


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 and Audit Report
for 7 – 30 November 2016**

(version 1.0)

Approved By 
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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 1st 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 7 – 30 November 2016.
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

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A
Groundwater	1	1	N/A (Refer to Part 8, Executive Summary)

1-hour & 24-hour TSP 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. No Action/Limit Level exceedance was recorded.

Construction Noise

7. All noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

8. Groundwater monitoring was conducted as scheduled in the reporting month. One Action/Limit Level exceedance was recorded. The exceedance is considered to be non-Project related.
9. Marine Water Quality Monitoring has not commenced in the reporting period as marine construction for Tsueng Kwan O - Lam Tin Tunnel reclamation has not commenced.
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. Post-translocation coral monitoring survey shall be conducted once every 3 months for a period of 12 months after completion of coral translocation. The survey is scheduled in February 2017 tentatively.

Monitoring on Cultural Heritage

12. Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple has not commenced in the reporting period as there is no construction works 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 has not commenced as no excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces were carried out by the Contractor in the reporting period.

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 16 November 2016. 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	0	---	N/A	N/A	---
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 1st Monthly EM&A report summarizing the EM&A works for the Project in 7 – 30 November 2016.

Purpose of the Report

- 1.2 This is the 1st Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 7 – 30 November 2016. 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. INTRODUCTION

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). The “Environmental Review Report for Variations of Environmental Permit” (ERR) was submitted to EPD in December 2015 to demonstrate that no unacceptable impacts would be resulted from the proposed alternative design in seawall foundation for Road P2 reclamation. Subsequently, variation to the EP was applied and the latest EP (EP no.: EP-458/2013/B) was issued by the Director of Environmental Protection (DEP) in December 2015.

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
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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
NE/2015/01	Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works	1) Site Clearance for Tunnel Adit 2) Haul Road Construction 3) Slope Feature no. 11NE-D/C119 (along Lei Yue Mun Road) 4) Dismantling of site workshops at LCSD area
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Piling works at Portion VIII. 2) Construction of DSD Transformer Room at Portion I. 3) Site hoarding erection works.

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/B	31/12/2015	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
NE/2015/01	EPD Ref no.: 405305	21/07/2016	N/A	Valid
NE/2015/01	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
NE/2015/01	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
NE/2015/01	WT00026212-2016	25/11/2016	30/11/2021	Valid
Construction Noise Permit (CNP)				
NE/2015/01	GW-RE0976-16	08/10/2016	20/03/2017	Valid
NE/2015/02	GW-RE0988-16	11/10/2016	04/04/2017	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 required monitoring parameters, namely air quality and noise levels and audit works for the Project in 7 – 30 November 2016.

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 baseline 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	3
	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 baseline air quality monitoring.

Table 3.3 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Period	Frequency
AM1, AM2, AM3, AM4, AM5(A) and AM6(A)	1-hour TSP	0700 – 1900 hrs	3 times per day
AM1, AM2, AM3, AM4(A), AM5(A) and AM6(A)	24-hour TSP	24 hours	Daily

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.

(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. 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 **Appendices 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	5
Calibrator	SV30A	4

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
M1	L ₁₀ (30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
M2				Façade
M3				Façade
M4	L ₉₀ (30 min.) dB(A)			Façade
M5	Façade			
M6(A)	L _{eq} (30 min.) dB(A)			Free Field
M7(A)	Façade			
M8(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. No Action/Limit Level exceedance was recorded.
- 4.10 Noise monitoring results and graphical presentations are shown in **Appendix G**.
- 4.11 The summary of exceedance record in the reporting month is shown in **Appendix K**.
- 4.12 The major noise source identified at the designated 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

- 4.13 All the Corrected 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.

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). Groundwater quality monitoring was not 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. 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.

Marine Water Quality

- 5.2 Marine Water Quality Monitoring shall be conducted during marine construction for Tsung Kwan O - Lam Tin Tunnel reclamation, which has not commenced in this reporting period.

Groundwater Level Monitoring (Piezometer Monitoring)

- 5.3 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

- 5.4 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

- 5.5 A total of twelve monitoring stations are designated for the baseline 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

- 5.6 For in-situ monitoring, a multi-parameter meter (Aquaread AP-2000-D) was used to measure DO, DO saturation, pH, turbidity and temperature. 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

- 5.7 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.
- 5.8 It has a membrane electrode with automatic temperature compensation complete with a cable.
- 5.9 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.
- 5.10 Salinity compensation was built-in in the DO equipment.

Turbidity

- 5.11 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

- 5.12 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

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

Water Sampler

- 5.14 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

- 5.15 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

- 5.16 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.
- 5.17 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.
- 5.18 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.
- 5.19 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.
- 5.20 **Table 5.2** summarizes the equipment used in the water quality monitoring program. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 5.2 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	Aquaread AP-2000-D	1

Monitoring Parameters and Frequency

- 5.21 **Table 5.3** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring in the reporting period.

Table 5.3 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.)

Monitoring Methodology

- 5.22 Multi-parameter meter (Aquaread AP-2000-D) was used to measure Dissolved oxygen (DO) concentration, DO saturation (DO %), pH, temperature and turbidity.
- 5.23 At each monitoring location, two consecutive measurements was taken for water samples being collected 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.
- 5.24 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.

Laboratory Analytical Methods

- 5.25 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 5.4**.

Table 5.4 Methods for Laboratory Analysis for Water Samples

Parameters (Unit)	Proposed Method	Reporting Limit	Detection Limit
SS (mg/L)	APHA 2540 D	0.5 mg/L ⁽¹⁾	0.5 mg/L
BOD ₅ (mg O ₂ /L)	APHA 19ed 5210B	2 mg O ₂ /L	--
TOC (mg-TOC/L)	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L	--
Total Nitrogen (mg/L)	In-house method SOP063 (FIA)	0.6 mg/L	--

Ammonia-N (mg NH ₃ -N/L)	In-house method SOP057 (FIA)	0.05 mg NH ₃ - N/L	--
Total Phosphorus (mg-P/L) ⁽²⁾	In-house method SOP055 (FIA)	0.05 mg-P/L	--

Note:

1) Limit of Reporting is reported as Detection Limit for non-HOKLAS report.

2) Parameter Total Phosphorus represents the laboratory testing for total phosphate content in water which is the sum of all three forms of phosphates in water.

QA/QC Requirements

Decontamination Procedures

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

Sampling Management and Supervision

- 5.27 Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.
- 5.28 QA/QC procedures as attached in **Appendix J** are available for the parameters analyzed in the HOKLAS-accredited laboratory, WELLAB Ltd.

Results and Observations

- 5.29 All groundwater quality monitoring was conducted as scheduled in the reporting month. Summary of groundwater quality monitoring results are shown in **Table 5.5**. Groundwater monitoring results, graphical presentations and laboratory testing reports are shown in **Appendix H**.

Table 5.5 Summary of Groundwater Quality Monitoring Results

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)
15 Nov 2016	Stream 1	6.9	8.1	1.9	0.8	<2	3	<0.6	<0.05	<0.05
	Stream 2	7.0	8.0	2.1	1.3	<2	4	<u>2.0</u>	<0.05	<0.05
	Stream 3	6.5	7.7	1.9	2.1	<2	3	1.4	<0.05	<0.05

Note:

Bold Italic means Action Level exceedance

Bold Italic with underline means Limit Level exceedance

- 5.30 One Action/Limit Level exceedance in Total Nitrogen at monitoring location Stream 2 was recorded in the reporting period. According to the information provided by the Contractor, no tunnel boring or tunnel construction works were carried out in Tseung Kwan O side on 15 Nov 2016. 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**.

- 5.31 Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.
- 5.32 Marine Water Quality Monitoring has not commenced in the reporting period as marine construction for Tsueng Kwan O - Lam Tin Tunnel reclamation has not commenced.

Groundwater Level Monitoring (Piezometer Monitoring)

- 5.33 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.
- 5.34 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 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 The post-translocation coral monitoring shall be conducted once every 3 months after completion for a period of 12 months.
- 6.3 The first post-translocation coral monitoring is scheduled to be carried out in February 2017 tentatively.

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, no construction works are within 100m of the Cha Kwo Ling Tin Hau temple in the reporting period. Therefore, monitoring of vibration impacts 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 reports the results of landfill gas measurements performed by the Contractor. **Appendix A** shows the Limit Levels for the monitoring works.

Monitoring Parameters, Locations and Frequency

- 9.2 The proposed parameters for Landfill gas monitoring include Percentage of Combustible Gas (Methane), Carbon dioxide and Oxygen.
- 9.3 The monitoring is proposed to be carried out at least daily before starting the work of the day in the following locations:

Table 9.1 Parameters, Locations and Frequency of Landfill Gas Monitoring proposed in the EM&A Manual

Phase	Monitoring Location	Monitoring Frequency	Monitoring Parameters
Construction	All excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces	At least daily before starting the work of the day	<ul style="list-style-type: none"> • Methane • Carbon Dioxide • Oxygen

Results and Observations

- 9.4 No excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces were carried out by the Contractor in the reporting period. Therefore, monitoring of landfill gases has not commenced in the reporting period.

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 : 9, 16, 23 and 30 November 2016
 - Contract No. NE/2015/02 : 10, 15 and 24 November 2016
- Monthly joint site inspection with the representative of IEC was conducted on 16 November 2016.

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>	9 Nov 2016	<u>Reminder:</u> To provide an earth bund or concrete bund to direct rainwater into U-channel instead of flowing into site area.	The observation was observed to be improved/rectified by the Contractor during the audit session on 16 November 2016.
	9 Nov 2016	<u>Reminder:</u> To set up proper site drainage system for future wastewater treatment on site before construction activities.	The observation was observed to be improved/rectified by the Contractor during the audit session on 16 November 2016.
	16 Nov 2016	<u>Reminder:</u> Exposed slope in TKO was not covered properly. The contractor is reminded to cover by tarpaulin sheet properly.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 November 2016.
	23 Nov 2016	<u>Observation:</u> Accumulated sediment in the drainage system should be cleared to maintain the discharge water quality (Tseung Kwan O).	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 November 2016.
	23 Nov 2016	<u>Observation:</u> Stockpile should be covered and banded to avoid generating muddy runoff near the drainage channel (Cha Kwo Ling).	The observation was observed to be improved/rectified by the Contractor during the audit session on 30 November 2016.
	30 Nov 2016	<u>Reminder:</u> To provide earth bund or sand bag to open stockpile to avoid muddy runoff from the Stockpile Storage Area in Cha Kwo Ling.	Follow up action will be reported in next reporting month.
	30 Nov 2016	<u>Reminder:</u> Exposed slope should be properly covered by impervious materials in TKO after construction work each day.	Follow up action will be reported in next reporting month.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Noise</i>	--	--	--
<i>Landscape and Visual</i>	30 Nov 2016	<u>Reminder:</u> To set up proper tree protection zones in Cha Kwo Ling which should enclose the tree crowns.	Follow up action will be reported in next reporting month.
<i>Air Quality</i>	16 Nov 2016	<u>Observation:</u> Haul road at Cha Kwo Ling portion was dry. The contractor is reminded to provide water spray to prevent dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 November 2016.
	30 Nov 2016	<u>Observation:</u> Dust generation observed in rock breaking works in Cha Kwo Ling. The contractor is reminded to provide water spray to minimize dust generation.	Follow up action will be reported in next reporting month.
	30 Nov 2016	<u>Reminder:</u> To provide earth bund or sand bag to open stockpile to avoid muddy runoff from the Stockpile Storage Area in Cha Kwo Ling.	Follow up action will be reported in next reporting month.
<i>Waste / Chemical Management</i>	16 Nov 2016	<u>Reminder:</u> To provide label for waste storage area in Tseung Kwan O.	The observation was observed to be improved/rectified by the Contractor during the audit session on 23 November 2016.
<i>Permits/ Licenses</i>	--	--	--
Contract No. NE/2015/02			
<i>Water Quality</i>	10 Nov 2016	<u>Reminder:</u> To provide bunds at site boundary near public road.	The observation was observed to be improved/rectified by the Contractor during the audit session on 15 November 2016.
	24 Nov 2016	<u>Reminder:</u> To provide bund for footing of hoarding at site A.	Follow up action will be reported in next reporting month.
<i>Noise</i>	24 Nov 2016	<u>Reminder:</u> Idling plants at site A should be switched off.	Follow up action will be reported in next reporting month.
<i>Landscape and Visual</i>	--	--	--
<i>Air Quality</i>	10 Nov 2016	<u>Reminder:</u> To cover stockpile of dusty material by impervious material after works each day.	The observation was observed to be improved/rectified by the Contractor during the audit session on 15 November 2016.
	15 Nov 2016	<u>Reminder:</u> To clear the tyre mark on paved road near the site entrance.	The observation was observed to be improved/rectified by the Contractor during the audit session on 24 November 2016.
<i>Waste / Chemical Management</i>	--	--	--
<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 and noise monitoring in the reporting period.
- 12.2 One Action/Limit Level exceedance 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**.
- 12.3 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

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

Summary of Environmental Complaint

- 12.5 No 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

- 12.6 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 undertaken for the coming two month 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 (December 2016)	
NE/2015/01	Tseung Kwan O - Lam Tin Tunnel - Main Tunnel and Associated Works	Lam Tin Interchange	1) Excavation for Tunnel Adit 2) Haul Road Construction 3) Slope Feature no. 11NE-D/C119 (along LYM Road) 4) Pipe Pile Wall – Area 2A 5) Site Formation – Area 1G1 6) Setup Conveyor System
		Main Tunnel	1) Tunnel Team Mobilization Works
		TKO Interchange	1) Haul Road Construction 2) Temporary Barging Facilities 3) BMCPC Bridge Temporary Diversion
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Predrilling of Marine Borehole 2) Installation of Silt Curtain and cofferdam 3) Construction of DSD Transformation Room including RC, ABWF and E&M works 4) Site hoard erection works. 5) Pre-drilling works.	

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 1st Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period from 7 to 30 November 2016 in accordance with EM&A Manual and the requirement under EP.

1-hr TSP Monitoring

- 14.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hr TSP Monitoring

- 14.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 14.4 All noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality Monitoring

- 14.5 Groundwater Quality monitoring was conducted as scheduled in the reporting month. One Action/Limit Level exceedance was recorded. The exceedance is considered to be non-Project related.

Ecological Monitoring

- 14.6 First post-translocation coral monitoring survey is scheduled in February 2017 tentatively.

Monitoring on Cultural Heritage

- 14.7 Monitoring of vibration impacts at Cha Kwo Ling Tin Hau Temple has not commenced in the reporting period as there is no construction works less than 100m from the temple.

Landscape and Visual Monitoring and Audit

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

Landfill Gas Monitoring

- 14.9 Monitoring of landfill gases has not commenced as no excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces were carried out by the Contractor in the reporting period.

Environmental Site Inspection

- 14.10 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

- 14.11 No environmental complaint, no successful prosecution or notification of summons were received during the reporting period.

Recommendations

- 14.12 Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting month. According to environmental audits performed, the following recommendations were made:

Air Quality Impact

- To implement dust suppression measures such as water spray on all haul roads, stockpiles, dry surfaces, excavation and rock breaking works.
- To cover stockpile of dusty material by impervious material
- To clear the tyre mark on paved road near the site entrance to avoid dust generation

Construction Noise

- 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.

Water Quality Impact

- To prevent any surface runoff discharge into any stream course or the waters in vicinity.
- To review and implement temporary drainage system.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks or those accumulated in drainage.
- To provide bund to 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 check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.
- To provide label to identify waste storage area within site.

Landscape and Visual

- To protect the existing trees to be retained.

FIGURES



LEGEND:

PROJECT BOUNDARY

CINOTECH
Cinotech Consultants Limited

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

Site Layout Plan

SCALE	1:15000 @ A4	DATE	NOV 2016	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	1	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

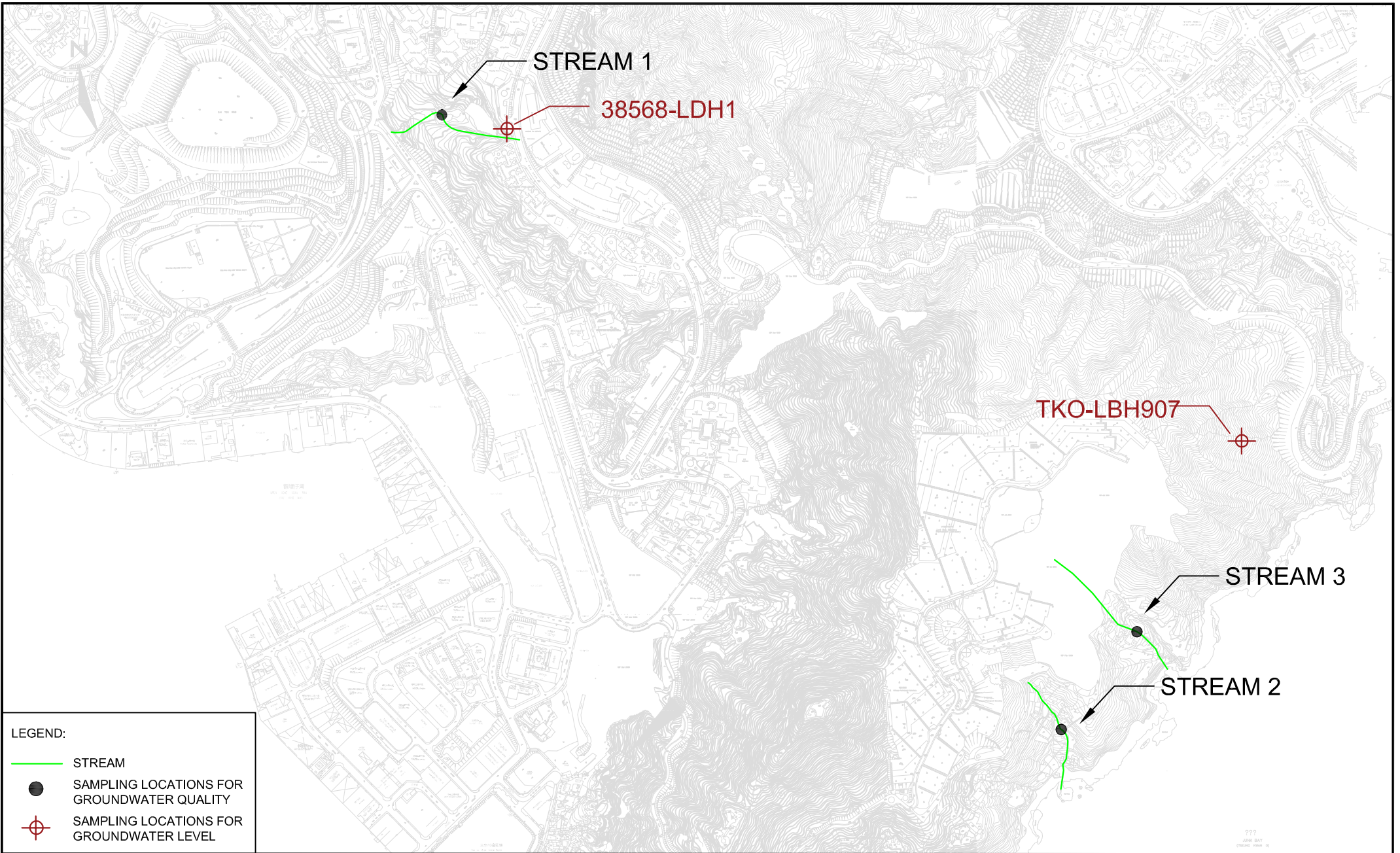
SCALE	1:15000 @ A4	DATE	DEC 2016	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	2	REV
				-






LEGEND:

-  PROJECT BOUNDARY
-  NOISE MONITORING STATION

SCALE	1:15000 @ A4	DATE	DEC 2016	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	3	REV
				-



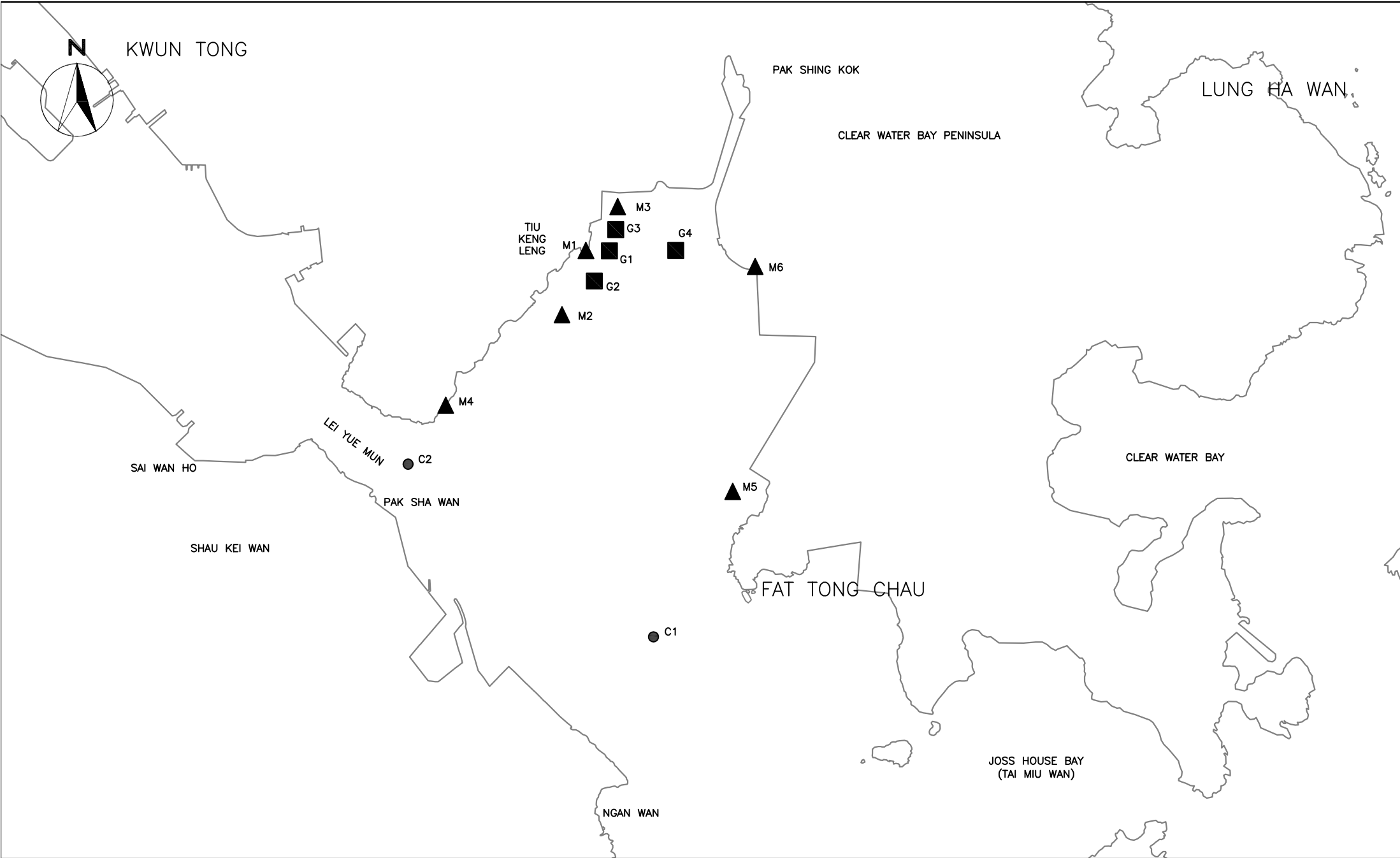
LEGEND:

	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	OCT 2016	
CHECK	JF	DRAWN	JW	
JOB No.	MA16034	FIGURE NO.	4	REV -



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

**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 from any one of the monitoring stations	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 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>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 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>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.

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. MA16034/08/0001

Station: AM1 - Tin Hau Temple Operator: WK
 Date: 24-Sep-16 Next Due Date: 23-Nov-16
 Equipment No.: A-01-05 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	303.4	Pressure, Pa (mmHg)	758.1

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	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	13.2	3.60	61.00	7.1	2.64
2	10.5	3.21	54.49	5.5	2.32
3	8.6	2.90	49.40	4.7	2.15
4	5.3	2.28	38.96	3.0	1.71
5	3.3	1.80	30.92	1.8	1.33

By Linear Regression of Y on X

Slope, mw = 0.0427 Intercept, bw = 0.0259
 Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks: _____

Conducted by: Wk Tang Signature: Kwan Date: 24/9/16
 Checked by: JA Signature: _____ Date: 24 September 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0002

Station: AM1 - Tin Hau Temple Operator: WK
 Date: 24-Nov-16 Next Due Date: 23-Jan-17
 Equipment No.: A-01-05 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	288.5	Pressure, Pa (mmHg)	768.4

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	13.3	3.73	63.18	7.2	2.74
2	10.1	3.25	55.17	5.4	2.37
3	8.7	3.01	51.26	4.9	2.26
4	5.4	2.37	40.57	3.1	1.80
5	3.2	1.83	31.42	1.9	1.41

By Linear Regression of Y on X
 Slope, mw = 0.0417 Intercept, bw = 0.1042
 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 x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.44

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 24/11/16
 Checked by: [Signature] Signature: [Signature] Date: 24 November 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0001

Station: AM2 - Sai Tso Wan Recreation Ground Operator: WK
 Date: 15-Sep-16 Next Due Date: 14-Nov-16
 Equipment No.: A-01-08 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	303.1	Pressure, Pa (mmHg)	757.4

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

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	3.62	61.45	7.1	2.64
2	10.5	3.21	54.50	5.7	2.36
3	8.4	2.87	48.83	4.6	2.12
4	5.3	2.28	38.96	2.9	1.69
5	3.1	1.74	30.00	1.7	1.29

By Linear Regression of Y on X

Slope, $m_w =$ 0.0431 Intercept, $b_w =$ 0.0069
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take $Q_{std} = 43$ CFM
 From the Regression Equation, the "Y" value according to

$$m_w \times Q_{std} + b_w = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (m_w \times Q_{std} + b_w)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.53

Remarks: _____

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

Date: 15/9/16
 Date: 15 September 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/08/0002

Station: AM2 - Sai Tso Wan Recreation Ground Operator: WK
 Date: 15-Nov-16 Next Due Date: 14-Jan-17
 Equipment No.: A-01-08 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	297.4	Pressure, Pa (mmHg)	766.6

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	13.5	3.69	62.63	7.3	2.72
2	10.7	3.29	55.85	5.6	2.38
3	8.6	2.95	50.16	4.7	2.18
4	5.4	2.34	39.92	3.0	1.74
5	3.1	1.77	30.45	1.8	1.35

By Linear Regression of Y on X

Slope, mw = 0.0420 Intercept, bw : 0.0657
 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>3.46</u>	

Remarks: _____

Conducted by: Wk Tang Signature: Kwan Date: 15/11/16
 Checked by: Wk Signature: _____ Date: 15 November 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/03/0002

Station: AM3 - Yau Lai Estate, Bik Lai House Operator: WK
 Date: 12-Nov-16 Next Due Date: 11-Jan-17
 Equipment No.: A-01-03 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	296	Pressure, Pa (mmHg)	767.4

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	12.4	3.55	60.23	6.7	2.61
2	10.3	3.24	54.97	5.6	2.39
3	7.8	2.82	47.95	4.4	2.11
4	5.3	2.32	39.67	2.9	1.72
5	3.1	1.78	30.54	1.7	1.31

By Linear Regression of Y on X

Slope, mw = 0.0437 Intercept, bw = -0.0134

Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

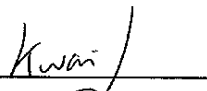
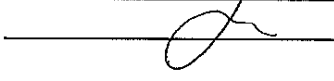
From the TSP Field Calibration Curve, take Qstd = 43 CFM

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 x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.43

Remarks: _____

Conducted by: Wk Tang Signature:  Date: 12/11/16
 Checked by: Ar Signature:  Date: 12 November 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0001

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

Date: 24-Sep-16 Next Due Date: 23-Nov-16

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

Ambient Condition			
Temperature, Ta (K)	303.8	Pressure, Pa (mmHg)	757.4

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	17.8	4.17	70.62	10.2	3.16
2	13.6	3.65	61.83	7.9	2.78
3	10.5	3.20	54.43	6.1	2.44
4	6.8	2.58	43.97	4.0	1.98
5	4.1	2.00	34.33	2.4	1.53

By Linear Regression of Y on X

Slope, mw = 0.0448 Intercept, bw = -0.0005

Correlation coefficient* = 0.9999

*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) = 3.80

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 24/9/16

Checked by: [Signature] Signature: [Signature] Date: 24 September 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/54/0002

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

Date: 24-Nov-16 Next Due Date: 23-Jan-17

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

Ambient Condition			
Temperature, Ta (K)	289.8	Pressure, Pa (mmHg)	766.3

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	17.7	4.28	72.50	10.1	3.24
2	13.5	3.74	63.42	7.9	2.86
3	10.2	3.25	55.24	6.2	2.54
4	6.4	2.58	43.93	3.9	2.01
5	4.2	2.09	35.75	2.6	1.64

By Linear Regression of Y on X

Slope, mw = 0.0435 Intercept, bw = 0.1017

Correlation coefficient* = 0.9995

*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) = 3.75

Remarks: _____

Conducted by: wk Tang Signature: Kwan Date: 24/11/16

Checked by: A Signature: _____ Date: 24 November 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0001

Station: AM5(A) - DSD Desilting Compound Operator: WK
 Date: 19-Sep-16 Next Due Date: 18-Nov-16
 Equipment No.: A-01-37 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	303.1	Pressure, Pa (mmHg)	757.1

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	17.5	4.14	70.09	9.3	3.02
2	13.9	3.69	62.56	7.4	2.69
3	10.6	3.22	54.74	5.7	2.36
4	6.5	2.52	43.05	3.6	1.88
5	4.1	2.00	34.37	2.2	1.47

By Linear Regression of Y on X

Slope, mw = 0.0430 Intercept, bw = 0.0049
 Correlation coefficient* = 0.9998

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.51

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 19/9/16
 Checked by: [Signature] Signature: [Signature] Date: 19 September 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/37/0002

Station: AM5(A) - DSD Desilting Compound Operator: WK
 Date: 15-Nov-16 Next Due Date: 14-Jan-17
 Equipment No.: A-01-37 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	297.7	Pressure, Pa (mmHg)	763.4

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	17.3	4.17	70.61	9.4	3.07
2	13.9	3.74	63.38	7.5	2.75
3	10.4	3.23	54.93	5.6	2.37
4	6.3	2.52	42.94	3.5	1.88
5	4.1	2.03	34.81	2.3	1.52

By Linear Regression of Y on X

Slope, mw = 0.0432 Intercept, bw : 0.0159

Correlation coefficient* = 0.9999

*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) = 3.49

Remarks: _____

Conducted by: Wk. Tang Signature: [Signature] Date: 15/11/16
 Checked by: [Signature] Signature: _____ Date: 15 November 2016

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16034/07/0001

Station AM6 - Park Central Operator: WK
 Date: 4-Oct-16 Next Due Date: 3-Dec-16
 Equipment No.: A-01-07 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	300.7	Pressure, Pa (mmHg)	756.2

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	[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	11.8	3.41	57.90	6.7	2.57
2	9.9	3.12	53.11	5.6	2.35
3	7.4	2.70	46.03	4.3	2.06
4	5.3	2.29	39.09	3.3	1.80
5	3.4	1.83	31.47	2.1	1.44

By Linear Regression of Y on X

Slope, mw = 0.0420 Intercept, bw : 0.1331
 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) = 3.81

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 4/10/16
 Checked by: [Signature] Signature: [Signature] Date: 4 October 2016



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 - Mar 04, 2016 Rootmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 755.65

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4340	3.2	2.00
2	NA	NA	1.00	1.0250	6.4	4.00
3	NA	NA	1.00	0.9150	7.9	5.00
4	NA	NA	1.00	0.8770	8.7	5.50
5	NA	NA	1.00	0.7210	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0001	0.6974	1.4173	0.9957	0.6944	0.8836
0.9959	0.9716	2.0044	0.9915	0.9674	1.2496
0.9938	1.0861	2.2410	0.9894	1.0814	1.3971
0.9928	1.1320	2.3503	0.9885	1.1271	1.4653
0.9875	1.3696	2.8346	0.9831	1.3636	1.7672
Qstd slope (m) = 2.11176			Qa slope (m) = 1.32235		
intercept (b) = -0.05079			intercept (b) = -0.03166		
coefficient (r) = 0.99982			coefficient (r) = 0.99982		
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/160820
Date of Issue:	2016-08-20
Date Received:	2016-08-20
Date Tested:	2016-08-20
Date Completed:	2016-08-20
Next Due Date:	2017-02-19

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 24 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/160820
Date of Issue:	2016-08-20
Date Received:	2016-08-20
Date Tested:	2016-08-20
Date Completed:	2016-08-20
Next Due Date:	2017-02-19
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
45.2	45	0.2
90.1	90	0.1
134.8	135	-0.2
180.3	180	0.3
225.1	225	0.1
270.2	270	0.2
315.1	315	0.1
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/161104
Date of Issue:	2016-11-07
Date Received:	2016-11-04
Date Tested:	2016-11-04
Date Completed:	2016-11-07
Next Due Date:	2017-01-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

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)	0.0034
-------------------------	--------

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/A/161104A
Date of Issue:	2016-11-07
Date Received:	2016-11-04
Date Tested:	2016-11-04
Date Completed:	2016-11-07
Next Due Date:	2017-01-06

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.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

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)	0.0034
-------------------------	--------

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/A/161104B
Date of Issue:	2016-11-07
Date Received:	2016-11-04
Date Tested:	2016-11-04
Date Completed:	2016-11-07
Next Due Date:	2017-01-06

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.	: 014750
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 790 CPM
Equipment No.	: A-02-06

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)	0.0032
-------------------------	--------

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/161014/A
Date of Issue:	2016-10-17
Date Received:	2016-10-14
Date Tested:	2016-10-14
Date Completed:	2016-10-17
Next Due Date:	2016-12-16

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	: 24 degree Celsius
Relative Humidity	: 62 %

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)	1.082
-------------------------	-------

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/161014/B
Date of Issue:	2016-10-17
Date Received:	2016-10-14
Date Tested:	2016-10-14
Date Completed:	2016-10-17
Next Due Date:	2016-12-16

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	: 24 degree Celsius
Relative Humidity	: 62 %

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)	1.122
-------------------------	-------

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/161014/C
Date of Issue:	2016-10-17
Date Received:	2016-10-14
Date Tested:	2016-10-14
Date Completed:	2016-10-17
Next Due Date:	2016-12-16

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	: 24 degree Celsius
Relative Humidity	: 62 %

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)	1.077
-------------------------	-------

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/161007/A
Date of Issue:	2016-10-11
Date Received:	2016-10-07
Date Tested:	2016-10-07
Date Completed:	2016-10-11
Next Due Date:	2016-12-10

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	: 67 %

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)	1.049
-------------------------	-------

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/151127/1
Date of Issue:	2015-11-30
Date Received:	2015-11-27
Date Tested:	2015-11-27
Date Completed:	2015-11-30
Next Due Date:	2016-11-29

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	: 24 degree Celsius
Relative Humidity	: 62%

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/151127/3
Date of Issue:	2015-11-30
Date Received:	2015-11-27
Date Tested:	2015-11-27
Date Completed:	2015-11-30
Next Due Date:	2016-11-29

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.	: 23851
Microphone No.	: 48532
Equipment No.	: N-08-12

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 62%

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/161128B
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.	: 23851
Microphone No.	: 48532
Equipment No.	: N-08-12

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/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
RM 1710, Technology Park,
18 On Lai Street,
Shatin, N.T., Hong Kong

Test Report No.:	C/W/160820
Date of Issue:	2016-08-20
Date Received:	2016-08-20
Date Tested:	2016-08-20
Date Completed:	2016-08-20
Next Due Date:	2016-11-19

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	: 25 degree Celsius
Relative Humidity	: 56%

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/160820
Date of Issue:	2016-08-20
Date Received:	2016-08-20
Date Tested:	2016-08-20
Date Completed:	2016-08-20
Next Due Date:	2016-11-19

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	6.70	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.16	9.18 ± 0.10	Pass

ORP performance checking

	Instrument Readings (mV)	Acceptance Criteria	Comment
Zobell Solution	228.5	229 ± 10	Pass

D.O. performance checking

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.40	8.40	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)	2584	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*****

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 November 2016	22.5 – 25.3	69	0.0
2 November 2016	21.0 – 24.8	68	0.0
3 November 2016	20.1 – 24.8	66	0.0
4 November 2016	19.6 – 25.3	68	0.0
5 November 2016	21.7 – 26.9	77	0.0
6 November 2016	22.4 – 26.9	79	0.0
7 November 2016	23.4 – 28.4	81	0.0
8 November 2016	22.1 – 28.1	80	4.8
9 November 2016	19.0 – 22.1	81	1.3
10 November 2016	17.0 – 19.0	82	1.9
11 November 2016	17.1 – 22.3	80	Trace
12 November 2016	21.6 – 25.1	84	0.2
13 November 2016	23.8 – 26.9	85	0.0
14 November 2016	23.3 – 28.1	83	0.0
15 November 2016	23.8 – 29.2	81	Trace
16 November 2016	23.9 – 26.1	81	Trace
17 November 2016	23.6 – 27.5	78	Trace
18 November 2016	23.5 – 26.8	83	Trace
19 November 2016	24.0 – 28.0	78	1.4

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

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20 November 2016	25.0 – 26.8	78	Trace
21 November 2016	24.0 – 25.3	85	0.3
22 November 2016	21.6 – 24.5	95	36.5
23 November 2016	16.7 – 21.6	93	25.9
24 November 2016	15.0 – 19.8	76	Trace
25 November 2016	17.4 – 22.3	78	0.1
26 November 2016	13.3 – 21.1	89	50.3
27 November 2016	12.8 – 19.9	83	8.6
28 November 2016	16.1 – 20.1	68	0.0
29 November 2016	17.5 – 20.5	66	0.0
30 November 2016	17.4 – 22.0	64	0.0

* 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
11-Nov-2016	0:00	1.5	NW
11-Nov-2016	1:00	1.2	WNW
11-Nov-2016	2:00	1.1	WNW
11-Nov-2016	3:00	1.2	SW
11-Nov-2016	4:00	0.7	WSW
11-Nov-2016	5:00	1	W
11-Nov-2016	6:00	0.7	WSW
11-Nov-2016	7:00	1	WNW
11-Nov-2016	8:00	1.1	W
11-Nov-2016	9:00	1.9	WNW
11-Nov-2016	10:00	2.4	W
11-Nov-2016	11:00	2.7	W
11-Nov-2016	12:00	3	W
11-Nov-2016	13:00	3.3	WNW
11-Nov-2016	14:00	3.3	W
11-Nov-2016	15:00	3	WNW
11-Nov-2016	16:00	3.3	W
11-Nov-2016	17:00	3	SSW
11-Nov-2016	18:00	2.2	S
11-Nov-2016	19:00	1.4	NW
11-Nov-2016	20:00	1.4	NW
11-Nov-2016	21:00	2	NW
11-Nov-2016	22:00	2	N
11-Nov-2016	23:00	1.5	NNE
12-Nov-2016	0:00	1.5	N
12-Nov-2016	1:00	1.6	ENE
12-Nov-2016	2:00	1.6	NNE
12-Nov-2016	3:00	1.1	NE
12-Nov-2016	4:00	1	NNE
12-Nov-2016	5:00	1.2	NNE
12-Nov-2016	6:00	1.2	NNE
12-Nov-2016	7:00	1.1	NE
12-Nov-2016	8:00	1.2	ENE
12-Nov-2016	9:00	1.5	NE
12-Nov-2016	10:00	2.2	E
12-Nov-2016	11:00	2.6	ENE
12-Nov-2016	12:00	3.2	ENE

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

II. Mean Wind Speed and Wind Direction

12-Nov-2016	13:00	3.1	ESE
12-Nov-2016	14:00	3	ESE
12-Nov-2016	15:00	2.2	SE
12-Nov-2016	16:00	2	SSE
12-Nov-2016	17:00	2.1	SSE
12-Nov-2016	18:00	2.2	S
12-Nov-2016	19:00	1.8	S
12-Nov-2016	20:00	1.5	SE
12-Nov-2016	21:00	1.5	SSW
12-Nov-2016	22:00	1.2	SSW
12-Nov-2016	23:00	1.4	SSW
13-Nov-2016	0:00	1.6	SSW
13-Nov-2016	1:00	1.8	SSW
13-Nov-2016	2:00	1.6	S
13-Nov-2016	3:00	1.4	S
13-Nov-2016	4:00	1.2	S
13-Nov-2016	5:00	1.3	S
13-Nov-2016	6:00	0.8	S
13-Nov-2016	7:00	1.1	SSW
13-Nov-2016	8:00	1.5	SSW
13-Nov-2016	9:00	1.4	S
13-Nov-2016	10:00	2.1	S
13-Nov-2016	11:00	2.3	SSW
13-Nov-2016	12:00	1.9	SSW
13-Nov-2016	13:00	2	NW
13-Nov-2016	14:00	2.4	NNW
13-Nov-2016	15:00	2.7	WNW
13-Nov-2016	16:00	2.8	WNW
13-Nov-2016	17:00	3.3	SSE
13-Nov-2016	18:00	2	ESE
13-Nov-2016	19:00	1.9	S
13-Nov-2016	20:00	1.6	SE
13-Nov-2016	21:00	1.7	NW
13-Nov-2016	22:00	1.7	WNW
13-Nov-2016	23:00	1.9	WNW
14-Nov-2016	0:00	1.9	WNW
14-Nov-2016	1:00	2.4	NNW
14-Nov-2016	2:00	1.7	NNW

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

II. Mean Wind Speed and Wind Direction

14-Nov-2016	3:00	2.4	NW
14-Nov-2016	4:00	2.2	NW
14-Nov-2016	5:00	2	WNW
14-Nov-2016	6:00	2	NNW
14-Nov-2016	7:00	1.8	NW
14-Nov-2016	8:00	2.7	NW
14-Nov-2016	9:00	2.4	WNW
14-Nov-2016	10:00	3	NNW
14-Nov-2016	11:00	2.8	NNW
14-Nov-2016	12:00	2.8	WNW
14-Nov-2016	13:00	2.5	NNW
14-Nov-2016	14:00	2.2	WNW
14-Nov-2016	15:00	2.1	WNW
14-Nov-2016	16:00	2.1	NNW
14-Nov-2016	17:00	1.9	WNW
14-Nov-2016	18:00	2	NW
14-Nov-2016	19:00	1.8	NW
14-Nov-2016	20:00	1.8	WNW
14-Nov-2016	21:00	2	WNW
14-Nov-2016	22:00	2.3	NNW
14-Nov-2016	23:00	2.1	SW
15-Nov-2016	0:00	2.3	SW
15-Nov-2016	1:00	1.8	NNW
15-Nov-2016	2:00	1.8	NNW
15-Nov-2016	3:00	2.1	NNW
15-Nov-2016	4:00	1.8	N
15-Nov-2016	5:00	1.8	NNW
15-Nov-2016	6:00	1.6	NNW
15-Nov-2016	7:00	2.3	NNW
15-Nov-2016	8:00	2.2	NNW
15-Nov-2016	9:00	2.2	NW
15-Nov-2016	10:00	3.1	WNW
15-Nov-2016	11:00	3.4	WNW
15-Nov-2016	12:00	3.5	WNW
15-Nov-2016	13:00	3.3	WSW
15-Nov-2016	14:00	2.4	WNW
15-Nov-2016	15:00	2.2	W
15-Nov-2016	16:00	1.6	NW

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

II. Mean Wind Speed and Wind Direction

15-Nov-2016	17:00	1.9	NNW
15-Nov-2016	18:00	2	WSW
15-Nov-2016	19:00	1.6	NNE
15-Nov-2016	20:00	1.9	SSW
15-Nov-2016	21:00	1.6	WNW
15-Nov-2016	22:00	1.5	ENE
15-Nov-2016	23:00	1.3	E
16-Nov-2016	0:00	1.4	SW
16-Nov-2016	1:00	1.4	ESE
16-Nov-2016	2:00	1.1	S
16-Nov-2016	3:00	1.3	S
16-Nov-2016	4:00	1.2	S
16-Nov-2016	5:00	0.7	E
16-Nov-2016	6:00	1.1	E
16-Nov-2016	7:00	1	WSW
16-Nov-2016	8:00	1.5	WSW
16-Nov-2016	9:00	1.9	NW
16-Nov-2016	10:00	1.9	NE
16-Nov-2016	11:00	2.3	ESE
16-Nov-2016	12:00	2.1	NNW
16-Nov-2016	13:00	2.1	NW
16-Nov-2016	14:00	2.1	NNW
16-Nov-2016	15:00	2.1	NW
16-Nov-2016	16:00	2.2	NNW
16-Nov-2016	17:00	1.9	WNW
16-Nov-2016	18:00	1.9	SSW
16-Nov-2016	19:00	1.8	SSW
16-Nov-2016	20:00	1.6	SSW
16-Nov-2016	21:00	1.6	N
16-Nov-2016	22:00	1.3	NE
16-Nov-2016	23:00	1.6	N
17-Nov-2016	0:00	1.6	N
17-Nov-2016	1:00	1.4	N
17-Nov-2016	2:00	1.1	NNW
17-Nov-2016	3:00	1.1	SSE
17-Nov-2016	4:00	1.1	NNW
17-Nov-2016	5:00	1.2	NNW
17-Nov-2016	6:00	1	WNW

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

II. Mean Wind Speed and Wind Direction

17-Nov-2016	7:00	1.2	WNW
17-Nov-2016	8:00	1.2	N
17-Nov-2016	9:00	1.7	SE
17-Nov-2016	10:00	1.7	SSE
17-Nov-2016	11:00	2	WNW
17-Nov-2016	12:00	2.7	NW
17-Nov-2016	13:00	2.4	NW
17-Nov-2016	14:00	2.4	NW
17-Nov-2016	15:00	2.7	SW
17-Nov-2016	16:00	2.3	SW
17-Nov-2016	17:00	2.4	NW
17-Nov-2016	18:00	2.4	NW
17-Nov-2016	19:00	2.6	WNW
17-Nov-2016	20:00	2.4	WNW
17-Nov-2016	21:00	2.3	NW
17-Nov-2016	22:00	2.3	N
17-Nov-2016	23:00	2.5	NNW
18-Nov-2016	0:00	2.5	NNW
18-Nov-2016	1:00	2.8	NNW
18-Nov-2016	2:00	1.5	NNW
18-Nov-2016	3:00	1.5	NW
18-Nov-2016	4:00	1.5	W
18-Nov-2016	5:00	0.9	NNW
18-Nov-2016	6:00	1.3	WNW
18-Nov-2016	7:00	1.2	WNW
18-Nov-2016	8:00	1.6	NW
18-Nov-2016	9:00	1.5	NW
18-Nov-2016	10:00	1.8	NNW
18-Nov-2016	11:00	1.8	NW
18-Nov-2016	12:00	2.1	NW
18-Nov-2016	13:00	2.1	WNW
18-Nov-2016	14:00	2.1	WSW
18-Nov-2016	15:00	2	NW
18-Nov-2016	16:00	1.8	NW
18-Nov-2016	17:00	2.1	NW
18-Nov-2016	18:00	1.8	NW
18-Nov-2016	19:00	1.7	NW
18-Nov-2016	20:00	1.8	S

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

II. Mean Wind Speed and Wind Direction

18-Nov-2016	21:00	2.2	SSE
18-Nov-2016	22:00	2.1	S
18-Nov-2016	23:00	2	S
19-Nov-2016	0:00	1.6	WNW
19-Nov-2016	1:00	1.4	SW
19-Nov-2016	2:00	1.2	N
19-Nov-2016	3:00	1.7	NNE
19-Nov-2016	4:00	2.2	NNE
19-Nov-2016	5:00	2.1	WNW
19-Nov-2016	6:00	2	SSW
19-Nov-2016	7:00	1.8	WSW
19-Nov-2016	8:00	1.9	WSW
19-Nov-2016	9:00	2.5	WNW
19-Nov-2016	10:00	2.4	NW
19-Nov-2016	11:00	2.4	NW
19-Nov-2016	12:00	2.5	NNW
19-Nov-2016	13:00	2.5	S
19-Nov-2016	14:00	2.6	S
19-Nov-2016	15:00	2.8	N
19-Nov-2016	16:00	2.9	E
19-Nov-2016	17:00	2.6	WSW
19-Nov-2016	18:00	2.7	SW
19-Nov-2016	19:00	2.6	WSW
19-Nov-2016	20:00	1.9	NW
19-Nov-2016	21:00	2.4	SW
19-Nov-2016	22:00	2.3	W
19-Nov-2016	23:00	2.3	WNW
20-Nov-2016	0:00	2.6	NW
20-Nov-2016	1:00	2.5	WNW
20-Nov-2016	2:00	3.2	WNW
20-Nov-2016	3:00	2.5	NW
20-Nov-2016	4:00	1.7	NW
20-Nov-2016	5:00	1.7	NW
20-Nov-2016	6:00	1.6	NW
20-Nov-2016	7:00	1.7	NW
20-Nov-2016	8:00	2.2	NNW
20-Nov-2016	9:00	2	NNW
20-Nov-2016	10:00	3.1	NNW

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

II. Mean Wind Speed and Wind Direction

20-Nov-2016	11:00	2.7	NW
20-Nov-2016	12:00	2.3	NW
20-Nov-2016	13:00	2.6	NW
20-Nov-2016	14:00	3.2	NW
20-Nov-2016	15:00	3	WNW
20-Nov-2016	16:00	3.1	NW
20-Nov-2016	17:00	2.7	NW
20-Nov-2016	18:00	2.2	NNW
20-Nov-2016	19:00	2	NNW
20-Nov-2016	20:00	1.8	NNW
20-Nov-2016	21:00	1.6	NNW
20-Nov-2016	22:00	2.1	NNW
20-Nov-2016	23:00	2	NNW
21-Nov-2016	0:00	2	NNW
21-Nov-2016	1:00	2.3	W
21-Nov-2016	2:00	1.9	WNW
21-Nov-2016	3:00	2.1	NW
21-Nov-2016	4:00	2.6	NNW
21-Nov-2016	5:00	2.4	NW
21-Nov-2016	6:00	2	NNW
21-Nov-2016	7:00	2	NNW
21-Nov-2016	8:00	2.3	NW
21-Nov-2016	9:00	2.7	NW
21-Nov-2016	10:00	1.9	NW
21-Nov-2016	11:00	2.1	NW
21-Nov-2016	12:00	2.2	WNW
21-Nov-2016	13:00	2.6	W
21-Nov-2016	14:00	2.8	WNW
21-Nov-2016	15:00	2.5	NW
21-Nov-2016	16:00	2.7	SE
21-Nov-2016	17:00	2.4	ESE
21-Nov-2016	18:00	2	SE
21-Nov-2016	19:00	2.1	WNW
21-Nov-2016	20:00	1.9	NW
21-Nov-2016	21:00	2.3	WNW
21-Nov-2016	22:00	2	WNW
21-Nov-2016	23:00	1.6	NW
22-Nov-2016	0:00	1.7	WNW

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

II. Mean Wind Speed and Wind Direction

22-Nov-2016	1:00	2	S
22-Nov-2016	2:00	1.6	SE
22-Nov-2016	3:00	1.4	ESE
22-Nov-2016	4:00	1.1	SE
22-Nov-2016	5:00	1.3	SE
22-Nov-2016	6:00	1.3	SE
22-Nov-2016	7:00	1.2	SE
22-Nov-2016	8:00	1.5	S
22-Nov-2016	9:00	1.5	SE
22-Nov-2016	10:00	1.4	S
22-Nov-2016	11:00	1.8	SE
22-Nov-2016	12:00	1.7	SE
22-Nov-2016	13:00	1.7	SE
22-Nov-2016	14:00	1.9	SE
22-Nov-2016	15:00	1.9	SSE
22-Nov-2016	16:00	1.9	SE
22-Nov-2016	17:00	1.4	S
22-Nov-2016	18:00	1.2	WSW
22-Nov-2016	19:00	1.2	WNW
22-Nov-2016	20:00	1	WNW
22-Nov-2016	21:00	1.2	WNW
22-Nov-2016	22:00	1.1	S
22-Nov-2016	23:00	1.1	S
23-Nov-2016	0:00	1.1	S
23-Nov-2016	1:00	1	SSW
23-Nov-2016	2:00	0.8	SW
23-Nov-2016	3:00	0.8	S
23-Nov-2016	4:00	1.1	SSW
23-Nov-2016	5:00	0.6	N
23-Nov-2016	6:00	0.9	N
23-Nov-2016	7:00	0.9	S
23-Nov-2016	8:00	1.1	WNW
23-Nov-2016	9:00	1.4	NW
23-Nov-2016	10:00	1.3	NW
23-Nov-2016	11:00	1.5	NW
23-Nov-2016	12:00	1.8	NNW
23-Nov-2016	13:00	1.7	NNW
23-Nov-2016	14:00	1.6	NNW

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

II. Mean Wind Speed and Wind Direction

23-Nov-2016	15:00	1.5	NNW
23-Nov-2016	16:00	1.5	NW
23-Nov-2016	17:00	1.2	NW
23-Nov-2016	18:00	1.5	NW
23-Nov-2016	19:00	0.9	WNW
23-Nov-2016	20:00	0.6	WNW
23-Nov-2016	21:00	1	WNW
23-Nov-2016	22:00	1.3	WNW
23-Nov-2016	23:00	1.2	NW
24-Nov-2016	0:00	1.1	NW
24-Nov-2016	1:00	1.2	NNW
24-Nov-2016	2:00	1.4	NNW
24-Nov-2016	3:00	1.2	N
24-Nov-2016	4:00	1.1	N
24-Nov-2016	5:00	0.8	N
24-Nov-2016	6:00	0.7	NNW
24-Nov-2016	7:00	0.7	ENE
24-Nov-2016	8:00	0.9	NW
24-Nov-2016	9:00	0.9	NNW
24-Nov-2016	10:00	1.4	S
24-Nov-2016	11:00	1.7	WNW
24-Nov-2016	12:00	1.6	NW
24-Nov-2016	13:00	1.3	S
24-Nov-2016	14:00	1.2	NE
24-Nov-2016	15:00	1.1	ENE
24-Nov-2016	16:00	1	NNE
24-Nov-2016	17:00	1	N
24-Nov-2016	18:00	1.1	NNE
24-Nov-2016	19:00	1.5	N
24-Nov-2016	20:00	1.4	N
24-Nov-2016	21:00	1.5	NW
24-Nov-2016	22:00	1.5	N
24-Nov-2016	23:00	1.4	E
25-Nov-2016	0:00	1.4	ESE
25-Nov-2016	1:00	1.4	WSW
25-Nov-2016	2:00	1	S
25-Nov-2016	3:00	0.8	SE
25-Nov-2016	4:00	0.9	N

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

II. Mean Wind Speed and Wind Direction

25-Nov-2016	5:00	0.6	ESE
25-Nov-2016	6:00	0.7	SSE
25-Nov-2016	7:00	0.9	SSE
25-Nov-2016	8:00	1.3	ESE
25-Nov-2016	9:00	1.3	ESE
25-Nov-2016	10:00	1.5	ESE
25-Nov-2016	11:00	1.4	ESE
25-Nov-2016	12:00	1.6	WSW
25-Nov-2016	13:00	2	W
25-Nov-2016	14:00	1.6	NNE
25-Nov-2016	15:00	1.6	ENE
25-Nov-2016	16:00	1.2	E
25-Nov-2016	17:00	1.2	SSE
25-Nov-2016	18:00	1.1	ENE
25-Nov-2016	19:00	1.1	ENE
25-Nov-2016	20:00	1.1	ENE
25-Nov-2016	21:00	1.4	ENE
25-Nov-2016	22:00	1.6	NE
25-Nov-2016	23:00	1.7	N
26-Nov-2016	0:00	2	ENE
26-Nov-2016	1:00	1.7	NE
26-Nov-2016	2:00	1.5	NNE
26-Nov-2016	3:00	1.7	NE
26-Nov-2016	4:00	1.5	NNE
26-Nov-2016	5:00	1.1	NE
26-Nov-2016	6:00	1.2	NE
26-Nov-2016	7:00	0.9	ENE
26-Nov-2016	8:00	1.1	ENE
26-Nov-2016	9:00	1.9	ENE
26-Nov-2016	10:00	1.8	NE
26-Nov-2016	11:00	2	NNE
26-Nov-2016	12:00	1.8	NNE
26-Nov-2016	13:00	1.5	NNE
26-Nov-2016	14:00	1.2	NE
26-Nov-2016	15:00	1.5	NNE
26-Nov-2016	16:00	1.6	NNE
26-Nov-2016	17:00	1.5	NE
26-Nov-2016	18:00	1.5	ENE

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

II. Mean Wind Speed and Wind Direction

26-Nov-2016	19:00	1	ENE
26-Nov-2016	20:00	0.8	NE
26-Nov-2016	21:00	1.1	WNW
26-Nov-2016	22:00	1	WSW
26-Nov-2016	23:00	1.1	ESE
27-Nov-2016	0:00	1.4	ESE
27-Nov-2016	1:00	1.5	ENE
27-Nov-2016	2:00	1.4	NE
27-Nov-2016	3:00	1.1	NNE
27-Nov-2016	4:00	1	NNE
27-Nov-2016	5:00	0.9	NNE
27-Nov-2016	6:00	0.8	NNE
27-Nov-2016	7:00	0.8	NNE
27-Nov-2016	8:00	1	NNE
27-Nov-2016	9:00	1.2	NE
27-Nov-2016	10:00	1.4	NE
27-Nov-2016	11:00	1.6	ENE
27-Nov-2016	12:00	1.7	N
27-Nov-2016	13:00	1.9	NNE
27-Nov-2016	14:00	1.7	NW
27-Nov-2016	15:00	1.9	SW
27-Nov-2016	16:00	1.8	ENE
27-Nov-2016	17:00	1.7	NNE
27-Nov-2016	18:00	1.5	N
27-Nov-2016	19:00	1.5	WNW
27-Nov-2016	20:00	1.2	NE
27-Nov-2016	21:00	1.5	N
27-Nov-2016	22:00	1.2	N
27-Nov-2016	23:00	1.4	NNE
28-Nov-2016	0:00	1.5	N
28-Nov-2016	1:00	1.5	N
28-Nov-2016	2:00	1.6	W
28-Nov-2016	3:00	1.5	NNE
28-Nov-2016	4:00	1.4	N
28-Nov-2016	5:00	1.6	N
28-Nov-2016	6:00	1.8	ESE
28-Nov-2016	7:00	1.7	SSE
28-Nov-2016	8:00	1.9	SSE

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

II. Mean Wind Speed and Wind Direction

28-Nov-2016	9:00	1.8	ENE
28-Nov-2016	10:00	2.1	W
28-Nov-2016	11:00	2.1	WSW
28-Nov-2016	12:00	2.2	SW
28-Nov-2016	13:00	2.2	SW
28-Nov-2016	14:00	2.4	WNW
28-Nov-2016	15:00	2.2	W
28-Nov-2016	16:00	2.2	WNW
28-Nov-2016	17:00	2	ENE
28-Nov-2016	18:00	1.7	ESE
28-Nov-2016	19:00	1.3	NNE
28-Nov-2016	20:00	1.4	ENE
28-Nov-2016	21:00	1.4	ENE
28-Nov-2016	22:00	1.8	ESE
28-Nov-2016	23:00	1.6	S
29-Nov-2016	0:00	1.6	S
29-Nov-2016	1:00	1.9	SSW
29-Nov-2016	2:00	1.8	WNW
29-Nov-2016	3:00	1.7	WSW
29-Nov-2016	4:00	1.6	WSW
29-Nov-2016	5:00	1.4	WNW
29-Nov-2016	6:00	1.1	W
29-Nov-2016	7:00	1.3	WNW
29-Nov-2016	8:00	1.5	W
29-Nov-2016	9:00	1.7	WNW
29-Nov-2016	10:00	1.6	WNW
29-Nov-2016	11:00	1.8	W
29-Nov-2016	12:00	1.7	W
29-Nov-2016	13:00	1.7	W
29-Nov-2016	14:00	1.7	W
29-Nov-2016	15:00	1.8	S
29-Nov-2016	16:00	1.6	W
29-Nov-2016	17:00	1.5	W
29-Nov-2016	18:00	1.3	W
29-Nov-2016	19:00	1.3	W
29-Nov-2016	20:00	1.7	SW
29-Nov-2016	21:00	1.9	W
29-Nov-2016	22:00	2.1	W

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

II. Mean Wind Speed and Wind Direction

29-Nov-2016	23:00	2	W
30-Nov-2016	0:00	1.9	SW
30-Nov-2016	1:00	1.8	ENE
30-Nov-2016	2:00	1.7	ENE
30-Nov-2016	3:00	1.8	W
30-Nov-2016	4:00	1.6	W
30-Nov-2016	5:00	1.5	S
30-Nov-2016	6:00	1.5	S
30-Nov-2016	7:00	1.9	WSW
30-Nov-2016	8:00	1.8	SSW
30-Nov-2016	9:00	2.1	SSW
30-Nov-2016	10:00	1.9	S
30-Nov-2016	11:00	2	SSW
30-Nov-2016	12:00	2	W
30-Nov-2016	13:00	1.8	WNW
30-Nov-2016	14:00	1.9	W
30-Nov-2016	15:00	2	W
30-Nov-2016	16:00	1.8	NE
30-Nov-2016	17:00	1.3	NNE
30-Nov-2016	18:00	1.4	S
30-Nov-2016	19:00	1.5	SSW
30-Nov-2016	20:00	1.5	SSW
30-Nov-2016	21:00	1.5	SE
30-Nov-2016	22:00	1.9	SSE
30-Nov-2016	23:00	1.8	SSE

**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 (November 2016)

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

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 (November 2016)

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

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 Air Quality and Noise Monitoring Schedule (December 2016)

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

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

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 (December 2016)

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

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

Monitoring Location:
Stream 1, Stream 2, Stream 3

**APPENDIX E
1-HOUR TSP MONITORING RESULTS,
GRAPHICAL PRESENTATIONS**

Appendix E - 1-hour TSP Monitoring Results

Location AM1 - Tin Hau Temple			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
12-Nov-16	9:00	Cloudy	34.5
12-Nov-16	10:00	Cloudy	31.2
12-Nov-16	11:00	Cloudy	35.5
18-Nov-16	13:00	Fine	273.2
18-Nov-16	14:00	Fine	272.4
18-Nov-16	15:00	Fine	274.4
24-Nov-16	13:10	Sunny	15.1
24-Nov-16	14:10	Sunny	21.5
24-Nov-16	15:10	Sunny	19.4
30-Nov-16	9:00	Sunny	50.6
30-Nov-16	10:00	Sunny	53.9
30-Nov-16	11:00	Sunny	51.7
Average			94.5
Maximum			274.4
Minimum			15.1

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
12-Nov-16	13:00	Cloudy	29.1
12-Nov-16	14:00	Cloudy	24.8
12-Nov-16	15:00	Cloudy	30.2
18-Nov-16	8:30	Fine	231.4
18-Nov-16	9:30	Fine	233.8
18-Nov-16	10:30	Fine	241.4
24-Nov-16	13:10	Sunny	31.2
24-Nov-16	14:10	Sunny	37.2
24-Nov-16	15:10	Sunny	34.7
30-Nov-16	10:00	Sunny	30.4
30-Nov-16	11:00	Sunny	28.3
30-Nov-16	12:00	Sunny	29.4
Average			81.8
Maximum			241.4
Minimum			24.8

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
12-Nov-16	9:00	Cloudy	31.5
12-Nov-16	10:00	Cloudy	31.5
12-Nov-16	11:00	Cloudy	28.3
18-Nov-16	8:35	Fine	240.5
18-Nov-16	9:35	Fine	234.0
18-Nov-16	10:35	Fine	235.5
24-Nov-16	9:00	Sunny	39.4
24-Nov-16	10:00	Sunny	40.8
24-Nov-16	11:00	Sunny	38.1
30-Nov-16	15:15	Sunny	15.7
30-Nov-16	16:15	Sunny	16.8
30-Nov-16	17:15	Sunny	16.8
Average			80.7
Maximum			240.5
Minimum			15.7

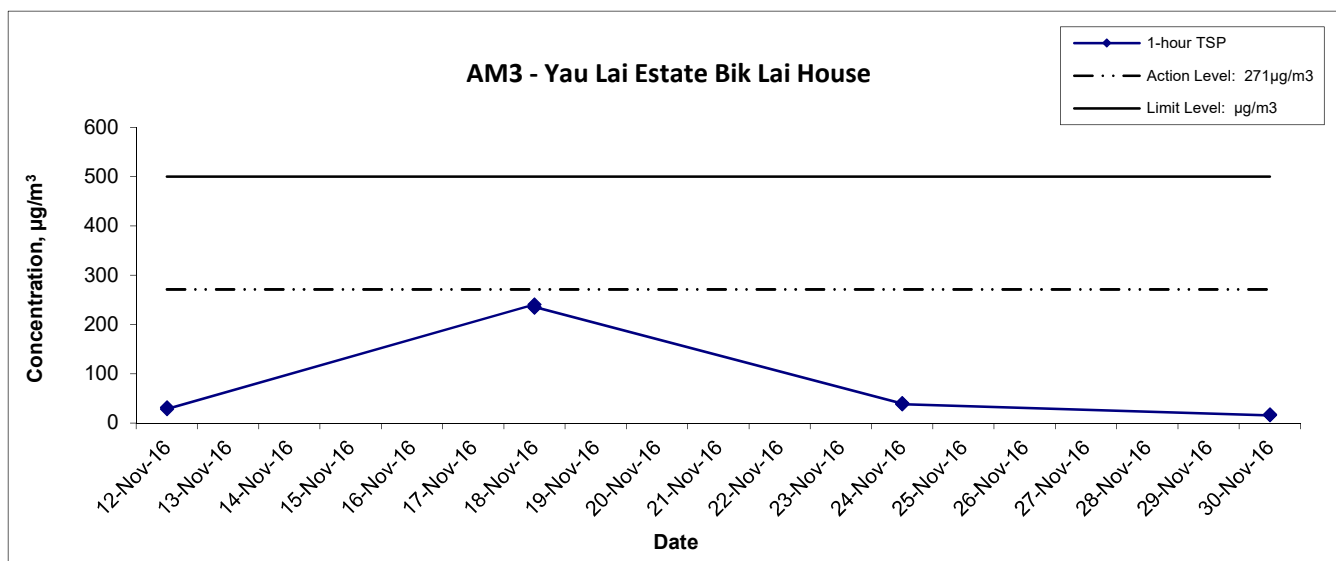
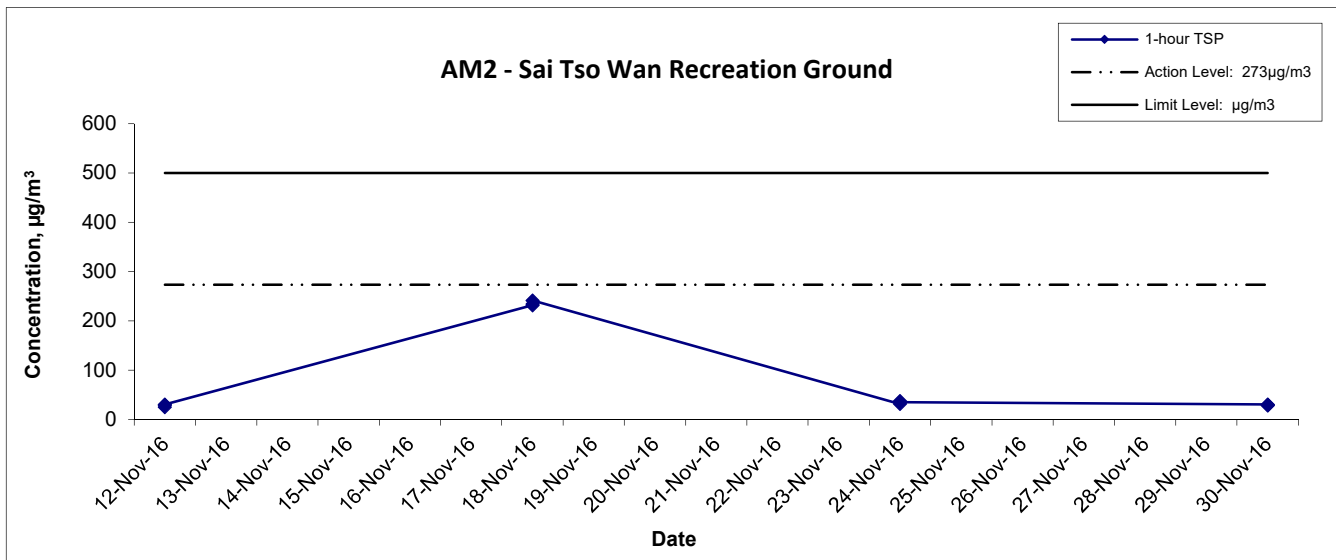
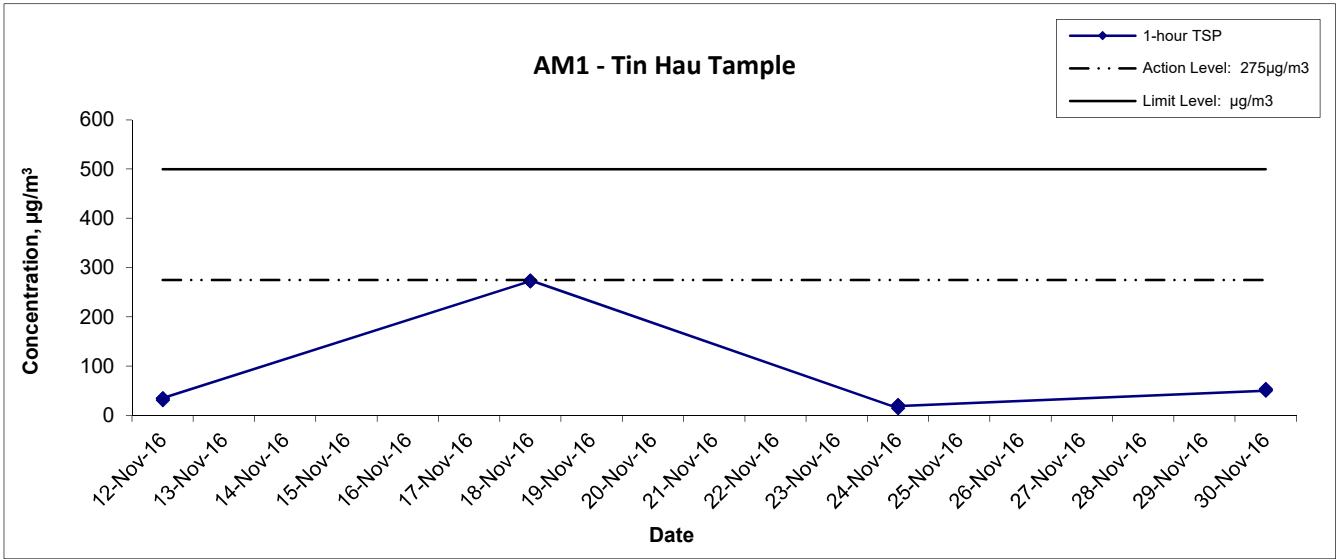
Appendix E - 1-hour TSP Monitoring Results

Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
12-Nov-16	13:00	Cloudy	43.0
12-Nov-16	14:00	Cloudy	38.8
12-Nov-16	15:00	Cloudy	34.6
18-Nov-16	13:00	Fine	230.5
18-Nov-16	14:00	Fine	241.5
18-Nov-16	15:00	Fine	244.3
24-Nov-16	13:00	Sunny	14.0
24-Nov-16	14:00	Sunny	16.2
24-Nov-16	15:00	Sunny	18.3
30-Nov-16	13:00	Sunny	47.4
30-Nov-16	14:00	Sunny	50.6
30-Nov-16	15:00	Sunny	47.4
Average			85.6
Maximum			244.3
Minimum			14.0

Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
11-Nov-16	13:00	Cloudy	31.5
11-Nov-16	14:00	Cloudy	35.7
11-Nov-16	15:00	Cloudy	32.5
17-Nov-16	13:00	Sunny	195.5
17-Nov-16	14:00	Sunny	228.8
17-Nov-16	15:00	Sunny	253.9
23-Nov-16	13:00	Windy	58.8
23-Nov-16	14:00	Windy	60.3
23-Nov-16	15:00	Windy	55.8
29-Nov-16	13:00	Fine	74.3
29-Nov-16	14:00	Fine	76.4
29-Nov-16	15:00	Fine	78.4
Average			98.5
Maximum			253.9
Minimum			31.5

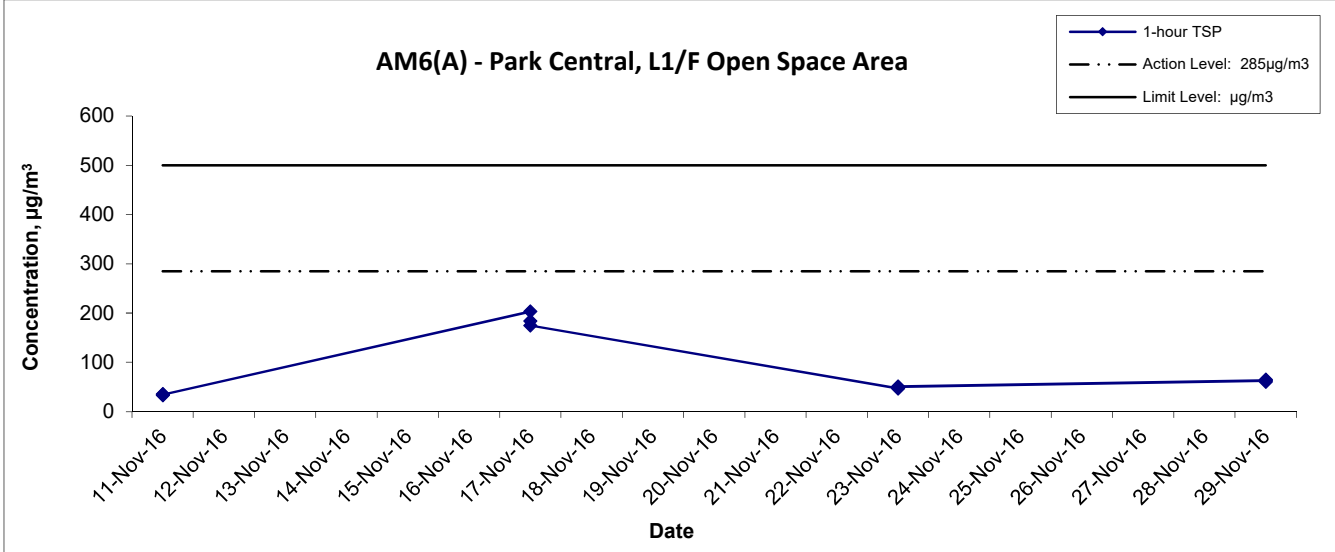
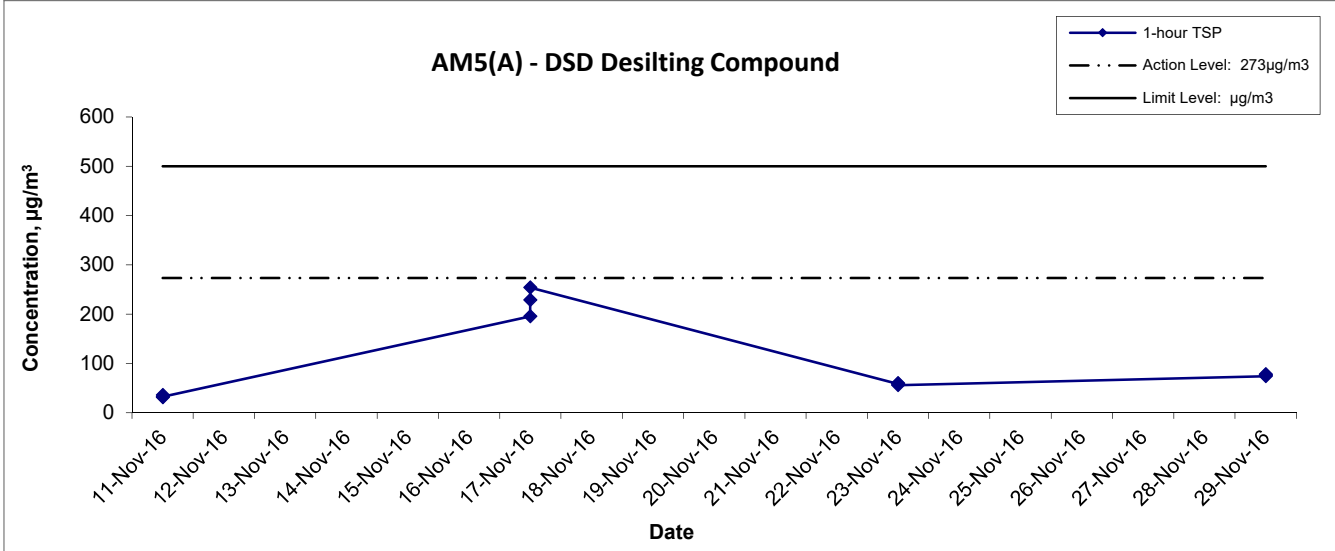
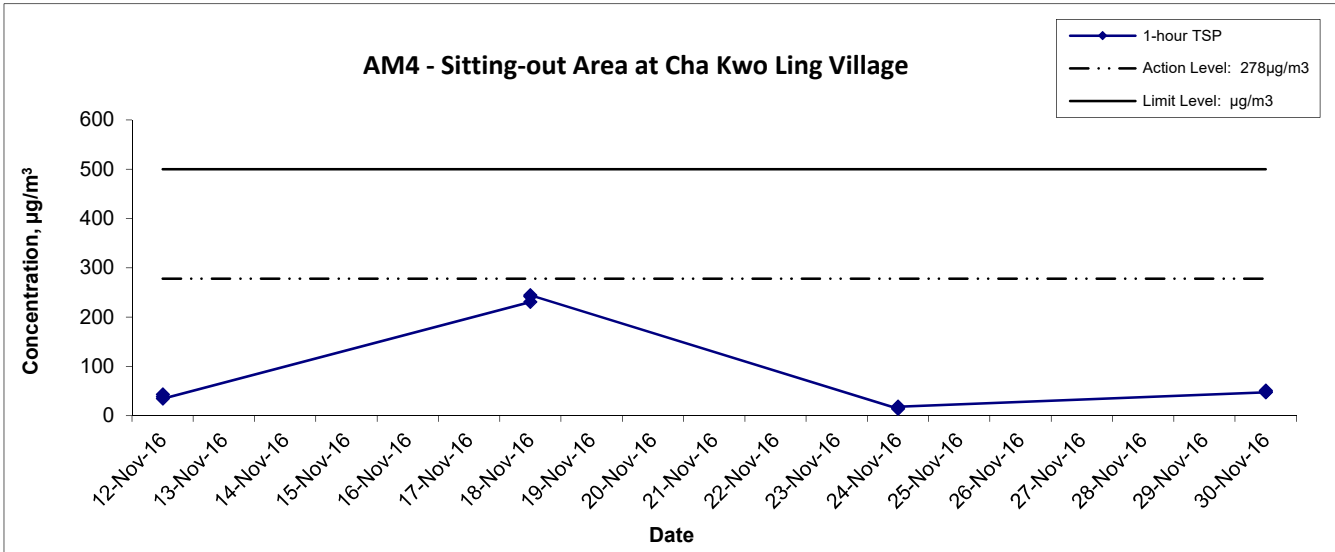
Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
11-Nov-16	13:00	Cloudy	35.7
11-Nov-16	14:00	Cloudy	33.5
11-Nov-16	15:00	Cloudy	34.6
17-Nov-16	9:00	Sunny	203.3
17-Nov-16	10:00	Sunny	183.9
17-Nov-16	11:00	Sunny	174.7
23-Nov-16	8:50	Windy	47.3
23-Nov-16	9:50	Windy	50.7
23-Nov-16	10:50	Windy	51.1
29-Nov-16	8:30	Fine	63.5
29-Nov-16	9:30	Fine	65.1
29-Nov-16	10:30	Fine	60.6
Average			83.7
Maximum			203.3
Minimum			33.5

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 Baseline Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
	Date Nov 16	Appendix E	

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 Baseline Monitoring Results		Date	Appendix	
		Nov 16	E	

**APPENDIX F
24-HOUR TSP MONITORING RESULTS,
GRAPHICAL PRESENTATIONS**

Appendix F - 24-hour TSP Baseline 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			
12-Nov-16	Cloudy	296.9	767.7	3.6009	3.7180	0.1171	1090.7	1114.7	24.0	1.23	1.23	1.23	1773.1	66.0
16-Nov-16	Sunny	297.4	766.0	3.3008	3.4629	0.1621	1114.7	1138.7	24.0	1.23	1.23	1.23	1769.6	91.6
22-Nov-16	Cloudy	295.5	763.1	3.5722	3.6051	0.0329	1138.7	1162.7	24.0	1.23	1.23	1.23	1772.0	18.6
28-Nov-16	Cloudy	289.9	769.3	3.6038	3.7301	0.1263	1162.7	1186.7	24.0	1.21	1.21	1.21	1736.3	72.7
													Min	18.6
													Max	91.6
													Average	62.2

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			
12-Nov-16	Cloudy	295.5	767.2	3.5970	3.6996	0.1026	21930.9	21954.9	24.0	1.24	1.23	1.23	1778.2	57.7
16-Nov-16	Sunny	296.9	766.3	3.2893	3.4175	0.1282	21954.9	21978.9	24.0	1.22	1.22	1.22	1762.4	72.7
22-Nov-16	Cloudy	296.7	764.7	3.3143	3.3624	0.0481	21978.9	22002.9	24.0	1.22	1.22	1.22	1761.1	27.3
28-Nov-16	Cloudy	289.6	769.6	3.2824	3.3977	0.1153	22002.9	22026.9	24.0	1.24	1.24	1.24	1789.2	64.4
													Min	27.3
													Max	72.7
													Average	55.5

Appendix F - 24-hour TSP Baseline Monitoring Results

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			
12-Nov-16	Cloudy	296.3	767.1	3.5917	3.6864	0.0947	10410.5	10434.5	24.0	1.21	1.21	1.21	1745.0	54.3
16-Nov-16	Sunny	297.2	766.4	3.2818	3.4190	0.1372	10534.0	10558.0	24.0	1.21	1.21	1.21	1741.6	78.8
22-Nov-16	Cloudy	295.7	763.8	3.5868	3.6278	0.0410	10558.0	10582.0	24.0	1.21	1.21	1.21	1743.0	23.5
28-Nov-16	Cloudy	290.4	768.7	3.3069	3.4427	0.1358	10582.0	10606.0	24.0	1.23	1.22	1.23	1764.3	77.0
													Min	23.5
													Max	78.8
													Average	58.4

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			
12-Nov-16	Cloudy	296.4	767.4	3.6506	3.8899	0.2393	7609.2	7633.2	24.0	1.24	1.24	1.24	1787.1	133.9
18-Nov-16	Sunny	296.8	766.7	3.2579	3.5164	0.2585	7633.2	7657.2	24.0	1.24	1.24	1.24	1785.0	144.8
22-Nov-16	Cloudy	296.1	763.2	3.5872	3.6423	0.0551	7657.2	7681.2	24.0	1.24	1.24	1.24	1783.1	30.9
28-Nov-16	Cloudy	290.2	769.1	3.2778	3.4992	0.2214	7681.2	7705.2	24.0	1.23	1.23	1.23	1766.4	125.3
													Min	30.9
													Max	144.8
													Average	108.7

Appendix F - 24-hour TSP Baseline Monitoring Results

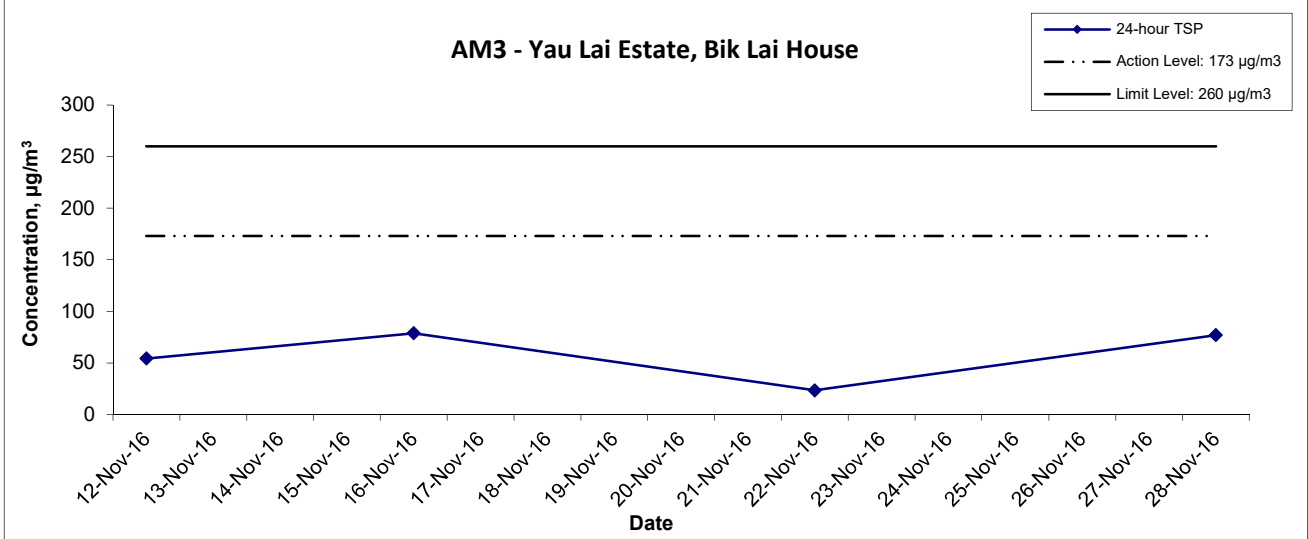
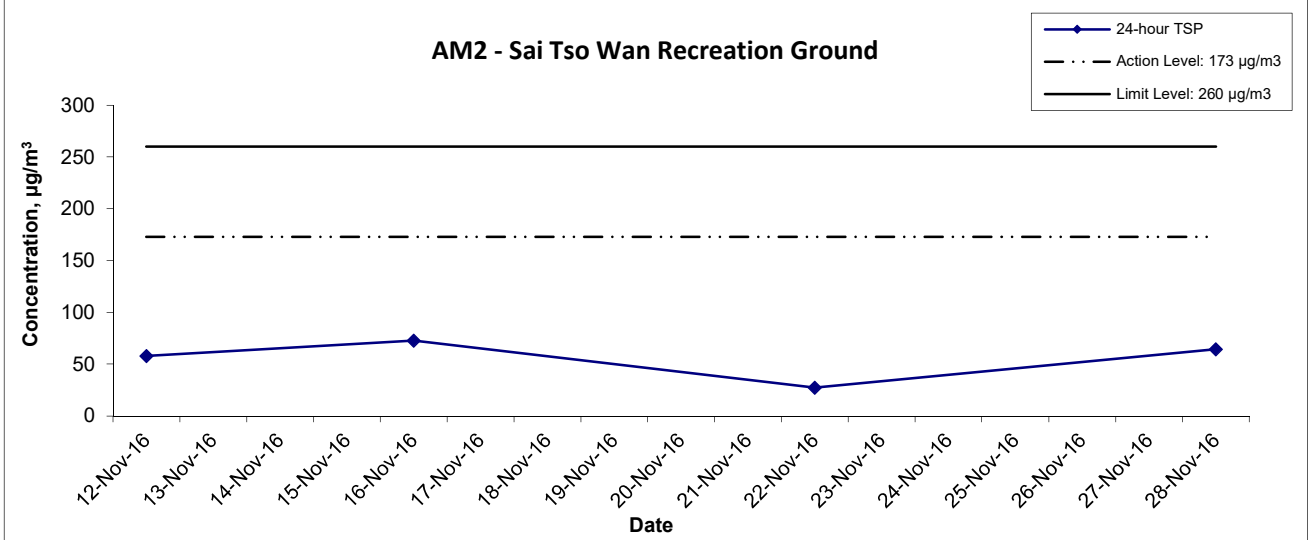
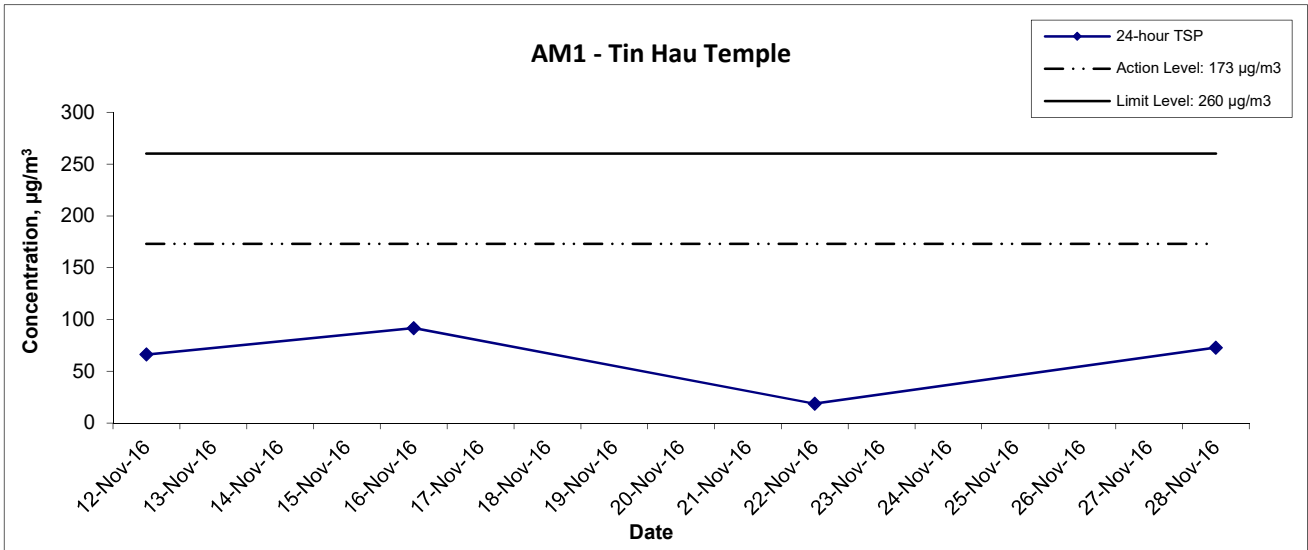
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

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			
11-Nov-16	Cloudy	288.7	768.3	3.2954	3.4443	0.1489	21351.5	21375.5	24.0	1.25	1.25	1.25	1806.5	82.4
16-Nov-16	Sunny	296.9	767.4	3.2934	3.4340	0.1406	21375.5	21399.5	24.0	1.22	1.22	1.22	1761.7	79.8
22-Nov-16	Cloudy	296.5	762.8	3.2824	3.3313	0.0489	21399.5	21423.5	24.0	1.22	1.22	1.22	1757.5	27.8
28-Nov-16	Cloudy	289.8	768.6	3.6217	3.6861	0.0644	21423.5	21447.5	24.0	1.24	1.24	1.24	1784.7	36.1
													Min	27.8
													Max	82.4
													Average	56.5

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

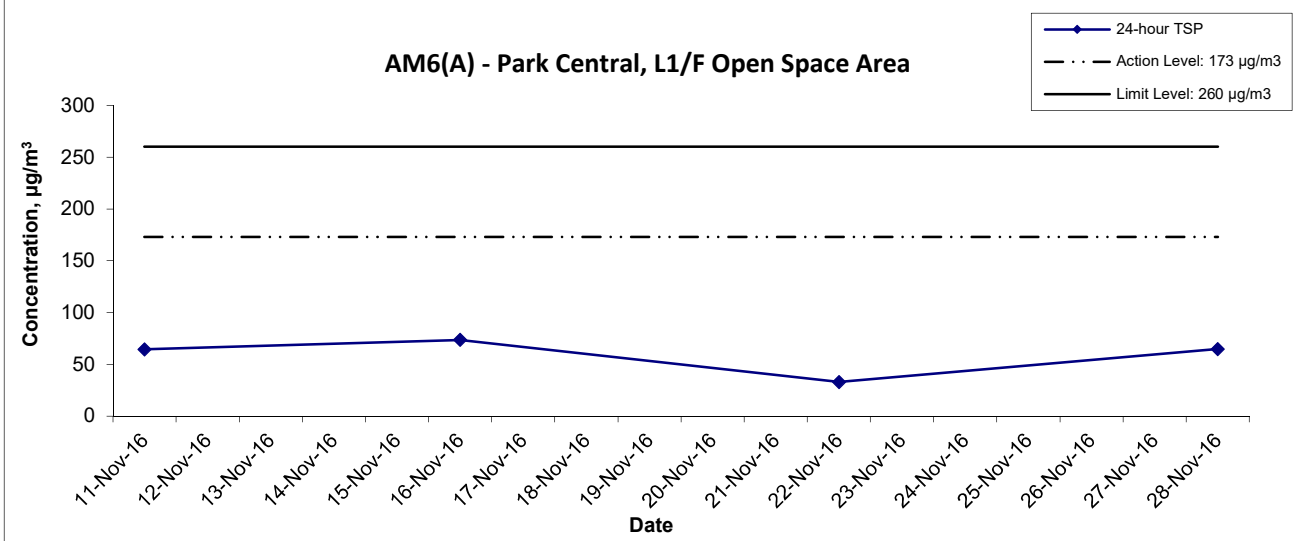
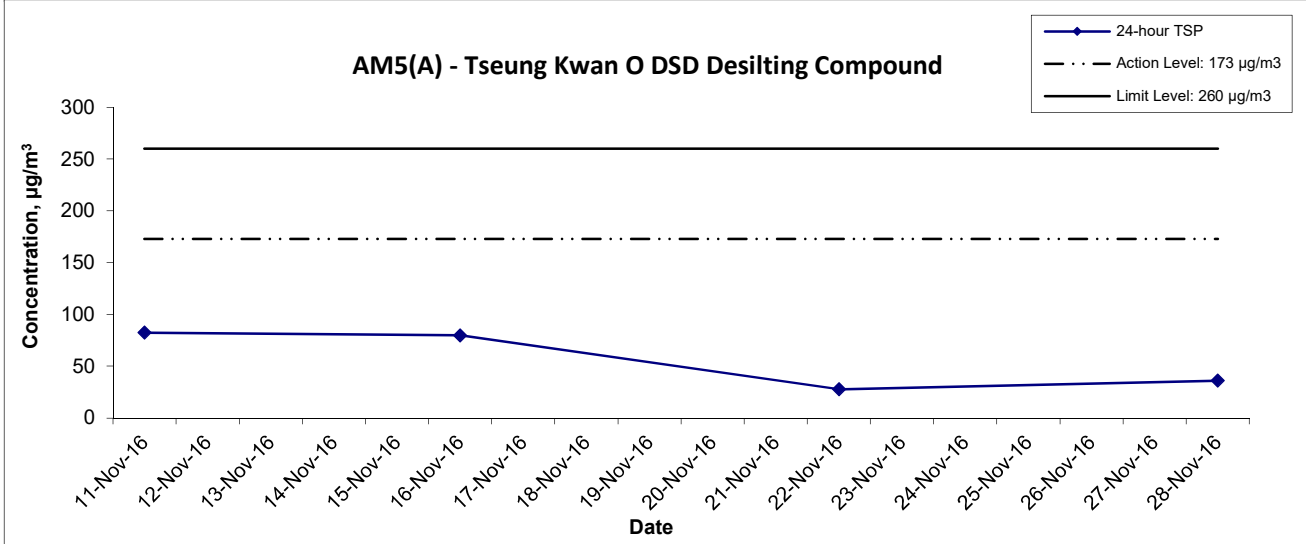
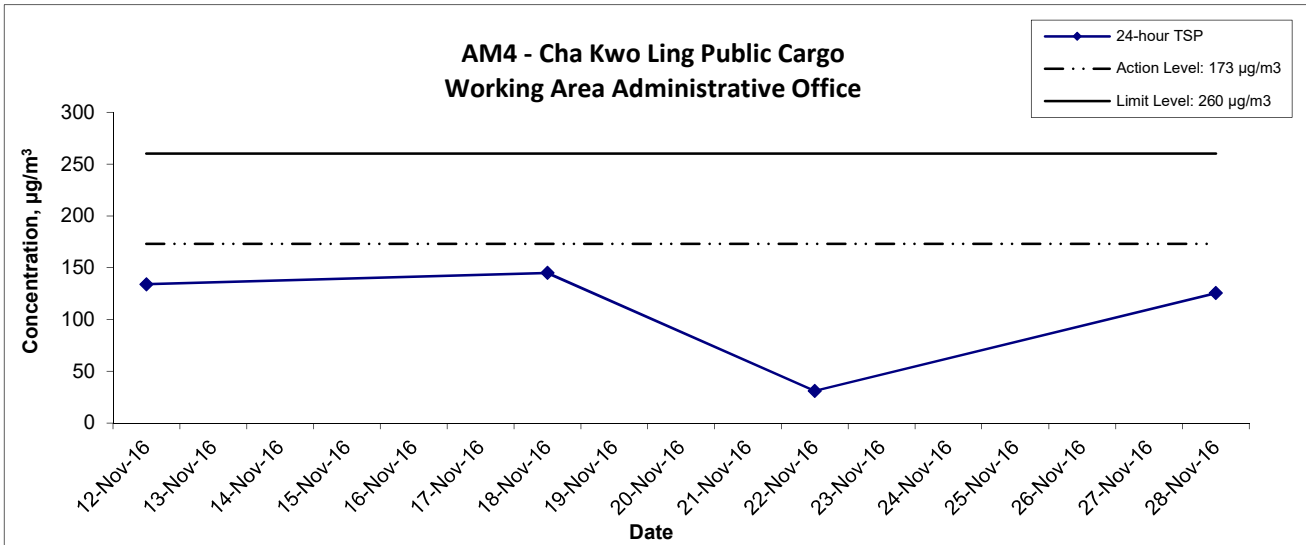
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
11-Nov-16	Cloudy	298.3	768.2	3.2925	3.4066	0.1141	14411.8	14435.8	24.0	1.23	1.23	1.23	1771.5	64.4
16-Nov-16	Sunny	297.1	768.3	3.2977	3.4281	0.1304	14435.8	14459.8	24.0	1.23	1.23	1.23	1775.5	73.4
22-Nov-16	Cloudy	296.2	763.6	3.2756	3.3337	0.0581	14459.8	14483.8	24.0	1.23	1.23	1.23	1772.5	32.8
28-Nov-16	Cloudy	289.7	769.3	3.5959	3.7123	0.1164	14483.8	14507.8	24.0	1.25	1.25	1.25	1800.9	64.6
													Min	32.8
													Max	73.4
													Average	58.8

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 Baseline Monitoring Results	Scale N.T.S	Project No. MA16034	
	Date Nov 16	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 Baseline Monitoring
 Results

Scale N.T.S
 Date Nov 16

Project No. MA16034
 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}
11-Nov-16	11:30	Cloudy	68.6	70.3	66.9	65.5	65.7
15-Nov-16	15:00	Sunny	67.3	68.6	65.6		62.6
21-Nov-16	15:00	Cloudy	68.9	72.1	62.0		66.2

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}
12-Nov-16	9:00	Cloudy	68.1	70.0	65.7	63.6	66.2
18-Nov-16	9:30	Cloudy	63.2	65.2	59.3		63.2 Measured ≤ Baseline
24-Nov-16	11:10	Sunny	67.1	68.7	65.4		64.5
30-Nov-16	17:15	Sunny	71.1	74.3	67.1		70.2

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}
11-Nov-16	9:30	Cloudy	68.6	70.2	66.3	65.6	65.6
15-Nov-16	14:15	Sunny	70.4	73.0	61.3		68.7
21-Nov-16	14:10	Cloudy	68.9	72.1	62.4		66.2

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}
12-Nov-16	9:10	Cloudy	60.3	62.1	57.6	62.0	60.3 Measured ≤ Baseline
18-Nov-16	13:05	Cloudy	66.8	67.9	63.5		65.1
24-Nov-16	9:05	Sunny	64.0	65.0	55.3		59.7
30-Nov-16	10:05	Sunny	64.7	68.2	54.9		61.4

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}
11-Nov-16	10:30	Cloudy	68.8	71.5	63.4	68.2	59.9
15-Nov-16	15:50	Sunny	67.5	70.6	61.9		67.5 Measured ≤ Baseline
21-Nov-16	16:00	Cloudy	68.0	70.8	63.2		68.0 Measured ≤ Baseline

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}
11-Nov-16	14:15	Cloudy	66.6	68.3	63.2	61.9	64.8
17-Nov-16	11:00	Sunny	65.0	67.3	57.3		62.1
23-Nov-16	15:10	Cloudy	59.6	61.1	55.9		59.6 Measured ≤ Baseline
29-Nov-16	15:00	Cloudy	51.5	59.7	46.1		51.5 Measured ≤ Baseline

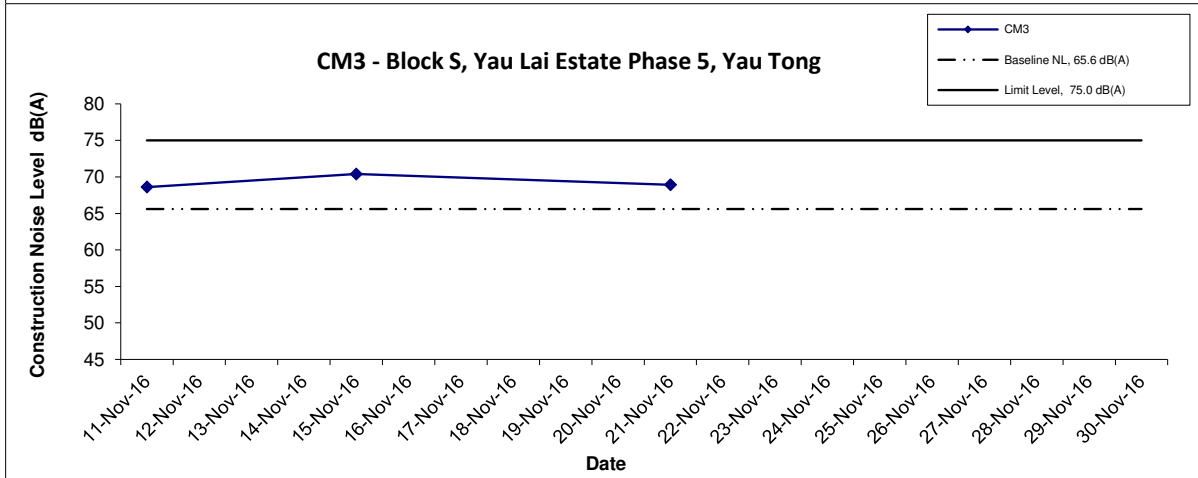
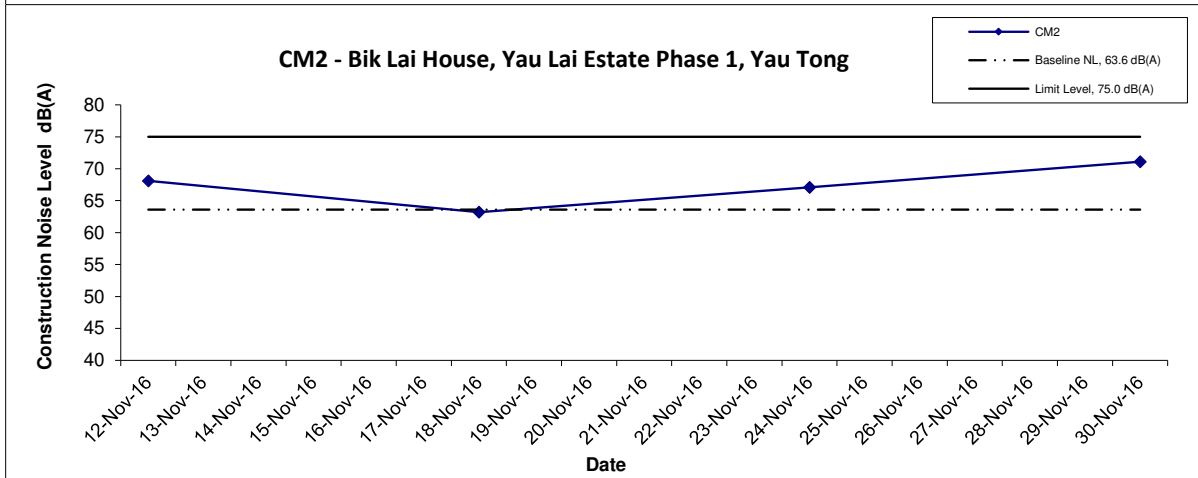
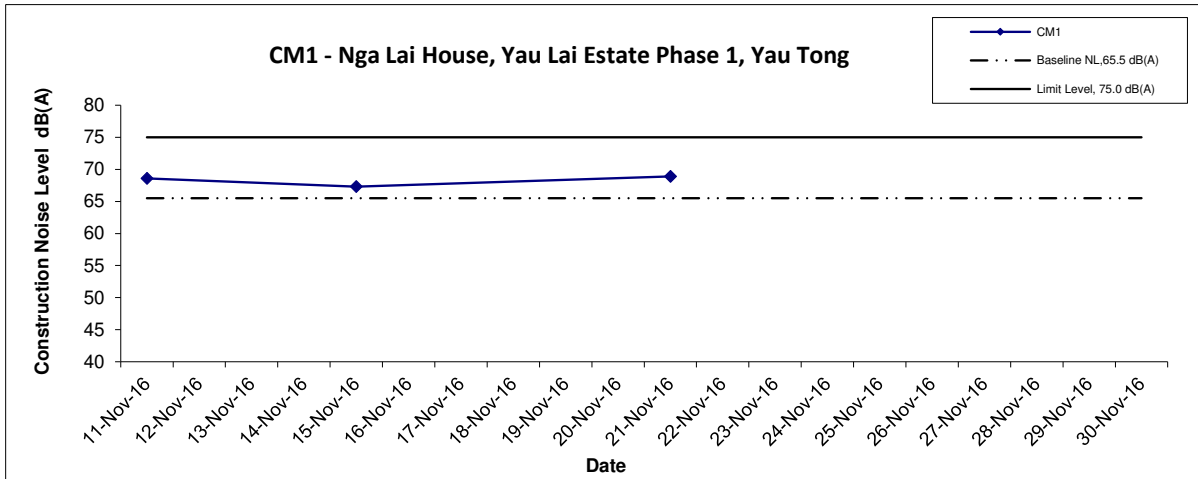
Location CM7(A) - Site Boundary of Contract No.NE/2015/02 near Tower 7, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
11-Nov-16	13:25	Cloudy	63.8	64.2	58.7	58.3	62.4
17-Nov-16	10:00	Sunny	64.1	65.2	62.1		62.8
23-Nov-16	13:25	Cloudy	60.2	61.4	57.1		55.7
29-Nov-16	13:20	Cloudy	58.1	66.7	54.1		58.1 Measured ≤ Baseline

Appendix G - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

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}
11-Nov-16	13:30	Cloudy	71.9	73.9	69.0	69.1	68.7
17-Nov-16	9:30	Sunny	58.1	59.6	56.0		58.1 Measured ≤ Baseline
23-Nov-16	9:00	Cloudy	58.9	60.5	55.4		58.9 Measured ≤ Baseline
29-Nov-16	10:00	Cloudy	60.6	62.9	57.3		60.6 Measured ≤ Baseline

Noise Levels



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

Graphical Presentation of
 Construction Noise Monitoring Results

Scale
 N.T.S

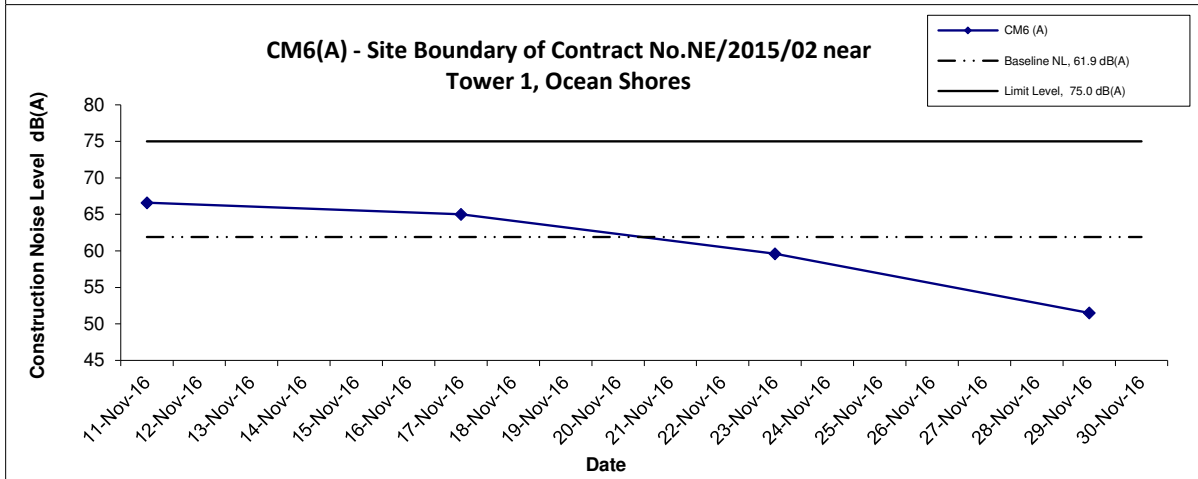
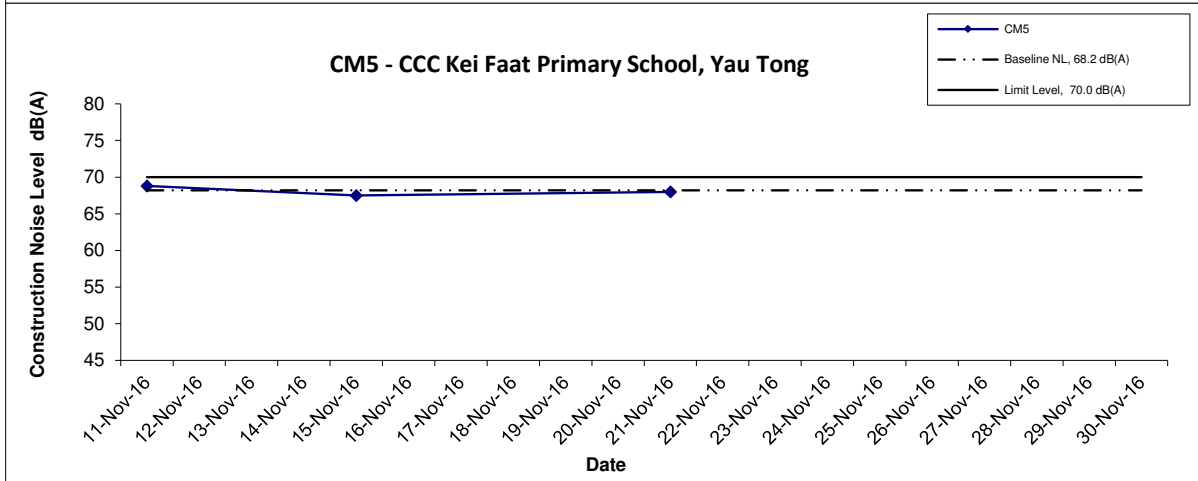
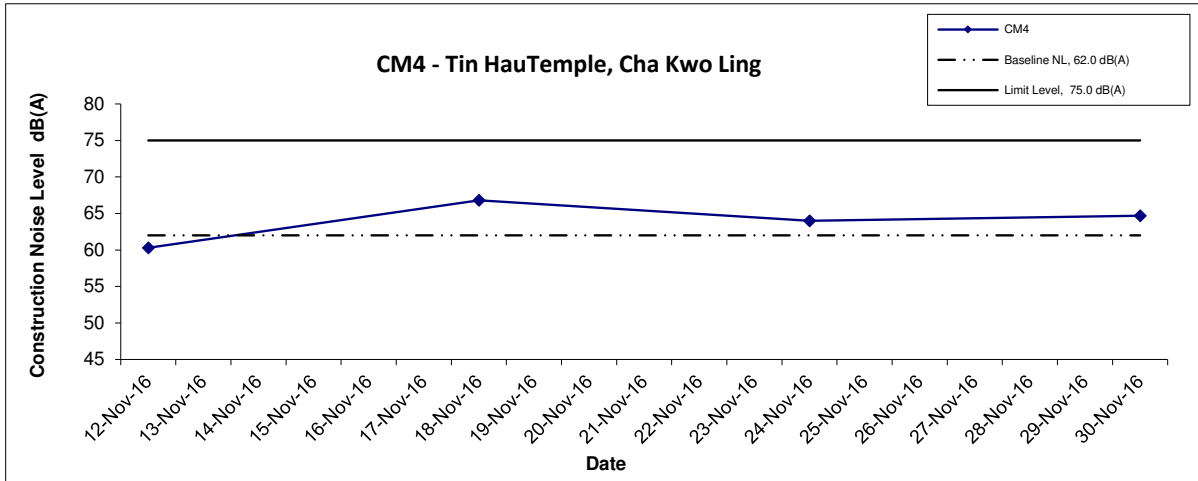
Date
 Nov 16

Project
 No. MA16034

Appendix
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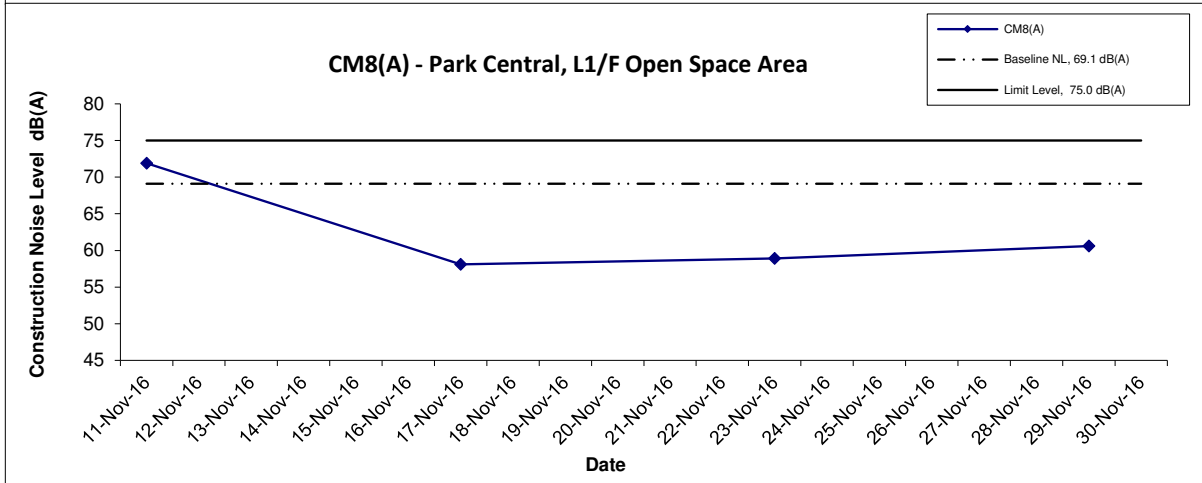
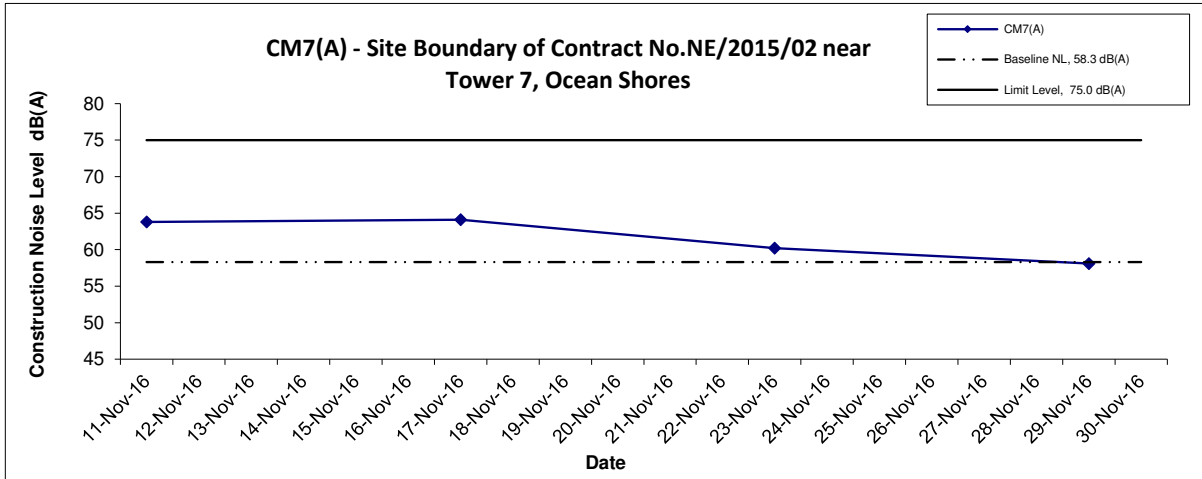


Noise Levels



Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
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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 Nov 16	Appendix 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****Monthly 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-Nov-16	Fine	12:17	Middle	25.8	25.8	6.9	6.9	0.5	0.5	99.7	99.8	8.1	8.1	1.9	1.9
				25.7		6.9		0.5		99.9		8.1		1.8	

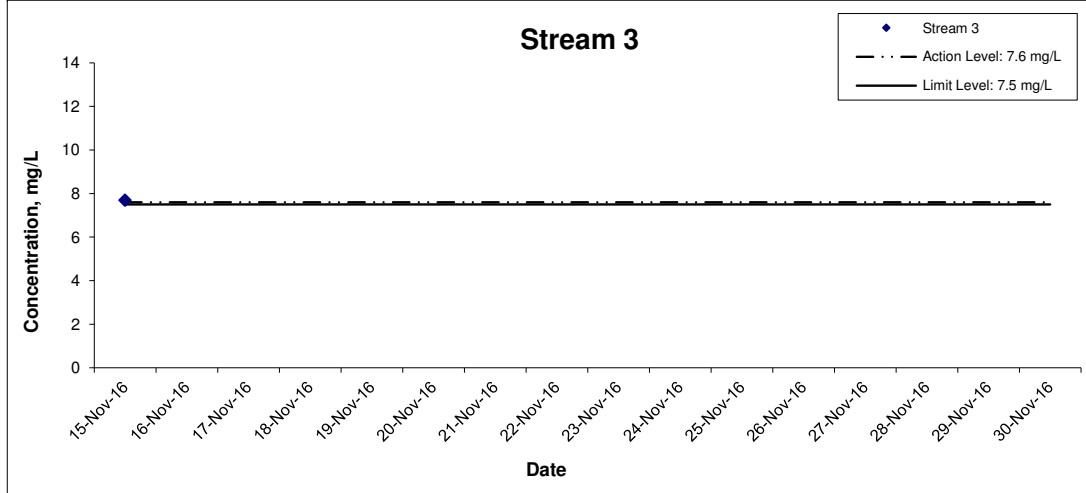
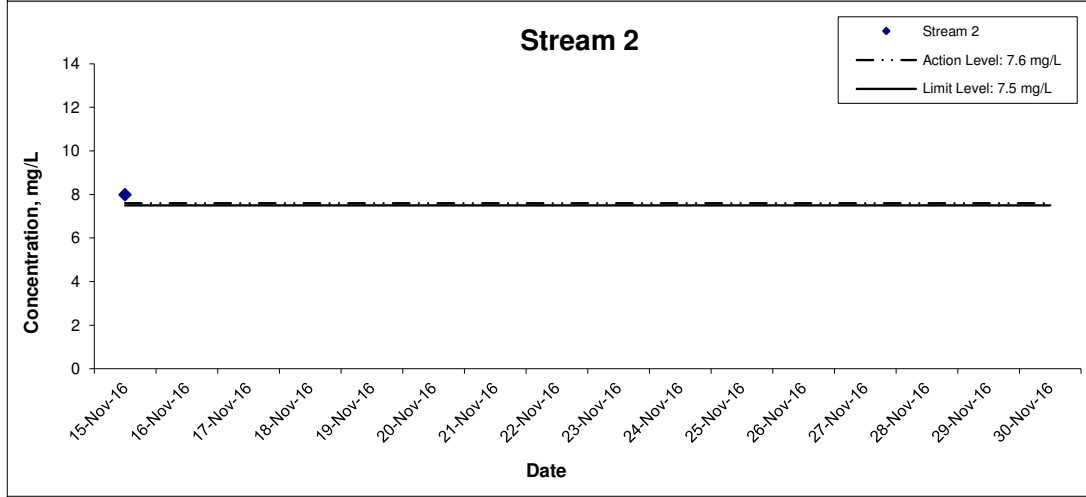
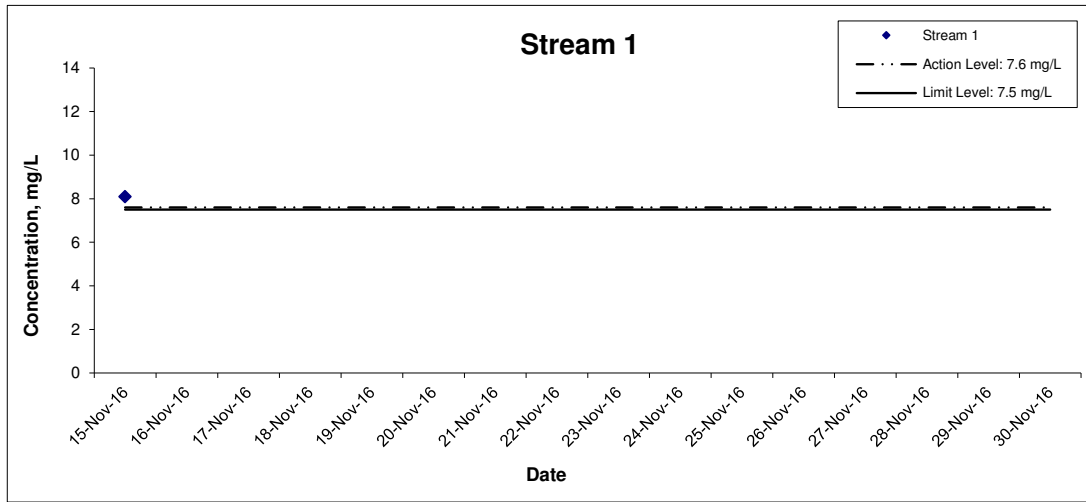
Monthly Groundwater Quality Monitoring Results at Stream 2

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-Nov-16	Fine	11:52	Middle	25.7	25.7	7.0	7.0	0.1	0.1	98.4	98.4	8.0	8.0	2.0	2.1
				25.7		7.0		0.1		98.3		8.0		2.1	

Monthly Groundwater Quality Monitoring Results at Stream 3

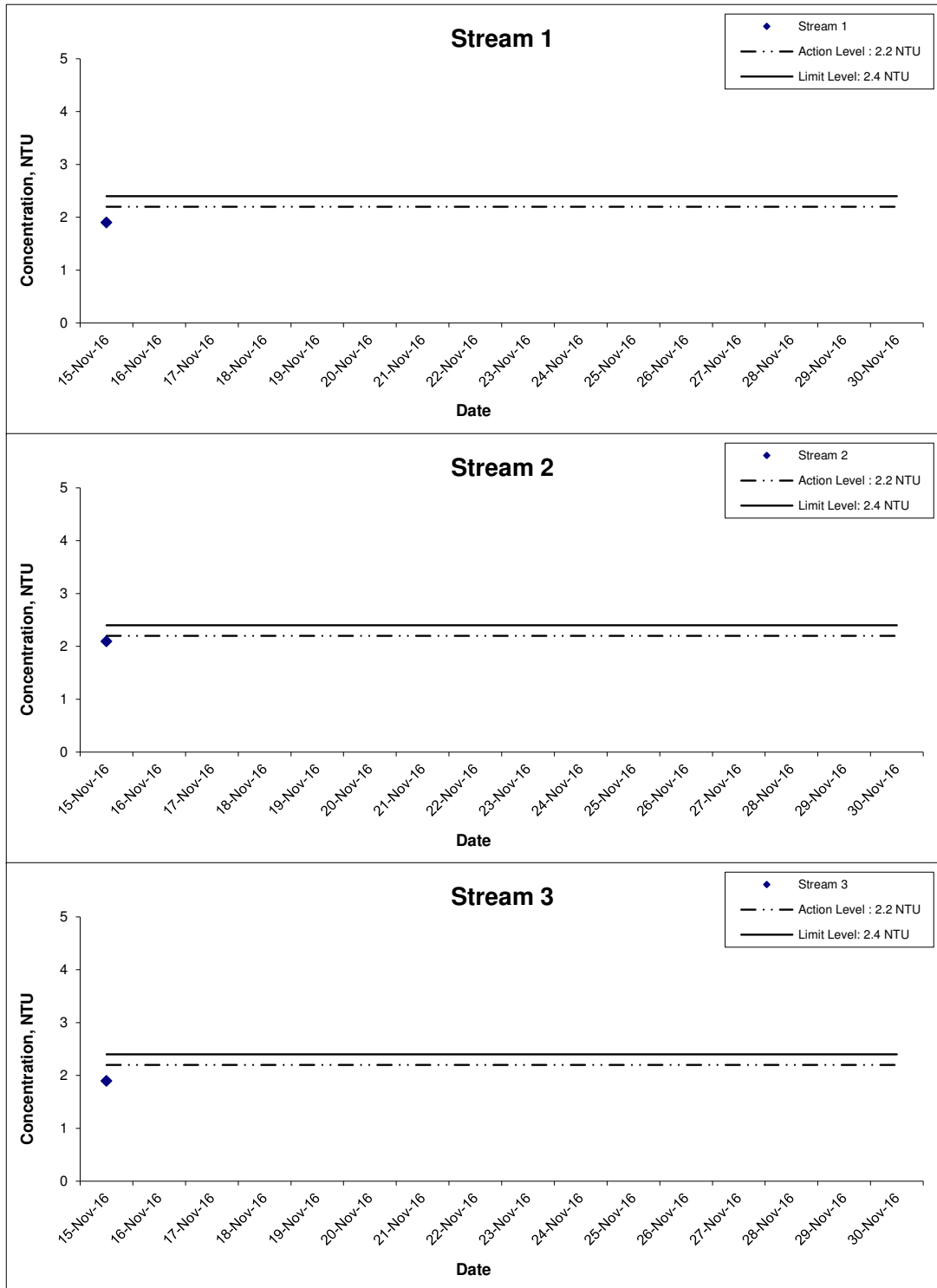
Date	Weather Condition	Sampling Time	Depth (m)	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
				Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
15-Nov-16	Fine	11:35	Middle	25.7	25.7	6.4	6.5	0.1	0.1	94.6	94.5	7.7	7.7	1.9	1.9
				25.7		6.5		0.1		94.4		7.7		1.9	

Dissolved Oxygen



Title Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction Graphical Presentation of Groundwater Quality Monitoring Result	Scale N.T.S	Project No. MA16034	
	Date Nov 16	Appendix H	

Turbidity



Title Agreement No. CE 59/2015(EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel
 Design and Construction
 Graphical Presentation of Groundwater Quality
 Monitoring Result

Scale N.T.S
 Date Nov 16

Project No. MA16034
 Appendix H



TEST REPORT

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

Report No.:	26034
Date of Issue:	2016-11-24
Date Received:	2016-11-15
Date Tested:	2016-11-15
Date Completed:	2016-11-24

ATTN: Ms. Mei Ling Tang

Page: 1 of 1

Sample Description : 3 liquid samples as received from client said to be groundwater
Laboratory No. : 26034
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)/161115
Sampling Date : 2016-11-15

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	Total Nitrogen	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.	26034-1	26034-2	26034-3
Total Suspended Solids (mg/L)	0.8	1.3	2.1
Biochemical Oxygen Demand (mg O ₂ /L)	<2	<2	<2
Total Organic Carbon (mg-TOC/L)	3	4	3
Total Nitrogen (mg N/L)	<0.6	2.0	1.4
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

**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.:	QC26034
Date of Issue:	2016-11-24
Date Received:	2016-11-15
Date Tested:	2016-11-15
Date Completed:	2016-11-24

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
Total Nitrogen	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) (%)	102	80-120
Biochemical Oxygen Demand (mg O ₂ /L)	173	170-220
Total Organic Carbon (%)	92	80-120
Total Nitrogen	N/A	N/A
Ammonia (%)	100	80-120
Total Phosphorus (%)	100	80-120

Remarks: 1) < = less than
2) N/A = Not applicable
3) This report is the summary of quality control data for report number 26034.

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


PATRICK TSE
Laboratory Manager

TEST REPORT

Report No.:	QC26034
Date of Issue:	2016-11-24
Date Received:	2016-11-15
Date Tested:	2016-11-15
Date Completed:	2016-11-24

Page: 2 of 2

QC report:

Sample Duplicate

Parameter	26034-3 chk	Acceptance
Suspended Solids (SS) (%)	2	RPD \leq 20%
Biochemical Oxygen Demand (%)	N/A	RPD \leq 20%
Total Organic Carbon (%)	1	RPD \leq 20%
Total Nitrogen	N/A	N/A
Ammonia (%)	N/A	RPD \leq 20%
Total Phosphorus (%)	N/A	RPD \leq 20%

Sample Spike

Parameter	26034-3 spk	Acceptance
Suspended Solids (SS) (%)	N/A	N/A
Biochemical Oxygen Demand (%)	N/A	N/A
Total Organic Carbon (%)	95	80-120
Total Nitrogen	N/A	N/A
Ammonia (%)	96	80-120
Total Phosphorus (%)	93	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 26034.

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

**APPENDIX K
SUMMARY OF EXCEEDANCE**

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

Appendix K – Summary of Exceedance

Reporting Period: 7 – 30 November 2016

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

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

(C) Exceedance Report for Water Quality
(One Action/Limit Level exceedance in groundwater quality monitoring as followed:

Date	Monitoring Location	Monitoring Parameter	Monitoring Results	Action Level	Limit Level
15 Nov 2016	Stream 2	Total Nitrogen	2.0	1.7	1.7

According to the information provided by the Contractor, no tunnel boring or tunnel construction works were carried out in Tseung Kwan O side on 15 Nov 2016. Therefore, it is considered that the exceedance is not project-related.)

(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	161109
Date	9 November 2016 (Wednesday)
Time	9:00-11:00

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

Ref. No.	Remarks/Observations	Related Item No.
161109-R01	B. Water Quality <ul style="list-style-type: none">To provide an earth bund or concrete bund to direct rainwater into U-channel instead of flowing into site area.	B 21
161109-R02	<ul style="list-style-type: none">To set up proper site drainage system for future wastewater treatment on site before construction activities.	B 1
	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">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 <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.:161102), item 161102-R02 is remarked as 161109-R02. Follow up actions will be reviewed during the next site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		9 November 2016
Checked by	Dr. Priscilla Choy		9 November 2016

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

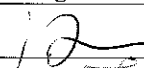

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161116
Date	16 November 2016 (Wednesday)
Time	9:00-11:00

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

Ref. No.	Remarks/Observations	Related Item No.
161116-R01	B. Water Quality <ul style="list-style-type: none">Exposed slope in TKO was not covered properly. The contractor is reminded to cover by tarpaulin sheet properly.	B 9
161116-O02	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">Haul road at Cha Kwo Ling portion was dry. The contractor is reminded to provide water spray to prevent dust generation.	E 5
161116-R03	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">To provide label for waste storage area in Tseung Kwan O. 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 section (Ref. No.:161109), all identified environmental deficiency was observed improved/rectified by the Contractor.	G iv

	Name	Signature	Date
Recorded by	Johnny Fung		16 November 2016
Checked by	Dr. Priscilla Choy		16 November 2016

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

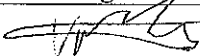

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161123
Date	23 November 2016 (Wednesday)
Time	9:30-11:30

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

Ref. No.	Remarks/Observations	Related Item No.
161123-001	B. Water Quality <ul style="list-style-type: none">Accumulated sediment in the drainage system should be cleared to maintain the discharge water quality (Tseung Kwan O).	B 7
161123-002	<ul style="list-style-type: none">Stockpile should be covered and banded to avoid generating muddy runoff near the drainage channel (Cha Kwo Ling).	B 9 & B 10
	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">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 <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 161116), all identified environmental deficiency was observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Victor Wong		23 November 2016
Checked by	Dr. Priscilla Choy		23 November 2016

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

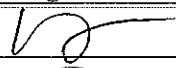
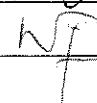
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161130
Date	30 November 2016 (Wednesday)
Time	9:00-10:45

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

Ref. No.	Remarks/Observations	Related Item No.
161130-R02	B. Water Quality <ul style="list-style-type: none">To provide earth bund or sand bag to open stockpile to avoid muddy runoff from the Stockpile Storage Area in Cha Kwo Ling.	B10,20
161130-R03	<ul style="list-style-type: none">Exposed slope should be properly covered by impervious materials in TKO after construction work each day.	B9
	C. Ecology <ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
161130-R04	D. Landscape & Visual <ul style="list-style-type: none">To set up proper tree protection zones in Cha Kwo Ling which should enclose the tree crowns.	D3
161130-O01	E. Air Quality <ul style="list-style-type: none">Dust generation observed in rock breaking works in Cha Kwo Ling. The contractor is reminded to provide water spray to minimize dust generation.	E5
161130-R02	<ul style="list-style-type: none">To provide earth bund or sand bag to open stockpile to avoid muddy runoff from the Stockpile Storage Area in Cha Kwo Ling.	E6
	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 <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 161123), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		30 November 2016
Checked by	Dr. Priscilla Choy		30 November 2016

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

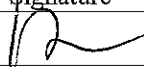

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161110
Date	10 November 2016 (Thursday)
Time	14:00 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
161110-R02	B. Water Quality <ul style="list-style-type: none">To provide bunds at site boundary near public road.	B 20
	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.	
161110-R01	E. Air Quality <ul style="list-style-type: none">To cover stockpile of dusty material by impervious material after works each day.	E 6
	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 <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 161103), no major environmental deficiencies were observed during the site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		10 November 2016
Checked by	Dr. Priscilla Choy		10 November 2016

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

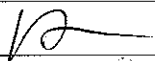
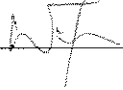
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161115
Date	15 November 2016 (Tuesday)
Time	9:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
161115-R01	<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">To clear the tyre mark on paved road near the site entrance. <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> <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 161110), all identified environmental deficiency was observed improved/rectified by the Contractor.	E 3

	Name	Signature	Date
Recorded by	Johnny Fung		15 November 2016
Checked by	Dr. Priscilla Choy		15 November 2016

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

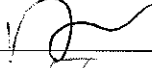
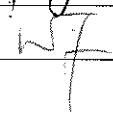
Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	161124
Date	24 November 2016 (Thursday)
Time	14:00 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
161124-R01	B. Water Quality <ul style="list-style-type: none">To provide bund for footing of hoarding at site A.	B20
	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.	
161124-R02	F. Construction Noise Impact <ul style="list-style-type: none">Idling plants at site A should be switched off.	F4
	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 <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.: 161115), all identified environmental deficiency was observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		24 November 2016
Checked by	Dr. Priscilla Choy		24 November 2016

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

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
consecutive sampling	3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 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.	2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 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.	2. Submit proposals for remedial actions to IEC within three 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 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; 	<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 	<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.

<p>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</p> <p>7. Assess effectiveness of Contractor’s remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>		<p>Contractor to stop that portion of work until the exceedance is abated.</p>	
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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	<ul style="list-style-type: none"> Identify the source(s) of impact by comparing the results with those 	<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; 	<ul style="list-style-type: none"> Inform the Engineer and confirm notification of the non-compliance in writing;

Event	Action			
	ET	IEC	ER	CONTRACTOR
more consecutive sampling days at water sensitive receiver(s)	collected at the control stations as appropriate; <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"> • Make agreement on the mitigation proposal; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Rectify unacceptable practice; • 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.

Event	Action			
	ET	IEC	ER	CONTRACTOR
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; • 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"> • 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, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures. 	<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 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.

Event	Action			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by two or more consecutive sampling days 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 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"> 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 IC(E), ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; 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"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; 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%

**APPENDIX N
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
<i>Air Quality Impact</i>							
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO	*
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO	N/A
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"> - 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 applied to aggregate fines. - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. - Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at 	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>^</p> <p>N/A</p> <p>N/A</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.</p> <ul style="list-style-type: none"> - 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 style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p>
Noise Impact (Construction Phase)							
S4.8	<ul style="list-style-type: none"> - 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	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
S4.9	<p>Good Site Practice</p> <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. - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO	^ ^ ^ # ^ ^
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO	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

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m ³ (i.e. 1,000 m ³ per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	N/A
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 	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)	N/A N/A N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>openings to prevent leakage of material;</p> <ul style="list-style-type: none"> - excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; - adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; - loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; - any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; - construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; and - before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain. 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>^</p>
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 marinebased 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>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	^
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS	*
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:</p> <ul style="list-style-type: none"> - use of sediment traps; and - adequate maintenance of drainage systems to prevent flooding and overflow. 	<p>construction site runoff and land-based construction</p>					<p>N/A</p> <p>*</p>
S5.8.9	<p>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.</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>
S5.8.10	<p>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.</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>
S5.8.11	<p>Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m³ capacity, are recommended as a general mitigation</p>	<p>Control potential impacts from</p>	<p>CEDD's Contractors</p>	<p>Work site</p>	<p>Construction Phase</p>	<p>ProPECC PN 1/94, EIAOTM, WPCO</p>	<p>^</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	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.	construction site runoff and land-based construction				S5	
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	N/A
S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO S5	^
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m ³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	*
S5.8.15	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Discharge of surface run-off into foul sewers must always be	Control potential impacts from construction site runoff and land-based	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	prevented in order not to unduly overload the foul sewerage system.	construction					
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
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	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	*

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	rainstorm to ensure that these facilities are functioning properly at all times.	construction site runoff and land-based construction					
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	*
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
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	Control potential impacts from	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	construction and operational phases	construction site runoff and land-based construction					
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/ foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and re-active to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance	N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be	Control potential	CEDD's	Work site	Construction	ProPECC PN 1/94,	N/A

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	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.	impacts from construction site runoff and land-based construction	Contractors		Phase	EIAOTM, WPCO	
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A

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		and land-based construction					
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	N/A
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^

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S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO	^
S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO	^
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO	^

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	equipped to control these discharges.						
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	^ ^ *
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 construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats 	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A	^ ^

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	<p>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 						^
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. 	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A	^ ^ * ^ * ^

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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. 	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A	N/A N/A
S6.8.8	<p>Measure to Minimize Impact on Corals</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 	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A	^ ^ ^ ^

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	<p>commencement of coral translocation.</p> <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. 						<p>^</p> <p>^</p>
<p>S6.8.9</p> <p>S6.8.10</p>	<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. 	<p>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</p>	<p>Design Team, contractor</p>	<p>Marine and landbased works area</p>	<p>Construction phase</p>	<p>WQO</p>	<p>N/A</p> <p>^</p> <p>^</p> <p>^</p>

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S6.8.11	<p>Compensation for Vegetation Loss</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	^
Fishery Impact							
S7.7.3	<p>Measure to Control Water Quality Impact</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. 	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO	N/A
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 	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ *

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	and oil interceptors.						
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 and avoid unnecessary generation of waste. 	To achieve waste reduction	Contractor	All work sites	Construction Phase	<p>Waste Disposal Ordinance (Cap. 354)</p> <p>Land (Miscellaneous Provisions) Ordinance (Cap. 28)</p>	<p>^</p> <p>^</p> <p>^</p> <p>^</p>
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</p>	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005	^

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	regularly and updated by the Contractor.						
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	-	^ ^ ^ ^
S8.6.8	<p>Storage, Collection and Transportation of Waste (con't)</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 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase		^ ^ ^ ^

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	<p>Land (Miscellaneous Provisions) Ordinance (Cap. 28);</p> <ul style="list-style-type: none"> - Waste should be disposed of at licensed waste disposal facilities; and - Maintain records of quantities of waste generated, recycled and disposed. 						<p>^</p> <p>^</p>
S8.6.9	<p>Storage, Collection and Transportation of Waste (con't)</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>Sorting of C&D Materials</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. - The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills 	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	<p>DEVB TCW No. 6/2010</p> <p>ETWB TCW No. 33/2002</p> <p>ETWB TCW No. 19/2005</p>	<p>^</p> <p>^</p> <p>^</p>
S8.6.15 – S8.6.16	<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 	To ensure the sediment to be disposed of in an	contractor	All works areas with sediments	Construction Phase	RBRG	N/A

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	<p>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.</p> <p>- Despite exceedance of RBRG, onsite reuse of sediment under sample (TKO-EBH501 3-3.95m) as filling material after cement stabilization is also a suitable treatment. Sediment quality indicates the sediment sample (TKO-EBH501 3-3.95m) exceed RBRG for lead. While cement stabilization will immobilize metal contaminants, it is capable to treat the exceedance on lead. The stabilized material should comply with UTS of Lead and UCS. If the treated material do not comply with UTS or UCS, re-stabilization have to be undertaken to meet compliance of UTS and UCS before reusing the treated sediment as filling material. However, further agreement on final disposal/treatment on sediment under sample (TKO-EBH501 3-3.95m) has to be sought from DEP</p>	<p>authorized and least impacted way</p>		<p>concern</p>			<p>N/A</p>

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S8.6.17 – S8.6.20	<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. 	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase		N/A N/A N/A N/A
S8.6.21	<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 TC(W) No. 34/2002 shall be followed. MFC is 	To ensure the sediment to be disposed of in an authorized and least	contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	N/A

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	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.	impacted way					
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 	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

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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	<p>placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</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) 						<p>N/A</p> <p>N/A</p> <p>N/A</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.</p> <ul style="list-style-type: none"> - Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. 						N/A
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 	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	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	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; - Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple. 	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO	N/A N/A N/A
S9.6.4	<p>Indirect vibration impact</p> <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 	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 N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	on built heritage shall be submitted to AMO for comments before commencement of work.						
Landscape and Visual Impact (Construction Phase)							
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 Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification	#
Table	CM5 - Trees unavoidably affected by the works shall be transplanted where	To maximize	CEDD (via	As per	Site clearance	ETWB TC 3/2006	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
10.8.1	practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	preservation of existing trees	Contractor)	approved Tree Removal Application(s)		and as per tree protection measures in Particular Specification	
Table 10.8.1	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 10.8.1	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A	^
Table 10.8.1	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	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
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
Landfill Gas Hazard (Design and Construction Phase)							
S11.5.9	A Safety Officer, trained in the use of gas detection equipment and landfill gas-related hazards, should be present on site throughout the groundworks phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	^

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
	gases in the ranges indicated below: Methane 0-100% LEL and 0100% v/v Carbon dioxide 0-100% Oxygen 0-21%			Consultation Zone			
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 from any trench or excavation. 	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 N/A N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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"> - 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. 						<p>N/A</p> <p>N/A</p> <p>N/A</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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"> - Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conduiting should be capped at the end of each working day. - During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site. - Fire drills should be organized at not less than six monthly intervals. - The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow. - All personnel who work on the site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices (in Chinese and English) should be posted at prominent position around the site warning danger of the potential hazards. - Service runs within the Consultation Zone should be designated as "special routes"; utilities companies should be informed of this and precautionary 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 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>into confined spaces is given in Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong).</p> <ul style="list-style-type: none"> - Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person. 						N/A
<p>S11.5.26</p> <ul style="list-style-type: none"> - <p>S11.5.31</p>	<p>Monitoring</p> <ul style="list-style-type: none"> ● Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters into the area. ● For excavations deeper than 1m, measurements should be carried out: <ul style="list-style-type: none"> - 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 	<p>Protect the workers from landfill gas hazards</p>	<p>Contractor</p>	<p>Project sites within the Sai Tso Wan Landfill Consultation Zone</p>	<p>Construction phase</p>	<p>EPD's Landfill Gas Hazard Assessment Guidance Note</p>	<p>N/A</p> <p>N/A</p>

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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>excavation.</p> <ul style="list-style-type: none"> ● For excavations between 300mm and 1m deep, measurements should be carried out: <ul style="list-style-type: none"> - directly after the excavation has been completed; and - periodically whilst the excavation remains open. ● For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person. ● Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person. ● The exact frequency of monitoring should be determined prior to the commencement of works, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system. 						<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
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.	<p>construction stage within the Sai Tso Wan</p> <p>Protect the workers from landfill gas hazards</p>	Contractor	<p>Project sites within the Sai Tso Wan Landfill Consultation</p>	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note	N/A

App N - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

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
				Zone			

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor

- * 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.

N/A Not Applicable

**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 in the Reporting Period

Contract No. NE/2015/01

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
N/A	N/A	N/A	N/A	N/A	N/A

Contract No. NE/2015/02

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
N/A	N/A	N/A	N/A	N/A	N/A

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
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Contract No. NE/2015/02

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

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
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**APPENDIX P
WASTE GENERATION IN THE
REPORTING MONTH**



Monthly Summary Waste Flow Table for 2016

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											
February											
March											
April											
May											
June											
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
October	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.026
November	21.423	0.000	18.636	0.000	2.787	0.000	0.000	0.000	0.000	0.000	0.099
December											
Total	21.423	0.000	18.636	0.000	2.787	0.000	0.000	0.000	0.000	0.500	0.174

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

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

(2) The waste flow table shall also include C&D materials that are not specified in the Contract to be imported for use at the Site

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

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

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

(6) Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m³; soil = 2.0 tonnes/m³

excavated: rock = 2.0 tonnes/m³; soil = 1.8 tonnes/m³; broken concrete and bitumen = 2.4 tonnes/m³, soil and rock = 1.9 tonnes/m³

C&D Waste = 0.9 tonnes/m³; bentonite slurry = 2.8 tonnes/m³

Diesel density: 0.8kg/l

(7) Numbers are rounded off to the nearest three decimal places

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

(9) The "Hard Rock and Large Broken Concrete" were disposed as public fill

(10) The amount in "Disposed as Public Fill" included the "Hard Rock and Large Broken Concrete" disposed as public fill

Monthly Summary Waste Flow Table for 2016 Year

Contract No. NE/2015/02

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	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Feb	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mar	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Apr	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
May	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
June	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
SUB-TOTAL	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Jul	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Aug	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00394
Sep	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00154
Oct	0.01872	0.00000	0.00000	0.00000	0.01872	0.00000	0.00000	0.00000	0.00000	0.00000	0.97326
Nov	0.23214	0.00000	0.00000	0.0000	0.23214	0.00000	0.00000	0.00000	0.00000	0.00000	0.43900
Dec											
TOTAL	0.25086	0.00000	0.00000	0.00000	0.25086	0.00000	0.00000	0.00000	0.00000	0.00000	1.41774

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	Dec-16	Jan-17	Feb-17
Lam Tin Interchange			
Excavation for Tunnel Adit	[Redacted]		
Haul Road construction	[Redacted]		
Slope Feature no. 11NE-D/C119 (along LYM Road)	[Redacted]		
Pipe Pile Wall - Area 2A		[Redacted]	
Site Formation - Area 1G1		[Redacted]	
Setup Conveyor System			[Redacted]
Main Tunnel			
Tunnel Team Mobilisation Works			[Redacted]
TKO Interchange			
Haul Road construction	[Redacted]		
Temporary Bargeing Facilities		[Redacted]	
BM CPC Bridge Tempoyary Diversion		[Redacted]	

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016				2017
										Oct	Nov	Dec	Jan	
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works														
Project Commencement and Completion														
PC000100	Project Start Date	P2-Cal.1	0	29-Jul-16 A	29-Jul-16 A				100%					
Site Access Date														
SA000100	Portion I	P2-Cal.1	53	29-Jul-16 A	06-Sep-16 A				100%					
SA000200	Portion II	P2-Cal.1	0	29-Jul-16 A		PC000100	CL001400		100%					
SA000300	Portion III	P2-Cal.1	0	29-Jul-16 A		PC000100	CL000100		100%					
SA000400	Portion IV	P2-Cal.1	0	29-Jul-16 A		PC000100	CL004500A		100%					
SA000500	Portion V	P2-Cal.1	0	29-Jul-16 A		PC000100	CL004500A		100%					
SA000600	Portion VI	P2-Cal.1	0	29-Jul-16 A		PC000100	CL004500A		100%					
SA000700	Portion VII	P2-Cal.1	0	29-Jul-16 A		PC000100	CM000100		100%					
SA000800	Portion VIII	P2-Cal.1	0	29-Jul-16 A		PC000100	CL009900		100%					
SA000900	Portion IX	P2-Cal.1	0	29-Jul-16 A		PC000100	CM000100		100%					
Preliminaries, Submission, Contractor's Design Submission and Approval														
Contractor's Design Submission and Approval														
E&M Design														
DE000100	Prepare and Submit Design Parameters for E&M Works	P2-Cal.1	7	29-Aug-16 A	05-Sep-16 A	FD000400	DE000500, DE000200, DE000300		100%					
DE000200	Review and Discuss Design Parameters for E&M Works	P2-Cal.1	10	06-Sep-16 A	30-Sep-16 A	DE000100			100%					
DE000300	Resubmit Design Parameters for E&M Works	P2-Cal.1	7	01-Oct-16 A	26-Oct-16	DE000200	DE000400	101	0%					
DE000400	Accept Design Parameters for E&M Works	P2-Cal.1	4	27-Oct-16	30-Oct-16	DE000300	CL001000	101	0%					
DE000500	Prepare and Submit Schematic Design for E&M Works (DSD Transformer Room)	P2-Cal.1	14	14-Sep-16 A	03-Oct-16 A	DE000100	DE000600		100%					
DE000600	Review and Discuss Schematic Design for E&M Works (DSD Transformer Room)	P2-Cal.1	14	04-Oct-16 A	31-Oct-16	DE000500	DE000700	84	14.29%					
DE000700	Resubmit Schematic Design for E&M Works (DSD Transformer Room)	P2-Cal.1	9	01-Nov-16	09-Nov-16	DE000600	DE000800	84	0%					
DE000800	Accept Schematic Design for E&M Works (DSD Transformer Room)	P2-Cal.1	7	10-Nov-16	16-Nov-16	DE000700	CL001000	84	0%					
DE000900	Prepare and Submit Detail Design for E&M Works (DSD Transformer Room)	P2-Cal.1	21	14-Sep-16 A	13-Oct-16 A	DE000100	DE001000		100%					
DE001000	Review and Discuss Detail Design for E&M Works (DSD Transformer Room)	P2-Cal.1	14	14-Oct-16 A	28-Oct-16	DE000900	DE001100	87	35.71%					
DE001100	Resubmit Detail Design for E&M Works (DSD Transformer Room)	P2-Cal.1	9	29-Oct-16	06-Nov-16	DE001000	DE001200	87	0%					
DE001200	Accept Detail Design for E&M Works (DSD Transformer Room)	P2-Cal.1	7	07-Nov-16	13-Nov-16	DE001100	CL001000	87	0%					
DE001300	Prepare and Submit Schematic Design for E&M Works (Road P2 Structure)	P2-Cal.1	21	22-Dec-16	11-Jan-17	PC000100	DE001700, DE001400	347	0%					
DE001400	Review and Discuss Schematic Design for E&M Works (Road P2 Structure)	P2-Cal.1	21	12-Jan-17	01-Feb-17	DE001300	DE001500	373	0%					
DE001700	Prepare and Submit Detail Design for E&M Works (Road P2 Structure)	P2-Cal.1	27	28-Dec-16	23-Jan-17	DE001300	DE001800	347	0%					
Foundation Design														
FD000100	Prepare and Submit Design Memorandum for Foundation of Road P2 Structures	P2-Cal.1	14	12-Aug-16 A	26-Aug-16 A	PC000100	FD000200		100%					
FD000200	Review and Discuss Design Memorandum for Foundation of Road P2 Structures	P2-Cal.1	14	27-Aug-16 A	15-Sep-16 A	FD000100	FD000300		100%					
FD000300	Resubmit Design Memorandum for Foundation of Road P2 Structures	P2-Cal.1	10	15-Sep-16 A	15-Sep-16 A	FD000200	FD000400		100%					
FD000400	Accept Design Memorandum for Foundation of Road P2 Structures	P2-Cal.1	7	15-Sep-16 A	15-Sep-16 A	FD000300	FD000500, DE000100		100%					
FD000500	Prepare and Submit AIP Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	22	30-Aug-16 A	23-Sep-16 A	FD000400	FD000600		100%					

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

3 Months Rolling Programme
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
FD000600	Review and Discuss AIP Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	11	24-Sep-16 A	29-Sep-16 A	FD000500	FD000700		100%				
FD000700	Resubmit AIP Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	7	30-Sep-16 A	08-Oct-16 A	FD000600	FD000800		100%				
FD000800	Accept AIP Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	4	09-Oct-16 A	13-Oct-16 A	FD000700	FD000900, MP000100, FD001000		100%				
FD000900	Prepare and Submit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	14	05-Nov-16	18-Nov-16	FD000800		515	0%				
FD001000	Review and Discuss AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	14	19-Nov-16	02-Dec-16	FD000900	FD001100	515	0%				
FD001100	Resubmit AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	10	03-Dec-16	12-Dec-16	FD001000	FD001200	515	0%				
FD001200	Accept AIP Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	7	13-Dec-16	19-Dec-16	FD001100	FD001700	515	0%				
FD001300	Prepare and Submit DDA Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	14	28-Sep-16 A	12-Oct-16 A	FD000800	FD001400		100%				
FD001400	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	14	13-Oct-16 A	27-Oct-16	FD001300	FD001500	68	42.86%				
FD001500	Resubmit DDA Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	14	28-Oct-16	10-Nov-16	FD001400	FD001600	68	0%				
FD001600	Accept DDA Submission for Foundation of Road P2 Structure (Existing Land Section)	P2-Cal.1	14	11-Nov-16	24-Nov-16	FD001500	CL004700	68	0%				
FD001700	Prepare and Submit DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	21	20-Dec-16	09-Jan-17	FD001200	FD001800	515	0%				
FD001800	Review and Discuss DDA Submission for Foundation of Road P2 Structure (Reclaimed Section)	P2-Cal.1	21	10-Jan-17	30-Jan-17	FD001700	FD001900	515	0%				
Major Temporary Works Design		P2-Cal.1	135	09-Aug-16 A	05-Jan-17			847					Major Temporary Works Des
TD000100	Prepare and Submit Design of Temporary Steel Cofferdam	P2-Cal.1	21	17-Aug-16 A	13-Oct-16 A	PC000100	TD000120, TD000200		100%				
TD000120	Review and Discuss Design of Temporary Steel Cofferdam	P2-Cal.1	18	14-Oct-16 A	01-Nov-16	TD000100	TD000140	44	27.78%				
TD000140	Resubmit Design of Temporary Steel Cofferdam	P2-Cal.1	11	02-Nov-16	12-Nov-16	TD000120	TD000160	44	0%				
TD000160	Accept Design of Temporary Steel Cofferdam	P2-Cal.1	7	13-Nov-16	19-Nov-16	TD000140	CM000700	44	0%				
TD000200	Prepare and Submit Design of Double Water Gate System	P2-Cal.1	21	24-Aug-16 A	13-Oct-16 A	TD000100	TD000400, TD000220		100%				
TD000220	Review and Discuss Design of Double Water Gate System	P2-Cal.1	18	14-Oct-16 A	01-Nov-16	TD000200	TD000240	99	27.78%				
TD000240	Resubmit Design of Double Water Gate System	P2-Cal.1	14	02-Nov-16	15-Nov-16	TD000220	TD000260	99	0%				
TD000260	Accept Design of Double Water Gate System	P2-Cal.1	7	16-Nov-16	22-Nov-16	TD000240	MP000300	99	0%				
TD000300	Prepare and Submit ELS Design for Re-Provisioning of DSD Transformer Room	P2-Cal.1	14	09-Aug-16 A	23-Aug-16 A	PC000100	TD000320		100%				
TD000320	Review and Discuss ELS Design for Re-Provisioning of DSD Transformer Room	P2-Cal.1	10	24-Aug-16 A	15-Oct-16 A	TD000300	TD000340		100%				
TD000340	Resubmit ELS Design for Re-Provisioning of DSD Transformer Room	P2-Cal.1	7	16-Oct-16 A	24-Oct-16	TD000320	TD000360	9	28.57%				
TD000360	Accept ELS Design for Re-Provisioning of DSD Transformer Room	P2-Cal.1	4	25-Oct-16	28-Oct-16	TD000340	MP000200, CL001000	9	0%				
TD000400	Prepare and Submit ELS Design for Retaining Wall of P2-A and P2-B	P2-Cal.1	14	26-Aug-16 A	09-Sep-16 A	TD000200	TD000420		100%				
TD000420	Review and Discuss ELS Design for Retaining Wall of P2-A and P2-B	P2-Cal.1	10	10-Sep-16 A	20-Sep-16 A	TD000400	TD000440		100%				
TD000440	Resubmit ELS Design for Retaining Wall of P2-A and P2-B	P2-Cal.1	10	21-Sep-16 A	31-Oct-16	TD000420	TD000460	303	0%				
TD000460	Accept ELS Design for Retaining Wall of P2-A and P2-B	P2-Cal.1	6	01-Nov-16	06-Nov-16	TD000440	TD000500, CL001600, CL001800	303	0%				
TD000500	Prepare and Submit ELS Design for Retaining Wall of SR2-A and SR2-B	P2-Cal.1	14	12-Sep-16 A	24-Oct-16	TD000460	TD000800, TD000520	291	64.29%				
TD000520	Review and Discuss ELS Design for Retaining Wall of SR2-A and SR2-B	P2-Cal.1	14	25-Oct-16	07-Nov-16	TD000500	TD000540	882	0%				
TD000540	Resubmit ELS Design for Retaining Wall of SR2-A and SR2-B	P2-Cal.1	14	08-Nov-16	21-Nov-16	TD000520	TD000560	882	0%				
TD000560	Accept ELS Design for Retaining Wall of SR2-A and SR2-B	P2-Cal.1	10	22-Nov-16	01-Dec-16	TD000540	CL010000	882	0%				
TD000600	Prepare and Submit ELS Design for U-Trough A & B (SR2 CH182 - CH250)	P2-Cal.1	21	06-Oct-16 A	28-Oct-16	PC000100	TD000620	319	57.14%				
TD000620	Review and Discuss ELS Design for U-Trough A & B (SR2 CH110 - CH250)	P2-Cal.1	12	29-Oct-16	09-Nov-16	TD000600	TD000640	319	0%				
TD000640	Resubmit ELS Design for U-Trough A & B (SR2 CH110 - CH250)	P2-Cal.1	7	10-Nov-16	16-Nov-16	TD000620	TD000660	319	0%				

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

3 Months Rolling Programme
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
TD000660	Accept ELS Design for U-Trough A & B (SR2 CH110 - CH250)	P2-Cal.1	4	17-Nov-16	20-Nov-16	TD000640	CL008600	319	0%				Accept ELS Design for U-Trough A & B (SR2 CH110 - CH250)
TD000700	Prepare and Submit ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.1	21	29-Nov-16	19-Dec-16	PC000100	TD000720, TD000720	120	0%				Prepare and Submit ELS Design for U-Trough A & B (P2 CH318 - CH375)
TD000720	Review and Discuss ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.1	10	20-Dec-16	29-Dec-16	TD000700, TD000700	TD000740, TD000740	120	0%				Review and Discuss ELS Design for U-Trough A & B (P2 CH318 - CH375)
TD000740	Resubmit ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.1	4	30-Dec-16	02-Jan-17	TD000720, TD000720	TD000760, TD000760	120	0%				Resubmit ELS Design for U-Trough A & B (P2 CH318 - CH375)
TD000760	Accept ELS Design for U-Trough A & B (P2 CH318 - CH375)	P2-Cal.1	3	03-Jan-17	05-Jan-17	TD000740, TD000740	CL007100, TD000900, CL007700, TD000820	120	0%				Accept ELS Design for U-Trough A & B (P2 CH318 - CH375)
TD000800	Prepare and Submit ELS Design for U-Trough A & B (P2 CH423 - CH500)	P2-Cal.1	21	07-Oct-16 A	28-Oct-16	TD000500	TD000820	291	57.14%				Prepare and Submit ELS Design for U-Trough A & B (P2 CH423 - CH500)
TD000820	Review and Discuss ELS Design for U-Trough A & B (P2 CH375 - CH500)	P2-Cal.1	12	29-Oct-16	09-Nov-16	TD000800	TD000840	291	0%				Review and Discuss ELS Design for U-Trough A & B (P2 CH375 - CH500)
TD000840	Resubmit ELS Design for U-Trough A & B (P2 CH363 - CH500)	P2-Cal.1	7	10-Nov-16	16-Nov-16	TD000820	TD000860	291	0%				Resubmit ELS Design for U-Trough A & B (P2 CH363 - CH500)
TD000860	Accept ELS Design for U-Trough A & B (P2 CH363 - CH500)	P2-Cal.1	4	17-Nov-16	20-Nov-16	TD000840	CL008100	291	0%				Accept ELS Design for U-Trough A & B (P2 CH363 - CH500)
TD001200	Design of sediment/ marine treatment area	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	CM001600, TD001300	139	0%				Design of sediment/ marine treatment area
Procurement of Major Material		P2-Cal.1	800	01-Oct-16 A	15-Dec-18			60					
MP000100	Procurement and Delivery of Steel H-Pile	P2-Cal.1	800	07-Oct-16 A	15-Dec-18	FD000800	CL009100	60	1.63%				Procurement and Delivery of Steel H-Pile
MP000200	Procurement and Delivery of ELS Wailing & Struts Members	P2-Cal.1	800	01-Oct-16 A	15-Dec-18	TD000360	CL004000	60	1.63%				Procurement and Delivery of ELS Wailing & Struts Members
MP000300	Offsite Fabrication of Double Water Gate System	P2-Cal.1	92	01-Oct-16 A	01-Dec-16	TD000260, SL002030	CM000800	99	90.22%				Offsite Fabrication of Double Water Gate System
MP000500	Cast-in holding down bolt for Road Works	P2-Cal.1	60	31-Oct-16	29-Dec-16	PC000100	CL007300, CL006700, CL009100	-20	0%				Cast-in holding down bolt for Road Works
Major Construction Works Method Statement		P2-Cal.1	194	29-Jul-16 A	06-Mar-17			118					
MS000100	Prepare and Submit Method Statement for Installation of Silt Curtain	P2-Cal.1	14	29-Jul-16 A	09-Aug-16 A	PC000100	MS000120		100%				Prepare and Submit Method Statement for Installation of Silt Curtain
MS000120	Review and Discuss Method Statement for Installation of Silt Curtain	P2-Cal.1	10	10-Aug-16 A	30-Oct-16	MS000100	MS000140	33	0%				Review and Discuss Method Statement for Installation of Silt Curtain
MS000140	Resubmit Method Statement for Installation of Silt Curtain	P2-Cal.1	7	31-Oct-16	06-Nov-16	MS000120	MS000160	33	0%				Resubmit Method Statement for Installation of Silt Curtain
MS000160	Accept Method Statement for Installation of Silt Curtain	P2-Cal.1	4	07-Nov-16	10-Nov-16	MS000140	CM000600	33	0%				Accept Method Statement for Installation of Silt Curtain
MS000200	Prepare and Submit Method Statement for Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	21	01-Nov-16	21-Nov-16	PC000100	MS000300, MS000220	3	0%				Prepare and Submit Method Statement for Installation and Removal of Temporary Steel Cofferdam
MS000220	Review and Discuss Method Statement for Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	18	22-Nov-16	09-Dec-16	MS000200	MS000240	3	0%				Review and Discuss Method Statement for Installation and Removal of Temporary Steel Cofferdam
MS000240	Resubmit Method Statement for Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	14	10-Dec-16	23-Dec-16	MS000220	MS000260	3	0%				Resubmit Method Statement for Installation and Removal of Temporary Steel Cofferdam
MS000260	Accept Method Statement for Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	7	24-Dec-16	30-Dec-16	MS000240	MS000900, CM000700	3	0%				Accept Method Statement for Installation and Removal of Temporary Steel Cofferdam
MS000300	Prepare and Submit Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.1	21	08-Nov-16	28-Nov-16	MS000200	MS000320	63	0%				Prepare and Submit Method Statement for Installation, Operation and Removal of Water Gate
MS000320	Review and Discuss Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.1	18	29-Nov-16	16-Dec-16	MS000300	MS000340	63	0%				Review and Discuss Method Statement for Installation, Operation and Removal of Water Gate
MS000340	Resubmit Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.1	14	17-Dec-16	30-Dec-16	MS000320	MS000360	63	0%				Resubmit Method Statement for Installation, Operation and Removal of Water Gate
MS000360	Accept Method Statement for Installation, Operation and Removal of Water Gate	P2-Cal.1	7	31-Dec-16	06-Jan-17	MS000340	CM000800	63	0%				Accept Method Statement for Installation, Operation and Removal of Water Gate
MS000400	Prepare and Submit Method Statement for Installation of Socketed H-Pile	P2-Cal.1	14	09-Sep-16 A	23-Oct-16	PC000100	MS000500, MS000420	79	71.43%				Prepare and Submit Method Statement for Installation of Socketed H-Pile
MS000420	Review and Discuss Method Statement for Installation of Socketed H-Pile	P2-Cal.1	10	24-Oct-16	02-Nov-16	MS000400	MS000440	79	0%				Review and Discuss Method Statement for Installation of Socketed H-Pile
MS000440	Resubmit Method Statement for Installation of Socketed H-Pile	P2-Cal.1	7	03-Nov-16	09-Nov-16	MS000420	MS000460	79	0%				Resubmit Method Statement for Installation of Socketed H-Pile
MS000460	Accept Method Statement for Installation of Socketed H-Pile	P2-Cal.1	4	10-Nov-16	13-Nov-16	MS000440	CL004700	79	0%				Accept Method Statement for Installation of Socketed H-Pile
MS000500	Prepare and Submit Method Statement for Construction of Retaining Wall Structure	P2-Cal.1	14	26-Aug-16 A	08-Sep-16 A	MS000400	MS000520		100%				Prepare and Submit Method Statement for Construction of Retaining Wall Structure
MS000520	Review and Discuss Method Statement for Construction of Retaining Wall Structure	P2-Cal.1	10	09-Sep-16 A	26-Oct-16	MS000500	MS000540	118	30%				Review and Discuss Method Statement for Construction of Retaining Wall Structure
MS000540	Resubmit Method Statement for Construction of Retaining Wall Structure	P2-Cal.1	7	27-Oct-16	02-Nov-16	MS000520	MS000560	118	0%				Resubmit Method Statement for Construction of Retaining Wall Structure
MS000560	Accept Method Statement for Construction of Retaining Wall Structure	P2-Cal.1	4	03-Nov-16	06-Nov-16	MS000540	CL009900, MS000600, CL001600, MS000620	118	0%				Accept Method Statement for Construction of Retaining Wall Structure
MS000600	Prepare and Submit Method Statement for Excavation and ELS of U-Troughs	P2-Cal.1	21	07-Nov-16	27-Nov-16	MS000560	MS000620	118	0%				Prepare and Submit Method Statement for Excavation and ELS of U-Troughs

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

3 Months Rolling Programme
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
MS000620	Review and Discuss Method Statement for Excavation and ELS of U-Troughs	P2-Cal.1	18	28-Nov-16	15-Dec-16	MS000600	MS000640	118	0%				Review and Discuss Method Statement for Excavation
MS000640	Resubmit Method Statement for Excavation and ELS of U-Troughs	P2-Cal.1	14	16-Dec-16	29-Dec-16	MS000620	MS000660	118	0%				Resubmit Method Statement for Exca
MS000660	Accept Method Statement for Excavation and ELS of U-Troughs	P2-Cal.1	7	30-Dec-16	05-Jan-17	MS000640	CL007200, CL008700, CL009200, CL008800, MS000800, CL007200	118	0%				Accept Method Statement fo
MS000700	Method Statement for Construction of U-Troughs Structure	P2-Cal.1	60	06-Jan-17	06-Mar-17	MS000660		118	0%				
General Submission		P2-Cal.1	156	29-Jul-16 A	30-Dec-16			1750					General Submission
GS000100	Submit Site Organization Chart	P2-Cal.1	7	13-Sep-16 A	20-Sep-16 A	PC000100	PC000200		100%				Chart
GS000200	Prepare/Submit the First Programme	P2-Cal.1	7	29-Jul-16 A	05-Aug-16 A	PC000100	GS000300		100%				Programme
GS000300	Acceptance of the First Programme	P2-Cal.1	30	06-Aug-16 A	17-Sep-16 A	GS000200	GS000400		100%				Programme
GS000400	Prepare/Submit the Accepted Programme	P2-Cal.1	60	18-Sep-16 A	17-Nov-16	GS000300	PC000200	93	51.67%				Prepare/Submit the Accepted Programme
GS000500	Prepare/Submit the First Three Month Rolling Programme	P2-Cal.1	7	18-Aug-16 A	24-Aug-16 A	PC000100	PC000200		100%				
GS000600	Prepare/Submit the Draft Environmental Management Plan	P2-Cal.1	7	29-Jul-16 A	08-Aug-16 A	PC000100	GS001600, GS000700		100%				
GS000700	Prepare/Submit the Environmental Management Plan	P2-Cal.1	30	09-Aug-16 A	19-Sep-16 A	GS000600	PC000200		100%				Environmental Management Plan
GS000800	Prepare/Submit the Waste Management Plan	P2-Cal.1	30	19-Aug-16 A	19-Sep-16 A	PC000100	PC000200		100%				Management Plan
GS000900	Prepare/Submit the SMP for Trip Ticket (TTS)	P2-Cal.1	45	29-Jul-16 A	22-Aug-16 A	PC000100	PC000200		100%				
GS001000	Application of Road Excavation Permit (XP)	P2-Cal.1	120	25-Aug-16 A	22-Dec-16	PC000100	CL005800, CL006600, CL007200, CL006900, CL010000, CL001600, PC000200	58	46.67%				Application of Road Excavation Permit (XP)
GS001100	Prepare/Submit the Temporary Drainage Management Plan to DSD (DSD)	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	CL006900, CL010000, CL001600, PC000200	35	0%				Prepare/Submit the Temporary Drain
GS001200	Prepare/Submit the PR Plan	P2-Cal.1	21	01-Nov-16	21-Nov-16	PC000100	PC000200	89	0%				Prepare/Submit the PR Plan
GS001300	Prepare/Submit the Hoarding Plan	P2-Cal.1	14	10-Aug-16 A	24-Aug-16 A	PC000100	PC000200		100%				
GS001400	Nominate/Submit the Contract Webpage	P2-Cal.1	21	26-Aug-16 A	08-Sep-16 A	PC000100	GS001500		100%				
GS001500	Produce Webpage for the acceptance of PM	P2-Cal.1	14	09-Sep-16 A	28-Oct-16	GS001400	PC000200	113	35.71%				Produce Webpage for the acceptance of PM
GS001600	Prepare/Submit the Draft Safety Plan	P2-Cal.1	7	29-Jul-16 A	02-Aug-16 A	GS000600	GS001700		100%				
GS001700	Prepare/Submit the Safety Plan	P2-Cal.1	28	03-Aug-16 A	26-Aug-16 A	GS001600	PC000200		100%				
GS001800	Prepare/Submit the Site Traffic Safety Management Plan	P2-Cal.1	30	01-Sep-16 A	30-Oct-16	PC000100	GS004300, PC000200	55	63.33%				Prepare/Submit the Site Traffic Safety Management Plan
GS001900	Prepare/Submit the Security System	P2-Cal.1	14	06-Aug-16 A	20-Aug-16 A	PC000100	PC000200		100%				
GS002000	Prepare/Submit the Weather Protection Scheme	P2-Cal.1	30	17-Aug-16 A	26-Oct-16	PC000100	PC000200	115	76.67%				Prepare/Submit the Weather Protection Scheme
GS002100	Prepare/Submit the Interface Management Plan	P2-Cal.1	60	01-Sep-16 A	01-Dec-16	PC000100	PC000200	79	28.33%				Prepare/Submit the Interface Management Plan
GS002200	Prepare/Submit the Risk Management Plan	P2-Cal.1	60	17-Aug-16 A	16-Nov-16	PC000100	PC000200	94	53.33%				Prepare/Submit the Risk Management Plan
GS002300	Prepare/Submit the Subcontractor Management Plan	P2-Cal.1	30	05-Aug-16 A	05-Sep-16 A	PC000100	PC000200		100%				Management Plan
GS002400	Prepare/Submit the Emergency Unit	P2-Cal.1	14	08-Aug-16 A	22-Aug-16 A	PC000100	PC000200		100%				
GS002500	Setup Site Liaison Group (SLG)	P2-Cal.1	30	05-Aug-16 A	05-Sep-16 A	PC000100	PC000200		100%				
GS002600	Setup Community Liaison Group (CLG)	P2-Cal.1	30	29-Jul-16 A	01-Sep-16 A	GS003900, GS003700, GS003400			100%				
GS002700	Submit the Contractor PII Policy	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	PC000200	0	0%				Submit the Contractor PII Policy
GS002800	Submit the ICE PII Policy	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	PC000200	0	0%				Submit the ICE PII Policy
GS002900	Submit the Designer PII Policy	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	PC000200	0	0%				Submit the Designer PII Policy
GS003000	Submit Proposed Contractor's holding nursery for transplanting trees	P2-Cal.1	35	15-Aug-16 A	19-Sep-16 A	GS001100	GS0003100, CL016200		100%				's holding nursery for transplanting trees
GS003200	Apply Type 1 and type 2 sediment disposal permits	P2-Cal.1	60	29-Jul-16 A	26-Oct-16	PC000100	CM001600	204	88.33%				Apply Type 1 and type 2 sediment disposal permits
GS003300	Submit Sediment management plan	P2-Cal.1	60	01-Nov-16	30-Dec-16	PC000100	GS003500, GS003700, GS003400	36	0%				Submit Sediment management plan

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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
GS003400	Submit Environmental management plan (EPD)	P2-Cal.1	36	15-Aug-16 A	19-Sep-16 A	GS003300	CM000600, GS002600		100%				
GS003500	Submit Environmental organization plan (EPD)	P2-Cal.1	35	29-Jul-16 A	07-Sep-16 A	GS003300	CM000600, GS002600		100%				
GS003600	Submit Coral translocation (EPD)	P2-Cal.1	35	01-Nov-16	05-Dec-16	PC000100	GS002600, CM000600	8	0%				
GS003700	Submit Noise mitigation plan (EPD)	P2-Cal.1	35	29-Jul-16 A	15-Sep-16 A	GS003300	GS002600, CM000600		100%				
GS003800	Submit Landscape mitigation plan (EPD) (by others)	P2-Cal.1	35	01-Nov-16	05-Dec-16	PC000100	CM000600	8	0%				
GS003900	Submit Slit curtain deployment plan (EPD)	P2-Cal.1	30	29-Jul-16 A	03-Aug-16 A	PC000100	GS002600, CM000600		100%				
GS004000	Submit Construction Impact Assessment (CIA) Report	P2-Cal.1	28	01-Nov-16	28-Nov-16	PC000100	CM000200D	171	0%				
GS004100	Submit Tree Transplanting Schedule	P2-Cal.1	60	27-Sep-16 A	07-Dec-16	PC000100, SL000650	CL016100, CL016200, CL016300, PL000900	11	38.33%				
GS004200	Apply Chemical Waste Producer License	P2-Cal.1	30	29-Jul-16 A	23-Aug-16 A	PC000100	PL000900		100%				
GS004300	Apply Marine Notice (MD)	P2-Cal.1	30	29-Jul-16 A	04-Aug-16 A	GS001800	CM000600		100%				
Subletting Package		P2-Cal.1	138	29-Jul-16 A	20-Dec-16			554					
SL000100	Prepare Traffic Consultant Tender Document for PM Acceptance	P2-Cal.1	5	29-Jul-16 A	19-Aug-16 A	PC000100	SL000110		100%				
SL000110	Invitation, Submission and Opening of Tender for Traffic Consultant	P2-Cal.1	5	20-Aug-16 A	22-Aug-16 A	SL000100	SL000120		100%				
SL000120	Tender Interview and Recommendation to PM for Traffic Consultant	P2-Cal.1	5	23-Aug-16 A	07-Sep-16 A	SL000110	SL000150		100%				
SL000150	Traffic Consultant Award	P2-Cal.1	0		14-Sep-16 A	SL000120	TT000200		100%				
SL000200	Prepare Marine Traffic Consultant Tender Document for PM Acceptance	P2-Cal.1	10	18-Aug-16 A	31-Aug-16 A	PC000100	SL000210		100%				
SL000210	Invitation, Submission and Opening of Tender for Marine Traffic Consultant	P2-Cal.1	10	01-Sep-16 A	05-Sep-16 A	SL000200	SL000220		100%				
SL000220	Tender Interview and Recommendation to PM for Marine Traffic Consultant	P2-Cal.1	10	06-Sep-16 A	13-Sep-16 A	SL000210	SL000250		100%				
SL000250	Marine Traffic Consultant Award	P2-Cal.1	0		06-Oct-16 A	SL000220	CM000500		100%				
SL000300	Prepare Independent Checking Engineer Services Tender Document for PM Acceptance	P2-Cal.1	10	29-Jul-16 A	09-Aug-16 A	PC000100	SL000310		100%				
SL000310	Invitation, Submission and Opening of Tender for Independent Checking Engineer Services	P2-Cal.1	10	10-Aug-16 A	22-Aug-16 A	SL000300	SL000320		100%				
SL000320	Tender Interview and Recommendation to PM for Independent Checking Engineer Services	P2-Cal.1	10	23-Aug-16 A	26-Sep-16 A	SL000310	SL000350		100%				
SL000350	Independent Checking Engineer Services Award	P2-Cal.1	0		28-Sep-16 A	SL000320	CL000100		100%				
SL000400	Prepare Utility Detection Tender Document for PM Acceptance	P2-Cal.1	5	29-Jul-16 A	12-Aug-16 A	PC000100	SL000410		100%				
SL000410	Invitation, Submission and Opening of Tender for Utility Detection	P2-Cal.1	5	13-Aug-16 A	30-Aug-16 A	SL000400	SL000420		100%				
SL000420	Tender Interview and Recommendation to PM for Utility Detection	P2-Cal.1	5	31-Aug-16 A	09-Sep-16 A	SL000410	SL000450		100%				
SL000450	Utility Detection Award	P2-Cal.1	0		14-Sep-16 A	SL000420	CL001400, CL004300		100%				
SL000500	Prepare Site Security Guard Tender Document for PM Acceptance	P2-Cal.1	10	29-Jul-16 A	09-Aug-16 A	PC000100	SL000505		100%				
SL000505	Prepare Site Security Guard Tender Document for PM Acceptance (Re-tender)	P2-Cal.1	10	02-Sep-16 A	20-Oct-16	SL000500	SL000510	143	90%				
SL000510	Invitation, Submission and Opening of Tender for Site Security Guard	P2-Cal.1	10	21-Oct-16	30-Oct-16	SL000505	SL000520	143	0%				
SL000520	Tender Interview and Recommendation to PM for Site Security Guard	P2-Cal.1	10	31-Oct-16	09-Nov-16	SL000510	SL000550	143	0%				
SL000550	Site Security Guard Award	P2-Cal.1	0		09-Nov-16	SL000520	PL000980	143	0%				
SL000600	Prepare Landscaping Works including Tree Survey Tender Document for PM Acceptance	P2-Cal.1	10	01-Aug-16 A	12-Aug-16 A	PC000100	SL000610		100%				
SL000610	Invitation, Submission and Opening of Tender for Landscaping Works including Tree Survey	P2-Cal.1	10	13-Aug-16 A	25-Aug-16 A	SL000600	SL000620		100%				
SL000620	Tender Interview and Recommendation to PM for Landscaping Works including Tree Survey	P2-Cal.1	10	26-Aug-16 A	17-Sep-16 A	SL000610	SL000650		100%				
SL000650	Landscaping Works including Tree Survey Award	P2-Cal.1	0		26-Sep-16 A	SL000620	CL016200, CL016300, GS004100, SL000710		100%				
SL000700	Prepare Temporary Power and Water Supply Tender Document for PM Acceptance	P2-Cal.1	5	29-Jul-16 A	12-Aug-16 A	PC000100			100%				

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3 Months Rolling Programme
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
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Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
SL000710	Invitation, Submission and Opening of Tender for Temporary Power and Water Supply	P2-Cal.1	5	13-Aug-16 A	12-Sep-16 A	SL000700	SL000715		100%				
SL000715	Re-Invitation, Submission and Opening of Tender for Temporary Power and Water Supply due to only 2 tenders return	P2-Cal.1	5	13-Sep-16 A	04-Oct-16 A	SL000710	SL000720, SL000720		100%				
SL000720	Tender Interview and Recommendation to PM for Temporary Power and Water Supply	P2-Cal.1	5	05-Oct-16 A	18-Oct-16 A	SL000715, SL000715	SL000750		100%				
SL000750	Temporary Power and Water Supply Award	P2-Cal.1	0		31-Oct-16	SL000720	CL004500A	36	0%				
SL000800	Prepare Design Consultancy Service Tender Document for PM Acceptance	P2-Cal.1	10	23-Aug-16 A	08-Sep-16 A	PC000100	SL000810		100%				
SL000810	Invitation, Submission and Opening of Tender for Design Consultancy Service	P2-Cal.1	10	02-Sep-16 A	07-Sep-16 A	SL000800	SL000820		100%				
SL000820	Tender Interview and Recommendation to PM for Design Consultancy Service	P2-Cal.1	10	08-Sep-16 A	13-Sep-16 A	SL000810	SL000850		100%				
SL000850	Design Consultancy Service Award	P2-Cal.1	0		26-Sep-16 A	SL000820	CL002300		100%				
SL000900	Prepare Ground Investigation Tender Document for PM Acceptance	P2-Cal.1	5	03-Aug-16 A	17-Aug-16 A	PC000100	SL000910		100%				
SL000910	Invitation, Submission and Opening of Tender for Ground Investigation	P2-Cal.1	5	18-Aug-16 A	25-Aug-16 A	SL000900	SL000920		100%				
SL000920	Tender Interview and Recommendation to PM for Ground Investigation	P2-Cal.1	5	26-Aug-16 A	09-Sep-16 A	SL000910	SL000950		100%				
SL000950	Ground Investigation Award	P2-Cal.1	0		14-Sep-16 A	SL000920	CL000500		100%				
SL001000	Prepare Instrumentation Monitoring Document for PM Acceptance	P2-Cal.1	10	03-Aug-16 A	17-Aug-16 A	PC000100	SL001010		100%				
SL001010	Invitation, Submission and Opening of Tender for Instrumentation Monitoring	P2-Cal.1	10	18-Aug-16 A	29-Sep-16 A	SL001000	SL001020		100%				
SL001020	Tender Interview and Recommendation to PM for Instrumentation Monitoring	P2-Cal.1	10	30-Sep-16 A	18-Oct-16 A	SL001010	SL001050		100%				
SL001050	Instrumentation Monitoring Award	P2-Cal.1	0		31-Oct-16	SL001020	CM001200	157	0%				
SL001100	Prepare Tender for Site Office Document for PM Acceptance	P2-Cal.1	10	04-Aug-16 A	01-Sep-16 A	PC000100	SL001110		100%				
SL001110	Invitation, Submission and Opening of Tender for Site Office	P2-Cal.1	10	02-Sep-16 A	12-Sep-16 A	SL001100	SL001120		100%				
SL001120	Tender Interview and Recommendation to PM for Site Office	P2-Cal.1	10	13-Sep-16 A	07-Oct-16 A	SL001110	SL001150		100%				
SL001150	Site Office Award	P2-Cal.1	0		01-Nov-16	SL001120	PL000900, PL000800	32	0%				
SL001200	Prepare Hoarding and Fencing Tender Document for PM Acceptance	P2-Cal.1	10	01-Aug-16 A	15-Aug-16 A	PC000100	SL001210		100%				
SL001210	Invitation, Submission and Opening of Tender for Hoarding and Fencing	P2-Cal.1	10	16-Aug-16 A	25-Aug-16 A	SL001200	SL001220		100%				
SL001220	Tender Interview and Recommendation to PM for Hoarding and Fencing	P2-Cal.1	10	26-Aug-16 A	09-Sep-16 A	SL001210	SL001250		100%				
SL001250	Hoarding and Fencing Award	P2-Cal.1	0		19-Sep-16 A	SL001220	PL000400		100%				
SL001300	Prepare Coral Translocation Tender Document for PM Acceptance	P2-Cal.1	10	11-Aug-16 A	25-Aug-16 A	PC000100	SL001310		100%				
SL001310	Invitation, Submission and Opening of Tender for Coral Translocation	P2-Cal.1	10	26-Aug-16 A	29-Aug-16 A	SL001300	SL001320		100%				
SL001320	Tender Interview and Recommendation to PM for Coral Translocation	P2-Cal.1	10	30-Aug-16 A	09-Sep-16 A	SL001310	SL001350		100%				
SL001350	Coral Translocation Award	P2-Cal.1	0		03-Oct-16 A	SL001320	CM000500		100%				
SL001400	Prepare Installation of Socketed H-Pile (Existing Land Section) Tender for PM Acceptance	P2-Cal.1	10	22-Aug-16 A	05-Sep-16 A	PC000100	SL001410		100%				
SL001410	Invitation, Submission and Opening of Tender for Installation of Socketed H-Pile (Existing Land Section)	P2-Cal.1	10	06-Sep-16 A	29-Sep-16 A	SL001400	SL001420		100%				
SL001420	Tender Interview and Recommendation to PM for Installation of Socketed H-Pile (Existing Land Section)	P2-Cal.1	14	30-Sep-16 A	18-Oct-16 A	SL001410	SL001450		100%				
SL001450	Installation of Socketed H-Pile (Existing Land Section) Award	P2-Cal.1	0		31-Oct-16	SL001420	CL000700, CL000800	-22	0%				
SL001500	Prepare Excavation and ELS Works (Existing Land Section) Tender Document for PM Acceptance	P2-Cal.1	10	08-Sep-16 A	06-Oct-16 A	PC000100	SL001510		100%				
SL001510	Invitation, Submission and Opening of Tender for Excavation and ELS Works (Existing Land Section)	P2-Cal.1	10	07-Oct-16 A	12-Oct-16 A	SL001500	SL001520		100%				
SL001520	Tender Interview and Recommendation to PM for Excavation and ELS Works (Existing Land Section)	P2-Cal.1	10	13-Oct-16 A	31-Oct-16	SL001510	SL001550	6	0%				
SL001550	Excavation and ELS Works (Existing Land Section) Award	P2-Cal.1	0		31-Oct-16	SL001520	CL001000	6	0%				
SL001600	Prepare Structural Works for Retaining Wall Tender Document for PM Acceptance	P2-Cal.1	10	12-Sep-16 A	19-Sep-16 A	PC000100	SL001610		100%				

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Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
SL001610	Invitation, Submission and Opening of Tender for Structural Works for Retaining Wall	P2-Cal.1	21	20-Sep-16 A	09-Nov-16	SL001600	SL001620	358	0%				
SL001620	Tender Interview and Recommendation to PM for Structural Works for Retaining Wall	P2-Cal.1	21	10-Nov-16	30-Nov-16	SL001610	SL001630	358	0%				
SL001630	Structural Works for Retaining Wall Award	P2-Cal.1	0		30-Nov-16	SL001620	CL009900	358	0%				
SL001700	Prepare Structural Works for U-Trough, Underpass and Abutment Tender Document for PM Acceptance	P2-Cal.1	10	08-Sep-16 A	30-Oct-16	PC000100	SL001710	225	0%				
SL001710	Invitation, Submission and Opening of Tender for Structural Works for U-Trough, Underpass and Abutment	P2-Cal.1	10	31-Oct-16	09-Nov-16	SL001700	SL001720	225	0%				
SL001720	Tender Interview and Recommendation to PM for Structural Works for U-Trough, Underpass and Abutment	P2-Cal.1	10	10-Nov-16	19-Nov-16	SL001710	SL001730	225	0%				
SL001730	Structural Works for U-Trough, Underpass and Abutment Award	P2-Cal.1	0		19-Nov-16	SL001720	CL007300, CL008800	225	0%				
SL001800	Prepare Silt Curtain System Tender Document for PM Acceptance	P2-Cal.1	10	05-Aug-16 A	26-Aug-16 A	PC000100	SL001810		100%				
SL001810	Invitation, Submission and Opening of Tender for Silt Curtain System	P2-Cal.1	10	27-Aug-16 A	12-Sep-16 A	SL001800	SL001820		100%				
SL001820	Tender Interview and Recommendation to PM for Silt Curtain System	P2-Cal.1	10	13-Sep-16 A	26-Oct-16	SL001810	SL001850	34	30%				
SL001850	Silt Curtain System Award	P2-Cal.1	0		09-Nov-16	SL001820	CM000600	34	0%				
SL001900	Prepare Supply, Installation and Removal of Temporary Steel Cofferdam Tender Document for PM Acceptance	P2-Cal.1	10	12-Sep-16 A	19-Sep-16 A	PC000100	SL001910		100%				
SL001910	Invitation, Submission and Opening of Tender for Supply, Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	21	20-Sep-16 A	01-Nov-16 A	SL001900	SL001920		100%				
SL001920	Tender Interview and Recommendation to PM for Supply, Installation and Removal of Temporary Steel Cofferdam	P2-Cal.1	21	20-Oct-16	09-Nov-16	SL001910	SL001930	54	0%				
SL001930	Supply, Installation and Removal of Temporary Steel Cofferdam Award	P2-Cal.1	0		09-Nov-16	SL001920	CM000700	54	0%				
SL002000	Prepare Installation, Operation and Removal of Double Water Gate System Tender Document for PM Acceptance	P2-Cal.1	10	08-Sep-16 A	22-Sep-16 A	PC000100	SL002010		100%				
SL002010	Invitation, Submission and Opening of Tender for Installation, Operation and Removal of Double Water Gate System	P2-Cal.1	21	23-Sep-16 A	04-Oct-16 A	SL002000	SL002020		100%				
SL002020	Tender Interview and Recommendation to PM for Installation, Operation and Removal of Double Water Gate System	P2-Cal.1	21	05-Oct-16 A	24-Oct-16	SL002010	SL002030	128	76.19%				
SL002030	Installation, Operation and Removal of Double Water Gate System Award	P2-Cal.1	0		24-Oct-16	SL002020	MP000300, CM000800	128	0%				
SL002100	Prepare Construction of Re-provisioned DSD Transformer Room Tender Document for PM Acceptance	P2-Cal.1	10	29-Aug-16 A	22-Sep-16 A	PC000100	SL002110		100%				
SL002110	Invitation, Submission and Opening of Tender for Construction of Re-provisioned DSD Transformer Room	P2-Cal.1	10	23-Sep-16 A	04-Oct-16 A	SL002100	SL002120		100%				
SL002120	Tender Interview and Recommendation to PM for Construction of Re-provisioned DSD Transformer Room	P2-Cal.1	10	05-Oct-16 A	11-Oct-16 A	SL002110	SL002150		100%				
SL002150	Construction of Re-provisioned DSD Transformer Room Award	P2-Cal.1	0		13-Oct-16 A	SL002120	CL001000		100%				
SL002500	Prepare Drainage and Sewerage Works Tender Document for PM Acceptance	P2-Cal.1	10	25-Oct-16	03-Nov-16	PC000100	SL002510	16	0%				
SL002510	Submission and Opening of Tender for Drainage and Sewerage Works	P2-Cal.1	10	04-Nov-16	13-Nov-16	SL002500	SL002520	16	0%				
SL002520	Tender Interview and Recommendation to PM for Drainage and Sewerage Works	P2-Cal.1	10	14-Nov-16	23-Nov-16	SL002510	SL002530	16	0%				
SL002530	Drainage and Sewerage Works Award	P2-Cal.1	0		23-Nov-16	SL002520	CL001300, CL011100, CL002600, SL000270	16	0%				
SL002700	Prepare Road Works Tender Document for PM Acceptance	P2-Cal.1	8	01-Nov-16	08-Nov-16	PC000100	SL002710	-11	0%				
SL002710	Submission and Opening of Tender for Road Works	P2-Cal.1	21	09-Nov-16	29-Nov-16	SL002700	SL002720	-11	0%				
SL002720	Tender Interview and Recommendation to PM for Road Works	P2-Cal.1	21	30-Nov-16	20-Dec-16	SL002710	SL002730	-11	0%				
SL002730	Road Works Award	P2-Cal.1	0		20-Dec-16	SL002720	CL001300	-11	0%				
Preliminaries				136	29-Jul-16 A	02-Feb-17			304				
PL000100	Initial Survey and report	P2-Cal.1	36	29-Jul-16 A	14-Oct-16 A	PC000100	PL000700		100%				
PL000200	Tree Survey	P2-Cal.1	30	28-Sep-16 A	07-Oct-16 A	PC000100	CL001400		100%				
PL000300	Site Clearance in Area A & B	P2-Cal.1	14	29-Jul-16 A	10-Oct-16 A	PC000100	PL000320		100%				
PL000320	Site Clearance in Portion IV	P2-Cal.1	14	29-Jul-16 A	01-Nov-16	PL000300	PL000340	32	7.14%				
PL000340	Site Clearance in Portion II	P2-Cal.1	10	29-Jul-16 A	10-Oct-16 A	PL000320	PL000360		100%				

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

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Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
PL000360	Site Clearance in Portion I (Handed-over on 6 Sep 2016)	P2-Cal.1	7	06-Sep-16 A	29-Sep-16 A	PL000340	PL000380		100%				
PL000380	Site Clearance in Portion III to VIII	P2-Cal.1	14	29-Jul-16 A	01-Dec-16	PL000360	PL000900, PL000400	32	0%				
PL000400	Erection of Fencing & Hoarding in Area C	P2-Cal.1	30	02-Nov-16	01-Dec-16	PL000380, SL001250	PL000420	37	0%				
PL000420	Erection of Fencing & Hoarding in Area A & B	P2-Cal.1	20	03-Oct-16 A	07-Nov-16	PL000400	PL000440	0	5%				
PL000440	Erection of Fencing & Hoarding in Portion I,II,VI & VIII	P2-Cal.1	10	03-Oct-16 A	31-Dec-16	PL000420	PL000500, PL000900	0	0%				
PL000500	Erection of Temporary Noise Barrier	P2-Cal.1	14	16-Nov-16	29-Nov-16	PL000440	CM000900	0	0%				
PL000600	Environmental Baseline Monitoring and report (by others)	P2-Cal.1	45	01-Sep-16 A	01-Nov-16	PC000100	CL000800, CL000700	-22	71.11%				
PL000700	Condition Survey	P2-Cal.1	42	06-Oct-16 A	10-Oct-16 A	PL000100	CL001400, CM000900		100%				
PL000800	Design the Project Manager's and Contractor's Site Office and Construction of Physical Model	P2-Cal.1	10	10-Oct-16 A	10-Nov-16	PC000100, SL001150	PL000820	32	10%				
PL000820	Review and Discuss the Project Manager's and Contractor's Site Office and Construction of Physical Model	P2-Cal.1	10	11-Nov-16	20-Nov-16	PL000800	PL000840	32	0%				
PL000840	Resubmit Project Manager's and Contractor's Site Office and Construction of Physical Model	P2-Cal.1	7	21-Nov-16	27-Nov-16	PL000820	PL000860	32	0%				
PL000860	Approve the Project Manager's and Contractor's Site Office and Construction of Physical Model	P2-Cal.1	4	28-Nov-16	01-Dec-16	PL000840	PL000900	32	0%				
PL000900	Construction of Footing for Project Manager's and Contractor's Site Office	P2-Cal.2	12	03-Jan-17	16-Jan-17	GS004200, SL001150, PL000380, PL000900	PL000910	0	0%				
PL000910	Erection of Post and Decking	P2-Cal.2	12	17-Jan-17	02-Feb-17	PL000900	PL000920	0	0%				
Temporary Traffic Arrangement Schemes		P2-Cal.1	269	29-Jul-16 A	15-Jun-17			453					
TT000100	Establish the TMLG	P2-Cal.1	40	29-Jul-16 A	29-Aug-16 A	PC000100	TT000200, SC000100		100%				
TT000200	Prepare Drawings for TMLG of the TTA Scheme - TTA Stage 1 at Tong Yin Street for U-Trough and Underpass Construction	P2-Cal.1	60	30-Aug-16 A	26-Oct-16	TT000100, SL000150	TT000220	70	88.33%				
TT000220	Distribute Drawings to TMLG members of the TTA Scheme - TTA Stage 1 at Tong Yin Street for U-Trough and Underpass	P2-Cal.1	15	27-Oct-16	10-Nov-16	TT000200	TT000240	70	0%				
TT000240	TMLG Meeting & RMO	P2-Cal.1	15	11-Nov-16	25-Nov-16	TT000220	TT000300, CL006900	70	0%				
TT000300	Submit and Approval of the TTA Scheme - TTA Stage 2 at Tong Yin Street for U-Trough and Underpass Construction	P2-Cal.1	180	18-Dec-16	15-Jun-17	TT000240	CL007500	453	0%				
Section 1 of the Works		P2-Cal.3	165	16-Sep-16 A	18-Apr-17			-15					
Reprovisioning of DSD Transformer Room		P2-Cal.3	128	16-Sep-16 A	28-Feb-17			-17					
Foundation Works		P2-Cal.3	53	16-Sep-16 A	25-Nov-16			-17					
CL000300	UU Detection	P2-Cal.3	3	16-Sep-16 A	19-Sep-16 A	SA000100	CL000400		100%				
CL000400	Trial Pit	P2-Cal.3	6	28-Sep-16 A	03-Oct-16 A	CL000300	CL000500		100%				
CL000500	Predrilling (LPDH-037)	P2-Cal.3	5	30-Sep-16 A	05-Oct-16 A	CL000400, SL000950	CL000600, CL000520		100%				
CL000520	Predrilling (LPDH-038)	P2-Cal.3	4	06-Oct-16 A	10-Oct-16 A	CL000500	CL000700, CL000800		100%				
CL000600	Removal of MCB controller	P2-Cal.3	12	20-Oct-16	03-Nov-16	CL000500	CL000700	-13	0%				
CL000700	Piling Plant Mobilization and Set Up	P2-Cal.3	6	25-Oct-16	01-Nov-16	CL000600, SL001450, CL000520, PL000600, CL000700, CL001450, CL000800	CL000800	-17	0%				
CL000800	Installation of Socketted H-piles (PC-A1)	P2-Cal.3	3	02-Nov-16	04-Nov-16	CL000800	CL000810	-17	0%				
CL000810	Installation of Socketted H-piles (PC-A2)	P2-Cal.3	3	05-Nov-16	08-Nov-16	CL000800	CL000820	-17	0%				
CL000820	Installation of Socketted H-piles (PC-B1)	P2-Cal.3	3	09-Nov-16	11-Nov-16	CL000810	CL000830	-17	0%				
CL000830	Installation of Socketted H-piles (PC-B2)	P2-Cal.3	3	12-Nov-16	15-Nov-16	CL000820	CL000840	-17	0%				
CL000840	Installation of Socketted H-piles (PC-C1)	P2-Cal.3	3	16-Nov-16	18-Nov-16	CL000830	CL000900	-17	0%				
CL000900	Loading Test for Socketted H-Pile	P2-Cal.3	6	19-Nov-16	25-Nov-16	CL000840	CL001000	-17	0%				
Structure Construction		P2-Cal.3	75	26-Nov-16	28-Feb-17			-17					
CL001000	Construction of DSD Transformer Room including RC, ABWF and E&M Works	P2-Cal.3	75	26-Nov-16	28-Feb-17	CL000900, DE001200, DE000800	CL001300, CL001200, CL001100	-17	0%				

- █ Actual Work
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016				2017
										Oct	Nov	Dec	Jan	
CL001100	Backfilling and Pavement Works	P2-Cal.3	60	14-Dec-16	28-Feb-17	CL001000	CL001200	-17	0%					
Roadworks		P2-Cal.3	85	30-Dec-16	18-Apr-17			-15						
CL001300	Road Works	P2-Cal.3	85	30-Dec-16	18-Apr-17	CL001000, MP000500, SL000500	SC000100	-15	0%					
Section 2 of the Works		P2-Cal.3	35	12-Dec-16	24-Jan-17			275						
RW P2-B		P2-Cal.3	35	12-Dec-16	24-Jan-17			275						
CL001400	Utilities Detection and Trial Pit	P2-Cal.3	35	12-Dec-16	24-Jan-17	PL000700, CL009900, PL000900	CL001500	275	0%					
Section 3 of the Works		P2-Cal.3	321	12-Sep-16 A	11-Nov-17			275						
Preparation Works		P2-Cal.3	123	19-Oct-16 A	29-Mar-17			34						
Site Investigation		P2-Cal.3	74	19-Oct-16 A	27-Jan-17			83						
CM000100	Hydrographic Survey	P2-Cal.3	27	19-Oct-16 A	28-Oct-16	PC000100, SA000700, CL000000	CM000200A, CM000300	61	70.37%					
CM000200A	Predrilling of Marine Borehole - Stage 1 [Grid E22/N13]	P2-Cal.3	4	29-Oct-16	03-Nov-16	CM000100	CM000200A2	123	0%					
CM000200A2	Predrilling of Marine Borehole - Stage 1 [Grid E21/N14]	P2-Cal.3	3	04-Nov-16	07-Nov-16	CM000200A	CM000200A4	123	0%					
CM000200A4	Predrilling of Marine Borehole - Stage 1 [Grid E20/N16]	P2-Cal.3	3	08-Nov-16	10-Nov-16	CM000200A2	CM000200B	123	0%					
CM000200B	Predrilling of Marine Borehole - Stage 2 [Grid E13/N6]	P2-Cal.3	5	11-Nov-16	16-Nov-16	CM000200A4	CM000200C	123	0%					
CM000200C	Predrilling of Marine Borehole (1 no) - Stage 3 [Grid E9/N5]	P2-Cal.3	5	17-Nov-16	22-Nov-16	CM000200B	CM000200D	123	0%					
CM000200D	Predrilling of Marine Borehole (5 nos) - Stage 4 [Grid E22-26/N8-11]	P2-Cal.3	14	23-Nov-16	08-Dec-16	CM000200C, GS004000	CM001600	123	0%					
CM000300	Cone Penetration Test	P2-Cal.3	74	29-Oct-16	27-Jan-17	CM000100	CM001600, CM000400	61	0%					
Translocation of Corals		P2-Cal.3	21	01-Nov-16	24-Nov-16			11						
CM000500	Translocation of Corals within adjacent Reclamation Zone (30 Nos.) in Winter Season	P2-Cal.3	21	01-Nov-16*	24-Nov-16	PC000100, SL000250, SL001250	CM000600	11	0%					
Initial Works		P2-Cal.3	97	30-Nov-16	29-Mar-17			1						
CM000600	Installation of Slit Curtain (approx. 1200m)	P2-Cal.3	14	06-Dec-16	21-Dec-16	GS003400, GS003500, GS003600	CM000700	7	0%					
CM000700	Installation of Temporary Steel Cofferdam	P2-Cal.3	72	31-Dec-16	29-Mar-17	CM000600, TD000160, CL000100, PL000700, PL000500	CM000800, CM001200, CL000100, CM001000	1	0%					
CM000900	ELS (Existing EVA to BMCP)	P2-Cal.3	61	30-Nov-16	15-Feb-17			0	0%					
Structural Works		P2-Cal.3	321	12-Sep-16 A	11-Nov-17			275						
U-Tough A & B		P2-Cal.3	139	12-Sep-16 A	15-Mar-17			26						
Piled Foundation		P2-Cal.3	135	12-Sep-16 A	10-Mar-17			30						
CL004300	UU Detection	P2-Cal.3	11	12-Sep-16 A	10-Oct-16 A	PC000100, SL000450	CL004400		100%	Detection				
CL004400	Trial Pit	P2-Cal.3	19	30-Sep-16 A	10-Oct-16 A	CL004300	CL004500A		100%	Trial Pit				
CL004500A	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-016)	P2-Cal.3	4	11-Oct-16 A	13-Oct-16 A	PC000100, CL004400, SA000400	CL004600, CL004500A11		100%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-016)				
CL004500A11	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-012)	P2-Cal.3	4	14-Oct-16 A	17-Oct-16 A	CL004500A	CL004500A21		100%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-012)				
CL004500A21	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-008)	P2-Cal.3	4	18-Oct-16 A	20-Oct-16 A	CL004500A11	CL004500A31		100%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-008)				
CL004500A31	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-004)	P2-Cal.3	3	20-Oct-16 A	24-Oct-16	CL004500A21	CL004500A41	30	100%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-004)				
CL004500A41	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-002)	P2-Cal.3	3	24-Oct-16	26-Oct-16	CL004500A31	CL004500B, CL004500A51	30	0%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-002)				
CL004500A51	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-015)	P2-Cal.3	3	27-Oct-16	29-Oct-16	CL004500A41	CL004500A61	30	0%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-015)				
CL004500A61	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-011)	P2-Cal.3	3	01-Nov-16	03-Nov-16	CL004500A51	CL004500A71	30	0%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-011)				
CL004500A71	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-007)	P2-Cal.3	3	04-Nov-16	07-Nov-16	CL004500A61	CL004500A81	30	0%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-007)				
CL004500A81	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-003)	P2-Cal.3	2	08-Nov-16	09-Nov-16	CL004500A71	CL004500A91	30	0%	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-003)				

█ Actual Work ◆ Milestone
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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works

3 Months Rolling Programme
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Date	Revision	Checked	Approved
29-Jul-16	3 months rolling programme		
20-Oct-16	3 months rolling programme 20160...		

Activity ID	Activity Name	Calendar	Original Duration	Start	Finish	Predecessors	Successors	Total Float	Activity % Complete	2016			2017
										Oct	Nov	Dec	Jan
CL004500A9	Pre-drilling works for ("P2 CH363 - CH423") (LPDH-001)	P2-Cal.3	3	10-Nov-16	12-Nov-16	CL004500A8	CL004500B	30	0%				Pre-drilling works for ("P2 CH363 - CH423") (LPDH-001)
CL004500B	Pre-drilling works for ("SR2 CH110 - CH146")	P2-Cal.3	20	14-Nov-16	06-Dec-16	CL004500A9 CL004500A4	CL004500C	30	0%				Pre-drilling works for ("SR2 CH110 - CH146")
CL004500C	Pre-drilling works for ("P2 CH305 - CH332")	P2-Cal.3	19	07-Dec-16	30-Dec-16	CL004500B	CL004700	30	0%				Pre-drilling works for ("P2 CH305 - CH332")
CL004600	Plant mobilization and set up for piling works	P2-Cal.3	30	11-Nov-16	15-Dec-16	CL004500A	CL004700	34	0%				Plant mobilization and set up for piling works
CL004700	Installation of socketed H-Pile and loading test (P2 CH305-CH332 & SR2 CH110-CH146 & P2 CH363-CH423) 30 nos	P2-Cal.3	63	21-Dec-16	10-Mar-17	FD001600, CL004600, MS000460	CL004800	30	0%				Installation of socketed H-Pile and loading test (P2 CH305-CH332 & SR2 CH110-CH146 & P2 CH363-CH423) 30 nos
Structures of U-Trough A and B		P2-Cal.3	60	31-Dec-16	15-Mar-17			26					
"U-Trough B Type 4 and U-Trough B Type 5" from P2 CH318 to P2 CH375		P2-Cal.3	60	31-Dec-16	15-Mar-17			26					
CL006900	Construction of temporary diversion road	P2-Cal.3	60	31-Dec-16	15-Mar-17	PC000100, GS001100, TT000240	CL007100, CL007000	26	0%				Construction of temporary diversion road
Retaining Wall Structure		P2-Cal.3	257	12-Dec-16	11-Nov-17			275					
CL009900	Construction of Retaining Wall RW P2-A	P2-Cal.3	257	12-Dec-16	11-Nov-17	SA000800, PC000100, TT000240	KD000400, CL017200, CL001400	275	0%				Construction of Retaining Wall RW P2-A
Section 4 of the Works - Preservation and Protection of Existing Trees		P2-Cal.1	1511	29-Jul-16 A	16-Sep-20			11					
CL016100	Preservation and Protection of Existing Trees	P2-Cal.1	1511	29-Jul-16 A	16-Sep-20	GS004100, PC000100	SC000400	11	6.29%				Preservation and Protection of Existing Trees
CL016200	Nursery Transplanted Trees at the Contractor's holding nursery	P2-Cal.1	1339	17-Jan-17	16-Sep-20	GS003000, GS004100, CL016100	SC000400	11	0%				Nursery Transplanted Trees at the Contractor's holding nursery
Section 5 of the Works - Landscaping Works		P2-Cal.3	31	08-Dec-16	16-Jan-17			10					
CL016300	Tree Felling	P2-Cal.3	14	08-Dec-16	23-Dec-16	GS004100, SL000650	CL016400	10	0%				Tree Felling
CL016400	Tree Transplanting	P2-Cal.3	17	24-Dec-16	16-Jan-17	CL016300	CL016200	10	0%				Tree Transplanting

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29-Jul-16	3 months rolling programme		
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