AUES PROJECT NO.: TCS/00684/13

WSD CONTRACT NO. 1/WSD/13 - IMPROVEMENT OF FRESH WATER SUPPLY TO CHEUNG CHAU

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO.6)– SEPTEMBER 2014

PREPARED FOR
CHINA ROAD- CHINA PIPELINE JOINT VENTURE

Quality Index

Date	Reference No.	Prepared By	Approved By
13 October 2014	TCS00684/13/600/R0085v2	Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	9 October 2014	First Submission
2	13 October 2014	Amended against IEC's comment on 13 October 2014

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By Email and Fax
(no. 3485 4114)

Attention: Mr. Ernest CHAN

Dear Sir

Contract No. 1/WSD/13
Independent Environmental Checker Services for
Improvement of Freshwater Supply to Cheung Chau
Verification of Monthly EM&A Report

Reference is made to the *Monthly Environmental Monitoring and Audit (EM&A) Report (No.6) – September 2014 Version 2 (Ref No: TCS00684/13/600/R0085v2)* dated 13 October 2014 submitted by the Environmental Team via their e-mail on 13 October 2014.

We are pleased to inform you that we have no further comment on the captioned document. We herewith verify that the Monthly EM&A Report for September 2014 is prepared in accordance with Condition 5.4 of Environmental Permit No. EP-392/2010.

Thank you very much for your kind attention. Please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully
For and on behalf of
SMEC Asia Limited

Vivian CHAN

Vivian CHAN
Independent Environmental Checker

c.c.	WSD	Mr. Lo	(By Fax: 2351 6949)
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	AUES	Mr. Tam	(By Fax: 2959 6079)

EXECUTIVE SUMMARY

ES.01 Water Supplies Department (hereafter referred as "WSD") is the Project Proponent and the Permit Holder of *Improvement of Fresh Water Supply to Cheung Chau* (hereinafter referred as "the Project"), which is a Designated Project to be implemented under Environmental Permit number EP-392/2010 (hereinafter referred as "the EP-392/2010" or "the EP").

ES.02 Action-United Environmental Services and Consulting (AUES) has been appointed as the independent Environmental Team (ET) to implement the relevant EM&A programme. In the Project, China Road - China Pipeline Joint Venture (hereinafter "CRCPJV") is the Main Contractor, SMEC Asia Limited as an Independent Environmental Checker (IEC), and Black & Veatch Hong Kong Limited is the representative engineer on site to manage the Project. The Works is predicted to take about 24 months.

ES.03 As part of the project EM&A program, baseline monitoring was carried out by the ET in accordance with the project EM&A Manual from ***4 January*** to ***31 January 2014*** to determine the ambient environmental conditions i.e. noise and marine water quality before commencement of construction works. The Baseline Report summarized the key findings and the rationale behind determining a set of Action and Limit Levels (A/L Levels) from the baseline data. It was submitted on ***13 February 2014*** and verified by IEC and endorsed by EPD before impact monitoring commencement on ***28 March 2014***.

ES.04 A set of A/L Levels serve as the yardsticks for assessing the acceptability of the environmental impact during the construction phase impart monitoring. They are statistical in nature and derived according to the criteria set out in the EM&A Manual and are given in the following tables.

Table ES-1 Action and Limit Levels of Water Quality Monitoring

Impact Station	Dissolved Oxygen (mg/L)				Depth Average of Turbidity (NTU)		Depth Average of SS (mg/L)	
	Depth Average of Surface & Middle		Bottom					
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
W1	5.64	4.54	NA	NA	5.87	8.81	7.00	8.00
W2	5.16	5.02	NA	NA	5.50	5.66	7.00	8.00
W3	6.18	5.66	5.36	5.05	6.94	7.29	8.00	8.00
W4	5.94	4.95	5.71	5.54	7.50	8.03	7.85	11.57
W5	5.14	5.00	5.79	5.79	5.44	7.43	6.00	6.43
W6	5.92	4.26	6.04	4.49	6.82	7.10	8.00	9.59
W7	6.08	5.78	6.08	5.60	5.71	6.26	7.85	10.00

Table ES-2 Action and Limit Levels of Construction Noise Monitoring

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
N1	When one or more documented complaints are received	75 dB(A)

ES.05 This is the **6th** monthly Environmental Monitoring and Audit Report for **September 2014** covering the period from **1 September 2014** to **30 September 2014 (**the Reporting Month).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.06 Environmental monitoring activities under the EM&A program in this Reporting Month are summarized in the following table.

Table ES-3 Environmental Monitoring Activities in Reporting Month

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Construction Noise	$L_{eq(30min)}$ Daytime	5
Water Quality	Marine Water Sampling	13
Inspection / Audit	ET Regular Environmental Site Inspection	5
	IEC Monthly Environmental Site Audit	1

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.07 No exceedance of construction noise was recorded in this Reporting Month. However, 7 Action level and 14 Limit Level exceedances were recorded for marine water quality monitoring. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Table ES-4 Summary NOE issued and investigation of exceedance in Reporting Month

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	-	-
Water Quality	DO	0	0	0	-	--
	Turbidity	0	0	0	-	-
	SS	7	14	21	Under Investigation	--

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT

ES.08 No environmental complaint was recorded or received in this Reporting Month.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.09 No environmental summons or successful prosecutions were recorded in this Reporting Month.

REPORTING CHANGE

ES.10 No reporting changes were made in this Reporting Month.

SITE INSPECTION BY EXTERNAL PARTIES

ES.11 No site inspection was undertaken by AFCD and EPD in this Reporting Month.

FUTURE KEY ISSUES

ES.12 Due to wet season has come, so muddy water or other water pollutants from sites surface flow to sea water bodies or public area will be key environment issue. Hence, water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should be to paid special attention. Moreover, noise mitigation measures should be properly maintained to prevent construction noise as impacted surrounding resident.

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1. INTRODUCTION

PROJECT BACKGROUND

1.1 Water Supplies Department (hereafter referred as "WSD") is the Project Proponent and the Permit Holder of *Improvement of Fresh Water Supply to Cheung Chau* (hereinafter referred as "the Project"), which is a Designated Project to be implemented under Environmental Permit number EP-392/2010 (hereinafter referred as "the EP-392/2010" or "the EP").

1.2 The scope of the works comprises primarily the laying of a new submarine fresh water main across the Adamasta Channel from Lantau Island to Cheung Chau by horizontal directional drilling method to enhance the reliability of fresh water supply to Cheung Chau. The Works is commenced on 28 March 2014 and predicted to be undertaken about 24 months. The layout plan of project is shown in ***Appendix A***.

1.3 Action-United Environmental Services and Consulting (AUES) has been appointed as the independent environmental team (ET) to implement the relevant EM&A programme of Water Supplies Department (WSD) Contract No. ***1/WSD/13 – Improvement of Fresh Water Supply to Cheung Chau***. In the Project, **China Road - China Pipeline Joint Venture** (hereinafter "CRCPJV") is a main-contractor, SMEC Asia Limited as an Independent Environmental Checker (IEC), and Black & Veatch Hong Kong Limited is the representative engineer on site to manage the Project.

1.4 According to the Particular Specification (PS) Section 25 and the EP-392/2010, overall scope of environmental monitoring including construction noise and water quality, and site environmental audit should be undertaken in accordance with the provided Environmental Monitoring and Audit Manual by an independent Environmental Team (ET).

1.5 The baseline monitoring program was carried out during the period between ***4 January*** and ***31 January 2014*** at the designated monitoring locations by the ET according to the EM&A Manual. The "Baseline Monitoring Report (R0014 Version 3)" had submitted to EPD before commencement of major construction works and approved by the IEC on 21 February 2014. Further to CRCPJV's instructions, the EM&A program was commenced on 1 April 2014 and the monitoring schedule had been issued to relevant parties on 28 March 2014.

1.6 This is the **6th** monthly Environmental Monitoring and Audit Report for **September 2014** covering the period from **1 September 2014** to **30 September 2014 (**the Reporting Month).

REPORT STRUCTURE

1.7 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-

SECTION 1	**INTRODUCTION**
SECTION 2	**PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS**
SECTION 3	**SUMMARY OF MONITORING REQUIREMENTS**
SECTION 4	**IMPACT MONITORING RESULTS**
SECTION 5	**WASTE MANAGEMENT**
SECTION 6	**SITE INSPECTIONS**
SECTION 7	**ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE**
SECTION 8	**IMPLEMENTATION STATUES OF MITIGATION MEASURES**
SECTION 9	**IMPACT FORECAST**
SECTION 10	**CONCLUSIONS AND RECOMMENDATION**

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

2.1 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in ***Appendix B***.

CONSTRUCTION PROGRESS

2.2 The master and three month rolling construction programs are enclosed in ***Appendix C*** and the major construction activities undertaken in this Reporting Month are listed below:-

- Preparation for drilling pilot hole by HDD;
- Installation of data logging system for HDD;
- Diving operation for removal of ring bit
- Excavation and pipe laying for landmain construction at Cheung Kwai Road

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Month is presented in ***Table 2-1***.

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust)	Notified EPD on 28/10/2013 Ref. no. 366253
2	Chemical waste Producer Registration	Application date: 20/12/2013 Date approved: 30/01/2014 WPN: 8334-920-C3839-01
3	Water Pollution Control Ordinance (Discharge License)	Application date: 03/01/2014 License no. WT00018191-2014 Valid to 28/02/2019
4	Billing Account for Disposal of Construction Waste	Application no. :RS01134 Date approved: 1/11/2013 Account Number: 7018602
5	Construction Noise permit	NA

2.4 Baseline Monitoring Report (TCS00684/13/600/R0014Ver.3) for the Project was issued by the ETL and verified by the IEC on 24 March 2014. The report was also submitted to the EPD for endorsement.

2.5 According to Clause 3.9 EP-395/2010 stipulation, the detailed proposal of the HDD technique and the management of the drilling fluid for construction of the Project were submitted on 9 July 2014. Therefore, the earliest date for commencement of HDD works will be 9 August 2014.

3. SUMMARY OF MONITORING REQUIREMENTS

GENERAL

3.1 The Environmental Monitoring and Audit requirements are set out in the Approved EM&A manual. Environmental aspects such as the construction noise and marine water quality were identified as the key issues during the construction phase of the Project. The detailed requirements are presented in the sub-sections below.

MONITORING PARAMETERS

3.2 The EM&A baseline and impact monitoring program covers the following environmental issues:

- Construction noise; and
- Marine Water quality

3.3 A summary of the monitoring parameters is presented in ***Table 3-1***:

Table 3-1 Summary of the monitoring parameters of EM&A Requirements

Environmental Issue	Parameters
Marine Water Quality	In-situ Measurements • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH value; • Salinity (ppt); • Water depth (m); • Temperature (℃); and • # Total residual chlorine (TRC) (mg/L)
	Laboratory Analysis • Suspended Solids (mg/L)
Noise	• $L_{eq(30min)}$ during normal working hours; and • $L_{eq(5min)}$ during Restricted Hours.

 # TRC monitoring would be carried out by the Main-Contractor.

MONITORING LOCATION

Water Quality

3.4 Two control stations (W8 and W9) and seven impact stations (W1-W7) were recommended in the *EM&A Manual Section 2.5*. Detailed and co-ordinance of water quality monitoring stations is described in ***Table 3-2*** and the graphical is shown in ***Appendix D***.

Table 3-2 Location of Marine Water Quality Monitoring Station

Station	Description	Co-ordinance	
		Easting	Northing
W1	Impact Station – Marine waters near the proposed launching site at Cheung Chau	820 704	808 688
W2	Impact Station – Marine waters near the proposed launching site at Cheung Chau	820 656	808 631
W3	Impact Station – Marine waters along the proposed water main alignment	820 445	809 036
W4	Impact Station – Marine waters along the proposed water main alignment	820 072	809 297
W5	Impact Station – Marine waters near the proposed reception site at Lantau	819 875	809 700
W6	Impact Station – Marine waters near the Cheung Sha Wan Fish Culture Zone	819 174	810 917
W7	Impact Station – Marine waters between the works and the Cheung Sha Wan Fish Culture Zone	820 055	810 523

Station	Description	Co-ordinance	
		Easting	Northing
W8	Control station – Marine waters of Adamasta Channel	821 328	810 240
W9	Control station – Marine waters of Adamasta Channel	819 045	807 953

Construction Noise

3.5 According to *EM&A Manual Section 6.4*, only one noise sensitive receiver (NSR) is designated for the construction noise monitoring. The detailed construction noise monitoring station to under the Project is described in ***Table 3-3*** and graphical is shown in ***Appendix D***.

Table 3-3 Location of Construction Noise Monitoring Station

Noise Monitoring Station	NSR ID	Location
N1	NSR2	Village house at No. 1A Tai Kwan Wan San Tsuen

MONITORING FREQUENCY AND PERIOD

3.6 The requirements of impact monitoring are stipulated in ***Sections 2.6*** and ***2.7*** of the EM&A Manual and listed as follows.

Construction Noise Monitoring

Parameters : One set of Leq(30min) as 6 consecutive Leq(5min) between 0700-1900 hours on normal weekdays
Frequency : Once every week
Duration : Throughout out the construction period

Water Quality (Marine) Monitoring

Parameters : In-situ measurements including water depth, temperature, DO, pH, turbidity and salinity; and Suspended Solids is analyzed by HOKLAS-accredited laboratory.

Frequency : Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours.

Sampling Depth :
(i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.
(ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.
(iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken

Duration : Throughout out the construction period

MONITORING EQUIPMENT

Water Quality Monitoring

i. **Dissolved Oxygen and Temperature Measuring Equipment** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 – 20mg L-1 and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.

ii. **pH Meter** – The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in arrange of 0 to 14.

iii. **Turbidity (NTU) Measuring Equipment** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.

iv. **Water Sampling Equipment** – A water sampler should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

v. **Water Depth Detector** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat.

vi. **Salinity Measuring Equipment** – A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

vii. **Sample Containers and Storage** – Water samples for SS should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4℃ without being frozen).

viii. **Monitoring Position Equipment** - A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message 'screen pop-up' facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

ix. **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

Noise Monitoring

3.7 Sound level meter in compliance with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s^{-1}.

3.8 The monitoring equipment using for the EM&A program were proposed by the ET and verified by the IEC prior to the commencement of the monitoring. Details of the equipment used for impact monitoring are listed in ***Table 3-4*** below.

Table 3-4 Monitoring Equipment Used in EM&A Program

Equipment	Model
Construction Noise	
Integrating Sound Level Meter	B&K Type 2238
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer
Water quality	
A Digital Global Positioning System	GPS12 Garmin
Water Depth Detector	Eagle Sonar
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends
Thermometer & DO meter	Horiba U-54 Multi-parameter Water Quality Monitoring System
pH meter	
Turbidimeter	
Salinometer	
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad
Suspended Solids	HOKLAS-accredited laboratory (ALS Technichem (HK) Pty Ltd)
Total residual chlorine	Would be provided by CRCPJV later

MONITORING METHODOLOGY

Water Quality

3.9 Water quality monitoring is conducted at the designated locations. The sampling produce with the in-situ monitoring are presented as below:

Sampling Procedures

3.10 A Digital Global Positioning System (GPS) is used to identify the designated monitoring stations prior to water sampling. A portable, battery-operated echo sounder is used for the determination of water depth at each station. At each station, marine water sample is collected at three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. Samples at 1m below water surface and 1m above sea bottom are collected when the water depth is between 3m and 6m. Only 1 sample at mid-depth is taken when the water depth is below 3m.

3.11 The marine water sampler is lowered into the water body at the predetermined depth. The trigger system of the sampler should been activated with a messenger. The opening ends of the sampler then is closed accordingly and water sample is collected.

3.12 The sample container is rinsed with a portion of the water sample. The water sample then is transferred to the high-density polythene bottles as provided by the laboratory, labeled with a unique sample number and sealed with a screw cap.

3.13 Before commencement of the sampling, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring are to be recorded on the monitoring field data sheet.

3.14 A 'Willow' 33-litter plastic cool box packed with ice is used to preserve the collected water samples prior to arrival at the laboratory for chemical determination. The water temperature of the cool box is maintained at a temperature as close to 4^0C as possible without being frozen. Samples collected are delivered to the laboratory upon collection

In-situ Measurement

Positioning of Monitoring Locations

3.15 A digital Global Positioning System (GPS) is used during marine water monitoring to ensure the monitoring vessel is at the correct location when taking measurement and samples.

Depth, Dissolved Oxygen (DO), Temperature, Turbidity, Salinity and pH value

3.16 The *Horiba U-54 Multi-parameter Water Quality Monitoring System* is used for marine water in-situ measures, which automates the measurements and data logging of depth, temperature, dissolved oxygen, dissolved oxygen saturation, turbidity, pH and salinity simultaneously. Before each round of monitoring, the dissolved oxygen probe is calibrated by the wet bulb method and the turbidity and salinity probes checked with distilled water.

Laboratory Analysis

3.17 All water samples are analyzed with Suspended Solids (SS) as specified in the *EM&A Manual* by a local HOKLAS-accredited testing laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration no. 66). SS analysis is determined by the laboratory upon receipt of the water samples using HOKLAS accredited analytical methods namely ALS Method EA-025. The HOKLAS accredited certificate of laboratory is provided in ***Appendix E***.

Construction Noise

3.18 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels (dB(A)). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.

3.19 Sound level meters listed in ***Table 3-4*** are complied with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications, as recommended in Technical Memorandum (TM) issued under the *Noise Control Ordinance (NCO).*

3.20 During the monitoring, all noise measurements were performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). $Leq_{(30min)}$ in six consecutive $Leq_{(5min)}$ measurements were used as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $Leq_{(15min)}$ in three consecutive $Leq_{(5min)}$ measurements is used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.

3.21 During the measurement, the sound level meter is mounted on a tripod with a height of 1.2m above ground and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield is fitted for all measurements. The assessment point is normally set as free-field situation for the measurement.

3.22 Prior of noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking was performed before and after the noise measurement.

EQUIPMENT CALIBRATION

3.23 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.

3.24 The Multi-parameter Water Quality Monitoring System is calibrated by HOKLAS accredited laboratory of three month intervals.

3.25 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in this Reporting Month are attached in ***Appendix E***.

METEOROLOGICAL INFORMATION

3.26 The meteorological information during the construction phase is obtained from Cheung Chau Station of the Hong Kong Observatory (HKO).

DATA MANAGEMENT AND DATA QA/QC CONTROL

3.27 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.

3.28 The monitoring data recorded in the equipment e.g. noise meter and Multi-parameter Water Quality Monitoring System are downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.29 According to the approved Environmental Monitoring and Audit Manual, the construction noise and water quality criteria were set up, namely Action and Limit levels are listed in ***Tables 3-5 and 3-6*** as below.

Table 3-5 Action and Limit Levels for Water Quality

Impact Station	Dissolved Oxygen (mg/L)				Depth Average of Turbidity (NTU)		Depth Average of SS (mg/L)	
	Depth Average of Surface & Middle		Bottom					
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
W1	5.64	4.54	NA	NA	5.87	8.81	7.00	8.00
W2	5.16	5.02	NA	NA	5.50	5.66	7.00	8.00
W3	6.18	5.66	5.36	5.05	6.94	7.29	8.00	8.00
W4	5.94	4.95	5.71	5.54	7.50	8.03	7.85	11.57
W5	5.14	5.00	5.79	5.79	5.44	7.43	6.00	6.43
W6	5.92	4.26	6.04	4.49	6.82	7.10	8.00	9.59
W7	6.08	5.78	6.08	5.60	5.71	6.26	7.85	10.00

Table 3-6 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
N1	When one or more documented complaints are received	75 dB(A)

If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

3.30 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in ***Appendix F***.

4. IMPACT MONITORING RESULTS

4.1 Further to CRCPJV's notification, the EM&A program was commenced on 1 April 2014. The monitoring schedule of September 2014 had been issued to relevant parties on 27 August 2014 and listed in ***Appendix G***. The works undertaken during the report month has been illustrated in ***Appendix C.*** The monitoring results are presented in the following sub-sections.

RESULTS OF WATER QUALITY MONITORING

4.2 In this Reporting Month, a total of **13** sampling days were performed for marine water monitoring at the nine designated locations. Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids in this Reporting Month, are summarized in ***Tables 4-1*** and ***4-4***.

Table 4-1 Results Summary of Depth Average (Surface & Middle Layer) of DO (mg/L)

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
Mid-Ebb	1-Sep-14	9.46	8.41	10.36	8.81	11.91	11.17	10.79	10.44	9.85
	3-Sep-14	8.17	10.32	10.03	10.77	11.10	11.68	9.69	11.54	10.43
	5-Sep-14	7.35	7.21	6.80	7.42	8.92	10.54	9.46	7.67	7.08
	8-Sep-14	5.82	5.51	6.28	6.22	6.11	6.36	6.51	6.38	6.49
	10-Sep-14	11.44	11.53	11.02	10.65	10.11	10.52	10.37	10.89	11.02
	12-Sep-14	8.85	9.08	11.09	10.04	9.33	7.70	8.90	8.52	8.72
	15-Sep-14	6.83	6.88	6.37	6.06	6.16	6.56	6.69	6.21	6.21
	17-Sep-14	6.95	6.73	6.31	6.20	6.30	9.24	7.65	7.09	6.38
	19-Sep-14	5.83	5.47	6.25	6.58	6.12	7.48	7.48	6.97	6.05
	22-Sep-14	8.13	7.45	7.27	7.61	7.04	7.25	7.78	8.19	7.30
	24-Sep-14	9.58	9.77	9.11	8.55	8.00	8.32	8.65	7.47	8.49
	27-Sep-14	7.28	7.51	7.43	6.59	6.69	6.61	6.42	5.75	6.62
	30-Sep-14	9.37	7.93	8.94	8.20	7.32	7.02	6.43	5.97	8.37
Mid-Flood	1-Sep-14	8.79	8.64	8.31	8.34	9.40	10.20	8.69	8.11	9.14
	3-Sep-14	10.91	10.81	11.30	10.37	11.24	9.19	11.39	11.70	10.93
	5-Sep-14	9.01	8.75	7.83	7.04	7.35	6.44	6.64	6.22	9.78
	8-Sep-14	5.67	6.14	6.36	6.23	6.56	7.18	7.29	6.20	6.45
	10-Sep-14	10.12	10.06	10.22	10.65	10.78	12.68	10.90	9.89	10.27
	12-Sep-14	6.22	6.39	6.63	6.24	7.71	10.02	8.25	7.38	6.69
	15-Sep-14	5.99	6.27	6.33	6.25	6.28	6.39	7.15	6.18	6.51
	17-Sep-14	6.42	6.86	6.57	6.19	6.75	6.20	6.35	6.65	7.89
	19-Sep-14	7.01	6.85	7.46	8.03	6.54	6.31	6.39	7.01	7.38
	22-Sep-14	8.84	8.66	7.87	7.69	8.07	8.49	7.01	7.09	7.83
	24-Sep-14	6.71	6.96	7.62	7.88	7.73	7.56	6.98	6.87	8.17
	27-Sep-14	6.03	5.58	6.22	6.01	5.94	8.08	6.43	5.45	5.43
	30-Sep-14	6.80	6.50	6.82	6.86	7.03	8.90	8.33	6.78	6.31

Table 4-2 Results Summary of Bottom Depth of DO (mg/L)

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
Mid-Ebb	1-Sep-14	NA	NA	6.63	6.34	9.71	8.11	8.52	7.92	6.74
	3-Sep-14	NA	NA	8.85	9.09	10.45	8.40	8.80	9.56	8.41
	5-Sep-14	NA	NA	6.12	6.03	6.70	6.32	8.47	6.06	5.61
	8-Sep-14	NA	NA	5.76	5.85	5.83	6.06	6.12	5.89	6.00
	10-Sep-14	NA	NA	9.98	9.43	9.45	9.34	9.92	10.62	10.62
	12-Sep-14	NA	NA	9.28	8.62	8.95	6.69	7.73	7.52	8.67
	15-Sep-14	NA	NA	5.83	5.75	5.95	6.12	6.09	5.63	5.76
	17-Sep-14	NA	NA	5.57	5.78	6.18	8.47	6.54	6.43	5.63
	19-Sep-14	NA	NA	5.64	5.79	5.94	6.14	7.10	5.30	5.66
	22-Sep-14	NA	NA	6.24	6.09	6.43	6.07	6.14	6.78	6.97
	24-Sep-14	NA	NA	7.40	7.89	7.10	6.12	6.41	6.13	7.07
	27-Sep-14	NA	NA	6.34	6.03	5.90	6.10	6.11	5.22	5.90
	30-Sep-14	NA	NA	7.14	6.42	6.13	6.08	6.10	4.57	5.74
Mid-Flood	1-Sep-14	NA	NA	6.35	6.53	6.87	7.51	6.55	5.95	7.83

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
	3-Sep-14	NA	NA	10.63	8.48	10.04	8.52	8.49	7.32	8.37
	5-Sep-14	NA	NA	5.98	5.96	6.26	6.23	6.15	4.85	5.99
	8-Sep-14	NA	NA	5.92	5.85	5.88	6.34	6.12	5.92	5.72
	10-Sep-14	NA	NA	9.58	9.91	10.54	11.33	9.87	9.15	9.60
	12-Sep-14	NA	NA	5.73	5.76	7.45	8.25	7.48	7.01	6.22
	15-Sep-14	NA	NA	5.87	5.73	5.80	6.09	6.10	5.76	5.92
	17-Sep-14	NA	NA	5.96	5.87	6.64	6.09	6.10	6.58	7.03
	19-Sep-14	NA	NA	6.00	6.45	5.91	6.11	6.12	6.77	7.02
	22-Sep-14	NA	NA	6.58	6.87	7.19	6.18	6.67	6.04	6.42
	24-Sep-14	NA	NA	6.64	6.75	6.57	6.11	6.19	6.19	7.10
	27-Sep-14	NA	NA	5.40	5.82	5.87	7.65	6.57	5.08	4.96
	30-Sep-14	NA	NA	5.73	5.90	6.38	7.84	6.21	5.61	5.74

emark: Italic and bold value indicated Action Level exceedance
Underlined and bold value indicated Limit Level exceedance

Table 4-3 Results Summary of Depth Average of Turbidity (NTU)

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
Mid-Ebb	1-Sep-14	2.10	2.45	2.18	2.85	1.83	2.60	2.73	2.45	2.42
	3-Sep-14	0.95	2.90	1.10	2.75	0.88	2.90	1.87	1.85	2.23
	5-Sep-14	1.20	0.70	0.58	1.77	0.53	1.27	0.45	0.35	1.47
	8-Sep-14	2.85	2.40	2.55	2.58	2.55	2.52	2.53	3.25	2.12
	10-Sep-14	0.60	2.30	2.38	1.77	2.90	1.97	3.93	6.12	1.05
	12-Sep-14	2.70	3.50	2.67	2.95	2.50	3.38	3.65	5.28	3.50
	15-Sep-14	2.70	2.30	4.63	4.75	1.13	3.08	1.67	2.80	1.55
	17-Sep-14	4.55	5.30	6.90	5.72	5.08	4.13	4.28	3.50	5.88
	19-Sep-14	4.35	5.35	4.08	4.28	2.13	1.97	0.72	1.67	3.62
	22-Sep-14	1.85	4.00	4.42	5.25	3.65	4.30	3.32	2.97	6.05
	24-Sep-14	3.35	4.50	5.10	3.60	4.73	2.97	3.40	4.25	3.88
	27-Sep-14	2.80	3.40	2.68	2.57	3.75	1.93	3.97	4.90	1.68
	30-Sep-14	2.10	4.05	2.33	2.42	2.33	1.98	1.32	3.60	2.75
Mid-Flood	1-Sep-14	1.85	2.60	3.45	3.02	2.03	1.93	2.50	1.70	2.15
	3-Sep-14	1.05	2.45	1.00	1.02	1.60	1.67	1.45	1.83	3.52
	5-Sep-14	0.35	1.60	0.20	0.88	0.23	1.20	0.82	0.37	1.67
	8-Sep-14	2.85	3.35	4.73	4.13	3.75	4.00	4.00	4.23	2.57
	10-Sep-14	3.60	2.60	3.72	3.40	4.18	2.08	3.05	3.83	2.42
	12-Sep-14	2.00	2.05	3.30	4.07	2.50	3.02	5.28	5.55	2.35
	15-Sep-14	2.65	2.60	2.23	2.17	2.53	2.08	1.02	0.88	3.98
	17-Sep-14	5.25	5.40	6.17	5.62	5.25	4.72	5.23	5.72	5.50
	19-Sep-14	2.75	4.10	3.58	3.18	1.68	3.25	2.18	2.73	3.22
	22-Sep-14	2.75	2.85	4.20	3.88	2.53	2.15	5.17	5.18	4.07
	24-Sep-14	4.40	5.35	5.12	5.18	4.45	3.87	5.57	4.67	4.88
	27-Sep-14	2.45	2.75	2.78	2.92	2.15	1.75	3.73	5.20	3.02
	30-Sep-14	1.90	5.10	4.22	4.67	2.13	3.37	2.08	3.15	4.30

Table 4-4 Results Summary of Depth Average of Suspended Solids (mg/L)

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
Mid-Ebb	1-Sep-14	6.50	6.50	5.67	7.67	5.75	5.67	6.17	5.83	4.67
	3-Sep-14	4.00	6.50	3.33	3.83	3.25	6.50	4.83	4.00	4.67
	5-Sep-14	2.00	3.00	2.50	1.50	3.25	2.00	2.67	1.00	1.83
	8-Sep-14	6.00	6.00	7.50	7.83	6.00	5.17	6.00	6.83	5.33
	10-Sep-14	2.50	4.00	2.83	3.17	3.75	3.17	4.83	4.33	2.83
	12-Sep-14	5.50	5.50	4.50	3.83	4.00	3.50	4.67	6.33	4.67
	15-Sep-14	3.50	4.00	3.00	2.67	3.25	4.00	2.33	2.00	4.50
	17-Sep-14	**8.50**	***8.00***	**16.33**	**19.17**	**10.25**	***9.50***	***8.83***	7.33	25.00
	19-Sep-14	6.00	6.50	5.00	6.83	2.50	4.33	3.00	2.50	5.33

Tidal	Sampling date	W1	W2	W3	W4	W5	W6	W7	W8	W9
	22-Sep-14	5.50	6.50	5.17	6.17	2.25	4.17	3.00	3.00	6.17
	24-Sep-14	**9.50**	***8.00***	7.83	7.33	**8.50**	7.17	7.50	7.83	5.50
	27-Sep-14	6.00	7.00	6.00	4.33	4.25	4.67	7.83	6.00	5.00
	30-Sep-14	5.00	6.00	2.33	3.17	3.75	4.00	3.00	3.83	3.50
Mid-Flood	1-Sep-14	7.00	6.50	7.33	7.67	6.00	7.17	6.83	5.00	5.00
	3-Sep-14	6.50	7.00	4.17	4.83	5.00	5.67	4.67	7.00	7.33
	5-Sep-14	2.50	6.00	2.17	1.83	3.00	3.00	3.00	3.17	3.17
	8-Sep-14	6.50	7.00	7.83	7.00	6.00	6.83	7.83	8.83	8.17
	10-Sep-14	5.50	4.00	4.17	2.67	***6.25***	5.83	5.17	4.33	4.33
	12-Sep-14	6.50	5.50	4.83	4.83	4.25	5.17	5.33	8.00	2.33
	15-Sep-14	4.50	4.50	6.00	4.67	3.00	5.00	3.83	3.83	4.33
	17-Sep-14	**9.00**	**13.00**	**16.00**	**14.83**	**13.50**	**9.17**	**15.50**	16.83	16.83
	19-Sep-14	5.00	5.50	5.67	5.83	4.50	5.17	2.50	3.17	5.67
	22-Sep-14	5.00	6.00	5.50	5.67	5.00	4.50	6.83	6.50	6.00
	24-Sep-14	**9.50**	7.00	7.00	7.50	**7.00**	7.17	***8.83***	8.17	8.17
	27-Sep-14	6.00	6.50	7.67	6.00	6.00	4.67	5.33	5.50	7.17
	30-Sep-14	4.00	5.00	3.67	3.33	3.75	5.67	3.83	3.50	3.83

Remark: Italic and bold value indicated Action Level exceedance
Underlined and bold value indicated Limit Level exceedance

4.3 During the Reporting Period, field measurements showed that temperatures of marine water were within 26.19°C to 29.96°C; the salinity concentrations within 31.29 to 36.40 ppt and pH values within 6.67 to 8.05.

4.4 The monitoring results including in-situ measurements and laboratory testing results are provided in ***Appendix H***. The graphical plots are shown in ***Appendix I***.

4.5 A summary of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids is shown in ***Table 4-5***.

Table 4-5 Summary of Water Quality Exceedance

Station	DO (Ave of Top & mid-depth)		DO Bottom Depth		Turbidity (Depth Ave.)		SS (Depth Ave)		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
W1	0	0	0	0	0	0	0	**4**	0	0
W2	0	0	0	0	0	0	**2**	**1**	0	0
W3	0	0	0	0	0	0	0	**2**	0	0
W4	0	0	0	0	0	0	0	**2**	0	0
W5	0	0	0	0	0	0	**1**	**4**	0	0
W6	0	0	0	0	0	0	**2**	0	0	0
W7	0	0	0	0	0	0	**2**	**1**	0	0
No of Exceedance	0	0	0	0	0	0	**7**	**14**	**7**	**21**

4.6 In this Reporting Month, there were seven (7) Action Level exceedances and fourteen (14) Limit Level exceedance in water quality recorded. The exceedances in this reporting month are under investigation and the investigation results will be provided in the report of next reporting month.

4.7 For the exceedances of the last Reporting Month (August 2014), investigations had been carried out and it is considered that the exceedances were not related to the work under the project since no marine work was being taken in the August 2014. The possible reasons for the exceedance may are likely due to natural variation as the baseline monitoring was carried during winter. Formal investigation reports had been submitted for IEC's endorsement.

RESULTS OF CONSTRUCTION NOISE MONITORING

4.8 The sound level were set in a free field situation during construction noise measurement. Therefore, a façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines. In the Reporting Month, a total **5** events of construction noise monitoring has been undertaken. The noise monitoring results at the designated location (N1) are summarized in ***Table 4-6***.

Table 4-6 Summary of Construction Noise Monitoring Results – N1

Date	Start Time	1st Leq_{5min}	2nd Leq_{5min}	3rd Leq_{5min}	4th Leq_{5min}	5th Leq_{5min}	6th Leq_{5min}	Leq_{30min}	Corrected* Leq_{30min}
1-Sep-14	14:28	57.2	56.1	55.6	57.4	55.2	54.8	56.2	59.0
8-Sep-14	14:18	54.1	53.1	53.4	55.4	54.5	56.2	54.6	58.0
17-Sep-14	14:48	52.2	51.2	50.2	51.6	56.5	54.7	53.3	56.0
22-Sep-14	14:28	50.2	48.0	54.6	49.9	49.8	47.2	50.7	54.0
30-Sep-14	15:46	57.2	54.1	53.8	54.4	56.0	50.7	54.8	58.0
Limit Level		-						**> 75 dB(A)**	

(*) A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines.

4.9 As shown in the results were well below 75dB(A), also no noise complaint (which is an Action Level exceedance) was received by the RE, WSD, EPD and the Contractor. Hence, no Action or Limit Level exceedance was triggered during this month. The graphical plot is shown in ***Appendix I***.

4.10 The meteorological information during reporting month extracted from Cheung Chau Station of the Hong Kong Observatory (HKO) shows in ***Appendix J***.

5. WASTE MANAGEMENT

5.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

RECORDS OF WASTE QUANTITIES

All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

5.2 The quantities of waste for disposal in this Reporting Period are summarized in ***Table 5-1*** and ***5-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix K***. Whenever possible, materials were reused on-site as far as practicable.

Table 5-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000 m^3)	0	-
Reused in this Contract (Inert) ('000 m^3)	0	-
Reused in other Projects (Inert) ('000 m^3)	0	-
Disposal as Public Fill (Inert) ('000 m^3)	0.136	Outlaying Island Transfer facility (Cheung Chau Station)

Table 5-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal ('000kg)	0	-
Recycled Paper / Cardboard Packing ('000kg)	0	-
Recycled Plastic ('000kg)	0	-
Chemical Wastes ('000kg)	0	-
General Refuses ('000 m^3)	0.060	Outlaying Island Transfer facility (Cheung Chau Station)

5.3 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m^3 in this monthly period.

6. SITE INSPECTION

6.1 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should been formulation by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. **5** weekly site inspections were carried out on **2, 10, 16, 23 and 30 September 2014** with the Representatives of the Engineer and the Contractor to evaluate the site environmental performance in this Reporting Month. Furthermore, joint site inspection with IEC also undertaken on **23 September 2014**. No non-compliance was noted. However, minor deficiencies were observed during weekly site inspection or joint site inspection.

6.2 Observations for the site inspections and monthly audit within this Reporting Month are summarized in ***Table 6-1***.

Table 6-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
26 August 2014	- The Contractor was reminded to improve housekeeping of the construction site.	The housekeeping of the construction site has been improved.
2 September 2014	- Contractor was reminded to place the free standing chemical into drip tray.	The chemical can has been placed into drip tray.
10 September 2014	- No environmental issue was observed during the site inspectio	NA
16 September 2014	- The Contractor was reminded to keep no obstacle in the U-channel.	The U-channel has been cleaned.
23 September 2014	- The Contractor was reminded to provide the Noise Emission Label to the air compressor capable of supply compressed air at 500kPa or above.	To be followed in October 2014.
30 September 2014		

7. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

7.1 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in ***Tables 7-1, 7-2*** and ***7-3***.

Table 7-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
28 Mar 14 – 31 Aug 14	0	0	NA
1 Sep 14 – 30 Sep 14	0	0	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
28 Mar 14 – 31 Aug 14	0	0	NA
1 Sep 14 – 30 Sep 14	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
28 Mar 14 – 31 Jul 14	0	0	NA
1 Sep 14 – 30 Sep 14	0	0	NA

8. IMPLEMENTATION STATUS OF MITIGATION MEASURES

GENERAL REQUIREMENTS

8.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are showed ***Appendix L.***

8.2 CRCPJV had been implementing the required environmental mitigation measures according to the Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by CRCPJV in this Reporting Month are summarized in ***Table 8-1***.

Table 8-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	• Wastewater were appropriately treated by treatment facilities; • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	• Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public roads around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	• Good site practices to limit noise emissions at the sources; • Use of quite plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; • Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs; • Scheduling of construction works outside school examination period in critical area; and • Alternative use of plant items within one worksite, where practicable.
Waste and Chemical Management	• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	• The site was generally kept tidy and clean.

KEY ISSUES FOR THE COMING MONTH

8.3 Key issues to be considered in the coming month include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

9. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

9.1 This is **6th** monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from **1 Sep 2014** to **30 Sep 2014**.

9.2 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in the Reporting Period. No NOEs or the associated corrective actions were therefore issued.

9.3 In this Reporting Month, there were seven (7) Action Level exceedances and fourteen (14) Limit Level exceedance in water quality recorded. The exceedances in this reporting month are under investigation and the investigation results will be provided in the report of next reporting month.

9.4 For the exceedances of the last Reporting Month (August 2014), investigations had been carried out and it is considered that the exceedances were not related to the work under the project since no marine work was being taken in the August 2014. The possible reasons for the exceedance may are likely due to natural variation as the baseline monitoring was carried during winter. Formal investigation reports had been submitted for IEC's endorsement.

9.5 No documented complaint, notification of summons or successful prosecution was received by the Project.

9.6 The ET had carried out site inspection on **2, 10, 16, 23 and 30 September 2014** with the Representatives of the Engineer and the Contractor. Furthermore, joint site inspection with IEC also undertaken on **23 September 2014**. No non-compliance was noted; however minor deficiencies were observed during site inspection. The deficiencies has rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

RECOMMENDATIONS

9.7 Due to wet season has come, so muddy water or other water pollutants from sites surface flow to sea water bodies or public area will be key environment issue. Hence, water quality mitigation measures to prevent surface runoff into nearby water bodies or public areas should be to paid special attention. Moreover, noise mitigation measures should be properly maintained to prevent construction noise as impacted surrounding resident.

9.8 To control the site performance on waste management, the CRCPJV shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. CRCPJV is also reminded to implement the recommended environmental mitigation measures according to the Environmental Monitoring and Audit Manual.

9.9 Baseline monitoring of noise and water quality was conducted during typical Hong Kong dry season (November to April next the year). It is important that influence of the seasonal changes is taken into account when interpreting monitoring data of all environmental issues obtained in the coming rainy season. Review of the baseline conditions may need to be conducted regularly in particular during times of seasonal changes. If the baseline changes are evident, the environmental performance criteria should be re-established under agreement of the ER and IEC and submitted to the EPD for endorsement.

Appendix A

Project Site Layout Plan

819 400 E | 819 600 E | 819 800 E | 820 000 E | 820 200 E | 820 400 E | 820 600 E | 820 800 E | 821 000 E

809 800 N | 809 600 N | 809 400 N | 809 200 N | 809 000 N | 808 800 N | 808 600 N

382902/B/TEN/00005

382902/B/TEN/00004

382902/B/TEN/00003

382902/B/TEN/00002

382902/B/TEN/00001

CUT LINE D–D

CUT LINE C–C

CUT LINE B–B

CUT LINE A–A

CHI MA WAN PENINSULA

HA SO PAI

ADAMASTA CHANNEL

TAI KWAI WAN

CHEUNG CHAU

N

MAP NOS.

14NW8D, 14NW9C, 14NW13B, 14NW14A, 14NW14B, 14NW14D, 14NW15A & 14NW15C

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING REFERENCE NOS. 382902/B/TEN/00001 TO 00005.
2. REFER TO DRAWING REFERENCE NO. 382902/B/TEN/00001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.

LANTAU ISLAND

HEI LING CHAU

N

THE SITE

CHI MA WAN PENINSULA

ADAMASTA CHANNEL

CHEUNG CHAU

LOCATION PLAN
SCALE A1 1 : 50000
A3 1 : 100000

編號 No.	日期 Date	摘要 Description of revision	設計 Des'd	核對 Chkd	復核 Rd/Vd	核准 Appd
A	04/13	ISSUE FOR TENDER	HL	TL	KIL	WLS

REVISIONS 修訂

	姓名 Name	簽署 Initial	日期 Date
設計 Designed	HL		04/13
繪製 Drawn	SZ		04/13
核對 Checked	TL		04/13
復核 Verified	KIL		04/13
核准 Approved			

合約編號 Contract No. 1/WSD/13

合約編號 Agreement No. CE 52/2009 (WS)

合約名稱 Contract title

IMPROVEMENT OF FRESH WATER SUPPLY TO CHEUNG CHAU

圖則名稱 Drawing title

PORTION OF WORKS– CHEUNG CHAU, ADAMASTA CHANNEL, LANTAU ISLAND (KEY PLAN)

圖則參考編號 Drawing Reference No. 382902/B/TEN/00001K

修訂 Revision A

合約圖則編號 Contract Drawing No.

修訂 Revision

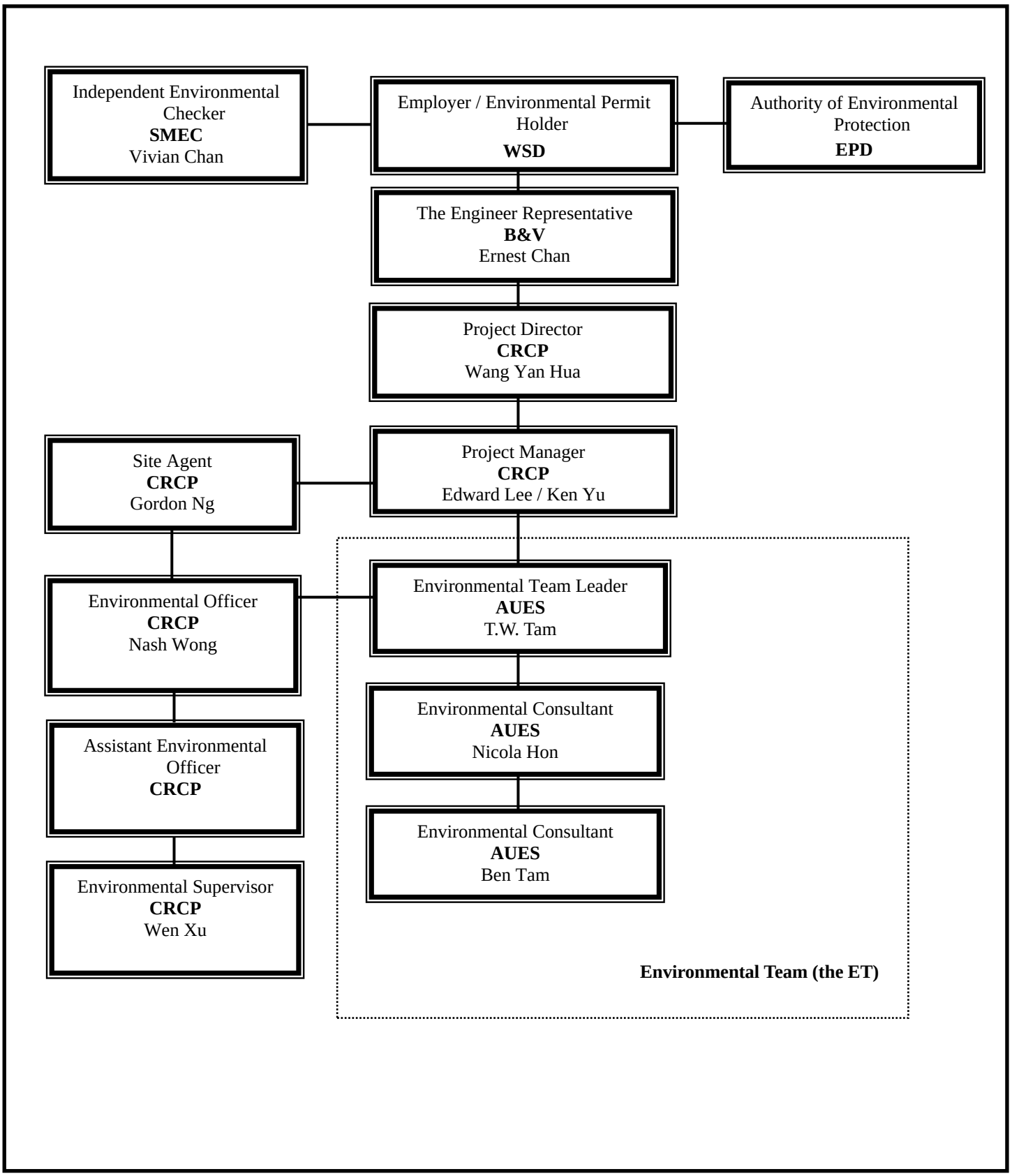
比例 Scale A1 1:2500 A3 1:5000

水務署 Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Appendix B

Organization Structure and Contact Details of Relevant Parties



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
B&V	Engineer's Representative	Ernest Chan	2981 1149	3485 4114
SMEC	Independent Environmental Checker	Vivian Chan	3995 8120	3995 8101
CRCP	Project Director	Wang Yan Hua	2981 1686	2981 1689
CRCP	Site Agent	Gordon Ng	2981 1686	2981 1689
CRCP	Environmental Officer	Nash Wong	2981 1686	2981 1689
CRCP	Environmental Supervisor	Wen Xu	2981 1686	2981 1689
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079
AUES	Assistant Environmental Consultant	Martin Li	2959 6059	2959 6079

Legend:

WSD (Employer) –Water Supplies Department

B&V (Engineer) – Black & Veatch Hong Kong Limited

CRCP (Main Contractor) – China Road – China Pipeline JV

SMEC (IEC) – SMEC Asia Limited

AUES (ET) – Action-United Environmental Services & Consulting

Appendix C

Master and Three Months Rolling Construction Programs

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
Contract Dates												
KDC000050	Contract Date	Cal_1		23OCT13 A	23OCT13 A	0	0					0d
KDC000100	Starting Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDC000200	Section 1 of the Works Completion Date	Cal_1				0	0	23OCT15 *	23OCT15 *	0	0	0d
KDC000300	Section 2 of the Works Completion Date	Cal_1				0	0	23OCT16 *	23OCT16 *	0	0	0d
Planned Completion Dates												
KDP000100	Planned Section 1 of the Works Completion Date	Cal_1				0	0	21OCT15	23OCT15 *	0	3d	0d
KDP000200	Planned Section 2 of the Works Completion Date	Cal_1				0	0	21OCT16	23OCT16 *	3d	3d	0d
Access Dates												
KDA000100	Portion A Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000200	Portion B Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000300	Portion C Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000400	Portion D Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000500	Portion E Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000600	Portion F Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
KDA000700	Portion G Access Date	Cal_1		24OCT13 A	24OCT13 A	0	0					0d
Change of Works Information												
CW00100	Recd realignment of submarine pipeline profile	Cal_1		10APR14 A	10APR14 A	0	0					0d
General Provisions												
GEP000300	Temp accomm for PM, Supervisor & Contractor	Cal_1		24OCT13 A	24OCT13 A	1095	875	21OCT16	23OCT16	2d	2d	0d
GEP000400	Computer facilities for PM & Supervisor	Cal_1		24OCT13 A	24OCT13 A	1095	875	21OCT16	23OCT16	2d	2d	0d
GEP000500	Marine transport for PM & Supervisor	Cal_1		24OCT13 A	24OCT13 A	1095	875	21OCT16	23OCT16	2d	2d	0d
GEP000600	Site staff/hotline/temp facilities/site clean	Cal_1		24OCT13 A	24OCT13 A	1095	875	21OCT16	23OCT16	2d	2d	0d
GEP000700	Provision of uniform	Cal_1		28FEB14 A	28FEB14 A	1095	875	21OCT16	23OCT16	2d	2d	0d
General Submissions												
GES000100	Initial survey and report	Cal_1				0	0	29JAN14 A	29JAN14 A			0d

Start date	**23OCT13**
Finish date	**23OCT16**
Data date	**31MAY14**
Run date	**29MAY14**
Page number	**1A**

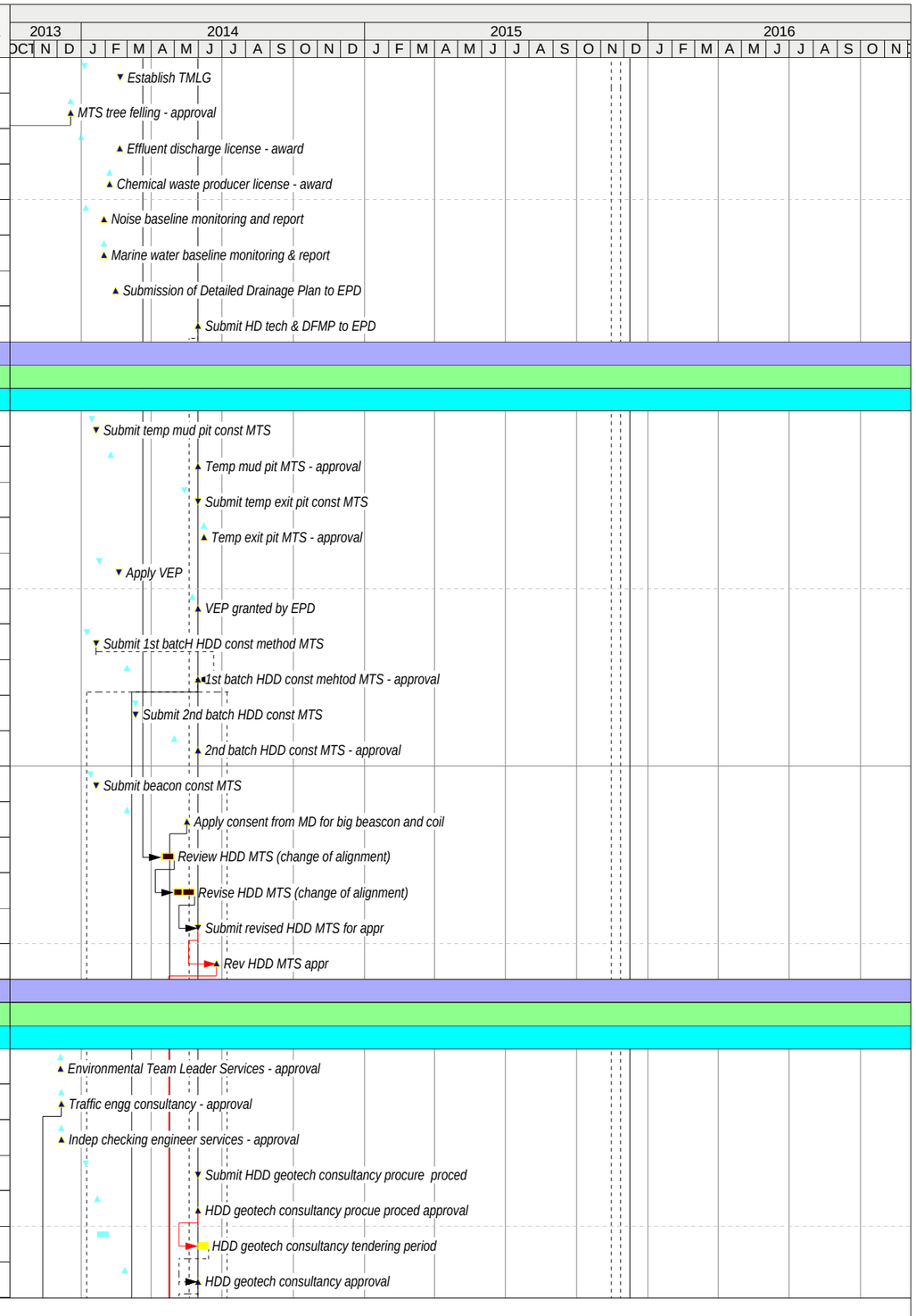
Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
GES000200	Establish TMLG	Cal_1		20FEB14 A	20FEB14 A	0	0					0d
GES000500	MTS tree felling - approval	Cal_1				0	0	17DEC13 A	17DEC13 A			0d
GES000700	Effluent discharge license - award	Cal_1				0	0	18FEB14 A	18FEB14 A			0d
GES000900	Chemical waste producer license - award	Cal_1				0	0	05FEB14 A	05FEB14 A			0d
GES001000	Noise baseline monitoring and report	Cal_1				0	0	29JAN14 A	29JAN14 A			0d
GES001100	Marine water baseline monitoring & report	Cal_1				0	0	29JAN14 A	29JAN14 A			0d
GES001200	Submission of Detailed Drainage Plan to EPD	Cal_1				0	0	13FEB14 A	13FEB14 A			0d
GES001300	Submit HD tech & DFMP to EPD	Cal_1				0	0	30MAY14 *	10SEP14	103d	103d	90d
Major Submissions												
MJS000190	Submit temp mud pit const MTS	Cal_1		20JAN14 A	20JAN14 A	0	0					0d
MJS000200	Temp mud pit MTS - approval	Cal_1				0	0	30MAY14 *	07FEB14 *	0	-112d	0d
MJS000290	Submit temp exit pit const MTS	Cal_1		31MAY14 *	14MAY14 *	0	0			0	-17d	0d
MJS000300	Temp exit pit MTS - approval	Cal_1				0	0	07JUN14 *	07JUN14 *	0	0	0d
MJS000390	Apply VEP	Cal_1		18FEB14 A	18FEB14 A	0	0					0d
MJS000400	VEP granted by EPD	Cal_1				0	0	30MAY14 *	23MAY14 *	0	-7d	30d
MJS000500	Submit 1st batcH HDD const method MTS	Cal_1		20JAN14 A	20JAN14 A	0	0					0d
MJS000600	1st batch HDD const mehtod MTS - approval	Cal_1				0	0	30MAY14 *	28FEB14 *	0	-91d	21d
MJS000610	Submit 2nd batch HDD const MTS	Cal_1		12MAR14 A	12MAR14 A	0	0					0d
MJS000620	2nd batch HDD const MTS - approval	Cal_1				0	0	30MAY14 *	30APR14 *	0	-30d	21d
MJS000690	Submit beacon const MTS	Cal_1		20JAN14 A	20JAN14 A	0	0					0d
MJS000700	Apply consent from MD for big beascon and coil	Cal_1				0	0	16MAY14 A	16MAY14 A			21d
MJS000800	Review HDD MTS (change of alignment)	Cal_2		14APR14 A	14APR14 A	20	0	30APR14 A	30APR14 A			0d
MJS000900	Revise HDD MTS (change of alignment)	Cal_2		30APR14 A	30APR14 A	28	0	26MAY14 A	26MAY14 A			0d
MJS000910	Submit revised HDD MTS for appr	Cal_2		31MAY14	31MAY14	0	0			0	0	0d
MJS000920	Rev HDD MTS appr	Cal_1				0	0	23JUN14	23JUN14	0	0	21d
Major Subletting												
MSL000100	Environmental Team Leader Services - approval	Cal_1				0	0	04DEC13 A	04DEC13 A			0d
MSL000200	Traffic engg consultancy - approval	Cal_1				0	0	05DEC13 A	05DEC13 A			0d
MSL000300	Indep checking engineer services - approval	Cal_1				0	0	05DEC13 A	05DEC13 A			0d
MSL000400	Submit HDD geotech consultancy procure proced	Cal_1		31MAY14 *	07JAN14 *	0	0			0	-144d	0d
MSL000500	HDD geotech consultancy procue proced approval	Cal_1				0	0	30MAY14 *	21JAN14 *	0	-129d	7d
MSL000600	HDD geotech consultancy tendering period	Cal_1		31MAY14	22JAN14	14	14	13JUN14	04FEB14	0	-129d	0d
MSL000700	HDD geotech consultancy approval	cal_1				0	0	30MAY14 *	25FEB14 *	0	-94d	0d



Start date	**23OCT13**
Finish date	**23OCT16**
Data date	**31MAY14**
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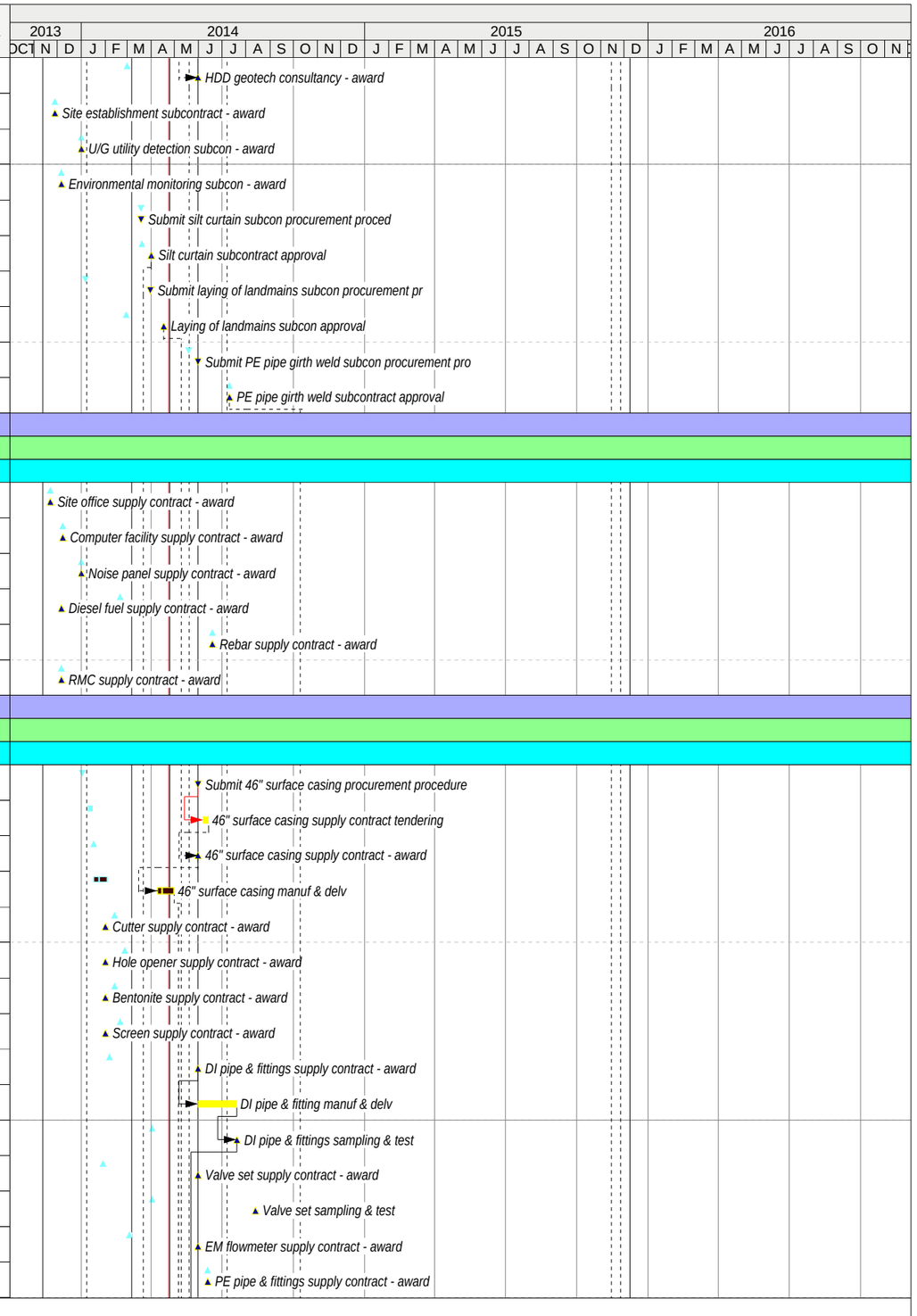
Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
MSL000800	HDD geotech consultancy - award	Cal_1				0	0	30MAY14 *	28FEB14 *	0	-91d	0d
MSL000900	Site establishment subcontract - award	Cal_1				0	0	27NOV13 A	27NOV13 A			0d
MSL001000	U/G utility detection subcon - award	Cal_1				0	0	31DEC13 A	31DEC13 A			0d
MSL001100	Environmental monitoring subcon - award	Cal_1				0	0	05DEC13 A	05DEC13 A			0d
MSL001200	Submit silt curtain subcon procurement proced	Cal_1		19MAR14 A	19MAR14 A	0	0					0d
MSL001300	Silt curtain subcontract approval	Cal_1				0	0	31MAR14 A	31MAR14 A			7d
MSL001400	Submit laying of landmains subcon procurement	Cal-1		31MAR14 A	31MAR14 A	0	0					0d
MSL001500	Laying of landmains subcon approval	Cal_1				0	0	16APR14 A	16APR14 A			7d
MSL001600	Submit PE pipe girth weld subcon procurement	Cal_1		31MAY14 *	19MAY14 *	0	0			0	-12d	0d
MSL001700	PE pipe girth weld subcontract approval	Cal_1				0	0	10JUL14 *	10JUL14 *	0	0	14d
Major Local Procurement												
MLP000100	Site office supply contract - award	Cal_1				0	0	21NOV13 A	21NOV13 A			0d
MLP000200	Computer facility supply contract - award	Cal_1				0	0	07DEC13 A	07DEC13 A			0d
MLP000300	Noise panel supply contract - award	Cal_1				0	0	31DEC13 A	31DEC13 A			0d
MLP000400	Diesel fuel supply contract - award	Cal_1				0	0	05DEC13 A	05DEC13 A			0d
MLP000500	Rebar supply contract - award	Cal_1				0	0	18JUN14 *	18JUN14 *	0	0	0d
MLP000600	RMC supply contract - award	Cal_1				0	0	05DEC13 A	05DEC13 A			0d
Major Overseas Procurement												
MOP000100	Submit 46" surface casing procurement procedure	Cal_1		31MAY14 *	02JAN14 *	0	0			0	-149d	0d
MOP000200	46" surface casing supply contract tendering	Cal_1		07JUN14	10JAN14	7	7	13JUN14	16JAN14	0	-148d	0d
MOP000300	46" surface casing supply contract - award	Cal_1				0	0	30MAY14 *	16JAN14 *	0	-134d	0d
MOP000400	46" surface casing manuf & delv	Cal_1		09APR14 A	09APR14 A	18	0	30APR14 A	30APR14 A			0d
MOP000500	Cutter supply contract - award	Cal_1				0	0	31JAN14 A	31JAN14 A			0d
MOP000600	Hole opener supply contract - award	Cal_1				0	0	31JAN14 A	31JAN14 A			0d
MOP000700	Bentonite supply contract - award	Cal_1				0	0	31JAN14 A	31JAN14 A			0d
MOP000800	Screen supply contract - award	Cal_1				0	0	31JAN14 A	31JAN14 A			0d
MOP000900	DI pipe & fittings supply contract - award	Cal_1				0	0	30MAY14 A	30MAY14 A			0d
MOP000910	DI pipe & fitting manuf & delv	Cal_1		31MAY14	16JUN14	50	50	19JUL14	05AUG14	0	16d	0d
MOP001000	DI pipe & fittings sampling & test	Cal_1				0	0	19JUL14	05AUG14	1d	16d	0d
MOP001100	Valve set supply contract - award	Cal_1				0	0	30MAY14 A	30MAY14 A			0d
MOP001200	Valve set sampling & test	Cal_1				0	0	12AUG14 *	12AUG14 *	0	0	0d
MOP001300	EM flowmeter supply contract - award	Cal_1				0	0	30MAY14 A	30MAY14 A			0d
MOP001400	PE pipe & fittings supply contract - award	Cal_1				0	0	12JUN14 *	12JUN14 *	0	0	0d



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Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
MOP001500	PE pipe & fittings onsite sampling & test	Cal_1				0	0	15NOV14 *	15NOV14 *	0	0	0d
General Safety & Environmental Provisions												
SSE000100	Implement safety provisions (SSEMC end of @	Cal_1		24OCT13 A	24OCT13 A	1096	875	21OCT16	23OCT16	2d	2d	0d
SSE000200	Implement enviro provisions (SSEMC end of @	Cal_1		24OCT13 A	24OCT13 A	1096	875	21OCT16	23OCT16	2d	2d	0d
Sec 1 Portion A & B Site Preparation												
SE1000100	Portion A & B Site clearance	Cal_2		24OCT13 A	24OCT13 A	10	0	01NOV13 A	01NOV13 A			0d
SE1000200	Erect site office c/w furniture	Cal_2		31DEC13 A	31DEC13 A	30	0	29JAN14 A	29JAN14 A			0d
SE1000300	Erect nosie barrier panel	Cal_2		19FEB14 A	19FEB14 A	15	0	31MAR14 A	31MAR14 A			0d
SE1000400	Perimeter channel & sediment tank	Cal_2		03DEC13 A	03DEC13 A	15	0	15JAN14 A	15JAN14 A			0d
SE1000500	Hard pave "Dirt" area w/lean conc	Cal_2		11FEB14 A	11FEB14 A	15	7	09JUN14	10JUL14	0	29d	0d
SE1000600	U/G utility detection to Portion A/B/F/G	Cal_2		03DEC13 A	03DEC13 A	7	0	15JAN14 A	15JAN14 A			0d
Sec 1 Portion D Site Preparation												
SE1100100	Portion D site clearance	Cal_2		31MAY14 *	04JUN14	10	10	11JUN14	14JUN14	0	3d	0d
SE1100200	Erect temp staging	Cal_2		25AUG14	27AUG14	10	10	03SEP14	06SEP14	0	3d	0d
SE1100300	Form temp exit pit	Cal_2		04SEP14	06SEP14	50	50	29OCT14	01NOV14	0	3d	0d
SE1100400	Erect silt curtain	Cal_2		09MAY14 A	09MAY14 A	10	0	10MAY14 A	10MAY14 A			0d
Sec 1 Prep for HDD Works												
MJS000010	Submit 46" surface casing MTS	Cal_1		20JAN14 A	20JAN14 A	0	0					0d
MJS000100	46"surface casing MTS - approval	Cal_1				0	0	30MAY14 *	24JAN14 *	0	-126d	0d
SE1000610	Cast deadman anchor	Cal_2		23MAY14 A	23MAY14 A	12	0	26MAY14 A	26MAY14 A			0d
SE1000620	Position rig and PPs	Cal_2		29MAY14 A	29MAY14 A	2	0	29MAY14 A	29MAY14 A			0d
SE1000700	Form temp mud pit	Cal_2		31JUL14	31JUL14	3	3	04AUG14	04AUG14	0	0	0d
SE1000800	Mobilization of SI rig	Cal_2		30DEC13 A	30DEC13 A	2	0	31DEC13 A	31DEC13 A			0d
SE1000900	GI ADH1 16-deg at entry side c/w report	Cal_2	95m	02JAN14 A	02JAN14 A	21	0	29JAN14 A	29JAN14 A			0d
SE1000910	GI ADH2 22-deg at entry side c/w report	Cal_2	99m	06FEB14 A	06FEB14 A	20	0	05MAR14 A	05MAR14 A			0d
SE1000920	GI ADH3 vert at exit side c/w report	Cal_2	50m	27MAR14 A	27MAR14 A	25	0	07APR14 A	07APR14 A			0d
SE1200100	Install 46" surface casing at entry pit	Cal_2	7m	23JUN14	23JUN14	21	21	16JUL14	16JUL14	0	0	0d
SE1200200	Seal 46" surface casing front	Cal_2		16JUL14	16JUL14	15	15	31JUL14	31JUL14	0	0	0d
SE1200300	Mob HDD rig (from PRC)	Cal_1		21MAR14 A	21MAR14 A	15	0	28MAR14 A	28MAR14 A			0d
SE1200400	Mob HDD mud sys (from AUS)	Cal_1		29MAR14 A	29MAR14 A	30	0	30APR14 A	30APR14 A			0d
SE1200500	Delv of 7-3/4" drill pipe (from PRC)	Cal_1		23APR14 A	23APR14 A	30	0	28MAY14 A	28MAY14 A			0d
SE1200600	Mob of HDD personnel	Cal_1		19MAR14 A	19MAR14 A	3	0	31MAR14 A	31MAR14 A			0d
SE1200800	Manuf & delv of 8-5/8" drill pipes (from USA)	Cal_1		31MAR14 A	31MAR14 A	115	15	14JUN14	01NOV14	137d	139d	0d

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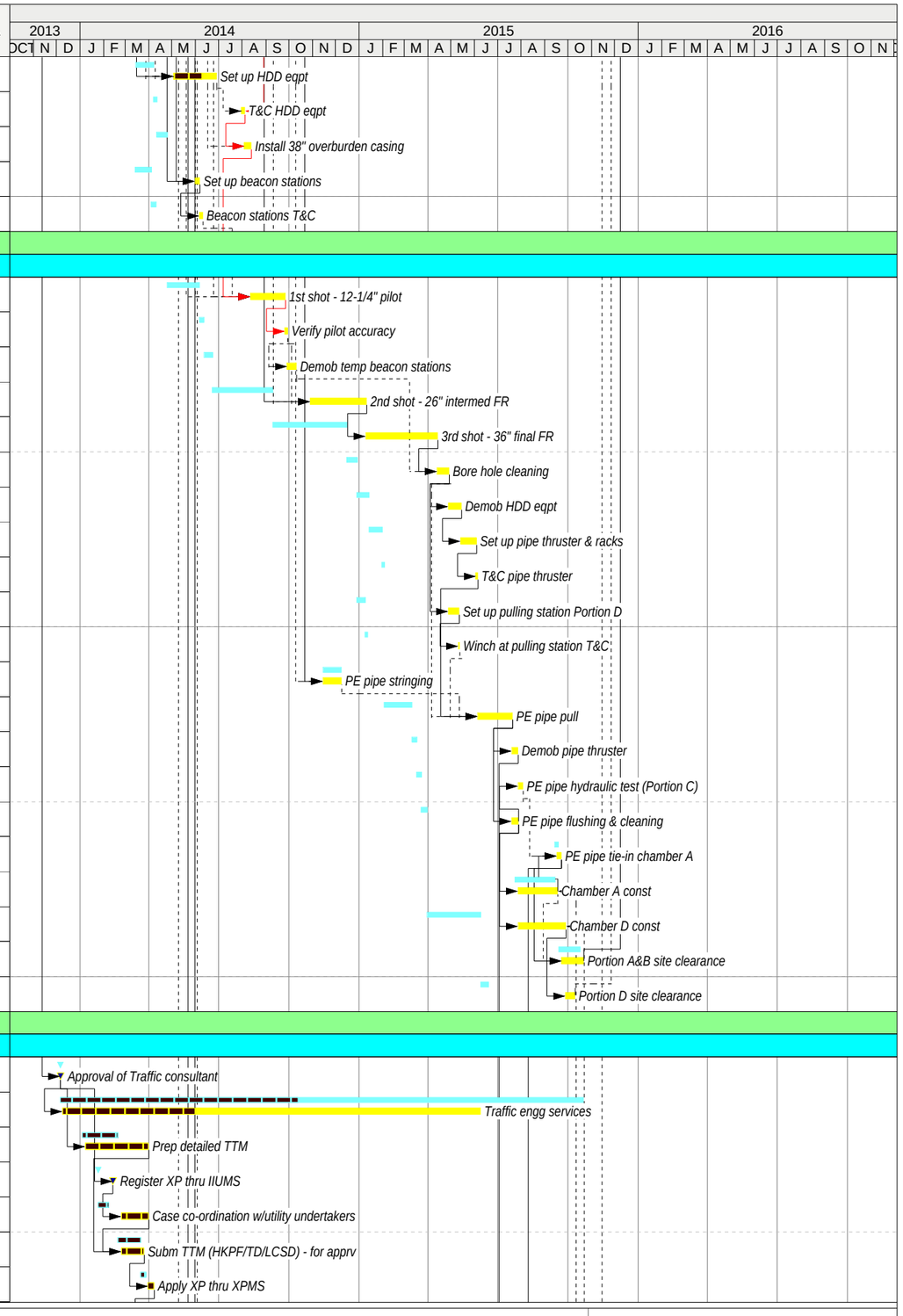
Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
SE1200900	Set up HDD eqpt	Cal_2		03MAY14 A	03MAY14 A	20	20	28JUN14	30JUL14	29d	29d	0d
SE1201000	T&C HDD eqpt	Cal_2		31JUL14	30JUL14	4	4	04AUG14	04AUG14	0	0	0d
SE1201050	Install 38" overburden casing	Cal_2	75m	04AUG14	04AUG14	10	10	12AUG14	12AUG14	0	0	0d
SE1201100	Set up beacon stations	Cal_2		31MAY14	02AUG14	5	5	06JUN14	07AUG14	0	59d	0d
SE1201200	Beacon stations T&C	Cal_2		06JUN14	07AUG14	4	4	10JUN14	11AUG14	59d	59d	0d
Sec 1 HDD Works												
SE1201300	1st shot - 12-1/4" pilot	Cal_3	1,442m	12AUG14	12AUG14	43	43	26SEP14	26SEP14	0	0	0d
SE1201400	Verify pilot accuracy	Cal_3		26SEP14	26SEP14	2	2	29SEP14	27SEP14	0	0	0d
SE1201450	Demob temp beacon stations	Cal_2		29SEP14	29SEP14	10	10	10OCT14 *	10OCT14 *	0	0	0d
SE1201500	2nd shot - 26" intermed FR	Cal_3	1,442m	29OCT14	01NOV14	68	68	10JAN15	14JAN15	0	3d	5d
SE1201600	3rd shot - 36" final FR	Cal_3	1,442m	10JAN15	14JAN15	82	82	13APR15	16APR15	0	3d	5d
SE1201700	Bore hole cleaning	Cal_3		13APR15	16APR15	14	14	28APR15	30APR15	0	3d	0d
SE1201750	Demob HDD eqpt	Cal_2		28APR15	30APR15	14	14	14MAY15	18MAY15	0	3d	0d
SE1201800	Set up pipe thruster & racks	Cal_2		14MAY15	18MAY15	17	17	03JUN15	06JUN15	0	3d	0d
SE1201900	T&C pipe thruster	Cal_2		03JUN15	06JUN15	2	2	05JUN15	09JUN15	0	3d	0d
SE1202000	Set up pulling station Portion D	Cal_2		28APR15	26MAY15	10	10	11MAY15	06JUN15	0	24d	0d
SE1202100	Winch at pulling station T&C	Cal_2		11MAY15	06JUN15	2	2	12MAY15	09JUN15	21d	24d	0d
SE1202300	PE pipe stringing	Cal_2	61 strings	15NOV14	15MAY15	21	21	08DEC14	09JUN15	159d	162d	0d
SE1202400	PE pipe pull	Cal_3	1,466m	05JUN15	09JUN15	42	42	20JUL15	23JUL15	0	3d	2d
SE1202500	Demob pipe thruster	Cal_2		20JUL15	03AUG15	6	6	27JUL15	08AUG15	0	13d	0d
SE1202600	PE pipe hydraulic test (Portion C)	Cal_2		28JUL15	14SEP15	6	6	03AUG15	21SEP15	44d	47d	0d
SE1202700	PE pipe flushing & cleaning	Cal_2		20JUL15	23JUL15	7	7	28JUL15	30JUL15	0	3d	0d
SE1202800	PE pipe tie-in chamber A	Cal_2		17SEP15	21SEP15	5	5	22SEP15	25SEP15	0	3d	0d
SE1202900	Chamber A const	Cal_2		28JUL15	30JUL15	50	50	17SEP15	21SEP15	0	3d	0d
SE1203000	Chamber D const	Cal_2		28JUL15	10AUG15	60	60	28SEP15	13OCT15	0	13d	0d
SE1203100	Portion A&B site clearance	Cal_2		23SEP15	25SEP15	25	25	21OCT15	23OCT15	0	3d	0d
SE1203200	Portion D site clearance	Cal_2		28SEP15	14OCT15	10	10	10OCT15	23OCT15	10d	13d	0d
Sec 1 Excavation Permit & TTA												
SE1300100	Approval of Traffic consultant	Cal_1		06DEC13 A	06DEC13 A	0	0					0d
SE1300110	Traffic engg services	Cal_1		09DEC13 A	09DEC13 A	470	374	08JUN15	23OCT16	503d	503d	0d
SE1300200	Prep detailed TTM	Cal_2		08JAN14 A	08JAN14 A	40	0	31MAR14 A	31MAR14 A			0d
SE1300300	Register XP thru IIUMS	Cal_1		13FEB14 A	13FEB14 A	0	0					0d
SE1300400	Case co-ordination w/utility undertakers	Cal_1		24FEB14 A	24FEB14 A	14	0	31MAR14 A	31MAR14 A			0d
SE1300500	Subm TTM (HKPF/TD/LCSD) - for apprv	Cal_1		24FEB14 A	24FEB14 A	30	0	25MAR14 A	25MAR14 A			0d
SE1300600	Apply XP thru XPMS	Cal_1		31MAR14 A	31MAR14 A	7	0	07APR14 A	07APR14 A			0d



Start date	**23OCT13**
Finish date	**23OCT16**
Data date	**31MAY14**
Run date	**29MAY14**
Page number	**5A**

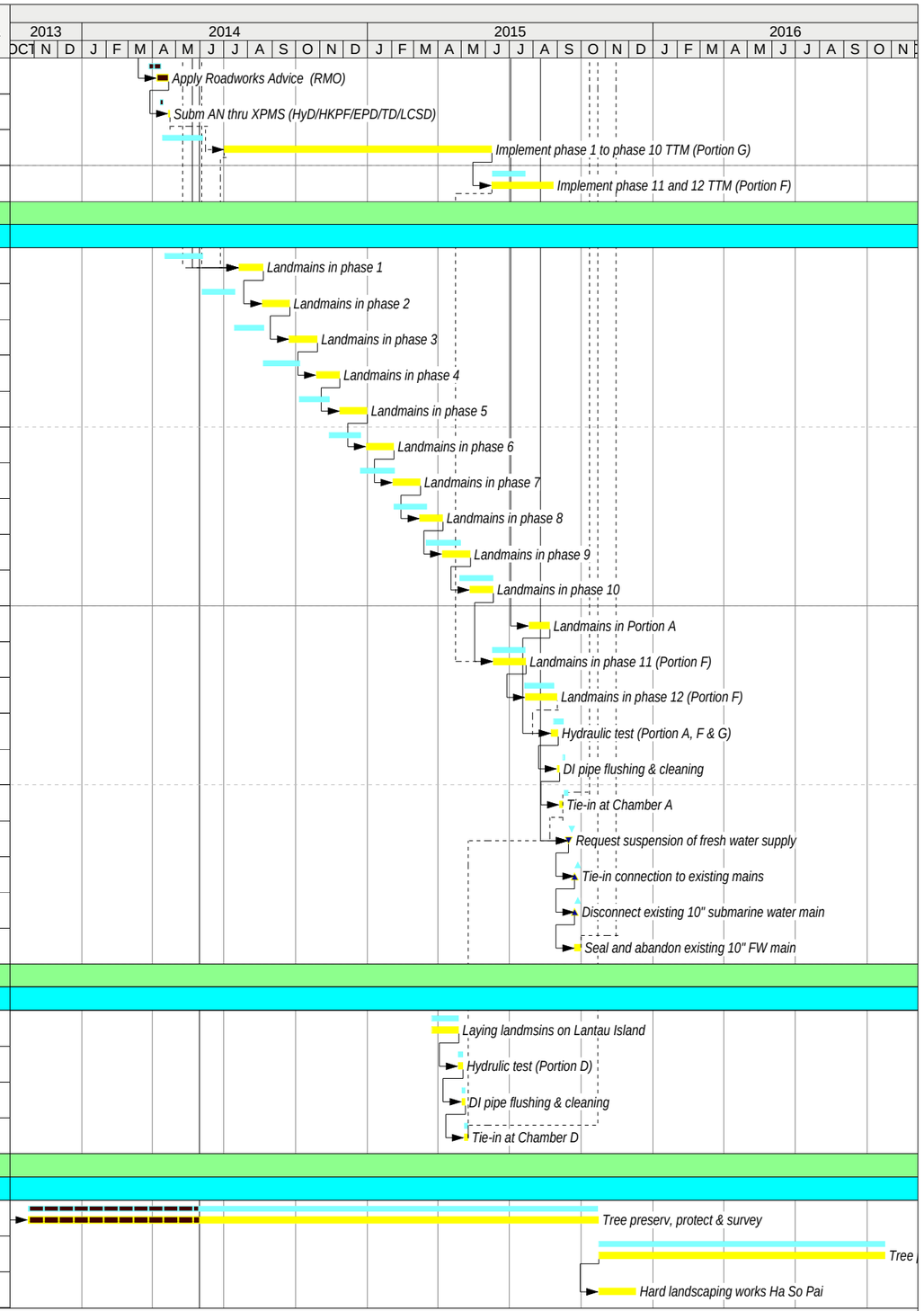
Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Activity ID	Description	Calendar	Ind Qty	Early Start	Late Start	Origi Dur	Rem Dur	Early Finish	Late Finish	Free Float	Total Float	TRA
SE1300700	Apply Roadworks Advice (RMO)	Cal_1		07APR14 A	07APR14 A	14	0	21APR14 A	21APR14 A			7d
SE1300800	Subm AN thru XPMS	Cal_2		22APR14 A	22APR14 A	2	0	23APR14 A	23APR14 A			0d
SE1300910	Implement phase 1 to phase 10 TTM (Portion G)	Cal_1		02JUL14 *	02JUL14 *	342	342	08JUN15	08JUN15	0	0	0d
SE1301910	Implement phase 11 and 12 TTM (Portion F)	Cal_1		09JUN15	29JUN15	79	79	26AUG15	16SEP15	2d	20d	0d
Sec 1 Main Laying on Cheung Chau												
SE1400100	Landmains in phase 1	Cal_4	11m	21JUL14	05AUG14	21	21	20AUG14	04SEP14	0	11d	0d
SE1400200	Landmains in phase 2	Cal_4	11m	20AUG14	08SEP14	20	20	23SEP14	13OCT14	0	11d	0d
SE1400300	Landmains in phase 3	Cal_4	11m	23SEP14	13OCT14	20	20	28OCT14	12NOV14	0	11d	0d
SE1400400	Landmains in phase 4	Cal_4	11m	28OCT14	12NOV14	20	20	26NOV14	15DEC14	0	11d	0d
SE1400500	Landmains in phase 5	Cal_4	11m	27NOV14	15DEC14	20	20	31DEC14	20JAN15	0	11d	0d
SE1400600	Landmains in phase 6	Cal_4	11m	31DEC14	20JAN15	20	20	03FEB15	18FEB15	0	11d	0d
SE1400700	Landmains in phase 7	Cal_4	11m	03FEB15	18FEB15	20	20	09MAR15	24MAR15	0	11d	0d
SE1400800	Landmains in phase 8	Cal_4	11m	09MAR15	24MAR15	19	19	07APR15	27APR15	0	11d	0d
SE1400900	Landmains in phase 9	Cal_4	11m	07APR15	27APR15	19	19	12MAY15	27MAY15	0	11d	0d
SE1401000	Landmains in phase 10	Cal_4	11m	12MAY15	27MAY15	19	19	10JUN15	29JUN15	0	11d	0d
SE1401050	Landmains in Portion A	Cal_2	32m	27JUL15	08AUG15	25	25	21AUG15	03SEP15	2d	13d	0d
SE1401100	Landmains in phase 11 (Portion F)	Cal_4	15m	11JUN15	29JUN15	25	25	22JUL15	06AUG15	0	11d	0d
SE1401200	Landmains in phase 12 (Portion F)	Cal_4	15m	22JUL15	06AUG15	25	25	31AUG15	15SEP15	2d	11d	0d
SE1401300	Hydraulic test (Portion A, F & G)	Cal_4		24AUG15	03SEP15	6	6	01SEP15	14SEP15	0	9d	0d
SE1401400	DI pipe flushing & cleaning	Cal_4		01SEP15	14SEP15	3	3	03SEP15	17SEP15	0	9d	0d
SE1401500	Tie-in at Chamber A	Cal_2		04SEP15	17SEP15	3	3	07SEP15	21SEP15	8d	13d	0d
SE1401600	Request suspension of fresh water supply	Cal_2		15SEP15	09OCT15	0	0			0	21d	0d
SE1401700	Tie-in connection to existing mains	Cal_2				0	0	22SEP15	16OCT15	0	21d	0d
SE1401800	Disconnect existing 10" submarine water main	Cal_2				0	0	22SEP15	16OCT15	0	21d	0d
SE1401900	Seal and abandon existing 10" FW main	Cal_2		23SEP15	16OCT15	7	7	30SEP15	23OCT15	18d	21d	0d
Sec 1 Main Laying on Lantau Island												
SE1500100	Laying landmsins on Lantau Island	Cal_2	27m	24MAR15 *	24MAR15 *	30	30	27APR15	27APR15	0	0	0d
SE1500200	Hydrulic test (Portion D)	Cal_2		27APR15	26SEP15	4	4	02MAY15	03OCT15	0	142d	0d
SE1500300	DI pipe flushing & cleaning	Cal_2		02MAY15	03OCT15	3	3	05MAY15	06OCT15	0	142d	0d
SE1500400	Tie-in at Chamber D	Cal_2		05MAY15	06OCT15	3	3	09MAY15	09OCT15	121d	142d	0d
Sec 2 Landscaping												
SE2000050	Tree preserv, protect & survey	Cal_1		24OCT13 A	24OCT13 A	729	511	23OCT15	23OCT16	366d	366d	0d
SE2000100	Tree planting and Establishment period	Cal_1		24OCT15 *	24OCT15 *	366	366	23OCT16	23OCT16	0	0	0d
SE2000200	Hard landscaping works Ha So Pai	Cal_2		24OCT15	07SEP16	45	45	10DEC15	22OCT16	304d	304d	0d



Start date	**23OCT13**
Finish date	**23OCT16**
Data date	**31MAY14**
Run date	**29MAY14**
Page number	**6A**
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Contract No. 1/WSD/13
Improvement of Fresh Water Supply to Cheung Chau

CRBC-CPP JV
Progress Update
to May 2014
<Based on Rev D; file A015>

File: A016

Early bar
Target bar
Progress bar
Start milestone point
Finish milestone point

Appendix D

Monitoring Locations Designated in the EM&A Manual

818 000 E | 819 000 E | 820 000 E | 821 000 E | 822 000 E

811 000 N | 810 000 N | 809 000 N | 808 000 N

CHI MA WAN

CHEUNG SHA WAN FISH CULTURE ZONE

Ferry Pier

SHAP LONG IRRIGATION RESERVOIR

Cheung Sha Wan

Ha So Pai

Adamasta Rock

Pak Kung

TAI LONG WAN

大貴灣
TAI KWAI WAN

TAI KWAI WAN

TUNG WAN TSAI

Pak Kok Tsui

Sin Kung Tung

Cheung Kwai Tsuen

Sewage Treatment Works

TUNG WAN

長洲
CHEUNG CHAU

TUNG WAN BEACH

CHEUNG CHAU BAY
長洲灣

Ferry Pier

CHEUNG CHAU WAN

KWUN YAM WAN

KWUN YAM BEACH

Loaf Rock

Cheung Chau Typhoon Shelter

ADAMASTA CHANNEL
北長洲海峽
ADAMASTA CHANNEL

W1 W2 W3 W4 W5 W6 W7 W8 W9

MONITORING STATION	EASTING	NORTHING
W1	820704.0	808688.3
W2	820656.3	808631.0
W3	820445.0	809036.3
W4	820072.6	809297.8
W5	819875.8	809700.9
W6	819174.3	810917.2
W7	820055.6	810523.1
W8	821328.4	810240.6
W9	819045.5	807953.8

LANTAU ISLAND
大嶼山

CHI MA WAN PENINSULA
芝麻灣半島

HA SO PAI
TAI KWAI WAN
大貴灣

CHEUNG CHAU
長洲

北長洲海峽
ADAMASTA CHANNEL

LOCATION PLAN
SCALE 1 : 100000

N

NOTE:

1. THE FINAL LOCATIONS OF THE MONITORING STATIONS SHALL BE PROPOSED BY THE ENVIRONMENTAL TEAM (ET) LEADER AND VERIFIED BY THE INDEPENDENT ENVIRONMENTAL CHECKER (IEC) BEFORE SUBMITTING TO EPD FOR APPROVAL PRIOR TO COMMENCEMENT OF ANY MONITORING.

LEGEND:

PROPOSED SUBMARINE FRESH WATER MAIN

W1 WATER QUALITY MONITORING STATION

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	TL	FD	SZ	WLS
Date	10/09	10/09	10/09	10/09

Approved

Agreement No.
CE 1/2008 (WS)

Agreement Title
IMPROVEMENT OF FRESH WATER SUPPLY TO CHEUNG CHAU – INVESTIGATION

Drawing Title
LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

Drawing No.
FIGURE 2.1

Revision

Scale
A3 1:15000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

C:\Cygnet\Cache\382831\FIGURE 2.1.dwg, 1/29/2010 3:11:01 PM

820 400 E

820 600 E

820 800 E

821 000 E

808 800 N

808 600 N

808 400 N

北長洲海峽
ADAMASTA CHANNEL
北長洲海峽
ADAMASTA CHANNEL

大貴灣
TAI KWAI WAN
大貴灣
TAI KWAI WAN

桂濤花園
SCENIC GARDEN

N

NSR4

NSR3

長洲抽水站
CHEUNG CHAU
PUMPING STATION

PROPOSED 4m
HIGH TEMPORARY
NOISE BARRIER

NSR2
N1

大貴灣新村
TAI KWAI WAN
SAN TSUEN

NSR1

長貴路 CHEUNG KWAI ROAD

小貴灣
SIU KWAI WAN

長貴邨
CHEUNG KWAI ESTATE

LANTAU ISLAND

HEI LING CHAU

CHI MA WAN
PENINSULA

THE SITE

ADAMASTA
CHANNEL

CHEUNG CHAU

LOCATION PLAN
SCALE 1 : 100000

LEGEND :

- PROPOSED SUBMARINE FRESH WATER MAIN
- PROPOSED LAND-BASED FRESH WATER MAIN
- NSR1 — REPRESENTATIVE NOISE SENSITIVE RECEIVER
- PROPOSED LAUNCHING SITE AND WORKS AREA
- PROPOSED TEMPORARY NOISE BARRIER
- N1 — NOISE MONITORING STATION

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	TL	FD	SZ	WLS
Date	10/09	10/09	10/09	10/09

Approved

Agreement No.
CE 1/2008 (WS)

Agreement Title
IMPROVEMENT OF FRESH WATER SUPPLY TO CHEUNG CHAU – INVESTIGATION

Drawing Title
LOCATIONS OF PROPOSED NOISE MONITORING STATION AND NOISE SENSITIVE RECEIVERS

Drawing No.
FIGURE 6.1

Revision

Scale
A3 1:2000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

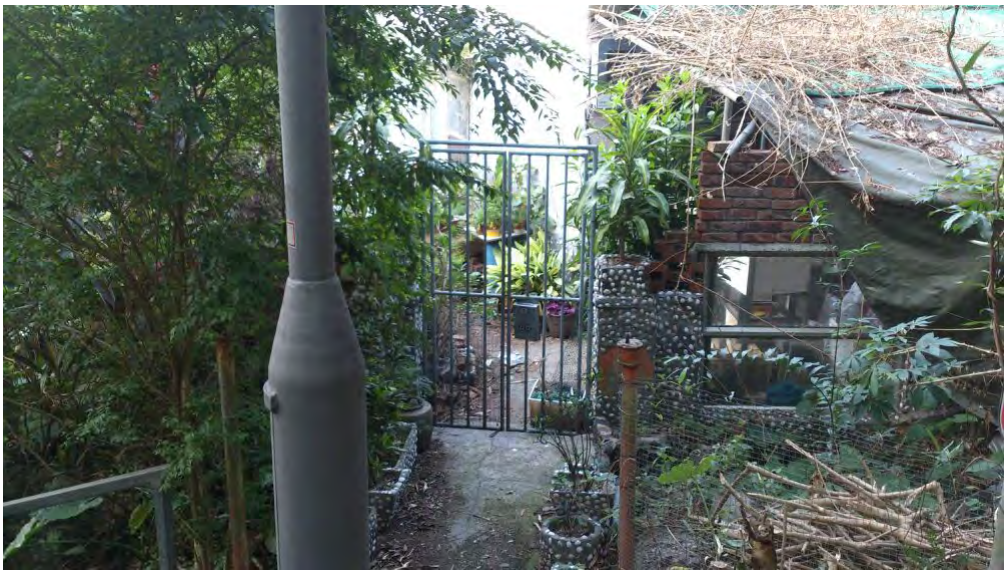

Photo 1: View from the light pole (proposed N1a) to the NSR-N1.

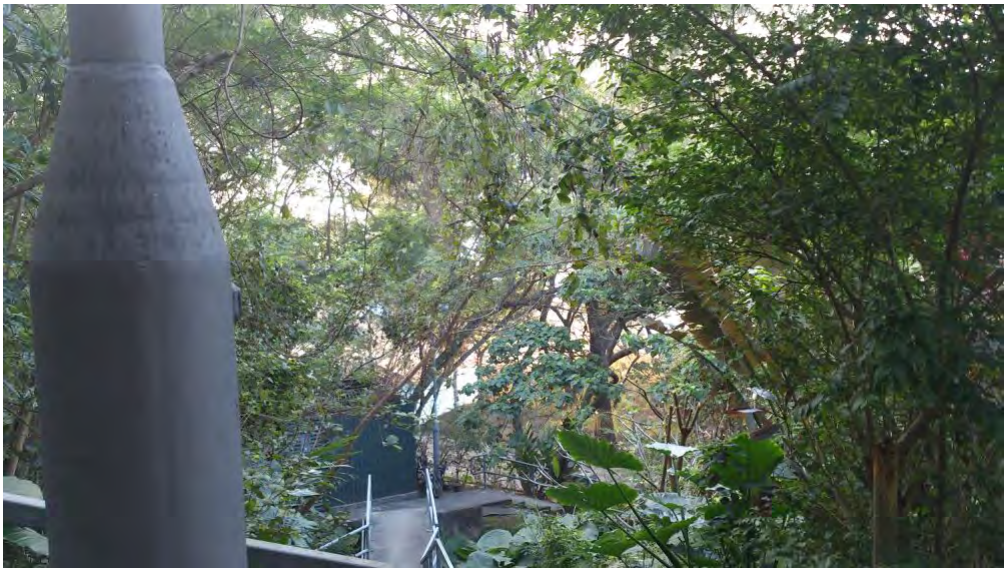

Photo 2: View from the light pole (proposed N1a) to the construction site

Appendix E

Monitoring Equipment Calibrated Certificates and Laboratory Certificates

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142872
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 8 May 2014

Description / 儀器名稱 : Integrating Sound Level Meter (EQ008)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285690
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 May 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 15 May 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142872
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.2

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142872
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.1	Ref.
	L_{ASP}		S			94.1	± 0.1
	L_{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C142872
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						$1/10^2$		90	89.7	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812706

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	: 31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@sunereation.com Website/網址: www.sunereation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142545
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-0853) Date of Receipt / 收件日期 : 14 April 2014

Description / 儀器名稱 : Acoustical Calibrator (EQ081)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2326408
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 26 April 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 29 April 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C142545
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1423165
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG,	**DATE RECEIVED:**	18/07/2014
		DATE OF ISSUE:	29/07/2014
PROJECT:	N.T., HONG KONG		

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Dissolved Oxygen, pH, Salinity, Temperature and Turbidity
Description:	Multimeter
Brand Name:	Horiba
Model No.:	U-54/U-5000
Serial No.:	PXA41FBH/4413X5DF
Equipment No.:	--
Date of Calibration:	25 July, 2014

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1423165
Date of Issue: 29/07/2014
Client: ACTION UNITED ENVIRO SERVICES

Description: Multimeter
Brand Name: Horiba
Model No.: U-54/U-5000
Serial No.: PXA41FBH/4413X5DF
Equipment No.: --
Date of Calibration: 25 July, 2014 Date of next Calibration: 25 October, 2014

Parameters:

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.59	3.68	+0.09
5.06	5.18	+0.12
7.58	7.57	-0.01
	Tolerance Limit (mg/L)	±0.20

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

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.83	-0.17
7.0	7.00	0.00
10.0	10.00	0.00
	Tolerance Limit (pH Unit)	±0.20

Salinity **Method Ref: APHA (21st edition), 2520B**

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)
0	0.0	--
10	9.2	-8.0
20	18.6	-7.0
30	27.5	-8.3
	Tolerance Limit (%)	±10.0

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

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1423165
Date of Issue: 29/07/2014
Client: ACTION UNITED ENVIRO SERVICES

Description: Multimeter
Brand Name: Horiba
Model No.: U-54/U-5000
Serial No.: PXA41FBH/4413X5DF
Equipment No.: --
Date of Calibration: 25 July, 2014 Date of next Calibration: 25 October, 2014

Parameters:

Temperature **Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)
16.5	18.09	+1.6
24.5	25.98	+1.5
31.5	32.54	+1.0
	Tolerance Limit (°C)	±2.0

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.0	--
4	4.00	0.0
40	43.3	+8.2
80	84.9	+6.1
400	378	-5.5
800	787	-1.6
	Tolerance Limit (%)	±10.0

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

Mr Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作（見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報）。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 000552

Appendix F

Event and Action Plan

Table 2.6 Event and Action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
Action Level being exceeded by one sampling day	1. Repeat in-site measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform IEC and Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor. 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures. submitted by Contractor and advise the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures. 2. Make agreement on the mitigation measures to be implemented. 3. Assess effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER. 6. Implement the agreed mitigation measures.
Action Level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact. 3. Inform IEC and Contractor. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC and Contractor. 6. Ensure mitigation measures are implemented. 7. Prepare to increase the monitoring frequency to daily. 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures. 2. Make agreement on the mitigation measures to be implemented. 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days. 6. Implement the agreed mitigation measures.
Limit Level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform IEC, contractor, AFCD and EPD. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC, ER and Contractor. 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level.	1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures. 2. Request Contract to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days. 6. Implement the agreed mitigation measures.

Event	ET Leader	IEC	ER	Contractor
Limit Level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings. 2. Identify source(s) of impact. 3. Inform IEC, contractor, AFCD and EPD. 4. Check monitoring data, all plant, equipment and Contractor's working methods. 5. Discuss mitigation measures with IEC, ER and Contractor. 6. Ensure mitigation measures are implemented. 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures. 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures. 2. Request Contractor to critically review the working methods. 3. Make agreement on the mitigation measures to be implemented. 4. Assess the effectiveness of the implemented mitigation measures. 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the work until no exceedance of Limit Level.	1. Inform the ER and confirm notification of the non-compliance in writing. 2. Rectify unacceptable practice. 3. Check all plant and equipment. 4. Consider changes of working methods. 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days. 6. Implement the agreed mitigation measures. 7. As directed by the ER, to slow down or to stop all or part of the work or construction activities.

Table 6.3 Event/Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC, Contractor and ER 2. Carry out investigation and identify source 3. Report the results of investigation to the IEC, Contractor and ER 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency 6. Check compliance to Action/Limit Levels after application of mitigation measures	1. Review the analysed results submitted by the ET Leader 2. Review the proposed remedial measures by the Contractor and advise the ER & ET accordingly 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of complaint in writing 2. Notify Contractor 3. Check monitoring data submitted by the ET 4. Require Contractor to propose remedial measures for the analysed noise problem 5. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to ER and IEC within three working days of notification 2. Liaise with the ER to ensure the effectiveness of the agreed mitigation 3. Amend proposal if required 4. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor 2. Identify Source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes & actions taken for the exceedances 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	1. Check monitoring data submitted by ET 2. Discuss amongst ER, ET Leader and Contractor on the potential remedial actions 3. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER & ET accordingly 4. Supervise the implementation of remedial measures	1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Check monitoring data submitted by the ET 4. Require Contractor to propose remedial measures for the analysed noise problem 5. Discuss with ET, IEC and Contractor on proposed remedial actions to be implemented 6. Ensure remedial measures are properly implemented 7. Assess the effectiveness of the remedial actions and keep the Contractor informed 8. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Liaise with the ER to ensure the effectiveness of the agreed mitigation 4. Amend proposal if required 5. Implement the agreed proposals 6. Resubmit proposals if problem still not under control 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix G

Impact Monitoring Schedule

Monitoring Schedule for the Reporting Period

Date		10. NOISE	11. WATER QUALITY
		Leq (30min)	
Mon	1-September-14	✓	✓
Tue	2-September-14		
Wed	3-September-14		✓
Thu	4-September-14		
Fri	5-September-14		✓
Sat	6-September-14		
Sun	7-September-14		
Mon	8-September-14	✓	✓
Tue	9-September-14		
Wed	10-September-14		✓
Thu	11-September-14		
Fri	12-September-14		✓
Sat	13-September-14		
Sun	14-September-14		
Mon	15-September-14		✓
Tue	16-September-14		
Wed	17-September-14	✓	✓
Thu	18-September-14		
Fri	19-September-14		✓
Sat	20-September-14		
Sun	21-September-14		
Mon	22-September-14	✓	✓
Tue	23-September-14		
Wed	24-September-14		✓
Thu	25-September-14		
Fri	26-September-14		
Sat	27-September-14		✓
Sun	28-September-14		
Mon	29-September-14		
Tue	30-September-14	✓	✓

Monitoring Schedule for next Reporting Period

Date		12. NOISE	13. WATER QUALITY
		Leq (30min)	
Wed	1-October-14		
Thu	2-October-14		
Fri	3-October-14		
Sat	4-October-14		✓
Sun	5-October-14		
Mon	6-October-14	✓	✓
Tue	7-October-14		
Wed	8-October-14		✓
Thu	9-October-14		
Fri	10-October-14		✓
Sat	11-October-14		
Sun	12-October-14		
Mon	13-October-14		✓
Tue	14-October-14		
Wed	15-October-14	✓	✓
Thu	16-October-14		
Fri	17-October-14		✓
Sat	18-October-14		
Sun	19-October-14		
Mon	20-October-14	✓	✓
Tue	21-October-14		
Wed	22-October-14		
Thu	23-October-14		✓
Fri	24-October-14		
Sat	25-October-14		✓
Sun	26-October-14		
Mon	27-October-14		✓
Tue	28-October-14		
Wed	29-October-14		
Thu	30-October-14	✓	✓
Fri	31-October-14		

Marine Water Quality Monitoring Schedule for the Reporting Period

Scheduled Monitoring Day		Tides of Cheung Chau		Proposal Sampling Time	
		Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood
1-Sep-14	Mon	16:.34	10:44	15:04 – 18:04	09:14 – 12:14
3-Sep-14	Wed	06:29*	13:53	08:00 – 11:00	12:23 – 15:23
5-Sep-14	Fri	08:50*	16:23	08:00 – 11:00	14:53 – 17:53
8-Sep-14	Mon	11:31	18:14*	10:01 – 13:01	16:30 – 19:30
10-Sep-14	Wed	13:01	06:42*	11:31 – 14:31	08:00 – 11:00
12-Sep-14	Fri	14:24	08:19*	12:54 – 15:54	08:00 – 11:00
15-Sep-14	Mon	16:47	11:28	15:17 – 18:17	09:58 – 12:58
17-Sep-14	Wed	07:11*	19:52*	08:00 – 11:00	16:30 – 19:30
19-Sep-14	Fri	09:27*	16:47	08:00 – 11:00	15:17 – 18:17
22-Sep-14	Mon	11:25	17:47	09:55 – 12:55	16:17 – 19:17
24-Sep-14	Wed	12:46	06:09*	11:16 – 14:16	08:00 – 11:00
27-Sep-14	Sat	14:07	08:05*	12:37 – 15:37	08:00 – 11:00
30-Sep-14	Tue	16:22	10:44	14:52 – 17:52	09:14 – 12:14

* - Due to safety reason, the sampling time will be changed at 08:00 or 16:30

Marine Water Quality Monitoring Schedule for next Reporting Period

Scheduled Monitoring Day		Tides of Cheung Chau		Proposal Sampling Time	
		Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood
4-Oct-14	Sat	08:23*	15:48	08:00 – 11:00	14:18 – 17:18
6-Oct-14	Mon	10:23	17:03	08:53 – 11:53	15:33 – 18:33
8-Oct-14	Wed	11:58	18:10*	10:28 – 13:28	16:30 – 19:30
10-Oct-14	Fri	13:24	07:24*	11:54 – 14:54	08:00 – 11:00
13-Oct-14	Mon	15:34	10:05	14:04 – 17:04	08:35 – 11:35
15-Oct-14	Wed	04:47*	17:16	08:00 – 11:00	15:46 – 18:46
17-Oct-14	Fri	07:17*	15:26	08:00 – 11:00	13:56 – 16:56
20-Oct-14	Mon	10:14	16:39	08:44 – 11:44	15:09 – 18:09
23-Oct-14	Thu	11:59	17:45	10:29 – 13:29	16:15 – 19:15
25-Oct-14	Sat	13:11	07:17*	11:41 – 14:41	08:00 – 11:00
27-Oct-14	Mon	14:30	08:47*	13:00 – 16:00	08:00 – 11:00
30-Oct-14	Thu	17:22	11:53	15:52 – 18:52	10:23 – 13:23

* - Due to safety reason, the sampling time will be changed at 08:00 or 16:30

Appendix H

Database of Monitoring Results

Impact Marine Water Quality Monitoring													
Sampling Date:	1-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturatio	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
11:59	W1	MF	820698	808690	2.5	1.25	27.67	8.71	132.7	2	32.57	8.02	7
							27.66	8.87	135.1	1.7	32.59	8.02	7
12:03	W2	MF	820639	808646	2.5	1.25	27.56	8.71	132.7	2.4	32.85	7.94	6
							27.54	8.56	130.3	2.8	32.86	7.94	7
11:45	W3	MF	820444	809041	8.4	1.00	27.93	8.87	135.6	1.5	32.49	7.8	5
							27.89	8.87	135.6	1.3	32.48	7.8	5
						4.20	27.28	7.81	118.4	1.9	32.9	7.71	7
							27.27	7.69	116.6	2	32.89	7.71	7
						7.40	26.86	6.39	96.7	7.1	33.78	7.59	10
							26.88	6.3	95.4	6.9	33.71	7.57	10
11:34	W4	MF	820079	809304	7.8	1.00	27.69	8.69	132.4	0.9	32.62	7.73	5
							27.68	8.71	132.7	1	32.62	7.73	6
						3.90	27.35	7.9	119.9	1.7	32.78	7.66	8
							27.36	8.05	122.1	1.8	32.8	7.67	9
						6.80	26.94	6.51	98.5	6	33.56	7.54	9
							26.9	6.54	99	6.7	33.66	7.54	9
11:24	W5	MF	819861	809690	5.0	1.00	27.8	9.39	143.1	0.6	32.34	7.82	6
							27.83	9.41	143.5	0.6	32.32	7.82	6
						4.00	27.18	6.95	105.2	3.4	33.04	7.58	6
							27.19	6.78	102.7	3.5	33.04	7.56	6
10:42	W6	MF	819182	810903	6.4	1.00	28.21	10.48	160.3	1.9	31.71	6.98	6
							28.05	11.06	168.8	1.5	31.73	7	6
						3.20	27.49	9.66	146	1.1	31.75	6.98	8
							27.48	9.59	144.9	1.2	31.75	6.99	7
						5.40	26.98	7.57	113.7	2.9	32.11	6.89	8
							26.98	7.45	111.9	3	32.11	6.89	8
10:56	W7	MF	820046	810538	8.4	1.00	27.26	9	135.9	1.8	32.34	7.46	7
							27.27	9.24	139.6	1.7	32.34	7.46	6
						4.20	26.96	8.28	124.5	1	32.48	7.39	7
							26.98	8.23	123.8	1	32.46	7.4	7
						7.40	26.42	6.53	97.9	4.5	33.35	7.25	7
							26.42	6.57	98.4	5	33.35	7.25	7
11:09	W8	MF	821309	810246	8.8	1.00	27.99	8.79	134.3	0.3	32.2	7.88	5
							27.97	8.78	134.2	0.3	32.21	7.89	5
						4.40	27.04	7.5	113	0.5	32.62	7.75	5
							27.09	7.38	111.4	0.5	32.6	7.75	5
						7.80	26.28	6	89.9	4.2	33.81	7.57	5
							26.28	5.9	88.3	4.4	33.78	7.56	5
12:11	W9	MF	819047	807961	8.9	1.00	28.02	9.33	142.8	0	32.51	7.99	4
							28.03	9.47	145	0	32.54	8	4
						4.45	27.48	8.9	135.5	1	33.07	7.97	5
							27.47	8.86	134.8	1.1	33.08	7.97	5
						7.90	26.99	7.82	118.7	5.1	34.04	7.87	6
							26.93	7.83	118.8	5.7	34.06	7.86	6
15:55	W1	ME	820687	808692	2.2	1.10	27.23	9.46	143.8	2	33.54	7.36	6
							27.23	9.45	143.7	2.2	33.6	7.36	7
15:52	W2	ME	820651	808624	2.4	1.20	27.85	8.41	128.8	2.6	33.06	7.89	7
							27.88	8.41	128.9	2.3	33.06	7.89	6
16:03	W3	ME	820453	809019	8.4	1.00	28.28	11.09	171.6	0.5	33.59	7.7	4
							28.3	11.3	174.9	0.5	33.6	7.71	5
						4.20	27.81	9.49	146.1	1	34.02	7.66	5
							27.81	9.54	146.8	1	34.02	7.66	5
						7.40	26.92	6.69	102.1	4.2	35.03	7.46	8
							26.9	6.57	100.2	5.9	35.06	7.45	7
16:18	W4	ME	820076	809311	8.6	1.00	28.29	9.8	151.6	0.4	33.53	7.81	5
							28.29	9.86	152.5	0.4	33.53	7.81	6
						4.30	27.71	7.76	119.1	1.8	33.87	7.78	8
							27.76	7.8	119.8	1.6	33.81	7.79	8
						7.60	27	6.34	96.6	6.8	34.73	7.68	9
							27.01	6.34	96.7	6.1	34.71	7.71	10
16:41	W5	ME	819880	809694	4.0	1.00	28.77	11.93	185.8	0.6	33.37	8.13	6
							28.78	11.88	185.1	0.5	33.37	8.13	5
						3.00	27.59	9.9	151.7	3.1	33.84	7.94	6
							27.54	9.52	145.7	3.1	33.86	7.9	6
17:20	W6	ME	819174	810916	7.2	1.00	28.47	11.97	185.3	0.6	33.14	8.16	5
							28.48	11.96	185.2	0.6	33.13	8.16	5
						3.60	27.31	10.42	158.7	1.2	33.64	8.01	5
							27.3	10.31	157.1	1.3	33.66	7.99	5
						6.20	27.03	8.18	124.2	5.5	33.88	7.8	7
							27	8.04	122.1	6.4	33.91	7.78	7
17:07	W7	ME	820046	810550	8.3	1.00	28.3	11.69	180.7	0.9	33.36	8.07	5
							28.41	11.68	180.8	1.1	33.31	8.08	5
						4.15	26.97	9.91	150.3	1	33.96	7.84	6
							26.96	9.87	149.7	1	33.97	7.84	6
						7.30	26.57	8.52	128.9	5.7	34.64	7.7	7
							26.54	8.52	128.9	6.7	34.68	7.69	8
16:54	W8	ME	821324	810253	9.4	1.00	28.4	11.4	176.6	0.6	33.38	8.13	4
							28.41	11.39	176.4	0.6	33.38	8.13	5
						4.70	27.16	9.49	144.5	1	33.98	7.86	5
							27.16	9.49	144.4	1	33.98	7.86	6
						8.40	26.54	7.84	118.7	5.3	34.83	7.68	7
							26.46	8	121	6.2	34.91	7.68	8
15:37	W9	ME	81+022	807960	9.6	1.00	28.39	10.55	163.1	0.3	33.11	7.89	4
							28.39	10.62	164.2	0.3	33.12	7.89	4
						4.80	27.9	9.12	140.2	1.2	33.48	7.83	4
							27.74	9.09	139.4	1.2	33.59	7.82	4
						8.60	26.87	6.85	104.2	5.3	34.71	7.61	6
							26.8	6.63	100.8	6.2	34.84	7.6	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	3-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
12:23	W1	MF	820690	808692	2.4	1.20	29.55	10.88	171	1.1	32.64	7.88	6
							29.55	10.93	171.8	1	32.65	7.88	7
12:27	W2	MF	820643	808608	2.6	1.30	29.59	10.69	168	2.3	32.61	7.9	7
							29.51	10.92	171.4	2.6	32.64	7.9	7
12:13	W3	MF	820463	809024	7.6	1.00	28.99	11.42	177.8	0.9	32.68	7.66	4
							29	11.39	177.4	0.8	32.68	7.66	4
						3.80	28.7	11.21	173.8	0.7	32.76	7.62	4
							28.63	11.17	173	0.6	32.79	7.6	4
						6.60	28.31	10.52	162.2	1.4	32.89	7.52	4
							28.31	10.73	165.5	1.6	32.95	7.53	5
12:01	W4	MF	820071	809308	8.1	1.00	28.52	10.26	158.9	0.7	33.04	7.57	4
							28.54	10.43	161.5	0.6	33.05	7.58	4
						4.05	28.1	10.43	160.5	1	33.26	7.51	4
							28.09	10.37	159.7	1	33.27	7.5	4
						7.10	27.12	8.54	130.8	1.4	35.29	7.21	6
							27.11	8.41	128.9	1.4	35.32	7.2	7
11:54	W5	MF	819884	809699	5.9	1.00	28.44	11.24	173.6	0.6	32.87	7.33	4
							28.42	11.24	173.7	0.6	32.88	7.33	4
						4.90	27.79	10.12	155.4	2.6	33.59	7.18	6
							27.79	9.96	152.9	2.6	33.61	7.16	6
10:59	W6	MF	819182	810923	6.4	1.00	28.57	9.45	152.8	1.2	31.5	7.74	6
							28.56	9.39	151.8	1.2	31.49	7.75	6
						3.20	28.06	8.97	131.6	1.6	31.79	7.73	5
							28.05	8.93	127.8	1.7	31.79	7.73	4
						5.40	27.69	8.55	115.7	2.1	32	7.67	6
							27.67	8.49	114.8	2.2	32.01	7.67	7
11:22	W7	MF	820056	810546	7.4	1.00	28.24	11.29	172.8	0.9	31.77	7.49	4
							28.28	11.68	179.1	0.6	31.95	7.48	4
						3.70	28.09	11.34	173.7	0.7	32.27	7.41	4
							28.08	11.25	172.3	0.7	32.29	7.4	4
						6.40	27.19	8.54	130.2	3	34.07	7.13	6
							27.23	8.44	128.6	2.8	34	7.12	6
11:41	W8	MF	821324	810255	9.2	1.00	28.61	12.08	186.9	0.5	32.56	7.61	5
							28.62	11.99	185.5	0.4	32.57	7.6	5
						4.60	28.04	11.39	174.7	0.6	32.81	7.48	7
							28.03	11.34	174	0.5	32.82	7.47	7
						8.20	26.19	7.46	113	4.7	35.92	6.99	8
							26.22	7.18	108.7	4.3	35.8	6.98	10
12:35	W9	MF	819046	807963	8.8	1.00	29	10.99	171.2	0.5	32.68	7.93	4
							28.97	11.12	173.1	0.6	32.72	7.93	4
						4.40	28.18	10.84	167.4	2	33.66	7.82	7
							28.22	10.77	166.4	2	33.62	7.82	6
						7.80	27.06	8.4	129.8	8	37.03	7.46	12
							27.05	8.34	128.9	8	37.02	7.45	11
14:29	W1	ME	820691	808708	2.4	1.20	29.96	8.18	125.9	0.9	33.99	6.9	4
							29.93	8.15	125.4	1	34	6.89	4
14:24	W2	ME	820643	808646	2.6	1.30	29.91	10.31	142.7	2.8	33.17	6.67	6
							29.89	10.32	142.9	3	33.29	6.66	7
14:33	W3	ME	820457	809031	7.1	1.00	29.3	10.61	150.1	0.4	33.75	7.27	3
							29.3	10.2	153.8	0.4	33.92	7.11	3
						3.55	28.28	9.64	142.5	1	34.85	6.92	4
							28.29	9.65	142.7	1	34.8	6.92	3
						6.10	27.35	8.87	133.6	1.9	36.32	6.64	4
							27.35	8.83	133	1.9	36.24	6.64	3
14:46	W4	ME	820058	809304	8.2	1.00	29.44	11.13	178.5	0.8	33.49	7.58	3
							29.42	11.04	177.1	0.8	33.54	7.58	4
						4.10	28.4	10.03	154.4	0.6	34.66	7.47	4
							28.42	10.86	151.9	0.5	34.65	7.47	4
						7.20	27.19	9.09	137.8	6.1	37.55	7.09	4
							27.16	9.09	137.9	7.7	37.67	7.08	4
15:02	W5	ME	819886	809692	3.9	1.00	29.47	11.04	178.1	0.7	33.13	7.89	2
							29.3	11.15	179.4	0.7	33.33	7.9	3
						2.90	29.15	10.49	169.4	1.1	34.04	7.87	4
							29.19	10.41	168.4	1	34.04	7.87	4
15:39	W6	ME	819164	810908	7.2	1.00	28.67	12.27	178	1.6	33.71	7.88	6
							28.67	12.5	171.5	1.6	33.72	7.87	5
						3.60	27.79	11.01	169.6	2.7	34.31	7.54	6
							27.8	10.93	168.4	2.8	34.3	7.54	6
						6.20	27.1	8.04	122.9	3.6	35.07	7.27	8
							27.57	8.75	134.4	5.1	34.48	7.35	8
15:25	W7	ME	820064	810546	8.0	1.00	29.16	10.27	169.6	1.1	33.54	8.02	5
							29.17	10.33	160.6	1	33.56	8.01	5
						4.00	28.35	9.09	153.6	1.9	34.31	7.84	4
							28.47	9.06	153.3	1.7	34.23	7.85	4
						7.00	26.75	8.61	132.7	2.6	36.56	7.5	5
							26.72	8.99	133.2	2.9	36.61	7.47	6
15:13	W8	ME	821343	810209	8.4	1.00	28.49	11.55	178.6	0.6	32.91	7.79	4
							28.49	11.72	181.3	0.5	32.94	7.79	4
						4.20	27.85	11.49	177.3	0.7	34.4	7.63	4
							27.85	11.39	175.8	0.6	34.43	7.61	4
						7.40	27.11	10.25	157.8	3.5	36.07	7.44	4
							27.1	8.87	136.4	5.2	36.01	7.33	4
14:07	W9	ME	819036	807961	8.8	1.00	29.24	10.75	177.7	0.2	32.83	7.88	4
							29.26	10.64	176.3	0.1	32.9	7.88	4
						4.40	28.03	10.15	155.3	0.9	35	7.5	4
							28.01	10.16	155.4	0.9	35.06	7.48	4
						7.80	27.16	8.46	139.3	5.5	38.84	7.17	6
							27.15	8.36	137.7	5.8	38.86	7.19	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	5-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
15:32	W1	MF	820688	808690	2.4	1.20	28.22	8.96	138.4	0.4	33.47	7.84	2
							28.18	9.05	139.8	0.3	33.48	7.83	3
15:29	W2	MF	820637	808649	2.4	1.20	28.11	8.68	133.7	1.7	33.32	7.83	6
							28.14	8.82	135.9	1.5	33.31	7.84	6
15:40	W3	MF	820449	809038	7.6	1.00	28.43	8.32	128.7	0.1	33.06	7.89	2
							28.42	8.37	129.4	0.1	33.07	7.89	2
						3.80	28.14	7.33	113.2	0.2	33.55	7.84	2
							28.18	7.29	112.5	0.2	33.47	7.85	2
						6.60	28.04	5.98	92.4	0.3	34.21	7.78	3
							28.03	5.97	92.3	0.3	34.23	7.77	2
15:51	W4	MF	820055	809704	8.0	1.00	28.59	7.15	110.7	0.4	32.84	7.93	1
							28.57	7.17	110.9	0.3	32.87	7.94	2
						4.00	28.13	6.96	107.3	0.1	33.43	7.91	2
							28.12	6.88	106.1	0	33.38	7.91	2
						7.00	27.86	5.76	90.6	2.8	37.62	7.8	2
							27.99	6.15	96.5	1.7	36.85	7.85	2
16:08	W5	MF	819885	809703	4.3	1.00	28.9	7.33	113.8	0	32.42	8.06	3
							28.93	7.36	114.3	0	32.4	8.06	3
						3.30	28.89	6.23	96.8	0.3	32.52	8.03	3
							28.76	6.28	97.6	0.6	32.76	8.03	3
16:58	W6	MF	819169	810924	6.5	1.00	28.55	6.43	99.4	0.8	32.78	7.96	3
							28.58	6.49	100.4	0.9	32.76	7.96	3
						3.25	28.31	6.41	99.1	0.4	33.26	7.95	3
							28.31	6.41	99.1	0.4	33.26	7.96	3
						5.50	28.1	6.22	96.5	2.2	34.6	7.9	3
							27.94	6.24	96.7	2.5	34.71	7.88	3
16:40	W7	MF	820056	810549	7.4	1.00	28.73	6.9	107.3	0.7	33.17	7.95	3
							28.73	6.89	107.1	0.7	33.17	7.95	3
						3.70	28.12	6.42	99.1	0.6	33.78	7.84	3
							28.14	6.33	97.8	0.7	33.79	7.84	3
						6.40	27.62	6.15	95.4	1.2	36.15	7.76	3
							27.66	6.15	95.7	1	36.5	7.76	3
16:23	W8	MF	821343	810207	8.8	1.00	28.68	6.56	101.6	0.2	32.78	8.03	3
							28.69	6.54	101.3	0.3	32.77	8.03	3
						4.40	28	5.88	90.7	0.4	33.8	7.92	3
							28	5.89	90.7	0.4	33.75	7.91	3
						7.80	27.55	5.02	77.6	0.4	35.61	7.8	4
							27.42	4.68	72.6	0.5	36.53	7.77	3
15:12	W9	MF	819046	807963	8.9	1.00	29.14	10.99	172.1	0.3	33.31	7.96	3
							29.14	10.93	171.3	0.3	33.31	7.96	3
						4.45	28.3	8.66	134.6	0.7	34.32	7.79	3
							28.3	8.55	132.9	0.7	34.32	7.79	3
						7.90	27.97	5.98	93.9	4.2	37.1	7.62	3
							27.85	6	94	3.8	37.18	7.6	4
9:57	W1	ME	820692	808708	2.7	1.35	28.02	7.33	112.3	1.2	32.57	7.91	2
							28.02	7.36	112.8	1.2	32.59	7.91	2
10:00	W2	ME	820638	808650	2.8	1.40	28.1	7.12	109.2	0.8	32.53	7.91	3
							28.1	7.29	111.7	0.6	32.54	7.92	3
9:40	W3	ME	820447	809032	8.0	1.00	28.1	6.98	107.2	0.3	32.68	7.86	2
							28.11	7	107.5	0.3	32.68	7.86	2
						4.00	27.92	6.61	101.4	0.1	33.13	7.86	2
							27.94	6.59	101.2	0.1	33.15	7.86	2
						7.00	27.73	6.11	95.1	1.3	36.25	7.8	2
							27.71	6.12	95.2	1.4	36.24	7.79	5
9:29	W4	ME	820087	809283	8.2	1.00	28.1	7.68	117.8	0.4	32.61	7.81	1
							28.11	7.69	118	0.4	32.6	7.81	2
						4.10	27.9	7.19	110.3	0.1	33.15	7.79	2
							27.91	7.13	109.4	0	33.15	7.78	1
						7.20	27.61	6.13	95.6	4.9	37.04	7.68	1
							27.79	5.92	91.8	4.8	35.21	7.75	2
9:20	W5	ME	819153	810906	4.7	1.00	28.41	8.94	137.8	0.2	32.48	7.89	3
							28.42	8.9	137.1	0.2	32.48	7.88	3
						3.70	28.02	6.77	104	0.9	33.16	7.76	3
							28.02	6.62	101.8	0.8	33.14	7.75	4
8:36	W6	ME	819183	810929	6.2	1.00	28.19	10.98	167.7	0.1	31.47	7.74	1
							28.17	10.73	163.4	0.1	31.08	7.67	1
						3.10	28.47	10.25	157.3	0.1	31.54	7.75	2
							28.47	10.21	156.6	0.1	31.55	7.75	2
						5.20	27.92	6.18	94.7	3.9	32.92	7.55	3
							27.88	6.45	98.8	3.3	33.04	7.55	3
8:55	W7	ME	820055	810538	7.3	1.00	28.21	9.68	147.6	0.3	31.21	7.8	2
							28.21	9.65	147.2	0.3	31.22	7.8	2
						3.65	28.53	9.21	141.9	0.2	31.99	7.87	3
							28.43	9.3	142.8	0.2	31.85	7.88	2
						6.30	28.01	8.59	132.3	0.8	33.68	7.84	3
							27.97	8.35	128.5	0.9	33.57	7.81	4
9:09	W8	ME	821343	810209	8.5	1.00	28.39	7.75	119.1	0	32.05	7.9	1
							28.39	7.84	120.5	0	32.01	7.9	1
						4.25	28.37	7.56	117	0.1	33.32	7.92	1
							28.36	7.51	116.2	0.1	33.33	7.92	1
						7.50	27.61	6.24	96.8	0.7	36.21	7.77	1
							27.42	5.87	91.1	1.2	36.57	7.73	1
10:09	W9	ME	819023	807982	8.6	1.00	28.82	7.82	121.3	0.1	32.61	8.1	1
							28.8	7.82	121.4	0.1	32.62	8.1	2
						4.30	28.1	6.35	97.8	0.2	33.22	7.96	2
							28.12	6.32	97.4	0.2	33.21	7.96	2
						7.60	27.83	5.61	87.7	3.9	36.72	7.86	2
							27.82	5.61	87.7	4.3	36.75	7.86	2

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	8-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
16:56	W1	MF	820708	808173	2.5	1.25	28.35	5.67	87.9	2.9	33.96	7.81	6
							28.37	5.66	87.9	2.8	33.98	7.8	7
16:53	W2	MF	820646	808659	2.6	1.30	28.18	6.16	95.4	3.4	34.03	7.68	7
							28.18	6.12	94.8	3.3	34.03	7.68	7
17:07	W3	MF	820431	809033	7.7	1.00	28.1	6.55	97.8	3.8	34.08	7.69	7
							28.07	6.51	97.5	3.8	34.09	7.69	7
						3.85	27.95	6.2	94.8	4.6	34.07	7.71	8
							27.96	6.17	94.3	4.6	34.06	7.71	8
						6.70	27.82	5.93	90.7	5.7	34.49	7.71	8
							27.82	5.91	90.4	5.9	34.58	7.71	9
17:31	W4	MF	820081	809308	7.4	1.00	28.47	6.45	94.7	2.5	33.9	7.93	6
							28.47	6.48	95.2	2.3	33.91	7.93	6
						3.70	28.34	6.02	91.2	4.2	34.01	7.91	7
							28.33	5.98	90.4	4.3	34.01	7.91	7
						6.40	27.91	5.85	88.4	5.9	33.93	7.77	8
							27.9	5.84	88.4	5.6	33.93	7.77	8
17:42	W5	MF	819884	809704	4.6	1.00	27.99	6.56	96.3	3.4	33.94	7.78	6
							27.97	6.55	96.2	3.4	33.94	7.78	6
						3.60	27.9	5.9	89.7	4.1	33.94	7.77	6
							27.9	5.86	89.2	4.1	33.93	7.77	6
18:16	W6	MF	819169	810923	6.1	1.00	28.03	7.55	106.1	3.1	33.83	7.87	6
							28.03	7.52	105.6	3.3	33.82	7.87	6
						3.05	27.98	6.85	100.4	4	33.84	7.87	7
							28.01	6.81	99	4.1	33.83	7.87	7
						5.10	27.9	6.36	95.7	4.5	33.85	7.86	7
							27.9	6.31	95.7	5	33.85	7.86	8
18:05	W7	MF	820056	810538	7.4	1.00	28.11	7.41	101.7	3	33.77	7.91	6
							28.12	7.44	102.1	2.9	33.77	7.91	6
						3.70	27.95	7.19	97.8	4.3	33.83	7.89	8
							27.96	7.1	96.5	4.6	33.82	7.88	9
						6.40	27.94	6.16	91.3	4.5	33.83	7.88	9
							27.95	6.07	90.3	4.7	33.82	7.88	9
17:53	W8	MF	821346	810209	8.2	1.00	28.07	6.36	95.7	3.4	33.77	7.98	8
							28.1	6.35	95.6	3.3	33.77	7.97	8
						4.10	27.94	6.04	91.8	4.6	33.84	7.9	9
							27.94	6.04	91.4	4.5	33.84	7.89	9
						7.20	27.96	5.93	89	4.8	33.83	7.86	9
							27.95	5.91	88.6	4.8	33.84	7.87	10
16:42	W9	MF	819033	807963	8.8	1.00	28.58	6.87	101.1	1.6	33.79	7.69	5
							28.59	6.81	100.2	1.8	33.8	7.69	5
						4.40	28.18	6.06	89.9	1.8	34.27	7.59	7
							28.22	6.05	89.5	1.7	34.24	7.59	8
						7.80	27.93	5.71	83.9	4.3	34.78	7.5	12
							27.87	5.72	84.2	4.2	34.92	7.49	12
12:31	W1	ME	820688	808712	2.7	1.35	28.18	5.88	87	2.9	33.16	7.98	6
							28.19	5.75	86.8	2.8	33.15	7.98	6
12:35	W2	ME	820649	808608	2.8	1.40	28.21	5.52	85.1	2.4	33.15	7.97	6
							28.21	5.49	84.6	2.4	33.14	7.97	6
12:13	W3	ME	820447	809037	8.1	1.00	28.24	6.45	96	1.6	33.05	8	7
							28.23	6.46	96.2	1.6	33.05	8	7
						4.05	28.14	6.12	91.8	2.8	33.12	7.97	8
							28.14	6.1	91.5	2.9	33.13	7.97	7
						7.10	28	5.74	85.4	3.1	33.41	7.94	8
							27.94	5.77	86.1	3.3	33.66	7.94	8
12:00	W4	ME	820054	809311	8.6	1.00	28.17	6.41	95.7	1.6	33	7.95	6
							28.17	6.42	95.9	1.6	33.01	7.96	7
						4.30	28.12	6.02	89.4	3	33.2	7.93	8
							28.13	6.01	89.3	2.8	33.19	7.93	8
						7.60	28.07	5.89	87.1	3.1	33.41	7.97	9
							28.01	5.8	86.5	3.4	33.56	7.96	9
11:52	W5	ME	819865	809692	5.4	1.00	28.17	6.1	90.8	2.3	32.89	7.88	6
							28.16	6.11	91.1	2.4	32.9	7.88	6
						4.40	28.08	5.84	87.6	2.7	33	7.9	6
							28.07	5.82	87.2	2.8	33	7.9	6
10:54	W6	ME	819162	810907	7.5	1.00	28.33	6.5	98.1	1.1	31.49	6.8	3
							28.25	6.44	97.5	1.3	31.56	7.04	3
						3.75	27.83	6.22	92.4	2.7	31.86	7.34	6
							27.84	6.26	92.9	2.8	31.86	7.36	5
						6.50	27.83	6.07	86.9	3.6	31.92	7.49	7
							27.73	6.05	86.5	3.6	31.97	7.49	7
11:21	W7	ME	820038	810543	8.6	1.00	28.12	6.7	99.9	2.3	32.55	7.72	5
							28.08	6.66	98.8	2	32.57	7.72	5
						4.30	27.55	6.36	93.1	2.1	32.78	7.68	6
							27.55	6.32	93.5	2.1	32.78	7.68	7
						7.60	27.39	6.11	90.2	3.4	32.85	7.66	7
							27.32	6.12	90.7	3.3	32.88	7.65	6
11:33	W8	ME	821346	810238	9.7	1.00	28.03	6.54	98.6	1	32.6	7.85	4
							28.05	6.5	98.1	1.1	32.59	7.85	3
						4.85	27.6	6.26	93.1	3.1	32.83	7.77	6
							27.6	6.22	92.6	3.1	32.84	7.76	6
						8.70	27.57	5.89	88.1	5.5	32.85	7.76	11
							27.57	5.89	88.1	5.7	32.85	7.76	11
12:43	W9	ME	819041	807946	9.6	1.00	28.31	6.66	98.6	1.7	33.21	8.01	5
							28.3	6.61	98.4	1.9	33.2	8.02	5
						4.80	28.17	6.4	93.3	2.1	33.31	8.02	5
							28.13	6.29	91.6	2.2	33.35	8.02	4
						8.60	28.09	6.01	89.2	2.4	33.42	8.01	6
							28.06	5.99	88.9	2.4	33.46	8.01	7

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	10-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
10:06	W1	MF	820708	808695	2.6	1.30	28.37	10.15	157.4	3.6	33.67	7.76	6
							28.36	10.09	156.4	3.6	33.68	7.76	5
10:09	W2	MF	820641	808650	2.8	1.40	28.61	10.04	156.2	2.6	33.48	7.78	4
							28.62	10.08	156.7	2.6	33.48	7.78	4
9:49	W3	MF	820453	809027	9.0	1.00	28.78	10.44	162.5	1	33.18	7.77	3
							28.82	10.47	163.1	0.9	33.17	7.77	3
						4.50	28.28	9.93	153.5	3.1	33.47	7.73	3
							28.3	10.04	155.3	3.1	33.45	7.74	4
						8.00	27.97	9.58	147.8	6.9	34.1	7.72	6
							27.96	9.58	147.8	7.3	34.13	7.72	6
9:32	W4	MF	820055	809306	8.8	1.00	28.84	11.04	172	0.6	33.19	7.7	2
							28.81	11.03	171.7	0.6	33.2	7.7	2
						4.40	28.11	10.29	158.7	3.3	33.57	7.64	2
							28.11	10.22	157.6	3.3	33.57	7.64	2
						7.80	28.02	9.91	152.9	6.2	33.89	7.65	4
							28.02	9.9	152.8	6.4	33.85	7.65	4
9:21	W5	MF	819869	809702	5.3	1.00	28.15	10.79	165.8	2.1	32.69	7.66	5
							28.15	10.76	165.3	2	32.68	7.66	5
						4.30	28.18	10.54	162.6	5.9	33.4	7.71	8
							28.16	10.54	162.6	6.7	33.43	7.71	7
8:26	W6	MF	819168	810927	7.4	1.00	28.27	13	199.1	1.2	31.67	6.93	3
							28.28	12.99	198.9	1.3	31.67	6.95	4
						3.70	27.94	12.35	188.1	1.8	31.73	7.1	5
							27.94	12.38	188.5	1.9	31.73	7.11	5
						6.40	27.88	11.34	172.6	3.1	31.79	7.15	9
							27.87	11.32	172.2	3.2	31.79	7.16	9
8:43	W7	MF	820039	810524	8.5	1.00	28	11.28	172.2	1.9	31.94	7.4	5
							28	11.22	171.3	1.8	31.93	7.4	5
						4.25	27.81	10.55	160.7	3.1	32.08	7.41	5
							27.79	10.54	160.4	3	32.1	7.42	4
						7.50	27.71	9.9	151	4.3	32.71	7.43	6
							27.71	9.84	150.1	4.2	32.72	7.43	6
8:59	W8	MF	821333	810228	9.5	1.00	28.28	10.29	157.7	1.3	31.82	7.54	2
							28.34	10.25	157.1	1.3	31.8	7.54	3
						4.75	27.69	9.51	144.7	3	32.4	7.53	5
							27.69	9.52	144.9	2.9	32.35	7.53	5
						8.50	27.74	9.14	139.7	7.3	32.98	7.54	6
							27.74	9.16	140	7.2	32.96	7.55	5
10:19	W9	MF	819065	807962	9.6	1.00	28.86	10.57	164.3	0.9	32.77	7.86	3
							28.94	10.47	163	0.7	32.73	7.86	3
						4.80	28.24	10.04	155.1	1.6	33.48	7.81	5
							28.24	9.98	154.1	1.4	33.47	7.81	4
						8.60	28.06	9.58	148.1	4.9	34.01	7.78	6
							28.04	9.62	148.7	5	34.04	7.78	5
13:13	W1	ME	820708	808699	2.8	1.40	29.78	11.44	181.3	0.6	33.58	7.87	3
							29.8	11.43	181.2	0.6	33.58	7.87	2
13:09	W2	ME	820641	808653	2.6	1.30	29.64	11.54	182.9	2.4	33.97	7.82	4
							29.64	11.52	182.6	2.2	33.96	7.82	4
13:20	W3	ME	820455	820641	7.8	1.00	28.92	11.25	176.1	0.8	33.71	7.75	3
							28.83	11.21	175.2	0.9	33.74	7.74	3
						3.90	28.44	10.8	167.9	1.7	33.99	7.7	3
							28.45	10.8	168	1.6	34.02	7.7	2
						6.80	28.08	9.99	155	4.3	34.72	7.64	3
							28.05	9.96	154.6	5	34.76	7.63	3
13:33	W4	ME	820058	809298	8.2	1.00	28.78	10.82	168.9	1	33.77	7.77	3
							28.84	10.79	168.6	1.2	33.73	7.77	2
						4.10	28.54	10.53	163.9	1.5	33.92	7.77	4
							28.48	10.45	162.6	1.6	33.95	7.77	4
						7.20	28.12	9.41	146	2.7	34.53	7.7	4
							28.12	9.44	146.4	2.6	34.52	7.71	2
13:49	W5	ME	819888	809697	4.6	1.00	28.87	10.09	157.6	1.3	33.66	7.79	2
							28.86	10.13	158.2	1.5	33.67	7.79	3
						3.60	28.26	9.45	146.3	4.2	33.84	7.69	5
							28.27	9.45	146.4	4.6	33.84	7.68	5
14:52	W6	ME	819177	810906	6.4	1.00	29.22	10.71	168	1	33.38	7.82	3
							29.16	10.63	166.7	1	33.41	7.82	2
						3.20	28.12	10.4	160.4	1.7	33.53	7.74	4
							28.12	10.32	159.2	1.7	33.53	7.73	3
						5.40	28.03	9.34	143.9	3.2	33.57	7.65	4
							28.03	9.33	143.8	3.2	33.57	7.65	3
14:32	W7	ME	820057	810521	7.8	1.00	28.36	10.62	164.3	1.4	33.35	7.66	4
							28.37	10.61	164.2	1.4	33.36	7.66	3
						3.90	28.23	10.11	156.2	2.8	33.41	7.62	5
							28.22	10.12	156.2	2.7	33.42	7.62	4
						6.80	27.91	9.91	152.4	7	33.52	7.59	7
							27.9	9.92	152.5	8.3	33.53	7.58	6
14:07	W8	ME	821339	810230	9.0	1.00	28.51	11.09	172	1.2	33.27	7.74	4
							28.5	11.1	172.1	1.2	33.27	7.74	3
						4.50	27.93	10.72	164.8	4.6	33.48	7.66	5
							27.9	10.66	163.8	5.7	33.5	7.65	3
						8.00	27.89	10.76	165.3	11.2	33.49	7.66	6
							27.84	10.48	161	12.8	33.52	7.65	5
12:55	W9	ME	819023	807972	9.2	1.00	28.5	11.19	174.2	1.1	33.96	7.53	3
							28.49	11.15	173.5	1.1	33.97	7.53	4
						4.60	28.41	10.88	169.2	0.8	34.07	7.57	3
							28.42	10.87	169	0.8	34.06	7.57	2
						8.20	28.22	10.62	164.9	1.3	34.36	7.58	2
							28.21	10.62	164.9	1.2	34.38	7.57	3

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	12-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
10:04	W1	MF	820696	808707	2.8	1.40	28.62	6.22	101.4	1.9	32.4	7.76	6
							28.63	6.21	101.1	2.1	32.41	7.76	7
10:08	W2	MF	820643	808609	2.7	1.35	28.83	6.43	103.8	2.1	32.37	7.78	6
							28.8	6.34	103.3	2	32.38	7.77	5
9:48	W3	MF	820456	809018	8.4	1.00	28.47	6.81	74.1	2	32.05	7.69	3
							28.47	6.81	74.1	2	32.06	7.69	2
						4.20	28.47	6.49	69.1	2.3	32.08	7.71	5
							28.47	6.39	67.7	2.4	32.3	7.73	4
						7.40	28.5	5.75	89.7	5	32.31	7.73	7
							28.5	5.7	89.4	6.1	32.42	7.73	8
9:37	W4	MF	820090	809313	8.0	1.00	28.42	6.55	100.4	3.1	32.17	7.64	4
							28.46	6.54	100.1	2.8	32.14	7.66	4
						4.00	28.51	5.93	98.9	2.9	32.28	7.68	3
							28.5	5.93	98.9	2.8	32.29	7.68	3
						7.00	28.53	5.78	90.2	6.4	32.38	7.67	7
							28.53	5.74	90	6.4	32.39	7.67	8
9:22	W5	MF	819886	809699	5.0	1.00	28.43	7.73	118.7	1.5	31.82	7.68	4
							28.42	7.69	118	1.4	31.83	7.69	5
						4.00	28.53	7.5	115.6	3.4	32.06	7.75	3
							28.52	7.39	113.8	3.7	32.06	7.75	5
8:31	W6	MF	819162	810908	6.7	1.00	28.63	10.6	162.7	2	31.24	7.06	5
							28.63	10.65	163.6	2	31.24	7.1	6
						3.35	28.49	9.35	143.4	2.8	31.31	7.39	4
							28.5	9.46	145	2.7	31.31	7.4	4
						5.70	28.46	8.27	126.8	4.3	31.33	7.43	6
							28.47	8.22	125.9	4.3	31.33	7.44	6
8:48	W7	MF	820053	810520	8.4	1.00	28.07	8.43	128.4	3.7	31.44	7.6	5
							28.08	8.69	132.4	3.8	31.44	7.6	4
						4.20	27.97	7.94	120.9	5.8	31.5	7.62	5
							27.97	7.94	120.9	5.8	31.49	7.62	6
						7.40	27.97	7.51	114.3	6.3	31.53	7.63	6
							27.97	7.45	113.4	6.3	31.53	7.63	6
9:05	W8	MF	821340	810253	9.2	1.00	28.11	7.53	115	5.4	31.69	7.64	6
							28.11	7.44	113.6	5.5	31.7	7.64	7
						4.60	28.1	7.28	111.2	4.7	31.86	7.65	8
							28.11	7.27	111	4.6	31.86	7.65	8
						8.20	28.07	7.05	107.7	6.9	32	7.65	9
							28.08	6.97	106.5	6.2	31.99	7.65	10
10:22	W9	MF	819039	807964	9.0	1.00	28.77	6.73	108.7	1.1	32.33	7.7	2
							28.74	6.84	109.4	0.9	32.36	7.71	2
						4.51	28.68	6.65	106.5	0.7	32.5	7.73	3
							28.69	6.52	105.4	0.9	32.5	7.73	2
						8.02	28.46	6.34	103.5	5.1	32.73	7.69	3
							28.44	6.1	98.7	5.4	32.76	7.68	2
14:14	W1	ME	820708	808701	2.4	1.20	28.65	8.99	139.1	2.8	32.48	7.95	5
							28.65	8.71	134.8	2.6	32.5	7.94	6
14:11	W2	ME	820643	808622	2.5	1.25	28.63	9.18	142	3.4	32.4	7.95	6
							28.64	8.98	138.9	3.6	32.4	7.94	5
14:21	W3	ME	820444	809023	8.0	1.00	28.88	11.31	175.6	1	32.48	8.05	4
							28.88	11.24	174.5	1	32.5	8.05	4
						4.00	28.83	10.91	169.4	1.4	32.56	8.05	6
							28.83	10.91	169.4	1.3	32.57	8.04	5
						7.00	28.67	9.29	143.9	5.7	32.71	8	3
							28.66	9.26	143.5	5.6	32.71	8	5
14:31	W4	ME	820055	809311	8.4	1.00	28.86	10.4	161.5	1.1	32.56	8.04	3
							28.85	10.44	162.1	1.2	32.56	8.04	4
						4.20	28.81	9.72	151	1.3	32.61	8.03	5
							28.81	9.61	149.2	1.1	32.62	8.03	4
						7.40	28.62	8.68	134.4	6.8	32.78	7.99	3
							28.58	8.55	132.3	6.2	32.81	7.98	4
14:46	W5	ME	819886	809708	4.8	1.00	28.5	9.36	144.4	2	32.36	7.88	2
							28.51	9.29	143.4	1.9	32.36	7.88	3
						3.80	28.5	8.98	138.7	3	32.56	7.88	5
							28.5	8.91	137.6	3.1	32.6	7.88	6
15:23	W6	ME	819162	810908	6.4	1.00	28.91	8.5	132.1	1.3	32.55	7.89	4
							28.68	7.65	118.5	1.9	32.62	7.87	3
						3.20	28.66	7.33	113.6	2.2	32.63	7.85	3
							28.66	7.32	113.3	2.2	32.63	7.84	5
						5.40	28.62	6.69	103.6	6.2	32.64	7.83	3
							28.62	6.69	103.6	6.5	32.7	7.81	3
15:13	W7	ME	820055	810546	8.4	1.00	28.38	9.69	149.1	2	32.31	7.95	5
							28.36	9.04	139.1	1.9	32.36	7.9	4
						4.20	28.33	8.46	130.2	2.5	32.49	7.86	4
							28.32	8.41	129.4	2.6	32.49	7.86	3
						7.40	28.34	7.76	119.5	6.2	32.6	7.84	6
							28.34	7.69	118.4	6.7	32.58	7.84	6
14:57	W8	ME	821346	810259	9.0	1.00	28.39	9.01	138.8	2.3	32.4	7.88	6
							28.4	8.91	137.2	2.3	32.41	7.88	5
						4.50	28.3	8.08	124.3	5.5	32.57	7.84	5
							28.31	8.06	124	5.9	32.57	7.84	6
						8.00	28.09	7.56	115.9	7.9	32.57	7.81	8
							28.08	7.48	114.8	7.8	32.56	7.81	8
13:56	W9	ME	819022	807966	8.6	1.00	28.22	9.01	138.1	1.1	31.96	7.95	3
							28.22	8.87	135.8	1.1	31.95	7.95	3
						4.30	28.38	8.45	130.1	2.5	32.28	7.93	4
							28.45	8.53	131.5	3	32.32	7.94	4
						7.60	28.52	8.67	133.9	6.5	32.43	7.96	8
							28.53	8.67	133.9	6.8	32.44	7.96	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	15-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
12:15	W1	MF	820682	808692	2.7	1.35	28.75	6.13	95	2.6	32.45	7.81	4
							28.76	5.85	90.7	2.7	32.44	7.8	5
12:20	W2	MF	820641	808607	2.8	1.40	28.96	6.29	97.7	2.3	32.37	7.83	5
							28.88	6.24	96.9	2.9	32.43	7.82	4
11:58	W3	MF	820463	809016	8.6	1.00	28.74	6.73	104.7	0.4	32.29	7.76	4
							28.74	6.69	104.1	0.3	32.29	7.76	5
						4.30	28.58	5.99	97.5	1.3	32.6	7.75	5
							28.56	5.91	96.8	1.4	32.64	7.75	5
						7.60	28.11	5.86	95.1	4.5	33.8	7.7	9
							28.03	5.87	95.4	5.5	33.95	7.69	8
11:44	W4	MF	820079	809306	8.4	1.00	28.64	6.65	102.5	0.8	32.15	7.66	4
							28.65	6.62	101.6	0.8	32.15	7.66	4
						4.20	28.51	5.87	95.7	2.2	32.66	7.68	5
							28.51	5.85	95.3	2.4	32.65	7.68	5
						7.40	28.34	5.72	87.3	3.2	33.58	7.65	5
							28.26	5.73	87.4	3.6	33.24	7.68	5
11:33	W5	MF	819884	809708	4.7	1.00	28.68	6.35	96.9	3	32.6	7.54	3
							28.7	6.2	95.6	2.5	32.59	7.54	3
						3.70	28.49	5.8	88.3	2.3	32.8	7.53	3
							28.5	5.79	87.5	2.3	32.79	7.53	3
10:44	W6	MF	819166	810922	6.5	1.00	29	6.57	100.1	0.7	31.93	6.45	4
							28.99	6.57	100.1	0.7	31.94	6.48	4
						3.25	28.75	6.21	95.9	3.7	32.08	6.64	5
							28.75	6.2	95.6	3.9	32.08	6.64	5
						5.50	28.76	6.09	89.1	1.7	32.43	7.15	6
							28.76	6.09	89.1	1.8	32.43	7.15	6
11:03	W7	MF	820067	810539	7.8	1.00	28.64	7.61	117.4	0.5	32.07	7.65	4
							28.65	7.42	114.5	0.5	32.08	7.63	4
						3.90	28.6	6.81	105	0.5	32.12	7.57	3
							28.6	6.74	104	0.4	32.12	7.58	4
						6.80	28.22	6.17	95	2	33.01	7.53	4
							28.29	6.03	92.9	2.2	32.75	7.53	4
11:18	W8	MF	821624	810206	8.6	1.00	28.68	6.51	100.6	0.4	32.13	7.61	3
							28.67	6.53	100.9	0.4	32.14	7.61	3
						4.30	28.54	5.88	90.6	0.6	32.33	7.58	4
							28.54	5.8	89.6	0.6	32.33	7.58	4
						7.60	28.39	5.79	89.3	1.3	32.74	7.57	5
							28.19	5.73	87.3	2	34.32	7.55	4
12:26	W9	MF	819055	807961	8.7	1.00	28.64	6.71	103.4	1.9	32.51	7.74	4
							28.66	6.8	104.7	1.8	32.52	7.77	4
						4.35	28.27	6.27	99.8	4.6	33.84	7.76	4
							28.27	6.25	99.4	4.3	33.88	7.75	4
						7.70	28.16	5.91	96	5.1	35.16	7.77	5
							28.11	5.92	96	6.2	35.2	7.77	5
15:35	W1	ME	820697	808704	2.7	1.35	28.72	6.83	105.4	2.7	34.09	7.44	3
							28.7	6.83	105.5	2.7	34.11	7.44	4
15:32	W2	ME	820638	808650	2.6	1.30	28.75	6.88	106.3	2.3	33.85	7.41	4
							28.78	6.87	106.1	2.3	33.9	7.42	4
15:40	W3	ME	820451	809014	8.0	1.00	28.68	6.59	102.1	2.2	33.97	7.55	3
							28.68	6.52	101.8	2.3	33.96	7.55	3
						4.00	28.16	6.32	95.6	4.6	34.73	7.45	3
							28.14	6.03	93.1	4.9	34.75	7.44	3
						7.00	28.1	5.84	87.3	6.8	35.38	7.4	3
							28.09	5.81	87.1	7	35.57	7.4	3
15:51	W4	ME	820055	809316	8.1	1.00	28.74	6.21	96.9	2.1	33.85	7.53	2
							28.75	6.21	96.9	2.1	33.84	7.53	2
						4.05	28.19	5.91	93.1	4.5	34.62	7.46	3
							28.16	5.9	92.8	4.9	34.65	7.46	3
						7.10	28.09	5.77	87.2	7.4	35.63	7.42	3
							28.09	5.72	86.5	7.5	35.61	7.42	3
16:05	W5	ME	819859	809692	4.8	1.00	28.43	6.19	95.8	1.1	33.37	7.47	3
							28.43	6.12	94.8	1	33.37	7.47	3
						3.80	28.36	5.98	90.2	1.2	33.44	7.45	4
							28.36	5.91	89.4	1.2	33.44	7.45	3
16:42	W6	ME	819159	810909	6.7	1.00	29.05	6.77	105.4	1.8	32.96	7.71	4
							29.06	6.73	104.5	1.8	32.96	7.72	4
						3.35	28.89	6.37	100	2	33.04	7.73	4
							28.89	6.36	99.6	2.2	33.05	7.74	4
						5.70	28.69	6.15	92.5	5.2	33.23	7.7	4
							28.7	6.08	92.1	5.5	33.2	7.69	4
16:30	W7	ME	820046	810549	8.1	1.00	28.23	6.69	102.4	1.4	33.31	7.47	2
							28.22	6.69	102.4	1.4	33.31	7.47	2
						4.05	28.16	6.74	100.1	1.6	33.35	7.48	2
							28.16	6.62	99.3	1.6	33.35	7.48	2
						7.10	28.14	6.09	92.4	1.9	33.38	7.48	3
							28.14	6.08	92.3	2.1	33.39	7.48	3
16:18	W8	ME	821343	810208	9.0	1.00	28.28	6.41	99.6	1.1	32.95	7.41	2
							28.28	6.42	99.8	1.1	32.96	7.4	2
						4.50	28.25	6.02	92.5	1.1	33.12	7.39	2
							28.24	5.99	92	1.1	33.17	7.39	2
						8.00	27.94	5.67	85.5	6	35.19	7.39	2
							27.93	5.58	85	6.4	35.19	7.39	2
15:16	W9	ME	819052	807947	8.8	1.00	28.74	6.34	97.4	1.2	34.07	7	3
							28.76	6.46	97.3	1.2	34.05	7.01	4
						4.40	28.3	6.02	93.1	0.8	36.05	6.96	4
							28.31	6.02	93.1	0.8	36.02	6.96	4
						7.80	27.94	5.76	88.8	2.5	36.75	7	6
							27.94	5.76	88.9	2.8	36.76	7	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	17-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
17:08	W1	MF	820698	808689	2.5	1.25	28.24	6.47	100.9	5.5	35.17	7.73	8
							28.01	6.37	99	5	35.32	7.73	10
17:03	W2	MF	820651	808638	2.5	1.25	28.55	6.92	108.5	5.6	35.14	7.73	12
							28.56	6.8	106.6	5.2	35.07	7.73	14
17:14	W3	MF	820462	809631	8.1	1.00	27.56	6.87	105.8	4.5	34.92	7.56	14
							27.59	6.86	105.7	4.7	34.9	7.57	12
						4.05	27.5	6.28	96.9	6.9	35.38	7.69	17
							27.5	6.26	96.6	6.3	35.37	7.7	18
						7.10	27.39	5.97	92.5	7.5	36.35	7.74	17
							27.36	5.94	92	7.1	36.44	7.74	18
17:25	W4	MF	820058	809304	7.9	1.00	27.78	6.33	97.9	4.7	34.86	7.74	13
							27.78	6.25	96.6	4.6	34.85	7.74	11
						3.95	27.5	6.17	95.2	5.2	35.4	7.73	12
							27.49	5.99	92.4	5.1	35.44	7.74	14
						6.90	27.41	5.79	89.5	7	36.2	7.77	19
							27.42	5.94	92	7.1	36.16	7.78	20
17:36	W5	MF	819890	809692	4.9	1.00	27.77	6.79	104.9	4.7	34.82	7.76	12
							27.77	6.7	103.5	4.7	34.82	7.76	12
						3.90	27.69	6.6	101.8	5.7	34.86	7.76	15
							27.68	6.67	102.9	5.9	34.86	7.75	15
18:22	W6	MF	819188	810932	6.1	1.00	27.79	6.55	100.4	2.3	33.38	7.83	8
							27.8	6.31	96.8	2.4	33.38	7.83	7
						3.05	27.56	5.96	91.1	4.5	33.61	7.79	8
							27.58	5.96	91.1	4.4	33.61	7.8	8
						5.10	27.72	6.12	94.1	7.6	33.95	7.83	12
							27.72	6.05	92.9	7.1	33.96	7.83	12
18:05	W7	MF	820044	810546	7.6	1.00	27.73	6.38	98.5	3.7	34.68	7.77	14
							27.72	6.65	102.5	3.3	34.68	7.77	15
						3.80	27.71	6.18	95.3	5.3	34.7	7.77	15
							27.71	6.18	95.3	5.1	34.7	7.77	17
						6.60	27.69	6.09	94	6.7	34.73	7.77	16
							27.7	6.11	94.3	7.3	34.73	7.77	16
17:49	W8	MF	821336	810232	8.7	1.00	27.73	6.85	105.6	3.8	34.66	7.76	15
							27.73	6.81	105.1	3.7	34.66	7.76	15
						4.35	27.69	6.52	100.5	6.1	34.72	7.76	16
							27.69	6.43	99.1	6.1	34.71	7.76	16
						7.70	27.69	6.48	99.9	7.3	34.73	7.76	19
							27.68	6.68	103.1	7.3	34.74	7.76	20
16:49	W9	MF	819055	807948	9.1	1.00	27.78	8.25	127.9	3.5	35.49	7.61	14
							27.79	8.25	127.9	4.1	35.5	7.61	14
						4.55	27.57	7.55	116.9	5.7	35.68	7.59	13
							27.58	7.52	116.4	5.6	35.71	7.59	15
						8.10	27.49	7	108.5	7.1	36.32	7.61	22
							27.48	7.05	109.3	7	36.36	7.61	23
9:49	W1	ME	820713	808692	2.7	1.35	28.43	6.96	108.3	4.6	34.08	7.78	9
							28.41	6.93	107.8	4.5	34.1	7.78	8
9:53	W2	ME	820644	808627	2.6	1.30	28.63	6.81	106.2	5.2	33.97	7.88	8
							28.63	6.64	103.6	5.4	33.97	7.86	8
9:36	W3	ME	820448	809022	8.3	1.00	27.7	6.38	97.8	5.5	33.78	7.69	15
							27.69	6.32	96.8	5.4	33.78	7.69	14
						4.15	27.64	6.24	95.7	7.3	33.82	7.69	17
							27.62	6.28	96.1	7	33.84	7.69	16
						7.30	27.52	5.6	85.8	8.1	34.19	7.68	18
							27.5	5.53	84.8	8.1	34.33	7.68	18
9:25	W4	ME	820091	809304	8.0	1.00	27.71	6.4	98.2	4.2	33.73	7.7	18
							27.71	6.34	97.3	4.6	33.73	7.7	18
						4.00	27.61	6.03	92.3	5.4	33.82	7.68	20
							27.62	6.03	92.3	5.6	33.81	7.68	20
						7.00	27.43	5.77	88.4	7.2	34.57	7.69	20
							27.44	5.78	88.5	7.3	34.54	7.69	19
9:13	W5	ME	819882	809704	4.4	1.00	27.74	6.32	96.9	4.2	33.64	7.61	10
							27.75	6.28	96.4	4.9	33.63	7.61	10
						3.40	27.7	6.4	98.1	5.5	33.68	7.6	10
							27.7	5.96	91.4	5.7	33.68	7.6	11
8:19	W6	ME	819147	810922	6.6	1.00	27.78	9.48	143.7	3	31.43	7.66	8
							27.82	9.41	142.7	3	31.4	7.63	8
						3.30	27.64	9.09	137.7	3.4	31.72	7.86	10
							27.64	8.98	136.1	3.3	31.73	7.88	10
						5.60	27.56	8.46	128.3	5.8	32	7.95	10
							27.56	8.48	128.6	6.3	32.06	7.96	11
8:36	W7	ME	820039	810540	8.0	1.00	27.74	7.88	120.3	3.1	32.82	7.41	8
							27.74	8	122.2	3.1	32.83	7.43	9
						4.00	27.73	7.34	112.1	3.2	32.86	7.4	10
							27.73	7.38	112.6	3.3	32.87	7.4	9
						7.00	27.6	6.58	100.4	6.4	33.13	7.46	9
							27.58	6.49	99	6.6	33.23	7.45	8
8:53	W8	ME	821346	810252	8.8	1.00	27.8	7.27	111.2	3.1	33.02	7.52	7
							27.8	7.34	112.3	3.2	33.02	7.52	6
						4.40	27.69	6.85	104.6	2.7	33.01	7.53	8
							27.66	6.88	105	2.7	33.01	7.53	8
						7.80	27.59	6.5	99.1	5.2	33.16	7.54	7
							27.6	6.35	97	4.1	33.15	7.54	8
10:08	W9	ME	819042	807960	9.2	1.00	27.7	7.08	108.7	4.3	33.98	7.75	18
							27.7	6.43	98.8	4.2	33.98	7.75	17
						4.60	27.52	5.98	91.8	6	34.55	7.76	21
							27.52	6.01	92.3	6.3	34.56	7.76	19
						8.20	27.42	5.62	86.7	7.2	35.38	7.79	37
							27.4	5.63	86.7	7.3	35.46	7.79	38

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	19-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
15:58	W1	MF	820699	808699	2.4	1.20	29.89	7	98.5	2.8	34.39	7.2	5
							29.81	7.02	98.7	2.7	34.31	7.29	5
15:56	W2	MF	820644	808650	2.4	1.20	29.47	6.89	95.4	4	35.23	7.38	6
							29.48	6.81	95.2	4.2	35.17	7.39	5
16:04	W3	MF	820457	809055	7.7	1.00	29.17	7.67	127	1.3	33.13	7.31	4
							29.18	7.72	127.9	1.2	33.14	7.33	4
						3.85	28.48	7.23	113.5	2.9	34.42	7.24	6
							28.46	7.21	112.4	3	34.51	7.22	5
						6.70	28.03	6.15	95.8	6.5	35.66	7.16	7
							28.02	5.85	91.1	6.6	35.67	7.17	8
16:12	W4	MF	820078	809304	7.4	1.00	29.23	8.37	131.2	1.3	33.17	7.79	3
							29.28	8.31	130.4	1.2	33.15	7.83	3
						3.70	28.62	7.96	124.4	2.2	34.29	7.74	4
							28.7	7.49	117	2.5	34.05	7.74	4
						6.40	28.09	6.45	100.5	5.7	35.58	7.65	10
							28.06	6.45	100.6	6.2	35.64	7.63	11
16:25	W5	MF	819884	809692	4.0	1.00	29.11	6.52	97.5	1.6	33.87	7.38	4
							29.14	6.55	97.3	1.5	33.86	7.38	4
						3.00	28.9	5.9	94.6	1.8	33.97	7.34	5
							28.88	5.91	94.7	1.8	33.98	7.32	5
17:11	W6	MF	819178	810822	6.8	1.00	29.47	6.39	100.4	1	33.14	7.56	3
							29.47	6.28	98.7	1.1	33.15	7.56	2
						3.40	29	6.32	98.9	2	33.4	7.51	3
							29	6.24	97.7	2	33.4	7.5	4
						5.80	28.28	6.12	95.2	6.4	34.5	7.37	10
							28.22	6.09	94.5	7	34.57	7.37	9
16:53	W7	MF	820038	810522	7.7	1.00	29.34	6.41	100.7	1	33.21	7.42	2
							29.34	6.49	101.9	0.9	33.22	7.43	2
						3.85	28.79	6.34	98.9	1.3	33.7	7.35	2
							28.79	6.33	98.7	1.3	33.72	7.35	3
						6.70	28.26	6.15	96	5.1	35.28	7.26	3
							28.32	6.08	94.9	3.5	35.01	7.25	3
16:40	W8	MF	821344	810219	8.6	1.00	28.99	6.69	104.7	1.4	33.45	7.21	2
							29	6.89	107.8	1.4	33.46	7.22	2
						4.30	28.91	7.22	113	1.4	33.83	7.26	3
							28.89	7.22	112.9	1.4	33.84	7.26	4
						7.60	28.24	6.95	108.5	4.9	35.53	7.2	4
							28.05	6.59	102.7	5.9	35.66	7.17	4
15:44	W9	MF	819033	807961	8.9	1.00	28.78	7.55	117.9	2.5	35.53	7.29	5
							28.77	7.49	116.9	2.6	35.53	7.21	5
						4.45	28.87	7.32	109.7	2.5	36.57	7.29	6
							28.86	7.15	107.1	2.5	36.64	7.29	6
						7.90	28.34	7.02	98.2	4.8	37.07	7.24	6
							28.36	7.01	98.2	4.4	37.06	7.25	6
10:14	W1	ME	820690	808713	2.5	1.25	28.65	5.87	91.6	4	34.08	7.54	6
							28.62	5.78	90.2	4.7	34.09	7.54	6
10:16	W2	ME	820651	808652	2.6	1.30	28.77	5.45	85.2	5	33.98	7.54	6
							28.76	5.49	85.8	5.7	33.97	7.54	7
9:57	W3	ME	820449	809025	7.6	1.00	28.56	6.4	99.4	2	33.28	7.74	3
							28.55	6.39	99.2	1.9	33.28	7.74	4
						3.80	28.26	6.08	64.4	3.3	34.45	7.71	4
							28.26	6.12	65.1	3.3	34.46	7.71	4
						6.60	28.04	5.64	87.6	6.2	35.04	7.69	8
							27.99	5.64	87.7	7.8	35.15	7.69	7
9:44	W4	ME	820081	809304	7.8	1.00	28.49	6.98	108.2	2	33.31	7.71	4
							28.5	7.04	109.2	2	33.3	7.71	4
						3.90	28.24	6.16	95.7	3.9	34.32	7.67	6
							28.24	6.13	95.2	3.9	34.34	7.67	6
						6.80	28	5.79	89.9	6.6	35.09	7.66	11
							27.97	5.79	90	7.3	35.14	7.66	10
9:31	W5	ME	819890	809691	4.4	1.00	28.37	6.13	94.9	1.7	33.44	7.59	2
							28.37	6.1	94.5	1.4	33.47	7.6	2
						3.40	28.22	5.95	92.3	2.5	34.11	7.64	3
							28.21	5.93	92	2.9	34.13	7.64	3
8:44	W6	ME	819174	810926	6.6	1.00	28.52	7.22	111	1.7	31.75	7.03	3
							28.51	7.68	118.1	1.4	31.73	7.11	3
						3.30	28.45	7.47	114.8	1.1	31.75	7.31	3
							28.44	7.54	115.8	1.1	31.75	7.31	4
						5.60	28.12	6.29	96.4	3.2	32.3	7.31	7
							28.1	5.98	91.7	3.3	32.33	7.31	6
9:02	W7	ME	820053	810539	7.4	1.00	28.66	7.76	120	0.7	32.29	7.63	3
							28.67	7.52	116.3	0.7	32.3	7.63	3
						3.70	28.65	7.33	113.3	0.7	32.31	7.65	3
							28.62	7.3	112.8	0.7	32.3	7.65	3
						6.40	28.6	7.11	109.8	0.8	32.31	7.65	3
							28.6	7.09	109.5	0.7	32.32	7.65	3
9:15	W8	ME	821346	810256	8.6	1.00	28.64	7.11	109.9	0.9	32.4	7.59	2
							28.64	7.05	109	0.8	32.4	7.59	2
						4.30	28.53	6.86	106	0.7	32.54	7.59	2
							28.53	6.84	105.6	0.7	32.54	7.59	3
						7.60	27.96	5.29	81.5	3.5	33.85	7.51	3
							27.96	5.31	81.9	3.4	33.78	7.5	3
10:22	W9	ME	819031	807944	8.8	1.00	28.61	6.28	98	2.1	34.26	7.55	3
							28.61	6.31	98.5	2.1	34.26	7.55	3
						4.40	28.12	5.82	90.6	2.9	35.13	7.52	6
							28.07	5.77	89.8	3.1	35.18	7.52	6
						7.80	28.26	5.71	89	4.2	34.96	7.54	7
							28.15	5.6	87.2	7.3	35.11	7.54	7

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	22-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
16:44	W1	MF	820692	808703	2.4	1.20	28.12	8.81	138.4	2.8	36.85	7.38	5
							28.13	8.86	139.3	2.7	36.82	7.39	5
16:40	W2	MF	820654	808609	2.2	1.10	28.12	8.66	136.1	2.8	36.94	7.37	6
							28.12	8.65	136	2.9	36.92	7.37	6
16:50	W3	MF	820448	808035	8.4	1.00	27.93	8.35	130.8	1.7	36.89	7.44	5
							27.94	8.37	131.2	1.8	36.88	7.45	5
						4.20	27.81	7.38	115.9	4.2	37.59	7.45	5
							27.81	7.37	115.6	4.3	37.56	7.46	5
						7.40	27.83	6.69	105.5	6.5	38.37	7.46	6
							27.84	6.47	102.1	6.7	38.52	7.45	7
16:59	W4	MF	820053	809308	8.2	1.00	28.04	8.34	130.7	1.5	36.65	7.57	4
							28.02	8.41	131.8	1.5	36.69	7.57	4
						4.10	27.8	7.03	110.4	4.4	37.62	7.52	6
							27.8	6.98	109.5	4.4	37.61	7.52	6
						7.20	27.81	6.87	108.1	5.6	37.95	7.52	7
							27.81	6.87	108.1	5.9	38.02	7.52	7
17:16	W5	MF	819991	809708	4.8	1.00	28.02	8.07	126.7	2.4	37.04	7.72	5
							28.01	8.06	126.5	2.4	37.06	7.72	5
						3.80	27.81	7.18	112.5	2.6	37.31	7.67	5
							27.81	7.2	112.8	2.7	37.23	7.67	5
18:05	W6	MF	819178	810925	7.0	1.00	28.13	9.47	148.2	1.3	35.97	7.9	4
							28.1	9.12	142.7	1.4	36.12	7.89	4
						3.50	27.9	7.71	120.5	1.6	36.54	7.82	4
							27.9	7.67	119.9	1.6	36.57	7.81	4
						6.00	28.02	6.19	97.3	3.5	37.3	7.73	6
							28.02	6.17	96.7	3.5	36.71	7.73	5
17:46	W7	MF	820054	810538	7.8	1.00	27.98	7.73	121	1.7	36.56	7.73	6
							27.98	7.73	120.9	1.9	36.56	7.73	6
						3.90	27.88	6.28	98.7	6.1	37.43	7.67	6
							27.89	6.28	98.7	6.5	37.44	7.67	6
						6.80	27.86	6.67	105.1	6.6	38.14	7.66	8
							27.85	6.67	105.1	8.2	38.17	7.66	9
17:31	W8	MF	821324	810248	9.0	1.00	28.02	8.55	134	2.5	36.62	7.73	4
							27.91	8.05	126	2.5	36.75	7.7	5
						4.50	27.8	5.87	92.3	5	37.81	7.6	5
							27.81	5.87	92.3	5.2	37.82	7.6	6
						8.00	27.81	6.09	95.8	7.6	37.89	7.6	10
							27.8	5.99	94.2	8.3	38.02	7.6	9
16:24	W9	MF	819038	807964	8.8	1.00	27.94	8.76	137.3	1.5	36.93	7.04	5
							27.94	8.85	138.7	1.5	36.99	7.04	5
						4.40	27.86	6.86	108.4	3.7	38.55	6.98	6
							27.87	6.86	108.4	3.7	38.5	6.99	6
						7.80	27.83	6.52	103.1	6.5	38.85	7.01	7
							27.81	6.32	99.9	7.5	38.87	7	7
12:10	W1	ME	820691	808701	2.7	1.35	27.69	8.14	126.9	1.9	36.81	7.65	5
							27.67	8.12	126.6	1.8	36.84	7.65	6
12:14	W2	ME	820653	808630	2.6	1.30	27.76	7.44	116.2	4.2	36.8	7.53	7
							27.72	7.46	116.5	3.8	36.81	7.53	6
11:54	W3	ME	820448	809038	8.6	1.00	27.92	7.59	119.1	2	37.11	7.59	4
							27.92	7.64	119.9	1.9	37.11	7.59	5
						4.30	27.77	6.9	108.5	3.3	37.83	7.56	5
							27.76	6.94	109	3.2	37.75	7.57	5
						7.60	27.78	6.3	99.5	7.6	38.7	7.54	6
							27.78	6.17	97.3	8.5	38.68	7.54	6
11:43	W4	ME	820079	809311	8.6	1.00	27.86	8.19	128.4	2.1	37.21	7.53	5
							27.85	8.2	128.5	2.2	37.21	7.54	5
						4.30	27.75	7.05	111	4	38.13	7.52	6
							27.74	7.01	110.2	4.1	38.12	7.52	5
						7.60	27.77	6.24	98.6	9.4	38.73	7.49	8
							27.77	5.93	93.6	9.7	38.81	7.49	8
11:32	W5	ME	819886	809682	5.1	1.00	27.96	7.05	110.8	1.5	37.37	7.52	2
							27.97	7.03	110.5	1.5	37.36	7.53	2
						4.10	27.83	6.27	99	5.6	38.41	7.5	2
							27.84	6.59	104.2	6	38.85	7.51	3
10:46	W6	ME	819178	810907	7.4	1.00	27.81	7.95	123.7	3.3	35.95	7.52	3
							27.82	8.01	124.7	3.3	36.05	7.51	3
						3.70	28.04	6.59	103.9	2	37.64	7.41	3
							28.04	6.46	101.3	2	36.83	7.4	3
						6.40	27.93	6.04	95.7	6.7	39	7.34	6
							27.94	6.09	96.6	8.5	39.06	7.33	7
11:04	W7	ME	820056	810538	8.1	1.00	27.77	8.01	124.6	0.8	36.04	7.47	3
							27.75	8.19	127.3	0.8	36.15	7.47	3
						4.05	27.49	7.46	116.1	1.1	36.96	7.42	3
							27.48	7.45	115.9	1.1	36.98	7.42	3
						7.10	27.85	6.18	98	7.9	39.14	7.37	3
							27.85	6.09	96.5	8.2	39.14	7.37	3
11:18	W8	ME	821346	810209	9.2	1.00	27.93	8.17	128	1	37.02	7.52	3
							27.94	8.27	129.6	1	37.01	7.53	3
						4.60	27.64	8.19	128	1	37.17	7.53	3
							27.64	8.14	127.1	1	37.16	7.53	3
						8.20	27.77	6.87	108.6	6.3	39.02	7.48	3
							27.81	6.68	105.7	7.5	38.99	7.48	3
12:22	W9	ME	819024	807964	9.4	1.00	28.02	7.89	123.7	3.2	36.85	7.57	6
							28.01	7.84	123.5	3.3	37.46	7.57	6
						4.70	27.8	6.7	105.5	7	38.09	7.55	6
							27.8	6.76	106.3	6.8	38.06	7.55	6
						8.40	27.78	7	110.3	7.7	38.39	7.56	7
							27.78	6.94	109.4	8.3	38.42	7.55	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	24-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
10:08	W1	MF	820691	808708	2.6	1.30	28.1	6.72	105.1	4.3	36.17	7.62	10
							28.11	6.7	104.9	4.5	36.2	7.61	9
10:12	W2	MF	820644	808622	2.6	1.30	28.22	6.99	109.6	5.6	36.17	7.59	8
							28.15	6.93	108.6	5.1	36.21	7.59	6
9:52	W3	MF	820448	809032	8.5	1.00	28.49	8.07	126.8	2.7	35.86	7.69	7
							28.43	8.1	127.2	2.7	35.86	7.69	6
						4.25	28.23	7.17	112.3	3.9	36.02	7.65	6
							28.24	7.15	112	3.9	36.04	7.65	8
						7.50	28.14	6.55	102.5	7.8	36.09	7.62	8
							28.08	6.73	105.3	9.7	36.11	7.62	7
9:40	W4	MF	820081	809308	8.3	1.00	28.41	8.45	132.6	2.7	35.86	7.69	6
							28.39	8.43	132.3	2.8	35.87	7.69	8
						4.15	28.24	7.32	114.7	4.4	36.03	7.62	8
							28.24	7.31	114.5	4.4	36	7.63	8
						7.30	28.06	6.75	105.5	8.3	36.11	7.57	7
							28.05	6.75	105.5	8.5	36.12	7.57	8
9:29	W5	MF	819884	809707	4.8	1.00	28.36	7.72	120.9	2.2	35.57	7.76	7
							28.37	7.73	121	2.2	35.57	7.76	7
						3.80	27.89	6.59	102.6	6.7	35.78	7.66	6
							27.89	6.55	101.9	6.7	35.78	7.66	8
8:37	W6	MF	819190	810900	6.8	1.00	28.34	8.69	135.7	1.9	35	7.45	8
							28.34	8.76	136.7	1.3	34.96	7.46	6
						3.40	27.94	6.41	99.5	2.5	35.06	7.36	6
							27.93	6.37	98.8	2.5	35.06	7.36	5
						5.80	27.91	6.09	94.4	7.2	35.18	7.32	9
							27.91	6.12	94.9	7.8	35.18	7.32	9
8:56	W7	MF	820053	810521	8.2	1.00	28.28	7.44	116.2	3.5	35.43	7.52	9
							28.26	7.44	116.2	3.4	35.44	7.52	9
						4.10	27.96	6.5	101.2	5.9	35.55	7.48	9
							27.96	6.52	101.4	5.8	35.56	7.48	8
						7.20	27.91	6.18	96.2	7.3	35.63	7.49	9
							27.91	6.19	96.2	7.5	35.63	7.49	9
9:13	W8	MF	821327	810209	9.4	1.00	28.21	6.86	107.2	3.2	35.57	7.58	8
							28.22	6.86	107.2	3.2	35.57	7.59	7
						4.70	28.19	6.87	107.3	3.1	35.61	7.59	8
							28.18	6.87	107.4	3	35.62	7.6	8
						8.40	27.92	6.23	97	7.7	35.73	7.56	9
							27.91	6.14	95.6	7.8	35.73	7.56	9
10:22	W9	MF	819043	807981	9.2	1.00	28.58	8.89	140.1	1.3	36.14	7.73	7
							28.56	8.9	140.3	1.5	36.16	7.72	7
						4.60	28.22	7.44	116.8	7.5	36.28	7.62	9
							28.23	7.44	116.8	7.1	36.28	7.62	9
						8.20	28.1	7.11	111.4	6.1	36.33	7.58	8
							28.06	7.08	110.8	5.8	36.33	7.58	9
11:59	W1	ME	820961	808707	2.8	1.40	28.29	9.61	150.7	3.3	36.1	6.57	10
							28.35	9.55	150.1	3.4	36.11	6.57	9
11:56	W2	ME	820653	808608	2.7	1.35	28.66	9.77	154.3	4.3	36.19	6.22	8
							28.66	9.76	154	4.7	36.1	6.26	8
12:12	W3	ME	820453	809038	7.8	1.00	28.82	9.88	156.3	2.4	36.06	7.03	6
							28.82	9.86	155.9	2.4	36.05	7.03	6
						3.90	28.44	8.35	131.5	4.9	36.31	6.93	8
							28.45	8.34	131.4	4.8	36.3	6.93	8
						6.80	28.07	7.39	115.8	7.7	36.43	6.89	9
							28.02	7.4	115.9	8.4	36.45	6.88	10
12:23	W4	ME	820058	809301	7.6	1.00	28.99	8.81	139.7	2.6	36.08	7.18	6
							28.98	8.79	139.4	2.5	36.05	7.2	5
						3.80	28.63	8.27	130.5	3.1	36.21	7.19	8
							28.57	8.34	131.6	3.2	36.21	7.19	8
						6.60	28.21	7.99	125.4	5.2	36.4	7.14	9
							28.23	7.79	122.3	5	36.39	7.14	8
12:34	W5	ME	819884	809692	4.8	1.00	28.58	7.97	125.6	3.5	35.96	7.36	9
							28.58	8.03	126.4	3.5	35.96	7.36	9
						3.80	28.18	7.13	111.6	6	36.06	7.29	9
							28.2	7.06	110.6	5.9	36.07	7.29	7
13:29	W6	ME	819172	810902	6.2	1.00	28.88	9.13	144.4	1.6	35.68	7.58	5
							28.86	9.12	144.1	1.6	35.65	7.58	6
						3.10	28.2	7.56	118.3	2.2	35.91	7.39	7
							28.25	7.47	117	2.5	35.89	7.39	6
						5.20	27.95	6.11	95.3	4.9	36.03	7.28	10
							27.95	6.12	95.5	5	36.09	7.28	9
13:08	W7	ME	820053	810524	7.5	1.00	28.92	9.12	144.2	1.9	35.73	7.73	7
							28.9	9.13	144.5	1.9	35.72	7.73	7
						3.75	28.25	8.24	129	2	35.85	7.62	6
							28.25	8.12	127.2	2	35.85	7.62	8
						6.50	28.02	6.41	100.1	6.2	36.05	7.49	8
							28.02	6.41	100.1	6.4	36.06	7.49	9
12:47	W8	ME	821328	810254	8.2	1.00	28.76	8.24	130	2.3	35.75	7.67	8
							28.78	8.13	128.3	2.3	35.76	7.62	9
						4.10	28.12	6.83	106.8	3.1	35.99	7.45	8
							28.12	6.69	104.6	3.1	35.97	7.44	8
						7.20	28.06	6.08	95	7	36.08	7.4	7
							28.05	6.17	96.5	7.7	36.09	7.39	7
11:41	W9	ME	819044	807961	9.0	1.00	29.04	8.8	139.6	0.8	36.24	7.37	5
							29.04	8.75	137.9	0.7	36.23	7.41	5
						4.50	28.27	8.45	126.2	2.8	36.46	7.28	5
							28.24	7.95	124.3	3	36.48	7.27	5
						8.00	28.01	7.06	111.7	7.6	36.63	7.22	7
							27.99	7.08	112.1	8.4	36.63	7.21	6

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

Impact Marine Water Quality Monitoring													
Sampling Date:	27-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
10:08	W1	MF	820698	808713	2.9	1.45	28.72	6.04	94.5	2.8	34.58	7.75	6
							28.71	6.02	94.2	2.1	34.6	7.75	6
10:10	W2	MF	820642	808650	2.8	1.40	29.11	5.57	87.7	2.5	34.36	7.71	6
							28.96	5.59	87.9	3	34.4	7.71	7
9:53	W3	MF	820449	809022	8.4	1.00	28.92	6.31	99	1.8	34.21	7.75	6
							28.93	6.28	98.6	1.8	34.21	7.75	7
						4.20	28.8	6.14	96.4	2.9	34.6	7.74	8
							28.81	6.14	96.3	2.9	34.59	7.74	8
						7.40	28.65	5.42	85	3.5	34.93	7.72	8
							28.52	5.37	84.1	3.8	35.26	7.71	9
9:43	W4	MF	820058	809307	8.6	1.00	29.08	6.1	96.8	2	34.17	7.68	5
							29.07	6.06	96.2	2.2	34.18	7.69	6
						4.30	28.77	5.93	92.9	3.1	34.63	7.72	5
							28.76	5.96	92.7	3.1	34.64	7.72	6
						7.60	28.64	5.82	90.6	3.4	34.92	7.71	7
							28.61	5.82	90.6	3.7	35	7.7	7
9:33	W5	MF	819886	809692	4.5	1.00	28.95	5.94	92.7	2.1	33.57	7.63	6
							28.93	5.94	92.6	2	33.58	7.64	6
						3.50	28.73	5.86	90.8	2.2	34.21	7.63	6
							28.73	5.87	90.4	2.3	34.08	7.62	6
8:42	W6	MF	819164	810902	6.8	1.00	29.08	8.46	132.5	1.7	33.4	7.12	4
							29.14	8.5	133.3	1.6	33.37	7.17	4
						3.40	28.71	7.68	119.6	2.5	33.5	7.27	4
							28.71	7.66	119.4	2.6	33.51	7.28	4
						5.80	28.73	7.65	119.1	1.1	33.59	7.31	6
							28.74	7.64	119.2	1	33.61	7.33	6
9:01	W7	MF	820057	810547	8.2	1.00	28.69	6.47	100.6	2.1	33.28	7.44	4
							28.67	6.47	100.6	2.1	33.29	7.44	4
						4.10	28.49	6.35	98.7	3.6	33.77	7.42	5
							28.49	6.42	99.9	3.5	33.77	7.42	6
						7.20	28.6	6.57	102.4	5.3	34.03	7.49	6
							28.61	6.57	102.4	5.8	34.05	7.49	7
9:19	W8	MF	821346	810262	9.1	1.00	28.77	5.62	87.6	1.9	33.55	7.57	4
							28.73	5.63	87.7	2.2	33.57	7.57	4
						4.55	28.44	5.29	82.3	5.2	34.12	7.55	5
							28.44	5.26	81.8	5.6	34.13	7.55	6
						8.10	28.41	5.08	79	8	34.2	7.55	7
							28.41	5.08	79	8.3	34.2	7.55	7
10:19	W9	MF	819047	807966	9.2	1.00	29.18	5.55	87.3	0.6	34.01	7.81	4
							29.19	5.56	87.5	0.6	34.06	7.81	3
						4.60	28.76	5.32	83.5	2.7	34.77	7.78	8
							28.75	5.3	83.3	2.8	34.81	7.78	8
						8.20	28.49	4.99	78.2	5.3	35.28	7.74	11
							28.48	4.92	77.1	6.1	35.3	7.74	9
13:51	W1	ME	820688	808707	2.8	1.40	29.7	7.22	114.7	2.8	34.26	7.66	6
							29.67	7.34	116.6	2.8	34.28	7.68	6
13:46	W2	ME	820643	808624	2.7	1.35	29.45	7.58	120	3.6	34.26	7.64	7
							29.29	7.44	117.4	3.2	34.26	7.66	7
13:59	W3	ME	820448	809033	8.4	1.00	29.62	7.93	125.6	0.7	33.98	7.9	6
							29.6	7.83	124	0.7	34.01	7.89	6
						4.20	28.98	7.05	110.9	2	34.63	7.8	6
							29	6.89	108.5	1.9	34.62	7.79	6
						7.40	28.81	6.35	99.8	4.5	34.83	7.75	6
							28.75	6.33	99.5	6.3	34.89	7.74	6
14:11	W4	ME	820077	809308	8.6	1.00	29.56	6.87	108.8	0.7	34.03	7.85	3
							29.56	6.87	108.9	0.6	34.09	7.85	3
						4.30	28.95	6.35	100	2.3	34.65	7.79	4
							28.96	6.25	98.4	2.3	34.63	7.79	4
						7.60	28.76	6.09	95.6	4.4	34.91	7.75	6
							28.71	5.96	93.6	5.1	35	7.75	6
14:26	W5	ME	819888	809692	4.9	1.00	29.12	6.71	99.7	2.6	33.91	7.76	4
							29.34	6.66	99.2	2.3	33.89	7.76	4
						3.90	28.7	5.9	92.9	4.1	34.25	7.69	5
							28.61	5.89	91	6	34.29	7.68	4
15:18	W6	ME	819192	810899	6.6	1.00	29.27	6.85	108.1	0.9	34.33	7.94	4
							29.2	6.86	108.2	1	34.39	7.94	4
						3.30	28.92	6.41	100.7	1.9	34.51	7.89	4
							28.92	6.32	99.4	1.8	34.52	7.89	4
						5.60	28.75	6.12	95.9	3.3	34.71	7.85	6
							28.76	6.08	65.3	2.7	34.7	7.84	6
14:58	W7	ME	820076	810502	7.8	1.00	29.23	6.51	98.8	1.6	34.22	7.84	4
							29.26	6.5	98.6	1.7	34.21	7.85	4
						3.90	28.7	6.35	102.5	4.1	34.68	7.76	6
							28.71	6.3	102.2	4	34.68	7.76	6
						6.80	28.56	6.13	93.8	6.4	34.43	7.65	13
							28.55	6.08	93.5	6	34.42	7.65	14
14:39	W8	ME	821307	810240	9.4	1.00	28.94	6.06	95	1.8	34.07	7.72	4
							28.95	6.09	95.6	1.9	34.03	7.73	4
						4.70	28.56	5.44	85	4.6	34.42	7.66	5
							28.56	5.4	84.3	5	34.46	7.66	5
						8.40	28.55	5.22	81.5	7.6	34.42	7.65	9
							28.56	5.22	81.5	8.5	34.46	7.65	9
13:35	W9	ME	819029	807929	9.0	1.00	29.28	6.84	108.9	0.6	33.31	7.54	2
							29.28	6.83	108.7	0.7	33.29	7.55	2
						4.50	28.91	6.4	101.4	1.1	33.75	7.58	6
							28.89	6.39	101.3	1.2	33.78	7.58	6
						8.00	28.71	5.88	93.9	2.9	34.33	7.54	7
							28.69	5.92	94.5	3.6	34.38	7.54	7

Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

Contract No. 1/WSD/13 -
Improvement of Fresh Water Supply to Cheung Chau

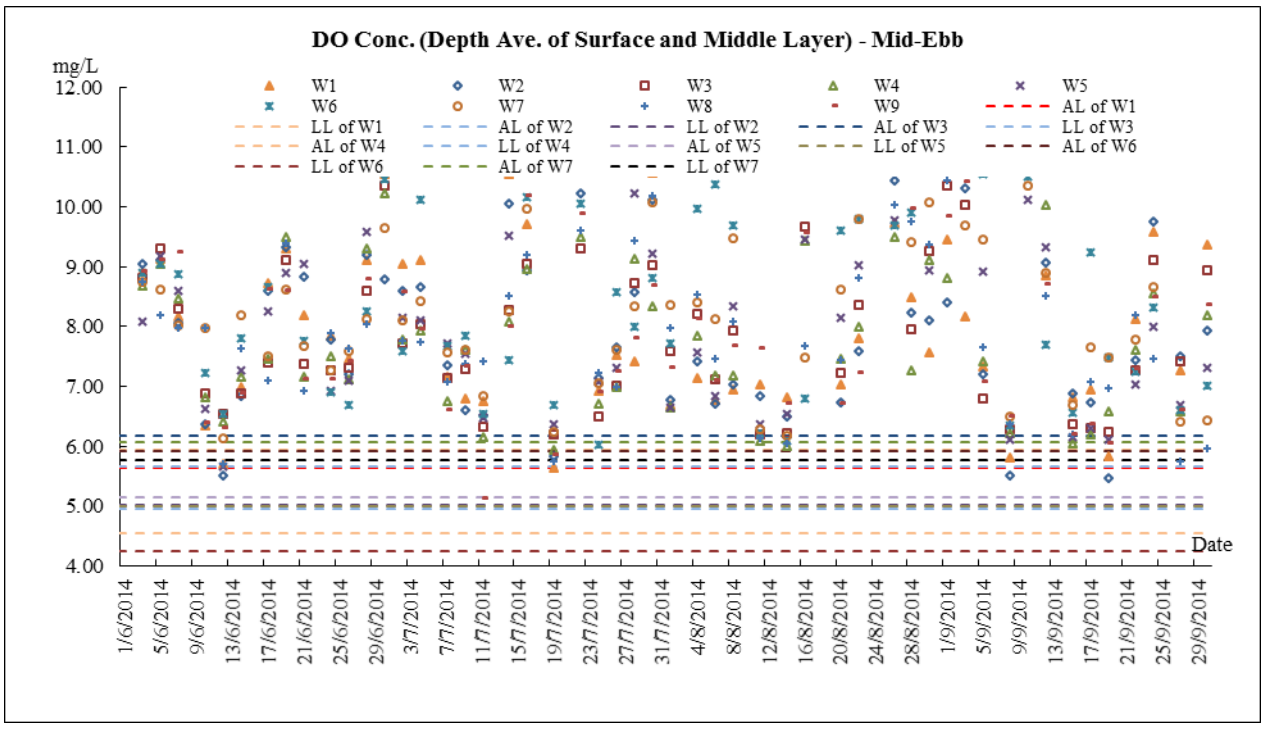
Impact Marine Water Quality Monitoring													
Sampling Date:	30-Sep-14												
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
11:12	W1	MF	820686	808703	2.6	1.30	30.05	6.76	107.7	1.9	33.5	7.9	4
							30.04	6.84	108.9	1.9	33.51	7.9	4
11:14	W2	MF	820637	808644	2.7	1.35	29.68	6.52	103.2	4.8	33.63	7.87	5
							29.7	6.48	102.7	5.4	33.63	7.88	5
10:56	W3	MF	820441	809022	8.0	1.00	29.55	7.11	112.2	1.8	33.55	7.73	2
							29.55	7.11	112.3	1.9	33.55	7.73	3
						4.00	29.21	6.56	103.2	3.3	33.77	7.68	3
							29.2	6.49	102	3.6	33.79	7.67	3
						7.00	28.75	5.65	88.6	8.4	34.61	7.59	6
							28.85	5.81	91.1	6.3	34.43	7.64	5
10:43	W4	MF	820063	809313	8.1	1.00	29.49	7.46	117.6	2	33.52	7.67	3
							29.45	7.44	117.2	1.9	33.55	7.67	3
						4.05	29.16	6.27	98.6	5.5	33.83	7.59	4
							29.16	6.25	98.2	5.4	33.82	7.58	3
						7.10	28.83	6.04	94.7	6.2	34.43	7.53	3
							28.85	5.75	90.2	7	34.39	7.52	4
10:31	W5	MF	819888	809706	4.8	1.00	29.2	7.02	110.2	1.9	33.58	7.55	3
							29.19	7.03	110.3	1.9	33.58	7.55	4
						3.80	29.15	6.39	100.4	2.3	33.73	7.5	4
							29.15	6.37	100.1	2.4	33.73	7.5	4
9:38	W6	MF	819163	810900	6.4	1.00	29.48	9.78	153.1	1.3	32.11	7.57	4
							29.48	9.74	152.5	1.5	32.11	7.57	4
						3.20	29.21	8.06	125.8	3.9	32.35	7.53	6
							29.23	8.02	125.2	3.6	32.35	7.53	6
						5.40	29.16	7.96	124.4	4.1	32.8	7.58	7
							29.13	7.72	120.7	5.8	32.87	7.56	7
9:56	W7	MF	820059	810543	7.6	1.00	29.84	8.49	134.2	1	32.81	7.74	3
							29.85	8.47	133.9	1	32.83	7.74	3
						3.80	29.39	8.16	128.2	1.6	33.07	7.7	4
							29.39	8.19	128.6	1.6	33.07	7.7	4
						6.60	28.97	6.19	96.9	3.6	33.75	7.57	4
							28.97	6.22	97.4	3.7	33.76	7.57	5
10:12	W8	MF	821342	810246	8.6	1.00	29.27	7.04	110.4	1.4	33.13	7.66	3
							29.25	7.03	110.3	1.4	33.16	7.66	3
						4.30	29.02	6.5	101.6	1.5	33.31	7.64	4
							29.01	6.53	102.1	1.4	33.32	7.64	3
						7.60	28.47	5.71	89.3	6.3	34.94	7.55	4
							28.44	5.51	86.2	6.9	34.99	7.54	4
11:24	W9	MF	819032	807964	9.0	1.00	29.4	6.64	104.7	1.9	33.8	7.89	3
							29.35	6.61	104.2	2	33.86	7.88	4
						4.50	29.05	6.04	95	2.3	34.21	7.83	4
							29.04	5.94	93.4	2.3	34.2	7.82	4
						8.00	28.67	5.73	90	8.6	35.1	7.75	4
							28.62	5.75	90.3	8.7	35.23	7.76	4
16:25	W1	ME	820692	808711	2.7	1.35	29.44	9.35	148	2.1	34.28	7.18	5
							29.66	9.38	148.8	2.1	34.2	7.19	5
15:41	W2	ME	820651	808669	2.7	1.35	29.33	7.91	124.5	4.1	33.64	7.35	6
							29.32	7.95	125.2	4	33.66	7.33	6
16:34	W3	ME	820441	809024	8.4	1.00	29.65	9.18	145.5	1.5	33.96	7.41	2
							29.64	9.3	147.4	1.4	34	7.41	2
						4.20	29.41	8.67	137.1	1.8	34.17	7.4	2
							29.43	8.62	136.3	1.9	34.15	7.4	2
						7.40	28.87	7.21	113.5	3.6	34.84	7.29	3
							28.88	7.07	111.3	3.8	34.83	7.29	3
16:44	W4	ME	820079	809308	8.4	1.00	29.56	8.49	134.4	1.5	33.94	7.51	3
							29.56	8.55	135.4	1.4	33.94	7.52	3
						4.20	29.44	7.83	123.8	1.5	34.1	7.52	3
							29.49	7.93	125.4	1.6	34.07	7.53	3
						7.40	28.89	6.46	101.5	4	34.73	7.42	4
							28.89	6.38	100.3	4.5	34.75	7.42	3
17:01	W5	ME	819886	809708	4.8	1.00	29.62	7.34	116.1	1.8	33.54	7.74	3
							29.62	7.3	115.3	1.8	33.53	7.75	4
						3.80	29.32	6.18	97.5	2.9	33.92	7.67	4
							29.34	6.07	95.7	2.8	33.87	7.68	4
17:48	W6	ME	819162	810906	6.8	1.00	30.36	7.22	115.3	1.6	33.29	8.08	3
							30.29	7.3	116.5	1.5	33.3	8.09	3
						3.40	29.43	6.81	107.3	1.6	33.55	8.03	3
							29.43	6.75	106.4	1.7	33.55	8.02	3
						5.80	29.31	6.11	96.3	2.7	33.74	7.95	6
							29.3	6.04	95	2.8	33.69	7.94	6
17:32	W7	ME	820033	810546	8.0	1.00	29.5	6.55	103.3	1.2	33.47	7.9	3
							29.49	6.57	103.6	1.2	33.47	7.9	3
						4.00	29.04	6.3	98.7	1.2	33.65	7.8	3
							28.96	6.31	98.8	1.3	33.78	7.78	3
						7.00	28.92	6.08	94.4	1.5	33.96	7.76	3
							28.92	6.11	94.9	1.5	34	7.76	3
17:14	W8	ME	821347	810208	8.4	1.00	29.59	6.42	101.4	1.3	33.41	7.81	2
							29.57	6.39	100.9	1.4	33.38	7.81	3
						4.20	29.1	5.66	88.9	4.1	33.99	7.72	4
							29.08	5.4	84.8	4.2	33.99	7.72	3
						7.40	28.77	4.56	71.5	5.1	34.73	7.64	5
							28.73	4.58	71.8	5.5	34.76	7.63	6
15:28	W9	ME	819029	807964	8.5	1.00	30.29	9.25	147.4	1.2	33.13	7.18	3
							30.26	9.26	147.1	1.1	32.45	7.19	3
						4.25	29.59	7.62	120.5	0.7	33.64	7.07	4
							29.54	7.34	116	1	33.69	7.07	3
						7.50	28.72	5.76	90.2	6.2	34.32	6.89	4
							28.68	5.72	89.4	6.3	34.34	6.89	4

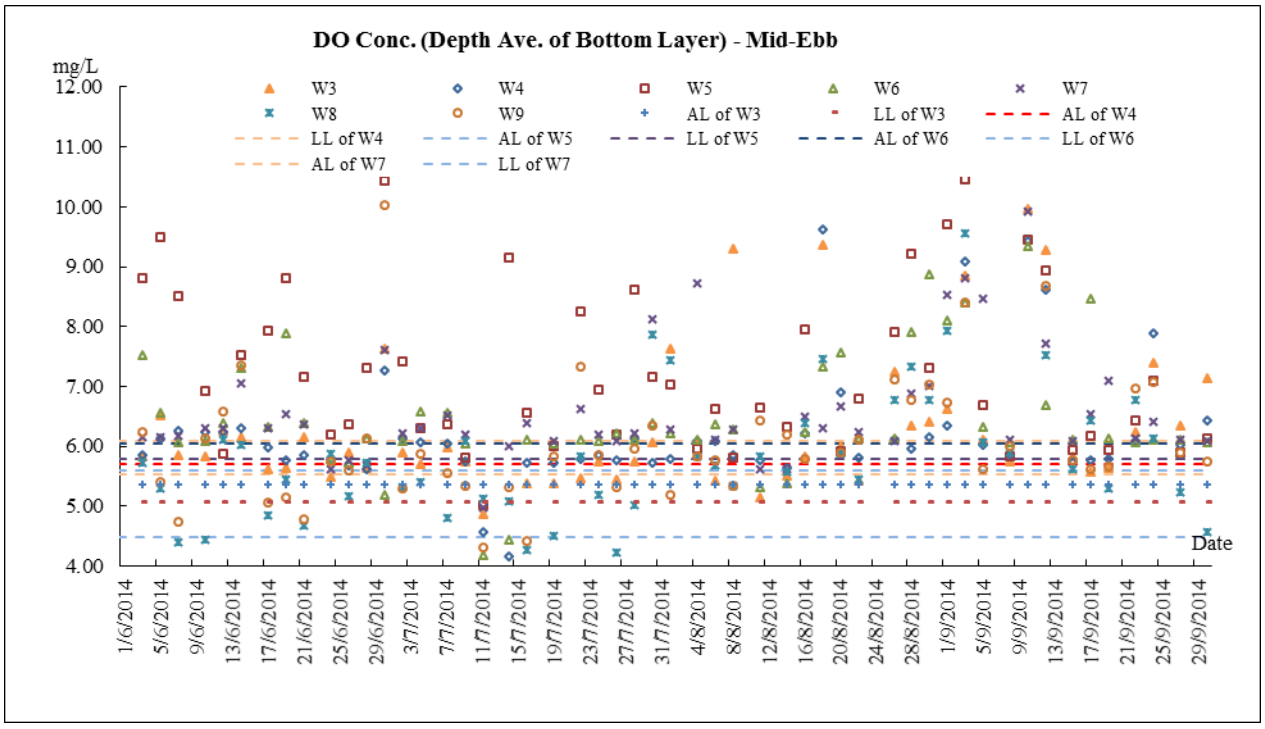
Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

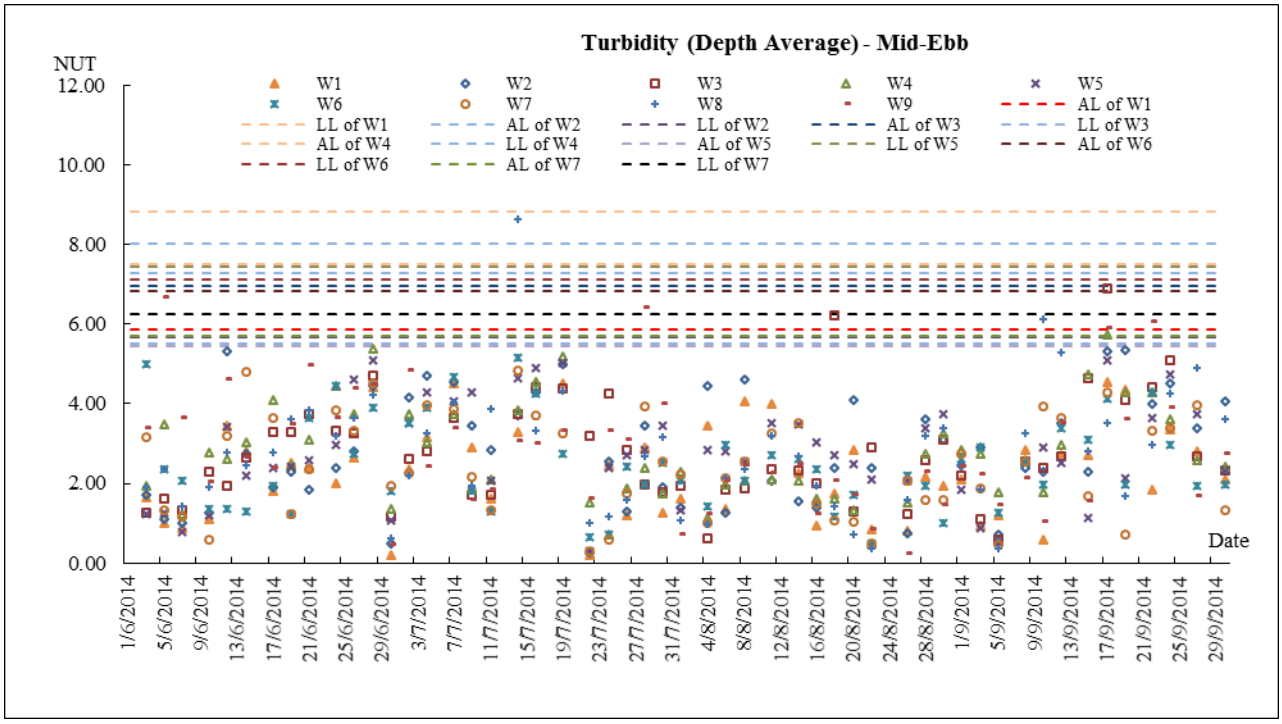
Appendix I

Graphical Plots of Impact Monitoring

Marine Water Quality – Mid-ebb






Turbidity (Depth Average) - Mid-Ebb
NUT
W1
W2
W3
W4
W5
W6
W7
W8
W9
AL of W1
LL of W1
AL of W2
LL of W2
AL of W3
LL of W3
AL of W4
LL of W4
AL of W5
LL of W5
AL of W6
LL of W6
AL of W7
LL of W7
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1/6/2014
5/6/2014
9/6/2014
13/6/2014
17/6/2014
21/6/2014
25/6/2014
29/6/2014
3/7/2014
7/7/2014
11/7/2014
15/7/2014
19/7/2014
23/7/2014
27/7/2014
31/7/2014
4/8/2014
8/8/2014
12/8/2014
16/8/2014
20/8/2014
24/8/2014
28/8/2014
1/9/2014
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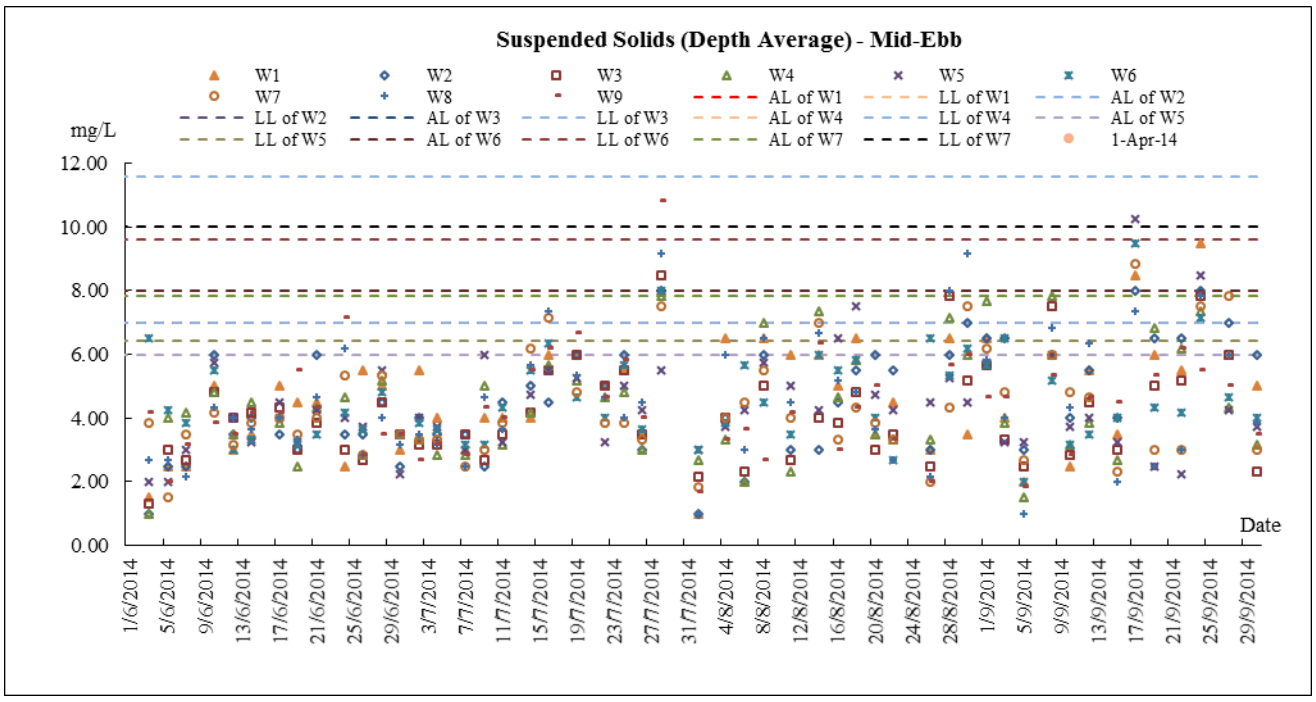
25/9/2014
29/9/2014


Suspended Solids (Depth Average) - Mid-Ebb
mg/L
W1
W2
W3
W4
W5
W6
W7
W8
W9
AL of W1
LL of W1
AL of W2
LL of W2
AL of W3
LL of W3
AL of W4
LL of W4
AL of W5
LL of W5
AL of W6
LL of W6
AL of W7
LL of W7
1-Apr-14
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1/6/2014
5/6/2014
9/6/2014
13/6/2014
17/6/2014
21/6/2014
25/6/2014
29/6/2014
3/7/2014
7/7/2014
11/7/2014
15/7/2014
19/7/2014
23/7/2014
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31/7/2014
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12/8/2014
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24/8/2014
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1/9/2014
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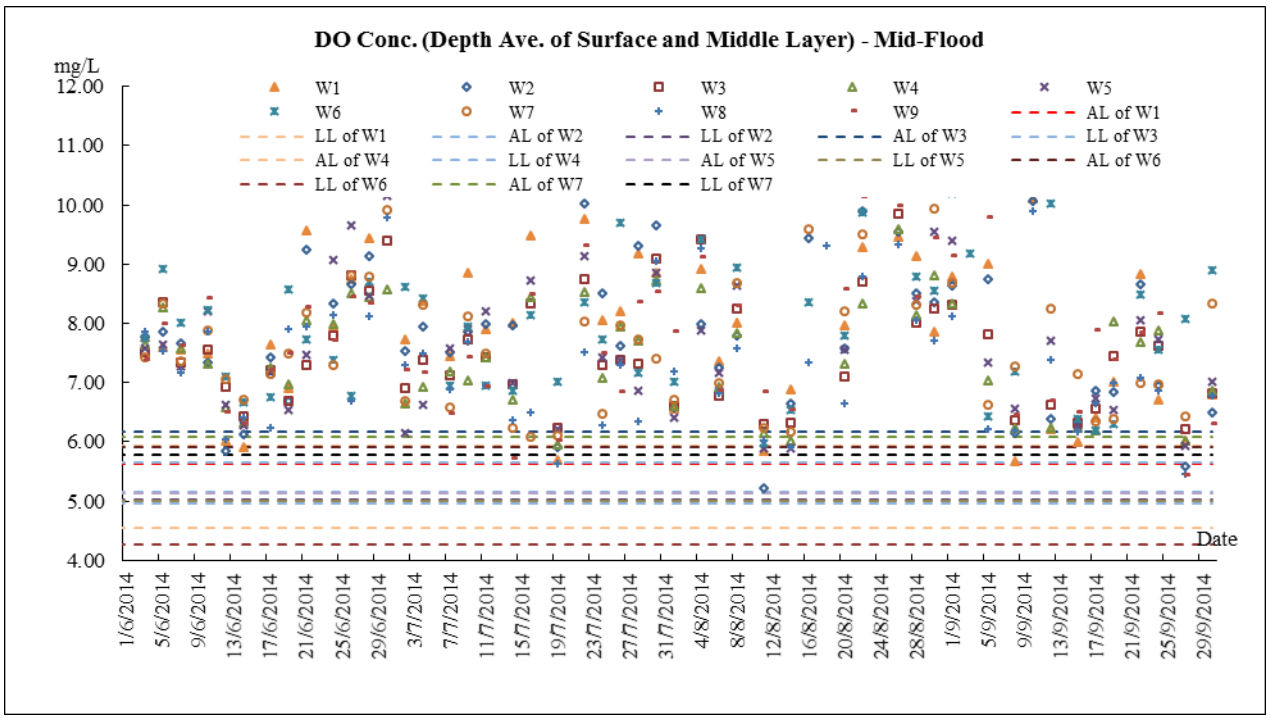
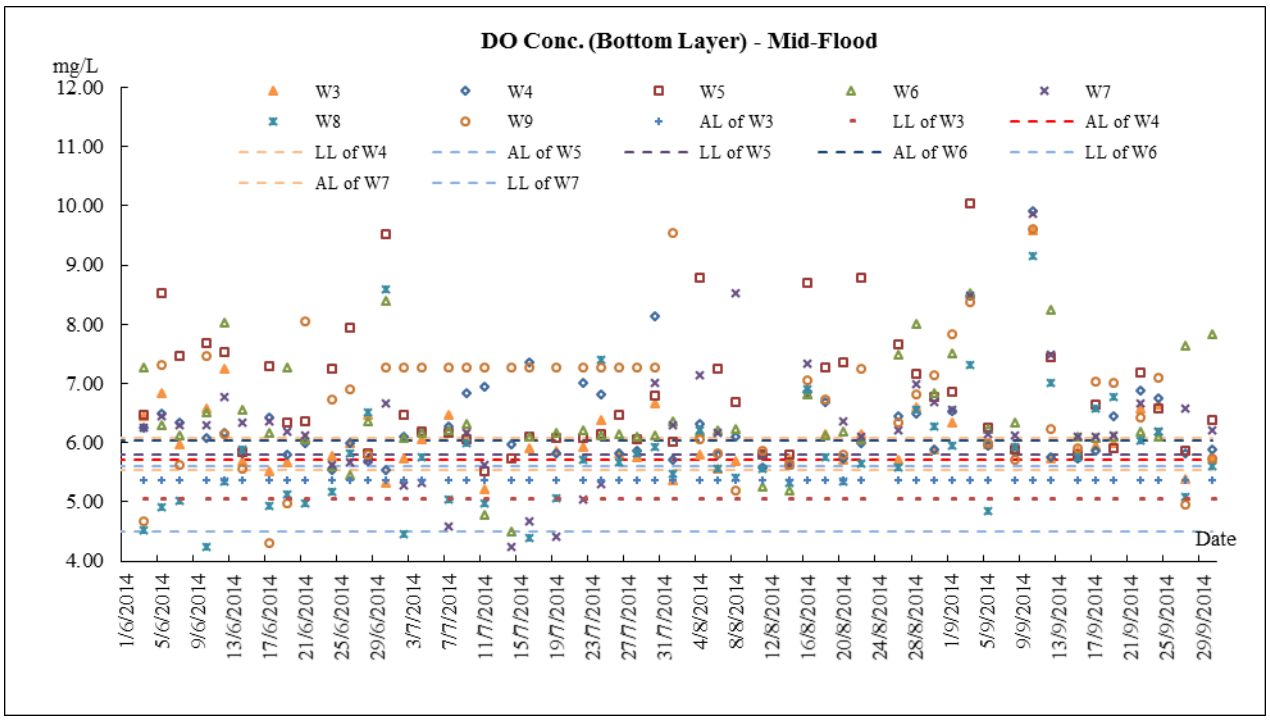
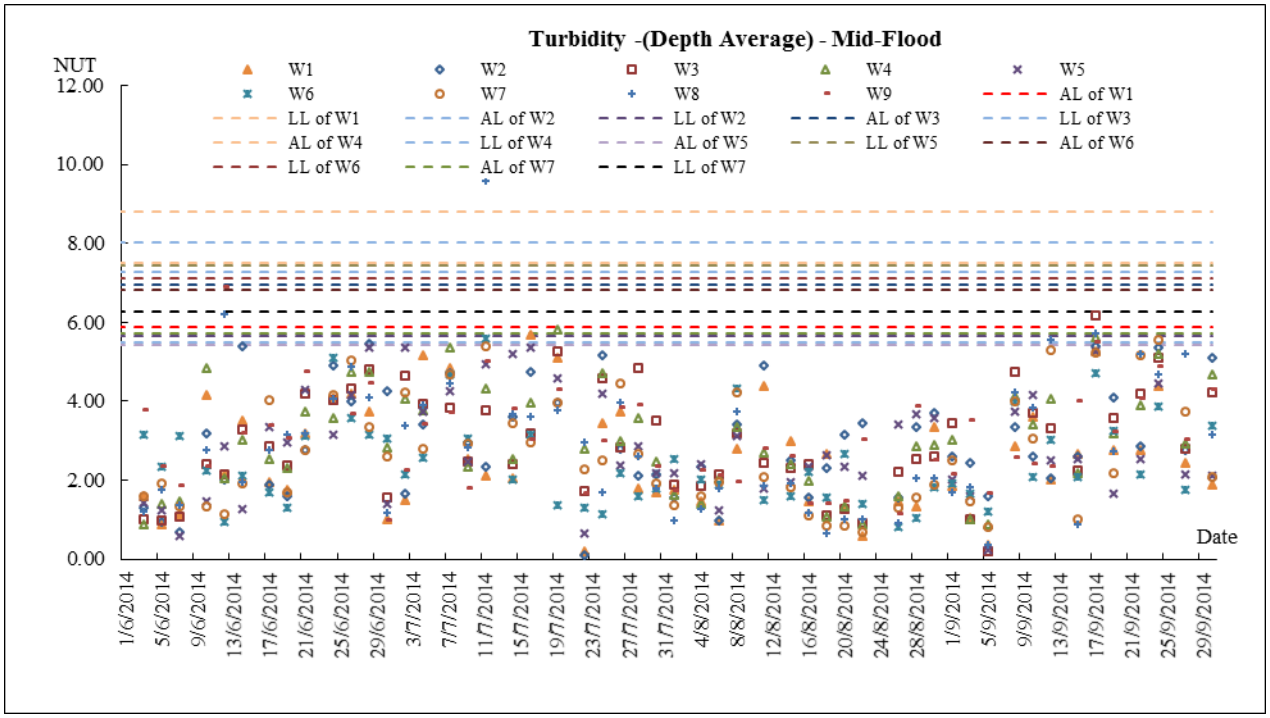
17/9/2014
21/9/2014
25/9/2014
29/9/2014

Marine Water Quality – Mid-flood






Turbidity -(Depth Average) - Mid-Flood
NUT
W1
W2
W3
W4
W5
W6
W7
W8
W9
AL of W1
LL of W1
AL of W2
LL of W2
AL of W3
LL of W3
AL of W4
LL of W4
AL of W5
LL of W5
AL of W6
LL of W6
AL of W7
LL of W7
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1/6/2014
5/6/2014
9/6/2014
13/6/2014
17/6/2014
21/6/2014
25/6/2014
29/6/2014
3/7/2014
7/7/2014
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19/7/2014
23/7/2014
27/7/2014
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4/8/2014
8/8/2014
12/8/2014
16/8/2014
20/8/2014
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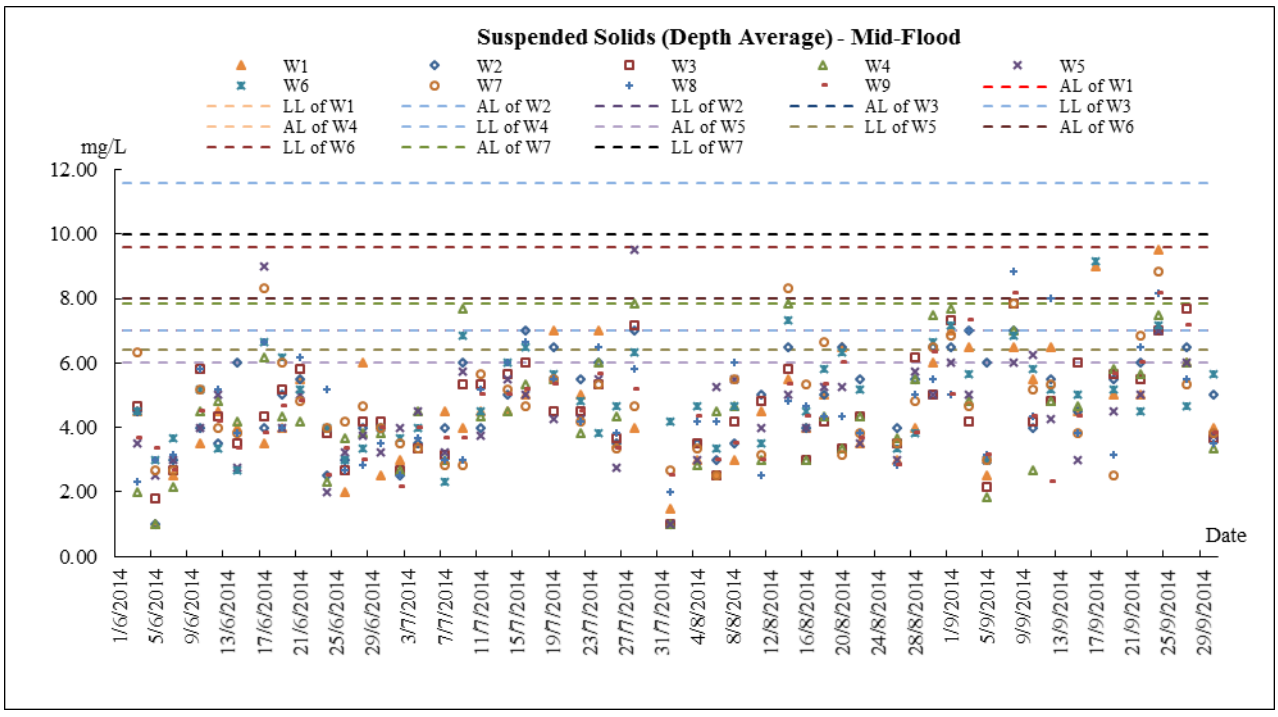
25/9/2014
29/9/2014


Suspended Solids (Depth Average) - Mid-Flood
W1
W2
W3
W4
W5
W6
W7
W8
W9
AL of W1
LL of W1
AL of W2
LL of W2
AL of W3
LL of W3
AL of W4
LL of W4
AL of W5
LL of W5
AL of W6
LL of W6
AL of W7
LL of W7
mg/L
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
1/6/2014
5/6/2014
9/6/2014
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27/7/2014
31/7/2014
4/8/2014
8/8/2014
12/8/2014
16/8/2014
20/8/2014
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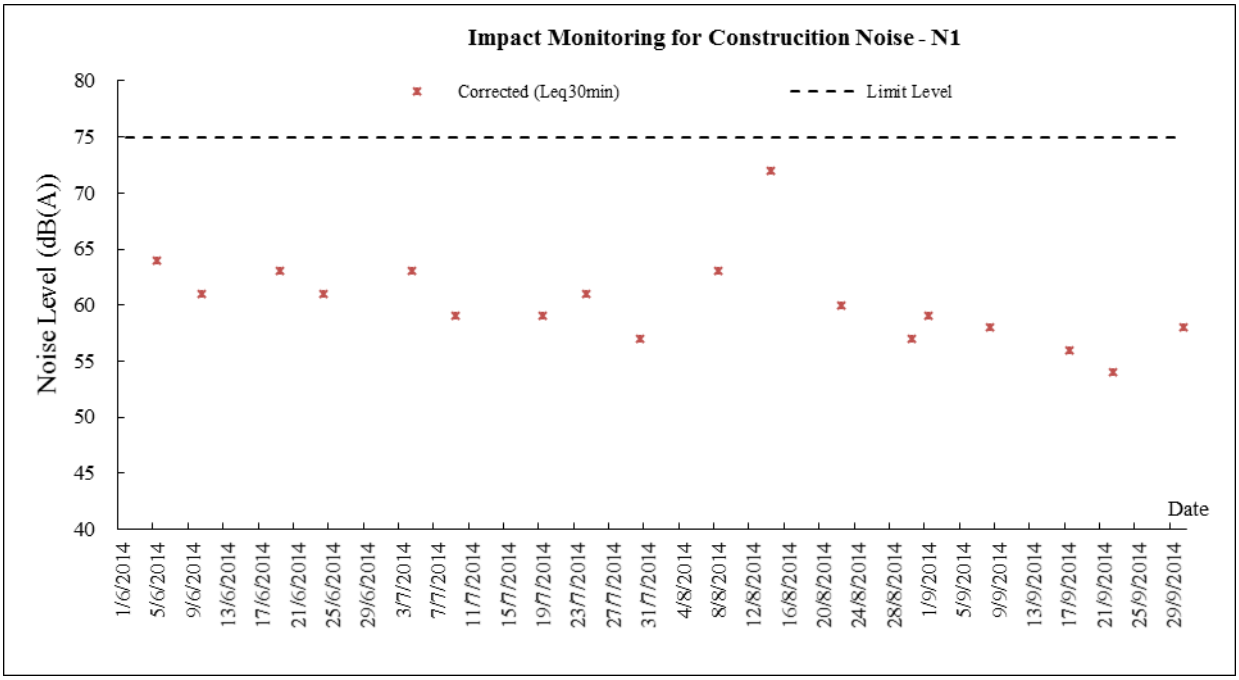
29/9/2014

Noise


Impact Monitoring for Construcition Noise - N1
Corrected (Leq30min)
Limit Level
Noise Level (dB(A))
80
75
70
65
60
55
50
45
40
Date
1/6/2014
5/6/2014
9/6/2014
13/6/2014
17/6/2014
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31/7/2014
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25/9/2014
29/9/2014

Appendix J

Meteorological Data

Date		Weather	Total Rainfall (mm)	Cheung Chau Station			
				Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction (degree)
1-Sep-14	Mon	Mainly fine. It will be very hot in the afternoon. Light to moderate southerly winds.	2.2	28.4	14.7	88.2	SE
2-Sep-14	Tue	Mainly fine. It will be very hot in the afternoon. Light to moderate southerly winds.	0	28.9	6.4	85	S/SW
3-Sep-14	Wed	Fine and very hot. Light to moderate westerly winds.	0	29.6	13.6	82	W
4-Sep-14	Thu	Mainly fine at first. One or two showers and thunderstorms later. It will be hot. Light to moderate westerly winds.	6.7	29.5	13	82	W/NW
5-Sep-14	Fri	Mainly fine at first. One or two showers and thunderstorms later. It will be hot. Light to moderate westerly winds.	Trace	28.7	20.6	85	E/SE
6-Sep-14	Sat	Fine and very hot. Light to moderate westerly winds.	Trace	28.6	18.7	80.5	SE
7-Sep-14	Sun	Mainly cloudy with a few showers and isolated thunderstorms. Moderate to fresh east to southeasterly winds.	0.6	28.3	27.5	84	E/SE
8-Sep-14	Mon	Mainly cloudy with a few showers and isolated thunderstorms. Moderate to fresh southeasterly winds.	3	27.9	22.5	92.5	S/SE
9-Sep-14	Tue	Mainly fine apart from isolated showers.Very hot. Light to moderate south to southeasterly winds.	0	29.4	10.8	84	S/SW
10-Sep-14	Wed	Mainly fine apart from isolated showers. Very hot. Light to moderate east to southeasterly winds.	Trace	29.2	7.9	83	S
11-Sep-14	Thu	Mainly fine and very hot apart from isolated showers. Light to moderate east to southeasterly winds.	Trace	29.3	16.4	82.5	SE
12-Sep-14	Fri	Mainly fine apart from isolated showers. Very hot. Light to moderate east to southeasterly winds.	32.1	28	28.2	84	E/SE
13-Sep-14	Sat	Mainly fine and very hot apart from isolated showers. Light to moderate east to southeasterly winds.	6.2	28.2	26.2	87.5	SE
14-Sep-14	Sun	Mainly fine apart from isolated showers. Very hot. Light to moderate east to southeasterly winds.	0.5	29	14.7	84.5	SE
15-Sep-14	Mon	Cloudy to overcast with heavy squally showers and a few thunderstorms.	17.6	28.5	40	81	E
16-Sep-14	Tue	Strong southeasterly winds. Seas will be rough with swells. Cloudy with heavy squally showers and thunderstorms.	51.6	27	69.2	84.5	SE
17-Sep-14	Wed	Mainly cloudy with a few showers. Sunny intervals. Moderate to fresh southeasterly winds, strong offshore at first.	7.7	28.1	43.5	87.5	SE
18-Sep-14	Thu	Mainly fine and hot. Light to moderate southeasterly winds.	Trace	29.6	13.2	82.5	SE
19-Sep-14	Fri	Fine and very hot apart from some haze. Isolated showers later. Light to moderate northerly winds.	0.3	30.7	14.3	78	W/NW
20-Sep-14	Sat	Fine and very hot apart from some haze. Isolated showers later. Light to moderate northerly winds.	0	29.3	23.5	72.5	N/NW
21-Sep-14	Sun	Mainly fine and dry. Light to moderate north to northeasterly winds.	0	27.1	20.4	69.7	N
22-Sep-14	Mon	Mainly fine and dry. Light to moderate north to northeasterly winds.	Trace	27.1	15.4	67.5	N
23-Sep-14	Tue	Mainly fine. Dry in the afternoon. Light to moderate north to northeasterly winds.	0	27.8	8.3	73	N
24-Sep-14	Wed	Mainly cloudy with isolated showers. Light to moderate northerly winds.	0	28.8	6.1	76.5	S/SW
25-Sep-14	Thu	Sunny periods with haze. Isolated showers in the afternoon. Mainly cloudy tonight. Light winds	0	29.2	6.6	77.5	S
26-Sep-14	Fri	Mainly cloudy with isolated showers. Sunny intervals in the afternoon. Light to moderate easterly winds.	0.7	29.3	8.2	75	SE
27-Sep-14	Sat	Mainly cloudy with isolated showers. Sunny intervals in the afternoon. Light to moderate easterly winds.	0	29.5	8.5	74.7	SE
28-Sep-14	Sun	Mainly cloudy with isolated showers. Light to moderate northerly winds.	0	29.1	9.1	77.5	SE
29-Sep-14	Mon	Mainly fine. Dry in the afternoon. Light to moderate north to northeasterly winds.	0	29.9	9.1	75	S/SW
30-Sep-14	Tue	Cloudy with showers and a few squally thunderstorms. Moderate easterly winds, fresh at time	11.4	30.6	7	78.2	S/SW

Appendix K

Monthly Summary Waste Flow Table

Name of Department: WSD Contract No.: 1/WSD/13

MONTHLY SUMMARY WASTE FLOW TABLE FOR 2014 (YEAR)

QUARTER ENDING	ACTUAL QUANTITIES OF INERT C&D MATERIALS GENERATED MONTHLY						ACTUAL QUANTITIES OF C&D WASTES GENERATED MONTHLY				
	TOTAL QUANTITY GENERATED	BROKEN CONCRETE (SEE NOTE 3)	REUSED IN THE CONTRACT	REUSED IN OTHER PROJECTS	DISPOSED AS PUBLIC FILL	IMPORTED FILL	METALS	PAPER/ CARDBOARD PACKAGING	PLASTICS (SEE NOTE 2)	CHEMICAL WASTE	OTHERS, E.G. GENERAL REFUSE
	(IN '000M^3)	(IN '000M^3)	(IN '000M^3)	(IN '000M^3)	(IN '000M^3)	(IN '000M^3)	(IN '000 KG)	(IN '000KG)	(IN '000KG)	(IN '000KG)	(IN '000M^3)
JAN	-	-	-	-	-	-	-	-	-	-	0.013
FEB	-	-	-	-	-	-	-	-	-	-	0.007
MAR	-	-	-	-	-	-	-	-	-	-	0.010
APR	-	-	-	-	-	-	-	-	-	-	0.004
MAY	-	-	-	-	0.509	-	-	-	-	-	0.050
JUNE	-	-	-	-	0.000	-	-	-	-	-	0.000
SUB-TOTAL	0	0	0	0	0.509	0	0	0	0	0	0.084
JULY	-	-	-	-	0.414	-	-	-	-	-	0.103
AUG	-	-	-	-	0.850	-	-	-	-	-	0.342
SEPT	-	-	-	-	0.136	-	-	-	-	-	0.060
OCT	-	-	-	-	-	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-	-	-	-
DEC	-	-	-	-	-	-	-	-	-	-	-
TOTAL	0	0	0	0	1.909	0	0	0	0	0	0.589

Appendix L

Implementation Schedule for Environmental Mitigation Measures (ISEMM)

Table A.2 Implementation Schedule of Water Quality Mitigation Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
Water Quality - Construction Phase									
3.7.2	2.9.2	*General* The Contractor shall observe and comply with the Water Pollution Control Ordinance (WPCO) and its subsidiary regulations. The Contractor shall carry out the works in such a manner as to minimise adverse impacts on the water quality during execution of the works. In particular the Contractor shall arrange his method of working to minimise the effects on the water quality within and outside the site and on the transport routes.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.3	2.9.3	The Contractor shall follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures below and as specified in ProPECC PN 1/94 - Construction Site Drainage. The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval. All discharge from the construction works should meet the discharge standards stipulated under the WPCO "Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters".	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		Site Preparation / Clearance							
3.7.4	2.9.4	Proper construction site drainage management measures should be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching nearby water bodies. Site runoff and wastewater should not be discharged into nearby water bodies without proper treatment.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94
3.7.5	2.9.5	Turbid water from construction sites must be treated to minimise the solids content before being discharged. Advice on the handling and disposal of site discharge is given in the ProPECC Note PN 1/94 – "Construction Site Drainage".	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94
3.7.6	2.9.6	In general, surface runoff from construction sites should be discharged into water bodies via adequately designed silt removal facilities such as sand traps, silt traps and sedimentation tanks. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Sufficient numbers of pumps and tanks of adequate capacity should be provided on-site. Perimeter channels at site boundaries should be provided to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		constructed in advance of earthworks.							
3.7.7	2.9.7	Silt removal facilities and diversion channels should be maintained and the deposited silt and grit should be removed regularly, especially at the onset of and after each rainstorm to ensure proper functioning of these facilities at all times.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94
3.7.8	2.9.8	Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into the nearby water bodies. Open stockpiles susceptible to erosion should be covered with tarpaulin or similar fabric and provided with containment such as bunds, sand bag barriers or equivalent measures, especially during the wet season (April – September) or when heavy rainstorm is predicted. Runoff to watercourses should be intercepted by minimising flat exposed areas of permeable soil, and by forming pits or diversion channels into which runoff can flow to suitable treatment facilities before discharge.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94
		Drilling Works *Launching site at Cheung Chau*							
3.7.9	2.9.9	The proposed launching site at Cheung Chau should be paved with a slight fall towards land to prevent site runoff from directly flowing to the	To minimize adverse water quality impact from	Proposed launching site at Cheung Chau /	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		sea. The launching site should be provided with an adequately designed site drainage system to contain and treat polluted site runoff and wastewater. Adequate numbers of tank with sufficient capacity should be provided on-site to collect, store and treat drilling fluids, cuttings and/or chemicals. These tanks should be surrounded by bunds and regularly inspected and maintained to avoid leakage.	drilling works	during construction					
3.7.10	2.9.10	During directional drilling, excavated spoil (cuttings) will be carried as a slurry with the drilling fluid to emerge at Cheung Chau. The slurry should be treated to remove the cuttings and recycled as drilling fluid. Cuttings should be stored in containers prior to removal and disposal as construction & demolition material to public fill reception facilities.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.11	2.9.11	If temporary storage of cuttings is required for later reuse, this should be undertaken in Cheung Chau. Care should be taken in the storage of cuttings especially during the wet season and the storage area should be covered and bunded to prevent silty runoff entering water bodies.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
3.7.12	2.9.12	A schematic layout plan of the proposed launching site and drainage measures at Cheung Chau is shown in ***Figure 3.3*** to demonstrate the launching site has adequate land area to setup the necessary construction equipment, auxiliary equipment, site offices and drilling fluid containment, recovery and treatment systems. In general, the site will be divided into clean area and dirty area. The clean area will be used to house the site offices, storage area and other non-polluting uses. The dirty area will be the main drilling works site consisting of the drilling rig, entry pit, mud tank, drilling pipes storage, drilling fluid recycling and treatment systems, stockpiling area and wastewater treatment systems.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.13	2.9.13	The entire dirty area should be surrounded by a 0.5 m tall concrete bund to fully contain and prevent site runoff from discharging into the marine waters untreated as well as to prevent surface runoff from entering the site. The entry pit should be further surrounded by a 0.3 m tall concrete bund for added protection to contain and avoid spillage of drilling fluid. All site runoff should be diverted to an adequately designed wastewater treatment system for treatment before discharge.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
3.7.14	2.9.14	The perimeter of the clean area should be surrounded with 300 mm u-channel to collect and divert all site runoff for treatment before discharge. Bund should be provided to prevent surrounding surface runoff from entering the site.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.15	2.9.15	After separating the cuttings, bentonite slurry should be re-circulated for reuse in the drilling works. By adopting a forward reaming approach all slurry treatment and drilling fluid recycling systems should be located and managed on Cheung Chau.	To minimize adverse water quality impact from drilling works	Proposed launching site at Cheung Chau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
		Reception Site at Lantau							
3.7.16	2.9.16	The pilot hole and reaming should be stopped approximately 50 m short of the final exit point at Chi Ma Wan in order to prevent any release of slurry in to the marine environment. Prior to drilling the final 50 m, the reamed hole should be thoroughly cleaned with water to remove all cuttings and drilling fluid. The final 50 m of drilling should be completed using water instead of bentonite in order to prevent the release of bentonite at the exit pit. Approximately 0.3 m high concrete bund should be constructed around the exit pit to contain the drilling fluid, which is mainly silty water and generated when the drill head bores through the rock at Lantau during the	To minimize adverse water quality impact from drilling works	Proposed reception site at Lantau / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		final drilling process. The exact level of the concrete bund should be determined on site to ensure that it will not be lower than the ground level of the launching site at Cheung Chau.							
3.7.17	2.9.17	The use of containment structure such as earth bund, sand bag barriers wrapped with geotextile fabric or similar material, diversion channels or other similar techniques should be installed surrounding the site boundary at Lantau during the wet season to intercept storm runoff from outside the site so that it will not wash across the site (or into the exit pit).	To minimize adverse water quality impact from drilling works	Proposed reception site at Lantau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.18	2.9.18	To provide further protection, silt curtain should be installed before commencement of works at Lantau to minimize the water quality impact. The design and installation should be certified by the Environmental Team (ET), verified by the Independent Environmental Checker (IEC) and approved by the Engineer to ensure the intended protection can be achieved. The Contractor should regularly inspect and maintain the silt curtain to ensure its effectiveness.	To minimize adverse water quality impact from drilling works	Proposed reception site at Lantau / during construction	Construction Contractor		√		Water Pollution Control Ordinance
		Management Plans and Monitoring							
3.7.20	2.9.20	The Contractor should submit a Drainage	To minimize adverse	All works site /	Construction		√		Water Pollution

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		Management Plan detailing the temporary drainage measures along with the proposed measures to ameliorate the potential water quality impacts to the Environmental Team (ET) for certification, the Independent Environmental Checker (IEC) for verification and to the Engineer for approval before commencement of the construction works.	water quality impact during construction	during construction	Contractor				Control Ordinance
3.7.21	2.9.21	The Contractor should also submit a Drilling Fluid Management Plan outlining expected volume of water, the type of soil and an estimated quantity of bentonite, full details of plans for monitoring drilling fluid flow (out and return) and pressure, wastewater discharge, slurry containment, treatment, recycling and transport, and the approved disposal site. The plan should also contain details of contingency plans for dealing with frac-out or other inadvertent release of slurry. Contingency plans should include the provision of standby pumps, containment booms, vacuum unit and tanks on site to contain and remove turbid, muddy water should incidental frac-outs occur.	To minimize adverse water quality impact during construction in particular during drilling works	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.22	2.9.22	Regular monitoring of suspended solids and turbidity should be conducted during construction works. Any exceedance of water quality in the nearby water bodies caused by site runoff should be rectified in accordance with EM&A programme	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		for this Project.							
3.7.23	2.9.23	*Concreting Work* Runoff should be carefully channelled and treated to prevent concrete-contaminated water from entering water bodies. Adjustment of pH can be achieved by adding a suitable neutralising reagent to wastewater prior to discharge.	To minimize adverse water quality impact during construction (in particular concreting works)	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.24	2.9.24	Any exceedance of the acceptable range of pH levels in nearby water bodies caused by site runoff containing concrete should be monitored and rectified under the EM&A programme for this Project.	To minimize adverse water quality impact during construction (in particular concreting works)	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.25	2.9.25	*Site Workshop or Depot* *General Construction Works* Site workshop or depot including storage of chemicals and chemical waste should be located at the proposed launching site in Cheung Chau only. No workshop or depot should be located at the proposed reception site in Lantau.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance
3.7.26	2.9.26	Any Contractor generating waste oil or other chemicals as a result of his activities should	To minimize adverse water quality impact	All works site / during	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		register as a chemical waste producer and provide a safe designated storage area for chemicals on site. The storage site should be located away from existing water bodies.	during construction	construction					
3.7.27	2.9.27	All compounds in works areas should be located on areas of hard standing surface with provision of diversion channels and settlement ponds where necessary to allow interception and controlled release of settled / treated water. Hard standing compounds should drain via an oil interceptor. The oil interceptor should be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity. To prevent spillage of fuels or other chemicals to water bodies, all fuel tanks and storage areas should be sited on sealed areas within a bund of a capacity equal to 110% of the storage capacity of the largest tank. Where temporary storage of chemicals or fuel drums outside the storage area is necessary, drip tray should be provided. Disposal of the waste oil should be carried out by a licensed collector. Good housekeeping practices should be implemented to minimise careless spillage and to keep the storage and the work space in a tidy and clean condition. Appropriate training including safety codes and relevant manuals should be given to the personnel who regularly handle the chemicals on site.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
3.7.28	2.9.28	*Emergency Contingency Plan* The Contractor should prepare an Emergency Contingency Plan (spill response plan) for the Project to contain and remove accidental spillage of drilling fluids, chemicals and all hazardous materials on-site including fuels at short notice and to prevent or to minimize the quantities of contaminants from entering the nearby water bodies and affecting the sensitive habitats. The Contractor should submit the Emergency Contingency Plan to the ET for review & comment and to the Engineer for approval. The Plan should include, but not limited to, the following: (i) potential emergency situations (ii) chemicals or hazardous materials used on-site (and their location) (iii) emergency response team (iv) emergency action plans and procedures (v) list of emergency telephone hotlines (vi) locations and types of emergency response equipment (vii) training plan and emergency drill (viii) schedules for review and audit.	To prevent or minimize the quantities of contaminants entering the nearby water bodies and affecting the habitats in case of accidental spillage of chemicals and hazardous materials	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		General Guidance for Handling Spillage / Leakage							
3.7.29	2.9.29	In the event that accidental spillage or leakage of hazardous substances / chemical wastes takes place, the response procedures as listed below should be followed. It should be noted that the procedures below are not exhaustive. The Contractor should propose other response procedures in the emergency contingency plan based on actual site conditions as well as the particular types and quantities of chemicals or hazardous substances used, handled and stored on-site. • Contact person in charge or nominated person immediately and initiate action plans based on the emergency contingency plan. • 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. • Instruct untrained personnel to keep at a safe distance well away from the spillage area. • If the spillage / leakage is severe or is causing hazard to life, initiate emergency evacuation and call the emergency services. • Only trained persons equipped with suitable protective clothing and equipment should be allowed to enter and clean up the waste	To prevent or minimize the quantities of contaminants entering the nearby water bodies and affecting the habitats in case of accidental spillage of chemicals and hazardous materials	All works site / during construction	Construction Contractor		√		Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		spillage / leakage area. • Where the spillage / leakage is contained in the enclosed storage area, the waste can be transferred back into suitable containers by suitable handheld equipment, such as hand operated pumps, scoops or shovels. If the spillage / leakage quantity is small, it can be covered and mixed with suitable absorbing materials such as absorbent tissue paper, pads, dry soft sand or vermiculite. The resultant slurry should be treated as chemical waste and transferred to suitable containers for disposal. • For spillage / leakage into nearby water bodies, immediate action is required to contain the spillage / leakage. Appropriate structural, physical barrier or secondary containment (e.g. containment booms) should be deployed to contain the spill and if possible to prevent contaminated water from dispersing away from the source. Suitable liquid absorbing materials such as absorbent tissue paper, pads or rolls should be used to recover the spilt substances. The resultant slurry should be treated as chemical waste and transferred to suitable containers for disposal. • For spillage / leakage in other areas, immediate action is required to contain the spillage / leakage. Suitable liquid absorbing materials such as absorbent tissue paper, pads, dry soft sand or vermiculite should be used to cover the spill. The resultant slurry should be							

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		treated as chemical waste and transferred to suitable containers for disposal. • Areas that have been contaminated by chemical waste spillage / leakage should be cleaned. While water is a soluble solvent for aqueous chemical wastes and water soluble organic waste, kerosene or turpentine should be used for organic chemical wastes that are not soluble in water. The waste from the cleanup operation should be treated and disposed of as chemical waste. • In incidents where the spillage / leakage may result in significant contamination of an area or risk of pollution, the Environmental Protection Department and other relevant departments should be informed immediately.							
		Presence of Additional Population (Workers)							
3.7.30	2.9.30	Sewage arising from the additional construction workers on site should be collected in a suitable storage facility, such as portable chemical toilets. An adequate number of portable toilets should be provided for the construction workforce. The portable toilets should be maintained in a state that will not deter the workers from using them. Wastewater collected should be discharged into foul sewers and collected by licensed collectors.	To minimize adverse water quality impact during construction	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance
3.7.31	2.9.31	The collected wastewater from sewage facilities and also from eating areas or washing facilities of site offices should be disposed to foul sewer. If	To minimize adverse water quality impact	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		there is no foul sewer in the vicinity, a septic tank and soakaway system or for larger flow, a sewage treatment plant should be provided. All domestic sewage discharges (except into foul sewer) are controlled under the WPCO. The Contractor must apply for a discharge licence from EPD and must comply with the terms and conditions of a valid WPCO licence.	during construction						Water Pollution Control Ordinance
3.7.32	2.9.32	*Sterilization of Water Main Prior to Commissioning* Effluent from the sterilization of water main should be treated including dechlorination by physical process e.g. adsorption by activated carbon filter, or chemical process e.g. neutralisation by dechlorination agent dosing to ensure compliance with the discharge requirements stipulated in the TM-DSS. Adequate tanks with sufficient capacity should be provided to allow proper treatment of the effluent prior to discharge.	To minimize adverse water quality impact during construction in particular during sterilization of the completed water main	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance
3.7.33	2.9.33	The sterilization of the water main and the dechlorination process should be conducted at the launching site at Cheung Chau. As the site at Cheung Chau is designated for secondary recreational contact, the sterilization of the main should be scheduled during the dry season. The	To minimize adverse water quality impact during construction in particular during sterilization of the completed water main	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		Contractor should submit for the Engineer approval, details of the dechlorination process and any chemicals including dosage to be used.							
3.7.34	2.9.34	The Contractor should provide a dechlorination plant of sufficient capacity to contain and treat the sterilising water with high chlorine concentration before discharge. Details of the specification of the dechlorination plant should be submitted to the Engineer for approval. They should include but not limited to the following: • the nominal flow rate shall not be less than 36 cubic meter per hour; • the plant shall be capable of dechlorinating water with chlorine level up to 40 mg/litre; • the maximum chlorine level of dechlorinated water shall be <0.2 mg/litre; • the recommended contact time if dechlorination by adsorption with activated carbon filter is proposed; • a water meter or other measuring device shall be installed at the inlet pipe of the dechlorination plant to measure the amount of water treated, in cubic metres; and • sensors and data loggers for continuous measurement and record of chlorine level shall be installed at the inlet and outlet pipe of the dechlorination plant.	To minimize adverse water quality impact during construction in particular during sterilization of the completed water main	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
3.7.35	2.9.35	*In-situ* testing of total residual chlorine should be conducted every hour at the discharge point to ensure the chlorine concentration does not exceed the stipulated maximum level when dechlorinated water is being discharged.	To minimize adverse water quality impact during construction in particular during sterilization of the completed water main	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance
3.7.36	2.9.36	If the dechlorinated water exceed the allowed concentration, discharge must be suspended and the water should be circulated to a standby tank for further dechlorination and testing. The location of the sampling point will depends on the discharge point to be proposed by the Contractor. The Contractor should submit details of the proposed sampling location, frequency and equipment for verification by the ET Leader and approval by the Engineer before commencement of the sterilization work of the completed water main. The proposed sampling location(s) should be submitted to EPD for reference.	To minimize adverse water quality impact during construction in particular during sterilization of the completed water main	All works site / during construction	Construction Contractor		√		ProPECC PN 1/94 Water Pollution Control Ordinance
Water Quality - Operational Phase									
		Nil							

* D=Design, C=Construction, O=Operation
N/A Not applicable

Table A.4 Implementation Schedule of Waste Management Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
Waste - Construction Phase									
7.6.1	5.1.1	*General* The HKSAR Government's construction and demolition waste management policy follows the same hierarchy as for other wastes, i.e. in order of desirability: avoidance, minimisation, recycling, treatment and safe disposal of waste. During the construction period the Contractor, Engineer and environmental specialists (Environmental Team, Independent Environmental Check) should work closely together with a view to reduce the volumes of materials requiring removal and final disposal.	To reduce the volumes of materials requiring removal and final disposal	All works site / during construction	Construction Contractor, Engineer, Environmental Team and Independent Environmental Check		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process
7.6.2	5.1.2	Upon appointment, the main Contractor of each construction contract should prepare and implement an Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005 – "Environmental Management on Construction Sites" which should describe the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. The EMP should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The waste management plan now becomes part of the EMP. The EMP should be submitted to the Engineer for approval. The	Waste reduction, reuse, recycling and proper disposal of waste	All works site / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated (preferably monthly) by the Contractor. The EMP should take into account the recommended mitigation measures in the approved EIA Report.							
7.6.3	5.1.3	The Contractor should refer to the Construction and Demolition Material Management Plan (C&DMMP) to be conducted during the design stage of this Project to facilitate him in the preparation of the EMP. The C&DMMP should be endorsed by WSD's Vetting Committee and approved by the Public Fill Committee (PFC). WSD's Vetting Committee will monitor the implementation of the C&DMMP and report to Public Fill Committee in accordance with ETWB TCW No. 33/2002 during construction.	Waste reduction, reuse, recycling and proper disposal of waste	All works site / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.4	5.1.4	The Contractor should nominate an appropriate person, such as site agent or environmental officer, to be responsible for good site practices, arrangement for collection and effective disposal of all wastes generated at the site to an approved facility. Training of construction staff should be undertaken by the Contractor about the concept of site cleanliness and appropriate waste management procedures. The Contractor should develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		materials. Requirements for staff training should be included in the EMP.							
7.6.5	5.1.5	Good planning and site management practice should be employed to eliminate over ordering or mixing of construction materials to reduce wastage. Proper storage and site practices will minimise the damage or contamination of construction materials. Regular cleaning and maintenance of the waste storage area should be provided.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.6	5.1.6	Where waste generation is unavoidable, the potential for recycling or reuse should be rigorously explored. If wastes cannot be recycled, disposal routes described in the EMP should be followed. A recoding system for the amount of waste generated, recycled and disposed (including the disposal sites) should be implemented. In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No. 31/2004 for details.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004
7.6.7	5.1.7	Imported soft fill and rocks, if required, should be source from CEDD's fill bank, other projects or other approved sources instead of using new materials. Approval from the Engineer and all other relevant parties should be obtained by the Contractor before importation of the fill materials.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
7.6.8	5.1.8	The main staging area of the works should be located at the proposed launching site in Cheung Chau. Storage of equipment, materials, chemical waste and general refuse as well as the drilling fluid recycling system should also be located in Cheung Chau.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.9	5.1.9	*On-site Sorting, Reuse and Recycling* All waste materials should be segregated into categories covering: • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • spent bentonite for public filling facilities • chemical waste; and • general refuse for landfill.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.10	5.1.10	Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert wastes.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
7.6.11	5.1.11	The reuse of excavated materials within this Project should be adopted as far as practicable. The opportunity of reusing the material in other projects in Cheung Chau should also be explored.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during detailed design and construction	Detailed Design Engineer / Construction Contractor	√	√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.12	5.1.12	Sorting is important to recover materials for reuse and recycling. Specific area should be allocated for on-site sorting of C&D materials and to provide a temporary storage area for those sorted materials such as metals, concrete, timber, plastics, glass, excavated spoils, bricks / tiles and waste papers. If area is limited, all C&D materials should at least be sorted on-site into inert and non-inert component. Non-inert materials (C&D waste) such as bamboo, timber, vegetation, packaging waste and other organic materials should be reused and recycled wherever possible and disposed of to designated landfill only as a last resort. Inert materials (public fill) such as concrete, stone, clay, brick, soil, asphalt and the like should be separated and reuse in this or other projects (subject to approval by the relevant parties in accordance with the ETWB TCW No. 31/2004) before disposed of at a public filling facility operated by Civil Engineering and Development Department (CEDD). Steel and other metals should be recovered from demolition waste stream and recycled.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
7.6.13	5.1.13	The reuse of inert materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials. With the use of a crusher coarse material can be crushed to make it suitable for use as fill material where fill is required in the works. This minimises the use of imported material and maximises use of the C&D material produced.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.14	5.1.14	Prior to export of material from the site, the potential for it to be reused should be assessed. Most C&D material can easily be reused with minimum processing. Waste separation methods should be followed to ensure that C&D waste is separated at source. Suitable soft materials should be used for landscaping and grading of embankments. Fine material should be separated out and used as topsoil.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.15	5.1.15	The feasibility of using recycled aggregates in lieu of virgin materials should be rigorously considered during the detailed design and construction stages as stipulated in WBTC No. 12/2002 and ETWB TCW No. 24/2004. In general, recycled aggregates are suitable for use as fill materials in earthworks, road sub-base formation, and drainage works. Recycled aggregates can also be used in concrete (up to Grade 35) for mass concrete walls and other minor structures such as planter boxes, toe wall	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 24/2004 WBTC No. 12/2002

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		planters and pavement, etc.							
7.6.16	5.1.16	*Site Clearance / Demolition Materials* *Excavated Materials* All C&D materials should be sorted on-site into inert and non-inert components by the Contractor. Non inert materials (C&D waste) such as wood, glass and plastic should be reused and recycled before disposal to a designated landfill as a last resort (currently assume to be the WENT Landfill) via the Cheung Chau Refuse Transfer Station. Inert materials (public fill) should be reused on-site or in other projects approved by relevant parties in accordance with the ETWB TCW No. 31/2004 before disposed of at public fill reception facilities. Steel and other metals if any should be recovered from C&D materials and recycled.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004
7.6.17	5.1.17	Good quality reusable topsoil should be stockpiled for later landscaping works. Stockpiles should be less than 2 m in height, formed to a safe angle of repose and hydroseeded or covered with tarpaulin to prevent erosion during the rainy season and to minimise dust generation.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.18	5.1.18	Control measures for temporary stockpiles on-site should be taken in order to minimize the noise,	Waste reduction, reuse, recycling and proper	All work sites / during	Construction Contractor		√		Waste Disposal Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		generation of dust, pollution of water and visual impact. These measures include: • surface of stockpiled soil should be regularly wetted with water especially during dry season; • disturbance of stockpiled soil should be minimized; • stockpiled soil should be properly covered with tarpaulin especially when heavy rain storms are predicted; • stockpiling areas should be enclosed where space is available; • stockpiling location should be away from the water bodies; and • an independent surface water drainage system equipped with silt traps should be installed at the stockpiling area.	disposal of waste	construction					ETWB TCW No. 19/2005
7.6.19	5.1.19	The identification of final disposal sites for C&D materials generated by the construction works will be considered during the detailed design stage of the Project when the volume and types of C&D materials can be more accurately estimated. The Public Fill Committee of CEDD should be consulted on designated outlets (e.g. public fill reception facility) for public fill, whilst EPD should	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 34/2002 WBTC No. 12/2000

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		be consulted on landfills for C&D waste. The public fill to be disposed to public fill reception facilities must consist entirely of inert construction materials. Disposal of C&D waste to landfill must not have more than 50% by weight of inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.							
7.6.20	5.1.20	In order to avoid dust or odour impacts, any vehicle leaving a works area carrying C&D waste or public fill should have their load covered before leaving the construction site.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005 WBTC No. 19/2001
7.6.21	5.1.21	C&D materials should be disposed of at designated public fill reception facilities or landfills. Reuse of public fill materials at other construction projects is subject to the approval of the relevant project proponents, Engineer and/or other relevant authorities, such as LandsD, PlanD, etc. Furthermore, unauthorized disposal of C&D materials in particular on private agricultural land is prohibited and may be subject to relevant enforcement and regulating actions. The Contractor shall refer and strictly follow the trip-ticket system for the disposal of C&D materials as stipulated in	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 31/2004

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		the ETWB TCW No. 31/2004.							
7.6.22	5.1.22	*Bentonite* Bentonite slurry used in the drilling works should be treated and recycled at the works area in Cheung Chau. Any bentonite that is not suitable for recycling should be suitably dewatered before disposed of at public fill reception facilities.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005 WBTC No. 19/2001
7.6.23	5.1.23	*Chemical Waste* Where the construction processes produce chemical waste, the Contractor must register with EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD. An updated list of licensed chemical waste collector can be obtained from EPD.	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.6.24	5.1.24	Storage, handling, transport and disposal of chemical	Waste reduction, reuse,	All work sites / during	Construction		√		Waste Disposal (Chemical Waste)

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and should be collected by a licensed chemical waste collector.	recycling and proper disposal of chemical waste	construction	Contractor				(General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.6.25	5.1.25	Suitable containers should be used for specific types of chemical wastes, containers should be properly labelled (English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, stored safely and closely secure. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.6.26	5.1.26	Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed	Waste reduction, reuse, recycling and proper disposal of chemical waste	Work sites / During construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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		on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.							Chemical Waste
7.6.27	5.1.27	Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. If possible, such waste should be sent to oil recycling companies, and the empty oil drums collected by appropriate companies for reuse or refill.	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.6.28	5.1.28	The registered chemical waste producer (i.e. the contractor) has to arrange for the chemical waste to be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the Chemical Waste Treatment Centre in Tsing Yi). A trip ticket system operates to control the movement of chemical wastes.	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste

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7.6.29	5.1.29	No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	Waste reduction, reuse, recycling and proper disposal of chemical waste	All work sites / during construction	Construction Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging Labelling and Storage of Chemical Waste
7.6.30	5.1.30	Chemical waste should be stored in the works compound at Cheung Chau, no chemical waste should be stored in the works site at Lantau.	To minimize impacts on Lantau South Country Park	The work site at Lantau / during construction	Construction Contractor		√		EIAO-TM
7.6.31	5.1.31	The Contractor should prepare an Emergency Contingency Plan (spill response plan) for the Project to contain and remove accidental spillage of drilling fluids, chemicals and all hazardous materials on-site including fuels at short notice and to prevent or to minimize the quantities of contaminants from entering the nearby water bodies and affecting the sensitive habitats. Details of the requirements are presented in ***Chapter 3*** of the EIA**.**	To minimize impacts from accidental spillage of drilling fluids and chemicals on-site	All work sites / during construction	Construction Contractor		√		EIAO-TM
		General Works Waste							

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7.6.32	5.1.32	*Concrete Waste* Dry concrete waste (considered as public fill) should be sorted out from the other wastes and recycled for reuse or sorted out for disposal at designated public filling facilities.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
7.6.33	5.1.33	*Wooden Materials* All wooden materials used on-site should be kept separate from other wastes to avoid damage and to facilitate reuse. Timber which cannot be reused should be sorted out from other waste and stored separately from all inert waste before being disposed of to landfill.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
7.6.34	5.1.34	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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7.6.35	5.1.35	Only waste material need be taken to a landfill. It should be separated from recyclable wood and steel materials. As for all waste types these materials should be reused on-site or other approved sites before disposal is considered as an option. Disposal to landfill should only be considered as a final option. Contractors are responsible for storage of re-useable materials on-site.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005, 33/2002
7.6.36	5.1.36	*Municipal Waste* General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at designated landfill. A temporary refuse collection point should be set up by the contractor to facilitate the collection of refuse by licensed contractors. The removal of waste from the site should be arranged on a daily or at least on every second day by the Contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.37	5.1.37	For the works within Lantau South Country Park, the Contractor should ensure that all general refuse including food scraps and packaging materials generated by the workers are properly packed and removed from site daily at the end of each work shift.	To minimize impacts on Lantau South Country Park	The work site at Lantau / during construction	Construction Contractor		√		EIAO-TM

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		No refuse should be left in the works area at Lantau.							
7.6.38	5.1.38	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The contractor should also be responsible for arranging recycling companies to collect these materials.	Waste reduction, reuse, recycling and proper disposal of waste	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005
7.6.39	5.1.39	The burning of refuse on-site is prohibited under the Air Pollution Control Ordinance (APCO) (Cap.311).	Waste reduction, reuse, recycling and proper disposal of waste as well as air pollution control	All work sites / during construction	Construction Contractor		√		Waste Disposal Ordinance ETWB TCW No. 19/2005 Air Pollution Control Ordinance
Waste – Operation Phase									
		Nil							

* D=Design, C=Construction, O=Operation
N/A Not applicable

Table A.5 Implementation Schedule of Construction Noise Mitigation Measures

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
Noise - Construction Phase									
8.6.2	6.8.2	*Level 1 Mitigation – Use of Quiet Plant* The quiet plant used in the construction noise calculation is shown in **Table 8.4** and **Appendix 8.1** of the EIA. The Contractor can propose other suitable alternative equipment with similar or lower sound power level.	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process
8.6.3	6.8.3	The use of quiet plant is considered to be the most effective ways of alleviating construction noise impact. The Contractor should use quiet plant with sound power level lower than that stipulated in the TM-GW as the Level 1 mitigation for construction noise.	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process
8.6.4	6.8.4	The use of mini or lower power rating equipment (e.g. mini excavator) should also be considered where practical. This technique would be feasible and practical at some locations given the limited space available for using large size construction equipment and the small scale works involved such as the land-based water main in Cheung Chau.	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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8.6.5	6.8.5	The Contractor should take note of ETWB TCW No. 19/2005 – Environmental Management on Construction Sites which sets out the policy and procedures requiring contractors to, among others, adopt Quality Powered Mechanical Equipment (QPME).	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process ETWB TCW No. 19/2005
8.6.6 Table 8.4	6.8.6 Table 6.4	A list of quiet powered mechanical equipment (PME) recommended for use during construction phase is tabulated in **Table 8.4** of the EIA.	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process ETWB TCW No. 19/2005
8.6.8	6.8.8	*Level 2 Mitigation - Use of Temporary Noise Barriers* Since NSR 2 (as with most of the NSRs within the Project area) are typically low-rise village houses	To protect NSRs from noise during construction	The proposed launching site at Cheung Chau as	Construction Contractor		√		Environmental Impact Assessment Ordinance

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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		of not more than 3 storeys (NSR 1 is one storey), it would be effective to have noise screening structures or temporary noise barriers purposely-built along the site boundary to provide additional protection to NSRs close to the construction site boundary. This could be in the form of purposely-built site hoarding constructed from appropriate materials with a minimum superficial density of 7 kg/m^2. The noise barrier should have a vertical height of at least 4 m with a small cantilevered upper portion if necessary ensuring that the operating equipment can be shielded from the view of the NSRs. The temporary noise barrier should have no gaps or opening at joints. The Contractor should regularly inspect and maintain the noise barrier to ensure its effectiveness.		shown in Figure 8.2 of the EIA / during construction					Technical Memorandum on EIA Process
8.6.9	6.8.9	For the construction works which have the potential to exceed the noise standards on nearby NSR and whose line of sight cannot be effectively blocked by the temporary noise barrier, movable (mobile) barriers should be provided. Movable barriers of at least 2.5 m height with a small cantilevered upper portion and skid footing can be located within a few meters of stationary plant (e.g. generator) and within about 5 m or more of a mobile equipment (e.g. excavator), such that the line of sight to the NSR is blocked by the barriers.	To protect NSRs from noise during construction	All works site for NSRs whose line of sight cannot be effectively blocked by the temporary noise barriers / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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8.6.13	6.8.13	*Good Site Practices* In general, potential construction noise impact can be minimised or avoided by imposing a combination of the following good site practices as mitigation measures: (a) Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction period. (b) Construction plant should be sited away from NSRs. (c) Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. (d) Equipment known to emit sound strongly in one direction should be orientated such that the noise is directed away from nearby NSRs. (e) Material stockpiles and other structures (such as site offices) should be effectively utilised to shield on-site construction activities. (f) The Contractor shall devise, arrange methods of working and carrying out the works in such manner as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these measures are implemented properly. (g) In the event that new schools are built near	To protect NSRs from noise during construction	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
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		the works area, the Contractor should minimize construction noise exposure to the schools (especially during examination periods). The Contractor should liaise with the school and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract and to avoid noisy activities during these periods.							
8.6.16	6.8.16	*Public Relations Strategy* To maintain an effective communication channel with the public, a 24-hour hotline system should be established by the project office for the Contractor to receive any enquiry and complaint lodged by the public in respect of the Project. Upon receipt of enquiry / complaint, the Contractor (or its Environmental Team) should investigate the causes of the incident and take the appropriate action to rectify the situation. Periodic newsletters, information leaflets, notices or other means of communication should be provided to the affected villages, communities, and residents advising them the current progress, the schedule of works in future, the potential environmental impacts arising from the works and the corresponding mitigation measures. It is considered that such a close relation between the local communities and the project site office could ensure speedy resolution of any	To promote good public relation and maintain effective communication during construction	All works site / during construction	Project Office (Engineer) & Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process

EIA Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures and Main Concerns to addressed	Location / Timing	Implementation Agent	Implementation Stages*			Relevant Legislation & Guidelines
						D	C	O	
		environmental non-compliance and maintain an environmental standard acceptable to the local communities during construction.							
8.6.19	6.8.17	All the above construction noise mitigation measures should be implemented by the Contractor during the construction phase of the works. The location of the temporary noise barriers (including any mobile barriers) should be further reviewed by the Contractor during the construction stage based on the latest construction programme and contemporary conditions, including any changes with respect to NSRs. The Contractor should design, construct, operate and maintain the mitigation measures throughout the construction stage and as required by the Engineer. Before commencement of the works, the Contractor should submit to the Engineer for approval (as part of their method statement) details of the mitigation measures to be employed under the works. The Contractor's proposed mitigation measures should also be certified by the ET Leader and verified by the IEC to ensure the intended noise reduction effectiveness can be achieved.	To protect NSRs from noise during construction and to ensure the Contractor will properly implement the mitigation measures	All works site / during construction	Construction Contractor		√		Environmental Impact Assessment Ordinance Technical Memorandum on EIA Process

* D=Design, C=Construction, O=Operation
N/A Not applicable