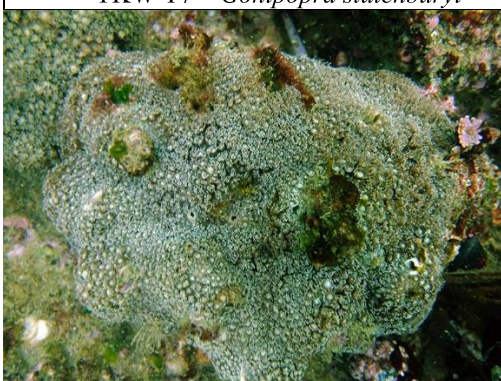
TKW-T6 *Gonipopra stutchburyi*



TKW-T7 *Gonipopra stutchburyi*



TKW-T8 *Gonipopra stutchburyi*



TKW-T9 *Gonipopra stutchburyi*



TKW-T10 *Gonipopra stutchburyi*

Continued.



TKW-T11 *Coscinarea* sp.



TKW-T12 *Plesiastrea versipora*



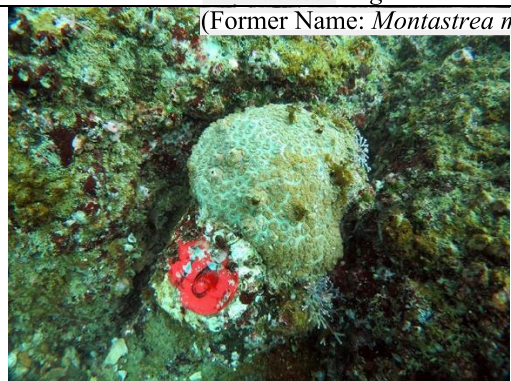
TKW-T13 *Gonipopra stutchburyi*



TKW-T14 *Favites magnistellata*
(Former Name: *Montastrea mangnistella*)



TKW-T15 *Porites* sp.



TKW-T16 *Astrea curta*
(Former Name: *Montastrea curta*)



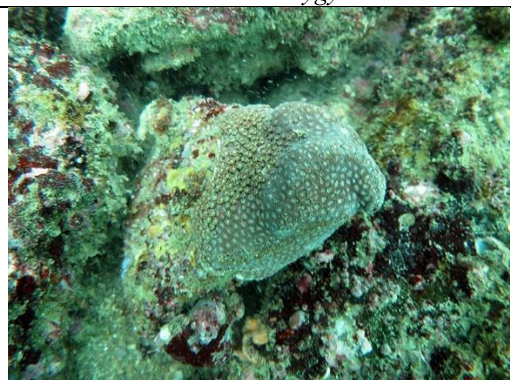
TKW-T17 *Porites* sp.



TKW-T18 *Platygyra acuta*



TKW-T19 *Favites flexuosa*



TKW-T20 *Gonipopra stutchburyi*

Continued.



TKW-T21 *Montastrea magnistellata*
(Former Name: *Montastrea mangnistella*)



TKW-T22 *Turbinaria peltata*



TKW-T23 *Porites* sp.



TKW-T24 *Gonipopra stutchburyi*



TKW-T25 *Plesiastrea versipora*



TKW-T26 *Gonipopra stutchburyi*



TKW-T27 *Plesiastrea versipora*



TKW-T28 *Porites* sp.



TKW-T29 *Astrea curta* (Former Name: *Montastrea curta*)